Peak to Valley Weather

The Official Newsletter of the National Weather Service Grand Junction

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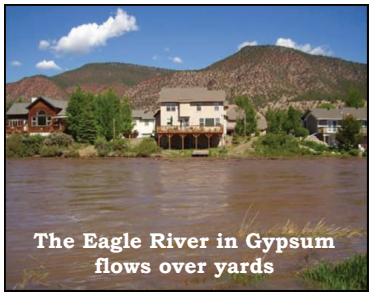
Summer 2010

Warm Temperatures and Rapid Snowmelt Lead to Flooding

By Bryon Lawrence - Service Hydrologist

Unseasonably mild temperatures in early June caused the lingering snowpack in the central and northern mountains of Colorado and northeastern Utah to rapidly melt. Mountain streams and creeks quickly became raging torrents of ice-cold, brown sediment-laden water, sweeping tree branches and debris downstream through ranches and riverside communities. In places, the water spread over the river banks, flooding low-lying areas, roads and nearby residences and businesses. Further downstream, as this mixture of melt water and debris filled their channels, the Colorado, Yampa, Eagle, Green, Elk, and Duchesne Rivers began to rise. Between June 8th and June 10th many of the rivers crested, in some cases reaching their highest levels in over a decade. By the weekend of June 12th and 13th, colder weather returned to the region, and as quickly as they rose, rivers began to fall, leaving 2010 to go into the annals as having one of the more significant spring floods in the history of western Colorado and eastern Utah.



The Eagle River in Gypsum flows over yards

Flooded section of Colorado River at Corn Lake's new bike trail in Clifton

Through the winter, a below normal snowpack in the central and northern mountains of Colorado and northeastern Utah seemed to portend a below normal spring runoff with a minimal potential for flooding. With the record snow winter of 2008 and the resulting high flows on area rivers and streams that spring and early summer still fresh in many Colorado and Utah residents' memories, this year's runoff season promised to be quiet and uneventful. However, by April and May, the dry weather pattern which had persisted over northeastern Utah and northern Colorado came to an end as a series of strong spring storm systems coated the mountains with a fresh deep, water-laden layer of snow. At the same time, cooler than normal temperatures delayed the melt of the mountain snowpack in these areas until late May and early June, in some cases almost a month later than usual.

When June arrived, temperatures somersaulted from unseasonably cool to unseasonably mild and an unusually deep and ripe snowpack contain-

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Special Points of Interest

- Did You Know???
- Flash Flood Warnings
- Aviation Weather Information
- Boettcher Scholarship Recipient

Weather Awareness

Click for **HEAT SAFETY** information

and a **HEAT INDEX** chart

Weather balloons; more than just a bunch of hot air

By Megan Schwitzer, Meteorological Intern

UPPER AIR PROGRAM

The National Weather Service Grand Junction has an *Upper Air Program* where a weather balloon is launched into the upper atmosphere twice a day to collect weather information. Balloons are launched at the exact same time every day at over 900 locations worldwide. The balloon carries an instrument about the size of a shoe box, called a radiosonde, which collects information on temperature, relative humidity, air pressure, wind speed, and direction. This information is used in a variety of different ways, including, but not limited to, input into computer-based weather prediction models, severe weather, aviation, marine, and public forecasting, air pollution, weather and climate research.

Quick Facts:

How high does it get? The helium balloon ascends at about 1,000 feet per minute up to roughly 100,000 feet or 19 miles.

How far does it go? It can drift up to 125 miles away depending on the winds aloft.

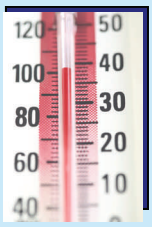
What happens to it? The balloon expands as it ascends into lower air pressure aloft, and once it reaches the size of a small school bus, it bursts and falls to the ground via the attached parachute. About 20% of the instruments are found and returned for recycling. If you find and instrument, it is harmless. Simply follow the instructions for sending it back to the reconditioning center or drop it at the NWS office, 792 Eagle Drive, near the Grand Junction airport.

NOAA Weather Radio

"Voice of the National Weather Service"

NOAA Weather Radio All Hazards (NWR) is a nation-wide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. NWR is provided as a public service by the National Oceanic and Atmospheric Administration (NOAA), part of the Department of Commerce. NWR includes 1000 transmitters, covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. NWR requires a special radio receiver or scanner capable of picky up the signal. In Grand Junction, CO, tune into **162.550MHz** for the latest broadcast information.

DID YOU KNOW??



How many days of 100◦ so far this season? 2 days-June 6 & 7, both tied or broke daily records

Average first 100◦ day? July 2

Normal highs for June: 81◦ to 91◦

Normal lows for June: 51◦ to 59◦

Normal highs for July: 91◦ to 92◦

Normal lows for July: 59◦ to 62◦

All time record high? 106 degrees July 21, 2005

Total June precipitation (as of June 10): 0.02"

Normal June precipitation: 0.44"

Normal July precipitation: 0.60"

Grand Junction, CO Weather Forecast Office

NATIONAL WEATHER SERVICE

Servicing Western Colorado and Eastern Utah

Flash Floods, the Summer Killer

By Joe Ramey, Incident Meteorologist

The latest summer outlook from the Climate Prediction Center is for an enhanced monsoon season, when

subtropical moisture bubbles up from Mexico in July, August, and September. The combination of heavy rains and unique geography (steep terrain, large areas of exposed rock, and shallow soils) increases the threat of flash flooding in Eastern Utah and Western Colorado.

A flash flood is most often caused by sudden, excessive rainfall that rapidly fills an arroyo, river, or stream over its banks. This can occur very quickly, often in a matter of minutes. **Flooding** is the **Number Two** weather-related **killer** in our region, only behind lightning. Fast-moving water is extremely and deceivingly powerful. Six inches of rapidly moving flood water can knock a person down. A mere two feet of water can float a large vehicle, such as a bus or SUV. The vast majority of flood deaths occur in vehicles. Flash floods are especially dangerous at night, when drivers cannot see water across the

***Summer Killer** continued on page 4*

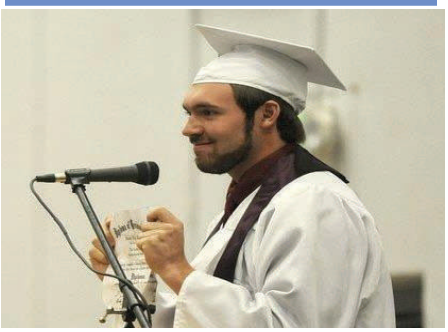
Oak Creek Observer Receives Boettcher Scholarship

By John Kyle, Data Program Manager

Matt Watwood, volunteer weather observer in Oak Creek, has been awarded the prestigious Boettcher Scholarship. This scholarship, valued at $180,000, will enable Matt to attend the college of his choice anywhere in the state of Colorado. Matt has chosen the University of Denver where he will attend this fall.

Matt possesses many talents aside from being the brightest of his class

Matt has chosen the University of Denver....



(he was named valedictorian). He won the 2A state shot put recently, and placed fourth in the discus. Matt was named to the Western Slope League all-league baseball team, after hitting .370 with three home runs. His personality matches his wits and athleticism and his winning smile always follows one of his many magic tricks!

Photo by Matt Stensland of the Steamboat Pilot.

Warm Temps

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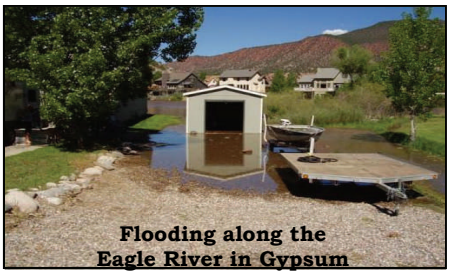
ing copious amounts of liquid began to rapidly melt. In some stream basins melting snow produced an amount of water equivalent to a soaking two to three inch rainfall each day, more than enough to push some streams and creeks above bank full.

Despite the high peak flows on area streams and rivers this year, the total volume of spring and summer water flow into area reservoirs is still expected to be below normal, primarily because over much of the region, mountain snowpack was below normal. At first it may seem to be counterintuitive that a year with flooding could still yield a below normal supply of water. However, snow melt runoff and the resulting river flows are highly dependent on spring time temperature and precipitation patterns. A snowpack which takes three months to melt will have less impact on streams and rivers than a similar snowpack which melts in a week. As we saw this year, even a winter with an unexceptional snowpack can still be followed by a spring with significant flooding if temperature and precipitation patterns trigger rapid snow melt.



Flooding along the Eagle River in Gypsum

Aviation Weather Centers

By Tom Renwick - Meteorologist

The National Weather Service (NWS) issues aviation products and services for the National Airspace System. These offices include the Aviation Weather Center (**AWC**), the Alaska Aviation Weather Unit (**AAWU**), Weather Service Units and Weather Forecast Offices (**WFO**). The **AWC**, **AAWU**, and **WFO** in Honolulu, HI are also Meteorological Watch Offices (**MWO**s). **MWO**s are designated by the International Civil Aviation Organization to maintain a continuous watch over weather conditions that affect flight operations.

The **AWC** is one of three U.S. **MWOs** providing weather information to the National Air Space and one of two World Area Forecast Centers (global forecasting). **AWC** issues a number of domestic and international forecasts. It maintains the Aviation Digital Data Service (**ADDS** - http://aviationweather.gov/adds). **ADDS**, an online weather information database created in partnership with the National Oceanic and Atmospheric Administration (**NOAA**) and the Federal Aviation Administration (**FAA**). **ADDS** is **FAA** certified as a Qualified Internet Communications Provider, guaranteeing reliable and secure weather information for any operators making flight-related weather decisions.

For a legal Weather Briefing, call 1-800-WXBRIEF

Another aviation unit is the Center Weather Service Unit (**CWSU**). The **CWSU** meteorologists provide support services to the 21 FAA Air Route Traffic Control Centers throughout the United States. **CWA**s are short-term weather warnings, issued for periods of two hours or less and describe hazardous conditions not contained within national in-flight advisories (**AIRMET**s, **SIGMET**s or Convective SIGMETs). The **MIS** details weather conditions expected to adversely impact air traffic flow. The **MIS** can contain a variety of forecast information up to 12 hours and beyond.

Finally, 122 **NWS WFO**s provide forecasts and warnings to their local aviation communities. **WFO**s are staffed 24 hours a day, seven days a week. Their primary aviation responsibility is the issuance of Terminal Aerodrome Forecasts (**TAF**s), a coded forecast consisting of the expected meteorological conditions significant to aviation within five statute miles of a given airport. **TAF**s are valid for 24 hours, or 30 hours for selected international airports, and are issued four times daily, being updated as conditions warrant. **WFO**s issue an aviation discussion highlighting forecast uncertainty and possible aviation hazards that may not be explicitly mentioned in the **TAF**. While this brief synopsis cannot detail all the different aviation support the NWS provides, hopefully it highlights how our organization protects life and property both on the ground and in the air.

Reaching Out for Earth Day

By Dea Bridge, Administrative Support Assistant

In celebration of Earth Day, the National Weather Service office in Grand Junction hosted their annual open house. Meteorologists and a local weather spotter were on hand to give tours and answer questions about the mission of the NWS for over 80 people. Those in attendance at 5:00 p.m. were able to observe the evening weather balloon launch, which occurs twice daily. The balloon is equipped with an instrument that records weather data. For more specific information about the Upper Air Program, please read the article on Page 2 entitled, *Weather Balloons; more than just a bunch of hot air.*

Summer Killer

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roadway until it is too late. Fast decisions save lives.

What to do in case of a flash flood...

- Immediately climb to higher ground.
- Avoid walking through any floodwaters.
- If in a vehicle, *turn around!* If your car stalls, abandon it and climb to higher ground. Attempting to move a stalled vehicle can be deadly.