



The Snake Plain Weathervane



Spring 2007

SkyWarn Spotter News
National Weather Service
Pocatello/Idaho Falls, Idaho

Volume 2 issue 1

What to expect in this edition:

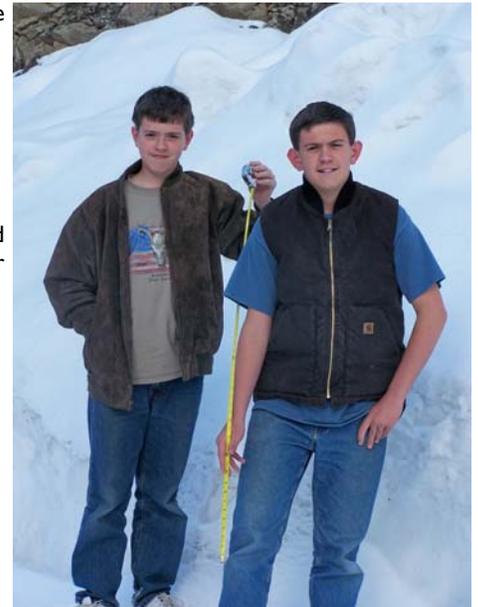
- Stanley School
- Weather Warnings For Your Neighborhood
- Your Weather on the Web
- El Nino Update
- Hazards to Report
- Calling in Your Reports
- Flood Products on the Web
- Flood Potential
- The MIC Corner
- Spotter Quiz
- Staff Highlight
- Staff list

Spotter Highlight for Spring 2007

Stanley School is a two-room schoolhouse educating students from kindergarten through eighth grade. Located in the pristine Sawtooth Valley the students get occasional visitors but none as exciting as Mike Cantin with the Pocatello National Weather Service office. Mike visited in early December with a fantastic hands on presentation, information about the Pocatello work location and the weather information they gather. When Mike asked the students if they would like to gather information for the SnowNet program they were anxious to get started. Mike gave us a snowboard to set out in the yard for the snow accumulation and a measuring stick. Different students would help collect the measurements from week to week. On weekends, we have long ones since we have a four-day school week, students who lived in Stanley would be responsible for the snow measurements. The measurements were entered every Monday. Being involved with the SnowNet was a fun experience for the students. They were watching weather reports. They would go on-line to the National Weather Service to see what was happening in the coming week. They realize that large weather systems passing through our area would arrive generally from the west and head toward the Midwest. This has been a wonderful experience for our little school and we look forward to working with the National Weather Service next year.

— Dorothy Moon (Teacher)

Thanks for all your hard work, and for your great reports!!



Polygon Warnings... by Rick Winther



Fall colors along the Big Wood River in Ketchum 2006

For decades, The National Weather Service has issued warnings based on county coverage. For example, if a severe thunderstorm was going to move across Bingham County, the entire county was placed in a severe thunderstorm warning. Recently, technology has allowed the National Weather Service to change this method by issuing warnings for areas smaller than a county or areas covering portions of several counties. The storm based warning is called a polygon and can be adjusted by latitude and longitude points. By using polygon warnings, private and government agencies can ingest the information using GIS applications.

The National Weather Service in Pocatello issues three different types of short term warnings; Tornado, Severe Thunderstorm and Flash Flood warnings. When the National Weather Service issues these warnings, severe weather can be expected in the next several hours. Storm based warnings can be shaped to represent the best forecast path of the storm.

Continued on page 9...

The MIC Corner By Rick Dittmann

The afternoon of October 4th, 2006 brought an unprecedented tornado outbreak to Idaho. Six tornadoes were reported and they all occurred in the Pocatello National Weather Service County Warning Area. The tornadoes were generated by two separate thunderstorms. The first developed over northeast Nevada and moved into southern Idaho. By mid-Afternoon our office received phone calls from our emergency management partners and from trained storm spotters telling us about a tornado near Shoshone. Based on these reports we upgraded our severe thunderstorm warning to a tornado warning. The reports from these trained spotters helped us provide warning to people downstream of this storm – which went on to produce at least three more tornadoes.

About this time, another thunderstorm was forming over the desert just northwest of American Falls Reservoir. Because our forecasters were receiving live, ground truth from spotters on the Shoshone storm, we were able to make an informed decision on the developing storm to its east. We issued a tornado warning. The warning was issued before we saw rotation in the storm from our radar. To make a long story short, that storm did eventually show us the typical rotation and tornado signatures we look for from our radar. And in fact the storm did produce at least one tornado. So, we were able to provide lead time on a tornado near the Idaho Nuclear Lab site in the upper Snake Valley mainly because you, our trained spotters, called us to share what you saw. And for that and to you I say, thank you for relaying your spotter reports to the National Weather Service!



A tornado near Shoshone in Lincoln County. This was one of six tornadoes reported in Idaho on October 4th, 2006. Photo courtesy James Pate

“The best thing one can do when it’s raining is to let it rain.”

Henry Wadsworth Longfellow



Product Quick Reference Guide:

- Watch:** Severe weather is anticipated, however, it is not imminent. Planning should be taken to prepare for the event.
- Warning:** Hazardous weather is either occurring or imminent. Immediate action to protect life and property is needed.
- Advisory:** Weather that will cause inconvenience is expected, but with proper precautions will not be life threatening.
- Outlook:** A product that assesses the possibility of severe weather during the next 7 days.

For a list of Skywarn Weather Spotter Training Dates go to:

www.wrh.noaa.gov/pih/Spotter/spottersched.php

Or click on the link near the top of the page at:

www.weather.gov/pocatello

The Snake Plain Weathervane

Calling In Your Spotter Reports by Mike Cantin

In an effort to keep track of your terrific spotter reports we'd like to have you use your spotter number when you call in and make a report. Here's an example phone conversation illustrating how to make a spotter report...



Spotter: This is Custer County spotter #5, I'm located 14 miles southeast of Stanley.

Forecaster: What do you see?

Spotter: We've received an inch of rain in the last 20 minutes, and golf ball size hail is beginning to fall.

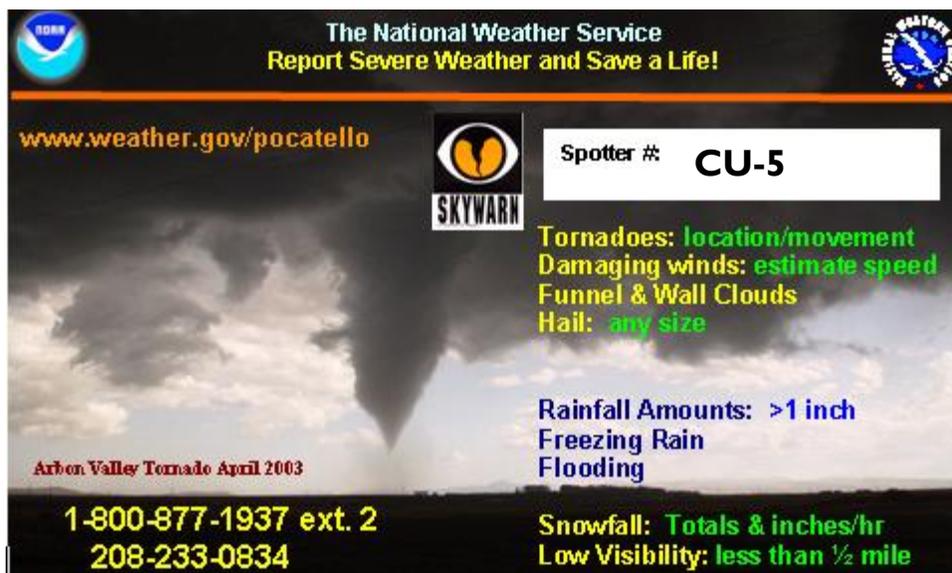
Forecaster: Thank you for the report, stay safe!

The basic information to pass along during your call is your spotter number, your location, the event you are watching unfold, how long the event has lasted, and the direction the severe weather is moving.

You'll be receiving a magnet with your spotter number emblazoned on the front through the mail. An example is pictured below...

"Weather means more when you have a garden. There's nothing like listening to a shower and thinking how it is soaking in around your green beans."

Marcelene Cox



For safety information about hail please visit www.weather.gov.

Thanks for all you do! If you have any questions about this reporting method please call Mike Cantin at 208-232-9306 or send him an email at michael.cantin@noaa.gov.



El Niño Quietly Retreating By Mike Huston

Weak El Niño conditions persisted through the winter of 2006-07 with little if any significant tropical impacts observed throughout the season. The latest forecast calls for cooler sea-surface temperatures in the equatorial-pacific with conditions expected to slip into a Neutral phase as early as April. So what were the climate impacts this winter? As noted in the fall newsletter, weak El Niño conditions typically produce slightly above normal precipitation in the mountains and mild temperatures region-wide during the latter stages of the winter season (January through March). Looking over the various climate monitoring sites available on the internet, one is left with a mixed impression. The official Climate Prediction Center (CPC) analysis for the last 90 days indicates that the average maximum daily temperature for December, January and February (DJF) ranged from 1 to 4°F above normal (Fig. 1) while precipitation ranged from near normal in the Snake River Valley to 150-175% of normal in the mountains (Fig. 2).

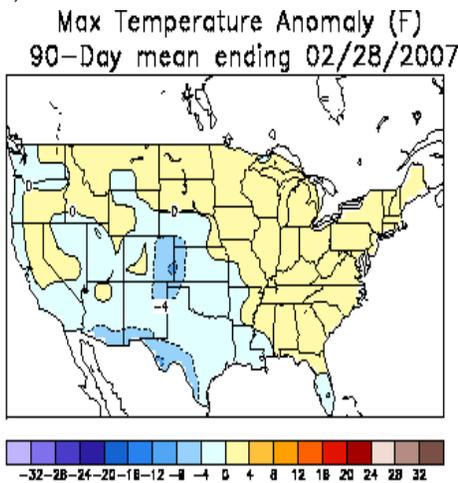


Figure 1. Max Temperature Anomaly for past 90-days.

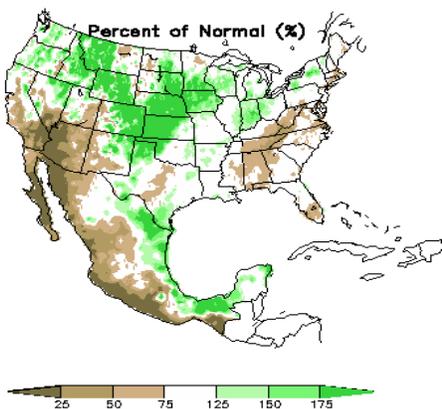


Figure 2. Percent of Normal Precipitation for past 90-days.

In contrast, high resolution spatial climate data sets (not pictured) generated by the PRISM Group, centered at Oregon State University (www.ocs.oregonstate.edu/prism/), indicate that precipitation generally averaged below normal for December and January and above normal in February. Data from the National Resource Conservation Service (NRCS, www.wcc.nrcs.usda.gov/gis/precip.html), indicate that precipitation accumulations through the water year (starting October 1st, 2006) were generally 80-90% of normal in the mountains of southeast Idaho through February which is supportive of the sub-par winter precipitation season analysis indicated by the PRISM data sets. What impact does all this have on the upcoming summer months? Sub-tropical impacts from the equatorial pacific are typically minimal during the summer months since the storm track generally lifts well north of the region. During the summer months, seasonal forecasts typically gravitate toward a dependence on antecedent soil moisture characteristics. With two historically wet months of spring left to complete this could play a role in the expectations for summer.

As of mid-March however, the CPC climate division forecast calls for above normal temperatures and below normal precipitation across southeast Idaho during the June, July and August season (<http://www.cpc.ncep.noaa.gov/products/predictions/90day/>). A new product from CPC which generates site specific seasonal outlooks can be found on our web page as well (http://www.weather.gov/climate/calendar_outlook.php?wfo=pih). This forecast is a by-product of the climate division forecast and may provide greater detail for select locations within



Henry's Fork Ice Jam in St. Anthony Jan 2007

"Climate is what we expect, weather is what we get."

Mark Twain

Spring/Summer Hazards to

Report:

- Tornado, funnel cloud, wall cloud** Location, time & direction of movement, duration.
- Hail** Pea size or larger.
- Rainfall** ½ inch or more over a short duration.
- Flooding** Any kind, including dam failure. Is water rising or falling?
- Wind damage** Wind speeds of 35 mph or greater, any damage.

Please call us on the spotter hotline, or at 208-232-0834, once it is safe to give your report. Thanks!!



The southern Lost River Range winter 2007

Eastern Idaho's Spring Flood Potential...You Make the Forecast...

By Sherrie Hebert

Will the rivers rise above flood stage this year as they did last year? This is your opportunity to make your own spring flooding forecast! What does it take to make such a forecast? Obviously, you will need some information to make your forecast, so let's begin with a winter review.

The snowpack was looking great early in the winter, with Eastern Idaho basin snowpack averaging 107% of normal, and the Oakley basin leading with 141%. Just as the calendar year changed, so did the snowpack. A strong high-pressure ridge settled in over the Western US, driving temperatures well below freezing for weeks. If the cold weather was not enough, the ridge was so strong that it would not allow any precipitation to move into the region until February. January left a meager 47% of normal precip on Eastern Idaho, most of which fell within the first five days of the month. A number of Eastern Idaho stations set or tied monthly low precipitation records, which are in the table below, while many were in the top five driest Januaries on record.

Station	Precip (in)	Tie/Beat	Yr.	Previous Record
Arco Airport	0.00	tie	1961	0.00
Malta Aviation	0.00	beat	1977	0.01
Oakley	T	beat	1924	0.05
Preston	0.29	tie	1966	0.29
Cutler Plant	0.20	beat	1985	0.27
Plymouth	0.18	beat	2003	0.29
Tremonton	0.13	beat	1985	0.46

February looked hopeful when near to slightly above normal precipitation fell, however, it was not enough to make up for January's loss. March entered like a lamb when snowpack again took a dive for much of the month, with much of the region receiving less than 20% of normal. However, March's lion came roaring through with some record-breaking one-day precip records near the end of the month.

Next in your flood forecast, you must look at soil moisture, a factor that can make or break a good flood season. Ideally, saturated soils result from a wet fall that then precedes an abundant winter. Once the snow begins to melt, the saturated soils create more surface runoff, which in turn helps in filling reservoirs. Eastern Idaho was breaking the soil moisture bank last fall when precip totals averaged 100% to 150% of normal, priming the soils from near to saturated.

Now it is necessary for you to evaluate the surface water statuses, which include reservoir and river levels. When a snowmelt season begins, the more water in the reservoirs from last year, the less room there is to hold what melts off this spring. Eastern Idaho reservoirs are in excellent shape from last year's abundant snowpack and wet spring, with most averaging about 80% full and 109% of average for this time of year, compared to 87% last year. Last year's abundant snowpack and wet spring also kept Eastern Idaho's River levels running near normal right up to the ice jam season.

Next is the consideration of frozen soils, especially when there is an early snowmelt. The warm temperatures this spring did start melting our snowpack earlier than usual. The early warm-up caused some standing water issues for some areas, particularly in Fremont County. However, the concern no longer exists, except in the mountains.

Speaking of those record-breaking warm March temperatures, they did take toll on our snowpack. The Eastern Idaho basin average snow water equivalent (SWE) fell from 77% in February to 60% in March, which is in the graph below. SWE is the amount of water in snow. For falling snow, the average is about 1 inch of water for 10 inches of snowfall. When temperatures are colder, the ratio decreases and increases with warm snow fall events. For snow that has fallen days, weeks or months ago, or is tightly packed due to wind, the SWE will be greater due to the high density of the snowpack.

Now that you have the winter precipitation, soil moisture, surface water and snowpack information, what is your spring flood potential forecast? Can Eastern Idaho expect flooding this year or not? Once you have your forecast, please see "Spring Flood Potential" on page 7 for the result.



Grand, Middle, and South Teton from above Teton

"Conversation about the weather is the last refuge of the unimaginative."

Oscar Wilde



Spotter Quiz! By Brian Waranauskas, Forecaster

1. **A severe thunderstorm is defined as a thunderstorm that contains:**
- a. Dangerous cloud-to-ground lightning
 - b. Any size hail
 - c. Winds gusts of 58 mph or greater and/or hail larger than 3/4 inch or larger in diameter
 - d. Rainfall of at least 1 inch per hour

2. **Tornado intensities are based on _____ and rated on _____:**
- a. Width of the funnel; the Saffir-Simpson scale from 1 to 5
 - b. Damage caused by the tornado; the Enhanced Fujita scale from EF0 to EF5
 - c. Path length; the Hazen scale from 1 to 6
 - d. Media reports; the Saffir-Simpson scale from 1 to 5

3. **Shelf clouds in thunderstorms are associated with:**
- a. Outflow and downdrafts
 - b. Inflow and updrafts
 - c. Moderate to strong tornadoes
 - d. Large hail

4. **A funnel cloud is:**
- a. Cumulus-type cloud growth above the thunderstorm anvil
 - b. A violently rotating column of air extending from the thunderstorm cloud base and in contact with the ground
 - c. A swirling column of dust extending upward from the ground under clear skies
 - d. A rotating, cone shaped cloud extending from the base of a thunderstorm

5. **“Marble size” is a helpful description of hail size:**
- a. True
 - b. False

6. **When observing a severe thunderstorm, spotters should:**
- a. Chase the storm recklessly, giving as much information as possible
 - b. Only file a report if a tornado is seen
 - c. Get to/stay in a safe location, file your report if any severe storm criteria are observed, and watch for additional severe storms
 - d. Stop in the middle of the highway to get pictures of the tornado

7. **A downburst is:**
- a. An emotional comment made by a spotter when he realized he chased the wrong storm
 - b. A strong downdraft of air from a thunderstorm with an outrush of damaging winds on or near the ground
 - c. A swirling column of dust extending upward from the ground under clear skies
 - d. Present in every thunderstorm

8. **Southeast Idaho typically averages _____ tornadoes a year:**
- a. Less than 20
 - b. 25 to 40
 - c. 40 to 60

9. **The Storm Prediction Center (SPC) in Norman, Oklahoma issues severe thunderstorm and tornado watches for the U.S. and local & national media weather organizations (like the Weather Channel) issue severe thunderstorm and tornado warnings:**
- a. True
 - b. False



The Boulder Mountains above Sun Valley

“If I’m on the course and lightning starts, I get inside fast. If God wants to play through, let him.”

Bob Hope



For more great aurora borealis pictures visit...

www.photolib.noaa.gov/historic/nws/nwind17.htm

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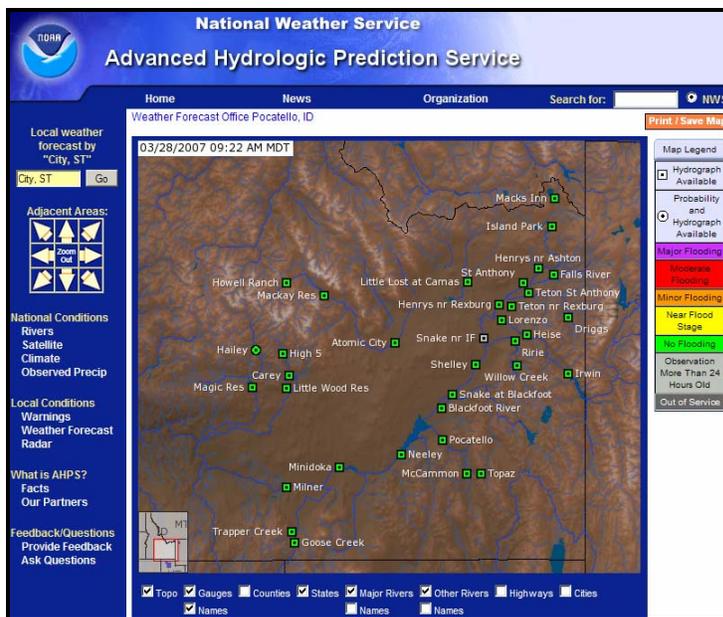
Advanced Hydrologic Prediction Services – Your Key to Rivers and Lakes



The Pioneer Mountains near Picabo. Fall 2006

The Advanced Hydrologic Prediction Service, or AHPS (A-haps), is the National Weather Service’s (NWS) gateway for providing river and flood forecasts and other water resources information for America. AHPS includes forecasts made from state-of-the-science river forecast models as well as current river and lake level observations.

AHPS river forecasts, produced by NWS River Forecast Centers, provide the nation with the best available source of river and water resource information. Utilizing AHPS will help you make informed decisions regarding flooding, business and recreation. To learn more about AHPS, please visit weather.gov/AHPS.



An example of the AHPS page at www.weather.gov/pocatello

“You don’t need to be a weatherman to know which way the wind blows...”
Bob Dylan

Eastern Idaho Flood Potential Spring 2007 by Sherrie Hebert

Even though our soil moisture, rivers and reservoirs are in good shape, Eastern Idaho just did not get the snow it needs this year. Then add the record-high temperatures in March that pummeled the snowpack, and there just is not much water to come off this year. Had the winter continued as it started in December, we would be gearing up for a busy spring runoff season.

However, we are not out the water yet, so to speak. Because the reservoir capacities are averaging around 80% and are somewhat above normal for this time of year, there remains a slight chance for some minor flooding. It all comes down to the weather. There are primarily two scenarios. First, if spring is relatively dry, there should be no flooding. The second is the possibility of a wet spring. This happened in May 2005.

As Idaho was still well into the drought that began in 1999, there was no expectation of flooding, however, in May a few intense thunderstorms hit Idaho and shattered the forecast. Reports of rainfall rates near 2.0 inches per hour caused flash flooding in many areas. Little Wood Reservoir, for example, also received intense rainfall necessitating increased releases. Due to the extended drought, streambeds had years of debris in them that began piling up along river bends and bridges, causing flooding in some areas as well as some lost bridges. Fortunately, last year’s high runoff cleaned out most streambeds, so such debris should not be a concern.

Thus, the main concern lies with reservoir releases. If severe weather times itself with reservoir releases, there could be some minor flooding in some areas. This is where agencies such as the Bureau of Reclamation and Army Corps of Engineers have difficult decisions to make. Once reservoir managers decide to release water, they obviously cannot return it, so agencies such as these must determine when is the best time to let it go. They too, must look to the forecast to make such important decisions.

For more information on this year’s flood potential, please visit the NWS “2007 National Hydrologic Outlook” at www.nws.noaa.gov/oh/hic/nho.



Diamond Peak — Lemhi Range. Spring 2006

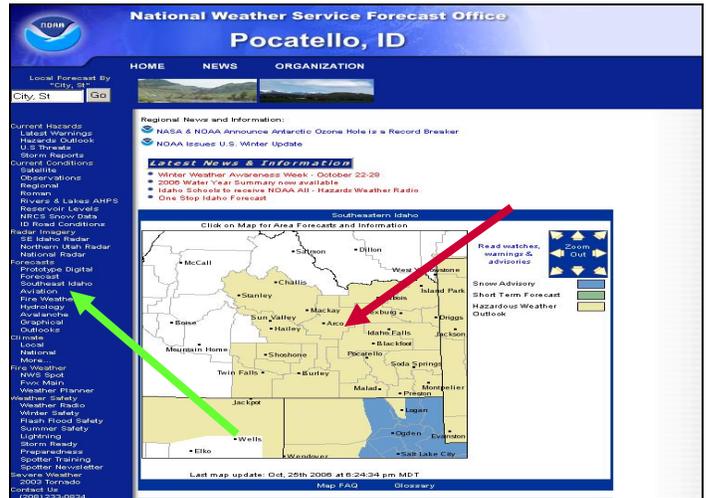
The Snake Plain Weathervane

Your Forecast and Warnings On the Web

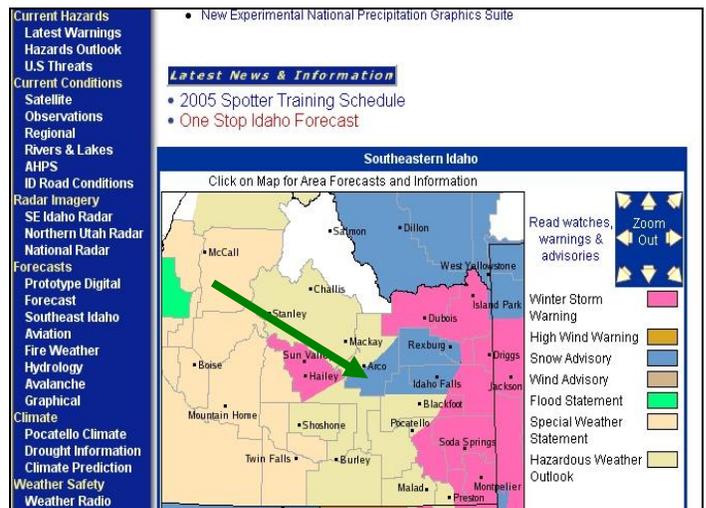
First, navigate to:

www.weather.gov/Pocatello

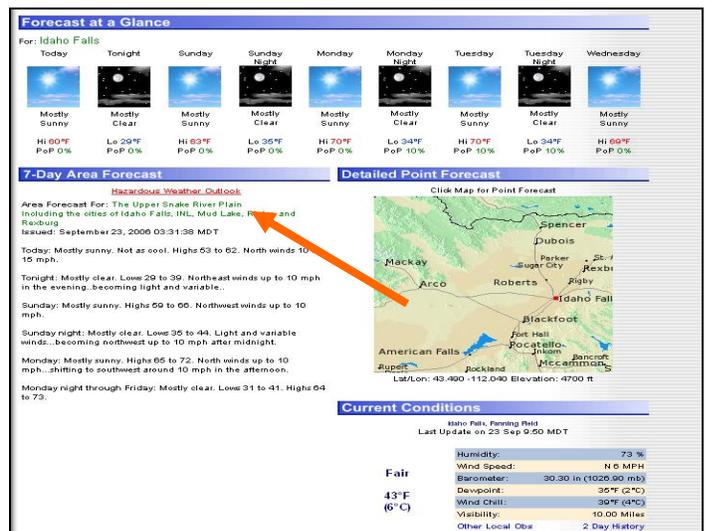
From the main page there are many routes to take. You can **click on the map** and receive a forecast, plus a list of warnings for your area; or you can choose an option from **the left hand menu**. The forecast you'll receive from the map depends on where you click, so be sure to click near the spot you're interested in. Menu options include links to local satellite, radar, river information, climate, safety information, and additional links to hazardous weather information.



Watches, warnings, and advisories will be color-coded and highlighted on the map. To read a text version of the product just **click on the appropriate county or zone**.



After clicking on the appropriate county/zone you'll see the following page (on right). A list of the **current watches, warnings, and advisories** will be listed above the text forecast.



The National Weather Service Pocatello/Idaho Falls Idaho

Continued from page 1...

SkyWarn Spotter News
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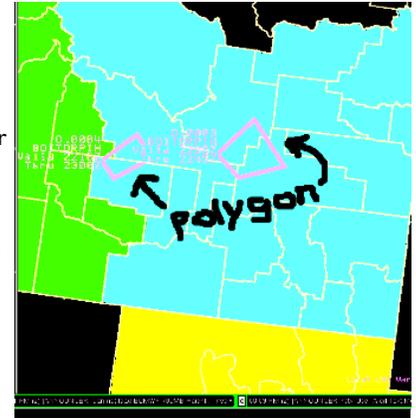
Dissemination of warnings is done using the NOAA weather radio (NWR) with encoded county codes using Specific Area Message Encoding (SAME). Warnings are also sent over the Emergency Alert System (EAS) to media outlets in the affected area. Local warnings and associated polygons are best viewed from our local internet page,

www.weather.gov/pocatello.

Issuing storm based warnings offers several advantages; the software used by the Weather Service clearly generates a picture of the warned area. Additionally, fewer people are needlessly warned for severe weather.

Below is a quote from General D.L. Johnson, Director of the National Weather Service, about the concept of storm based warnings...

"This is a fundamental change in our warning procedures and a major enhancement in our service capability. Storm-based warnings will drastically improve graphical displays and empower the private sector to easily distribute the information through Web-enabled PDAs, cell phone alerts, pagers and other technologies. Communicating severe weather threats in this way is imperative in today's digital world."



For lightning safety information
log on to www.weather.gov.

The NWS Pocatello/Idaho Falls Staff:

Meteorologist In Charge: Rick Dittmann

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Science and Operations Officer: Dean Hazen

Warning Coordination Meteorologist: Vern Preston

Electronic Systems Analyst: Rick Stork

Observation Program Leader: Gary Wicklund

Electronic Technicians:

Richard Denning & Bryan Tilly

Information Technology Officer: Matt Williamson

Service Hydrologist: Sherrie Hebert

Lead Forecasters:

Dawn Harmon, Jeff Hedges, Mike Huston

Bob Survick, and Rick Winther

General Forecasters:

Mike Cantin, Greg Kaiser, Jack Messick, and

Brian Waranauskas

Hydrometeorological Technicians:

Paul Angel

Dave Phelps

Meteorologist Intern:

John Keyes

Meet Mr. Gary Wicklund

In this newsletter, we are proud to introduce you to Mr. Gary Wicklund, our Observations Program Lead. He has the responsibility of ensuring the quality of observation products we receive are accurate prior to sending them to the National Climate Data Center in Asheville, North Carolina. Gary has the longest history in the profession of meteorology of any of us at the Pocatello office.

He began his weather career in 1968 as a weather observer and spent a number of years in England. Following this tour of duty, he went to the U.S. Air Force's weather forecast school. After graduation, he spent a number of years in central California, gaining valuable experience and a keen appreciation for the need for weather data. At times, we hear him state, "if we could get Dolphins to send an observation from the Pacific, we could get more data to make a better forecast."

Gary had two more tours in Europe, and a final tour at the premier Air Force job for a weather person, contributing to the Space Shuttle's weather forecast launch decision. A memorable final tour-of-duty allowing him the opportunity to have forecast in three major weather regimes—Continental, Maritime, and Tropical. Each of these regimes contribute unique properties to storms developing over them. One can relate these three regimes to geographical areas such as North America, over the Atlantic or Pacific, or in the tropics, respectively.

After retirement from active duty, Gary began a new career beginning with the National Weather Service in North Carolina. After a few years, the Air Force had a need for his talents and made an offer as a weather forecaster and trainer for an Air Force installation in New Mexico. He came back to the National Weather Service in 2003 at Pocatello to be nearer his parents in Oregon. After 39 years in the profession of meteorology, he still has "fun" trying to read Mother Nature's mind and make the best possible forecast for all our fellow citizens in southeast Idaho.