

Final Report

Colorado Extreme Storm Precipitation Data Study

***Summary of accomplishments and work performed
February 15, 1995 through October 31, 1996***

**Thomas B. McKee
Nolan J. Doesken**

Climatology Report #97-1

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Colorado Extreme Storm Precipitation Data Study

Summary

The Colorado Extreme Storm Precipitation Data Study was undertaken in Colorado in response to ongoing scientific uncertainty regarding the magnitude (intensity, duration and area) of precipitation that can conceivably occur at high elevations in the Rocky Mountain region. This uncertainty has significant implications for spillway design, sizing requirements and overall dam safety policies in Colorado and in other western states.

Colorado has extensive land areas at elevations above 7,500 feet and many large and small reservoirs at high elevations. The study area for this project focused on areas in Colorado bounded by the Utah border on the western edge, the Wyoming border on the northern edge, the 5,000 foot (above mean sea level) elevation contour in eastern Colorado and the New Mexico border on the southern edge. Data on extreme storm precipitation amounts were also gathered from neighboring states having similar topography.

The Extreme Precipitation Data Study is the first step in a comprehensive effort, supported by the Colorado Department of Natural Resources, Division of Water Resources, to better understand extreme precipitation as a function of location and elevation and its impact on dam safety regulations. This study focused on observational precipitation and streamflow data during the period of instrumental record which dates back approximately 125 years. The results of this study are intended to be utilized in later project phases that will focus on numerical simulation of extreme storms at high elevations leading toward a better definition of extreme storms and their spatial variations.

More than 300 storms were identified by this study since the late 1800s that have produced very heavy precipitation either locally or over sizable areas in or near the mountains of Colorado based on a definition given in Section 2. Of this large set of heavy precipitation events, 36 extreme storms were identified that stand out as the heaviest storms of record for selected geographic regions of the state and the storms that must be considered when evaluating extreme precipitation and dam safety policies for high elevation areas of Colorado. This set of storms also becomes candidates for inclusion in future numerical modeling studies of extreme precipitation in elevated regions or in future deterministic studies of probable maximum precipitation (PMP).

One of the nagging problems that continues to plague extreme precipitation studies is uncertainty in the reliability of precipitation and flooding reports, especially for storms that occurred long ago. Efforts were made in this study to identify storms for which precipitation reports may be suspect, and some storms were removed from consideration when lack of reliability was apparent. However, thorough evaluations of data reliability were not performed for all storms.

Selected findings from the Extreme Precipitation Data Study include:

- The heaviest precipitation amounts and the largest number of extreme storms observed in Colorado have occurred along the Front Range from northwest of Fort Collins southward to Trinidad.
- The largest number of extreme storms affecting mountainous areas west of the Continental Divide have occurred in southwestern Colorado, most often during late summer and fall. Many of these storms contain moisture sources with tropical origin.
- The frequencies and magnitudes of extreme precipitation events are lowest in the northern mountains and northwestern valleys of Colorado.
- Precipitation amounts that have been observed associated with extreme storms are lower at high elevations than at lower elevations.

A complete listing of storms is presented later in this report along with descriptions on data sources and analysis methods. Four progress reports were written during the course of this study and provide more background and detailed description of data collection and analysis.

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Colorado Extreme Storm Precipitation Data Study

Introduction

This report summarizes the results of a nearly two-year study of extreme precipitation characteristics in Colorado. The primary goal of this project was to identify and document the heaviest storms that have occurred in or near the Rocky Mountains in Colorado. The criterion used to define heavy storms was any storm that exceeded the 100-year storm precipitation amounts for specified storm durations as published in the NOAA (National Oceanic and Atmospheric Administration) Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III – Colorado (1973). The critical properties of storms that determine their potential for producing flooding are precipitation intensity, storm duration and storm area. In many of the storms included in this study, particularly the local intense summer thunderstorms, only a limited amount of information is known about storm areas. However, because of the importance of area and duration, some storms with large areas or long durations were considered even though they may not have exceeded 100-year thresholds at any individual point.

The format for this report is consistent with the outline of the original proposal submitted to the State of Colorado, Department of Natural Resources Division of Water Resources in the summer of 1994. Activities and accomplishments are presented in the order described in the original proposal. Most of the work for this project was conducted by personnel of the Colorado Climate Center, Department of Atmospheric Science, Colorado State University. However, some tasks were performed with assistance of other organizations.

Activities and Accomplishments

1) *Compilation of hourly and daily precipitation data.*

The starting point for this project was the careful scrutiny of all archived National Weather Service precipitation records back into the 1800s and up through 1993. For each station and each month of record, the maximum observed precipitation for various durations was determined. For many stations with data going back prior to 1948, this required manual data processing and digitization. Maximum one, two and three-day precipitation totals were determined for 598 official stations where precipitation has been measured on a daily basis. For an additional 69 stations where precipitation has been measured hourly or more frequently, maximum one-hour, two-hour, three-hour, six-hour, 24-hour, 48-hour and 72-hour precipitation totals were determined for each month of record.

A database of observed monthly and annual maximum precipitation totals was assembled and is available at the Colorado Climate Center at Colorado State University. Examples of historic monthly maximum precipitation values for one site, Ouray, Colorado are shown in Table 1 and 2. Figure 1 shows a graph of ranked annual maximum precipitation amounts for specified storm durations at that same site. Similar information can be assembled for all National Weather Service data collection sites in Colorado where many years of data collection have occurred. Most stations have between 15 and 70 years of data, but several dozen sites have monthly and annual extreme values for at least 80 years. Maximum record lengths exceed 120 years at four sites, all east of the mountains.

Data from several other sources in addition to the National Weather Service were examined in order to obtain greater detail at higher elevations. Data from the U.S. Bureau of Reclamation San Juan Project, the National Atmospheric Deposition Program, the National Park Service, the Denver Urban Drainage and Flood Control District, local water departments and districts, the University of Colorado Long-Term Ecological Research Site on Niwot Ridge, the U.S. Forest Service and the Natural Resources Conservation Service were all investigated. For the most part, data from these sources were not incorporated into the Colorado Climate Center's precipitation database. However, monthly and annual maximum one, two and three-day precipitation amounts were digitized and saved for approximately 50 Natural Resources Conservation Service SNOTEL (SNOW TELEmetry) stations in the mountains of Colorado. Considerable data quality evaluations were required for these data, especially for data collected prior to 1984.

Extreme rainfall dates and amounts were identified using analyzed data from all of the data sources described above. In addition to serving as an excellent starting point for this extreme precipitation study, this data set will also be of great value if and when the original 1973 NOAA Precipitation-Frequency Atlas is updated.

2) Colorado Extreme Precipitation Storm List

The most essential and most time consuming portion of this study was the assembly of a comprehensive list of extreme storms that have been observed in Colorado or which occurred elsewhere in the Rocky Mountain region but which may be applicable to Colorado. The purpose of this investigative research was primarily to produce a sufficiently complete list of large storms so that it was nearly certain that the *largest* storms to have ever been observed in or near Colorado were captured. Secondly, by compiling a large list of storms, it is possible to learn the climatological aspects of extreme precipitation in and near the high elevations of Colorado and the central Rocky Mountain region.

Table 1. Maximum observed one-hour precipitation totals (in hundredths of an inch) by month and year for the National Weather Service cooperative weather station at Ouray, Colorado, 1947-1993.

Year	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1947								26	25		12	12	26
1948	18	10	27	15	17	9	20	23	14	13	18	11	27
1949	19	10	12	10	17	27	20	25	15	15	12	13	27
1950	14	21	14	0	0	10	19	31	17	4	9	18	31
1951	11	9	15	17	9	9	18	15	10	20	26	18	26
1952	9	16	14	15	15	1	52	36	10	0	10	12	52
1953	24	7	13	10	22	14	64	14	5	25	5	13	64
1954	3	13	11	4	32	18	24	8	27	15	16	14	32
1955	14	10	14	10	18	12	43	51	13	8	10	6	51
1956	16	11	2	17	10	19	17	15	4	14	10	12	19
1957	17	10	7	18	20	30	14	26	12	14	17	6	30
1958	9	17	9	6	29	5	6	29	44	30	26	3	44
1959	9	14	5	19	11	6	10	36	1	10	26	13	36
1960	13	17	30	21	13	4	21	10	25	15	20	7	30
1961	8	4	13	14	6	16	58	32	20	22	16	5	58
1962	10	8	23	13	16	4	17	17	37	26	11	8	37
1963	9	13	11	11	15	17	26	18	15	16	15	10	26
1964	14	7	9	10	19	5	19	61	18	11	12	14	61
1965	17	28	13	10	19	17	34	33	18	16	16	19	34
1966	12	7	16	12	10	18	25	46	21	12	10	20	46
1967	9	11	15	10	18	10	62	18	13	9	13	10	62
1968	13	15	6	18	18	3	39	16	12	14	8	10	39
1969	14	19	15	25	9	28	35	20	20	10	10	3	35
1970	15	10	7	13	8	26	13	35	29	13	11	10	35
1971	6	5	7	13	12	10	25	28	27	9	12	6	28
1972	10	5	12	11	7		16	10	18	18	12	12	18
1973	7	4	13	22	31	30	40	55	13	8	0	29	55
1974	10	15	13	9	2	14	17	9	11	10	18	9	18
1975	13	5	29	10	11	26	32	33	10	10	4	2	33
1976	9	12	8	11	18	10	26	6					26
1977			6	12	13	14	32	30	47	24	33	15	47
1978	10	6	14	19	8	6	31	15	15	18	19	10	31
1979	13	4	13	17	31	11	10	21	4	21	8	5	31
1980	8	6	8	15	15	0	12	12	10	15	11	7	15
1981	4	8	12	8	19	23	43	52	66	10	13	11	66
1982	15	11	11	9	12	12	23	33	17	8	8	11	33
1983	12	7	11	9	15	28	32	37	12	18	9	18	37
1984	6	7	8	12	0	20	16	15	16	23	10	10	23
1985	12	10	8	14	19	6	18	8	23	13	11	11	23
1986	16	7	10	12	11	108	26	27	27	25	26	6	108
1987	5	15	12	11	9	8	20	17	19	15	18	7	20
1988	10	5	24	10	14	24	15	18	26	11	17	14	26
1989	7	9	12	8	11	5	30	14	15	14	4	8	30
1990	8	12	19	16	15	14	37	13	40	20	10	10	40
1991	10	10	10	10	10	10	30	40	10	10	20	10	40
1992	20	10	10	20	20	10	60	20	10	10	10	20	60
1993	10	20	10	10	20	10	10	20	10	10	10	10	20
1994													
1995													
Max	24	28	30	25	32	108	64	61	66	30	33	29	108

Precipitation in 1/100 of an inch.

Table 2. Maximum observed one-day precipitation totals (in hundredths of an inch) by month and year for the National Weather Service cooperative weather station at Ouray, Colorado, 1893-1995.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1893						9							
1894											42	55	
1895	325	100	110	39	100	50	35	119	62	32	150	60	325
1896	40	90	70	70	70								
1914	90	83	60										64
1915	125	70	75										
1941	36	61	41	54	176	93	40	32	100	128	47	49	176
1942	40	30	45	73	35	20	34	38	66	69	15	40	73
1943	38	25	64	6	107	107	96	64	49	99	37	89	107
1944	43	15	175	150	20	94	59	43	32	91	96	43	175
1945	16	46	61	85	44	34	67	39	27	94	39	49	94
1946	40	17	88	57	75	6	42	54	23	65	71	30	88
1947	28	50	34	70	32	88	99	61	63	154	34	30	154
1948	25	49	78	101	46	47	39	27	25	44	40	37	101
1949	34	25	51	65	32	72	41	26	40	60	30	30	72
1950	56	72	48	0	0	43	50	48	46	24	89	33	89
1951	38	52	52	30	23	14	31	21	62	100	47	37	100
1952	24	44	39	51	40	5	66	60	47	4	22	31	66
1953	48	26	30	60	73	32	82	42	10	111	55	33	111
1954	10	29	20	12	50	20	79	19	66	37	54	45	79
1955	35	49	45	53	62	47	66	55	27	22	42	56	66
1956	49	26	36	54	26	28	53	34	10	56	39	25	56
1957	70	36	47	66	74	79	58	68	19	61	75	12	79
1958	54	66	22	74	29	12	16	38	62	65	60	27	74
1959	39	36	42	56	34	19	27	92	77	120	29	24	120
1960	65	73	76	77	56	29	37	16	66	40	44	61	77
1961	48	37	58	72	32	46	53	48	71	137	52	29	137
1962	32	58	61	57	104	16	33	20	85	119	45	20	119
1963	50	41	36	32	28	30	54	38	40	158	34	50	158
1964	29	42	47	50	33	25	39	112	37	13	96	38	112
1965	56	80	75	21	103	65	51	49	118	118	41	69	118
1966	22	20	25	81	24	43	50	55	33	43	34	120	120
1967	32	32	26	70	40	22	133	58	63	98	31	51	133
1968	41	110	21	36	41	8	56	45	36	62	28	67	110
1969	69	56	32	32	36	136	52	37	44	195	50	43	195
1970	32	22	46	60	32	47	38	88	129	69	107	31	129
1971	14	51	62	35	87	13	29	52	89	133	50	61	133
1972	30	16	46	41	19	20	53	20	62	124	44	70	124
1973	40	10	60	58	140	109	101	87	74	24	40	69	140
1974	41	62	42	54	2	66	39	19	47	32	76	41	76
1975	63	32	101	61	53	60	59	85	27	48	79	29	101
1976	62	70	41	74	42	13							
1977	52	76	51	61	21	66	62	87	129	71	66		
1978	63	23	65	56	41	19	49	45	40	123	133	83	133
1979	151	23	86	88	43	116	21	26	8	111	62	16	151
1980	68	60	47	37	45	0	19	33	19	65	41	23	68
1981	20	34	83	32	71	47	73	65	95	58	34	81	95
1982	55	66	41	47	210	16	45	123	66	51	56	45	210
1983	35	64	82	48	70	57	52	43	33	38	91	119	119
1984	39	81	70	82	52	80	50	40	56	111	41	58	111
1985	48	70	65	75	127	22	54	25	94	48	55	24	127
1986	49	45	85	98	74	131	80	69	111	42	131	32	131
1987	21	91	48	85	48	46	53	63	21	41	74	24	91
1988	36	67	109	41	115	45	25	75	118	16	99	67	118
1989	38	53	38	28	31	13	55	81	70	67	11	51	81
1990	12	71	114	162	71	16	72	47	89	103	82	18	162
1991	61	74	59	53	55	44	67	43	23	57	83	27	83
1992	40	46	111	64	100	61	90	43	29	47	68	74	111
1993	57	77	59	69	90	43	17	61	51	44	71	44	90
1994	74	59	39	55	34	30	47	39	52	85	60	51	85
1995	49	35	109	89	70	71	78	81	48	27	61		
1996													
Max	325	110	175	162	210	136	133	123	129	195	150	120	325

Precipitation in 1/100 of an inch.

Maximum Observed Precipitation Amounts for Specified Durations

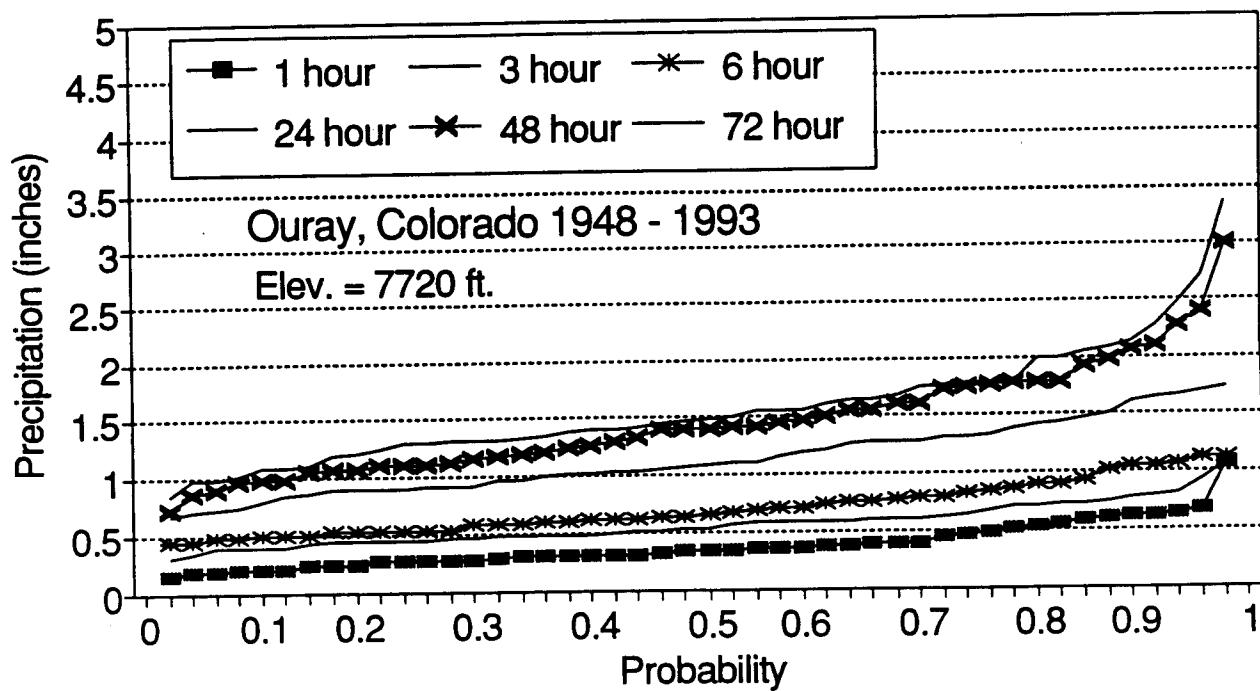


Figure 1. Ranked annual maximum precipitation totals for Ouray, Colorado, 1948-1993, for durations of one hour, three hours, six hours, 24 hours, 48 hours and 72 hours.

A variety of sources were used in determining the comprehensive Colorado storm list. The data described in section 1 above was a key starting point. Other important sources included **Storm Data** (a monthly government publication) reports, Colorado Climate Center records, special engineering and consulting meteorologist's studies, Colorado Department of Natural Resources Division of Water Resources flood reports, U.S. Geological Survey documents and reports including Water-Supply Paper 997, *Floods in Colorado*, by Robert Follansbee and Leon R. Sawyer, local site-specific Probable Maximum Precipitation consulting reports, and the formal federal Hydrometeorological Reports Technical Paper Report Series and Storm Rainfall in the United States. Special storm files maintained at the Denver Federal Center by the U.S. Bureau of Reclamation, Flood Hydrology Group were also utilized extensively. Local sources such as historical profiles and newspaper accounts were investigated to some extent, but this proved too time consuming.

A simple definition of Extreme Precipitation was needed in order to easily and quickly determine which storms qualified for consideration. Arbitrarily, it was determined that any storm that exceeded the 100-year storm precipitation amounts for the specified storm duration as published in the NOAA (National Oceanic and Atmospheric Administration) Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III – Colorado (1973) qualified for consideration. Also, storms that did not exceed published 100-year storm amounts but which were extraordinary in other ways – large in area, long in duration or some combination of both – also could be considered.

Storms that did not exceed NOAA Atlas 2, 100-year values were still included if they were already included on existing extreme precipitation lists such as those included in Federal Hydrometeorological Reports for this region.

Each storm was given a brief descriptive name, usually based on the town, river or other landmark nearest the center of heaviest precipitation. A state name was assigned to each storm based on the state in which the heaviest precipitation fell. (Note: with large general storms, several states may receive heavy precipitation at the same time.) The date listed for each storm was the date on which the heaviest precipitation fell or the period of consecutive days when a larger storm system or episode first began and finally ended. Each storm was assigned one or more geographical regions based on a simple 6-region system as shown on Figure 2. Storms were categorized using a highly simplified meteorological typing scheme: 1) General (G) storms which were large multi-state storm systems accompanied by a clearly defined low pressure system and/or frontal boundaries, 2) Local Convective (LC) storms which were localized thunderstorms or thunderstorm complexes not clearly associated with large-scale atmospheric lifting mechanisms, and 3) Local Convective Storms embedded within General storm systems (GLC). Storms with air masses of tropical origin were not treated or categorized separately. A single latitude and longitude was assigned to most storms based on an estimate of the coordinates where the heaviest precipitation fell.

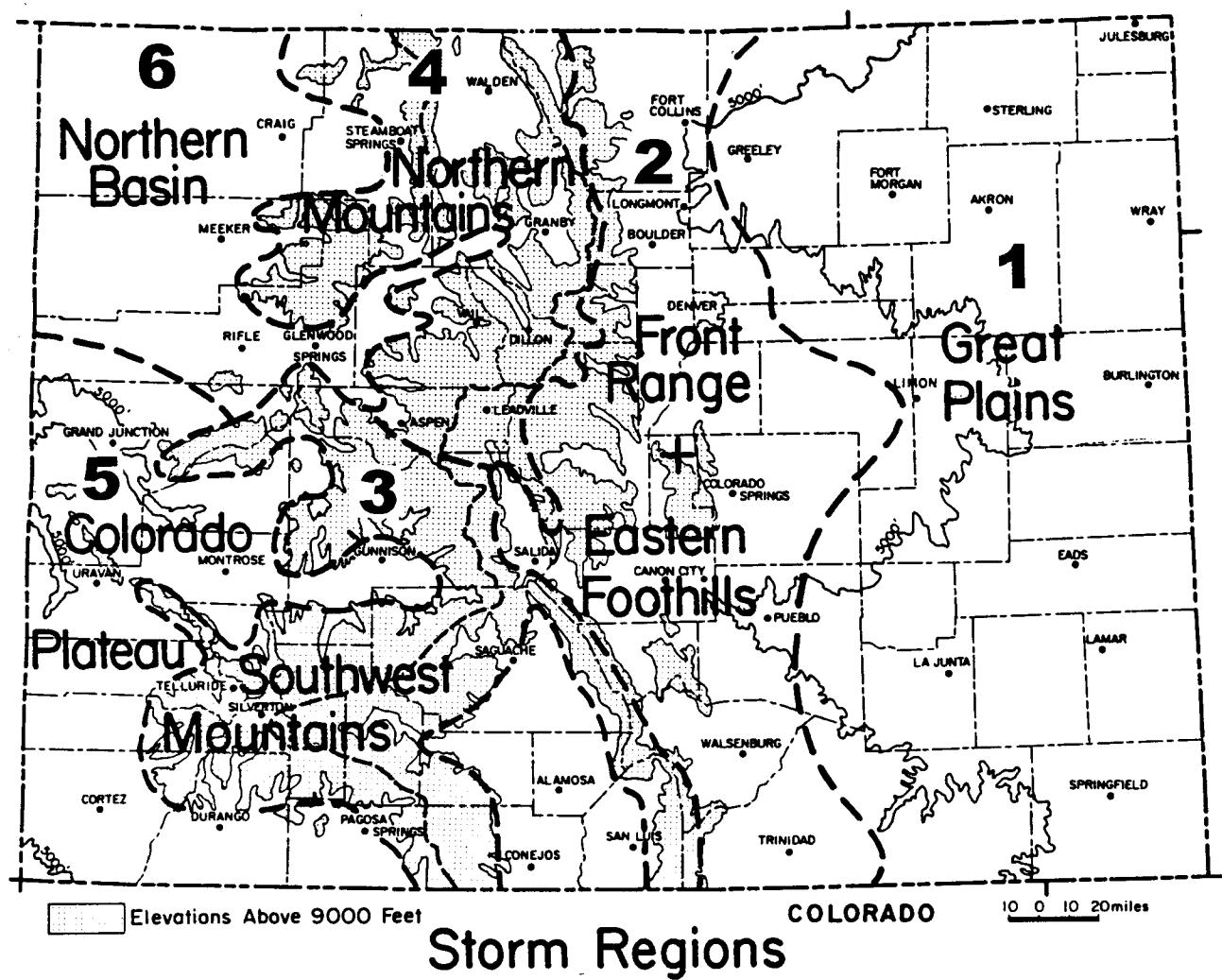


Figure 2. Approximate hydroclimatic regions of Colorado used to describe and characterize extreme precipitation events.

Two columns, "Maximum Precipitation" and "Remarks," were used to cryptically describe the heaviest rains associated with each listed storm. This was very inadequate for providing detailed storms descriptions, but was intended to provide sufficient information to a reader to allow a quick assessment as to the significance of the storm without additional research. For most storms, the "Maximum Precipitation" column listed the largest observed or estimated precipitation amount for each storm, if known. The "Remarks" column added supplemental reports or a very brief description of impacts. The storm list ends with two additional columns that indicate if information about the storm is on file at the U.S. Bureau of Reclamation Flood Hydrology Section at the Denver Federal Center and if a Depth-Area-Duration analysis has been performed.

The storm list contains very abbreviated information and was only intended to serve as an index. More comprehensive information for each storm is contained in paper files constructed and archived at the Colorado Climate Center on the Colorado State University Foothills Campus. These files contain a wide range of data which vary considerably from one storm to another. Examples include statewide precipitation data, copies of original hand-written observation forms, U.S. weather maps, *Storm Data* reports, upper-air soundings, isohyetal maps, depth-area-duration analyses, news accounts, and research reports. More attention was given to the approximately 30 most extreme storms. Little information was added to the files of the less significant storms due to time limitations imposed by the project. Streamflow data associated with each storm including total and peak discharge, areas affected and return-period analysis would be a useful addition to each storm file. Unfortunately, time and resources ran out before this step was completed.

An informal but very beneficial review process was utilized in assembling the storm list. A preliminary compilation of storms was distributed midway through the project to about 20 precipitation and flooding experts in Colorado. This review helped identify a number of additional storms and also pointed out some errors in the original list. Then in October 1996 near the end of this phase of the project, the Extreme Precipitation Committee, invited by the State Engineer reviewed final storm list results.

Appendix A is a copy of the storm list as it appeared at the end of the project period in October 1996. This list has proven to be fluid as new storms continue to come to our attention. This is especially true for local convective storms which are often small in size, short in duration and often not captured well by traditional data sources.

Evaluations of the validity of storm reports were conducted. Storms on the list that were considered suspect for any of a variety of reasons were marked as such and subjected to special scrutiny. They were not, however, removed from the comprehensive storm list since the precipitation records most likely appear as published and documented in several places and will likely be encountered in future precipitation studies. A special list of "Suspect" storms was compiled (see Appendix B). These questionable extreme storm reports were discussed by a committee of experts at a special project review meeting near the end of this portion of the project in October 1996. The results of this discussion

appear with the table in Appendix B. Some of these storms have already been studied in detail.

Large precipitation reports that are potentially significant to the design of high elevation dams and spillways but which appear totally or partially erroneous present serious problems in the analysis of extreme precipitation. Verification or disapproval of the validity of precipitation observations is a difficult process requiring detailed meteorological information and also local streamflow records. By associating properties of storms (area, intensity and duration) to observed runoff and streamflow conditions, validity of storms can be assessed. Results of selected storm evaluations follow:

There is considerable evidence that suggests that the Gladstone storm of October 1911 was a major and legitimate large storm. However, the local report of over eight inches of rainfall in 24 hours was considered questionable by several who have investigated that storm in detail. Reports of flooding were not consistent with widespread heavy rains of that magnitude. While the majority of committee members reviewing the storm doubt the validity of the individual Gladstone report, it is possible it could have occurred over a very localized area.

There is scientific agreement that several large rain reports during the 1930s from Leadville, including a 4.25" report in less than one hour in July 1937, were all inaccurate due to unrepresentative precipitation measurement methods which included the use of a special device for wind protection and improving winter snow catch that may have enhanced summer rainfall.

A recorded 5.25 inch rainfall in a short period at Cimarron in June 1952 appears to be the result of a gauge reading error by the observer. During a period of several years, a number of similar large daily precipitation amounts were reported by the same observer, suggesting a pattern of observational errors. Other reports included 3.60 inches on September 21, 1952 and 6.00 inches reported January 20, 1962. When these values were divided by 10, the Cimarron readings then were very consistent with reports from surrounding locations for each of those storms. In addition, there was no evidence of flooding associated with the June 1952 storm.

Most recently, a large high-elevation rainfall report of more than 4 inches in one day in August 1995 at the Wolf Creek Pass 1E cooperative weather station was investigated within a month of its occurrence. Again, improper manual rain gauge measurement procedures resulting in a factor of ten magnification were likely to blame. A substitute observer took the observation that day who may not have known proper procedures. The substitute observer was not available for comment. A remote automated precipitation gauge was operating within approximately one mile of that station and reported 0.40 inches. A team of USGS scientists were also in the area at that time. There was no evidence of erosion or high stream flows anywhere in that area that day. Because the storm was investigated quickly, the value was edited prior to digital archival at the National Climatic Data Center. However, anyone utilizing the original hand-written

record rather than the digital database, will encounter the most-likely-erroneous four-inch report.

3) *Upper Air Analysis*

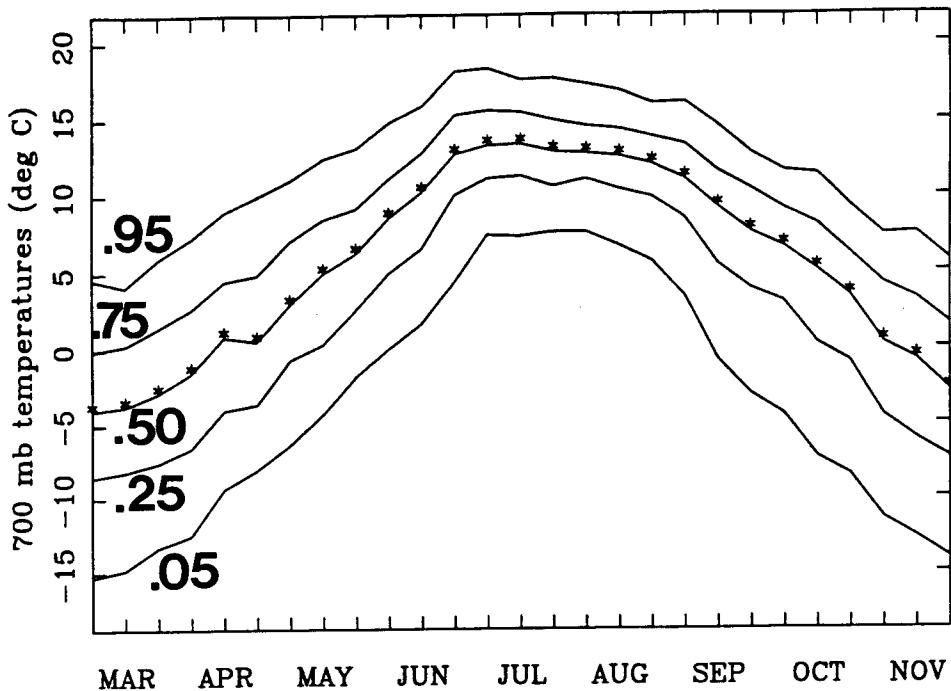
Vertical soundings of temperature, humidity, wind and pressure in the atmosphere above the ground have been taken on a regular basis at Denver and Grand Junction, Colorado, for several decades. These data were analyzed as a part of this project in order to provide a climatological perspective for evaluating extreme precipitation events occurring in or near the Rocky Mountains in Colorado. This may prove very important as we move toward greater utilization of numerical simulations of the atmosphere in understanding the relationships between elevation, topography and magnitudes of extreme precipitation.

Upper air data go back into the 1940s for Colorado, but only the 1958-1992 period was utilized in this study due to consistency in reporting times and locations. Only data through 1992 were easily available at the onset of this study. Prior to conducting analysis, key features of vertical profiles that could explain variations of extreme precipitation as a function of elevation were identified. Based upon these preliminary determinations, climatological analyses of the following variable were performed:

- Denver and Grand Junction 0000 and 1200 UTC temperature, humidity, and winds at three levels above the surface: 700 millibars (approximately 10,000 feet above sea level), 500 millibars (approximately 18,000 feet above sea level) and 300 millibars (approximately 30,000 feet above sea level).
- Precipitable water in the atmosphere from the ground surface up to 700 mb and 500 mb.
- Freezing level (height above sea level).
- Height above sea level and the temperature of the Lifted Condensation Level (the level in the atmosphere where clouds will form if air at ground level is lifted vertically until it becomes saturated).

For each of these variables, data for each sounding for 35 years were grouped in 10-day increments from March 1 through November 30 (when nearly all extremely heavy precipitation events in Colorado have occurred). Values were sorted, ranked and assigned probabilities of non-exceedance. Figures 3-6 show examples of the resulting probability distributions for Denver and Grand Junction, respectively, for each of several variables. These analyses provide a valuable climatological perspective from which extreme precipitation characteristics can be investigated. For example, typically temperatures aloft are warmest from late June into mid August. However, maximum precipitable water is limited to late July into August, but upper level winds at that time of year are normally quite light. Lifted Condensation Levels (LCL) are more complex since they relate to

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

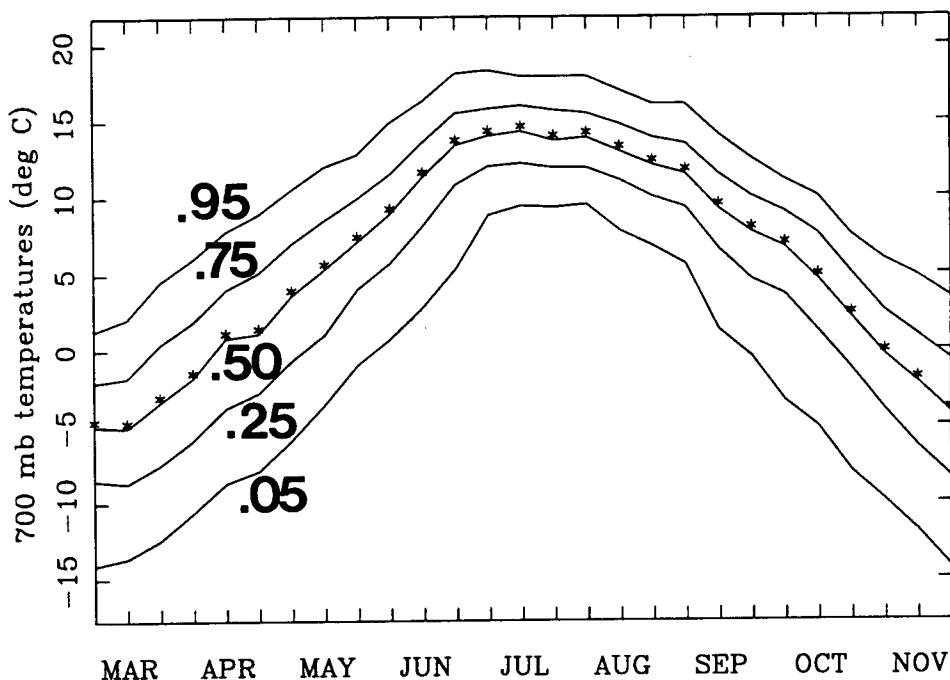
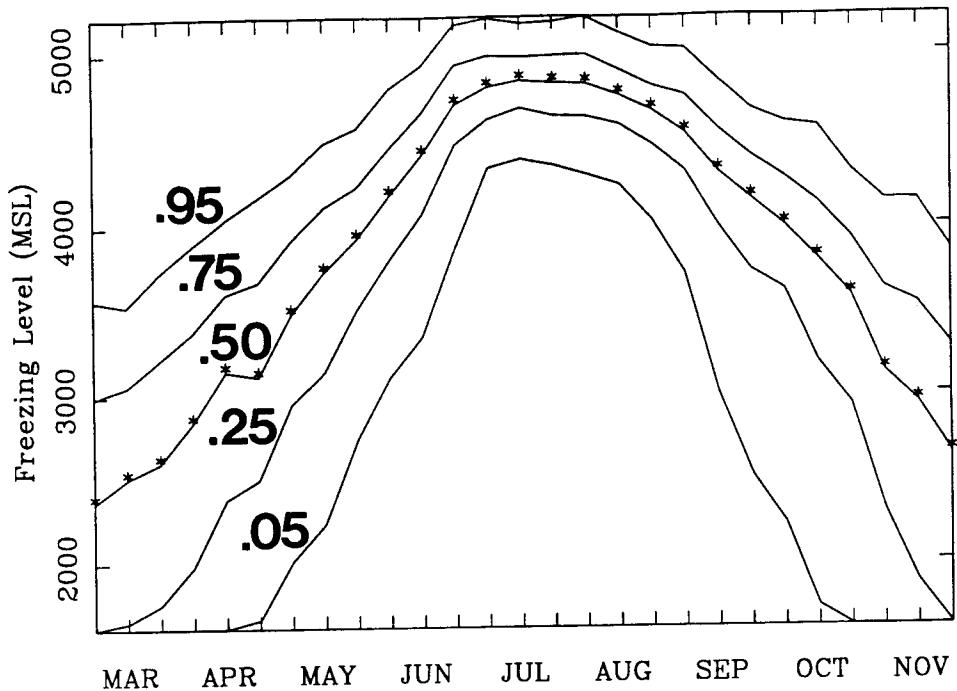


Figure 3. Non-exceedance probability distributions for 700 millibar temperatures ($^{\circ}\text{C}$) at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

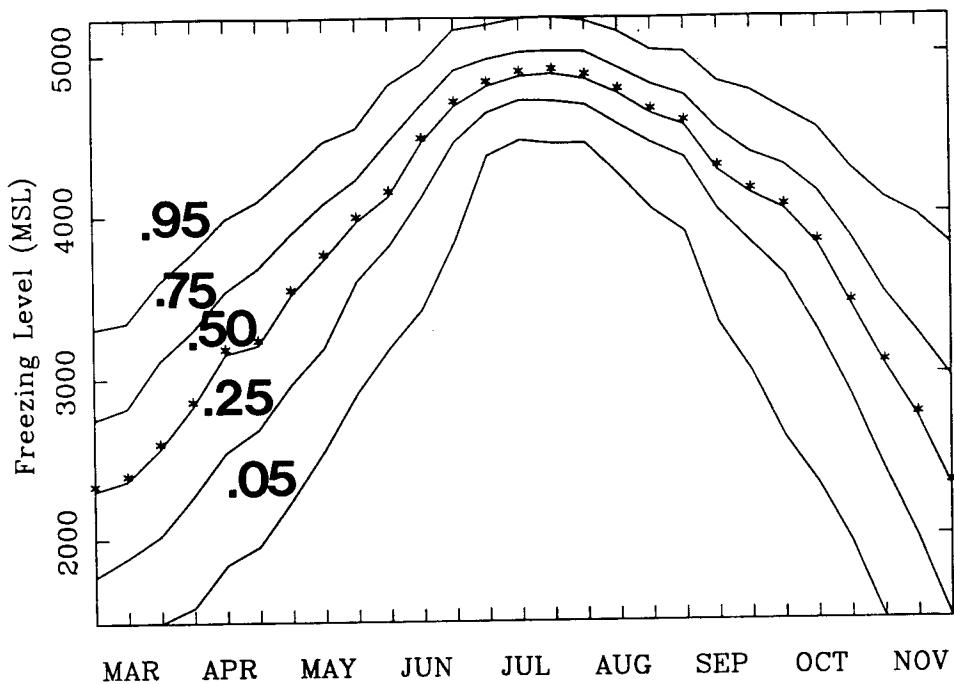
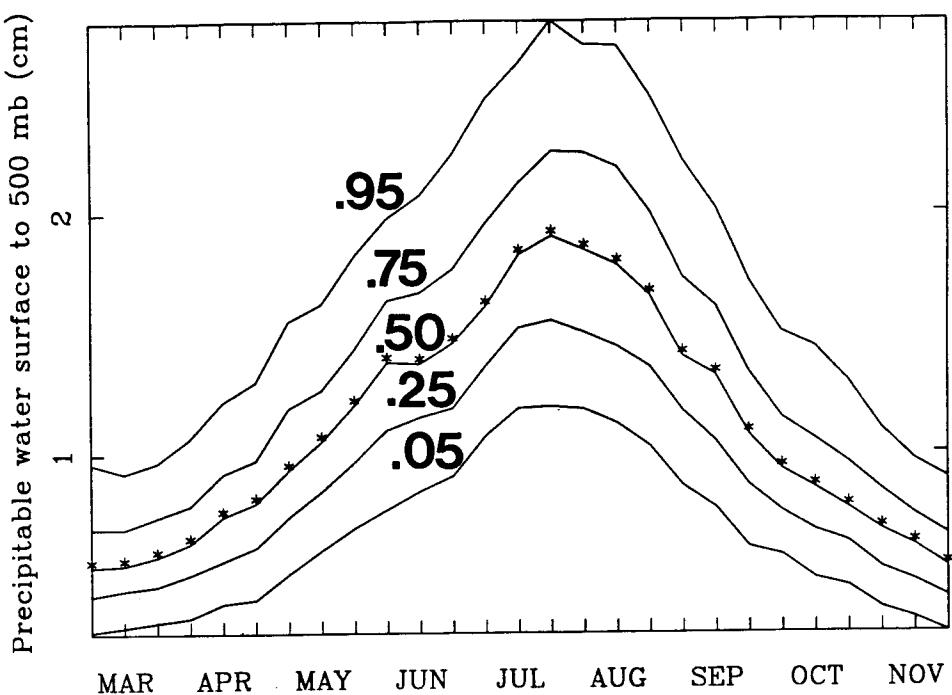


Figure 4. Non-exceedance probability distributions for the height in meters above sea level of the atmospheric freezing level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

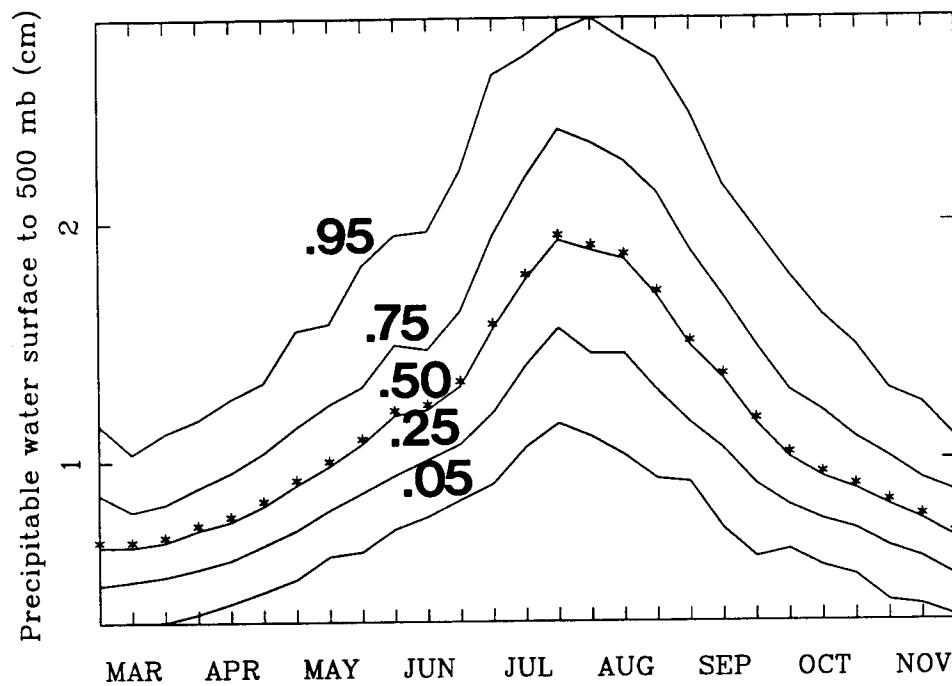
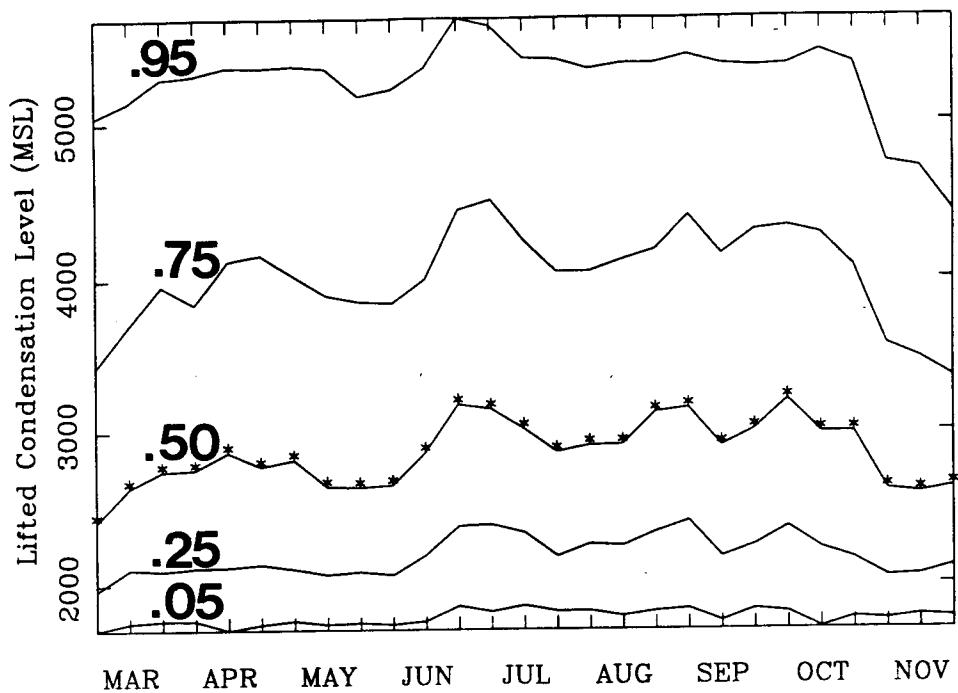


Figure 5. Non-exceedance probability distributions for the calculated depth of precipitable water (in centimeters) between the ground surface and 500 millibars at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

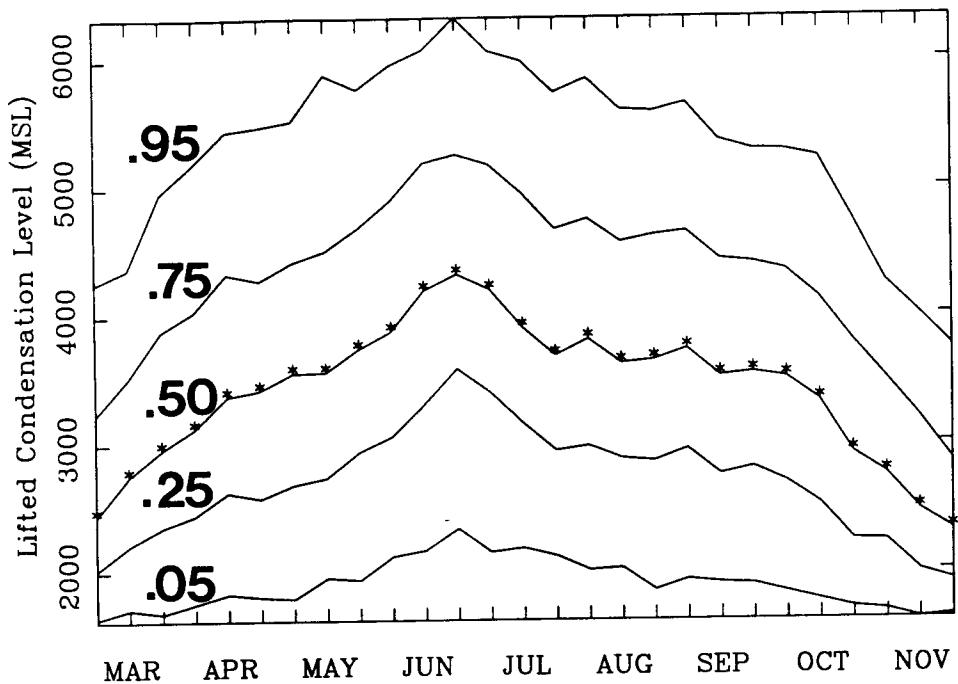


Figure 6. Non-exceedance probability distributions for the height in meters above mean sea level of the Lifted Condensation Level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

temperatures and humidity near the surface and the rate of cooling of the atmosphere with height. The height of the bases of convective clouds can be estimated using the LCL. It is interesting the cloud bases are typically highest in late June – a time when the frequency of extreme precipitation events in Colorado is low.

For each of the storms assembled on the final list of most extreme storms affecting Colorado that have occurred since 1958, soundings were extracted and examined both for Grand Junction and Denver and also for upper air sounding sites in adjacent states – Albuquerque, New Mexico; North Platte, Nebraska and Salt Lake City, Utah.

An item of particular interest in this study was determining how unusual upper atmospheric conditions were during extreme precipitation events with respect to the “normal” range of conditions shown in Figures 3-6. Soundings taken at Grand Junction and Denver near or during the time of several of the extremely heavy storms were analyzed and the results compared to the normal climatological ranges to see if those days stood out as extremely unusual in terms of any of these variables. What we discovered was that for nearly all of the storm events tested, sounding conditions for any single variable were not extreme. Precipitable water was usually more than the 50th percentile and often more than the 75th percentile but did not exceed the 95th percentile. Upper level temperatures varied widely. Freezing levels also were highly variable but were typically higher than the median, especially for summertime Local Convective storms. Lifted Condensation Levels were usually lower than normal, but not necessarily extremely low.

There are a number of reasons why these results are not surprising. First, the soundings were usually taken some distance away (both in time and space) from the extreme storm events in question. Therefore, these soundings did not truly indicate the atmospheric conditions in the immediate vicinity of each heavy rain storm. Secondly, a two-dimensional sounding, while informative, certainly does not describe all features of the three-dimensional atmosphere in which a storm develops and exists. For example, important features of surface convergence and upper air divergence will not be identifiable from a single sounding.

The environment of the storms have two critically important characteristics. One is the thermodynamic structure of the atmosphere and the second is the dynamic features of the atmosphere. The upper air sounding describes primarily the thermodynamic features. The dynamic features are equally important, but each individual sounding contains little information to define the dynamic environment. Consequently, the soundings produce useful but not definitive information about the storm environment.

4) USGS Streamflow Analysis

Streamflow data provide an alternative approach for investigating extreme storms. Through the integration of rainfall magnitudes (depth), storm area and duration, streamflow provides important evidence of both the existence and the extent of heavy precipitation.

Streamflow data available from the U.S. Geological Survey were utilized in this study to examine large storm events by identifying the magnitude and extent of observed high flows. Streamflow data were used in this study in two different ways. First, streamflow records from all portions of Colorado were examined to identify possible extreme storms that had not been detected by precipitation reports. Secondly, streamflow records were used in conjunction with extreme precipitation reports to help identify potentially suspect and erroneous precipitation reports. It is known and understood that extreme rainfall does not equate directly to extreme high flows so that rainfall may not be strictly inferred or verified solely from records of peak streamflow events. The storm area and duration along with basin geology, vegetation and land use all influence the amount of streamflow resulting from a specified magnitude of rainfall. For the purposes of this study, however, storms producing high streamflow were given greater weight than storms with similar maximum reported precipitation but yielding much lower streamflows.

Analyses of streamflow records, including both direct (gauged) and indirect (manually surveyed) observations, were conducted by John England, a graduate student in Civil Engineering at Colorado State University at the time of the project. Dr. Robert Jarrett originally developed this set of peak flow measurements. Dr. Jarrett of the U.S. Geological Survey in Denver, Colorado, along with Dr. Thomas McKee and Nolan Doesken of the Colorado Climate Center offered guidance and review. The results of this work are included in Appendix C.

This investigation of streamflow records produced several results and conclusions. The magnitude of observed peak flows associated with storms on this storm list were highly variable ranging from extreme peak flows of record for events such as the Big Thompson flood of 1976 and Plum Creek and related storms in June 1965 to relatively minor peaks associated with other large storms. For the purpose of selecting a final list of most extreme storms for future consideration, priority was given to storms that included both very heavy rainfall reports and large peak flows.

Not enough work was done in this project to fully utilize streamflow records to help identify very intense and usually quite localized convective storms that were not previously identified based on precipitation records. Several large unit discharges that could be associated with local storms of two to four inches of rainfall in short time periods (30 minutes to two hours) were observed from very small basins but were not looked at closely since streamflow volumes farther downstream on larger rivers were not significantly affected. Had there been more time and resources allotted for streamflow analyses, undoubtedly many more candidate Local Convective storms could have been identified and added to the list. This was not pursued, however, due to the relatively short

amount of time allocated to this project and also due to the fact that these storms did not appear to greatly exceed others already documented with both precipitation observations and streamflow information.

5) Site Specific Studies and Data From Other States

Evaluations of extreme precipitation are ongoing in other states outside of Colorado. Montana, Wyoming and Utah are or have been conducting studies pertaining to uncertainties in estimates of probable maximum precipitation affecting spillway design in the Rocky Mountain region. The National Weather Service Office of Hydrology has been completing an update of precipitation-frequency statistics including estimates of return period precipitation amounts for 100 to 1,000 years for the neighboring states of New Mexico, Arizona and Utah. Also during recent years there have been a small number of site specific analyses of probable maximum precipitation performed by meteorological consultants in support of water storage projects being designed and built. These reports could contain information about extreme local storms that may not have otherwise been included.

An effort to collect and assemble information on site specific studies and data from nearby states was undertaken with the help of Alan Pearson of the Colorado State Engineer's Office. A set of formal reports as well as informal data tabulations were assembled from surrounding states along with reports containing site specific evaluations of probable maximum precipitation for locations in Colorado. All reports were read, some were saved as a part of the hardcopy Extreme Precipitation Data Study archive at the Colorado Climate Center and other reports were returned as requested. Several additional storms from both in and outside of Colorado were identified as a result of this activity.

The following is a list of some of the reports and data sources assembled:

- A Centennial Survey of American Floods. Fifteen Significant Events in the United States 1890-1990. NOAA Technical Memorandum NWS SR-133. Fort Worth, TX. October 1990.
- Characteristics of Extreme Precipitation Events in Washington State. Washington State Department of Ecology, Water Resources Program. Melvin G. Schaefer. Olympia, WA October 1989.
- Estimating Bounds on Extreme Precipitation Events. National Research Council, National Academy Press. Washington D.C. 1994.
- Greatest Known Areal Storm Rainfall Depths for the Contiguous United States. NOAA Technical Memorandum NWS HYDRO-33, Silver Spring, MD, December 1976.

- Probable Maximum Precipitation over South Platte River, Colorado and the Minnesota River, Minnesota. Hydrometeorological Report No. 44, Washington, D.C., January 1969.
- Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages. U.S. Dept. of Commerce, U.S. Department of Army, Hydrometeorological Report No. 49. Silver Spring, MD, September 1977.
- Probable Maximum Precipitation Estimates – United States Between the Continental Divide and the 103rd Meridian. U.S. Dept. of Commerce, U.S. Department of Army, U.S. Dept. of Interior, Hydrometeorological Report No. 55. Silver Spring, MD, March 1984, and No. 55 A (revised), 1987.
- Probable Maximum Precipitation Estimates for Short Duration, Small Area Storms in Utah. Presented at the May 1995 American Association of Dam Safety Officials Western Regional Conference, Red Lodge, MT, May, 1995.
- Statistical Analysis of Extreme Precipitation in Wyoming (Master's Thesis), Daniel C. Eastwood, Dept. of Statistics, Univ. of Wyoming, Laramie, WY, August 1995.
- Evaluation of Design Criteria for Hazardous Dams (Master's Thesis), Jerry L. Buckley, Dept. of Civil Engineering, Univ. of Wyoming, Laramie, WY, August 1995.
- Paleoflood Reconstructions within the Animas River Basin Upstream from Durango, Colorado (Master's Thesis), Jonathan William Pruess, Earth Resources Department, Colorado State University, Fort Collins, CO, Spring 1996.
- Paleoflood and Streamflow Data to Describe the Spatial Occurrence of Rainfall and Snowmelt Floods in Wyoming (Master's Thesis), Dianne L. Brien, Department of Geology and Geophysics, University of Wyoming, Laramie, WY, May 1996.
- Interdisciplinary Paleoflood Investigation of the Muddy Creek Basin for Retschard Dam near Kremmling, Colorado. Dr. Robert D. Jarrett, U.S. Geological Survey Water Resources Division, Denver, Colorado, in cooperation with the Colorado River Water Conservation District, Glenwood Springs, CO 1996.
- Unique Meteorological Aspects of the Williams Fork Drainage Basin in Colorado. Loren Crow, CCM, Denver, CO, 1995.
- Site-Specific Probable Maximum Precipitation (PMP) Study of the Muddy Creek Drainage Basin in Colorado. Dr. Edward M. Tomlinson and Mark Solak. NAWC Report AR 94-4, North American Weather Consultants, Salt Lake City, UT, October 1994.

- Hydrologic Design Data Acquisition, Determination of an Upper Limit Design Rainfall for the Colorado River above Hoover Dam. Prepared for the U.S. Dept. of Interior Bureau of Reclamation by Morrison-Knudsen Engineers, Inc. March, 1989.

Several other site-specific studies of probable maximum precipitation have been done during the past several years for high-elevation watersheds in Colorado. These reports can be obtained from the Colorado State Engineer's Office in Denver.

6) *Reports and Presentations*

During the course of this project, there were several opportunities to present preliminary results at conferences and workshops. Three written papers were submitted and additional oral presentations were given, all prior to the completion of a final storm list. The opportunities to speak to a variety of audiences during preliminary phases of this project offered excellent opportunities to share the goals of this project with other storm experts and to encourage assistance in learning about extreme storms that have occurred throughout Colorado. The written papers are included in this final report in Appendix D. It is likely that presentations will continue to be given utilizing final lists and compilations contained in or discussed in this report, since there is considerable public interest in heavy precipitation in Colorado.

7) *Workshop on Potential to Model Extreme Precipitation Events*

a. Introduction

A workshop to discuss and evaluate the potential of mesoscale numerical models to simulate large convective storms at various elevations and to understand the variation of precipitation with elevation was held at CSU on April 19, 1996. The agenda for the workshop is given in Table 3 and the list of attendees is given in Table 4. The clear intent of the workshop was to explore the potential application of large state-of-the-art mesoscale numerical models with three-dimensional capability. Three models were included in the workshop. They are the Colorado State University Region Atmosphere Model System (RAMS), the National Center for Atmospheric Research (NCAR) MM5 model, and the model developed by Terry Clark at NCAR. These three models encompass most of the capabilities of present-day numerical meso-scale simulations.

One of the purposes of the workshop was to help reduce the uncertainty of the present understanding of the variation of extreme rainfall as a function of elevation. Two separate perspectives exist in the literature regarding the variation of extreme precipitation with elevation on the Front Range of Colorado. Firstly, the estimates of Probable Maximum Precipitation (the maximum rainfall that nature can produce) including 24-hour

precipitation amounts of at least 15 inches above 10,000 feet (see Hansen et al., 1988). Secondly, the analysis of streamflow by Jarrett and Costa (1982) shows the peak streamflow on many streams in the Front Range above approximately 7,500 feet are due to snowmelt and not extreme rainfall events. The paleohydrologic work by Jarrett and Costa (1988) to estimate past floods would suggest that the stream channels above 7,500 feet have not experienced large rain produced floods in the past 10,000 years. These two perspectives are not necessarily in conflict, but they do raise a significant scientific question of what level of probability of a storm event should dams be expected to provide protection from floods. If the numerical models could simulate large rainstorms at higher elevations, the controlling physical processes could be identified and used to improve our understanding of this phenomena.

The format of the workshop was to start with a series of presentations by individuals with experience developing and/or using large models. They included Bill Cotton (CSU), Terry Clark (NCAR), John Snook (NOAA) and Harry Orville (SDSMT). Lou Schreiner also gave a brief discussion of the plans of the USBR to use models to contribute to the PMP work.

b. Presentation summary

Bill Cotton's presentation included a series of experiences with the CSU-RAMS model and some speculation of the use of RAMS to simulate storms at higher elevations with heavy rain. He indicated that a spatial resolution of 1-2 km would be required to simulate large storms. He anticipated the environment of the large storms includes:

- synoptic ridge
- shortwave trough
- low level jet
- stationary front
- weak winds aloft
- weak vertical shear

Initialization of the model is very important and information of soil moisture and vegetation is really needed. He hypothesized that dry soil at higher elevations could lead to stronger upslope winds in developing convection.

In regards to the idea that there might be an elevation limitation on heavy rain, he thought high mixing ratio air might be used by storms before it gets to high elevations and that much of the high elevation precipitation could fall as hail. He talked about the complexity of the cloud microphysics and indicated that the newest version was not running in the model at this time.

Terry Clark discussed the use of the Clark model in several areas which included wind storms, forest fires, and a project specifically related to precipitation in Arizona for both summer flash floods and winter precipitation. He showed comparisons of model simulations with observations of precipitation. Results of the comparisons indicated the

model can produce quantitatively good precipitation estimates both in magnitude and spatial location. These results include mesoscale phenomena with considerable spatial variation. He indicated a 2.7 km grid had been used and increased resolution would be desirable for convection. He thought increased spatial resolution would also increase precipitation in some locations. He would like to see the model simulate rain and then include the simulation of run-off.

Lou Schreiner presented an outline of how he saw the Bureau of Reclamation using large models. He is primarily interested in estimates of Probable Maximum Precipitation which is the maximum storm that nature can produce. He would like the models to be able to help with estimates of PMP on the plains and in the mountains, in regard to the transposition of storms from one location to another, and in variations with elevation. He plans to utilize the existing models.

John Snook has been running the CSU-RAMS and the NCAR-MM5 model in essentially an operational mode at a horizontal resolution of 10 km for Colorado starting each 12 hours. He used a special NOAA system to obtain data analyzed on a 10 km grid for initialization. At present the system is constrained by computer resources and real-time operational requirements. His evaluation is that the mesoscale models are capable of providing reliable answers to large convective storms. He agreed that the grid spacing must be smaller than 10 km.

Harry Orville (South Dakota School of Mines and Technology) spoke primarily about the Black Hills of North Dakota which are dimensionally approximately 200 km in the north-south direction and 100 km in the east-west direction with elevations much lower than the Rocky Mountains. He showed a series of very detailed simulation results for the 1972 flood event in the Black Hills. This event had up to 15 inches of rain. He talked about 2D and 3D simulations. He thinks quite a lot can be learned from the 2D simulations, but the 3D model results are needed to locate the storm relative to the topography.

c. Discussion

The discussion following the presentation included all of the participants and was orientated to four topics which included:

- capability to simulate events,
- capability to verify events,
- time and cost.

Most of the time was spent on the first of these topics but a summary of each is given here.

Each group using the models (Clark, RAMS, MM5) thought the models could be used to simulate large convective storms successfully. Everyone agreed the grid spacing had to be near 1 km. More discussion emerged regarding initialization, cloud microphysics, surface vegetation and soil moisture, and use of 2D versus 3D models.

Two views emerged in regards to initialization. One was that past storms could be simulated with a moderate effort. The second was that the initialization was a significant problem and that more progress could be made by watching for good cases in the future and then perturbing the conditions to make the storm rain more than it actually did or to move the storm from one location to another. Both views have merit and both should be considered worthwhile. A caution was raised that some of the past storms may not have enough information available for simulations.

The discussion of cloud microphysics had two thrusts. If higher elevations are involved and some of the precipitation could fall as ice, then the more sophisticated microphysics versions will be required. If temperatures are warm enough that all precipitation will be rain, then the group had more diversity in their opinions about the need for sophisticated microphysics. The need to understand how the storms change as they occur at different elevations led to more agreement about the need to use advanced cloud microphysics.

The importance of surface vegetation and soil moisture was raised as a concern but no uniformity of opinion was reached. Several participants thought the sensitivity of the models to variations in these parameters should be explored. The main idea is that dry soil could lead to warmer surface temperatures and could lead to larger inflow wind speeds and perhaps a way to give preferential locations for storm development. Everyone was concerned and uncertain how information about soil moisture could be obtained.

Experience in the Black Hills area indicates that 2D and 3D model simulations can be important to understand large storm characteristics. Due to cost and time involved in the simulations, many more 2D simulations can be done for given resources but the 3D is needed to get the most information about storm structure and the three necessary storm properties of depth, area, and duration. A critical reminder that the Black Hills do not extend above 7,500 feet is always needed. One conclusion is that 2D simulations may have utility when applied to Colorado's high elevation topography.

The capability to verify large storm events is related to the current system of radars, surface and upper air observations, and analysis of these data. The new WSR-88D radars (Cheyenne, WY; Denver, Pueblo, and Grand Junction, CO) have a high probability of capturing most storms and will observe storm area and duration well with total precipitation somewhat less accurate due primarily to effects of ice and hail. The radar will also provide observation of wind in the storms that can be compared with model simulations. The conclusion of this discussion was that a major effort should be made to capture all data related to future large storms.

The discussion of time and cost were not as definitive as the other topics. The discussion centered on ideas put forward by CSU and NCAR. Much of the discussion centered on the time and cost to simulate storms from the past. This dealt with the question of initializing the models. Each group agreed that once one of the large storms had been simulated well then others would be easier and quicker. Each group agreed that

simulating a storm with current information for initialization would be quicker and less costly. Another interesting part of the discussion was related to the question – once a large storm has been simulated, how do we move the storm in the mountain areas to another location at higher or lower elevation? This will not be known until several methods are tried to learn what is successful. It was clearly recognized that the ability to move storms to slightly different areas was important to future planning and decision-making in Colorado. The estimates of cost and time while not precise, were targeted near a total of \$300,000 and 2 years. A final comment is that the confidence in the results of the model simulations would be much higher if two different models produced similar results.

**Table 3. Meeting Agenda for
Workshop on the Potential to Model Large
Convective Storms in Complex Terrain**

Friday, April 19, 1996

Tom McKee, Coordinator

Room 113, H. Riehl Conference Room
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado

8:30 am	Light breakfast
9:00	Welcome and Introduction – Tom McKee, CSU
9:15	Historical Storms and Scientific Uncertainty
9:45	Model Perspective – Bill Cotton, CSU
10:15	Break
10:30	Model Perspective – Terry Clark, NCAR
11:00	New Project – Lou Schreiner, USBR
11:30	Model Perspective – John Snook, NOAA
noon	Catered Lunch
1:00 pm	Experience in the Black Hills – Harry Orville, SDSMT
1:30	Discussion of Current Status and Plans
2:30	Break
2:45	Definition <ul style="list-style-type: none">1) Capability to simulate events2) Capability to verify events3) Time and effort4) Cost
3:30	Summary
4:00	Adjourn

Table 4. List of Attendees

Workshop on the Potential to Model Large Convective Storms in Complex Terrain

Friday, April 19, 1996

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8) Recommended Final Storm List and Associated Data Resources

The culmination of the Extreme Precipitation Data Study was the selection of a subset of extreme storms that represent the heaviest rains that have been documented in Colorado in the various regions of the state during the period of instrumental record. A recommended set of storms was presented at an all-day meeting of the Extreme Precipitation Committee convened by the State Engineer's Office on October 24, 1996. Based on recommendations of the committee, a few minor changes were made to the proposed list with the final results appearing in Table 5. Approximately 10 percent of all storms on the overall storm list were included in this final set. Note that the majority of storms on this list have occurred since 1950. For storms with relatively similar rainfall amounts and peak flows, more recent storms were selected due to greater availability of supporting meteorological data (radar, satellite, soundings, surface observations, etc.) that could be essential for numerical modeling applications.

Table 5. Recommended final list of storms for consideration in investigating extreme rainfall potential in the Rocky Mountain region of Colorado. Locations of climatic regions are shown on Figure 2, page 7.

No.	Storm Name	Date	Maximum Precipitation	Climatic Region
15	Western Colorado	Oct. 10-15, 1899	5" widespread	6
23	Livermore/ Boxelder	May 20-21, 1904	8"	2
40	San Juans/ Gladstone	Oct. 4-6, 1911	4-8"	3
61	Penrose/ Pueblo	Jun. 2-6, 1921	6-12"	2
63	Steamboat Springs	Jun. 14, 1921	3"	4 and 6
76	Mesa Verde	Aug. 3, 1924	3.5"/ 45 minutes	3 and 5
74	Savageton, WY	Sep. 27-29, 1923	17" in two days	1 and 2
79	Palisade Lake	Jun. 26-29, 1927	4-7"	3
99	Cherry Creek/ Hale	May 30-31, 1935	12-24" local centers	1 and 2
113	Front Range	Sep. 2-3, 1938	6-10"	2
114	Masonville	Sep. 10, 1938	5-7" in 1 hr.	2
135	Lake George	Jul. 31, 1945	3.45"/ 1 hr. elev. 8,500 ft.	2
157	Western Colorado	Dec. 29-31, 1951	9" snow water equivalent	3,4,5,6
164	Rye	May 18-20, 1955	6-13"	2
173	San Luis	Aug. 12, 1957	2.9"/ hr. at 8,000 ft.	3
174	Gateway	Aug. 21, 1957	3"/ 1.5 hr.	5
175	Morgan, UT	Aug. 16, 1958	6-8"	6
181	Pyramid	Sep. 20-24, 1961	3-5"	4 and 6
200	Plum Creek/ Holly	Jun. 16-17, 1965	14-16"	1 and 2
195	Gibson Dam, MT	Jun. 6-8, 1964	16"	2 and 4
215	Blanding, UT	Aug. 1, 1968	4-6"	5
217	Paonia	Aug. 8, 1968	4-5"	5
220	Big Elk Meadows	May 4-8, 1969	6-14"	2 and 4
231	SW CO/ Dove Creek	Sep. 4-6, 1970	6"	3 and 5
234	Rapid City, SD	Jun. 9, 1972	15"	2
237	SW CO/ Durango	Oct. 19-20, 1972	5"	3 and 5

Table 5. Recommended final list of storms for consideration in investigating extreme rainfall potential in the Rocky Mountain region of Colorado. Locations of climatic regions are shown on Figure 2, page 7.

No.	Storm Name	Date	Maximum Precipitation	Climatic Region
242	Sweetwater	Jul. 12, 1976	6"	4 and 6
243	Big Thompson	Jul. 31, 1976	12"	2
256	Frijole Creek	Jul. 2-3, 1981	8-16"	2
270	Jim Creek	Jul. 20, 1983	2" in brief period/ high elev.	4
277	Redstone	Jun. 5-8, 1984	3"	3 and 4
304	Deadman Hill	Aug. 1, 1989	2.8" at high elev.	4
306	Opal, WY	Aug. 16, 1990	7"/ 2 hrs.	6
312	Rifle/ Govnmt. Creek	May 15, 1993	4"/ 2 hrs.	6
313	Delta/ Roubideau	Aug. 10, 1993	4"/ 2 hrs.	5
315	SW CO/ Wolf Creek	Aug. 27-30, 1993	3-6"	3

It is worth noting that the list of storms includes a subset of 11 storms that produced more than 10 inches of rainfall that stand out as by far the greatest rains reported in Colorado this century. No storms of this magnitude appear in the observed data in the high mountains or over western Colorado. By far the greatest propensity for such storms is along the eastern base of the Rocky Mountain foothills. Numerous other Front Range storms were not included on the final storm list even though their precipitation amounts may have significantly exceeded reported extremes for other areas of Colorado. Specific attention was given to include the most extreme observed General and Local Convective Storms for higher mountain and Western Slope locations even though rainfall amounts for these storms may be significantly less than Front Range storms.

Two consulting meteorological firms already familiar with extreme precipitation characteristics and the application of the probable maximum precipitation concept in the Rocky Mountain Region were hired as consultants to the Extreme Precipitation Data Study during the summer of 1996 to expand project expertise. The result of this participation was more detailed information on extreme storms that influence probable maximum precipitation estimates at higher elevations in Colorado. A portion of this consulting work was completed after the October 24, 1996 storm list review meeting. Written information about individual storms provided by the consultants; Henz Meteorological Services of Denver, Colorado and Dr. Ed Tomlinson working through North American Weather Consultants of Salt Lake City, Utah; were filed in the appropriate storm files and will be retained at the Colorado Climate Center.

Recommendations – Data collection needed to improve future estimates of extreme precipitation in the Colorado mountains.

Despite this intensive study of observed extreme precipitation in Colorado, there will continue to be debate and uncertainty concerning just how heavy high elevation rains could conceivably be. Some of this uncertainty is well justified considering the sparsity of long-term precipitation records at elevations above about 9,000 feet in Colorado.

Figure 7 shows the maximum observed one-day precipitation amounts for Colorado weather stations as a function of elevation. This figure is intended to give a visual perspective of the variation of rain with elevation although some data points in Fig. 7 could be snow. A set of large one-day amounts which may be in other reports but are not included in Fig. 7 are given in Table 6 with the appropriate explanation of the occurrence of snow or an error of including two-day precipitation totals. The 8.05" at Gladstone on October 5, 1911 is questionable but it was a large rainstorm and has not been rejected for this figure. Except for the SNOTEL data, very little long-term data have existed at high elevations. Only a few of the SNOTEL data points include 15 years of data, and no SNOTEL sites in Colorado include daily observations prior to 1978. Due to this lack of observations in critical high-elevation locations, it is imperative that ongoing efforts be made to detect and describe extreme rainfall events at high elevations. Streamflow records exist for high elevation watersheds, and these records along with paleoflood evidence continue to point to a lack of extreme events, or more accurately, lower magnitude extreme events at high elevations above 7,500-8,000 feet in Colorado. However, with little corroborative meteorological evidence, uncertainty remains. Therefore, it is imperative that additional data be collected now and into the future if we wish to improve the confidence and widespread acceptance in the estimates of probable maximum precipitation in the Rocky Mountains.

A set of recommendations follow which suggest a variety of strategies and data collection activities that, if followed, would result in data that would greatly enhance and provide more confidence in future estimates and analysis of extreme precipitation.

- 1) Recently deployed National Weather Service WSR-88D meteorological radar installations near Denver, Pueblo, Grand Junction and Cheyenne, Wyoming offer better coverage of Colorado including most mountain areas and better remote rainfall estimation potential than at any time in history. Quantitative precipitation estimates may still be problematic, but radar reflectivity patterns will permit much improved analysis of storm areas and durations. These variables may hold the key to understanding high elevation storm characteristics. Therefore, NWS radar data should be collected and archived, and research efforts should be initiated to investigate storm characteristics over the mountains and how storm properties vary as a function of ground elevation near the storm areas. Particular emphasis should be made to assure radar data collection for the true extreme storm events comparable to those listed on Table 5.

Maximum 1 day Precipitation vs. Elevation

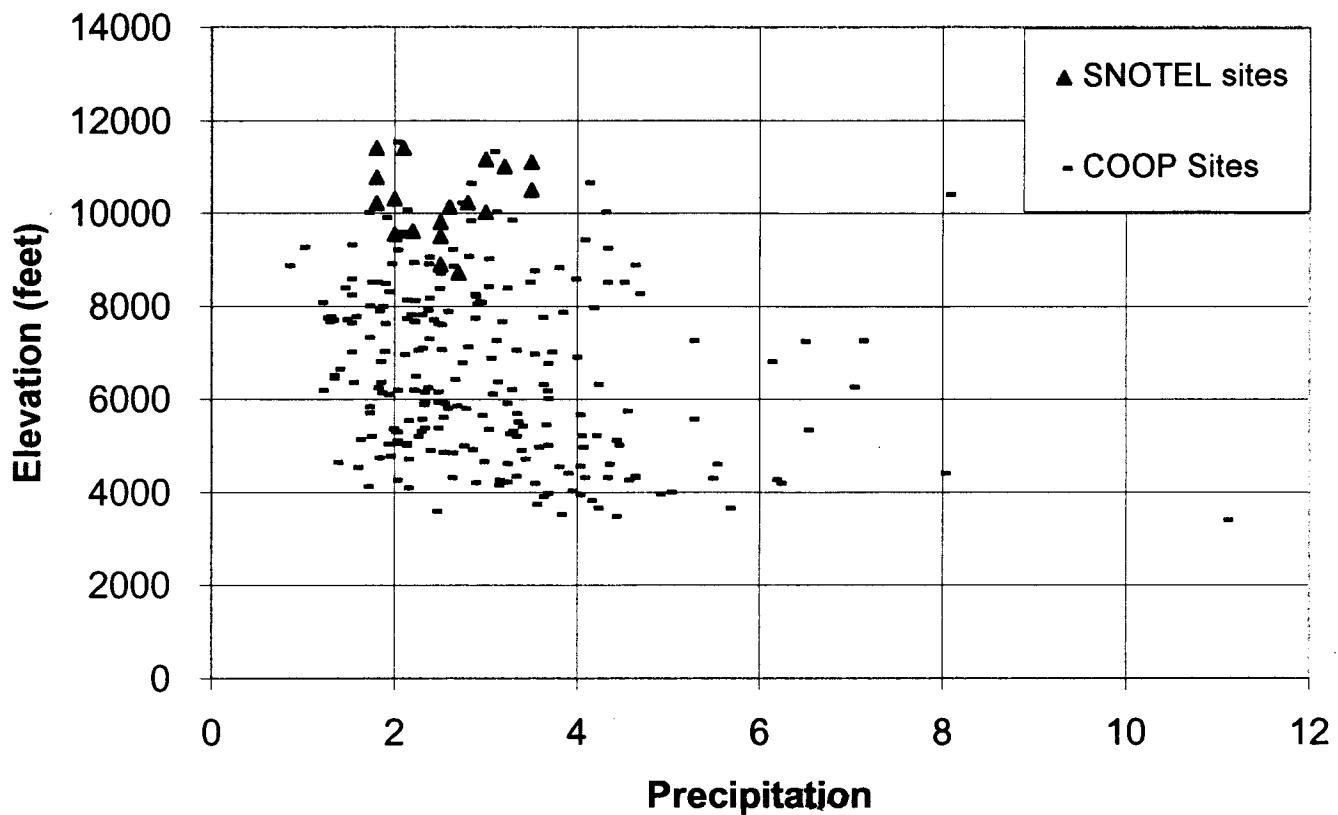


Figure 7. Maximum observed one-day precipitation amounts (in inches) as a function of elevation for Colorado weather stations and SNOTEL sites.

Table 6. One-day precipitation amounts not included in Figure 7.

Precipitation (inches)	Station	Elevation (feet)	Date	Comment
5.77	Pikes Peak	14,111	12/6/1892	Likely snow.
5.06	Lake Morain	10,265	5/18/1955	Snow.
5.60	Silver Lake	10,200	4/15/1921	Snow.
4.28	Cabin Creek	10,018	5/7/1969	Snow, elevation not 13,020 feet.
4.90	Wolf Creek Pass	9,430	12/30/1951	Snow.
4.91	La Veta Pass	9,242	6/18/1947	Two-day total listed; 4.30" is one-day total.
4.80	Longs Peak	9,000	4/15/1921	Snow.
5.14	Fremont Exp. Sta.	8,836	6/3/1921	Two-day total listed; 2.61" is one-day total.

- 2) Expansion of surface precipitation/rainfall measurements is needed in the mountains to support improved calibration of the NWS WSR-88D precipitation estimation algorithms and to improve the detection potential for extreme rains at high elevations. This must include some number of real-time reporting recording precipitation gauges.
- 3) A low-cost approach to increasing high-elevation data collection would be to recruit many more summertime volunteer weather observers in the Rocky Mountain region. Four-inch diameter plastic rain gauges could be purchased in quantity and distributed to interested summer residents in exchange for taking and recording daily rainfall measurements.
- 4) The value and utility of daily precipitation measurements from the USDA Natural Resources Conservation Service SNOTEL network is proving to be significant since this is the only existing network concentrated at higher elevations. The value of this data resource could be enhanced if the data were more fully quality controlled to improve accuracy and reliability of warm-season measurements. Also, providing more frequent reports from selected stations at intervals of one hour, three hours or at least six hours would allow this existing and well-maintained network to serve more hydrological applications.
- 5) Organizations currently involved in real-time or research-related precipitation data collection should be informed about the Extreme Precipitation Data Study and results. These groups should be encouraged to archive their precipitation data and provide it for future extreme precipitation studies and updates. When very heavy rainfall totals or rainfall rates are observed, these groups should be encouraged to bring these storms

promptly to the attention of the National Weather Service, the State Engineer, the Colorado Climate Center, or other members of the Colorado Extreme Precipitation Task Committee.

- 6) The list of large storms prepared during this project should be routinely updated so that each new qualifying extreme storm is included. It would also serve many useful purposes long into the future to routinely document significant floods each year as a part of an annual water resources publication series. Brief, descriptive flood reports containing stream gauge readings, indirect measurements, precipitation reports, discussions of antecedent conditions along with local photographs and discussions of damage (similar to those published by Follansbee and Sawyer of the U.S. Geological Survey back in 1948) would be heavily referenced. Flood documentation is easiest to do and most accurate when completed promptly after each event while memories and flood evidence are still intact.
- 7) Results from this study show that exceptionally heavy precipitation events similar to the Big Thompson flood, although rare in a specific sense, can actually be expected to occur somewhere in the state about once in any 10-20 year period. It is imperative that there be a plan in place to promptly and thoroughly investigate these storms in the future, documenting as well as possible rainfall intensities, magnitudes, areas and durations and publishing and archiving results. This cooperative effort needs to be strongly encouraged, since no one agency is currently responsible or funded to perform such investigations. Agencies concerned about this matter should meet to begin developing a cooperative interagency plan for conducting post analyses and reconstructions of future "extreme storms." Plans must include a clear definition of what constitutes an extreme storm so that ambiguity and confusion does not exist among cooperators.

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Appendix A. Colorado Extreme Storm Precipitation Data Study — Complete Storm List

The following paragraphs describe the content of the extreme precipitation reports.

Each storm was given a brief descriptive name, usually based on the town, river or other landmark nearest the center of heaviest precipitation. A state name was assigned to each storm based on the state in which the heaviest precipitation fell. (Note: with large general storms, several states may receive heavy precipitation at the same time.) The date listed for each storm was the date on which the heaviest precipitation fell or the period of consecutive days when a larger storm system or episode first began and finally ended. Each storm was assigned one or more geographical regions based on a simple 6-region system as shown on Figure 2. Storms were categorized using a highly simplified meteorological typing scheme: 1) General (G) storms which were large multi-state storm systems accompanied by a clearly defined low pressure system and/or frontal boundaries, 2) Local Convective (LC) storms which were localized thunderstorms or thunderstorm complexes not clearly associated with large-scale atmospheric lifting mechanisms, and 3) Local Convective Storms embedded within General storm systems (GLC). Storms with air masses of tropical origin were not treated or categorized separately. A single latitude and longitude was assigned to most storms based on an estimate of the coordinates where the heaviest precipitation fell.

Two columns, “Maximum Precipitation” and “Remarks,” were used to cryptically describe the heaviest rains associated with each listed storm. This was very inadequate for providing detailed storms descriptions, but was intended to provide sufficient information to a reader to allow a quick assessment as to the significance of the storm without additional research. For most storms, the “Maximum Precipitation” column listed the largest observed or estimated precipitation amount for each storm, if known. The “Remarks” column added supplemental reports or a very brief description of impacts. The storm list ends with two additional columns that indicate if information about the storm is on file at the U.S. Bureau of Reclamation Flood Hydrology Section at the Denver Federal Center and if a Depth-Area-Duration analysis has been performed.

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Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	Depth Area
1	Cherry Creek	CO	May 20, 1864	2		39 39	104 51	Unknown	Big flood thru Colorado Springs and E. CO?		
2	Mountain Creek	CO	June 9-10, 1864	2	LC	38 50	104 44	Unknown	Show storm at Pikes Peak, 3.19" 1 day, Front Range wide storm		
3	Denver	CO	May 22, 1876	2	G	39 45	105 00	6.50" 1 day, Denver			
4	Cherry Creek	CO	May 22, 1878			39 39	104 51	Unknown	Extensive snowmelt flooding, high water		
5	Colorado River	CO	June-July 1884	3-6		39 07	108 21	Unknown			
6	Templeton Gap	CO	July 25, 1885	2	LC	39 00	104 39	Estimated 16" rain in few hours	Caused major but localized flooding, floods on Cherry Creek and Bear Creek		
7	Clear Creek	CO	August 1, 1888	2	LC	39 48	105 24	Walden - 1.03", Home - 1.37"	Localized rain caused major flooding		
8	Ward District	CO	May 29-31, 1894	2	G	40 04	105 32	5.50" 24 hrs, Lake Moraine, CO	>4" several Ft. Range locations, Boulder Creek flood	X	
9	Ruby	CO	January 16-17, 1895	3	G	38 51	107 00	4.72" - Ruby (storm total), 47" snow	Heavy snows in mtns and SW CO		
10	Climax	CO	May 29-30, 1895	4	G	39 22	106 10	4.20" storm total, 42" snow	Heavy snow in mountains, rains in eastern Colorado		
11	Bear Creek at Morrison	CO	July 24, 1896	2	LC	39 35	105 21	Evergreen	No extreme precip, reports found in CO		
12	Longmont	CO	May 30, 1896	2		40 10	105 04	4.62" Longmont - 1.5 hrs	Floods in Louisville, Marshall, Boulder City, large hail - locally heavy T-storms		
13	Cheyenne County	CO	August 21, 1896	1	LC	38 49	102 32	4.50" at Kit Carson in 3 hrs with heavy wind	3.50" First View from 4:50 - 8:30 pm, hail		
14	Adel (Central MT, Great Falls area)	MT	June 29-July 1, 1898	2		47 00	111 40	3.80" Adel, MT	No extreme precip, reported in CO		
15	Western Colorado	CO	October 10-15, 1899	6	G	39 27	108 03	5.64" 132 hrs - Parachute, CO	Heavy rains up to 5" in western CO, changed to snow at high elevations	X	X
16	Springfield	CO	April 4-5, 1900	1	G	37 24	102 37	8.40" Springfield - from April 4-6	4-5" rains throughout CO, mix of rain/snow in areas		
17	Big Timber	MT	April 22-24, 1900	2	G	45 50	109 57	6.60" Big Timber, MT	No extreme precip, reported in CO	X	X
18	Canyon Ferry	MT	May 11-13, 1900	4	G	46 38	111 42	4.20" Canyon Ferry, MT	No extreme precip, reported in CO.	X	X
19	Larimer County	CO	May 19-21, 1901	2	GLC	37 59	104 59	Collins in 30 hrs	Widespread Front Range system, probably also Eastern CO.		
20	Kipp	MT	May 19-20, 1902	4	G	48 30	112 45	3.10" Kipp, MT	No extreme precip, reported in CO		
21	North Central	CO	September 20-21, 1902	2	G	40 35	105 09	6.22" storm total - Fort Collins (26 hrs)	Heavy rain and sleet over north-central CO		
22	Boxelder	CO	May 1-3, 1904	2	G	40 59	105 11	6.40" - storm total - Boxelder 5.17" storm total - Victor	Rain across north central and central CO, rain changing to snow at high elevations		
23	Livermore-Boxelder	CO	May 20-21, 1904	2	LC	40 59	105 11	8.00" at Boxelder	Huge flood on North Fork and Poudre River		
24	Spearfish	SD	June 2-5, 1904	2	G	44 29	103 47	5.50" at Spearfish, SD, 2.21" 24 hrs, Platte Canyon, CO	Heaviest rains in Black Hills		
25	Hogan's Gulch (SE of Colorado Springs)	CO	August 7, 1904	2	LC	38 49	104 42	Unknown	Localized intense rains E. of mtns		

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Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
26	Trinidad	CO	September 3, 1904	2	LC	37 10	104 30	6.00" near Trinidad, upstream	Flooding on Purgatory River		
27	Rociada	NM	September 26-30, 1904	2	G	35 52	105 20	7.92" at Rociada, NM, 5.15" 48 hrs, Hoehne, CO	Flooding at Trinidad	X	X
28	Warrick	MT	June 6-8, 1906	1	G	48 04	109 39	13.31" Warrick, MT (3 days)	Widespread 5" totals across northern MT, no extreme precip. reported in CO	X	X
29	Fort Meade	SD	June 12-13, 1907	1	GLC	44 35	103 20	6.60" Ft. Meade, SD	No extreme precip. reported in CO 3-5" across MT, no extreme precip.		
30	Choteau	MT	June 21-23, 1907	2	GLC	47 49	112 10	6.40" Choteau, MT	reported in CO	X	X
31	Fort Morgan	CO	July 26, 1907	1	LC	40 15	103 48	4.04" 1 day, Fort Morgan	1-2" totals over Front Range and eastern CO		
32	Evans	MT	June 3-6, 1908	2	G	47 11	111 08	8.00" Evans, MT	No extreme precip. reported in CO	X	X
33	May Valley	CO	October 18-19, 1908	1	G	38 03	102 38	5.95" 24 hrs, Eads, CO	Large flood Holy and SE CO		
34	Dolores	CO	December 14-17, 1908	5	G	37 28	108 30	5.60" 72 hrs, Dolores, CO	Heavy rains in AZ and SW CO - 2-5" totals, snow at high elevations		
35	Norris (SW MT)	MT	May 22-24, 1909	2	G	45 35	111 41	5.04" 1 day, Norris, MT	No extreme precip. reported in CO	X	X
36	Utah	UT	Aug. 28 - Sep 1, 1909	5	GLC	39 00	112 00	Up to 5" in Utah	Floods, property damage in Utah	X	X
37	SW Colorado - Cascade	CO	September 3-7, 1909	3	GLC	37 40	107 48	2.90" 24 hrs, Cascade, CO	4.49" 108 hrs, Cascade, Heavy Ft.		
38	Half Moon Pass	MT	June 7-8, 1910	2	G	46 39	109 18	6.00" Half Moon Pass, MT	Range rains, flood on San Juan River	X	X
39	Knobles Ranch	MT	September 3-6, 1911	2	G	48 55	111 33	7.60" Knobles Ranch, MT	No extreme precip. reported in CO		
40	San Juan Range	CO	October 4-6, 1911	3	G	37 53	107 39	8.05" 24 hrs, Gladstone, CO. Storm real but max precip. values is suspect.	2-6" over north-central MT, no extreme precip. reported in CO	X	X
41	Bowen	MT	October 10-11, 1911	3.4	G	45 45	113 27	2.12" Bowen, MT - storm total	2-3" totals over west-central CO, rain and snow	X	X
42	Columbine Ranch	CO	March 19-21, 1912	6	G	39 02	107 31	2.60" 24 hrs, Columbine Ranch, CO	2-6" totals from Las Vegas to Raton, NM, few 1-2" in southern CO	X	X
43	Fort Union	NM	June 6-12, 1913	2	G	35 56	105 05	7.90" - storm total, Fort Union	Huge snow storm over north-central CO, up to 70" snow in mtns with large water content.		
44	Front Range, east of continental divide	CO	December 4-5, 1913	2	G	39 42	105 35	5.80" - storm total, Frances - 66" snow	1-3" totals over SW Colorado, mostly snow		
45	Rico	CO	January 25-27, 1914	3	G	37 41	108 02	5.37" 3 days, Rico 42" snow	3-9" in NE New Mexico, up to 7" in SE Colorado	X	X
46	Clayton	NM	April 29-May 2, 1914	1	G	36 20	103 06	6.49" - storm total, Campo, CO	2-3" totals over eastern and central MT, 1-3" totals over CO		
47	Malta	MT	June 12-14, 1914	1	GLC	48 21	107 53	3.45" 24 hours, Kersey, CO	Mudslide buried Telluride 7/27/14 but		
48	Telluride Adel (Central MT, Great Falls area)	CO	July 27, 1914	3	LC	37 57	107 49	3.50" 1 day, Telluride, 6.95" over 3 days (reported in August)	precip reported on 8/26/14		
49	Taique	NM	July 19-28, 1915	2	LC	34 46	106 20	9.90" 240 hrs, Taique	2.5" totals over central MT, no extreme precip. reported in CO	X	X
50	Columbine	CO	September 9-10, 1915	4	G	40 52	106 57	2.57" Columbine	Many 2-4" totals across NM, 2-3" totals over southern CO	X	X

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Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
52	Sun River Canyon	MT	June 19-22, 1916	2,4	GLC	47 37	112 45	8.80" Sun River Canyon, MT	No extreme precip. reported in CO	X	X
53	Hoyt	CO	July 29-31, 1916	1	LC	39 57	104 05	6.36" - storm total, Hoyt	3-5" totals over CO		
54	Taylor Park Basin	CO	March 4-9, 1918	3	G	38 50	106 55	3.37" - storm total, Savage Basin	Small area in west-central CO affected, mostly snow	X	X
55	Pine Grove	MT	July 14-15, 1918	1	LC	46 50	109 05	5.90" - storm total, Pine Grove, MT	2-4" totals in MT and in eastern CO		
56	Drake/Big Thompson	CO	July 31, 1919	2	LC	40 26	105 20	4.80" 1 day Boulder	Heavy storm W. of Drake, major flood surge		
57	Browning	MT	September 27-28, 1919	4	G	48 34	113 01	3.30" Browning, MT	No extreme precip. reported in CO		
58	Palisade Lakes	CO	November 26-27, 1919	3	G	37 29	107 10	43" snow	Centered in 4-corners area, 3-5" totals over SW CO	X	
59	Vale	SD	May 9-12, 1920	2	G	44 37	103 24	6.40" Vale, SD	2-5" totals over most of SD, no extreme precip. reported in CO	X	X
60	Fry's Ranch	CO	April 14-16, 1921	2	G	40 43	105 43	7.60" - storm total, Fry's Ranch	Storm affected Front Range/mtns, heavy rain changing to snow	X	X
61	Penrose	CO	June 2-6, 1921	2	GLC	38 27	105 04	9.00" 72 hrs. Silver Lake, CO	Huge flood thru Pueblo but flooding throughout E. CO	X	X
62	Showmass	CO	June 14, 1921	3	LC	39 12	106 55	.57" 1 day, Nast	Cloudburst, mudslide		
63	Western Colorado	CO	June 11-13, 1921	4.5		37 48	107 40	Steamboat heavy rain on 14th, No extreme precip. found in CD	Floods on CO and Animas River, hot temps, snowmelt		
64	Montana	MT	June 15-21, 1921	1	GLC	47 00	106 00	Unknown	Heavy rains, >12" in eastern Montana, no extreme precip. reported in CO	X	
65	Denver	CO	August 17-25, 1921	2	LC	39 45	105 01	3.10" - storm total, Denver, 4.6" LaVeta Pass	1-3" over most of CO		
66	Grover	CO	July 27-August 3, 1922	1	LC	39 45	105 32	3.00" 24 hrs. Grover, CO	Heaviest July 28, flood on Cherry Creek, widespread rains	X	
67	Versylia	NM	August 17, 1922	2	LC	36 47	105 38	7.50"- 4 hrs. Versylia, NM	Cloudburst, no extreme precip. reported in CO	X	
68	Missouri Canyon near Masonville	CO	June 15, 1923	2	LC	40 26	105 13	2.50" in 30 minutes	Flood at Buckhorn Creek		
69	Hays	MT	June 16-21, 1923	1.2	GLC	48 02	108 43	Unknown	2.96" 24 hrs. Holly, CO		
70	Florence	CO	July 16, 1923	2	LC	38 23	105 08	76" Canon City			
71	Sheridan	WY	July 22-26, 1923	2	LC	44 55	106 55	5.60" - storm total, Sheridan, WY	2-4" totals in northern WY, 3-25" 48 hrs., Silver Lake, CO		
72	Colorado	CO	August 11-17, 1923	2-5	LC	37 00	105 00	2.88" 1 day, Cuchara Camp	Several 2"-24 hrs. widespread	X	X
73	NE Arizona	AZ	September 16-18, 1923	3.5	GLC	33 58	112 44	4.50" Wickenburg - Sept. 17-18	Severe flooding, train derailed, 5 dead, 1-2" totals SW CO		
74	Savageton	WY	Sep. 27-Oct. 1, 1923	1.2	G	43 52	105 47	17.10" Savageton, WY (48 hrs)	Many areas in WY >5", no extreme precip. reported in CO	X	X
75	Lander	WY	May 27-30, 1924	6	G	42 50	108 44	5.77" storm total - Lander, most in 2 days	No extreme precip. reported in CO	X	X
76	Mesa Verde NP	CO	August 3, 1924	3.5	LC	37 12	108 30	3.50" at Mesa Verde NP in 45 minutes	Cloudburst, elevation - 6,930 ft		
77	Trinidad	CO	July 19-22, 1925	2	LC	37 10	104 30	Estimated 5" in 40 min W of Trinidad	Major flood came down Purgatory River		

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Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR	Depth Area
										Storm File	Dur. Study
78	Ignacio	CO	August 17-25, 1925	5	GLC	37 08	107 38	3.24" 24 hrs, Meeker, CO	4.04" total storm, Ignacio, CO, flooding on St. Charles River		
79	Palisade Lake	CO	June 26-29, 1927	3	GLC	37 27	107 11	5.90" 84 hrs, Palisade Lakes	Widespread heavy high elevation rain over SW CO	X	X
80	S. of Hesperus	CO	August 24, 1927	5	LC	37 09	108 04	Unknown	Brief but major flooding on LaPlata		
81	Southwest CO	CO	September 3-14, 1927	3	G	37 33	107 49	7.49" 7 days, Crested Butte	3-5" totals over SW CO	X	
82	Cheeseman	CO	July 19-24, 1929	2	LC	39 13	105 17	3.82" 138 hrs, Cheesman, CO	1-3" totals over central CO	X	X
83	Southwest CO	CO	July 27-August 7, 1929	123	LC	37 33	107 49	6.50" storm total, Terminal Dam	Monsoon rains, 2-5" totals in SW CO	X	X
84	Valmora	NM	August 6-11, 1929	1	LC	35 49	104 56	6.50" - storm total, Des Moines, NM	Northern NM and southern CO, 2-4" in CO		
85	Gallinas Pit. St.	NM	September 20-23, 1929	1,2	GLC	35 09	105 39	3.59" Bloom, CO 4.90" Gallinas Pit St., NM	No extreme precip. reported in CO	X	
86	Rifle	CO	August 9, 1930	1,6	LC	39 31	107 47	2.15" 160 minutes at Rifle	Cloudburst, local flooding		
87	Abishapa River	CO	August 11, 1930	2	LC	37 20	104 45	2.50" 2 days, La Veta Pass - 3.00" 2 days Victor	Widespread heavy storms up against Spanish Peaks	X	
88	Waterdale	CO	August 14, 1930	2	LC	40 25	105 12	3.54" in 24 hrs - Waterdale	Rains across northern CO		
89	Meeker	OK	June 2-6, 1932	1	GLC	38 28	101 46	12.36" - storm total at Meeker, OK	Rain across OK, TX, KS, and southeastern CO	X	X
90	Julesburg	CO	August 13, 1932	1	LC	41 00	102 15	5.03" - storm total at Two Buttes, CO	unofficial greater amounts reported		
91	Silverton	CO	August 25-29, 1932	3	LC	37 48	107 40	2.75" - storm total at Silverton	1-2" in southwest CO	X	X
92	Westcliffe	CO	April 19-22, 1933	2	G	38 08	105 28	5.04" - storm total at Westcliffe, 46.3" snow	Heavy snow in mtns "Cloudburst" near Idledale, significant flooding	X	X
93	Bear Creek	CO	July 7, 1933	2	LC	39 38	105 15	Unknown	Intense rains of 3-9" overnight, upper basin 6500-7500 ft		
94	Cherry Creek	CO	August 2-3, 1933	1,2	LC	39 39	104 51	3.90" 1 day, Calhan	Flooding in Denver	X	X
95	Kassler	CO	September 9-11, 1933	2	G	39 30	105 06	4.24" - storm total, Kassler			
96	Bear Creek/Mount Vernon Canyon	CO	August 9, 1934	2	LC	39 38	105 15	Unknown	Floods killed 6 people, heavy hail Sheets of water caused flooding in Purgatory basin		
97	Purgatory River	CO	September 15, 1934	1	LC	37 10	103 52	Unknown			
98	Fremont Exp. Station	CO	May 17, 1935	2	G	38 51	104 57	4.29" 2 days, Fremont Exp. St., 20.5" snow	Snow in mtns		
99	Cherry Creek - Hale	CO	May 30-31, 1935	1	GLC	39 36	102 08	Report of 9" in 2 hrs at Seibert, huge floods Bijou Creek and Republican >6-9" in a couple of hrs - SE of Lamar	24" in 6 hrs (unofficial) near Hale USBR report, 3.00" at Rush	X	X
100	SE of Lamar	CO	July 11-12, 1935	1	LC	38 04	102 07	>7-11" in several hrs - Horse Creek	Destroyed new reservoir		
101	Horse Creek (north of Holly)	CO	August 28-29, 1935	1	LC	38 03	102 07	10.00" in 9 hrs - Las Cruces	No extreme precip. reported in CO	X	X
102	Las Cruces	NM	August 29-30, 1935	32 30	106 77	10.00" in 9 hrs	3.30" 72 hrs Silver Lake, UT, mostly				
103	Silver Lake	UT	February 1-3, 1936	4	G	40 36	111 35	snow	2.20" 24 hrs, Telluride - 22" snow	X	X
104	Alta	CO	February 19-24, 1936	4	G	40 30	111 30	6.50" 132 hrs, Alta, UT	3.19" 48 hrs, Crested Butte - 28" snow	X	X
105	Pitkin	CO	July 17, 1936	3	LC	38 36	106 32	1.80" 75 minutes, Pitkin, CO	Cement Creek Flood on July 16th		

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
106	West of Gardner	CO	July 27, 1936	2	LC	37 46	105 11	Unknown	Local "cloudburst" caused flooding on Huerfano Creek		
107	Leadville	CO	July 27, 1937	3	LC	39 15	106 18	4.25" - 45 minutes, Leadville 8.40" - storm total - Juniper, AZ	Data very suspicious Heaviest rains across central AZ and SW UT	X	X
108	Junipine	AZ	Feb. 28-March 5, 1938	3.5	G	37 00	112 30	3.32" - 48 hrs, Silverton, CO	2.5" in southern MT, no extreme precip. Heavy rains in Kansas, extreme eastern CO also affected.	X	X
109	Big Timber	MT	May 17-20, 1938	2	G	45 50	109 57	5.70" Big Timber, MT - storm total 10.00" 8N Sharon Springs, KS - storm total, 2.10" at Burlington, CO	Heavy rains in Kansas, extreme eastern CO - 1.2" in central and SW CO	X	X
110	Sharon Springs 8N	KS	May 30-31, 1938	1	G	38 54	101 45	10.00" 8N Sharon Springs, KS - storm total, 2.10" at Burlington, CO			
111	Crested Butte	CO	June 20-23, 1938	3	GLC	38 52	106 58	2.40" 72 hrs, Crested Butte, CO		X	X
112	San Isabel	CO	July 13, 1938	2	LC	37 59	105 03	4.48" 1 day, San Isabel	7" in 6 hrs near Morrison, severe flooding of several Front Range streams, mostly on Sep. 2	X	X
113	West Slope/Front Range	CO	Aug. 31-Sep. 4, 1938	2.5	GLC	39 57	105 21	8.57" 48 hrs, Waterdale, CO	No extreme precip. reports found in CO		
114	Masonville	CO	September 10, 1938	2	LC	40 26	105 13	Local reports in SW Fort Collins of 5-7" <1 hr., reports suspect.	Heavy rains over AZ, NM and CA from tropical disturbance, no extreme precip. reported in CO	X	X
115	Arizona/California	AZ/CA	September 3-8, 1939	5	GLC	33 00	115 50	6.7" near Imperial Valley	Heavy rains from tropical disturbance, no extreme precip. reported in CO		
116	Arizona/California/Nevada	AZ	September 8-13, 1939	5	GLC	35 00	114 00	4.5" in AZ, NV and CA	Local "cloudburst" caused flooding at West Creek	X	X
117	Near Gateway	CO	July 16, 1940	5	LC	38 42	108 56	.75" - Colorado Ntl Mon	Observer noted very destructive hail between Ordway and Oliney Springs		
118	Southwest CO	CO	April 10-15, 1941	3.5	G	37 28	106 47	1.08" 1 day, Wolf Creek Pass - 3.63" storm total	2-3" totals over eastern MT and ND, no extreme precip reported in CO		
119	Pueblo - LaJunta area	CO	August 26-27, 1941	1	LC	33 13	103 45	1.46" - 1.5 hrs at Ordway at Two Buttes	Steady rains in SW CO and eastern plains, snow at high elevations	X	X
120	Campbell Farm Camp	MT	September 6-8, 1941	1	GLC	45 25	107 55	3.80" 42 hrs, Campbell Farm Camp	Widespread soaking rains and moderate flooding in SE CO		
121	Rico	CO	September 18-23, 1941	3	G	37 41	108 02	3.85" Rico, CO - storm total	3-7" totals over eastern MT and ND, no extreme precip reported in CO		
122	Kenton	OK	April 17-21, 1942	1.2	G	36 55	102 58	6.00" 48 hrs, San Isabel, CO	Heavy rains SE and Front Range, flood conditions on Purgatoire and Arkansas Rivers		
123	SE/Front Range	CO	April 23-24, 1942	1.2	G	39 56	105 17	3.70" Hawthorne - 2 days, many 1-3" totals in SE/FR area, heavy rains also in area on April 18-20.			
124	Huerfano/Pueblo Counties	CO	August 14-15, 1942	2	LC	38 27	105 04	2 days	1-3" totals over parts of SE CO		
125	Rancho Grande	NM	Aug. 29-Sep. 1, 1942	2	LC	34 56	105 06	8.00" Rancho Grande, NM	Continuous, heavy rainfall over E CO, 2-6" totals mainly Sep 1-2	X	X
126	Wolf Creek Pass	CO	January 24, 1943	3	G	37 29	106 47	5.84" 1 day, Branson Creek Pass, 94.5" snow for period	Heavy snow in mountains		
127	Rabbit Ears Pass	CO	May 4-9, 1943	4	G	40 22	106 43	2.65" 132 hrs, Rabbit Ears Pass	1-3" totals over CO, snow at high elevations	X	X
128	Silver Lake	UT	May 31-June 5, 1943	4.6	G	39 31	107 19	6.40" 126 hrs, Silver Lake, UT	1-3" totals over western CO, mostly on June 1-2, snow at high elevations	X	X

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
129	Lake Moraine	CO	April 9-10, 1944	2	G	38 49	104 59	4.53" 1 day, Lake Moraine 2.78" 48 hrs, near Steamboat Spgs,	Heavy snowstorm between Floyd Hill and Berthoud/Loveland area		
130	near Steamboat Spgs	CO	May 17-18, 1944	4.6	G	40 30	106 50	14" snow	6.00" isohyet 2-4" over SE MT and NE WY, no extreme precip. reported in CO	X	X
131	Colony	WY	June 2-5, 1944	1	G	44 56	104 12	4.26" 72 hrs, Colony, WY	No extreme Precip. reported in CO	X	
132	Dovetail	MT	June 14-18, 1944	1.2	GLC	47 21	108 12	Unknown			
133	NW of Canon City	CO	July 4, 1944	2	LC	38 26	105 16	2.6" <1 hr on Wilson Creek			
134	Tennessee Pass	CO	July 20, 1945	4	LC	39 20	106 20	1.20" 45 minutes, Tennessee Pass	2.06" 24 hrs, Wiggins, CO		
135	Lake George	CO	July 31, 1945	2.3	LC	38 55	105 29	3.45" 1 hr, 6.27 storm total (8 hrs), elevation - 8,500 ft	Highest measured 1 hour precipitation in mountains.		
136	Farmington	UT	August 19, 1945	5	LC	41 00	111 30	Unknown, 3.21" Eads, CO	2-3" over eastern CO		
137	Beaver Dam State Park	NV	October 27-29, 1946						2-6" totals over parts of Nevada, Wyoming and Arizona, light precip.		
138	Eastern Colorado	CO	November 2-5, 1946	1	G	38 46	102 49	3.20" 1 day - Red Feather Lakes, 40" snow	Huge snowstorm over E CO, \$10 million damage, 13 deaths		
139	Wray	CO	April 27, 1947	1	GLC	40 04	102 13	6.60" at Wray	Crops, buildings damaged, \$100,000 total damage		
140	Manitou Springs	CO	May 10, 1947	2	GLC	38 52	104 56	5.43" 19 hrs, Manitou Springs	Bridges, homes washed out, 1 death	X	
141	Uintah	UT	June 8-12, 1947		GLC	40 30	110 00	Unknown	2.20" 1 day, Longmont, CO, 1-3" over CO, mainly on June 11-12	X	X
142	near Gering	NE	June 17-18, 1947	1	GLC	41 49	103 41	10.0" near Gering, NE in 8 hrs	T-storms across CO, cloudburst reported near Rye, flooding		
143	Fort Collins	CO	May 30, 1948	2	GLC	40 35	105 05	4.30" 1 day, La Veta Pass	9.00" near Fort Collins (8 hrs), mostly Cloudburst west of Fort Collins, floods, >10" in area		
144	near Golden	CO	June 7, 1948	2	LC	39 44	105 14	6.00" less than 2 hrs near Golden	1.61" 1 day, Hawthorne		
145	Dupuyer	MT	June 16-17, 1948	2	GLC	48 12	112 30	Unknown	2-3" over eastern CO on June 19-20	X	X
146	Leadville	CO	June 3, 1949	4	GLC	39 15	106 18	1.26" 24 hrs, Leadville			
147	Eastern Colorado	CO	June 4-7, 1949	1	GLC	38 06	102 39	4.70" 1 day, Lamar - 7.28" - storm total	Flash floods and hail over E CO, 3-7" totals		
148	Prospect Valley	CO	June 12-14, 1949	1	LC	40 05	104 26	1.80" 1 day, 2.76 2 days - Hoyt	Local 14" center	X	
149	Southeast CO	CO	July 26, 1950	1	LC	37 44	104 36	1.66" Bloom and Cucharsas Dam	Widespread 1-2" rains		
150	Southeast CO	CO	May 14-15, 1951	1	GLC	37 17	102 37	7.05" night of 14-15th, Springfield 8S	4-7" in area with severe hail, high wind, 1 death		
151	Marsland	NE	July 27-28, 1951	1	LC	42 36	103 06	7.00" near Marsland, NE	No extreme precip. reported in CO	X	
152	Platteville/Roggen area	CO	July 30, 1951	1	LC	40 10	104 31	5.50" - Platteville/Roggen area	No extreme precip. reports found in CD		
153	Mosca Pass	CO	August 2, 1951	2.3	LC	37 43	105 19	Unknown	Flash flood at Redwing from storm at Mosca Pass		
154	Redstone Creek	CO	August 2-3, 1951	3	LC	40 26	105 13	12" 48 hrs at Redstone Creek and near Belvue	Heavy rains and flooding from tropical hurricane, no extreme precip. reported in CO	X	
155	Central Arizona	AZ	August 26-29, 1951	3.5	GLC	34 12	112 20	13.55" Crown King, AZ, storm total			

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
156	New Raymer	CO	September 7, 1951	1	LC	40 04	102 13	Reports of 9" in 8 hrs near New Raymer	>6" west and south of Wray		
157	Western CO	CO	December 29-31, 1951	3-6	G	37 29	106 47	4.90" 1 day - 8.83" 3 days - Wolf Creek Pass	Huge widespread snow, 6 deaths		
158	Climax	CO	June 3, 1952	3.5	GLC	38 24	107 31	5.25" 1 day, Climax	Did it really happen?		
159	Belt	MT	June 1-4, 1953	1.2	GLC	47 25	110 50	10.40" 48 hrs, 8.60" 24 hrs, Belt, MT	No extreme precip. reported in CO	X	X
160	Cucharas Dam	CO	July 11, 1953	2	LC	47 44	104 36	3.40" 1 hr, 4.03 storm total - Cucharas Dam	3.20" 1 day, Doherty Ranch		
161	Southwestern CO	CO	July 29-August 1, 1953	3.5	LC	37 27	107 11	on Aug 1	Locally heavy T-storms in SW CO		
162	San Francisco Creek near Alfalfa	CO	July 22, 1954	1	LC	37 05	103 12	2.23" Troy 7SE, 2.00" Branson	Heavy rains in Arkansas Drainage area, river rose rapidly, some local flooding		
163	Ebert, Douglas, El Paso Counties	CO	August 5, 1954	1.2	LC	39 12	103 44	2.40" Limon 8SSW	Heavy rains in area - millions in damage		
164	Rye	CO	May 18-20, 1955	2	G	37 55	104 56	6.10" 1 day, Rye, 9.92" - storm total (13" in New Mexico)	Many other stations 2-5" totals, Arkansas River flooding, 2 deaths	X	
165	Near Fort Laramie	WY	June 26-27, 1955	2	LC	42 15	104 22	9.50" 1 day - near Fort Laramie, WY	No extreme precip reported in CO		
166	Wolf Creek Pass	CO	January 26-28, 1956	3	G	37 29	106 47	3.20" 1 day - 6.54" 3 days-Wolf Creek Pass, 104" snow	Lots of rain Denver area and W. Slope, local damaging floods		
167	Englewood	CO	July 30-August 3, 1956	2	LC	39 39	104 54	12" in 5 days, \$5 million in flood damage	Record rainfall on and east of the divide, 5 deaths		
168	Lake Moraine	CO	April 1-2, 1957	2	G	38 49	104 59	4.13" 1 day, Lake Moraine, 54" snow	\$2 million in flood damage, snow in		
169	Colorado	CO	May 8-12, 1957	2.3-4	G	40 10	105 04	4.04" 1 day, Longmont, Many 1-5" totals	1.36" Aspen, 8" snow, 3 deaths		
170	Steamboat Springs	CO	June 12-17, 1957	4.6	GLC	40 30	106 50	3.33" storm total - Steamboat Springs	1-3" totals over NW-central CO		
171	Akron	CO	July 26, 1957	1	LC	40 09	103 09	5.50" in 3 hrs, Akron	Hail, major damage in area	X	X
172	Kiowa Creek	CO	July 30, 1957	2	LC	39 21	104 28	5-4.5" in 45 minutes - Kiowa Creek	Minor road/bridge damage		
173	San Luis	CO	August 12, 1957	3.5	LC	37 12	105 27	2.90" 1 hr, official estimate 2.25" - 45 minutes	Lots of flooding and hail, crop damage		
174	Gateway	CO	August 21, 1957	5	LC	38 41	108 59	2.82" 1 day, Gateway	3.00" in 1.5 hrs near Gateway, flash floods		
175	Morgan	UT	August 16, 1958	6	LC	41 00	111 30	>6" 24 hrs, Morgan, UT, flash floods, est >5" from 4-5 pm	No extreme precip. reported in CO	X	X
176	Durango	CO	August 5, 1959	5	LC	37 17	107 53	1.93" Durango	2" - 30 minutes, flash flooding		
177	NW of Glendo	WY	June 7, 1960	1	LC	42 47	105 05	1.6" in 1.5 hrs NW of Glendo	No extreme precip reported in CO		
178	Salida/Cañon City area	CO	July 27, 1961	2	LC	38 26	105 16	1.40" Cañon City	Heavy rains, rock and mud slides		
179	Front Range	CO	July 31, 1961	2	LC	39 13	105 17	1.51" Cheeseman, 1.25" Denver City	Locally heavy rains along Front Range, minor flooding		
180	Western Slope/Mtn Areas	CO	September 25, 1961	3.4	G	39 15	106 22	1.60" 24 hrs, Sugarloaf	1.33" Climax, snowstorm, many 1-2" totals, heavy snows in mtns, 2-3 ft in some locations		

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Depth Area	USBR Storm File	Dur. Study
181	Pyramid	CO	September 20-24, 1961	4.6	G	40 14	107 06	2.90" 1 day, Pyramid Unofficial reports of 10-12" near Whitewood causing flash floods.	3.64" 2 days Marvine, heavy mtn snows, 30" of snow at Climax and Yampa Valley			
182	N Black Hills	SD	June 15-16, 1962	2	GLC	44 21	103 46	Whitewood causing flash floods.	No extreme precip reported in CO			
183	Wray	CO	June 30-July 1, 1962	1	LC	40 04	102 13	4.68" at Wray	>5" reported west of Wray			
184	W Rapid City	SD	July 13, 1962	2	LC	44 05	103 07	6.00" in 2 hrs - W Rapid City	Flash floods, no extreme precip reported in CO			
185	Springfield 15NE	CO	July 15, 1962	1	LC	37 24	102 36	7.00" rain and severe hail at Springfield 15NE	T-storm's across eastern CO			
186	Wray	CO	July 17, 1962	1	LC	40 04	102 13	6-6.5" from 7-8 pm at Wray/Vernon, flash flooding	No extreme precip reports found in CO			
187	NE Walsenburg	CO	July 23, 1962	2	LC	37 38	104 47	6.00" NE Walsenburg	1.14" Trinidad			
188	Near Boone	CO	July 13, 1963	1	LC	38 16	104 13	.52" Fowler	Local cloudburst, flash flood, high river levels observed			
189	South Front Range	CO	July 27, 1963	2	LC	38 14	104 38	5-6" Pueblo-Las Animas City	1.30" North Lake, local flooding			
190	Parker area	CO	August 3, 1963	2	LC	39 22	104 52	1.36" at Castle Rock, 1.15" at Cheeseman, observer noted 1.10" in 15 min.	Local severe T-storms, heavy rains causing Cherry Creek to overflow			
191	Prescott	AZ	August 16, 1963	5	LC	34 65	112 43	5-6" rain in hills west of town	Severe flooding, 2 separate storms, no extreme precip. reported in CO			
192	Prescott	AZ	August 19, 1963	5	LC	34 65	112 43	3-5" rain near Prescott	Severe flooding, storm occurred from 6:30 - 8:45 pm, \$400,000 in damage, no extreme precip. reported in CO			
193	Ruby Canyon (west of Grand Junction)	CO	August 31, 1963	5	LC	38 52	106 58	No extreme precip. found in CD	Severe flooding Ruby canyon, train derailed			
194	Lamar	CO	May 29-30, 1964	1	GLC	38 04	102 37	5.64 1 day, Lamar	3-5" in Kiowa, Bent, Prowers and Baca Counties, local flooding			
195	Gibson Dam	MT	June 6-8, 1964	2.4	GLC	48 32	113 33	dead	16.20" (Glison Dam), flooding, 36			
196	Ruby Mtn (GS Buena Vista)	CO	July 24, 1964	2.3	LC	38 52	106 58	No extreme precip found in CD	No extreme precip. reported in CO			
197	Western Slope	CO	August 12, 1964	5	LC	38 45	108 04	2.00" Ignacio, 1.42 Delta	Flash flood on Ruby Mtn Delta, Grand Junction			
198	Laramie Mtn	WY	May 13-14, 1965	2.4	GLC	41 27	105 23	6" < 2 days - Laramie Mtn, flash floods, heavy rains in central mtns	Heavy T-storms, flooding - Durango, Delta, Grand Junction			
199	N Black Hills	SD	May 14-15, 1965	2	GLC	44 21	103 46	6.93" Lead - 24 hrs	No extreme precip reported in CO			
200	Plum Creek	CO	June 13-20, 1965	1.2,4	GLC	39 05	104 20	7" 1 day - N Black Hills	Floods, \$5 million in damage, no extreme precip reported in CO			
201	Eagle	CO	July 18, 1965	6	LC	39 38	106 55	Unknown	Massive and widespread flooding east of the mtns. Also, local storm near Breckenridge			
202	Evergreen	CO	July 19, 1965	2	LC	39 38	105 19	2.95"-<2 hrs, Evergreen, cloudburst	Heavy rain and flooding			
203	Montrose/San Miguel Cty	CO	July 19, 1965	5	LC	38 29	107 53	2.09" 24 hrs, Placeville	Local flooding			
204	Georgetown	CO	July 23, 1965	2,4	LC	39 42	105 42	2.54" 1 hr, 4.20" storm total at Big Spring Ranch	>2" rain in Montrose/San Miguel Cty, flash flooding			
									Mudsides, road damage at Georgetown and Breckenridge			

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
205	Security (S of COS)	CO	July 24, 1965	2	LC	38 49	104 42	Unknown	Heavy rains, flooding, 1/2 million in damage at COS - high river levels observed		
206	Denver	CO	July 25, 1965	2	LC	39 46	104 53	2.05" Denver AP, 1.99" - 30 min	Denver flooding, 3.30" 30-40 min in Aurora		
207	Rye	CO	July 30-31, 1965	2	LC	37 55	104 56	4.42" Rye	2.50-4" Beulah, flooding		
208	Front Range	CO	August 18-19, 1965	1-3	LC	39 46	104 53	5.45" Lalunia, 3.76" Salida	2-4"/hr, many reports of flooding in Front Range and Clear Creek		
209	Westcliffe	CO	August 1-2, 1966	2	LC	38 08	105 29	5.84" 2 days, Westcliffe (2 storms)	Heavy rains, flooding at Westcliffe		
210	Phillips County	CO	August 19, 1966	1	LC	40 35	10218	.83" Holyoke, largest official report	6-8" reported in Phillips County		
211	Byers	CO	September 1, 1966	1	LC	39 42	104 13	4.01" 1 day, Byers	8-9" E of Byers, hail, roads flooded		
212	SW Colorado	CO	December 4-7, 1966	3	G	37 28	106 47	1E, 5g" snow	Heavy rain/snow in SW CO, many 3-5" totals		
213	Denver	CO	May 30, 1967	2	LC	39 46	104 53	1.51" Denver AP	4" rains 15-52nd St and Sheridan to Kipling, local flooding		
214	Garfield City	CO	July 16, 1967	6	LC	39 31	107 19	(W of Glenwood Springs)	No extreme precip found in CD		
215	Blanding	UT	August 1, 1968	5	LC	37 30	109 30	4" Blanding, UT (12 hrs), 2.05" 1 hr,		X	X
216	near Levant	UT	August 2, 1968	6	LC	39 30	111 30	flooding, >6" in 24 hrs in areas Unknown, floods, crop loss	No extreme precip. reported in CO	X	X
217	Paonia	CO	August 8, 1968	5	LC	38 52	107 35	1.93" 1 day, Colorado Ntl Mon	4-5" rains Mesa and Delta Chys extensive damage at CO Ntl Mon.		
218	Sargent's	CO	August 11, 1968	3	LC	38 24	106 26	7.4" Sargent's	Cloudburst flooding in Rio Grande Valley, 10NW DeBeque		
219	Eads	CO	August 14-15, 1968	1	LC	38 29	102 47	6.15" 1 day, Eads	7.5-g" N and W of Sterling, 8" Kiowa and Prowers Cty		
220	Big Elk Meadow	CO	May 4-8, 1969	2.4	G	40 16	105 25	5.35" 24 hrs, Jones Pass 2E, 13.05"	4-11.27" Morrison, continuous rains, local flooding, road/building damage		
221	Denver	CO	June 8, 1969	2	LC	39 46	104 53	5.6" S. Denver and Englewood, hail, severe flooding	1.66" 24 hrs, Denver AP		
222	Glenwood Springs	CO	June 22-24, 1969	4-6	GLC	39 31	107 19	3.97" - 3 days Glenwood Springs	2-3" totals across NW CO		
223	N. Fork Smoky Hill River	CO	July 5, 1969	1	LC	39 18	102 35	6-7" <30 minutes, N. Fork Smoky Hill River, Kit Carson City	1.87" Stratton 3NE, fell between 7-8 pm, damaging hail		
224	near Telluride	CO	July 31, 1969	3	LC	37 57	107 49	.03" Telluride, .65 Silverton - Biggest official reports	Flash flooding and mud slides, severe damage from localized storm.		
225	Stratton 2NE	CO	August 22, 1969	1	LC	39 18	102 35	8.00" at Stratton 3NE, 11-1:30 aftn, damaging wind and hail	2 people drowned, flash flood		
226	Eagle	CO	September 23, 1969	6		39 38	106 55	1.54" 24 hrs, Eagle	No precip. reported at Eagle (FAA), Incorrect?		
227	Crested Butte	CO	September 25, 1969	3		38 52	106 58	2.30" 24 hrs, Crested Butte	No precip. reported at Crested Butte (NWS), Incorrect?		
228	Dinosaur Ntl Mon	CO	June 4 - 12, 1970	6	GLC	40 14	108 58	3.55" 4 days, Dinosaur Ntl Mon	Official gauge		
229	Craig	CO	August 7, 1970	6	LC	40 31	107 33	2.04" 1 hour at Craig	9-11" Rock Creek Canyon (10 S COS), extreme flash flood		
230	Rock Creek Canyon	CO	August 20, 1970	2	LC	38 49	104 42	2.98" 1 day, Colorado Springs			

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
231	Southwest CO	CO	September 4-6, 1970	3	G	37 48	107 40	5.00"	48 hrs, Palisade Lakes widespread flooding	X	
232	Gunnison	CO	September 12, 1970	3.5	GLC	38 33	106 55	1.45"	24 hrs, Gunnison		Many 1-2" totals over SW CO, snow on high mtn peaks
233	Cochetopa Creek	CO	August 24, 1971	3	LC	38 26	106 46	1.70"	4 hrs, Cochetopa Creek		Flooding, minor damage
234	Rapid City	SD	June 9, 1972	2	LC	44 12	103 31	15"	in 6 hrs near Nemo, SD (16NW of Rapid City)		Devastating flash flood, 237 dead, thousands injured, \$100 million in damage, no extreme precip. reported in CO
235	Mesa County	CO	September 19, 1972	5	G	39 06	107 54	1.75"	at Bonham Reservoir, 0.95" at Cedaredge		1-2" totals mainly over W CO
236	SW Colorado	CO	October 3-7, 1972	3.5	G	37 14	108 03	2.10"	Fort Lewis		Many 1-2" totals, from T.S. Joanne
237	SW Colorado	CO	October 19-20, 1972	3.5	G	37 19	107 50	5.00"	48 hrs, Durango, CO		Heavy rains, flooding
238	Front Range	CO	May 5-6, 1973	2	G	39 55	105 06	1-5"	totals along F.R.		6" est near Kiowa, S. Platte River flooding, flash flood in Denver
239	Lincoln/Yuma Cty	CO	July 18, 1973	1	LC	38 48	103 31	1.50"	1 day, Kanval 5.93" 3 days		7" (unofficial) rain between Joes-Kirk-Kanal
240	Grand Junction	CO	July 18, 1974	5	LC	39 07	108 32	1.35"	Grand Junction - 1.35" 1 hr (highest observed 1 hr value)		Heavy, severe T-storms GJ/T area, road washout - minor damage
241	Wheatridge	CO	July 16, 1975	2	LC	39 48	105 03	1.51"	1 hr, Wheatridge - 1.58", storm total (from hourly precipitation)		No extreme precip. reports found in CO.
242	Sweetwater (NW of Eagle)	CO	July 12, 1976	4.6	LC	39 38	106 55	6.00"	24 hrs, Sweetwater, CO - USGS flood analysis.		No extreme precip. reports found in CD
243	Big Thompson Canyon	CO	July 31-August 1, 1976	2	LC	40 25	105 26	12"	24 hrs, Big Thompson Canyon near Drake		Ferocious flash flood - most rain in 3-6 hours, 145 dead
244	Near Dove Creek	CO	July 24, 1977	5.6	LC	39 31	107 19	1.08"	Glenwood Springs		Flooding at Glenwood Springs and near Dove Creek - high river levels observed
245	Fort Collins	CO	July 25, 1977	2	LC	40 35	105 05	4.43"	1 day, Fort Collins		After SW Colorado - LaPlata River
246	Logan	UT	August 18, 1977	3.5	LC	41 40	111 30	4.32"	12 hrs, Logan, UT		2.12" at Rocky Ford
247	Maricopa City	AZ	Feb. 28-March 6, 1978	5	G	33 49	110 55	16.15"	Workman Creek, AZ (est)		Millions in damage, flash floods in AZ, many 1-3" totals over SW CO
248	Ashland	MT	May 16-19, 1978	2	G	46 00	114 00	Wyoming			No extreme precip. reported in CO
249	Otero County	CO	July 9-10, 1978	1	LC	37 40	103 55	2.25"	Timpas 13SW, 2.00" in 30 minutes		3-6" of rainfall, flash flooding, high river and creek levels
250	Grand Junction	CO	September 7, 1978	3.5	LC	39 07	108 32	Junction			Flash flood, road swept away
251	Southwest CO and western Valleys	CO	December 17-19, 1978	3	G	37 29	106 47	4.10"	1 day, 6.19" 3 days at Wolf Creek Pass, 88" snow		Heavy mtn snows - 2 ft in San Juan Mtns, 3 deaths
252	Lamar	CO	May 29, 1979	1	LC	38 05	102 37	4.85"	1 day Lamar		Reports of 5.50" - 2.5 hrs, flooding
253	Arizona	AZ	February 13-22, 1980	5	G	34 12	112 20	16.63"	10 days Crown King (NW of Phoenix), 3-12" Central Basin, White Basins especially in San Juan Mtns, 4-g" totals for 10 days		Heavy snows, rains in western CO
254	Cripple Creek	CO	August 8, 1980	2	LC	38 45	105 11	5.00"	3 hrs, Cripple Creek		2" < 1 hr, Lake George

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
255	Wheatridge	CO	June 2, 1981	2	LC	39 45	105 05	2.33" in 20 minutes, Wheatridge flooding, hail	3.63" storm total < few hours, local flooding, hail		
256	Frijoles Creek	CO	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijoles Creek, about 4 hrs	4.52" 1 day Trinidad AP, caused train wreck, severe flooding		X
257	Glenwood Springs	CO	July 12, 1981	4 or 6	LC	39 31	107 19	.92" - 12th, .83" 13th - Glenwood Springs	2" <1 hr, mudslides, homes damaged		
258	Rico/Dolores	CO	July 16-18, 1981	4	GLC	37 41	108 02	3.15" - 3 days Rico/Dolores	6.12" 10 days Rico, mudslides, flooding		
259	Black Forest (El Paso Cty)	CO	August 5, 1981	2	LC	38 51	104 50	2.78" Black Forest	[Local flooding - high river levels observed]		
260	Trinidad	CO	August 11, 1981	2	LC	37 15	104 20	4.20" 1 day Trinidad, CO	Heavy rains, minor flooding		
261	Logan/Phillips Cty	CO	July 25, 1981	1	LC	40 35	102 18	2.20" Holyoke	6" rain Logan/Phillips Cty - \$12 million damage		
262	Seibert	CO	July 11, 1982	1	LC	39 07	102 52	8" rain in Seibert, crop damage	Heavy T-storms over E CO		
263	Deer Creek	CO	July 28, 1982	2	LC	39 32	105 08	2.20" - 30 minutes, Deer Creek foothills	3.50" 24 hrs, Rye, heavy rains along foothills		
264	Evergreen	CO	August 17, 1982	2	LC	39 38	105 19	4.00" 90 minutes, Evergreen	2.66" 15 min, North Turkey Creek area, local flooding		X
265	Rollinsville	CO	August 20, 1982	2,4	LC	39 55	105 30	2.10" 1 hr at Rollinsville	Large amount for high elevation.		X
266	Whiskey Creek	CO	August 24, 1982	5	LC	37 13	105 07	3.70" - Whiskey Creek (Snotel site) elevation - 10,220 ft	Measurement suspect, heavy precip in SW CO - some local flooding		
267	Pinewood Lake	CO	September 13, 1982	2	GLC	39 40	105 50	4.73" Pinewood Lake (14W Loveland) 5.54" at Waterdale	Many 1-2" totals across foothills and plains, 3-4" totals in Larimer City		
	Wasatch (canyon east of Salt Lake City)	UT	September 26, 1982	3-6	G	40 46	111 58	Hurricane Olivia	No extreme precip. reported in CO		
268	Floyd Hill (foothills west of Denver)	CO	July 10, 1983	2	LC	39 46	104 53	1.25" - 30 minutes at Floyd Hill	Heavy Front Range/foothills T-storms, many 1-2" amounts.		
269	Jim Creek (east of Winter Park)	CO	July 20, 1983	4	LC	39 45	105 46	1.85" 24 hrs, Jim Creek	1.90" fell in 10 minutes at Mill Creek near Idaho Springs		
270	Kitteridge	CO	July 22, 1983	2	LC	39 38	105 16	3.00" 45 minutes, Kitteridge, flooding	2.20" 24 hrs, Parker 6E, 3" 1 hr, Golden		
271	Kit Carson	CO	July 23, 1983	1	LC	38 46	102 47	crop damage	No extreme precip. reports found in CD		
272	East Pit-ike (east end of Eisenhower Tunnel)	CO	August 4, 1983	4	LC	39 38	106 00	2.25" 25 minutes, East Pit-like (Clear Creek Ct)	Hail, minor flooding		
273	Empire (Clear Creek County)	CO	August 14, 1983	2,4	LC	39 42	105 42	1.79" - 30 minutes, Empire, 2.10" - 1 hr, Golden	Heavy rains west of Denver, mudslides closed highways		
274	Prescott	AZ	September 23-24, 1983	3,5	GLC	34 65	112 43	Up to 13" rain near Prescott area	3-11" rain in SE Arizona from tropical storm Octave, 13 deaths, \$178 million in damage, 1-2" totals in western CO		
275	San Francisco River Basin	AZ	Sep. 28-Oct. 3, 1983	3,5	GLC	33 03	109 17	11.30" in Blue River basin (USGS station)	2.80" 24 hrs, Aspen 1SW, heavy mtn shows 1-2" in locations		X
276	Redstone	CO	June 5-8, 1984	3	G	39 11	107 14	2.92" 24 hrs, Redstone, CO			

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
278	West of Denver	CO	June 13, 1984	2	LC	39 45	105 08	2.50" Lakewood, reports of >4.75" in Avada.	2-4" of rain, inches of hail, \$300 million in damage, 20 injured by hail		
279	Garfield County	CO	July 24, 1984	6	LC	39 31	107 30	No extreme precip. reports found in CD	New Castle Flash flood, \$200,000 in damage		
280	Williams Fork Dam	CO	July 28, 1984	4	LC	40 02	106 13	1" 1 hr, Williams Fork Dam	2.18" 24 hrs, Antero Res., 1-2" rains over eastern foothills		
281	Copper Mtn	CO	July 29, 1984	4	LC	39 29	106 10	2.20" - Copper Mtn in 3 hrs (Snotel site)	Flood damage, mudslides - \$20,000 total in damage		
282	Meeker	CO	July 18, 1985	6	LC	40 02	107 55	1.50" 20 minutes - Meeker	1.94" Colorado Springs WSO, minor flooding, \$700,000 in damage		
283	Colorado Springs area	CO	July 19, 1985	2	LC	38 49	104 42	6.50" <3 hrs, COS area, 2.5" 20 minutes Broadmoor area	12 dead, \$65 million in damage, severe flooding, no extreme precip. reported in CO		
284	Cheyenne	WY	August 1, 1985	1,2	LC	41 09	104 49	7.00" in 3 hrs, 6.06" at NWS in Cheyenne	Minor flooding, 1-2" rains in Denver in a few hrs	X	
285	Indian Hills	CO	August 1, 1985	2	LC	39 37	105 14	2.13" 25 minutes, Indian Hills			
286	Grand Lake	CO	September 28, 1985	4	G	40 16	105 50	3.20" 24 hrs, Grand Lake, mtn snows	Measurement suspect		
287	Silver Lake	CO	February 20, 1986	2,4	G	40 02	105 35	3.60" 24 hrs, Silver Lake	29.5" snow in 20 hrs, Winter Park, heavy mtn snows		
288	Front Range	CO	April 3, 1986	2	G	39 57	105 21	4.15" 1 day Gross Reservoir	3 deaths, high winds, heavy snow, 54" Echo Lake, 44" Buckhorn Mtn- 4.85" water equivalent.		
289	North Denver	CO	August 2, 1986	2	LC	39 54	105 01	2.75" in 15 minutes, North of Denver	\$70 million in flood and hail damage		
290	Colorado	CO	October 10-12, 1986	3	G	37 29	106 47	4.00" 1 day - 6.00" 2 days at Wolf Creek Pass			
291	Rand 2W	CO	July 28, 1987	4	LC	40 26	106 10	1.75" 30 minutes, hail 6-8" deep at Rand 2W, elevation 8,600 ft	No extreme precip. reports found in CO		
292	Summit Ranch	CO	July 31, 1987	4	LC	39 43	106 10	2.40" - Summit Ranch (Snotel site), elevation - 9,400 ft	T-storms in mtns, some local flooding and hail in areas.		
293	Albuquerque	NM	July 9, 1988		LC	35 03	106 37	5.25" < 6 hrs (NWS site), Unofficially reported in NM, no extreme precip.	Home, business flooding, \$3 million in damage in NM, no extreme precip. reported in CO		
294	Julesburg	CO	July 17, 1988	1	LC	41 00	102 15	4.40" Julesburg	4.6", 1 hr Julesburg, buildings flooded, road washed out		
295	Scotch Creek	CO	August 19, 1988	3	LC	37 39	108 01	4.10" - Scotch Creek (Snotel site), elevation - 9,100 ft	Measurement suspect		
296	Northern Colorado	CO	September 13, 1988	4	G	39 46	107 21	3.00" Bison Lake, 2.60" Burro Mtn (Snotel sites) Marvine Ranch - 2.35"	Rains turning to snow in mtns, heavy in central mtns		
297	Sterling 16NE	CO	June 8, 1989	1	LC	40 37	103 12	5.70" 2.5 hrs, Sterling 16NE, minor flooding	1.15" Sterling, 3.87" Leroy 5WSW		
298	E. Colorado	CO	June 28, 1989	1	LC	40 35	102 18	2.10" Holyoke	Huge storm over E. CO 4-5" rain 1 hr, 4" Goodland, KS, millions in damage		
299	Brush	CO	June 30, 1989	1	LC	40 15	103 55	4.5" hail, heavy rain, property and crop damage, up to 5" in areas	No extreme precip. reports found in CO		

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area
300	Muddy Creek Dam	CO	July 25, 1989	4	LC	40 05	106 24	1.10"	3 hrs, Muddy Creek Dam	2.18" 24 hrs, Center, CO	
301	Lucerne	CO	July 29, 1989	1.2	LC	40 29	104 41	8.00"	at Lucerne	1.43" Twin Lakes 2.30" at Greeley	
302	Cedaredge	CO	July 29, 1989	5	LC	38 54	107 56	1.93" 1 hr, 2.28 storm total at Cedaredge			
303	North Fork Frenchman Creek (by Holyoke)	CO	July 30, 1989	1	LC	40 37	102 28	15	8.20" - 17hrs, Paoli, 3.12" - Fleming flash floods, high river and creek levels	3.5" < 2 hrs in areas around Fleming, Locally heavy T-storms in mtns	
304	Deadman Hill	CO	August 1, 1989	4	LC	40 48	105 46	2.80" Deadman Hill (Shotel site), elevation - 10,200 ft			
305	Fort Collins	CO	March 6, 1990	2	G	40 35	105 05	3.90" 24 hrs, Fort Collins, 4.16" storm total, 1.7" snow	Mostly wet snow, heavy mtn snows		
306	Opal	WY	August 16, 1990	6	LC	41 50	113 30	7.00" in 2 hrs, Opal, WY, flash flood	No extreme precip. reported in CO	X	
307	Sybille Creek (25 SW Wheatland)	WY	August 20, 1990	1	LC	41 30	105 00	3.10" in 1 hr, Sybille Creek, WY, up to 4" rain < 3 hrs.	No extreme precip. reported in CO	X	
308	Owl Canyon	CO	June 1-2, 1991	2	LC	40 44	105 10	4.8" near Owl Canyon, flash flood	2.33" 1 day Boulder, 2.3" in a few hours, 1.5-3.5" < 1 hr - Lakewood/Golden		
309	Virginia Canyon	CO	August 18, 1991	2	LC	39 46	105 31	2.25" in 75 minutes, near Idaho Springs	Henz study, up to 3" in 20 min, rock/mud slides		
310	Nevada-Utah	NV,UT	September 6-9, 1991	3.5	LC	40 00	114 00	8.40" N. Ogden, UT, flash flood	No extreme precip. reported in CO	X	
311	S & E Colorado	CO	August 23-25, 1992	2.3	G	38 00	104 00	Widespread 1-5" rains	From Hurricane Lester, modest flooding		
312	Rifle	CO	May 15, 1993	6	LC	39 32	107 48	2.4" in 2 hrs, Government Creek	Henz study, flash flood, \$100,000 in damage		
313	Delta	CO	August 10, 1993	5	LC	38 45	108 04	2.4" in 2 hrs, Roubideau Creek	Henz study		
314	Tenneco Mines (extreme SW Utah)	UT	August 25-26, 1993	5	LC	37 00	114 00	minor flooding	No extreme precip. reported in CO		
315	Southwestern CO	CO	August 27-30, 1993	3.5	GLC	37 29	106 48	2.70" on 29th - Upper San Juan (5.60" storm total), 2.70" on 29th-Wolf Creek Summit (5.50" storm total), shotel sites	Wolf Creek Pass 1E - 5.42" - 3 day total, steady rains across southwestern CO		
316	Colorado	CO	September 13, 1993	2.4	G	40 16	105 50	1.76" Grand Lake, 1.88" Loch Vale (elevation - 10,000 ft)	Widespread rains, snow in foothills and mtns		
317	Near Fairplay	CO	June 17, 1994	4	LC	39 14	106 00	No precipitation reported but some of the biggest cumulonimbus clouds ever reported near Fairplay	Reported by Charles Kuster, photos in file		
318	Muddy Creek	CO	June 20, 1994	4	LC	40 07	106 25	3.00" 1 hr, Muddy Creek	2.62" 24 hrs, Loveland, CO, flooding in E. Larimer City		
319	Virginia Dale	CO	August 10, 1994	2	LC	40 54	105 18	5.47" near Virginia Dale in <4 hrs	2.36" 24 hrs, Waterdale, CO, flooding, \$400,000 in damage		
320	Pueblo	CO	August 13, 1994	2	LC	38 17	104 39	3" in 35 min, 4.87" in 1.5 hrs - Pueblo 5-8" between 9-10:30 pm with lots of hail at Colorado Springs	\$1 million in damage, local flooding, heavy T-storms. Storm occurred but max precip.measurement suspect.		
321	Colorado Springs	CO	September 2, 1994	2	LC	38 49	104 42				

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Extreme Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area	Dur. Study
322	Canon City	CO	May 17, 1995	2	G	38 25	105 13	> 6" in 24 hrs in some areas	2.90" - storm total, extensive street and property damage, up to 2.4" in 45-90 minutes over SW			
323	SW Denver County	CO	June 4, 1995	2	LC	39 38	105 04	3.20 < 1 hr at Pinehurst (SW Denver)	Denver County 4" gauge, volunteer observer, documented on radar			
324	Willard 3W	CO	June 7, 1995	1	LC	40 29	103 30	4.86" in 2 hrs at Willard 3W				
325	Wolf Creek Pass	CO	August 20, 1995	3	LC	37 29	106 47	4.03" in 1 day at Wolf Creek Pass	Measurement appears suspect			
326	Pagosa Springs	CO	August 22, 1995	3.5	LC	37 16	107 01	1.75" 40 minutes, 2.36 storm total (3 hrs), hail				
327	Pueblo	CO	July 9, 1996	2	GLC	38 17	104 39	2.45" in 90 minutes in eastern Pueblo	Widespread flooding, roofs collapse, crops destroyed.			
328	Fleming	CO	September 17, 1996	1	GLC	40 40	102 50	4.22" night of 17th - Fleming	Reports of 5-10" in area of Fleming/Padi			

**Appendix B. Colorado Extreme Storm Precipitation Data
Study — List of questionable storms from the comprehensive
Storm List in Appendix A**

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Questionable Storm Precipitation Reports

Storm No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
40	Gladstone - San Juan Range	CO	October 4-6, 1911	3	G	37 53	107 39	8.05" 24 hrs, Gladstone, CO Definitely a big storm, but Gladstone precip in question	Large flood Durango and Animas River, many 3-4" totals	X	X
48	Telluride	CO	July 27, 1914	3	LC	37 57	107 49	A storm definitely happened but date of reported heavy rain does not match with date of reported mudslide 3.50" 1 day Telluride	Mudslide 7/27/1914 buried Telluride, precip reported on 8/26/14.		
107	Leadville	CO	August 18, 1932	3.4	LC	39 15	106 18	2.96" 1 day, Leadville	Nothing noted on forms, precip occurred in 2 storms		
114	Masonville	CO	September 10, 1938	2	LC	40 26	105 13	<1 hr. reports suspect.	No extreme precip. reports found in CO	X	
158	Cimarron	CO	June 3, 1952	3.5	GLC	38 24	107 31	5.25" 1 day, Cimarron	Did it really happen?		
226	Eagle	CO	September 23, 1969	6	39 38	106 55	1.54" 24 hrs Eagle	forms not found	CD notes 10" total precip for month		
227	Crested Butte	CO	September 25, 1969	3	38 52	106 58	2.30" 24 hrs, Crested Butte	CD notes 10" total precip for month	No precip at Eagle (FAA). Incorrect?		
266	Whiskey Creek	CO	August 24, 1982	5	LC	37 13	105 07	3.70" - Whiskey Creek (Snotel site)	No precip at Crested Butte (NWS) or in state on 25th. Incorrect?		
286	Grand Lake	CO	September 28, 1985	4	G	40 16	105 50	elevation - 10,220 ft	Measurement suspect		
295	Scotch Creek	CO	August 19, 1988	3	LC	37 39	108 01	4.10" - Scotch Creek (Snotel site), elevation - 9,100 ft	Measurement suspect		
321	Colorado Springs	CO	September 2, 1994	2	LC	38 49	104 42	5.8" between 9-10:30 pm with lots of hail	Storm occurred but max values of precipitation appear suspect.		
325	Wolf Creek Pass	CO	August 20, 1995	3	LC	37 29	106 47	4.03" in 1 day	Measurement appears suspect		

Questionable Storm Precipitation Reports

This set of storms was presented as having suspect precipitation observations to the October 1996 meeting of the Extreme Precipitation Task Committee.

- The committee acknowledged that the Gladstone storm of October 1911 (Storm #40) was an extreme event for that region, but the majority of the committee believed the specific local rainfall report at Gladstone was most likely in error although the magnitude of the error is not known and cannot be inferred easily from other information.
- The Telluride storm was not discussed.
- The Leadville storm of 1937 (Storm #107) has been investigated previously and there was full agreement that this observation was exaggerated most likely by the presence of a Marvin snowshield.
- The Cimarron storm of 1952 (Storm #158) has been thoroughly investigated by several committee members. There was total agreement within the review committee that the reported value of 5.25 inches was in error and most likely should have been 0.53 inches.
- The Eagle and Crested Butte storms were not investigated since the rainfall magnitudes were not exceptional.
- The committee accepted the Colorado Climate Center's recommendation to consider the Whiskey Creek and Scotch Creek (Storm #295) SNOTEL measurements as inaccurate. These were most likely accumulated values resulting from SNOTEL communications problems.
- The Grand Lake storm (Storm #286) is also assured to be an error – most likely a decimal placement error. A report of 0.32" would have been most consistent with the amount of snowfall reported.
- The Colorado Springs report (#321) was not closely evaluated, but large accumulations and drifts of hail may have accounted for the extreme rainfall reports.
- The Wolf Creek Pass observation of 4.03" in August 1995 has been carefully evaluated. No evidence of such heavy rain could be found although moderate rain was widespread over the region. Most likely 0.40" was a more accurate reading.
- Peak rainfall totals (observed or estimated) are also questionable for other storms on the list. For example, reports of 5-7" of rain in less than 1 hour from ranchers near Masonville (SW of Fort Collins) on September 10, 1938 were investigated, but there is insufficient evidence to either confirm or refute the reports.

It was impossible within the scope of this project to investigate all precipitation reports.

Appendix C. Project summary of special analysis of streamflow data

MEMORANDUM

TO: Dr. Thomas McKee, Dr. Nolan Doesken (Colorado Climate Center, CSU)

FROM: John F. England, Jr. M.S. Candidate, Civil Engineering Department

DATE: 02-15-96

SUBJECT: Extreme Streamflow Task Status

In accordance with Task 4 of the Draft Proposal to the Colorado State Engineer's Office, I am currently developing an Extreme Streamflow Data Base to complement the Extreme Precipitation Storm List.

I have attached a brief summary report which presents the work in greater detail.

The following work has been completed:

- obtained the USGS Indirect Measurement File;
- manipulated the Indirect File for import into Microsoft Excel;
- sorted the data by date, discharge (ranking), and by river basin/county/gage;
- manually compared the indirect and storm lists by date;
- amended the indirect file and added Storm List Numbers and comments;
- developed an indirect "short list" that matches discharges to storms, sorted by Storm Number;
- developed a storm "short list" that matches storms to discharges;
- noted the types of storms that had indirect measurements (and number of measurements);
- noted storm coverage of maximum indirect discharges greater than 5,000 cfs (arbitrary criterion)
- noted dates and numbers of indirect measurements that possibly indicate extreme floods not covered by the storm list.

Work to be completed includes:

- checking the existing indirect file for completeness of historic and relatively recent data (discussed in the attached summary report);
- successfully obtaining the maximum discharge and date from the USGS peak flow files for each stream gage, possibly gathering the top 3 or 5 peaks as we discussed (in process);
- comparing the storm list to the peak flows.

COLORADO EXTREME STREAMFLOW DATA BASE INDIRECT MEASUREMENT FILE

Introduction

An extreme streamflow data base is being compiled as part of an extreme precipitation data study. The study is being conducted by the Colorado Climate Center, Department of Atmospheric Science at Colorado State University for the State of Colorado, Department of Natural Resources Division of Water Resources. The purpose of the study is to gather and prepare a data set composed of precipitation records and supporting meteorological information necessary for undertaking studies of extreme precipitation over the higher elevations (above 7,500 feet) of Colorado. The data gathered for the study will be used to assess previous estimates of Probable Maximum Precipitation in and near the mountains of Colorado.

Three objectives are proposed for the extreme streamflow data study:

- (1) assemble a data set of "large" (historic or maximum) observed, recorded, or calculated streamflows (flood discharges) for the State of Colorado;
- (2) merge/compare the two data bases, and assist in identifying events with good precipitation and streamflow data, including spatial and temporal resolution; and
- (3) identify "questionable" precipitation and/or streamflow observations for further study.

An overall goal of the study is to develop an understanding of the relationships/interactions between extreme precipitation and streamflow in Colorado.

Several key questions or areas will be addressed in meeting the above objectives.

- a) Identification of geographic areas or locations where extreme precipitation has been documented but no flood flows/extreme streamflows have been recorded.

An example of this phenomenon is the San Juan Range (Gladstone, CO) 1911 storm, where a purported 8 inches of rain was measured and little streamflow was noted.

- b) Identification of geographic areas or locations where flood flows/extreme streamflows have been documented but extreme precipitation has not been recorded.

A discharge of 12,000 cfs (annual peak) was recorded at the Cache La Poudre gage at the canyon mouth in 1901. However, no record of a flood occurring or extreme rainfall was noted in U.S.

Geological Survey Water Supply Papers. This is the highest recorded discharge in the USGS files (excluding the 1891 Chambers Lake dam failure and the May, 1904 flood) for this gage. For comparison, the May 31, 1930 storm occurrence was recorded in Water Supply Papers; the flood discharge (estimated) for this event was 10,200 cfs and wiped out the gage. Two questions arise: did a significant rainfall occur (extreme precipitation), and is the 1901 discharge accurate (suspect) as it exceeds the 1930 event.

- c) Identification of areas in Colorado where little to no extreme precipitation data exist and very few instances of flooding have been noted.

One area targeted by the Colorado Climate Center for investigation is Region 6, the Northern Rocky Mountain interior valleys and plateaus, which includes Craig, Meeker, Rifle, and vicinity. An examination of the extreme streamflows may identify snowmelt as the primary (if not only) mechanism for flood discharge. The results from this investigation may have significant ramifications on the future development of Probable Maximum Precipitation estimates for this region.

Indirect File Documentation

The Indirect File list is a modified version of the U.S. Geological Survey Indirect Discharge Measurement file. The file has been slightly altered to Microsoft Excel spreadsheet format; the original data has not been altered except for presentation in a column format.

The list includes all known indirect discharge measurements made by the U.S. Geological Survey Colorado District, thus it is not inclusive to extreme events (for example, greater than a 100-year event). Due to the dangers and destructive nature of floods, accurate measurements at the time of the peak discharge are very difficult and seldom attempted. Indirect measurements are made at a location after the flood has passed. Typical site selection is: a gaging station destroyed by a flood; a flood discharge which is much higher than the existing rating curve (stage-discharge relation); or where loss of life, significant property damage, or road/bridge damage has occurred. The file is the primary source for flood discharge measurements for Colorado, and encompasses the major drainage basins and counties in Colorado.

The list contains locations, dates, discharge estimates, type of measurement, and brief quality descriptor.

Location: Gage locations are noted by Colorado County, USGS Gaging Station number, latitude/longitude, and brief description/location.

Type of Measurement: the indirect measurement method used is indicated by the following measurement type codes:

1 - Slope area; 2 - weir; 3 - culvert; 4 - contracted opening;
5 - float; 6 - critical depth.

- File code: indicates where the data file and supporting documentation (if available) is located, by:
R - Denver; L - Lakewood; G - Grand Junction; P - Pueblo; M - Meeker;
D - Durango
- Note code: indicates notes on the location, computations, or peak discharge, by:
1 - coordinates are only to the nearest minute;
2 - computations and x-sections are not included;
3 - peak discharge due to dam failure
- Part code: indicates the major river basin where the measurement was made, and is the first digit (other than zero) of the stream gage station number for Colorado:
Part 6 - Platte River Basin
Part 7 - Arkansas River Basin
Part 8 - Rio Grande River Basin
Part 9 - Colorado River Basin
- Rating: a quality descriptor assigned by the person making the discharge estimate; it is a relative gage of the quality of the accuracy of the discharge measurement:
Good - within 10 percent (ideal conditions)
Fair - within a 15 percent possible error
Poor - where error might possibly be 25 percent or greater
Unknown - quality is not known, determined, or is absent from computations

Comparison With Extreme Precipitation Data Base

The indirect data base was compared to the extreme storm list by date. A total of 690 measurements are contained in the indirect data base. I discovered several limitations to the indirect measurement file as compared to the Storm List dates of coverage. The indirect file I was able to obtain consists of measurements from 1867 to 1983. Thus, storm numbers 218-254 (37 events) from years 1983 to 1995, are not covered by this method. In addition, little historic information is available for the period 1867 to 1930; nine measurements have been made for this period. One measurement (June 2, 1867 at Morrison) does not have any discharge estimate; the one measurement in 1904 (May 20, Cache La Poudre) is highly suspect. Several indirect measurements made during the historic period may be missing (e.g. May 31, 1930 Cache La Poudre at mouth of canyon), others are of questionable quality. The storm list contains 83 measurements during this period. Thus, the indirect measurement data base is insufficient to match flood discharges to precipitation events during the early (historic) period and new measurements (later than 1983). A reasonable comparison is for the period 1930 to 1983, and includes 681 indirect measurements and 77 precipitation events (subtracting 83 events during historic period, 37 events after 1983, and about 57 storms outside Colorado).

The two lists were compared by date of event. Flood events were selected from the indirect list

Q = discharge

which did not have a precipitation match, to discuss and briefly investigate. The selected floods may represent extreme precipitation events which were not recorded or documented. Further work is needed to shorten the list. Floods were selected based on two simple criteria: (1) the number of indirect measurements made on a particular date; and (2) a significant peak discharge (based on ranking by location).

A chronological list of observations/questions/comments between the two data sets follows. The abbreviation Co. is used for county. Refer to the attached indirect data table (sorted by date).

Check August 26-27, 1941 Pueblo/Otero Co. (Large Q)

No storms were documented for 1942 in Colorado

Check April 23-24, 1942 Las Animas/Bent/Otero Co. (Large Q)

August 14-15, 1942 Huerfano/Pueblo/Otero Co.

Check July 31, 1945 Gunnison Co.

Location of Cucharas Dam, CO ?

For Storm No. 129 June 4-7, 1949 Eastern CO 7 measurements, possibly 13 total were made. Check June 1949 indirects in Prowers Co.

July 26, 1950 Pueblo Co. Huerfano River greatest indirect Q 16,700 cfs

check July 29-Aug 1, 1953 San Miguel/Montezuma Co. SW CO

Check 1954 no precip. in CO

July 22, 1954 Las Animas Co.

For Storm No. 133 Redstone Creek Bellevue, CO 12 definite, possibly 15 measurements were made.
For Storm No. 138 May 18-20, 1955 34 indirect measurements were made.

Storm No. 140 ONE indirect MADE !!

Check July 19, 1956 Bent/Prowers Co. 4 measurements made

Year 1958 - No CO precip 8 misc. measurements

Year 1960 - No CO precip 4 misc. measurements

July 27, 1961 Fremont Co. Arkansas R. Trib at Parkdale, 3 measurements

July 31, 1961 Douglas Co. Franktown, CO 2 measurements

July 13, 1963 Pueblo Co. Kramer Creek

August 3, 1963 Arapahoe/Douglas Co. Parker/Cherry Creek

Storm No. 159 Plum Creek: appears to be 91 indirect measurement made, which is 13 percent of total number of indirect measurements!

Location of Storm No. 164 Big Sky Ranch? (Date?) July 24, 1965 two measurements at Fountain Creek El Paso Co.

One indirect measurement made in 1966

Check Storm No. 183: August 22, 1969 appears to be 5 indirect measurements

Storm No. 188 - September 4-6, 1970 27 measurements made, 3 are questionable on date

Check September 19, 1972 - Mesa Co. 3 measurements made.

Storm No. 193 October 19-20, 1972 SW CO, 5 measurements

Storm No. 194 May 5-6, 1973 include May 7th? 13 measurements made.

Check July 18, 1974 Mesa/Dolores Co.

Storm No. 198 Big Thompson - 32 measurements made Check Aug 1-2, 1976 Pueblo Co., 3 measurements.

Check July 24, 1977 Delta Co. 2 measurements

August 25, 1977 Rio Blanco/Garfield Co. 2 measurements.

Location of La Plata River ??

CHECK JULY 23-24, 1977 Rio Blanco 7 measurements

September 11, 1977 3 measurements Rio Blanco Co.

June 27, 1978 3 measurements Las Animas Co.

March 17, 1979 3 measurements Jefferson Co.

July 31, 1979 3 measurements Las Animas Co.

August 26, 1980 3 measurements Denver/Adams Co.

June 2, 1981 El Paso Co CO Springs area 4 measurements

June 3, 1981 Jefferson/Denver/Adams Co. 3 measurements

August 5, 1981 3 measurements El Paso Co.

August 10, 1981 3 measurements Las Animas Co. - Trinidad Storm (No. 210?)

August 13, 1982 W. Salt Creek Garfield Co. 2 measurements (same site as Aug. 30-31, 1981 w/4 measurements) larger Q

August 24, 1982 Cortez Montezuma Co. 2 measurements.

To summarize the date comparison, 283 possible matching indirect measurements out of a total of 690 were made that match 45 storms out of a possible 160 storms (subtracted from 254 total, 37 storms after 1983 and about 57 out of state). This appears to be a 28 percent matching rate (45/160). An indirect rating quality or record shift was noted about year 1956. Prior to this date, most of the indirects were rated as unknown quality, with a known rating listed for most measurements after 1956.

The indirect file was sorted by discharge after including the Colorado Climate Center (CCC) Storm Numbers and including a comments column. A table was created of discharges greater than 5,000 cfs (arbitrary criterion) to cross check the coverage of the CCC Storm list (see attached table). Fortunately, most of the large indirect discharge measurements (greater than 9,500 cfs) correspond to a CCC Storm Number. Maximum discharges need to be identified at a particular location to check for correspondence with a CCC storm number and possible flood occurrence without precipitation data.

Two matching lists were created, an indirect short list and a precipitation short list, to merge the indirect measurements that match a precipitation event (see attached tables). The indirect list was sorted by CCC storm number. A count of indirect measurements corresponding to a storm number may be made, for example 13 percent (91) of the measurements were made for the Plum Creek event (storm No. 159); however many of the measurement locations or dates need to be reviewed for all matching indirect measurements.

For the storms that were recorded or matched with indirect files, the storm type was examined for trends. Out of 45 matching storms (see list) over 50 percent (25) were local convective (LC) storms, 8 were general (G), 8 were general local convective (GLC) and 4 were unnamed. The matching indirect measurement drainage basin locations were reviewed; the indirect file sorted by discharge (ranked) was also examined. The majority of the indirect measurements that match a storm event are from Parts 6 and 7. Similarly, the largest ranked discharges (greater than 9,000 cfs) were measured in Parts 6 and 7. Thus, the majority of floods in Colorado as indicated by the indirect measurement file occur in the Platte and Arkansas River Basins and result from Local Convective storms, in general.

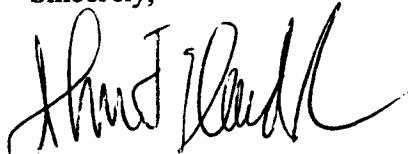
The indirect measurement data base was also sorted by river basin, county, and stream gage. Few discharge measurements were made in the Northwest portion of Colorado. While many measurements (23) were made in Rio Blanco Co., 26 measurements were made in Mesa Co., several were made in Garfield Co., and no measurements were made in Routt Co. No measurements were made in Summit Co., one in Grand Co., and 7 in Eagle Co.

Continued Work and Development

The data base is still in the development stage. The indirect data base is being reviewed. Peak discharges at a gage/location need to be reviewed for coverage. A list of peak flows from USGS gaging stations is currently being compiled for comparison to the extreme storm list. One file (peak flow file short list) was generated and lists the maximum instantaneous peak discharge and gage height for all Colorado stations; it unfortunately does not list the complete date or even water year of the maximum discharge. This is being worked on at the present time. The peak flow data has been gathered for every gaging station; the data need to be sorted and ranked in discharge order.

If you have questions, comments, or additional information to add, please contact me at any time regarding this project summary or data base.

Sincerely,



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Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	INDIRECT DISCHARGE MEASUREMENTS IN COLORADO SORTED BY RIVER BASIN/COUNTY/GAGE			TYPE	DRAINAGE AREA (SQ. MI.)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER
		MONTH	DAY	YEAR								
ADAMS	6120900	3985321	1045218	JUN 17	1965	28600	1	4713	UNKNOWN	R	2	SOUTH PLATTE RIVER AT HENDERSON, COLORADO
ADAMS	3944222	1045000	MAY 30	1948	4700	1	113 FAIR	UNKNOWN	R	2	BOXELDER CREEK NEAR WATKINS, COLORADO	
ADAMS	394552	1044937	MAY 9	1957	6450	4	113 FAIR	UNKNOWN	R	2	SAND CREEK NR. AURORA, COLORADO	
ADAMS	394600	1045000	MAY 17	1957	7600	6	113 FAIR	UNKNOWN	R	1	MIDDLE BIQU CREEK NR. DEER TRAIL, COLORADO	
ADAMS	394018	1040552	JUN 17	1965	14500	1	190 FAIR	UNKNOWN	R	6	SAND CREEK AT SABLE AVE, AURORA, COLORADO	
ADAMS	39524	1044901	JUN 18	1965	13400	1	113 GOOD	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DERBY, COLORADO	
ADAMS	394652	1045653	JUN 17	1965	18800	4	4598 FAIR	UNKNOWN	R	6	BIG DRY CREEK AT P.R. GULVERT AT DENVER, COLORADO	
ADAMS	395935	1045627	MAY 6	1973	740	3	65 UNKNOWN	UNKNOWN	L	6	NIVER CREEK NR. MOUTH AT DENVER, COLORADO	
ADAMS	395028	1045155	MAY 6	1973	550	1	6 UNKNOWN	UNKNOWN	L	6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	
ADAMS	394446	1045248	MAY 26	1980	540	13	POOR	UNKNOWN	R	6	74TH AND WINONA DITCH, DENVER, COLORADO	
ADAMS	394952	1050246	AUG 3	1980	580	3	FAIR	UNKNOWN	R	6	LITTLE DRY CRK. AT 74TH AND WINONA CT AT WESTMINSTER, CO	
ADAMS	394848	1050253	AUG 26	1980	580	3	FAIR	UNKNOWN	R	6	L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	
ADAMS	395111	1045816	JUN 3	1981	265	3	1 UNKNOWN	UNKNOWN	L	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	
ARAPAHOE	6100000	393710	1050110	JUN 18	1965	11000	4	3068 UNKNOWN	UNKNOWN	R	6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO
ARAPAHOE	6171500	393908	1050157	SEP 2	1938	2810	1	280 UNKNOWN	UNKNOWN	R	2	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO
ARAPAHOE	6171500	393908	1050157	AUG 25	1940	680	1	260 UNKNOWN	UNKNOWN	R	2	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO
ARAPAHOE	6171500	393808	1050157	AUG 11	1955	1170	1	260 UNKNOWN	UNKNOWN	R	2	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO
ARAPAHOE	6171500	393808	1050157	JUL 25	1985	2800	5	280 UNKNOWN	UNKNOWN	R	6	HARVARD GULCH TRIB. A ENGLEWOOD, COLORADO
ARAPAHOE	6171500	393808	1050157	JUL 1	1972	63	1	1 UNKNOWN	UNKNOWN	L	6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO
ARAPAHOE	6171500	393834	1045816	JUL 24	1975	178	1	0.98 UNKNOWN	UNKNOWN	L	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1045816	JUL 15	1984	450	1	368 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1044915	JUL 15	1984	530	1	360 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1044919	JUL 31	1986	5310	1	360 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1044919	JUL 28	1987	9850	1	360 POOR	UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1044944	AUG 3	1983	10800	1	338 GOOD	UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO
ARAPAHOE	6171500	393834	1044944	JUN 16	1985	39800	4	338 UNKNOWN	UNKNOWN	R	6	KIOWA CREEK NR. BENNETT, COLORADO
ARAPAHOE	6171500	393834	1042441	JUL 19	1970	2770	1	6.41 UNKNOWN	UNKNOWN	L	6	KIOWA CREEK AT BENNETT, COLORADO
ARAPAHOE	6171500	393834	1042441	JUL 11	1981	1770	1	238 FAIR	UNKNOWN	R	6	KIOWA CREEK AT BENNETT, COLORADO
ARAPAHOE	6171500	393834	1042446	JUL 6	1983	1730	1	238 FAIR	UNKNOWN	R	6	KIOWA CREEK AT BENNETT, COLORADO
ARAPAHOE	6171500	393834	1042448	SEP 22	1983	3420	1	238 FAIR	UNKNOWN	R	6	KIOWA CREEK AT BENNETT, COLORADO
ARAPAHOE	6171500	393834	1042446	JUN 18	1985	24900	4	238 POOR	UNKNOWN	R	6	KIOWA CREEK AT BYERS, COLORADO
ARAPAHOE	6171500	393834	1041407	JUL 30	1980	1800	1	1 UNKNOWN	UNKNOWN	R	6	LITTLE DRY CREEK ENGLEWOOD, COLORADO
ARAPAHOE	6171500	393834	1045909	JUL 3	1981	1200	1	1 UNKNOWN	UNKNOWN	R	2	MIDDLE BIQU CREEK NR. DEER TRAIL, COLORADO
ARAPAHOE	6171500	394016	1040554	AUG 3	1981	11000	1	1 UNKNOWN	UNKNOWN	R	2	EAST BIQU CREEK NR. BYERS, COLORADO
ARAPAHOE	6171500	394454	1042448	SEP 22	1983	41000	4	35.6 UNKNOWN	UNKNOWN	R	2	PINEY CREEK NR. MELVIN, COLORADO
ARAPAHOE	6171500	394454	1042446	JUN 18	1985	10400	23	35.6 UNKNOWN	UNKNOWN	R	2	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO
ARAPAHOE	6171500	394454	1041407	JUL 30	1980	3330	1	7.61 GOOD	UNKNOWN	R	2	COTTONWOOD CREEK ABV. CHERRY CREEK RESERVOIR, COLORADO
ARAPAHOE	6171500	394454	1045909	JUL 3	1981	223	2.3	0.6 GOOD	UNKNOWN	R	2	COTTONWOOD CREEK TRIBUTARY AT ARAPAHOE ROAD, COLORADO
ARAPAHOE	6171500	394454	1045909	JUL 3	1981	850	3	1.3 GOOD	UNKNOWN	R	2	LONE TREE CREEK AT ARAPAHOE ROAD, COLORADO
ARAPAHOE	6171500	394454	1045909	JUL 3	1983	3920	3	35.8 GOOD	UNKNOWN	R	2	TOLL GATE CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 15	1983	1400	1	302 FAIR	UNKNOWN	R	1	EAST BIQU CREEK NR. MELVIN, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	274000	1	35.6 UNKNOWN	UNKNOWN	R	2	PINEY CREEK NR. MELVIN, COLORADO
ARAPAHOE	6171500	394454	1044904	MAY 9	1987	14100	1	21.9 GOOD	UNKNOWN	R	6	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO
ARAPAHOE	6171500	394454	1045117	1983	1863	18000	2.3	35.8 UNKNOWN	UNKNOWN	R	6	WEST BIQU CREEK AT BYERS, COLORADO
ARAPAHOE	6171500	394454	1045117	1983	1863	223	2.3	0.6 GOOD	UNKNOWN	R	6	WEST BIQU CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1045117	JUL 17	1985	75600	4	27.7 FAIR	UNKNOWN	R	6	LITTLE DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1045117	JUL 15	1983	4400	4	17.9 UNKNOWN	UNKNOWN	L	6	LITTLE DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 15	1983	1510	1	15 UNKNOWN	UNKNOWN	R	6	LITTLE DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	14100	1	15 UNKNOWN	UNKNOWN	R	6	LITTLE DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 16	1985	18000	2.3	18.6 GOOD	UNKNOWN	R	6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	75600	1	10.1 UNKNOWN	UNKNOWN	R	6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	785	1	4.8 FAIR	UNKNOWN	R	1	LEFTHAND CREEK NEAR BOUDER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	5700	1	14.6 UNKNOWN	UNKNOWN	R	6	DRY CREEK NR. NWOT, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	235	1	0.4 POOR	UNKNOWN	R	6	CLEAR CREEK NR. LAWSON, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	6130	2.5	0.54 FAIR	UNKNOWN	R	3	GUNBARREL HILL DRAW NR. NWOT, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	16	1.3	0.54 FAIR	UNKNOWN	R	2	GUNBARREL HILL DRAW NR. NWOT, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	1870	1	16.8 GOOD	UNKNOWN	R	6	JAMES CREEK AT MOUTH NR. JANESTOWN, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	241	1	7.84 UNKNOWN	UNKNOWN	L	6	BIG TIMBER CREEK TRIB. NEAR ARAPAHOE, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	2230	1	14.6 UNKNOWN	UNKNOWN	R	6	CLEAR CREEK NEAR LAWSON, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	22000	5	40.4 UNKNOWN	UNKNOWN	R	2	SOUTH PLATTE RIVER AT DENVER, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	3120	5	40.4 UNKNOWN	UNKNOWN	R	2	CHERRY CREEK NR. LAWSON, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	1945	5	40.4 UNKNOWN	UNKNOWN	R	2	GUNBARREL HILL DRAW NR. NWOT, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	29500	1	18.1 UNKNOWN	UNKNOWN	R	6	HARVARD GULCH AT HARVARD PARK, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	420	1	4.45 FAIR	UNKNOWN	R	6	HARVARD GULCH AT HARVARD PARK, COLORADO
ARAPAHOE	6171500	394454	1044904	JUN 17	1985	942	12	4.45 FAIR	UNKNOWN	R	6	HARVARD GULCH AT HARVARD PARK, COLORADO
CLEAR CREEK	6116500	394540	105003	MAY 8	1981	1851	3	49.9 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 6	1983	91	13	0.54 FAIR	UNKNOWN	R	2	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 4	1985	16	1.3	0.54 FAIR	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	SOUTH PLATTE RIVER AT DENVER, COLORADO
CLEAR CREEK	6116500	394540	1049914	JUN 5	1985	186	1	14.6 UNKNOWN	UNKNOWN	R	6	CHERRY CREEK NR. LAWSON, COLORADO
CLEAR CREEK	6116500	3945										

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING FILE	NOTE	PART	DESCRIPTION/LOCATION		
													COC STORM LIST NUMBER		
DENVER	394485	39.4485	104.5404	JUN	15	1983	3140	1	187	GOOD	R	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO		
DENVER	394485	39.4485	104.5300	JUN	16	1985	18000	3	187	FAIR	R	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO		
DENVER	394129	39.4129	104.5113	MAY	9	1973	5630	4	187	UNKNOWN	L	6	SAND CREEK AT 48TH STREET BRIDGE AT DENVER, COLORADO		
DENVER	394520	39.4520	105.0200	MAY	6	1973	320	1	8	UNKNOWN	L	6	SANDSONN GULCH AT ARKANSAS AVE. AT DENVER, COLORADO		
DENVER	395641	39.5641	104.5810	JUL	14	1975	430	1	8	UNKNOWN	L	6	WEIR GULCH AT DECATUR AT DENVER, COLORADO		
DENVER	395030	39.5030	104.5702	JUL	14	1975	856	1	8	UNKNOWN	L	6	WIVER CREEK AT DOMMING ST. AT DENVER, COLORADO		
DENVER	394025	39.4025	104.5825	JUL	14	1975	1126	1	8	UNKNOWN	L	6	WIVER CREEK AT STEELE ST. AT DENVER, COLORADO		
DENVER	394004	39.4004	104.5707	JUL	5	1978	685	1	2	UNKNOWN	L	2	6 HARVARD GULCH AT HARVARD PARK, COLORADO		
DENVER	394114	39.4114	105.0058	AUG	26	1980	672	3	POOR	L	6	LITTLE DRY CR. AT 70TH AND FEDERAL NR. DENVER, COLORADO			
DENVER	394558	39.4558	105.0306	JUN	3	1981	720	3	214	UNKNOWN	R	2	6 PLUM CREEK NR. LOUVIERS, COLORADO		
DENVER	392004	39.2004	105.0007	AUG	8	1945	7700	1	189	GOOD	R	6	PLUM CREEK NR. LOUVIERS, COLORADO		
DENVER	3909500	39.09500	104.5007	JUL	29	1953	2700	1	319	FAIR	R	6	PLUM CREEK NR. LOUVIERS, COLORADO		
DENVER	392004	39.2004	104.5025	JUL	16	1985	154000	1	302	UNKNOWN	R	6	PLUM CREEK NR. LOUVIERS, COLORADO		
DENVER	392000	39.2000	104.5037	JUL	13	1941	4700	5	188	UNKNOWN	R	2	6 CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DENVER	392230	39.2230	104.4550	AUG	5	1945	9170	5	189	UNKNOWN	R	2	6 CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DENVER	6709500	67.09500	105.0007	AUG	7	1984	2620	1	189	FAIR	R	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DENVER	6712000	67.12000	104.4550	JUL	30	1987	5380	1	189	GOOD	R	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DENVER	6712000	67.12000	104.4550	JUL	31	1981	3410	1	168	FAIR	R	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DENVER	6712000	67.12000	104.4550	JUL	16	1985	1730	1	188	UNKNOWN	R	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO		
DENVER	392130	39.2130	104.4550	JUL	13	1983	30000	2	175	UNKNOWN	R	12	6 RUSSELLVILLE GULCH NR. FRANKTOWN, COLORADO		
DENVER	392217	39.2217	104.4454	JUL	31	1981	2900	1	169	POOR	R	6	6 EAST PLUM CREEK NR. CASTLE ROCK, COLORADO		
DENVER	393157	39.3157	104.4735	AUG	3	1983	7820	1	136	FAIR	R	6	6 WEST PLUM CREEK NR. SEDALA, COLORADO		
DENVER	392117	39.2117	104.5225	JUN	16	1985	128000	1	108	POOR	R	6	6 WEST PLUM CREEK NR. SEDALA, COLORADO		
DENVER	392230	39.2230	104.5230	JUN	19	1985	38800	1	167	GOOD	R	6	6 WEST CREEK AT WESTCREEK, COLORADO		
DENVER	390806	39.0806	105.0911	MAY	7	1973	2020	1	60	FAIR	R	3	6 WEST CREEK BELOW WESTCREEK, COLORADO		
DENVER	390806	39.0806	105.0911	MAY	7	1973	62	3	32	GOOD	R	3	6 KIOWA CREEK AT K-78 RES. NR. EASTONVILLE, COLORADO		
DENVER	391032	39.1032	105.0896	MAY	7	1973	5250	1	32	GOOD	R	6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. EASTONVILLE, COLORADO		
DENVER	390400	39.0400	104.4455	JUL	30	1987	2370	1	132	GOOD	R	6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. EASTONVILLE, COLORADO		
DENVER	390400	39.0400	104.4455	JUL	17	1985	2800	1	222	GOOD	R	6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. EASTONVILLE, COLORADO		
DENVER	390400	39.0400	104.4455	JUL	17	1985	2800	1	288	GOOD	R	6	KIOWA CREEK SUB WATERSHED NO. Q-51 NR. ELBERT, COLORADO		
DENVER	390400	39.0400	104.4455	JUL	17	1985	41500	1	358	FAIR	R	6	KIOWA CREEK SUB WATERSHED NO. Q-51 NR. ELBERT, COLORADO		
DENVER	390400	39.0400	104.4455	JUL	17	1985	20000	1	15230	1	111	UNKNOWN	1	6 WEST KIOWA CREEK AT ELBERT, COLORADO	
EL PASO	6757800	67.57800	104.9118	JUN	17	1985	2870	1	111	FAIR	R	6	KIOWA CREEK AT KIOWA, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	17	1985	1270	1	108	UNKNOWN	R	1	6 MIDDLE BLOUCREEK TRIB. NR. DEER TRAIL, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	17	1985	580	1	227	UNKNOWN	L	6	BEAR CREEK AT MORRISON, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	19	1987	67200	1	657	POOR	R	1	6 SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	19	1985	67200	1	604	FAIR	R	1	6 TURKEY CREEK NEAR MORRISON, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	26	1982	355	6	617	FAIR	R	6	6 WILLIAMS DRAW NR. WALDEN, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	26	1983	727	1	3.95	GOOD	L	6	6 BEAR CREEK AT MORRISON, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	26	1985	111	1	164	UNKNOWN	R	2	6 MIDDLE BLOUCREEK TRIB. NR. DEER TRAIL, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	26	1985	111	1	164	UNKNOWN	R	2	6 BEAR CREEK AT MORRISON, COLORADO		
EL PASO	6757800	67.57800	104.9118	JUN	26	1985	111	1	164	UNKNOWN	R	2	6 BEAR CREEK AT MORRISON, COLORADO		
JACKSON	6818420	68.18420	104.0418	APR	21	1980	22	2	111	UNKNOWN	R	2	6 TURKEY CREEK DFC 1 AT LAKewood, COLORADO		
JACKSON	6710500	67.10500	39.9911	JUL	7	1987	413	1	278	GOOD	R	6	6 MCINTYRE GULCH DFC 1 AT LAKewood, COLORADO		
JACKSON	6710500	67.10500	39.9911	JUL	7	1983	6110	1	278	FAIR	R	6	6 MCINTYRE GULCH DFC 1 AT LAKewood, COLORADO		
JACKSON	6710500	67.10500	39.9911	JUL	24	1986	6200	1	561	UNKNOWN	R	2	6 CLEAR CREEK NR. GOLDEN, COLORADO		
JACKSON	6711000	67.11000	39.9938	MAY	7	1989	1200	1	48	FAIR	R	6	6 TURKEY CREEK NR. MORRISON, COLORADO		
JACKSON	6711000	67.11000	39.9932	MAY	10	1989	2730	1	111	UNKNOWN	L	6	6 COAL CREEK NR. PLAINVIEW, COLORADO		
JACKSON	6711000	67.11000	39.9932	MAY	10	1989	403	1	111	UNKNOWN	R	2	6 TUCKER GULCH AT GOLDEN, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	6	1977	361	1	278	FAIR	R	6	6 MCINTYRE GULCH DFC 1 AT LAKewood, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	580	1	278	FAIR	R	6	6 MCINTYRE GULCH DFC 1 AT LAKewood, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	580	1	398	UNKNOWN	R	2	6 TROUBLESON CREEK AT KITTEREDGE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	841	1	9	UNKNOWN	L	6	6 SANDERSON GULCH TRIB. AT ESTES PARK, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	841	1	151	GOOD	R	2	6 BIG THOMPSON RIVER AT ESTES PARK, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	11600	1	112	UNKNOWN	R	2	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	968	3	3.22	FAIR	R	6	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	820	1	111	UNKNOWN	L	6	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	720	1	111	UNKNOWN	R	3	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	240	1	111	UNKNOWN	L	6	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	280	1	111	UNKNOWN	R	2	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	137	POOR	L	6	6 LENAGULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 FISH CREEK NR. ESTES PARK, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 FISH CREEK NR. ESTES PARK, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		
JEFFERSON	6711642	67.11642	39.9925	JUL	20	1977	1980	1	160	POOR	R	6	6 BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		

Indirect Measurement
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COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (FT3S)	TYPE	DRAINAGE AREA (SQ MI.)	DESCRIPTION/LOCATION		
										FILE	NOTE	PART
LARIMER	6738500	402115	1051150	AUG	3	1851	14000	1	131	POOR	R	6
LARIMER	6740000	402220	1051335	AUG	3	1851	420	4	743	UNKNOWN	R	6
LARIMER	6740500	402210	1051335	AUG	3	1851	350	2	342	POOR	R	6
LARIMER	6741000	402300	1051430	JUN	4	1849	330	1	151	POOR	R	6
LARIMER	6741500	402300	1051430	AUG	3	1851	280	1	151	GOOD	R	6
LARIMER	6742000	402355	1051610	AUG	3	1851	18000	1	515	UNKNOWN	R	6
LARIMER	6742500	403365	1051310	MAY	20	1804	97200	1	1056	UNKNOWN	R	2
LARIMER	6743000	403652	1051328	AUG	1	1816	7340	1	1056	FAIR	R	6
LARIMER	6743200	403517	1050408	AUG	1	1816	5700	1	1127	FAIR	R	6
LARIMER	6743500	403600	1051404	MAY	31	1830	6800	1	541	UNKNOWN	R	1
LARIMER	6743800	403600	1050140	AUG	3	1851	11400	4	UNKNOWN	UNKNOWN	R	6
LARIMER	6744000	403800	1050800	AUG	3	1851	12000	4	UNKNOWN	UNKNOWN	R	12
LARIMER	6744200	403715	1051045	AUG	3	1851	8000	1	189	UNKNOWN	R	6
LARIMER	6744500	403839	1052037	JUL	31	1876	28200	1	189	POOR	R	6
LARIMER	6744800	403852	1051897	JUL	31	1876	30100	1	218	POOR	R	6
LARIMER	6745000	402259	1082611	JUL	31	1876	4330	1	164	GOOD	R	6
LARIMER	6745200	402305	1051202	JUL	31	1876	27000	1	311	POOR	R	6
LARIMER	6745400	402433	1052507	JUL	31	1876	6850	1	053	POOR	R	6
LARIMER	6745600	402344	1052734	JUL	31	1876	8700	1	137	POOR	R	6
LARIMER	6745800	402374	1052558	JUL	31	1876	1880	1	317	POOR	R	6
LARIMER	6746000	402376	1082139	JUL	31	1876	727	3	058	GOOD	R	6
LARIMER	6746200	402344	1052617	JUL	31	1876	7210	1	1	POOR	R	6
LARIMER	6746500	402367	1052657	JUL	31	1876	7400	1	237	POOR	R	6
LARIMER	6746700	402374	1052731	JUL	31	1876	2810	1	081	POOR	R	6
LARIMER	6747200	402422	1052915	JUL	31	1876	4460	1	612	POOR	R	6
LARIMER	6747400	402422	1052857	JUL	31	1876	3210	1	212	POOR	R	6
LARIMER	6747700	402717	1052713	JUL	31	1876	1300	1	718	POOR	R	6
LARIMER	6747900	402506	1082568	JUL	31	1876	1840	1	277	FAIR	R	6
LARIMER	6748000	402744	1041724	JUL	31	1876	2580	1	883	FAIR	R	6
LARIMER	6748200	402346	1052404	JUL	31	1876	5500	1	198	POOR	R	6
LARIMER	6748400	402747	1052513	JUL	31	1876	2060	1	139	POOR	R	6
LARIMER	6748600	402720	1052152	JUL	31	1876	8710	1	802	FAIR	R	6
LARIMER	6748700	402717	1052705	JUL	31	1876	868	1	165	POOR	R	6
LARIMER	6748800	402485	1052411	JUL	31	1876	3240	1	138	POOR	R	6
LARIMER	6749100	4024715	1051508	JUL	31	1876	9480	1	539	POOR	R	6
LARIMER	6749200	402346	1052345	JUL	31	1876	9718	1	337	POOR	R	6
LARIMER	6749400	402714	1052904	JUL	31	1876	8910	1	138	POOR	R	6
LARIMER	6749600	402473	1052152	JUL	31	1876	9670	1	210	POOR	R	6
LARIMER	6749800	402720	1052717	JUL	31	1876	3540	1	311	POOR	R	6
LARIMER	6750000	402717	1052705	JUL	31	1876	2840	1	281	POOR	R	6
LARIMER	6750200	402485	1052411	JUL	31	1876	2710	1	627	POOR	R	6
LARIMER	6750400	402487	1051501	JUL	31	1876	3470	1	319	GOOD	R	6
LARIMER	6750600	402382	1052740	JUL	31	1876	2320	1	231	POOR	R	6
LARIMER	6750800	402405	1053818	JUL	15	1892	7210	1	138	POOR	R	6
LARIMER	6751000	402301	1053258	JUL	15	1892	8520	1	247	POOR	R	6
LARIMER	6751200	402403	1053806	JUL	15	1892	4500	6	POOR	R	6	
LINCOLN	6821300	402359	1053835	JUL	15	1892	13100	6	627	UNKNOWN	L	6
LINCOLN	6821300	402359	1053835	JUL	23	1872	420	1	27	UNKNOWN	L	6
LOGAN	6760300	402850	1032855	AUG	10	1878	1270	1	655	UNKNOWN	L	6
LOGAN	6760500	402424	1052958	JUN	16	1885	12300	2	1882	FAIR	R	6
LOGAN	6760700	402301	1031812	AUG	30	1871	1740	1	738	UNKNOWN	L	6
LOGAN	6760900	4029034	1030034	JUL	4	1871	117	1	223	UNKNOWN	L	6
LOGAN	6761000	402482	1041630	JUL	22	1878	850	1	237	UNKNOWN	L	6
LOGAN	6761200	403424	1032058	SEP	7	1851	12000	4	203	POOR	R	2
LOGAN	6761400	403700	1032700	JUN	16	1885	35200	4	628	FAIR	R	1
MORGAN	6758500	401517	1035500	JUN	18	1885	18800	4	1325	UNKNOWN	R	2
MORGAN	6758600	401453	1040206	JUN	17	1885	242	1	140	UNKNOWN	R	2
MORGAN	6758800	401453	1040206	JUN	22	1882	7840	1	1314	UNKNOWN	R	2
MORGAN	6759000	401858	1035231	JUL	26	1877	2280	1	150	UNKNOWN	L	6
MORGAN	6759200	402210	1034324	SEP	7	1851	4400	1	237	UNKNOWN	R	6
MORGAN	6759400	402238	1033736	SEP	7	1851	13400	4	628	FAIR	R	1
MORGAN	6759600	402800	1041920	JUN	18	1885	1885	1	946	GOOD	R	1
MORGAN	6759800	401517	1035500	JUN	18	1885	46800	1	1314	POOR	R	1
MORGAN	6760000	401453	1040206	JUN	17	1885	242	1	1314	UNKNOWN	R	1
SEDWICK	8784000	405846	1021515	JUN	20	1885	21600	3	2318	UNKNOWN	R	2
TELLER	8822600	402450	1041630	JUL	22	1878	21600	1	138	GOOD	R	6
WELD	6743500	402220	1045153	AUG	7	1851	368	1	188	POOR	R	6
WELD	6743500	402220	1045153	AUG	7	1851	13400	4	946	UNKNOWN	R	1
PARK	8684000	391742	1054306	JUN	17	1885	238	6	138	UNKNOWN	R	2
WELD	6755500	404800	1044728	AUG	3	1851	775	1	188	FAIR	R	6
WELD	6755500	404800	1044728	AUG	7	1851	5810	1	13	FAIR	R	6
WELD	6755500	404800	1044728	AUG	14	1885	5810	1	188	FAIR	R	6
WELD	6755500	404800	1044728	AUG	23	1872	841	1	458	UNKNOWN	L	6
WELD	6755600	405507	1044801	JUN	26	1873	2620	1	458	UNKNOWN	L	6

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING FILE	NOTE	PART	DESCRIPTION/LOCATION	
													CCC STORM LIST NUMBER	
WELD	6156200	405800	1043350	JUL	20	1970	F736	119	1	5.7 UNKNOWN	L	2	6 GEARY CREEK TRIB NEAR ROCKPORT, COLORADO	
WELD	6156200	405900	1043350	AUG	19	1971	192	1	5.7 UNKNOWN	L	2	6 GEARY CREEK TRIB NEAR ROCKPORT, COLORADO		
WELD	6156200	405800	1043350	AUG	3	1972	874	1	18.15 UNKNOWN	L	6	6 GOOSE CREEK NR. HOT, COLORADO		
WELD	401029	1045841	1101117	AUG	3	1975	6200	4	1 UNKNOWN	R	2	6 ST. VRAIN CREEK NR. LONGMONT, COLORADO		
WELD	403800	1043000	1041400	JUN	15	1985	5340	4	73.1 FAIR	R	1	6 COAL CREEK NR. BRIGGSDALE, COLORADO		
WELD	404300	1041400	1041400	JUN	15	1985	4000	1	63.3 POOR	R	1	6 CROW CREEK NR. KEOTA, COLORADO		
WELD	404500	1034900	1033800	JUN	15	1985	6280	1	82.3 GOOD	R	1	6 NORTH PAMMEE CREEK NR. NEW REYMER, COLORADO		
WELD	404200	1033800	1033800	JUN	15	1985	26700	1	387. GOOD	R	1	6 PAMMEE CREEK NR. STONEHAM, COLORADO		
WELD	405430	1045411	1045411	AUG	27	1971	3120	1	151 FAIR	R	1	6 LONE TREE CREEK NEAR CARR, COLORADO		
WELD	403230	1043625	1043625	APR	12	1973	13600	1	FAIR	R	3	6 BEEBE DRAW NR. AUBURN, COLORADO		
YUMA	6021400	386424	1021600	AUG	23	1969	2280	1	17.1 UNKNOWN	L	2	6 NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO		
YUMA	6025600	389700	1021430	JUL	12	1951	6680	1	1300 FAIR	R	6	6 SOUTH FORK REPUBLICAN RIVER NR. IDALA, COLORADO		
YUMA	6025600	386700	1024300	MAY	13	1961	2860	1	1300 POOR	R	6	6 SOUTH FORK REPUBLICAN RIVER NR. IDALA, COLORADO		
YUMA	6025600	3892500	1024300	JUN	15	1961	9610	1	1300 FAIR	R	6	6 SOUTH FORK REPUBLICAN RIVER NR. IDALA, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1962	9610	1	1300 FAIR	R	6	6 SOUTH FORK REPUBLICAN RIVER NR. IDALA, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1963	2020	1	1300 GOOD	R	2	6 SOUTH FORK REPUBLICAN RIVER NR. IDALA, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1964	1850	1	268 FAIR	R	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1965	3110	1	268 FAIR	R	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1966	2980	1	268 FAIR	R	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1967	558	1	268 FAIR	R	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1968	286	1	268 GOOD	R	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1969	14900	4	1300 GOOD	R	2	6 BLACK WOLF CREEK NEAR WAYNE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1970	5600	1	1300 GOOD	R	6	6 BLACK WOLF CREEK NEAR SPRINGFIELD, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1971	10600	1	268 FAIR	R	6	6 LONE ROCK DRAW NR. SPRINGFIELD, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1972	13000	1	268 POOR	R	6	6 TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1973	725	1	24.2 UNKNOWN	L	6	6 LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1974	4350	1	17.8 UNKNOWN	L	6	6 SAND CREEK NR. HALE, COLORADO		
YUMA	6025600	3893500	1024300	JUN	15	1975	17800	1	26. GOOD	R	6	6 SAND CREEK NR. HALE, COLORADO		
BACA	372600	1023700	1023700	JUN	17	1985	13200	4	119 FAIR	P	1	7 BLACK WOLF CREEK NEAR WAYNE, COLORADO		
BACA	371900	1023600	1023600	JUN	17	1985	7330	1	106 UNKNOWN	P	1	7 BLACK CREEK NEAR SPRINGFIELD, COLORADO		
BENT	7124000	3860508	1031250	MAY	20	1985	82800	2	4 UNKNOWN	P	1	7 LANDSMAN CREEK NR. HALE, COLORADO		
BENT	7124000	3860508	1031250	JUN	19	1985	22100	4	144.1 UNKNOWN	P	1	7 LANDSMAN CREEK NR. HALE, COLORADO		
BENT	7126000	3755000	1031800	APR	24	1942	6000	1	144.17 UNKNOWN	P	1	7 ARKANSAS RIVER AT LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUN	19	1943	6175	1	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUN	19	1944	28100	2	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1951	17200	1	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1952	44000	1	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1953	40300	2	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1954	73400	12	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1955	1955	1	337.6 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1956	1500	1	350.3 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1957	7850	1	350.3 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1958	10000	1	350.3 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1959	17800	1	350.3 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1960	62500	4	350.3 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1961	7300	1	350.3 FAIR	R	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1962	276000	1	435 FAIR	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1963	1500	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1964	1850	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1965	1860	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1966	4810	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1967	7340	12	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1968	1500	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1969	7850	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1970	10000	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1971	17800	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1972	27600	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1973	1500	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1974	1860	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1975	4810	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1976	7340	12	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1977	1500	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1978	7850	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1979	10000	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7126000	3755000	1031800	JUL	23	1980	17800	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
CHAFFEE	7131000	380340	1025056	JUN	18	1985	4480	1	435 UNKNOWN	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
CHAFFEE	7131000	380340	1025056	JUN	18	1986	37600	4	131 GOOD	P	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
CHAFFEE	7131000	380340	1025056	JUN	18	1987	284	1	62.5 FAIR	R	1	7 PURGATORE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
EL PASO	7098220	385376	1045155	AUG	28	1978	1860	1	102 UNKNOWN	P	1	7 TURKEY CREEK ABV TELLER RES NR. STONE CITY, COLORADO		
EL PASO	7103700	385117	1045298	JUL	5	1959	408	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1961	865	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	MAY	28	1964	672	1	102 FAIR	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1964	1864	4	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1965	2830	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1966	1861	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1967	2300	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1968	1861	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1969	2300	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1970	1861	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1971	2300	1	102 UNKNOWN	P	1	7 FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045298	JUL	11	1972	1861	1	102 UNKNOWN	P	1			

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER		
														(FT3S)			
EL PASO	384358	1044543	AUG	15	1881		2700	1		FAIR	P			7	B-DITCH DRAIN NR. SECURITY, COLORADO		
EL PASO	384368	1044000	JUL	24	1985		25000	1	488	POOR	R			7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	384346	1044000	JUN	14	1985		2800	1	488	GOOD	P			7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	384346	1044400	JUN	11	1972		6520	1	488	FAIR	P			7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	384346	1044400	AUG	2	1981		4330	1	486	FAIR	P			7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	384355	1045130	JUN	2	1981		512	1	11	FAIR	P			7	LITTLE FOUNTAIN CREEK NR. KEATON RES., NR. FT. CARSON, CO.		
EL PASO	7058940	1044449	ALG	26	1979		260	1	28	POOR	R			7	LITTLE FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
EL PASO	7058940	1044013	MAY	28	1940		22100	1	876	UNKNOWN	P			7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
EL PASO	3838608	1044013	JUN	30	1954		6800	1	876	UNKNOWN	P			7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
EL PASO	3838608	1043701	JUL	26	1981		950	1	46	GOOD	P			7	FOUNTAIN CREEK NEAR FOUNTAIN, COLORADO		
EL PASO	3806500	1041100	AUG	3	1954		44500	1	UNKNOWN	UNKNOWN	P			7	FOUNTAIN CREEK NEAR FOUNTAIN, COLORADO		
EL PASO	3905000	1041700	JUN	17	1985		60700	1	46	FAIR	P	1		7	BIG SANDY CREEK NR. CALHAN, COLORADO		
EL PASO	3842225	1042325	JUN	17	1985		141000	1	353	GOOD	P			7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		
EL PASO	3801005	1043200	JUN	17	1985		10400	4	183	FAIR	P			7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		
EL PASO	3847700	1045000	JUL	24	1985		3710	1	543	GOOD	P			7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		
EL PASO	384320	1043845	JUN	17	1985		124000	1	207	FAIR	R			7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		
EL PASO	—	1045237	JUN	11	1985		515	1	254	GOOD	P			7	MONUMENT CREEK BL. STANLEY CANYON NR. PIKEVIEW, COLORADO		
FREMONT	70983740	1054846	SEP	4	1981		1881		267	GOOD	P			7	BADGER CREEK (UPPER STATION) NEAR HOWARD, COLORADO		
FREMONT	70983755	1051010	SEP	5	1981		12	1950	779	432	UNKNOWN	R		7	BADGER CREEK (LOWER STATION) NEAR HOWARD, COLORADO		
FREMONT	70984000	1051030	JUL	11	1981		4280	1	434	GOOD	P			7	CIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051030	JUL	11	1981		1080	1	434	FAIR	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051127	JUL	8	1973		631	1	214	FAIR	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051127	JUL	29	1982		1040	1	214	FAIR	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051127	JUL	29	1982		4800	1	214	FAIR	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051127	JUL	29	1982		2130	1	214	FAIR	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	70986500	1051127	JUL	29	1982		5420	4	UNKNOWN	UNKNOWN	P			7	OIL CREEK NR. CANON CITY, COLORADO		
FREMONT	3822313	1050657	JUN	17	1949		830	3	0.84	FAIR	P			7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
FREMONT	3822908	1052319	JUL	27	1981		284	3	4.8	GOOD	P			7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
FREMONT	3822908	1052322	JUL	27	1981		8500	1	4.8	POOR	P			7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
FREMONT	3832005	1052240	JUL	27	1981		9860	1	20	1978	P	1		7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
FREMONT	3832005	1055100	AUG	28	1981		158000	1	2510	POOR	P			7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
HAMILTON	7137500	1050133	1020100	JUN	17	1985	1050133	5	10200	1	73	UNKNOWN	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS	
HUERFANO	7111000	3714340	JUL	20	1951		1052103	3	172	GOOD	P			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7111000	3714340	JUL	20	1951		6320	1	519	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	17	1938		645	1	332	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	21	1940		1310	1	519	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	21	1940		1180	1	519	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	21	1940		445	1	532	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	20	1950		620	1	532	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	20	1950		1280	1	532	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7112500	3714340	JUL	16	1953		2650	5	532	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7113500	3714340	JUL	14	1942		28000	1	803	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7113500	3714340	JUL	16	1943		3200	1	803	UNKNOWN	R			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
HUERFANO	7113500	3714340	JUL	7	1945		3500	1	147	POOR	P			7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
LAS ANIMAS	7118500	372400	JUL	31	1979		4520	1	423	GOOD	P			7	APISHAHA RIVER AT AGUILAR, COLORADO		
LAS ANIMAS	7124100	370156	1044824	JUL	27	1979		279	1	423	POOR	P			7	APISHAHA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124100	370156	1044824	JUL	10	1981		5100	1	423	POOR	P			7	APISHAHA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124100	370156	1044824	JUL	10	1981		5100	1	423	POOR	P			7	APISHAHA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124120	370128	1045459	JUL	27	1979		472	1	35.3	FAIR	P			7	APISHAHA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124120	370128	1045459	JUL	18	1979		3380	1	35.3	FAIR	P			7	APISHAHA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124200	370146	1043620	JUL	12	1976		4500	1	590	FAIR	P			7	SARCILO CANYON NR. SEGUIN, COLORADO	
LAS ANIMAS	7124200	370146	1043620	JUL	12	1976		3810	1	590	FAIR	P			7	SARCILO CANYON NR. SEGUIN, COLORADO	
LAS ANIMAS	7124200	370146	1043620	JUL	10	1981		11500	1	590	FAIR	P			7	PURGATORIUM RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200	370146	1043620	JUL	28	1981		3250	1	590	FAIR	P			7	PURGATORIUM RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124220	370043	1043707	JUN	31	1979		1440	1	35.1	FAIR	P			7	PURGATORIUM RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124220	370043	1043707	JUN	31	1979		2510	1	35.1	POOR	P			7	PURGATORIUM RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124220	370043	1043707	JUN	31	1979		2510	1	35.1	FAIR	P			7	PURGATORIUM RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	22	1984		32000	4	796	UNKNOWN	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	23	1984		35000	1	796	UNKNOWN	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATORIUM RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	12	1981		1200	1	796	FAIR	P			7	PURGATOR	

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE (FT3/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		
													CCC STORM LIST NUMBER		
LAS ANIMAS	7126100	371200	1041140	JUN	17	1865	10800	4	GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO		
LAS ANIMAS	7126100	371200	1041140	JUL	3	1981	28400	24	FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO		
LAS ANIMAS	7126500	391100	1040830	JUL	22	1854	26300	24	UNKNOWN	P		7	SAN FRANCISCO CREEK NEAR ALFALFA, COLORADO		
LAS ANIMAS	7126500	371100	1040750	MAY	19	1955	15800	4	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
LAS ANIMAS	7126500	371100	1040750	JUN	28	1859	2870	1	GOOD	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
LAS ANIMAS	7126500	371100	1040750	AUG	7	1864	6880	1	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
LAS ANIMAS	7126500	371100	1040750	JUN	18	1985	14000	4	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	SEP	13	1952	3440	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	JUN	16	1953	8740	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	JUL	11	1953	6230	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	JUL	22	1854	37800	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	MAY	19	1955	41900	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126000	371100	1040730	JUN	18	1985	27300	1	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7126100	371100	1040730	MAY	26	1867	10800	85	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126100	371100	1040554	AUG	3	1988	4830	—	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126200	372045	1035721	MAY	28	1967	6240	1	FAIR	P		7	VAN BREMNER ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126200	372045	1035721	AUG	9	1979	6050	1	POOR	P		7	VAN BREMNER ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126300	372130	1040730	JUL	22	1854	1770	1200	FAIR	R		7	PURGATOIRE RIVER NR. THATHER, COLORADO		
LAS ANIMAS	7126300	372130	1040730	MAY	19	1955	41900	1	UNKNOWN	P		7	PURGATOIRE RIVER NR. THATHER, COLORADO		
LAS ANIMAS	7126400	372130	103520	AUG	7	1971	1410	1	UNKNOWN	L		7	TORRE ARROYO NR. TOBE, COLORADO		
LAS ANIMAS	7126400	372130	103520	JUL	22	1970	843	1	UNKNOWN	L		7	TORRE ARROYO NR. TOBE, COLORADO		
LAS ANIMAS	7126400	372130	103520	AUG	28	1971	5040	1	UNKNOWN	L		7	TORRE ARROYO NR. TOBE, COLORADO		
LAS ANIMAS	7126500	372557	1031028	AUG	19	1971	1280	1	UNKNOWN	L		7	RULE CREEK NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126500	372557	1031028	AUG	20	1977	2270	1	UNKNOWN	L		7	MUDGY CREEK TRIB. NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126450	370524	1034109	JUN	7	1978	940	1	UNKNOWN	L		7	MUDGY CREEK TRIB. NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126450	370524	1034109	APR	23	1942	11500	1	UNKNOWN	P	1	7	LONG CANYON CREEK NR. TRINCHEIRA, COLORADO		
LAS ANIMAS	3707000	1043900	23	1942	11400	1	UNKNOWN	P		P		7	LONG CANYON NR. TRINCHEIRA, COLORADO		
LAS ANIMAS	3707000	1043900	APR	23	1942	21409	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT LONG CANYON, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	9630	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT LONG CANYON, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	6580	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	345	GOOD	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	3100	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1130	23	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1447	3	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	26100	24	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1960	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1150	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	3170	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1140	2	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	940	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	375	3	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	120	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1860	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	3170	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	642	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	8650	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1016	GOOD	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	605	FAIR	P		P		2	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	381	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	460	2	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	786	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	691	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1016	GOOD	P		P		2	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	804	FAIR	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	375	UNKNOWN	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	186	1	UNKNOWN	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1080	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	364	GOOD	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO		
LAS ANIMAS	370847	1043315	APR	23	1942	1460	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	780	3	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	4480	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1920	1	UNKNOWN	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	3000	4	UNKNOWN	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	2080	4	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	47700	4	UNKNOWN	P		P		2	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	1280	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	6915	4	UNKNOWN	P		P		6	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	127	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	3410	1	UNKNOWN	P		P		7	PURGATOIRE RIVER AT RATON GREEK, COLORADO	
LAS ANIMAS	370847	1043315	APR	23	1942	7860	1	UNKNOWN	P		P		1	PURGATOIRE RIVER AT RATON GREEK, COLORADO	

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COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE (FT³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	DESCRIPTION/LOCATION	
										FILE	NOTE
LAS ANIMAS	370725	1044525	JUN	17	1865	1630	1	36.4 UNKNOWN	P	7	SARCILO CANYON NR. SEGUNDO, COLORADO
LAS ANIMAS	370800	1045100	JUN	16	1865	1340	4	101 GOOD	P	1	SOUTH FORK PURGATORY RIVER AT WESTON, COLORADO
LINCOLN	370745	1040500	JUN	17	1865	450	24	129 FAIR	P	7	TRINCHERA CREEK NR. TRINCHERA, COLORADO
OTERO	7118600	1033200	JUN	17	1865	3710	1	188 FAIR	P	1	SOUTH RUSH CREEK NR. KARVAL, COLORADO
OTERO	7118600	1033852	AUG	15	1942	14700	1	1126 UNKNOWN	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	MAY	19	1955	17100	2	1125 UNKNOWN	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	JUL	6	1858	12100	4	1126 FAIR	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	JUL	13	1860	1200	4	1125 POOR	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	AUG	13	1863	2730	1	1126 FAIR	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	JUN	17	1865	11400	4	1126 FAIR	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7118600	1033852	JUL	10	1978	18300	24	1126 FAIR	P	7	APISHAPA RIVER NR. FOWLER, COLORADO
OTERO	7119700	1033852	JUN	18	1885	43200	2	1080 UNKNOWN	P	7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO
OTERO	7119700	1033853	JUL	10	1978	23900	23	1090 UNKNOWN	R	2	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO
OTERO	7121000	1034200	AUG	27	1941	3100	1	451 UNKNOWN	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO
OTERO	7121000	1034200	AUG	14	1942	4300	1	451 UNKNOWN	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO
OTERO	7121000	1034200	JUN	4	1949	1300	1	451 UNKNOWN	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO
OTERO	7121000	1034200	JUL	24	1950	6510	1	451 FAIR	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO
OTERO	7121000	1034200	JUL	12	1953	10000	1	451 UNKNOWN	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO
OTERO	7121000	1034200	JUL	23	1958	16500	1	451 FAIR	R	2	TIMPAS CREEK AT CATLIN SYPHON, COLORADO
OTERO	7121500	1033918	AUG	22	1869	2180	1	496 GOOD	R	7	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO
OTERO	7122400	1033952	JUL	20	1978	366	1	108 POOR	P	7	CROOKED ARROYO NR. SWINK, COLORADO
OTERO	7126500	1032800	SEP	15	1934	45000	1	2800 UNKNOWN	R	1	PURGATORY RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO
OTERO	7126500	1032900	APR	23	1942	43500	2	2800 UNKNOWN	P	1	PURGATORY RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO
OTERO	7126500	1032900	JUN	5	1949	26100	2	2800 UNKNOWN	P	1	PURGATORY RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO
OTERO	7126500	1032900	MAY	19	1955	80000	2	2800 UNKNOWN	P	1	PURGATORY RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO
OTERO	7126500	1032900	JUL	21	1927	18450	1	281 UNKNOWN	P	12	KINGS ARROYO NR. LA JUNTA, COLORADO
OTERO	7126500	1033519	JUL	12	1953	24300	24	87 FAIR	R	7	CROOKED ARROYO NR. LA JUNTA, COLORADO
OTERO	7126500	1032920	MAY	19	1955	5680	1	281 UNKNOWN	P	7	TIMPAS CREEK NR. NINAVIEW, COLORADO
OTERO	7126500	1034200	JUL	5	1958	23000	1	451 UNKNOWN	P	7	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO
OTERO	7126500	1034730	JUN	18	1985	31670	4	1090 UNKNOWN	P	7	ARKANSAS RIVER AT SWINK, COLORADO
OTERO	7126500	1032200	JUN	18	1985	8400	1	281 FAIR	P	7	SMITH CANYON NR. NINAVIEW, COLORADO
POWER'S	3708040	1033630	JUN	17	1865	21480	24	481 GOOD	P	7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO
POWER'S	71133000	1022101	JUN	5	1921	130000	1	1976 UNKNOWN	R	2	ARKANSAS RIVER AT LAMAR, COLORADO
POWER'S	71133450	1023851	JUN	23	1975	475	1	42 GOOD	P	7	MILLWICK CREEK NR. LAMAR, COLORADO
POWER'S	71133650	1023851	JUN	27	1975	2460	1	42 FAIR	P	7	MILLWICK CREEK NR. LAMAR, COLORADO
POWER'S	71134100	1028051	JUN	17	1975	121	3	3248 UNKNOWN	P	2	BIG SANDY CREEK NR. LAMAR, COLORADO
POWER'S	71134100	1028051	SEP	18	1978	2520	3	3248 UNKNOWN	P	2	BIG SANDY CREEK NR. LAMAR, COLORADO
POWER'S	71134300	1022854	AUG	23	1869	7880	1	157 UNKNOWN	L	2	WOLF CREEK NR. CARLTON, COLORADO
POWER'S	71135400	1027230	1020280	30	1971	2111	10	10 UNKNOWN	P	7	WILD HORSE CREEK TRIB NR. HARTMAN, COLORADO
POWER'S	71136000	1020285	1020285	30	1949	1880	1	272 UNKNOWN	P	7	WILD HORSE CREEK AT HOLLY, COLORADO
POWER'S	71138000	1020245	1020205	17	1985	10800	1	272 UNKNOWN	P	7	WILD HORSE CREEK AT HOLLY, COLORADO
POWER'S	71138000	1020300	1023154	19	1949	9600	14	1090 UNKNOWN	R	1	CHEYENNE CREEK NEAR HOLLY, COLORADO
POWER'S	71138000	1020200	1022100	19	1949	12600	4	228 UNKNOWN	P	7	CHEYENNE CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	JUN	1849	1839	1	UNKNOWN	P	7	HOLLY DRAIN AT HOLLY, COLORADO	
POWER'S	3801340	1020200	JUN	1849	1849	817	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	5000	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	8800	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	5500	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1420	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	3880	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1170	1	118 UNKNOWN	P	7	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	3960	1	2840 FAIR	P	1	TWO BUTTES CREEK NR. HOLLY, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1170	1	213 FAIR	P	1	DRY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1700	1	118 FAIR	R	1	WOLF CREEK NEAR GRANADA, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	4630	1	29 FAIR	R	1	CHEYENNE CREEK AT COLORADO-KANSAS LINE
POWER'S	3801340	1020200	MAY	1951	1951	3530	1	228 GOOD	P	7	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	14400	1	281 GOOD	P	7	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	3960	1	2840 FAIR	P	1	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1170	1	213 FAIR	P	1	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1865	1	17 FAIR	P	1	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1865	1	281 GOOD	P	7	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1865	1	817 GOOD	P	7	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	24300	1	405 FAIR	P	1	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	35300	1	62.5 FAIR	P	1	CLAY CREEK NR. LAMAR, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	1865	1	1280 UNKNOWN	P	7	ARKANSAS RIVER NR. PORTLAND, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	23800	1	830 UNKNOWN	L	7	SODA CREEK NR. GRANADA, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	860	1	4886 FAIR	P	7	ARKANSAS RIVER NR. PUEBLO, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	23500	4	4886 FAIR	P	7	FOUNTAIN CREEK AT PUEBLO, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	10921	1	928 POOR	R	2	FOUNTAIN CREEK AT PUEBLO, COLORADO
POWER'S	3801340	1020200	MAY	1951	1951	11000	1	928 UNKNOWN	R	2	FOUNTAIN CREEK AT PUEBLO, COLORADO
PUEBLO	70969200	1045627	JUL	21	1976	1865	1	1280 UNKNOWN	P	7	ARKANSAS RIVER NR. LIVESTOCK, COLORADO
PUEBLO	70969200	1045104	AUG	2	1976	1865	1	830 UNKNOWN	L	7	SODA CREEK NR. GRANADA, COLORADO
PUEBLO	70969200	1043928	AUG	22	1985	10500	1	4886 FAIR	P	7	ARKANSAS RIVER NR. PUEBLO, COLORADO
PUEBLO	70969200	1043450	AUG	28	1941	10921	1	928 POOR	R	2	FOUNTAIN CREEK AT PUEBLO, COLORADO
PUEBLO	70969200	1043450	AUG	14	1942	11000	1	928 UNKNOWN	R	2	FOUNTAIN CREEK AT PUEBLO, COLORADO

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COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (FT3/S)	TYPE	DRAINAGE AREA (SQ MI)	DESCRIPTION/LOCATION			
										FILE	NOTE	PART	CCC STORM LIST NUMBER
PUEBLO	7108500	38.1620	1043540	JUL	10	1945	11800	5	UNKNOWN	R	7	7	FOUNTAIN CREEK AT PUEBLO, COLORADO
PUEBLO	7108500	38.1620	1043540	AUG	28	1946	16500	5	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO
PUEBLO	7108500	38.1633	1043600	JUN	17	1963	47000	4	GOOD	P	7	7	FOUNTAIN CREEK AT PUEBLO, COLORADO
PUEBLO	7107500	38.0306	1044735	MAY	15	1980	3300	1	1.66 FAIR	R	7	7	ST. CHARLES RIVER AT BURNET MILL, COLORADO
PUEBLO	7107600	38.04025	1044833	AUG	1	1976	867	1	2.87 UNKNOWN	L	7	7	ST. CHARLES RIVER NR. GOODPASTURE, COLORADO
PUEBLO	7107900	37.5514	1045721	JUL	10	1975	340	1	11 FAIR	P	7	7	GREENHORN CREEK NR. RYE, COLORADO
PUEBLO	7108050	37.508	1045742	AUG	2	1976	1220	1	32 POOR	P	7	7	GREENHORN CREEK NR. COLORADO CITY, COLORADO
PUEBLO	7108500	38.1620	1043140	APR	19	1942	6570	1	465 UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO
PUEBLO	7108500	38.1620	1043140	JUL	26	1950	16100	1	468 UNKNOWN	P	7	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO
PUEBLO	7108500	38.1620	1043140	MAY	19	1955	26800	1	468 UNKNOWN	P	7	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO
PUEBLO	7108500	38.1620	1042900	AUG	3	1981	2400	1	4.74 FAIR	P	1	7	ST. CHARLES RIVER AT VINELAND, COLORADO
PUEBLO	7108500	38.1453	1042355	JUL	30	1978	15400	1	6327 UNKNOWN	P	7	7	ARKANSAS RIVER NR. AVONDALE, COLORADO
PUEBLO	7110500	38.1620	1042220	AUG	27	1941	15000	1	894 UNKNOWN	R	2	7	CHICO CREEK NEAR NORTH AVONDALE, COLORADO
PUEBLO	7115500	38.0000	1042800	JUL	28	1936	28840	2	1673 UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO
PUEBLO	7115500	38.0200	1042500	JUN	7	1938	11000	5	1702 UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO
PUEBLO	7115500	38.0000	1042900	AUG	16	1943	3700	1	1710 UNKNOWN	P	12	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	JUL	3	1945	13500	1	1710 UNKNOWN	P	12	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	AUG	13	1946	6000	1	1873 UNKNOWN	R	12	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	JUL	28	1950	18100	2	1873 FAIR	P	1	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	JUL	11	1953	3340	1	1873 UNKNOWN	R	12	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	MAY	19	1955	11300	2	1875 FAIR	P	1	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	7118000	38.0000	1042800	JUL	5	1958	18800	2	1873 FAIR	P	1	7	HUERFANO R. BLW HFNO VLY DAM NR. UNDERCLIFFE, COLORADO
PUEBLO	71117000	38.1054	1040940	JUN	18	1985	43100	24	8345 FAIR	P	7	7	ARKANSAS RIVER NR. NEPESTA, COLORADO
PUEBLO	71117000	38.1112	104431	MAY	18	1955	3850	1	4216 FAIR	P	7	7	MUDGY CREEK NR. PUEBLO, COLORADO
PUEBLO	71117000	38.1127	1040832	JUL	13	1963	6840	23	160 FAIR	P	7	7	KRAMER CREEK AT COLORADO 86 NR. NEPESTA, COLORADO
PUEBLO	7112440	38.1240	1040740	JUL	13	1963	4720	1	156 FAIR	P	7	7	KRAMER CREEK NR. NEPESTA, COLORADO
PUEBLO	7114442	38.1442	1042036	JUN	18	1985	104000	4	7157 POOR	P	1	7	ARKANSAS RIVER NR. SWALLOWS, COLORADO
PUEBLO	3819000	38.1900	1045300	JUL	19	1985	7000	1	2.68 FAIR	P	1	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO
CONEJOS	8238000	37.7210	1081200	AUG	20	1938	313	1	98 UNKNOWN	R	2	8	LA JARA CREEK AT GALLEGOS RANCH NR. CAPULIN, COLORADO
COSTILLA	8241500	37.2800	1082400	AUG	31	1938	1338	1	187 UNKNOWN	R	12	8	SANGRE DE CRISTO CREEK NR. FORT GARLAND, COLORADO
COSTILLA	8247500	37.0000	1082700	AUG	4	1938	1280	1	110 UNKNOWN	R	12	8	SAN ANTONIO RIVER NR. ORTIZ, COLORADO
COSTILLA	8249400	37.053	1081914	JUN	5	1988	327	1	72.4 FAIR	R	8	8	CULEBRA CREEK NR. CHAMA, COLORADO
MINERAL	8218500	37.5120	1085540	MAY	27	1951	240	6	35 UNKNOWN	R	8	8	MILLION GRANDE NR. CREED, COLORADO
RIO GRANDE	8217500	37.4905	1084950	SEP	6	1970	4660	1	780 UNKNOWN	P	8	8	RIO GRANDE AT WAGONHEEL GAP, COLORADO
RIO GRANDE	8220500	37.520	1082650	AUG	3	1938	720	1	53 UNKNOWN	R	2	8	PINOS CREEK NR. DEL NORTE, COLORADO
SAGUACHE	82226000	37.5444	1082211	JUL	30	1988	754	1	11.6 FAIR	R	8	8	SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO
SAGUACHE	82227000	38.0160	1083402	JUL	26	1988	540	1	10.7 UNKNOWN	R	12	8	NORTH CRESTONE CREEK NR. CRESTONE, COLORADO
ARCHULETA	82643000	372223	1085330	SEP	6	1970	2080	1	6.77 GOOD	R	8	8	COTTONWOOD CREEK NEAR CRESTONE, COLORADO
ARCHULETA	82642000	371558	1070031	SEP	6	1970	6560	1	12.6 GOOD	R	8	8	RITO ALTO CREEK NEAR MOFFAT, COLORADO
ARCHULETA	82643000	371246	108473	SEP	6	1970	2500	23	58 GOOD	R	2	8	E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPRGS., COLORADO
ARCHULETA	82644000	370115	1084453	SEP	14	1970	1400	2	86.1 GOOD	R	2	8	E FK SAN JUAN INR. PAGOSA SPRGS., COLORADO
ARCHULETA	82645000	371320	1072632	SEP	6	1970	7800	1	371 POOR	R	9	9	NAVAJO RIVER ABV. CHROMO, COLORADO
ARCHULETA	82646000	370440	1084834	SEP	6	1970	132	1	13.6 GOOD	R	9	9	PIEDRA RIVER NR. PIEDRA, COLORADO
DELTA	9134209	3846822	1074112	JUL	20	1977	946	1	4.1 POOR	R	9	9	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO
DELTA	9144200	3847118	1075841	JUL	6	1978	221	1	18.6 GOOD	R	9	9	TONGUE CREEK AT CORY, COLORADO
DELTA	9148900	384430	1080450	OCT	15	1947	3500	1	1110 UNKNOWN	R	2	9	UNCOMPAGNE RIVER AT DELTA, COLORADO
DELTA	9148900	384430	1080450	OCT	20	1963	1940	1	1110 GOOD	G	9	9	UNCOMPAGNE RIVER AT DELTA, COLORADO
DELTA	9148900	384431	1080449	SEP	6	1970	2250	1	1129 FAIR	R	9	9	ROBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO
DELTA	9150500	384406	1080940	JUL	24	1977	798	1	242 POOR	R	9	9	ESCALANTE CREEK NR. DELTA, COLORADO
DOLORES	9151500	384524	1083457	JUL	20	1977	209	1	209 FAIR	G	9	9	DOLORES RIVER BELOW RICO, COLORADO
DOLORES	9165000	373820	1080335	SEP	6	1970	1830	1	105 UNKNOWN	R	9	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	6	1958	624	1	145 FAIR	R	9	9	BIG CANYON CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	5	1958	830	1	145 FAIR	R	2	9	BIG CANYON CREEK AT DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	5	1958	1770	1	145 FAIR	R	9	9	DISAPPOINTMENT CREEK NR. MINTURN, COLORADO
DOLORES	9168100	375336	1083457	SEP	30	1984	2240	1	145 FAIR	R	9	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	13	1985	4380	1	145 FAIR	R	9	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	19	1974	2350	1	147 UNKNOWN	R	9	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	24	1977	7270	1	147 FAIR	R	9	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO
DOLORES	9168100	375336	1083457	SEP	5	1970	2400	1	10.71 POOR	R	9	9	BIG CANYON CREEK NR. DOVE CREEK, COLORADO
EAGLE	9058800	374844	1084540	SEP	5	1970	1970	1	8.45 POOR	R	2	9	BIG CANYON CREEK AT DOVE CREEK, COLORADO
EAGLE	9058800	374844	1084540	SEP	27	1987	107	10	0.78 UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO
EAGLE	9058800	374844	1082850	JUN	5	1988	12	5	0.78 UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO
EAGLE	9058800	374844	1082850	JUN	7	1978	6.6	5	0.78 UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO
EAGLE	9058800	374844	1082850	JUN	2	1959	715	1	10.6 FAIR	R	9	9	BIG ALKI CREEK NR. BURNS, COLORADO
EAGLE	9058800	374844	1082850	JUN	12	1976	7590	1	10.6 FAIR	R	9	9	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO
EAGLE	9058800	374844	1084000	AUG	28	1981	310	1	27 POOR	R	1	9	ALKALI CREEK NR. WOLcott, COLORADO
EAGLE	9058800	374844	1084000	AUG	18	1985	885	24	27 UNKNOWN	R	1	9	ALKALI CREEK NR. WOLcott, COLORADO
GARFIELD	9092000	393110	1014545	JUL	18	1953	758	1	140 UNKNOWN	R	9	9	RIFLE CREEK NR. RIFLE, COLORADO
GARFIELD	9092000	393110	1014545	AUG	9	1983	1720	1	140 FAIR	R	9	9	RIFLE CREEK NR. RIFLE, COLORADO

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING FILE	NOTE	PART	DESCRIPTION/LOCATION	
												DISCHARGE	TYPE
GARFIELD	9083000	38°40'02"	108°08'37"	AUG	19	1877	[F]3(S)	2310	1	141 POOR	G	9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO
GARFIELD	9083000	38°40'02"	108°08'37"	AUG	25	1877	431	1	141 FAIR	G	9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO	
GARFIELD	9083000	38°27'10"	108°03'33"	JUL	3	1851	600	1	200 UNKNOWN	R	9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO	
GARFIELD	9083000	38°27'11"	108°03'33"	JUL	31	1876	2800	1	186 POOR	R	9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO	
GARFIELD	9083000	38°27'12"	108°18'59"	AUG	31	1867	1220	1	321 POOR	G	2	ROAN CREEK NR. DE BEQUE, COLORADO	
GARFIELD	9083000	38°28'08"	108°15'41"	JUL	27	1974	850	1	106 UNKNOWN	G	9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9083000	38°28'09"	108°15'41"	JUL	25	1878	712	1	106 FAIR	G	9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9083000	38°28'09"	108°15'41"	AUG	22	1877	623	1	106 POOR	R	9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9083000	38°28'09"	108°15'41"	AUG	18	1979	370	1	106 FAIR	R	9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9083000	38°28'09"	108°15'41"	AUG	30	1871	871	1	95 FAIR	R	9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9083000	38°28'47"	108°08'55"	AUG	30	1881	871	1	186 FAIR	G	9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9083000	38°28'47"	108°08'55"	AUG	31	1881	940	1	51 UNKNOWN	R	2	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9083000	38°28'47"	108°08'55"	AUG	13	1882	1180	1	188 FAIR	G	9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9083000	38°28'47"	108°08'55"	AUG	13	1882	1760	1	95 FAIR	G	9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GRAND	8041100	40°14'26"	108°22'22"	MAR	21	1860	148	1	106 FAIR	R	9	ANTELOPE CREEK NR. KREMMLING, COLORADO	
GUINNISON	3883353	38°33'37"	108°38'27"	JUL	31	1945	750	1	0.7 UNKNOWN	R	2	Flick Gulch Trib. to Quartz Creek near Ohio, Colorado	
HINSDALE	385413	38°31'30"	108°31'30"	JUL	31	1845	460	1	0.2 UNKNOWN	R	2	UNNAMED GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	5	1970	2520	1	322 POOR	R	9	WILLOW CREEK TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	6	1970	7050	1	72.1 GOOD	R	9	MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	27	1957	13800	1	270 GOOD	R	9	VALLECITO CREEK NR. BAYFIELD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	31	1937	1	UNKNOWN	R	2	SALT CREEK NR. OXFORD, COLORADO		
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	31	1945	1480	1	UNKNOWN	R	2	LIGHTNER CREEK NEAR DURANGO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	18	1972	2830	1	62.9 GOOD	R	2	WILLOW CREEK NR. OXFORD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	18	1957	7250	1	96 UNKNOWN	R	2	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1972	713	2.3	16.7 FAIR	R	9	SALT CREEK NR. OXFORD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1957	1880	3.94	23	R	9	EAST SALT CREEK NEAR DURANGO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1980	237	1	16.7 FAIR	R	9	EAST SALT CREEK NEAR DURANGO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1988	811	1	16.7 GOOD	R	9	EAST SALT CREEK NEAR DURANGO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	12	1988	854	1	22.1 FAIR	R	9	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1972	154	1	22.1 GOOD	R	9	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	22	1941	1880	1	37 UNKNOWN	R	2	LAPLATA RIVER AT HESPERUS, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	3	1970	1150	1	33.1 POOR	R	9	LAPLATA RIVER AT COLORADO, N. M. LINE	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1972	1780	1	38.4 GOOD	R	9	JUNCTION CREEK NEAR DURANGO, COLORADO	
LA PLATA	9352900	37°28'39"	107°32'25"	SEP	19	1972	870	1	FAIR	R	9	WILDCAT CREEK NEAR DURANGO, COLORADO	
MESA	9151700	38°51'30"	108°18'53"	JUL	24	1877	178	3	4 UNKNOWN	L	9	DEER CREEK TRIBUTARY NR. DOMINGUEZ, COLORADO	
MESA	9153270	38°05'50"	108°45'00"	SEP	19	1972	3940	4	142 GOOD	R	9	BIG SALT WASH AT FRUITA, COLORADO	
MESA	9153400	38°18'31"	108°58'59"	AUG	8	1974	1400	1	168 FAIR	R	9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°58'59"	AUG	8	1976	1200	1	168 FAIR	R	9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°58'59"	AUG	31	1891	681	1	168 GOOD	G	9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°58'59"	AUG	30	1881	681	1	168 FAIR	R	9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°58'59"	AUG	15	1882	130	1	168 FAIR	G	9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°44'56"	OCT	7	1977	580	1	188 UNKNOWN	L	9	EAST SALT TRIBUTARY NR. MACK, COLORADO	
MESA	9153310	38°17'50"	108°51'58"	JUL	18	1974	2830	1	197 POOR	G	9	EAST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	38°18'31"	108°53'32"	SEP	19	1972	1880	1	198 FAIR	R	9	SALT CREEK NEAR MACK, COLORADO	
MESA	9153500	38°06'00"	108°07'00"	AUG	31	1983	7000	5	17800 UNKNOWN	G	12	COLORADO RIVER NR. COLORADO-UTAH STATE LINE	
MESA	91717500	38°31'00"	108°07'00"	AUG	10	1983	349	1	12 POOR	R	9	TAYLOR CREEK NEAR GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	2	1978	308	4	31.2 UNKNOWN	G	9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	12	1981	2610	1	31.2 GOOD	G	9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	17	1982	1050	1	31.2 FAIR	G	9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	18	1974	2350	1	4350 POOR	R	9	DOLESES RIVER AT GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	18	1974	11700	1	23 UNKNOWN	R	1	WEST CREEK NR. GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	18	1974	800	1	14 UNKNOWN	G	2	INDIAN WASH AT GRAND JUNCTION, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	18	1974	806	3	14 GOOD	G	9	INDIAN WASH AT GRAND JUNCTION, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	18	1974	3580	1	9.23 POOR	G	9	JERRY GULCH NR. MESA, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	7	1978	9280	1	18.8 FAIR	G	9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	13	1981	3020	1	4.35 POOR	G	9	PLATEAU CREEK NR. MESA, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	13	1981	585	1	14 GOOD	R	9	WOLF CREEK NR. GATEWAY, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	21	1977	58	3	40 POOR	R	9	GOOD SPRINGS CREEK AT AXIAL, COLORADO	
MESA	91726200	38°31'59"	108°51'59"	JUL	24	1977	280	1	4.22 UNKNOWN	L	9	COAL CANYON AT CANEO, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	5180	1	556 GOOD	R	9	WEST TWIN WASH NR. DINOSAUR, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	2000	1	83 FAIR	G	9	DOLES RIVER AT DOLORES, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	3020	1	320 FAIR	G	9	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	320	1	320 FAIR	R	9	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	580	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	5300	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	4200	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	320	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	R	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	108°43'00"	OCT	14	1941	180	1	550 UNKNOWN	G	1	MANCOS RIVER NR. GATEWAY, COLORADO	
MONTEZUMA	9171100	31°02'20"	10										

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (FT3S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	DESCRIPTION/LOCATION		PART	NOTE	FILE
											NUMBER	NAME			
MONTZUMA	9311000	37.0139	1084427	SEP	6	1910	4530	1	550	POOR	R	MANCOS RIVER NR. TOMACO, COLORADO	9		
MONTZUMA	9311300	37.2051	1082856	AUG	15	1917	11750	3	443	UNKNOWN	L	MICELMO CREEK TRIB. NR. CORTEZ, COLORADO	9		
MONTZUMA	9311492	37.1846	4083938	AUG	24	1882	731	1	336	POOR	G	MUD CREEK AT MARY 32 NR. CORTEZ, COLORADO	9		
MONTZUMA	9311500	37.1900	0840000	SEP	22	1941	4540	1	233	UNKNOWN	R	MICELMO CREEK NEAR CORTEZ, COLORADO	9		
MONTZUMA	9311500	37.1900	1084000	JUL	31	1953	684	1	233	UNKNOWN	R	MICELMO CREEK NR. CORTEZ, COLORADO	9		
MONTZUMA	9311500	37.1900	1084000	AUG	20	1854	1280	1	233	POOR	R	MICELMO CREEK NR. CORTEZ, COLORADO	9		
MONTZUMA	9311500	37.1923	1084022	AUG	24	1882	720	1	233	POOR	G	MICELMO CREEK NR. COLORADO-UTAH LINE	9		
MONTZUMA	9312000	37.1900	1080054	AUG	28	1851	1700	1	350	UNKNOWN	R	MICELMO CREEK NR. COLORADO-UTAH LINE	9		
MONTZUMA	9312000	37.1900	1080100	AUG	1	1853	458	1	350	FAIR	R	MICELMO CREEK NR. COLORADO-UTAH LINE	9		
MONTZUMA	9312000	37.1900	1080054	SEP	6	1970	2890	1	336	POOR	G	MICELMO CREEK NR. OLAHIE, COLORADO	9		
MONTROSE	9119450	36.3319	1080243	JUL	27	1882	1040	1	102	POOR	G	DOLORES RIVER AT BEDROCK, COLORADO	9		
MONTROSE	9119500	36.1837	1085305	SEP	6	1910	5710	1	1910	GOOD	R	EAST PARDOX CREEK TRIB NR. BEDROCK, COLORADO	9		
MONTROSE	9119860	36.1853	1084821	SEP	1970	388	12	1550	UNKNOWN	L	SAN MIGUEL RIVER AT URAYAN, COLORADO	9			
MONTROSE	91177000	36.2125	1084240	AUG	15	1858	3490	12	1550	POOR	R	SAN MIGUEL RIVER AT URAYAN, COLORADO	9		
MONTROSE	91179000	36.2656	1084240	SEP	6	1970	8910	1	681	POOR	R	ROC CREEK NEAR URANIUM, COLORADO	9		
MONTROSE	91179000	36.2656	1085520	JUL	10	1852	845	1	304	POOR	G	COAL CREEK WEST OF MONROSE, COLORADO	9		
MONTROSE	91179000	36.2656	1079847	JUL	27	1882	5050	1	738	UNKNOWN	R	PEASANT VALLEY CREEK NR. MONROSE, COLORADO	9		
OURAY	9146800	36.0858	1075500	JUL	28	1957	900	1	177	FAIR	R	PEACEANCE CREEK BELOW RIO BLANCO, COLORADO	9		
RIO BLANCO	9309007	36.9314	1081057	JUL	19	1917	520	3	167	FAIR	R	WEST FK STEWARD GL AT MOUTH NR. RIO BLANCO, COLORADO	9		
RIO BLANCO	9309028	36.9436	1081057	SEP	3	1977	38	1	167	FAIR	R	SORGHUM GULCH AT MOUTH NR. RIO BLANCO, COLORADO	9		
RIO BLANCO	9309036	36.9490	1081154	JUL	31	1978	40	1	362	UNKNOWN	M	COTTONWOOD GULCH NR. RIO BLANCO, COLORADO	9		
RIO BLANCO	9309036	36.9490	1082255	JUL	19	1977	38	1	12	FAIR	M	PEACEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO	9		
RIO BLANCO	9309042	36.9501	1081312	SEP	3	1977	451	1	108	POOR	M	WILLOW CREEK NR. RIO BLANCO, COLORADO	9		
RIO BLANCO	9309058	36.9501	1081431	SEP	3	1977	23	1	46.7	POOR	R	HORSE DRAW NR. RANGELY, COLORADO	9		
RIO BLANCO	9309202	36.9539	1081859	JUL	24	1977	19	1	141	POOR	M	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309233	36.9612	1081753	JUL	24	1977	16	1	281	POOR	M	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309233	36.9612	1081753	SEP	11	1977	41	3	2.87	GOOD	M	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309222	40.0439	1081406	MAY	4	1971	242	1	928	UNKNOWN	M	PEACEANCE CREEK AT WHITE RIVER, COLORADO	9		
RIO BLANCO	9309230	39.9537	1082510	SEP	11	1977	245	1	261	GOOD	M	STATE SPRINGS DRAW NR. RANGELY, COLORADO	9		
RIO BLANCO	9309235	39.9537	1083156	JUL	23	1977	272	1	8.6	POOR	M	CORRAL GULCH BELOW WATER GULCH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309240	39.9537	1083140	AUG	25	1977	30	1	9.21	POOR	M	BOX ELDER GULCH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309241	39.9540	1082906	SEP	11	1977	5	1	2.38	POOR	R	BOX ELDER GULCH TRIB. NR. RANGELY	9		
RIO BLANCO	9309241	39.9540	1082890	JUL	9	1981	76	1	318	POOR	R	CORRAL GULCH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309242	39.9551	1082820	JUL	23	1977	183	1	37.8	FAIR	M	CORRAL GULCH AT 84 RANCH NR. RANGELY, COLORADO	9		
RIO BLANCO	9309244	39.9564	1082239	SEP	11	1977	69	1	39	FAIR	M	DUCK CREEK AT UPPER STATION NR. RANGELY, COLORADO	9		
RIO BLANCO	9309244	39.9564	1082210	JUL	23	1977	62	1	262	POOR	M	YELLOW CREEK NR. WHITE RIVER, COLORADO	9		
RIO BLANCO	9309248	39.9585	1082170	JUL	24	1977	758	1	425	---	M	Douglas Creek At Rangely, COLORADO	9		
RIO BLANCO	9309255	40.1097	1082402	SEP	7	1978	600	2	262	POOR	M	YELLOW CREEK NR. WHITE RIVER, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084202	SEP	5	1977	1170	1	425	---	M	MINERAL CREEK AT SILVERTON, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	3250	1	425	---	M	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	650	1	167	GOOD	R	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	750	1	167	UNKNOWN	R	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	650	1	51.7	GOOD	R	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	3070	1	180	UNKNOWN	R	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	1270	2	180	UNKNOWN	R	FALL CREEK NR. FALL CREEK, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	1430	4	180	UNKNOWN	G	NATURITA CREEK NR. NORWOOD, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	183	1	167	GOOD	R	NATURITA CREEK NR. NORWOOD, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	2540	1	167	UNKNOWN	R	DEADHORSE CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	2680	4	180	UNKNOWN	L	DEADHORSE CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	215	3	1.73	FAIR	R	DRY CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	1380	1	35.6	FAIR	R	DY CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	850	1	27.7	UNKNOWN	R	DY CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	430	1	27.7	UNKNOWN	R	DY CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	613	3	5.3	UNKNOWN	L	DY CREEK NR. NATURITA, COLORADO	9		
RIO BLANCO	9309255	40.1097	1084631	JUL	26	1977	5680	1	65.9	POOR	R	DY CREEK NR. NATURITA, COLORADO	9		
SAN JUAN	9168500	37.4807	1074039	SEP	5	1970	1941	1	180	UNKNOWN	L				
SAN JUAN	9168500	37.5446	1083035	SEP	26	1973	1653	2	180	UNKNOWN	R				
SAN JUAN	9168500	37.5446	1083800	JUL	29	1974	1653	4	180	UNKNOWN	G				
SAN JUAN	9168500	37.5446	1083800	JUL	12	1954	183	1	167	GOOD	R				
SAN JUAN	9168500	37.5446	1083800	JUL	27	1955	2540	1	167	UNKNOWN	R				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	2680	4	180	UNKNOWN	L				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	215	3	1.73	FAIR	R				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	1380	1	35.6	FAIR	R				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	850	1	27.7	UNKNOWN	R				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	430	1	27.7	UNKNOWN	R				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	613	3	5.3	UNKNOWN	L				
SAN JUAN	9168500	37.5446	1083800	JUL	28	1955	5680	1	65.9	POOR	R				
SAN MIGUEL	9115000	37.0339	1063438	AUG	23	1977	1250	2	5.33	UNKNOWN	L				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	5680	1	65.9	POOR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	215	3	1.73	FAIR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	1380	1	35.6	FAIR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	850	1	27.7	UNKNOWN	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	430	1	27.7	UNKNOWN	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	613	3	5.3	UNKNOWN	L				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	5680	1	65.9	POOR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	215	3	1.73	FAIR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	1380	1	35.6	FAIR	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	850	1	27.7	UNKNOWN	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5	1970	430	1	27.7	UNKNOWN	R				
SAN MIGUEL	9115000	37.0339	1063438	SEP	5										

Indirect Measurements
Extreme Streamflow Data Base

Storm #	Storm Name	State	Storm Date	Extreme Precipitation				Remarks	USBR Storm File	
				Region	Type	Lat	Long	Maximum Precip		
20	Livermore-Boxelder	CO	May 20-21, 1904	2	LC	40 59	105 11	8" at Boxelder	Huge flood on N. Fork and Poudre River	X
34	Cascade/ SW CO	CO	Sept. 3-7, 1909	3	GLC	37 40	107 48	2.9" 24 hrs, Cascade, CO	4.49" 108 hrs, Cascade, heavy Ft. Range rains, flood on San Juan River	X
58	Pentose	CO	June 2-6, 1921	2	GLC	38 27	105 04	9.00" 72 hrs, Silver Lake, CO	Huge flood thru Pueblo but flooding throughout E. CO	X
65	Missouri Canyon	CO	June 15, 1923	2	LC	40 26	105 13	2.50" in 30 minutes	Missouri Canyon near Masonville, flood Buckhorn Creek	
72	Trinidad	CO	July 19-22, 1925	2	LC	37 10	104 30	Est 5" in 40 min W of Trinidad	Major flood came down Purgatory River	
86	Bear Creek	CO	July 7, 1933	2	LC	39 38	105 15	Unknown	"Cloud burst" near Idledale, significant flooding	
87	Cherry Creek	CO	August 2-3, 1933	1.2	LC	39 39	104 51	3.90" 1 day Calhan	Intense rains of 3-9" overnight, upper basin 6500-7500 ft	X
88	Kassler	CO	Sept 9-11, 1933	2	G	39 30	105 06	3.98" 24 hrs. Kassler	Flooding in Denver	X
89	Purgatory River	CO	Sep 15, 1934	1	LC	37 10	103 52	Unknown	Sheets of water caused flooding in Purgatory basin	
94	Pitkin	CO	July 17, 1936	3	LC	38 36	106 32	1.8" 75 minutes, Pitkin, CO		
95	West of Gardner	CO	July 27, 1936	2	LC	37 46	105 11	Unknown	Local "cloud burst" caused flooding on Huerfano Creek	
102	West Slope/Front Range	CO	Aug 31-Sept 4, 1938	2.5	GLC	39 57	105 21	8.57" 48 hrs, Waterdale, CO	7" 6 hrs near Morrison, severe flooding several F.R. streams, mostly Sept. 2	X
104	near Gateway	CO	July 16, 1940	5	LC	38 42	108 56	1.41" 2 days Colorado Mt. Men	Local "cloud burst" caused flooding at West Creek	X
107	Rico	CO	Sept 18-23, 1941	3	G	37 41	108 02	3.85" Rico, CO		X
125	Fort Collins	CO	May 30, 1948	2	GLC	40 35	105 05	9.0" near Fort Collins (8 hrs)	2.33" 24 hrs, Box Ranch, CO	X
126	near Golden	CO	June 7, 1948	2	LC	39 44	105 14	12pm - 2 am	6.0" less than 2 hrs near Golden	
129	Eastern Colorado	CO	June 4-7, 1949	1	GLC	38 06	102 39	4.70" 1 day, Lamar	1.61" 1 day Hawthorne Flash floods and hail over CO	
131	Southeastern CO	CO	May 14-15, 1951	1	GLC	37 17	102 37	7.05" 1 day Springfield 8S	4.7" in area with severe hail, high wind, 1 death	
133	Redstone Creek	CO	August 2-3, 1951	3	LC	40 26	105 13	12" 48 hrs at Redstone Creek and near Belvue	6.06" 48 hrs, Fort Collins, local flooding	X
	Central Arizona	AZ	August 26-29, 1951			34 12	112 20	13.55" Crown King, storm total	Heavy rains and flooding from tropical hurricane	
	Wray	CO	September 7, 1951			40 04	102 13	1.25" Wray, 3.02" at Yuma	West and south of Wray >6" reported	
137	Cuchillas Dam	CO	July 11, 1953	2	LC	47 44	104 36	3.40" 1 hr, 4.03 storm total	3.20" 1 day Doherty Ranch many other stations 2-5" Arkansas River flooding	X
138	Rye	CO	May 18-20, 1955	2	G	37 55	104 56	6.10" 1 day, Rye (13" in New Mex)	Lots of rain Denver area and W. Slope, local damaging floods	
140	Englewood	CO	July 30-Aug 3, 1956	2	LC	39 39	104 54	12" in 5 days, \$5 mill flood damage		

Indirect Measurements
Extreme Streamflow Data Base

Storm #	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precip	Remarks	USBR Storm File
142	Colorado	CO	May 8-12, 1957	2,3,4	G	40 10	105 04	Many 3-5" totals, 4.04" 1 day Longmont	\$2 million in flood damage, snow in mtns, 1.36" Aspen, 8" snow, 3 deaths	
143	Akron	CO	July 26, 1957	1	LC	40 09	103 09	5.50" 1 day, Akron	hail, major damage in area	X
	Kiowa Creek	CO	July 30, 1957			39 21	104 28	5.4-5" 45 minutes - Kiowa Creek	minor road/bridge damage	
151	Wray	CO	July 17, 1962	1	LC	40 04	102 13	6-6.5" from 7-8 pm at Wray/Vernon, flash flooding	No extreme precip reports found in CD	
154	Ruby Canyon	CO	August 31, 1963		LC	38 52	106 58	No extreme precip found in CD	Severe flooding Ruby canyon, train derailed	
155	Lamar	CO	May 29-30, 1964	1	GLC	38 04	102 37	5.64 1 day, Lamar	3-5" in Kiowa, Bent, Prowers and Baca Counties, local flooding	
159	Plum Creek	CO	June 13-20, 1965	1,2,4	GLC	39 05	104 20	15.17" 48 hrs, Holly	Huge storm at Breckenridge, massive widespread flood	X
165	Denver	CO	July 25, 1965	2	LC	39 46	104 53	2.05" Denver AP, 1.99" - 30 min	Denver flooding, 3.3" 30-40 min in Aurora	
177	Sargent's	CO	August 11, 1968	3	LC	38 24	106 26	.74" Sargent's	Cloudburst flooding in Rio Grande Valley, 10NW DeBeque	
179	Big Elk Meadow	CO	May 4-8, 1969	2,4	G	40 16	105 25	5.35" 24 hrs, Jones Pass 2E, 13.05" 96 hrs near Boulder	11.27 Morrison, continuous rains, local flooding, road/building damage	X
183	Stratton 2NE	CO	August 22, 1969	1	LC	39 18	102 35	8.00" Stratton 3NE, 11-13.0 aftn, damaging wind and hail	2 people drowned, flash flood	
188	South Western CO	CO	Sept 4-6, 1970	3	G	37 48	107 40	5.00" 48 hrs, Palisade Lakes	4-6" < 12 hrs, some locations, widespread flooding	X
193	SW Colorado	CO	Oct 19-20, 1972	3,5	G	37 19	107 50	5.00" 48 hrs, Durango, CO	Heavy rains, flooding	
194	Front Range	CO	May 5-6, 1973	2	G	39 55	105 06	5" totals along F.R.	6" east near Kiewa, S. Platte River flooding, 4-24" 24 hrs, Palmer Lake, flash flood in Denver	X
198	Big Thompson Canyon	CO	Jul 31-Aug 1, 1976	2	LC	40 25	105 26	12" 24 hrs, Big Thompson Canyon near Drake	Ferocious 18 flash flood - most rain in 3-6 hours, 256 dead	X
202	Grand Junction	CO	Sept 7, 1978	3,5	LC	39 07	108 32	Est 2-4" rain - localized	Flash flood, road swept away	
								16.63" 10 days Crown King (NW of Phoenix), 3-12" Central Basin, White Basins	Heavy snows, rains in western CO esp San Juan Mtns, 4-9" totals for 10 days	
Arizona		AZ	Feb 13-22, 1980			34 12	112 20			
205	Cripple Creek	CO	August 8, 1980	2	LC	38 45	105 11	5.00" 3 hrs, Cripple Creek	2" < 1 hr, Lake George	
207	Frijoles Creek	CO	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijoles Creek, about 4 hrs	4.52" 1 day Trinidad AP, caused train wreck, flooding	X
208	Glenwood Springs	CO	July 12, 1981	4 or 6	LC	39 31	107 19	Spings	2"-<1 hr, mudslides, homes damaged	
210	Trinidad	CO	August 11, 1981	2	LC	37 15	104 20	4.20" 1 day Trinidad, CO		

||||| more severe, thus much CCC Storm
Indirect Measurements
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	INDIRECT DISCHARGE MEASUREMENTS IN COLORADO			DISCHARGE (F T3S)	TYPE	DRAINAGE AREA (SQ MI)	DESCRIPTION & LOCATION	FILE	NOTE	PART	CCC STORM LIST NUMBER
		Month	Day	Year								
LARIMER	6732000	403955	1051310	MAY	20	1904	57200	1	1055 UNKNOWN	R	2	6
LAS ANIMAS	7124500	371010	1043000	SEP	16	1909	13500	-1	795 UNKNOWN	P	2	7
PIOMBS	7133000	380617	1023101	JUN	5	1921	130000	-	1870 UNKNOWN	R	2	7
LARIMER	6739500	027115	1051159	JUN	15	1923	105000	1	131 UNKNOWN	R	2	6
LAS ANIMAS	7124500	371005	1051142	JUL	22	1925	33000	4	795 UNKNOWN	P	2	7
JEFFERSON	6710500	393911	1051142	JUL	7	1933	8110	1	184 UNKNOWN	R	2	6
Douglas	6714000	392000	1044500	AUG	3	1933	30000	2	175 UNKNOWN	R	12	6
DENVER	6719500	394535	1050110	SEP	10	1934	22000	5	304 UNKNOWN	R	2	6
JEFFERSON	6719500	394505	1051145	SEP	9	1933	5800	1	399 UNKNOWN	R	2	6
OTERO	7126500	374400	1012900	SEP	15	1934	45000	1	290 UNKNOWN	R	1	7
SAN JUAN	3749500	1014000	1024800	JUL	18	1936	547	1	LINKOWN	R	12	9
PUEBLO	7115500	380000	1042800	JUL	28	1936	26840	2	1673 UNKNOWN	P	1	7
ARAPAHOE	6711500	393908	1051517	SEP	2	1938	2810	1	260 UNKNOWN	R	2	6
JEFFERSON	6710500	393911	1051142	SEP	2	1938	6200	1	184 UNKNOWN	R	2	6
MEWA	3846000	1085300	1051300	JUL	16	1940	11700	-1	23 UNKNOWN	R	1	9
LA PLATA	9371500	371270	1082000	SEP	22	1941	4540	1	233 UNKNOWN	R	2	9
MONTEZUMA	9371500	371190	1084000	JUN	22	1941	547	1	131 UNKNOWN	R	12	9
LARIMER	6713500	402715	1051150	MAY	30	1948	5159	1	111 UNKNOWN	R	2	6
JEFFERSON	6714200	394545	1051215	JUN	7	1948	11600	1	101 UNKNOWN	R	6	6
BOULDER	6714100	401530	1051215	JUN	6	1949	3500	1	151 POOR	R	2	6
LARIMER	7128000	4022300	1051450	JUN	4	1949	320	1	23 UNKNOWN	P	1	7
BENT	7128000	371600	1031800	JUN	15	1949	26100	2	327 UNKNOWN	P	1	7
FREMONT	3602500	1034000	1034000	JUN	5	1949	11600	1	435 UNKNOWN	P	1	7
OTERO	7128000	3714100	1032900	JUN	5	1949	5420	4	UNKNOWN	P	1	7
ARAPAHOE	6712100	371520	1034210	JUN	4	1949	26100	2	290 UNKNOWN	P	1	7
PIOMBS	3403256	1020701	1020701	JUN	15	1949	1300	1	451 UNKNOWN	R	2	7
ARAPAHOE	3603509	1020701	1020701	JUN	15	1949	1830	1	UNKNOWN	R	2	7
PIOMBS	3801400	1020820	1020820	MAY	15	1949	27500	1	229 UNKNOWN	P	1	7
PIOMBS	3802300	1020200	1020200	MAY	15	1951	34000	-1	617 UNKNOWN	P	1	7
PIOMBS	3802300	1020200	1020200	MAY	15	1951	5000	1	102 UNKNOWN	P	1	7
ARAPAHOE	3633908	1043908	1043908	AUG	3	1951	8400	1	116 UNKNOWN	R	2	6
ARAPAHOE	3840116	1040554	1040554	AUG	3	1951	11000	1	131 UNKNOWN	R	2	6
ARAPAHOE	3840116	1041143	1041143	AUG	3	1951	41000	4	10 UNKNOWN	R	2	6
ARAPAHOE	3802300	1020248	1020248	MAY	15	1951	27500	1	229 UNKNOWN	R	2	6
BOULDER	6742500	400453	1051114	AUG	3	1951	5100	1	48 FAIR	R	1	6
BOULDER	6742500	400740	1051800	AUG	3	1951	785	1	515 UNKNOWN	R	1	6
LARIMER	6741500	402235	1050610	AUG	3	1951	1900	1	116 UNKNOWN	R	6	6
LARIMER	6742300	1050146	1050146	AUG	3	1951	11400	4	131 UNKNOWN	R	2	6
LARIMER	6739500	402715	1051510	AUG	3	1951	14000	1	131 POOR	R	12	6
LARIMER	4038600	1050000	1050000	AUG	3	1951	12000	4	UNKNOWN	R	2	6
LARIMER	6700000	402220	1051135	AUG	3	1951	420	4	7 UNKNOWN	R	6	6
LARIMER	6700000	402236	1051330	AUG	3	1951	26200	1	15 GOOD	R	1	6
LARIMER	6700000	403715	1051045	AUG	3	1951	8000	1	UNKNOWN	R	6	6
LARIMER	6705500	402210	1051715	AUG	3	1951	350	2	3 POOR	R	6	6
LARIMER	403424	1032056	1032056	SEP	7	1951	12000	4	POOR	R	2	6
LARIMER	402420	1033324	1033324	SEP	7	1951	4400	2	UNKNOWN	R	2	6
MORGAN	6753500	402236	1031726	SEP	7	1951	13400	4	POOR	R	6	6
WELD	6753500	401330	1051330	AUG	3	1951	239	6	159 UNKNOWN	R	12	6
LARIMER	6712100	401028	1045847	AUG	3	1951	6200	4	1320 UNKNOWN	R	2	6
LARIMER	6712100	401220	104730	JUL	11	1953	6230	1	87 FAIR	R	7	6
LARIMER	403424	1031351	1031351	JUL	12	1953	24300	2	87 FAIR	P	7	7
OTERO	7121000	371730	1043859	MAY	19	1955	10000	1	451 UNKNOWN	R	2	7
PUEBLO	3800000	1042800	1042800	JUL	11	1953	3340	1	1673 UNKNOWN	R	12	7
BENT	7124000	380508	1041472	JUL	11	1955	4400	1	1447 UNKNOWN	P	1	7
WELD	6753500	375500	1031250	MAY	20	1955	73400	12	3376 UNKNOWN	P	1	7
LAS ANIMAS	7126000	371130	1040400	MAY	19	1955	4810	1	35 GOOD	P	1	7
LAS ANIMAS	3710000	1031561	1031561	MAY	19	1955	12000	4	UNKNOWN	P	7	7
LAS ANIMAS	370730	1043859	1043859	MAY	19	1955	1150	1	28 UNKNOWN	P	7	7
LAS ANIMAS	373310	1042840	1042840	MAY	19	1955	16000	1	1673 UNKNOWN	R	12	7
LAS ANIMAS	371712	1041943	1041943	MAY	19	1955	1140	2	123 UNKNOWN	P	7	7
LAS ANIMAS	370911	1041422	1041422	MAY	19	1955	940	1	10 UNKNOWN	P	7	7
LAS ANIMAS	371145	1041036	1041036	MAY	19	1955	315	3	1 UNKNOWN	P	7	7
LAS ANIMAS	370904	1043045	1043045	MAY	19	1955	820	1	4 UNKNOWN	P	7	7
LAS ANIMAS	371215	1042710	1042710	MAY	19	1955	1950	1	16 UNKNOWN	P	7	7
LAS ANIMAS	370100	1042845	1042845	MAY	19	1955	642	3	5 UNKNOWN	P	7	7
LAS ANIMAS	370702	1043520	1043520	MAY	19	1955	9650	1	104 UNKNOWN	P	7	7
BENT	371029	1041250	1041250	MAY	19	1955	187	3	1 UNKNOWN	P	7	7
LAS ANIMAS	371145	1041100	1041100	MAY	19	1955	900	1	1 UNKNOWN	P	1	7
LAS ANIMAS	371200	1042800	1042800	MAY	19	1955	361	2	485 UNKNOWN	P	7	7
LAS ANIMAS	370610	1044548	1044548	MAY	19	1955	4400	2	7 UNKNOWN	P	7	7
LAS ANIMAS	370732	1044150	1044150	MAY	19	1955	2600	1	766 UNKNOWN	P	7	7
LAS ANIMAS	370822	1043230	1043230	MAY	19	1955	2600	2	691 UNKNOWN	P	7	7
LAS ANIMAS	370828	1043533	1043533	MAY	19	1955	19600	2	691 UNKNOWN	P	7	7

Comments:
1) From Reme, NE SW.
2) Arkansas River at Trinidad, Colorado.
3) Drawn No 2 at U.S. Highway 160 near Trinidad, Colorado.
4) Purgatoire River at Laramie River, Colorado.
5) Purgatoire River at Arroyo Grande, Colorado.
6) Purgatoire River at Arroyo Nuevo, Colorado.
7) Purgatoire River at Arroyo Negro, Colorado.
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COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (Ft³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING FILE	NOTE	DESCRIPTION/LOCATION		PART	CCC STORM LIST COMMENTS NUMBER
												AREA	FILE		
LAS ANIMAS	371712	104.1842	50.55	MAY	19	1955	37900	24	1015 GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	139	
LAS ANIMAS	7126000	104.0730	50.55	MAY	19	1955	41900	1	1320 UNKNOWN	P	7	PURGATOIRE RIVER NR ALFAFLA, COLORADO	138		
LAS ANIMAS	3706531	104.3116	50.55	MAY	19	1955	9400	1	61 FAIR	P	7	RATON CREEK AT UPPER U.S. HWY 15, 87 CROSSING, COLORADO	138		
LAS ANIMAS	3703030	104.2650	50.55	MAY	19	1955	402	3	3 UNKNOWN	P	7	RATON CREEK AT STARVILLE, COLORADO	138		
LAS ANIMAS	370756	104.3634	50.55	MAY	19	1955	2800	1	37 UNKNOWN	P	7	REILLY CANYON AT COKEDALE, COLORADO	138		
LAS ANIMAS	370110	104.0750	50.55	MAY	19	1955	15500	4	160 UNKNOWN	P	7	SAN FRANCISCO CREEK NR ALFAFLA, COLORADO	138		
LAS ANIMAS	370423	104.4525	50.55	MAY	19	1955	1460	1	36 GOOD	P	7	SARCILLO CANYON NR. SEGUNDO, COLORADO	138		
OERO	7119500	103.5652	50.55	MAY	19	1955	17000	24	1125 UNKNOWN	P	7	APISHAPA RIVER NR. FOWLER, COLORADO	138		
OERO	7126500	394400	50.55	MAY	19	1955	80000	2	2980 TO RIVER AT MINNELE DAM NR. HIGBEE, COLORADO	P	1	PURGATOIRE RIVER AT MINNELE DAM NR. HIGBEE, COLORADO	138		
OTERO	374225	102.1220	50.55	MAY	19	1955	5680	1	281 UNKNOWN	P	7	SMITH CANYON NR. NINAVILLE, COLORADO	138		
PROWERS	380509	102.3148	50.55	MAY	20	1955	5500	1	220 UNKNOWN	P	7	CLAY CREEK NR. LAMAR, COLORADO	138		
PUEBLO	380230	102.2030	50.55	MAY	20	1955	1420	1	116 UNKNOWN	P	7	MOLE CREEK NR. GRENADA, COLORADO	138		
PUEBLO	7116000	386000	50.55	MAY	19	1955	11300	2	167 FAIR	P	1	HURFANOR BLW HFO VLY DAM NR. UNDERCLIFFE, COLORADO	138		
PUEBLO	380112	104.4331	50.55	MAY	19	1955	3650	1	63 UNKNOWN	P	7	MUDGY CREEK NR. PUEBLO, COLORADO	138		
PUEBLO	3861220	104.3140	50.55	MAY	19	1955	28600	1	498 UNKNOWN	P	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	138		
ARAPAHOE	6712500	392618	104.4919	JUN	31	1956	5310	1	350 UNKNOWN	R	6	BLACK WOLF CREEK NEAR MELVIN, COLORADO	140		
ADAMS	394552	104.4937	50.55	MAY	9	1957	6450	4	113 FAIR	P	6	CHERR CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142		
ADAMS	394600	104.5000	50.55	MAY	9	1957	7680	6	113 FAIR	R	1	SAND CREEK NR. AURORA, COLORADO	142		
ADAMS	394132	104.4904	50.55	MAY	9	1957	10400	23	38 UNKNOWN	R	2	TOLL GATE CREEK AT 6TH HAVE, NR. AURORA, COLORADO	142		
DENVER	394648	104.5410	50.55	MAY	9	1957	25500	1	187 UNKNOWN	R	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142		
EL PASO	6757600	390400	104.3753	JUL	30	1957	5250	1	3 GOOD	R	6	KOMWA CREEK AT K-78 RES. NR. EASTONVILLE, COLORADO	151		
YIMA	395338	102.1340	50.55	JUL	17	1962	17800	1	25 GOOD	R	6	BLACK WOLF CREEK NEAR MELVIN, COLORADO	154		
MESA	9163500	389900	104.4919	JUN	31	1963	7000	5	1700 UNKNOWN	G	12	CHERR CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	157		
EL PASO	7103700	385117	104.5239	MAY	29	1964	672	1	102 FAIR	P	6	COLD SPRINGS, COLORADO	159		
ADAMS	394018	104.6532	50.55	JUN	17	1965	145000	1	190 FAIR	R	6	SAND CREEK NR. DEER TRAIL, COLORADO	159		
ADAMS	394524	104.4904	50.55	JUN	16	1965	13400	1	113 GOOD	R	6	MIDDLE BULLION CREEK NR. DEER TRAIL, COLORADO	159		
ADAMS	3949512	104.5218	50.55	JUN	17	1965	18800	1	459 FAIR	R	6	SOUTH PLATTE RIVER AT DERBY, COLORADO	159		
ADAMS	6720500	395215	104.5218	JUN	17	1965	28600	1	471 UNKNOWN	R	2	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	159		
ADAMS	393542	104.4844	50.55	JUN	16	1965	38900	4	36 UNKNOWN	R	1	CHERRY CREEK NEAR MELVIN, COLORADO	159		
ARAPAHOE	393100	104.6300	50.55	JUN	17	1965	274000	1	302 FAIR	R	1	EAST BULLION CREEK DEER TRAIL, COLORADO	159		
ARAPAHOE	6758300	394454	104.2416	JUN	18	1965	24900	4	235 POOR	R	6	IKOMWA CREEK AT BENNETT, COLORADO	159		
ARAPAHOE	393635	104.6835	50.55	JUN	16	1965	14100	13	102 UNKNOWN	R	6	PHINEY CREEK NR. MELVIN, COLORADO	159		
ARAPAHOE	6711000	393110	105.6110	JUN	16	1965	110000	4	3069 UNKNOWN	R	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159		
ARAPAHOE	394332	104.9044	50.55	JUN	16	1965	16800	23	36 UNKNOWN	R	6	TOLL GATE CREEK AT 6TH HAVE, NR. AURORA, COLORADO	159		
ARAPAHOE	394122	104.4107	50.55	JUN	17	1965	75500	4	277 FAIR	R	6	WEST BULLION CREEK AT BYERS, COLORADO	159		
LENNER	394605	104.3100	50.55	JUN	16	1965	18500	3	167 FAIR	R	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159		
Douglas	392417	104.3226	50.55	JUN	16	1965	126000	1	106 POOR	R	6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159		
Douglas	6709500	392904	104.2416	JUN	16	1965	134000	1	302 UNKNOWN	R	6	PLUM CREEK NR. LOUVERS, COLORADO	159		
Douglas	392220	104.4835	50.55	JUN	16	1965	36000	1	108 POOR	R	6	WEST PLUM CREEK NR. SEDALIA, COLORADO	159		
EL PASO	6757600	390400	104.3455	JUN	17	1965	110000	4	3069 UNKNOWN	R	6	WEST BULLION CREEK NR. KOMA, COLORADO	159		
EL PASO	6757700	390618	104.4904	JUN	17	1965	16800	23	36 UNKNOWN	R	6	KOMWA CREEK SUBWATERSHED NO. J-33 NR. EASTONVILLE, COLORADO	159		
ELBERT	6758100	391238	104.3216	JUN	17	1965	2800	1	1600 GOOD	R	6	WEST BULLION CREEK NR. KOMA, COLORADO	159		
ELBERT	6758000	391235	104.3200	JUN	17	1965	41500	1	280 GOOD	R	6	KOMWA CREEK SUBWATERSHED NO. J-33 NR. ELBERT, COLORADO	159		
ELBERT	6758000	392000	104.2900	JUN	17	1965	196500	1	111 UNKNOWN	R	1	KOMWA CREEK SUBWATERSHED NO. J-33 NR. ELBERT, COLORADO	159		
ELBERT	6757750	390920	104.3116	JUN	17	1965	2010	1	1600 GOOD	R	6	KOMWA CREEK SUBWATERSHED NO. J-33 NR. ELBERT, COLORADO	159		
ELBERT	6757800	391003	104.3114	JUN	17	1965	1270	1	160 FAIR	R	1	KOMWA CREEK SUBWATERSHED NO. J-33 NR. ELBERT, COLORADO	159		
MORGAN	6758500	401800	104.2000	JUN	17	1965	67200	1	86 POOR	R	1	WEST BULLION CREEK NR. KOMA, COLORADO	159		
SEDGWICK	6768400	405846	102.1515	JUN	20	1965	20000	1	36 FAIR	R	1	WEST BULLION CREEK NR. KOMA, COLORADO	159		
WELD	403700	1023700	1032700	JUN	15	1965	35200	4	629 FAIR	R	1	SOUTH PLATTE RIVER AT BALZAC, COLORADO	159		
WELD	404300	1041000	1041000	JUN	15	1965	123000	24	1682 FAIR	R	1	BEAVER CREEK NEAR BRUSH, COLORADO	159		
MORGAN	400800	1033500	1033500	JUN	18	1965	24300	1	946 GOOD	R	1	LONE TREE CREEK NR. NUNN, COLORADO	159		
WELD	401517	1035600	1035600	JUN	18	1965	465000	1	1314 POOR	R	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	159		
MORGAN	6758500	401920	103515	JUN	19	1965	13500	4	131 UNKNOWN	R	2	WEST BULLION CREEK NR. STONEHAWK, COLORADO	159		
WELD	372600	1023700	1023700	JUN	17	1965	37600	1	2318 UNKNOWN	P	1	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	159		
BACA	371900	1022600	1022600	JUN	17	1965	5340	4	73 FAIR	R	1	CROW CREEK NR. SPRINGFIELD, COLORADO	159		
BACA	373800	1023700	1023700	JUN	17	1965	86200	24	451 GOOD	R	1	WILLOW CREEK NR. LAS ANIMAS, COLORADO	159		
BENT	380523	1031624	1031624	JUN	18	1965	86000	4	589 GOOL	P	1	LORETTA CREEK NR. LAS ANIMAS, COLORADO	159		
BENT	712000	390508	1031250	JUN	19	1965	6200	1	14417 GOOD	P	7	AKANSAS RIVER AT CADDIA, COLORADO	159		
BENT	7131000	390340	1025300	JUN	18	1965	26700	1	131 GOOD	P	1	CADDIA CREEK AT HIGHWAY 194 NR. LA JUNTA, COLORADO	159		
BENT	380504	1031210	1031210	JUN	18	1965	5070	23	300 POOR	P	1	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159		
BENT	7128500	390202	1031200	JUN	18	1965	62500	4	350 UNKNOWN	P	1	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	159		
BENT	7128400	371900	1023600	JUN	18	1965	27600	1	106 UNKNOWN	P	1	TIME BUTTES CREEK NR. SPRINGFIELD, COLORADO	159		
BENT	380504	1041700	1041700	JUN	17	1965	60700	1	49 FAIR	P	1	ADORE CREEK NR. LAS ANIMAS, COLORADO	159		
BENT	380523	1041624	1041624	JUN	18	1965	14000	1	14417 GOOD	P	1	AKANSAS RIVER AT LAS ANIMAS, COLORADO	159		
EL PASO	380105	1042200	1042200	JUN	17	1965	10400	1	16 FAIR	P	1	BLACK SQUIRREL CREEK NR. PETION, COLORADO	159		
EL PASO	710500	384346	1044400	JUN	14	1965	2880	1	48 GOOD	P	1	FOUNTAIN CREEK AT HIGHWAY 194 NR. LAS ANIMAS, COLORADO	159		
EL PASO	384320	104385	104385	JUN	17	1965	12400	1	51 FAIR	R	1	JOHNSON CREEK NEAR FOUNTAIN, COLORADO	159		
EL PASO	385025	381900	1045231	JUN	18	1965	515	1	48 FAIR	P	1	WILLOW CREEK NR. STANLEY CANYON NR. FIVEVIEW, COLORADO	159		
HAMILTON	7131500	380133	1026100	JUN	17	1965	158000	1	2540 FAIR	P	1	WILLOW CREEK NR. COOLIDGE, KANSAS	159		
LAS ANIMAS	371000	1035700	1035700	JUN	17	1965	28000	1	35 GOOD	P	1	AKALI ARROYO NR. TRINCHERA, COLORADO	159		
LAS ANIMAS	370720	1042459	1042459	JUN	17	1965	3120	3	28 FAIR	P	1	BURRO CANYON AT MADRID, COLORADO	159		

Indirect Measurement
Extreme Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (Ft³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		CCC STORM LIST COMMENTS NUMBER	
														AREA	DATE		
LAS ANIMAS	373211	303506 JUN	17	1965			38900	1	301	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO		1597	
LAS ANIMAS	370538	1043119 JUN	17	1965			1720	3	8	GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO		1597	
LAS ANIMAS	371200	1041140 JUN	17	1965			10600	4	80	GOOD	P		7	FRIOLI CREEK NEAR ALFAFA, COLORADO		1597	
LAS ANIMAS	370904	1043045 JUN	17	1965			1060	4	4	FAIR	P		7	GRASSMACK ARROYO NR. TRINIDAD, COLORADO		1597	
LAS ANIMAS	371215	1042710 JUN	17	1965			3540	1	16	GOOD	P		7	GROVER CREEK NR. MORELY, COLORADO		1597	
LAS ANIMAS	370100	1042845 JUN	17	1965			760	3	5	POOR	P		7	JOE CREEK NR. SORPIS, COLORADO		1597	
LAS ANIMAS	370720	1043220 JUN	17	1965			4480	1	104	FAIR	P		7	LONG CANYON NR. SORPIS, COLORADO		1597	
LAS ANIMAS	370800	1045100 JUN	16	1965			1920	1	216	GOOD	R	1	7	PURGATORIE R. ABY. LORENTO CANYON NR. WESTON, COLORADO		1597	
LAS ANIMAS	370800	1044800 JUN	17	1965			3000	4	81	UNKNOWN	P		7	PURGATORIE R. ABY. LORENTO CANYON NR. WESTON, COLORADO		1597	
LAS ANIMAS	370105	1043021 JUN	16	1965			15700	4	76	GOOD	P	1	7	PURGATORIE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO		1597	
LAS ANIMAS	371712	1041842 JUN	16	1965			20900	4	1015	GOOD	P	2	7	PURGATORIE RIVER NR. ALFAFA, COLORADO		1597	
LAS ANIMAS	371130	1040730 JUN	18	1965			27300	1	130	GOOD	P		7	PURGATORIE RIVER NR. ALFAFA, COLORADO		1597	
LAS ANIMAS	371200	1042350 JUN	16	1965			20000	2	857	POOR	P		7	PURGATORIE RIVER NR. HATCHER, COLORADO		1597	
LAS ANIMAS	371200	1041500 JUN	18	1965			47700	4	1915	FAIR	P	2	7	PURGATORIE RIVER AT STANKEVILLE, COLORADO		1597	
LAS ANIMAS	370653	1043118 JUN	17	1965			12800	4	61	FAIR	P		7	RAJON CREEK NR. MORLEY, COLORADO		1597	
LAS ANIMAS	370030	1042650 JUN	16	1965			4650	1	5	FAIR	P		7	REILLY CANYON AT COKEDEALE, COLORADO		1597	
LAS ANIMAS	370756	1043834 JUN	16	1965			3410	1	317	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFAFA, COLORADO		1597	
LAS ANIMAS	371110	1040750 JUN	18	1965			14900	4	68	FAIR	P		7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO		1597	
LAS ANIMAS	370100	1041200 JUN	17	1965			7950	1	32	GOOD	P	1	7	SARCILLO CANYON NR. SEGUNDO, COLORADO		1597	
LAS ANIMAS	370123	1044525 JUN	17	1965			1630	1	36	UNKNOWN	P		7	SOUTH FORK PURGATORIE RIVER AT WESTON, COLORADO		1597	
LAS ANIMAS	370800	1045100 JUN	16	1965			1340	4	101	GOOD	P	1	7	TINCHERA CREEK NR. TRINCHERA, COLORADO		1597	
LAS ANIMAS	370145	1040450 JUN	17	1965			4500	24	129	FAIR	P	1	7	TRINCHERA CREEK NR. KARVAL, COLORADO		1597	
LINCOLN	365100	1033200 JUN	17	1965			3110	1	88	FAIR	P		7	WASHAPA RIVER NR. FOWLER, COLORADO		1597	
OTERO	7119500	380528 JUN	17	1965			11400	4	1125	FAIR	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO		1597	
OTERO	7119700	380735 JUN	18	1965			43200	2	10801	UNKNOWN	P		7	ARKANSAS RIVER AT SHINK, COLORADO		1597	
OTERO	360134	1034730 JUN	16	1965			31670	4	167	UNKNOWN	P		7	SMITH CANYON NR. NIMAVIE, COLORADO		1597	
OTERO	374223	1032420 JUN	18	1965			9400	1	291	FAIR	P		7	TIMPAS CREEK MOUTH NR. SWINK, COLORADO		1597	
PROMERS	360040	1033630 JUN	17	1965			21180	24	481	GOOD	P		7	TIBBLE SAND CREEK NR. LAMAR, COLORADO		1597	
PROMERS	360115	1022850 JUN	17	1965			36500	1	240	FAIR	P	1	7	CLAY CREEK NR. LAMAR, COLORADO		1597	
PROMERS	360044	1022426 JUN	18	1965			158000	1	213	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO		1597	
PROMERS	315220	1021650 JUN	17	1965			12800	1	18	FAIR	P		7	ST. MARY CREEK NR. MORRISON, COLORADO		1597	
PROMERS	360125	1022625 JUN	17	1965			10500	2	291	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO		1597	
PROMERS	360149	10229420 JUN	17	1965			182000	1	817	GOOD	P		7	WILD HORSE CREEK AT HOLLY, COLORADO		1597	
PROMERS	7116600	380245 JUN	17	1965			10600	1	272	UNKNOWN	P		7	WILLOW CREEK NR. WOFFA, COLORADO		1597	
PROMERS	360156	1023701 JUN	18	1965			24300	1	41	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO		1597	
PROMERS	371505	1022695 JUN	17	1965			35300	1	63	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO		1597	
PUEBLO	7111000	361054 JUN	18	1965			43100	24	945	FAIR	P		7	WOLF CREEK NR. NEPESTA, COLORADO		1597	
PUEBLO	7108500	361442 JUN	18	1965			104000	4	715	POOR	P		7	WILDERNESS CREEK NR. NORTH AVONDALE, COLORADO		1597	
PUEBLO	7108500	1043909 JUN	17	1965			47000	4	926	GOOD	P		7	FOUNTAIN CREEK NR. PUEBLO, COLORADO		1597	
PUEBLO	7108500	361633 JUN	18	1965			2900	5	260	UNKNOWN	R		6	FOOTBALL CREEK AT MOUTH AT SHERIDAN, COLORADO		1597	
YUMA —	6625000	393904 JUN	17	1965			10500	1	121	GOOD	R		6	RIO ALTO CREEK NEAR WOFFA, COLORADO		1597	
APAHOE	6711500	393904 JUN	17	1965			17400	1	174	GOOD	R		6	RIO SAN JUAN NR. JAMES TOWN, COLORADO		1597	
SAGUAHCE	360437	1054546 AUG	11	1965			1965	1	1970	—	R		6	JAMES CREEK AT MOUTH NR. JAMES TOWN, COLORADO		1597	
BOULDER	400604	1052033 MAY	7	1965			31000	1	19	GOOD	R		6	JAMES CREEK AT MOUTH NR. JAMES TOWN, COLORADO		1597	
JEFFERSON	371200	1051113 MAY	7	1965			71650	1	2130	FAIR	R		6	JAMES CREEK AT MOUTH NR. JAMES TOWN, COLORADO		1597	
TUMA	6835500	393432 JUN	23	1965			10600	1	268	POOR	R		6	LANDS END CREEK NR. HALE, COLORADO		1597	
YUMA —	6821400	393424 JUN	23	1965			2260	1	11	UNKNOWN	L	2	6	NORTH BLACK WOLF CREEK NR. VERNON, COLORADO		1597	
DOLORES	6825000	393659 JUN	23	1965			14900	1	300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		1597	
OTERO	7121500	38010 JUN	22	1965			2169	1	486	GOOD	R	2	6	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO		1597	
PROMERS	7134300	375230 JUN	23	1965			7860	1	16	UNKNOWN	L	2	7	WOLF CREEK NR. CALTON, COLORADO		1597	
MINERAL	6217500	374600 JUN	23	1965			4680	1	60	UNKNOWN	P		6	RO GRANDE AT WAGONMILL GAP, COLORADO		1597	
ARCHULETA	9313900	372325 JUN	23	1965			1065025 SEP	6	1710	1	64	POOR	P	9	E/FK SAN JUAN A/S SAN CREEK NR. PAGOSA SPRGS., COLORADO		1597
ARCHULETA	9340000	372210 JUN	23	1965			1065330 SEP	6	1970	1	2060	—	P	9	E/FK SAN JUAN A/S SAN CREEK NR. PAGOSA SPRGS., COLORADO		1597
DELTA	9149500	384431 JUN	23	1965			1080449 SEP	6	1970	1	2250	1	9	EL PASO CREEK NR. CHIRICO, COLORADO		1597	
MESA	374742	1085128 SEP	5	1970			2400	1	11	POOR	R		9	EL PASO CREEK NR. DOVE CREEK, COLORADO		1597	
DOLORES	9165000	373020 JUN	23	1965			1084334 SEP	6	1970	1	132	—	P	9	EL PASO CREEK NR. DOVE CREEK, COLORADO		1597
MONTEZUMA	374544	1085403 SEP	6	1970			7980	1	371	POOR	R	2	9	PIEDRA RIVER NR. DOVE CREEK, COLORADO		1597	
HINSDALE	372120	1072032 SEP	5	1970			2500	23	58	GOOD	R	2	9	RO BLANCO NR. PAGOSA SPRINGS, COLORADO		1597	
ARCHULETA	9343000	371246 JUN	1084713 SEP	6	1970		6580	1	170	—	R		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO		1597	
ARCHULETA	9342500	371558 JUN	1070037 SEP	6	1970		7050	1	170	—	R		9	VALLECITO CREEK NR. BAYFIELD, COLORADO		1597	
LA PLATA	9152900	372839 JUN	1083157 SEP	6	1970		1019049 SEP	6	1970	1	129	FAIR	R	9	DOLORES RIVER AT BAYFIELD, COLORADO		1597
LA PLATA	9175000	380455 JUN	1084545 SEP	6	1970		6350	1	350	POOR	R		9	DOLORES RIVER AT GATEVIA, COLORADO		1597	
MONROE	9172700	381241 JUN	1084240 SEP	6	1970		1084240 SEP	6	1970	1	150	POOR	R	9	DOLORES RIVER NR. PAGOSA SPRINGS, COLORADO		1597
SAN JUAN	9168500	372815 JUN	1083015 SEP	6	1970		6350	1	56	GOOD	R		9	DOLORES RIVER NR. SILVERTON, COLORADO		1597	
MONTEZUMA	9147200	372912 JUN	1070946 SEP	5	1970		4530	1	32	POOR	R		9	MINERAL CREEK AT SILVERTON, COLORADO		1597	
MONTEZUMA	9134900	371921 JUN	1080904 SEP	3	1970		1150	1	311	POOR	R		9	MANCOS RIVER NR. COLORADO, COLORADO		1597	
MONTEZUMA	9135000	371935 JUN	1080305 SEP	3	1970		2860	1	350	FAIR	R		9	MANCOS RIVER NR. TOWACO, COLORADO		1597	
MONTEZUMA	9135000	371939 JUN	1081111 AUG	3	1970		6580	1	1910	GOOD	R		9	DEADHORSE CREEK NR. NATURITA, COLORADO		1597	
MONROE	9169800	381837 JUN	1083035 SEP	6	1970		1120	1	368	3	4	UNKNOWN	L	9	DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO		1597
MONROE	9177000	381245 JUN	1084240 SEP	6	1970		8910	1	111	FAIR	R		9	DYER CREEK NR. NATURITA, COLORADO		1597	
SAN JUAN	9153900	371504 JUN	1074331 SEP	5	1970		5190	1	52	GOOD	R		2	9	DOUG CREEK NR. NATURITA, COLORADO		1597
SAN JUAN	9170000	371439 JUN	1074039 SEP	5	1970		3070	1	51	UNKNOWN	L		2	9	DOUG CREEK NR. NATURITA, COLORADO		1597
SAN MIGUEL	9175800	380231 JUN	1083430 SEP	6	1970		613	3	102	FAIR	R		9	DOUG CREEK NR. NATURITA, COLORADO		1597	
SAN MIGUEL	9168100	380113 JUN	1084851 SEP	5	1970		215	3	216	POOR	R		9	DOUG CREEK NR. NATURITA, COLORADO		15	

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING	DESCRIPTION/LOCATION		FILE	NOTE	PART	CCC STORM LIST NUMBER	COMMENTS
											FILE	NOTE					
LAPLA	9362000	37.613	-107.558	OCT	19	1972	2830	1	63	GOOD	R		9	LIGHTNER CREEK AT DURANGO, COLORADO		193	
LAPLA	9363100	37.992	-107.510	OCT	19	1972	911	1	17	GOOD	R		9	SALT CREEK NEAR OXFORD, COLORADO		193	
LAPLA	371756	107.515	-107.515	OCT	19	1972	670	1	65	FAIR	R		6	WILDCAT CREEK NEAR DURANGO, COLORADO		194	
LAPLA	395835	1045627	-107.515	MAY	6	1973	740	3	6	UNKNOWN	L		6	BIG DRY CREEK AT U.P.R. CULVERT AT DENVER, COLORADO		194	
ADAMS	395026	1045753	-107.515	MAY	6	1973	550	1	6	UNKNOWN	L		6	NIVER CREEK NR. MOUTH AT DENVER, COLORADO		194	
ADAMS	394446	1045246	-107.515	MAY	6	1973	290	1	6	UNKNOWN	L		6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO		194	
ADAMS	393745	1045003	-107.515	MAY	6	1973	4400	4	19	UNKNOWN	L		6	BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO		194	
ARAPAHOE	394311	1045914	-107.515	MAY	6	1973	1510	1	15	UNKNOWN	L		6	LITTLE DRY CREEK AT BROWNY AND ACOMA AT DENVER, COLORADO		194	
DENVER	394101	1045443	-107.515	MAY	6	1973	5630	4	187	UNKNOWN	L		6	SAND CREEK AT 40TH STREET BRIDGE AT DENVER, COLORADO		194	
DENVER	394129	1050020	-107.515	MAY	6	1973	320	3	7	UNKNOWN	L		6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO		194	
DENVER	394150	1050120	-107.515	MAY	6	1973	430	1	8	UNKNOWN	L		6	WEIR GULCH AT DECATOR AT DENVER, COLORADO		194	
Douglas	390906	1050594	-107.515	MAY	7	1973	78	3	11	GOOD	R		6	TRAIL CREEK NR. WESTCREEK, COLORADO		194	
Douglas	390922	1050945	-107.515	MAY	7	1973	2020	1	60	FAIR	R		3	WEST CREEK AT WESTCREEK, COLORADO		194	
Douglas	391032	1050956	-107.515	MAY	7	1973	3080	1	62	FAIR	R		3	WEST CREEK BELOW WESTCREEK, COLORADO		194	
JEFFERSON	394553	1050749	-107.515	MAY	6	1973	820	1	11	UNKNOWN	L		6	LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO		194	
TELLER	390744	1050942	-107.515	JUL	7	1973	240	1	38	GOOD	R		6	WEST CREEK ABV. WESTCREEK, COLORADO		194	
LARIMER	402539	1052037	-107.515	JUL	31	1976	28200	1	189	POOR	R		6	BIG THOMPSON RIVER ABV. DRAKE, COLORADO		196	
LARIMER	402552	1051937	-107.515	JUL	31	1976	30100	1	276	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO		196	
LARIMER	6738000	402516	-1051324	JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO		196	
LARIMER	402259	1052811	-107.515	JUL	31	1976	4330	1	164	GOOD	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLENDALE, COLORADO		196	
LARIMER	402505	1051202	-107.515	JUL	31	1976	27000	1	311	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO		196	
LARIMER	402344	1052607	-107.515	JUL	31	1976	6850	1	1	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO		196	
LARIMER	402704	1052734	-107.515	JUL	31	1976	6700	1	1	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN HAVEN, COLORADO		196	
LARIMER	403577	1050940	-107.515	AUG	1	1976	5700	1	127	FAIR	R		6	CACHE LA FOUDRE RIVER AT FORT COLLINS, COLORADO		196	
LARIMER	6752000	403952	-1051326	AUG	1	1976	7240	1	1056	FAIR	R		6	CACHE LA FOUDRE RIVER AT WOOD NR. FORT COLLINS, COLORADO		196	
LARIMER	402736	1051309	-107.515	JUL	31	1976	727	3	1	GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO		196	
LARIMER	402343	1052617	-107.515	JUL	31	1976	7210	1	1	POOR	R		6	DARK GULCH AT GLEN COMFORT, COLORADO		196	
LARIMER	405550	1052655	-107.515	JUL	31	1976	7460	1	24	POOR	R		6	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO		196	
LARIMER	402724	1052731	-107.515	JUL	31	1976	2610	1	1	POOR	R		6	DEVILS GULCH NR. GLEN HAVEN, COLORADO		196	
LARIMER	402242	1052915	-107.515	JUL	31	1976	4460	1	6	POOR	R		6	DRY GULCH AT ESTES PARK, COLORADO		196	
LARIMER	402422	1052837	-107.515	JUL	31	1976	3210	1	2	POOR	R		6	DRY GULCH NR. ESTES PARK, COLORADO		196	
LARIMER	402717	1052713	-107.515	JUL	31	1976	1390	1	7	POOR	R		6	FOX CREEK AT GLEN HAVEN, COLORADO		196	
LARIMER	402006	1052548	-107.515	JUL	31	1976	1940	1	3	FAIR	R		6	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO		196	
LARIMER	402744	1051724	-107.515	JUL	31	1976	2590	1	66	POOR	R		6	LOW PINE CREEK NR. LIVERMORE, COLORADO		196	
LARIMER	402346	1052410	-107.515	JUL	31	1976	5500	1	2	POOR	R		6	LONG GULCH NR. DRAKE, COLORADO		196	
LARIMER	402747	1052513	-107.515	JUL	31	1976	2080	1	14	POOR	R		6	MILLER FORK NR. GLEN HAVEN, COLORADO		196	
LARIMER	402620	1052152	-107.515	JUL	31	1976	6710	1	80	POOR	R		6	NO. F.K. BIG THOMPSON RIVER ABV. DRAKE, COLORADO		196	
LARIMER	402711	1052270	-107.515	JUL	31	1976	868	1	19	POOR	R		6	NO. F.K. BIG THOMPSON RIVER NR. LIVERMORE, COLORADO		196	
LARIMER	402853	1052411	-107.515	JUL	31	1976	3240	1	1	POOR	R		6	NO. F.K. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO		196	
LARIMER	404715	1051508	-107.515	JUL	31	1976	9460	1	59	POOR	R		6	NO. F.K. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO		196	
LARIMER	402325	1052600	-107.515	JUL	31	1976	6910	1	3	POOR	R		6	NOELS DRAINT. AT GLEN COMFORT, COLORADO		196	
LARIMER	402714	1052604	-107.515	JUL	31	1976	9670	1	1	POOR	R		6	NORTH FORK BIG THOMPSON RIVER NR. GLEN HAVEN, COLORADO		196	
LARIMER	402417	1052417	-107.515	JUL	31	1976	3540	1	3	POOR	R		6	RABBIT GULCH NR. DRAKE, COLORADO		196	
LARIMER	403019	1051519	-107.515	JUL	31	1976	2640	1	29	POOR	R		6	REDSTONE CREEK NR. MASONVILLE, COLORADO		196	
LARIMER	403143	1051244	-107.515	JUL	31	1976	2110	1	5	POOR	R		6	RIST CANYON NR. BELLEVUE, COLORADO		196	
LARIMER	404837	1051501	-107.515	JUL	31	1976	3470	1	32	GOOD	R		6	STONEWALL CREEK NR. GLEN HAVEN, COLORADO		196	
LARIMER	402632	1052740	-107.515	JUL	31	1976	2320	1	23	POOR	R		6	WEST CREEK NR. GLEN HAVEN, COLORADO		202	
MESA	390328	1053450	-107.515	SEP	7	1976	9280	1	19	FAIR	G		9	NO. THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO		202	
MESA	390413	1053657	-107.515	SEP	7	1976	2890	1	3	POOR	G		9	RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO		202	
RIO BLANCO	9306255	401907	1052402	SEP	7	1976	6800	24	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO		202	
ADAMS	395111	1045916	-107.515	JUN	3	1981	265	3	1	FAIR	L		6	LITTRAL CREEK OF NELSON GULCH NR. THORNTON, COLORADO		2057	
DENVER	394958	1050305	-107.515	JUN	3	1981	720	3	1	FAIR	L		6	LITTLE DRY CR. AT 70TH AND FEDERAL NR. DENVER, COLORADO		2057	
JEFFERSON	394958	1050305	-107.515	JUN	3	1981	770	3	1	FAIR	L		6	LITTLE DRY CR. AT 75TH AND SHERIDAN AT WHEATRIDGE, CO.		207	
LAS ANIMAS	9172500	311200	-107.515	JUL	3	1981	28400	24	80	FAIR	P		7	FRIOLIO CREEK NEAR ALFALFA, COLORADO		2087	
LAS ANIMAS	9172500	363159	-107.515	JUL	12	1981	2610	1	31	GOOD	G		9	SALT CREEK NR. GATEWAY, COLORADO		2087	
LAS ANIMAS	7124100	310756	-1044824	AUG	10	1981	5100	1	4	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO		2107	
LAS ANIMAS	7124100	310756	-1044824	AUG	10	1981	11500	1	550	FAIR	P		7	MOLINO CANYON NR. WESTON, COLORADO		2107	

INDIRECT DISCHARGE MEASUREMENTS IN COLORADO SORTED BY DISCHARGE										Most (A) Big Disks to 95% in (b) and (c)									
COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRainage AREA (50 MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS			
JEFFERSON	6710600	39°56'20.0"	107°53'15.0"	JUN	2	1957	1667		164 UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO						
LA PLATA	371610	39°53'27.0"	102°42'20.0"	JUN	28	1937	1		UNKNOWN UNKNOWN	R	1	9	LIGHTNER CREEK NEAR DURANGO, COLORADO						
PROMERS PARK	3601000	39°53'27.0"	103°53'05.0"	JUN	27	1957	1		185 UNKNOWN	R	1	6	DRY CREEK NR LAMAR, COLORADO						
PROUTY	391742	39°53'27.0"	103°53'05.0"	JUN	17	1979	3		131 UNKNOWN	R	2	6	TROUBLESON CREEK AT KITTERIDGE, COLORADO						
JEFFERSON	6686500	39°59'17.0"	105°18'21.0"	JUL	18	1961	468000		1314 POOR	R	13	6	BLOU CREEK NEAR WIGGINS, COLORADO		199?				
MORGAN	4015117	39°58'00.0"	103°58'00.0"	JUN	18	1965	276000		302 FAIR	R	1	7	RULE CREEK NR TONERVILLE, COLORADO		199?				
BENT	7123400	3914900	103°31'10.0"	JUN	18	1965	274000		617 GOOD	P	7	EAST BLOU CREEK AT DEER TRAIL, COLORADO		199?					
ARAPAHOE	393700	3910000	103°00'30.0"	JUN	17	1965	182000		2510 FAIR	P	7	TWO BUTTES CREEK NR HOLLY, COLORADO		199?					
PROMERS HAMILTON	7131750	390113	102°01'00.0"	JUN	17	1965	158000		2510 FAIR	P	7	ARKANSAS RIVER NR COONIDGE, KANSAS		199?					
EL PASO	360044	390426	102°34'26.0"	JUN	18	1965	168000		2131 FAIR	P	7	CLAY CREEK NR LAMAR, COLORADO		199?					
PROMERS DOUGLAS	67078500	392094	105°00'07.0"	JUN	16	1940	154000		302 UNKNOWN	R	6	PLUM CREEK NR LOUVIERS, COLORADO		199?					
ADAMS	394016	391423	104°05'52.0"	JUN	17	1965	145000		7157 POOR	P	6	MID & BLOW CREEK NR. DEER TRAIL, COLORADO		199?					
EL PASO	360617	39133000	102°37'01.0"	JUN	5	1921	111000		2531 GOOD	P	7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		58 ok?					
PROMERS DOUGLAS	392417	391422	104°52'27.0"	JUN	18	1965	128000		19160 UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO		199?				
EL PASO	364320	3914345	102°21'00.0"	JUN	17	1965	124000		2510 FAIR	R	7	EAST BLOU CREEK NR CASTLE ROCK, COLORADO		199?					
LOGAN	6760000	402424	103°27'58.0"	JUN	18	1965	123000		16852 FAIR	R	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO		199?					
ARAPAHOE	6710000	393710	105°00'10.0"	JUN	16	1965	110000		302 UNKNOWN	R	6	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO		199?					
OTERO	391402	391422	104°10'36.0"	JUN	18	1965	104000		201 FAIR	P	7	SMITH CANYON NR. SPRINGFIELD, COLORADO		199?					
OTERO	374225	3912420	103°24'20.0"	JUN	19	1965	84000		45 GOOD	P	1	7	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO		199?				
OTERO	373900	39123700	102°37'00.0"	JUN	17	1965	82800		2800 UNKNOWN	P	1	7	PURGATORIE RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO		199?				
OTERO	394400	39123000	102°32'00.0"	MAY	19	1955	80000		27500 FAIR	R	1	7	WEST BLOU CREEK AT BYERS, COLORADO		199?				
OTERO	394223	3911407	104°11'07.0"	JUN	17	1965	73400		3316 UNKNOWN	P	1	7	PURGATORIE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		199?				
OTERO	375900	39118000	103°18'00.0"	MAY	20	1955	73400		12 UNKNOWN	R	1	7	WEST BLOU CREEK NR. KIOWA, COLORADO		199?				
ELBERT	7128000	3916000	104°20'00.0"	JUN	17	1965	67200		85 FAIR	P	7	PURGATORIE RIVER AT LAS ANIMAS, COLORADO		199?					
BENT	7124500	390202	103°12'00.0"	JUN	18	1965	62500		350 UNKNOWN	P	1	7	BIG SANDY CREEK NR CALHN, COLORADO		199?				
EL PASO	390500	390500	103°12'00.0"	JUN	17	1965	60000		19 FAIR	P	1	7	PURGATORIE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		199?				
BENT	7126000	3757500	103°16'00.0"	APR	24	1942	60000		3116 UNKNOWN	P	1	7	PURGATORIE RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO		20				
LARIMER	6752000	403955	105°11'31.0"	MAY	20	1904	57200		105 UNKNOWN	R	2	7	CACHE LA Poudre RIVER AT MOIC NR. FORT COLLINS, COLORADO		199?				
LAS ANIMAS	372130	390735	103°56'10.0"	JUN	18	1965	47700		1935 FAIR	P	2	7	ARKANSAS RIVER AT CATLIN DAM NR. THACHER, COLORADO		199?				
PUEBLO	7108500	381633	104°39'00.0"	JUN	17	1965	47000		98 GOOD	P	2	7	PURGATORIE RIVER AT PUEBLA, COLORADO		199?				
OTERO	7126500	374400	101°29'00.0"	SEP	15	1934	45800		2980 UNKNOWN	R	1	7	PURGATORIE RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO		199?				
EL PASO	399650	104110	AUG	5	1954	44500		145 UNKNOWN	P	1	7	KIONA CREEK AT ELBERT, COLORADO		199?					
BENT	7124000	380500	10312500	MAY	20	1995	44000		1447 UNKNOWN	P	1	7	WES BLOU CREEK AT BYERS, COLORADO		199?				
OTERO	7126500	374400	10289000	APR	23	1942	43500		2900 UNKNOWN	P	1	7	PURGATORIE RIVER AT HIGHLAND DAM NR. HIGHBEE, COLORADO		199?				
OTERO	7119700	390735	10511310	MAY	20	1904	43200		1091 UNKNOWN	P	2	7	CACHE LA Poudre RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO		199?				
PUEBLO	7117000	391054	1049490	JUN	19	1965	41700		9345 FAIR	P	2	7	ARKANSAS RIVER NR. NEPEU, COLORADO		199?				
LAS ANIMAS	7126000	371130	10413200	MAY	19	1955	41900		1320 UNKNOWN	P	2	7	PURGATORIE RIVER NR. ALFALFA, COLORADO		199?				
ELBERT	6759000	391235	10413200	JUN	17	1965	41500		286 GOOD	P	2	7	WES BLOU CREEK AT BYERS, COLORADO		199?				
ARAPAHOE	394403	1041343	AUG	1	1951	41000		3176 UNKNOWN	P	1	7	PURGATORIE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		199?					
BENT	7126000	375500	10318000	JUL	23	1954	39300		1817 UNKNOWN	R	2	7	ARKANSAS RIVER BELOW MELVIN, COLORADO		199?				
BENT	7130500	390500	10255100	APR	24	1942	40000		1800 UNKNOWN	R	2	7	ARKANSAS RIVER AT CADDIA, COLORADO		No 1942 Prop. CO				
LOGAN	373200	393342	10332606	JUN	16	1985	39900		335 UNKNOWN	R	6	CHIACUA CREEK NEAR MELVIN, COLORADO		199?					
LAS ANIMAS	371112	390482	104182	MAY	19	1956	38800		387 GOOD	P	2	7	CHIACUA CREEK NR. STERLING, COLORADO		199?				
LAS ANIMAS	7126000	370115	10407300	JUL	22	1951	37800		1015 GOOD	P	2	7	PURGATORIE RIVER NR. HIGHBEE, COLORADO		199?				
SEDENICK	6764000	405646	1021515	JUN	20	1965	37600		2338 UNKNOWN	R	2	7	SOUTH PLATTE RIVER AT JULESBURG, COLORADO		199?				
BENT	7131000	390340	1025950	JUN	18	1965	31670		131 GOOD	P	2	7	CADDIA CREEK AT CADDIA, COLORADO		199?				
DODGERS	392230	104535	JUN	16	1965	36800		108 POOR	R	6	WEST PLUM CREEK NR. SEDILLA, COLORADO		199?						
LARIMER	6738000	402552	102805	JUN	17	1965	35300		625 FAIR	P	7	WOLF CREEK NR. GRANADA, COLORADO		199?					
DODGERS	403700	10327000	10327000	JUN	15	1965	35200		629 FAIR	R	1	6	PINEHORN CREEK NR. STEERLING, COLORADO		199?				
ADAMS	7124500	390500	10445000	AVG	3	1933	30000		1015 UNKNOWN	P	2	7	PURGATORIE RIVER AT HIGHBEE, COLORADO		199?				
LAS ANIMAS	6720500	394512	10451118	JUN	17	1965	29600		817 UNKNOWN	P	2	7	PURGATORIE RIVER NR. ALFALFA, COLORADO		199?				
LAS ANIMAS	7125100	371005	10431110	JUL	22	1965	28400		795 UNKNOWN	P	7	PURGATORIE RIVER AT TRINIDAD, COLORADO		199?					
LARIMER	402519	1051934	JUL	31	1976	28100		105 UNKNOWN	R	2	6	PURGATORIE RIVER AT TRINIDAD, COLORADO		199?					
POWERS	380509	103144	MAY	16	1951	27500		21500 UNKNOWN	P	2	7	PURGATORIE RIVER NR. ALFALFA, COLORADO		199?					
LARIMER	7126000	371130	104730	JUN	18	1965	27300		219 UNKNOWN	P	2	6	PURGATORIE RIVER NR. GREEN RIDGE GLADE, COLORADO		199?				
WELD	7115500	380150	1031900	JUN	15	1965	27000		217 UNKNOWN	P	1	6	PAMMIE CREEK NR. STONEHAM, COLORADO		199?				
PUEBLO	7120000	380000	1042800	JUL	26	1965	26840		266 UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO		199?				
LAS ANIMAS	712550	370902	1043230	MAY	19	1955	26400		766 UNKNOWN	P	1	7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		199?				
BENT	7126000	391100	1040830	JUL	22	1954	26300		160 UNKNOWN	P	1	7	PURGATORIE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		199?				
OTERO	7126500	375500	1031800	JUN	5	1949	25100		2375 UNKNOWN	P	1	7	PURGATORIE RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO		199?				
OTERO	7126500	374400	1032900	JUN	5	1949	25100		2390 UNKNOWN	P	2	7	FURRIELE CREEK AT CASTLEWOOD DAM, COLORADO		199?				

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	CCC STORM LIST COMMENTS			
										FILE	NOTE	PART	
HUERFANO	7113500	37°51'00"	104°42'00"	AUG	14	1942	28900	1	801	UNKNOWN	R	12	
OTERO	3946400	104°54'04" MAY	9	1957	23500	1	187	UNKNOWN	R	6	HUERFANO RIVER NEAR MUSTANG, COLORADO SAND CREEK BELOW TOL GATE CREEK AT DENVER, COLORADO	142	
DENVER	3707545	104°54'05" JUL	22	1954	25100	24	129	UNKNOWN	R	6	SAND CREEK NEAR TRINCHERA, COLORADO		
LAS ANIMAS	7105800	38°43'48" JUL	104°40'00" JUL	24	1965	23000	1	488	POOR	R	7	FOUNTAIN CREEK AT SECURITY, COLORADO	159
EL PASO	384346	104°24'46" JUN	18	1965	24900	4	236	POOR	R	7	KIOMA CREEK AT BENNETT, COLORADO	137	
ARAPAHOE	6759300	39°45'41" JUL	103°51'31" JUL	12	1953	24300	24	96	FAIR	R	7	CROOKED ARROYO NR LA JUNTA, COLORADO	159
OTERO	3759595	103°52'00" JUL	103°52'00" JUL	18	1965	23500	1	946	GOOD	R	1	BEAVER CREEK NEAR BRUSH, COLORADO	
EL PASO	4003600	38°36'08" JUL	103°52'00" JUL	18	1965	24300	1	946	GOOD	R	1	WILLOW CREEK NR LAMAR, COLORADO	159
BROWNS	3805156	102°37'07" JUN	104°22'27" AUG	21	1965	24300	1	405	FAIR	P	7	WILLOW CREEK NR LAMAR, COLORADO	159
PUEBLO	7099200	38°20'19" JUL	104°56'27" AUG	22	1965	23900	1	486	FAIR	P	7	ARKANSAS RIVER NR PUEBLO, COLORADO	
PUEBLO	7099300	38°16'02" AUG	103°54'41" JUN	10	1978	23500	23	1060	POOR	P	2	ARKANSAS RIVER AT CATLIN DAM NR FOWLER, COLORADO	
OTERO	7119100	38°00'45" JUL	103°42'30" JUL	5	1958	23000	1	451	UNKNOWN	P	7	TIMPAS CREEK AT CATLIN SYPHON NR ROCKY FORD, COLORADO	
OTERO	3803608	104°10'43" JUL	104°10'43" JUL	28	1954	22100	1	676	UNKNOWN	P	7	FOUNTAIN CREEK NR FOUNTAIN, COLORADO	
EL PASO	7166000	38°36'08" JUL	103°52'00" JUL	18	1965	24300	1	1417	GOOD	P	7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	159
BENT	6714000	39°54'55" SEP	105°01'00" JUN	10	1954	22000	5	3804	UNKNOWN	R	2	SOUTH PLATE RIVER AT DENVER, COLORADO	159
DENVER	7099200	38°20'00" JUL	104°56'27" AUG	22	1965	23140	24	481	GOOD	P	7	ARKANSAS RIVER AT MOUTH NR SWINK, COLORADO	159
OTERO	3800425	103°53'30" APR	103°33'15" APR	23	1942	21400	4	1015	GOOD	P	2	PURGATORY RIVER AT HIGHWAY 130 BRIDGE, COLORADO	159
LAS ANIMAS	377712	104°18'42" JUN	104°18'42" JUN	16	1965	20900	4	468	UNKNOWN	P	7	ST. CHARLES RIVER NR PUEBLO, COLORADO	159
LAS ANIMAS	386220	103°51'40" MAY	103°51'40" MAY	19	1955	20600	1	359	FAIR	R	6	WEST KIOMA CREEK AT ELBERT, COLORADO	159
PUEBLO	6758100	39°23'28" JUN	104°32'16" JUN	17	1965	20000	1	359	FAIR	P	7	PURGATORY RIVER NR HOENNE, COLORADO	159
LAS ANIMAS	7124000	37°45'40" JUN	104°25'50" JUN	16	1965	20000	2	857	POOR	P	7	PURGATORY RIVER AT LOPEZ DIVERSION DAM, COLORADO	159
LAS ANIMAS	7124000	37°45'40" JUN	104°25'50" JUN	19	1955	19800	2	691	UNKNOWN	P	7	PURGATORY RIVER AT LOPEZ DIVERSION DAM, COLORADO	159
ELBERT	6758200	38°20'00" JUN	104°29'00" JUN	17	1965	19700	4	111	UNKNOWN	R	1	KIOMA CREEK AT KIOMA, COLORADO	159
LARIMER	6741500	4022355	105°06'10" AUG	3	1951	19800	1	515	UNKNOWN	P	6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	159
DELMER	3946505	104°56'00" JUN	104°56'00" JUN	16	1965	18900	3	187	FAIR	R	6	SAND CREEK BELOW TOL GATE CREEK AT DENVER, COLORADO	159
ADAMS	3949522	104°56'55" JUN	104°56'55" JUN	17	1965	18800	4	4586	FAIR	R	6	SOUTH PLATE RIVER NR WILDONA, COLORADO	159
MORGAN	6758500	38°19'20" JUN	104°19'20" JUN	19	1955	18800	4	13245	UNKNOWN	R	2	APISHAPA RIVER NR FOWLER, COLORADO	159
OTERO	7119500	38°05'26" JUL	104°58'52" JUL	10	1978	18300	24	1125	FAIR	P	7	APISHAPA RIVER NEAR WRAY, COLORADO	151
PUEBLO	7106500	38°16'20" JUL	104°45'40" JUL	10	1945	17800	5	926	UNKNOWN	R	6	BLACK WOLF CREEK NEAR LAS ANIMAS, COLORADO	159
YUMA	395338	102°34'30" JUL	102°34'30" JUL	15	1952	17800	1	25	GOOD	P	7	PURGATORY RIVER NR LAS ANIMAS, COLORADO	159
BENT	7125000	380202	103°12'00" JUL	23	1951	17800	1	393	UNKNOWN	P	7	PURGATORY RIVER AT HIGHLAND DAM NR LAS ANIMAS, COLORADO	159
BENT	7125000	380202	103°12'00" SEP	27	1966	17300	1	393	FAIR	R	1	PURGATORY RIVER AT HIGHLAND DAM NR LAS ANIMAS, COLORADO	159
PROMERS	7125000	371500	103°18'00" JUL	23	1951	17200	1	3175	UNKNOWN	P	1	WOLF CREEK NEAR GRANADA, COLORADO	159
OTERO	3803000	102°20'00" MAY	103°55'55" MAY	13	1958	17100	1	116	FAIR	R	1	WOLF CREEK NEAR GRANADA, COLORADO	159
PUEBLO	7119500	380528	103°55'52" MAY	19	1955	17000	24	1125	UNKNOWN	P	1	APISHAPA RIVER NR FOWLER, COLORADO	159
PUEBLO	7119500	380000	104°00'00" JUL	5	1958	18600	2	1673	FAIR	P	1	HUERFANO RIVER NR DAM NR UNDERCLIFFE, COLORADO	159
PUEBLO	7108500	380000	104°00'00" JUL	26	1950	16100	2	1673	FAIR	P	1	FOUNTAIN CREEK AT PUEBLO, COLORADO	159
OTERO	7108500	381620	104°54'00" AUG	26	1946	16300	5	925	UNKNOWN	R	2	KINGS ARROYO NR LA JUNTA, COLORADO	159
PUEBLO	7108500	381620	104°54'00" JUL	21	1927	16450	1	267	UNKNOWN	P	12	ST. CHARLES RIVER NR FOWLER, COLORADO	159
ARAPAHOE	7108500	381620	104°31'40" JUL	26	1959	16100	1	460	UNKNOWN	P	7	TOLL GATE CREEK AT 6TH AVE, AT AURORA, COLORADO	159
LAS ANIMAS	3710105	104°30'31" JUN	104°30'31" JUN	17	1965	16000	2	358	UNKNOWN	R	6	APISHAPA RIVER NR TRINIDAD, COLORADO	159
LAS ANIMAS	3710000	103°56'11" JUL	103°56'11" JUL	22	1954	15500	3	795	GOOD	P	1	CLAY CREEK NR LAMAR, COLORADO	159
OTERO	7125000	371110	104°07'50" MAY	19	1955	15500	4	160	UNKNOWN	P	7	KALIAR FRANCISCO CREEK NR ALPENA, COLORADO	159
PUEBLO	7125000	371520	103°43'20" JUL	23	1956	15500	1	451	FAIR	R	2	TIMPAS CREEK AT CATLIN SYPHON, COLORADO	159
PUEBLO	7125000	361453	104'29'55" JUL	30	1976	1576	1	6327	POOR	P	7	APISHAPA RIVER NR AVONDALE, COLORADO	159
ELBERT	7125000	392000	102°20'00" MAY	1954	1954	15230	1	111	UNKNOWN	R	1	KIOMA CREEK AT KIOMA, COLORADO	159
YUMA	3943332	104'29'30" JUL	104'49'00" JUN	23	1969	14900	4	1300	GOOD	R	2	SOUTH FORK REPUBLICAN RIVER NR IDAHO, COLORADO	159
OTERO	7119500	380528	103°56'52" JUL	15	1942	14700	1	1125	UNKNOWN	P	7	HUERFANO RIVER NR VLY DAM NR UNDERCLIFFE, COLORADO	159
ARAPAHOE	3935099	102'31'46" JUL	102'31'46" JUL	17	1954	14400	1	224	GOOD	P	7	CLAY CREEK NR LAMAR, COLORADO	159
LARIMER	6739500	402715	105'11'50" AUG	3	1951	14000	1	131	POOR	R	6	PINEY CREEK NR MELVIN, COLORADO	159
LAS ANIMAS	371110	104'07'50" JUN	104'07'50" JUN	16	1965	14000	4	160	UNKNOWN	P	7	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	159
LA PLATA	9333500	372300	103'34'30" JUL	27	1957	13800	1	210	GOOD	R	3	SAN FRANCISCO CREEK NEAR ALPENA, COLORADO	159
WELD	402230	104'36'25" APR	12	1947	13600	1	173	POOR	R	12	BEETEE DRAW NR. BAYFIELD, COLORADO	159	
PUEBLO	7115000	380000	104'28'00" AUG	3	1945	13500	1	170	UNKNOWN	R	2	FALL RIVER NEAR NORTH AVONDALE, COLORADO	159
LAS ANIMAS	7125100	371200	104'11'40" JUL	22	1954	13500	24	60	UNKNOWN	P	7	CHICO CREEK NEAR ALPENA, COLORADO	159
MORGAN	402324	393432	103'37'38" SEP	7	1951	13400	4	113	GOOD	R	6	DEMARQUE CREEK NEAR STARKVILLE, COLORADO	159
PROMERS	394524	104'49'00" JUN	104'49'00" JUN	16	1965	13400	1	795	UNKNOWN	P	7	SAND CREEK AT SABLE AVE, AURORA, COLORADO	159
LAS ANIMAS	371010	104'30'30" SEP	6	1909	13300	1	113	FAIR	P	1	PURGATORY RIVER AT TRINIDAD, COLORADO	159	
BACA	372800	103'70'00" JUN	17	1965	13200	4	113	FAIR	R	6	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	
LARIMER	402350	382359	105'33'05" JUL	15	1962	13100	6	1935	FAIR	P	1	FALL RIVER NEAR SPRINGFIELD, COLORADO	159
PUEBLO	7115000	391550	104'22'30" AUG	27	1941	13000	1	864	UNKNOWN	R	2	CHICO CREEK NEAR AVONDALE, COLORADO	159
LAS ANIMAS	6822500	370853	104'31'18" JUN	20	1955	12900	1	208	POOR	P	7	LANDSMAN CREEK NR HALE, COLORADO	159
LARIMER	402350	391342	103'20'56" SEP	7	1951	12800	4	603	FAIR	R	2	CAÑE LA POUDE RIVER AT LAPORTE, COLORADO	159
LOGAN	390949	1081841	JUL	18	1974	12800	4	100	POOR	G	2	PANMEE CREEK NEAR LOGAN, COLORADO	159
MESA	7131000	390340	102'50'05" AUG	19	1966	11800	1	868	GOOD	P	7	JERRY CREEK NR CAMEO, COLORADO	159
BENT	7119500	393600	105'13'20" JUN	16	1940	11700	1	131	UNKNOWN	R	1	CODDIA CREEK AT CADDOA, COLORADO	159
MESA	394545	1051320	103'53'40" JUN	7	1948	11800	1	112	UNKNOWN	R	1	WEST CREEK NR GATEWAY, COLORADO	159
JEFFERSON	712800	372130	103'53'41" AUG	6	1958	12100	4	112	UNKNOWN	P	1	TUCKER GULCH AT GOLDEN, COLORADO	159
BENT	712800	372950	103'04'00" JUN	5	1949	11600	1	435	UNKNOWN	P	1	RULE CREEK NR CADDOA, COLORADO	159

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (Ft 13S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		ICCC STORM LIST COMMENTS NUMBER
														FILE	NOTE	
LAS ANIMAS	310700	30°35'00"	104°30'00"	APR	23	1942	11500	1	UNKNOWN	P	1	7	LONG CANYON NR. SOPRIS, COLORADO			
BENT	7118500	30°20'00"	103°12'00"	AUG	28	1950	11500	1	UNKNOWN	P	1	7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		207	
LAS ANIMAS	7124200	30°20'00"	104°32'00"	AUG	10	1951	11500	1	UNKNOWN	P	1	7	PURGATOIRE RIVER AT MADRID, COLORADO			
LAS ANIMAS	3107040	30°20'00"	104°30'00"	APR	23	1942	11400	4	UNKNOWN	R	1	7	PURGATOIRE RIVER AT LONGS CANYON, COLORADO		133	
LARIMER	402300	30°51'45"	105°01'45"	AUG	3	1951	11400	4	UNKNOWN	P	1	6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO		159?	
OTERO	7116500	30°52'58"	105°55'52"	JUN	17	1955	11400	4	1125 FAIR	P	1	7	HUERFANO R. BLW. HINNOVY DAM NR. UNDERCLIFFE, COLORADO		138	
PUEBLO	3116000	37°00'00"	104°28'00"	MAY	19	1955	11300	2	1673 FAIR	P	1	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO			
LAS ANIMAS	7124500	37°01'05"	104°30'31"	JUL	12	1951	11200	1	795 FAIR	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO			
PUEBLO	7115500	38°02'00"	102°25'00"	JUN	7	1959	11000	5	1702 UNKNOWN	P	1	7	FOUNTAIN CREEK NR. PUEBLO, COLORADO			
ARAPAHOE	3816200	38°04'00"	104°25'00"	AUG	14	1942	11000	1	956 UNKNOWN	P	1	7	MIDDLE BLOOM CREEK NR. DEER TRAIL, COLORADO		133	
PUEBLO	39016	38°05'54"	104°05'54"	AUG	3	1951	11000	1	UNKNOWN	R	2	6	FOUNTAIN CREEK AT PUEBLO, COLORADO			
PUEBLO	381620	38°05'54"	104°35'40"	AUG	26	1941	10921	1	926 POOR	R	2	7	CHERRY CREEK NEAR MELVIN, COLORADO			
ARAPAHOE	393542	38°04'44"	104°44'44"	AUG	3	1951	10800	1	356 GOOD	R	6	FRIGGLE CREEK NEAR ALFAFA, COLORADO		159?		
PROMERS	390425	38°02'52"	102°28'52"	JUN	17	1965	10800	1	281 GOOD	P	7	SMITH ARROYO NR. GRANADA, COLORADO		159?		
PROWERS	7136000	38°02'45"	102°07'05"	JUN	17	1965	10800	1	272 UNKNOWN	P	7	WILD HORSE CREEK AT HOLLY, COLORADO				
YUMA	6825500	39°34'32"	102°15'08"	AUG	23	1969	10800	1	268 POOR	R	2	6	LANDSMAN CREEK NR. HALIE, COLORADO		183?	
LARIMER	402715	39°31'50"	103°11'50"	JUN	15	1923	10500	1	131 UNKNOWN	R	2	6	BUCHHORN CREEK NEAR MASONVILLE, COLORADO		65	
ARAPAHOE	394332	39°43'04"	104°43'04"	MAY	9	1957	10400	23	356 UNKNOWN	R	2	6	TOLL GATE CREEK AT 6TH AVE., NR. AURORA, COLORADO		142	
EL PASO	390105	39°32'00"	103°20'00"	JUN	17	1965	10400	4	163 FAIR	P	7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO		159?		
HUERFANO	7111000	37°43'40"	102°11'00"	AUG	2	1951	10200	1	163 UNKNOWN	P	7	AT MANZANARES CROSSING NR. REDWING, COLORADO		133? LC R. Cables date?		
BENNET	7125500	38°02'20"	103°21'20"	JUL	12	1951	10000	1	3503 UNKNOWN	P	2	7	PURGATORIE RIVER NR. LAS ANIMAS, COLORADO		137?	
OTERO	375120	38°03'20"	104°34'20"	JUL	12	1953	10000	1	455 UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO			
FREMONT	3813000	38°51'00"	105°11'00"	AUG	28	1978	9860	1	POOR	R	1	6	BADGER CREEK NR. HOWARD, COLORADO			
ARAPAHOE	392510	39°45'19"	104°49'19"	JUL	26	1967	9850	1	360 POOR	R	1	6	CHERRY CREEK NEAR MELVIN, COLORADO			
LARIMER	402114	39°56'04"	105°06'44"	JUL	31	1967	9850	1	136 UNKNOWN	P	1	6	NORTH CANYON NR. BIG THOMPSON, COLORADO			
LAS ANIMAS	390720	39°57'20"	104°56'04"	MAY	19	1955	9850	1	104 UNKNOWN	P	1	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO			
YUMA	393700	39°24'30"	102°43'00"	JUN	13	1962	9810	4	1300 FAIR	R	2	6	TIMEPS CREEK NR. ROCKY FORD, COLORADO		196?	
OTERO	375120	39°31'20"	103°43'20"	JUL	24	1950	9810	1	451 FAIR	R	2	6	NO FE CACHE LA PONDRE RIVER NR. LIVERNORE, COLORADO			
LARIMER	404715	39°51'00"	105°08'00"	JUL	31	1976	9460	1	539 UNKNOWN	P	2	7	RATCH CREEK AT STARKVILLE, COLORADO		138	
LAS ANIMAS	370653	39°41'18"	104°11'18"	MAY	19	1955	9400	1	605 FAIR	P	2	7	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO		202	
MESA	390128	39°55'20"	105°05'20"	SEP	7	1978	9290	1	186 FAIR	G	9	6	CHERRY CREEK NEAR FRANKTON, COLORADO			
Douglas	392130	39°45'50"	104°55'00"	AUG	5	1956	9170	5	169 UNKNOWN	R	2	6	POWELL ARROYO NR. EL MORDO, COLORADO			
LAS ANIMAS	371200	39°42'00"	104°29'00"	MAY	19	1955	9000	1	150 UNKNOWN	P	1	6	SAN MIGUEL RIVER AT URAVAN, COLORADO			
MONTROSE	362125	39°21'25"	108°24'20"	SEP	6	1970	8910	1	150 UNKNOWN	P	1	7	FALL CREEK NR. ALTA, COLORADO		131?	
PROWERS	390320	39°22'30"	102°20'30"	MAY	16	1951	8800	1	116 UNKNOWN	P	1	7	PURGATORIE RIVER NR. AVB. DRANE, COLORADO		196?	
LAS ANIMAS	371130	39°21'30"	104°07'30"	JUN	16	1953	8740	1	132 UNKNOWN	P	1	7	INCINITY GULCH NR. PARKDALE, COLORADO			
LARIMER	402820	39°21'52"	105°21'52"	JUL	31	1976	8710	1	902 FAIR	R	6	WILD HORSE CREEK ABV. HOLLY, COLORADO				
BENT	390223	39°18'24"	103°18'24"	JUN	16	1955	8680	1	586 GOOD	P	7	ADOBÉ CREEK NR. LAS ANIMAS, COLORADO				
LARIMER	402301	39°52'56"	105°25'26"	JUL	15	1982	8520	1	48 POOR	P	1	7	FALL RIVER ABV. ESTES PARK, COLORADO			
FREMONT	392806	39°52'20"	105°22'40"	JUL	27	1961	8500	1	16 UNKNOWN	P	1	7	PURGATORIE RIVER NR. V. LAS ANIMAS, COLORADO			
PROWERS	390343	39°21'45"	102°01'45"	JUN	19	1949	8340	4	164 UNKNOWN	R	2	7	BEAR CREEK AT MORRISON, COLORADO		66	
MORGAN	393911	39°51'42"	105°11'42"	JUL	7	1933	8110	1	131 UNKNOWN	R	6	DRY CREEK ABV. BELLEVUE, COLORADO				
Douglas	402244	39°22'44"	105°22'34"	JUL	31	1975	8170	1	271 UNKNOWN	R	1	7	PIEDRA RIVER NR. PIEDRA, COLORADO			
LARIMER	3905223	39°18'24"	103°18'24"	JUN	16	1965	8080	1	586 UNKNOWN	P	1	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO			
LAS ANIMAS	402301	39°52'56"	105°32'56"	JUL	17	1965	8080	1	22 UNKNOWN	P	1	7	PURGATORIE RIVER NR. V. LAS ANIMAS, COLORADO		159?	
BENT	390202	39°20'20"	103°12'20"	JUL	19	1950	8050	1	3503 UNKNOWN	P	1	7	WETWATER CREEK AT MOUTH NR. DOI SERO, COLORADO			
EAGLE	391312	39°25'20"	102°02'54"	MAY	21	1969	7880	1	157 UNKNOWN	L	2	7	WOLF CREEK NR. CARLTON, COLORADO		183?	
LARIMER	401453	39°51'20"	105°11'42"	JUL	7	1953	7840	1	131 UNKNOWN	R	6	BUCU CREEK NEAR WIGGINS, COLORADO				
BAICA	403175	39°51'45"	105°10'45"	AUG	3	1951	8000	1	274 UNKNOWN	R	2	6	PLUM CREEK NR. LAVIERS, COLORADO			
DOLORES	391320	39°20'32"	107°20'32"	SEP	6	1970	7880	1	131 FAIR	R	1	6	SAND CREEK NR. AURORA, COLORADO			
LARIMER	370100	37°01'00"	104°12'00"	JUN	17	1955	7860	6	136 FAIR	R	1	6	NEW IN CREEK NR. PARKER, COLORADO			
LA PLATA	402405	37°05'25"	105°36'16"	JUL	15	1976	7400	1	237 POOR	R	6	DEADMAN CREEK NR. BAYFIELD, COLORADO		188		
LARIMER	391127	38°10'23"	104°04'32"	JUL	12	1976	7380	1	105 FAIR	R	6	SWEETWATER CREEK AT MOUTH NR. DO SERO, COLORADO				
EL PASO	381800	38°12'28"	105°12'28"	AUG	1	1976	7340	1	165 UNKNOWN	P	1	6	CACHE LA POURDE RIVER NR. MOC NR. FORT COLLINS, COLORADO		196?	
RIO BLANCO	391600	38°06'00"	104°55'00"	JUL	24	1977	7270	1	147 FAIR	R	1	7	LONE ROCK DRAWNR. SPRINGS, COLORADO			
LAS ANIMAS	371200	38°11'10"	104'34'57"	JUL	31	1976	7210	1	136 FAIR	R	1	6	DISAPPOINTMENT CREEK NR. DOME, COLORADO			
PUEBLO	402433	38°23'26"	105°28'00"	JUL	31	1976	6950	1	1 POOR	R	1	6	DARK GULCH AT GLEN COMFORT, COLORADO			
LARIMER	402325	38°05'20"	105°28'00"	JUL	31	1976	6910	1	337 POOR	R	1	6	KRAMER CREEK ABV. CASCADE DAM NR. ESTES PARK, COLORADO			
PUEBLO	381127	38°04'32"	104°04'32"	JUL	13	1963	6840	23	160 FAIR	P	1	6	NO FE CACHE LA POURDE RIVER NR. LIVERNORE, COLORADO			
LARIMER	404600	38°43'46"	105°40'00"	MAY	31	1930	6800	1	541 UNKNOWN	R	1	6	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO			
EL PASO	381800	38°04'28"	104°40'13"	JUN	30	1954	6800	1	678 UNKNOWN	P	1	7	YELLOW CREEK NR. WHITE RIVER, COLORADO			
RIO BLANCO	391452	39°45'00"	105°21'03"	AUG	7	1957	6800	24	282 POOR	M	9	9 SAN FRANCISCO CREEK NR. ALFAFA, COLORADO				
LAS ANIMAS	371200	38°12'20"	104°31'40"	APR	19	1942	6870	1	160 FAIR	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO			
YUMA	6825000	39°37'00"	102°14'30"	JUL	12	1951	6860	1	130 FAIR	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDAIA, COLORADO		188	
ARCHULETA	3914520	37°15'58"	105'07'03"	SEP	6	1970	6840	1	290 GOOD	R	6	9 SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO				
EL PASO	7105000	38°43'46"	104°44'00"	JUN	11	1972	6820	1	48 FAIR	P	1	7	FOUNTAIN CREEK AT SECURITY, COLORADO			
HUERFANO	7111000	37°13'40"	105°52'10"	AUG	3	1972	6820	1	73 GOOD	P	7	9 HUERFANO R. TOLL GATE CREEK NR. AURORA, COLORADO				
ADAMS	391452	39°45'25"	104°45'27"	MAY	9	1957	6840	1	115 FAIR	R	6	6 SAND CREEK NR. TOLL GATE CREEK NR. GATEWAY, COLORADO		188		
MESA	9179500	38°40'05"	104°58'50"	SEP	6	1970	6830	1	4350 POOR	R	9	9 DOLORES RIVER AT GATEWAY, COLORADO		188		

Indirect Streamflow Data Base

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE		NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS
											FILE	NOTE					
WELD	404500	37.27205	-103.57227	JUN	14	1963	(FT)S	6200	1	82.3	GOOD	R	1	6	NORTH PANNEE CREEK NR NEW REYER, COLORADO	159	7
LAS ANIMAS	7126200	37.11530	-105.11422	MAY	26	1967	6240	1	168	FAIR	P		7	VAN BREMMER ARROYO NR. MODEL, COLORADO	137	?	
LAS ANIMAS	7128000	37.09391	-104.01320	JUL	11	1953	6230	1	132.0	UNKNOWN	P		7	PURGATORIE RIVER NR ALFALPA, COLORADO	102		
JEFFERSON	6710500	39.39500	-105.11422	SEP	2	1938	6200	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	133		
WELD	4010129	37.04545	-104.58167	AUG	3	1951	6200	4	UNKNOWN	UNKNOWN	R	2	6	ST VRAIN CREEK NR LONGMONT, COLORADO			
CLEAR CREEK	6716500	39.45450	-103.93936	JUN	4	1956	6130	2.5	158	UNKNOWN	R	3	6	CLEAR CREEK NR LAWSON, COLORADO			
LAS ANIMAS	7128200	37.02445	-103.57227	AUG	9	1979	6050	1	168	POOR	R		7	VAN BREMMER ARROYO NR. MODEL, COLORADO			
PIEBLO	7118000	38.00000	-104.28000	AUG	13	1946	6000	1	167.3	UNKNOWN	R	12	7	HUERFANO R. BLW HED VOL DAM NR UNDERCLIFFE, COLORADO			
LAS ANIMAS	7125000	37.11450	-104.24500	JUL	22	1954	5920	1.2	857	UNKNOWN	P		7	PURGATORIE RIVER NR MINEHINE, COLORADO			
PIEWERS	3803000	38.03000	-102.03000	JUN	1999	5900	1.4	132.0	UNKNOWN	R	1	7	CHEYENNE CREEK NEAR HOLLY, COLORADO	159	?		
YUMA	6825000	39.36539	-102.14122	MAY	2	1977	5900	1	130.0	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. ITALIA, COLORADO	88		
JEFFERSON	6719500	39.45005	-105.14525	SEP	9	1933	5890	1	399	UNKNOWN	R	2	6	CLEAR CREEK NR GOLDEN, COLORADO	159	?	
WELD	6715500	39.46000	-104.47225	JUN	14	1965	5910	1.3	198	FAIR	R		6	LONE TREE CREEK NR NUNN, COLORADO			
LARIMER	6735000	40.27115	-105.15020	MAY	30	1948	5150	1	151	UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO			
MONROE	9165500	40.16137	-108.53005	SEP	6	1970	5710	1	1810	GOOD	R	9	3	DOLORES RIVER AT BEDROCK, COLORADO	186		
BOULDER	4034553	39.75226	-105.11114	AUG	3	1951	5700	1	UNKNOWN	UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO			
LARIMER	6752260	4033117	-105.04008	AUG	1	1976	5700	1	112.1	FAIR	R		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	159		
CIOTERO	3742425	4032420	-103.24210	MAY	19	1955	5660	1	291	UNKNOWN	P		7	SMITH CANYON NR NINAVIEW, COLORADO	138		
SAN MIGUEL	9175900	39.02515	-108.37117	SEP	5	1970	5660	1	85.9	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	186		
LAS ANIMAS	3708477	104.33000	-104.33000	APR	23	1942	5630	1	UNKNOWN	UNKNOWN	P		7	PURGATORIE RIVER AT RATON CREEK, COLORADO			
DENVER	3841707	39.75113	-104.91413	MAY	6	1973	5630	1	167	UNKNOWN	L		6	SAND CREEK AT 4TH STREET BRIDGE AT DENVER, COLORADO	134		
LAS ANIMAS	3108050	104.22110	-105.11114	MAY	23	1942	5580	1	63	UNKNOWN	P		6	RATON CREEK NR. TRINIDAD, COLORADO	159		
PIEWERS	3805369	102.53148	-105.33148	MAY	20	1955	5500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	138		
LARIMER	4023446	4023446	-105.24004	JUL	31	1976	5500	2	137	POOR	L		6	LONG GUILCH NR. DRAKE AT ESTES PARK, COLORADO	138		
FREMONT	3623133	105.06517	-105.06517	JUN	15	1982	5420	1	169	UNKNOWN	P		7	BIG THOMPSON RIVER AT FLOWERTOWN, COLORADO	138		
DOUGLAS	6712000	39.21330	-104.45500	JUN	15	1985	5390	1	169	GOOD	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	159	?	
WELD	6712200	39.56118	-104.30000	JUN	15	1985	5340	4	73.1	FAIR	R	1	6	COAL CREEK NR BRIGGSDALE, COLORADO	140		
ARAPAHOE	9371000	39.49119	-104.49119	JUL	31	1956	5310	1	360	UNKNOWN	G	1	6	CHERRY CREEK NEAR MELVIN, COLORADO			
MONTEZUMA	7124350	37.02020	-108.43000	OCT	14	1941	5300	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWACO, COLORADO			
LAS ANIMAS	6757600	39.04000	-104.34555	JUL	30	1957	5250	1	4.57	FAIR	P		7	CARPOS CANYON NEAR JANSEN, COLORADO	143		
EL PASO	9168500	32.62155	-108.90115	SEP	6	1970	5190	1	3.2	GOOD	R		6	KIOWA CREEK AT K-T RES. NR. EASTONVILLE, COLORADO	186		
MONTEZUMA	7128000	37.95500	-103.18000	JUN	28	1943	5175	1	3376	UNKNOWN	P	1	7	DOLORSES RIVER AT DOLORES, COLORADO			
BENT	1042210	37.07576	-104.02412	AUG	10	1981	5100	1	4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?	
LAS ANIMAS	7124100	37.07558	-104.45212	AUG	10	1981	5100	1	4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210		
BENT	3805604	103.02110	-103.02110	JUN	18	1985	5070	2.3	1300	POOR	P		7	HORSE CREEK NR. NINAVIEW, COLORADO	159		
LAS ANIMAS	7129100	37.33537	-103.10205	AUG	28	1971	5040	1	7.69	UNKNOWN	L		7	RULE CREEK NR. EASTONVILLE, COLORADO	143		
MONTROSE	3803000	38.23004	-102.59242	JUL	27	1982	5030	1	30.4	POOR	G	9	7	COAL CREEK WEST OF MONTROSE, COLORADO	151		
PIEWERS	3803000	102.07000	-102.07000	MAY	15	1951	5000	1	UNKNOWN	UNKNOWN	P	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO			

COUNTY	STATION NUMBER	INDIRECT DISCHARGE MEASUREMENTS IN COLORADO SORTED BY DATE				DISCHARGE (FT³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS		
		MONTH	DAY	YEAR													
JEFFERSON	6710500	1051310	MAY	2	1987	57200	1	166	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	30			
LARIMER	6752000	403955	1051310	MAY	20	1984	1	165	UNKNOWN	R	2	6	CACHE LA POUDRE RIVER AT MOC NR FORT COLLINS, COLORADO	34	Front Range, NE SW		
LAS ANIMAS	7124500	371910	1043030	SEP	6	13300	1	795	UNKNOWN	P	7	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	58	ok?		
FROWERS	7133000	300617	1023701	JUN	5	1909	1	19180	UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO	55			
LARIMER	6739500	402715	1051150	JUN	15	1923	1	131	UNKNOWN	R	2	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	72			
LAS ANIMAS	7124500	371005	1043100	JUL	22	1925	4	795	UNKNOWN	P	7	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	72			
OERO	6742000	319590	1032200	JUL	21	1921	1	16450	UNKNOWN	P	12	7	KINGS ARROYO NR. J. JUITA, COLORADO	72			
BOULDER	6742000	401530	1051215	AUG	10	1930	1	3220	UNKNOWN	R	6	6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	66			
LARIMER	6742000	404600	1051400	MAY	31	1930	1	6800	UNKNOWN	R	1	6	NO FK CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO	88			
DENVER	6714000	394555	1050010	SEP	10	1933	2	22000	5	3804	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT DENVER, COLORADO	87	
Douglas	592000	1044500	1044500	AUG	3	1933	2	30000	UNKNOWN	R	12	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	96			
JEFFERSON	6710500	393911	1051412	JUL	7	1933	1	6110	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	96			
JEFFERSON	6719800	394505	1051455	SEP	9	1933	1	5890	UNKNOWN	R	2	6	CLEAR CREEK NR. GOLDEN, COLORADO	95			
OERO	6725000	103290	103290	SEP	15	1934	1	45000	1	2800	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR HIGBEE, COLORADO	97	
CONEJO	8238000	371210	1061200	AUG	20	1936	1	28640	UNKNOWN	P	1	7	HUERFANO RIVER NR UNDERCLIFFE, COLORADO	97			
COSTILLA	8217500	370000	106200	AUG	1	1936	1	313	UNKNOWN	R	2	6	LA JARA CREEK AT GALLEGGOS RANCH NR CAPULIN, COLORADO	98			
COSTILLA	8211500	372600	106100	AUG	3	1936	1	1280	UNKNOWN	R	12	6	SAN JUAN RIVER NR ORTIZ, COLORADO	102			
RIO GRANDE	6220500	373520	1062850	AUG	3	1936	1	1526	UNKNOWN	R	12	6	SANGRE DE CRISTO CREEK NR. FORT GARLAND, COLORADO	102			
SACAJAHE	6227500	360100	1054100	AUG	6	1936	1	735	UNKNOWN	R	2	6	PINOCH CREEK NR. DEL NORTE, COLORADO	102			
SAN JUAN	7179000	1014000	1014000	JUL	10	1936	1	547	UNKNOWN	R	12	6	NORTH CRESTLINE CREEK NR CRESTLINE, COLORADO	94	probability not		
LA PLATA	9362000	371610	1051515	JUN	26	1937	1	2810	UNKNOWN	R	9	9	CENT MOUNTAIN CREEK NR SILVERTON, COLORADO	94			
APAPAHOE	6711500	393906	1051142	SEP	2	1938	1	6200	UNKNOWN	R	2	6	LIGHTNER CREEK NEAR DURANGO, COLORADO	102			
JEFFERSON	6710500	373400	1050445	JUL	1	1938	1	646	UNKNOWN	R	2	6	BEAR CREEK AT SHERIDAN, COLORADO	102			
HUERFANO	7112500	362000	1042500	JUN	7	1938	1	1100	UNKNOWN	R	2	7	BEAR CREEK AT BADITO, COLORADO	102			
APAPAHOE	6711500	393906	1051515	JUN	10	1938	1	7100	UNKNOWN	R	1	7	HUERFANO RIVER NR. TOWACO, COLORADO	102			
DOUGLAS	6712500	373400	1050445	JUL	1	1938	1	1100	UNKNOWN	R	1	7	HUERFANO RIVER NR. TOWACO, COLORADO	102			
PUEBLO	7115500	362000	1042500	JUN	7	1938	1	1100	UNKNOWN	R	1	7	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	102			
APAPAHOE	6711500	393906	1050457	JUL	1	1938	1	1100	UNKNOWN	R	1	7	CHERRY CREEK NEAR FRANKTON, COLORADO	102			
EL PASO	7106000	398908	1044013	MAY	28	1940	1	22100	UNKNOWN	R	2	6	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	102			
HUERFANO	7112500	373400	1050404	SEP	21	1940	1	1310	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	104			
MESA	9371000	393906	1051515	JUL	16	1940	1	1180	UNKNOWN	R	1	7	HUERFANO RIVER AT GATEWAY, COLORADO	104			
MONTEZUMA	9371000	370200	1043000	SEP	22	1940	1	11700	UNKNOWN	R	1	9	MANCOS RIVER NR. TOWACO, COLORADO	104			
DOUGLAS	6712000	392130	1044550	JUL	13	1941	1	4700	UNKNOWN	R	2	6	MANCOS RIVER NR. TOWACO, COLORADO	104			
BENT	7131000	380340	1051505	JUL	11	1941	1	253	UNKNOWN	R	2	6	CHERRY CREEK NEAR AVALON, COLORADO	104			
OTERO	7121000	375320	1043120	AUG	22	1941	1	1300	UNKNOWN	R	2	7	CHICO CREEK NEAR NORTH AVONDALE, COLORADO	104			
PUEBLO	7119500	381590	1043540	AUG	27	1941	1	3100	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	107			
LA PLATA	9362500	371720	1043040	AUG	28	1941	1	1290	UNKNOWN	R	2	7	LA PLATA RIVER AT HESPERUS, COLORADO	107			
MONTEZUMA	9371000	371610	1043115	MAY	4	1941	1	1460	UNKNOWN	R	9	LIGHTNER CREEK NEAR DURANGO, COLORADO	107				
MONTEZUMA	9371000	370200	1043000	OCT	14	1941	1	5300	UNKNOWN	R	1	9	MANCOS RIVER NR. TOWACO, COLORADO	107			
SAN MIGUEL	9366500	371950	1048000	SEP	22	1941	1	4540	UNKNOWN	R	12	9	MCLELLAN CREEK NEAR CORTEZ, COLORADO	107			
BENT	7130500	380500	1042510	SEP	26	1941	1	1270	UNKNOWN	R	2	9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	107			
BENT	7130500	380500	1042510	SEP	21	1942	1	4000	UNKNOWN	P	7	PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO	No 1942 Prep. CO				
HUERFANO	7113500	371550	1031800	APR	24	1942	1	4000	UNKNOWN	P	7	ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO	Peak Induced	Q			
LAS ANIMAS	7124500	371550	1044210	APR	23	1942	1	3500	UNKNOWN	P	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	Peak Induced	Q			
LAS ANIMAS	7119500	380524	1035852	JUL	15	1942	1	1470	UNKNOWN	P	7	RATON CREEK NR. RIVER AT HIGHLAND DAM, COLORADO	Peak Induced	Q			
OTERO	7126300	374400	1032800	APR	23	1942	1	4300	UNKNOWN	P	7	APISHAPA RIVER NR. FOWLER, COLORADO	Peak Induced	Q			
OTERO	7121000	375720	1034320	AUG	14	1942	1	1100	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	Peak Induced	Q		
PUEBLO	7106500	381620	1043540	AUG	14	1942	1	1100	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	Peak Induced	Q		
PUEBLO	7108500	381220	1043140	APR	19	1942	1	6610	UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	Peak Induced	Q		
BENT	7126000	373500	1031800	JUN	28	1943	1	5175	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAN NR LAS ANIMAS, COLORADO	Peak Induced	Q		
HUERFANO	7113500	375100	1044200	APR	23	1943	1	3200	UNKNOWN	R	12	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	Peak Induced	Q		
PUEBLO	7113500	380000	1042600	AUG	16	1943	1	3700	UNKNOWN	P	12	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	Peak Induced	Q		
DENVER	394315	370847	1043315	APR	23	1943	1	1845	UNKNOWN	R	2	6	CHERRY CREEK AT DEMPE, COLORADO	Peak Induced	Q		
Douglas	392110	370105	1043300	APR	23	1943	1	9120	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTON, COLORADO	Peak Induced	Q		
Douglas	392500	371500	1044450	APR	5	1943	1	9100	UNKNOWN	R	2	6	PLUM CREEK NR. LOUVIERS, COLORADO	Peak Induced	Q		
HUERFANO	7113500	375100	1040007	APR	8	1943	1	7100	UNKNOWN	R	2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	Peak Induced	Q		
PUEBLO	7106500	391620	1043540	JUL	7	1943	1	3500	UNKNOWN	R	1	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	Peak Induced	Q		

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	FILE	NOTE	DESCRIPTION/LOCATION		PART	CCC STORM LIST NUMBER	COMMENTS
												Rating	Part			
PUEBLO	3000900	39.26000	-104.26000	AUG	3	1945	(FTS)	13500	1	1710 UNKNOWN	P	12	HUERFANO R. BLM HENDO VAY DAM NR. UNDERCLIFFE, COLORADO	7		
GUNNISON	3033357	39.33357	-106.39271	JUL	31	1945	750	1	0.7 UNKNOWN	R	2	FICK GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	9			
GUNNISON	3033353	39.33353	-106.30694	JUL	31	1945	460	1	0.2 UNKNOWN	R	2	UNKNOWN GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	9			
GUNNISON	3033413	39.33413	-106.37130	JUL	31	1945	940	1	5.1 UNKNOWN	R	2	WILLOW CREEK TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	9			
SAN MIGUEL	3053800	39.58000	-106.19500	AUG	11	1945	850	1	1 UNKNOWN	R	2	NATURITA CREEK NR. NORMWOOD, COLORADO	9			
JEFFERSON	6711000	39.08000	-104.10055	AUG	24	1946	1200	50	UNKNOWN	R	2	TURKEY CREEK NEAR MORRISON, COLORADO	6			
PUEBLO	3016500	39.16500	-104.35400	AUG	26	1946	16500	5	926 UNKNOWN	R	2	FOUNTAIN CREEK AT PINEY VALLEY COLORADO	7			
PUEBLO	3000900	39.26000	-104.21000	AUG	13	1946	6000	1	1670 UNKNOWN	R	2	UNCOMPAGNE RIVER AT DELTA, COLORADO	9			
DELTA	9198500	39.43000	-108.05000	OCT	15	1947	3500	1	1110 UNKNOWN	R	2	BOXELDER CREEK NEAR WATKINS, COLORADO	6			
ADAMS	3944322	39.44322	-104.35200	MAY	30	1948	4700	1	112 UNKNOWN	R	2	TUCKER GULCH AT GOLDEN, COLORADO	12			
JEFFERSON	6739500	39.555	-109.12200	JUN	7	1949	11600	1	113 UNKNOWN	R	2	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	12			
LARIMER	4027175	39.71750	-108.07688	MAY	30	1949	5750	1	101 UNKNOWN	R	6	LITTLE THOMPSON RIVER NEAR BERTHOW, COLORADO	12			
Boulder	6742000	4015300	-108.12151	JUN	6	1949	3500	1	15.1 POOR	R	6	COTTONWOOD CREEK NR. PINWOOD, COLORADO	12			
LARIMER	6741000	4023000	-108.19300	JUN	4	1949	330	1	3376 UNKNOWN	P	1	PURGATORY RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	12			
BENT	7128000	39.75000	-103.18000	JUN	5	1949	26100	2	435 UNKNOWN	P	1	RULE CREEK NR. CADDIA, COLORADO	12			
BENT	7129500	39.80000	-103.04000	JUN	5	1949	11600	1	435 UNKNOWN	P	1	COAL CREEK AT FLORENCE, COLORADO	12			
FIERNMONT	3923113	39.58557	-108.05857	JUN	5	1949	5420	4	290 UNKNOWN	P	1	PURGATORY RIVER AT NINEMILE DAM NR. HIGHBEE, COLORADO	12			
OTERO	7128500	37.44000	-102.94000	JUN	5	1949	26100	2	451 UNKNOWN	R	2	TIMPAS CREEK NR. ROCKY FORD, COLORADO	12			
OTERO	7121000	37.57200	-103.43200	JUN	4	1949	1300	1	226 UNKNOWN	P	1	CHEYENNE CREEK NEAR HOLLY, COLORADO	12			
PROMERS	3903100	39.03100	-102.31593	JUN	1949	5900	14	17260	4	7 UNKNOWN	P	1	HOLY DRAIN AT HOLY, COLORADO	12		
PROMERS	390328	39.03280	-102.07201	JUN	1949	1650	1	817 UNKNOWN	R	7	WILD HORSE CREEK ANY, HOLLY, COLORADO	12				
PROMERS	390140	39.01400	-102.09202	JUN	1949	407	1	817 UNKNOWN	P	7	WILD HORSE CREEK ANY, HOLLY, COLORADO	12				
PROMERS	3902443	39.02443	-102.07245	JUN	1949	8340	4	272 UNKNOWN	P	7	WILD HORSE CREEK ANY, HOLLY, COLORADO	12				
PROMERS	3902445	39.02445	-102.07678	MAY	1949	1650	1	1 UNKNOWN	R	7	WILD HORSE CREEK ANY, HOLLY, COLORADO	12				
ARAPAHOE	3945409	39.45409	-104.407	JUL	30	1950	1600	1	1420 UNKNOWN	R	6	BLIOU CREEK AT BYERS, COLORADO	6			
MORGAN	4011453	40.11453	-104.02069	JUN	17	1950	242	1	3503 UNKNOWN	P	6	BLIOU CREEK NEAR WINGINS, COLORADO	6			
BENT	7129500	39.80202	-103.12000	AUG	29	1950	11500	1	3603 UNKNOWN	P	7	PURGATORY RIVER NR. LAS ANIMAS, COLORADO	12			
BENT	7098500	39.70000	-105.030	JUL	12	1950	778	1	432 UNKNOWN	R	7	CHI CREEK NR. CANON CITY, COLORADO	12			
FIERNMONT	7129500	39.72700	-105.0305	JUL	5	1950	445	1	532 UNKNOWN	R	7	HUERFANO RIVER AT BAUTO, COLORADO	12			
HUERFANO	7112500	39.4340	-105.05045	JUL	20	1950	620	1	532 UNKNOWN	R	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	12			
OTERO	7121000	37.51720	-103.43200	JUL	24	1950	9510	1	451 FAIR	R	2	HUERFANO R. BLM HENDO VAY DAM NR. UNDERCLIFFE, COLORADO	12			
PUEBLO	7118500	39.00000	-104.31600	JUL	26	1950	16700	2	1673 FAIR	P	1	ST. CHARLES RIVER NR. PUEBLO, COLORADO	12			
PUEBLO	7108500	39.08500	-104.31200	JUL	26	1950	16100	1	468 UNKNOWN	R	6	LITTLE DRY CREEK ENGLEWOOD, COLORADO	13			
ARAPAHOE	3939306	39.39306	-104.5909	AUG	3	1951	1200	1	1 UNKNOWN	R	6	BLIOU CREEK NEAR DEER TRAIL, COLORADO	13			
ARAPAHOE	3940116	39.40116	-104.0554	AUG	3	1951	11000	1	1 UNKNOWN	R	2	WEST BLIOU CREEK NR. BYERS, COLORADO	13			
ARAPAHOE	3943003	39.43003	-104.343	AUG	3	1951	4100	1	1 UNKNOWN	R	2	DRY CREEK NR. NIWOT, COLORADO	13			
BOULDER	4004533	40.04533	-105.1114	JUL	3	1951	5700	1	1 UNKNOWN	R	6	LETHLAND CREEK NEAR BOULDER, COLORADO	13			
BOULDER	6742500	400700	-105.18000	AUG	3	1951	785	1	48 FAIR	R	1	6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	13			
BOULDER	6741500	4023555	-105.18010	AUG	3	1951	19000	1	515 UNKNOWN	R	6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	13			
LARIMER	4023000	1091146	-105.2940	MAY	25	1951	11400	4	1 UNKNOWN	R	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	13			
LARIMER	6739500	4022715	-105.150	AUG	3	1951	14000	1	131 POOR	R	12	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	13			
LARIMER	4033800	1095045	-105.150	AUG	3	1951	12000	4	743 UNKNOWN	R	2	PANIEE CREEK NEAR LOGAN, COLORADO	13			
LARIMER	4034304	1095040	-105.135	AUG	3	1951	420	4	1 UNKNOWN	R	6	CHIMNEY HOLLOW DRY CREEK NEAR PINWOOD, COLORADO	13			
LARIMER	4040533	1095045	-105.130	AUG	3	1951	2260	1	1 UNKNOWN	R	6	COTTONWOOD CREEK NR. PINWOOD, COLORADO	13			
LARIMER	4043715	1095105	-105.105	AUG	3	1951	8000	1	1 UNKNOWN	R	6	DRY CREEK ABY, BELLVIEW, COLORADO	13			
LARIMER	4046200	1095105	-105.075	AUG	3	1951	1400	1	16.9 POOR	R	6	BATTLESNAKE CREEK NR. ESTES PARK, COLORADO	13			
LARIMER	4046210	1095105	-105.040	AUG	3	1951	350	2	1 UNKNOWN	R	2	PANIEE CREEK NEAR LOGAN, COLORADO	13			
LARIMER	4047215	1095105	-105.015	AUG	3	1951	12000	4	1 UNKNOWN	R	2	ANTERO CREEK NEAR SNYDER, COLORADO	13			
LARIMER	4047215	1095105	-105.015	AUG	7	1951	4400	2	1 UNKNOWN	R	6	DEADHORSE CREEK NEAR SNYDER, COLORADO	13			
LARIMER	4047215	1095105	-105.015	AUG	7	1951	13400	4	1 UNKNOWN	R	6	LONE TREE CREEK NR. NUNN, COLORADO	13			
LARIMER	4047215	1095105	-105.015	AUG	23	1951	239	6	199 UNKNOWN	R	2	6 LANDSMAN CREEK NR. LONGMONT, COLORADO	13			
WELD	4010198	1045447	-104.5447	AUG	3	1951	6200	4	422 GOOD	R	7	HUERFANO R. AT MARAZARES CROSSING NR. REDWING, COLORADO	13			
YUMA	6835500	39.34400	-104.2150	JUL	12	1951	310	1	268 UNKNOWN	R	6	SOUTH FORK REPUBLIC RIVER AT BAUTO, COLORADO	13			
YUMA	6835500	39.37000	-104.2130	JUL	12	1951	6680	1	1300 FAIR	R	7	CLAY TORE CREEK NR. LAMAR, COLORADO	13			
BENT	7128500	37.57500	-103.1212	SEP	7	1951	17200	1	3503 UNKNOWN	P	1	PURGATORY RIVER NR. LAS ANIMAS, COLORADO	13			
BENT	7128500	37.58000	-103.1200	JUL	12	1951	10000	1	817 UNKNOWN	P	7	WILD HORSE CREEK NR. HOLY, COLORADO	13			
BENT	7128500	380202	-103.1200	JUL	23	1951	17600	1	3503 UNKNOWN	P	1	7 WILD HORSE CREEK NR. NUNN, COLORADO	13			
FIERNMONT	7096500	39.27000	-105.03030	JUL	11	1951	4260	1	1 UNKNOWN	R	2	7 WILD HORSE CREEK NR. GRANADA, COLORADO	13			
MINERAL	8216500	37.5120	-105.05540	MAY	27	1951	10200	1	73 UNKNOWN	R	6	WILLOW CREEK AT CREEDE, COLORADO	13			
GARFIELD	9091500	39.2110	-105.0415	AUG	3	1951	1280	1	52 UNKNOWN	R	9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO	13			
MONTZUMA	9372000	37.1927	-105.02148	MAY	15	1951	27500	1	1 UNKNOWN	R	7	MCLEOD CREEK NR. COLORADO-UTAH LINE	13			
SAN MIGUEL	9175000	37.58000	-105.01900	AUG	3	1951	1700	1	350 UNKNOWN	R	1	NATURITA CREEK NR. NORMWOOD, COLORADO	13			
CLEAR CREEK	6716500	39.4540	-105.0306	JUN	9	1952	2230	1	145 UNKNOWN	R	6	CLEAR CREEK NEAR LAMSON, COLORADO	13			
MORGAN	6739500	401453	-104.208	AUG	22	1952	7640	1	131 UNKNOWN	R	6	BLIOU CREEK NEAR WIGGS, COLORADO	13			

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (FT³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		CCC STORM LIST NUMBER	COMMENTS
														DATE	LOCATION		
LAS ANIMAS	311130	1040730	SEP	13	1952		3440	1	1320	UNKNOWN	P	7	PURGATOIRE RIVER NR ALFAIA, COLORADO		9	ROCK CREEK NEAR URANUM, COLORADO	
MONTROSE	9175000	1082605	JUL	10	1952		885	1	695	UNKNOWN	R	6	CHERRY CREEK AT DENVER, COLORADO		6	PLUM CREEK NR LOUVRES, COLORADO	
DENVER	6713500	394538	JUL	9	1953		2050	2	409	UNKNOWN	R	2	HUERFANO RIVER AT BADITO, COLORADO	Date?	7	PURGATOIRE RIVER NR ALFAIA, COLORADO	
Douglas	6709500	382904	JUL	29	1953		2700	5	319	FAR	R	7	PURGATOIRE RIVER NR ALFAIA, COLORADO	137?	7	PURGATOIRE RIVER NR LA JUNTA, COLORADO	
HUERFANO	—	317340	AUG	16	1953		2050	5	532	UNKNOWN	P	7	PURGATOIRE RIVER NR ALFAIA, COLORADO	137?	7	CROOKED ARROYO NR LA JUNTA, COLORADO	
LAS ANIMAS	712500	1040730	JUN	16	1953		8740	1	1320	UNKNOWN	P	7	TIMPAS CREEK NR ROCKY FORD, COLORADO	137?	7	HUERFANO BLW HENRY VLY DAM NR UNDERCLIFFE, COLORADO	
LAS ANIMAS	712500	1040730	JUL	11	1953		6230	1	97	FAR	R	2	RIFLE CREEK NR RIFLE, COLORADO	137?	7	MANGOS RIVER NR TOWMAC, COLORADO	
OERO	7126000	371130	JUL	12	1953		24300	24	451	UNKNOWN	R	12	9	MCLEMIL CREEK NR CORTEZ, COLORADO	See 1941 Peak Q	9	DISAPPOINTMENT CREEK NR MELVIN, COLORADO
OERO	7121000	370585	JUL	12	1953		10000	1	1673	UNKNOWN	R	12	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	No 1945 Pred. CO	6	KIOWA CREEK AT KIOWA, COLORADO
PUEBLO	7116000	380000	JUL	11	1953		3340	1	140	UNKNOWN	R	1	9	MCLEMIL CREEK NR CORTEZ, COLORADO	137?	9	MCLEMIL CREEK NR CEDAR, COLORADO
ARAPAHOE	9092000	393710	JUL	18	1953		758	1	550	UNKNOWN	R	1	6	CHERRY CREEK NEAR MELVIN, COLORADO	137?	6	KIOWA CREEK AT RAMAH, COLORADO
GARFIELD	6712500	370200	JUL	10	1953		4300	1	111	UNKNOWN	R	1	5	PURGATOIRE RIVER AT HIGHWAY 160, NEAR LAS ANIMAS, COLORADO	137?	5	PURGATOIRE RIVER AT HIGHWAY 160, NEAR TRINIDAD, COLORADO
MONTEZUMA	9312000	371900	JUL	1	1953		459	1	350	UNKNOWN	P	1	4	BIG SANDY CREEK AT STATE HIGHWAY NO 208 AT RAMAH, COLORADO	137?	4	DISAPPOINTMENT CREEK NR MELVIN, COLORADO
MONTEZUMA	9312000	371900	JUL	31	1953		694	1	233	UNKNOWN	R	1	3	DISAPPOINTMENT CREEK NR MELVIN, COLORADO	137?	3	CHERRY CREEK NEAR MELVIN, COLORADO
SAN MIGUEL	9168500	375400	JUL	29	1953		1430	4	180	UNKNOWN	G	1	2	CHERRY CREEK NEAR FRANKTOWN, COLORADO	137?	2	KIOWA CREEK NEAR FRANKTOWN, COLORADO
Douglas	6712500	393620	JUL	15	1953		450	1	159	UNKNOWN	R	1	1	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	1	TRIOLE CREEK NEAR ALFAIA, COLORADO
EDET	6712500	392000	JUL	7	1953		2620	1	1130	23	R	1	0	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	0	TRIOLE CREEK NEAR ALFAIA, COLORADO
BENT	6712500	375500	JUL	23	1953		15230	1	1111	UNKNOWN	R	1	0	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	0	TRIOLE CREEK NEAR ALFAIA, COLORADO
EL PASO	6708000	390850	JUL	5	1953		40300	2	3376	UNKNOWN	P	1	0	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	0	TRIOLE CREEK NEAR ALFAIA, COLORADO
EL PASO	7106000	393608	JUN	30	1954		6800	1	676	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371000	1035613	JUL	22	1954		15500	3	343	SCOD	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	370922	1042000	JUL	22	1954		3100	1	948	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371145	1041036	JUL	22	1954		13500	24	149	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371100	1041140	JUL	22	1954		13500	24	1300	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371145	1041100	JUL	22	1954		447	3	84	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371130	1040730	JUL	22	1954		37800	1	120	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371150	1042450	JUL	22	1954		9320	1	657	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	371150	1040930	JUL	22	1954		26300	24	160	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	370745	1040650	JUL	22	1954		2500	24	129	UNKNOWN	P	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	7	TRIOLE CREEK NEAR ALFAIA, COLORADO	
MONTZUNA	917500	371900	JUL	12	1954		120	1	233	POOR	R	1	0	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	0	TRIOLE CREEK NEAR ALFAIA, COLORADO
SAN MIGUEL	9168500	375446	JUL	12	1954		183	1	167	GOOD	R	1	0	TRIOLE CREEK NEAR ALFAIA, COLORADO	137?	0	TRIOLE CREEK NEAR ALFAIA, COLORADO
ARAPAHOE	6711500	393908	JUL	11	1955		1170	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUHTAIN SHERIDAN, COLORADO		6	LITTLE THOMPSON RIVER AT MILLIKEN, COLORADO
WELD	6743500	402000	JUL	10	1955		398	1	190	UNKNOWN	R	6	6	LONE TREE CREEK NR ALFAIA, COLORADO		6	LONE TREE CREEK NR ALFAIA, COLORADO
BENT	7124000	360506	MAY	20	1955		44000	1	14117	UNKNOWN	P	1	7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO		7	PURGATOIRE RIVER AT HIGHLAND DAM NR LAS ANIMAS, COLORADO
BENT	7128000	375500	MAY	20	1955		7300	12	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR LAS ANIMAS, COLORADO		7	PURGATOIRE RIVER AT HIGHLAND DAM NR LAS ANIMAS, COLORADO
LAS ANIMAS	371100	1041725	MAY	7	1955		4810	1	435	UNKNOWN	P	1	7	RULE CREEK NR CADDO, COLORADO		7	RULE CREEK NR CADDO, COLORADO
LAS ANIMAS	371000	1035611	MAY	19	1955		775	1	199	FAR	R	1	7	AKAI ARROYO NR TRINCHERA, COLORADO		7	BURRO CANYON NR HOHNE, COLORADO
LAS ANIMAS	370750	1040659	MAY	19	1955		1150	1	283	UNKNOWN	P	7	CHACOCA CREEK NR HOHNE, COLORADO		7	CHACOCA CREEK NR HOHNE, COLORADO	
LAS ANIMAS	373310	1033700	MAY	19	1955		3100	1	307	UNKNOWN	P	7	CHACOCA CREEK NR HOHNE, COLORADO		7	CHACOCA CREEK NR HOHNE, COLORADO	
LAS ANIMAS	371712	1041943	MAY	19	1955		1140	2	123	UNKNOWN	P	7	COLORADO CANYON NR JENSEN, COLORADO		7	COLORADO CANYON NR JENSEN, COLORADO	
LAS ANIMAS	371091	1042222	MAY	19	1955		940	1	988	UNKNOWN	P	7	DRAWDOWN CANYON NR JENSEN, COLORADO		7	DRAWDOWN CANYON NR JENSEN, COLORADO	
LAS ANIMAS	371145	1041036	MAY	19	1955		315	23	149	UNKNOWN	P	7	GRASSACK ARROYO NR TRINIDAD, COLORADO		7	GRASSACK ARROYO NR TRINIDAD, COLORADO	
LAS ANIMAS	370904	1040345	MAY	19	1955		820	1	16	UNKNOWN	P	7	GRAT CREEK NR TRINIDAD, COLORADO		7	GRAT CREEK NR TRINIDAD, COLORADO	
LAS ANIMAS	371215	1042210	MAY	19	1955		1980	1	16	UNKNOWN	P	7	JOE CREEK NR MORELY, COLORADO		7	JOE CREEK NR MORELY, COLORADO	
LAS ANIMAS	370700	1042845	MAY	19	1955		642	3	154	UNKNOWN	P	7	LONG CANYON NR SORPRIS, COLORADO		7	LONG CANYON NR SORPRIS, COLORADO	
LAS ANIMAS	370720	1043520	MAY	19	1955		9650	1	104	UNKNOWN	P	7	NO 1 DRAWMNT U.S. HIGHWAY 160 NEAR TRINIDAD, COLORADO		7	NO 1 DRAWMNT U.S. HIGHWAY 160 NEAR TRINIDAD, COLORADO	
LAS ANIMAS	371145	1041100	MAY	19	1955		187	3	84	UNKNOWN	P	7	POWELL ARROYO NR EL MUDO, COLORADO		7	PURGATOIRE RIVER AT LORENCITO CANYON, NR WESTON, COLORADO	
LAS ANIMAS	370653	1040730	MAY	19	1955		9000	1	1320	UNKNOWN	P	1	7	PURGATOIRE RIVER AT DIVISION DAM AT VALDEZ, COLORADO		1	PURGATOIRE RIVER AT DIVISION DAM AT VALDEZ, COLORADO
LAS ANIMAS	370130	1042650	MAY	19	1955		4400	2	361	UNKNOWN	P	7	REILLY CANYON NR COKEDEALE, COLORADO		7	REILLY CANYON NR COKEDEALE, COLORADO	
LAS ANIMAS	370158	1044150	MAY	19	1955		26400	4	768	UNKNOWN	P	7	SAN FRANCISCO CREEK NR ALFAIA, COLORADO		7	SAN FRANCISCO CREEK NR ALFAIA, COLORADO	
LAS ANIMAS	371202	1043230	MAY	19	1955		1955	1	691	UNKNOWN	P	7	SARCIULLO CANYON NR SEGUNDO, COLORADO		7	SARCIULLO CANYON NR SEGUNDO, COLORADO	
LAS ANIMAS	370828	1043553	MAY	19	1955		37900	24	1015	GOOD	P	2	7	ASHSHARA RIVER NR FORMER COLORADO		2	ASHSHARA RIVER NR FORMER COLORADO
LAS ANIMAS	371712	1041842	MAY	19	1955		1955	1	1320	UNKNOWN	P	7	PURGATOIRE RIVER NR ALFAIA, COLORADO		7	PURGATOIRE RIVER NR ALFAIA, COLORADO	
LAS ANIMAS	371130	1040730	MAY	19	1955		41800	1	503	FAIR	P	1	7	PURGATOIRE RIVER AT STARVILLE, COLORADO		1	PURGATOIRE RIVER AT STARVILLE, COLORADO
LAS ANIMAS	370418	1044548	MAY	19	1955		9400	2	402	3	P	1	7	PURGATOIRE RIVER AT U.S. HIGH 85, 87 CROSSING, COLORADO		1	PURGATOIRE RIVER AT U.S. HIGH 85, 87 CROSSING, COLORADO
LAS ANIMAS	370130	1042650	MAY	19	1955		2000	1	160	UNKNOWN	P	7	REILLY CANYON NR COKEDEALE, COLORADO		7	REILLY CANYON NR COKEDEALE, COLORADO	
LAS ANIMAS	370158	1044634	MAY	19	1955		15600	1	116	UNKNOWN	P	7	SARCIULLO CANYON NR SEGUNDO, COLORADO		7	SARCIULLO CANYON NR SEGUNDO, COLORADO	
OERO	7116000	380000	MAY	19	1955		1160	24	1125	UNKNOWN	P	1	7	WOLF CREEK NR GRANADA, COLORADO		1	WOLF CREEK NR GRANADA, COLORADO
PUEBLO	7128500	394100	MAY	19	1955		11300	2	187	FAR	P	1	7	MUDY CREEK NR PUEBLO, COLORADO		1	MUDY CREEK NR PUEBLO, COLORADO
OERO	7124225	1033420	MAY	19	1955		8000	2	280	UNKNOWN	P	1	7	ST CHARLES RIVER NR PUEBLO, COLORADO		1	ST CHARLES RIVER NR PUEBLO, COLORADO
PROMERS	3802509	10232148	MAY	20	1955		5500	1	167	UNKNOWN	P	7	WOLF CREEK NR LAMAR, COLORADO		7	WOLF CREEK NR LAMAR, COLORADO	
PUEBLO	7116000	380000	MAY	19	1955		11300	2	187	FAR	P	1	7	HUERFANO R. BLW HENRY VLY DAM NR UNDERCLIFFE, COLORADO		1	HUERFANO R. BLW HENRY VLY DAM NR UNDERCLIFFE, COLORADO
PUEBLO	7106500	3801112	MAY	19	1955		3850	1	425	UNKNOWN	P	1	7	HUERFANO R. BLW HENRY VLY DAM NR UNDERCLIFFE, COLORADO		1	HUERFANO R. BLW HENRY VLY DAM NR UNDERCLIFFE, COLORADO
SAN MIGUEL	9168500	375446	JUL	27	1955		2060	1	167	UNKNOWN	P	7	CHERRY CREEK NEAR MELVIN, COLORADO		7	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6712500	393618	JUL	31	1955		5310	1	360	UNKNOWN	R	3	6	CHERRY CREEK NEAR MELVIN, COLORADO		6	CHERRY CREEK NEAR MELVIN, COLORADO
CLEAR CREEK	6716500	394540	JUN	4	1956		6130	25	145	UNKNOWN	R	3	6	CHERRY CREEK NEAR MELVIN, COLORADO		6	CHERRY CREEK NEAR MELVIN, COLORADO

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS
BENT	7111000	380340	-1025505	AUG	19	1956	11800	14 (sq mi)	131 UNKNOWN	P	7	CADDOW CREEK AT CADDOA, COLORADO			
BENT	7111000	380340	-1025505	JUL	19	1956	2090	1	131 POOR	P	7	CADDOW CREEK NEAR CADDOA, COLORADO			
BENT	7129500	3800000	-1030400	JUL	19	1956	2300	1	435 FAIR	P	1	RULE CREEK NR CADDOA, COLORADO			
BENT	7121000	375720	-1034200	JUL	23	1956	15500	1	451 FAIR	R	2	TIMPAS CREEK AT CATLIN SYPHON, COLORADO			
OERO	3806599	3806599	-1023400	JUL	19	1956	3960	1	228 POOR	P	7	CLAY CREEK NR LAMAR, COLORADO			
POWERS	380230	1022940	-1042400	AUG	15	1956	3490	12	116 UNKNOWN	P	7	WOLF CREEK NR GRANADA, COLORADO			
MONTROSE	382125	1046300	-1043955	JUL	26	1956	2080	4	180 UNKNOWN	R	9	SAN MIGUEL RIVER AT URAYAN, COLORADO			
SAN MIGUEL	382146	1046300	-1044919	JUL	9	1957	6490	4	113 FAIR	R	6	SAND CREEK ABV TOLL GATE CREEK NR, AURORA, COLORADO			
ADAMS	394532	1046300	-1043937	MAY	9	1957	7660	6	113 FAIR	R	1	SAND CREEK NR AURORA, COLORADO			
ADAMS	394532	1046300	-1044919	JUL	26	1956	9850	1	360 POOR	R	2	SAND CREEK BELOW TOLL GATE CREEK AT 6TH AVE., NR, AURORA, COLORADO			
ARAPAHOE	672500	393618	-1044919	MAY	9	1957	10400	23	354 UNKNOWN	R	6	CHERRY CREEK NEAR MELVIN, COLORADO			
DENVER	394332	1046300	-1045044	MAY	9	1957	25900	1	167 UNKNOWN	R	6	TOLL GATE CREEK AT DENVER, COLORADO			
Douglas	6712000	392130	-1044550	JUL	30	1957	5300	1	169 GOOD	R	6	CHERRY CREEK NEAR FRANKTONN, COLORADO			
EL PASO	3934400	1043355	-1043355	JUL	30	1957	3250	1	312 GOOD	R	6	KIOWA CREEK AT K-79 RES. NR EASTONVILLE, COLORADO		143	
POWERS	3803000	1024000	-1024000	JUL	27	1957	1	UNKNOWN	P	1	DRY CREEK NR LAMAR, COLORADO				
LA PLATA	9363000	371940	-1047440	JUL	26	1957	2750	1	98 UNKNOWN	R	2	FLORIDA RIVER AT BONDAD, COLORADO			
OTERO	9355590	372230	-1023450	JUL	27	1957	13800	1	270 GOOD	R	9	LOS PINOS RIVER NR BAYFIELD, COLORADO			
LA PLATA	9363100	370820	-1047510	AUG	6	1957	713	23	167 FAIR	R	9	SALT CREEK NR ORFORD, COLORADO			
OEUR	3808500	1075000	-1045000	JUL	28	1957	500	1	788 UNKNOWN	R	1	PEASANT VALLEY CREEK NR NOEL, COLORADO			
SAN MIGUEL	9172000	3715600	-1080100	MAY	4	1957	1390	1	335 FAIR	R	1	FALL CREEK NR FALL CREEK, COLORADO			
LAS ANIMAS	7123100	371200	-1041200	AUG	21	1958	2310	1	80 FAIR	P	1	DISAPPOINTMENT CREEK NR, FLOWER, COLORADO			
OTERO	7118500	380528	-103452	JUL	6	1958	12100	4	1125 FAIR	P	1	TRIPAS CREEK AT CATHIN SYPHON NR, ROCKY FORD, COLORADO			
POWERS	3803000	1022000	-1042000	MAY	13	1958	52000	1	451 UNKNOWN	P	1	HUEYARD R. BLW HFNO VLY DAM NR, UNDERCLIFFE, COLORADO			
DOLORES	7116000	3802800	-1042800	JUL	5	1958	16800	2	1073 FAIR	P	1	FRIJOL CREEK NR ALFAITA, COLORADO			
LA PLATA	9168100	375236	-108457	SEP	8	1958	824	1	145 FAIR	R	9	INDIAN WASH AT BONDAD, COLORADO			
NESA	9363200	370120	-1075210	SEP	12	1958	854	1	221 FAIR	R	9	INDIAN WASH AT GRAND JUNCTION, COLORADO			
EL PASO	7103700	385117	-1042329	JUL	5	1958	600	1	14 UNKNOWN	G	2	EQUITAIN CREEK NR, COLORADO SPRINGS, COLORADO			
LAS ANIMAS	7125500	371110	-1040750	JUN	26	1959	2970	1	102 UNKNOWN	P	7	SAN FRANCISCO CREEK NR, ALFALFA, COLORADO			
DOLORES	9168100	375226	-1084347	AUG	4	1959	1700	1	145 FAIR	R	9	DISAPPOINTMENT CREEK NR, DOME CREEK, COLORADO			
EAGLE	3808000	385226	-1084743	JUL	2	1959	115	1	16 UNKNOWN	R	9	BIG ALKALI RIVER NR BURNS, COLORADO			
DENVER	3940120	1045840	-1045840	JUL	3	1960	420	1	445 FAIR	R	6	HARVARD GULCH AT STATE CHILDREN'S HOME, DENVER, COLORADO			
GRAND	7119500	380528	-1035828	JUL	13	1960	1200	4	1125 POOR	P	7	APISHAPA RIVER NR, FOWLER, COLORADO			
LA PLATA	9363100	401426	-1082223	MAR	27	1960	448	1	106 FAIR	R	9	ANTELOPE CREEK NR, KREMLING, COLORADO			
ARAPAHOE	6738300	384454	-102446	JUL	11	1961	394	23	167 FAIR	R	6	SALT CREEK NR OXFORD, COLORADO			
BOULDER	401344	108154	-108154	JUN	3	1961	11700	1	236 FAIR	R	6	KIOWA CREEK AT BENNETT, COLORADO			
Douglas	6712000	392130	-104450	JUL	31	1961	235	1	04 POOR	R	6	NORTH ST. TRAIN CREEK TRIB. NR LYONS, COLORADO			
GULPIN	392217	1044454	-1044454	JUL	31	1961	3410	1	169 FAIR	R	6	CHERRY CREEK NEAR FRANKTONN, COLORADO			
TUMA	6825000	394546	-1021016	JUL	8	1961	2900	1	169 POOR	R	6	RUSSELL GULCH NR BLACKHAWK, COLORADO			
EL PASO	3851100	1045239	-1045239	MAY	13	1961	727	1	617 FAIR	R	6	SOUTH FORK REPUBLICAN RIVER NR IDALA, COLORADO			
FREMONT	382322	1045222	-1044454	JUL	27	1961	27	1	150 UNKNOWN	P	7	FOUNTAIN CREEK NR, COLORADO SPRINGS, COLORADO			
FREMONT	3823006	1042240	-1042240	JUL	27	1961	8500	1	016 FAIR	P	7	ARKANSAS RIVER TRIB. AT PARKDALE, COLORADO			
LAS ANIMAS	7124500	370105	-1040301	JUL	12	1961	11200	1	48 POOR	P	7	7 ARKANSAS RIVER TRIB. NO. 2 AT PARKDALE, COLORADO			
EAGLE	9067300	380500	-1042226	JUL	26	1961	310	1	795 FAIR	P	7	MCINTYRE GULCH NR PARKDALE, COLORADO			
MESA	3904337	103155	-1041000	AUG	3	1961	106	3	14 GOOD	G	1	BLACK WOLF CREEK AT TRINIDAD, COLORADO			
BOULDER	400336	1040752	-1040752	JUN	30	1962	91	13	034 FAIR	R	6	INDIAN WASH AT GRAND JUNCTION, COLORADO			
ARAPAHOE	3839398	1032119	-1032119	JUL	27	1962	830	3	084 FAIR	R	6	INDIAN WASH NR, NEMIN, COLORADO			
ARAPAHOE	3839338	1032322	-1032322	JUL	27	1962	264	3	016 GOOD	P	6	GUNBARREL HILL DRAW NR, NEMIN, COLORADO			
YUMA	5825500	294430	-1021510	JUL	24	1962	17800	1	25 GOOD	R	6	6 BLACK WOLF CREEK NEAR MRAY, COLORADO			
YUMA	5825500	393700	-1042226	JUL	13	1962	2950	1	795 FAIR	P	6	LANDSHAW CREEK NR HALE, COLORADO			
YUMA	3944337	103155	-1041000	AUG	3	1962	310	1	27 POOR	R	1	ALKALI CREEK NR WOLCOTT, COLORADO			
YUMA	3904337	1030307	-1020253	MAY	18	1962	806	3	14 GOOD	G	9	INDIAN WASH AT WOLF CREEK, COLORADO			
YUMA	3944337	103155	-1041000	AUG	3	1962	900	1	236 FAIR	R	7	CHEYENNE CREEK AT NEELVIN, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	3330	1	781 GOOD	R	6	CHERRY CREEK NEAR NEELVIN, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	930	3	355 GOOD	R	2	COTTONWOOD CREEK TRIBUTARY AT ARAPAHOE ROAD, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	942	1	445 FAIR	R	6	HARVARD GULCH AT STATE CHILDREN'S HOME, DENVER, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	3740	1	181 GOOD	R	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	7620	1	13 FAIR	R	6	NEWLIN CREEK NR, PARKER, COLORADO			
YUMA	3944337	103155	-1041000	JUN	15	1962	2870	4	111 FAIR	R	1	KIOWA CREEK AT KIOWA, COLORADO			
JEFFERSON	67120300	395342	-1040448	AUG	3	1963	930	23	11 GOOD	R	6	COAL CREEK NR, PLAINVIEW, COLORADO			
JEFFERSON	394332	103155	-1041000	JUN	15	1963	3920	3	32 FAIR	R	6	MCINTYRE GULCH AT DENVER FEDERAL CENTER, COLORADO			
YUMA	6825500	393432	-1045105	AUG	3	1963	963	1	963 FAIR	R	6	LANDSMAN CREEK NR, HALE, COLORADO			
YUMA	6825500	393432	-1045105	JUN	15	1963	556	1	268 FAIR	R	6	LANDSMAN CREEK NR, HALE, COLORADO			
YUMA	6825500	393432	-1021510	MAY	7	1963	2020	1	268 GOOD	P	7	ARKANSAS RIVER TRIB. NR, LAS ANIMAS, COLORADO			
BENT	390305	1032114	-1021250	JUL	27	1963	1230	3	523 FAIR	P	7	ARKANSAS RIVER TRIB. NR, LAS ANIMAS, COLORADO			

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE (FT3S)	TYPE	DRAINAGE AREA (SQ MI)	LOCATION			FILE	NOTE	PART	DESCRIPTION	GCC STORM LIST NUMBER	COMMENTS
									FILE	NOTE	PART						
BENT	380000	39°25'50"	103°40'00"	AUG	18	1963	4490	1	435 UNKNOWN	P	12	7	RULE CREEK NR. CADDIAH, COLORADO				
BENT	380552	39°25'50"	103°52'20"	AUG	13	1963	2730	1	1125 FAIR	P	7	7	APISHAPA RIVER NR. FOWLER, COLORADO				
OTERO	381127	39°11'27"	104°03'12"	JUL	13	1963	6840	23	160 FAIR	P	7	7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO				
PUEBLO	381240	39°12'40"	104°04'40"	JUL	13	1963	4720	1	155 FAIR	P	7	7	KRAMER CREEK NR. NEPESTA, COLORADO				
PUEBLO	384430	38°45'00"	104°05'00"	OCT	20	1963	1540	1	110 GOOD	G	9	9	UNCOMPANGRE RIVER AT DELTA, COLORADO				
DELTA	3849500	39°27'10"	104°15'45"	AUG	9	1963	1720	1	140 FAIR	R	9	9	RIFLE CREEK NR. RIFLE, COLORADO				
CARFIELD	8922000	38°59'00"	104°27'10"	AUG	31	1963	700	5	1790 UNKNOWN	G	12	9	COLORADO RIVER NR. GATEWAY-UTAH STATE LINE				
MESA	9163500	38°59'00"	104°57'00"	AUG	10	1963	349	13	POOR	R	9	9	TAYLOR CREEK NEAR GATEWAY, COLORADO				
YUWA	6825500	39°14'30"	102°15'01"	JUN	13	1964	1650	1	268 FAIR	P	6	6	LANDSMAN CREEK NR. HALE, COLORADO				
EL PASO	7103700	38°51'11"	104°52'19"	MAY	29	1964	672	1	102 POOR	P	7	7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO				
EL PASO	7125500	38°11'10"	104°23'23"	AUG	7	1964	2630	1	160 FAIR	P	7	7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO				
LAS ANIMAS	3805609	38°23'16"	102°31'16"	MAY	21	1964	6840	1	228 GOOD	P	7	7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO				
PRIMERS	3805636	38°52'36"	102°34'37"	JUL	30	1964	14400	1	2240 FAIR	P	9	9	CLAY CREEK NR. LAMAR, COLORADO				
PROWERS	3805636	38°52'36"	102°29'00"	AUG	2	1964	3630	1	112 UNKNOWN	G	1	1	EAST APPOMINTION CREEK NR. DOME CREEK, COLORADO				
DOLORES	9168100	39°51'00"	104°05'22"	JUN	17	1965	145000	1	190 FAIR	R	6	6	EAST CREEK NR. WHITENWATER, COLORADO				
MEZA	3840116	39°45'10"	104°52'52"	JUN	16	1965	145000	1	113 GOOD	R	6	6	MIDDLE BILOU CREEK NR. DEER TRAIL, COLORADO				
ADAMS	394324	40°04'04"	104°49'04"	JUN	16	1965	13400	4	4590 FAIR	R	6	6	SAND CREEK AT SABLE AVE, AURORA, COLORADO				
ADAMS	394324	40°04'04"	104°46'53"	JUN	17	1965	18800	4	4713 UNKNOWN	R	2	2	SOUTH PLATTE RIVER AT DERBY, COLORADO				
ADAMS	6725500	39°55'12"	104°51'10"	JUN	17	1965	28600	1	3069 UNKNOWN	R	6	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO				
ADAPHOE	6711500	39°39'08"	105°01'57"	JUL	29	1965	290	5	260 UNKNOWN	R	6	6	SOUTH PLATTE RIVER AT THERIEN, COLORADO				
ADAPHOE	6712500	39°39'42"	104°48'44"	JUN	16	1965	336	4	336 UNKNOWN	R	6	6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO				
ADAPHOE	6713100	39°41'00"	104°03'00"	JUN	17	1965	274000	1	302 FAIR	R	1	6	CHERRY CREEK NEAR MELVIN, COLORADO				
ADAPHOE	6758300	39°44'54"	104°44'46"	JUN	18	1965	24900	4	236 POOR	R	6	6	EAST BILOU CREEK AT DEER TRAIL, COLORADO				
ADAPHOE	6758300	39°43'35"	104°48'35"	JUN	16	1965	14100	13	219 GOOD	R	6	6	KIOWA CREEK NR. MELVIN, COLORADO				
ADAPHOE	67101000	39°31'10"	105°01'10"	JUN	16	1965	110000	4	3069 UNKNOWN	R	6	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO				
ADAPHOE	67101000	39°31'10"	105°01'10"	JUN	16	1965	36800	1	3058 UNKNOWN	R	6	6	SOUTH PLATTE RIVER AT 6TH AVE, AURORA, COLORADO				
ADAPHOE	67101000	39°31'10"	104°49'04"	JUN	16	1965	16000	23	277 FAIR	R	6	6	WEST BILOU CREEK AT BYERS, COLORADO				
ADAPHOE	67101000	39°31'10"	104°49'04"	JUN	17	1965	75900	4	112 GOOD	R	6	6	WEST BILOU CREEK AT MELVIN, COLORADO				
DENVER	3846005	39°53'00"	104°53'00"	JUN	16	1965	18500	3	187 FAIR	R	6	6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO				
DOUGLAS	6712000	39°22'30"	104°45'50"	AUG	21	1965	1730	1	169 UNKNOWN	R	1	6	KIOWA CREEK AT DEER TRAIL, COLORADO				
DOUGLAS	380417	39°21'00"	104°52'23"	JUN	16	1965	126800	1	108 POOR	R	6	6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO				
DOUGLAS	67079300	38°29'04"	105°00'07"	JUN	16	1965	154000	1	302 UNKNOWN	R	6	6	PLUM CREEK NR. LOVRIES, COLORADO				
DOUGLAS	3802230	39°21'30"	104°53'35"	JUN	16	1965	36800	1	108 POOR	R	6	6	WEST PLUM CREEK NR. SEDARIA, COLORADO				
EL PASO	3804400	39°43'55"	104°35'55"	JUN	17	1965	2370	1	312 GOOD	R	6	6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO				
EL PASO	6757700	39°06'18"	104°33'31"	JUN	17	1965	2860	1	112 GOOD	R	6	6	KIOWA CREEK SUBWATERSHED NO. J-33 NR. EASTONVILLE, CO.				
ELBERT	6758000	38°11'20"	104°32'25"	JUN	17	1965	41500	1	286 GOOD	R	6	6	KIOWA CREEK AT ELBERT, COLORADO				
ELBERT	6758000	38°11'20"	104°29'00"	JUN	17	1965	19700	4	111 UNKNOWN	R	1	6	EAST PLUM CREEK NR. KIOWA, COLORADO				
ELBERT	6757500	38°09'20"	104°31'16"	JUN	17	1965	126800	1	242 GOOD	R	1	6	KIOWA CREEK SUBWATERSHED NO. R-3 NR. ELBERT, COLORADO				
ELBERT	6757800	38°09'20"	104°31'16"	JUN	17	1965	1270	1	139 FAIR	R	1	6	BEAVER CREEK NEAR WIGGINS, COLORADO				
ELBERT	391600	38°16'00"	104°20'00"	JUN	17	1965	67200	1	85.7 POOR	R	1	6	BEAVER CREEK NEAR WELDONA, COLORADO				
ELBERT	6758100	39°12'38"	104°32'16"	JUN	17	1965	20000	1	55.9 FAIR	R	1	6	WEST KIOWA CREEK AT ELBERT, COLORADO				
LOGAN	6758000	39°12'38"	104°29'00"	JUN	18	1965	53200	4	65 FAIR	R	1	6	PANNE CREEK AT STERLING, COLORADO				
LOGAN	6758000	39°12'38"	104°27'50"	JUN	18	1965	123000	24	1842 FAIR	R	1	6	SOUTH PLATTE RIVER AT BALZIC, COLORADO				
MORGAN	400860	39°21'00"	103°35'00"	JUN	18	1965	2300	1	946 GOOD	R	1	6	BEAVER CREEK NEAR INN, COLORADO				
MORGAN	401517	39°21'00"	103°56'15"	JUN	18	1965	46800	4	1314 GOOD	R	1	6	BEAVER CREEK NEAR WIGGINS, COLORADO				
SEDGEMICK	6758500	39°04'00"	102°15'15"	JUN	20	1965	18800	4	1245 UNKNOWN	R	2	2	SOUTH PLATTE RIVER AT WELDONA, COLORADO				
WELD	403800	39°18'00"	104°30'00"	JUN	15	1965	5340	4	2318 UNKNOWN	R	2	2	SOUTH PLATTE RIVER AT JULESBURG, COLORADO				
WELD	404300	39°18'00"	104°10'00"	JUN	15	1965	4000	4	73.1 FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO				
WELD	6753500	39°04'00"	104°47'25"	JUN	14	1965	5810	13	199 FAIR	R	1	6	CROW CREEK NR. KEOTA, COLORADO				
WELD	404500	39°05'00"	103°51'00"	JUN	16	1965	68600	4	1314 GOOD	R	1	6	ONE TREE CREEK NR. INN, COLORADO				
WELD	404500	39°05'00"	103°49'00"	JUN	15	1965	6200	1	82.3 GOOD	R	1	6	NORTH PANNIE CREEK NR. NEW REYMER, COLORADO				
WELD	404500	39°05'00"	103°39'00"	JUN	15	1965	26700	1	387 GOOD	R	1	6	PANNIE CREEK NR. STONEHAM, COLORADO				
WELD	380340	39°25'00"	102°55'05"	JUN	17	1965	1780	4	131 FAIR	P	1	7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO				
BAKA	372600	39°23'00"	102'33'00"	JUN	17	1965	5070	23	1300 POOR	P	1	7	PURGATORI CREEK DRAW NR. LAS ANIMAS, COLORADO				
BAKA	371900	39°23'00"	101'32'00"	JUN	18	1965	67200	4	3603 UNKNOWN	P	1	7	PURGATORI CREEK NR. TOONERVILLE, COLORADO				
BAKA	373800	39°23'00"	102'33'00"	JUN	17	1965	82800	24	453 GOOD	P	1	7	ADOLE CREEK NR. LAS ANIMAS, COLORADO				
BAKA	374800	39°23'00"	101'32'40"	JUN	18	1965	68600	4	589 GOOD	P	1	7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO				
BAKA	374800	39°23'00"	101'31'00"	JUN	17	1965	60700	1	14417 FAIR	P	1	7	BLACK SQUIRREL CREEK NR. ELLUCOTT, COLORADO				
BAKA	374800	39°23'00"	104'22'25"	JUN	17	1965	14100	1	353 GOOD	P	1	7	CADDIA CREEK NR. CADDIA, COLORADO				
BAKA	374800	39°23'00"	104'22'00"	JUN	17	1965	10400	4	163 FAIR	P	1	7	FOUNTAIN CREEK AT SECURITY, COLORADO				
BAKA	374800	39°23'00"	104'22'00"	JUN	24	1965	25000	1	480 FAIR	R	7	HORSE CREEK AT SECURITY, COLORADO					
EL PASO	3843146	39°13'46"	104'44'00"	JUN	14	1965	2680	1	488 GOOD	P	1	7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO				
EL PASO	3843146	39°13'46"	104'43'24"	JUN	14	1965	2195	1	529 FAIR	P	1	7	INNEY CAMP CREEK NR. FOUNTAIN, COLORADO				
EL PASO	3843146	39°13'46"	104'38'45"	JUN	17	1965	12400	1	54.3 FAIR	R	1	7	MONUMENT CREEK NR. STANLEY CANYON NR. PINEVIEW, COLORADO				
EL PASO	3843146	39°13'46"	104'32'27"	JUN	18	1965	515	1	202 FAIR	P	1	7	MONUMENT CREEK NR. COOLIDGE, KANSAS				
HAMILTON	380131	39°21'00"	102'01'00"	JUN	17	1965	159000	1	2510 POOR	P	1	7	ARKANSAS RIVER NR. COOLIDGE, KANSAS				
HAMILTON	37137500	39°21'33"	102'01'00"	JUN	17	1965	2600	1	345 GOOD	P	1	7	ALKALI ARROYO NR. IRONCERA, COLORADO				

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS
LAS ANIMAS	370730	30.8385	-104.3859	JUN	17	1985	3120	3	(PS135)	20.3 FAIR	P		7	BURRO CANYON AT MADRID, COLORADO	159	7
LAS ANIMAS	372311	30.9366	-104.1119	JUN	17	1985	36900	1	387	GOOD	P		7	CHACUACO CREEK NR LA JUNTA, COLORADO	159	7
LAS ANIMAS	370538	31.0770	-104.1100	JUN	17	1985	1720	3	6.1	GOOD	P		7	CLEAR CREEK NR STARVILLE, COLORADO	159	7
LAS ANIMAS	371200	31.0694	-104.1055	JUN	17	1985	10600	4	80	GOOD	P		7	ERIJOLE CREEK NEAR ALFALFA, COLORADO	159	7
LAS ANIMAS	371210	31.0694	-104.1055	JUN	17	1985	1090	4	3.6	GOOD	P		7	GRASHACK KARRYOO NR TRINIDAD, COLORADO	159	7
LAS ANIMAS	371215	31.0694	-104.1055	JUN	17	1985	3540	1	16	GOOD	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	159	7
LAS ANIMAS	3710100	31.0720	-104.0845	JUN	17	1985	760	3	154	POOR	P		7	JOE CREEK NR MORELY, COLORADO	159	7
LAS ANIMAS	371150	31.0720	-104.0520	JUN	17	1985	4480	1	104	FAIR	P		7	JONG CANYON NR. SOPHIS, COLORADO	159	7
LAS ANIMAS	371200	31.0720	-104.0510	JUN	16	1985	1820	1	216	GOOD	R	1	7	NORTH FORK PURGATORIE AT WESTON, COLORADO	159	7
LAS ANIMAS	371000	31.0680	-104.0600	JUN	17	1985	3000	4	361	UNKNOWN	P	1	7	PURGATORIE R ABV. LORENTEO CANTON, NR. WESTON, COLORADO	159	7
LAS ANIMAS	3712500	31.07105	-104.0331	JUN	17	1985	15100	4	795	GOOD	P		7	PURGATORIE RIVER AT TRINIDAD, COLORADO	159	7
LAS ANIMAS	3712112	31.07112	-104.0482	JUN	16	1985	20800	4	1015	GOOD	P	2	7	PURGATORIE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	7
LAS ANIMAS	371130	31.07112	-104.0739	JUN	16	1985	120	1	1320	GOOD	P		7	PURGATORIE RIVER NR. ALFALFA, COLORADO	159	7
LAS ANIMAS	371150	31.07112	-104.0250	JUN	16	1985	20000	2	957	POOR	P		7	PURGATORIE RIVER NR. HOECHNE, COLORADO	159	7
LAS ANIMAS	371230	31.07112	-104.0482	JUN	16	1985	47700	4	1935	FAIR	P	2	7	PURGATORIE RIVER NR. THATCHER, COLORADO	159	7
LAS ANIMAS	3710653	31.07080	-104.03118	JUN	17	1985	12800	4	60.5	FAIR	P		7	RATON CREEK AT STARVILLE, COLORADO	159	7
LAS ANIMAS	370320	31.07076	-104.03834	JUN	16	1985	4860	1	5.27	FAIR	P		7	RATON CREEK NR. MORLEY, COLORADO	159	7
LAS ANIMAS	3712500	31.07110	-104.0739	JUN	16	1985	3410	1	36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDEALE, COLORADO	159	7
LAS ANIMAS	3711900	31.07110	-104.0739	JUN	16	1985	14000	4	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	7
LAS ANIMAS	3712500	31.07110	-104.0260	JUN	17	1985	7860	1	32.1	GOOD	P	1	7	SAN ISIDRO CREEK NR. TRINICHERA, COLORADO	159	7
LAS ANIMAS	371275	31.07125	-104.0452	JUN	17	1985	1830	1	36.4	UNKNOWN	P		7	SARCILO CANYON NR. SEGUNDO, COLORADO	159	7
LAS ANIMAS	3710800	31.07080	-104.05100	JUN	16	1985	1340	4	101	GOOD	P		7	SOUTH FORK PURGATORIE RIVER AT WESTON, COLORADO	159	7
LAS ANIMAS	370745	31.07040	-104.03600	JUN	17	1985	4500	24	129	FAIR	P		7	TRINICHERA CREEK NR. TRINICHERA, COLORADO	159	7
LINCOLN	385100	30.93200	-103.9200	JUN	17	1985	3110	1	108	FAIR	P	1	7	SOUTH RUSH CREEK NR. KARVAL, COLORADO	159	7
OERO	7119500	30.90528	-103.5652	JUN	17	1985	11400	4	1125	FAIR	P		7	ASHAHA RIVER NR. FOWLER, COLORADO	159	7
OERO	7119100	30.90528	-103.5640	JUN	18	1985	43200	2	10901	UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	159	7
OERO	380138	30.91410	-103.4739	JUN	18	1985	31670	4	101	GOOD	P		7	SARCILO CANYON NR. S. SWINK, COLORADO	159	7
OERO	374225	30.91410	-103.4220	JUN	18	1985	84000	1	291	FAIR	P		7	SOUTH FORK PURGATORIE RIVER AT MOUTH NR. SWINK, COLORADO	159	7
OERO	380040	30.91410	-103.3930	JUN	17	1985	21480	24	481	GOOD	P	1	7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	7
POWERERS	380715	30.92550	-102.9550	JUN	17	1985	3600	1	2840	FAIR	P		7	BIG SANDY CREEK NR. LAMAR, COLORADO	159	7
POWERERS	3803044	30.92526	-102.1950	JUN	17	1985	158000	1	213	FAIR	P		7	CLAY CREEK NR. LAMAR, COLORADO	159	7
POWERERS	375920	30.92526	-102.0150	JUN	17	1985	128000	1	177	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO	159	7
POWERERS	380425	30.92625	-102.02625	JUN	17	1985	108000	1	281	GOOD	P		7	SALT ARROYO NR. GRANADA, COLORADO	159	7
POWERERS	380140	30.92625	-102.02600	JUN	17	1985	183000	1	817	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	159	7
POWERERS	7136000	30.80245	-102.0705	JUN	17	1985	186000	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	7
POWERERS	3801558	30.82305	-102.03705	JUN	18	1985	24300	1	40.5	FAIR	P		7	WILLOW CREEK NR. GRANADA, COLORADO	159	7
POWERERS	375705	30.82305	-102.02605	JUN	17	1985	23200	1	62.5	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO	159	7
PUEBLO	7117000	30.81054	-104.0940	JUN	18	1985	43100	24	9345	FAIR	P		7	GRANADA CREEK NR. NEPESTA, COLORADO	159	7
PUEBLO	381442	30.81054	-104.0336	JUN	18	1985	104000	4	7157	POOR	P		7	ARKANSAS RIVER NR. WOLCOTT, COLORADO	159	7
PUEBLO	7099200	30.81054	-104.5827	AUG	21	1985	23900	1	4280	UNKNOWN	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	7
PUEBLO	7099500	30.81054	-104.3926	AUG	22	1985	25500	4	4965	FAIR	P		7	ARKANSAS RIVER NR. PORTLAND, COLORADO	159	7
PUEBLO	7106500	30.81633	-104.3099	JUN	17	1985	47000	4	926	GOOD	P	1	7	ARKANSAS RIVER NR. PUEBLO, COLORADO	159	7
PUEBLO	391900	30.81633	-104.5900	JUL	19	1985	7000	1	2.66	FAIR	P		7	FOUNTAIN GULCH NR. SWALLOWS, COLORADO	159	7
DOLORES	9168100	30.75236	-108.457	JUL	13	1985	4350	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. MINEFLY, COLORADO	159	7
EAGLE	9067300	30.74500	-108.0400	JUL	18	1985	985	24	27	UNKNOWN	R	1	9	AIKAUCI CREEK NR. WOLCOTT, COLORADO	159	7
RIO BLANCO	400950	30.74500	-104.2417	JUL	25	1985	1050	1	3503	FAIR	R		9	YELLOW CREEK NR. FANGEL, COLORADO	159	7
BENT	7126500	30.62003	-101.31700	SEP	27	1985	17300	1	66	FAIR	R		7	PURGATORIE RIVER NR. LAS ANIMAS, COLORADO	159	7
LAS ANIMAS	7126100	30.61816	-104.0504	MAY	26	1987	6240	1	168	FAIR	P		7	LUMINS ARROYO NR. MODEL, COLORADO	159	7
LAS ANIMAS	7126200	30.61745	-104.352727	MAY	27	1987	10	5	0.76	UNKNOWN	G	2	7	VAN BREMER ARROYO NR. MODEL, COLORADO	159	7
EAGLE	9058900	30.64337	-106.850	MAY	31	1987	1200	1	321	POOR	G	2	9	MONGER CREEK NR. MINTURN, COLORADO	159	7
GARFIELD	9068000	30.62172	-106.850	AUG	31	1987	237	1	16.7	GOOD	G		9	ROAN CREEK NR. DE BIQUE, COLORADO	159	7
LAS ANIMAS	7126100	30.61816	-104.05054	AUG	3	1988	4830	1	86	FAIR	R		7	LUMINS ARROYO NR. MODEL, COLORADO	159	7
COSTILLA	8249400	31.10553	-105.51914	JUN	5	1988	327	1	74.4	FAIR	R		8	CULEBRA CREEK NR. CHAMA, COLORADO	159	7
NO GRANDE	8229800	31.10553	-105.3444	JUN	30	1988	754	1	11.6	FAIR	R		8	SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO	159	7
SAGUAJACHE	8228500	31.10560	-105.842	JUL	26	1988	540	1	67.7	GOOD	R		8	COTTONWOOD CREEK NEAR CRESTONE, COLORADO	159	7
SAGUAJACHE	300317	30.61565	-105.516	AUG	11	1988	174	1	12	GOOD	R		8	ITO ALTO CREEK NEAR MOFFA, COLORADO	159	7
EAGLE	7126400	30.61447	-106.2850	JUN	5	1988	12	5	0.76	UNKNOWN	G	2	9	MONGER CREEK NR. MINTURN, COLORADO	159	7
LA PLATA	310720	30.61447	-106.2850	JUN	10	1988	237	1	16.7	GOOD	G		9	SALT CREEK NR. OXFORD, COLORADO	159	7
BOULDER	4000804	105.033	-105.1113	MAY	7	1989	2270	1	18.6	GOOD	R		6	JAMIE'S CREEK AT MOUTH NR. JAMES TOWN, COLORADO	159	7
JEFFERSON	671100	305.22	-102.1600	AUG	23	1989	10800	1	268	POOR	R		6	TURKEY CREEK NR. MORRISON, COLORADO	159	7
YUMA	6421400	305.24	-102.1432	AUG	23	1989	2280	1	40	FAIR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	159	7
YUMA	6425000	303.332	-102.1506	AUG	23	1989	10800	1	17.1	UNKNOWN	L		6	NORTH FORK BLACK WOLF CREEK, VERNON, COLORADO	159	7
OTERO	7121900	303.332	-102.1432	AUG	23	1989	14900	4	1300	GOOD	R		6	SOUTH FORK REPUBLICAN RIVER NR. DIAJA, COLORADO	159	7
PIROMERS	7134300	3175230	-102.1506	AUG	23	1989	2169	1	498	GOOD	R		7	TIMPAS CREEK NR. CARLTON, COLORADO	159	7
WAPAHOE	6718640	303.347	-102.1701	AUG	23	1989	7800	1	15.7	UNKNOWN	L		2	WOLF CREEK NR. BENNETT, COLORADO	159	7
WELD	6756200	304.947	-104.0500	JUL	20	1970	119	1	1	GOOD	R		6	KIWA CREEK TRIB. NR. BENNETT, COLORADO	159	7
LAS ANIMAS	7126400	307020	-104.0500	JUL	22	1970	2520	1	843	1	GOOD		7	GEARY CREEK NEAR EGGLE, COLORADO	159	7
LAS ANIMAS	7126450	311143	-103.3313	JUL	22	1970	170	1	8.45	UNKNOWN	L		7	TOBE ARROYO NR. TOBE, COLORADO	159	7
MINERAL	8217300	3104559	-103.1143	JUL	22	1970	4860	1	700	UNKNOWN	P		6	RIO GRANDE AT WAGONWHEEL GAP, COLORADO	159	7
ARCHULETA	9339000	3122325	-103.4950	SEP	6	1970	1710	1	64.1	POOR	R		9	E.F.K SAN JUAN ABV. SAND CREEK NR. PAGOSA SPRGS., COLORADO	159	7
ARCHULETA	9340000	317210	-103.5130	SEP	6	1970	2060	1	65.9	GOOD	R		9	E.F.K SAN JUAN NR. PAGOSA SPRGS., COLORADO	159	7

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE	TYPE	DRAINAGE AREA (SQ MI)	RATING	DESCRIPTION, LOCATION		FILE	NOTE	PART	COMMENT	NUMBER
										FILE	NOTE					
ARCHULETA	370440	36.4334	-106.4334	SEP	6	1970	[F-39]	132	1	13.6	GOOD	R	9	LITTLE NAVAJO RIVER NR CHROMO, COLORADO	188?	
ARCHULETA	370155	36.4456	-106.4456	SEP	1	1970	1400	2	96.4	GOOD	R	2	NAVAJO RIVER ABV CHROMO, COLORADO	188		
ARCHULETA	371320	36.4456	-106.4456	JUL	6	1970	7980	2	31	POOR	R	9	PIEDRA RIVER NR PIEDRA, COLORADO	188		
ARCHULETA	371246	36.4478	-106.4478	SEP	6	1970	2500	3	58	GOOD	R	2	RIO BLANCO NR PAGOSA SPRINGS, COLORADO	188		
ARCHULETA	371558	36.4507	-106.4507	SEP	6	1970	6580	1	258	GOOD	R	9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188		
DELTA	9149500	38.4421	-106.5126	SEP	9	1970	2250	1	1129	FAIR	R	9	UNCOMPAGNE RIVER AT DELTA, COLORADO	188		
DOLORES	374742	38.4520	-106.5126	SEP	5	1970	2400	1	107	POOR	R	9	BIG CANYON CREEK NR DOVE CREEK, COLORADO	188		
DOLORES	373820	38.4535	-106.5135	SEP	6	1970	1930	1	105	GOOD	R	9	DOLORES RIVER BELOW RICO, COLORADO	188		
HINSDALE	374544	38.4550	-106.5140	SEP	5	1970	830	1	645	POOR	R	2	DOVE CREEK AT DOVE CREEK, COLORADO	188		
LA PLATA	372812	38.4946	-106.5196	SEP	5	1970	2520	1	322	POOR	R	9	MIDDLE FORK PIEDRA RIVER NR PAGOSA SPRINGS, COLORADO	188		
LA PLATA	9365500	38.5059	-106.5117	AUG	3	1970	1150	1	331	FAIR	R	9	LA PLATA RIVER AT COLORADO N. M. LINE	188		
LA PLATA	9155290	38.5235	-106.5235	SEP	6	1970	2050	1	721	GOOD	R	9	VALLEJO CREEK NR. BAYFIELD, COLORADO	188		
MESA	9177950	38.4055	-106.5450	SEP	6	1970	6350	1	450	POOR	R	9	DOLORES RIVER AT GATEWAY, COLORADO	188		
MESA	9176477	38.4247	-106.5300	SEP	6	1970	585	1	14	GOOD	R	9	WOLF CREEK NR PAGOSA SPRINGS, COLORADO	188		
MONTEZUMA	9164200	37.2647	-106.5300	SEP	6	1970	5190	1	556	GOOD	R	9	DOLORES RIVER A DOLORES, COLORADO	188		
MONTEZUMA	9168500	37.2615	-106.5315	SEP	6	1970	4530	1	550	POOR	R	9	MANCOS RIVER NR. TOWACO, COLORADO	188		
MONTEZUMA	9171000	37.1939	-106.4427	SEP	6	1970	2860	1	396	FAIR	R	9	MCELHANEY CREEK NR COLORADO-UTAH LINE	188		
MONTROSE	9167200	36.1837	-106.5035	SEP	6	1970	5710	1	1910	GOOD	R	9	DOLORES RIVER AT BEDROCK, COLORADO	188		
MONTROSE	9168900	36.1553	-106.5021	SEP	6	1970	368	3	414	UNKNOWN	L	9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO	188		
MONTROSE	9177000	36.2125	-106.4240	SEP	6	1970	8910	1	1650	POOR	R	9	SAN MIGUEL RIVER AT URAMAN, COLORADO	188		
SAN JUAN	375104	37.0131	-107.3311	SEP	5	1970	750	1	11	FAIR	R	9	MINERAL CREEK ABV SILVERTON, COLORADO	188		
SAN JUAN	314427	37.0039	-107.0039	SEP	5	1970	3070	1	517	GOOD	R	9	DEADHORSE CREEK NR. NATURITA, COLORADO	188		
SAN MIGUEL	9175800	38.0133	-108.4338	SEP	1970	613	3	53	UNKNOWN	L	2	DISAPPOINTMENT CREEK TRIB. NR SLICK ROCK, COLORADO	188			
SAN MIGUEL	9168700	38.0133	-108.4551	SEP	1970	215	3	173	UNKNOWN	L	9	DAY CREEK NR. NATURITA, COLORADO	188			
LOGAN	3065322	38.5077	-108.3717	SEP	5	1970	5660	1	859	POOR	R	9	DARBY CREEK NR. BUCHANAN, COLORADO	188		
LOGAN	6760430	40.6248	-109.1912	JUL	30	1971	1140	1	739	UNKNOWN	L	6	DARBY CREEK NR. BUCHANAN, COLORADO	188		
WELD	6758200	40.5800	-109.0334	JUL	4	1971	177	1	223	UNKNOWN	L	6	SPRING CANYON NR. PEETZ, COLORADO	188		
WELD	6758200	40.5800	-104.3520	AUG	19	1971	192	1	5.7	UNKNOWN	L	6	GEAR CREEK NR. PEETZ, COLORADO	188		
LAS ANIMAS	7129000	37.3356	-104.5144	AUG	22	1971	3120	1	151	FAIR	R	6	LONE TREE CREEK NEAR CARR, COLORADO	188		
LAS ANIMAS	7126000	37.3324	-103.3020	AUG	7	1971	1410	1	42	UNKNOWN	R	7	MUDGY CREEK TRIB. NR. MINAVIEW, COLORADO	188		
LAS ANIMAS	7126100	37.3357	-103.1026	AUG	26	1971	5640	1	769	UNKNOWN	L	7	RED ROCK CANYON CREEK NR. BLOOM, COLORADO	188		
PROWERS	7135800	38.1545	-102.9933	JUN	30	1971	2411	1	10	UNKNOWN	L	7	RULE CREEK NR. MINAVIEW, COLORADO	188		
RIO BLANCO	9306222	40.0139	-108.1408	MAY	4	1971	242	1	623	UNKNOWN	M	9	WILD HORSE CREEK TRIB. NR. HARTMAN, COLORADO	188		
ARAPAHOE	6711580	39.3394	-104.5168	JUN	4	1972	63	1	1	UNKNOWN	L	6	HARVARD GULCH CREEK AT EAGLEWOOD, COLORADO	188		
LINCOLN	6811300	39.3312	-103.2635	JUN	23	1972	20	1	527	UNKNOWN	L	6	NORTH FORK ARKARIKE TRIB. NR. SHAW, COLORADO	188		
WELD	6758400	40.0210	-104.1306	AUG	3	1972	874	1	1815	UNKNOWN	L	6	GOOSE CREEK NR. HOYT, COLORADO	188		
WELD	6753000	40.5507	-104.6401	AUG	23	1972	641	1	456	FAIR	R	6	OWL CREEK TRIB. NR. ROCKPORT, COLORADO	188		
CHAFFEE	3639000	39.8102	-106.5002	AUG	26	1972	3000	1	1	UNKNOWN	R	7	UNNAME D CREEK AT SECURITY, COLORADO	188		
EL PASO	7105000	38.3436	-104.4401	JUN	11	1972	6520	1	408	FAIR	P	7	BEAVER CREEK NR. PORTLAND, COLORADO	188		
FREMONT	7089100	38.2227	-105.4749	AUG	1	1972	1040	1	214	FAIR	P	7	HUEY FANCI OR MANZANARES CREEK NR. REDMING, COLORADO	188		
HUERFANO	7111000	37.3430	-105.2103	AUG	3	1972	6520	1	73	GOOD	R	9	FLORIDA RIVER AT BONDAD, COLORADO	188		
LA PLATA	9363200	37.0324	-105.9899	CCT	19	1972	154	1	221	GOOD	R	9	JUNCTION CREEK AT DURANGO, COLORADO	188		
LA PLATA	371723	37.0223	-105.2223	OCT	19	1972	1780	1	384	GOOD	R	9	LIGHTER CREEK AT DURANGO, COLORADO	188		
LA PLATA	371613	37.0358	-105.2103	OCT	19	1972	2830	1	629	GOOD	R	9	SALT CREEK NEAR OXFORD, COLORADO	188		
LA PLATA	9362000	37.0323	-105.4510	OCT	19	1972	811	1	167	GOOD	R	9	WILDCAT CREEK NEAR DURANGO, COLORADO	188		
LA PLATA	37093100	37.0323	-105.1515	OCT	19	1972	810	1	167	FAIR	R	9	9	BIG SALT WASH AT FRUITA, COLORADO	188	
MEDELLIN	9153270	39.0950	-104.9000	SEP	19	1972	3940	4	142	GOOD	R	9	SALT CREEK NEAR MACK, COLORADO	188		
MEDELLIN	9153480	39.1316	-104.5332	SEP	19	1972	1680	1	436	FAIR	R	9	9	BIG DRY CREEK AT UPR. R. CULVERT AT DENVER, COLORADO	188	
ADAMS	399535	39.6622	-104.5707	MAY	6	1973	740	3	65	UNKNOWN	L	6	WATER CREEK NR. MOUNTAIN AT DENVER, COLORADO	188		
ADAMS	390228	39.6753	-104.6401	MAY	6	1973	550	1	6	UNKNOWN	L	6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	188		
ARAPAHOE	394446	39.5246	-104.5003	MAY	6	1973	290	1	6	UNKNOWN	L	6	WEST DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	188		
ARAPAHOE	393745	39.5003	-104.5914	MAY	6	1973	4400	4	19	UNKNOWN	L	6	LITTLE DRY CREEK AT ADRON AND ACONIA AT DENVER, COLORADO	188		
DENVER	394707	39.5413	-104.5513	MAY	6	1973	1510	1	15	UNKNOWN	L	6	SAND CREEK AT 48TH STREET BRIDGE AT DENVER, COLORADO	188		
TELLER	391129	39.5029	-104.5029	MAY	6	1973	5630	4	187	UNKNOWN	L	6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO	188		
WELD	402230	40.4825	-104.4801	JUN	28	1973	320	3	8	UNKNOWN	L	6	WEIR GULCH AT DECATOR AT DENVER, COLORADO	188		
DOUGLAS	390806	39.6941	-104.6094	JUN	7	1973	430	1	6	UNKNOWN	L	6	TRAIL CREEK NR. WESTCREEK, COLORADO	188		
DOUGLAS	390922	39.6945	-104.6094	JUN	7	1973	78	3	167	GOOD	R	3	SAND CREEK NEAR HALIE, COLORADO	188		
DOUGLAS	391032	39.6596	-104.5796	JUN	7	1973	2020	1	60	FAIR	R	3	WEST CREEK AT WESTCREEK, COLORADO	188		
JEFFERSON	394553	39.6749	-104.5079	MAY	6	1973	3080	1	623	FAIR	P	7	BEAVER CREEK NR. PORTLAND, COLORADO	188		
DOLORES	390744	39.6382	-104.5942	MAY	6	1973	820	1	11	UNKNOWN	L	6	LENA GULCH NR. SWADLEY AND 5TH AT DENVER, COLORADO	188		
DOLORES	392028	39.6520	-104.5620	MAY	6	1973	240	1	38	GOOD	R	3	WEST CREEK ABV. WESTCREEK, COLORADO	188		
WELD	403507	40.4821	-104.4801	JUL	28	1973	13800	1	17	UNKNOWN	R	3	BEERIE DRAW NR. AUBURN, COLORADO	188		
YUMA	394150	39.6021	-104.5137	SEP	11	1973	2620	1	456	UNKNOWN	L	6	TRAIL CREEK TRIB. NR. ROCKPORT, COLORADO	188		
FREMONT	7089100	38.2222	-104.5719	SEP	9	1973	725	1	242	UNKNOWN	L	6	SAND CREEK NR. HALE, COLORADO	188		
FREMONT	7086500	38.2111	-105.1717	JUL	8	1973	4900	1	214	FAIR	P	7	FOURMILE CREEK NR. CANYON CITY, COLORADO	188		
DOLORES	9168100	37.5236	-103.4357	JUL	18	1974	2350	1	147	UNKNOWN	R	9	DISAPPOINTMENT CREEK NR. DOME GREEN, COLORADO	188		
GARFIELD	9092400	39.2200	-104.5151	OCT	10	1974	950	1	199	UNKNOWN	G	9	DRY FORK NEAR BEQUE, COLORADO	188		
MESA	391150	39.1150	-104.6021	JUL	18	1974	2350	1	6	FAIR	G	9	ATWELL GULCH NR. MESA, COLORADO	188		
MESA	390918	39.1935	-104.6193	JUL	18	1974	3440	1	12	FAIR	G	9	COAL CANYON NR. MACK, COLORADO	188		
MESA	391750	39.1500	-104.6150	JUL	18	1974	7630	1	191	POOR	G	9	EAST SALT CREEK NR. MACK, COLORADO	188		

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	YEAR	DISCHARGE (Ft³/S)	TYPE	DRAINAGE AREA (Sq Mi)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		CCC STORM LIST NUMBER	COMMENTS
													DISCHARGE	TYPE		
MESA	3909619	1061841	JUL	18	1974	12000	1	65.6 GOOD	G				9	JERRY CREEK NR. CAMEDO, COLORADO		
MESA	3911118	1060532	JUL	18	1974	3590	1	9.23 POOR	R				9	JERRY GULCH NR. MESA, COLORADO		
MESA	9153400	1058519	AUG	1	1974	1400	1	168 UNKNOWN	L				9	WEST SALT CREEK NR. MACK, COLORADO		
ARAPAHOE	6711580	3959334	1045816	JUL	24	1975	178	1	0.98 UNKNOWN	L			6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO		
CHEYENNE	6857500	3959118	1021650	JUN	14	1975	241	1	7.84 UNKNOWN	L			6	BIG TIMBER CREEK TRIB. NEAR ARAPOE, COLORADO		
DENVER	3950441	1045817	JUL	14	1975	856	1	1 UNKNOWN	L				6	RIVER CREEK AT DOWNING ST. AT DENVER, COLORADO		
JEFFERSON	6718630	3944278	1045792	JUL	20	1975	1126	1	9 UNKNOWN	L			6	NIVER CREEK AT LAKewood, COLORADO		
JEFFERSON	6711642	3944233	1050744	JUL	20	1975	641	1	2.76 GOOD	R			6	MCINTIRE GULCH DFC 1 AT LAKEMOOD, COLORADO		
YUMA	6825500	3934322	1021506	JUN	20	1975	403	1	2.68 POOR	R			6	MCINTIRE GULCH DFC 1 AT LAKEMOOD, COLORADO		
YUMA	6925900	3941150	1021037	MAY	28	1975	13000	1	17.6 UNKNOWN	L			6	LANDS CREEK NR. HALE, COLORADO		
LAS ANIMAS	7121200	3910246	1043920	JUL	12	1975	4500	1	550 FAIR	P			7	SAND CREEK NR. HALE, COLORADO		
PROWERS	7134100	3906551	1022900	JUL	1975	121	3	3248 UNKNOWN	P			7	PURGATORY RIVER AIR MADRID, COLORADO			
PROWERS	7133950	3902116	1023651	JUN	23	1975	475	1	42 GOOD	P			7	WILLOW CREEK NR. LAMAR, COLORADO		
PUEBLO	7101900	3155114	1045171	JUL	10	1975	2460	1	42 FAIR	P			7	GREENHORN CREEK NR. RYE, COLORADO		
LARIMER	4025252	4020339	1051937	JUL	31	1976	26900	1	189 POOR	R			6	GREENHORN CREEK NR. RYE, COLORADO		
LARIMER	4025118	4022539	1051934	JUL	31	1976	30100	1	276 POOR	R			6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO		
LARIMER	4025025	4021202	1051929	JUL	31	1976	31200	1	305 POOR	R			6	BIG THOMPSON RIVER AT MOON CANYON NR. DRAKE, COLORADO		
LARIMER	4024113	4025012	1052601	JUL	31	1976	4330	1	164 GOOD	R			6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO		
LARIMER	4023442	402344	1052601	JUL	31	1976	27000	1	311 POOR	R			6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	4022704	1052528	JUL	31	1976	6850	1	0.53 POOR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	4023517	403592	1050494	AUG	1	1976	5700	1	1.37 POOR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	4023517	403592	1051926	AUG	1	1976	7340	1	1056 FAIR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	4023517	403592	1052139	JUL	31	1976	727	3	0.69 GOOD	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	7210	1	2.1 FAIR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	7400	1	23.7 POOR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	8700	1	3.17 POOR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2810	1	0.91 POOR	R			6	BIG THOMPSON RIVER TRIB. BLW. GREEN RIDGE GLADE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	4460	1	6.2 FAIR	R			6	DRY GULCH NR. ESTES PARK, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	3210	1	2 FAIR	R			6	DRY GULCH NR. ESTES PARK, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	7170	1	7.18 POOR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	1300	1	1.7 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	888	1	1.65 POOR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	13240	1	1.26 POOR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	1940	1	2.7 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2520	1	6.5 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	5500	1	1.99 POOR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2890	1	1.19 POOR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	8710	1	80.2 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	888	1	1.65 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	3240	1	1.26 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	9480	1	5.9 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	6910	1	3.37 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	9570	1	1.38 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2890	1	1.41 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	8700	1	2.1 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	888	1	1.26 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2710	1	5.27 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	3470	1	3.18 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	2320	1	2.3 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	1000	1	1.0 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
LARIMER	402344	402344	1052617	JUL	31	1976	395	1	1.0 FAIR	R			6	FOLK CREEK AT GLENDALE, COLORADO		
Otero	3172400	3172400	1043653	JUL	20	1976	7390	1	105 FAIR	R			9	SWEATWATER CREEK AT MOUTH THINER, DOTSERO, COLORADO		
PROWERS	7134100	306851	1022800	SEP	25	1976	712	3	324 UNKNOWN	R			7	BIG SANDY CREEK NR. LAMAR, COLORADO		
GARFIELD	9093500	392711	1080333	JUL	31	1976	2800	1	1.98 POOR	R			7	PARACHUTE CREEK NR. GRAND JUNCTION, COLORADO		
MORGAN	6759100	401654	1035231	JUL	26	1977	2200	1	1.98 UNKNOWN	L			7	WEST SALT CREEK NR. MACK, COLORADO		
YUMA	6420500	3938559	1021432	MAY	2	1977	5800	1	1.90 FAIR	R			7	SORGHUM GULCH NR. RIO GRANDE, COLORADO		
MESA	9153400	3918131	1081538	JUL	31	1976	40	1	1.62 UNKNOWN	M			2	SOUTH FORK REPUBLICAN RIVER NR. IDAHO, COLORADO		
EL PASO	7104600	3946333	1081134	JUL	24	1977	1230	1	2.04 FAIR	P			7	MONUMENT CREEK AT PINEVIEW, COLORADO		
DELTA	6711642	3943112	1070230	JUL	19	1977	900	1	2.27 UNKNOWN	L			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
EAGLE	9081450	3945656	1035592	JUL	20	1977	717	1	2.76 FAIR	R			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
JEFFERSON	6711642	3943112	1050744	JUL	20	1977	590	1	2.76 FAIR	R			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
GARFIELD	9093500	3945656	1035592	JUL	20	1977	168	1	1.95 FAIR	R			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
MORGAN	6759100	401654	1035231	JUL	26	1977	2200	1	1.90 FAIR	R			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
YUMA	6420500	3938559	1021432	MAY	2	1977	5800	1	1.90 FAIR	R			6	MIDNIGHT GULCH DFC 1 AT LAKEMOOD, COLORADO		
EL PASO	7104600	3946333	1081134	JUL	24	1977	1230	1	2.04 FAIR	P			7	PURGATORY RIVER NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126300	3173556	1031948	MAY	20	1977	2210	1	1.95 FAIR	R			7	PURGATORY RIVER NR. NINAVIEW, COLORADO		
DELTA	9134400	3944032	1074112	JUL	20	1977	1200	1	1.94 FAIR	R			9	COTTONWOOD CREEK NR. MACK, COLORADO		
DELTA	9134400	3944032	1074112	JUL	20	1977	946	1	1.94 FAIR	R			9	COTTONWOOD CREEK NR. DELTA, COLORADO		
DELTA	9150300	394524	1081538	JUL	24	1977	2050	1	2.09 FAIR	R			9	ESCALANTE CREEK NR. DELTA, COLORADO		
DELTA	9150300	3944036	1080840	JUL	24	1977	798	1	2.02 FAIR	R			9	ROBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO		
DOLORES	9168100	3172326	1043457	JUL	24	1977	7270	1	1.97 FAIR	R			9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION		CCC STORM LIST NUMBER	COMMENTS
													FILE	NOTE	PART	
GARFIELD	9095400	392200	1081541	AUG	22	1977	(FTS)	623	1	POOR	R				9	DRY FORK NR. DE BEQUE, COLORADO
GARFIELD	9093000	393402	1080617	AUG	19	1977	2310	1	POOR	G				9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO	
GARFIELD	9093000	393402	1080617	AUG	25	1977	431	1	FAIR	L				9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO	
MESA	9151700	3615130	1081853	JUL	24	1977	178	3	—	4	UNKNOWN	L		9	DEER CREEK TRIBUTARY NR. DOMINGUEZ, COLORADO	
MESA	9163300	392124	1081658	OCT	7	1977	580	1	—	168	UNKNOWN	L		9	EAST SALT LICK TRIBUTARY NR. MACK, COLORADO	
MOFFAT	9056400	401224	1074771	JUL	21	1977	58	3	—	40	POOR	R		9	GOOD SPRINGS CREEK AT AXIAL, COLORADO	
MONTEZUMA	9016000	401134	1083716	AUG	24	1977	260	1	—	422	UNKNOWN	L		9	WEST WASH NR. DINOSAUR, COLORADO	
RIO BLANCO	9017300	372651	1082856	AUG	15	1977	1750	3	—	443	UNKNOWN	L	2	9	MECEM CREEK TRIB. NR. CORTEZ, COLORADO	
RIO BLANCO	9306240	3931318	1083140	AUG	25	1977	30	1	—	921	POOR	M		9	BOX ELDERS GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306241	3931350	1082906	SEP	11	1977	5	1	—	239	POOR	R		9	BOX ELDERS GULCH TRIB. NR. RANGELY, COLORADO	
RIO BLANCO	9306244	3931364	1082534	SEP	11	1977	60	1	—	378	FAIR	M		9	CORRAL GULCH AT B4 RANCH NR. RANGELY, COLORADO	
RIO BLANCO	9306242	3931355	1082820	JUL	23	1977	272	1	—	661	POOR	M		9	CORRAL GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306203	393612	1081153	SEP	11	1977	36	1	—	316	POOR	R		9	COTTONWOOD GULCH NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306202	3936159	1081225	JUL	19	1977	1170	1	—	124	FAIR	M		9	DONALD CREEK AT RANGELY, COLORADO	
RIO BLANCO	9306200	3936136	1081057	JUL	5	1977	320	3	—	177	FAIR	R		9	DONALD CREEK AT RANGELY, COLORADO	
RIO BLANCO	9306380	4005177	1084631	JUL	24	1977	3350	1	—	391	FAIR	M		9	DUCK CREEK AUPPER STATION NR. RIO RANCH, COLORADO	
RIO BLANCO	9306230	3936248	1082710	JUL	23	1977	62	1	—	297	POOR	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306203	393612	1081751	JUL	24	1977	16	1	—	287	GOOD	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306200	393612	1081153	SEP	11	1977	41	3	—	147	POOR	N		9	HORSE DRAW NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306190	393612	1081059	JUL	24	1977	19	1	—	177	FAIR	R		9	PICEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO	
RIO BLANCO	9306090	393612	1081057	JUL	19	1977	520	3	—	106	POOR	M		9	STATE SPRINGS DRAW NR. RANGELY, COLORADO	
RIO BLANCO	9306042	3936001	1081312	SEP	3	1977	451	1	—	261	GOOD	M		9	WEST FORK STEWART GL. AT MOUTH, NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306230	3936248	1082714	SEP	11	1977	245	1	—	157	FAIR	M		9	WILLOW CREEK NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306200	393612	1081153	SEP	3	1977	38	1	—	487	POOR	R		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9306255	393612	1081431	SEP	3	1977	23	1	—	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9306255	393612	1083438	AUG	23	1977	1250	23	—	533	UNKNOWN	L		9	DEADHORSE CREEK NR. HOWARD, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	24	1977	756	1	—	625	FAIR	R	1	7	TURKEY CREEK ABV. TELLER RES NR. STONE CITY, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	25	1977	284	1	—	625	FAIR	R	1	7	BADGER CREEK NR. AVONDALE, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	26	1978	9860	1	POOR	R				7	MOLINO CANYON CREEK NR. WESTON, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	27	1978	9490	1	—	406	UNKNOWN	L		7	RELLY CANYON NR. COVEDALE, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	27	1978	278	1	—	423	GOOD	P		7	RELLY CANYON NR. SEGINDO, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	27	1978	140	1	—	351	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
RIO BLANCO	9306255	3936023	1083438	AUG	27	1978	472	1	—	335	FAIR	P		7	ARKANSAS RIVER NR. CATLIN DAM NR. FOWLER, COLORADO	
OTERO	7119700	380526	1034952	JUL	10	1978	18300	24	—	1125	POOR	R	2	7	ARKANSAS RIVER NR. AVONDALE, COLORADO	
OTERO	7119700	380523	1034941	JUL	30	1978	23300	23	—	1090	POOR	P	2	9	MONIGREE CREEK NR. MINUTURN, COLORADO	
OTERO	7119700	380523	1034941	JUL	30	1978	15400	1	—	6327	POOR	G	2	9	NO THOROUGH CREEK NR. GRAND JUNCTION, COLORADO	
PUEBLO	7095500	3801533	1043255	JUL	30	1978	618	9	—	0.76	UNKNOWN	G		202	RED CANYON CREEK NR. GRAND JUNCTION, COLORADO	
EAGLE	394337	1062850	1083510	SEP	7	1978	9280	3	—	18.8	FAIR	G		202	YELLOW CREEK NR. WHITE RIVER, COLORADO	
NEVA	3904113	1083657	1083657	SEP	7	1978	2690	3	—	435	POOR	M		202	HARVARD GULCH AT HARVARD PARK, COLORADO	
RIO BLANCO	9306255	393612	1081007	SEP	7	1978	6800	24	—	262	POOR	M		202	LENA GULCH AT 3RD AVE. LAKEMOOD, COLORADO	
DENVER	3940006	1041582	1081009	JUL	5	1979	665	1	—	183	UNKNOWN	R	3	6	LENA GULCH AT KIPING ST. A. WHEAT RIDGE, COLORADO	
LAS ANIMAS	7121000	370156	1044241	JUN	27	1978	672	1	—	179	POOR	R		6	LENA GULCH AT NEON ST. IR. WHEAT RIDGE, COLORADO	
LAS ANIMAS	7121220	3701043	1044270	JUN	27	1978	360	1	—	100	FAIR	R		6	LENA GULCH AT NEON ST. IR. WHEAT RIDGE, COLORADO	
LAS ANIMAS	712120	370126	1044549	JUN	27	1978	379	1	—	100	FAIR	R		6	SANDISON GULCH 1 TRIB. AT LAKEMOOD, COLORADO	
LAS ANIMAS	712120	370126	1044549	JUN	17	1979	113	1	—	0.38	UNKNOWN	L	2	7	NORTH FORK ARKANIA TRIB. NR. SHAM ROCK, COLORADO	
JEFFERSON	3946520	1050632	1050632	MAR	17	1979	3140	1	—	115	UNKNOWN	R		6	PURGATORY AT MADRID, COLORADO	
JEFFERSON	3946656	1050610	1050610	MAR	17	1979	3610	1	—	155	FAIR	R		7	RELLY CANYON AT COKEDALE, COLORADO	
JEFFERSON	3946656	1050610	1050610	JUL	4	1979	1210	1	—	351	POOR	P		7	TARRY CREEK NR. PETERSBURG, COLORADO	
LINCOLN	6813100	3931112	1032835	AUG	21	1979	850	1	—	137	UNKNOWN	R		6	TARRY CREEK NR. JEFFERSON, COLORADO	
LOGAN	6812850	402950	1024930	JUL	22	1979	1219	1	—	183	UNKNOWN	R		7	SARIELLO CANYON NR. SEGUNDO, COLORADO	
PARK	6808500	394544	1054952	JUL	7	1979	3380	1	—	353	FAIR	P		7	VAN BREMNER ARROYO NR. MOORE, COLORADO	
EL PASO	7105940	3938333	1044449	AUG	26	1979	269	1	—	169	POOR	R		7	APISHAPA RIVER AT WALDEN, COLORADO	
LAS ANIMAS	7118500	372400	1036249	JUL	31	1979	100	1	—	147	POOR	R		7	LONG CANYON CREEK NR. MADRID, COLORADO	
LAS ANIMAS	7124300	3706533	1043617	JUL	17	1979	3140	1	—	100	FAIR	R		7	LIMA GULCH AT 20TH AVE., LAKEMOOD, COLORADO	
LAS ANIMAS	7124200	370746	1043620	JUL	17	1979	3610	1	—	155	FAIR	R		7	LIMA GULCH AT 32ND AVE., LAKEMOOD, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	—	137	UNKNOWN	R		7	RELLY CANYON NR. SIEGMUND, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	—	137	UNKNOWN	R		7	SARIELLO CANYON NR. SIEGMUND, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	540	3	—	137	UNKNOWN	R		7	LITTLE DRY CRK. AT 74TH AND WINONA CT. AT WESTMINSTER, CO.	
LAS ANIMAS	7124220	370726	1044549	JUL	16	1979	3380	1	—	169	POOR	R		7	WILLIAMS DRAW NR. WALDEN, COLORADO	
LAS ANIMAS	7126200	372045	1041541	AUG	9	1979	370	1	—	109	FAIR	R		7	DRY CRK. AT 74TH AND WINONA CT. AT WESTMINSTER, CO.	
GARFIELD	9095400	392200	1041541	AUG	16	1979	369	4	—	312	UNKNOWN	G		9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	9179200	381159	1065613	JUL	2	1979	369	4	—	109	FAIR	R		6	74TH AND MINOR DITCH, DENVER, COLORADO	
ADAMS	394944	1050248	1050248	AUG	26	1980	580	3	—	168	POOR	L		6	LITTLE DRY CRK. AT 70TH AND FEDERAL NR. DENVER, COLORADO	
ADAMS	394944	1050253	1050253	AUG	26	1980	870	3	—	168	POOR	R		6	WILLIAMS DRAW NR. WALDEN, COLORADO	
DENVER	6811570	394414	1065039	AUG	26	1980	6050	1	—	109	FAIR	R		6	LIMA GULCH AT HARVARD PARK, COLORADO	
JACKSON	6811570	4044118	1060649	APR	26	1980	22	3	—	109	FAIR	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
JEFFERSON	394451	1050607	1050607	MAY	5	1980	400	3	—	109	POOR	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
JEFFERSON	394451	1050607	1050607	MAY	5	1980	540	1	—	169	FAIR	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
LINIMER	6710400	402958	1051531	MAY	15	1980	1590	1	—	168	FAIR	R		7	ST. CHARLES RIVER AT BURNET MILL, COLORADO	
PUEBLO	7107500	3603026	1044735	MAY	15	1980	3300	1	—	168	FAIR	R		7	LITTLE CREEK AT NIVER GULCH NR. THORNTON, COLORADO	
ADAMS	395111	3949516	1045916	JUN	3	1981	265	3	—	169	FAIR	L		6	HARVARD GULCH AT COLORADO BLD. AT DENVER, COLORADO	
DENVER	6711570	3940008	1045916	JUN	28	1981	670	1	—	169	FAIR	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
DENVER	6711570	394021	1045934	JUN	28	1981	914	1	—	169	GOOD	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
DENVER	6711570	394021	1045935	JUN	26	1981	1040	1	—	168	FAIR	R		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
DENVER	6711570	394021	1045936	JUN	3	1981	720	3	—	168	FAIR	R		7	LITTLE DRY CRK. AT 70TH AND FEDERAL NR. DENVER, COLORADO	

COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (Ft³/S)	TYPE	DRAINAGE AREA (SQ MI)	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS
JEFFERSON	394958	1050305	JUN	3	1981			FAIR	L					6	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	205?
JEFFERSON	395917	1051821	JUL	10	1981			UNKNOWN	R	2				6	TROUBLESOME CREEK AT KITTEREDGE, COLORADO	
EL PASO	7105780	1044543	AUG	15	1981		2700	FAIR	P	7				7	B-DITCH DRAIN NR. SECURITY, COLORADO	
EL PASO	7105500	1044559	JUN	2	1981		3950	FAIR	P	7				7	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO	
EL PASO	7105500	3846559	JUN	2	1981		3950	POOR	P	7				7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	1044546	AUG	2	1981		4350	FAIR	P	7				7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103700	3851117	JUN	2	1981		650	FAIR	P	7				7	KETTLE CR. NEAR BLACK FOREST, COLORADO	
EL PASO	7105920	1044421	AUG	5	1981		2300	FAIR	P	7				7	LITTLE FOUNTAIN CR. ABV KEATON RES. NR. FT CARSON, CO	
EL PASO	7105920	3900114	JUN	2	1981		512	FAIR	P	7				7	MONUMENT CREEK AT PIKEVIEW, COLORADO	
EL PASO	7104000	3845055	AUG	5	1981		3150	FAIR	P	7				7	REILLY CANYON AT COKEDALE, COLORADO	
EL PASO	7104043	1043707	JUL	26	1981		950	GOOD	P	7				7	BADGER CR (UPPER STATION) NEAR HOWARD, COLORADO	
FREMONT	7093740	3813923	SEP	5	1981		254	GOOD	P	7				7	BADGER CREEK NR. PORTLAND, COLORADO	
FREMONT	7093775	3857759	SEP	5	1981		267	GOOD	P	7				7	BEAVER CREEK NR. JANSEN, COLORADO	
FREMONT	7099100	3622227	JUL	17	1981		2730	FAIR	P	7				7	CARPOS CANYON NR. JANSEN, COLORADO	
LAS ANIMAS	7124350	1043411	JUL	26	1981		2790	FAIR	P	7				7	CARPOS CANYON NEAR JANSEN, COLORADO	207?
LAS ANIMAS	7124350	370913	AUG	19	1981		5300	FAIR	P	7				7	FRIOQUE CREEK NEAR ALFAIA, COLORADO	
LAS ANIMAS	7125100	1043402	AUG	3	1981		28400	24	POOR	P				7	MOLINO CANYON NR. WESTON, COLORADO	210?
LAS ANIMAS	7124100	370756	JUL	10	1981		5100	FAIR	P	7				7	MOLINO CANTON NR. WESTON, COLORADO	210?
LAS ANIMAS	7124100	370756	AUG	10	1981		5100	POOR	P	7				7	MOLINO CANTON NR. WESTON, COLORADO	210?
LAS ANIMAS	7124200	370746	AUG	10	1981		11500	FAIR	P	7				7	PURGATORIE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200	370746	JUL	19	1981		3250	FAIR	P	7				7	PURGATORIE RIVER AT VINELAND, COLORADO	
PUEBLO	7108900	361500	AUG	3	1981		2400	FAIR	P	1				1	ST. CHARLES RIVER AT MINEFIELD, COLORADO	
CARFIELD	9153330	392327	AUG	30	1981		871	FAIR	R	9				9	WEST SALT CREEK NR. CARBONERA, COLORADO	
CARFIELD	9153330	1085051	AUG	31	1981		871	FAIR	G	9				9	WEST SALT CREEK NR. GATEWAY, COLORADO	
MESA	9119200	383119	JUL	12	1981		2810	FAIR	G	9				9	WEST SALT CREEK NR. JACK, COLORADO	
MESA	9153400	1053119	AUG	31	1981		661	FAIR	G	9				9	WEST SALT CREEK NR. JACK, COLORADO	
MONTEZUMA	9310920	370557	JUL	13	1981		3020	FAIR	G	9				9	MANGOS RIVER BLW. JOHNSON CANYON NR. CORTEZ, COLORADO	
MONTEZUMA	9310920	370557	JUL	13	1981		320	FAIR	R	9				9	MANGOS RIVER BLW. JOHNSON CANYON NR. CORTEZ, COLORADO	
RIO BLANCO	9306241	394540	JUL	9	1981		376	FAIR	M	9				9	SOUTH FORK OF MILLION GULCH NR. ELDER GULCH, COLORADO	
APAHACHEE	392855	1041126	JUN	25	1982		335	FAIR	R	6				6	SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO	
ELBERT	392855	1041126	JUN	25	1982		335	POOR	R	6				6	SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO	
LARIMER	402422	1053948	JUL	15	1982		5500	POOR	L	6				6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
LARIMER	402405	1036116	JUL	15	1982		7210	POOR	R	6				6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
LARIMER	402401	1043256	JUL	15	1982		6520	POOR	R	6				6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
LARIMER	402403	1053808	JUL	15	1982		4500	POOR	R	6				6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
LARIMER	402359	1053505	JUL	15	1982		13100	POOR	R	6				6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
FREMONT	3826111	1051127	JUL	29	1982		1080	FAIR	P	7				7	FOURMILE CREEK NR. CANON CITY, COLORADO	
GARFIELD	3923221	1056585	AUG	13	1982		1760	FAIR	G	9				9	FALL CREEK NR. CASCADE DAM ABV. ESTES PARK, COLORADO	
GARFIELD	3923471	1058581	AUG	13	1982		1760	FAIR	G	9				9	FALL CREEK NR. CASCADE DAM ABV. ESTES PARK, COLORADO	
MESA	9179200	3831159	JUL	17	1982		1050	FAIR	G	9				9	FALL CREEK NR. GATEWAY, COLORADO	
MESA	915400	391031	AUG	15	1982		1430	FAIR	G	9				9	FALL CREEK NR. JACK, COLORADO	
MONTEZUMA	9317500	371923	AUG	24	1982		730	POOR	G	9				9	INCE LIMO CREEK NR. CORTEZ, COLORADO	
MONTEZUMA	9317492	371846	AUG	24	1982		731	POOR	G	9				9	MUD CREEK AT HWY 32 NR. CORTEZ, COLORADO	
MONTROSE	362904	1075947	JUL	27	1982		5030	POOR	G	9				9	COAL CREEK WEST OF MONROE, COLORADO	
MONTROSE	3633119	1086213	JUL	27	1982		1040	POOR	G	9				9	DRY CREEK NR. OLAHIE, COLORADO	
MONTROSE	3644540	1092857	JUL	27	1982		102	POOR	G	9				9	PLATEAU CREEK NR. MOUTH, NR. DOLORES, COLORADO	
MONTZUMA	9167450	373357	APR	25	1983		2000	FAIR	G	9				9	PLATEAU CREEK NR. MOUTH, NR. DOLORES, COLORADO	

**Appendix D. Reports and Publications given at conferences and
workshops during the Colorado Extreme Storm Precipitation
Data Study**

Extreme Precipitation in Colorado - What the Data Tell Us

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Introduction

How heavy it has rained and how heavy it could conceivably rain are questions that are continually wrestled with in Colorado. While much of Colorado is known for its dryness, reports of devastating flooding are a routine part of our history.

An accurate understanding of how heavy it can rain is important for the design, placement and construction of roads, bridges, homes and businesses. Dams, spillways and water diversion and delivery systems are an especially important part of Colorado's infrastructure. During the past century, dozens of large reservoirs and hundreds of small dams and man made lakes have been built high in the Rocky Mountains to help provide a reliable year-round water supplies. Few new structures have been built in recent years, but there is continued concern regarding the risk existing structures may pose to downstream residents and property owners should they be overtopped or fail during flood events.

To help provide guidance for the design, construction and operation of dams and spillways, an approach was developed many years ago (U.S. Weather Bureau, 1947) for estimating the maximum precipitation rates, durations, and areal extents that might be possible in watersheds throughout the United States. Estimates of Probable Maximum Precipitation (PMP) for areas of Colorado have been published by Hansen et al. (1977, 1988). People unfamiliar with PMP are sometimes overwhelmed by the large numbers which, in Colorado, range as high as 36" in 24 hours at the eastern base of the Front Range foothills. But it must be remembered that PMP estimates are intentionally conservative and are designed to provide an objective evaluation of the absolute most extreme rainfall that nature can provide. It is not just a statistical extrapolation of a 50 or 100-years storm, but instead it is a meteorological estimate of how much rain could conceivably fall in an area if meteorological conditions associated with known heavy rains were maximized to reasonable physical limits.

Two factors have helped raise some level of doubt concerning the validity of current PMP estimates in parts of Colorado. Hydrologic and paleoflood research by Jarrett

(1989) pointed out that most observed peak stream flows at high elevations (above about 7500 feet) have been the result of snowmelt and not intense rains. Very little evidence of large floods at high elevations can be found. The second factor is data. Using traditional precipitation data from locations in the mountains one finds that 2 inches of rain in 24 hours is rare. Amounts of 3" or greater have been observed but most of these fell as wet snow that did not present a significant flood hazard. Many of the reports of heavier rains appear suspect when closely scrutinized by climatologists. In light of these factors, a strong motivation has developed to carefully re-evaluate PMP estimates and the data used to produce them.

In 1994, the Colorado legislature provided funding to the Colorado Department of Natural Resources, Division of Water Resources, to begin a study of extreme rainfall characteristics in Colorado with a particular focus on the higher elevation areas. This paper describes some of the early results of this work.

Data Study

All available recorded daily precipitation totals from official National Weather Service and cooperative weather stations throughout Colorado have been examined in an effort to document the heaviest recorded rains and to describe elevational effects on precipitation. Figure 1 shows mean seasonal precipitation totals based on many years of data plotted as a function of elevation for winter and summer with data separated for areas east and west of the Continental Divide. Not surprisingly, there is a systematic increase of mean seasonal precipitation with elevation. The increase is greater and more consistent west of the Continental Divide. The effect is less east of the Continental Divide where downslope winds and "rain shadow" effects complicate the pattern. There is very little increase of total growing season (May - Sept.) precipitation with elevation east of the Continental Divide.

Perhaps it is the knowledge that annual and seasonal precipitation normally increases with elevation that tempts us to believe that rainfall for other time periods should behave similarly. However, when you look at the maximum precipitation ever measured in one day plotted as a function of elevation (Figure 2), it is apparent that precipitation on this time scale decreases with elevation. This is not a totally fair comparison since maximum one-day precipitation at lower elevation stations typically occurred during the warm season of the year while many of the maximum one-day precipitation totals at high elevations occurred during winter or spring and fell as snow.

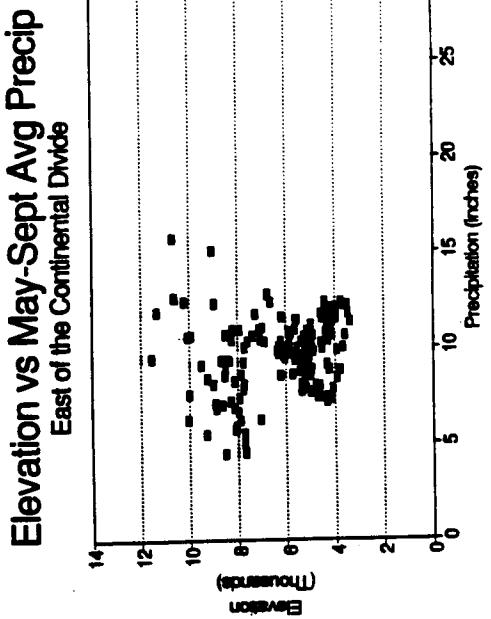
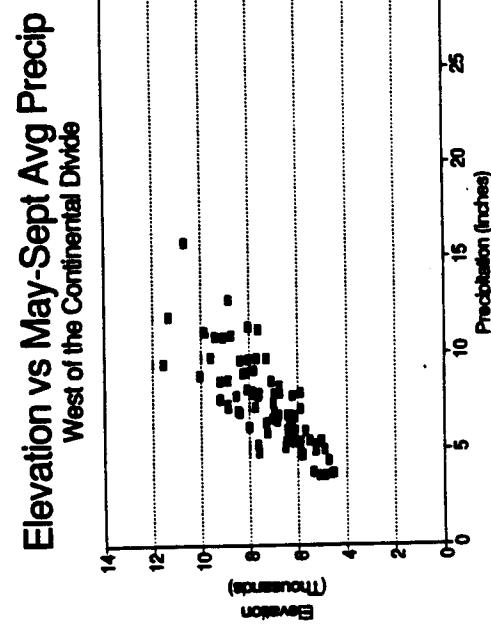
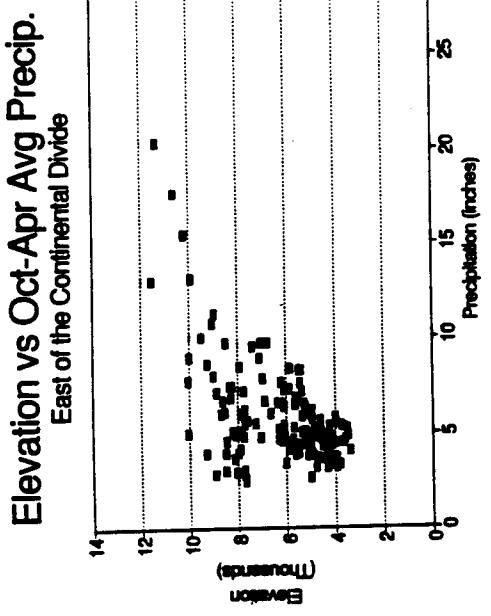
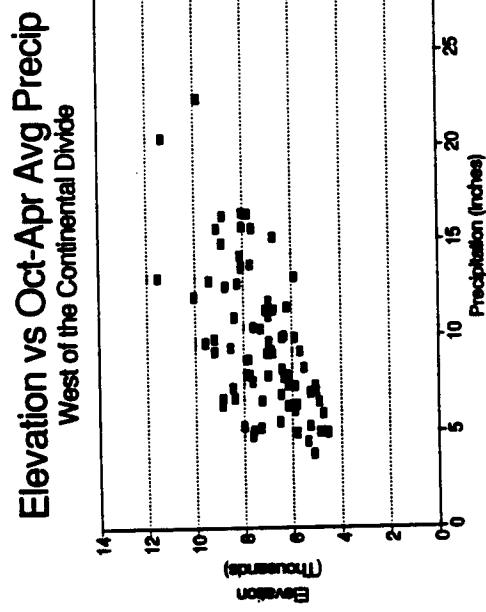


Figure 1. Mean seasonal precipitation (top graphs = October-April, bottom graphs = May-September) versus elevation for Colorado weather stations west of the Continental Divide (left graphs) and east of the Continental Divide (right). Values are averages for the 1961-1990 period.

Maximum 1 day Precipitation vs Elevation

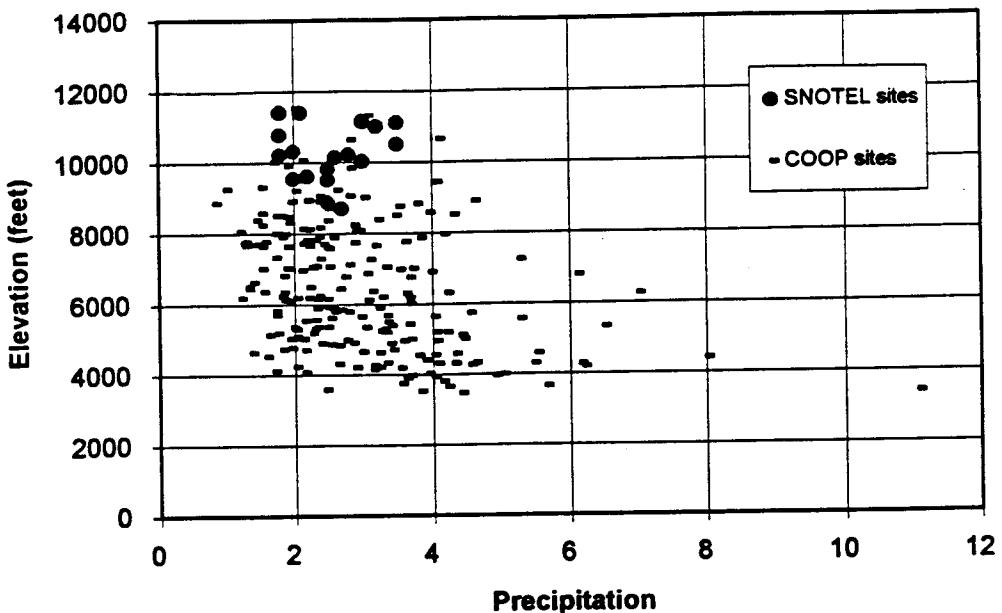


Figure 2. Maximum one-day precipitation totals versus elevation for Colorado stations with at least 12 years of complete daily observations. (This figure is revised in main text page 30.)

Maximum observed precipitation for one-hour time periods (Figure 3) provides a better comparison since at all elevations the maximum rainfall rates in Colorado occur during the summer season. Maximum one-hour rainfall clearly and systematically decrease with elevation. The figure does not distinguish between locations east and west of the Continental Divide, but it is well known that areas east of the Divide at a given elevation are more likely to receive high-intensity rainfall than areas west of the Divide due to a more abundant and reliable source of low-level moisture from the Gulf of Mexico and the humid plains states. Hourly rainfall totals in excess of 1.5" have not been observed at elevations above 9,000 by the network of recording precipitation gages operated by the National Weather Service. The number of stations at that elevation with many years of recorded data are so few, however, that the statistical significance can be challenged.

When investigating heavy precipitation based on recorded data, we regularly run into suspicious or outright "bad" data. Key punch errors, decimal point errors, undocumented multi-day accumulations, illegible writing, clock problems on recording gages, human errors reading measuring sticks, etc. all degrade the accuracy of our climate records to some extent. But they especially damage analyses of extreme events. The data for Figures 2 and 3 have been closely scrutinized. Several bad data points have been identified and removed from the graphs.

Max. 1-hour Precipitation vs. Elevation

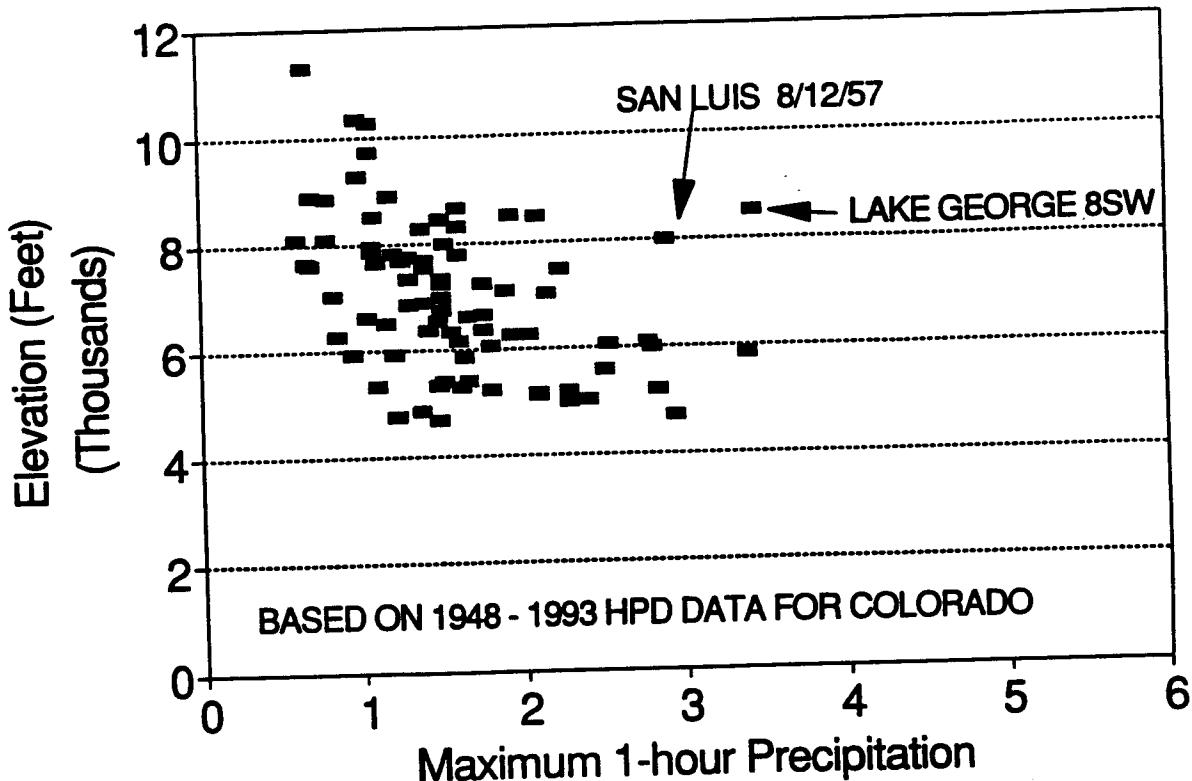


Figure 3. Maximum observed one-hour precipitation totals versus elevation based on National Weather Service recording precipitation gage stations in Colorado with data for all or the majority of the 1948-1993 period.

We are relatively but not absolutely confident about the remaining data.

There are two data points in Figure 3 that need to be mentioned for they epitomize the challenge of extreme precipitation. The large values for maximum one-hour rainfalls at San Luis and Lake George 8SW are outliers and might easily be considered flawed data since they don't fit the pattern produced by other stations. But close scrutiny shows that both precipitation events were real and both caused major flooding. Similarly, Figure 4 shows a time series of maximum one-day precipitation at Denver, one of the longest station records in Colorado. Were it not for the 6.53" rainfall in May 1876 we might be led by the other data to think that any rainfall above 4 or 5 inches in a day would be close to an upper limit.

The true problem and challenge of extreme precipitation evaluations in Colorado is that data alone and especially point data (-- and it is so tempting to rely on data --) may not provide a very good answer to the question of how heavy has it rained and how heavy might it rain in the future. As such, the traditional approach to developing estimates of PMP makes sense. That approach includes a thorough investigation of any and all documented extreme storms that occurred anywhere close to the point of interest where "close" may be several hundred miles away. Hence, a key component of our current data study is the development of a comprehensive list of all of the heaviest storms to hit the Rocky Mountain region anytime in recorded history.

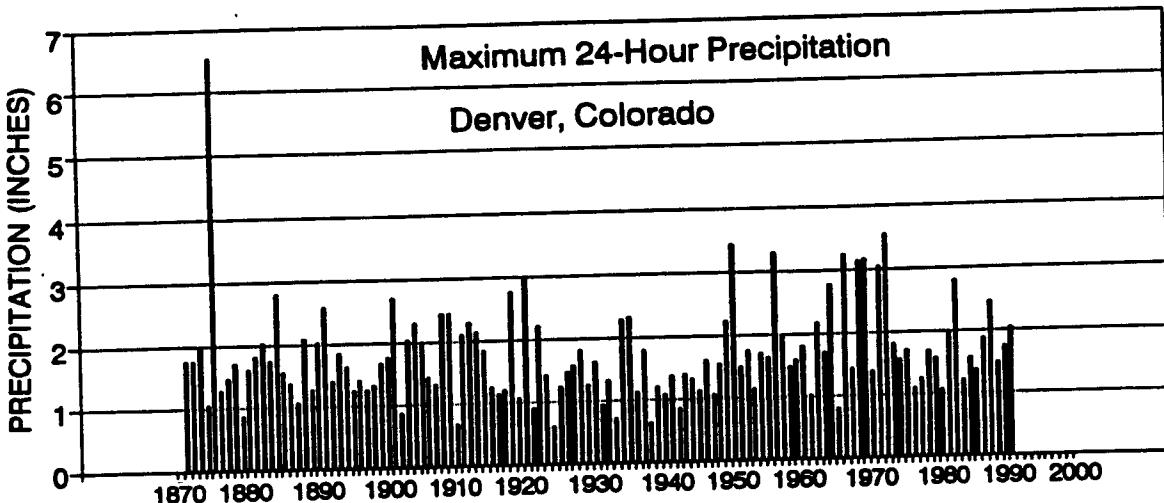


Figure 4. Time series of maximum one-day precipitation totals each for Denver, CO 1872-1993.

Currently about 200 storms have been identified that are candidates to help us understand how heavy it has rained, how heavy it might be able to rain, and how rainfall may increase or decrease as a function of elevation and topography. Of these 200 storms, most exceeded the 100-year storm (as defined by the NOAA Atlas 2) either in terms of intensity, duration or areal extent. Of these storms nearly one-third occurred outside of Colorado but are thought to be potential applicable to understanding Colorado storms. Figure 5 graphically shows the time of year when these heaviest storms have occurred. Two periods account for a large percentage of the storms; May through mid June and late July through early September. Storms have been identified according to a simple geographic classification. Some overlap is allowed when classifying storms and not all storms have been classified yet.

Geographical Classification	Number of Storms
1) Great Plains	30
2) Front Range and Eastern Foothills	73
3) Southwestern Rocky Mountains	28
4) Northern Rocky Mountains	20
5) Colorado Plateau	18
6) Northern Basin	12
Storms Not Yet Classified	45

It is worth noting that there may be a population bias and a weather station density bias affecting these statistics. Also, the criteria for storm selection varies regionally. Many Great Plains storms that dropped precipitation in excess of what has been recorded at mountains locations were not included since their local impacts were small. Still, local experience that shows the Colorado Front Range foothills and adjacent plains to be particularly vulnerable to intense storms and flash floods is consistent with these results.

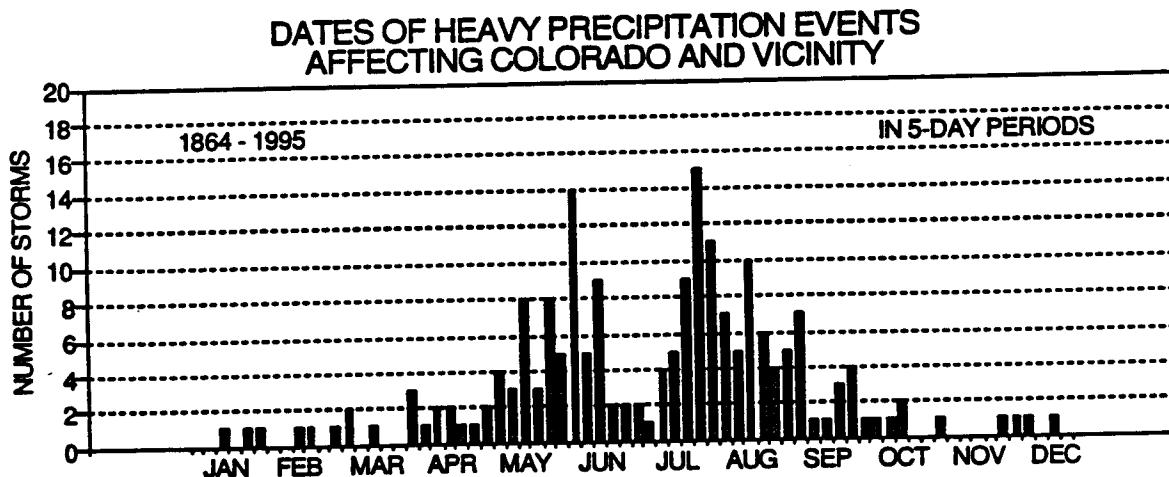


Figure 5. Date of occurrence of very heavy precipitation events in and around Colorado.

As of early September 1995, the storm list is still in draft form, is still being added to and is about to be reviewed by a number of professionals familiar with extreme precipitation in Colorado. It is not appropriate to publish it at this time, but it will be available as a public reference later in 1996 as the data study draws to a close. It is interesting that of all the storms, just a few stand out

as truly remarkable and are listed below. What we learn from these few storms will likely have the greatest impact on our future understanding of extreme precipitation in Colorado.

Conclusions and Future Work

Precipitation data available at this time suggest strongly that intense precipitation decreases with elevation. This is an expected result since the atmosphere's capacity to hold water vapor decreases with elevation. However, the decrease appears to be greater than would be indicated from moisture considerations alone. Convergence, orographic lifting and thermal instability tend to increase precipitation potential with elevation in preferred topographic regions, so other physical factors must be responsible for explaining the large decreases with elevation suggested by the data. The challenge of the future is to use additional tools such as numerical mesoscale models and the new National Weather Service radar products and to give priority to high elevation precipitation data collection in order to gain more insight into precipitation processes over the Rocky Mountains, particularly those related to extreme precipitation.

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Heaviest Storm Events in/near Colorado		
Location	Date	Description
Front Range	22 May 1876	6.53" at Denver - probably more elsewhere - widespread
Ward District	29-31 May 1894	Widespread 3-6"/day, Boulder flooding
Larimer County	May 1904	8" or more near Boxelder
San Juan Mtns	4-6 Oct. 1911	8.05"/day at Gladstone (?)
Front Range	14-16 April 1921	Extreme snowstorm, 76"/day at Silver Lake, rains below
Penrose, CO	2-6 June 1921	12"+ near Canon City
Savageton, WY	27-30 Sep. 1923	17" in 2 days
Southwest CO	26-29 June 1927	3-6" rains in San Juans
Eastern CO	30-31 May 1935	est 24" near Hale and Elbert
Front Range	31 Aug-3 Sep. 1938	7"/6 hrs Morrison, 8"+ near Masonville
Masonville, CO	10 Sep. 1938	5-7" in 1-3 hours
Morgan, UT	16 Aug. 1958	> 6"/day
Gibson Dam, MT	6-8 June 1964	16.2" Gibson Dam
Plum Creek, CO	13-20 June 1965	Multi-day convective outbreak 11"/day Holly -- same Plum Creek, Bijou Creek
Big Elk Meadows	4-8 May 1969	13"/4 days Boulder - more in Colorado foothills
Dove Creek, CO	5 Sep. 1970	6"/12 hours also Bug Point, UT
Southwest CO	19-20 Oct. 1972	5"/2 days Durango, widespread
Front Range	5-6 May 1973	Widespread 3-6" storm - flooding
Big Thompson, CO	31 July 1976	12"/6 hours near Drake
Frijole Creek, CO	3 July 1981	16"(est) 4 hours east of Trinidad
Cheyenne, WY	1 Aug. 1985	7"/3 hours
Opal, WY	16 Aug. 1990	7"/2 hours

FA 2.2

EXTREME PRECIPITATION IN THE COLORADO MOUNTAINS

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1. INTRODUCTION TO THE PROBLEM

Dozens of large reservoirs and hundreds of small dams and man-made lakes have been built high in the Rocky Mountains of Colorado since the late 1800s. Few new structures have been built in recent years, but there is continued concern regarding these structures and the risk they may pose to downstream residents and property owners should they be overtapped or fail during flood events. To help provide guidance for the design, construction and operation of dams and spillways, an approach was developed many years ago (U.S. Weather Bureau, 1947) for estimating the maximum precipitation rates, durations, and areal extents that might be possible in watersheds throughout the United States. This methodology, now known as the Probably Maximum Precipitation (PMP), has been steadily refined and updated. The most recent estimates of PMP for areas of Colorado have been published by Hansen et al (1977, 1988).

Published figures of the PMP for Colorado provide precipitation values that initially seem excessive. Estimates of the 24-hour PMP for 10 square mile areas east of the Continental Divide range from a minimum of 15 inches at Leadville to a maximum of 36 inches at the eastern base of the Front Range foothills near Boulder. In Colorado, the PMP for a small area is often 5 to 12 times greater than the heaviest rainfall actually observed during the past century. Maps of PMP estimates in the Colorado High Country show PMP values to decrease with elevation at a rate that appears comparable to the decrease in the atmosphere's water-holding ability as a function of decreasing temperature and atmospheric depth (moist adiabatic profile). Before judging PMP values to be excessive, it is important to understand what PMP is intended to be. It is not derived solely from observed rainfall rates. However, it must be noted that the PMP is intentionally conservative and is designed to provide an objective evaluation of the

worst case scenario. In concept, the PMP is not a statistical extrapolation of a 100-year storm but is rather a meteorological estimate of how much rain could conceivably fall in an area if meteorological conditions associated with known heavy rains were maximized to reasonable physical limits.

Considerable debate has taken place in Colorado during the past 20 years concerning PMP and its application. Three factors have helped raise some level of doubt concerning the validity of PMP estimates. Hydrologic and paleoflood research by Jarrett (1989) pointed out that most high elevation (above about 7500 feet) observed peak stream flows have been the result of snowmelt and not intense rains. Almost no geologic evidence of large floods at high elevations is found in Colorado has been found. The second factor is data. Using traditional precipitation data from locations in the mountains, there is very little indication of high elevation rainfalls of 3 inches or more in 24 hours. Even 2 inch 24-hour totals are rare. Many of the reports of heavier rains either appear suspect to some meteorologists when closely scrutinized or else come from secondary data sources. The third factor is money. The cost to build or modify dams and spillways that would not be overtapped by flooding associated with the PMP is extremely high. While the concept of no risk dams is appealing, the cost to construct or modify structures to safely accommodate the Probable Maximum Flood (PMF - the flood expected to result from a PMP storm) is high. Changnon (1986) showed that the cost in 1984 dollars would be approximately \$184 million to modify just the existing high risk structures in the area of Colorado east of the Continental Divide. In light of these three factors, a strong motivation has developed to carefully re-evaluate extreme precipitation.

The Colorado Department of Natural Resources, Division of Water Resources, has been actively pursuing opportunities to objectively evaluate the extreme precipitation in light of the expanding set of precipitation data from high elevation areas that have been gathered since PMP reports for Colorado were first prepared. In 1994,

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the Colorado legislature approved funding to begin a study. The remainder of this paper outlines the work that is underway at the Colorado Climate Center and planned in the coming years.

2. DATA STUDY

Precipitation, streamflow and meteorological conditions associated with very large or potentially large precipitation events is the foundation of the first stage of this research project. The following data are being gathered to support basic research on extreme precipitation and subsequent local or regional investigations or analyses of extreme precipitation or PMP estimates.

1. A complete set of maximum 1-day, 2-day and 3-day and hourly precipitation, by month, for the period of record for all available weather stations with emphasis on areas above 5,000 feet in elevation.
2. An inventory for known large storms – dates, locations, and any supportive documentation.
3. Upper air climatology associated with extreme precipitation.
4. Streamflow data for large flood events.
5. Site specific studies of extreme precipitation from any sources in or near Colorado.

The best available data sets for updated analysis of statistical values and probabilities for extreme precipitation will be prepared. The inventory of storms will be reduced to a small set, probably less than 20 storms from the past 100 years, that will be judged to be of greatest value in understanding the meteorology of extreme precipitation at higher elevations in Colorado. A panel of experts from various fields will be convened to review the work of the Colorado Climate Center and to make the final selection of storms to be included in future PMP studies in Colorado.

3. FUTURE WORK

The overall goal of this project is to gain more confidence in estimates of extreme precipitation so decision makers can apply the results with an appropriate but not excessive margin of safety. To meet this goal, a better physically-based scientific understanding of precipitation processes in extreme events at high elevations is needed. Cloud scale and mesoscale modeling

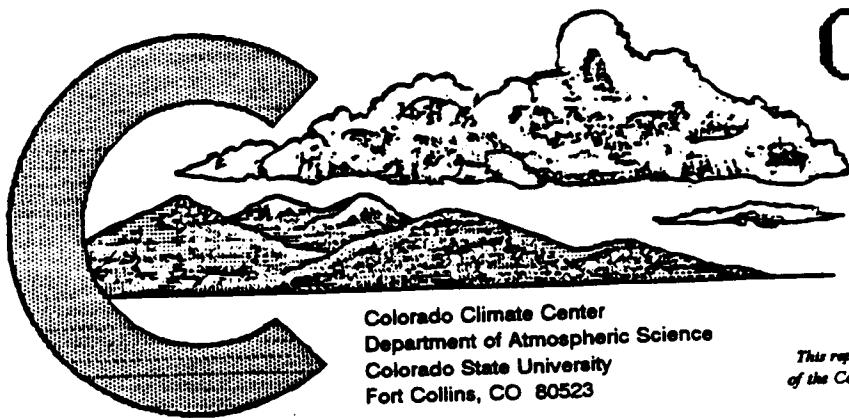
expertise needs to be focused on this problem. A workshop on modeling applications to extreme precipitation will be convened in 1996. Radar data collection and analysis will be planned to better document point-area relationships of heavy precipitation in the mountains and to more accurately define duration characteristics of local storms in mountainous terrain.

ACKNOWLEDGMENTS

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COLORADO CLIMATE

JUNE 1995

Volume 18 Number 9

This report has been prepared each month since February 1977 with the support of the Colorado Agricultural Experiment Station and the College of Engineering

June Climate in Perspective – Cool and Wet Again

June weather conditions were cloudier, cooler and wetter than usual for the third month in a row. Strong thunderstorms with local downpours, some damaging hail and a few tornadoes were also numerous. At last, there were some hot, dry summer days to help corn grow and wheat ripen, but with that came rapidly melting mountain snowpack causing many rivers and streams to run near flood stage. Although water levels were very high, actual damage from flooding was fairly minor. Unfortunately, several river recreationalists lost their lives.

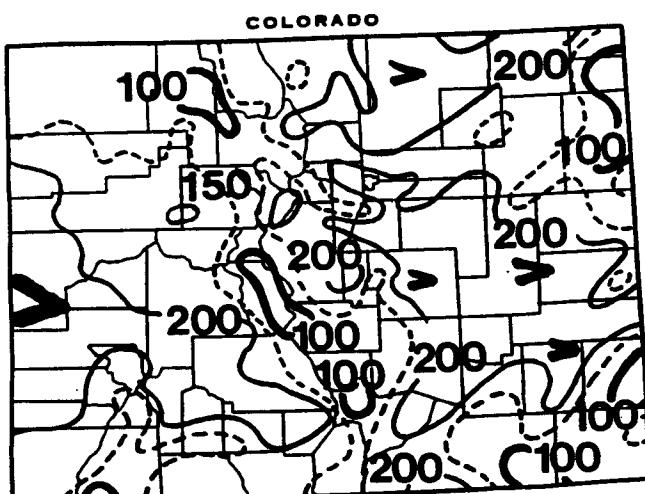
Precipitation

Big thunderstorms were the rule early in June, especially east of the mountains. Then a strong mid-June weather system brought widespread rainfall to western

totals exceeded 200% of average over much of the Front Range and Eastern Plains and over portions of western Colorado. New Raymer's 9.50" monthly total was the wettest in the State. Just a handful of locations received less June precipitation than average including Steamboat Springs, the Collegiate Valley near Salida, and a few small areas in extreme eastern and southern Colorado.

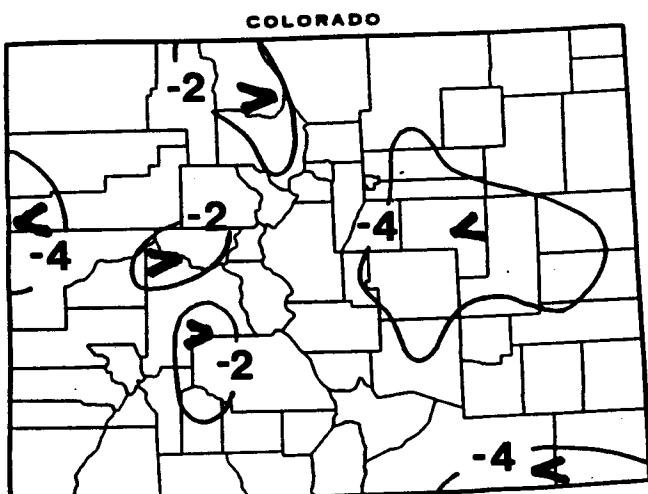
Temperatures

June temperatures were cooler than average in all areas of Colorado. Most locations ended up a modest 2 to 3 degrees F cooler than normal for the month. Portions of eastern Colorado and an area near Grand Junction on the Western Slope were more than 4 degrees below average. These temperatures were very comfortable at lower elevations. Only one heatwave in mid June took the mercury up into the 80s and 90s. In the mountains, cool June temperatures continued to retard snowmelt rates. Readings finally made it up close to 60 degrees June 11-16th and 19-28th bringing surging runoff. Denver's high temperature only reached 90° one time compared to 16 days of 90 or greater in June 1994.



June 1995 precipitation as a percent of the 1961-1990 average.

Colorado. The month ended with three days of gloomy, drizzly weather that even included some high elevation snow. Total June precipitation ended up less than May 1995 but still much above average across most of the State. Monthly



Departure of June 1995 temperatures from the 1961-90 average.

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HOW HARD CAN IT RAIN?

At any location in Colorado, precipitation typically falls 200 to 400 hours per year. This increases to over 500 hours per year in high mountain areas in northern and central Colorado. But of these hundreds of hours, most of them bring light precipitation (0.10" or less of precipitation per hour). In most years and at most places, only a handful of hours per year bring heavy precipitation (more than 0.30" of precipitation per hour). Occasionally, much more rain can fall in an hour. These intense rains happen infrequently, but for certain applications, they are the most important hours of the year.

Whenever a dam, a bridge, a highway, an office building, a parking lot, a subdivision, or even a house is built, it is important to have a good idea of how hard it can rain. How we handle runoff from heavy storms is often taken for granted, but it can make all the difference in the world. It may be a minor inconvenience if it rains so hard that the gutters on your roof can't carry the water away as fast as it falls. That inconvenience turns into a problem if the water in a subdivision flows into someone's basement instead of into a detention pond, ditch or storm sewer. That problem turns into great frustration if the water floods an intersection or underpass during rush hour, stalling dozens of cars. That frustration turns into a nightmare when water sweeps over culverts, cuts across roads, destroys bridges and carries away cars or homes. The nightmare becomes a total disaster if one of Colorado's many dams were to give way to the flood waters. Since 1900, about 320 Coloradans have been killed by flash flooding.

By knowing how hard it can rain, and by having a reasonable idea of how often it rains that hard, engineers and planners can do a pretty good job of designing homes, buildings, parking lots, roads, bridges, dams and spillways that will safely carry away the water from most storms. If money was no object, we could do even better and hardly ever suffer flood damage. But the cost of total safety is high. To accomplish total safety would mean that we humans would have to overcome our natural desire to live, work and play close to water. When left to our own devices we reliably choose to build and develop in flood plains.

The Colorado Climate Center is currently working on a fascinating research project for the State of Colorado, Department of Natural Resources, Water Resources Division examining heavy rains in Colorado. By investigating tons of data from all over the State, we hope to be able to better answer the question, "How hard can it rain?"

This study began early this year. In recent months we have assembled information from as many weather stations as possible to help identify the times, places and intensities of the heaviest rains in Colorado. We are examining maximum precipitation totals from recording raingages for 1-hour, 2-hour, 3-hour, 6-hour, 12-hour and 24-hour periods. Many of Colorado's weather stations only measure precipitation totals once each day. For these many stations we are identifying the maximum 1-day, 2-day and 3-day precipitation totals for each year since data collection began.

A list of the heaviest rainstorms that have been historically documented is now being assembled. We will be studying these storms in more detail to see how large, how intense, and how long-lasting extreme precipitation has been.

We will be working on this project for another full year, but let me show you a few things that we have found so far. For starters, here is an updated list of the largest one-day precipitation totals at selected locations in Colorado. (We showed similar information back in the June 1985 issue of *Colorado Climate*).

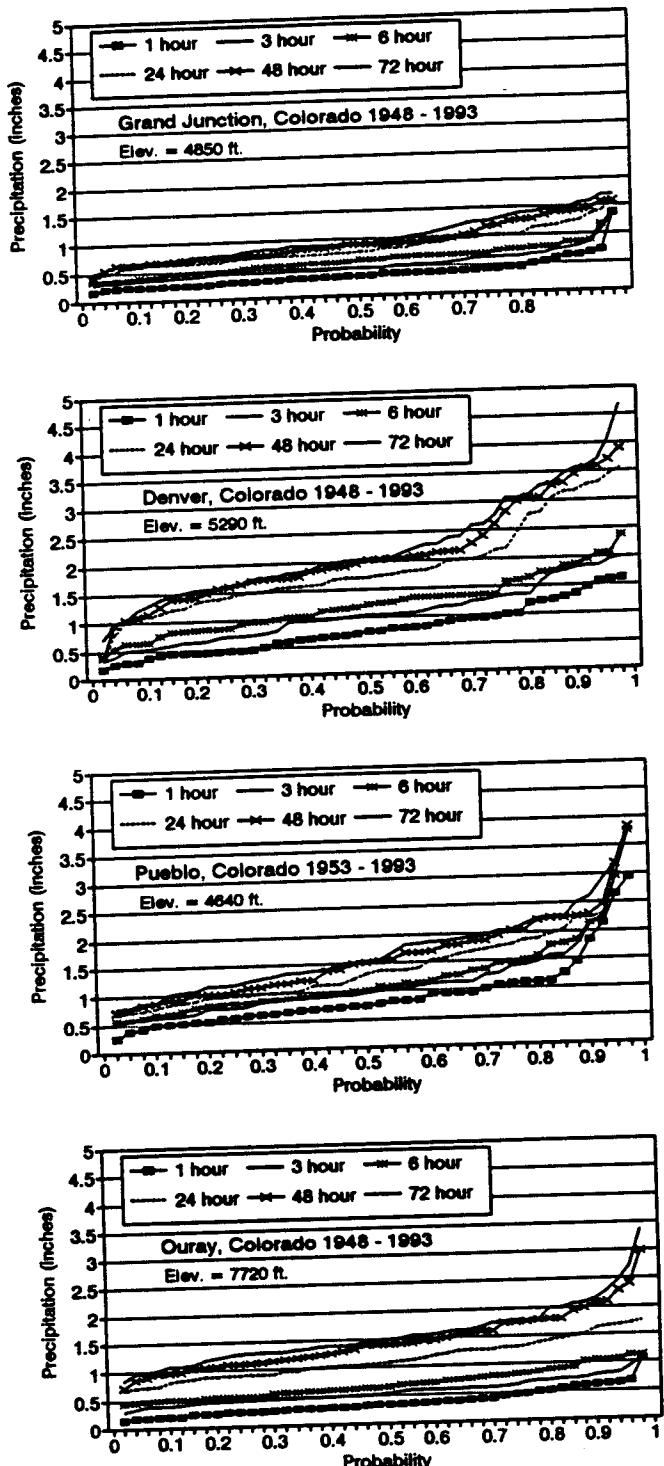
Location	Maximum Observed One-Day Precipitation (Inches)		
	Amount	Date	Yrs of Record
Alamosa	1.78	Jul 28, 1939	61
Aspen	2.87*	Mar 14, 1960	68
Boulder	4.80	Jul 31, 1919	100
Burlington	4.00	Oct 19, 1908	101
Canon City	4.31	May 30, 1894	101
Colorado Spr	3.64	Jul 7, 1947	53
Cortez	2.20	Dec 16, 1908	86
Craig	1.96	Aug 7, 1970	63
Denver	6.50	May 22, 1876	125
Dillon	2.34	Dec 1, 1909	86
Durango	3.65	Oct 19, 1972	98
Eagle	1.75	Jun 2, 1943	63
Fort Collins	4.43	July 25, 1977	117
Grand Junction	1.87	Sep 22, 1941	104
Gunnison	1.60	Feb 21, 1894	101
Lamar	5.64	May 29, 1964	100
Leadville	2.10	Dec 24, 1983	53
Meeker	3.24	Aug 10, 1925	59
Montrose	1.70	Oct 20, 1963	106
Pueblo	2.95	Aug 29, 1955	40
Silverton	4.05	Oct 5, 1911	88
Steamboat Spr	2.71	Mar 2, 1929	93
Sterling	4.88	Aug 15, 1968	85
Trinidad	4.52	Jul 3, 1981	46

* = questionable data

The heaviest rainfall rates (rainfall per hour or day) in Colorado occur east of the mountains. Holly, in extreme southeastern Colorado reported 11.08" of rain in 24 hours back on June 17, 1965, the heaviest rainfall in Colorado at an official weather station. There have been heavier unofficial reports, however, and some of these are likely true. The storms that caused the devastating flood in the Big Thompson Canyon the evening of July 31, 1976 dropped approximately 12" in 5 hours. A similar amount of rain fell near Penrose, Colorado the night of June 3, 1921 during an 18-hour period. The infamous Plum Creek storm of June 16-17 of 1965 dropped more than 14" of rain in several areas north and east of Colorado Springs. Although very localized, the "Daddy of 'em all" was the day and night of May 30, 1935. A system of storms managed to miss nearly every official raingage, but results of special post-storm surveys known as "bucket surveys" suggested that close to 24" of rain

may have fallen in two small areas of eastern Colorado, one near Elbert and the other north of Burlington. It is possible that these estimates could be off by several inches, but even if they were — imagine what your neighborhood would be like if you got more than 15" of rain in less than 24 hours. It would not be pretty.

Maximum Observed Precipitation Amounts for Specified Durations



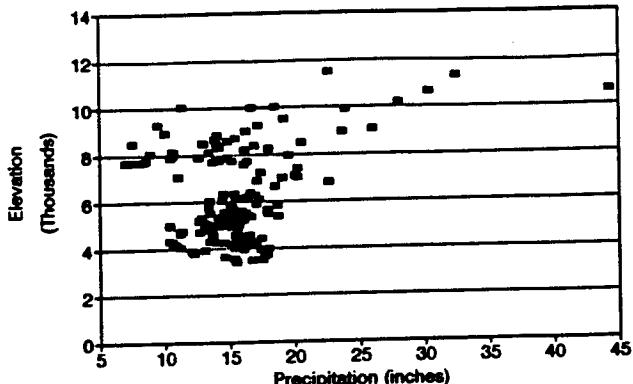
Our primary focus in this study is on the really big storms, but in the process we are examining the heaviest precipitation that has fallen in every month of every year at every station in Colorado as far back as data have been collected. In so doing, you can see why it is easy for us to get complacent and not be too careful in where we put our structures and how well we build them. In Grand Junction, for example, in 75% of all years there have been no storms with more than 1.00" of rain in 24-hours at the National Weather Service airport weather station. Only 17% of the years since 1948 had maximum one-hour rainfall totals greater than 0.50". Much more rain falls east of the mountains, but even so, most years do not bring heavy rains to any individual point. Maximum daily rainfall is less than 2.00" in approximately 75% of all years based on Denver weather observations taken at Stapleton Airport. Half of all years never see a maximum hourly rainfall total of more than 0.75".

The graphs to the left show the observed distribution of maximum annual precipitation totals for various time periods for selected locations. It takes a while to get used to looking at these graphs, but they say a lot about the likelihood of heavy precipitation. Precipitation amounts for the various storm durations at the 0.5 probability are equivalent to what engineers and hydrologists call a 2-year storm. At the higher end of the scale, the 0.8 nonexceedance probability is a 5-year storm, the 0.9 probability is a 10-year storm. The precipitation values associated with a 0.99 nonexceedance probability is an estimate of the 100-year storm. Interesting observations from these graphs are that 72-hour precipitation is only slightly greater than 48-hour since most heavy Colorado storms do not last longer than 2 days. Also, it is interesting that Denver gets greater precipitation than Pueblo for long duration storms, but Pueblo exceeds Denver in short duration.

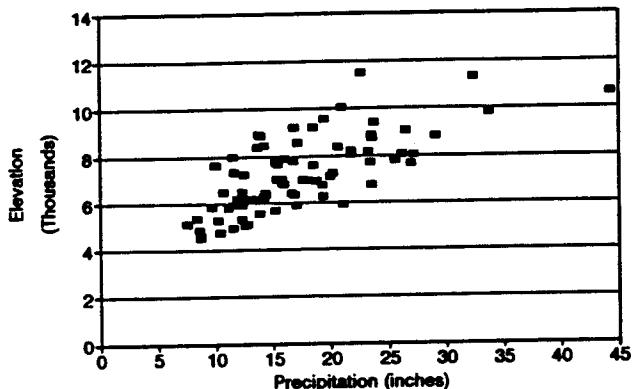
We are also looking into the very interesting question of how intense rainfall changes with elevation. While annual and seasonal precipitation totals increase with elevation in most areas of Colorado, intense precipitation rates decrease with elevation. Much of the work we will be doing in the next year will be looking in greater detail at storm characteristics at higher elevations where many dams and reservoirs have been built during the past 100 years.

One of the important things to remember when considering and designing for heavy precipitation is that for some applications, of which dams and spillways may be the best example, it is not how heavy it has rained in the past 10, 25, 50 or 100 years that matters. Rather, what matters most is how heavy it could rain anytime after the structure is built. Whenever I look at the graph of maximum daily precipitation each year at Denver, it makes me stop and think. If the weather station had not been there back in 1876, we would be tempted to believe that anything greater than 4" in 24-hours is a huge rain. But the 6.50" that fell back on May 22, 1876 puts that in perspective and has encouraged engineers to design structures a bit more conservatively.

Elevation vs Oct-Sept Avg Precip East of the Continental Divide

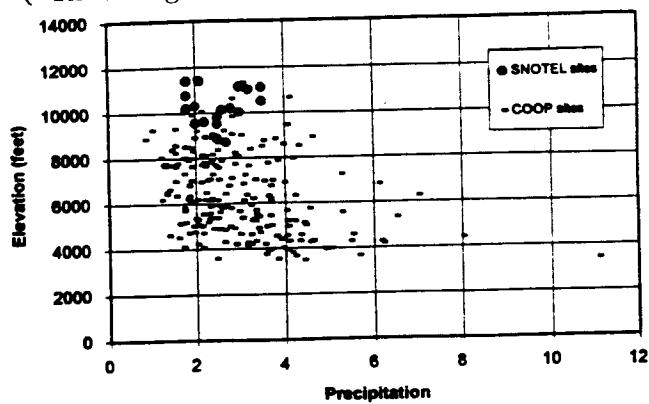


Elevation vs Oct-Sept Avg Precip West of the Continental Divide

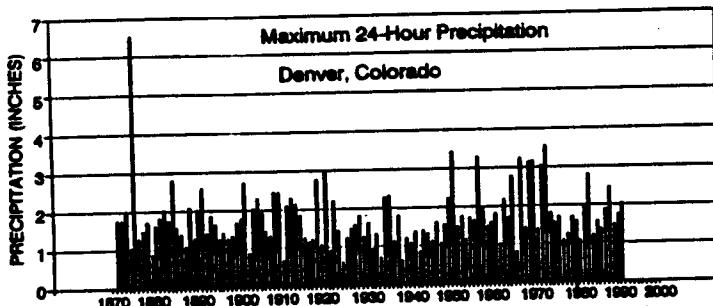
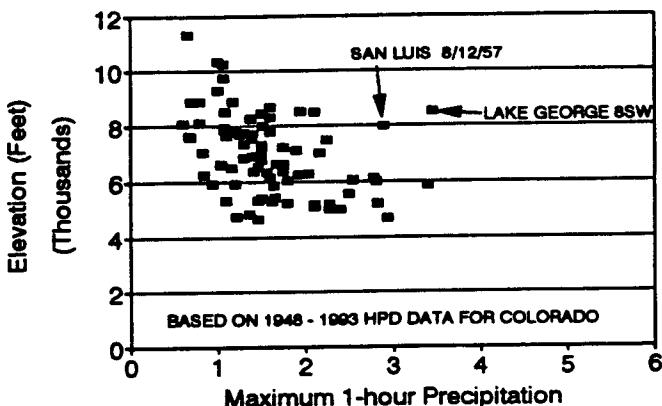


Finally, have you ever wondered, during a truly intense thunderstorm downpour, just how hard it can rain for brief periods. There are a few documented instances (none yet in Colorado, to my knowledge) where more than 1" of rain has fallen in one minute. The maximum rates observed for very short time periods here in Colorado have been on the order of 0.30 - 0.40" per minute. These cloud bursts usually last less than 5 minutes. Rainfall totals of around 1" in ten minutes (a rainfall rate of 6" per hour) do occur occasionally, primarily east of the mountains. Anything over a total of 2" in an hour constitutes a very heavy storm capable of causing flooding. A handful of stations in eastern Colorado have reported more than 3" in an hour. Only a few storms (fortunately) maintain high rainfall rates for longer time periods. These are the ones that really scare us and these are the ones that have claimed many lives – the Cheyenne, WY storm of 1985, the Big Thompson storm of 1976, the Plum Creek storm of 1965, the eastern Colorado storm of 1935 and the Pueblo storm of 1921. These storms have struck before and will strike again. The odds say that most of us will never experience such a tumult, but some of us will. Therefore, it is best that we all be prepared.

Maximum 1 day Precipitation vs Elevation *
(*This figure is revised in main text page 30)



Max. 1-hour Precipitation vs. Elevation



HAVE YOU WITNESSED A BIG STORM? Tell us about it!!

If you have any information on exceptionally heavy storms (greater than 4" in 6-hours) or intense short-duration rainfall rates in excess of 0.30" per minute or 3" per hour, please bring them to our attention. Extreme storms can be very localized and can miss the official raingages. Your reports of these heavy storms could help our current study and could impact engineering design and construction in the future. Please share your information with us.