

# Climate Issues – A State's Perspective

**Nolan J. Doesken**

Colorado State Climatologist,  
President Elect AASC

Colorado Climate Center, Colorado State University

FYO8 Central Regional MIC/HIC  
Conference, Kansas City, MO,  
October 23, 2007

# What is a State Climatologist and where did we come from?



2007 Annual Meeting, Couer d'Alene, Idaho, July 16-19



Photo by Ken Dewey

- |                       |                                   |                               |                             |
|-----------------------|-----------------------------------|-------------------------------|-----------------------------|
| 1. John Young, WI     | 14. Deke Arndt, OK (Asst.)        | 27. Stu Foster, KY            | <u>Not Pictured:</u>        |
| 2. Nolan Doesken, CO  | 15. Lesley-Ann Dupigny-Giroux, VT | 28. Steve Hilberg, MRCC       | Deb Bathke, NM (Rep.)       |
| 3. Tim Owen, NCDC     | 16. Dennis Today, SD              | 29. Steve Gray, WY            | Tony Bergantino, WY (Asst.) |
| 4. Ryan Boyles, NC    | 17. Jim Angel, IL                 | 30. Jan Curtis, USDA/NRCS     | Chip Conrad, SERCC          |
| 5. Mike Anderson, CA  | 18. Hope Mizzell, SC              | 31. Kevin Robbins, SRCC       | Melissa Griffin, FL (Asst.) |
| 6. David Zierden, FL  | 19. Adnan Akyuz, ND               | 32. Pat Guinan, MO            | Ed Hopkins, WI (Asst.)      |
| 7. Charlie Wax, MS    | 20. Phil Mote, WA                 | 33. Glen Conner, KY (Ret.)    | Josiah Mault, WA (Asst.)    |
| 8. Ted Sammis, NM     | 21. Jim O'Brien, FL (Ret.)        | 34. Wenguang Zhao, ID (Asst.) | Don Potts, MT               |
| 9. John Christy, AL   | 22. Jeff Andresen, MI             | 35. Kelly Redmond, WRCC       | Jeff Rogers, OH             |
| 10. George Taylor, OR | 23. Ken Hubbard, HPRCC            | 36. Martha Shulski, AK (Rep.) | Jerry Stanger, VA (Asst.)   |
| 11. Nancy Selover, AZ | 24. Keith Eggleston, NRCC         | 37. Paul Knight, PA           | David Stooksbury, GA        |
| 12. Beth Hall, NH     | 25. Harry Hillaker, IA            | 38. Russ Qualls, ID           |                             |
| 13. Jim Zandlo, MN    | 26. Dave Robinson, NJ             |                               |                             |

# Colorado Climate Center – Beginnings

- After the state climatologist position was abolished in 1974 by the federal government, the State of Colorado, through the Colorado Agricultural Experiment Station funding, established the Colorado Climate Center at Colorado State University.



# Who We Are

- Nolan J. Doesken  
State Climatologist and  
Senior Research Associate,  
[nolan@atmos.colostate.edu](mailto:nolan@atmos.colostate.edu)



- Odie Bliss  
Coordinator,  
[odie@atmos.colostate.edu](mailto:odie@atmos.colostate.edu)

(970) 491-8545

(970) 491-3314 (fax)

Atmospheric Science Department

Colorado State University

Fort Collins, CO 80523-1371





# What We Do...





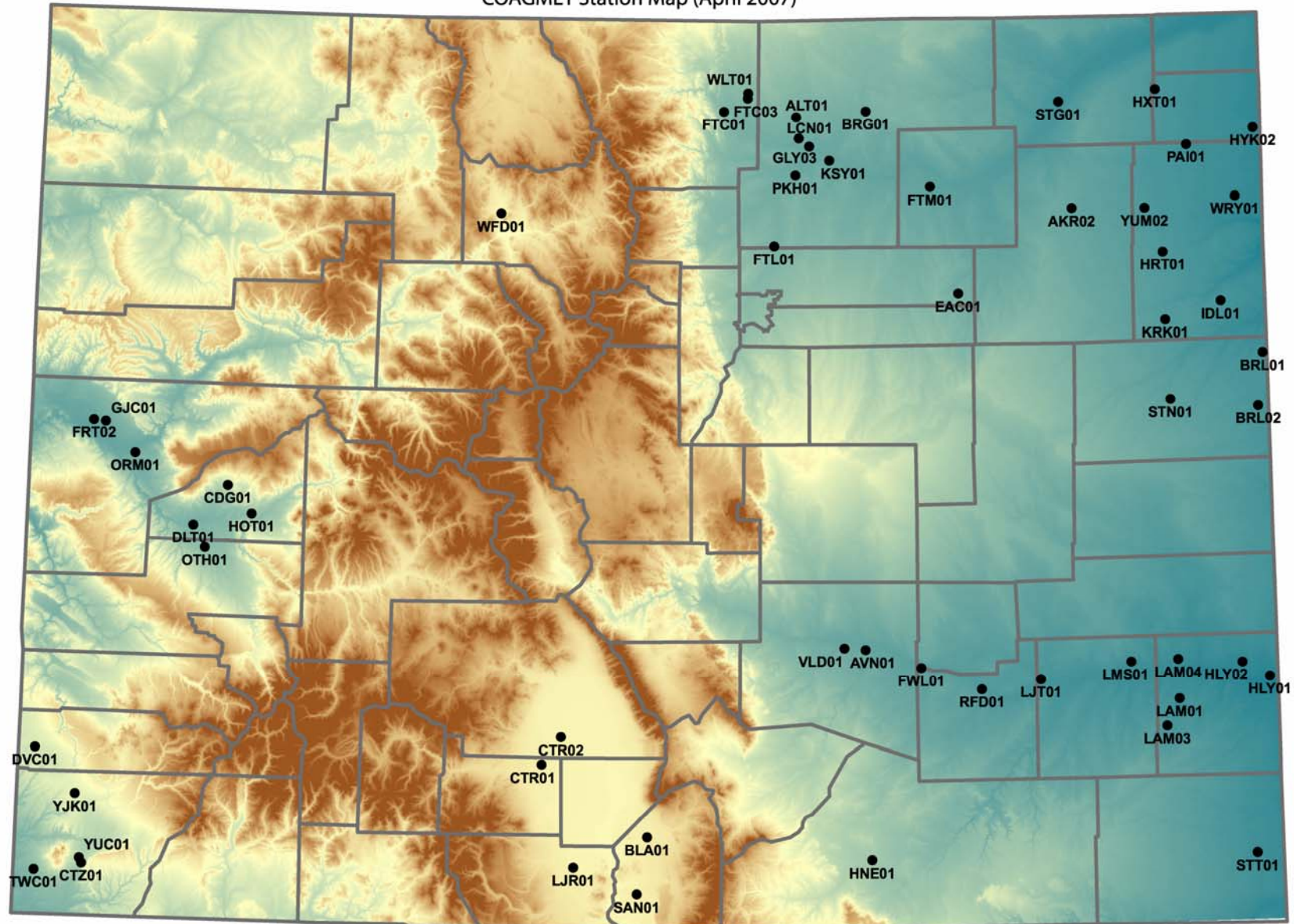
# Data Acquisition and Archive

- Elements: temperature, precipitation, snow, wind, solar, evaporation, soil temperatures, humidity, cloud cover



# Colorado Agricultural Meteorological (CoAgMet) Network

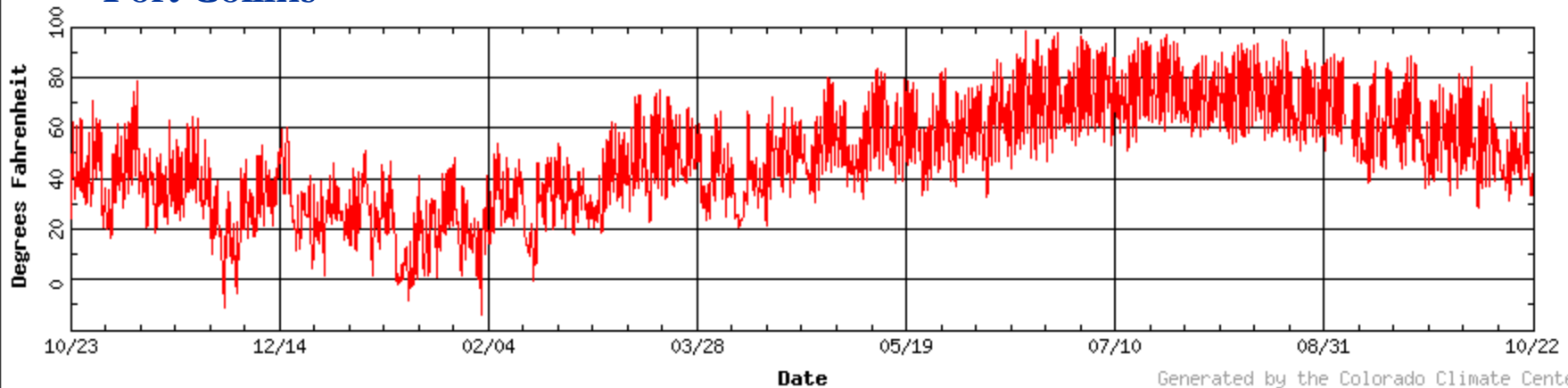
COAGMET Station Map (April 2007)



# CoAgMet data

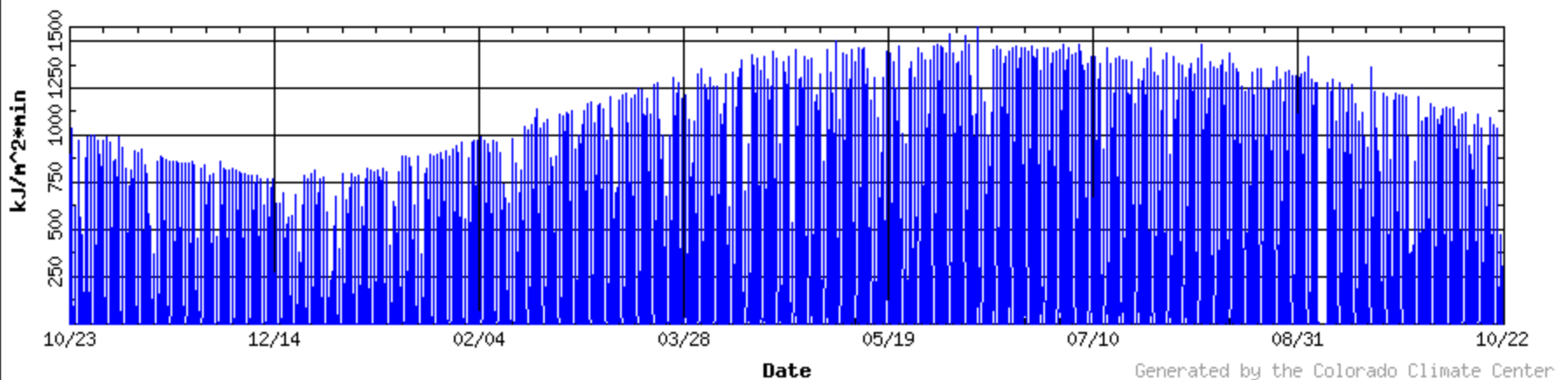
## Fort Collins

Temperature for FTC01 (10-23-2006 - 10-22-2007)



## San Luis

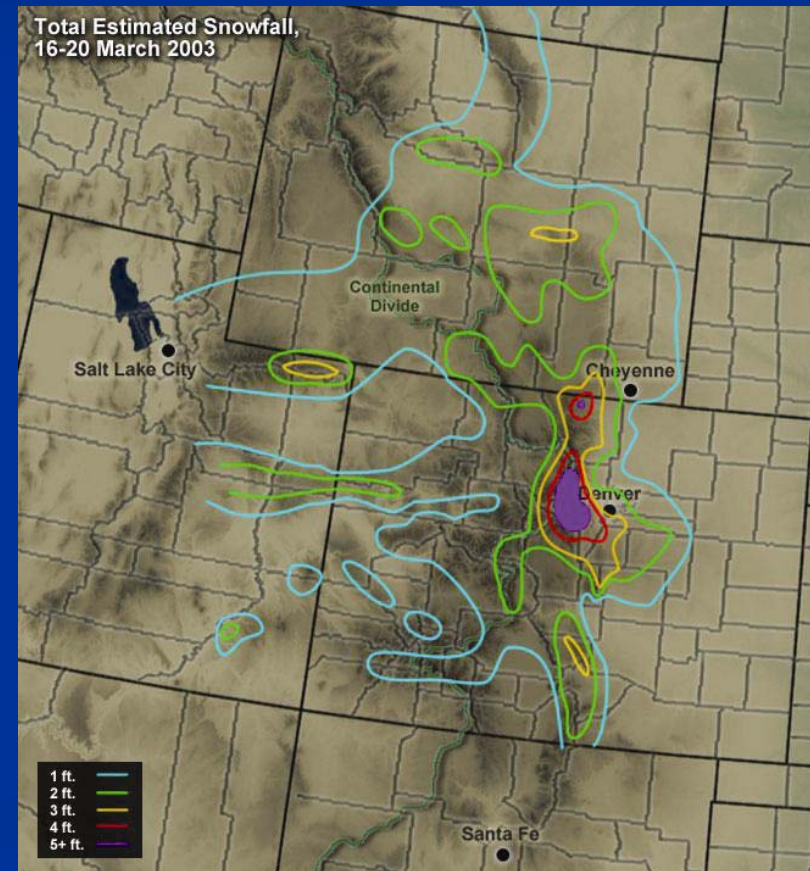
Solar Radiation for SAN01 (10-23-2006 - 10-22-2007)





# Monitor the Climate of Colorado

- Drought, flooding, blizzards, tornadoes, temperature extremes, Heating/Cooling Degree Data, etc.

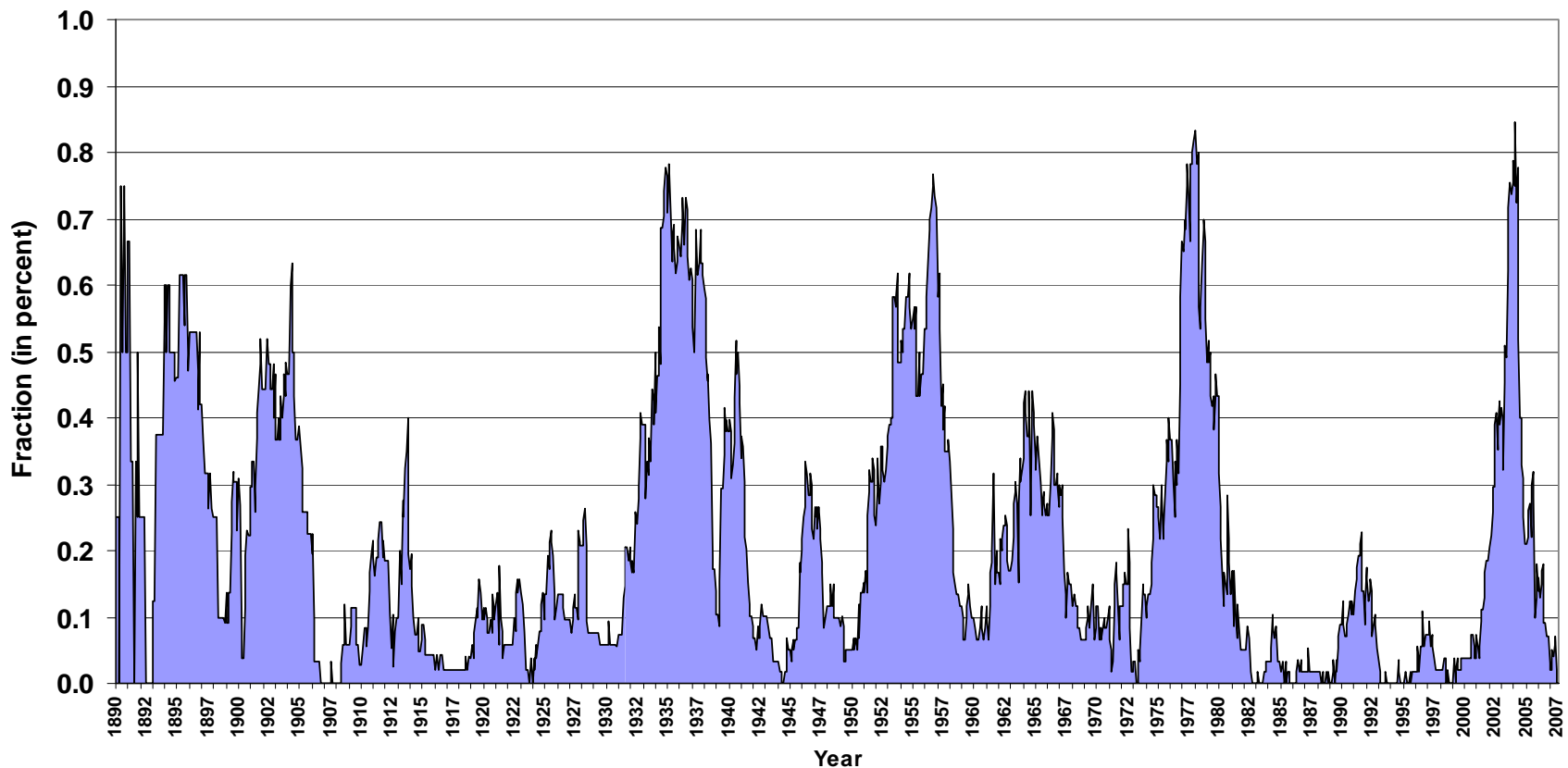


March 2003 Snow Storm

# Climatic Research

- Instrument Comparison Studies, Drought, Snow, Variability and Trends, Impacts and Modeling, etc.

**Fraction of Colorado in Drought**  
**Based on 48 month SPI**  
(1890 - August 2007)

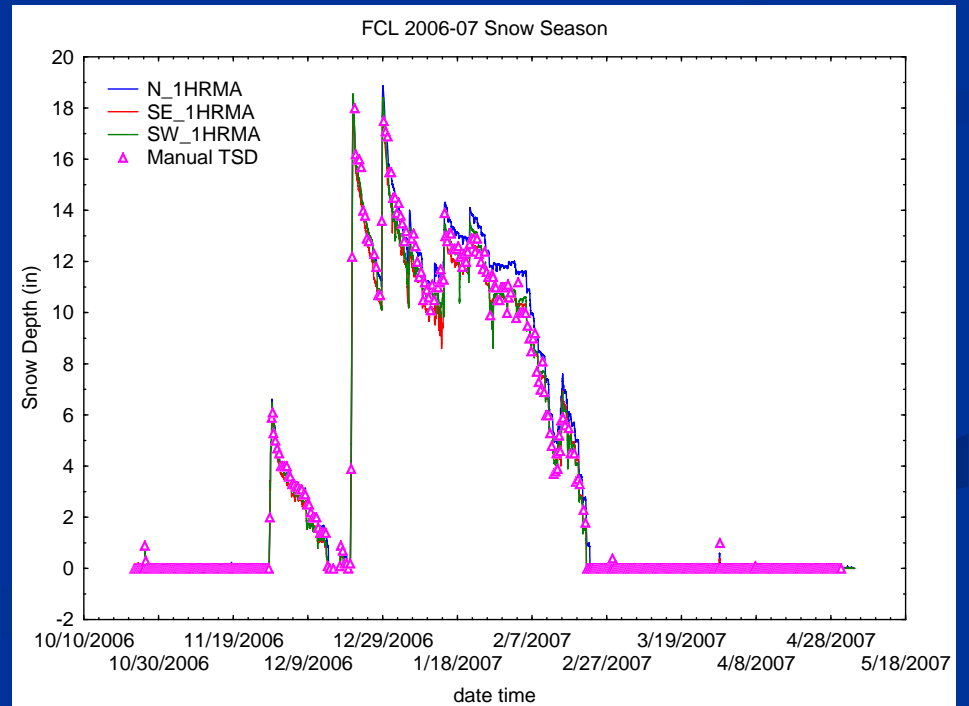


# Ultrasonic Snow Project



Fairbanks, AK, Snow Sensor Site

## Fort Collins 2006-07 Snow Season Data





# Disseminate Information

- Farmers, ranchers, consultants, engineers, print and broadcast media, water resources, utilities, construction, lawyers, federal, state and local governments, schools, universities, and many others.
- HOW? Website, phone, fax, email, publications and conferences

<http://ccc.atmos.colostate.edu>

(970) 491-8545 phone

(970) 491-3314 fax

Are all State Climate offices  
the same?

**No!**



# SC Offices

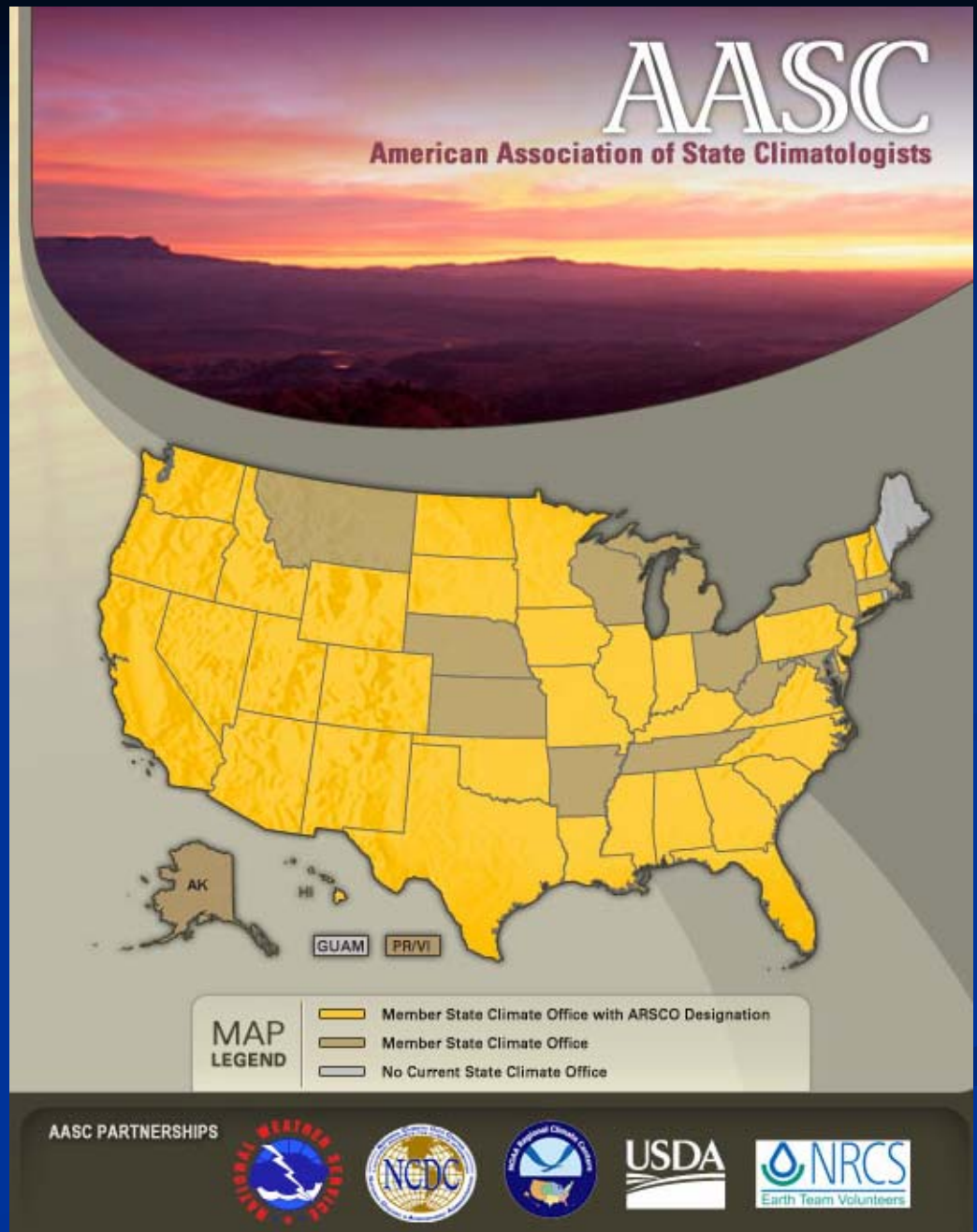
- *We have different funding mechanisms, funding levels, and staffing*
- *We have different institutional structures*
- *We have different skills*
- *We have different priorities*



**Through the American  
Association of State  
Climatologists (AASC) we are  
striving to achieve a high level of  
effectiveness in all states so that  
all NWS regions and Forecast  
Offices can expect effective  
climate services and expertise  
within all states**

# State Climate Offices

<http://www.stateclimate.org/>



# ARSCO

## American Association of State Climatologists Recognized State Climate Office



### WHAT IS AN ARSCO?

#### DEFINING THE ROLE OF THE

*AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS*

*RECOGNIZED STATE CLIMATE OFFICE*

IN THE NATIONAL CLIMATE SERVICES PARTNERSHIP

September 2000

#### I. INTRODUCTION

The mission of the National Climate Services Partnership is to effectively provide the nation with high-quality, timely, and relevant climate services. This comes at a time when the demand for climate services is at record levels and is expected to continue growing. The National Climate Services Partnership, comprised of national and regional centers and American Association of State Climatologists (AASC) recognized state climate offices, was created to meet this need.

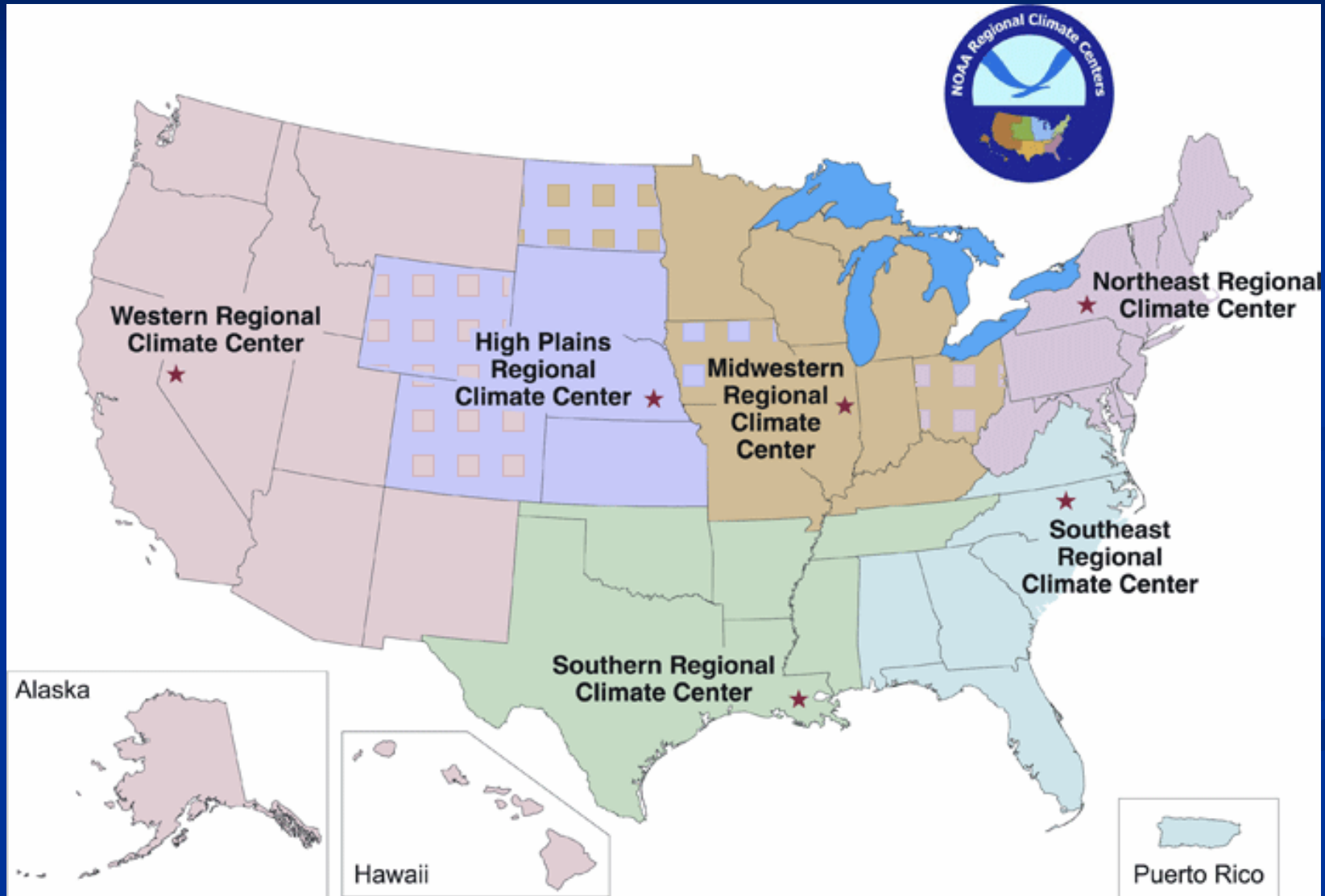
The Partnership seeks to meet the following objectives:

- Maximize the efficiency and effectiveness of the partners
- Minimize duplication of services
- Streamline climate information delivery

This document defines the role of the AASC Recognized State Climate Office (ARSCO) within this partnership. The ARSCOs bring their climatological expertise and climate resources to serve the citizens of their states with specific and first-hand support. This support will aid in climate-related decisions for users in the public and private sectors.



# Regional Climate Centers (RCC)



# Current AASC Action Priorities

- Data Stewardship Priorities –
  - (a) Guidelines Siting, Sensors and Metadata
  - (b) Mesonet Policy – What data sources can be considered “official”
  - (c) QA/QC – Caring for the “Fab 5”  
(Tmx, Tmn, Pr, Sn, Sd)

# Current AASC Action Priorities

- Strengthen State Climate Programs
  - (a) ARSCO status
  - (b) Advocacy and support
  - (c) Developing State Climatologist –  
Applied Climate Information System,  
SC-ACIS



# What do State Climate Offices have to offer NWS?

- A very thorough knowledge of our respective states and climate sensitivities
- Local and regional climate expertise
- Strong knowledge of climate data resources
- A long-term perspective

## Cont'd

- Climate information resources
- Data
- Content for public presentations
- Political clout (?????)

# What do State Climatologists expect from the NWS?

The screenshot displays the National Weather Service website interface. At the top left is the NOAA logo. The main header reads "National Oceanic and Atmospheric Administration's National Weather Service". Navigation tabs include "Site Map", "News", and "Organization".

On the left sidebar, there is a section for "Local forecast by 'City, St'" with a search box and a "Go" button. Below this are links for "XML RSS Feeds", "Warnings", "Current", "By State/County...", "UV Alerts", "Observations", "Radar", "Satellite", "Snow Cover", "Surface Weather...", "Observed Precip", "Forecasts", "Local", "Graphical", "Aviation", "Marine", "Hurricanes", "Severe Weather", "Fire Weather", "Text Messages", "By State", and "By Message Type".

The main content area features a news article titled "...NOAA Reports U.S. Likely to Have Above-Average Winter Temperatures...". The text states: "NOAA forecasters are calling for above-average temperatures over most of the country and a continuation of drier-than-average conditions across already drought-stricken parts of the Southwest and Southeast in its winter outlook for the United States. Details...".

Below the article is a navigation bar with tabs for "Warnings & Forecasts", "Graphical Forecasts", "National Maps", "Radar", "Water", "Air Quality", "Satellite", and "Climate". A dropdown menu is set to "Warnings By State" with a "Go" button. A "Click Below To Zoom In." link and a "Tabs At A Glance" link are also present.

The central feature is a weather map of the United States, created on 10/22/07 at 19:48 UTC. The map shows various weather patterns across the country, with colors indicating different conditions. A smaller inset map of Alaska and Hawaii is visible on the left. At the bottom of the map, it lists "American Samoa · Guam · Puerto Rico/Virgin Islands".



# Collaboration and friendship



Layton Munson (Center), Sedgwick observer, receives Helmut Lundsberg 60-years Service Award

# A commitment to quality and ongoing surface weather observations



Photo provided by NWS-Den

# Readily accessible data

weather.gov

**National Weather Service Forecast Office**  
**Denver-Boulder, CO**

Home News Organization Search for:   NWS  All NOAA

Local forecast by "City, St"

Current Hazards  
Watches/Warnings  
Outlooks  
U.S. Hazards  
Hurricane Info  
Colorado Watches  
About Lightning  
Spotter Program  
Submit Storm Rpt  
Severe WX Page  
Winter Hazards

Current Conditions  
Current Weather  
Pressure Data  
Temp/Moisture Data  
U.S. Observations  
World Conditions  
Satellite Images

Radar Imagery  
Denver Radar  
Nationwide

Forecasts  
Local Area  
Aviation  
Fire Weather  
Graphical Forecasts

As part of its ongoing efforts to improve service to the public, The National Weather Service has released a local 3-month temperature outlook. Access the product for your area [here](#). Please click [here](#) to complete the feedback survey.

Observed Weather | Climate Locations | Climate Prediction | Climate Resources | Local Data/Records | Astronomical | NOWData

### Observed Weather Reports

1. Product »  
 Daily Climate Report (CLI)  
 Preliminary Climatology Data (CF6)  
 Record Event Report (RER)  
 Monthly Weather Summary (CLM)  
 Regional Summary (RTP)  
 State Summary (Temp/Precip)

2. Location »

3. Timeframe »  
 Most Recent  
 Archived Data:  
October 21st, 2007  
October 20th, 2007  
October 19th, 2007  
October 18th, 2007  
October 17th, 2007  
October 16th, 2007

4. View »

[Storm Event Database \(SPC\)](#)  
[Storm Data \(NCDC\)](#)

**Product Description:**  
DAILY CLIMATE REPORT - issued daily:  
Detailed daily weather statistics (usually for yesterday), including temperature, precipitation, degree days, wind, humidity, sunrise/sunset, and record temperature data for the following day. Precipitation data includes both calendar year and water year totals, percent of normal values, and comparisons to normal. This product is available for up to 2 months.



# Timely and accurate documentation (metadata)

COOPERATIVE STATION SERVICE ACCOUNTABILITY STATION REPORT (B-44 Long)										Rev 2/200	
Station Info										Page 1	
<i>Station Name:</i> <b>CENTER 4 SSW</b>			<i>Station Number:</i> <b>05-1458</b>			<i>Climate Division:</i> <b>05</b>		<i>Rendition:</i> <b>14</b>			
<b>STATION LOCATION</b>					<i>Station ID:</i> <b>CENC2</b>		<b>STATION DETAIL</b>				
<i>Latitude</i>	<i>Longitude</i>	<i>Horiz Ref Datum</i>	<i>Vert Ref Datum</i>	<i>Zero Datum (River Sites)</i>			<i>Time Zone</i>				
<b>37.7067</b>	<b>-106.1444</b>	<b>NAD83</b>	<b>NAVD88</b>				<b>MOUNTAIN</b>				
<i>Lat/Lon Source</i>				<i>CPA Region</i>		<i>Station Type</i>					
<b>GPS - GARMIN MODEL III PLUS</b>				<b>CR</b>		<b>92-COOPERATIVE OBSERVER STN</b>					
<i>County</i>			<i>State</i>	<i>Elevation (ft)</i>		<i>COOP Network</i>					
<b>RIO GRANDE</b>			<b>CO</b>	<b>7673</b>		<b>COOPAB-COOP STATION CLIMATE - HYDRO (AB)</b>					
<b>STATION MGMT</b>				<b>STATION ADMIN</b>							
<i>Cpa</i>	<i>Cwa</i>	<i>Hsa</i>	<i>Auth Doc</i>	<i>Auth Date</i>	<i>Stn Begin Date</i>	<i>Primary Signature</i>			<i>Secondary Signature</i>		
<b>PUB</b>	<b>PUB</b>	<b>PUB</b>	<b>NETWORK</b>	<b>06-24-1941</b>	<b>07-01-1941</b>	<b>RICHARD GRIGGS, DAPM/PUB</b>					
<i>Et</i>	<i>Rfc</i>	<i>Reason for Report (see Remarks)</i>				<i>Effective Date</i>		<i>Nwsrep</i>			
<b>PUB</b>	<b>FWR(WGRFC)</b>	<b>10 CHANGE</b>				<b>09-12-2002</b>		<b>PUB</b>			
<i>Topography</i>											
LARGE OPEN TREELESS & LEVEL VALLEY SURROUNDED BY MOUNTAINS.											
<i>Driving Directions</i>											
FROM MONTE VISTA, GO NORTH 9 MILES ON CO #285, TO ROAD 9N. TURN EAST AND GO 0.2 MI TO THE RESEARCH CENTER ON THE NORTH SIDE OF THE ROAD. EQUIPMENT IS DIRECTLY BEHIND MAIN OFFICE ABOUT 0.2 MI.											
<i>Remarks</i>											
UPDATE IDENTIFICATION, CONTACT OBSERVER IS SHARON YUST. UPDATE OB INFO TO DELETE HOURLY PRECIP. UPDATE OTHER EQUIP TO DESCRIBE OBSERVER OWNED EQUIPMENT. STATION BEGIN DATE WAS CORRECTED TO 07/01/1941. EARLY STATION RECORDS INDICATE THIS AS THE CORRECT DATE. IT WAS CHANGED FROM 08/01/1944. THE SBD HAS BEEN INCORRECT AT LEAST AS FAR BACK AS RENDITION #5 DATED 08/16/1988.											

# Data quality control

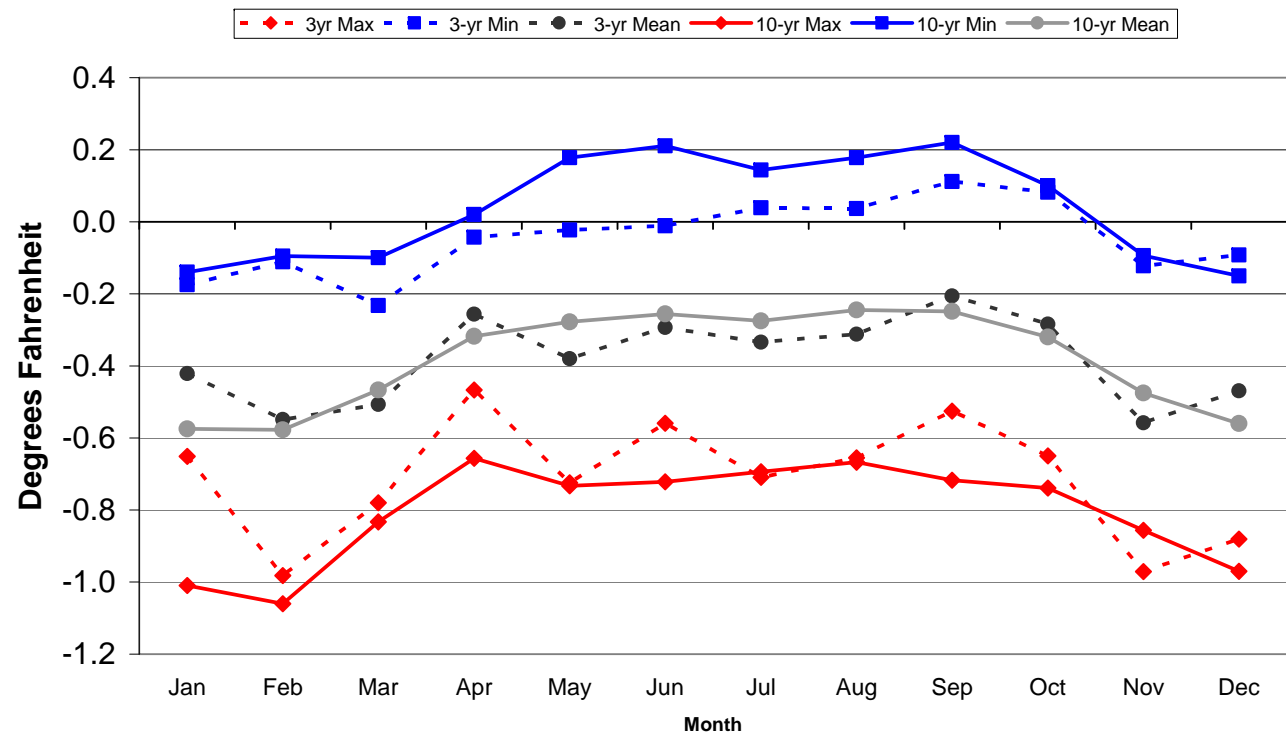
(if we want it in a hurry, we won't always get it right, but if we get it right eventually, we're happier!)



# Notification when something is going to change (as far in advance as possible)



MMTS - LIG Temperatures Differences for 2002-2004 (3-yr)  
Compared to 1984-1994 (10-yr)





# Close and functional NWS relationships with the National Climatic Data Center



NOAA Satellite and Information Service  
National Environmental Satellite, Data, and Information Service (NESDIS)



National Climatic  
Data Center  
U.S. Department of Commerce



[DOC](#) > [NOAA](#) > [NESDIS](#) > [NCDC](#)

Search Field:

Search NCDC

#### Current Events

[About NCDC](#)  
[Newsletter/Reports](#)  
[In the Spotlight](#)  
[What's New](#)

#### Data & Products

[Find a Station](#)  
[Search by Map](#)  
[Free Data](#)  
[Data Access tools](#)  
[CD-ROM Products](#)  
[Climate Inventories](#)  
[Metadata](#)  
[Help/FAQ](#)

#### Purchase

[Most Popular](#)  
[Subscriptions](#)  
[Order Status](#)  
[Online Store](#)

#### Climate Info.

[Research](#)  
[Monitoring](#)  
[Extremes](#)  
[Global Hazards](#)

World's Largest Archive of Climate Data  
**National Climatic  
Data Center**  
Protecting the Past, Revealing the Future



Satellite



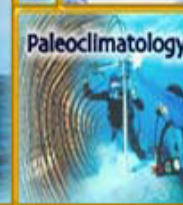
Land Based



Upper Air



Marine



Paleoclimatology

Weather/Climate,  
Events,  
Information &  
Assessments

[Privacy Policy](#)

**HOW ARE WE DOING?**  
A user survey

**USA.gov**

[Disclaimer](#)



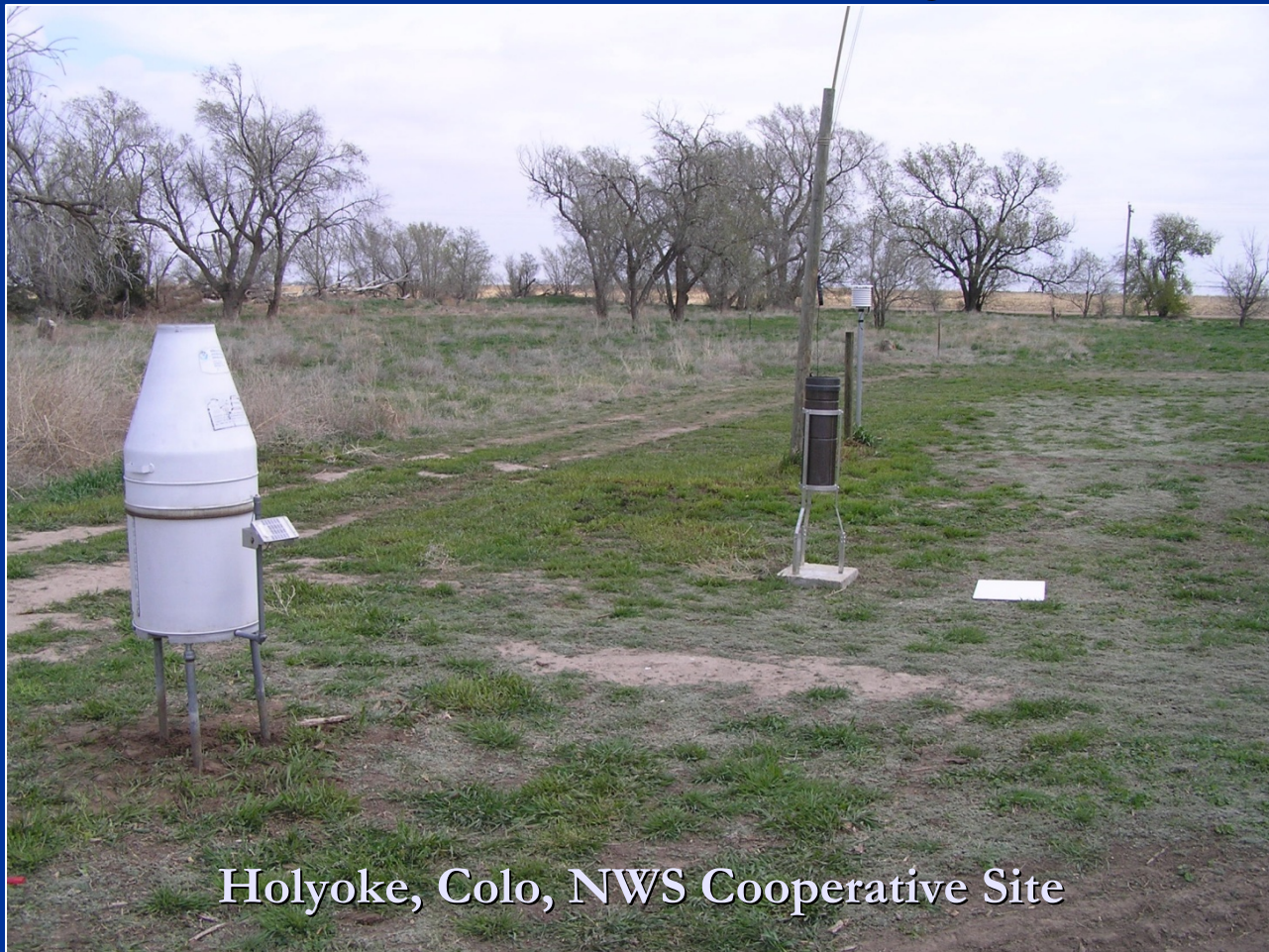
# A strong Cooperative Network

Photo by Christopher Davey



# A strong Cooperative Network

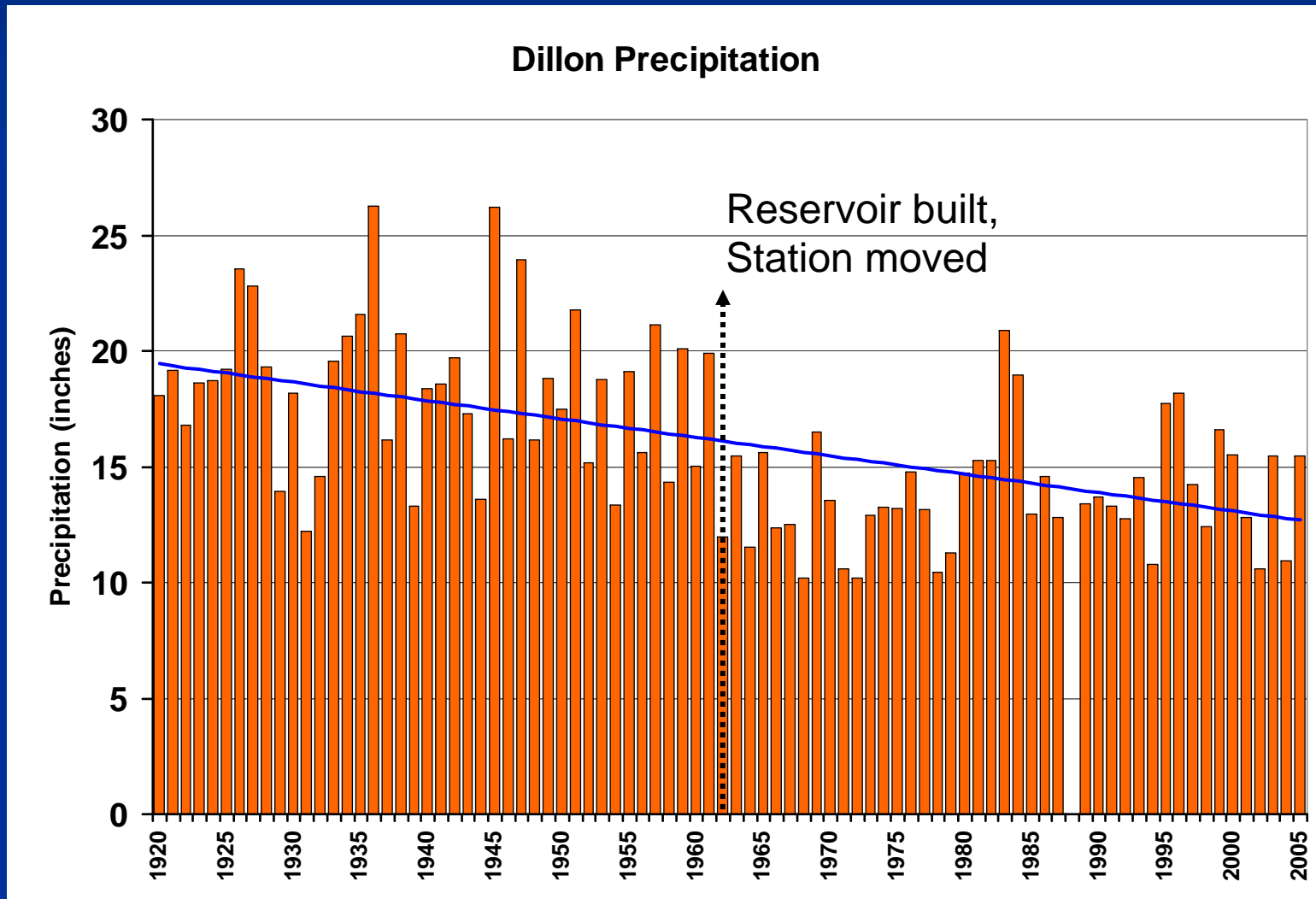
(YES!, I did mean to say this twice)



Holyoke, Colo, NWS Cooperative Site



When changes are planned for important long-term stations, we also would *GREATLY APPRECIATE* a 1-2 year overlap in data between the old and the new.



# Why are Climatologists still enamored by the old-fashioned, low-tech Cooperative Network??

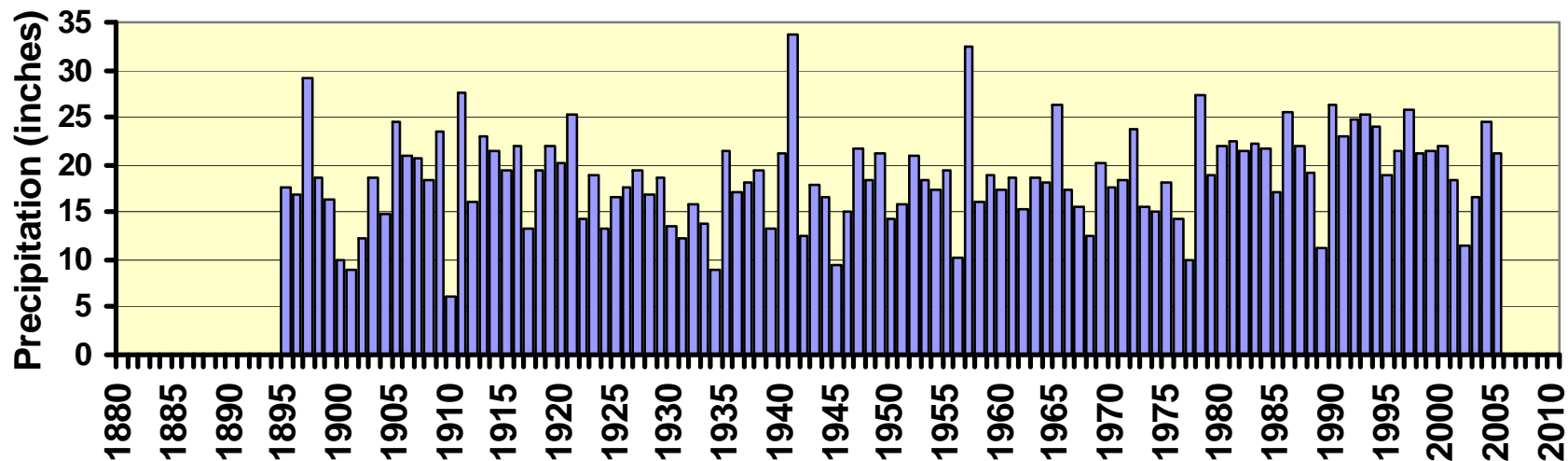


It may be imperfect, but the NWS Cooperative Network is still the BEST source of long-term data for tracking variations and changes in temperature and precipitation



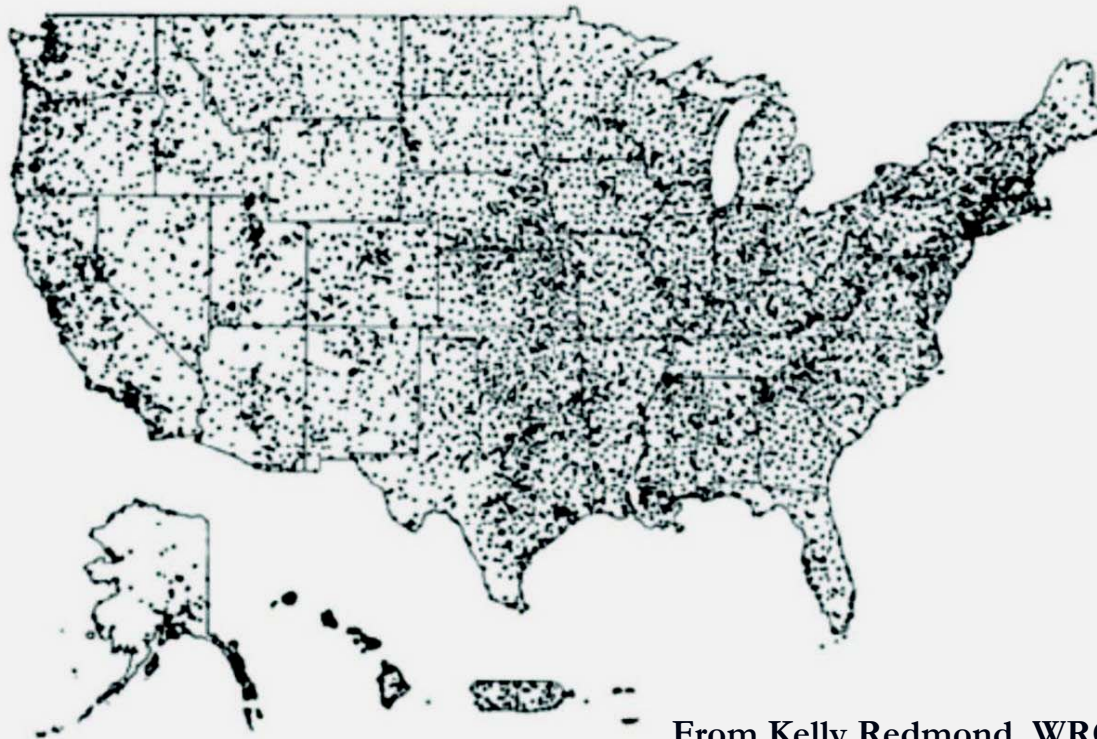
Lamar Coop

Durango Annual Precipitation





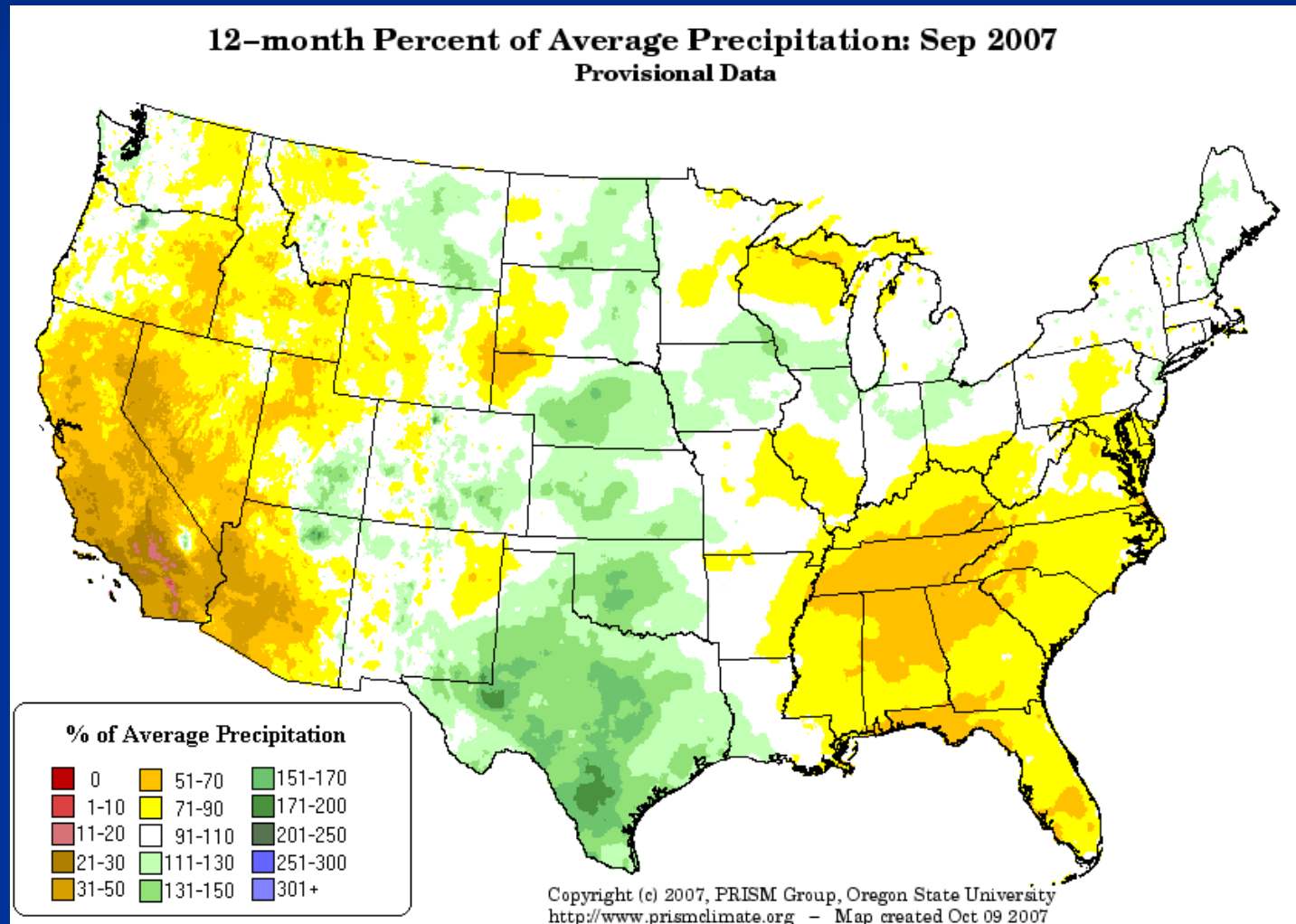
# The NWS Cooperative Network is the only consistent nationwide source of basic climate information on a county level



From Kelly Redmond, WRCC

**Approximately 5000 daily max/min temperature stations, 8000 daily precipitation stations, 3000 automated hourly precipitation stations.**

The NWS Cooperative Network is the only source of climate-quality precipitation data for computing and mapping monthly, seasonal and annual totals



**The NWS Cooperative Network is  
the only reliable nationwide source  
for snowfall and snow depth**





# The NWS Cooperative Network is valuable because station changes and instrumentation changes have been documented through history

(Form 4.)

**WAR DEPARTMENT.**  
**SIGNAL SERVICE, U. S. ARMY.**  
**DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE.**

METEOROLOGICAL RECORD for the *Month* ending *Nov. 25th 1871* at *Denver, Col. Ter.*

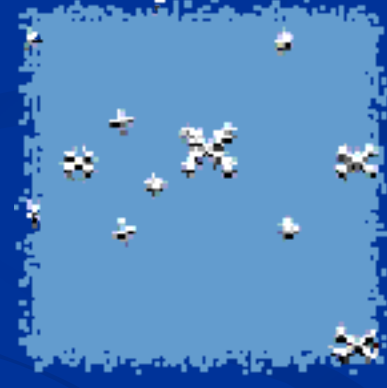
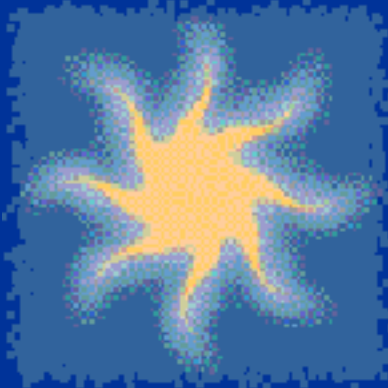
Date of Observation.	Time of Observation.	Height of Barometer.	Height of attached Thermometers <i>W. B. &amp; C. F. &amp; P.</i>	Reduced Barometer.	THERMOMETER. (OPEN AIR.) <i>Hygrometers</i>		Direction of wind.	Velocity of wind in miles per hour.	Pressure of wind. Pounds per square foot.	Amount of cloud.	Direction in which upper clouds move.	Rain (or snow) commenced. (Time.)	Rain (or snow) ended. (Time.)	Amount of rain or melted snow.	Remarks
					Dry Bulb.	Wet Bulb.									
<i>1871</i>	<i>5:43 a.m.</i>	<i>25.00</i>	<i>57 22</i>	<i>30.07</i>	<i>22 21 46</i>	<i>21 16 46</i>	<i>Calad</i>	<i>0</i>	<i>0</i>	<i>4/4</i>		<i>11 a.m.</i>	<i>Blank</i>		<i>Light Snow</i>
	<i>2:43 p.m.</i>	<i>25.09</i>	<i>63 36</i>	<i>29.97</i>	<i>36 35 44</i>	<i>36 35 44</i>	<i>S</i>	<i>2</i>	<i>.02</i>	<i>0</i>					<i>Clear</i>
<i>Sunday Nov 19</i>	<i>4:43 P.M.</i>	<i>25.12</i>	<i>58 14</i>	<i>30.28</i>	<i>14 12 64</i>	<i>14 12 64</i>	<i>S</i>	<i>11</i>	<i>.60</i>	<i>0</i>					<i>Clear</i>
	<i>5:43 a.m.</i>	<i>25.00</i>	<i>57 22</i>	<i>30.07</i>	<i>22 21 46</i>	<i>22 21 46</i>	<i>Calad</i>	<i>0</i>	<i>0</i>	<i>4/4</i>		<i>11 a.m.</i>	<i>8:00 p.m.</i>	<i>Blank</i>	<i>Light Snow</i>
	<i>2:43 P.M.</i>	<i>25.09</i>	<i>63 36</i>	<i>29.97</i>	<i>36 30 46</i>	<i>36 30 46</i>	<i>S</i>	<i>2</i>	<i>.02</i>	<i>0</i>	<i>72</i>				<i>Clear</i>
<i>Monday Nov 20</i>	<i>1:43 P.M.</i>	<i>25.12</i>	<i>58 14</i>	<i>30.28</i>	<i>14 12 64</i>	<i>14 12 64</i>	<i>S</i>	<i>11</i>	<i>.60</i>	<i>0</i>					<i>Clear</i>
	<i>5:43 a.m.</i>	<i>24.99</i>	<i>50 21</i>	<i>30.07</i>	<i>21 19 57</i>	<i>21 19 57</i>	<i>S</i>	<i>13</i>	<i>.84</i>	<i>1/4</i>	<i>24</i>				<i>Stratus</i>
	<i>2:43 P.M.</i>	<i>24.88</i>	<i>56 43</i>	<i>29.67</i>	<i>43 34 28</i>	<i>43 34 28</i>	<i>NW</i>	<i>18</i>	<i>1.62</i>	<i>4/4</i>	<i>103</i>				<i>Stratus</i>
<i>Tuesday Nov 21</i>	<i>9:43 P.M.</i>	<i>24.88</i>	<i>58 39</i>	<i>29.70</i>	<i>39 34 53</i>	<i>39 34 53</i>	<i>NW</i>	<i>2</i>	<i>.02</i>	<i>4/4</i>	<i>34.3</i>				<i>Stratus</i>
	<i>5:43 a.m.</i>	<i>24.70</i>	<i>55 31</i>	<i>29.59</i>	<i>34 29 79</i>	<i>34 29 79</i>	<i>S.W.</i>	<i>4</i>	<i>.08</i>	<i>4/4</i>	<i>97</i>				<i>Stratus</i>
	<i>2:43 P.M.</i>	<i>24.37</i>	<i>62 35</i>	<i>29.50</i>	<i>35 32 70</i>	<i>35 32 70</i>	<i>W</i>	<i>2</i>	<i>.02</i>	<i>4/4</i>	<i>97</i>				<i>"</i>
<i>Wednesday Nov 22</i>	<i>4:43 P.M.</i>	<i>24.71</i>	<i>61 31</i>	<i>29.59</i>	<i>31 30 89</i>	<i>31 30 89</i>	<i>S</i>	<i>10</i>	<i>.50</i>	<i>4/4</i>	<i>32.3</i>	<i>3 P.M.</i>		<i>.26</i>	<i>Light Snow</i>
	<i>5:43 a.m.</i>	<i>24.54</i>	<i>55 25</i>	<i>29.47</i>	<i>25 24 87</i>	<i>25 24 87</i>	<i>S</i>	<i>6</i>	<i>.18</i>	<i>4/4</i>	<i>90</i>	<i>10:30 a.m.</i>			<i>Stratus</i>
	<i>2:43 P.M.</i>	<i>24.31</i>	<i>63 34</i>	<i>29.06</i>	<i>34 33 89</i>	<i>34 33 89</i>	<i>N.W.</i>	<i>5</i>	<i>.12</i>	<i>4/4</i>	<i>30</i>				<i>Light Snow</i>
<i>Thursday Nov 23</i>	<i>9:43 P.M.</i>	<i>24.20</i>	<i>60 31</i>	<i>28.97</i>	<i>31 30 89</i>	<i>31 30 89</i>	<i>S</i>	<i>9</i>	<i>.40</i>	<i>3/4</i>	<i>SE</i>				<i>"</i>
	<i>5:43 a.m.</i>	<i>24.36</i>	<i>56 32</i>	<i>29.17</i>	<i>32 32 100</i>	<i>32 32 100</i>	<i>S.W.</i>	<i>4</i>	<i>.08</i>	<i>4/4</i>	<i>101</i>		<i>8 a.m.</i>	<i>.21</i>	<i>Cloudy</i>
	<i>2:43 P.M.</i>	<i>24.37</i>	<i>70 42</i>	<i>29.04</i>	<i>42 37 58</i>	<i>42 37 58</i>	<i>S.E.</i>	<i>2</i>	<i>.02</i>	<i>2/4</i>	<i>33.7</i>				<i>Light Snow</i>
<i>Friday Nov 24</i>	<i>9:43 P.M.</i>	<i>24.38</i>	<i>65 27</i>	<i>29.23</i>	<i>27 27 100</i>	<i>27 27 100</i>	<i>N.W.</i>	<i>2</i>	<i>.02</i>	<i>4/4</i>					<i>Fog</i>
	<i>5:43 a.m.</i>	<i>24.37</i>	<i>58 32</i>	<i>29.17</i>	<i>32 28 64</i>	<i>32 28 64</i>	<i>S.W.</i>	<i>7</i>	<i>.24</i>	<i>1/4</i>	<i>98</i>				<i>Stratus</i>
	<i>2:43 P.M.</i>	<i>24.42</i>	<i>70 49</i>	<i>29.03</i>	<i>49 39 31</i>	<i>49 39 31</i>	<i>S.E.</i>	<i>2</i>	<i>.02</i>	<i>2/4</i>					<i>Stratus</i>
<i>Saturday Nov 25</i>	<i>9:43 P.M.</i>	<i>24.60</i>	<i>68 17</i>	<i>29.60</i>	<i>17 15 75</i>	<i>17 15 75</i>	<i>N.E.</i>	<i>18</i>	<i>1.62</i>	<i>3/4</i>	<i>32.7</i>				<i>Light scud fl</i>

**2381**

**Denver November 19-25, 1871** *Henry J. Taylor, Observer*



The NWS Cooperative Network  
is elegant by way of it's  
simplicity!



Why are climatologists  
so picky about data?



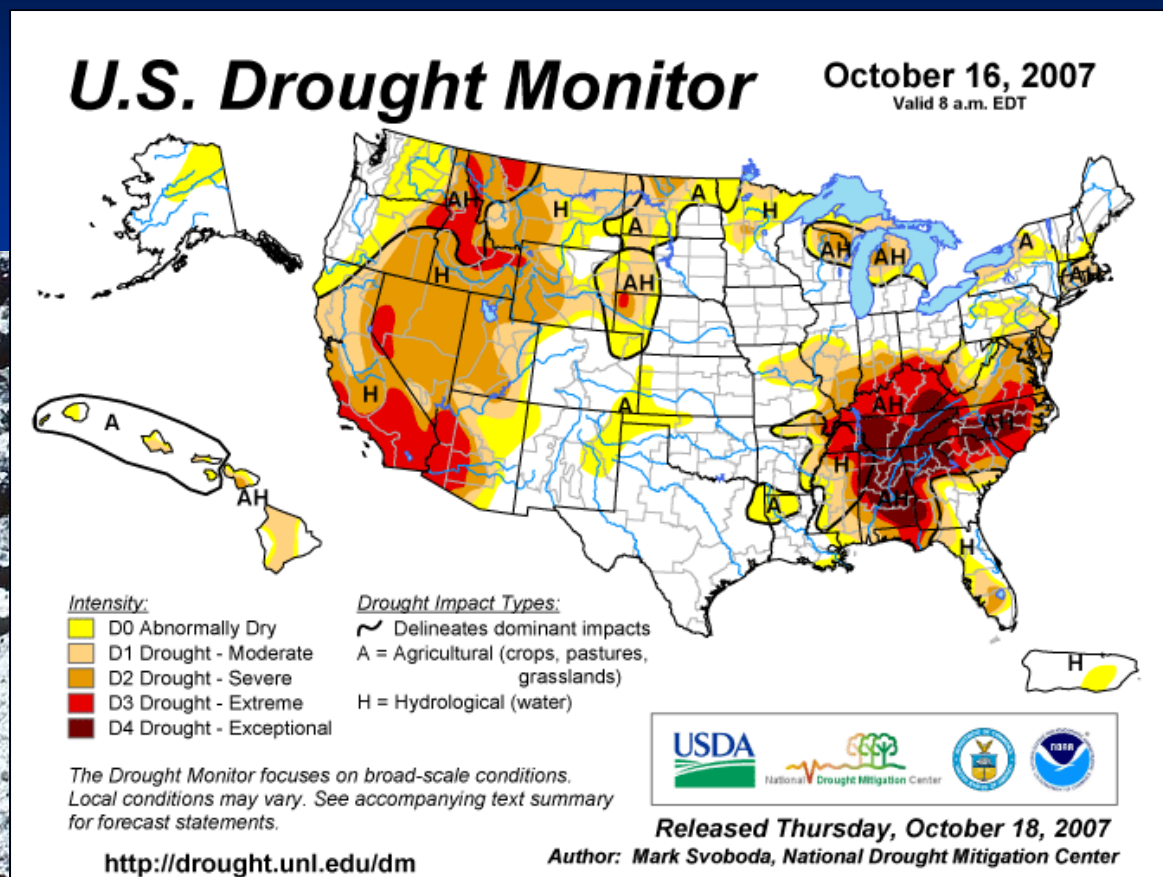
Because the data are used for very  
important applications!

# Structural Engineering





# Agricultural production and food supplies





# Civil engineering





# Water resources planning and management



# Energy



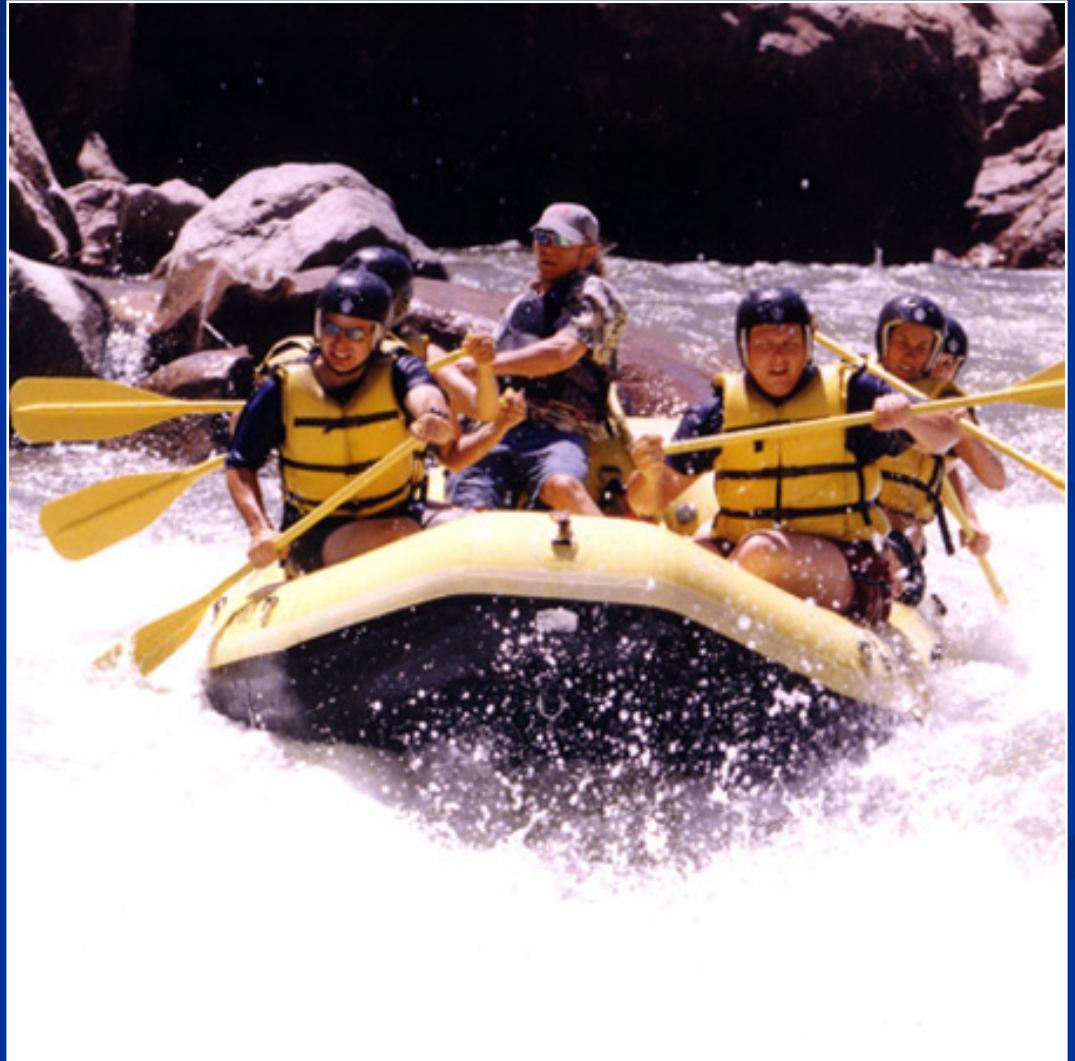


# Power distribution

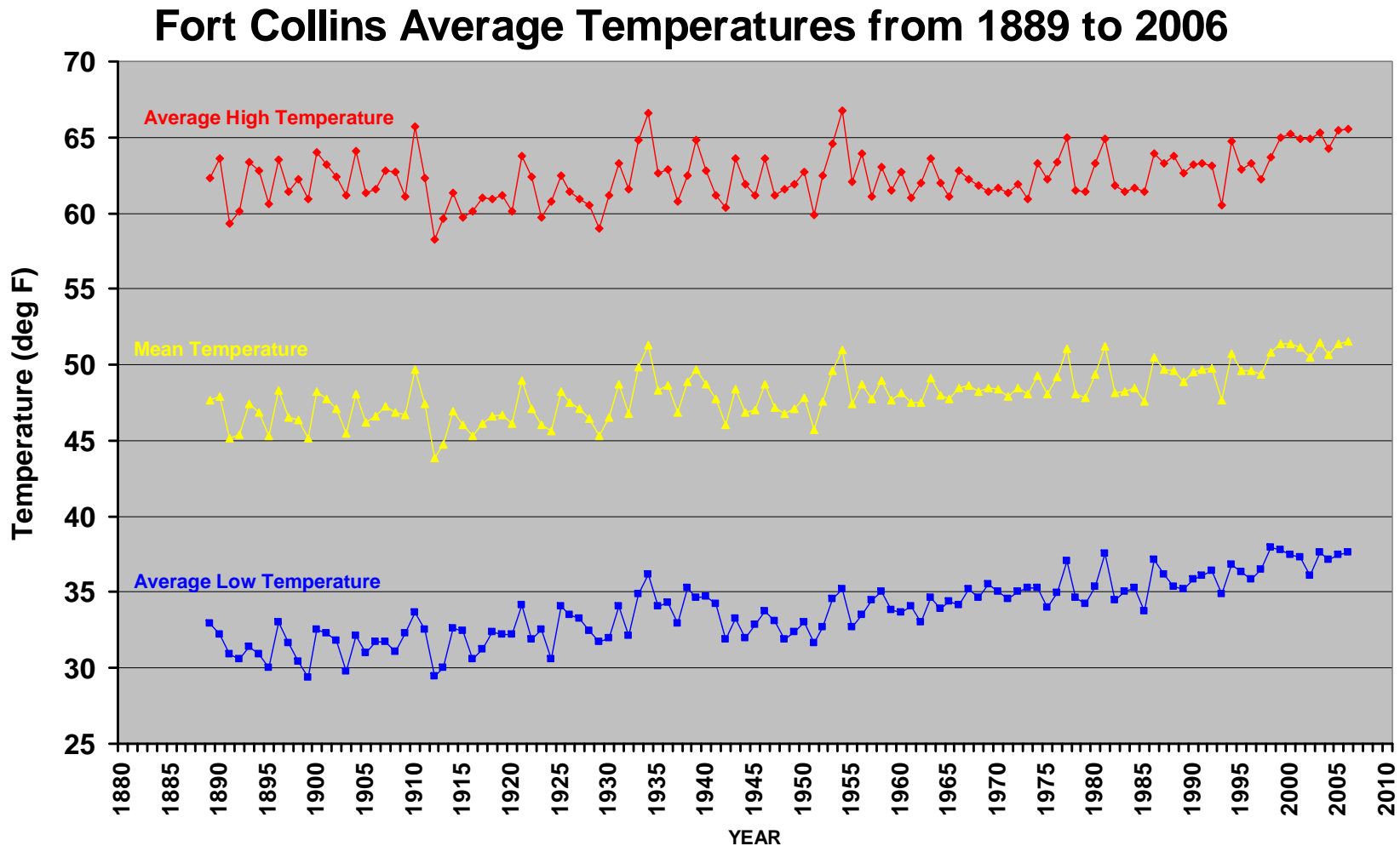


01/15/2007

# Health and wellness

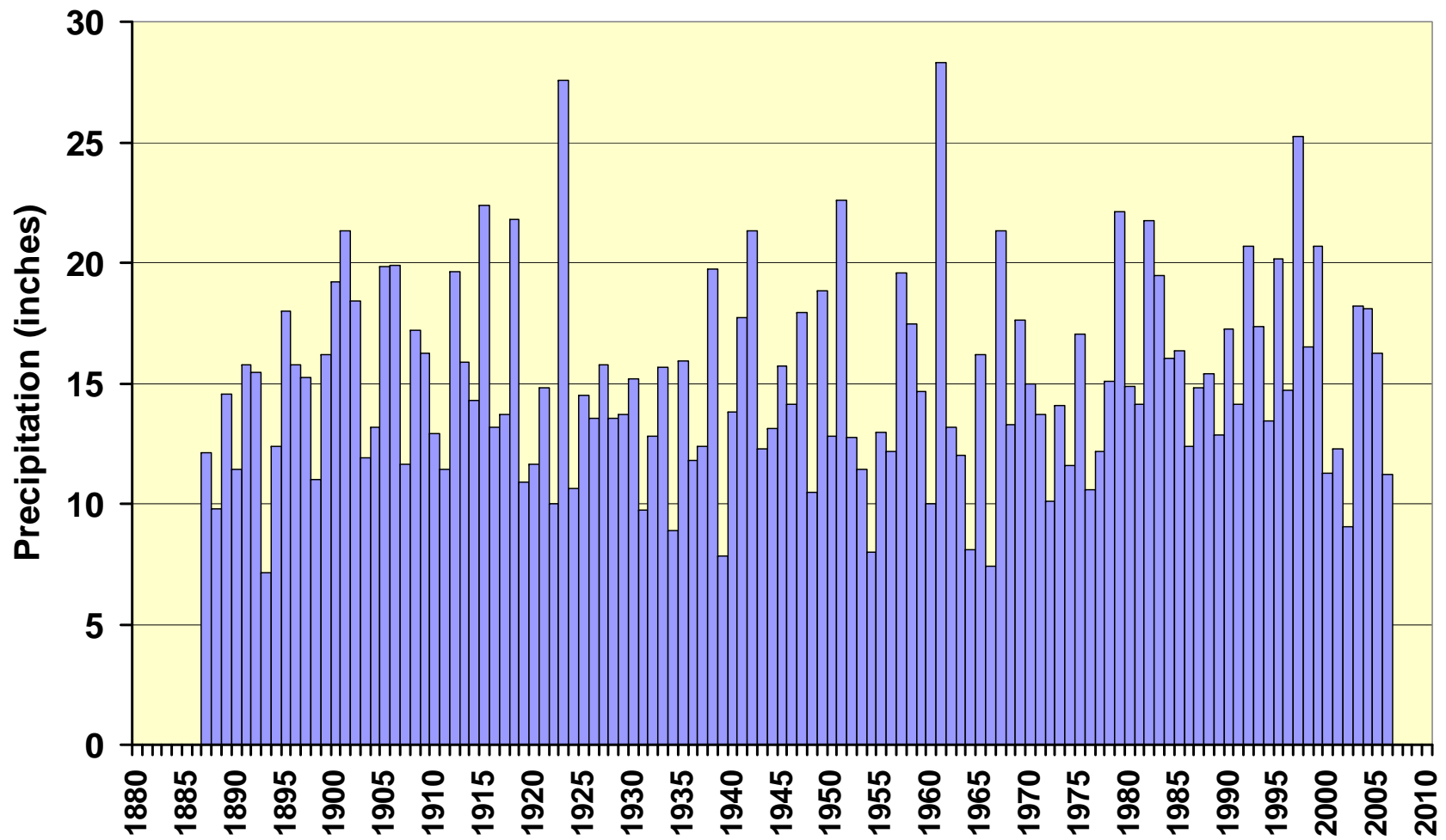


# Understanding and communicating about climate change



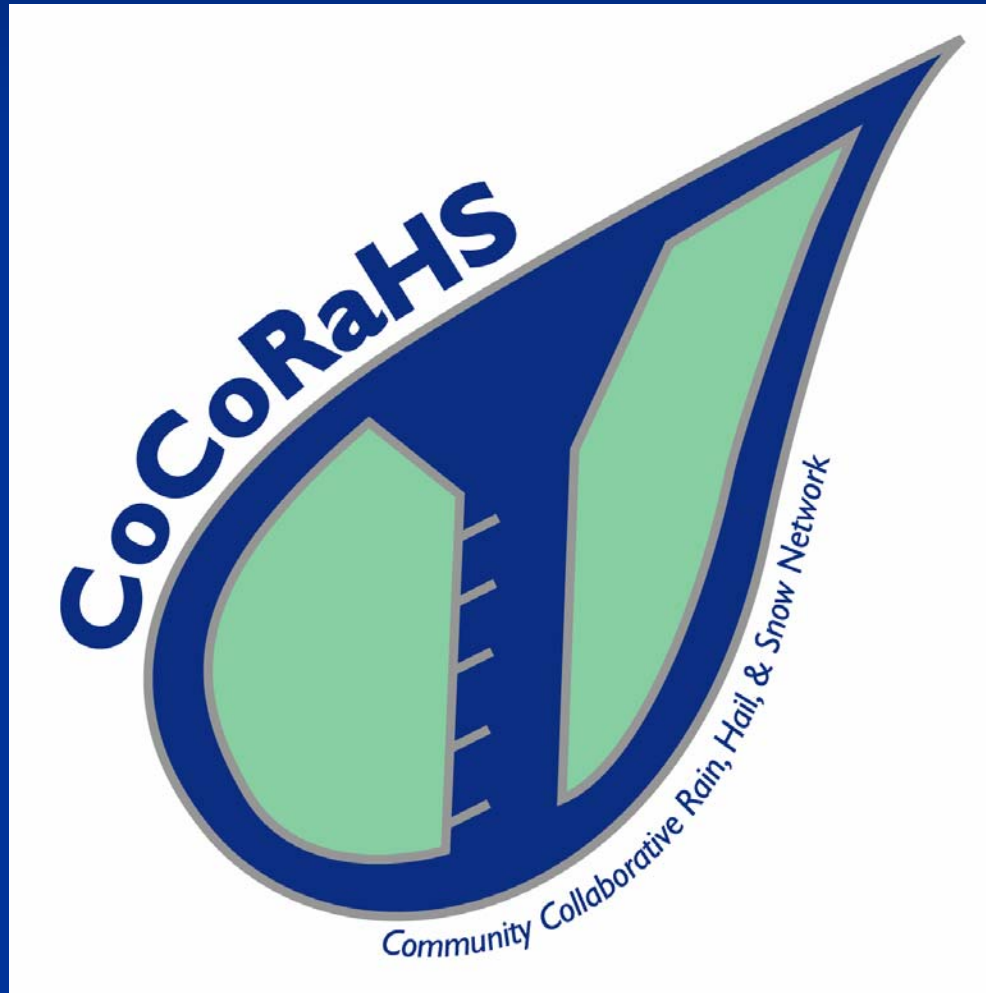


## Fort Collins Annual Precipitation



# What is CoCoRaHS and Where does that fit?

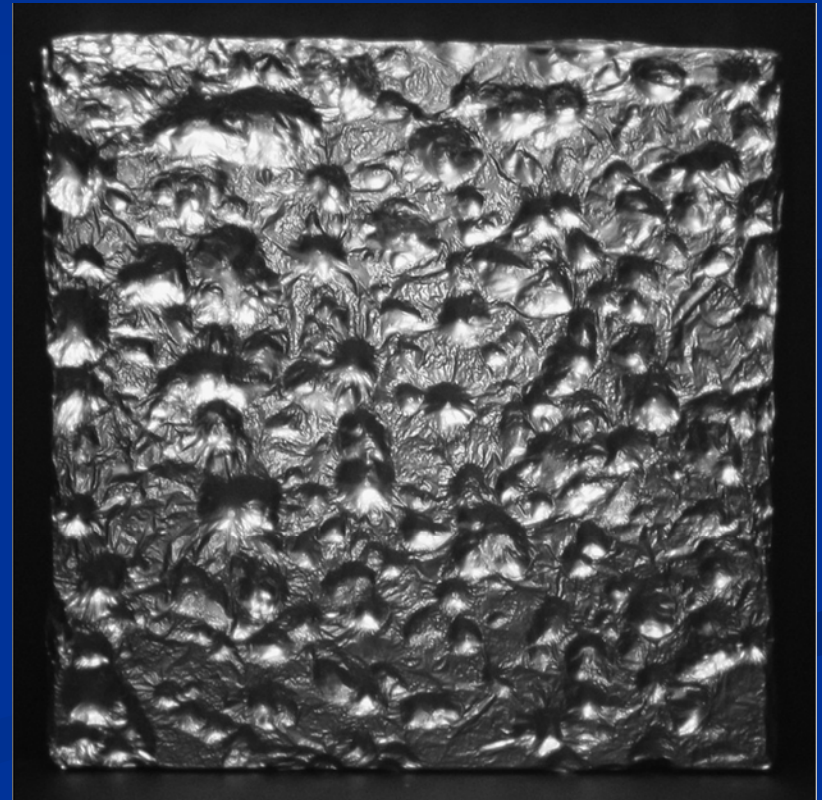
<http://www.cocorahs.org>



# CoCoRaHS (Community Collaborative Rain, Hail and Snow network)



Photo by Henry Reges

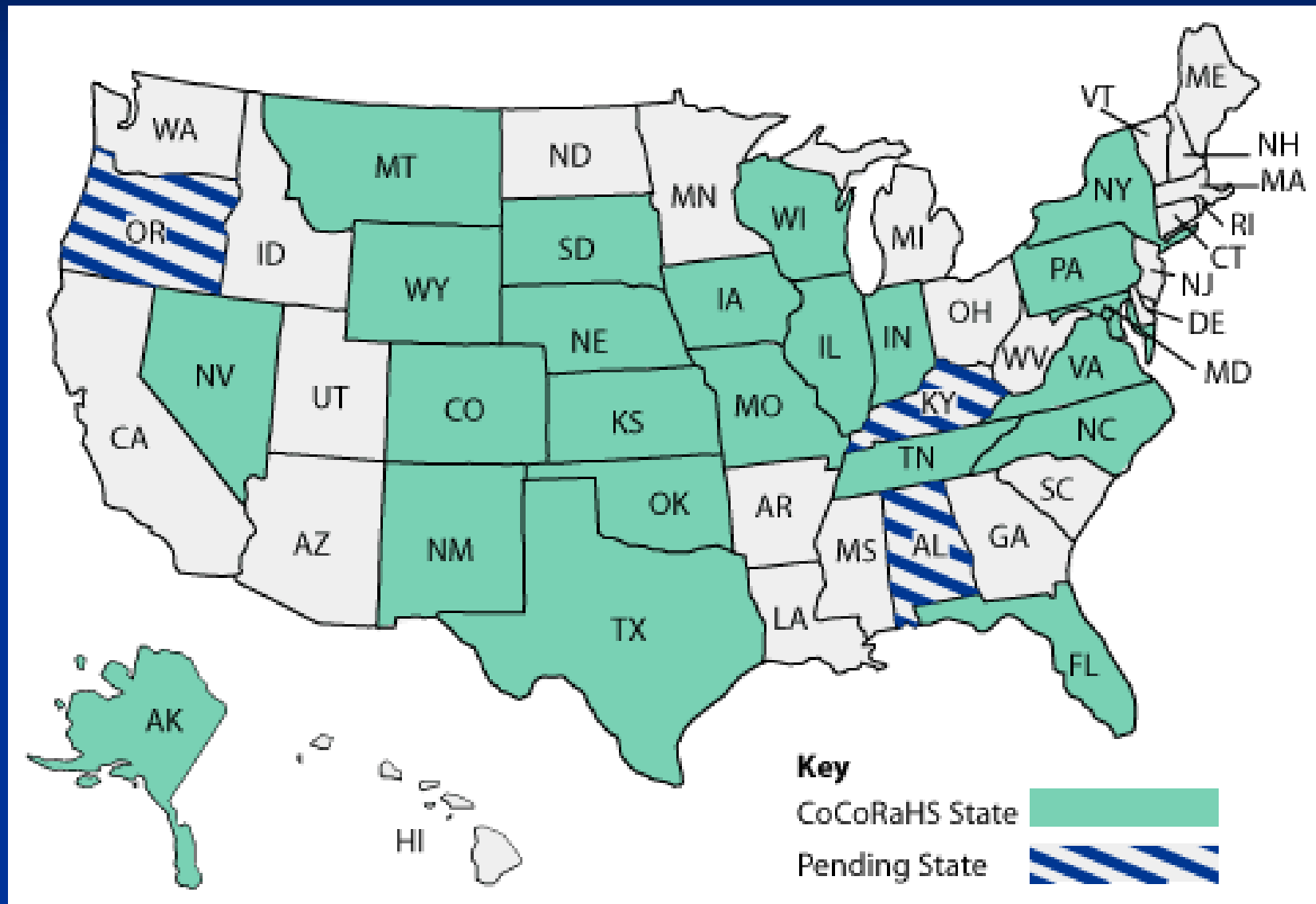




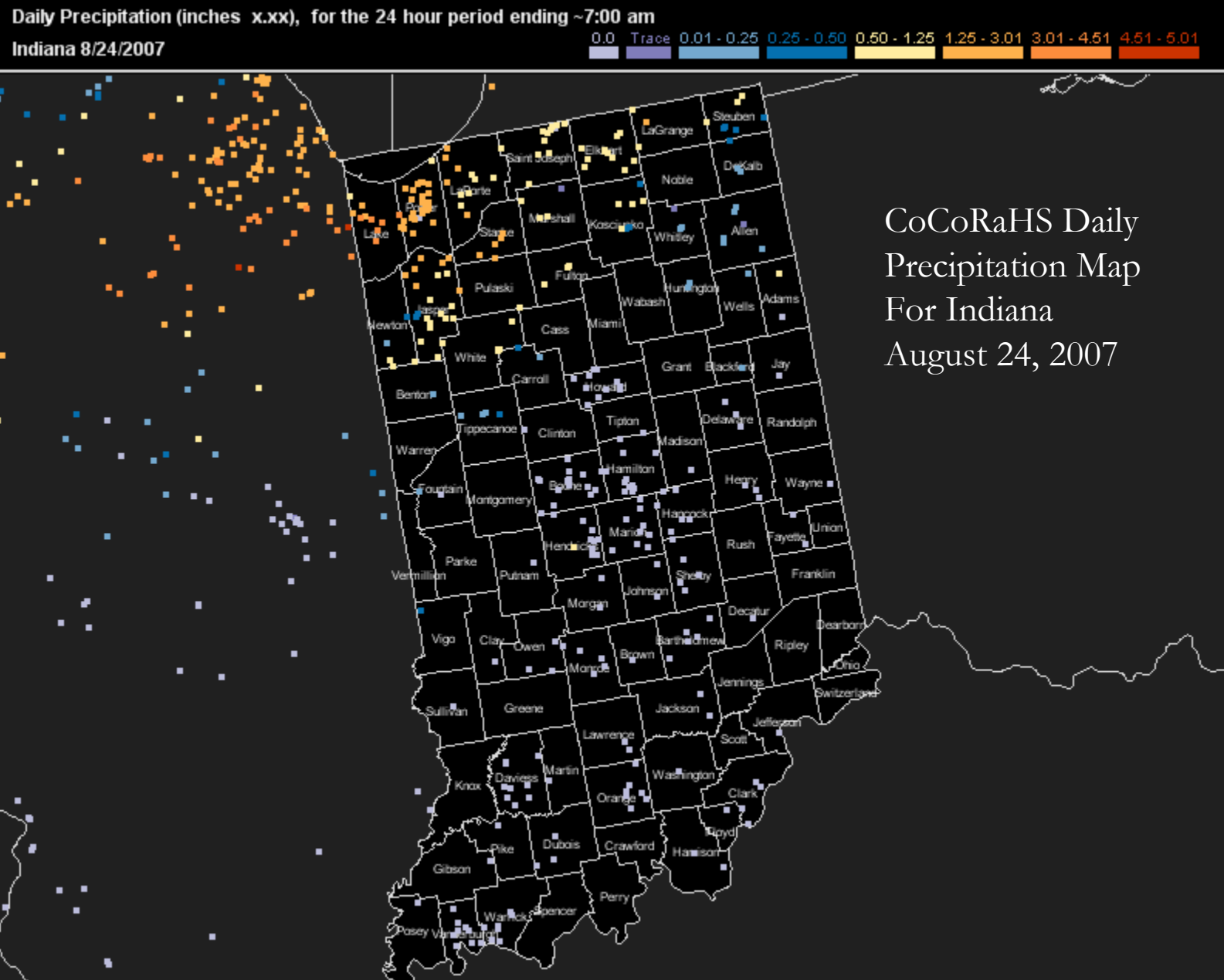
# Main features of CoCoRaHS

- Local leadership, web-based, low cost, simple measurements, high participation, frequent and personal feedback
- Local precipitation monitoring is the lowest common denominator of earth science research and education

# CoCoRaHS today



# Should NWS participate?

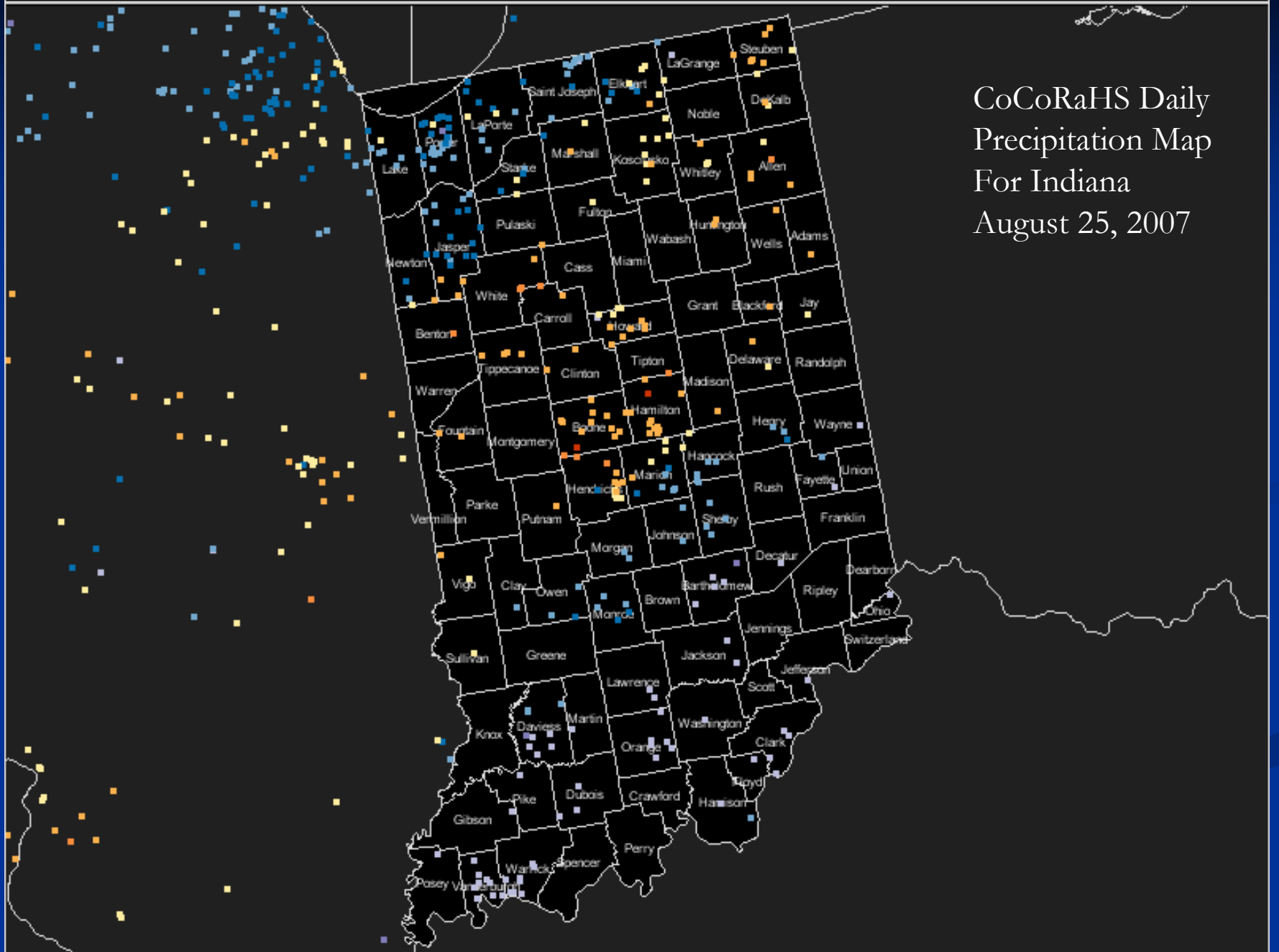




Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

Indiana 8/25/2007

0.0 Trace 0.01 - 0.12 0.12 - 0.23 0.23 - 0.58 0.58 - 1.40 1.40 - 2.10 2.10 - 2.33



CoCoRaHS Daily  
Precipitation Map  
For Indiana  
August 25, 2007

# That is entirely up to you –

- CoCoRaHS should be voluntary, not mandatory but NWS participation really helps!
- CoCoRaHS must **NOT** compete with or undermine the Cooperative Network but rather enhance and support it

# Suggestions!

- Get to know your State Climatologist
- Get out of your office and go visit
- Team up for at least one outreach effort each year
- Show your SC what new climate data and services your office is working on



# Suggestions cont'd

- Find out what resources they have to offer
- Invite your SC to give a climate briefing to your office staff every few years
- Consider offering a combined weather and climate class for selected constituents.  
Become a climate services team
- Do CoCoRaHS together

The End!

