Final Report

Colorado Extreme Storm Precipitation Data Study

Summary of accomplishments and work performed
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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.

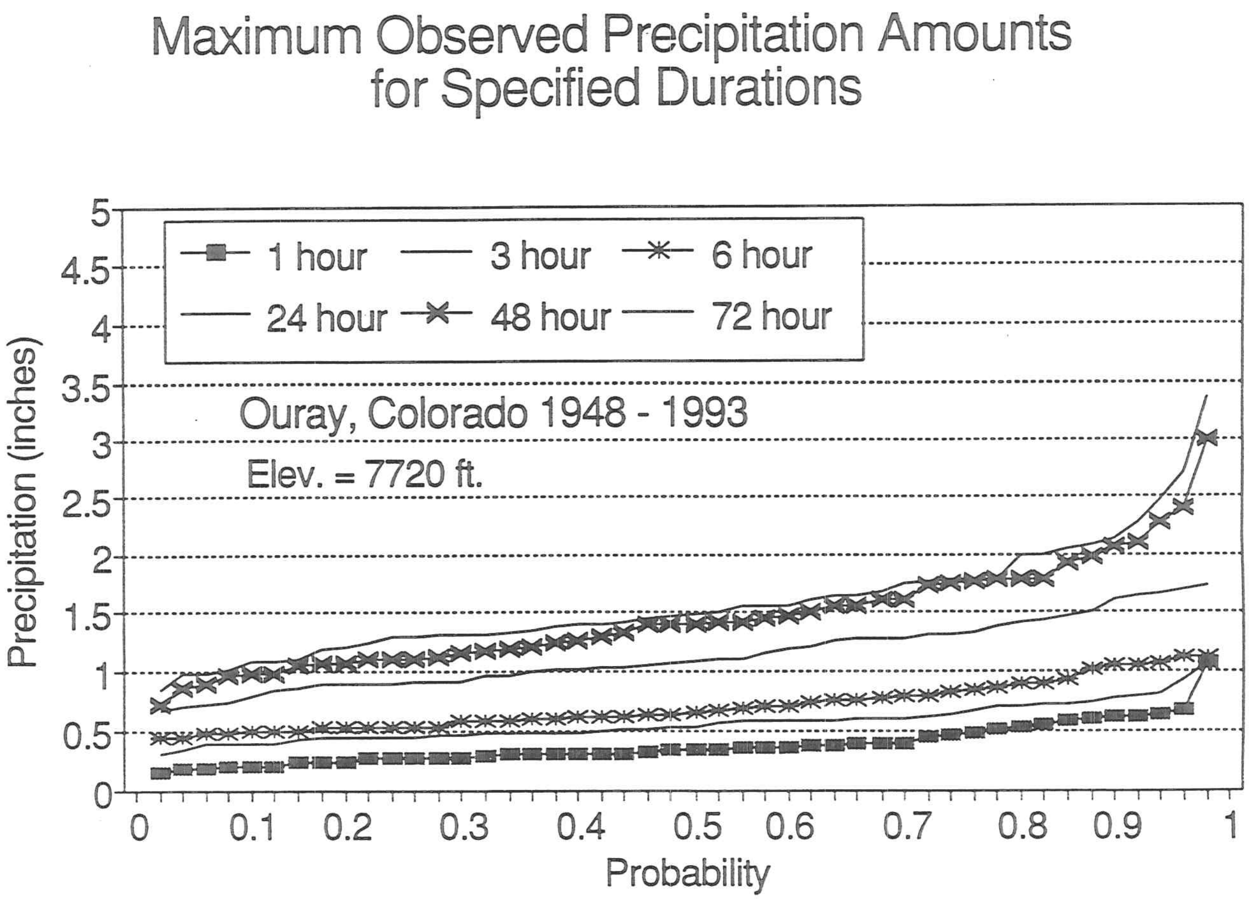


Figure 1. Ranked annual maximum precipitation totals for Ouray, Colorado, 1948-1993, for durations of one hour, three hours, six hours, 24 hours, 48 hours and 72 hours.

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.

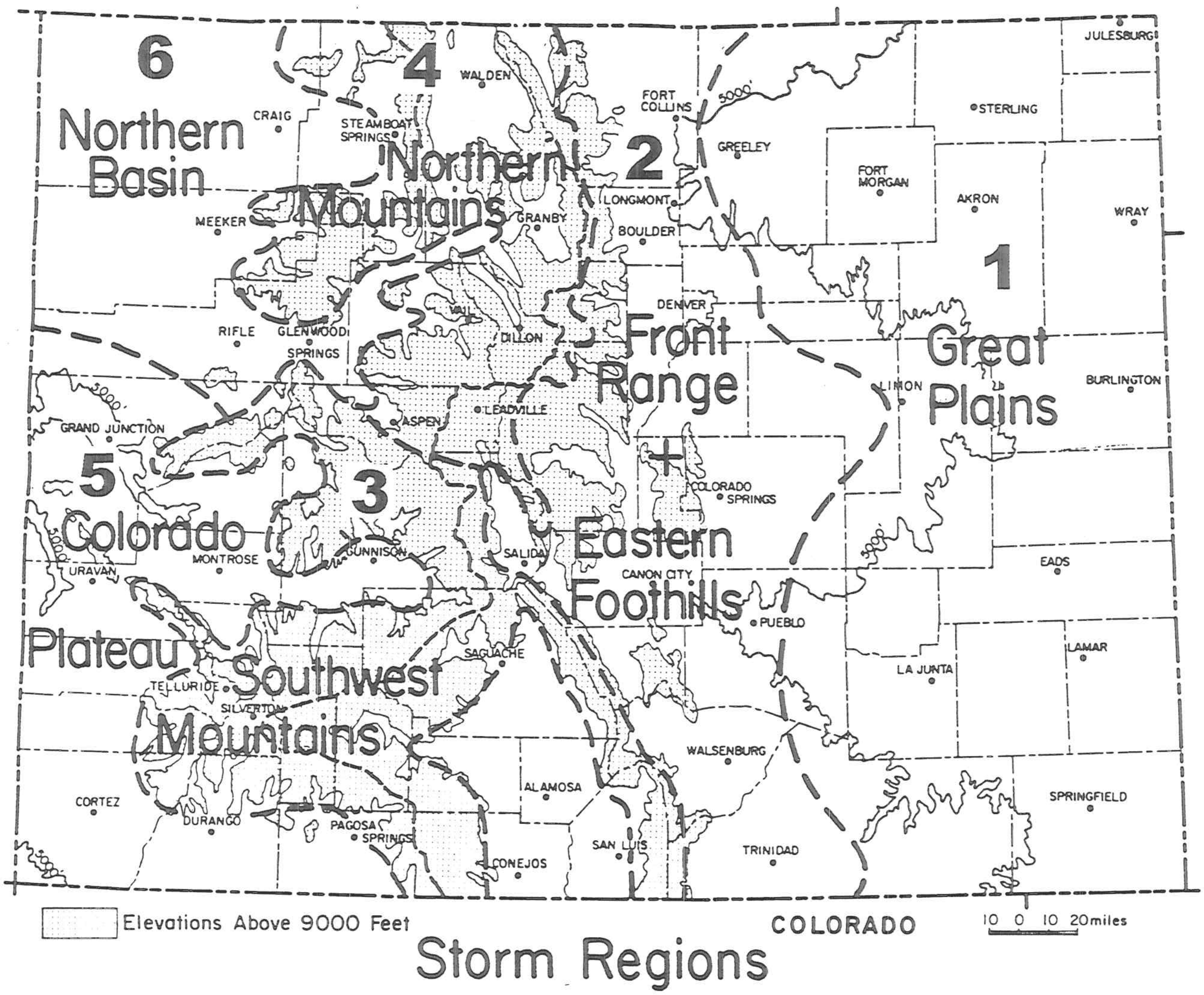


Figure 2. Approximate hydroclimatic regions of Colorado used to describe and characterize extreme precipitation events.

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 addition 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 is 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).

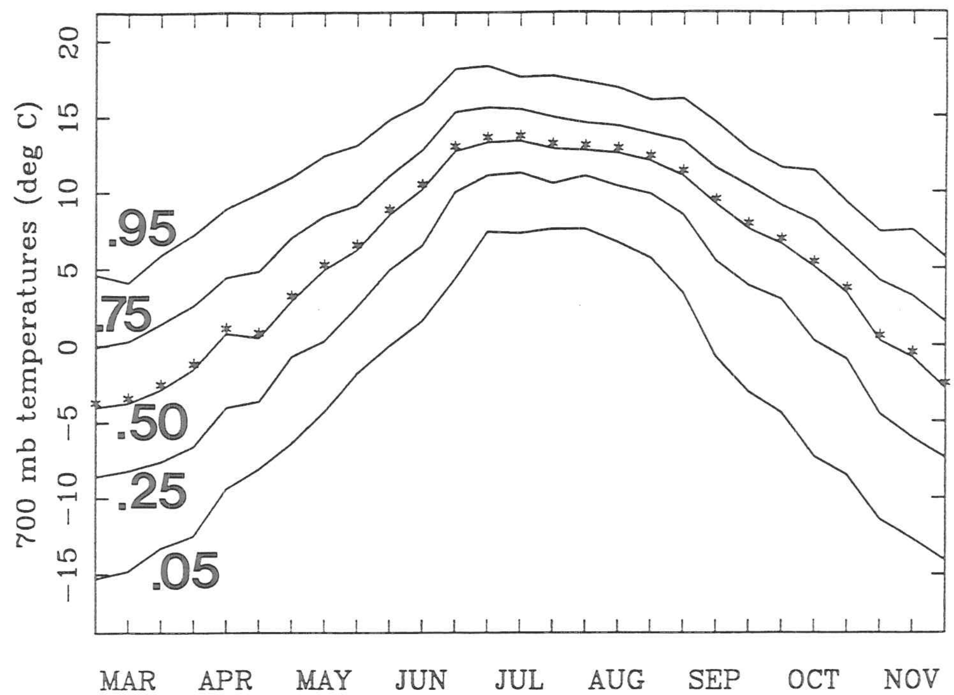
- Precipitable water in the atmosphere from the ground surface up to 700 mb and 500 mb.

- 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

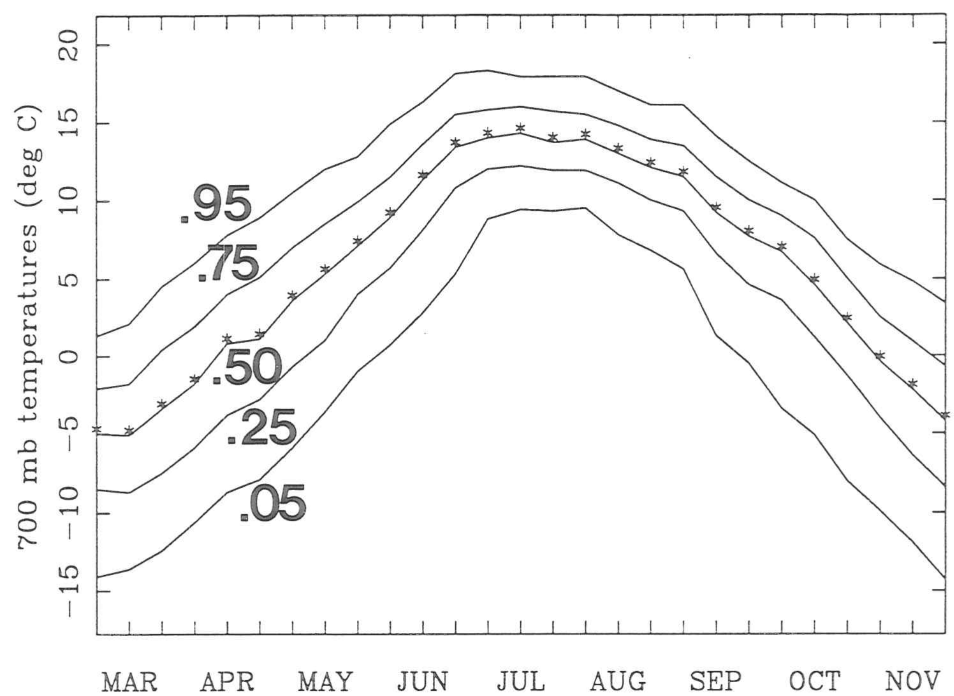
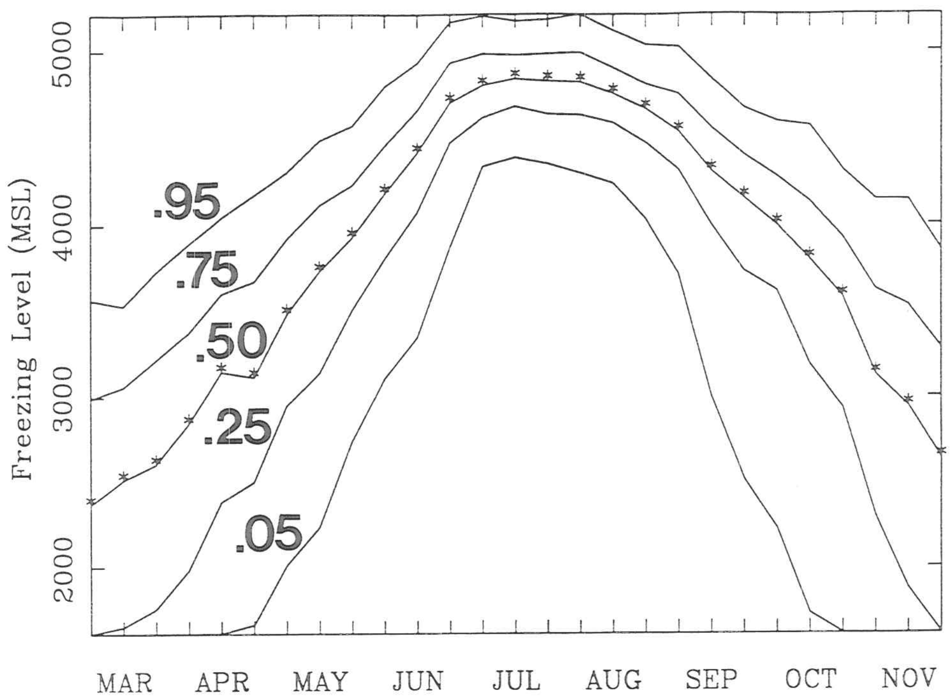


Figure 3. Non-exceedance probability distributions for 700 millibar temperatures (°C) at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

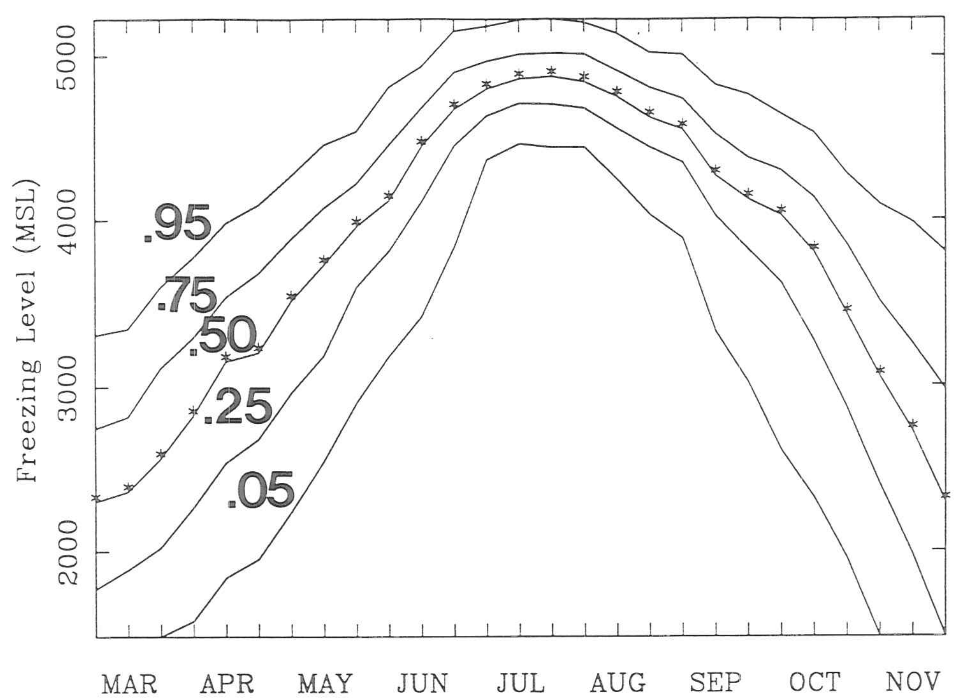
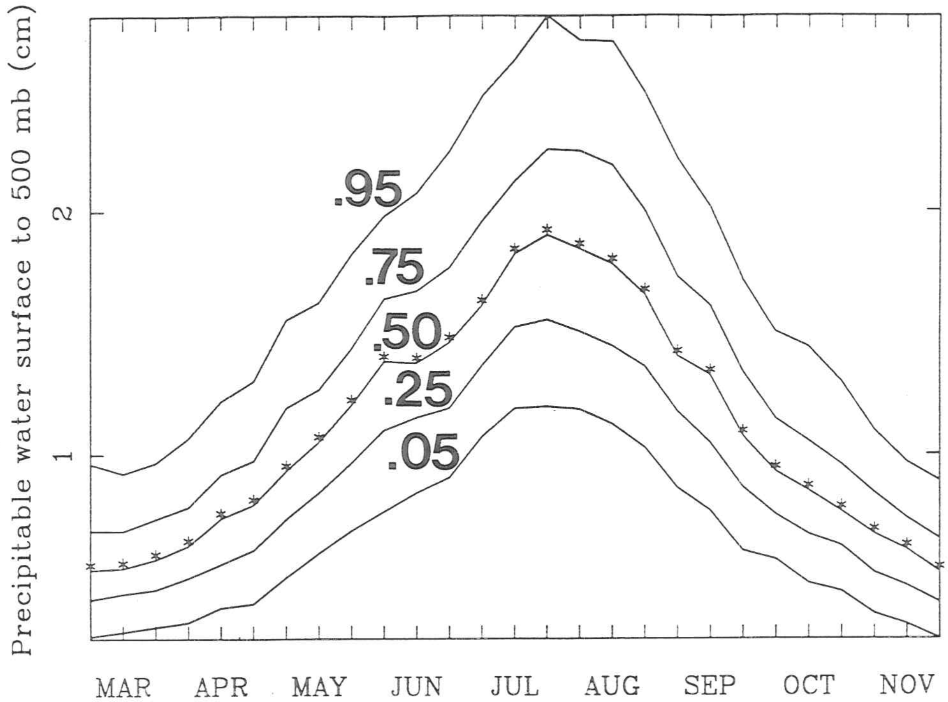


Figure 4. Non-exceedance probability distributions for the height in meters above sea level of the atmospheric freezing level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

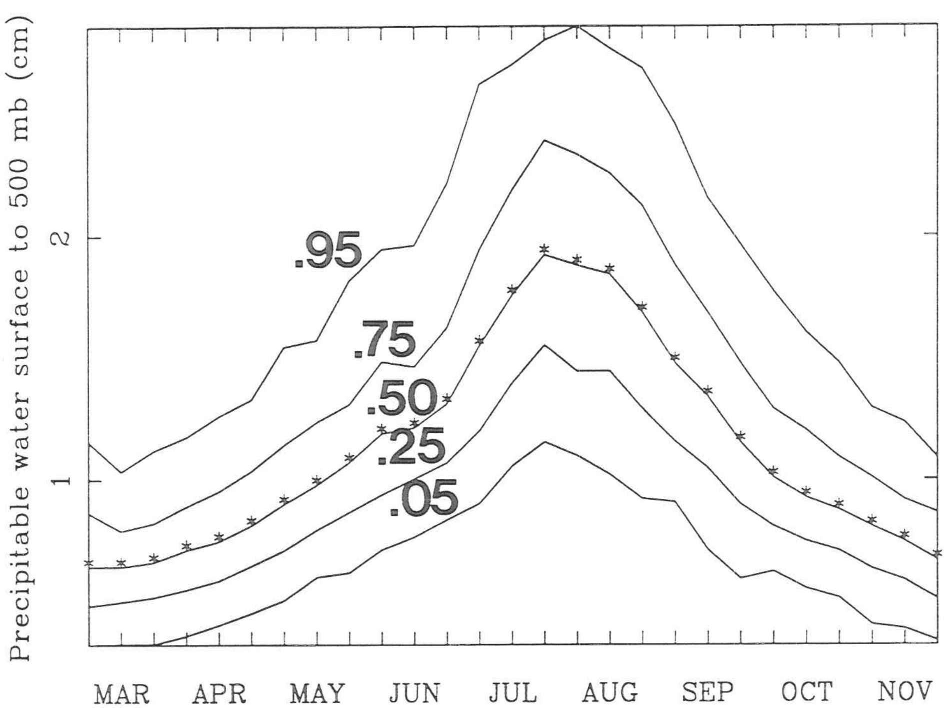
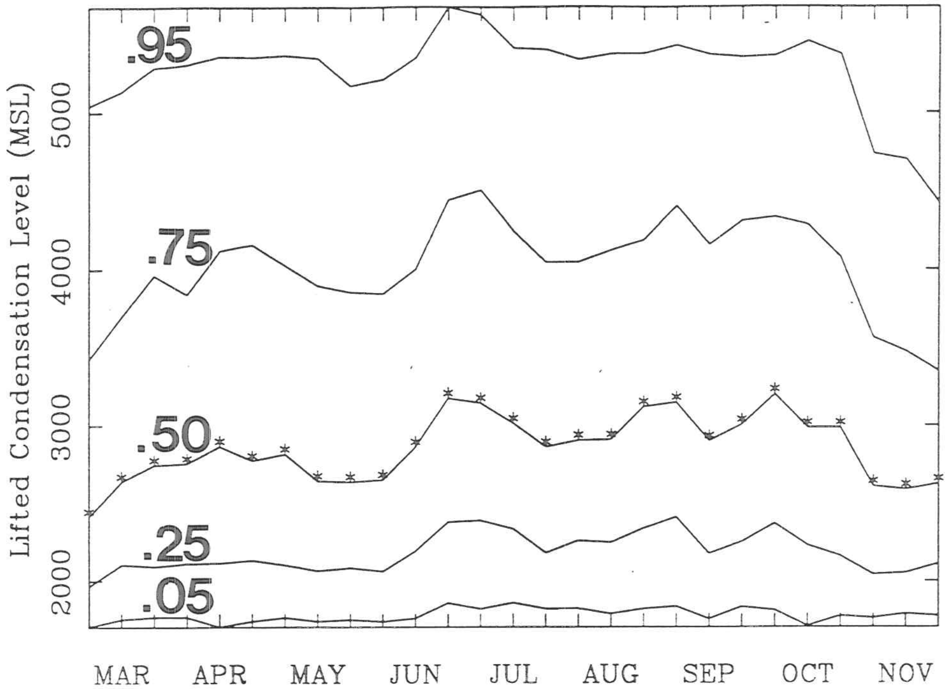


Figure 5. Non-exceedance probability distributions for the calculated depth of precipitable water (in centimeters) between the ground surface and 500 millibars at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



Cumulative Distribution levels for Grand Junction

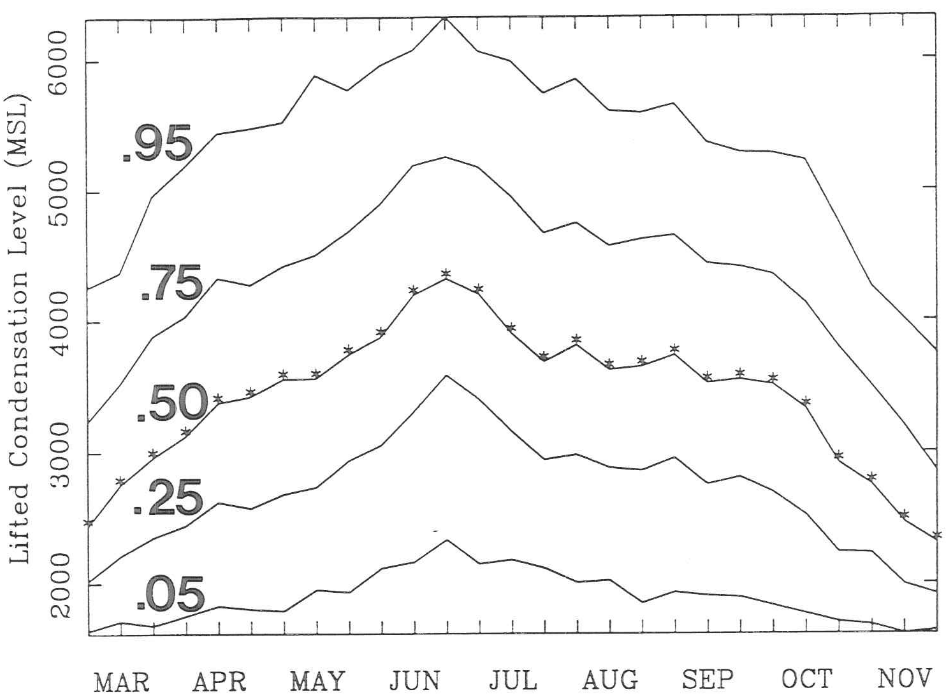


Figure 6. Non-exceedance probability distributions for the height in meters above mean sea level of the Lifted Condensation Level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

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 1) Capability to simulate events 2) Capability to verify events 3) Time and effort 4) 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.

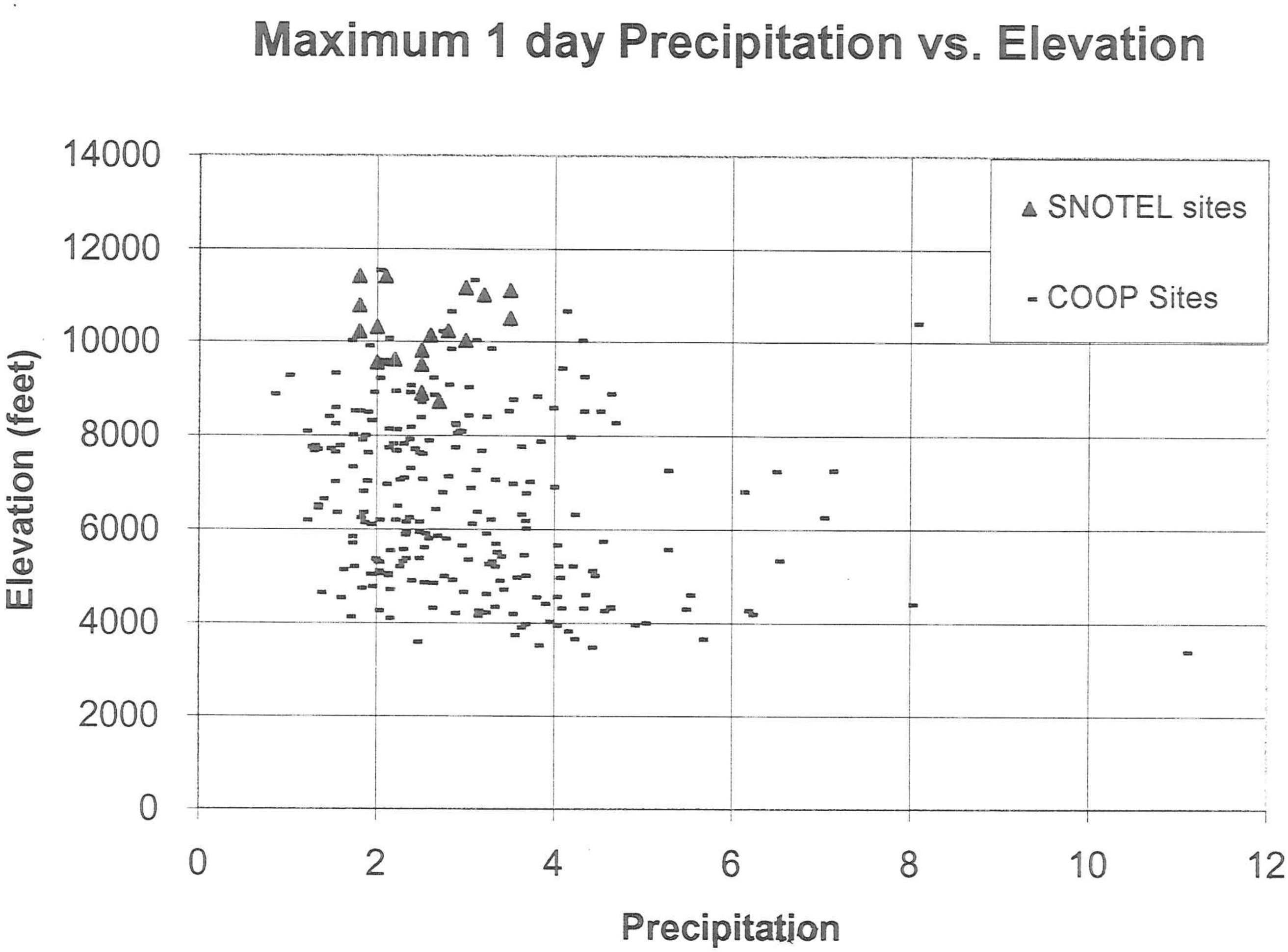

Figure 7. Maximum observed one-day precipitation amounts (in inches) as a function of elevation for Colorado weather stations and SNOTEL sites.

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.

References

Hansen, E.M., D.D. Fenn, L.C. Schreiner, R.W. Stodt, and J.F. Miller, 1988: Probable Maximum Precipitation Estimates – United States Between the Continental Divide and the 103rd Meridian. Hydrometeorological Report No. 55A, U.S. Department of Commerce, Silver Spring, MD, June, 242 pp.

Jarrett, Robert D., and John E. Costa, 1983: Multidisciplinary approach to the flood hydrology of foothill streams in Colorado. *International Symposium on Hydrometeology* (A.I. Johnson and R.A. Clark, eds), American Water Resources Association, June 13-17, 1982, Denver, pp. 565-569.

Jarrett, R.D., and J.E. Costa, 1988: Evaluation of the flood hydrology in the Colorado Front Range using streamflow records and paleohydrologic data for the Big Thompson River Basin. U.S. Geological Survey Water Resources Investigation Report 87-4117, 37 pp.

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- Extreme Precipitation Committee Members.
- Loren Crow Consultants.
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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.

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
1	Cherry Creek	CO	May 20, 1864	2		39 39	104 51	Unknown			
2	Fountain Creek	CO	June 9-10, 1864	2	LC	38 50	104 44	Unknown	Big flood thru Colorado Springs and E. CO?		
3	Denver	CO	May 22, 1876	2	G	39 45	105 00	6.50" 1 day, Denver	Snow storm at Pikes Peak, 3.19" 1 day, Front Range wide storm		
4	Cherry Creek	CO	May 22, 1878			39 39	104 51	Unknown			
5	Colorado River	CO	June-July 1884	3-6		39 07	108 21	Unknown	Extensive snowmelt flooding, high water		
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	Cloud burst reported 8 miles SW of 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 Cty, 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	5.02" 1 day, Alford, 5.60" at Fort 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		

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
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		
30	Choteau	MT	June 21-23, 1907	2	GLC	47 49	112 10	6.40" Choteau, MT	3-5" across MT, no extreme precip. reported in CO		
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 Holly 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. Range rains, flood on San Juan River	X	X
38	Half Moon Pass	MT	June 7-8, 1910	2	G	46 39	109 18	6.00" Half Moon Pass, MT	No extreme precip. reported in CO		
39	Knobles Ranch	MT	September 3-6, 1911	2	G	48 55	111 33	7.60" Knobles Ranch, MT	2-6" over north-central 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.	Large flood Durango and Animas River, many 3-4" totals	X	X
41	Bowen	MT	October 10-11, 1911	3,4	G	45 45	113 27	2.12" Bowen, MT - storm total	No extreme precip. reported in CO	X	X
42	Columbine Ranch	CO	March 19-21, 1912	6	G	39 02	107 31	2.60" 24 hrs, Columbine Ranch, CO	2-3" totals over west-central CO, rain and snow	X	X
43	Fort Union	NM	June 6-12, 1913	2	G	35 56	105 05	7.90" - storm total, Fort Union	2-6" totals from Las Vegas to Raton, NM, few 1-2" in southern CO	X	X
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	Huge snow storm over north-central CO, up to 70" snow in mtns with large water content.		
45	Rico	CO	January 25-27, 1914	3	G	37 41	108 02	5.37" 3 days, Rico 42" snow	1-3" totals over SW Colorado, mostly snow		
46	Clayton	NM	April 29-May 2,1914	1	G	36 20	103 06	9.60"- storm total, Clayton, NM 6.49" - storm total, Campo, CO	3-9" in NE New Mexico, up to 7" in SE Colorado	X	X
47	Malta	MT	June 12-14, 1914	1	GLC	48 21	107 53	3.90" - storm total, Malta, UT 3.45" 24 hours, Kersey, CO	2-3" totals over eastern and central MT, 1-3" totals over CO		
48	Telluride	CO	July 27, 1914	3	LC	37 57	107 49	3.50" 1 day, Telluride, 6.95" over 3 days (reported in August)	Mudslide buried Telluride 7/27/14 but precip reported on 8/26/14		
49	Adel (Central MT, Great Falls area)	MT	June 1-5, 1915	2	G	47 00	111 40	6.70" 108 hrs, Adel	2-5" totals over central MT, no extreme precip. reported in CO	X	X
50	Tajique	NM	July 19-28, 1915	2	LC	34 46	106 20	9.90" 240 hrs, Tajique	Many 2-4" totals across NM, 2-3" totals over southern CO	X	X
51	Columbine	CO	September 9-10, 1915	4	G	40 52	106 57	2.57" Columbine		X	

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
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 3.36" 24 hours LeRoy, CO	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	5.45" - storm total, Palisade Lakes, 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	Snowmass	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, Cucharas 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		

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
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	Cheesman	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	1,2,3	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 3.59" Bloom, CO	Northern NM and southern CO, 2-4" in CO		
85	Gallinas Plt. St.	NM	September 20-23, 1929	1,2	GLC	35 09	105 39	4.90" Gallinas Plt St., NM	No extreme precip. reported in CO	X	
86	Rifle	CO	August 9, 1930	1,6	LC	39 31	107 47	7.00" 3 hrs, Cope 2.15" 160 minutes at Rifle	Cloudburst, local flooding		
87	Apishapa 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 5.03" - storm total at Two Buttes, CO	Rain across OK, TX, KS, and southeastern CO	X	X
90	Julesburg	CO	August 13, 1932	1	LC	41 00	102 15	3.15" 1 hr - Julesburg	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	X	X
93	Bear Creek	CO	July 7, 1933	2	LC	39 38	105 15	Unknown	"Cloudburst" near Idledale, significant flooding		
94	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		
95	Kassler	CO	September 9-11, 1933	2	G	39 30	105 06	4.24" - storm total, Kassler	Flooding in Denver	X	X
96	Bear Creek/Mount Vernon Canyon	CO	August 9, 1934	2	LC	39 38	105 15	Unknown	Floods killed 6 people, heavy hail		
97	Purgatory River	CO	September 15, 1934	1	LC	37 10	103 52	Unknown	Sheets of water caused flooding in Purgatory basin		
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	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 37	>6-9" in a couple of hrs - SE of Lamar			
101	Horse Creek (north of Holly)	CO	August 28-29, 1935	1	LC	38 03	102 07	>7-11" in several hrs - Horse Creek	Destroyed new reservoir		
102	Las Cruces	NM	August 29-30, 1935			32 30	106 77	10.00" in 9 hrs - Las Cruces	No extreme precip. reported in CO		
103	Silver Lake	UT	February 1-3, 1936	4	G	40 36	111 35	3.30" 72 hrs Silver Lake, UT, mostly 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 - 29" 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		

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	Data very suspicious		
108	Junipine	AZ	Feb. 28-March 5, 1938	3,5	G	37 00	112 30	8.40" - storm total - Junipine, AZ 3.32" 48 hrs, Silverton, CO	Heaviest rains across central AZ and SW UT	X	X
109	Big Timber	MT	May 17-20, 1938	2	G	45 50	109 57	5.70" Big Timber, MT - storm total	2-5" in southern MT, no extreme precip. reported in 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	Heavy rains in Kansas, extreme eastern CO also affected.		
111	Crested Butte	CO	June 20-23, 1938	3	GLC	38 52	106 58	2.40" 72 hrs, Crested Butte, CO	1-2" in central and SW CO	X	X
112	San Isabel	CO	July 13, 1938	2	LC	37 59	105 03	4.48" 1 day, San Isabel			
113	West Slope/Front Range	CO	Aug. 31-Sep. 4, 1938	2,5	GLC	39 57	105 21	8.57" 48 hrs, Waterdale, CO	7" in 6 hrs near Morrison, severe flooding of several Front Range streams, mostly on Sep. 2	X	X
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.	No extreme precip. reports found in CO	X	
115	Arizona/California	AZ/CA	September 3-8, 1939	5	GLC	33 00	115 50	6-7" near Imperial Valley	Heavy rains over AZ, NM and CA 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	Heavy rains from tropical disturbance, no extreme precip. reported in CO		
117	Near Gateway	CO	July 16, 1940	5	LC	38 42	108 56	.75" - Colorado Ntl Mon	Local "cloudburst" caused flooding at West Creek	X	
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	3" totals over SW CO	X	X
119	Pueblo - LaJunta area	CO	August 26-27, 1941	1	LC	33 13	103 45	1.46" - 1.5 hrs at Ordway 1.15" at Two Buttes	Observer noted very destructive hail between Ordway and Olney Springs		
120	Campbell Farm Camp	MT	September 6-8, 1941	1	GLC	45 25	107 55	3.80" 42 hrs, Campbell Farm Camp	2-3" totals over eastern MT and ND, no extreme precip reported in CO		
121	Rico	CO	September 18-23, 1941	3	G	37 41	108 02	3.85" Rico, CO - storm total	Steady rains in SW CO and eastern plains, snow at high elevations	X	X
122	Kenton	OK	April 17-21, 1942	1,2	G	36 55	102 58	8.50" storm total, Kenton, OK 6.00" 48 hrs, San Isabel, CO	Widespread soaking rains and moderate flooding in SE CO		
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.	Heavy rains SE and Front Range, flood conditions on Purgatoire and Arkansas Rivers		
124	Huerfano/Pueblo Counties	CO	August 14-15, 1942	2	LC	38 27	105 04	2.15" Penrose - 1 day, 2.95" Tyrone - 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 5.84" 1 day, Branson	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	3.80" 1 day - 9.11" 3 days - Wolf 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 2.33" 24 hrs, Ferndale Ranch	1-3" totals over western CO, mostly on June 1-2, snow at high elevations	X	X

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	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	2.78" 48 hrs, near Steamboat Spgs, 14" snow	6.00" isohyet	X	X
131	Colony	WY	June 2-5, 1944	1	G	44 56	104 12	4.26" 72 hrs, Colony, WY	2-4" over SE MT and NE WY. no extreme precip. reported in CO		
132	Dovetail	MT	June 14-18, 1944	1,2	GLC	47 21	108 12	Unknown	No extreme precip. reported in CO	X	
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					Beaver Dam State Park, 10.0" - total	2-6" totals over parts of Nevada, Wyoming and Arizona, light precip. over CO.		
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 4.30" 1 day, LaVeta Pass	T-storms across CO, cloudburst reported near Rye, flooding		
143	Fort Collins	CO	May 30, 1948	2	GLC	40 35	105 05	9.00" near Fort Collins (8 hrs), mostly in 3 hrs	Cloudburst west of Fort Collins, floods, >10" in area	X	
144	near Golden	CO	June 7, 1948	2	LC	39 44	105 14	6.00" less than 2 hrs near Golden from 12pm - 2 am	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	1.68" Bloom and Cucharas 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	6.06" 48 hrs, Fort Collins, local flooding	X	
155	Central Arizona	AZ	August 26-29, 1951	3,5	GLC	34 12	112 20	13.55" Crown King, AZ, storm total	Heavy rains and flooding from tropical hurricane, no extreme precip. reported in CO		

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	Cimmaron	CO	June 3, 1952	3,5	GLC	38 24	107 31	5.25" 1 day, Cimmaron	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	1.50" Palisade Lakes, 1.42" Rangely - 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	Elbert, 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			
167	Englewood	CO	July 30-August 3, 1956	2	LC	39 39	104 54	12" in 5 days, $5 million in flood damage	Lots of rain Denver area and W. Slope, local damaging floods		
168	Lake Moraine	CO	April 1-2, 1957	2	G	38 49	104 59	4.13" 1 day, Lake Moraine, 54" snow	Record snowfall on and east of the divide, 5 deaths		
169	Colorado	CO	May 8-12, 1957	2,3,4	G	40 10	105 04	4.04" 1 day, Longmont, Many 1-5" totals	$2 million in flood damage, snow in mtns, 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/Canon City area	CO	July 27, 1961	2	LC	38 26	105 16	1.40" Canon City	Heavy rains, rock and mud slides		
179	Front Range	CO	July 31, 1961	2	LC	39 13	105 17	1.51" Cheesman, 1.25" Denver City	Locally heavy rains along Front Range, minor flooding		
180	Western Slope/Mtn Areas	CO	September 2-5, 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		

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
181	Pyramid	CO	September 20-24, 1961	4,6	G	40 14	107 06	2.90" 1 day, Pyramid	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	Unofficial reports of 10-12" near 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 CD		
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 Cty	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 Cheesman, 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	16.20" (Gibson Dam), flooding, 36 dead	No extreme precip. reported in CO	X	X
196	Ruby Mtn (6S Buena Vista)	CO	July 24, 1964	2,3	LC	38 52	106 58	No extreme precip found in CD	Flash flood on Ruby Mtn		
197	Western Slope	CO	August 12, 1964	5	LC	38 45	108 04	2.00" Ignacio, 1.42 Delta	Heavy T-storms, flooding - Durango, 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	No extreme precip reported in CO		
199	N Black Hills	SD	May 14-15, 1965	2	GLC	44 21	103 46	7" 1 day - N Black Hills 6.93" Lead - 24 hrs	Floods, $5 million in damage, no extreme precip reported in CO		
200	Plum Creek	CO	June 13-20, 1965	1,2,4	GLC	39 05	104 20	15.17" 48 hrs, Holly. Many storm centers - E. Plains and Ft. Range	Massive and widespread flooding east of the mtns. Also, local storm near Breckenridge	X	X
201	Eagle	CO	July 18, 1965	6	LC	39 38	106 55	Unknown	Heavy rain and flooding		
202	Evergreen	CO	July 19, 1965	2	LC	39 38	105 19	2.95" <2 hrs, Evergreen, cloudburst	Local flooding		
203	Montrose/San Miguel Cty	CO	July 19, 1965	5	LC	38 29	107 53	2.09" 24 hrs, Placerville	>2" rain in Montrose/San Miguel Cty, flash 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	Mudslides, road damage at Georgetown and Breckenridge		

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" LaJunta, 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	6.42"- storm total, Wolf Creek Pass 1E, 59" 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	Cloudburst reported at Garfield City (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, flooding, >6" in 24 hrs in areas	1.62" at Northdale, CO	X	X
216	near Levan	UT	August 2, 1968	6	LC	39 30	111 30	Unknown, floods, crop loss	No extreme precip. reported in CO	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 Ctys extensive damage at CO Ntl Mon.		
218	Sargents	CO	August 11, 1968	3	LC	38 24	106 26	.74" Sargents	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	7.5-9" N and W of Sterling, 8" Kiowa and Prowers Cty	X	
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" 96 hrs near Boulder	11.27" Morrison, continuous rains, local flooding, road/building damage	X	X
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 Cty	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			
229	Craig	CO	August 7, 1970	6	LC	40 31	107 33	2.04" 1 hour at Craig	Official gauge		
230	Rock Creek Canyon	CO	August 20, 1970	2	LC	38 49	104 42	2.98" 1 day, Colorado Springs	9-11" Rock Creek Canyon (10 S COS), extreme flash flood		

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	4-6" < 12 hrs, some locations, 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	X	X
235	Mesa County	CO	September 19, 1972	5	G	39 06	107 54	1.75" at Bonham Reservoir, 0.99" 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	X	
238	Front Range	CO	May 5-6, 1973	2	G	39 55	105 06	5.31" near Broomfield, 31 hrs, many 1-5" totals along F.R.	6" est near Kiowa, S.Platte River flooding, flash flood in Denver	X	X
239	Lincoln/Yuma Cty	CO	July 18, 1973	1	LC	38 48	103 31	1.50" 1 day, Karval 5.93" 3 days	7" (unofficial) rain between Joes-Kirk-Karval		
240	Grand Junction	CO	July 18, 1974	5	LC	39 07	108 32	1.39" Grand Junction - 1.38" 1 hr (highest observed 1 hr value)	Heavy, severe T-storms GJT 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.	X	X
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	X	
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	X	X
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	Also SW Colorado - LaPlata River	X	
246	Logan	UT	August 18, 1977	3,5	LC	41 40	111 30	4.32" 12 hrs, Logan, UT	2.12" at Rocky Ford	X	
247	Maricopa Cty	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	7" S. Montana and North Central Wyoming	No extreme precip. reported in CO	X	
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	Est 2-4" rain - localized near Grand 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, 68" 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	Heavy snows, rains in western CO especially in San Juan Mtns, 4-9" totals for 10 days		
254	Cripple Creek	CO	August 8, 1980	2	LC	38 45	105 11	5.00" 3 hrs, Cripple Creek	2" < 1 hr, Lake George		

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	3.63" storm total < few hours, local flooding, hail		
256	Frijole Creek	CO	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijole 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	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) 2.54" at Waterdale	Many 1-2" totals across foothills and plains, 3-4" totals in Larimer Cty		
268	Wasatch (canyon east of Salt Lake City)	UT	September 26, 1982	3-6	G	40 46	111 58	> 4.4" near Wasatch, UT, heavy precip northern Utah, floods, from Hurricane Olivia	No extreme precip. reported in CO		
269	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.		
270	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		
271	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	X	
272	Kit Carson	CO	July 23, 1983	1	LC	38 46	102 47	5.50" 30 minutes Kit Carson with hail, crop damage	No extreme precip. reports found in CD		
273	East Ptl-Ike (east end of Eisenhower Tunnel)	CO	August 4, 1983	4	LC	39 38	106 00	2.25" 25 minutes, East Ptl-Ike (Clear Creek Cty)	Hail, minor flooding		
274	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		
275	Prescott	AZ	September 23-24, 1983	3,5	GLC	34 65	112 43	Up to 13" rain near Prescott area	Flash flooding, dams overflowed, hail, millions in damage in AZ, 1-3" in San Juan Mtns on Sep 29-30		
276	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)	3-11" rain in SE Arizona from tropical storm Octave, 13 deaths, $178 million in damage, 1-2" totals in western CO		
277	Redstone	CO	June 5-8, 1984	3	G	39 11	107 14	2.92" 24 hrs, Redstone, CO	2.80" 24 hrs, Aspen 1SW, heavy mtn snows 1-2' in locations	X	

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 Arvada.	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			
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	1.94" Colorado Springs WSO, minor flooding, $700,000 in damage		
284	Cheyenne	WY	August 1, 1985	1,2	LC	41 09	104 49	7.00" in 3 hrs, 6.06" at NWS in Cheyenne	12 dead, $65 million in damage, severe flooding, no extreme precip. reported in CO	X	
285	Indian Hills	CO	August 1, 1985	2	LC	39 37	105 14	2.13" 25 minutes, Indian Hills	Minor flooding, 1-2" rains in Denver in a few hrs		
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- 4.86" 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	Snow across CO except SE		
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 CD		
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 7.87"	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" (2 day total)	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 CD		

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
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 1.43" Twin Lakes		
301	Lucerne	CO	July 29, 1989	1,2	LC	40 29	104 41	8.00" at Lucerne	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	8.20"- 17hrs, Paoli, 3.12"- Fleming 1S	3.5" < 2 hrs in areas around Fleming, flash floods, high river and creek levels		
304	Deadman Hill	CO	August 1, 1989	4	LC	40 48	105 46	2.80" Deadman Hill (Snotel site), elevation - 10,200 ft	Locally heavy T-storms in mtns		
305	Fort Collins	CO	March 6, 1990	2	G	40 35	105 05	3.90" 24 hrs, Fort Collins, 4.16" storm total, 17" 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	4.14" in 2 hrs, Tenneco Mines, UT, 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), snotel 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 Cty		
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	$1 million in damage, local flooding, heavy T-storms.		
321	Colorado Springs	CO	September 2, 1994	2	LC	38 49	104 42	5-8" between 9-10:30 pm with lots of hail at Colorado Springs	Storm occurred but max precip.measurement suspect.		

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.		
323	SW Denver County	CO	June 4, 1995	2	LC	39 38	105 04	3.20 < 1 hr at Pinehurst (SW Denver)	up to 2-4" in 45-90 minutes over SW Denver County		
324	Willard 3W	CO	June 7, 1995	1	LC	40 29	103 30	4.86" in 2 hrs at Willard 3W	4" gauge, volunteer observer, documented on radar		
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	2-4.5" 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/Paoli		

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

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.		
	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		
	Leadville	CO	July 23, 1934	3,4	LC	39 15	106 18	5.33" in 3 days - Leadville	2.01" on 21st		
107	Leadville	CO	July 27, 1937	3	LC	39 15	106 18	4.25", 45 minutes, Leadville	Data very suspicious		
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.	No extreme precip. reports found in CO	X	
158	Cimmaron	CO	June 3, 1952	3,5	GLC	38 24	107 31	5.25" 1 day, Cimmaron	Did it really happen?		
	Cimmaron	CO	September 21, 1952	3,5		38 24	107 31	3.60" 1 day	forms not found		
	Cimmaron	CO	January 20, 1962	3,5		38 24	107 31	6.00" 1 day, Cimmaron	CD notes 10" total precip for month		
226	Eagle	CO	September 23, 1969	6		39 38	106 55	1.54" 24 hrs Eagle	No precip at Eagle (FAA), Incorrect?		
227	Crested Butte	CO	September 25, 1969	3		38 52	106 58	2.30" 24 hrs, Crested Butte	No precip Crested Butte (NWS) or in state on 25th, Incorrect?		
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		
286	Grand Lake	CO	September 28, 1985	4	G	40 16	105 50	3.20" 24 hrs, Grand Lake	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 precipitaiton 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 DISCHARGE MEASUREMENTS IN COLORADO
SORTED BY RIVER BASIN/COUNTY/GAGE

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
ADAMS	6720500	395512	1045218	JUN	17	1965	29600	1	4713	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	
ADAMS		394422	1043500	MAY	30	1948	4700	1		UNKNOWN	R	2	6	BOXELDER CREEK NEAR WATKINS, COLORADO	
ADAMS		394552	1044937	MAY	9	1957	6450	4	113	FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	
ADAMS		394600	1045000	MAY	9	1957	7660	6	113	FAIR	R	1	6	SAND CREEK NR. AURORA, COLORADO	
ADAMS		394018	1040552	JUN	17	1965	145000	1	190	FAIR	R		6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	
ADAMS		394524	1044904	JUN	16	1965	13400	1	113	GOOD	R		6	SAND CREEK AT SABLE AVE. AURORA, COLORADO	
ADAMS		394952	1045653	JUN	17	1965	18800	4	4598	FAIR	R		6	SOUTH PLATTE RIVER AT DERBY, COLORADO	
ADAMS		395935	1045627	MAY	6	1973	740	3	65	UNKNOWN	L		6	BIG DRY CREEK AT U.P.R.R. CULVERT AT DENVER, COLORADO	
ADAMS		395028	1045753	MAY	6	1973	550	1	6	UNKNOWN	L		6	NIVER CREEK NR. MOUTH AT DENVER, COLORADO	
ADAMS		394446	1045246	MAY	6	1973	290	1	6	UNKNOWN	L		6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	
ADAMS		394952	1050248	AUG	26	1980	540	1 3		POOR	R		6	74TH AND WINONA DITCH, DENVER, COLORADO	
ADAMS		394948	1050253	AUG	26	1980	580	3		FAIR	L		6	LITTLE DRY CRK. AT 74TH AND WINONA CT AT WESTMINSTER, CO	
ADAMS		395111	1045916	JUN	3	1981	265	3		FAIR	L		6	L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	
ARAPAHOE	6710000	393710	1050110	JUN	16	1965	110000	4	3069	UNKNOWN	R		6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	
ARAPAHOE	6711500	393908	1050157	SEP	2	1938	2810	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO	
ARAPAHOE	6711500	393908	1050157	AUG	25	1940	690	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO	
ARAPAHOE	6711500	393908	1050157	AUG	11	1955	1170	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	
ARAPAHOE	6711500	393908	1050157	JUL	25	1965	2900	5	260	UNKNOWN	R		6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	
ARAPAHOE	6711580	393934	1045816	JUN	4	1972	63	1	1	UNKNOWN	L		6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO	
ARAPAHOE	6711580	393934	1045816	JUL	24	1975	178	1	0.98	UNKNOWN	L		6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO	
ARAPAHOE	6712500	393620	1044915	JUL	15	1954	450	1	369	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6712500	393618	1044919	JUL	31	1956	5310	1	360	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6712500	393618	1044919	JUL	26	1957	9950	1	360	POOR	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6712500	393542	1044844	AUG	3	1963	10800	1	338	GOOD	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6712500	393542	1044844	JUN	16	1965	39900	4	338	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	
ARAPAHOE	6758250	393647	1042701	AUG	19	1970	2170	1	6.41	UNKNOWN	L		6	KIOWA CREEK TRIB. NR. BENNETT, COLORADO	
ARAPAHOE	6758300	394454	1042446	JUL	11	1961	1770	1	236	FAIR	R		6	KIOWA CREEK AT BENNETT, COLORADO	
ARAPAHOE	6758300	394454	1042446	AUG	6	1963	1730	1	236	GOOD	R		6	KIOWA CREEK AT BENNETT, COLORADO	
ARAPAHOE	6758300	394454	1042446	SEP	22	1963	3420	1	236	FAIR	R		6	KIOWA CREEK AT BENNETT, COLORADO	
ARAPAHOE	6758300	394454	1042446	JUN	18	1965	24900	4	236	POOR	R		6	KIOWA CREEK AT BENNETT, COLORADO	
ARAPAHOE		394549	1041407	JUL	30	1950	1600	1		UNKNOWN	R		6	BIJOU CREEK AT BYERS, COLORADO	
ARAPAHOE		393908	1045909	AUG	3	1951	1200	1		UNKNOWN	R		6	LITTLE DRY CREEK ENGLEWOOD, COLORADO	
ARAPAHOE		394016	1040554	AUG	3	1951	11000	1		UNKNOWN	R	2	6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	
ARAPAHOE		394303	1041343	AUG	3	1951	41000	4		UNKNOWN	R	2	6	WEST BIJOU CREEK NR. BYERS, COLORADO	
ARAPAHOE		394332	1044904	MAY	9	1957	10400	2 3	35.8	UNKNOWN	R	2	6	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	
ARAPAHOE		393617	1045105	AUG	3	1963	3330	1	7.81	GOOD	R		6	COTTONWOOD CREEK ABV. CHERRY CREEK RESERVOIR, COLORADO	
ARAPAHOE		393543	1045152	AUG	3	1963	223	2 3	0.65	GOOD	R	2	6	COTTONWOOD CREEK TRIBUTARY AT ARAPAHOE ROAD, COLORADO	
ARAPAHOE		393542	1045019	AUG	3	1963	930	2 3	1.3	GOOD	R		6	LONE TREE CREEK AT ARAPAHOE ROAD, COLORADO	
ARAPAHOE		394332	1044904	JUN	15	1963	3920	3	35.8	GOOD	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	
ARAPAHOE		393700	1040300	JUN	17	1965	274000	1	302	FAIR	R	1	6	EAST BIJOU CREEK AT DEER TRAIL, COLORADO	
ARAPAHOE		393635	1044835	JUN	16	1965	14100	1 3	21.9	GOOD	R		6	PINEY CREEK NR. MELVIN, COLORADO	
ARAPAHOE		394332	1044904	JUN	16	1965	16000	2 3	35.8	UNKNOWN	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	
ARAPAHOE		394223	1041407	JUN	17	1965	75500	4	277	FAIR	R		6	WEST BIJOU CREEK AT BYERS, COLORADO	
ARAPAHOE		393745	1050003	MAY	6	1973	4400	4	19	UNKNOWN	L		6	BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	
ARAPAHOE		393911	1045914	MAY	6	1973	1510	1	15	UNKNOWN	L		6	LITTLE DRY CREEK AT BRDWY AND ACOMA AT DENVER, COLORADO	
ARAPAHOE		392855	1041126	JUN	25	1982	355		312		R		6	SOUTH FORK OF WILLOW GULCH NR. DEER TRAIL, COLORADO	
BOULDER	6742000	401530	1051215	AUG	10	1930	3620	1	101	UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	
BOULDER	6742000	401530	1051215	JUN	6	1949	3500	1	101	UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	
BOULDER	6742500	400700	1051800	AUG	3	1951	785	1	48	FAIR	R	1	6	LEFTHAND CREEK NEAR BOULDER, COLORADO	
BOULDER		400453	1051114	AUG	3	1951	5700	1		UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO	
BOULDER		401344	1051654	JUN	3	1961	235	1	0.4	POOR	R		6	NORTH ST. VRAIN CREEK TRIB. NR. LYONS, COLORADO	
BOULDER		400336	1050752	JUN	30	1962	91	1 3	0.54	FAIR	R		6	GUNBARREL HILL DRAW NR. NIWOT, COLORADO	
BOULDER		400336	1050752	OCT	5	1962	16	1 3	0.54	FAIR	R		6	GUNBARREL HILL DRAW NR. NIWOT, COLORADO	
BOULDER		400608	1052033	MAY	7	1969	1970	1	18.6	GOOD	R		6	JAMES CREEK AT MOUTH NR. JAMESTOWN, COLORADO	
CHEYENNE	6857500	385918	1021650	JUN	23	1975	241	1	7.84	UNKNOWN	L		6	BIG TIMBER CREEK TRIB. NEAR ARAPAHOE, COLORADO	
CLEAR CREEK	6716500	394540	1053906	JUN	9	1952	2230	1	145	UNKNOWN	R		6	CLEAR CREEK NEAR LAWSON, COLORADO	
CLEAR CREEK	6716500	394540	1053906	JUN	4	1956	6130	2 5	145	UNKNOWN	R	3	6	CLEAR CREEK NR. LAWSON, COLORADO	
DENVER	6711570	394008	1045632	MAY	28	1981	670	1		FAIR	L		6	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO	
DENVER	6711575	394020	1045834	MAY	28	1981	914	1		FAIR	L		6	HARVARD GULCH AT HARVARD PARK, AT DENVER, COLORADO	
DENVER	6711575	394021	1045835	MAY	28	1981	1040	1		GOOD	L		6	HARVARD GULCH AT HARVARD PARK, COLORADO	
DENVER	6713500	394458	1050008	JUL	9	1953	2050	2	409	UNKNOWN	R		6	CHERRY CREEK AT DENVER, COLORADO	
DENVER	6714000	394535	1050010	SEP	10	1933	22000	5	3804	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT DENVER, COLORADO	
DENVER		394315	1045840	AUG	5	1945	3120	5	420	UNKNOWN	R	2	6	CHERRY CREEK AT DENVER, COLORADO	
DENVER		394648	1045404	MAY	9	1957	25500	1	187	UNKNOWN	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	
DENVER		394020	1045840	JUL	3	1960	420	1	4.45	FAIR	R		6	HARVARD GULCH AT STATE CHILDRENS HOME, DENVER, COLORADO	
DENVER		394020	1045840	JUN	15	1963	942	1 2	4.45	FAIR	R		6	HARVARD GULCH AT STATE CHILDRENS HOME, 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
DENVER		394648	1045404	JUN	15	1963	3740	1	187	GOOD	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	
DENVER		394605	1045300	JUN	16	1965	18900	3	187	FAIR	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	
DENVER		394707	1045413	MAY	6	1973	5630	4	187	UNKNOWN	L		6	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	
DENVER		394129	1050020	MAY	6	1973	320	3	7	UNKNOWN	L		6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO	
DENVER		394350	1050120	MAY	6	1973	430	1	8	UNKNOWN	L		6	WEIR GULCH AT DECATUR AT DENVER, COLORADO	
DENVER		395041	1045819	JUL	14	1975	856	1		UNKNOWN	L		6	NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO	
DENVER		395030	1045702	JUL	14	1975	1126	1		UNKNOWN	L		6	NIVER CREEK AT STEELE ST. AT DENVER, COLORADO	
DENVER		394006	1045625	JUL		1979	665	1		UNKNOWN	L	2	6	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO	
DENVER		394004	1045710	JUL	5	1979	672	1		UNKNOWN	L	2	6	HARVARD GULCH AT HARVARD PARK, COLORADO	
DENVER		394914	1050059	AUG	26	1980	870	3		POOR	L		6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	
DENVER		394958	1050305	JUN	3	1981	720	3		FAIR	L		6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	
DOUGLAS	6709500	392904	1050007	AUG	8	1945	7700	1	274	UNKNOWN	R	2	6	PLUM CREEK NR. LOUVIERS, COLORADO	
DOUGLAS	6709500	392904	1050007	JUL	29	1953	2700	1	319	FAIR	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	
DOUGLAS	6709500	392904	1050007	JUN	16	1965	154000	1	302	UNKNOWN	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	
DOUGLAS	6712000	392130	1044550	JUL	13	1941	4700	5	169	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS	6712000	392130	1044550	AUG	5	1945	9170	5	169	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS	6712000	392130	1044550	AUG	7	1954	2620	1	169	FAIR	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS	6712000	392130	1044550	JUL	30	1957	5380	1	169	GOOD	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS	6712000	392130	1044550	JUL	31	1961	3410	1	169	FAIR	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS	6712000	392130	1044550	AUG	21	1965	1730	1	169	UNKNOWN	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
DOUGLAS		392000	1044500	AUG	3	1933	30000	2	175	UNKNOWN	R	1 2	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	
DOUGLAS		392217	1044454	JUL	31	1961	2900	1	16.9	POOR	R		6	RUSSELLVILLE GULCH NR. FRANKTOWN, COLORADO	
DOUGLAS		393157	1044735	AUG	3	1963	7620	1	13.6	FAIR	R		6	NEWLIN CREEK NR. PARKER, COLORADO	
DOUGLAS		392417	1045225	JUN	16	1965	126000	1	108	POOR	R		6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	
DOUGLAS		392230	1045735	JUN	16	1965	36800	1	108	POOR	R		6	WEST PLUM CREEK NR. SEDALIA, COLORADO	
DOUGLAS		390806	1050941	MAY	7	1973	78	3	16.7	GOOD	R		6	TRAIL CREEK NR. WESTCREEK, COLORADO	
DOUGLAS		390922	1050945	MAY	7	1973	2020	1	60	FAIR	R	3	6	WEST CREEK AT WESTCREEK, COLORADO	
DOUGLAS		391032	1050958	MAY	7	1973	3080	1	62.3	FAIR	R	3	6	WEST CREEK BELOW WESTCREEK, COLORADO	
EL PASO	6757600	390400	1043455	JUL	30	1957	5250	1	3.2	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	
EL PASO	6757600	390400	1043455	JUN	17	1965	2370	1	3.2	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	
EL PASO	6757700	390618	1043331	JUN	17	1965	2600	1	1.12	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	
ELBERT	6757750	390920	1043116	JUN	17	1965	2010	1	2.82	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. ELBERT, COLORADO	
ELBERT	6757800	391003	1043114	JUN	17	1965	1270	1	0.59	FAIR	R		6	KIOWA CREEK SUBWATERSHED NO. Q-51 NR. ELBERT, COLORADO	
ELBERT	6758000	391235	1043200	JUN	17	1965	41500	1	28.6	GOOD	R		6	KIOWA CREEK AT ELBERT, COLORADO	
ELBERT	6758100	391238	1043216	JUN	17	1965	20000	1	35.9	FAIR	R		6	WEST KIOWA CREEK AT ELBERT, COLORADO	
ELBERT	6758200	392000	1042900	JUL		1954	15230	1	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	
ELBERT	6758200	392000	1042900	AUG	25	1963	2870	4	111	FAIR	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	
ELBERT	6758200	392000	1042900	JUN	17	1965	19700	4	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	
ELBERT	6758700	392933	1040946	JUN	19	1977	500	1	2.27	UNKNOWN	L		6	MIDDLE BIJOU CREEK TRIB. NR. DEER TRAIL, COLORADO	
ELBERT		391600	1042000	JUN	17	1965	67200	1	85.7	POOR	R	1	6	WEST BIJOU CREEK NR. KIOWA, COLORADO	
ELBERT		392855	1041126	JUN	25	1982	355	6	0.49	FAIR	R		6	SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO	
GILPIN		394548	1052706	JUL	8	1961	727	1	8.17	FAIR	R		6	RUSSELL GULCH NR. BLACKHAWK, COLORADO	
JACKSON	6619420	404418	1060649	APR	21	1980	22	2	3.95	GOOD	L		6	WILLIAMS DRAW NR.WALDEN, COLORADO	
JEFFERSON	6710500			JUN	2	1867			164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	
JEFFERSON	6710500	393911	1051142	JUL	7	1933	8110	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	
JEFFERSON	6710500	393911	1051142	SEP	2	1938	6200	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	
JEFFERSON	6711000	393808	1051005	AUG	24	1946	1200	1	50.1	UNKNOWN	R	2	6	TURKEY CREEK NEAR MORRISON, COLORADO	
JEFFERSON	6711000	393122	1051113	MAY	7	1969	2730	1	48	FAIR	R		6	TURKEY CREEK NR. MORRISON, COLORADO	
JEFFERSON	6711642	394253	1050744	JUL	20	1975	403	1	2.76	GOOD	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
JEFFERSON	6711642	394253	1050744	JUN	6	1977	361	1	2.76	FAIR	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
JEFFERSON	6711642	394253	1050744	JUL	20	1977	590	1	2.76	FAIR	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
JEFFERSON	6719500	394505	1051455	SEP	9	1933	5890	1	399	UNKNOWN	R	2	6	CLEAR CREEK NR. GOLDEN, COLORADO	
JEFFERSON	6719630	394428	1050845	JUL	20	1975	641	1	9	UNKNOWN	L		6	LENA GULCH AT LAKEWOOD, COLORADO	
JEFFERSON	6730300	395240	1051636	JUN	16	1963	195	3	15.1	GOOD	R		6	COAL CREEK NR. PLAINVIEW, COLORADO	
JEFFERSON		394545	1051320	JUN	7	1948	11600	1	11.2	UNKNOWN	R	2	6	TUCKER GULCH AT GOLDEN, COLORADO	
JEFFERSON		394256	1050648	JUN	15	1963	968	3	3.22	FAIR	R		6	MCINTYRE GULCH AT DENVER FEDERAL CENTER, COLORADO	
JEFFERSON		394553	1050749	MAY	6	1973	820	1	11	UNKNOWN	L		6	LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	
JEFFERSON		394544	1050808	MAR	17	1979	720	1		POOR	R	3	6	LENA GULCH AT 32ND AVE.,LAKEWOOD, COLORADO	
JEFFERSON		394620	1050632	MAR	17	1979	240				L		6	LENA GULCH AT KIPLING ST. AT WHEATRIDGE, COLORADO	
JEFFERSON		394606	1050703	MAR	17	1979	380				L		6	LENA GULCH AT NELSON STR AT WHEATRIDGE, COLORADO	
JEFFERSON		394119	1050454	JUL	4	1979	113	1	0.38	UNKNOWN	L	2	6	SANDERSON GULCH TRIB. AT LAKEWOOD, COLORADO	
JEFFERSON		394451	1050807	MAY	5	1980	400	3		FAIR	R		6	LENA GULCH AT 20TH AVE., LAKEWOOD, COLORADO	
JEFFERSON		394543	1050810	MAY	5	1980	540	1		POOR	R		6	LENA GULCH AT 32ND AVE. LAKEWOOD, COLORADO	
JEFFERSON		394958	1050305	JUN	3	1981	770	3		FAIR	L		6	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	
JEFFERSON		393917	1051821	JUL	18	1981		1		UNKNOWN	R	2	6	TROUBLESOME CREEK AT KITTEREDGE, COLORADO	
LARIMER	6710400	402508	1051553	APR	30	1980	1590	1	18.9	FAIR	R		6	CEDAR CREEK AT CEDAR COVE, COLORADO	
LARIMER	6733000	402242	1053048	JUL	15	1982	5500	2	137	POOR	L		6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
LARIMER	6734500	402210	1052940	MAY	25	1951	1480	1	16.9	POOR	R		6	FISH CREEK NR. ESTES PARK, COLORADO	
LARIMER	6738000	402518	1051334	JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	
LARIMER	6739500	402715	1051150	JUN	15	1923	10500	1	131	UNKNOWN	R	2	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	
LARIMER	6739500	402715	1051150	MAY	30	1948	5750	1	131	UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, 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
LARIMER	6739500	402715	1051150	AUG	3	1951	14000	1	131	POOR	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	
LARIMER	6740000	402220	1051335	AUG	3	1951	420	4	7.43	UNKNOWN	R		6	CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	
LARIMER	6740500	402210	1051715	AUG	3	1951	350	2	3.42	POOR	R		6	RATTLESNAKE CREEK NR. PINEWOOD, COLORADO	
LARIMER	6741000	402300	1051430	JUN	4	1949	330	1	15.1	POOR	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	
LARIMER	6741000	402300	1051430	AUG	3	1951	2260	1	15.1	GOOD	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	
LARIMER	6741500	402355	1050610	AUG	3	1951	19000	1	515	UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	
LARIMER	6752000	403955	1051310	MAY	20	1904	57200	1	1055	UNKNOWN	R	2	6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	
LARIMER	6752000	403952	1051326	AUG	1	1976	7340	1	1056	FAIR	R		6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	
LARIMER	6752260	403517	1050408	AUG	1	1976	5700	1	1127	FAIR	R		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	
LARIMER		404600	1051400	MAY	31	1930	6800	1	541	UNKNOWN	R	1	6	NO. FK. CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO	
LARIMER		402300	1050146	AUG	3	1951	11400	4		UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	
LARIMER		403800	1050800	AUG	3	1951	12000	4		UNKNOWN	R	1 2	6	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	
LARIMER		403715	1051045	AUG	3	1951	8000	1		UNKNOWN	R		6	DRY CREEK ABV. BELLVIEW, COLORADO	
LARIMER		402539	1052037	JUL	31	1976	28200	1	189	POOR	R		6	BIG THOMPSON ABV. DRAKE, COLORADO	
LARIMER		402552	1051937	JUL	31	1976	30100	1	276	POOR	R		6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO	
LARIMER		402259	1052811	JUL	31	1976	4330	1	164	GOOD	R		6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	
LARIMER		402505	1051202	JUL	31	1976	27000	1	311	POOR	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	
LARIMER		402433	1052507	JUL	31	1976	6950	1	0.53	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	
LARIMER		402344	1052734	JUL	31	1976	8700	1	1.37	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	
LARIMER		402704	1052528	JUL	31	1976	1990	1	3.17	POOR	R		6	BLACK CREEK NEAR GLEN HAVEN, COLORADO	
LARIMER		405736	1052139	JUL	31	1976	727	3	0.68	GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	
LARIMER		402344	1052617	JUL	31	1976	7210	1	1	POOR	R		6	DARK GULCH AT GLEN COMFORT, COLORADO	
LARIMER		405550	1052057	JUL	31	1976	7400	1	23.7	POOR	R		6	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	
LARIMER		402624	1052731	JUL	31	1976	2810	1	0.91	POOR	R		6	DEVILS GULCH NR. GLEN HAVEN, COLORADO	
LARIMER		402242	1052915	JUL	31	1976	4460	1	6.12	POOR	R		6	DRY GULCH AT ESTES PARK, COLORADO	
LARIMER		402422	1052837	JUL	31	1976	3210	1	2	POOR	R		6	DRY GULCH NR. ESTES PARK, COLORADO	
LARIMER		402717	1052713	JUL	31	1976	1300	1	7.18	POOR	R		6	FOX CREEK AT GLEN HAVEN, COLORADO	
LARIMER		402006	1052548	JUL	31	1976	1940	1	2.77	FAIR	R		6	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	
LARIMER		404744	1051724	JUL	31	1976	2590	1	86.3	FAIR	R		6	LONE PINE CREEK NR. LIVERMORE, COLORADO	
LARIMER		402346	1052404	JUL	31	1976	5500	1	1.99	POOR	R		6	LONG GULCH NR. DRAKE, COLORADO	
LARIMER		402747	1052513	JUL	31	1976	2060	1	13.9	POOR	R		6	MILLER FORK NR. GLEN HAVEN, COLORADO	
LARIMER		402620	1052152	JUL	31	1976	8710	1	80.2	FAIR	R		6	NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	
LARIMER		402717	1052705	JUL	31	1976	888	1	18.5	POOR	R		6	NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO	
LARIMER		402655	1052411	JUL	31	1976	3240	1	1.26	POOR	R		6	NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	
LARIMER		404715	1051508	JUL	31	1976	9460	1	539	POOR	R		6	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	
LARIMER		402325	1052600	JUL	31	1976	6910	1	3.37	POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	
LARIMER		402714	1052604	JUL	31	1976	9670	1	1.38	POOR	R		6	NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	
LARIMER		402423	1052417	JUL	31	1976	3540	1	3.41	POOR	R		6	RABBIT GULCH NR. DRAKE, COLORADO	
LARIMER		403019	1051149	JUL	31	1976	2640	1	29.1	POOR	R		6	REDSTONE CREEK NR. MASONVILLE, COLORADO	
LARIMER		403743	1051244	JUL	31	1976	2710	1	5.27	POOR	R		6	RIST CANYON NR. BELLVIEW, COLORADO	
LARIMER		404837	1051501	JUL	31	1976	3470	1	31.9	GOOD	R		6	STONEWALL CREEK NR. LIVERMORE, COLORADO	
LARIMER		402632	1052740	JUL	31	1976	2320	1	23.1	POOR	R		6	WEST CREEK NR. GLEN HAVEN, COLORADO	
LARIMER		402405	1053618	JUL	15	1982	7210	1		POOR	R		6	FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO	
LARIMER		402301	1053258	JUL	15	1982	8520	1		POOR	R		6	FALL RIVER ABV. ESTES PARK, COLORADO	
LARIMER		402403	1053608	JUL	15	1982	4500	6		POOR	R		6	FALL RIVER AT CASCADE DAM ABV. ESTES PARK, COLORADO	
LARIMER		402359	1053505	JUL	15	1982	13100	6		POOR	R		6	FALL RIVER BLW. CASCADE DAM ABV. ESTES PARK, COLORADO	
LINCOLN	6821300	393112	1032635	JUL	23	1972	420	1	5.27	UNKNOWN	L		6	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO	
LINCOLN	6821300	393112	1032635	AUG	10	1979	1270	1	6.55	UNKNOWN	L		6	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO	
LOGAN	6760000	402424	1032758	JUN	18	1965	123000	2 4	16852	FAIR	R		6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	
LOGAN	6760300	405248	1031912	AUG	30	1971	1740	1	7.39	UNKNOWN	L		6	DARBY CREEK NR. BUCHANAN, COLORADO	
LOGAN	6760430	405812	1030034	JUL	4	1971	177	1	22.3	UNKNOWN	L		6	SPRING CANYON NR. PEETZ, COLORADO	
LOGAN	6822600	402950	1024630	JUL	22	1979	850	1	2.37	UNKNOWN	L		6	PATENT CREEK NR. ST. PETERSBURG, COLORADO	
LOGAN		403424	1032056	SEP	7	1951	12000	4		POOR	R	2	6	PAWNEE CREEK NEAR LOGAN, COLORADO	
LOGAN		403700	1032700	JUN	15	1965	35200	4	629	FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	
MORGAN	6758500	401920	1035515	JUN	19	1965	18800	4	13245	UNKNOWN	R	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	
MORGAN	6759000	401453	1040208	JUN	17	1950	242	1	1420	UNKNOWN	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	
MORGAN	6759000	401453	1040208	AUG	22	1952	7840	1	1314	UNKNOWN	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	
MORGAN	6759100	401658	1035231	JUL	26	1977	2200	1	1500	UNKNOWN	L		6	BIJOU CREEK NR. FORT MORGAN, COLORADO	
MORGAN		402240	1033324	SEP	7	1951	4400	2		UNKNOWN	R		6	ANTELOPE CREEK NEAR SNYDER, COLORADO	
MORGAN		402238	1033736	SEP	7	1951	13400	4		POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO	
MORGAN		400800	1033500	JUN	18	1965	24300	1	946	GOOD	R	1	6	BEAVER CREEK NEAR BRUSH, COLORADO	
MORGAN		401517	1035800	JUN	18	1965	466000	1	1314	POOR	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	
PARK	6698500	391742	1054305	JUN	7	1979		3	183	UNKNOWN	R		6	TARRYALL CREEK NR. JEFFERSON, COLORADO	
SEDGEWICK	6764000	405846	1021515	JUN	20	1965	37600	1	23138	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	
TELLER		390744	1050942	MAY	7	1973	240	1	38	GOOD	R		6	WEST CREEK ABV. WESTCREEK, COLORADO	
WELD	6743500	402007	1045153	AUG	7	1955	398	1	198	POOR	R		6	LITTLE THOMPSON RIVER AT MILLIKEN, COLORADO	
WELD	6753500	404600	1044725	AUG	3	1951	239	6	199	UNKNOWN	R	2	6	LONE TREE CREEK NR. NUNN, COLORADO	
WELD	6753500	404600	1044725	AUG	7	1955	775	1	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	
WELD	6753500	404600	1044725	JUN	14	1965	5810	1 3	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	
WELD	6753800	405507	1044601	AUG	23	1972	641	1	4.56	UNKNOWN	L		6	OWL CREEK TRIB. NR. ROCKPORT, COLORADO	
WELD	6753800	405507	1044601	JUN	28	1973	2620	1	4.56	UNKNOWN	L		6	OWL CREEK TRIB. NR. ROCKPORT, 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
WELD	6756200	405800	1043350	JUL	20	1970	119	1	5.7	UNKNOWN	L	2	6	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	
WELD	6756200	405800	1043350	AUG	19	1971	192	1	5.7	UNKNOWN	L		6	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	
WELD	6758400	400210	1041306	AUG	3	1972	874	1	18.15	UNKNOWN	L		6	GOOSE CREEK NR. HOYT, COLORADO	
WELD		401029	1045847	AUG	3	1951	6200	4		UNKNOWN	R	2	6	ST. VRAIN CREEK NR. LONGMONT, COLORADO	
WELD		403800	1043000	JUN	15	1965	5340	4	73.1	FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	
WELD		404300	1041400	JUN	15	1965	4000	1	633	POOR	R	1	6	CROW CREEK NR. KEOTA, COLORADO	
WELD		404500	1034800	JUN	14	1965	6280	1	82.3	GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	
WELD		404200	1033900	JUN	15	1965	26700	1	387	GOOD	R	1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	
WELD		405438	1045414	AUG	27	1971	3120	1	151	FAIR	R		6	LONE TREE CREEK NEAR CARR, COLORADO	
WELD		402230	1043625	APR	12	1973	13600	1		FAIR	R	3	6	BEEBE DRAW NR. AUBURN, COLORADO	
YUMA	6821400	395424	1021608	AUG	23	1969	2280	1	17.1	UNKNOWN	L	2	6	NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO	
YUMA	6825000	393700	1021430	JUL	12	1951	6660	1	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA	6825000	393700	1024300	MAY	13	1961	2960	1	1300	POOR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA	6825000	393700	1024300	JUN	13	1962	9610	4	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA	6825000	393659	1021432	AUG	23	1969	14900	4	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA	6825000	393659	1021432	MAY	2	1977	5900	1	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA	6825500	393440	1021450	JUL	12	1951	3110	1	268	UNKNOWN	R		6	LANDSMAN CREEK NR HALE, COLORADO	
YUMA	6825500	393430	1021510	JUN	24	1962	2590	1	268	FAIR	R		6	LANDSMAN CREEK NR HALE, COLORADO	
YUMA	6825500	393430	1021510	MAY	16	1963	556	1	268	FAIR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA	6825500	393430	1021510	AUG	7	1963	2020	1	268	GOOD	R		6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA	6825500	393430	1021510	JUN	13	1964	1650	1	268	FAIR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA	6825500	393432	1021506	AUG	23	1969	10600	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA	6825500	393432	1021506	JUN	20	1975	13000	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA	6826900	394150	1021037	SEP	11	1973	725	1	24.2	UNKNOWN	L		6	SAND CREEK NR. HALE, COLORADO	
YUMA	6826900	394150	1021037	MAY	28	1975	4350	1	17.8	UNKNOWN	L		6	SAND CREEK NR. HALE, COLORADO	
YUMA		395338	1021340	JUL	17	1962	17800	1	25	GOOD	R		6	BLACK WOLF CREEK NEAR WRAY, COLORADO	
BACA		372600	1023700	JUN	17	1965	13200	4	113	FAIR	P	1	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	
BACA		371900	1023600	JUN	17	1965	7330	1	106	UNKNOWN	P	1	7	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	
BACA		373800	1023700	JUN	17	1965	82600	2 4	453	GOOD	P	1	7	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	
BENT	7124000	380508	1031250	MAY	20	1955	44000	1	14417	UNKNOWN	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	
BENT	7124000	380508	1031250	JUN	19	1965	22100	4	14417	GOOD	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	
BENT	7128000	375500	1031800	APR	24	1942	60000	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO	
BENT	7128000	375500	1031800	JUN	28	1943	5175	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	7128000	375500	1031800	JUN	5	1949	26100	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	7128000	375500	1031800	JUL	23	1951	17200	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	7128000	375500	1031800	JUL	23	1954	40300	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	7128000	375500	1031800	MAY	20	1955	73400	1 2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	AUG	29	1950	11500	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	JUL	19	1950	7950	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	JUL	12	1951	10000	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	JUL	23	1951	17600	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	JUN	18	1965	62500	4	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7128500	380202	1031200	SEP	27	1966	17300	1	3503	FAIR	R		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	7129400	374900	1031100	JUN	18	1965	276000	1	435	FAIR	P	1 3	7	RULE CREEK NR. TOONERVILLE, COLORADO	
BENT	7129500	380000	1030400	AUG	22	1941	1300	5	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT	7129500	380000	1030400	JUN	5	1949	11600	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT	7129500	380000	1030400	MAY	19	1955	4810	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT	7129500	380000	1030400	JUL	19	1956	2300	1	435	FAIR	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT	7129500	380000	1030400	AUG	18	1963	4480	1	435	UNKNOWN	P	1 2	7	RULE CREEK NR. CADDOA, COLORADO	
BENT	7130500	380500	1025510	APR	24	1942	40000	1	18917	UNKNOWN	P		7	ARKANSAS RIVER AT CADDOA, COLORADO	
BENT	7130500	380500	1025510	APR	24	1942	40000	2	18917	UNKNOWN	R	2	7	ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO	
BENT	7131000	380340	1025505	JUL	11	1941	253	1	131	UNKNOWN	R	2	7	CADDOA CREEK AT CADDOA, COLORADO	
BENT	7131000	380340	1025505	AUG	19	1956	11800	1 4	131	UNKNOWN	P		7	CADDOA CREEK AT CADDOA, COLORADO	
BENT	7131000	380340	1025505	JUL	19	1956	2090	1	131	POOR	P		7	CADDOA CREEK AT CADDOA, COLORADO	
BENT	7131000	380340	1025505	JUN	18	1965	37600	4	131	GOOD	P		7	CADDOA CREEK AT CADDOA, COLORADO	
BENT	7131000	380340	1025505	MAY	24	1965	1780	1	131	UNKNOWN	P		7	CADDOA CREEK NR. CADDOA, COLORADO	
BENT		380305	1032114	JUL	27	1963	1230	2 3	5.29	FAIR	P		7	ARKANSAS RIVER TRIB. NR. LAS ANIMAS, COLORADO	
BENT		380523	1031824	JUN	18	1965	8600	4	589	GOOD	P		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	
BENT		380504	1032110	JUN	18	1965	5070	2 3	1300	POOR	P		7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	
CHAFFEE		383908	1060302	AUG	28	1972	3000	1		FAIR	R		7	UNNAMED ARKANSAS RIVER TRIB. NEAR NATHROP, COLORADO	
EL PASO	7099220	383736	1045155	AUG	28	1978	284	1	62.5	FAIR	R		7	TURKEY CREEK ABV. TELLER RES. NR. STONE CITY, COLORADO	
EL PASO	7103700	385117	1045239	JUL	5	1959	408	1	102	UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103700	385117	1045239	JUL	11	1961	955	1	102	UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103700	385117	1045239	MAY	29	1964	672	1	102	FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103700	385117	1045239	AUG	4	1964	2630	1	102	POOR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103700	385117	1045239	JUN	2	1981	650	1	103	FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO	7103950	390014	1044421	AUG	5	1981	2300	1	9.01	FAIR	P		7	KETTLE CK. NEAR BLACK FOREST, COLORADO	
EL PASO	7104000	385504	1044905	AUG	14	1977	1230	1	204	FAIR	P		7	MONUMENT CREEK AT PIKEVIEW, COLORADO	
EL PASO	7104000	385504	1044905	AUG	5	1981	3750	1	204	FAIR	P		7	MONUMENT CREEK AT PIKEVIEW, COLORADO	
EL PASO	7105500	384859	1044920	JUN	2	1981	3950	1	392	FAIR	P		7	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO	
EL PASO	7105500	384859	1044920	JUN	2	1981	3950	1	392	POOR	P		7	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO	

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EL PASO	7105780	384509	1044543	AUG	15	1981	2700	1		FAIR	P		7	B-DITCH DRAIN NR. SECURITY, COLORADO	
EL PASO	7105800	384346	1044000	JUL	24	1965	25000	1	488	POOR	R		7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	384346	1044400	JUN	14	1965	2880	1	488	GOOD	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	384346	1044400	JUN	11	1972	6520	1	488	FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	384346	1044400	AUG	2	1981	4330	1	495	FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105920	384055	1045130	JUN	2	1981	512		11	FAIR	P		7	LITTLE FOUNTAIN CK. ABV. KEATON RES., NR. FT CARSON, CO.	
EL PASO	7105940	383833	1044449	AUG	26	1979	260	1	26.9	POOR	R		7	LITTLE FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	
EL PASO	7106000	383608	1044013	MAY	28	1940	22100	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	
EL PASO	7106000	383608	1044013	JUN	30	1954	6800	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	
EL PASO	7124220	370843	1043707	JUL	26	1981	950	1		GOOD	P		7	REILLY CANYON AT COKEDALE, COLORADO	
EL PASO		390650	1041100	AUG	5	1954	44500	1		UNKNOWN	P		7	BIG SANDY CRK AT STATE HIGHWAY NO. 208 AT RAMAH,COLORADO	
EL PASO		390500	1041700	JUN	17	1965	60700	1	49	FAIR	P	1	7	BIG SANDY CREEK NR. CALHAN, COLORADO	
EL PASO		384225	1042325	JUN	17	1965	141000	1	353	GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO	
EL PASO		390105	1043200	JUN	17	1965	10400	4	16.3	FAIR	P		7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	
EL PASO		384700	1045000	JUL	24	1965	3710	1		GOOD	P	1	7	FOUNTAIN CREEK TRIB. NR. COLORADO SPRINGS, COLORADO	
EL PASO		384320	1043845	JUN	17	1965	124000	1	54.3	FAIR	R		7	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO	
EL PASO		385825	1045237	JUN		1965	515	1	20.7	FAIR	P		7	W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORADO	
FREMONT	7093740	383925	1054845	SEP	4	1981	254	1		GOOD	P		7	BADGER CK (UPPER STATION) NEAR HOWARD, COLORADO	
FREMONT	7093775	385759	1055106	SEP	5	1981	267	1		GOOD	P		7	BADGER CREEK (LOWER STATION) NEAR HOWARD, COLORADO	
FREMONT	7096500	382700	1051030	JUL	12	1950	778	1	432	UNKNOWN	R		7	OIL CREEK NR. CANON CITY, COLORADO	
FREMONT	7096500	382700	1051030	JUL	11	1951	4260	1	432	GOOD	R		7	OIL CREEK NR. CANON CITY, COLORADO	
FREMONT	7098500	382611	1051127	JUL	8	1973	631	1	434	GOOD	P		7	FOURMILE CREEK NR. CANYON CITY, COLORADO	
FREMONT	7098500	382611	1051127	JUL	29	1982	1080	1	434	FAIR	P		7	FOURMILE CREEK NR. CANON CITY, COLORADO	
FREMONT	7099100	382227	1045749	AUG	1	1972	1040	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT	7099100	382227	1045749	SEP	9	1973	4800	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT	7099100	382227	1045749	JUL	17	1981	2730	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT		382313	1050657	JUN		1949	5420	4		UNKNOWN	P		7	COAL CREEK AT FLORENCE, COLORADO	
FREMONT		382908	1052319	JUL	27	1961	930	3	0.84	FAIR	P		7	ARKANSAS RIVER TRIB. AT PARKDALE, COLORADO	
FREMONT		382908	1052322	JUL	27	1961	284	3	0.16	GOOD	P		7	ARKANSAS RIVER TRIB. NO. 2 AT PARKDALE, COLORADO	
FREMONT		382806	1052240	JUL	27	1961	8500	1	4.8	POOR	P		7	MCINTYRE GULCH NR. PARKDALE, COLORADO	
FREMONT		383000	1055100	AUG	29	1978	9960	1		POOR	R	1	7	BADGER CREEK NR. HOWARD, COLORADO	
HAMILTON	7137500	380133	1020100	JUN	17	1965	158000	1	25410	POOR	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS	
HUERFANO	7111000	374340	1052110	AUG	2	1951	10200	1	73	UNKNOWN	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO	
HUERFANO	7111000	374340	1052103	AUG	3	1972	6520	1	73	GOOD	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO	
HUERFANO	7112500	374340	1050045	JUL	17	1938	645	1	519	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	SEP	21	1940	1310	1	532	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	AUG	3	1940	1180	1	519	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	JUL	5	1950	445	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	JUL	20	1950	620	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	AUG	3	1951	1280	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	AUG	16	1953	2050	5	532	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7113500	375100	1044200	AUG	14	1942	26000	1	803	UNKNOWN	R	1 2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	
HUERFANO	7113500	375100	1044200	AUG	16	1943	3200	1	803	UNKNOWN	R	1 2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	
HUERFANO	7113500	375100	1044200	JUL	7	1945	3500	1	800	UNKNOWN	R	1	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	
LAS ANIMAS	7118500	372400	1043829	JUL	31	1979	4520	1	147	POOR	P		7	APISHAPA RIVER AT AGUILAR, COLORADO	
LAS ANIMAS	7124100	370756	1044824	JUN	27	1978	278	1	4.23	GOOD	P		7	MOLINO CANYON NR. WESTON, COLORADO	
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	
LAS ANIMAS	7124120	370726	1044549	JUN	27	1978	472	1	35.3	FAIR	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS	7124120	370726	1044549	JUL	18	1979	3380	1	35.3	FAIR	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS	7124200	370746	1043820	JUL	12	1975	4500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200	370746	1043820	JUL	17	1979	3610	1	550	FAIR	R		7	PURGATOIRE AT MADRID, COLORADO	
LAS ANIMAS	7124200	370746	1043820	AUG	10	1981	11500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200	370746	1043820		26	1981	3250	1	505	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUN	27	1978	1440	1	35.1	FAIR	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	35.1	POOR	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	35.1	FAIR	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS	7124300	370653	1043617	JUL	19	1978	2480	1	100	GOOD	P		7	LONG CANYON CREEK NR. MADRID, COLORADO	
LAS ANIMAS	7124300	370653	1043617	JUL	17	1979	3140	1	100	FAIR	R		7	LONG CANYON CREEK NR. MADRID, COLORADO	
LAS ANIMAS	7124350	370913	1043411	JUL	26	1981	2790	1		FAIR	P		7	CARPIOS CANYON NR. JANSEN, COLORADO	
LAS ANIMAS	7124350	370913	1043402	AUG	10	1981	5300	1	4.57	FAIR	P		7	CARPIOS CANYON NEAR JANSEN, COLORADO	
LAS ANIMAS	7124500	371010	1043030	SEP	6	1909	13300	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371005	1043110	JUL	22	1925	33000	4	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371015	1043030	APR	23	1942	35000	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371015	1043031	JUL	12	1961	11200	1	795	FAIR	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371015	1043031	JUN	17	1965	15700	4	795	GOOD	P	1	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124700	370936	1042538	AUG	22	1970	2520	1	8.46	UNKNOWN	L	2	7	GRAY CREEK NEAR ENGLEVILLE, COLORADO	
LAS ANIMAS	7125000	371450	1042450	JUL	22	1954	5920	1 2	857	UNKNOWN	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	
LAS ANIMAS	7125000	371450	1042350	JUN	16	1965	20000	2	857	POOR	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	
LAS ANIMAS	7125100	371200	1041140	JUL	22	1954	13500	2 4	80	UNKNOWN	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125100	371200	1041200	AUG	21	1958	2310	1	80	POOR	P	1	7	FRIJOLE CREEK NR. ALFALFA, COLORADO	

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LAS ANIMAS	7125100	371200	1041140	JUN	17	1965	10600	4	80	GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125100	371200	1041140	JUL	3	1981	28400	2 4	80	FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125500	391100	1040830	JUL	22	1954	26300	2 4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110	1040750	MAY	19	1955	15500	4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110	1040750	JUN	29	1959	2970	1	160	GOOD	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110	1040750	AUG	7	1964	6680	1	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110	1040750	JUN	18	1965	14000	4	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	SEP	13	1952	3440	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	JUN	16	1953	8740	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	JUL	11	1953	6230	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	JUL	22	1954	37800	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	MAY	19	1955	41900	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	1040730	JUN	18	1965	27300	1	1320	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126100	371816	1040054	MAY	28	1967	1060	1	86	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7126100	371816	1040054	AUG	3	1968	4830	1	86	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7126200	372045	1035727	MAY	26	1967	6240	1	168	FAIR	P		7	VAN BREMER ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7126200	372045	1035727	AUG	9	1979	6050	1	168	POOR	R		7	VAN BREMMER ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7126300	372130	1035344	AUG	1	1977	12200	1	1935	FAIR	R		7	PURGATOIRE RIVER NR. THATCHER, COLORADO	
LAS ANIMAS	7126400	373324	1035020	AUG	7	1971	1410	1	4.27	UNKNOWN	L		7	RED ROCK CANYON NR. BLOOM, COLORADO	
LAS ANIMAS	7126450	371143	1033633	JUL	22	1970	843	1	8.45	UNKNOWN	L		7	TOBE ARROYO NR. TOBE, COLORADO	
LAS ANIMAS	7129100	373357	1031026	AUG	28	1971	5040	1	7.69	UNKNOWN	L		7	RULE CREEK NR. NINAVIEW, COLORADO	
LAS ANIMAS	7129200	373556	1031948	AUG	19	1971	1260	1	3.7	UNKNOWN	L		7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO	
LAS ANIMAS	7129200	373556	1031948	MAY	20	1977	2270	1	3.31	UNKNOWN	L		7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO	
LAS ANIMAS	7153450	370524	1034109	JUN	7	1978	940	1	4.08	UNKNOWN	L		7	LONGS CANYON CREEK NR. TOBE, COLORADO	
LAS ANIMAS		370700	1043500	APR	23	1942	11500	1	104	UNKNOWN	P	1	7	LONG CANYON NR. SOPRIS, COLORADO	
LAS ANIMAS		370757	1043600	APR	23	1942	11400	1		UNKNOWN	P		7	PURGATOIRE RIVER AT LONGS CANYON, COLORADO	
LAS ANIMAS		370825	1043315	APR	23	1942	21400	4		UNKNOWN	P		7	PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO	
LAS ANIMAS		370847	1043300	APR	23	1942	5630	1		UNKNOWN	P		7	PURGATOIRE RIVER AT RATON CREEK, COLORADO	
LAS ANIMAS		370850	1043210	APR	23	1942	5580	1	63	UNKNOWN	P		7	RATON CREEK NR. TRINIDAD, COLORADO	
LAS ANIMAS		371000	1035613	JUL	22	1954	15500	3	34.5	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		370911	1043222	JUL		1954	3100	1	9.88	UNKNOWN	P		7	COLORADO CANYON NR. JANSEN, COLORADO	
LAS ANIMAS		371145	1041036	JUL	22	1954	1130	2 3	1.49	UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS		371145	1041100	JUL	22	1954	447	3	0.84	UNKNOWN	P		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS		370745	1040050	JUL	22	1954	25100	2 4	129	UNKNOWN	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO	
LAS ANIMAS		371000	1035613	MAY	19	1955	1260	1	34.5	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		370730	1043859	MAY	19	1955	1150	1	28.3	UNKNOWN	P		7	BURRO CANYON AT MADRID, COLORADO	
LAS ANIMAS		373310	1033700	MAY	19	1955	3170	1	387	UNKNOWN	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	
LAS ANIMAS		371712	1041943	MAY	19	1955	1140	2	123	UNKNOWN	P		7	CHICOSA CREEK NR. HOEHNE, COLORADO	
LAS ANIMAS		370911	1043222	MAY	19	1955	940	1	9.88	UNKNOWN	P		7	COLORADO CANYON NR. JANSEN, COLORADO	
LAS ANIMAS		371145	1041036	MAY	19	1955	375	2 3	1.49	UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS		370904	1043045	MAY	19	1955	820	1	3.6	UNKNOWN	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	
LAS ANIMAS		371215	1042710	MAY	19	1955	1960	1	16	UNKNOWN	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	
LAS ANIMAS		370100	1042845	MAY	19	1955	642	3	4.54	UNKNOWN	P		7	JOE CREEK NR. MORELY, COLORADO	
LAS ANIMAS		370720	1043520	MAY	19	1955	9650	1	104	UNKNOWN	P		7	LONG CANYON NR. SOPRIS, COLORADO	
LAS ANIMAS		371145	1041100	MAY	19	1955	187	3	0.84	UNKNOWN	P		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS		371200	1042900	MAY	19	1955	9000	1		UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	
LAS ANIMAS		370610	1044548	MAY	19	1955	1790	2	381	UNKNOWN	P		7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	
LAS ANIMAS		370732	1044150	MAY	19	1955	4400	2	485	UNKNOWN	P		7	PURGATOIRE RIVER AT DIVERSION DAM AT VALDEZ, COLORADO	
LAS ANIMAS		370902	1043230	MAY	19	1955	26400	4	766	UNKNOWN	P		7	PURGATOIRE RIVER AT JANSEN, COLORADO	
LAS ANIMAS		370828	1043553	MAY	19	1955	19800	2	691	UNKNOWN	P		7	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	
LAS ANIMAS		371712	1041842	MAY	19	1955	37900	2 4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	
LAS ANIMAS		370653	1043118	MAY	19	1955	9400	1	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	
LAS ANIMAS		370030	1042650	MAY	19	1955	402	3	5.27	UNKNOWN	P		7	RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO	
LAS ANIMAS		370756	1043634	MAY	19	1955	2800	1	36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS		370725	1044525	MAY	19	1955	1460	1	36.4	GOOD	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS		371000	1035700	JUN	17	1965	2600	1	34.5	GOOD	P	1	7	ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		370730	1043859	JUN	17	1965	3120	3	28.3	FAIR	P		7	BURRO CANYON AT MADRID, COLORADO	
LAS ANIMAS		373211	1033606	JUN	17	1965	38900	1	387	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	
LAS ANIMAS		370538	1043119	JUN	17	1965	1720	3	8.1	GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO	
LAS ANIMAS		370904	1043045	JUN	17	1965	1090	4	3.6	FAIR	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	
LAS ANIMAS		371215	1042710	JUN	17	1965	3540	1	16	GOOD	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	
LAS ANIMAS		370100	1042845	JUN	17	1965	760	3	4.54	POOR	P		7	JOE CREEK NR. MORELY, COLORADO	
LAS ANIMAS		370720	1043520	JUN	17	1965	4480	1	104	FAIR	P		7	LONG CANYON NR. SOPRIS, COLORADO	
LAS ANIMAS		370800	1045100	JUN	16	1965	1920	1	216	GOOD	R	1	7	NORTH FORK PURGATOIRE AT WESTON, COLORADO	
LAS ANIMAS		370800	1044800	JUN	17	1965	3000	4	381	UNKNOWN	P	1	7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	
LAS ANIMAS		371712	1041842	JUN	16	1965	20900	4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	
LAS ANIMAS		372130	1041842	JUN	18	1965	47700	4	1935	FAIR	P	2	7	PURGATOIRE RIVER NR. THATCHER, COLORADO	
LAS ANIMAS		370653	1043118	JUN	17	1965	12900	4	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	
LAS ANIMAS		370030	1042650	JUN	16	1965	4660	1	5.27	FAIR	P		7	RATON CREEK NR. MORLEY, COLORADO	
LAS ANIMAS		370756	1043634	JUN	16	1965	3410	1	36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS		370100	1041200	JUN	17	1965	7960	1	32.1	GOOD	P	1	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	

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LAS ANIMAS		370725	1044525	JUN	17	1965	1630	1	36.4	UNKNOWN	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS		370800	1045100	JUN	16	1965	1340	4	101	GOOD	P	1	7	SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO	
LAS ANIMAS		370745	1040050	JUN	17	1965	4500	2 4	129	FAIR	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO	
LINCOLN		385100	1033200	JUN	17	1965	3710	1	188	FAIR	P	1	7	SOUTH RUSH CREEK NR. KARVAL, COLORADO	
OTERO	7119500	380528	1035852	AUG	15	1942	14700	1	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	MAY	19	1955	17000	2 4	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	JUL	6	1958	12100	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	JUL	13	1960	1200	4	1125	POOR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	AUG	13	1963	2730	1	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	JUN	17	1965	11400	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852	JUL	10	1978	18300	2 4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119700	380735	1035640	JUN	18	1965	43200	2	10901	UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	
OTERO	7119700	380733	1035441	JUL	10	1978	23300	2 3	10901	POOR	R	2	7	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO	
OTERO	7121000	375720	1034320	AUG	27	1941	3100	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320	AUG	14	1942	4300	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320	JUN	4	1949	1300	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320	JUL	24	1950	9510	1	451	FAIR	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320	JUL	12	1953	10000	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320	JUL	23	1956	15500	1	451	FAIR	R	2	7	TIMPAS CREEK AT CATLIN SYPHON, COLORADO	
OTERO	7121500	380010	1033918	AUG	22	1969	2169	1	496	GOOD	R		7	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO	
OTERO	7122400	375856	1033552	JUL	20	1976	395	1	108	POOR	P		7	CROOKED ARROYO NR. SWINK, COLORADO	
OTERO	7126500	374400	1032900	SEP	15	1934	45000	1	2900	UNKNOWN	R	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7126500	374400	1032900	APR	23	1942	43500	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7126500	374400	1032900	JUN	5	1949	26100	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7126500	394400	1032900	MAY	19	1955	80000	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO		375900	1033200	JUL	21	1927	16450	1	28.7	UNKNOWN	P	1 2	7	KING'S ARROYO NR. LA JUNTA, COLORADO	
OTERO		375955	1033513	JUL	12	1953	24300	2 4	87	FAIR	R		7	CROOKED ARROYO NR. LA JUNTA, COLORADO	
OTERO		374225	1032420	MAY	19	1955	5660	1	291	UNKNOWN	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	
OTERO		375720	1034320	JUL	5	1958	23000	1	451	UNKNOWN	P		7	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO	
OTERO		380138	1034730	JUN		1965	31670	4		UNKNOWN	P		7	ARKANSAS RIVER AT SWINK, COLORADO	
OTERO		374225	1032420	JUN	18	1965	84000	1	291	FAIR	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	
OTERO		380040	1033830	JUN	17	1965	21480	2 4	481	GOOD	P		7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	
PROWERS	7133000	380617	1023701	JUN	5	1921	130000		19780	UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO	
PROWERS	7133050	380216	1023651	JUN	23	1975	475	1	42	GOOD	P		7	WILLOW CREEK NR. LAMAR, COLORADO	
PROWERS	7133050	380216	1023651	JUN	27	1975	2460	1	42	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	
PROWERS	7134100	380651	1022900			1975	121	3	3248	UNKNOWN	P	2	7	BIG SANDY CREEK NR. LAMAR, COLORADO	
PROWERS	7134100	380651	1022900	SEP	16	1976	2520	3	3248	UNKNOWN	P	2	7	BIG SANDY CREEK NR. LAMAR, COLORADO	
PROWERS	7134300	375230	1022854	AUG	23	1969	7880	1	15.7	UNKNOWN	L	2	7	WOLF CREEK NR. CARLTON, COLORADO	
PROWERS	7135800	381545	1020933	JUN	30	1971	2411	1	10	UNKNOWN	L		7	WILD HORSE CREEK TRIB. NR. HARTMAN, COLORADO	
PROWERS	7136000	380245	1020706	MAY		1949	1690	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	
PROWERS	7136000	380245	1020705	JUN	17	1965	10600	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	
PROWERS		380300	1020300	JUN		1949	5900	1 4		UNKNOWN	R	1	7	CHEYENNE CREEK NEAR HOLLY, COLORADO	
PROWERS		380533	1023155	JUN		1949	12600	4	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380326	1020701	JUN		1949	1830	1		UNKNOWN	R		7	HOLLY DRAIN AT HOLLY, COLORADO	
PROWERS		380140	1020820	JUN		1949	407	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS		380343	1020745	JUN		1949	8340	4		UNKNOWN	P		7	WILD HORSE CREEK ABV. HOLLY, COLORADO	
PROWERS		380509	1023148	MAY	15	1951	27500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380140	1020820	MAY	15	1951	34000	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS		380300	1020700	MAY	15	1951	5000	1		UNKNOWN	P	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO	
PROWERS		380230	1022030	MAY	15	1951	8800	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	
PROWERS		380509	1023148	MAY	20	1955	5500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380230	1022030	MAY	20	1955	1420	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	
PROWERS		380509	1023148	JUL	19	1956	3860	1	228	POOR	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380230	1022030	JUL	19	1956	1170	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	
PROWERS		380300	1024200	JUL	27	1957		1		UNKNOWN	P	1	7	DRY CREEK NR. LAMAR, COLORADO	
PROWERS		380300	1022000	MAY	13	1958	17100	1	116	FAIR	R	1	7	WOLF CREEK NEAR GRANADA, COLORADO	
PROWERS		380307	1020253	MAY	18	1962	4630	1	29	FAIR	R		7	CHEYENNE CREEK AT COLORADO-KANSAS LINE	
PROWERS		380509	1023148	MAY	21	1964	3530	1	228	GOOD	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380509	1023148	JUL	17	1964	14400	1	228	GOOD	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380715	1022850	JUN	17	1965	3600	1	2840	FAIR	P	1	7	BIG SANDY CREEK NR. LAMAR, COLORADO	
PROWERS		380044	1023426	JUN	18	1965	158000	1	213	FAIR	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		375920	1021650	JUN	17	1965	12600	1	17.7	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO	
PROWERS		380425	1022625	JUN	17	1965	10600	1	29.1	GOOD	P		7	SMITH ARROYO NR. GRANADA, COLORADO	
PROWERS		380140	1020820	JUN	17	1965	182000	1	817	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS		380156	1023707	JUN	18	1965	24300	1	40.5	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	
PROWERS		375705	1022605	JUN	17	1965	35300	1	62.5	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO	
PUEBLO	7099200	382019	1045627	AUG	21	1965	23900	1	4280	UNKNOWN	P		7	ARKANSAS RIVER NR. PORTLAND, COLORADO	
PUEBLO	7099250	381146	1045044	AUG	2	1976	860	1	8.35	UNKNOWN	L		7	SODA CREEK TRIB. NR. LIVESEY, COLORADO	
PUEBLO	7099500	381602	1043926	AUG	22	1965	23500	4	4686	FAIR	P		7	ARKANSAS RIVER NR. PUEBLO, COLORADO	
PUEBLO	7106500	381620	1043540	AUG	26	1941	10921	1	926	POOR	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7106500	381620	1043540	AUG	14	1942	11000	1	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, 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
PUEBLO	7106500	381620	1043540	JUL	10	1945	17800	5	926	UNKNOWN	R		7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7106500	381620	1043540	AUG	26	1946	16500	5	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7106500	381633	1043909	JUN	17	1965	47000	4	926	GOOD	P		7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7107500	380306	1044735	MAY	15	1980	3300	1	1.66	FAIR	R		7	ST. CHARLES RIVER AT BURNT MILL, COLORADO	
PUEBLO	7107600	380405	1044633	AUG	1	1976	967	1	2.87	UNKNOWN	L		7	ST. CHARLES TRIB. NR. GOODPASTURE, COLORADO	
PUEBLO	7107900	375514	1045721	JUL	10	1975	340	1	11	FAIR	P		7	GREENHORN CREEK NR. RYE, COLORADO	
PUEBLO	7108050	375706	1044742	AUG	2	1976	1220	1	32	POOR	P		7	GREENHORN CREEK NR. COLORADO CITY, COLORADO	
PUEBLO	7108500	381220	1043140	APR	19	1942	6670	1	468	UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	
PUEBLO	7108500	381220	1043140	JUL	26	1950	16100	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	
PUEBLO	7108500	381220	1043140	MAY	19	1955	20600	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	
PUEBLO	7108900	381500	1042900	AUG	3	1981	2400	1	4.74	FAIR	P	1	7	ST. CHARLES RIVER AT VINELAND, COLORADO	
PUEBLO	7109500	381453	1042355	JUL	30	1978	15400	1	6327	POOR	P		7	ARKANSAS RIVER NR. AVONDALE, COLORADO	
PUEBLO	7110500	381550	1042230	AUG	27	1941	13000	1	864	UNKNOWN	R	2	7	CHICO CREEK NEAR NORTH AVONDALE, COLORADO	
PUEBLO	7115500	380000	1042800	JUL	28	1936	26640	2	1673	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	
PUEBLO	7115500	380200	1042500	JUN	7	1938	11000	5	1702	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	
PUEBLO	7115500	380000	1042800	AUG	16	1943	3700	1	1710	UNKNOWN	P	1 2	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	AUG	3	1945	13500	1	1710	UNKNOWN	P	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	AUG	13	1946	6000	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	JUL	26	1950	16700	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	JUL	11	1953	3340	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	MAY	19	1955	11300	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000	380000	1042800	JUL	5	1958	16800	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7117000	381054	1040940	JUN	18	1965	43100	2 4	9345	FAIR	P		7	ARKANSAS RIVER NR. NEPESTA, COLORADO	
PUEBLO		380112	1044331	MAY	19	1955	3650	1	42.5	UNKNOWN	P		7	MUDDY CREEK NR. PUEBLO, COLORADO	
PUEBLO		381127	1040832	JUL	13	1963	6840	2 3	160	FAIR	P		7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO	
PUEBLO		381240	1040740	JUL	13	1963	4720	1	155	FAIR	P		7	KRAMER CREEK NR. NEPASTA, COLORADO	
PUEBLO		381442	1042036	JUN	18	1965	104000	4	7157	POOR	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	
PUEBLO		381900	1045300	JUL	19	1965	7000	1	2.66	FAIR	P	1	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO	
CONEJOS	8238000	371210	1061200	AUG	20	1936	313	1	98	UNKNOWN	R	2	8	LA JARA CREEK AT GALLEGOS RANCH NR. CAPULIN, COLORADO	
COSTILLA	8241500	372600	1052400	AUG	31	1936	1520	1	187	UNKNOWN	R	1 2	8	SANGRE DE CRISTO CREEK NR. FORT GARLAND, COLORADO	
COSTILLA	8247500	370000	1060200	AUG	4	1936	1280	1	110	UNKNOWN	R	1 2	8	SAN ANTONIO RIVER NR. ORTIZ, COLORADO	
COSTILLA	8249400	371053	1051914	JUN	5	1968	327	1	72.4	FAIR	R		8	CULEBRA CREEK NR. CHAMA, COLORADO	
MINERAL	8216500	375120	1065540	MAY	27	1951	240	6	35.3	UNKNOWN	R		8	WILLOW CREEK AT CREEDE, COLORADO	
MINERAL	8217500	374600	1064950	SEP	6	1970	4660	1	780	UNKNOWN	P		8	RIO GRANDE AT WAGONWHEEL GAP, COLORADO	
RIO GRANDE	8220500	373520	1062650	AUG	3	1936	720	1	53	UNKNOWN	R	2	8	PINOS CREEK NR. DEL NORTE, COLORADO	
RIO GRANDE	8220900	373444	1062211	JUL	30	1968	754	1	11.8	FAIR	R		8	SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO	
SAGUACHE	8227500	380100	1054100	AUG	6	1936	735	1	10.7	UNKNOWN	R	1 2	8	NORTH CRESTONE CREEK NR. CRESTONE, COLORADO	
SAGUACHE	8229500	375600	1053842	JUL	26	1968	540	1	6.77	GOOD	R		8	COTTONWOOD CREEK NEAR CRESTONE, COLORADO	
SAGUACHE		380437	1054546	AUG	11	1968	174	1	12	GOOD	R		8	RITO ALTO CREEK NEAR MOFFAT, COLORADO	
ARCHULETA	9339900	372325	1065025	SEP	6	1970	1710	1	64.1	POOR	R		9	E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	
ARCHULETA	9340000	372210	1065330	SEP	6	1970	2060	1	86.9	GOOD	R		9	E FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	
ARCHULETA	9342500	371558	1070037	SEP	6	1970	6580	1	298	GOOD	R		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	
ARCHULETA	9343000	371246	1064738	SEP	6	1970	2500	2 3	58	GOOD	R	2	9	RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	
ARCHULETA	9344300	370155	1064356	SEP	14	1970	1400	2	96.4	GOOD	R	2	9	NAVAJO RIVER ABV. CHROMO, COLORADO	
ARCHULETA	9349500	371320	1072032	SEP	6	1970	7980	1	371	POOR	R		9	PIEDRA RIVER NR. PIEDRA, COLORADO	
ARCHULETA		370440	1064834	SEP	6	1970	132	1	13.6	GOOD	R		9	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	
DELTA	9134200	384822	1074112	JUL	20	1977	946	1	41	POOR	R		9	COTTONWOOD CREEK NR. HOTCHKISS, COLORADO	
DELTA	9144200	384716	1075941	SEP	6	1976	221	1	196	GOOD	R		9	TONGUE CREEK AT CORY, COLORADO	
DELTA	9149500	384430	1080450	OCT	15	1947	3500	1	1110	UNKNOWN	R	2	9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	
DELTA	9149500	384430	1080450	OCT	20	1963	1540	1	1110	GOOD	G		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	
DELTA	9149500	384431	1080449	SEP	6	1970	2250	1	1129	FAIR	R		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	
DELTA	9150500	384406	1080940	JUL	24	1977	799	1	242	POOR	R		9	ROUBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO	
DELTA	9151500	384524	1081534	JUL	24	1977	2050	1	209	FAIR	G		9	ESCALANTE CREEK NR. DELTA, COLORADO	
DOLORES	9165000	373820	1080335	SEP	6	1970	1930	1	105	GOOD	R		9	DOLORES RIVER BELOW RICO, COLORADO	
DOLORES	9168100	375236	1083457	SEP	8	1958	824	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	375236	1083457	AUG	4	1959	1770	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	375236	1083457	JUL	30	1964	2240	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	375236	1083457	JUL	13	1965	4360	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	375236	1083457	JUL	18	1974	2350	1	147	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	375236	1083457	JUL	24	1977	7270	1	147	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES		374742	1085126	SEP	5	1970	2400	1	10.7	POOR	R		9	BIG CANYON CREEK NR. DOVE CREEK, COLORADO	
DOLORES		374544	1085403	SEP	5	1970	830	1	8.45	POOR	R	2	9	DOVE CREEK AT DOVE CREEK, COLORADO	
EAGLE	9058900	394337	1062850	MAY	27	1967	10	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO	
EAGLE	9058900	394347	1062850	JUN	5	1968	12	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO	
EAGLE	9058900	394337	1062850	JUN	7	1978	6.8	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO	
EAGLE	9060800	395122	1064743	AUG	2	1959	715	1	16	UNKNOWN	R		9	BIG ALKALI CREEK NR. BURNS, COLORADO	
EAGLE	9061450	394312	1070230	JUL	12	1976	7390	1	105	FAIR	R		9	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO	
EAGLE	9067300	394500	1064000	AUG	26	1961	310	1	27	POOR	R	1	9	ALKALI CREEK NR. WOLCOTT, COLORADO	
EAGLE	9067300	394500	1064000	JUL	18	1965	985	2 4	27	UNKNOWN	R	1	9	ALKALI CREEK NR. WOLCOTT, COLORADO	
GARFIELD	9092000	393710	1074545	JUL	18	1953	758	1	140	UNKNOWN	R		9	RIFLE CREEK NR. RIFLE, COLORADO	
GARFIELD	9092000	393710	1074545	AUG	9	1963	1720	1	140	FAIR	R		9	RIFLE CREEK NR. RIFLE, COLORADO	

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GARFIELD	9093000	393402	1080637	AUG	19	1977	2310	1	141	POOR	G		9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO	
GARFIELD	9093000	393402	1080637	AUG	25	1977	431	1	141	FAIR	G		9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO	
GARFIELD	9093500	392710	1080330	AUG	3	1951	600	1	200	UNKNOWN	R		9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO	
GARFIELD	9093500	392711	1080333	JUL	31	1976	2600	1	198	POOR	R		9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO	
GARFIELD	9095000	392712	1081859	AUG	31	1967	1220	1	321	POOR	G	2	9	ROAN CREEK NR. DE BEQUE, COLORADO	
GARFIELD	9095400	392208	1081541	OCT	27	1974	950	1	109	UNKNOWN	G		9	DRY FORK NEAR DE BEQUE, COLORADO	
GARFIELD	9095400	392208	1081541	JUL	25	1976	712	1	109	FAIR	G		9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9095400	392208	1081541	AUG	22	1977	623	1	109	POOR	R		9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9095400	392208	1081541	AUG	16	1979	370	1	109	FAIR	R		9	DRY FORK NR. DE BEQUE, COLORADO	
GARFIELD	9153330	392347	1085851	AUG	30	1981	871	1	95.6	FAIR	R		9	WEST SALT CREEK NR. CARBONERA, COLO.	
GARFIELD	9153330	392327	1085851	AUG	31	1981	871	1	168	FAIR	G		9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9153330	392327	1085851	AUG	13	1982	1760	1	168	FAIR	G		9	WEST SALT CREEK NR. CARBONERA, COLORADO	
GARFIELD	9153330	392347	1085851	AUG	13	1982	1760	1	95.6	FAIR	G		9	WEST SALT CREEK NR. CARBONERO, COLORADO	
GRAND	9041100	401426	1062223	MAR	27	1960	148	1	10.6	FAIR	R		9	ANTELOPE CREEK NR. KREMMLING, COLORADO	
GUNNISON		383357	1063827	JUL	31	1945	750	1	0.7	UNKNOWN	R	2	9	FLICK GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	
GUNNISON		383353	1063804	JUL	31	1945	460	1	0.2	UNKNOWN	R	2	9	UNNAMED GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	
GUNNISON		383413	1063730	JUL	31	1945	940	1	5.1	UNKNOWN	R	2	9	WILLOW CREEK TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	
HINSDALE	9347200	372912	1070946	SEP	5	1970	2520	1	32.2	POOR	R		9	MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	
LA PLATA	9352900	372839	1073235	SEP	6	1970	7050	1	72.1	GOOD	R		9	VALLECITO CREEK NR. BAYFIELD, COLORADO	
LA PLATA	9353500	372300	1073430	JUL	27	1957	13800	1	270	GOOD	R		9	LOS PINOS RIVER NR. BAYFIELD, COLORADO	
LA PLATA	9362000	371610	1075315	JUN	26	1937		1		UNKNOWN	R		9	LIGHTNER CREEK NEAR DURANGO, COLORADO	
LA PLATA	9362000	371610	1075315	MAY	4	1941	1480	1		UNKNOWN	R		9	LIGHTNER CREEK NEAR DURANGO, COLORADO	
LA PLATA	9362000	371613	1075358	OCT	19	1972	2830	1	62.9	GOOD	R		9	LIGHTNER CREEK AT DURANGO, COLORADO	
LA PLATA	9363000	371940	1074440	JUL	26	1957	2750	1	96	UNKNOWN	R	2	9	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9363100	370820	1074510	AUG	6	1957	713	2 3	16.7	FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO	
LA PLATA	9363100	370820	1074510	MAR	19	1960	394	2 3	16.7	FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO	
LA PLATA	9363100	370820	1074510	AUG	10	1968	237	1	16.7	GOOD	G		9	SALT CREEK NR. OXFORD, COLORADO	
LA PLATA	9363100	370823	1074510	OCT	19	1972	811	1	16.7	GOOD	R		9	SALT CREEK NEAR OXFORD, COLORADO	
LA PLATA	9363200	370320	1075210	SEP	12	1958	854	1	221	FAIR	R		9	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9363200	370324	1075209	OCT	19	1972	154	1	221	GOOD	R		9	FLORIDA RIVER AT BONDAD, COLORADO	
LA PLATA	9365500	371720	1080205	SEP	22	1941	1880	1	37	UNKNOWN	R	2	9	LA PLATA RIVER AT HESPERUS, COLORADO	
LA PLATA	9366500	375959	1081117	AUG	3	1970	1150	1	331	POOR	R		9	LA PLATA RIVER AT COLORADO, N. M. LINE	
LA PLATA		371723	1075223	OCT	19	1972	1780	1	38.4	GOOD	R		9	JUNCTION CREEK AT DURANGO, COLORADO	
LA PLATA		371556	1075515	OCT	19	1972	870	1		FAIR	R		9	WILDCAT CREEK NEAR DURANGO, COLORADO	
MESA	9151700	385130	1081853	JUL	24	1977	178	3	4	UNKNOWN	L		9	DEER CREEK TRIBUTARY NR. DOMINGUEZ, COLORADO	
MESA	9153270	390950	1084500	SEP	19	1972	3940	4	142	GOOD	R		9	BIG SALT WASH AT FRUITA, COLORADO	
MESA	9153400	391831	1085859	AUG	8	1974	1400	1	168	POOR	R		9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	391831	1085859	AUG	8	1976	1200	1	168	FAIR	R		9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	391831	1085859	AUG	31	1981	681	1	168	GOOD	G		9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	391831	1085859	AUG	30	1981	681	1	168	FAIR	R		9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9153400	391831	1085859	AUG	15	1982	1430	1	168	FAIR	G		9	WEST SALT CREEK NR. MACK, COLORADO	
MESA	9163300	392124	1084858	OCT	7	1977	580	1	1.69	UNKNOWN	L		9	EAST SALT TRIBUTARY NR. MACK, COLORADO	
MESA	9163310	391750	1085158	JUL	18	1974	2630	1	197	POOR	G		9	EAST SALT CREEK NR. MACK, COLORADO	
MESA	9163490	391318	1085332	SEP	19	1972	1880	1	436	FAIR	R		9	SALT CREEK NEAR MACK, COLORADO	
MESA	9163500	390900	1085700	AUG	31	1963	7000	5	17800	UNKNOWN	G	1 2	9	COLORADO RIVER NR. COLORADO-UTAH STATE LINE	
MESA	9177500	383100	1090700	AUG	10	1963	349	1	12	POOR	R		9	TAYLOR CREEK NEAR GATEWAY, COLORADO	
MESA	9179200	383159	1085813	JUL	2	1979	309	4	31.2	UNKNOWN	G		9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	9179200	383159	1085813	JUL	12	1981	2610	1	31.2	GOOD	G		9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	9179200	383159	1085813	JUL	17	1982	1050	1	31.2	FAIR	G		9	SALT CREEK NR. GATEWAY, COLORADO	
MESA	9179500	384055	1085850	SEP	6	1970	6350	1	4350	POOR	R		9	DOLORES RIVER AT GATEWAY, COLORADO	
MESA		384600	1085300	JUL	16	1940	11700	1	23	UNKNOWN	R	1	9	WEST CREEK NR. GATEWAY, COLORADO	
MESA		390437	1083155			1958	600	1	14	UNKNOWN	G	2	9	INDIAN WASH AT GRAND JUNCTION, COLORADO	
MESA		390437	1083155	AUG	3	1961	808	3	14	GOOD	G		9	INDIAN WASH AT GRAND JUNCTION, COLORADO	
MESA		395700	1082900	AUG	2	1964	3630	1	112	UNKNOWN	G	1	9	EAST CREEK NR. WHITEWATER, COLORADO	
MESA		391150	1080821	JUL	18	1974	2350	1	8	FAIR	G		9	ATWELL GULCH NR. MESA, COLORADO	
MESA		390918	1081935	JUL	18	1974	3440	1	12	FAIR	G		9	COAL CANYON AT CAMEO, COLORADO	
MESA		390949	1081841	JUL	18	1974	12000	1	68.6	GOOD	G		9	JERRY CREEK NR. CAMEO, COLORADO	
MESA		391118	1080632	JUL	18	1974	3590	1	9.23	POOR	G		9	JERRY GULCH NR. MESA, COLORADO	
MESA		390328	1083530	SEP	7	1978	9290	1	18.8	FAIR	G		9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	
MESA		390413	1083657	SEP	7	1978	2890	3	4.35	POOR	G		9	RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO	
MINERAL	9341200	372647	1065300	SEP	6	1970	585	1	14	GOOD	R		9	WOLF CREEK NR. PAGOSA SPRINGS, COLORADO	
MOFFAT	9250400	401724	1074721	JUL	21	1977	58	3	40	POOR	R		9	GOOD SPRINGS CREEK AT AXIAL, COLORADO	
MOFFAT	9306400	401434	1085716	AUG	24	1977	260	1	4.22	UNKNOWN	L		9	WEST TWIN WASH NR. DINOSAUR, COLORADO	
MONTEZUMA	9166500	372815	1083015	SEP	6	1970	5190	1	556	GOOD	R		9	DOLORES RIVER AT DOLORES, COLORADO	
MONTEZUMA	9167450	373557	1082944	APR	25	1983	2000	1	83	FAIR	G		9	PLATEAU CREEK NR. MOUTH, NR. DOLORES, COLORADO	
MONTEZUMA	9370820	370557	1082756	JUL	13	1981	3020	1	320	FAIR	G		9	MANCOS RIVER BLW. JOHNSON CAN. NR. CORTEZ, COLORADO	
MONTEZUMA	9370820	370557	1082756	JUL	13	1981	3020	1	320	FAIR	R		9	MANCOS RIVER BLW. JOHNSON CANYON NR. CORTEZ, COLORADO	
MONTEZUMA	9371000	370200	1084300	JUL	27	1940	1200	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO	
MONTEZUMA	9371000	370200	1084300	SEP	22	1940	4600	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO	
MONTEZUMA	9371000	370200	1084300	OCT	14	1941	5300	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO	
MONTEZUMA	9371000	370200	1084300	JUL	30	1953	4300	1	550	UNKNOWN	R		9	MANCOS RIVER NR. TOWAOC, COLORADO	

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MONTEZUMA	9371000	370139	1084427	SEP	6	1970	4530	1	550	POOR	R		9	MANCOS RIVER NR. TOWAOC, COLORADO	
MONTEZUMA	9371300	372051	1082856	AUG	15	1977	1750	3	4.43	UNKNOWN	L	2	9	MCELMO CREEK TRIB. NR. CORTEZ, COLORADO	
MONTEZUMA	9371492	371846	4083938	AUG	24	1982	731	1	33.6	POOR	G		9	MUD CREEK AT HWY 32 NR. CORTEZ, COLORADO	
MONTEZUMA	9371500	371900	1084000	SEP	22	1941	4540	1	233	UNKNOWN	R	1 2	9	MCELMO CREEK NEAR CORTEZ, COLORADO	
MONTEZUMA	9371500	371900	1084000	JUL	31	1953	694	1	233	UNKNOWN	R	1	9	MCELMO CREEK NR. CORTEZ, COLORADO	
MONTEZUMA	9371500	371900	1084000	AUG	20	1954	1280	1	233	POOR	R	1	9	MCELMO CREEK NEAR CORTEZ, COLORADO	
MONTEZUMA	9371500	371923	1084022	AUG	24	1982	730	1	233	POOR	G		9	MCELMO CREEK NR. CORTEZ, COLORACO	
MONTEZUMA	9372000	371927	1090054	AUG	29	1951	1700	1	350	UNKNOWN	R		9	MCELMO CREEK NR. COLORADO-UTAH LINE	
MONTEZUMA	9372000	371900	1090100	AUG	1	1953	459	1	350	UNKNOWN	G	1 2	9	MCELMO CREEK NR. COLORADO-UTAH STATE LINE	
MONTEZUMA	9372000	371927	1090054	SEP	6	1970	2880	1	350	FAIR	R		9	MCELMO CREEK NR. COLORADO-UTAH LINE	
MONTROSE	9149450	383319	1080243	JUL	27	1982	1040	1	102	POOR	G		9	DRY CREEK NR. OLATHE, COLORADO	
MONTROSE	9169500	381837	1085305	SEP	6	1970	5710	1	1910	GOOD	R		9	DOLORES RIVER AT BEDROCK, COLORADO	
MONTROSE	9169800	381653	1084821	SEP		1970	368	3	4.14	UNKNOWN	L		9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO	
MONTROSE	9177000	382125	1084240	AUG	15	1956	3490	1 2	1550	UNKNOWN	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	
MONTROSE	9177000	382125	1084240	SEP	6	1970	8910	1	1550	POOR	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	
MONTROSE	9179000	382605	1085520	JUL	10	1952	885	1	69.5	FAIR	R		9	ROC CREEK NEAR URANIUM, COLORADO	
MONTROSE		382904	1075947	JUL	27	1982	5030	1	30.4	POOR	G		9	COAL CREEK WEST OF MONTROSE, COLORADO	
OURAY	9146600	380850	1075500	JUL	29	1957	500	1	7.88	UNKNOWN	R		9	PLEASANT VALLEY CREEK NR. NOEL, COLORADO	
RIO BLANCO	9306007	394934	1081057	JUL	19	1977	520	3	177	FAIR	R		9	PICEANCE CREEK BELOW RIO BLANCO, COLORADO	
RIO BLANCO	9306028	394845	1081100	SEP	3	1977	38	1	15.7	FAIR	M		9	WEST FK STEWARD GL. AT MOUTH, NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306036	394930	1081154	JUL	31	1976	40	1	3.62	UNKNOWN	M		9	SORGHUM GULCH AT MOUTH NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306039	394936	1081225	JUL	19	1977	36	1	1.2	FAIR	M		9	COTTONWOOD GULCH NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306042	395001	1081312	SEP	3	1977	451	1	1.06	POOR	M		9	PICEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO	
RIO BLANCO	9306058	395014	1081437	SEP	3	1977	23	1	48.7	POOR	R		9	WILLOW CREEK NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306202	395559	1081859	JUL	24	1977	19	1	1.47	POOR	M		9	HORSE DRAW NR. RANGELY, COLORADO	
RIO BLANCO	9306203	395612	1081753	JUL	24	1977	16	1	2.87	POOR	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306203	395612	1081753	SEP	11	1977	41	3	2.87	GOOD	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306222	400439	1081408	MAY	4	1971	242	1	629	UNKNOWN	M		9	PICEANCE CREEK AT WHITE RIVER, COLORADO	
RIO BLANCO	9306230	395537	1082514	SEP	11	1977	245	1	26.1	GOOD	M		9	STAKE SPRINGS DRAW NR. RANGELY, COLORADO	
RIO BLANCO	9306235	395422	1083156	JUL	23	1977	272	1	8.61	POOR	M		9	CORRAL GULCH BELOW WATER GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306240	395318	1083140	AUG	25	1977	30	1	9.21	POOR	M		9	BOX ELDER GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306241	395450	1082906	SEP	11	1977	5	1	2.39	POOR	R		9	BOX ELDER GULCH TRIB. NR. RANGELY, COLORADO	
RIO BLANCO	9306241	395450	1082906	JUL	9	1981	76	1	2.39	FAIR	M		9	BOX ELDER GULCH TRIB. NR. RANGELY	
RIO BLANCO	9306242	395513	1082820	JUL	23	1977	183	1	31.6	POOR	R		9	CORRAL GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306244	395604	1082538	SEP	11	1977	60	1	37.8	FAIR	M		9	CORRAL GULCH AT 84 RANCH NR. RANGELY, COLORADO	
RIO BLANCO	9306248	395855	1082710	JUL	23	1977	62	1	39.1	FAIR	M		9	DUCK CREEK AT UPPER STATION, NR 84 RANCH, COLORADO	
RIO BLANCO	9306255	401007	1082402	JUL	24	1977	756	1	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9306255	401007	1082402	SEP	7	1978	6800	2 4	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9306380	400517	1084631	JUL	5	1977	1170	1	425		M		9	DOUGLAS CREEK AT RANGELY, COLORADO	
RIO BLANCO	9306380	400517	1084631	JUL	24	1977	3250	1	425		M		9	DOUGLAS CREEK AT RANGELY, COLORADO	
RIO BLANCO		400950	1082417	JUL	25	1965	1050	1		UNKNOWN	R		9	YELLOW CREEK NR. RANGELY, COLORADO	
SAN JUAN	9358900	375104	1074331	SEP	5	1970	750	1	11	FAIR	R		9	MINERAL CREEK ABV. SILVERTON, COLORADO	
SAN JUAN		374900	1074000	JUL	18	1938	547	1		UNKNOWN	R	1 2	9	CEMENT CREEK NR. SILVERTON, COLORADO	
SAN JUAN		374827	1074039	SEP	5	1970	3070	1	51.7	GOOD	R		9	MINERAL CREEK AT SILVERTON, COLORADO	
SAN MIGUEL	9168500	375446	1083858	SEP	28	1941	1270	2	180	UNKNOWN	R	2	9	DISAPPOINTMENT CREEK NR CEDAR, COLORADO	
SAN MIGUEL	9168500	375400	1083800	JUL	29	1953	1430	4	180	UNKNOWN	G	1	9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168500	375446	1083858	JUL	12	1954	183	1	167	GOOD	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168500	375446	1083858	JUL	27	1955	2540	1	167	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168500	375446	1083858	JUL	26	1956	2060	4	180	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168700	380133	1084851	SEP		1970	215	3	1.73	UNKNOWN	L		9	DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO	
SAN MIGUEL	9172000	375800	1080100	MAY	4	1957	1390	1	33.5	FAIR	R	1	9	FALL CREEK NR. FALL CREEK, COLORADO	
SAN MIGUEL	9175000	375800	1081900	AUG	11	1915	850	1	27.7	UNKNOWN	R	1 2	9	NATURITA CREEK NR. NORWOOD, COLORADO	
SAN MIGUEL	9175000	375800	1081900	AUG	3	1951	430	1	27.7	UNKNOWN	R	1	9	NATURITA CREEK NR. NORWOOD, COLORADO	
SAN MIGUEL	9175800	380237	1083438	SEP		1970	613	3	5.3	UNKNOWN	L	2	9	DEADHORSE CREEK NR. NATURITA, COLORADO	
SAN MIGUEL	9175800	380237	1083438	AUG	23	1977	1250	2 3	5.33	UNKNOWN	L		9	DEADHORSE CREEK NR. NATURITA, COLORADO	
SAN MIGUEL	9175900	380532	1083717	SEP	5	1970	5660	1	85.9	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	

Indirect Measurements
Extreme Streamflow Data Base

Storm #	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precip	Remarks	USBR Storm File
					Extreme Precipitation					
					Note Indirect Data Cutoff After Storm No. 217					
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	
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	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
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, signif 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	
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	Sept 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 Ntl Mon	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	6.0" less than 2 hrs near Golden 12pm - 2 am	1.61" 1 day Hawthorne	
129	Eastern Colorado	CO	June 4-7, 1949	1	GLC	38 06	102 39	4.70" 1 day, Lamar	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	Cucharas 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	
138	Rye	CO	May 18-20, 1955	2	G	37 55	104 56	6.10" 1 day, Rye (13" in New Mex)	many other stations 2-5" Arkansas River flooding	X
140	Englewood	CO	July 30-Aug 3, 1956	2	LC	39 39	104 54	12" in 5 days, $5 mill flood damage	Lots of rain Denver area and W.Slope, local damaging floods	

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 Kiows, 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 widepsread 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	Sargents	CO	August 11, 1968	3	LC	38 24	106 26	.74" Sargents	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, continuos rains, local flooding, road/building damage	X
183	Stratton 2NE	CO	August 22, 1969	1	LC	39 18	102 35	8.00" Stratton 3NE, 11-1:30 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	X
194	Front Range	CO	May 5-6, 1973	2	G	39 55	105 06	5.31" near Broomfield, 31 hrs, many 1-5" totals along F.R.	6" est near Kiowa, 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 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	
	Arizona	AZ	Feb 13-22, 1980			34 12	112 20	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	
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	Frijole Creek	CO	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijole 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	.92" 12th, .83" 13th - Glenwood Springs	2"<1 hr, mudslides, homes damaged	
210	Trinidad	CO	August 11, 1981	2	LC	37 15	104 20	4.20" 1 day Trinidad, CO		

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
BENT	7129500	380000	1030400	AUG	18	1963	4480	1	435	UNKNOWN	P	1 2	7	RULE CREEK NR. CADDOA, COLORADO		
OTERO	7119500	380528	1035852	AUG	13	1963	2730	1	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
PUEBLO		381127	1040832	JUL	13	1963	6840	2 3	160	FAIR	P		7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO		
PUEBLO		381240	1040740	JUL	13	1963	4720	1	155	FAIR	P		7	KRAMER CREEK NR. NEPASTA, COLORADO		
DELTA	9149500	384430	1080450	OCT	20	1963	1540	1	1110	GOOD	G		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO		
GARFIELD	9092000	393710	1074545	AUG	9	1963	1720	1	140	FAIR	R		9	RIFLE CREEK NR. RIFLE, COLORADO		
MESA	9163500	390900	1085700	AUG	31	1963	7000	5	17900	UNKNOWN	G	1 2	9	COLORADO RIVER NR. COLORADO-UTAH STATE LINE	154	
MESA	9177500	383100	1090700	AUG	10	1963	349	1	12	POOR	R		9	TAYLOR CREEK NEAR GATEWAY, COLORADO		
YUMA	6825500	393430	1021510	JUN	13	1964	1650	1	268	FAIR	R		6	LANDSMAN CREEK NR. HALE, COLORADO		
EL PASO	7103700	385117	1045239	MAY	29	1964	672	1	102	FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	155	?
EL PASO	7103700	385117	1045239	AUG	4	1964	2630	1	102	POOR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
LAS ANIMAS	7125500	371110	1040750	AUG	7	1964	6680	1	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
PROWERS		380509	1023148	MAY	21	1964	3530	1	228	GOOD	P		7	CLAY CREEK NR. LAMAR, COLORADO		
PROWERS		380509	1023148	JUL	17	1964	14400	1	228	GOOD	P		7	CLAY CREEK NR. LAMAR, COLORADO		
DOLORES	9168100	375236	1083457	JUL	30	1964	2240	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
MESA		395700	1082900	AUG	2	1964	3630	1	112	UNKNOWN	G	1	9	EAST CREEK NR. WHITEWATER, COLORADO		
ADAMS		394018	1040552	JUN	17	1965	145000	1	190	FAIR	R		6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	159	
ADAMS		394524	1044904	JUN	16	1965	13400	1	113	GOOD	R		6	SAND CREEK AT SABLE AVE. AURORA, COLORADO	159	
ADAMS		394952	1045653	JUN	17	1965	18800	4	4598	FAIR	R		6	SOUTH PLATTE RIVER AT DERBY, COLORADO	159	
ADAMS	6720500	395512	1045218	JUN	17	1965	29600	1	4713	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	159	
ARAPAHOE	6711500	393908	1050157	JUL	25	1965	2900	5	260	UNKNOWN	R		6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	165	
ARAPAHOE	6712500	393542	1044844	JUN	16	1965	39900	4	336	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	159	
ARAPAHOE		393700	1040300	JUN	17	1965	274000	1	302	FAIR	R	1	6	EAST BIJOU CREEK AT DEER TRAIL, COLORADO	159	
ARAPAHOE	6758300	394454	1042446	JUN	18	1965	24900	4	236	POOR	R		6	KIOWA CREEK AT BENNETT, COLORADO	159	
ARAPAHOE		393635	1044835	JUN	16	1965	14100	1 3	21.9	GOOD	R		6	PINEY CREEK NR. MELVIN, COLORADO	159	
ARAPAHOE	6710000	393710	1050110	JUN	16	1965	110000	4	3069	UNKNOWN	R		6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159	
ARAPAHOE		394332	1044904	JUN	18	1965	16000	2 3	35.8	UNKNOWN	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	159	
ARAPAHOE		394223	1041407	JUN	17	1965	75500	4	277	FAIR	R		6	WEST BIJOU CREEK AT BYERS, COLORADO	159	
DENVER		394605	1045300	JUN	16	1965	18900	3	187	FAIR	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159	
DOUGLAS	6712000	392130	1044550	AUG	21	1965	1730	1	169	UNKNOWN	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DOUGLAS		392417	1045225	JUN	16	1965	126000	1	108	POOR	R		6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	
DOUGLAS	6709500	392904	1050007	JUN	16	1965	154000	1	302	UNKNOWN	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	159	
DOUGLAS		392230	1045735	JUN	16	1965	36800	1	108	POOR	R		6	WEST PLUM CREEK NR. SEDALIA, COLORADO	159	
EL PASO	6757600	390400	1043455	JUN	17	1965	2370	1	3.2	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	159	?
EL PASO	6757700	390618	1043331	JUN	17	1965	2600	1	1.12	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	159	?
ELBERT	6758000	391235	1043200	JUN	17	1965	41500	1	28.6	GOOD	R		6	KIOWA CREEK AT ELBERT, COLORADO	159	?
ELBERT	6758200	392000	1042900	JUN	17	1965	19700	4	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	159	?
ELBERT	6757750	390920	1043116	JUN	17	1965	2010	1	2.82	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. ELBERT, COLORADO	159	?
ELBERT	6757800	391003	1043114	JUN	17	1965	1270	1	0.59	FAIR	R		6	KIOWA CREEK SUBWATERSHED NO. Q-51 NR. ELBERT, COLORADO	159	?
ELBERT		391600	1042000	JUN	17	1965	67200	1	85.7	POOR	R	1	6	WEST BIJOU CREEK NR. KIOWA, COLORADO	159	?
ELBERT	6758100	391238	1043216	JUN	17	1965	20000	1	35.9	FAIR	R		6	WEST KIOWA CREEK AT ELBERT, COLORADO	159	?
LOGAN		403700	1032700	JUN	15	1965	35200	4	629	FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	159	?
LOGAN	6760000	402424	1032758	JUN	18	1965	123000	2 4	16852	FAIR	R		6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	159	?
MORGAN		400800	1033500	JUN	18	1965	24300	1	946	GOOD	R	1	6	BEAVER CREEK NEAR BRUSH, COLORADO	159	?
MORGAN		401517	1035800	JUN	18	1965	466000	1	1314	POOR	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	159	?
MORGAN	6758500	401920	1035515	JUN	19	1965	18800	4	13245	UNKNOWN	R	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	159	?
SEDGEWICK	6764000	405846	1021515	JUN	20	1965	37600	1	23138	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	159	?
WELD		403800	1043000	JUN	15	1965	5340	4	73.1	FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	159	?
WELD		404300	1041400	JUN	15	1965	4000	1	633	POOR	R	1	6	CROW CREEK NR. KEOTA, COLORADO	159	?
WELD	6753500	404600	1044725	JUN	14	1965	5810	1 3	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	159	?
WELD		404500	1034800	JUN	14	1965	6280	1	82.3	GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	159	?
WELD		404200	1033900	JUN	15	1965	26700	1	387	GOOD	R	1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	159	?
BACA		372600	1023700	JUN	17	1965	13200	4	113	FAIR	P	1	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	?
BACA		371900	1023600	JUN	17	1965	7330	1	106	UNKNOWN	P	1	7	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	159	?
BACA		373800	1023700	JUN	17	1965	82600	2 4	453	GOOD	P	1	7	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	159	?
BENT		380523	1031824	JUN	18	1965	8600	4	589	GOOD	P		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	159	?
BENT	7124000	380508	1031250	JUN	19	1965	22100	4	14417	GOOD	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	159	?
BENT	7131000	380340	1025505	JUN	18	1965	37600	4	131	GOOD	P		7	CADDOA CREEK AT CADDOA, COLORADO	159	?
BENT	7131000	380340	1025505	MAY	24	1965	1780	1	131	UNKNOWN	P		7	CADDOA CREEK NR. CADDOA, COLORADO		
BENT		380504	1032110	JUN	18	1965	5070	2 3	1300	POOR	P		7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	159	
BENT	7128500	380202	1031200	JUN	18	1965	62500	4	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	159	
BENT	7129400	374900	1031100	JUN	18	1965	276000	1	435	FAIR	P	1 3	7	RULE CREEK NR. TOONERVILLE, COLORADO	159	
EL PASO		390500	1041700	JUN	17	1965	60700	1	49	FAIR	P	1	7	BIG SANDY CREEK NR. CALHAN, COLORADO	159	
EL PASO		384225	1042325	JUN	17	1965	141000	1	353	GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO	159	
EL PASO		390105	1043200	JUN	17	1965	10400	4	16.3	FAIR	P		7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	159	
EL PASO	7105800	384346	1044000	JUL	24	1965	25000	1	488	POOR	R		7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	7105800	384346	1044400	JUN	14	1965	2880	1	488	GOOD	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	159	?
EL PASO		384700	1045000	JUL	24	1965	3710	1		GOOD	P	1	7	FOUNTAIN CREEK TRIB. NR. COLORADO SPRINGS, COLORADO		
EL PASO		384320	1043845	JUN	17	1965	124000	1	54.3	FAIR	R		7	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO	159	? Date?
EL PASO		385825	1045237	JUN		1965	515	1	20.7	FAIR	P		7	W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORADO	159	?
HAMILTON	7137500	380133	1020100	JUN	17	1965	158000	1	25410	POOR	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS	159	?
LAS ANIMAS		371000	1035700	JUN	17	1965	2600	1	34.5	GOOD	P	1	7	ALKALI ARROYO NR. TRINCHERA, COLORADO	159	?

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LAS ANIMAS		370730	1043859	JUN	17	1965	3120	3	28.3	FAIR	P		7	BURRO CANYON AT MADRID, COLORADO	159	?
LAS ANIMAS		373211	1033606	JUN	17	1965	38900	1	387	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	159	?
LAS ANIMAS		370538	1043119	JUN	17	1965	1720	3	8.1	GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO	159	?
LAS ANIMAS	7125100	371200	1041140	JUN	17	1965	10600	4	80	GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	159	?
LAS ANIMAS		370904	1043045	JUN	17	1965	1090	4	3.6	FAIR	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	159	?
LAS ANIMAS		371215	1042710	JUN	17	1965	3540	1	16	GOOD	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	159	?
LAS ANIMAS		370100	1042845	JUN	17	1965	760	3	4.54	POOR	P		7	JOE CREEK NR. MORELY, COLORADO	159	?
LAS ANIMAS		370720	1043520	JUN	17	1965	4480	1	104	FAIR	P		7	LONG CANYON NR. SOPRIS, COLORADO	159	?
LAS ANIMAS		370800	1045100	JUN	16	1965	1920	1	216	GOOD	R	1	7	NORTH FORK PURGATOIRE AT WESTON, COLORADO	159	?
LAS ANIMAS		370800	1044800	JUN	17	1965	3000	4	381	UNKNOWN	P	1	7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	159	?
LAS ANIMAS	7124500	371015	1043031	JUN	17	1965	15700	4	795	GOOD	P	1	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	159	?
LAS ANIMAS		371712	1041842	JUN	16	1965	20900	4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	?
LAS ANIMAS	7126000	371130	1040730	JUN	18	1965	27300	1	1320	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	159	?
LAS ANIMAS	7125000	371450	1042350	JUN	16	1965	20000	2	857	POOR	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	159	?
LAS ANIMAS		372130	1041842	JUN	18	1965	47700	4	1935	FAIR	P	2	7	PURGATOIRE RIVER NR. THATCHER, COLORADO	159	?
LAS ANIMAS		370653	1043118	JUN	17	1965	12900	4	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	159	?
LAS ANIMAS		370030	1042650	JUN	16	1965	4660	1	5.27	FAIR	P		7	RATON CREEK NR. MORLEY, COLORADO	159	?
LAS ANIMAS		370756	1043634	JUN	16	1965	3410	1	36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	159	?
LAS ANIMAS	7125500	371110	1040750	JUN	18	1965	14000	4	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	?
LAS ANIMAS		370100	1041200	JUN	17	1965	7960	1	32.1	GOOD	P	1	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159	?
LAS ANIMAS		370725	1044525	JUN	17	1965	1630	1	36.4	UNKNOWN	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	159	?
LAS ANIMAS		370800	1045100	JUN	16	1965	1340	4	101	GOOD	P	1	7	SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO	159	?
LAS ANIMAS		370745	1040050	JUN	17	1965	4500	2 4	129	FAIR	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO	159	?
LINCOLN		385100	1033200	JUN	17	1965	3710	1	188	FAIR	P	1	7	SOUTH RUSH CREEK NR. KARVAL, COLORADO	159	?
OTERO	7119500	380528	1035852	JUN	17	1965	11400	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	159	?
OTERO	7119700	380735	1035640	JUN	18	1965	43200	2	10901	UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	159	?
OTERO		380138	1034730	JUN		1965	31670	4		UNKNOWN	P		7	ARKANSAS RIVER AT SWINK, COLORADO	159	?
OTERO		374225	1032420	JUN	18	1965	84000	1	291	FAIR	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	159	?
OTERO		380040	1033830	JUN	17	1965	21480	2 4	481	GOOD	P		7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	?
PROWERS		380715	1022850	JUN	17	1965	3600	1	2840	FAIR	P	1	7	BIG SANDY CREEK NR. LAMAR, COLORADO	159	?
PROWERS		380044	1023426	JUN	18	1965	158000	1	213	FAIR	P		7	CLAY CREEK NR. LAMAR, COLORADO	159	?
PROWERS		375920	1021650	JUN	17	1965	12600	1	17.7	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO	159	?
PROWERS		380425	1022625	JUN	17	1965	10600	1	29.1	GOOD	P		7	SMITH ARROYO NR. GRANADA, COLORADO	159	?
PROWERS		380140	1020820	JUN	17	1965	182000	1	817	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	159	?
PROWERS	7136000	380245	1020705	JUN	17	1965	10600	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	?
PROWERS		380156	1023707	JUN	18	1965	24300	1	40.5	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	159	?
PROWERS		375705	1022605	JUN	17	1965	35300	1	62.5	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO	159	?
PUEBLO	7117000	381054	1040940	JUN	18	1965	43100	2 4	9345	FAIR	P		7	ARKANSAS RIVER NR. NEPESTA, COLORADO	159	?
PUEBLO		381442	1042036	JUN	18	1965	104000	4	7157	POOR	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	?
PUEBLO	7099200	382019	1045627	AUG	21	1965	23900	1	4280	UNKNOWN	P		7	ARKANSAS RIVER NR. PORTLAND, COLORADO		
PUEBLO	7099500	381602	1043926	AUG	22	1965	23500	4	4686	FAIR	P		7	ARKANSAS RIVER NR. PUEBLO, COLORADO		
PUEBLO	7106500	381633	1043909	JUN	17	1965	47000	4	926	GOOD	P		7	FOUNTAIN CREEK AT PUEBLO, COLORADO	159	
PUEBLO		381900	1045300	JUL	19	1965	7000	1	2.66	FAIR	P	1	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO		
DOLORES	9168100	375236	1083457	JUL	13	1965	4360	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
EAGLE	9067300	394500	1064000	JUL	18	1965	985	2 4	27	UNKNOWN	R	1	9	ALKALI CREEK NR. WOLCOTT, COLORADO		
RIO BLANCO		400950	1082417	JUL	25	1965	1050	1		UNKNOWN	R		9	YELLOW CREEK NR. RANGELY, COLORADO		
BENT	7128500	380202	1031200	SEP	27	1966	17300	1	3503	FAIR	R		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
LAS ANIMAS	7126100	371816	1040054	MAY	26	1967	1060	1	86	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126200	372045	1035727	MAY	26	1967	6240	1	168	FAIR	P		7	VAN BREMER ARROYO NR. MODEL, COLORADO		
EAGLE	9058900	394337	1062850	MAY	27	1967	10	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO		
GARFIELD	9095000	392712	1081859	AUG	31	1967	1220	1	321	POOR	G	2	9	ROAN CREEK NR. DE BEQUE, COLORADO		
LAS ANIMAS	7126100	371816	1040054	AUG	3	1968	4830	1	86	FAIR	R		7	LUNING ARROYO NR. MODEL, COLORADO		
COSTILLA	8249400	371053	1051914	JUN	5	1968	327	1	72.4	FAIR	R		8	CULEBRA CREEK NR. CHAMA, COLORADO		
RIO GRANDE	8220900	373444	1062211	JUL	30	1968	754	1	11.8	FAIR	R		8	SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO		
SAGUACHE	8229500	375600	1053842	JUL	26	1968	540	1	6.77	GOOD	R		8	COTTONWOOD CREEK NEAR CRESTONE, COLORADO		
SAGUACHE		380437	1054546	AUG	11	1968	174	1	12	GOOD	R		8	RITO ALTO CREEK NEAR MOFFAT, COLORADO	177	?
EAGLE	9058900	394347	1062850	JUN	5	1968	12	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO		
LA PLATA	9363100	370820	1074510	AUG	10	1968	237	1	16.7	GOOD	G		9	SALT CREEK NR. OXFORD, COLORADO		
BOULDER		400608	1052033	MAY	7	1969	1970	1	18.6	GOOD	R		6	JAMES CREEK AT MOUTH NR. JAMESTOWN, COLORADO	179	
JEFFERSON	6711000	393122	1051113	MAY	7	1969	2730	1	48	FAIR	R		6	TURKEY CREEK NR. MORRISON, COLORADO	179	
YUMA	6825500	393432	1021506	AUG	23	1969	10600	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	183	?
YUMA	6821400	395424	1021608	AUG	23	1969	2280	1	17.1	UNKNOWN	L	2	6	NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO	183	?
YUMA	6825000	393659	1021432	AUG	23	1969	14900	4	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	183	?
OTERO	7121500	380010	1033918	AUG	22	1969	2169	1	496	GOOD	R		7	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO	183	?
PROWERS	7134300	375230	1022854	AUG	23	1969	7880	1	15.7	UNKNOWN	L	2	7	WOLF CREEK NR. CARLTON, COLORADO	183	?
ARAPAHOE	6758250	393647	1042701	AUG	19	1970	2170	1	6.41	UNKNOWN	L		6	KIOWA CREEK TRIB. NR. BENNETT, COLORADO		
WELD	6756200	405800	1043350	JUL	20	1970	119	1	5.7	UNKNOWN	L	2	6	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO		
LAS ANIMAS	7124700	370936	1042538	AUG	22	1970	2520	1	8.46	UNKNOWN	L	2	7	GRAY CREEK NEAR ENGLEVILLE, COLORADO		
LAS ANIMAS	7126450	371143	1033633	JUL	22	1970	843	1	8.45	UNKNOWN	L		7	TOBE ARROYO NR. TOBE, COLORADO		
MINERAL	8217500	374600	1064950	SEP	6	1970	4660	1	780	UNKNOWN	P		8	RIO GRANDE AT WAGONWHEEL GAP, COLORADO	188	?
ARCHULETA	9339900	372325	1065025	SEP	6	1970	1710	1	64.1	POOR	R		9	E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	188	?
ARCHULETA	9340000	372210	1065330	SEP	6	1970	2060	1	86.9	GOOD	R		9	E FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	188	?

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
ARCHULETA		370440	1064834	SEP	6	1970	132	1	13.6	GOOD	R		9	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	188	?
ARCHULETA	9344300	370155	1064356	SEP	14	1970	1400	2	96.4	GOOD	R	2	9	NAVAJO RIVER ABV. CHROMO, COLORADO		
ARCHULETA	9349500	371320	1072032	SEP	6	1970	7980	1	371	POOR	R		9	PIEDRA RIVER NR. PIEDRA, COLORADO	188	
ARCHULETA	9343000	371246	1064738	SEP	6	1970	2500	2 3	58	GOOD	R	2	9	RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	188	
ARCHULETA	9342500	371558	1070037	SEP	6	1970	6580	1	298	GOOD	R		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
DELTA	9149500	384431	1080449	SEP	6	1970	2250	1	1129	FAIR	R		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	188	
DOLORES		374742	1085126	SEP	5	1970	2400	1	10.7	POOR	R		9	BIG CANYON CREEK NR. DOVE CREEK, COLORADO	188	
DOLORES	9165000	373820	1080335	SEP	6	1970	1930	1	105	GOOD	R		9	DOLORES RIVER BELOW RICO, COLORADO	188	
DOLORES		374544	1085403	SEP	5	1970	830	1	8.45	POOR	R	2	9	DOVE CREEK AT DOVE CREEK, COLORADO	188	
HINSDALE	9347200	372912	1070946	SEP	5	1970	2520	1	32.2	POOR	R		9	MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	188	
LA PLATA	9366500	375959	1081117	AUG	3	1970	1150	1	331	POOR	R		9	LA PLATA RIVER AT COLORADO, N. M. LINE	188	
LA PLATA	9352900	372839	1073235	SEP	6	1970	7050	1	72.1	GOOD	R		9	VALLECITO CREEK NR. BAYFIELD, COLORADO	188	
MESA	9179500	384055	1085850	SEP	6	1970	6350	1	4350	POOR	R		9	DOLORES RIVER AT GATEWAY, COLORADO	188	
MINERAL	9341200	372647	1065300	SEP	6	1970	585	1	14	GOOD	R		9	WOLF CREEK NR. PAGOSA SPRINGS, COLORADO	188	
MONTEZUMA	9166500	372815	1083015	SEP	6	1970	5190	1	556	GOOD	R		9	DOLORES RIVER AT DOLORES, COLORADO	188	
MONTEZUMA	9371000	370139	1084427	SEP	6	1970	4530	1	550	POOR	R		9	MANCOS RIVER NR. TOWAOC, COLORADO	188	
MONTEZUMA	9372000	371927	1090054	SEP	6	1970	2880	1	350	FAIR	R		9	MCELMO CREEK NR. COLORADO-UTAH LINE	188	
MONTROSE	9169500	381837	1085305	SEP	6	1970	5710	1	1910	GOOD	R		9	DOLORES RIVER AT BEDROCK, COLORADO	188	
MONTROSE	9169800	381653	1084821	SEP		1970	368	3	4.14	UNKNOWN	L		9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO	188	Date?
MONTROSE	9177000	382125	1084240	SEP	6	1970	8910	1	1550	POOR	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	188	
SAN JUAN	9358900	375104	1074331	SEP	5	1970	750	1	11	FAIR	R		9	MINERAL CREEK ABV. SILVERTON, COLORADO	188	
SAN JUAN		374827	1074039	SEP	5	1970	3070	1	51.7	GOOD	R		9	MINERAL CREEK AT SILVERTON, COLORADO	188	
SAN MIGUEL	9175800	380237	1083438	SEP		1970	613	3	5.3	UNKNOWN	L	2	9	DEADHORSE CREEK NR. NATURITA, COLORADO	188	Date?
SAN MIGUEL	9168700	380133	1084851	SEP		1970	215	3	1.73	UNKNOWN	L		9	DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO	188	Date?
SAN MIGUEL	9175900	380532	1083717	SEP	5	1970	5660	1	85.9	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	188	
LOGAN	6760300	405248	1031912	AUG	30	1971	1740	1	7.39	UNKNOWN	L		6	DARBY CREEK NR. BUCHANAN, COLORADO		
LOGAN	6760430	405812	1030034	JUL	4	1971	177	1	22.3	UNKNOWN	L		6	SPRING CANYON NR. PEETZ, COLORADO		
WELD	6756200	405800	1043350	AUG	19	1971	192	1	5.7	UNKNOWN	L		6	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO		
WELD		405438	1045414	AUG	27	1971	3120	1	151	FAIR	R		6	LONE TREE CREEK NEAR CARR, COLORADO		
LAS ANIMAS	7129200	373556	1031948	AUG	19	1971	1260	1	3.7	UNKNOWN	L		7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126400	373324	1035020	AUG	7	1971	1410	1	4.27	UNKNOWN	L		7	RED ROCK CANYON NR. BLOOM, COLORADO		
LAS ANIMAS	7129100	373357	1031026	AUG	28	1971	5040	1	7.69	UNKNOWN	L		7	RULE CREEK NR. NINAVIEW, COLORADO		
PROWERS	7135800	381545	1020933	JUN	30	1971	2411	1	10	UNKNOWN	L		7	WILD HORSE CREEK TRIB. NR. HARTMAN, COLORADO		
RIO BLANCO	9306222	400439	1081408	MAY	4	1971	242	1	629	UNKNOWN	M		9	PICEANCE CREEK AT WHITE RIVER, COLORADO		
ARAPAHOE	6711580	393934	1045816	JUN	4	1972	63	1	1	UNKNOWN	L		6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO		
LINCOLN	6821300	393112	1032635	JUL	23	1972	420	1	5.27	UNKNOWN	L		6	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO		
WELD	6758400	400210	1041306	AUG	3	1972	874	1	18.15	UNKNOWN	L		6	GOOSE CREEK NR. HOYT, COLORADO		
WELD	6753800	405507	1044601	AUG	23	1972	641	1	4.56	UNKNOWN	L		6	OWL CREEK TRIB. NR. ROCKPORT, COLORADO		
CHAFFEE		383908	1060302	AUG	28	1972	3000	1		FAIR	R		7	UNNAMED ARKANSAS RIVER TRIB. NEAR NATHROP, COLORADO		
EL PASO	7105800	384346	1044400	JUN	11	1972	6520	1	488	FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO		
FREMONT	7099100	382227	1045749	AUG	1	1972	1040	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO		
HUERFANO	7111000	374340	1052103	AUG	3	1972	6520	1	73	GOOD	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		
LA PLATA	9363200	370324	1075209	OCT	19	1972	154	1	221	GOOD	R		9	FLORIDA RIVER AT BONDAD, COLORADO	193	
LA PLATA		371723	1075223	OCT	19	1972	1780	1	38.4	GOOD	R		9	JUNCTION CREEK AT DURANGO, COLORADO	193	
LA PLATA	9362000	371613	1075358	OCT	19	1972	2830	1	62.9	GOOD	R		9	LIGHTNER CREEK AT DURANGO, COLORADO	193	
LA PLATA	9363100	370823	1074510	OCT	19	1972	811	1	16.7	GOOD	R		9	SALT CREEK NEAR OXFORD, COLORADO	193	
LA PLATA		371556	1075515	OCT	19	1972	870	1		FAIR	R		9	WILDCAT CREEK NEAR DURANGO, COLORADO	193	
MESA	9153270	390950	1084500	SEP	19	1972	3940	4	142	GOOD	R		9	BIG SALT WASH AT FRUITA, COLORADO		
MESA	9163490	391318	1085332	SEP	19	1972	1680	1	436	FAIR	R		9	SALT CREEK NEAR MACK, COLORADO		
ADAMS		395935	1045627	MAY	6	1973	740	3	65	UNKNOWN	L		6	BIG DRY CREEK AT U.P.R.R. CULVERT AT DENVER, COLORADO	194	
ADAMS		395028	1045753	MAY	6	1973	550	1	6	UNKNOWN	L		6	NIVER CREEK NR. MOUTH AT DENVER, COLORADO	194	
ADAMS		394446	1045246	MAY	6	1973	290	1	6	UNKNOWN	L		6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	194	
ARAPAHOE		393745	1050003	MAY	6	1973	4400	4	19	UNKNOWN	L		6	BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	194	
ARAPAHOE		393911	1045914	MAY	6	1973	1510	1	15	UNKNOWN	L		6	LITTLE DRY CREEK AT BRDWY AND ACOMA AT DENVER, COLORADO	194	
DENVER		394707	1045413	MAY	6	1973	5630	4	187	UNKNOWN	L		6	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
DENVER		394129	1050020	MAY	6	1973	320	3	7	UNKNOWN	L		6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO	194	
DENVER		394350	1050120	MAY	6	1973	430	1	8	UNKNOWN	L		6	WEIR GULCH AT DECATUR AT DENVER, COLORADO	194	
DOUGLAS		390806	1050941	MAY	7	1973	78	3	16.7	GOOD	R		6	TRAIL CREEK NR. WESTCREEK, COLORADO	194	
DOUGLAS		390922	1050945	MAY	7	1973	2020	1	60	FAIR	R	3	6	WEST CREEK AT WESTCREEK, COLORADO	194	
DOUGLAS		391032	1050956	MAY	7	1973	3080	1	62.3	FAIR	R	3	6	WEST CREEK BELOW WESTCREEK, COLORADO	194	
JEFFERSON		394553	1050749	MAY	6	1973	820	1	11	UNKNOWN	L		6	LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	194	
TELLER		390744	1050942	MAY	7	1973	240	1	38	GOOD	R		6	WEST CREEK ABV. WESTCREEK, COLORADO	194	
WELD		402230	1043625	APR	12	1973	13600	1		FAIR	R	3	6	BEEBE DRAW NR. AUBURN, COLORADO		
WELD	6753800	405507	1044601	JUN	28	1973	2620	1	4.56	UNKNOWN	L		6	OWL CREEK TRIB. NR. ROCKPORT, COLORADO		
YUMA	6826900	394150	1021037	SEP	11	1973	725	1	24.2	UNKNOWN	L		6	SAND CREEK NR. HALE, COLORADO		
FREMONT	7099100	382227	1045749	SEP	9	1973	4800	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO		
FREMONT	7096500	382611	1051127	JUL	8	1973	631	1	434	GOOD	P		7	FOURMILE CREEK NR. CANYON CITY, COLORADO		
DOLORES	9168100	375236	1083457	JUL	18	1974	2350	1	147	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		No 1974 Precip. CO
GARFIELD	9095400	392208	1081541	OCT	27	1974	950	1	109	UNKNOWN	G		9	DRY FORK NEAR DE BEQUE, COLORADO		
MESA		391150	1080821	JUL	18	1974	2350	1	8	FAIR	G		9	ATWELL GULCH NR. MESA, COLORADO		
MESA		390918	1081935	JUL	18	1974	3440	1	12	FAIR	G		9	COAL CANYON AT CAMEO, COLORADO		
MESA	9163310	391750	1085158	JUL	18	1974	2630	1	197	POOR	G		9	EAST SALT CREEK NR. MACK, 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
MESA		390949	1081841	JUL	18	1974	12000	1	68.6	GOOD	G		9	JERRY CREEK NR. CAMEO, COLORADO		
MESA		391118	1080632	JUL	18	1974	3590	1	9.23	POOR	G		9	JERRY GULCH NR. MESA, COLORADO		
MESA	9153400	391831	1085859	AUG	8	1974	1400	1	168	POOR	R		9	WEST SALT CREEK NR. MACK, COLORADO		
ARAPAHOE	6711580	393934	1045816	JUL	24	1975	178	1	0.98	UNKNOWN	L		6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO		
CHEYENNE	6857500	385918	1021650	JUN	23	1975	241	1	7.84	UNKNOWN	L		6	BIG TIMBER CREEK TRIB. NEAR ARAPAHOE, COLORADO		
DENVER		395041	1045819	JUL	14	1975	856	1		UNKNOWN	L		6	NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO		
DENVER		395030	1045702	JUL	14	1975	1126	1		UNKNOWN	L		6	NIVER CREEK AT STEELE ST. AT DENVER, COLORADO		
JEFFERSON	6719630	394428	1050845	JUL	20	1975	641	1	9	UNKNOWN	L		6	LENA GULCH AT LAKEWOOD, COLORADO		
JEFFERSON	6711642	394253	1050744	JUL	20	1975	403	1	2.76	GOOD	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO		
YUMA	6825500	393432	1021506	JUN	20	1975	13000	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6826900	394150	1021037	MAY	28	1975	4350	1	17.8	UNKNOWN	L		6	SAND CREEK NR. HALE, COLORADO		
LAS ANIMAS	7124200	370746	1043820	JUL	12	1975	4500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO		
PROWERS	7134100	380651	1022900			1975	121	3	3248	UNKNOWN	P	2	7	BIG SANDY CREEK NR. LAMAR, COLORADO		
PROWERS	7133050	380216	1023651	JUN	23	1975	475	1	42	GOOD	P		7	WILLOW CREEK NR. LAMAR, COLORADO		
PROWERS	7133050	380216	1023651	JUN	27	1975	2460	1	42	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO		
PUEBLO	7107900	375514	1045721	JUL	10	1975	340	1	11	FAIR	P		7	GREENHORN CREEK NR. RYE, COLORADO		
LARIMER		402539	1052037	JUL	31	1976	28200	1	189	POOR	R		6	BIG THOMPSON ABV. DRAKE, COLORADO	198	
LARIMER		402552	1051937	JUL	31	1976	30100	1	276	POOR	R		6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO	198	
LARIMER	6738000	402518	1051334	JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	198	
LARIMER		402259	1052811	JUL	31	1976	4330	1	164	GOOD	R		6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	198	
LARIMER		402505	1051202	JUL	31	1976	27000	1	311	POOR	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	198	
LARIMER		402433	1052507	JUL	31	1976	6950	1	0.53	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198	
LARIMER		402344	1052734	JUL	31	1976	8700	1	1.37	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
LARIMER		402704	1052528	JUL	31	1976	1990	1	3.17	POOR	R		6	BLACK CREEK NEAR GLEN HAVEN, COLORADO	198	
LARIMER	6752260	403517	1050408	AUG	1	1976	5700	1	1127	FAIR	R		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	198	
LARIMER	6752000	403952	1051326	AUG	1	1976	7340	1	1056	FAIR	R		6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	
LARIMER		405736	1052139	JUL	31	1976	727	3	0.68	GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	198	
LARIMER		402344	1052617	JUL	31	1976	7210	1	1	POOR	R		6	DARK GULCH AT GLEN COMFORT, COLORADO	198	
LARIMER		405550	1052057	JUL	31	1976	7400	1	23.7	POOR	R		6	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198	
LARIMER		402624	1052731	JUL	31	1976	2810	1	0.91	POOR	R		6	DEVILS GULCH NR. GLEN HAVEN, COLORADO	198	
LARIMER		402242	1052915	JUL	31	1976	4460	1	6.12	POOR	R		6	DRY GULCH AT ESTES PARK, COLORADO	198	
LARIMER		402422	1052837	JUL	31	1976	3210	1	2	POOR	R		6	DRY GULCH NR. ESTES PARK, COLORADO	198	
LARIMER		402717	1052713	JUL	31	1976	1300	1	7.18	POOR	R		6	FOX CREEK AT GLEN HAVEN, COLORADO	198	
LARIMER		402006	1052548	JUL	31	1976	1940	1	2.77	FAIR	R		6	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	198	
LARIMER		404744	1051724	JUL	31	1976	2590	1	86.3	FAIR	R		6	LONE PINE CREEK NR. LIVERMORE, COLORADO	198	
LARIMER		402346	1052404	JUL	31	1976	5500	1	1.99	POOR	R		6	LONG GULCH NR. DRAKE, COLORADO	198	
LARIMER		402747	1052513	JUL	31	1976	2060	1	13.9	POOR	R		6	MILLER FORK NR. GLEN HAVEN, COLORADO	198	
LARIMER		402620	1052152	JUL	31	1976	8710	1	80.2	FAIR	R		6	NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	198	
LARIMER		402717	1052705	JUL	31	1976	888	1	18.5	POOR	R		6	NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO	198	
LARIMER		402655	1052411	JUL	31	1976	3240	1	1.26	POOR	R		6	NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	198	
LARIMER		404715	1051508	JUL	31	1976	9460	1	539	POOR	R		6	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
LARIMER		402325	1052600	JUL	31	1976	6910	1	3.37	POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	198	
LARIMER		402714	1052604	JUL	31	1976	9670	1	1.38	POOR	R		6	NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	198	
LARIMER		402423	1052417	JUL	31	1976	3540	1	3.41	POOR	R		6	RABBIT GULCH NR. DRAKE, COLORADO	198	
LARIMER		403019	1051149	JUL	31	1976	2640	1	29.1	POOR	R		6	REDSTONE CREEK NR. MASONVILLE, COLORADO	198	
LARIMER		403743	1051244	JUL	31	1976	2710	1	5.27	POOR	R		6	RIST CANYON NR. BELLVIEW, COLORADO	198	
LARIMER		404837	1051501	JUL	31	1976	3470	1	31.9	GOOD	R		6	STONEWALL CREEK NR. LIVERMORE, COLORADO	198	
LARIMER		402632	1052740	JUL	31	1976	2320	1	23.1	POOR	R		6	WEST CREEK NR. GLEN HAVEN, COLORADO	198	
LAS ANIMAS	7124300	370653	1043617	JUL	19	1976	2480	1	100	GOOD	P		7	LONG CANYON CREEK NR. MADRID, COLORADO		
OTERO	7122400	375856	1033552	JUL	20	1976	395	1	108	POOR	P		7	CROOKED ARROYO NR. SWINK, COLORADO		
PROWERS	7134100	380651	1022900	SEP	16	1976	2520	3	3248	UNKNOWN	P	2	7	BIG SANDY CREEK NR. LAMAR, COLORADO		
PUEBLO	7108050	375706	1044742	AUG	2	1976	1220	1	32	POOR	P		7	GREENHORN CREEK NR. COLORADO CITY, COLORADO		? Same date as 198 ?
PUEBLO	7099250	381146	1045044	AUG	2	1976	860	1	8.35	UNKNOWN	L		7	SODA CREEK TRIB. NR. LIVESEY, COLORADO		? Same date as 198 ?
PUEBLO	7107600	380405	1044633	AUG	1	1976	967	1	2.87	UNKNOWN	L		7	ST. CHARLES TRIB. NR. GOODPASTURE, COLORADO		? Same date as 198 ?
DELTA	9144200	384716	1075941	SEP	6	1976	221	1	196	GOOD	R		9	TONGUE CREEK AT CORY, COLORADO		
EAGLE	9061450	394312	1070230	JUL	12	1976	7390	1	105	FAIR	R		9	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO		
GARFIELD	9095400	392208	1081541	JUL	25	1976	712	1	109	FAIR	G		9	DRY FORK NR. DE BEQUE, COLORADO		
GARFIELD	9093500	392711	1080333	JUL	31	1976	2600	1	198	POOR	R		9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO		? Same date as 198 ?
MESA	9153400	391831	1085859	AUG	8	1976	1200	1	168	FAIR	R		9	WEST SALT CREEK NR. MACK, COLORADO		
RIO BLANCO	9306036	394930	1081154	JUL	31	1976	40	1	3.62	UNKNOWN	M		9	SORGHUM GULCH AT MOUTH NR. RIO BLANCO, COLORADO		? Same date as 198 ?
ELBERT	6758700	392933	1040946	JUN	19	1977	500	1	2.27	UNKNOWN	L		6	MIDDLE BIJOU CREEK TRIB. NR. DEER TRAIL, COLORADO		
JEFFERSON	6711642	394253	1050744	JUN	6	1977	361	1	2.76	FAIR	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO		
JEFFERSON	6711642	394253	1050744	JUL	20	1977	590	1	2.76	FAIR	R		6	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO		
MORGAN	6759100	401658	1035231	JUL	26	1977	2200	1	1500	UNKNOWN	L		6	BIJOU CREEK NR. FORT MORGAN, COLORADO		
YUMA	6825000	393659	1021432	MAY	2	1977	5900	1	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
EL PASO	7104000	385504	1044905	AUG	14	1977	1230	1	204	FAIR	P		7	MONUMENT CREEK AT PIKEVIEW, COLORADO		
LAS ANIMAS	7129200	373556	1031948	MAY	20	1977	2270	1	3.31	UNKNOWN	L		7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO		
LAS ANIMAS	7126300	372130	1035344	AUG	1	1977	12200	1	1935	FAIR	R		7	PURGATOIRE RIVER NR. THATCHER, COLORADO		
DELTA	9134200	384822	1074112	JUL	20	1977	946	1	41	POOR	R		9	COTTONWOOD CREEK NR. HOTCHKISS, COLORADO		
DELTA	9151500	384524	1081534	JUL	24	1977	2050	1	209	FAIR	G		9	ESCALANTE CREEK NR. DELTA, COLORADO		
DELTA	9150500	384406	1080940	JUL	24	1977	799	1	242	POOR	R		9	ROUBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO		
DOLORES	9168100	375236	1083457	JUL	24	1977	7270	1	147	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, 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
GARFIELD	9095400	392208	1081541	AUG	22	1977	623	1	109	POOR	R		9	DRY FORK NR. DE BEQUE, COLORADO		
GARFIELD	9093000	393402	1080637	AUG	19	1977	2310	1	141	POOR	G		9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO		
GARFIELD	9093000	393402	1080637	AUG	25	1977	431	1	141	FAIR	G		9	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO		
MESA	9151700	385130	1081853	JUL	24	1977	178	3	4	UNKNOWN	L		9	DEER CREEK TRIBUTARY NR. DOMINGUEZ, COLORADO		
MESA	9163300	392124	1084858	OCT	7	1977	580	1	1.69	UNKNOWN	L		9	EAST SALT TRIBUTARY NR. MACK, COLORADO		
MOFFAT	9250400	401724	1074721	JUL	21	1977	58	3	40	POOR	R		9	GOOD SPRINGS CREEK AT AXIAL, COLORADO		
MOFFAT	9306400	401434	1085716	AUG	24	1977	260	1	4.22	UNKNOWN	L		9	WEST TWIN WASH NR. DINOSAUR, COLORADO		
MONTEZUMA	9371300	372051	1082856	AUG	15	1977	1750	3	4.43	UNKNOWN	L	2	9	MCELMO CREEK TRIB. NR. CORTEZ, COLORADO		
RIO BLANCO	9306240	395318	1083140	AUG	25	1977	30	1	9.21	POOR	M		9	BOX ELDER GULCH NR. RANGELY, COLORADO		
RIO BLANCO	9306241	395450	1082906	SEP	11	1977	5	1	2.39	POOR	R		9	BOX ELDER GULCH TRIB. NR. RANGELY, COLORADO		
RIO BLANCO	9306244	395604	1082538	SEP	11	1977	60	1	37.8	FAIR	M		9	CORRAL GULCH AT 84 RANCH NR. RANGELY, COLORADO		
RIO BLANCO	9306235	395422	1083156	JUL	23	1977	272	1	8.61	POOR	M		9	CORRAL GULCH BELOW WATER GULCH NR. RANGELY, COLORADO		
RIO BLANCO	9306242	395513	1082820	JUL	23	1977	183	1	31.6	POOR	R		9	CORRAL GULCH NR. RANGELY, COLORADO		
RIO BLANCO	9306039	394936	1081225	JUL	19	1977	36	1	1.2	FAIR	M		9	COTTONWOOD GULCH NR. RIO BLANCO, COLORADO		
RIO BLANCO	9306380	400517	1084631	JUL	5	1977	1170	1	425		M		9	DOUGLAS CREEK AT RANGELY, COLORADO		
RIO BLANCO	9306380	400517	1084631	JUL	24	1977	3250	1	425		M		9	DOUGLAS CREEK AT RANGELY, COLORADO		
RIO BLANCO	9306248	395855	1082710	JUL	23	1977	62	1	39.1	FAIR	M		9	DUCK CREEK AT UPPER STATION, NR 84 RANCH, COLORADO		
RIO BLANCO	9306203	395612	1081753	JUL	24	1977	16	1	2.87	POOR	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO		
RIO BLANCO	9306203	395612	1081753	SEP	11	1977	41	3	2.87	GOOD	M		9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO		
RIO BLANCO	9306202	395559	1081859	JUL	24	1977	19	1	1.47	POOR	M		9	HORSE DRAW NR. RANGELY, COLORADO		
RIO BLANCO	9306007	394934	1081057	JUL	19	1977	520	3	177	FAIR	R		9	PICEANCE CREEK BELOW RIO BLANCO, COLORADO		
RIO BLANCO	9306042	395001	1081312	SEP	3	1977	451	1	1.06	POOR	M		9	PICEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO		
RIO BLANCO	9306230	395537	1082514	SEP	11	1977	245	1	26.1	GOOD	M		9	STAKE SPRINGS DRAW NR. RANGELY, COLORADO		
RIO BLANCO	9306028	394845	1081100	SEP	3	1977	38	1	15.7	FAIR	M		9	WEST FK STEWARD GL. AT MOUTH, NR. RIO BLANCO, COLORADO		
RIO BLANCO	9306058	395014	1081437	SEP	3	1977	23	1	48.7	POOR	R		9	WILLOW CREEK NR. RIO BLANCO, COLORADO		
RIO BLANCO	9306255	401007	1082402	JUL	24	1977	756	1	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO		
SAN MIGUEL	9175800	380237	1083438	AUG	23	1977	1250	2 3	5.33	UNKNOWN	L		9	DEADHORSE CREEK NR. NATURITA, COLORADO		
EL PASO	7099220	383736	1045155	AUG	28	1978	284	1	62.5	FAIR	R		7	TURKEY CREEK ABV. TELLER RES. NR. STONE CITY, COLORADO		
FREMONT		383000	1055100	AUG	29	1978	9960	1		POOR	R	1	7	BADGER CREEK NR. HOWARD, COLORADO		
LAS ANIMAS	7153450	370524	1034109	JUN	7	1978	940	1	4.06	UNKNOWN	L		7	LONGS CANYON CREEK NR. TOBE, COLORADO		
LAS ANIMAS	7124100	370756	1044824	JUN	27	1978	278	1	4.23	GOOD	P		7	MOLINO CANYON NR. WESTON, COLORADO		
LAS ANIMAS	7124220	370843	1043707	JUN	27	1978	1440	1	35.1	FAIR	P		7	REILLY CANYON AT COKEDALE, COLORADO		
LAS ANIMAS	7124120	370726	1044549	JUN	27	1978	472	1	35.3	FAIR	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO		
OTERO	7119500	380528	1035852	JUL	10	1978	18300	2 4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
OTERO	7119700	380733	1035441	JUL	10	1978	23300	2 3	10901	POOR	R	2	7	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO		
PUEBLO	7109500	381453	1042355	JUL	30	1978	15400	1	6327	POOR	P		7	ARKANSAS RIVER NR. AVONDALE, COLORADO		
EAGLE	9058900	394337	1062850	JUN	7	1978	6.8	5	0.76	UNKNOWN	G	2	9	MONIGER CREEK NR. MINTURN, COLORADO		
MESA		390328	1083530	SEP	7	1978	9290	1	18.8	FAIR	G		9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
MESA		390413	1083657	SEP	7	1978	2890	3	4.35	POOR	G		9	RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO	202	
RIO BLANCO	9306255	401007	1082402	SEP	7	1978	6800	2 4	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	202	
DENVER		394006	1045625	JUL		1979	665	1		UNKNOWN	L	2	6	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO		
DENVER		394004	1045710	JUL	5	1979	672	1		UNKNOWN	L	2	6	HARVARD GULCH AT HARVARD PARK, COLORADO		
JEFFERSON		394544	1050808	MAR	17	1979	720	1		POOR	R	3	6	LENA GULCH AT 32ND AVE.,LAKEWOOD, COLORADO		
JEFFERSON		394620	1050632	MAR	17	1979	240				L		6	LENA GULCH AT KIPLING ST. AT WHEATRIDGE, COLORADO		
JEFFERSON		394606	1050703	MAR	17	1979	380				L		6	LENA GULCH AT NELSON STR AT WHEATRIDGE, COLORADO		
JEFFERSON		394119	1050454	JUL	4	1979	113	1	0.38	UNKNOWN	L	2	6	SANDERSON GULCH TRIB. AT LAKEWOOD, COLORADO		
LINCOLN	6821300	393112	1032635	AUG	10	1979	1270	1	6.55	UNKNOWN	L		6	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO		
LOGAN	6822600	402950	1024630	JUL	22	1979	850	1	2.37	UNKNOWN	L		6	PATENT CREEK NR. ST. PETERSBURG, COLORADO		
PARK	6698500	391742	1054305	JUN	7	1979		3	183	UNKNOWN	R		6	TARRYALL CREEK NR. JEFFERSON, COLORADO		
EL PASO	7105940	383833	1044449	AUG	26	1979	260	1	26.9	POOR	R		7	LITTLE FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
LAS ANIMAS	7118500	372400	1043829	JUL	31	1979	4520	1	147	POOR	P		7	APISHAPA RIVER AT AGUILAR, COLORADO		
LAS ANIMAS	7124300	370653	1043617	JUL	17	1979	3140	1	100	FAIR	R		7	LONG CANYON CREEK NR. MADRID, COLORADO		
LAS ANIMAS	7124200	370746	1043820	JUL	17	1979	3610	1	550	FAIR	R		7	PURGATOIRE AT MADRID, COLORADO		
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	35.1	POOR	P		7	REILLY CANYON AT COKEDALE, COLORADO		
LAS ANIMAS	7124220	370843	1043707	JUL	31	1979	2510	1	35.1	FAIR	P		7	REILLY CANYON AT COKEDALE, COLORADO		
LAS ANIMAS	7124120	370726	1044549	JUL	18	1979	3380	1	35.3	FAIR	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO		
LAS ANIMAS	7126200	372045	1035727	AUG	9	1979	6050	1	168	POOR	R		7	VAN BREMMER ARROYO NR. MODEL, COLORADO		
GARFIELD	9095400	392208	1081541	AUG	16	1979	370	1	109	FAIR	R		9	DRY FORK NR. DE BEQUE, COLORADO		
MESA	9179200	383159	1085813	JUL	2	1979	309	4	31.2	UNKNOWN	G		9	SALT CREEK NR. GATEWAY, COLORADO		
ADAMS		394952	1050248	AUG	26	1980	540	1 3		POOR	R		6	74TH AND WINONA DITCH, DENVER, COLORADO		
ADAMS		394948	1050253	AUG	26	1980	580	3		FAIR	L		6	LITTLE DRY CRK. AT 74TH AND WINONA CT AT WESTMINSTER, CO		
DENVER		394914	1050059	AUG	26	1980	870	3		POOR	L		6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO		
JACKSON	6619420	404418	1060649	APR	21	1980	22	2	3.95	GOOD	L		6	WILLIAMS DRAW NR.WALDEN, COLORADO		
JEFFERSON		394451	1050807	MAY	5	1980	400	3		FAIR	R		6	LENA GULCH AT 20TH AVE., LAKEWOOD, COLORADO		
JEFFERSON		394543	1050810	MAY	5	1980	540	1		POOR	R		6	LENA GULCH AT 32ND AVE. LAKEWOOD, COLORADO		
LARIMER	6710400	402508	1051553	APR	30	1980	1590	1	18.9	FAIR	R		6	CEDAR CREEK AT CEDAR COVE, COLORADO		
PUEBLO	7107500	380306	1044735	MAY	15	1980	3300	1	1.66	FAIR	R		7	ST. CHARLES RIVER AT BURNT MILL, COLORADO		
ADAMS		395111	1045916	JUN	3	1981	265	3		FAIR	L		6	L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	205	?
DENVER	6711570	394008	1045632	MAY	28	1981	670	1		FAIR	L		6	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO		
DENVER	6711575	394020	1045834	MAY	28	1981	914	1		FAIR	L		6	HARVARD GULCH AT HARVARD PARK, AT DENVER, COLORADO		
DENVER	6711575	394021	1045835	MAY	28	1981	1040	1		GOOD	L		6	HARVARD GULCH AT HARVARD PARK, COLORADO		
DENVER		394958	1050305	JUN	3	1981	720	3		FAIR	L		6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	205	?

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	770	3		FAIR	L		6	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	205	?
JEFFERSON		393917	1051821	JUL	18	1981		1		UNKNOWN	R	2	6	TROUBLESOME CREEK AT KITTEREDGE, COLORADO		
EL PASO	7105780	384509	1044543	AUG	15	1981	2700	1		FAIR	P		7	B-DITCH DRAIN NR. SECURITY, COLORADO		
EL PASO	7105500	384859	1044920	JUN	2	1981	3950	1	392	FAIR	P		7	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO		
EL PASO	7105500	384859	1044920	JUN	2	1981	3950	1	392	POOR	P		7	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO		
EL PASO	7105800	384346	1044400	AUG	2	1981	4330	1	495	FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	7103700	385117	1045239	JUN	2	1981	650	1	103	FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
EL PASO	7103950	390014	1044421	AUG	5	1981	2300	1	9.01	FAIR	P		7	KETTLE CK. NEAR BLACK FOREST, COLORADO		
EL PASO	7105920	384055	1045130	JUN	2	1981	512		11	FAIR	P		7	LITTLE FOUNTAIN CK. ABV. KEATON RES., NR. FT CARSON, CO.		
EL PASO	7104000	385504	1044905	AUG	5	1981	3750	1	204	FAIR	P		7	MONUMENT CREEK AT PIKEVIEW, COLORADO		
EL PASO	7124220	370843	1043707	JUL	26	1981	950	1		GOOD	P		7	REILLY CANYON AT COKEDALE, COLORADO		
FREMONT	7093740	383925	1054845	SEP	4	1981	254	1		GOOD	P		7	BADGER CK (UPPER STATION) NEAR HOWARD, COLORADO		
FREMONT	7093775	385759	1055106	SEP	5	1981	267	1		GOOD	P		7	BADGER CREEK (LOWER STATION) NEAR HOWARD, COLORADO		
FREMONT	7099100	382227	1045749	JUL	17	1981	2730	1	214	FAIR	P		7	BEAVER CREEK NR. PORTLAND, COLORADO		
LAS ANIMAS	7124350	370913	1043411	JUL	26	1981	2790	1		FAIR	P		7	CARPIOS CANYON NR. JANSEN, COLORADO		
LAS ANIMAS	7124350	370913	1043402	AUG	10	1981	5300	1	4.57	FAIR	P		7	CARPIOS CANYON NEAR JANSEN, COLORADO		
LAS ANIMAS	7125100	371200	1041140	JUL	3	1981	28400	2 4	80	FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	207	
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
LAS ANIMAS	7124200	370746	1043820	AUG	10	1981	11500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	210	?
LAS ANIMAS	7124200	370746	1043820		26	1981	3250	1	505	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO		
PUEBLO	7108900	381500	1042900	AUG	3	1981	2400	1	4.74	FAIR	P	1	7	ST. CHARLES RIVER AT VINELAND, COLORADO		
GARFIELD	9153330	392347	1085851	AUG	30	1981	871	1	95.6	FAIR	R		9	WEST SALT CREEK NR. CARBONERA, COLO.		
GARFIELD	9153330	392327	1085851	AUG	31	1981	871	1	168	FAIR	G		9	WEST SALT CREEK NR. CARBONERA, COLORADO		
MESA	9179200	383159	1085813	JUL	12	1981	2610	1	31.2	GOOD	G		9	SALT CREEK NR. GATEWAY, COLORADO	208	?
MESA	9153400	391831	1085859	AUG	31	1981	681	1	168	GOOD	G		9	WEST SALT CREEK NR. MACK, COLORADO		
MESA	9153400	391831	1085859	AUG	30	1981	681	1	168	FAIR	R		9	WEST SALT CREEK NR. MACK, COLORADO		
MONTEZUMA	9370820	370557	1082756	JUL	13	1981	3020	1	320	FAIR	G		9	MANCOS RIVER BLW. JOHNSON CAN. NR. CORTEZ, COLORADO		
MONTEZUMA	9370820	370557	1082756	JUL	13	1981	3020	1	320	FAIR	R		9	MANCOS RIVER BLW. JOHNSON CANYON NR. CORTEZ, COLORADO		
RIO BLANCO	9306241	395450	1082906	JUL	9	1981	76	1	2.39	FAIR	M		9	BOX ELDER GULCH TRIB. NR. RANGELY		
ARAPAHOE		392855	1041126	JUN	25	1982	355		312		R		6	SOUTH FORK OF WILLOW GULCH NR. DEER TRAIL, COLORADO		
ELBERT		392855	1041126	JUN	25	1982	355	6	0.49	FAIR	R		6	SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO		
LARIMER	6733000	402242	1053048	JUL	15	1982	5500	2	137	POOR	L		6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO		Lawn Lake Failure
LARIMER		402405	1053618	JUL	15	1982	7210	1		POOR	R		6	FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Failure
LARIMER		402301	1053258	JUL	15	1982	8520	1		POOR	R		6	FALL RIVER ABV. ESTES PARK, COLORADO		Lawn Lake Failure
LARIMER		402403	1053608	JUL	15	1982	4500	6		POOR	R		6	FALL RIVER AT CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Failure
LARIMER		402359	1053505	JUL	15	1982	13100	6		POOR	R		6	FALL RIVER BLW. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Failure
FREMONT	7096500	382611	1051127	JUL	29	1982	1080	1	434	FAIR	P		7	FOURMILE CREEK NR. CANON CITY, COLORADO		
GARFIELD	9153330	392327	1085851	AUG	13	1982	1760	1	168	FAIR	G		9	WEST SALT CREEK NR. CARBONERA, COLORADO		
GARFIELD	9153330	392347	1085851	AUG	13	1982	1760	1	95.6	FAIR	G		9	WEST SALT CREEK NR. CARBONERO, COLORADO		
MESA	9179200	383159	1085813	JUL	17	1982	1050	1	31.2	FAIR	G		9	SALT CREEK NR. GATEWAY, COLORADO		
MESA	9153400	391831	1085859	AUG	15	1982	1430	1	168	FAIR	G		9	WEST SALT CREEK NR. MACK, COLORADO		
MONTEZUMA	9371500	371923	1084022	AUG	24	1982	730	1	233	POOR	G		9	MCELMO CREEK NR. CORTEZ, COLORACO		
MONTEZUMA	9371492	371846	4083938	AUG	24	1982	731	1	33.6	POOR	G		9	MUD CREEK AT HWY 32 NR. CORTEZ, COLORADO		
MONTROSE		382904	1075947	JUL	27	1982	5030	1	30.4	POOR	G		9	COAL CREEK WEST OF MONTROSE, COLORADO		
MONTROSE	9149450	383319	1080243	JUL	27	1982	1040	1	102	POOR	G		9	DRY CREEK NR. OLATHE, COLORADO		
MONTEZUMA	9167450	373557	1082944	APR	25	1983	2000	1	83	FAIR	G		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

All measurements that match CCC Storms

Indirect Measurements
Extreme Streamflow Data Base

INDIRECT DISCHARGE MEASUREMENTS IN COLORADO
SORTED BY STORM NUMBER
Storms.xls — Matching Ind Q sheet

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
LARIMER	6752000	403955	1051310	MAY	20	1904	57200	1	1055	UNKNOWN	R	2	6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	20	
LAS ANIMAS	7124500	371010	1043030	SEP	6	1909	13300	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	34	? Front Range, not SW
PROWERS	7133000	380617	1023701	JUN	5	1921	130000		19780	UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO	58	ok?
LARIMER	6739500	402715	1051150	JUN	15	1923	10500	1	131	UNKNOWN	R	2	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	65	
LAS ANIMAS	7124500	371005	1043110	JUL	22	1925	33000	4	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	72	
JEFFERSON	6710500	393911	1051142	JUL	7	1933	8110	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	86	
DOUGLAS		392000	1044500	AUG	3	1933	30000	2	175	UNKNOWN	R	1 2	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	87	
DENVER	6714000	394535	1050010	SEP	10	1933	22000	5	3804	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT DENVER, COLORADO	88	
JEFFERSON	6719500	394505	1051455	SEP	9	1933	5890	1	399	UNKNOWN	R	2	6	CLEAR CREEK NR. GOLDEN, COLORADO	88	
OTERO	7126500	374400	1032900	SEP	15	1934	45000	1	2900	UNKNOWN	R	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	89	
SAN JUAN		374900	1074000	JUL	18	1936	547	1		UNKNOWN	R	1 2	9	CEMENT CREEK NR. SILVERTON, COLORADO	94	? probably not
PUEBLO	7115500	380000	1042800	JUL	28	1936	26640	2	1673	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	95	?
ARAPAHOE	6711500	393908	1050157	SEP	2	1938	2810	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO	102	
JEFFERSON	6710500	393911	1051142	SEP	2	1938	6200	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	102	
MESA		384600	1085300	JUL	16	1940	11700	1	23	UNKNOWN	R	1	9	WEST CREEK NR. GATEWAY, COLORADO	104	
LA PLATA	9365500	371720	1080205	SEP	22	1941	1880	1	37	UNKNOWN	R	2	9	LA PLATA RIVER AT HESPERUS, COLORADO	107	?
MONTEZUMA	9371500	371900	1084000	SEP	22	1941	4540	1	233	UNKNOWN	R	1 2	9	MCELMO CREEK NEAR CORTEZ, COLORADO	107	?
LARIMER	6739500	402715	1051150	MAY	30	1948	5750	1	131	UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	125	
JEFFERSON		394545	1051320	JUN	7	1948	11600	1	11	UNKNOWN	R	2	6	TUCKER GULCH AT GOLDEN, COLORADO	126	
BOULDER	6742000	401530	1051215	JUN	6	1949	3500	1	101	UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	129	
LARIMER	6741000	402300	1051430	JUN	4	1949	330	1	15	POOR	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	129	
BENT	7128000	375500	1031800	JUN	5	1949	26100	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	129	
BENT	7129500	380000	1030400	JUN	5	1949	11600	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	129	
FREMONT		382313	1050657	JUN		1949	5420	4		UNKNOWN	P		7	COAL CREEK AT FLORENCE, COLORADO	129	
OTERO	7126500	374400	1032900	JUN	5	1949	26100	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	129	
OTERO	7121000	375720	1034320	JUN	4	1949	1300	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	129	
PROWERS		380326	1020701	JUN		1949	1830	1		UNKNOWN	R		7	HOLLY DRAIN AT HOLLY, COLORADO	129	?
PROWERS		380509	1023148	MAY	15	1951	27500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	131	
PROWERS		380140	1020820	MAY	15	1951	34000	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	131	
PROWERS		380300	1020700	MAY	15	1951	5000	1		UNKNOWN	P	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO	131	
PROWERS		380230	1022030	MAY	15	1951	8800	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	131	
ARAPAHOE		393908	1045909	AUG	3	1951	1200	1		UNKNOWN	R		6	LITTLE DRY CREEK ENGLEWOOD, COLORADO	133	
ARAPAHOE		394016	1040554	AUG	3	1951	11000	1		UNKNOWN	R	2	6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	133	
ARAPAHOE		394303	1041343	AUG	3	1951	41000	4		UNKNOWN	R	2	6	WEST BIJOU CREEK NR. BYERS, COLORADO	133	
BOULDER		400453	1051114	AUG	3	1951	5700	1		UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO	133	
BOULDER	6742500	400700	1051800	AUG	3	1951	785	1	48	FAIR	R	1	6	LEFTHAND CREEK NEAR BOULDER, COLORADO	133	
LARIMER	6741500	402355	1050610	AUG	3	1951	19000	1	515	UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER		402300	1050146	AUG	3	1951	11400	4		UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER	6739500	402715	1051150	AUG	3	1951	14000	1	131	POOR	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	133	
LARIMER		403800	1050800	AUG	3	1951	12000	4		UNKNOWN	R	1 2	6	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	133	
LARIMER	6740000	402220	1051335	AUG	3	1951	420	4	7	UNKNOWN	R		6	CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER	6741000	402300	1051430	AUG	3	1951	2260	1	15	GOOD	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	133	
LARIMER		403715	1051045	AUG	3	1951	8000	1		UNKNOWN	R		6	DRY CREEK ABV. BELLVIEW, COLORADO	133	
LARIMER	6740500	402210	1051715	AUG	3	1951	350	2	3	POOR	R		6	RATTLESNAKE CREEK NR. PINEWOOD, COLORADO	133	?
LOGAN		403424	1032056	SEP	7	1951	12000	4		POOR	R	2	6	PAWNEE CREEK NEAR LOGAN, COLORADO	133	Wray?
MORGAN		402240	1033324	SEP	7	1951	4400	2		UNKNOWN	R		6	ANTELOPE CREEK NEAR SNYDER, COLORADO	133	Wray?
MORGAN		402238	1033736	SEP	7	1951	13400	4		POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO	133	Wray?
WELD	6753500	404600	1044725	AUG	3	1951	239	6	199	UNKNOWN	R	2	6	LONE TREE CREEK NR. NUNN, COLORADO	133	
WELD		401029	1045847	AUG	3	1951	6200	4		UNKNOWN	R	2	6	ST. VRAIN CREEK NR. LONGMONT, COLORADO	133	
LAS ANIMAS	7126000	371130	1040730	JUL	11	1953	6230	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	137	?
OTERO		375955	1033513	JUL	12	1953	24300	2 4	87	FAIR	R		7	CROOKED ARROYO NR. LA JUNTA, COLORADO	137	?
OTERO	7121000	375720	1034320	JUL	12	1953	10000	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	137	?
PUEBLO	7116000	380000	1042800	JUL	11	1953	3340	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	137	?
BENT	7124000	380508	1031250	MAY	20	1955	44000	1	14417	UNKNOWN	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	138	
BENT	7128000	375500	1031800	MAY	20	1955	73400	1 2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	138	Peak Q Indirect
BENT	7129500	380000	1030400	MAY	19	1955	4810	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	138	
LAS ANIMAS		371000	1035613	MAY	19	1955	1260	1	35	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO	138	
LAS ANIMAS		370730	1043859	MAY	19	1955	1150	1	28	UNKNOWN	P		7	BURRO CANYON AT MADRID, COLORADO	138	
LAS ANIMAS		373310	1033700	MAY	19	1955	3170	1	387	UNKNOWN	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	138	
LAS ANIMAS		371712	1041943	MAY	19	1955	1140	2	123	UNKNOWN	P		7	CHICOSA CREEK NR. HOEHNE, COLORADO	138	
LAS ANIMAS		370911	1043222	MAY	19	1955	940	1	10	UNKNOWN	P		7	COLORADO CANYON NR. JANSEN, COLORADO	138	
LAS ANIMAS		371145	1041036	MAY	19	1955	375	2 3	1	UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	138	
LAS ANIMAS		370904	1043045	MAY	19	1955	820	1	4	UNKNOWN	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	138	
LAS ANIMAS		371215	1042710	MAY	19	1955	1960	1	16	UNKNOWN	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	138	
LAS ANIMAS		370100	1042845	MAY	19	1955	642	3	5	UNKNOWN	P		7	JOE CREEK NR. MORELY, COLORADO	138	
LAS ANIMAS		370720	1043520	MAY	19	1955	9650	1	104	UNKNOWN	P		7	LONG CANYON NR. SOPRIS, COLORADO	138	
LAS ANIMAS		371145	1041100	MAY	19	1955	187	3	1	UNKNOWN	P		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	138	
LAS ANIMAS		371200	1042900	MAY	19	1955	9000	1		UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	138	
LAS ANIMAS		370610	1044548	MAY	19	1955	1790	2	381	UNKNOWN	P		7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	138	
LAS ANIMAS		370732	1044150	MAY	19	1955	4400	2	485	UNKNOWN	P		7	PURGATOIRE RIVER AT DIVERSION DAM AT VALDEZ, COLORADO	138	
LAS ANIMAS		370902	1043230	MAY	19	1955	26400	4	766	UNKNOWN	P		7	PURGATOIRE RIVER AT JANSEN, COLORADO	138	
LAS ANIMAS		370828	1043553	MAY	19	1955	19800	2	691	UNKNOWN	P		7	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	138	

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
LAS ANIMAS		371712	1041842	MAY	19	1955	37900	2 4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	138	
LAS ANIMAS	7126000	371130	1040730	MAY	19	1955	41900	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	138	
LAS ANIMAS		370653	1043118	MAY	19	1955	9400	1	61	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	138	
LAS ANIMAS		370030	1042650	MAY	19	1955	402	3	5	UNKNOWN	P		7	RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO	138	
LAS ANIMAS		370756	1043634	MAY	19	1955	2800	1	37	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	138	
LAS ANIMAS	7125500	371110	1040750	MAY	19	1955	15500	4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	138	
LAS ANIMAS		370725	1044525	MAY	19	1955	1460	1	36	GOOD	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	138	
OTERO	7119500	380528	1035852	MAY	19	1955	17000	2 4	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	138	
OTERO	7126500	394400	1032900	MAY	19	1955	80000	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	138	
OTERO		374225	1032420	MAY	19	1955	5660	1	291	UNKNOWN	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	138	
PROWERS		380509	1023148	MAY	20	1955	5500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	138	
PROWERS		380230	1022030	MAY	20	1955	1420	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	138	
PUEBLO	7116000	380000	1042800	MAY	19	1955	11300	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	138	
PUEBLO		380112	1044331	MAY	19	1955	3650	1	43	UNKNOWN	P		7	MUDDY CREEK NR. PUEBLO, COLORADO	138	
PUEBLO	7108500	381220	1043140	MAY	19	1955	20600	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	138	
ARAPAHOE	6712500	393618	1044919	JUL	31	1956	5310	1	360	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	140	
ADAMS		394552	1044937	MAY	9	1957	6450	4	113	FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142	
ADAMS		394600	1045000	MAY	9	1957	7660	6	113	FAIR	R	1	6	SAND CREEK NR. AURORA, COLORADO	142	
ARAPAHOE		394332	1044904	MAY	9	1957	10400	2 3	36	UNKNOWN	R	2	6	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	142	
DENVER		394648	1045404	MAY	9	1957	25500	1	187	UNKNOWN	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142	
EL PASO	6757600	390400	1043455	JUL	30	1957	5250	1	3	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
YUMA		395338	1021340	JUL	17	1962	17800	1	25	GOOD	R		6	BLACK WOLF CREEK NEAR WRAY, COLORADO	151	
MESA	9163500	390900	1085700	AUG	31	1963	7000	5	17900	UNKNOWN	G	1 2	9	COLORADO RIVER NR. COLORADO-UTAH STATE LINE	154	
EL PASO	7103700	385117	1045239	MAY	29	1964	672	1	102	FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	155	?
ADAMS		394018	1040552	JUN	17	1965	145000	1	190	FAIR	R		6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	159	
ADAMS		394524	1044904	JUN	16	1965	13400	1	113	GOOD	R		6	SAND CREEK AT SABLE AVE. AURORA, COLORADO	159	
ADAMS		394952	1045653	JUN	17	1965	18800	4	4598	FAIR	R		6	SOUTH PLATTE RIVER AT DERBY, COLORADO	159	
ADAMS	6720500	395512	1045218	JUN	17	1965	29600	1	4713	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	159	
ARAPAHOE	6712500	393542	1044844	JUN	16	1965	39900	4	336	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	159	
ARAPAHOE		393700	1040300	JUN	17	1965	274000	1	302	FAIR	R	1	6	EAST BIJOU CREEK AT DEER TRAIL, COLORADO	159	
ARAPAHOE	6758300	394454	1042446	JUN	18	1965	24900	4	236	POOR	R		6	KIOWA CREEK AT BENNETT, COLORADO	159	
ARAPAHOE		393635	1044835	JUN	16	1965	14100	1 3	22	GOOD	R		6	PINEY CREEK NR. MELVIN, COLORADO	159	
ARAPAHOE	6710000	393710	1050110	JUN	16	1965	110000	4	3069	UNKNOWN	R		6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159	
ARAPAHOE		394332	1044904	JUN	16	1965	16000	2 3	36	UNKNOWN	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	159	
ARAPAHOE		394223	1041407	JUN	17	1965	75500	4	277	FAIR	R		6	WEST BIJOU CREEK AT BYERS, COLORADO	159	
DENVER		394605	1045300	JUN	16	1965	18900	3	187	FAIR	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159	
DOUGLAS		392417	1045225	JUN	16	1965	126000	1	108	POOR	R		6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	
DOUGLAS	6709500	392904	1050007	JUN	16	1965	154000	1	302	UNKNOWN	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	159	
DOUGLAS		392230	1045735	JUN	16	1965	36800	1	108	POOR	R		6	WEST PLUM CREEK NR. SEDALIA, COLORADO	159	
EL PASO	6757600	390400	1043455	JUN	17	1965	2370	1	3	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	159	?
EL PASO	6757700	390618	1043331	JUN	17	1965	2600	1	1	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	159	?
ELBERT	6758000	391235	1043200	JUN	17	1965	41500	1	29	GOOD	R		6	KIOWA CREEK AT ELBERT, COLORADO	159	?
ELBERT	6758200	392000	1042900	JUN	17	1965	19700	4	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	159	?
ELBERT	6757750	390920	1043116	JUN	17	1965	2010	1	3	GOOD	R		6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. ELBERT, COLORADO	159	?
ELBERT	6757800	391003	1043114	JUN	17	1965	1270	1	1	FAIR	R		6	KIOWA CREEK SUBWATERSHED NO. Q-51 NR. ELBERT, COLORADO	159	?
ELBERT		391600	1042000	JUN	17	1965	67200	1	86	POOR	R	1	6	WEST BIJOU CREEK NR. KIOWA, COLORADO	159	?
ELBERT	6758100	391238	1043216	JUN	17	1965	20000	1	36	FAIR	R		6	WEST KIOWA CREEK AT ELBERT, COLORADO	159	?
LOGAN		403700	1032700	JUN	15	1965	35200	4	629	FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	159	?
LOGAN	6760000	402424	1032758	JUN	18	1965	123000	2 4	16852	FAIR	R		6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	159	?
MORGAN		400800	1033500	JUN	18	1965	24300	1	946	GOOD	R	1	6	BEAVER CREEK NEAR BRUSH, COLORADO	159	?
MORGAN		401517	1035800	JUN	18	1965	466000	1	1314	POOR	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	159	?
MORGAN	6758500	401920	1035515	JUN	19	1965	18800	4	13245	UNKNOWN	R	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	159	?
SEDGEWICK	6764000	405846	1021515	JUN	20	1965	37600	1	23138	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	159	?
WELD		403800	1043000	JUN	15	1965	5340	4	73	FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	159	?
WELD		404300	1041400	JUN	15	1965	4000	1	633	POOR	R	1	6	CROW CREEK NR. KEOTA, COLORADO	159	?
WELD	6753500	404600	1044725	JUN	14	1965	5810	1 3	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	159	?
WELD		404500	1034800	JUN	14	1965	6280	1	82	GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	159	?
WELD		404200	1033900	JUN	15	1965	26700	1	387	GOOD	R	1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	159	?
BACA		372600	1023700	JUN	17	1965	13200	4	113	FAIR	P	1	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	?
BACA		371900	1023600	JUN	17	1965	7330	1	106	UNKNOWN	P	1	7	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	159	?
BACA		373800	1023700	JUN	17	1965	82600	2 4	453	GOOD	P	1	7	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	159	?
BENT		380523	1031824	JUN	18	1965	8600	4	589	GOOD	P		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	159	?
BENT	7124000	380508	1031250	JUN	19	1965	22100	4	14417	GOOD	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	159	?
BENT	7131000	380340	1025505	JUN	18	1965	37600	4	131	GOOD	P		7	CADDOA CREEK AT CADDOA, COLORADO	159	?
BENT		380504	1032110	JUN	18	1965	5070	2 3	1300	POOR	P		7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	159	
BENT	7128500	380202	1031200	JUN	18	1965	62500	4	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	159	
BENT	7129400	374900	1031100	JUN	18	1965	276000	1	435	FAIR	P	1 3	7	RULE CREEK NR. TOONERVILLE, COLORADO	159	
EL PASO		390500	1041700	JUN	17	1965	60700	1	49	FAIR	P	1	7	BIG SANDY CREEK NR. CALHAN, COLORADO	159	
EL PASO		384225	1042325	JUN	17	1965	141000	1	353	GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO	159	
EL PASO		390105	1043200	JUN	17	1965	10400	4	16	FAIR	P		7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	159	
EL PASO	7105800	384346	1044400	JUN	14	1965	2880	1	488	GOOD	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	159	?
EL PASO		384320	1043845	JUN	17	1965	124000	1	54	FAIR	R		7	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO	159	? Date?
EL PASO		385825	1045237	JUN		1965	515	1	21	FAIR	P		7	W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORADO	159	?
HAMILTON	7137500	380133	1020100	JUN	17	1965	158000	1	25410	POOR	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS	159	?
LAS ANIMAS		371000	1035700	JUN	17	1965	2600	1	35	GOOD	P	1	7	ALKALI ARROYO NR. TRINCHERA, COLORADO	159	?
LAS ANIMAS		370730	1043859	JUN	17	1965	3120	3	28	FAIR	P		7	BURRO CANYON AT MADRID, COLORADO	159	?

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
LAS ANIMAS		373211	1033606	JUN	17	1965	38900	1	387	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	159	?
LAS ANIMAS		370538	1043119	JUN	17	1965	1720	3	8	GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO	159	?
LAS ANIMAS	7125100	371200	1041140	JUN	17	1965	10600	4	80	GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	159	?
LAS ANIMAS		370904	1043045	JUN	17	1965	1090	4	4	FAIR	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	159	?
LAS ANIMAS		371215	1042710	JUN	17	1965	3540	1	16	GOOD	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	159	?
LAS ANIMAS		370100	1042845	JUN	17	1965	760	3	5	POOR	P		7	JOE CREEK NR. MORELY, COLORADO	159	?
LAS ANIMAS		370720	1043520	JUN	17	1965	4480	1	104	FAIR	P		7	LONG CANYON NR. SOPRIS, COLORADO	159	?
LAS ANIMAS		370800	1045100	JUN	16	1965	1920	1	216	GOOD	R	1	7	NORTH FORK PURGATOIRE AT WESTON, COLORADO	159	?
LAS ANIMAS		370800	1044800	JUN	17	1965	3000	4	381	UNKNOWN	P	1	7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	159	?
LAS ANIMAS	7124500	371015	1043031	JUN	17	1965	15700	4	795	GOOD	P	1	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	159	?
LAS ANIMAS		371712	1041842	JUN	16	1965	20900	4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	?
LAS ANIMAS	7126000	371130	1040730	JUN	18	1965	27300	1	1320	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	159	?
LAS ANIMAS	7125000	371450	1042350	JUN	16	1965	20000	2	857	POOR	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	159	?
LAS ANIMAS		372130	1041842	JUN	18	1965	47700	4	1935	FAIR	P	2	7	PURGATOIRE RIVER NR. THATCHER, COLORADO	159	?
LAS ANIMAS		370653	1043118	JUN	17	1965	12900	4	61	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	159	?
LAS ANIMAS		370030	1042650	JUN	16	1965	4660	1	5	FAIR	P		7	RATON CREEK NR. MORLEY, COLORADO	159	?
LAS ANIMAS		370756	1043634	JUN	16	1965	3410	1	37	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	159	?
LAS ANIMAS	7125500	371110	1040750	JUN	18	1965	14000	4	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	?
LAS ANIMAS		370100	1041200	JUN	17	1965	7960	1	32	GOOD	P	1	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159	?
LAS ANIMAS		370725	1044525	JUN	17	1965	1630	1	36	UNKNOWN	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	159	?
LAS ANIMAS		370800	1045100	JUN	16	1965	1340	4	101	GOOD	P	1	7	SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO	159	?
LAS ANIMAS		370745	1040050	JUN	17	1965	4500	2 4	129	FAIR	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO	159	?
LINCOLN		385100	1033200	JUN	17	1965	3710	1	188	FAIR	P	1	7	SOUTH RUSH CREEK NR. KARVAL, COLORADO	159	?
OTERO	7119500	380528	1035852	JUN	17	1965	11400	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	159	?
OTERO	7119700	380735	1035640	JUN	18	1965	43200	2	10901	UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	159	?
OTERO		380138	1034730	JUN		1965	31670	4		UNKNOWN	P		7	ARKANSAS RIVER AT SWINK, COLORADO	159	?
OTERO		374225	1032420	JUN	18	1965	84000	1	291	FAIR	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	159	?
OTERO		380040	1033830	JUN	17	1965	21480	2 4	481	GOOD	P		7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	?
PROWERS		380715	1022850	JUN	17	1965	3600	1	2840	FAIR	P	1	7	BIG SANDY CREEK NR. LAMAR, COLORADO	159	?
PROWERS		380044	1023426	JUN	18	1965	158000	1	213	FAIR	P		7	CLAY CREEK NR. LAMAR, COLORADO	159	?
PROWERS		375920	1021650	JUN	17	1965	12600	1	18	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO	159	?
PROWERS		380425	1022625	JUN	17	1965	10600	1	29	GOOD	P		7	SMITH ARROYO NR. GRANADA, COLORADO	159	?
PROWERS		380140	1020820	JUN	17	1965	182000	1	817	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	159	?
PROWERS	7136000	380245	1020705	JUN	17	1965	10600	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	?
PROWERS		380156	1023707	JUN	18	1965	24300	1	41	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	159	?
PROWERS		375705	1022605	JUN	17	1965	35300	1	63	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO	159	?
PUEBLO	7117000	381054	1040940	JUN	18	1965	43100	2 4	9345	FAIR	P		7	ARKANSAS RIVER NR. NEPESTA, COLORADO	159	?
PUEBLO		381442	1042036	JUN	18	1965	104000	4	7157	POOR	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	?
PUEBLO	7106500	381633	1043909	JUN	17	1965	47000	4	926	GOOD	P		7	FOUNTAIN CREEK AT PUEBLO, COLORADO	159	
ARAPAHOE	6711500	393908	1050157	JUL	25	1965	2900	5	260	UNKNOWN	R		6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	165	
SAGUACHE		380437	1054546	AUG	11	1968	174	1	12	GOOD	R		8	RITO ALTO CREEK NEAR MOFFAT, COLORADO	177	?
BOULDER		400608	1052033	MAY	7	1969	1970	1	19	GOOD	R		6	JAMES CREEK AT MOUTH NR. JAMESTOWN, COLORADO	179	
JEFFERSON	6711000	393122	1051113	MAY	7	1969	2730	1	48	FAIR	R		6	TURKEY CREEK NR. MORRISON, COLORADO	179	
YUMA	6825500	393432	1021506	AUG	23	1969	10600	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	183	?
YUMA	6821400	395424	1021608	AUG	23	1969	2280	1	17	UNKNOWN	L	2	6	NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO	183	?
YUMA	6825000	393659	1021432	AUG	23	1969	14900	4	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	183	?
OTERO	7121500	380010	1033918	AUG	22	1969	2169	1	496	GOOD	R		7	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO	183	?
PROWERS	7134300	375230	1022854	AUG	23	1969	7880	1	16	UNKNOWN	L	2	7	WOLF CREEK NR. CARLTON, COLORADO	183	?
MINERAL	8217500	374600	1064950	SEP	6	1970	4660	1	780	UNKNOWN	P		8	RIO GRANDE AT WAGONWHEEL GAP, COLORADO	188	?
ARCHULETA	9339900	372325	1065025	SEP	6	1970	1710	1	64	POOR	R		9	E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	188	?
ARCHULETA	9340000	372210	1065330	SEP	6	1970	2060	1	87	GOOD	R		9	E FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	188	?
ARCHULETA		370440	1064834	SEP	6	1970	132	1	14	GOOD	R		9	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	188	?
ARCHULETA	9349500	371320	1072032	SEP	6	1970	7980	1	371	POOR	R		9	PIEDRA RIVER NR. PIEDRA, COLORADO	188	
ARCHULETA	9343000	371246	1064738	SEP	6	1970	2500	2 3	58	GOOD	R	2	9	RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	188	
ARCHULETA	9342500	371558	1070037	SEP	6	1970	6580	1	298	GOOD	R		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
DELTA	9149500	384431	1080449	SEP	6	1970	2250	1	1129	FAIR	R		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	188	
DOLORES		374742	1085126	SEP	5	1970	2400	1	11	POOR	R		9	BIG CANYON CREEK NR. DOVE CREEK, COLORADO	188	
DOLORES	9165000	373820	1080335	SEP	6	1970	1930	1	105	GOOD	R		9	DOLORES RIVER BELOW RICO, COLORADO	188	
DOLORES		374544	1085403	SEP	5	1970	830	1	8	POOR	R	2	9	DOVE CREEK AT DOVE CREEK, COLORADO	188	
HINSDALE	9347200	372912	1070946	SEP	5	1970	2520	1	32	POOR	R		9	MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	188	
LA PLATA	9366500	375959	1081117	AUG	3	1970	1150	1	331	POOR	R		9	LA PLATA RIVER AT COLORADO, N. M. LINE	188	
LA PLATA	9352900	372839	1073235	SEP	6	1970	7050	1	72	GOOD	R		9	VALLECITO CREEK NR. BAYFIELD, COLORADO	188	
MESA	9179500	384055	1085850	SEP	6	1970	6350	1	4350	POOR	R		9	DOLORES RIVER AT GATEWAY, COLORADO	188	
MINERAL	9341200	372647	1065300	SEP	6	1970	585	1	14	GOOD	R		9	WOLF CREEK NR. PAGOSA SPRINGS, COLORADO	188	
MONTEZUMA	9166500	372815	1083015	SEP	6	1970	5190	1	556	GOOD	R		9	DOLORES RIVER AT DOLORES, COLORADO	188	
MONTEZUMA	9371000	370139	1084427	SEP	6	1970	4530	1	550	POOR	R		9	MANCOS RIVER NR. TOWAOC, COLORADO	188	
MONTEZUMA	9372000	371927	1090054	SEP	6	1970	2880	1	350	FAIR	R		9	MCELMO CREEK NR. COLORADO-UTAH LINE	188	
MONTROSE	9169500	381837	1085305	SEP	6	1970	5710	1	1910	GOOD	R		9	DOLORES RIVER AT BEDROCK, COLORADO	188	
MONTROSE	9169800	381653	1084821	SEP		1970	368	3	4	UNKNOWN	L		9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO	188	Date?
MONTROSE	9177000	382125	1084240	SEP	6	1970	8910	1	1550	POOR	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	188	
SAN JUAN	9358900	375104	1074331	SEP	5	1970	750	1	11	FAIR	R		9	MINERAL CREEK ABV. SILVERTON, COLORADO	188	
SAN JUAN		374827	1074039	SEP	5	1970	3070	1	52	GOOD	R		9	MINERAL CREEK AT SILVERTON, COLORADO	188	
SAN MIGUEL	9175800	380237	1083438	SEP		1970	613	3	5	UNKNOWN	L	2	9	DEADHORSE CREEK NR. NATURITA, COLORADO	188	Date?
SAN MIGUEL	9168700	380133	1084851	SEP		1970	215	3	2	UNKNOWN	L		9	DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO	188	Date?
SAN MIGUEL	9175900	380532	1083717	SEP	5	1970	5660	1	86	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	188	
LA PLATA	9363200	370324	1075209	OCT	19	1972	154	1	221	GOOD	R		9	FLORIDA RIVER AT BONDAD, COLORADO	193	
LA PLATA		371723	1075223	OCT	19	1972	1780	1	38	GOOD	R		9	JUNCTION CREEK AT DURANGO, COLORADO	193	

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
LA PLATA	9362000	371613	1075358	OCT	19	1972	2830	1	63	GOOD	R		9	LIGHTNER CREEK AT DURANGO, COLORADO	193	
LA PLATA	9363100	370823	1074510	OCT	19	1972	811	1	17	GOOD	R		9	SALT CREEK NEAR OXFORD, COLORADO	193	
LA PLATA		371556	1075515	OCT	19	1972	870	1		FAIR	R		9	WILDCAT CREEK NEAR DURANGO, COLORADO	193	
ADAMS		395935	1045627	MAY	6	1973	740	3	65	UNKNOWN	L		6	BIG DRY CREEK AT U.P.R.R. CULVERT AT DENVER, COLORADO	194	
ADAMS		395028	1045753	MAY	6	1973	550	1	6	UNKNOWN	L		6	NIVER CREEK NR. MOUTH AT DENVER, COLORADO	194	
ADAMS		394446	1045246	MAY	6	1973	290	1	6	UNKNOWN	L		6	WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	194	
ARAPAHOE		393745	1050003	MAY	6	1973	4400	4	19	UNKNOWN	L		6	BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	194	
ARAPAHOE		393911	1045914	MAY	6	1973	1510	1	15	UNKNOWN	L		6	LITTLE DRY CREEK AT BRDWY AND ACOMA AT DENVER, COLORADO	194	
DENVER		394707	1045413	MAY	6	1973	5630	4	187	UNKNOWN	L		6	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
DENVER		394129	1050020	MAY	6	1973	320	3	7	UNKNOWN	L		6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO	194	
DENVER		394350	1050120	MAY	6	1973	430	1	8	UNKNOWN	L		6	WEIR GULCH AT DECATUR AT DENVER, COLORADO	194	
DOUGLAS		390806	1050941	MAY	7	1973	78	3	17	GOOD	R		6	TRAIL CREEK NR. WESTCREEK, COLORADO	194	
DOUGLAS		390922	1050945	MAY	7	1973	2020	1	60	FAIR	R	3	6	WEST CREEK AT WESTCREEK, COLORADO	194	
DOUGLAS		391032	1050956	MAY	7	1973	3080	1	62	FAIR	R	3	6	WEST CREEK BELOW WESTCREEK, COLORADO	194	
JEFFERSON		394553	1050749	MAY	6	1973	820	1	11	UNKNOWN	L		6	LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	194	
TELLER		390744	1050942	MAY	7	1973	240	1	38	GOOD	R		6	WEST CREEK ABV. WESTCREEK, COLORADO	194	
LARIMER		402539	1052037	JUL	31	1976	28200	1	189	POOR	R		6	BIG THOMPSON ABV. DRAKE, COLORADO	198	
LARIMER		402552	1051937	JUL	31	1976	30100	1	276	POOR	R		6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO	198	
LARIMER	6738000	402518	1051334	JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	198	
LARIMER		402259	1052811	JUL	31	1976	4330	1	164	GOOD	R		6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	198	
LARIMER		402505	1051202	JUL	31	1976	27000	1	311	POOR	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	198	
LARIMER		402433	1052507	JUL	31	1976	6950	1	1	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198	
LARIMER		402344	1052734	JUL	31	1976	8700	1	1	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
LARIMER		402704	1052528	JUL	31	1976	1990	1	3	POOR	R		6	BLACK CREEK NEAR GLEN HAVEN, COLORADO	198	
LARIMER	6752260	403517	1050408	AUG	1	1976	5700	1	1127	FAIR	R		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	198	
LARIMER	6752000	403952	1051326	AUG	1	1976	7340	1	1056	FAIR	R		6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	
LARIMER		405736	1052139	JUL	31	1976	727	3	1	GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	198	
LARIMER		402344	1052617	JUL	31	1976	7210	1	1	POOR	R		6	DARK GULCH AT GLEN COMFORT, COLORADO	198	
LARIMER		405550	1052057	JUL	31	1976	7400	1	24	POOR	R		6	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198	
LARIMER		402624	1052731	JUL	31	1976	2810	1	1	POOR	R		6	DEVILS GULCH NR. GLEN HAVEN, COLORADO	198	
LARIMER		402242	1052915	JUL	31	1976	4460	1	6	POOR	R		6	DRY GULCH AT ESTES PARK, COLORADO	198	
LARIMER		402422	1052837	JUL	31	1976	3210	1	2	POOR	R		6	DRY GULCH NR. ESTES PARK, COLORADO	198	
LARIMER		402717	1052713	JUL	31	1976	1300	1	7	POOR	R		6	FOX CREEK AT GLEN HAVEN, COLORADO	198	
LARIMER		402006	1052548	JUL	31	1976	1940	1	3	FAIR	R		6	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	198	
LARIMER		404744	1051724	JUL	31	1976	2590	1	86	FAIR	R		6	LONE PINE CREEK NR. LIVERMORE, COLORADO	198	
LARIMER		402346	1052404	JUL	31	1976	5500	1	2	POOR	R		6	LONG GULCH NR. DRAKE, COLORADO	198	
LARIMER		402747	1052513	JUL	31	1976	2060	1	14	POOR	R		6	MILLER FORK NR. GLEN HAVEN, COLORADO	198	
LARIMER		402620	1052152	JUL	31	1976	8710	1	80	FAIR	R		6	NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	198	
LARIMER		402717	1052705	JUL	31	1976	888	1	19	POOR	R		6	NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO	198	
LARIMER		402655	1052411	JUL	31	1976	3240	1	1	POOR	R		6	NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	198	
LARIMER		404715	1051508	JUL	31	1976	9460	1	539	POOR	R		6	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
LARIMER		402325	1052600	JUL	31	1976	6910	1	3	POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	198	
LARIMER		402714	1052604	JUL	31	1976	9670	1	1	POOR	R		6	NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	198	
LARIMER		402423	1052417	JUL	31	1976	3540	1	3	POOR	R		6	RABBIT GULCH NR. DRAKE, COLORADO	198	
LARIMER		403019	1051149	JUL	31	1976	2640	1	29	POOR	R		6	REDSTONE CREEK NR. MASONVILLE, COLORADO	198	
LARIMER		403743	1051244	JUL	31	1976	2710	1	5	POOR	R		6	RIST CANYON NR. BELLVIEW, COLORADO	198	
LARIMER		404837	1051501	JUL	31	1976	3470	1	32	GOOD	R		6	STONEWALL CREEK NR. LIVERMORE, COLORADO	198	
LARIMER		402632	1052740	JUL	31	1976	2320	1	23	POOR	R		6	WEST CREEK NR. GLEN HAVEN, COLORADO	198	
MESA		390328	1083530	SEP	7	1978	9290	1	19	FAIR	G		9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
MESA		390413	1083657	SEP	7	1978	2890	3	4	POOR	G		9	RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO	202	
RIO BLANCO	9306255	401007	1082402	SEP	7	1978	6800	2 4	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	202	
ADAMS		395111	1045916	JUN	3	1981	265	3		FAIR	L		6	L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	205	?
DENVER		394958	1050305	JUN	3	1981	720	3		FAIR	L		6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	205	?
JEFFERSON		394958	1050305	JUN	3	1981	770	3		FAIR	L		6	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	205	?
LAS ANIMAS	7125100	371200	1041140	JUL	3	1981	28400	2 4	80	FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	207	
MESA	9179200	383159	1085813	JUL	12	1981	2610	1	31	GOOD	G		9	SALT CREEK NR. GATEWAY, COLORADO	208	?
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
LAS ANIMAS	7124200	370746	1043820	AUG	10	1981	11500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	210	?

INDIRECT DISCHARGE MEASUREMENTS IN COLORADO
SORTED BY DISCHARGE

> 7500 cfs ← Most (All) Big ones ≥ 9,500 cfs in (6) and (7)

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	6710500			JUN	2	1867			164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO		
LA PLATA	9362000	371610	1075315	JUN	26	1937		1		UNKNOWN	R		9	LIGHTNER CREEK NEAR DURANGO, COLORADO		
PROWERS		380300	1024200	JUL	27	1957		1		UNKNOWN	P	1	7	DRY CREEK NR. LAMAR, COLORADO		
PARK	6698500	391742	1054305	JUN	7	1979		3	183	UNKNOWN	R		6	TARRYALL CREEK NR. JEFFERSON, COLORADO		
JEFFERSON		393917	1051821	JUL	18	1981		1		UNKNOWN	R	2	6	TROUBLESOME CREEK AT KITTEREDGE, COLORADO		
MORGAN		401517	1035800	JUN	18	1965	466000	1	1314	POOR	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO	159	?
BENT	7129400	374900	1031100	JUN	18	1965	276000	1	435	FAIR	P	1 3	7	RULE CREEK NR. TOONERVILLE, COLORADO	159	
ARAPAHOE		393700	1040300	JUN	17	1965	274000	1	302	FAIR	R	1	6	EAST BIJOU CREEK AT DEER TRAIL, COLORADO	159	
PROWERS		380140	1020820	JUN	17	1965	182000	1	817	GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	159	?
HAMILTON	7137500	380133	1020100	JUN	17	1965	158000	1	25410	POOR	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS	159	?
PROWERS		380044	1023426	JUN	18	1965	158000	1	213	FAIR	P		7	CLAY CREEK NR. LAMAR, COLORADO	159	?
DOUGLAS	6709500	392904	1050007	JUN	16	1965	154000	1	302	UNKNOWN	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	159	
ADAMS		394018	1040552	JUN	17	1965	145000	1	190	FAIR	R		6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	159	
EL PASO		384225	1042325	JUN	17	1965	141000	1	353	GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO	159	
PROWERS	7133000	380617	1023701	JUN	5	1921	130000		19780	UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO	58	ok?
DOUGLAS		392417	1045225	JUN	16	1965	126000	1	108	POOR	R		6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	
EL PASO		384320	1043845	JUN	17	1965	124000	1	54.3	FAIR	R		7	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO	159	? Date?
LOGAN	6760000	402424	1032758	JUN	18	1965	123000	2 4	16852	FAIR	R		6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	159	?
ARAPAHOE	6710000	393710	1050110	JUN	16	1965	110000	4	3069	UNKNOWN	R		6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159	
PUEBLO		381442	1042036	JUN	18	1965	104000	4	7157	POOR	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	?
OTERO		374225	1032420	JUN	18	1965	84000	1	291	FAIR	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	159	?
BACA		373800	1023700	JUN	17	1965	82600	2 4	453	GOOD	P	1	7	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	159	?
OTERO	7126500	394400	1032900	MAY	19	1955	80000	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	138	
ARAPAHOE		394223	1041407	JUN	17	1965	75500	4	277	FAIR	R		6	WEST BIJOU CREEK AT BYERS, COLORADO	159	
BENT	7128000	375500	1031800	MAY	20	1955	73400	1 2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	138	Peak Q Indrect
ELBERT		391600	1042000	JUN	17	1965	67200	1	85.7	POOR	R	1	6	WEST BIJOU CREEK NR. KIOWA, COLORADO	159	?
BENT	7128500	380202	1031200	JUN	18	1965	62500	4	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	159	
EL PASO		390500	1041700	JUN	17	1965	60700	1	49	FAIR	P	1	7	BIG SANDY CREEK NR. CALHAN, COLORADO	159	
BENT	7128000	375500	1031800	APR	24	1942	60000	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO	-	
LARIMER	6752000	403955	1051310	MAY	20	1904	57200	1	1055	UNKNOWN	R	2	6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	20	
LAS ANIMAS		372130	1041842	JUN	18	1965	47700	4	1935	FAIR	P	2	7	PURGATOIRE RIVER NR. THATCHER, COLORADO	159	?
PUEBLO	7106500	381633	1043909	JUN	17	1965	47000	4	926	GOOD	P		7	FOUNTAIN CREEK AT PUEBLO, COLORADO	159	
OTERO	7126500	374400	1032900	SEP	15	1934	45000	1	2900	UNKNOWN	R	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	89	
EL PASO		390650	1041100	AUG	5	1954	44500	1		UNKNOWN	P		7	BIG SANDY CRK AT STATE HIGHWAY NO. 208 AT RAMAH,COLORADO		
BENT	7124000	380508	1031250	MAY	20	1955	44000	1	14417	UNKNOWN	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	138	
OTERO	7126500	374400	1032900	APR	23	1942	43500	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO		
OTERO	7119700	380735	1035640	JUN	18	1965	43200	2	10901	UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	159	?
PUEBLO	7117000	381054	1040940	JUN	18	1965	43100	2 4	9345	FAIR	P		7	ARKANSAS RIVER NR. NEPESTA, COLORADO	159	?
LAS ANIMAS	7126000	371130	1040730	MAY	19	1955	41900	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	138	
ELBERT	6758000	391235	1043200	JUN	17	1965	41500	1	28.6	GOOD	R		6	KIOWA CREEK AT ELBERT, COLORADO	159	?
ARAPAHOE		394303	1041343	AUG	3	1951	41000	4		UNKNOWN	R	2	6	WEST BIJOU CREEK NR. BYERS, COLORADO	133	
BENT	7128000	375500	1031800	JUL	23	1954	40300	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7130500	380500	1025510	APR	24	1942	40000	1	18917	UNKNOWN	P		7	ARKANSAS RIVER AT CADDOA, COLORADO		No 1942 Precip. CO
BENT	7130500	380500	1025510	APR	24	1942	40000	2	18917	UNKNOWN	R	2	7	ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO		
ARAPAHOE	6712500	393542	1044844	JUN	16	1965	39900	4	336	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	159	
LAS ANIMAS		373211	1033606	JUN	17	1965	38900	1	387	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	159	?
LAS ANIMAS		371712	1041842	MAY	19	1955	37900	2 4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	138	
LAS ANIMAS	7126000	371130	1040730	JUL	22	1954	37800	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
SEDGEWICK	6764000	405846	1021515	JUN	20	1965	37600	1	23138	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	159	?
BENT	7131000	380340	1025505	JUN	18	1965	37600	4	131	GOOD	P		7	CADDOA CREEK AT CADDOA, COLORADO	159	?
DOUGLAS		392230	1045735	JUN	16	1965	36800	1	108	POOR	R		6	WEST PLUM CREEK NR. SEDALIA, COLORADO	159	
PROWERS		375705	1022605	JUN	17	1965	35300	1	62.5	FAIR	P		7	WOLF CREEK NR. GRANADA, COLORADO	159	?
LOGAN		403700	1032700	JUN	15	1965	35200	4	629	FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	159	?
LAS ANIMAS	7124500	371015	1043030	APR	23	1942	35000	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO		Peak Indrect Q
PROWERS		380140	1020820	MAY	15	1951	34000	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	131	
LAS ANIMAS	7124500	371005	1043110	JUL	22	1925	33000	4	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	72	
OTERO		380138	1034730	JUN		1965	31670	4		UNKNOWN	P		7	ARKANSAS RIVER AT SWINK, COLORADO	159	?
LARIMER	6738000	402518	1051334	JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	198	
LARIMER		402552	1051937	JUL	31	1976	30100	1	276	POOR	R		6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO	198	
DOUGLAS		392000	1044500	AUG	3	1933	30000	2	175	UNKNOWN	R	1 2	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	87	
ADAMS	6720500	395512	1045218	JUN	17	1965	29600	1	4713	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	159	
LAS ANIMAS	7125100	371200	1041140	JUL	3	1981	28400	2 4	80	FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	207	
LARIMER		402539	1052037	JUL	31	1976	28200	1	189	POOR	R		6	BIG THOMPSON ABV. DRAKE, COLORADO	198	
PROWERS		380509	1023148	MAY	15	1951	27500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	131	
LAS ANIMAS	7126000	371130	1040730	JUN	18	1965	27300	1	1320	GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	159	?
LARIMER		402505	1051202	JUL	31	1976	27000	1	311	POOR	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	198	
WELD		404200	1033900	JUN	15	1965	26700	1	387	GOOD	R	1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	159	?
PUEBLO	7115500	380000	1042800	JUL	28	1936	26640	2	1673	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	95	?
LAS ANIMAS		370902	1043230	MAY	19	1955	26400	4	766	UNKNOWN	P		7	PURGATOIRE RIVER AT JANSEN, COLORADO	138	
LAS ANIMAS	7125500	391100	1040830	JUL	22	1954	26300	2 4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
BENT	7128000	375500	1031800	JUN	5	1949	26100	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	129	
OTERO	7126500	374400	1032900	JUN	5	1949	26100	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	129	

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
HUERFANO	7113500	375100	1044200	AUG	14	1942	26000	1	803	UNKNOWN	R	1 2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO		
DENVER		394648	1045404	MAY	9	1957	25500	1	187	UNKNOWN	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142	
LAS ANIMAS		370745	1040050	JUL	22	1954	25100	2 4	129	UNKNOWN	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO		
EL PASO	7105800	384346	1044000	JUL	24	1965	25000	1	488	POOR	R		7	FOUNTAIN CREEK AT SECURITY, COLORADO		
ARAPAHOE	6758300	394454	1042446	JUN	18	1965	24900	4	236	POOR	R		6	KIOWA CREEK AT BENNETT, COLORADO	159	
OTERO		375955	1033513	JUL	12	1953	24300	2 4	87	FAIR	R		7	CROOKED ARROYO NR. LA JUNTA, COLORADO	137	?
MORGAN		400800	1033500	JUN	18	1965	24300	1	946	GOOD	R	1	6	BEAVER CREEK NEAR BRUSH, COLORADO	159	?
PROWERS		380156	1023707	JUN	18	1965	24300	1	40.5	FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	159	?
PUEBLO	7099200	382019	1045627	AUG	21	1965	23900	1	4280	UNKNOWN	P		7	ARKANSAS RIVER NR PORTLAND, COLORADO		
PUEBLO	7099500	381602	1043926	AUG	22	1965	23500	4	4686	FAIR	P		7	ARKANSAS RIVER NR. PUEBLO, COLORADO		
OTERO	7119700	380733	1035441	JUL	10	1978	23300	2 3	10901	POOR	R	2	7	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO		
OTERO		375720	1034320	JUL	5	1958	23000	1	451	UNKNOWN	P		7	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO		
EL PASO	7106000	383608	1044013	MAY	28	1940	22100	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR FOUNTAIN, COLORADO		
BENT	7124000	380508	1031250	JUN	19	1965	22100	4	14417	GOOD	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	159	?
DENVER	6714000	394535	1050010	SEP	10	1933	22000	5	3804	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT DENVER, COLORADO	88	
OTERO		380040	1033830	JUN	17	1965	21480	2 4	481	GOOD	P		7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	?
LAS ANIMAS		370825	1043315	APR	23	1942	21400	4		UNKNOWN	P		7	PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO		
LAS ANIMAS		371712	1041842	JUN	16	1965	20900	4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	?
PUEBLO	7108500	381220	1043140	MAY	19	1955	20600	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	138	
ELBERT	6758100	391238	1043216	JUN	17	1965	20000	1	35.9	FAIR	R		6	WEST KIOWA CREEK AT ELBERT, COLORADO	159	?
LAS ANIMAS	7125000	371450	1042350	JUN	16	1965	20000	2	857	POOR	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	159	?
LAS ANIMAS		370828	1043553	MAY	19	1955	19800	2	691	UNKNOWN	P		7	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	138	
ELBERT	6758200	392000	1042900	JUN	17	1965	19700	4	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO	159	?
LARIMER	6741500	402355	1050610	AUG	3	1951	19000	1	515	UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
DENVER		394605	1045300	JUN	16	1965	18900	3	187	FAIR	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159	
ADAMS		394952	1045653	JUN	17	1965	18800	4	4598	FAIR	R		6	SOUTH PLATTE RIVER AT DERBY, COLORADO	159	
MORGAN	6758500	401920	1035515	JUN	19	1965	18800	4	13245	UNKNOWN	R	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	159	?
OTERO	7119500	380528	1035852	JUL	10	1978	18300	2 4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
PUEBLO	7106500	381620	1043540	JUL	10	1945	17800	5	926	UNKNOWN	R		7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
YUMA		395338	1021340	JUL	17	1962	17800	1	25	GOOD	R		6	BLACK WOLF CREEK NEAR WRAY, COLORADO	151	
BENT	7128500	380202	1031200	JUL	23	1951	17600	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT	7128500	380202	1031200	SEP	27	1966	17300	1	3503	FAIR	R		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT	7128000	375500	1031800	JUL	23	1951	17200	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
PROWERS		380300	1022000	MAY	13	1958	17100	1	116	FAIR	R	1	7	WOLF CREEK NEAR GRANADA, COLORADO		
OTERO	7119500	380528	1035852	MAY	19	1955	17000	2 4	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	138	
PUEBLO	7116000	380000	1042800	JUL	5	1958	16800	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO	7116000	380000	1042800	JUL	26	1950	16700	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO	7106500	381620	1043540	AUG	26	1946	16500	5	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
OTERO		375900	1033200	JUL	21	1927	16450	1	28.7	UNKNOWN	P	1 2	7	KING'S ARROYO NR. LA JUNTA, COLORADO		
PUEBLO	7108500	381220	1043140	JUL	26	1950	16100	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO		
ARAPAHOE		394332	1044904	JUN	16	1965	16000	2 3	35.8	UNKNOWN	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	159	
LAS ANIMAS	7124500	371015	1043031	JUN	17	1965	15700	4	795	GOOD	P	1	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	159	?
LAS ANIMAS		371000	1035613	JUL	22	1954	15500	3	34.5	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO		
LAS ANIMAS	7125500	371110	1040750	MAY	19	1955	15500	4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	138	
OTERO	7121000	375720	1034320	JUL	23	1956	15500	1	451	FAIR	R	2	7	TIMPAS CREEK AT CATLIN SYPHON, COLORADO		
PUEBLO	7109500	381453	1042355	JUL	30	1978	15400	1	6327	POOR	P		7	ARKANSAS RIVER NR. AVONDALE, COLORADO		
ELBERT	6758200	392000	1042900	JUL		1954	15230	1	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO		
YUMA	6825000	393659	1021432	AUG	23	1969	14900	4	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	183	?
OTERO	7119500	380528	1035852	AUG	15	1942	14700	1	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
PROWERS		380509	1023148	JUL	17	1964	14400	1	228	GOOD	P		7	CLAY CREEK NR. LAMAR, COLORADO		
ARAPAHOE		393635	1044835	JUN	16	1965	14100	1 3	21.9	GOOD	R		6	PINEY CREEK NR. MELVIN, COLORADO	159	
LARIMER	6739500	402715	1051150	AUG	3	1951	14000	1	131	POOR	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	133	
LAS ANIMAS	7125500	371110	1040750	JUN	18	1965	14000	4	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	?
LA PLATA	9353500	372300	1073430	JUL	27	1957	13800	1	270	GOOD	R		8	LOS PINOS RIVER NR. BAYFIELD, COLORADO		
WELD		402230	1043625	APR	12	1973	13600	1		FAIR	R	3	6	BEEBE DRAW NR. AUBURN, COLORADO		
PUEBLO	7116000	380000	1042800	AUG	3	1945	13500	1	1710	UNKNOWN	P	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
LAS ANIMAS	7125100	371200	1041140	JUL	22	1954	13500	2 4	80	UNKNOWN	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO		
MORGAN		402238	1033736	SEP	7	1951	13400	4		POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO	133	Wray?
ADAMS		394524	1044904	JUN	16	1965	13400	1	113	GOOD	R		6	SAND CREEK AT SABLE AVE. AURORA, COLORADO	159	
LAS ANIMAS	7124500	371010	1043030	SEP	6	1909	13300	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	34	? Front Range, not SW
BACA		372600	1023700	JUN	17	1965	13200	4	113	FAIR	P	1	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	?
LARIMER		402359	1053505	JUL	15	1982	13100	6		POOR	R		6	FALL RIVER BLW. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Failure
PUEBLO	7110500	381550	1042230	AUG	27	1941	13000	1	864	UNKNOWN	R	2	7	CHICO CREEK NEAR NORTH AVONDALE, COLORADO		
YUMA	6825500	393432	1021506	JUN	20	1975	13000	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO		
LAS ANIMAS		370653	1043118	JUN	17	1965	12900	4	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	159	?
PROWERS		380533	1023155	JUN		1949	12600	4	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO		
PROWERS		375920	1021650	JUN	17	1965	12600	1	17.7	FAIR	P		7	GRANADA CREEK NR. GRANADA, COLORADO	159	?
LAS ANIMAS	7126300	372130	1035344	AUG	1	1977	12200	1	1935	FAIR	R		7	PURGATOIRE RIVER NR. THATCHER, COLORADO		
OTERO	7119500	380528	1035852	JUL	6	1958	12100	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
LARIMER		403800	1050800	AUG	3	1951	12000	4		UNKNOWN	R	1 2	6	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	133	
LOGAN		403424	1032056	SEP	7	1951	12000	4		POOR	R	2	6	PAWNEE CREEK NEAR LOGAN, COLORADO	133	Wray?
MESA		390949	1081841	JUL	18	1974	12000	1	68.6	GOOD	G		9	JERRY CREEK NR. CAMEO, COLORADO		
BENT	7131000	380340	1025505	AUG	19	1956	11800	1 4	131	UNKNOWN	P		7	CADDOA CREEK AT CADDOA, COLORADO		
MESA		384600	1085300	JUL	16	1940	11700	1	23	UNKNOWN	R	1	9	WEST CREEK NR. GATEWAY, COLORADO	104	
JEFFERSON		394545	1051320	JUN	7	1948	11600	1	11.2	UNKNOWN	R	2	6	TUCKER GULCH AT GOLDEN, COLORADO	126	
BENT	7129500	380000	1030400	JUN	5	1949	11600	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	129	

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
LAS ANIMAS		370700	1043500	APR	23	1942	11500	1	104	UNKNOWN	P	1	7	LONG CANYON NR. SOPRIS, COLORADO		
BENT	7128500	380202	1031200	AUG	29	1950	11500	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
LAS ANIMAS	7124200	370746	1043820	AUG	10	1981	11500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	210	?
LAS ANIMAS		370757	1043600	APR	23	1942	11400	1		UNKNOWN	P		7	PURGATOIRE RIVER AT LONGS CANYON, COLORADO		
LARIMER		402300	1050146	AUG	3	1951	11400	4		UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
OTERO	7119500	380528	1035852	JUN	17	1965	11400	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	159	?
PUEBLO	7116000	380000	1042800	MAY	19	1955	11300	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	138	
LAS ANIMAS	7124500	371015	1043031	JUL	12	1961	11200	1	795	FAIR	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO		
PUEBLO	7115500	380200	1042500	JUN	7	1938	11000	5	1702	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO		
PUEBLO	7106500	381620	1043540	AUG	14	1942	11000	1	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
ARAPAHOE		394016	1040554	AUG	3	1951	11000	1		UNKNOWN	R	2	6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	133	
PUEBLO	7106500	381620	1043540	AUG	26	1941	10921	1	926	POOR	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
ARAPAHOE	6712500	393542	1044844	AUG	3	1963	10800	1	336	GOOD	R		6	CHERRY CREEK NEAR MELVIN, COLORADO		
LAS ANIMAS	7125100	371200	1041140	JUN	17	1965	10600	4	80	GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	159	?
PROWERS		380425	1022625	JUN	17	1965	10600	1	29.1	GOOD	P		7	SMITH ARROYO NR. GRANADA, COLORADO	159	?
PROWERS	7136000	380245	1020705	JUN	17	1965	10600	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	?
YUMA	6825500	393432	1021506	AUG	23	1969	10600	1	268	POOR	R		6	LANDSMAN CREEK NR. HALE, COLORADO	183	?
LARIMER	6739500	402715	1051150	JUN	15	1923	10500	1	131	UNKNOWN	R	2	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	65	
ARAPAHOE		394332	1044904	MAY	9	1957	10400	2 3	35.8	UNKNOWN	R	2	6	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	142	
EL PASO		390105	1043200	JUN	17	1965	10400	4	16.3	FAIR	P		7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	159	
HUERFANO	7111000	374340	1052110	AUG	2	1951	10200	1	73	UNKNOWN	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		133? LC Ft. Collins date?
BENT	7128500	380202	1031200	JUL	12	1951	10000	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
OTERO	7121000	375720	1034320	JUL	12	1953	10000	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	137	?
FREMONT		383000	1055100	AUG	29	1978	9960	1		POOR	R	1	7	BADGER CREEK NR. HOWARD, COLORADO		
ARAPAHOE	6712500	393618	1044919	JUL	26	1957	9950	1	360	POOR	R		6	CHERRY CREEK NEAR MELVIN, COLORADO		
LARIMER		402714	1052604	JUL	31	1976	9670	1	1.38	POOR	R		6	NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	198	
LAS ANIMAS		370720	1043520	MAY	19	1955	9650	1	104	UNKNOWN	P		7	LONG CANYON NR. SOPRIS, COLORADO	138	
YUMA	6825000	393700	1024300	JUN	13	1962	9610	4	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
OTERO	7121000	375720	1034320	JUL	24	1950	9510	1	451	FAIR	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO		
LARIMER		404715	1051508	JUL	31	1976	9460	1	539	POOR	R		6	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
LAS ANIMAS		370653	1043118	MAY	19	1955	9400	1	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	138	
MESA		390328	1083530	SEP	7	1978	9290	1	18.8	FAIR	G		9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
DOUGLAS	6712000	392130	1044550	AUG	5	1945	9170	5	169	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
LAS ANIMAS		371200	1042900	MAY	19	1955	9000	1		UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	138	
MONTROSE	9177000	382125	1084240	SEP	6	1970	8910	1	1550	POOR	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	188	
PROWERS		380230	1022030	MAY	15	1951	8800	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	131	
LAS ANIMAS	7126000	371130	1040730	JUN	16	1953	8740	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		Date ?
LARIMER		402620	1052152	JUL	31	1976	8710	1	80.2	FAIR	R		6	NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	198	
LARIMER		402344	1052734	JUL	31	1976	8700	1	1.37	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
BENT		380523	1031824	JUN	18	1965	8600	4	589	GOOD	P		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	159	?
LARIMER		402301	1053258	JUL	15	1982	8520	1		POOR	R		6	FALL RIVER ABV. ESTES PARK, COLORADO		Lawn Lake Failure
FREMONT		382806	1052240	JUL	27	1961	8500	1	4.8	POOR	P		7	MCINTYRE GULCH NR. PARKDALE, COLORADO		
PROWERS		380343	1020745	JUN		1949	8340	4		UNKNOWN	P		7	WILD HORSE CREEK ABV. HOLLY, COLORADO		
JEFFERSON	6710500	393911	1051142	JUL	7	1933	8110	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	86	
LARIMER		403715	1051045	AUG	3	1951	8000	1		UNKNOWN	R		6	DRY CREEK ABV. BELLVIEW, COLORADO	133	
ARCHULETA	9349500	371320	1072032	SEP	6	1970	7980	1	371	POOR	R		9	PIEDRA RIVER NR. PIEDRA, COLORADO	188	
LAS ANIMAS		370100	1041200	JUN	17	1965	7960	1	32.1	GOOD	P	1	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159	?
BENT	7128500	380202	1031200	JUL	19	1950	7950	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
PROWERS	7134300	375230	1022854	AUG	23	1969	7880	1	15.7	UNKNOWN	L	2	7	WOLF CREEK NR. CARLTON, COLORADO	183	?
MORGAN	6759000	401453	1040208	AUG	22	1952	7840	1	1314	UNKNOWN	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO		
DOUGLAS	6709500	392904	1050007	AUG	8	1945	7700	1	274	UNKNOWN	R	2	6	PLUM CREEK NR. LOUVIERS, COLORADO		
ADAMS		394600	1045000	MAY	9	1957	7660	6	113	FAIR	R	1	6	SAND CREEK NR. AURORA, COLORADO	142	
DOUGLAS		393157	1044735	AUG	3	1963	7620	1	13.6	FAIR	R		6	NEWLIN CREEK NR. PARKER, COLORADO		
LARIMER		405550	1052057	JUL	31	1976	7400	1	23.7	POOR	R		6	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198	
EAGLE	9061450	394312	1070230	JUL	12	1976	7390	1	105	FAIR	R		9	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO		
LARIMER	6752000	403952	1051326	AUG	1	1976	7340	1	1056	FAIR	R		6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	
BACA		371900	1023600	JUN	17	1965	7330	1	106	UNKNOWN	P	1	7	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	159	?
DOLORES	9168100	375236	1083457	JUL	24	1977	7270	1	147	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
LARIMER		402344	1052617	JUL	31	1976	7210	1	1	POOR	R		6	DARK GULCH AT GLEN COMFORT, COLORADO	198	
LARIMER		402405	1053618	JUL	15	1982	7210	1		POOR	R		6	FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Failure
LA PLATA	9352900	372839	1073235	SEP	6	1970	7050	1	72.1	GOOD	R		9	VALLECITO CREEK NR. BAYFIELD, COLORADO	188	
MESA	9163500	390900	1085700	AUG	31	1963	7000	5	17900	UNKNOWN	G	1 2	9	COLORADO RIVER NR. COLORADO-UTAH STATE LINE	154	
PUEBLO		381900	1045300	JUL	19	1965	7000	1	2.66	FAIR	P	1	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO		
LARIMER		402433	1052507	JUL	31	1976	6950	1	0.53	POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198	
LARIMER		402325	1052600	JUL	31	1976	6910	1	3.37	POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	198	
PUEBLO		381127	1040832	JUL	13	1963	6840	2 3	160	FAIR	P		7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO		
LARIMER		404600	1051400	MAY	31	1930	6800	1	541	UNKNOWN	R	1	6	NO. FK. CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO		
EL PASO	7106000	383608	1044013	JUN	30	1954	6800	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
RIO BLANCO	9306255	401007	1082402	SEP	7	1978	6800	2 4	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	202	
LAS ANIMAS	7125500	371110	1040750	AUG	7	1964	6680	1	160	FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
PUEBLO	7108500	381220	1043140	APR	19	1942	6670	1	468	UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO		
YUMA	6825000	393700	1021430	JUL	12	1951	6660	1	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
ARCHULETA	9342500	371558	1070037	SEP	6	1970	6580	1	298	GOOD	R		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
EL PASO	7105800	384346	1044400	JUN	11	1972	6520	1	488	FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO		
HUERFANO	7111000	374340	1052103	AUG	3	1972	6520	1	73	GOOD	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		
ADAMS		394552	1044937	MAY	9	1957	6450	4	113	FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142	
MESA	9179500	384055	1085850	SEP	6	1970	6350	1	4350	POOR	R		9	DOLORES RIVER AT GATEWAY, COLORADO	188	

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
WELD		404500	1034800	JUN	14	1965	6280	1	82.3	GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	159	?
LAS ANIMAS	7126200	372045	1035727	MAY	26	1967	6240	1	168	FAIR	P		7	VAN BREMER ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126000	371130	1040730	JUL	11	1953	6230	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	137	?
JEFFERSON	6710500	393911	1051142	SEP	2	1938	6200	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	102	
WELD		401029	1045847	AUG	3	1951	6200	4		UNKNOWN	R	2	6	ST. VRAIN CREEK NR. LONGMONT, COLORADO	133	
CLEAR CREEK	6716500	394540	1053906	JUN	4	1956	6130	2 5	145	UNKNOWN	R	3	6	CLEAR CREEK NR. LAWSON, COLORADO		
LAS ANIMAS	7126200	372045	1035727	AUG	9	1979	6050	1	168	POOR	R		7	VAN BREMMER ARROYO NR. MODEL, COLORADO		
PUEBLO	7116000	380000	1042800	AUG	13	1946	6000	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
LAS ANIMAS	7125000	371450	1042450	JUL	22	1954	5920	1 2	857	UNKNOWN	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO		
PROWERS		380300	1020300	JUN		1949	5900	1 4		UNKNOWN	R	1	7	CHEYENNE CREEK NEAR HOLLY, COLORADO		
YUMA	6825000	393659	1021432	MAY	2	1977	5900	1	1300	GOOD	R	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
JEFFERSON	6719500	394505	1051455	SEP	9	1933	5890	1	399	UNKNOWN	R	2	6	CLEAR CREEK NR. GOLDEN, COLORADO	88	
WELD	6753500	404600	1044725	JUN	14	1965	5810	1 3	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	159	?
LARIMER	6739500	402715	1051150	MAY	30	1948	5750	1	131	UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	125	
MONTROSE	9169500	381837	1085305	SEP	6	1970	5710	1	1910	GOOD	R		9	DOLORES RIVER AT BEDROCK, COLORADO	188	
BOULDER		400453	1051114	AUG	3	1951	5700	1		UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO	133	
LARIMER	6752260	403517	1050408	AUG	1	1976	5700	1	1127	FAIR	R		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	198	
OTERO		374225	1032420	MAY	19	1955	5660	1	291	UNKNOWN	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	138	
SAN MIGUEL	9175900	380532	1083717	SEP	5	1970	5660	1	85.9	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	188	
LAS ANIMAS		370847	1043300	APR	23	1942	5630	1		UNKNOWN	P		7	PURGATOIRE RIVER AT RATON CREEK, COLORADO		
DENVER		394707	1045413	MAY	6	1973	5630	4	187	UNKNOWN	L		6	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
LAS ANIMAS		370850	1043210	APR	23	1942	5580	1	63	UNKNOWN	P		7	RATON CREEK NR. TRINIDAD, COLORADO		
PROWERS		380509	1023148	MAY	20	1955	5500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	138	
LARIMER		402346	1052404	JUL	31	1976	5500	1	1.99	POOR	R		6	LONG GULCH NR. DRAKE, COLORADO	198	
LARIMER	6733000	402242	1053048	JUL	15	1982	5500	2	137	POOR	L		6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO		Lawn Lake Failure
FREMONT		382313	1050657	JUN		1949	5420	4		UNKNOWN	P		7	COAL CREEK AT FLORENCE, COLORADO	129	
DOUGLAS	6712000	392130	1044550	JUL	30	1957	5380	1	169	GOOD	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
WELD		403800	1043000	JUN	15	1965	5340	4	73.1	FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	159	?
ARAPAHOE	6712500	393618	1044919	JUL	31	1956	5310	1	360	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	140	
MONTEZUMA	9371000	370200	1084300	OCT	14	1941	5300	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO		Max Q at Location/Indirect
LAS ANIMAS	7124350	370913	1043402	AUG	10	1981	5300	1	4.57	FAIR	P		7	CARPIOS CANYON NEAR JANSEN, COLORADO		
EL PASO	6757600	390400	1043455	JUL	30	1957	5250	1	3.2	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
MONTEZUMA	9166500	372815	1083015	SEP	6	1970	5190	1	556	GOOD	R		9	DOLORES RIVER AT DOLORES, COLORADO	188	
BENT	7128000	375500	1031800	JUN	28	1943	5175	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	?
BENT		380504	1032110	JUN	18	1965	5070	2 3	1300	POOR	P		7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	159	
LAS ANIMAS	7129100	373357	1031026	AUG	28	1971	5040	1	7.69	UNKNOWN	L		7	RULE CREEK NR. NINAVIEW, COLORADO		
MONTROSE		382904	1075947	JUL	27	1982	5030	1	30.4	POOR	G		9	COAL CREEK WEST OF MONTROSE, COLORADO		
PROWERS		380300	1020700	MAY	15	1951	5000	1		UNKNOWN	P	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO	131	

INDIRECT DISCHARGE MEASUREMENTS IN COLORADO
SORTED BY DATE

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	6710500			JUN	2	1867			164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO		
LARIMER	6752000	403955	1051310	MAY	20	1904	57200	1	1055	UNKNOWN	R	2	6	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	20	
LAS ANIMAS	7124500	371010	1043030	SEP	6	1909	13300	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	34	? Front Range, not SW
PROWERS	7133000	380617	1023701	JUN	5	1921	130000		19780	UNKNOWN	R	2	7	ARKANSAS RIVER AT LAMAR, COLORADO	58	ok?
LARIMER	6739500	402715	1051150	JUN	15	1923	10500	1	131	UNKNOWN	R	2	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	65	
LAS ANIMAS	7124500	371005	1043110	JUL	22	1925	33000	4	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	72	
OTERO		375900	1033200	JUL	21	1927	16450	1	28.7	UNKNOWN	P	1 2	7	KING'S ARROYO NR. LA JUNTA, COLORADO		
BOULDER	6742000	401530	1051215	AUG	10	1930	3620	1	101	UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO		
LARIMER		404600	1051400	MAY	31	1930	6800	1	541	UNKNOWN	R	1	6	NO. FK. CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO		
DENVER	6714000	394535	1050010	SEP	10	1933	22000	5	3804	UNKNOWN	R	2	6	SOUTH PLATTE RIVER AT DENVER, COLORADO	88	
DOUGLAS		392000	1044500	AUG	3	1933	30000	2	175	UNKNOWN	R	1 2	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	87	
JEFFERSON	6710500	393911	1051142	JUL	7	1933	8110	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	86	
JEFFERSON	6719500	394505	1051455	SEP	9	1933	5890	1	399	UNKNOWN	R	2	6	CLEAR CREEK NR. GOLDEN, COLORADO	88	
OTERO	7126500	374400	1032900	SEP	15	1934	45000	1	2900	UNKNOWN	R	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	89	
PUEBLO	7115500	380000	1042800	JUL	28	1936	26640	2	1673	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	95	?
CONEJOS	8238000	371210	1061200	AUG	20	1936	313	1	98	UNKNOWN	R	2	8	LA JARA CREEK AT GALLEGOS RANCH NR. CAPULIN, COLORADO		
COSTILLA	8247500	370000	1060200	AUG	4	1936	1280	1	110	UNKNOWN	R	1 2	8	SAN ANTONIO RIVER NR. ORTIZ, COLORADO		
COSTILLA	8241500	372600	1052400	AUG	31	1936	1520	1	187	UNKNOWN	R	1 2	8	SANGRE DE CRISTO CREEK NR. FORT GARLAND, COLORADO		
RIO GRANDE	8220500	373520	1062650	AUG	3	1936	720	1	53	UNKNOWN	R	2	8	PINOS CREEK NR. DEL NORTE, COLORADO		
SAGUACHE	8227500	380100	1054100	AUG	6	1936	735	1	10.7	UNKNOWN	R	1 2	8	NORTH CRESTONE CREEK NR. CRESTONE, COLORADO		
SAN JUAN		374900	1074000	JUL	18	1936	547	1		UNKNOWN	R	1 2	9	CEMENT CREEK NR. SILVERTON, COLORADO	94	? probably not
LA PLATA	9362000	371610	1075315	JUN	26	1937		1		UNKNOWN	R		9	LIGHTNER CREEK NEAR DURANGO, COLORADO		
ARAPAHOE	6711500	393908	1050157	SEP	2	1938	2810	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO	102	
JEFFERSON	6710500	393911	1051142	SEP	2	1938	6200	1	164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO	102	
HUERFANO	7112500	374340	1050045	JUL	17	1938	645	1	519	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO		
PUEBLO	7115500	380200	1042500	JUN	7	1938	11000	5	1702	UNKNOWN	P	1	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO		
ARAPAHOE	6711500	393908	1050157	AUG	25	1940	690	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO		
EL PASO	7106000	383608	1044013	MAY	28	1940	22100	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
HUERFANO	7112500	374340	1050045	SEP	21	1940	1310	1	532	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO		
HUERFANO	7112500	374340	1050045	AUG	3	1940	1180	1	519	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO		
MESA		384600	1085300	JUL	16	1940	11700	1	23	UNKNOWN	R	1	9	WEST CREEK NR. GATEWAY, COLORADO	104	
MONTEZUMA	9371000	370200	1084300	JUL	27	1940	1200	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO		
MONTEZUMA	9371000	370200	1084300	SEP	22	1940	4600	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO		
DOUGLAS	6712000	392130	1044550	JUL	13	1941	4700	5	169	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
BENT	7131000	380340	1025505	JUL	11	1941	253	1	131	UNKNOWN	R	2	7	CADDOA CREEK AT CADDOA, COLORADO		
BENT	7129500	380000	1030400	AUG	22	1941	1300	5	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO		
OTERO	7121000	375720	1034320	AUG	27	1941	3100	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO		
PUEBLO	7110500	381550	1042230	AUG	27	1941	13000	1	864	UNKNOWN	R	2	7	CHICO CREEK NEAR NORTH AVONDALE, COLORADO		
PUEBLO	7106500	381620	1043540	AUG	26	1941	10921	1	926	POOR	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
LA PLATA	9365500	371720	1080205	SEP	22	1941	1880	1	37	UNKNOWN	R	2	9	LA PLATA RIVER AT HESPERUS, COLORADO	107	?
LA PLATA	9362000	371610	1075315	MAY	4	1941	1480	1		UNKNOWN	R		9	LIGHTNER CREEK NEAR DURANGO, COLORADO		
MONTEZUMA	9371000	370200	1084300	OCT	14	1941	5300	1	550	UNKNOWN	G	1	9	MANCOS RIVER NR. TOWAOC, COLORADO		Max Q at Location/Indirect
MONTEZUMA	9371500	371900	1084000	SEP	22	1941	4540	1	233	UNKNOWN	R	1 2	9	MCELMO CREEK NEAR CORTEZ, COLORADO	107	?
SAN MIGUEL	9168500	375446	1083858	SEP	26	1941	1270	2	180	UNKNOWN	R	2	9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
BENT	7130500	380500	1025510	APR	24	1942	40000	1	18917	UNKNOWN	P		7	ARKANSAS RIVER AT CADDOA, COLORADO		No 1942 Precip. CO
BENT	7130500	380500	1025510	APR	24	1942	40000	2	18917	UNKNOWN	R	2	7	ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO		
BENT	7128000	375500	1031800	APR	24	1942	60000	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO		
HUERFANO	7113500	375100	1044200	AUG	14	1942	26000	1	803	UNKNOWN	R	1 2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO		
LAS ANIMAS		370700	1043500	APR	23	1942	11500	1	104	UNKNOWN	P	1	7	LONG CANYON NR. SOPRIS, COLORADO		
LAS ANIMAS		370757	1043600	APR	23	1942	11400	1		UNKNOWN	P		7	PURGATOIRE RIVER AT LONGS CANYON, COLORADO		
LAS ANIMAS		370825	1043315	APR	23	1942	21400	4		UNKNOWN	P		7	PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO		
LAS ANIMAS		370847	1043300	APR	23	1942	5630	1		UNKNOWN	P		7	PURGATOIRE RIVER AT RATON CREEK, COLORADO		
LAS ANIMAS	7124500	371015	1043030	APR	23	1942	35000	1	795	UNKNOWN	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO		Peak Indirect Q
LAS ANIMAS		370850	1043210	APR	23	1942	5580	1	63	UNKNOWN	P		7	RATON CREEK NR. TRINIDAD, COLORADO		
OTERO	7119500	380528	1035852	AUG	15	1942	14700	1	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
OTERO	7126500	374400	1032900	APR	23	1942	43500	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO		
OTERO	7121000	375720	1034320	AUG	14	1942	4300	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO		
PUEBLO	7106500	381620	1043540	AUG	14	1942	11000	1	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
PUEBLO	7108500	381220	1043140	APR	19	1942	6670	1	468	UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO		
BENT	7128000	375500	1031800	JUN	28	1943	5175	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
HUERFANO	7113500	375100	1044200	AUG	16	1943	3200	1	803	UNKNOWN	R	1 2	7	HUERFANO RIVER NEAR MUSTANG, COLORADO		
PUEBLO	7115500	380000	1042800	AUG	16	1943	3700	1	1710	UNKNOWN	P	1 2	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO		
DENVER		394315	1045840	AUG	5	1945	3120	5	420	UNKNOWN	R	2	6	CHERRY CREEK AT DENVER, COLORADO		
DOUGLAS	6712000	392130	1044550	AUG	5	1945	9170	5	169	UNKNOWN	R	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DOUGLAS	6709500	392904	1050007	AUG	8	1945	7700	1	274	UNKNOWN	R	2	6	PLUM CREEK NR. LOUVIERS, COLORADO		
HUERFANO	7113500	375100	1044200	JUL	7	1945	3500	1	800	UNKNOWN	R	1	7	HUERFANO RIVER NEAR MUSTANG, COLORADO		
PUEBLO	7106500	381620	1043540	JUL	10	1945	17800	5	926	UNKNOWN	R		7	FOUNTAIN CREEK AT PUEBLO, 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
PUEBLO	7116000	380000	1042800	AUG	3	1945	13500	1	1710	UNKNOWN	P	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
GUNNISON		383357	1063827	JUL	31	1945	750	1	0.7	UNKNOWN	R	2	9	FLICK GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO		
GUNNISON		383353	1063804	JUL	31	1945	460	1	0.2	UNKNOWN	R	2	9	UNNAMED GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO		
GUNNISON		383413	1063730	JUL	31	1945	940	1	5.1	UNKNOWN	R	2	9	WILLOW CREEK TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO		
SAN MIGUEL	9175000	375800	1081900	AUG	11	1945	850	1	27.7	UNKNOWN	R	1 2	9	NATURITA CREEK NR. NORWOOD, COLORADO		
JEFFERSON	6711000	393808	1051005	AUG	24	1946	1200	1	50.1	UNKNOWN	R	2	6	TURKEY CREEK NEAR MORRISON, COLORADO		
PUEBLO	7106500	381620	1043540	AUG	26	1946	16500	5	926	UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO		
PUEBLO	7116000	380000	1042800	AUG	13	1946	6000	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
DELTA	9149500	384430	1080450	OCT	15	1947	3500	1	1110	UNKNOWN	R	2	9	UNCOMPAHGRE RIVER AT DELTA, COLORADO		
ADAMS		394422	1043500	MAY	30	1948	4700	1		UNKNOWN	R	2	6	BOXELDER CREEK NEAR WATKINS, COLORADO		Same date as Ft. Collins?
JEFFERSON		394545	1051320	JUN	7	1948	11600	1	11.2	UNKNOWN	R	2	6	TUCKER GULCH AT GOLDEN, COLORADO	126	
LARIMER	6739500	402715	1051150	MAY	30	1948	5750	1	131	UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	125	
BOULDER	6742000	401530	1051215	JUN	6	1949	3500	1	101	UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	129	
LARIMER	6741000	402300	1051430	JUN	4	1949	330	1	15.1	POOR	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	129	
BENT	7128000	375500	1031800	JUN	5	1949	26100	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	129	
BENT	7129500	380000	1030400	JUN	5	1949	11600	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	129	
FREMONT		382313	1050657	JUN		1949	5420	4		UNKNOWN	P		7	COAL CREEK AT FLORENCE, COLORADO	129	
OTERO	7126500	374400	1032900	JUN	5	1949	26100	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	129	
OTERO	7121000	375720	1034320	JUN	4	1949	1300	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	129	
PROWERS		380300	1020300	JUN		1949	5900	1 4		UNKNOWN	R	1	7	CHEYENNE CREEK NEAR HOLLY, COLORADO		
PROWERS		380533	1023155	JUN		1949	12600	4	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO		
PROWERS		380326	1020701	JUN		1949	1830	1		UNKNOWN	R		7	HOLLY DRAIN AT HOLLY, COLORADO	129	?
PROWERS		380140	1020820	JUN		1949	407	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO		
PROWERS		380343	1020745	JUN		1949	8340	4		UNKNOWN	P		7	WILD HORSE CREEK ABV. HOLLY, COLORADO		
PROWERS	7136000	380245	1020706	MAY		1949	1690	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO		
ARAPAHOE		394549	1041407	JUL	30	1950	1600	1		UNKNOWN	R		6	BIJOU CREEK AT BYERS, COLORADO		No 1950 Precip. CO
MORGAN	6759000	401453	1040208	JUN	17	1950	242	1	1420	UNKNOWN	R		6	BIJOU CREEK NEAR WIGGINS, COLORADO		
BENT	7128500	380202	1031200	AUG	29	1950	11500	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT	7128500	380202	1031200	JUL	19	1950	7950	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
FREMONT	7096500	382700	1051030	JUL	12	1950	778	1	432	UNKNOWN	R		7	OIL CREEK NR. CANON CITY, COLORADO		
HUERFANO	7112500	374340	1050045	JUL	5	1950	445	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO		
HUERFANO	7112500	374340	1050045	JUL	20	1950	620	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO		
OTERO	7121000	375720	1034320	JUL	24	1950	9510	1	451	FAIR	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO		
PUEBLO	7116000	380000	1042800	JUL	26	1950	16700	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO	7108500	381220	1043140	JUL	26	1950	16100	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO		
ARAPAHOE		393908	1045909	AUG	3	1951	1200	1		UNKNOWN	R		6	LITTLE DRY CREEK ENGLEWOOD, COLORADO	133	
ARAPAHOE		394016	1040554	AUG	3	1951	11000	1		UNKNOWN	R	2	6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	133	
ARAPAHOE		394303	1041343	AUG	3	1951	41000	4		UNKNOWN	R	2	6	WEST BIJOU CREEK NR. BYERS, COLORADO	133	
BOULDER		400453	1051114	AUG	3	1951	5700	1		UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO	133	
BOULDER	6742500	400700	1051800	AUG	3	1951	785	1	48	FAIR	R	1	6	LEFTHAND CREEK NEAR BOULDER, COLORADO	133	
LARIMER	6741500	402355	1050610	AUG	3	1951	19000	1	515	UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER		402300	1050146	AUG	3	1951	11400	4		UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER	6739500	402715	1051150	AUG	3	1951	14000	1	131	POOR	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	133	
LARIMER		403800	1050800	AUG	3	1951	12000	4		UNKNOWN	R	1 2	6	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	133	
LARIMER	6740000	402220	1051335	AUG	3	1951	420	4	7.43	UNKNOWN	R		6	CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER	6741000	402300	1051430	AUG	3	1951	2260	1	15.1	GOOD	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	133	
LARIMER		403715	1051045	AUG	3	1951	8000	1		UNKNOWN	R		6	DRY CREEK ABV. BELLVIEW, COLORADO	133	
LARIMER	6734500	402210	1052940	MAY	25	1951	1480	1	16.9	POOR	R		6	FISH CREEK NR. ESTES PARK, COLORADO		
LARIMER	6740500	402210	1051715	AUG	3	1951	350	2	3.42	POOR	R		6	RATTLESNAKE CREEK NR. PINEWOOD, COLORADO	133	?
LOGAN		403424	1032056	SEP	7	1951	12000	4		POOR	R	2	6	PAWNEE CREEK NEAR LOGAN, COLORADO	133	Wray?
MORGAN		402240	1033324	SEP	7	1951	4400	2		UNKNOWN	R		6	ANTELOPE CREEK NEAR SNYDER, COLORADO	133	Wray?
MORGAN		402238	1033736	SEP	7	1951	13400	4		POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO	133	Wray?
WELD	6753500	404600	1044725	AUG	3	1951	239	6	199	UNKNOWN	R	2	6	LONE TREE CREEK NR. NUNN, COLORADO	133	
WELD		401029	1045847	AUG	3	1951	6200	4		UNKNOWN	R	2	6	ST. VRAIN CREEK NR. LONGMONT, COLORADO	133	
YUMA	6825500	393440	1021450	JUL	12	1951	3110	1	268	UNKNOWN	R		6	LANDSMAN CREEK NR HALE, COLORADO		
YUMA	6825000	393700	1021430	JUL	12	1951	6660	1	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
BENT	7128000	375500	1031800	JUL	23	1951	17200	1	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
BENT	7128500	380202	1031200	JUL	12	1951	10000	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT	7128500	380202	1031200	JUL	23	1951	17600	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
FREMONT	7096500	382700	1051030	JUL	11	1951	4260	1	432	GOOD	R		7	OIL CREEK NR. CANON CITY, COLORADO		
HUERFANO	7111000	374340	1052110	AUG	2	1951	10200	1	73	UNKNOWN	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		133? LC Ft. Collins date?
HUERFANO	7112500	374340	1050045	AUG	3	1951	1280	1	532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO		133? LC Ft. Collins date?
PROWERS		380509	1023148	MAY	15	1951	27500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	131	
PROWERS		380140	1020820	MAY	15	1951	34000	1	817	UNKNOWN	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	131	
PROWERS		380300	1020700	MAY	15	1951	5000	1		UNKNOWN	P	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO	131	
PROWERS		380230	1022030	MAY	15	1951	8800	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	131	
MINERAL	8216500	375120	1065540	MAY	27	1951	240	6	35.3	UNKNOWN	R		8	WILLOW CREEK AT CREEDE, COLORADO		
GARFIELD	9093500	392710	1080330	AUG	3	1951	600	1	200	UNKNOWN	R		9	PARACHUTE CREEK AT GRAND VALLEY, COLORADO		133 ? Central AZ?
MONTEZUMA	9372000	371927	1090054	AUG	29	1951	1700	1	350	UNKNOWN	R		9	MCELMO CREEK NR. COLORADO-UTAH LINE		
SAN MIGUEL	9175000	375800	1081900	AUG	3	1951	430	1	27.7	UNKNOWN	R	1	9	NATURITA CREEK NR. NORWOOD, COLORADO		
CLEAR CREEK	6716500	394540	1053906	JUN	9	1952	2230	1	145	UNKNOWN	R		6	CLEAR CREEK NEAR LAWSON, COLORADO		
MORGAN	6759000	401453	1040208	AUG	22	1952	7840	1	1314	UNKNOWN	R		6	BIJOU CREEK NEAR WIGGINS, 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
LAS ANIMAS	7126000	371130	1040730	SEP	13	1952	3440	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
MONTROSE	9179000	382605	1085520	JUL	10	1952	885	1	69.5	FAIR	R		9	ROC CREEK NEAR URANIUM, COLORADO		
DENVER	6713500	394458	1050008	JUL	9	1953	2050	2	409	UNKNOWN	R		6	CHERRY CREEK AT DENVER, COLORADO		
DOUGLAS	6709500	392904	1050007	JUL	29	1953	2700	1	319	FAIR	R		6	PLUM CREEK NR. LOUVIERS, COLORADO		
HUERFANO	7112500	374340	1050045	AUG	16	1953	2050	5	532	UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO		
LAS ANIMAS	7126000	371130	1040730	JUN	16	1953	8740	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		Date ?
LAS ANIMAS	7126000	371130	1040730	JUL	11	1953	6230	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	137	?
OTERO		375955	1033513	JUL	12	1953	24300	2 4	87	FAIR	R		7	CROOKED ARROYO NR. LA JUNTA, COLORADO	137	?
OTERO	7121000	375720	1034320	JUL	12	1953	10000	1	451	UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	137	?
PUEBLO	7116000	380000	1042800	JUL	11	1953	3340	1	1673	UNKNOWN	R	1 2	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	137	?
GARFIELD	9092000	393710	1074545	JUL	18	1953	758	1	140	UNKNOWN	R		9	RIFLE CREEK NR. RIFLE, COLORADO		
MONTEZUMA	9371000	370200	1084300	JUL	30	1953	4300	1	550	UNKNOWN	R		9	MANCOS RIVER NR. TOWAOC, COLORADO		See 1941 peak Q
MONTEZUMA	9372000	371900	1090100	AUG	1	1953	459	1	350	UNKNOWN	G	1 2	9	MCELMO CREEK NR. COLORADO-UTAH STATE LINE		
MONTEZUMA	9371500	371900	1084000	JUL	31	1953	694	1	233	UNKNOWN	R	1	9	MCELMO CREEK NR. CORTEZ, COLORADO		
SAN MIGUEL	9168500	375400	1083800	JUL	29	1953	1430	4	180	UNKNOWN	G	1	9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ARAPAHOE	6712500	393620	1044915	JUL	15	1954	450	1	369	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO		No 1945 Precip. CO
DOUGLAS	6712000	392130	1044550	AUG	7	1954	2620	1	169	FAIR	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
ELBERT	6758200	392000	1042900	JUL		1954	15230	1	111	UNKNOWN	R	1	6	KIOWA CREEK AT KIOWA, COLORADO		
BENT	7128000	375500	1031800	JUL	23	1954	40300	2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
EL PASO		390650	1041100	AUG	5	1954	44500	1		UNKNOWN	P		7	BIG SANDY CRK AT STATE HIGHWAY NO. 208 AT RAMAH,COLORADO		
EL PASO	7106000	383608	1044013	JUN	30	1954	6800	1	676	UNKNOWN	P		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
LAS ANIMAS		371000	1035613	JUL	22	1954	15500	3	34.5	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO		
LAS ANIMAS		370911	1043222	JUL		1954	3100	1	9.88	UNKNOWN	P		7	COLORADO CANYON NR. JANSEN, COLORADO		
LAS ANIMAS		371145	1041036	JUL	22	1954	1130	2 3	1.49	UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO		
LAS ANIMAS	7125100	371200	1041140	JUL	22	1954	13500	2 4	80	UNKNOWN	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO		
LAS ANIMAS		371145	1041100	JUL	22	1954	447	3	0.84	UNKNOWN	P		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO		
LAS ANIMAS	7126000	371130	1040730	JUL	22	1954	37800	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO		
LAS ANIMAS	7125000	371450	1042450	JUL	22	1954	5920	1 2	857	UNKNOWN	P		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO		
LAS ANIMAS	7125500	391100	1040830	JUL	22	1954	26300	2 4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
LAS ANIMAS		370745	1040050	JUL	22	1954	25100	2 4	129	UNKNOWN	P		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO		
MONTEZUMA	9371500	371900	1084000	AUG	20	1954	1280	1	233	POOR	R	1	9	MCELMO CREEK NEAR CORTEZ, COLORADO		
SAN MIGUEL	9168500	375446	1083858	JUL	12	1954	183	1	167	GOOD	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ARAPAHOE	6711500	393908	1050157	AUG	11	1955	1170	1	260	UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO		
WELD	6743500	402007	1045153	AUG	7	1955	398	1	198	POOR	R		6	LITTLE THOMPSON RIVER AT MILLIKEN, COLORADO		
WELD	6753500	404600	1044725	AUG	7	1955	775	1	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO		
BENT	7124000	380508	1031250	MAY	20	1955	44000	1	14417	UNKNOWN	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	138	
BENT	7128000	375500	1031800	MAY	20	1955	73400	1 2	3376	UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	138	Peak Q Indirect
BENT	7129500	380000	1030400	MAY	19	1955	4810	1	435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	138	
LAS ANIMAS		371000	1035613	MAY	19	1955	1260	1	34.5	GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO	138	
LAS ANIMAS		370730	1043859	MAY	19	1955	1150	1	28.3	UNKNOWN	P		7	BURRO CANYON AT MADRID, COLORADO	138	
LAS ANIMAS		373310	1033700	MAY	19	1955	3170	1	387	UNKNOWN	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	138	
LAS ANIMAS		371712	1041943	MAY	19	1955	1140	2	123	UNKNOWN	P		7	CHICOSA CREEK NR. HOEHNE, COLORADO	138	
LAS ANIMAS		370911	1043222	MAY	19	1955	940	1	9.88	UNKNOWN	P		7	COLORADO CANYON NR. JANSEN, COLORADO	138	
LAS ANIMAS		371145	1041036	MAY	19	1955	375	2 3	1.49	UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	138	
LAS ANIMAS		370904	1043045	MAY	19	1955	820	1	3.6	UNKNOWN	P		7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	138	
LAS ANIMAS		371215	1042710	MAY	19	1955	1960	1	16	UNKNOWN	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	138	
LAS ANIMAS		370100	1042845	MAY	19	1955	642	3	4.54	UNKNOWN	P		7	JOE CREEK NR. MORELY, COLORADO	138	
LAS ANIMAS		370720	1043520	MAY	19	1955	9650	1	104	UNKNOWN	P		7	LONG CANYON NR. SOPRIS, COLORADO	138	
LAS ANIMAS		371145	1041100	MAY	19	1955	187	3	0.84	UNKNOWN	P		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	138	
LAS ANIMAS		371200	1042900	MAY	19	1955	9000	1		UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	138	
LAS ANIMAS		370610	1044548	MAY	19	1955	1790	2	381	UNKNOWN	P		7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	138	
LAS ANIMAS		370732	1044150	MAY	19	1955	4400	2	485	UNKNOWN	P		7	PURGATOIRE RIVER AT DIVERSION DAM AT VALDEZ, COLORADO	138	
LAS ANIMAS		370902	1043230	MAY	19	1955	26400	4	766	UNKNOWN	P		7	PURGATOIRE RIVER AT JANSEN, COLORADO	138	
LAS ANIMAS		370828	1043553	MAY	19	1955	19800	2	691	UNKNOWN	P		7	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	138	
LAS ANIMAS		371712	1041842	MAY	19	1955	37900	2 4	1015	GOOD	P	2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	138	
LAS ANIMAS	7126000	371130	1040730	MAY	19	1955	41900	1	1320	UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	138	
LAS ANIMAS		370653	1043118	MAY	19	1955	9400	1	60.5	FAIR	P		7	RATON CREEK AT STARKVILLE, COLORADO	138	
LAS ANIMAS		370030	1042650	MAY	19	1955	402	3	5.27	UNKNOWN	P		7	RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO	138	
LAS ANIMAS		370756	1043634	MAY	19	1955	2800	1	36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	138	
LAS ANIMAS	7125500	371110	1040750	MAY	19	1955	15500	4	160	UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	138	
LAS ANIMAS		370725	1044525	MAY	19	1955	1460	1	36.4	GOOD	P		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	138	
OTERO	7119500	380528	1035852	MAY	19	1955	17000	2 4	1125	UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	138	
OTERO	7126500	394400	1032900	MAY	19	1955	80000	2	2900	UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	138	
OTERO		374225	1032420	MAY	19	1955	5660	1	291	UNKNOWN	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	138	
PROWERS		380509	1023148	MAY	20	1955	5500	1	228	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	138	
PROWERS		380230	1022030	MAY	20	1955	1420	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO	138	
PUEBLO	7116000	380000	1042800	MAY	19	1955	11300	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	138	
PUEBLO		380112	1044331	MAY	19	1955	3650	1	42.5	UNKNOWN	P		7	MUDDY CREEK NR. PUEBLO, COLORADO	138	
PUEBLO	7108500	381220	1043140	MAY	19	1955	20600	1	468	UNKNOWN	P		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	138	
SAN MIGUEL	9168500	375446	1083858	JUL	27	1955	2540	1	167	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ARAPAHOE	6712500	393618	1044919	JUL	31	1956	5310	1	360	UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO	140	
CLEAR CREEK	6716500	394540	1053906	JUN	4	1956	6130	2 5	145	UNKNOWN	R	3	6	CLEAR CREEK NR. LAWSON, 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
BENT	7131000	380340	1025505	AUG	19	1956	11800	1 4	131	UNKNOWN	P		7	CADDOA CREEK AT CADDOA, COLORADO		
BENT	7131000	380340	1025505	JUL	19	1956	2090	1	131	POOR	P		7	CADDOA CREEK AT CADDOA, COLORADO		
BENT	7129500	380000	1030400	JUL	19	1956	2300	1	435	FAIR	P	1	7	RULE CREEK NR. CADDOA, COLORADO		
OTERO	7121000	375720	1034320	JUL	23	1956	15500	1	451	FAIR	R	2	7	TIMPAS CREEK AT CATLIN SYPHON, COLORADO		
PROWERS		380509	1023148	JUL	19	1956	3860	1	228	POOR	P		7	CLAY CREEK NR. LAMAR, COLORADO		
PROWERS		380230	1022030	JUL	19	1956	1170	1	116	UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO		
MONTROSE	9177000	382125	1084240	AUG	15	1956	3490	1 2	1550	UNKNOWN	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO		
SAN MIGUEL	9168500	375446	1083858	JUL	26	1956	2060	4	180	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ADAMS		394552	1044937	MAY	9	1957	6450	4	113	FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142	
ADAMS		394600	1045000	MAY	9	1957	7660	6	113	FAIR	R	1	6	SAND CREEK NR. AURORA, COLORADO	142	
ARAPAHOE	6712500	393618	1044919	JUL	26	1957	9950	1	360	POOR	R		6	CHERRY CREEK NEAR MELVIN, COLORADO		
ARAPAHOE		394332	1044904	MAY	9	1957	10400	2 3	35.8	UNKNOWN	R	2	6	TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	142	
DENVER		394648	1045404	MAY	9	1957	25500	1	187	UNKNOWN	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142	
DOUGLAS	6712000	392130	1044550	JUL	30	1957	5380	1	169	GOOD	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
EL PASO	6757600	390400	1043455	JUL	30	1957	5250	1	3.2	GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
PROWERS		380300	1024200	JUL	27	1957		1		UNKNOWN	P	1	7	DRY CREEK NR. LAMAR, COLORADO		
LA PLATA	9363000	371940	1074440	JUL	26	1957	2750	1	96	UNKNOWN	R	2	9	FLORIDA RIVER AT BONDAD, COLORADO		
LA PLATA	9353500	372300	1073430	JUL	27	1957	13800	1	270	GOOD	R		9	LOS PINOS RIVER NR. BAYFIELD, COLORADO		
LA PLATA	9363100	370820	1074510	AUG	6	1957	713	2 3	16.7	FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO		
OURAY	9146600	380850	1075500	JUL	29	1957	500	1	7.88	UNKNOWN	R		9	PLEASANT VALLEY CREEK NR. NOEL, COLORADO		
SAN MIGUEL	9172000	375800	1080100	MAY	4	1957	1390	1	33.5	FAIR	R	1	9	FALL CREEK NR. FALL CREEK, COLORADO		
LAS ANIMAS	7125100	371200	1041200	AUG	21	1958	2310	1	80	POOR	P	1	7	FRIJOLE CREEK NR. ALFALFA, COLORADO		No 1958 Precip. CO
OTERO	7119500	380528	1035852	JUL	6	1958	12100	4	1125	FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
OTERO		375720	1034320	JUL	5	1958	23000	1	451	UNKNOWN	P		7	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO		
PROWERS		380300	1022000	MAY	13	1958	17100	1	116	FAIR	R	1	7	WOLF CREEK NEAR GRANADA, COLORADO		
PUEBLO	7116000	380000	1042800	JUL	5	1958	16800	2	1673	FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
DOLORES	9168100	375236	1083457	SEP	8	1958	824	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
LA PLATA	9363200	370320	1075210	SEP	12	1958	854	1	221	FAIR	R		9	FLORIDA RIVER AT BONDAD, COLORADO		
MESA		390437	1083155			1958	600	1	14	UNKNOWN	G	2	9	INDIAN WASH AT GRAND JUNCTION, COLORADO		
EL PASO	7103700	385117	1045239	JUL	5	1959	408	1	102	UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
LAS ANIMAS	7125500	371110	1040750	JUN	29	1959	2970	1	160	GOOD	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
DOLORES	9168100	375236	1083457	AUG	4	1959	1770	1	145	FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
EAGLE	9060800	395122	1064743	AUG	2	1959	715	1	16	UNKNOWN	R		9	BIG ALKALI CREEK NR. BURNS, COLORADO		
DENVER		394020	1045840	JUL	3	1960	420	1	4.45	FAIR	R		6	HARVARD GULCH AT STATE CHILDRENS HOME, DENVER, COLORADO		No 1960 Precip. CO
OTERO	7119500	380528	1035852	JUL	13	1960	1200	4	1125	POOR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO		
GRAND	9041100	401426	1062223	MAR	27	1960	148	1	10.6	FAIR	R		9	ANTELOPE CREEK NR. KREMMLING, COLORADO		
LA PLATA	9363100	370820	1074510	MAR	19	1960	394	2 3	16.7	FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO		
ARAPAHOE	6758300	394454	1042446	JUL	11	1961	1770	1	236	FAIR	R		6	KIOWA CREEK AT BENNETT, COLORADO		
BOULDER		401344	1051654	JUN	3	1961	235	1	0.4	POOR	R		6	NORTH ST. VRAIN CREEK TRIB. NR. LYONS, COLORADO		
DOUGLAS	6712000	392130	1044550	JUL	31	1961	3410	1	169	FAIR	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DOUGLAS		392217	1044454	JUL	31	1961	2900	1	16.9	POOR	R		6	RUSSELLVILLE GULCH NR. FRANKTOWN, COLORADO		
GILPIN		394548	1052706	JUL	8	1961	727	1	8.17	FAIR	R		6	RUSSELL GULCH NR. BLACKHAWK, COLORADO		
YUMA	6825000	393700	1024300	MAY	13	1961	2960	1	1300	POOR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
EL PASO	7103700	385117	1045239	JUL	11	1961	955	1	102	UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
FREMONT		382908	1052319	JUL	27	1961	930	3	0.84	FAIR	P		7	ARKANSAS RIVER TRIB. AT PARKDALE, COLORADO		
FREMONT		382908	1052322	JUL	27	1961	284	3	0.16	GOOD	P		7	ARKANSAS RIVER TRIB. NO. 2 AT PARKDALE, COLORADO		
FREMONT		382806	1052240	JUL	27	1961	8500	1	4.8	POOR	P		7	MCINTYRE GULCH NR. PARKDALE, COLORADO		
LAS ANIMAS	7124500	371015	1043031	JUL	12	1961	11200	1	795	FAIR	P		7	PURGATOIRE RIVER AT TRINIDAD, COLORADO		
EAGLE	9067300	394500	1064000	AUG	26	1961	310	1	27	POOR	R	1	9	ALKALI CREEK NR. WOLCOTT, COLORADO		
MESA		390437	1083155	AUG	3	1961	808	3	14	GOOD	G		9	INDIAN WASH AT GRAND JUNCTION, COLORADO		
BOULDER		400336	1050752	JUN	30	1962	91	1 3	0.54	FAIR	R		6	GUNBARREL HILL DRAW NR. NIWOT, COLORADO		
BOULDER		400336	1050752	OCT	5	1962	16	1 3	0.54	FAIR	R		6	GUNBARREL HILL DRAW NR. NIWOT, COLORADO		
YUMA		395338	1021340	JUL	17	1962	17800	1	25	GOOD	R		6	BLACK WOLF CREEK NEAR WRAY, COLORADO	151	
YUMA	6825500	393430	1021510	JUN	24	1962	2590	1	268	FAIR	R		6	LANDSMAN CREEK NR HALE, COLORADO		
YUMA	6825000	393700	1024300	JUN	13	1962	9610	4	1300	FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
PROWERS		380307	1020253	MAY	18	1962	4630	1	29	FAIR	R		7	CHEYENNE CREEK AT COLORADO-KANSAS LINE		
ARAPAHOE	6712500	393542	1044844	AUG	3	1963	10800	1	336	GOOD	R		6	CHERRY CREEK NEAR MELVIN, COLORADO		
ARAPAHOE		393617	1045105	AUG	3	1963	3330	1	7.81	GOOD	R		6	COTTONWOOD CREEK ABV. CHERRY CREEK RESERVOIR, COLORADO		
ARAPAHOE		393543	1045152	AUG	3	1963	223	2 3	0.65	GOOD	R	2	6	COTTONWOOD CREEK TRIBUTARY AT ARAPAHOE ROAD, COLORADO		
ARAPAHOE	6758300	394454	1042446	AUG	6	1963	1730	1	236	GOOD	R		6	KIOWA CREEK AT BENNETT, COLORADO		
ARAPAHOE	6758300	394454	1042446	SEP	22	1963	3420	1	236	FAIR	R		6	KIOWA CREEK AT BENNETT, COLORADO		
ARAPAHOE		393542	1045019	AUG	3	1963	930	2 3	1.3	GOOD	R		6	LONE TREE CREEK AT ARAPAHOE ROAD, COLORADO		
ARAPAHOE		394332	1044904	JUN	15	1963	3920	3	35.8	GOOD	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO		
DENVER		394020	1045840	JUN	15	1963	942	1 2	4.45	FAIR	R		6	HARVARD GULCH AT STATE CHILDRENS HOME, DENVER, COLORADO		
DENVER		394648	1045404	JUN	15	1963	3740	1	187	GOOD	R		6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO		
DOUGLAS		393157	1044735	AUG	3	1963	7620	1	13.6	FAIR	R		6	NEWLIN CREEK NR. PARKER, COLORADO		
ELBERT	6758200	392000	1042900	AUG	25	1963	2870	4	111	FAIR	R	1	6	KIOWA CREEK AT KIOWA, COLORADO		
JEFFERSON	6730300	395240	1051636	JUN	16	1963	195	3	15.1	GOOD	R		6	COAL CREEK NR. PLAINVIEW, COLORADO		
JEFFERSON		394256	1050648	JUN	15	1963	968	3	3.22	FAIR	R		6	MCINTYRE GULCH AT DENVER FEDERAL CENTER, COLORADO		
YUMA	6825500	393430	1021510	MAY	16	1963	556	1	268	FAIR	R		6	LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	6825500	393430	1021510	AUG	7	1963	2020	1	268	GOOD	R		6	LANDSMAN CREEK NR. HALE, COLORADO		
BENT		380305	1032114	JUL	27	1963	1230	2 3	5.29	FAIR	P		7	ARKANSAS RIVER TRIB. NR. LAS ANIMAS, COLORADO		

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

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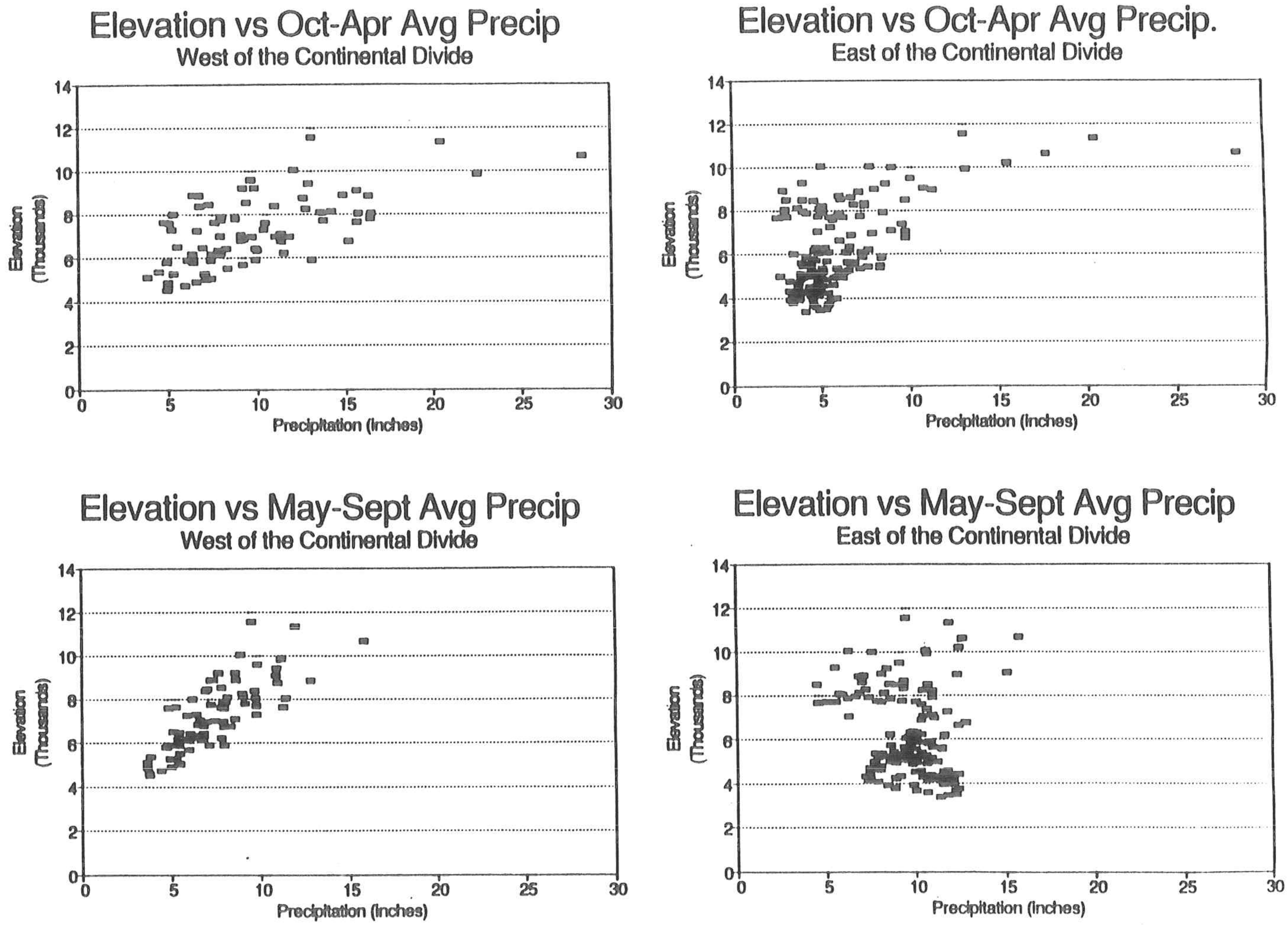
(1989) pointed out that most observed peak stream flows at high elevations (above about 7500 feet) have been the result of snowmelt and not intense rains. Very little evidence of large floods at high elevations can be found. The second factor is data. Using traditional precipitation data from locations 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.



<u>Figure 1.</u> 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.

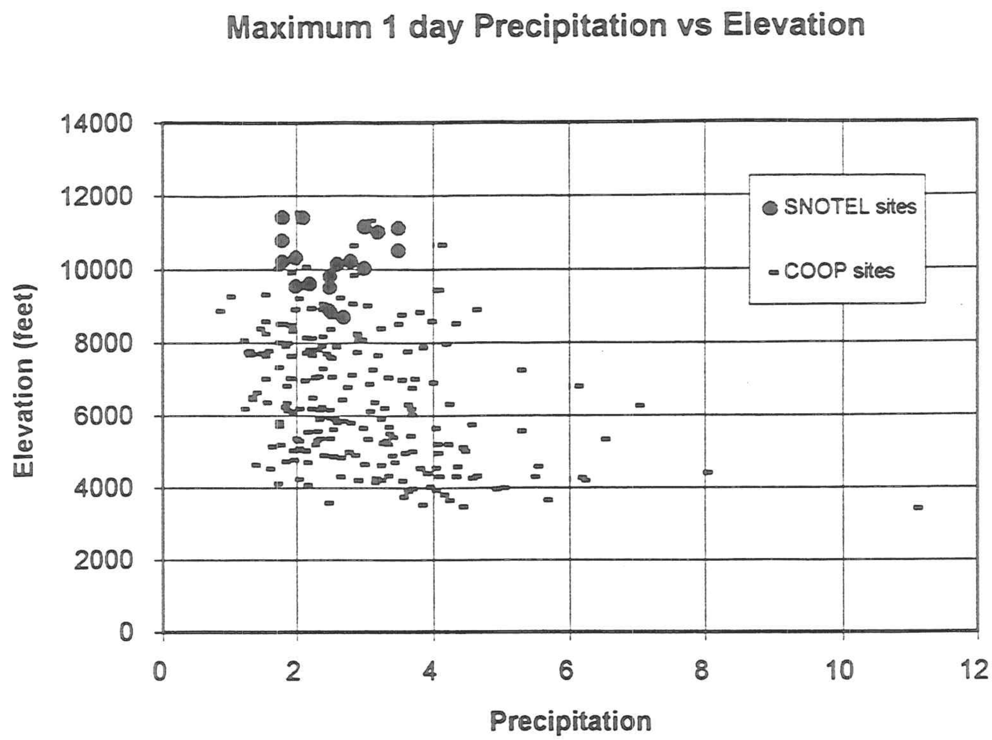


Figure 2. Maximum one-day precipitation totals versus elevation for Colorado stations with at least 12 years of complete daily observations. (This figure is revised in main text page 30.)

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 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.

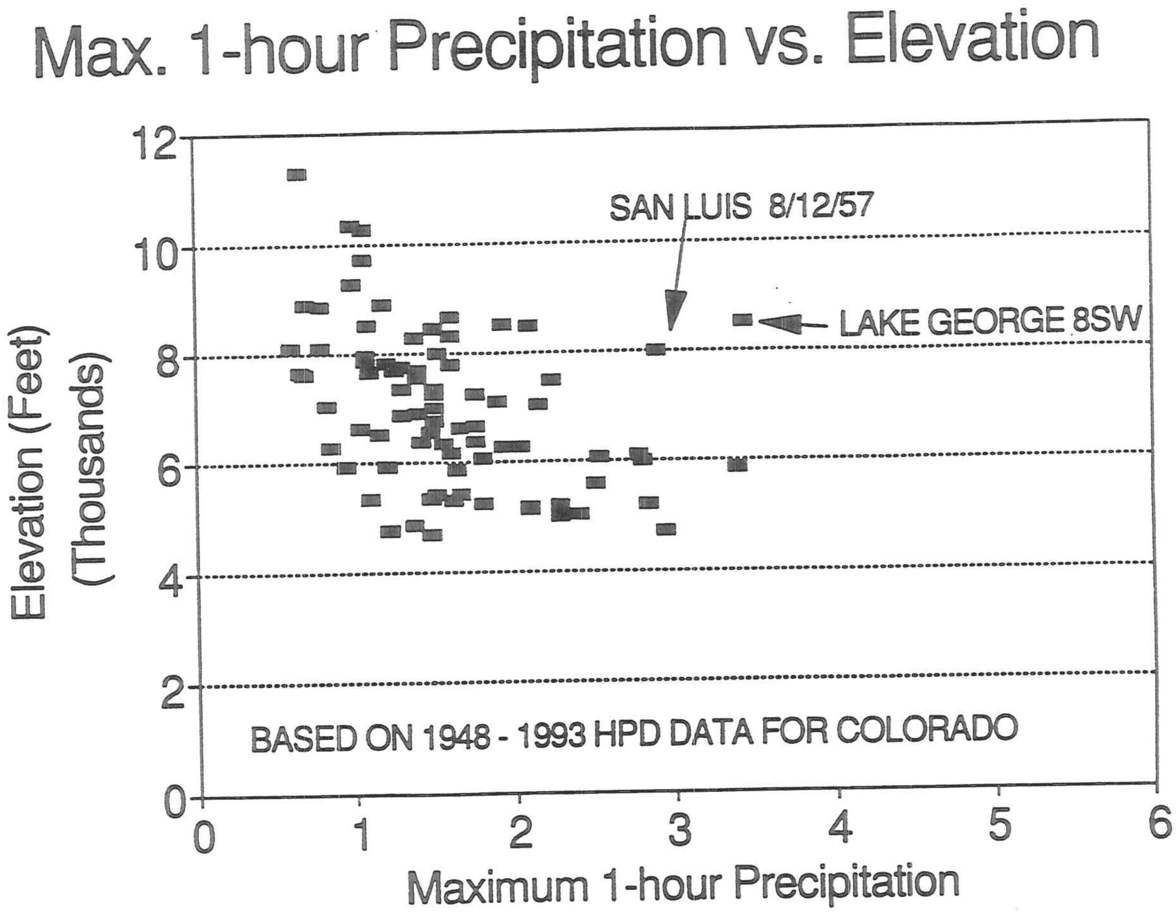


Figure 3. Maximum observed one-hour precipitation totals versus elevation based on National Weather Service recording precipitation gage stations in Colorado with data for all or the majority of the 1948-1993 period.

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.

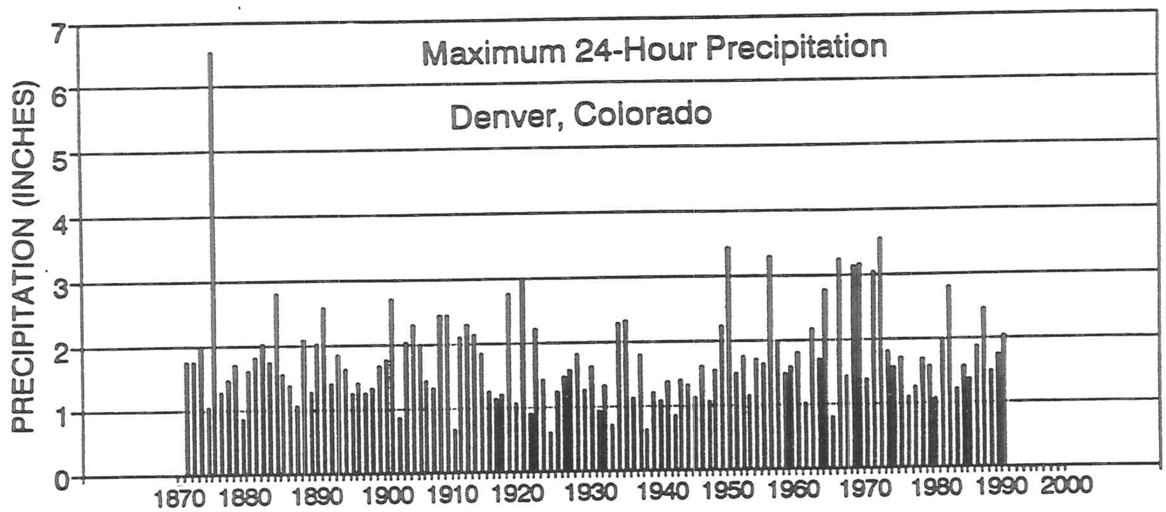


Figure 4. Time series of maximum one-day precipitation totals each for Denver, CO 1872-1993.

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.

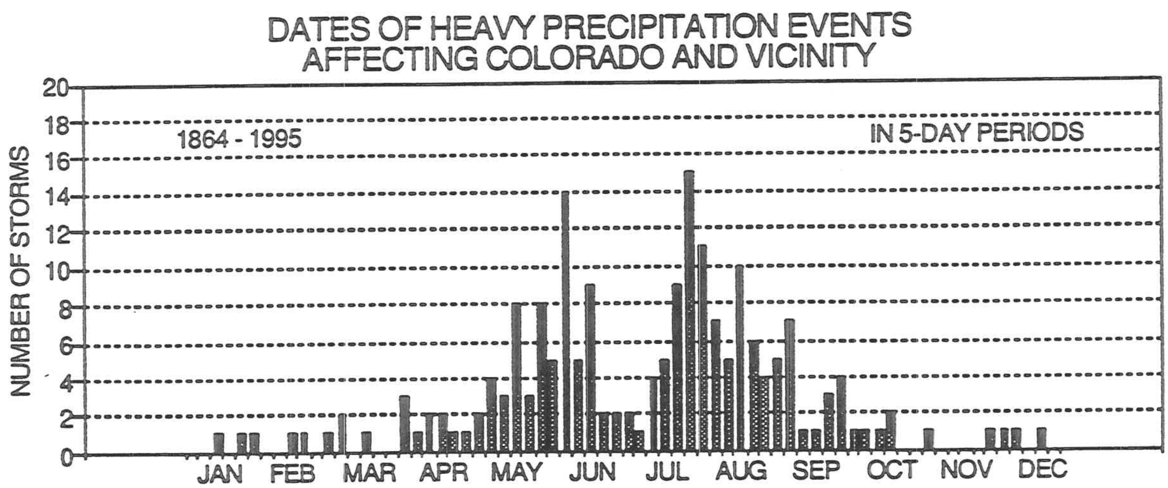


Figure 5. Date of occurrence of very heavy precipitation events in and around Colorado.

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.

References

Jarrett, R. D., 1989: Hydrology and Paleohydrology Used to Improve the Understanding of Flood Hydrometeorology in Colorado, in Design of Hydraulic Structures 89, Proceedings of the 2nd International Symposium on Design of Hydraulic Structures, Fort Collins, CO, June 26-29, 1989, A. A. Balkema, Rotterdam, pp. 9-16.

Hansen, E.M., F. K. Schwarz, and J.T. Riedel, 1977: Probable maximum precipitation estimates, Colorado River and Great Basin drainages, Hydrometeorological Report No. 49. U.S. Dept, of Commerce, NOAA and U.S. Dept. of Army, Corps of Engineers, Silver Spring, MD, 161 pp.

Hansen, E.M., D.D. Fenn, L.C. Schreiner, R.W. Stodt, and J.F. Miller, 1988: Probable Maximum precipitation estimates - United States between the Continental Divide and the 103rd meridian. Hydrometeorological Report No. 55A. U.S. Dept, of Commerce, NOAA and U.S. Dept. of Army, Corps of Engineers, and U.S. Dept. of Interior, Bureau of Reclamation, Silver Spring, MD, 242 pp.

U.S. Weather Bureau, 1947: Generalized Estimates of the Maximum Possible Precipitation over the United States East of the 105th Meridian for Areas of 10, 200, and 500 Square Miles, Hydrometeorological Report No. 23, Washington D.C.

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

7th AMS Conference on Mountain Meteorology, 17-21 July 1995, Breckenridge, CO

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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 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. 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 overtopped 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 re-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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REFERENCES

Changnon, D., and T. B. McKee, 1986: Economic impacts and analysis methods of extreme precipitation estimates for Eastern Colorado. Climatology Report 86-4, CIRA Paper No. 5, ISSN 0737-5352.

Jarrett, R. D., 1989: Hydrology and paleohydrology used to improve the understanding of flood hydrometeorology in Colorado, in Design of Hydraulic Structures 89, Proceedings of the 2nd International Symposium on Design of Hydraulic Structures, Fort Collins, CO, June 26-29, 1989, A. A. Balkema, Rotterdam, pp. 9-16.

Hansen, E.M., F.K. Schwarz, and J.T. Riedel, 1977: Probable maximum precipitation estimates, Colorado River and Great Basin drainages, Hydrometeorological Report No. 49. U.S. Dept, of Commerce, NOAA and U.S. Dept. of Army, Corps of Engineers, Silver Spring, MD, 161 pp.

Hansen, E.M., D.D. Fenn, L.C. Schreiner, R.W. Stodt, and J.F. Miller, 1988: Probable maximum precipitation estimates – United States between the Continental Divide and the 103rd meridian. Hydrometeorological Report No. 55A. U.S. Dept, of Commerce, NOAA and U.S. Dept. of Army, Corps of Engineers, and U.S. Dept. of Interior, Bureau of Reclamation, Silver Spring, MD, 242 pp.

U.S. Weather Bureau, 1947: Generalized estimates of the maximum possible precipitation over the United States east of the 105th meridian for areas of 10, 200, and 500 square miles, Hydrometeorological Report Number 23, Washington, D.C.

COLORADO CLIMATE

JUNE 1995

Volume 18 Number 9

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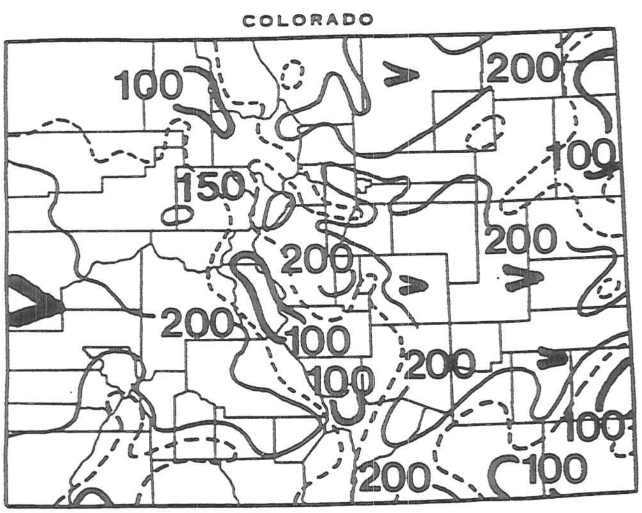
This report has been prepared each month since February 1977 with the support of the Colorado Agricultural Experiment Station and the College of Engineering

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 bought widespread rainfall to western

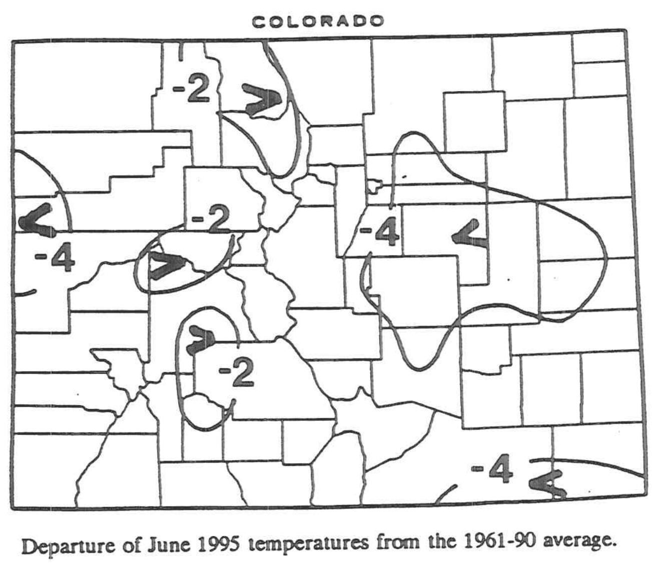


June 1995 precipitation as a percent of the 1961-1990 average.

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 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.



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

Inside This Issue

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*).

Maximum Observed One-Day Precipitation (Inches)

Location	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

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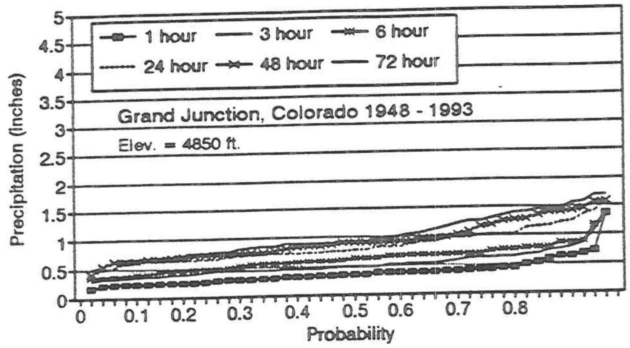
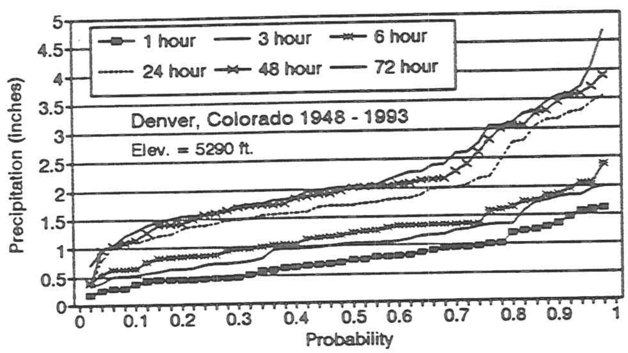
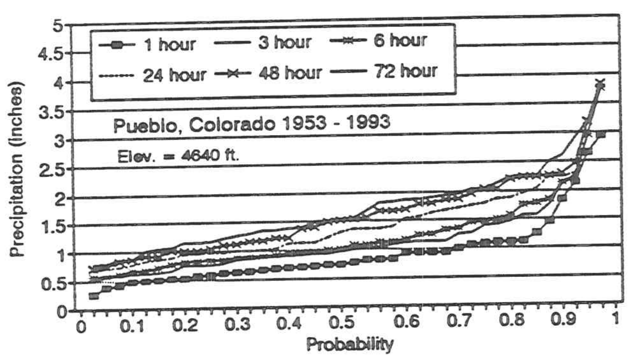
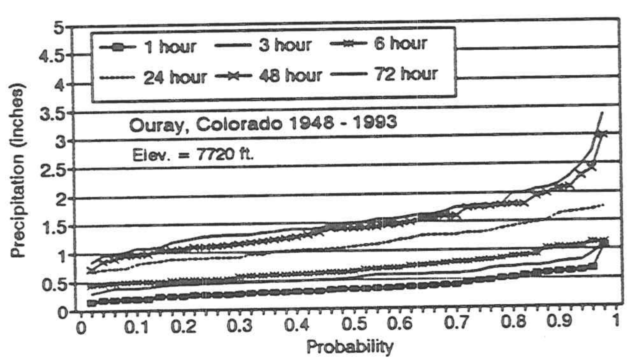
may have fallen in two small areas of eastern Colorado, one near Elbert and the other north of Burlington. It is possible that these estimates could be off by several inches, but even if they were – imagine what your neighborhood would be like if you got more than 15" of rain in less than 24 hours. It 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.

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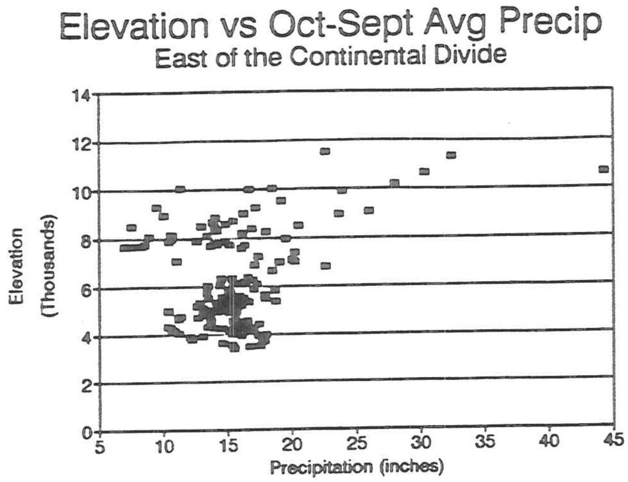
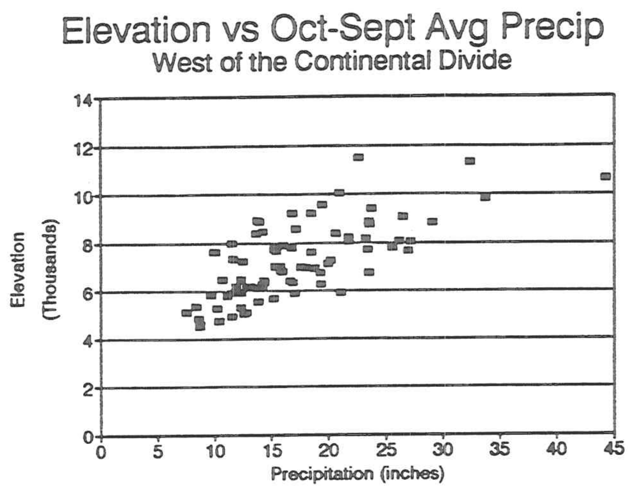
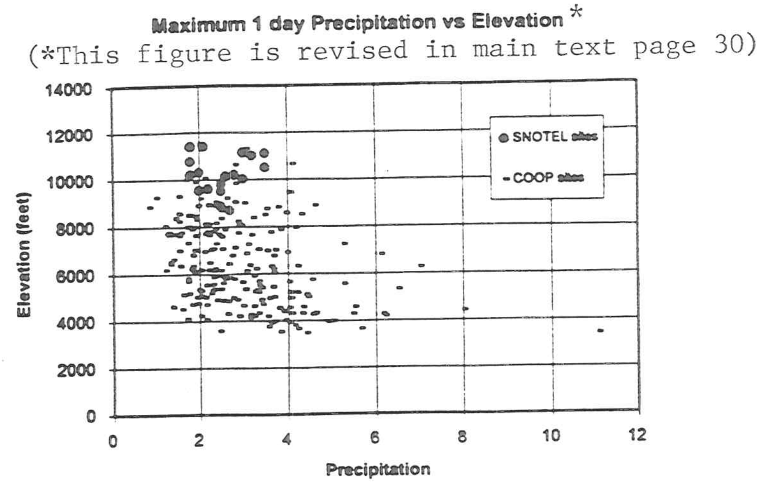
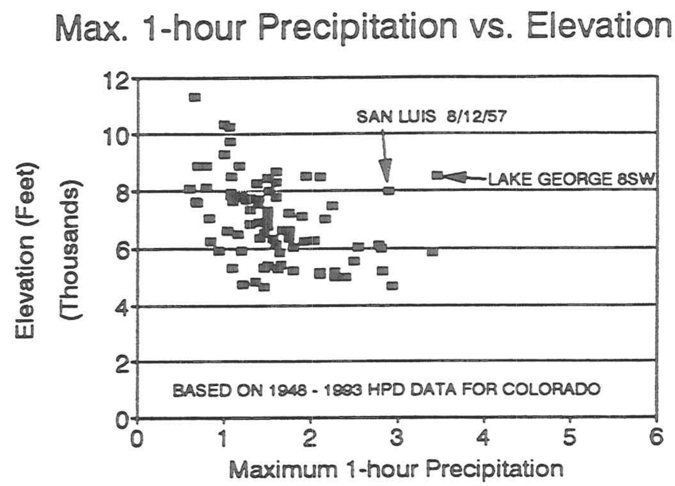
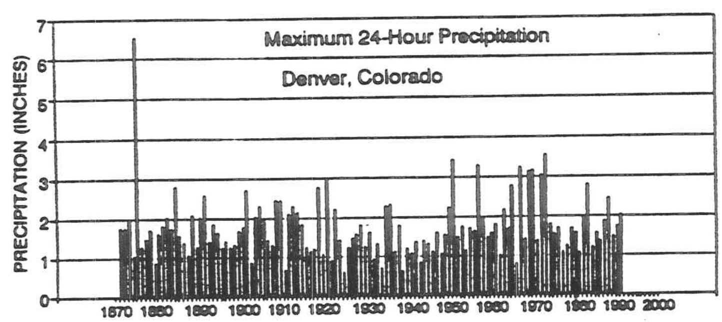




Finally, have you ever wondered, during a truly intense thunderstorm downpour, just how hard it can rain for brief periods. There are a few documented instances (none yet in Colorado, to my knowledge) where more than 1" of rain has fallen in one minute. The maximum rates observed for very short time 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.







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.

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