Watching Colorado Weather

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How do we monitor the climate of Colorado?

Rangeland pasture near Trinidad, Colo., photo by Gary Kramer, NRCS.
National Weather Service

Pueblo NWS Forecast Office
NWS Weather Station
Holly NWS Cooperative weather station
Rocky Ford NWS Coop weather station

8-inch gauge

CRS
National Weather Service
Cooperative Program

Colorado Cooperative Weather Stations
February 2005 Precipitation Totals
Trinidad Average Temperatures

Trinidad Average Annual Mean Temperature

Year

Annual Mean Temperature (°F)
Trinidad Annual Precipitation Totals

Trinidad Annual Precip

Year

Annual Precipitation (inches)
NRCS Manual Snow Readings
NRCS Typical Snotel Site

Fremont Pass
Porphyry Creek April 1 SWE

Porphyry Creek Snow Course
April 1 Snow Water Equivalent (SWE)
2002 Water Year

PORPHYRY CREEK SNOTEL for Water Year 2002

*** Provisional Data, Subject to Change ***

Graph showing precipitation and snow water equivalent (SWE) data for 2002 Water Year.
Colorado Agricultural Meteorological Network (CoAgMet)

Automated weather stations with daily and hourly readings of:
- Temperature
- Humidity
- Wind
- Precipitation
- Solar energy
- Evapotranspiration
CoAgMet Southeast Colorado
Hoehne CoAgMet Weather Station
Hoehne Daily Temperatures

Temperature for HNE01 (03-29-2005 - 04-05-2005)

Temperature for HNE01 (01-01-2004 - 12-31-2004)
Hoehne Relative Humidity

Relative Humidity for HNE01 (03-29-2005 - 04-05-2005)

Relative Humidity for HNE01 (01-01-2004 - 12-31-2004)
Hoehne Solar Radiation


Solar Radiation for HNE01 (01-01-2004 - 12-31-2004)

Generated by the Colorado Climate Center
Hoehne ET Reference

Reference ET (Inches)

Month


What’s our current situation?

Photos courtesy of NRCS
1999 Water Year Precipitation

Water Year 1999
Precipitation Percent of Average for 1961-1990 Averages
2000 Water Year Precipitation

Water Year 2000
Precipitation Percent of Average for 1961-1990 Averages

Precip % of Average
2001 Water Year Precipitation

Water Year 2001
(Oct. 2000 - Sept. 2001)
Precipitation Percent of Average for 1961-1990 Averages
2002 Water Year Precipitation

Water Year 2002
Precipitation Percent of Average for 1961-1990 Averages

Precip % Average
- 0 - 9
- 10 - 29
- 30 - 49
- 50 - 69
- 70 - 89
- 90 - 109
- 110 - 129
- 130 - 149
- 150 - 169
- 170 - 189
- 190 - 209
- 210 - 229
- 230 - 249
- > 250
2003 Water Year Precipitation

Water Year 2003

COLORADO

Precipitation (percent):
- 30 - 49
- 50 - 59
- 70 - 89
- 90 - 109
- 110 - 129
- 130 - 149

Elevations Above 9000 Feet

10 0 10 20 miles
Arkansas Basin April 1 Snowpack
How are we doing this year?
Canon City

2005 Water Year

Accumulated Precipitation (Inches)

- 30 Year Averages-1971-2000
- Max Year - 1957
- Min Year - 1962
- Period of Record Average - 1906 - 2002
- 2005 Water Year Accumulated
- 2002 Water Year Accumulated

Months

OCT  NOV  DEC  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP

Accumulated Precipitation (Inches)

- 0
- 5
- 10
- 15
- 20
- 25

Period of Record Average - 1906 - 2002
Walsenburg

Walsenburg 2005 Water Year

Accumulated Precipitation (Inches)

Months

OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP

Walsenburg 2005 Water Year

2005 Water Year

30 Year Averages-1971-2000
PORPHYRY CREEK SNOTEL as of 04/05/2005

*** Provisional Data, Subject to Change ***

![Graph showing snow water equivalent (SWE) data for PORPHYRY CREEK SNOTEL as of 04/05/2005. The graph includes three lines representing SWE data for different years: SWE WY2005, SWE WY2004, and SWE Avg 71-00. The x-axis represents dates from 10/1 to 9/26, and the y-axis represents inches.]
Arkansas Basin Snowpack

Arkansas River Basin Snowpack
Based on Provisional SNOTEL data as of Apr 05, 2005

Current as Pct of Avg: 121%
Current as Pct of Last Year: 159%
Current as Pct of Peak: 119%
Average as Pct of Peak: 96%
Pct of Avg Needed to Reach Peak: Current
SWE equals or exceeds avg peak
Average Peak Date: Apr 13

http://www.co.nrcs.usda.gov/snow/data/basins.html
Colorado April 1 Snowpack

Snowpack
April 1, 2005

Statewide: 107% of Average
167% of Last Year

Legend
- > 150% of Average
- 130 - 150% of Average
- 110 - 129% of Average
- 90 - 109% of Average
- 70 - 89% of Average
- 50 - 69% of Average
- < 50% of Average
- Not Surveyed

Major Basin Boundary
Watershed Boundary

http://www.co.nrcs.usda.gov/snow/data/getsnomap.html
Arkansas River at Canon City Streamflow History

Arkansas River at Canon City Streamflow Values through 2004

- Arkansas River
- 7-year running mean
- Average

Year vs. Streamflow (Cubic Ft per Second)
Streamflow Forecasts
April 1, 2005

Legend
- > 150% of Average
- 130 - 150% of Average
- 110 - 129% of Average
- 90 - 109% of Average
- 70 - 89% of Average
- 50 - 69% of Average
- < 50% of Average
- Not Forecast

Major Basin Boundary
Watershed Boundary
Reservoir Levels

Colorado Statewide Reservoir Levels on October 1st for Years 1997-2004

Percent of Average

Oct 1. 1997: 133
Oct 1. 1998: 122
Oct 1. 1999: 130
Oct 1. 2000: 100
Oct 1. 2001: 93
Oct 1. 2002: 48
Oct 1. 2003: 74
Oct 1. 2004: 72
Reservoir Storage
April 1, 2005

Statewide: 87% of Average
106% of Last Year
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm
There’s one more piece to the puzzle
CoCoRaHS is a unique, non-profit community based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow).
Why CoCoRaHS?

Five Important Reasons
1) Precipitation is important and highly variable
2) Data sources are few and rain gauges are far apart
3) Measurements from many sources are not always accurate (especially snow)
4) There is almost no quantitative data being collected about hail
5) Storm reports can save lives
CoCo RaHS is you and me measuring rain and snow!
We need volunteers!

- Our goal is at least one per square mile over urbanized areas.
- As many as we can find in rural areas.
How to sign up?

[*] [http://www.cocorahs.org](http://www.cocorahs.org)  
  – Click “Join Us”
For More Information, Visit the CoCoRaHS Web Site

http://www.cocorahs.org

Support for this project provided by Informal Science Education Program, National Science Foundation and many local charter sponsors.
Colorado Climate Center

Data and Power Point Presentations available for downloading

http://ccc.atmos.colostate.edu

– click on “Drought”
– then click on “Presentations”