



National Weather Service Grand Junction Shareholder's Report 2016

Welcome to the National Weather Service in Grand Junction's first ever Shareholder's Report. The FY 2016 national budget for the National Weather Service was 1.12 billion dollars, which amounts to about \$3.45 per person. The purpose of this report is to showcase a lot of the work your local National Weather Service office employees completed this past year that served you and your communities. Weather plays a part in everyone's daily life and has many implications on the decisions you and your organizations make. The National Weather Service values its relationship with its core partners and the communities it serves, and we want to continue to enhance our products and services to meet your needs. Much of our forecast information is seen via our website (www.weather.gov/gjt), social media, and specific partner decision support briefings. However, a lot more goes on behind the scenes and through our personal interactions with partners, the media and local communities. This report will highlight specific activities your local National Weather Service office was engaged in during 2016 as a part of our core mission and desire to provide high quality weather information and education. These activities also helped save lives and property, improve decision-making, and benefit organizational budget and resource planning.

Please contact our office if you would like to schedule a tour, need specific decision support services, have ideas on how we can better serve you, or would like us to be involved in any of your activities.

Thank you
Team National Weather Service Grand Junction



**National Weather Service
2844 Aviators Way
Grand Junction, CO 81506**

**970-243-7007
wxxjt@noaa.gov**



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Thank you to the following contributors to this year's Shareholder's Report:

Matthew Aleksa, Jeff Colton, Chris Cuoco, Chris Kornkven, John Kyle, Julie Malingowski, Ben Moyer, Jim Pringle, Thomas Renwick, Larry Smith, Megan Stackhouse, and Aldis Strautins

Thank you for allowing us to serve your community.

What the National Weather Service's Evolution Means For You by Ben Moyer, Meteorologist-In-Charge

The National Weather Service (NWS) is evolving our products and services in order to improve the quality, accuracy and consistency of information that is delivered to you, when you most need it, to support critical decisions that you need to make to protect the citizens of eastern Utah and western Colorado. You might ask yourself why the NWS is embarking on this endeavor to transform the way it conducts business.

The answer is two-fold. In 2012, Congress recognized the need for the NWS to change and directed that two studies be conducted. First, the National Academy of Sciences (NAS) conducted a two-part assessment of the Modernization and Associated Restructuring (MAR); the second part of these NAS reports, "[Weather Services for the Nation: Becoming Second to None](#)," detailed advice for the NWS on how best to plan, deploy, and oversee future improvements, based on lessons learned from the MAR.

The second Congressional-mandated study was contracted to the National Academy of Public Administration (NAPA), titled: "[Forecast for the Future: Assuring the Capacity of the National Weather Service](#)." This report independently evaluated efficiencies that could be made to NWS operations, noting a significant shift in the NWS' approach from weather product and service outputs to societal outcomes. The NAPA report recommended a new framework to fully achieve the Weather Ready Nation vision. To accomplish these recommendations, NWS contracted with McKinsey and Company to conduct an agency wide analysis, the Operations and Workforce Analysis in 2015.

With the help of McKinsey and Company, we have identified numerous ways we can evolve the NWS in order to free up more time for some forecasters to focus more directly on providing Impact-Based Decision Support Services (IDSS) to you.

We are looking at operational changes, such as using a common starting point for the forecast at all NWS offices across the country, then adjusting for localized phenomena when it's most impactful to you, our partners. A demonstration of this concept is currently underway in a large group of NWS offices in the Midwest, Great Lakes and Northern Plains. The NWS in Grand Junction is also testing this concept though not officially in the test group.

There will be several other concepts that will be tested over the next several years such as flexible staffing and embedding staff with our partners. As we begin these tests, we will ask you, our partners, to provide valuable input and feedback on these tests.

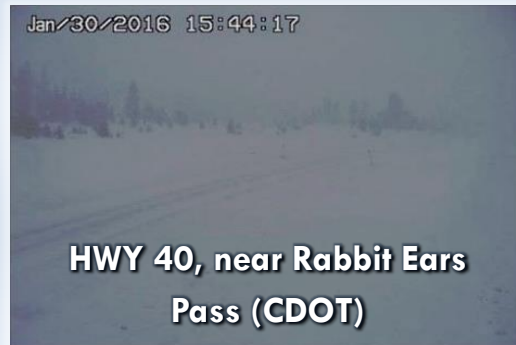
We look forward to continuing to communicate with you as we evolve the NWS to better serve you and your ever-growing needs.

If you have any concerns or questions, please contact me (benjamin.moyer@noaa.gov). I am happy to meet with you to discuss any changes that we are considering.

Biggest Weather Events of 2016 by Megan Stackhouse, Meteorologist

From winter storms to record breaking temperatures and flooding, 2016 was a busy year for the Grand Junction National Weather Service crew! Here's a look back at some of the biggest weather events of the year for eastern Utah and western Colorado:

1. **28 January – 02 February Winter Storm:** A powerful winter storm brought 1 to 3 feet of snow for the mountains and 4 to 18 inches of snow for the valleys of eastern Utah and western Colorado.



2. **18 February Winter Storm:** A low pressure system and strong cold front, aided with a powerful upper level jet, resulted in near whiteout conditions over numerous mountain passes. Before frontal passage occurred, numerous high temperature records were set across the region.
3. **18 February Winds:** A powerful upper level jet resulted in gusty winds mixing down to the surface – an automated station at Mount Abrams in Ouray County recorded a peak wind gust of 86 mph while Monarch Pass recorded a peak westerly wind gust of 148 mph!
4. **14 – 17 April Late Season Winter Storm:** A slow, moist upper level low brought heavy snow and areas of blowing snow to the mountains. The Flat Tops received the most with 10 to 24 inches. Heavy wet snow broke tree limbs and brought down power lines in the Central Yampa River Basin.
5. **Record Breaking Summer Temperatures:** A stubborn ridge of high pressure throughout most of June and July led to a hot, dry summer with numerous record highs and an active fire weather season. Some locations broke 100 degrees for several days in a row.
6. **August Hail:** Several thunderstorms produced large hail in the area. On August 20, hail measuring 1.00" in diameter was reported at the Pagosa Springs Airport and on August 28, at least 2 inches of pea-sized hail accumulated on Interstate 70 over Vail Pass.



7. **August Flooding:** *Monsoonal flow resulted in several flooding incidents across the region, most notably in Castle Valley, Naturita, and Durango.*



8. **17 – 18 November Cold Spell:** *A strong cold front moved through the region and brought a sudden end to the mild and dry fall when temperatures dropped some 15 to 20 degrees. This drastic cold spell resulted in a season-ending freeze.*
9. **15 – 17 December Winter Storm:** *A major winter storm brought several feet of heavy snow to the mountains which significantly improved the snowpack! Highway 550 over Red Mountain Pass and Highway 65 over the Grand Mesa were closed for more than 24 hours during the storm.*



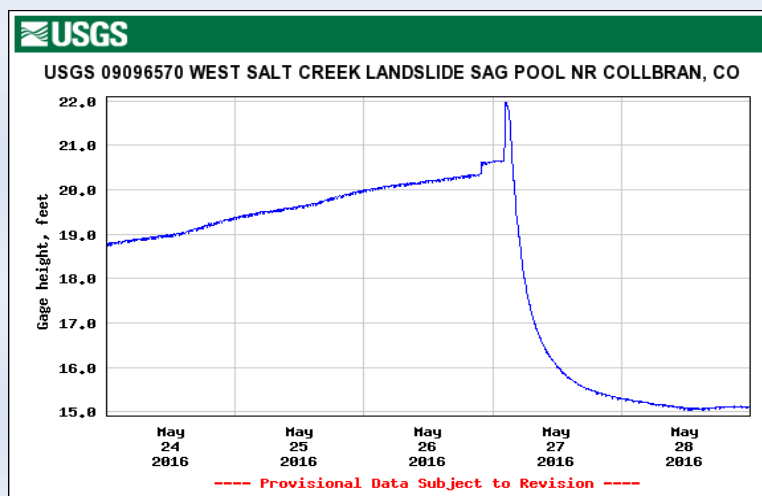
The National Weather Service, Grand Junction Hydrology Program
Brief overview of Decision Support Services for 2016
by Aldis Strautins, Service Hydrologist

The hydrological program, managed by the Service Hydrologist at the National Weather Service (NWS), Grand Junction, provided support, expert guidance, hydrologic and meteorological data and forecasts to core water and emergency management partners across eastern Utah and western Colorado. In 2016, the Grand Junction NWS office supported three main hydrological events: An ice jam along the Gunnison River, snow melt and spring runoff with special interest on the Animas and Pine Rivers, and the West Salt Creek landslide. The ice jam lasted for approximately two and a half months with the NWS hydrology team providing hydrologic and weather data and forecasts to emergency management and other federal agencies. Support for the spring runoff was for water resource partners ranging from the local and county to state and federal level and emergency management agencies. Public products and forecasts were also issued and disseminated along with media interviews. The service hydrologist was a key participant in pre-runoff technical and safety meetings sponsored by Mesa County for the West Salt Creek landslide. NWS personnel were crucial in informing Mesa County during the early morning hours of May 27, 2016 when the sag pond overtopped and produced a flash flood downstream. (See below for more detailed information.)

In addition to the event driven support provided by the NWS hydrology program, the service hydrologist provided expertise for local, state, and federal agencies involved with table-top and functional exercises and operational meetings involving river resources and reservoir operations.

West Salt Creek Landslide Sag Pond Overtop. May 27, 2016
by Aldis Strautins, Service Hydrologist

On May 27, 2016 approximately 120 acre feet of water was released from the sag pond of the West Salt Creek landslide. Estimates of 30,000 cubic meters of material slid off the head scarp and into the sag pond. The pond gauge increased from 20.1 to 21.97 feet before showing a release. The pond elevation continued to drop until it stabilized around 15.0 feet.



West Salt Creek Landslide Sag Pool. Data supplied by the USGS.

Personnel at the National Weather Service, Grand Junction office noticed the sudden change in pool height of the sag pond and called the Mesa County Emergency Manager. After analysis of the data and coordination with the Emergency



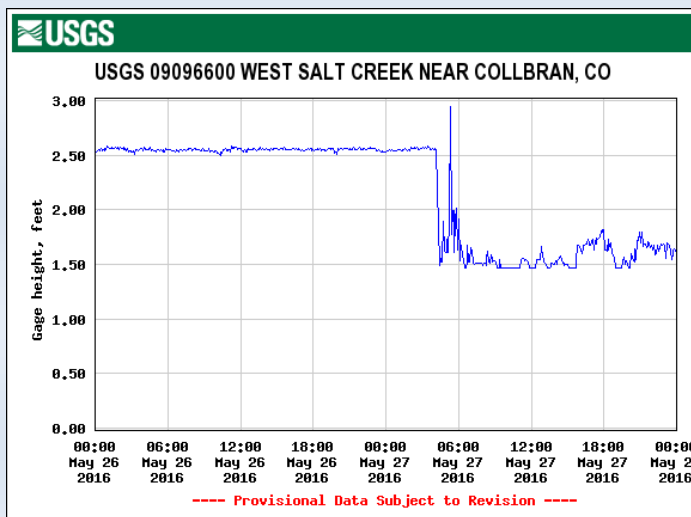
Manager, the National Weather Service issued a Flash Flood Watch for the West Salt Creek landslide area and Salt Creek Road. The Emergency Manager placed the landslide event at a level 2 response. The watch was later expanded to cover Collbran, CO.

Left: Arrows point at a level of 12.6 feet above the creek stage, where a line of mud can be seen. The creek was at a depth of 1.2 feet, the estimated stage of the flash flood on the right bank at the WSLC2 gauge site was nearly 14 feet above the creek bottom. (Photo courtesy Aldis Strautins)

After the initial release at 2:15 am, it took 1 hour and 50 minutes for the water to carve through the center of the landslide and reach the West Salt Creek gauge site just below the toe of

the slide. The wall of water and mud reached 14 feet above stream bed at the gauge site.

Graph right: West Salt Creek below the landslide toe. The initial drop is when the flash flood first hit the gauge site. The data was not representative after the gauge was damaged by the flash flood.



As the flash flood moved downstream it was able to spread out, and by the time it reached the confluence with Salt Creek the flood level was around 12 feet above the stream bed.



Above left: Along the road above the Salt Creek confluence. Arrow points at a level of 8 feet above the surface. Creek depth was near 1.2 feet. The surface by the tree was 2.5 to 3 feet above the creek. Estimate stage of the flash flood to be around 12 feet. Above right: Salt Creek below confluence. Arrow at average mud line at 9.2 feet above surface. (Some mud splashed higher.) Creek near a stage of 2.8 feet. Estimate stage level of the flash flood was around 12 feet. (Photos courtesy Aldis Strautins)

The flood wave continued to attenuate as it moved downstream. According to eyewitness reports the water and mud reached the hay and horse barn near the confluence of Plateau Creek by 6:30 am. The stream narrows and bankfull stage lowers making it easier for what wave was left to flow out of the stream banks and into the barn, around a home and over pasture land.



*Left: Pasture land near Plateau Creek confluence
(Photo courtesy Aldis Strautins)*

*Right: Water and mud flows into covered horse riding area
(Photo courtesy Aldis Strautins)*



The flood continued downstream, but with Plateau Creek at lower levels and Vega Reservoir not spilling there was enough volume in the creek to handle extra volume of the flood wave. The wave reached Collbran at the Main Street Bridge at 6:53 am, 4 hours and 38 minutes from the time it released from the sag pond. The water and mud was at a level of about 1.2 feet below Rodeo Road (at the lowest point) by the walking path.

The wave continued to attenuate as it moved downstream in Plateau Creek. The smaller wave reached the gauge site in about 8 hours and 15 minutes. By the time it reached the gauge near Cameo, the stage jumped up by 0.70 feet and the flow increased to around 400 cfs. This is well below bankfull and flood stage.

Plateau Creek remained very muddy for a week after the event and the silt could be seen flowing into the Colorado River. After flows increased from Vega Reservoir spilling, the water was less muddy with the increase in fresh water volume. Even with the increase in clean water flow the creek visually remained more turbid than normal for this time of year.

Of special note: The Service Hydrologist from National Weather Service Grand Junction participated in the Mesa Co pre-runoff technical meetings with local, regional and national experts concerning the West Salt Creek landslide (WSCL) last spring. There was a meeting on May 26, 2016, the afternoon before the overtop event. A more heightened observation scheme was implemented including the National Weather Service monitoring the sag pond gauge overnight. The meetings included but were not limited to Mesa County, US Forest Service, US Geological Survey, National Weather Service, Colorado Geological Survey, Colorado Division of Water Resources, other agencies and companies affected by the landslide.

On May 28, 2016 the Flash Flood Watch was allowed to expire as the event moved into a modified level 2 response. The National Weather Service in Grand Junction continued the heightened awareness and monitoring of the WSCL gauges. As spring melt subsided, the inflow into the sag pond decreased, and the flows in Plateau Creek decreased, the response level was lowered from a modified level 2 to a level 1 on June 14, 2016.

Cooperative Observer Program by John Kyle, Data Acquisition Program Manager

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 8,700 volunteers take observations from various locations nationwide. In western Colorado and eastern Utah there are approximately 80 of these observers. The data are truly representative of where people live, work and play.

The COOP mission is two-fold:

- To provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States
- To provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS

COOP observational data supports the NWS climate program and field operations. The program responsibilities are accomplished by the local Data Acquisition Program Manager and include:

- Selecting data sites
- Recruiting, appointing and training of observers
- Installing and maintaining equipment
- Keeping and updating station and observer documentation
- Collecting data and delivering it to users
- Maintaining data quality control
- Managing fiscal and human resources required to accomplish program objectives

A cooperative station is a site where observations are taken or other services are rendered by volunteers. Observers generally record temperature and precipitation daily and electronically send those reports daily to the NWS and the National Centers for Environmental Information (NCEI). Many cooperative observers provide additional hydrological or meteorological data, such as evaporation. Data is transmitted via telephone, computer, or in special cases, by mail. Equipment used at NWS cooperative stations may be owned by the NWS, the observer, or by a company or other government agency, as long as it meets NWS equipment standards.



Above: Data Acquisition Program Manager at WFO Grand Junction, John Kyle, presents an award to observer Karen Risch in Ouray.

Below: Standard COOP observer equipment as seen at Black Canyon National Park.

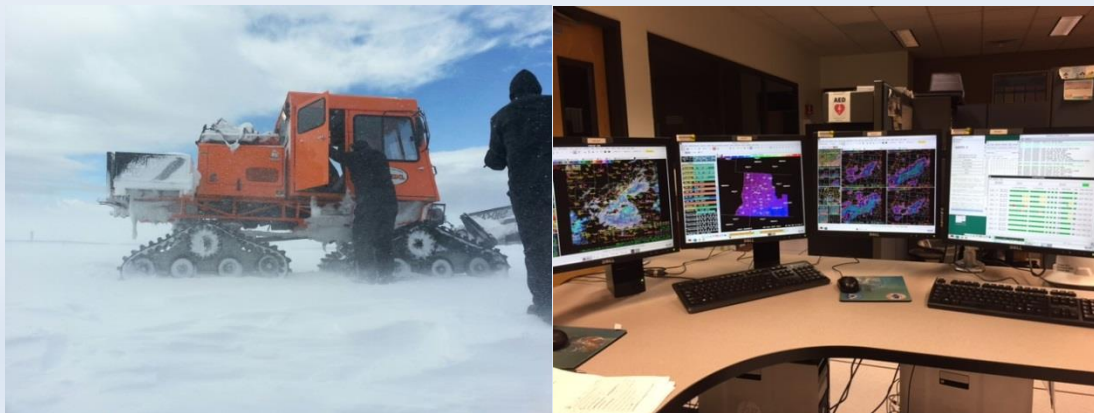


Electronics Technician's Corner by Chris Kornkven, Electronics Systems Analyst

After several months of coordination and planning, the day arrived to move the Automated Surface Observation System weather sensors and electronics at the Vernal Regional Airport in Vernal, UT. The amount of time the system would be down was critical as it would impact flights in and out of the airport. With the work of the Central Region Regional Maintenance Specialist and WFO Grand Junction electronics technicians, the system was powered down around 8:30 am on July 19th. All sensors and the Data Collection Platform cabinet and electronics were unbolted, put on trailers and moved across the runway to the new location for reinstallation. All sensors and the cabinet were bolted onto the new pedestal mounts by 10:48 am, including the wind tower which was moved as one piece. After wiring up each sensor and running fiber optic cables, the system was powered on at 12:20 pm, with all sensors calibrated and the system returned to operation around 3:30 pm that afternoon. It was a true team effort on a job that often takes roughly a day and a half but was completed in 7 hours which greatly reduced the impacts to the aviation community.

Other tasks completed by the Grand Junction electronic staff for the year include:

- 7 software upgrades or patches on AWIPS (Advanced Weather Interactive Processing System) along with 5 hardware upgrades. This system is the cornerstone of NWS operations used to ingest and process data and generate forecasts.
- 2 software upgrades on the WSR88D Nexrad radar and 3 hardware upgrades.
- Installation of the Broadcast Message Handler for NOAA Weather Radio which replaced technology installed in the 1990's.
- Installation of the new office VOIP telephone system.
- Installation of Video Teleconferencing equipment.
- Upgrading the software for our Upper Air system.
- Facilities projects including sealing our parking lot, replacing aging HVAC systems and increasing our network bandwidth using fiber optic cable.



Above left: Electronics technicians venturing out to the WSR88D radar on the Grand Mesa. Photo courtesy NWS.
Above right: AWIPS, one of the many pieces of hardware at the NWS which needs regular upgrades. Photo courtesy NWS.

Decision Support for Interagency Prescribed Burns and Wildfires by Julie Malingowski and Chris Cuoco, Meteorologists

Did you know that the National Weather Service in Grand Junction provides direct support to agencies involved with the safety of wildland firefighters? The National Weather Service works with the Great Basin Coordination Center (GBCC) in Salt Lake City and the Rocky Mountain Coordination Center (RMCC) in Denver every spring to create an annual coordination plan for fire-related weather services throughout the active fire season. "Spot" weather forecasts, informally called "spots", are point weather forecasts that the National Weather Service provides from the office for a

specific burn site, fire site, requested search and rescue, or HAZMAT event. WFO Grand Junction ranked 5th in the nation for spot forecast totals in 2016 with 713 spot forecasts issued, with 308 of those alone being unplanned lightning or human started wildfires.

An even more personal service that the National Weather Service *nationally* provides is the incident meteorology program which takes meteorologists out into the field to provide on-site weather forecasting support for wildfires. Read more below about our own Incident Meteorologist (IMET) here in Grand Junction, who spent many days this past summer on the fireline.

Incident Meteorology By Jeff Colton, Incident Meteorologist

Across the United States, there are approximately 80 Incident Meteorologists (IMET) who are specially trained in providing onsite weather support for natural disasters (wildfires, flooding and tornado cleanup) and other large incidents (oil/chemical spills) requiring direct weather support. These forecasters can be dispatched at any moment and will work directly with the Incident Management Teams, often in remote locations.

In 2016, our office supported four large incidents that required our IMET to be dispatched in three states, all wildfires. The Saddle Wildfire in Southwest Utah, the Hatchery Wildfire in Northeast Wyoming, the Beaver Creek Wildfire near Walden, Colorado, and the Beulah Wildfire near Pueblo, Colorado, were all supported by our IMET.

While the IMET is away on a dispatch, his/her shifts must be covered by other operational meteorologists in the office. Over the course of the summer and early fall season, our IMET was dispatched for a total of 40 days with our forecasters having picked up over 30 extra shifts.



Above: Miscellaneous Images from 2016 Wildfires Supported by WFO Grand Junction. All photographs courtesy of Jeff Colton

Weather Support for Your Agency by Julie Malingowski, Meteorologist

The National Weather Service across the country has focused on improving and enhancing our core mission services over the last few years. We have always worked alongside emergency management, but we have been expanding our service outreach with local, county, and state government entities. This effort has expanded our reach with fire weather partners, hydrology and water resource partners, land management agencies, state and national parks, and city public works groups to help them be weather-ready for anything that nature throws at their operations and personnel. Check out some of our involvement from 2016 below, and please contact us if we can help you enhance your mission of protecting lives and property through weather information dissemination and preparedness.

Large Outdoor Public Event Decision-Support Services by Jim Pringle, Warning Coordination Meteorologist

In late May of 2016, the Grand Junction NWS staff began participating in a new program to better serve our emergency services partners who provide public safety support for *large public outdoor events*. This specialized weather decision-support service is provided upon request to emergency services personnel who use the weather information to make decisions during outdoor events to help minimize the chance of people being exposed to threatening weather such as lightning or strong damaging winds. From May to December of 2016, the Grand Junction NWS forecasters provided weather services to emergency services personnel for twenty large public outdoor events, including sporting events and music festivals. Most of the events occurred over a period of several days or a week, and some of the outdoor concert series took place on a particular day each week for a month or longer. In addition to providing weather forecasts, our forecasters also maintain a weather watch for the public event area and make timely phone calls to those on the incident management team (IMT) to let them know about impending weather threats that come to our attention.

The screenshot shows a PDF briefing document. At the top, the title is "Iron Horse Bicycle Classic" in green, followed by "Emergency Management - Weather Briefing" in yellow. Below the title is a table with four columns: "Confidence this Will Occur", "High", "Medium", and "Low". The "High" column is selected, indicated by a checkmark icon. Below the table is a section titled "Forecast Weather Overview & General Impacts" with a list of bullet points: "Cool and unsettled conditions Friday night and Saturday between Silverton and Durango.", "Showers and isolated thunderstorms end Friday evening, but showers will re-develop Saturday afternoon.", "Drier weather expected in the vicinity of Durango Saturday night through Monday. However, scattered showers still expected over the mountains during the afternoon and evening hours.", and "Snow levels near 10,000 feet through the period." Below the text is a photograph of a snowy mountain road. At the bottom, there is a credit line "Credit: Kevin Heckman", the "National Weather Service - Grand Junction, Colorado" logo, and social media links for weather.gov/gjt, NWSGrandJunction, and @NWSGJT. The document is dated "Updated: 2/3/2017 7:23 PM".

Left: Example of PDF briefing sent out to local emergency management before the Iron Horse Bicycle Classic in 2016. Please contact us if you are a local or state government employee having an event and would like support in planning for public safety.

Decision Support for the 2016 Winter X Games by Jim Pringle, Warning Coordination Meteorologist

For the fourth consecutive year, NWS forecasters from the Grand Junction office provided weather support to the Incident Command Team (IMT) during the 2016 Winter X Games that were held at Buttermilk Ski Area near Aspen, Colorado, January 28th to January 31st. The IMT consists of local officials who are responsible for public safety during the event, including days prior to the games as preparations are being made.

On January 31st, about a foot of snow fell in the Aspen area which produced some travel challenges for people attending the Winter X Games. The forecast was equally challenging due to the snow level that was just below the elevation of Aspen.

2016 Winter X-Games Weather Briefing

Sunday

Confidence this Will Occur	High	Medium	Low	
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Expected Weather Conditions:

Buttermilk Ski Area

Highway 82
(Glenwood Springs to Aspen)

Precipitation: Significant Winter Storm Possible with Heavy Snow
Storm may hold off until Sunday Night or Monday.

Temperatures:

Aspen	Low: 25 High: 36
Glenwood Springs	Low: 20 High: 39
Buttermilk	Low: 15-20 High: 32-37

Wind: Roaring Fork Valley Variable 10 mph or less
 Buttermilk Southwest 10-20 mph, gusts to 30 mph mountain top

Impact to Travel: Travel Impacts Possible with Accumulating Snowfall

NWS Grand Junction
<http://www.weather.gov/gjt>

Above: A weather briefing slide provided to the local officials with public safety responsibility. This particular forecast was sent to the IMT six days prior to the heavy snow which fell on Sunday, January 31st.

Working With Broadcast and Print Media by Jim Pringle, Warning Coordination Meteorologist



The Grand Junction NWS staff enjoys a close working relationship with many broadcast and print media partners across eastern Utah and western Colorado. During 2016, our staff provided around 200 interviews on a variety of topics, including storm impacts, climate outlooks, seasonal weather safety campaigns, and many other weather-related topics. Occasionally, interviews are requested by media outlets from other locations, including Salt Lake City, Denver, or even from national news organizations.

In addition to interviews, Grand Junction NWS staff provided media organizations with a steady flow of weather resources through email, social media, and our office website. All media outlets are considered very important partners of the National Weather Service as they support our mission to protect lives and property by helping distribute our weather warnings and sharing our weather safety tips.



Snow Safety Partnerships

by Jim Pringle, Warning Coordination Meteorologist

One of the most important activities by forecasters at the Grand Junction NWS office during the winter months is providing weather decision support to our snow safety partners, including avalanche forecasters with the Colorado Avalanche Information Center (CAIC) and the Utah Avalanche Center's Moab office. Each fall prior to the winter season the Grand Junction NWS forecast office hosts an Avalanche and Winter Weather Coordination Meeting with avalanche center forecasters, ski area snow safety personnel, and research scientists involved with studying the snowpack. During the snowfall season, NWS forecasters provide mountain weather forecasts and occasionally provide verbal updates to our snow safety partners. We also transmit all avalanche watches and warnings for eastern Utah and western Colorado on NOAA Weather Radio, disseminate them to media, and post them on our NWS website. Our snow safety partners return the favor by providing forecasters with timely snowfall and weather reports, as well as information on avalanches which have occurred.

Right: Avalanche on US Highway 550 about halfway between Ouray and Red Mountain Pass. Photo courtesy CAIC



Weather Support for the 2016 Rio Blanco County Emergency Exercise

by Jim Pringle, Warning Coordination Meteorologist



Above photo courtesy Jim Pringle

Forecasters from the Grand Junction NWS office provided weather support during a functional emergency exercise in Meeker, Colorado, on December 6th. During the simulated wildfire and hazmat incident, NWS staff at the forecast office and a NWS liaison forecaster at the exercise location kept in frequent contact with emergency services personnel participating in the exercise. Forecasters provided spot forecasts and atmospheric dispersion model forecasts to the Incident Management Team. Participation in this emergency exercise is just one example of the many decision-support services provided by our NWS forecasters who partner with emergency services personnel across eastern Utah and western Colorado. Each year our forecasters participate in

at least a dozen emergency exercises conducted by counties, tribes, and other federal agencies. The NWS encourages local emergency managers, as well as state and federal officials to include the NWS staff in their emergency exercises where weather could be a factor. Participation in emergency exercises can make all the difference between failure and success when actual emergencies occur.

Aviation Services from the National Weather Service in Grand Junction
By Thomas Renwick, Meteorologist

A Terminal Aerodrome Forecast, or TAF, is a concise forecast of expected meteorological conditions at an airport during a specified period (24 to 36 hours). In other words, it's a weather forecast for an airport. TAFs are also a key product in decisions for flight planning and for aircraft movement within the National Airspace System. Your Grand Junction Weather Forecast Office currently produces TAFs for the following airports: Grand Junction Regional Airport, Garfield County Regional Airport, Eagle County Airport, Aspen-Pitkin County Airport, Montrose County Airport, Telluride Regional Airport, Durango – La Plata County Airport, Canyonlands Field Airport, and Vernal Regional Airport in Utah. The Grand Junction forecast office is also starting the process to add one more TAF for the Gunnison – Crested Butte Regional



Airport. Why? Our office received a request from the airfield manager requesting TAF support. The airport becomes very busy during the winter months and most closures occur because of weather. TAF support will further aid Gunnison airport personnel and pilots on what to expect weather-wise.

Why do NWS offices provide TAFs? The reasons vary but the common theme is that TAF support improves service provided to these airports whether it's for general aviation, commercial flights, pilots, passengers, or other members that work in flight operations. TAF support also

reduces flight cancellations. The Director of Aviation at the Durango – La Plata County Airport put it this way, "I have noticed that most of our cancellations are based on dispatch decisions before the aircraft departs the hub airport. These dispatch decisions are frequently rooted in uncertainty about the weather situation here in Durango. TAFs would greatly reduce this uncertainty while also saving money and countless man-hours."

While most people think of the National Weather Service as only producing forecasts and weather watches and warnings for the general public, we also help the aviation community. Please check out our current TAFs at

www.crh.noaa.gov/gjt/?n=aviation

School Talks and Office Tours

by Jim Pringle, Warning Coordination Meteorologist

Educating the public about weather safety and the weather resources provided by the NWS is a very important program within the NWS. Grand Junction NWS personnel reach out to all people, including students, in our effort to help people know how to make better decisions to protect themselves and their property from threatening weather. Knowing what to do when severe weather threatens is just as important as the timeliness and accuracy of our weather warnings.

In 2016, we provided about a dozen school talks and at least 50 presentations throughout eastern Utah and western Colorado. We also conducted at least 30 office tours. We provide office tours, school talks, and weather presentations for any group or organization upon request, as long as we have sufficient staffing resources.



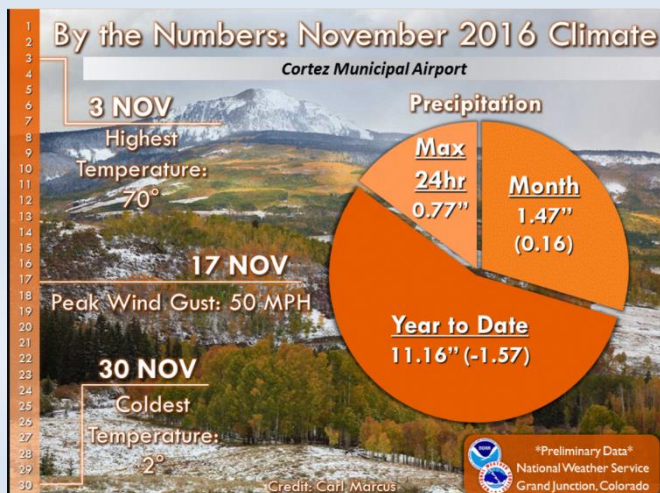
Photo courtesy Jitka Sinecka.

WFO Grand Junction Climate Team

By Megan Stackhouse, Meteorologist

In September 2016, the Grand Junction Forecast Office established its new Climate Team! The motivation behind creating the Climate Team was to explore and present historical climate data, trends, and future outlooks, including those prepared by the Climate Prediction Center (CPC), for the people of eastern Utah and western Colorado. The Climate Team, which consists of 6 members, has a mission to provide climate history and forecasts for all weather events and to provide educational opportunities for NWS partners and customers. By utilizing social media platforms (Facebook, Twitter, YouTube) and the NWS Grand Junction website (weather.gov/gjt), the Climate Team has created monthly, holiday, and annual climate reviews that summarize temperatures and precipitation data from various sites

across the forecast area. The team has also experimented with an initiative, called "Climate Rewind", which highlights storms or events from the same day in prior years. Additionally, the team has become an active partner in the NWS Storm Data archive program in an effort to document historically significant weather events. These significant events, including the recent January 9th ice storm, will be reviewed and analyzed in greater detail and archived to be used in further science and storm event reviews.



Left: Example of climate graphic posted by the NWS Grand Junction Climate Team.

Adopt-A-Lake Community Service By Matthew Aleksa, Meteorologist

On Saturday, September 10, several employees with their families provided community service by volunteering their time to help clean up litter around our three adopted lakes on the Grand Mesa. This is part of the Adopt-A-Lake program, sponsored by the U.S. Forest Service, in which WFO Grand Junction has been participating since at least 1995. This program was established to help keep our lakes clean and preserve the natural beauty of the landscape. We usually conduct this activity every two years, but the event was cancelled in 2015 due to an early season snowstorm on the Grand Mesa. The Grand Mesa is home to many recreational activities such as hiking, biking, camping, fishing, and skiing. The Adopt-A-Lake cleanup is one of the many ways for us to reach out to our community and make our presence known outside the office by cleaning up three of the 300 plus lakes on the Grand Mesa.



Full group of 15 at Twin Lake 1 from Left to Right: Bill Beagley and family, Megan Stackhouse, Andrew Lyons, Jeff Colton, Larry Smith, David Schwemlein, Matthew Aleksa, and the family of Ben Moyer. Photo courtesy Ben Moyer.

2016 Kmart Safety Fair by Jim Pringle, Warning Coordination Meteorologist

Three NWS forecasters staffed the NWS booth at the 2016 Kmart safety fair on Saturday, October 3rd. This was the third consecutive year that the Grand Junction NWS personnel staffed a weather safety booth at this safety fair. Over 200 people stopped at the booth to learn more about weather safety practices, the work of the NWS, and the weather resources available from the NWS. Cloud identification charts and other handouts were provided.



Above: L to R - Larry Smith, Jim Pringle, Megan Stackhouse.
Photo courtesy Jeff Colton.



Above: Safety Fair at Kmart. Photo courtesy Kmart.

Outdoor Heritage Days by Jim Pringle, Warning Coordination Meteorologist

On the last Saturday of April 2016, NWS personnel staffed a booth to promote weather safety and educate the public about weather during the annual Outdoor Heritage Days at Riverbend Park in Palisade, Colorado. About 400 children plus many adults stopped to visit our NWS booth. While this event is mainly focused on outdoor recreation, weather safety is particularly important to share at this event since people are most vulnerable to weather threats when they are outdoors.



Above: From L to R (under the tent): Forecasters Megan Stackhouse & Jeff Colton. Photo courtesy Jim Pringle.

Steamboat Springs Wild West Air Fest by Jim Pringle, Warning Coordination Meteorologist



Above: NWS forecaster Joe Ramey waiting for the Steamboat Springs Wild West Air Fest to begin. Photo courtesy Jim Pringle.

Two NWS forecasters staffed a booth during the first day of the 2016 Steamboat Springs Wild West Air Fest on September 3rd. The forecasters met with pilots and aviation enthusiasts, discussed weather safety, and handed out hundreds of cloud identification charts. One of the most important aspects of the NWS presence was to inform people of the numerous weather resources available to them.

In addition to the many fantastic flight exhibitions, a thunderstorm crossed the airport and caused a little excitement and a brief suspension of air show activities.

2016 Annual Mesa County Safety Fair – February 4th and 5th by Jim Pringle, Warning Coordination Meteorologist

About a dozen NWS staff took turns staffing a weather safety booth during the 35th annual Mesa County Safety Fair, the largest annual outreach event for the Grand Junction NWS forecast office. The NWS booth was divided into three weather safety stations; lightning safety, flood and flash flood safety, and severe thunderstorm and tornado safety, with one staff member providing information at each station. Lightning and flash floods are common threats during the summer season in eastern Utah and western Colorado. Among other things, the children were taught “When thunder roars, go indoors!” and “When flood waters threaten, Turn Around, Don’t Drown!”.

Approximately 1400 children and many adults visited the safety fair at Mesa Mall in Grand Junction, Colorado. The safety fair exhibitors target their safety messages to children, though the information is pertinent to people of all ages. Many of the safety fair exhibitors are partners of the NWS, including law enforcement agencies, fire departments, public utilities, health services, the Bureau of Reclamation, the National Park Service, Colorado State Parks, the Local Emergency Planning Committee, and many others.



Left: NWS staff, from left to right: Ellen Heffernan (far left), Julie Malingowski, Megan Stackhouse, and Joe Ramey. Photo courtesy Jim Pringle.

2016 Skywarn Recognition Day by Jim Pringle, Warning Coordination Meteorologist

On December 3rd, a dozen Skywarn mobile storm spotters from the western Colorado counties of Delta, Mesa, and Montrose, participated in a special amateur radio event, Skywarn Recognition Day (SRD), sponsored by the NWS and the Amateur Radio Relay League (ARRL). During the SRD special event, Skywarn spotters use their amateur radio equipment to communicate with as many other amateur radio operators as possible during a 24-hour period. Each NWS forecast office hosts the Skywarn spotters who serve within their warning and forecast area of responsibility.

During the 2016 SRD, the **Skywarn spotters who serve the Grand Junction NWS forecasters** had fantastic success compared to all other Skywarn participants throughout the NWS:

1st place: total number of contacts (QSOs)

1st place tie: total number of states contacted

2nd place: total number of other NWS forecast offices contacted.

The annual SRD special event was started in 1999 and is conducted for the purpose of showing our appreciation for the many great and dedicated Skywarn spotters who volunteer their time and resources to provide mobile storm spotting.



Above: L to R: Lewis French, Montrose and Delta Counties' Skywarn Coordinator, and Dick Schultz, Montrose County assistant Skywarn coordinator. Photo courtesy Julie Malingowski



National Weather Service
2844 Aviators Way
Grand Junction, CO 81506

970-243-7007
wxgjt@noaa.gov

