



VOLUME  
**VII**  
ISSUE 1, FALL 2014

# Sage Winds

NATIONAL WEATHER SERVICE BOISE

## WINTER Spotter Checklist

### When should you call us?

**SNOW:** 1" per hour or greater  
OR storm total 4"+ OR snow  
causing road closures.

**REDUCED VISIBILITY:** Less  
than ¼ mile for any reason.

**WIND:** Greater than 40 mph.

**FREEZING RAIN:** Any amount.

**FLOODING:** Any water where  
is shouldn't be, or overflowing  
river.

ANY WEATHER RELATED  
DAMAGE, DEATH, OR INJURY

### How to contact us:

1-800-882-1428

 @NWSBoise

 facebook.com/NWSBoise

boise.weather@noaa.gov

## Season in Review

Joel Tannenholz

The forecast for the summer and fall of 2014 should have been "expect the unexpected." Although most of the period from June into November was typical, even benign, both August and November brought weather which was beyond unusual.

During August a persistent upper air pattern of low pressure to our west, and high pressure over the Rockies, allowed a conveyor belt of tropical air to occasionally drench south central Idaho.

Precipitation exceeded the average by 200 percent across much of Idaho south of the Salmon River. Temperatures were slightly below average in that area.

The monsoon missed most of southeast Oregon. A few spots reported less than 25 percent of average rainfall, with temperatures above average by as much as 4 to 6 degrees.

The Magic Valley was ground zero for most of the monsoon rains. Throughout the valley this was the wettest August since 1968. The Sun Valley Regional Airport measured 5.57 inches. Records there only go back as far as 1998.

At Jerome, where the database goes all the way back to 1915, 3.65 inches fell, compared to 3.39 inches in 1968. A mere 1.18 inches in 1979 is now in third place.

But it didn't rain every day. The heaviest rain events accompanied organized disturbances embedded in the southerly flow. Twin Falls measured 3.7 inches on the 5th and 6th, with an additional 1.18 inches on the 21st and 22nd, and lesser amounts on 7 other days. Two-thirds of August's days were dry, which is not unusual.

November 1st was the Treasure Valley's turn for heavy rain. A deep upper level trough over the coast reached as far south as northern Baja – far enough south to tap into tropical moisture and carry it north over the Treasure Valley and the central Idaho mountains. By the time the rain ended that night, 1.21 inches had fallen at the Boise airport. But that was only the fourth wettest November storm total on record.

Half that much was measured at Ontario and Mountain Home; there was less than a tenth of an inch at Burns and Baker and only around a tenth of an inch in the Magic Valley.

Relatively mild weather continued through the first week in November, with temperatures warming to close to 70 on the 6th. At the time, it appeared that the remainder of the fall season might be relatively mild...but that was not to be.

On the 9th and 10th the first shipment of Arctic air slipped south out of Alberta following its usual route through western Montana. The front stalled on the 11th, held at bay by the central Idaho mountains and northwest winds behind a Pacific cold front.

But overnight the edge of the Arctic air filtered through the mountain valleys into southwest Idaho and southeast Oregon. At the same time, mild moist Pacific air was heading for the coast.

Season in Review **P.1**

Winter Outlook **P.2**

Conditions Leading up to 2014 Fire Season **P.3**

What is an Incident Meteorologist? **P.4**

Recognition Corner **P.5**



On Thursday the 13th the Pacific air began to lift over the denser Arctic air, and by Thursday night snow was falling steadily in a band north of the Arctic boundary. Snow continued through much of Friday the 14th. Aside from the mountains, the Treasure Valley got the most, exceeding 8 inches on the ground at some locations. At Boise, the total snowfall of 7.6 inches set a new record for a November storm.

As skies cleared, the fresh deep snow cover and very little wind, provided ideal conditions for radiational cooling, allowing temperatures to plummet to around zero throughout much of the Treasure Valley by Saturday morning the 15th. The average low at Boise on that date is 32 – about 30 degrees below normal!

By Sunday morning the 16th a second push of Arctic air had entered the intermountain region by way of British Columbia. It would eventually push as far south as southern California and Arizona. This rare pattern is reminiscent of December 1990, when a record breaking freeze gripped the western U. S. Fortunately this year it came earlier, so the source region wasn't nearly as cold.

At Boise new cold records were set for lows on the 16th, 17th, and 18th and highs on the 17th and 18th. Temperatures were between 25 and 30 degrees below average.

Although unusual, this was not the earliest onset of winter in our area. Way back in 1935 a November storm brought nearly as much snow to Boise...7.4 inches on the 1st and 2nd. The temperature fell to 8 degrees on the 4th and didn't rise above freezing until the 6th.

So what about the rest of this winter? For December through February, the latest outlook from the Climate Prediction Center gives our area a 40 to 50 percent chance of above average temperatures. Areas to the north (including Baker City and McCall) have a 30-40 percent chance of being drier than average, while areas to the south (including Boise and Twin Falls) have equal chances for above or below average precipitation.

# Winter Outlook and El Niño

Troy Lindquist

The National Weather Service's winter season outlook for December 2014 through February 2015 favors above normal temperatures (Fig. 1a) across Idaho and eastern Oregon. Meanwhile, below normal precipitation is favored across northern Idaho, with equal chances of above, near, or below normal precipitation (Fig. 2b) for southern Idaho and eastern Oregon. In other words, there are no clear, strong, or reliable climate indicators that favor one category over the others for precipitation across southern Idaho and eastern Oregon.

The NWS Climate Prediction Center's (CPC) outlook projects the likelihood that the average temperature and total precipitation for the three-month period will fall into the above, near, or below normal categories. Climatologically speaking, each category has a one out of three chance of occurrence. So forecasters look for climate indicators that suggest a deviation from the norm and adjust the probabilities accordingly.

There are a number of tools and climate indicators the NWS CPC's forecasters use to create temperature and precipitation outlooks. El Niño Southern Oscillation (ENSO) is one of the most studied and understood indicators. The phase of ENSO is either El Niño, La Niña, or neither (neutral). El Niño is known as the warm phase, when sea surface temperatures across the eastern tropical Pacific are warmer than normal. Over the past several months sea surface temperatures (Fig. 2) indicate that El Niño may be developing, and the CPC indicates there is about a 60 percent chance that a weak El Niño will develop this winter and last through the spring.

While no two El Niño events are alike, the typical winter weather pattern (Fig 3) brings the polar jet stream farther north than usual, across Canada, while the Pacific jet stream remains in the southern U.S. As a result, Idaho and most of the Pacific Northwest can be warmer than normal during an El Niño winter, with a tendency for less snow than usual. Confidence in these patterns is higher with stronger El Niño events.

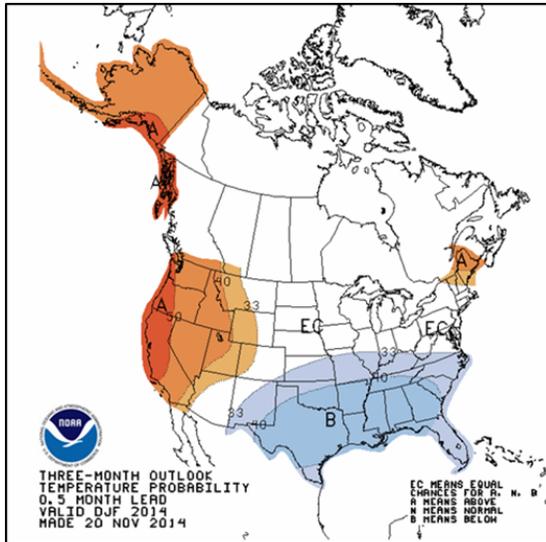


Figure 1a. Three-month temperature outlook for winter 2014-2015, December-January-February.

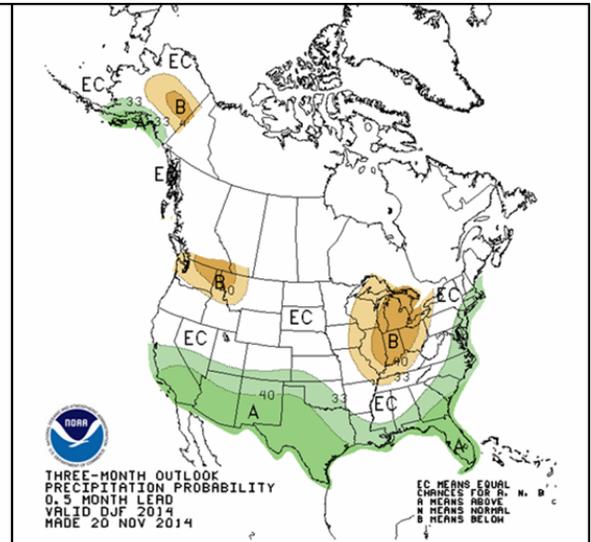


Figure 1b. Three-month precipitation outlook for winter 2014-2015, December-January-February.

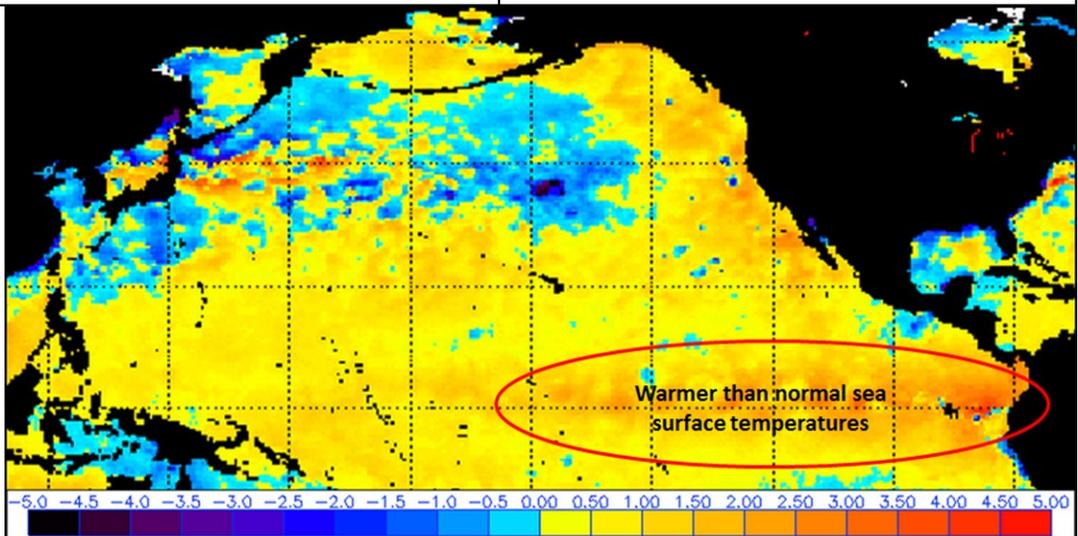


Figure 2. Sea Surface Temperature Anomaly – November 20, 2014.

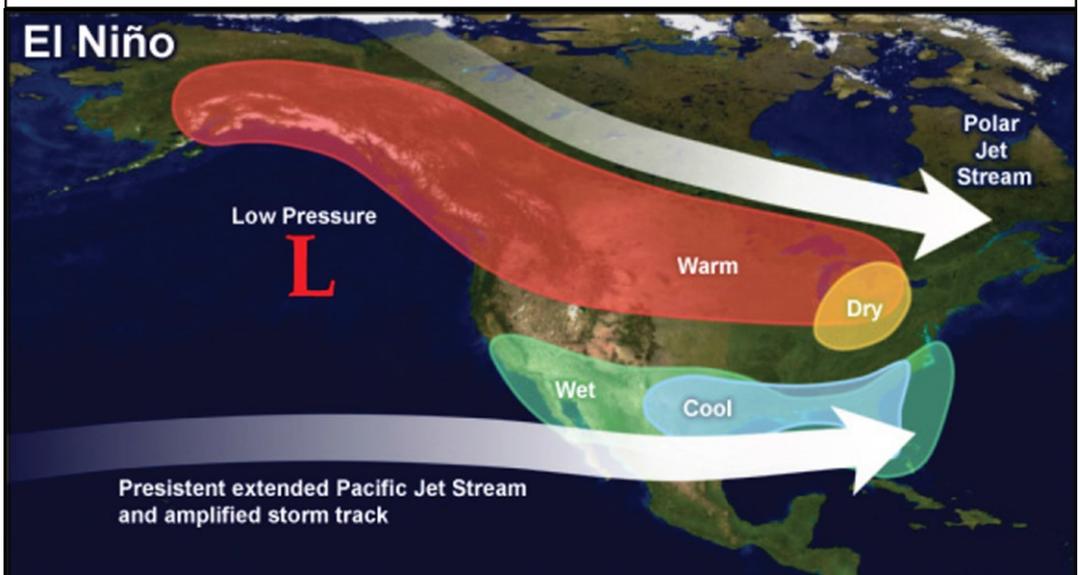


Figure 3. Typical El Niño jet stream patterns across the U.S. include a stronger than usual storm track across the southern U.S., leaving the northern U.S. removed from the average storm track

# Conditions Leading up to the 2014 Fire Season

Chuck Redman

The winter of 2013-2014 can be summarized by one word: variable. High pressure dominated the weather (Fig 1) during the months of November through January as the cold upper trough that climatologically is located over Hudson Bay in east central Canada sagged southward. As the winter wore on, the ridge across the west weakened as cold fronts pushed across the Idaho Panhandle. Finally by the February and March period, the storm track shifted south over central Idaho and brought precipitation amounts closer to normal, with above normal amounts across the Payette National Forest (Fig 2). Eastern Oregon remained dry throughout the winter as the storm track bypassed that region. Even during the peak of the winter the snowpack was only about 50% of normal (Fig 3). Not only did most locations in eastern Oregon have a low snowpack, but what did fall also melted off almost a month earlier than normal. Whereas, across Idaho's West Central Mountains, the snow pack melted off by its seasonal norm.

As the summer progressed, the fire season was moderated by several pulses of monsoonal moisture making their way into Idaho – dropping heavy rains across the region. Mudslides and flooding across the Boise National Forest were common. In the case of the Magic Valley, several inches of rain fell in August, shutting down the threat of large fires in that region for the remainder of the summer. As it had before, the heavy precipitation bypassed Eastern Oregon, making it our forecast area's (SE OR and SW ID) summer fire activity hot spot.

NCEP/NCAR Reanalysis  
500mb Geopotential Height (m) Composita Mean

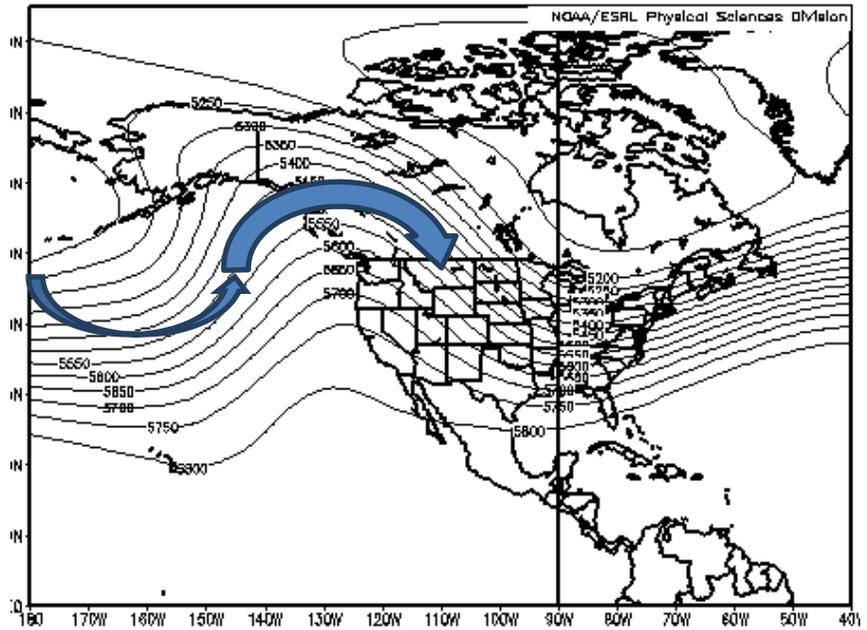


Figure 1. January 2014 Jetstream position.

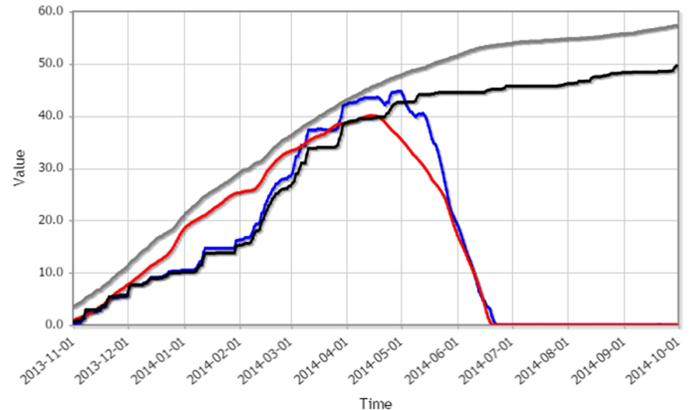


Figure 2. Deadwood Summit Idaho Snotel – Amount of water in the snow

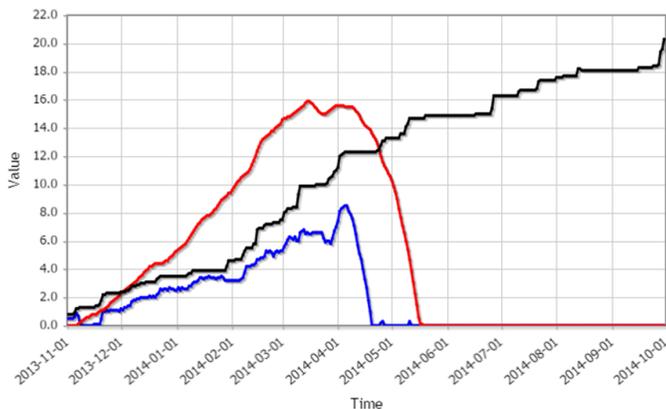


Figure 3. Silvies Snotel (Steens Mountain, OR) – Amount of water in the snow

- Snow Water Equivalent (in)
- Median Snow Water Equivalent(1981-2010) (in)
- Precipitation Accumulation(in)
- Average Precipitation Accumulation

## National Weather Service Boise Staff

### Meteorologist In Charge

Robert Diaz

### Science Operations Officer

Tim Barker

### Warning Coordination Meteorologist

Jay Breidenbach

### Service Hydrologist

Troy Lindquist

### Information Technology Officer

Jason Baker

### Electronic Systems Analyst

Travis Mayer

### Electronics Technicians

George Buckwold  
Eric Johnson

### Observing Program Leader

David Decker

### Senior Meteorologists

Les Colin  
Dave Groenert  
Valerie Mills  
Stephen Parker  
Bill Wojcik

### Meteorologists

Jeanne Allen  
Korri Anderson  
Elizabeth Padian  
Josh Smith  
Joel Tannenholz

### Fire Weather Meteorologists

Chuck Redman  
Megan Thimmesch

### Hydrometeorological Technician

WasyI Hewko

### Meteorologist Interns

Aviva Braun  
Vacant

## What is an Incident Meteorologist?

Megan Thimmesch

### Incident Meteorologist (IMET)

A meteorologist who provides on-site, tactical weather support to incidents of regional or national significance. The IMET Mission is to protect life and property of the public, crews, and personnel involved in an incident.

### What We Do

The IMET program is just one part of the National Weather Service's support to wildland firefighting efforts. IMETs have been serving wildfires on-site since 1928, when the first National Weather Service Meteorologist, L.G. Gray out of San Francisco, was dispatched to a 26,000 acre wildfire in the Santa Barbara National Forest.

Initially, IMETs supported wildfires only, but more recent efforts have been expanded to include all-hazards incidents such as HAZMAT releases, national disaster recoveries, and oil spills. Of approximately 2600 operational meteorologists working at the National Weather Service, only eighty-two are certified as IMETs. NWS-Boise employs two of the eighty-two IMETs.

IMETs are ordered by an Incident Management Team (IMT) when a wildfire (or other incident) reaches a certain level of complexity, when weather forecasts are necessary for strategic planning, and weather information is deemed critical to crew safety.

### A Day in the Life

**0445** – You're sleeping in your tent and the alarm goes off. YAWWWWN!

**0500** – You arrive at the IMET trailer (or yurt) which you share with the Fire Behavior Analyst (FBAN) and a few others. Time to check the most up-to-date weather information on your IMET laptop! This includes radar imagery, satellite imagery, weather models, and any forecast updates made by the local NWS forecast office.

**0530** – The morning operational briefing. This is your chance to update supervisory firefighters on any critical changes to the forecast.

**0600** – Time to give a weather briefing as one part of the morning crew briefing. A standard morning briefing has approximately 100 attendees, including firefighting crews, IMT members, and local fire-agency representatives.

**0700** – Breakfast in camp.

**0900** – Operational Outlook. This is an informal discussion focusing on strategy and possible impacts to operations. Weather is one major component of that equation.

**0930** – Morning weather analysis and coordination. Get started on that forecast!

**1100** – Grab a shower if you can!

**1215** – Conference call with meteorologists at NWS Weather Forecast Offices (WFOs) and the regional Geographic Area Coordination Center (GACC).

**1245** – Afternoon weather analysis. Better get that forecast done! (Multi-tasked with lunch in the trailer.)

**1500** – Turn forecast over to the Fire Behavior Analyst (FBAN) as input into his or her fire behavior forecast.

**1700** – Possible weather briefing to any crews working the night shift. (Similar to the morning briefing, only significantly smaller.)

**1800** – Evening planning meeting. This is where you brief decision-makers on the updated weather forecast for the next day's operational period and several days beyond.

**1830** – Dinner in camp.

**1900** – Weather monitoring and analysis. Retrieve observations and answer questions from the field. Log the day's activity.

**2130** – Turn in for the night. The busier the evening's weather the later this may be!



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## WINTER is HERE!

*Friendly reminders on keeping you and your family safe*

### Safe Driving Tips

- Accelerate and decelerate slowly.
- Allow more distance and time to slow down or stop.
- Don't power up hills.
- Keep your vehicle well maintained.
- Prepare a winter emergency kit that includes blankets, food/water, flares, a bag of sand or cat litter (for traction), flashlight, batteries, and a first-aid kit.
- For long-distance travel, inform someone of your intended route.

### Keeping Pets Safe

- If possible, keep pets indoors.
- Routinely check outdoor water dishes to make sure they don't freeze.
- Keep food dishes well stocked; it takes lots of energy to stay warm.
- Keep antifreeze where pets cannot access it.
- Protect paws from salt and other anti-icing chemicals, or wipe paws with damp towel to remove these irritating compounds.

### Questions? Comments? Suggestions?

Email:

[boi.spotter@noaa.gov](mailto:boi.spotter@noaa.gov)

## Recognition Corner

Aviva Braun

**Jackie Frey** is the Twin Falls County Department of Emergency Services Coordinator. She plays a large role in insuring the continued safety of Twin Falls County residents. This past August, as record rains were dumped on Twin Falls, crops were damaged, and infrastructure was compromised, Jackie did a stellar job on the ground and updating us here at the National Weather Service (NWS).

**NWS:** Could you walk us through how your day went on August 5th, when your county went from drought conditions to a 100 year rain event?

**Jackie:** My position in the county was to immediately recognize, through weather alerts, that the rain was going to affect our city/county in a critical way. I immediately contacted the City Manager and the County Commissioner's, as well as the Bureau of Homeland Security, to inform them of the situation. I was also in close contact with the first responding agencies to give them an update and to encourage them to watch and monitor the weather reports; I did the same with the American Red Cross, the Salvation Army and the Southern Baptist Church to address any shelter and feeding issues. The day was spent working with our media, the NWS, and first responders to maintain life safety measures and a steady flow of information to all.

**NWS:** What impacts did the weather have on Twin Falls County this past August?

**Jackie:** Due to the extreme weather, we decided to review and update the County Emergency Operations Plan and also address Position Specific roles in the Emergency Operations Center. The City of Twin Falls also began looking at their support staff, the need for an Internal Contingency Plan or Emergency Operations Plan, and the use of the Regional Southern Idaho Regional Communications (SIRCOMM) Citizen Notification System (C.A.N.) for their citizens.

**NWS:** How did the flow of information seem to work between our office and your own?

**Jackie:** Excellently – the support was incredible! The time the NWS spent updating and giving me, the news media, and SIRCOMM pertinent weather information was critical and well done.

**NWS:** What sort of impact did our level of communication have on Twin Falls County?

**Jackie:** It gave us the ability to access timely and up-to-date weather information for the first responders and citizens, thus ensuring life safety.

**NWS:** How did the NWS spotter network play a role in the extreme August weather?

**Jackie:** The spotters did an amazing job of contacting the NWS to give on the ground information, which I know your office found very useful in issuing warnings and following the severity of the event.

**NWS:** How is the winter weather affecting the county now?

**Jackie:** We are taking the opportunity to address Emergency Preparedness measures in our citizens' homes and cars, and whether people have assembled 72 hour emergency kits. We are also addressing the effectiveness of the Emergency Alert System, and how we can best send out weather and road reports to our citizens.

**NWS:** Well, that's all I have! Thank you Jackie for taking the time to speak with us today!

**Jackie:** My pleasure.



Jackie Frey

## WATCH/WARNING/ADVISORY What is the Difference?

**WATCH** – Conditions are favorable for a severe weather event in the near future.

**WARNING** – Weather is occurring or imminent and is threatening life or property

**ADVISORY** – Weather is occurring or imminent that will cause a significant inconvenience, and if caution is not taken, may be threatening to life or property.