



Winter officially starts Dec 21st at 11 am MDT

For the official time, sunrise/sunset, moon phases, etc, visit the US Naval Observatory website at:
<http://www.usno.navy.mil/USNO>

Under the Big Sky E-Letter December 15, 2009

Hoar Frost and Ice Crystals: We had a beautiful hoar frost event in Glasgow on Friday the 4th of December. In fact, there were many questions about whether there was any snow, or if it was just the light breeze blowing the hoar frost around. A detailed explanation of hoar frost (and other winter phenomena) is found here:

<http://www.its.caltech.edu/~atomic/snowcrystals/frost/frost.htm>

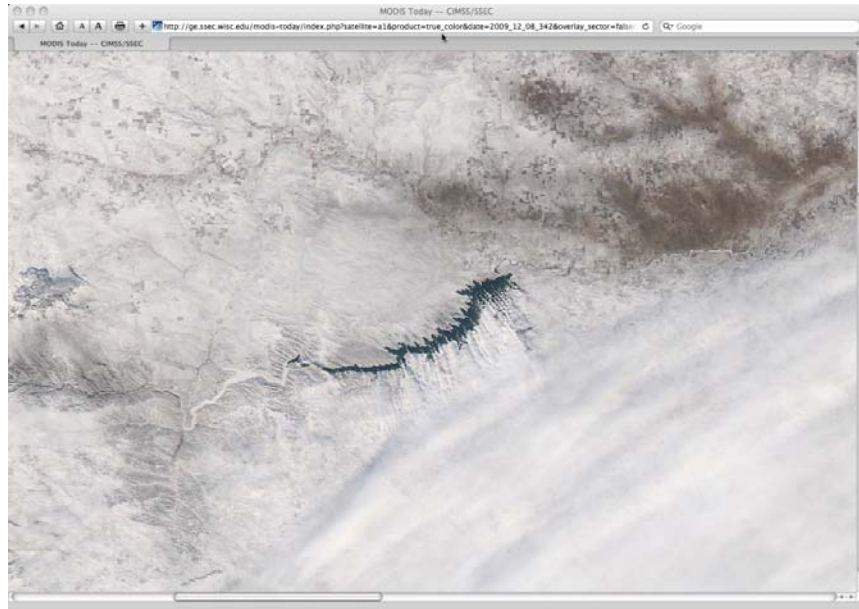
Skywarn Recognition Day 2009: The Valley Amateur Radio Club had another great year making contact with people across the United States during this year's Skywarn Recognition Day event. They were able to speak to 271 people in 43 states, including Alaska and Hawaii, two states they hadn't ever gotten to before during this event. The person they spoke to in Hawaii was driving in his car near Pearl Harbor, a special treat for these folks, some who are veterans, being so close to the Anniversary of Pearl Harbor. In all they also contacted 33 other NWS offices.



Sam Moore, K7SAM, working the airwaves during the 2009 SRD event

Cloud Streets off of Fort Peck Lake: A friend at the University of Wisconsin recently sent me the image below of Fort Peck Lake. If you go to the web link, you'll see an animation that better shows what is clouds, vs. what is snow/frost. He's got a write up on their blog about it, showing Lake Sakakawea and Lake Oahe with the same effect occurring. And, if you look closely, you can see where the ice starts on the Missouri River downstream of the dam. Go to:

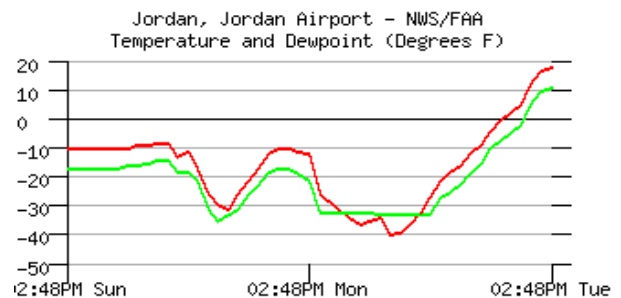
<http://cimss.ssec.wisc.edu/goes/blog/archives/4079>



This above image is best viewed at the website, as they alternate the color of the clouds.

http://cimss.ssec.wisc.edu/goes/blog/wp-content/uploads/2009/12/091208_modis_mt_anim.gif

Amazing Temperature change: At 11 pm Monday night, December 14th, Jordan, MT was -41 degrees. Just 16 hours later at 3 pm on Dec 15th, they were 23 degrees, a rise of 64 degrees!!

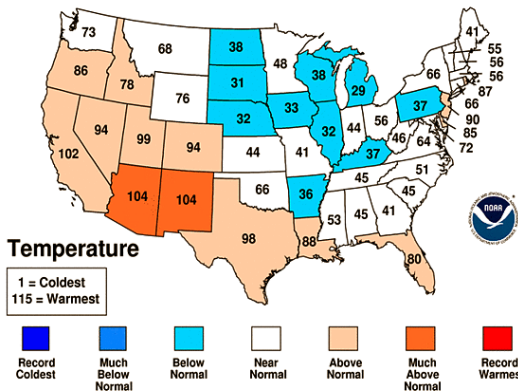


2009 Global Temperatures above Average so far: That may come as a surprise to use in northeast Montana, where we've only had two months above normal this year. Below are the statewide rankings for precipitation and temperature, as well as a graphic showing the precipitation trends for the United States from 1895 to present. To read more regional highlights within the US, go to:

http://www.noanews.noaa.gov/stories2009/20091208_globalstats.html

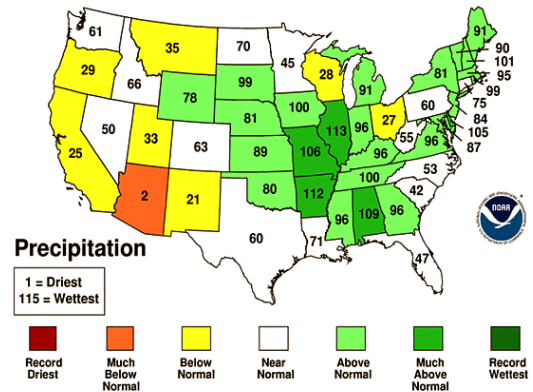
January-November 2009 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



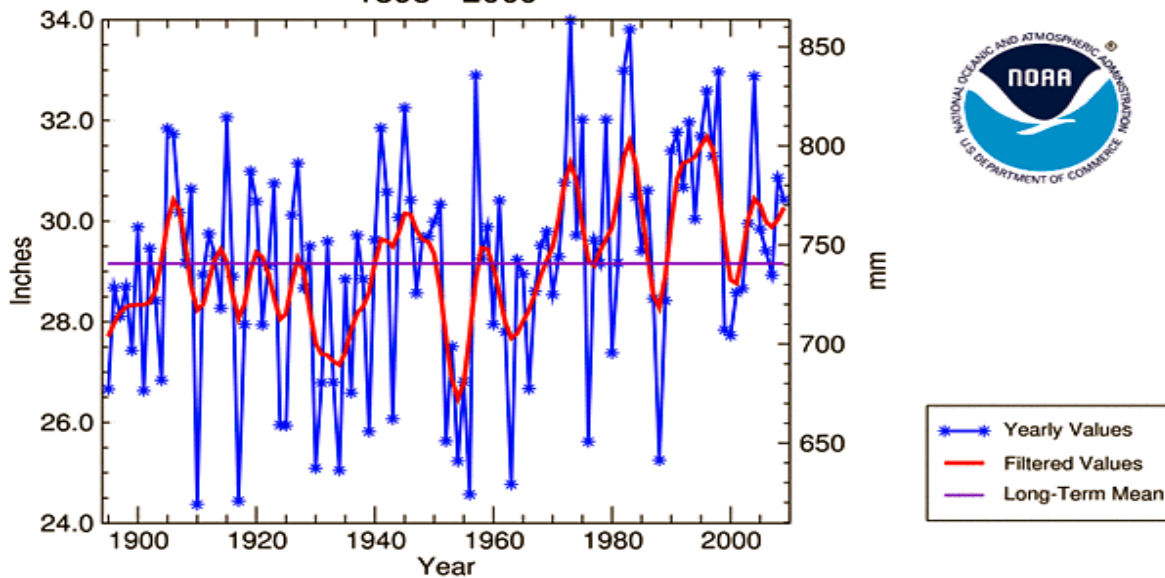
January-November 2009 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



National (Contiguous U.S.) Precipitation

1895 - 2009



National Climatic Data Center / NESDIS / NOAA

1" hail becomes official: This past summer, the many NWS offices (including all the MT offices) did a test to see what impacts there would be by raising the hail size warning criteria from $\frac{3}{4}$ " to 1" in hopes of reducing the number of warnings to the public. The feedback was favorable from the public and the media, and on January 5th, the official hail size warning criteria will be one inch nationwide. The wind criteria for us to issue a warning is at 50 kts or 58 mph.

<http://www.weather.gov/oneinchhail/>

For Fun: How many of the National Weather Service warnings can you name? This fun online quiz tested my brain for 8 minutes. I got 29 out of the 44. Can you beat the expert?

http://www.sporcle.com/games/nws_warnings.php

Weather and Climate in the News/NOAA News:

United Nations Climate Change Conference: There's been a lot in the news lately about this conference held in Copenhagen, Denmark. If you are interested in looking at some of the presentations given by US scientists (including Dr. Sandy McDonald, who graduated from Glendive HS), go to: <http://www.noaa.gov/cop15/>

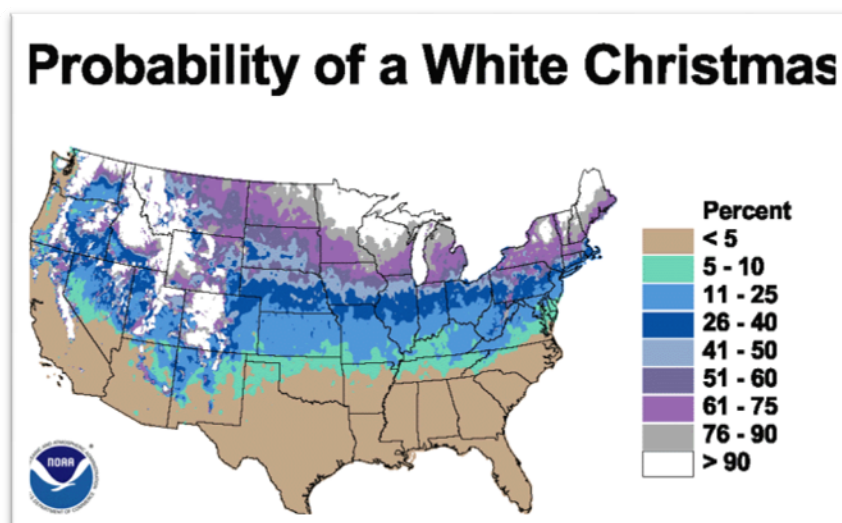
Director of the National Climate Data Center Answers Questions on Climate Science: Dr. Tom Karl recently did a live online chat with readers of the Washington Post. A full transcript of that interview is available at:

http://www.noaaneews.noaa.gov/stories2009/20091214_climatequestions.html

World Class Ice Climber Dies in MT Avalanche: 54 year old Guy Lacelle died in an avalanche in Gallatin County last week. http://www.msnbc.msn.com/id/34374674/ns/us_news-life/

Wyoming towns overwhelmed with Antelope: Apparently the colder weather is causing the antelope that roam the range to start roaming in town for food. Cheyenne, WY has received 45 inches of snow this year, 28 inches more than normal, and with cold weather, its causing the animals to find other food sources. http://www.usatoday.com/weather/environment/2009-12-11-antelope-wyo_N.htm

Probability of a White Christmas: Well, given that we have a light layer of snow on the ground, and no major warm up in the near future, I'll say the probability is actually 100%, but based off of our climate normal's, the graphic below shows the probability of a white Christmas across the US.



Humor for the week: Redneck Christmas Decorations



**Merry Christmas, Happy Holidays and a Safe New
Year to Everyone!**