



# Shareholders Report

# 2018

Welcome to the third annual Shareholders Report. The purpose of this report is to highlight specific activities your local National Weather Service office was engaged in during 2018 as a part of our core mission and desire to provide high quality weather information and education. 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.

## National Weather Service Grand Junction

# FROM THE DESK OF THE METEOROLOGIST IN CHARGE

**BEN MOYER, METEOROLOGIST-IN-CHARGE**

Welcome to the 3<sup>rd</sup> edition of National Weather Service (NWS) Grand Junction's Shareholders Report. The fiscal year 2018 national budget for the NWS was 1.1 billion dollars, which amounts to about \$3.35 per person. The purpose of this report is to showcase a lot of the work your local NWS 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 NWS 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](http://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 NWS office was engaged in during 2018 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.

In 2018, we hired a new meteorologist, Erin Walter. Erin grew up in the Denver area, but spent recent years in Rapid City, SD. She brings a lot of enthusiasm, has rapidly learned our operations, and is growing in her knowledge of providing decision support services. We also saw the retirement of long-time employee and Warning Coordination Meteorologist (WCM), Jim Pringle. Many of you worked with him over his 23.5 years here. His corporate knowledge and professionalism will be missed! We expect to hire a WCM sometime later this year.

In 2019, our office's top priorities are:

- To hold an Integrated Warning Team Workshop focused on fire weather and flash flooding
- To have each employee visit one of you and learn how we can better support you
- To provide meteorologists on-site at your large outdoor event public safety command centers
- Implement live social media sessions
- Conduct scientific studies and have one published in a national publication

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.

A big thank you to Matthew Aleksa, Meteorologist at NWS Grand Junction, for compiling this report and delivering it to you. I appreciate his effort to solicit input from our staff and arrange it in a meaningful way.

Sincerely,

Ben

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*Cover photo and article header photo provided by Michael Charnick, General Forecaster at NWS Grand Junction*

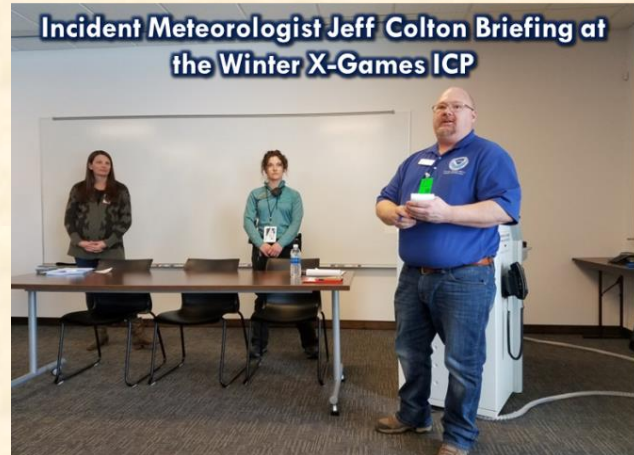
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# NWS GRAND JUNCTION 2018 IMPACT-BASED DECISION SUPPORT SERVICES

MEGAN STACKHOUSE, GENERAL FORECASTER

Rain or shine, county fair or concert, the NWS in Grand Junction provided critical weather support for our partners in 2018. For several years now, the NWS in Grand Junction has been providing essential weather support for our core partners, such as emergency personnel and public safety officials, during local, regional and even national events. 2018 was no exception, and the Grand Junction Weather Forecast Office (WFO) supported an impressive 45 events during the calendar year. The summer months were the most active period with 33 events during the months of June, July and August. Many of these events were large public outdoor events, including sporting events and festivals. A large number of these events occurred over a period of several days or a week with some even occurring once a month.



Support was provided in the form of daily weather briefings, slide decks, spot forecasts, conference calls, and on-site operations at Incident Command Posts (ICPs). One such event was the Winter X-Games in Aspen, Colorado, where three of our forecasters participated in the incident briefings and interacted with our core partners by relaying valuable weather information to promote safe operations. The Winter X-Games was attended by over 20,000 people who came from all over the world. Finally, with any event support, our meteorologists always remained vigilant back at the forecast office and frequently provided impromptu

weather briefings to the Incident Management Team (IMT) whenever hazardous weather approached the venue.



The NWS in Grand Junction provided 188 total days of decision support to our partners. This consisted of 251 total briefings, spot forecasts, conference calls, and more. 23 Situation Reports were issued throughout the year, most of which focused on an impending winter storm or critical fire weather conditions.



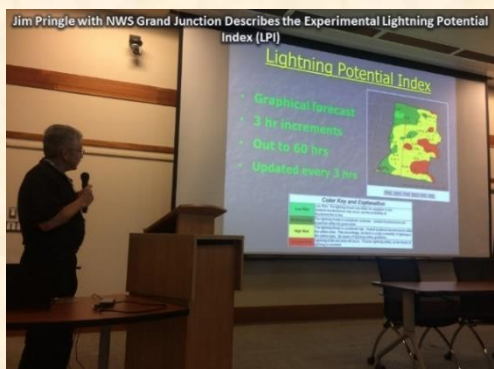
# NWS GRAND JUNCTION CO-HOSTS LIGHTNING WORKSHOP

MEGAN STACKHOUSE, GENERAL FORECASTER

After six months of intensive planning and collaboration led by meteorologist Julie Malingowski and WCM Jim Pringle, the NWS in Grand Junction held its first Integrated Warning Team (IWT) workshop on April 18, 2018. The workshop was co-hosted by two other agencies within NOAA, the National Severe Storms Laboratory (NSSL) and the Storm Prediction Center (SPC). Dr. Kim Klockow, Tiffany Meyer and Holly Obermeier were the research scientists who represented NSSL while Nick Nauslar, a fire weather forecaster, represented SPC. The IWT brought in 31 external partners representing 21 agencies with forecasting, response and communication responsibilities related to lightning or fire weather across eastern Utah and western Colorado. Participants included individuals from the Bureau of Land Management (BLM), US Forest Service (USFS), fire departments, ski resorts, broadcast media, emergency management, and more! The mission of the IWT was not only to discuss and enhance the NWS' lightning-related products and services, but to also provide NSSL the opportunity to present their new ProbLightning tool to potential future users.



The IWT Lightning Workshop was divided into two sessions: a morning session focused on current products and services, and an afternoon session focused on developmental products. During the morning session, Nick Nauslar presented on current products available from SPC, including their [1 to 3 day fire weather outlook](#) for dry thunderstorms. Next, WCM Jim Pringle with NWS Grand Junction discussed the office's experimental [Lightning Potential Index \(LPI\)](#) which is an excellent resource for determining the lightning threat to better plan outdoor activities within the next few days. Meteorologist Michael Charnick with NWS Grand Junction gave the



final presentation of the morning on satellite and lightning monitoring resources used by the office, as well as on the Significant Weather Advisory which can be used to advise the public of frequent lightning in an area. After a short break, the morning wrapped up with two group panel discussions centered on lightning impacts to partner organizations, the resources they use to monitor lightning strikes and how they receive lightning forecast information. Outdoor recreation and public safety agencies were represented in the first panel while fire management personnel participated in the second.

NSSL's research scientists were able to use the latter half of the IWT Lightning Workshop to present and receive comments on their developmental ProbLightning product. The purpose of this tool is to provide a forecast for cloud-to-ground lightning within the next 60 minutes. Following the presentation, IWT participants were split up into several focus groups which allowed NSSL, SPC, and NWS personnel to obtain more comments and suggestions to improve NWS products, services, and the delivery of those resources.

The inaugural IWT for eastern Utah and western Colorado was a resounding success for all those involved. The Grand Junction NWS gained a substantial amount of new knowledge about their partners' needs, NSSL scientists received invaluable feedback to better tailor future products, and the wide variety of agency representatives discovered new resources to aid them in their planning and operational responsibilities.



# LOCAL IMET PROVIDES ON-SITE SUPPORT FOR MAJOR WILDFIRES

**JEFF COLTON, SENIOR/INCIDENT METEOROLOGIST**

Every fire season offers unique challenges and 2018 was no exception. The fire season started off strong with major wildfires breaking out across the Southwest U.S. in late May. On June 1, 2018, our first major wildfire in the state of Colorado broke out. The fire became known as the 416 Fire and was located near Hermosa, Colorado (10 miles north of Durango, CO in La Plata County).

The fire burned on the west side of Colorado State Highway 550 and early objectives were to keep the fire from jumping the highway. On June 7, a Type I Incident Management team was deployed with a request for an Incident Meteorologist (IMET) from the National Interagency Fire Center (NIFC) in Boise, ID.



**Image 1: The 416 Fire on June 10, 2018.**

A request was made from Boise to activate Grand Junction IMET Jeff Colton who was to report to the fire by midday on June 8. Jeff arrived at the incident and relieved a private IMET from Kansas, taking over full weather support of the fire on the evening of June 8. Over the next 14 days, the 416 Fire would experience an amazing variety of weather, including hot and dry conditions, the remnants of a wet, tropical weather system and cool, clear days.



**Image 2: June 11, 2018 Burnout Operations**

Early in Jeff's deployment, extreme fire behavior was observed. Afternoon humidity values dropped to between 5 and 10% for several days, with hot and unstable conditions promoting rapid fire growth. Burnout operations were conducted by the wildland fire fighters with the Type I team. Specialized Spot Weather Forecasts were generated for these operations, which often include hour-by-hour updates of winds, extremely successful and no structures were lost.

For the next several days, work continued on protecting structures as extreme fire weather persisted, but Jeff was already dialing in on one of the most unusual events he would encounter over the course of 7 years and 23 incidents where he has provided onsite support.

Every now and then, Mother Nature will throw a monkey wrench into the weather and this year was no different. Forecasters across the Western U.S. started tracking a hurricane spinning up off the west coast of Mexico. Computer projections were bringing the remnants of Hurricane Bud northward with the 416 Fire right in the cross-hairs. Jeff started mentioning the potential for heavy rain on the fire during the Planning meetings with the Type I Team, Emergency Management, State, County and Local Officials. No one could remember an event where we had the potential of a tropical system interacting with an active major wildfire. Concerns were



# LOCAL IMET PROVIDES ON-SITE SUPPORT FOR MAJOR WILDFIRES (CONTINUED)

**JEFF COLTON, SENIOR/INCIDENT METEOROLOGIST**

rapidly elevating that we would be shifting from an ongoing wildfire to the potential for major flash flooding and debris flows. Rainfall amounts exceeding a quarter of an inch (0.25 inches) can cause flooding and debris to move on fresh burn scars in a matter of minutes. Rainfall with tropical systems can be intense and projections were for 1 to 2 inches of rain to fall directly on the fire.

Jeff ordered additional Incident Remote Automated Weather Stations (IRAWS) which were strategically placed along ridges to

the south of the fire so we would be able to capture rainfall amounts and intensity of rainfall before it hit the fire.

The remnants of Hurricane Bud arrived as expected and dropped up to 1.5 inches of rain directly on the fire. No major flooding occurred, but the rains knocked the fire down, but not out and Jeff remained on the incident through June 22 before being replaced by another IMET. The fire would go on to burn into July before becoming fully contained on July 31.



**Image 3: Heavy rain brought ponding of water to the Incident Command Post on June 17, 2018.**



**Image 4: Launching a weather balloon under clear, blue skies (after the rains) on June 19, 2018**



**Image 5: Panoramic view of pyrocumulus clouds generated by the 416 Fire**

***All photos courtesy of Incident Meteorologist Jeff Colton from the NWS Grand Junction Office***



# ONSITE HYDRO-METEOROLOGICAL IDSS FOR THE 416 FIRE

ALDIS STRAUTINS, SERVICE HYDROLOGIST

The State of Colorado Emergency Management requested onsite hydro-meteorological Impact-based Decision Support Services (IDSS) from the NWS in Grand Junction for the Emergency Operations Center (EOC) supporting the 416 Fire near Durango, Colorado.

The 416 Fire near Durango, Colorado was very active and burned through steep terrain in a basin that is one of the wettest in La Plata County. During the second week of June 2018, a hurricane named Bud was intensifying over the eastern Pacific. The remnants of Hurricane Bud were forecast to move over the Four Corners region and the fire area on the weekend of June 15-17, 2018. Precipitable water values (a measure of the amount of available water in the atmosphere) was forecast to be well above normal. Even without a fresh burn scar to worry about under these circumstances, the region could see substantial flash flooding issues.



After coordinating with the state emergency management office on Wednesday and Thursday, June 13 and 14, 2018, Service Hydrologist Aldis Strautins was deployed to the La Plata County EOC for hydro-meteorological support. Mr. Strautins left a workshop at the NOAA center in Boulder and went directly from Boulder to Durango arriving on the morning of June 15 to furnish IDSS to community officials supporting the 416 Fire.



On site hydrological and weather informational updates were provided for 2 main briefings a day. In addition, Mr. Strautins supported multiple meetings and conference calls with elected, local and state officials including one-on-one support for agencies at the EOC. With multiple sources of weather data showing many different scenarios, Mr. Strautins was able to consolidate the many varieties of information and provide a concise forecast and outlook to better support decisions being made at the EOC to save life and property. Also of great importance was the coordination and collaboration with the Weather Forecast Office

(WFO) in Grand Junction and the IMETs attached to the Incident Command Post (ICP) for the ongoing 416 Fire.

The deepest moisture from the remnants of Hurricane Bud tracked to the east and south of the 416 Fire area. A Flash Flood warning was issued; thankfully only minor flooding and a few minor rock slides occurred. A month later, a storm system with much less moisture than what Hurricane Bud had, moved over the 416 Fire burn scar and created multiple mudslides and flash flooding. Highway 550 was closed due to mudslides. These slides also impacted a county road and the narrow gauge railroad, stranding people and damaging property in a campground and covering prime pasture land.

# ONSITE HYDRO-METEOROLOGICAL IDSS FOR THE 416 FIRE (CONTINUED)

ALDIS STRAUTINS, SERVICE HYDROLOGIST



The NWS in Grand Junction continued to provide Hydro-meteorological IDSS through the late summer for the 416 Fire burn scar.

*Special thanks to the Boulder Weather Forecast Office for providing significant support to the service hydrologist before mobilization to the EOC.*

***All photos courtesy of Service Hydrologist Aldis Strautins from the NWS Grand Junction Office***



# FIRE WEATHER PROGRAM: 2018 SEASON SUMMARY

CHRIS CUOCO, SENIOR FORECASTER

A significantly warmer and drier late Spring and Summer produced one of the most active fire seasons western Colorado and eastern Utah have ever experienced. The drought conditions led to near record numbers of wildfires and acreage burned, as well as several very large wildfires for 2018. Both the number of fires and total acreage burned was the highest since Weather Forecast Office (WFO) record keeping began in 1998. The number of wildfires in WFO Grand Junction's (GJT) County Warning Area (CWA) for 2018 was 1722, totaling 411,261 acres burned.

The summary of activities at WFO GJT parallels these conditions. In 2018, WFO GJT issued more spot forecasts for wildfires than any other office in the country (**595**). GJT issued the second highest number of spots in the country (**968**) which was our highest national position ever. Only WFO Medford, Oregon issued more. This total was also the second highest spot total for GJT since records began in the late '90s. WFO GJT set a record for the number of days with Red Flag Warnings (**41**) and number of Red Flag Warnings issued (**312**) in a year. The number of Fire Weather Watches issued (**170**) was the second highest all-time for GJT in 2018. Our success rate for Red Flag Warnings (**85%**) and Fire Weather Watches (**88%**) was the highest ever success rate for GJT this year. Our average Red Flag Warning lead time (**28 hours, 27 minutes**) was the longest lead time ever for GJT in a year. On the other hand, our average Fire Weather Watch lead time (**47 hours, 21 minutes**) was the second longest ever. WFO GJT was **second** nationwide for Search and Rescue spot forecasts and **sixth** in the nation for HAZMAT spot forecasts.

Our IMET spent 49 days dispatched to wildfires across the west and three forecasters issued over 120 spot forecasts each. The forecaster who issued the most spot forecasts (General Forecaster Matthew Aleksa, with 162) issued more spots than 68 WFOs. For the second year in a row, we attained an important milestone: we provided more than 24 hours average lead time for Red Flag Warnings.

The fire season started off on the slow side through the early Spring months, but rapidly evolved into one of the most extreme fire weather seasons since 2002. On June 1, forecasters working shift observed a smoke plume on satellite rising north of Durango, CO. Forecasters used this information and called fire dispatchers, triggering the first wildfire spot forecast for what became known as the 416 Fire, which eventually grew to the 6th largest wildfire in Colorado history. Little did the office know, this incident was just the beginning of a long, hot and dry summer exacerbated by extreme drought conditions, a poor winter snowpack and hot temperatures. IMET support continued throughout the summer on at least 10 different wildfires with the new coordinating chatroom proving to be a huge boon to the IMETs. In an effort to reduce exposure of information being exchanged between the WFO and the IMETs, we realized the need for a separate NWSChat room in which to communicate, which our Information Technology Officer (ITO) James V Clark created. The remnants for Hurricane Bud were a big driver in separating the rooms as complex discussions were exchanged in this rare event where heavy rainfall was expected over a large wildfire in steep terrain. Very favorable feedback was received by the office as we were able to communicate directly with them and they were able to read back through messages if they were not available at the time the messages were sent. Direct calls were also made by the forecasters to the IMETs in the field when threatening weather approached their incident.

# SIGNIFICANT WEATHER EVENTS OF 2018 AND SATELLITE IMPROVEMENTS

MICHAEL CHARNICK, GENERAL FORECASTER

2018 was an exciting year for weather events in eastern Utah and western Colorado. While the 416 Fire dominated major news throughout the summer, other events throughout the region produced strong winds, heavy rain, and even large hail. The Lake Christine Wildfire, which burned throughout mid-July near Basalt, Colorado, grew dramatically due to the same combination of dry weather and parched vegetation that helped fuel the 416 Fire to the south. In early October, several thunderstorm events moved across the western slope of the Rockies. Perhaps the most widespread event occurred from October 3<sup>rd</sup> to October 4<sup>th</sup>. While small hail is common over much of Colorado, large hail is a rare event west of the Continental Divide. One inch diameter hailstones were observed in Palisade, Colorado during the predawn hours on October 3<sup>rd</sup>, which affected some vegetation in the valley.

On October 4<sup>th</sup>, a powerful line of thunderstorms developed in canyon country of eastern Utah. This line of thunderstorms raced eastward, producing 60 to 70 mph wind gusts from Delta through Grand Junction and eastward along the I-70 corridor. Wind gusts over 80 mph were observed in Rifle and in northern Garfield county - these were some of the highest thunderstorm-related wind gusts ever recorded in the Grand Junction County Warning Area!



Image 1: A textbook shelf cloud passes over the Grand Junction Regional Airport on October 4, 2018.

Photo credit: Michael Charnick



# SIGNIFICANT WEATHER EVENTS OF 2018 AND SATELLITE IMPROVEMENTS (CONTINUED)

MICHAEL CHARNICK, GENERAL FORECASTER

Meteorologists at the NWS in Grand Junction benefited from the launch of another brand new weather satellite in 2018: GOES-17. This satellite extended high-resolution visible and infrared observations westward into the Pacific Ocean, complimenting the GOES-16 satellite launched in 2016. With GOES-17, NWS Meteorologists have been better able to observe phenomena such as atmospheric rivers over the Pacific, as well as wildfire development over the Rocky Mountains. Lightning data observed by satellites also came online in 2018. This new type of data played a key role in observing the strength and development of monsoon thunderstorms over western Colorado and eastern Utah.

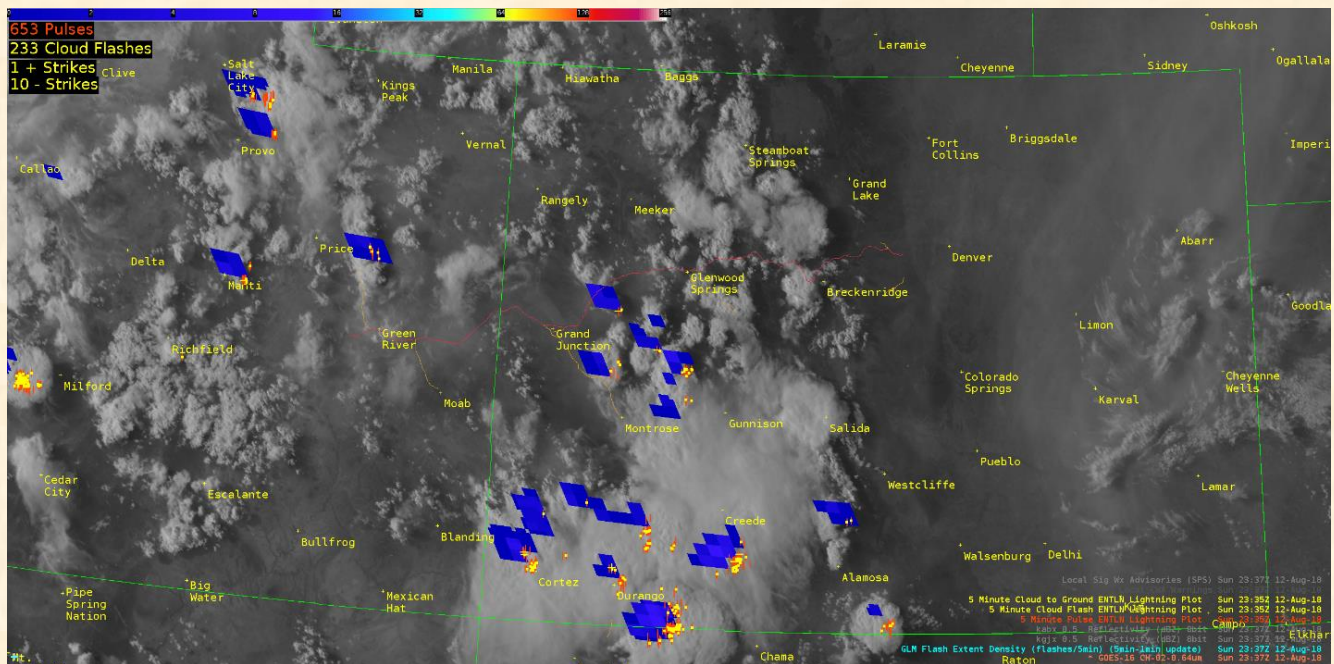


Image 2: Lightning Data from the GOES Geostationary Lightning Mapper shown in blue on August 12, 2018.

This data, from the Geostationary Lightning Mapper instrument onboard GOES, allows meteorologists to not only observe the number of lightning flashes in a storm, but also the aerial extent of each lightning event. This tool continues to prove its worth at every turn, and will undoubtedly play a significant role in public safety throughout the summer thunderstorm season in 2019.

# DECISION SUPPORT SERVICES DURING THE 2018 DROUGHT

ALDIS STRAUTINS, SERVICE HYDROLOGIST

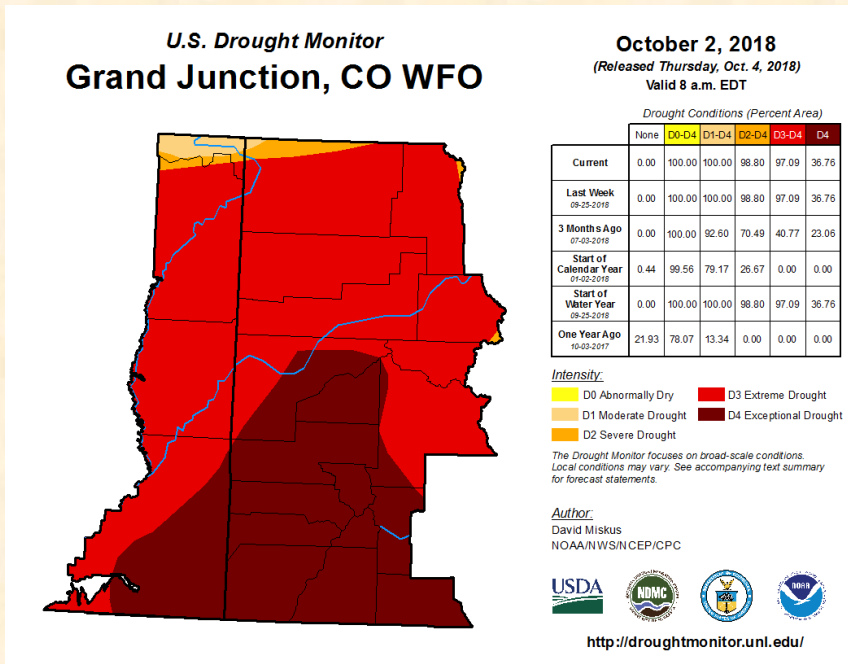


Image 1: U.S. Drought Monitor for eastern Utah and western Colorado at the end of the water year, October 2, 2018.

The 2018 water year was dismal when it came to the snow pack and summer precipitation in western Colorado and southeastern Utah. Parts of the Gunnison Basin and south to the Four Corners region were especially dry. By the end of the 2018 water year, nearly 37 percent of eastern Utah and western Colorado was under Exceptional Drought (D4) with 60 percent under Extreme Drought (D3) conditions.

The NWS office in Grand Junction provided expert recommendations for the Drought Monitor through the National Integrated Drought Information System (NIDIS) Intermountain West drought early warning system. The service

hydrologist also provided local and regional water managers information on the drought to make better decisions during this dry period.

As a member the Drought Response Information Project (DRIP), service hydrologist Aldis Strautins provided expertise to update the regional Drought Response Plan for the Grand Valley. The March 2018 updated drought plan includes categories and local responses that are related to the categories of drought represented in the U.S. Drought Monitor. The result of related drought categories is clear messaging about what steps water users should take during drought. The good news is snow pack as of the end of February 2019 is near to above average for the 2019 water year.





# UPPER AIR PROGRAM: LAUNCHING WEATHER BALLOONS

JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER

Since May of 1944, the NWS in Grand Junction has taken upper air observations with radiosondes. The radiosonde is a small, expendable instrument package just smaller than a shoe box that is suspended below a large balloon inflated with helium gas. As the radiosonde rises at a rate of 1,000 feet per minute, sensors on the radiosonde transmit pressure, temperature, relative humidity and GPS position data each second, along with GPS-derived wind speed and direction.



Image 1: General Forecaster Michael Charnick releasing a weather balloon. Photo credit: NWS.

## How are radiosonde data used?

Radiosondes are the primary source of data that are ingested into supercomputers for weather prediction models, with output that forecasters adjust for accuracy as needed. These supercomputers run at speeds of 8.4 quadrillion operations per second! Occasionally, when severe weather is expected, additional soundings may be taken in support of the area threatened. For example, the NWS in Grand Junction has done additional soundings in support of Hurricane Irene and Superstorm Sandy. Other radiosonde data applications include air pollution and fire weather models.

## The details

These sensors are linked to a battery powered radio transmitter that sends the sensor measurements to a sensitive ground tracking antenna on a radio frequency, typically ranging from 1676 to 1682 MHz. Observations where winds aloft are also obtained from radiosondes are called "rawinsonde" observations. The radio signals received by the tracking antenna are converted to meteorological values and from these data, significant levels are selected by a computer, put into a special code form, and then transmitted to data users. High vertical resolution flight data, among other data, are also archived and sent to NOAA's National Center for Environmental Information (NCEI).

A typical NWS "weather balloon" sounding can last about two hours. In that time, the radiosonde can ascend to an altitude of 110,000 feet, and be transported more than 180 miles in strong winds. The radiosonde is suspended about 100 feet below the balloon to minimize contamination of the temperature measurements from heat shedding off the balloon skin. During the flight, the radiosonde is exposed to temperatures as cold as  $-90^{\circ}\text{C}$  ( $-130^{\circ}\text{F}$ ) and an air pressure less than one percent of what is found on the Earth's surface. If the radiosonde enters a strong jet stream, it can travel at speeds exceeding 250 mph.



# UPPER AIR PROGRAM: LAUNCHING WEATHER BALLOONS (CONTINUED)

JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER

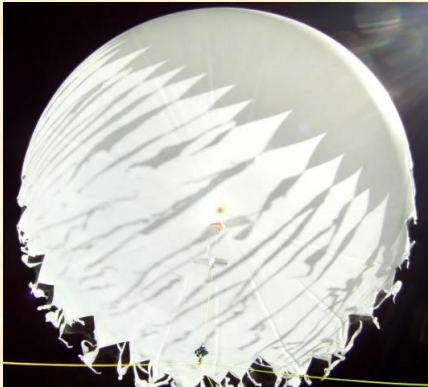


Image 2: Weather balloon the moment before it bursts.

Photo credit: homeinstead.com

When released, the balloon is about five feet in diameter and gradually expands in size as it rises, due to the decrease in air pressure. When the balloon reaches a diameter of 20 to 25 feet in diameter, it bursts. A small, orange colored parachute slows the descent of the radiosonde, minimizing the danger to lives and property. Data are not collected while the radiosonde descends.

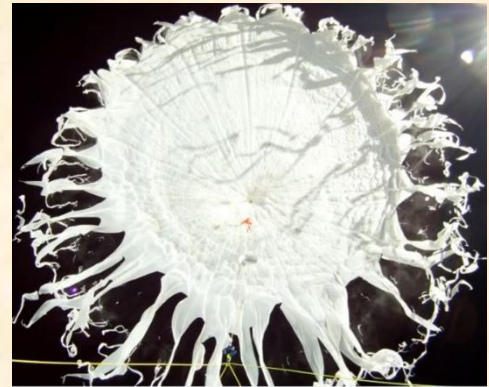



Image 3: Weather balloon when it bursts.

Photo credit: homeinstead.com


Worldwide, there are over 800 upper-air observation stations; NWS takes observations at 92 stations; 69 in the conterminous United States, 13 in Alaska, nine in the Pacific, and one in Puerto Rico. Observations are taken twice a day, at the same time each day, 365 days a year.

[Here is an example of a high wind balloon launch](#) from the NWS Grand Junction that occurred this past year on July 17, 2018. The peak wind gust on this day was 70 mph. Winds were gusting to 58 mph at the time this balloon was released.




## Upper Air Program


National Weather Service  
Grand Junction



- Weather balloons are released twice daily at about 800 sites worldwide
- There are 102 upper air sites in the U.S., Caribbean & the Pacific
- Over 730 weather balloons are released from Grand Junction annually
- Upper air observations began in Grand Junction in May 1944




U.S. upper air sites




inflation building

- Upper air weather instruments are called radiosondes
- A radiosonde is smaller than a shoebox
- Radiosondes measure temperature, wind, humidity, and pressure
- Data are processed on super computers, running at 8.4 quadrillion operations per sec.






Observer at release

- A flight train consists of a balloon, helium, parachute, string and radiosonde
- The materials of a flight train are \$225, the radiosonde is \$150
- Balloons normally burst at a height around 102,000 feet, or 19 miles



radiosonde



[weather.gov/gjt](http://weather.gov/gjt)



# 2018 ELECTRONICS STAFF UPDATE

## BILL BEAGLEY, ELECTRONICS TECHNICIAN



**Image 1: ET Mike Martinez using a cordless drill to sand the edges of the alignment collar of an ASOS so the new IFWS will fit properly. Photo credit: NWS.**

Another system our ETs work on is the Upper Colorado Network. This past year, they re-initiated the Upper Colorado Network site at Aspen, bringing the total sites that they maintain to 28. Bringing a site back into the network can be time consuming and always a challenge for no two sites are the same. Each site is set up with a GTX platform, GPS antenna, temperature sensor, Fisher Porter rain gauge, 12v battery, an antenna for transmitting the

In 2018, the Electronics Technician (ET) staff installed updated Ice Free Wind Sensors (IFWS) at all 10 Automated Surface Observation System (ASOS) sites. This was a 3 man job. Not only were the sensors located at the top of the pole replaced but the electronic enclosures at the base of the pole were replaced as well. Each unit took about 3 hours. The old cabling was removed and a new 20 foot cable installed. At times, this presented problems but our ET staff, led by ET Bill Beagley, always found a way to get the job done. In Image 1, ET Mike Martinez is using a cordless drill to sand the edges of the alignment collar so that the new sensor will fit properly.



**Image 2: ET David Schwemlein getting power to the GTX at the Upper Colorado Network site at Aspen. Photo credit: NWS.**



**Image 3: ET David Schwemlein digging out the diesel tank so the Snow Cat can be fueled before driving out to the radar on the Grand Mesa. Photo credit: NWS.**

data, and a solar panel for recharging the battery. Each site has their own unique program that must be put into the GTX using a laptop. In Image 2, ET David Schwemlein is getting power to the GTX.

The snow conditions this year on the Grand Mesa, where our radar is located, is quite a bit different from last year. The snow depth is currently over 6 feet at the garage where the Snow Cat and snowmobiles are kept. In Image 3, ET David Schwemlein is seen digging out the diesel tank so that the Snow Cat can be fueled before driving out to the radar.

# COOPERATIVE OBSERVER PROGRAM: 2018 LENGTH OF SERVICE AWARDS

JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER

The National Weather Service (NWS) Cooperative Observer Program (COOP) is 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 75 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, used 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 its 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 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 some 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.

There were 10 length of service awards presented to 10 of our COOP observers. The photos of the award presentations with a description in the caption are displayed on the next few pages below.



# COOPERATIVE OBSERVER PROGRAM: 2018 LENGTH OF SERVICE AWARDS (CONTINUED)

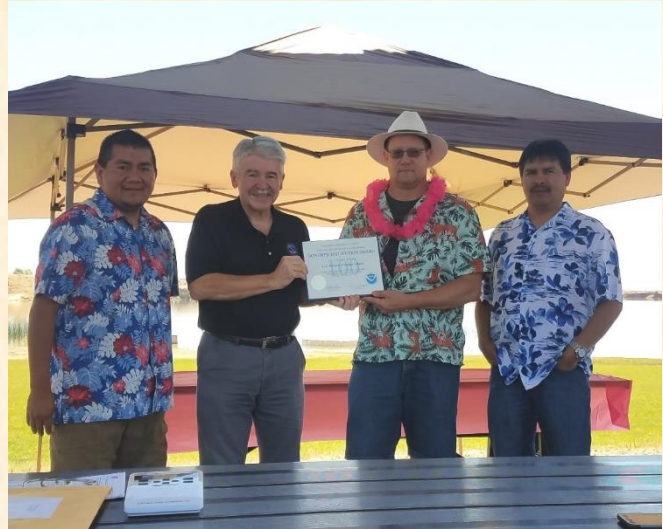
## JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER

The following are 10 of the 2018 COOP awards in order based on length of service:



**Image 1:** Beth LaShell, Coordinator for the old Fort Lewis at Hesperus, receives a 100 year Length of Service Award from John Kyle, Data Acquisition Program Manager at the NWS in Grand Junction. Beth represents the latest in a long line of dedicated staff providing high quality weather observations dating back to July 1st, 1917. Fort Lewis was established in the early 1880s with Buffalo soldiers, "as a remote new post, deemed absolutely necessary for the protection of southern and western Colorado."

Photo credit: Fort Lewis Staff.



**Image 2:** Staff from the Ft. Duchesne Bureau of Indian Affairs (BIA) receives a 100 year Length of Service Institution Award from the NWS Grand Junction, CO, during a 4th of July Celebration Pow Wow. Pictured from left to right: Christopher Secakuku (Forest Manager for the Uintah and Ouray Agency), Jim Pringle (WCM at GJT WFO), Douglas Bryce (Supervisory Forester, BIA Fort Duchesne), and Antonio Pingree (Acting Superintendent for the Uintah and Ouray Agency).

Photo credit: BIA



**Image 3:** Harlan Harrison, Sr., was recently awarded the Edward H. Stoll Award near his home in Mexican Hat, Utah. Mr. Harrison and family have been taking daily weather readings for the NWS for over 50 years! Mr. Harrison is always a joy to visit, and staff leave his presence having learned a new word in the Navajo language. Congratulations go out to Harlan and family!

Photo and presentation courtesy of John Kyle, DAPM, NWS Grand Junction



# COOPERATIVE OBSERVER PROGRAM: 2018 LENGTH OF SERVICE AWARDS (CONTINUED)

JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER



Image 4: Staff from the National Park Service/Curecanti National Recreation Area (Blue Mesa Lake) receive a 50 year Length of Service Institution Award from the NWS Grand Junction, CO. Pictured from left to right: Chris Mengel, Chief Ranger; Bruce Noble, Superintendent; John Kyle, DAPM, NWS. (Not pictured, Emily Slayton Keil, Administrative Officer).

Photo credit: National Park Service/Sandra Snell-Dobert.



Image 5: Phillip Virden (left) receives his 30 year Length of Service Award from John Kyle, Data Acquisition Program Manager in Grand Junction, CO. Phillip is an avid weather watcher and star gazer from his home just outside of Lake City, CO.

Photo credit: Carolyn Virden



Image 6: Staff from the Gunnison County Electric Association (Gunnison 3SW) receives a 25 year Length of Service Institution Award from the NWS Grand Junction, CO. Pictured from left to right, Jeff Stanley, Billing Assistant; Marcia Wireman, Chief Financial Officer; Alanatha Garrison, Energy Use Specialist; John Kyle, Data Acquisition Program Manager, NWS. (Not pictured, Sherry Booth, Executive Assistant).

Photo credit: NWS Grand Junction.



# COOPERATIVE OBSERVER PROGRAM: 2018 LENGTH OF SERVICE AWARDS (CONTINUED)

**JOHN KYLE, DATA ACQUISITION PROGRAM MANAGER**



**Image 7: Peter Hayes (right), Lab Technician for the Telluride Water/Wastewater Treatment Plant, receives a 25 year Length of Service Institution Award from John Kyle, Data Acquisition Program Manager at the NWS in Grand Junction, Colorado.**

**Photo credit: NWS.**



**Image 9: Jeannie Stewart of Placerville, Colorado, receives her 10 year Length of Service Award from the NWS in Grand Junction. (Not pictured, John Kyle, DAPM at NWS Grand Junction).**

**Photo credit: NWS**



**Image 8: Emil Shutt (left) receives his 15 year Length of Service Award from John Kyle, DAPM at NWS Grand Junction. Emil lives on the homestead his grandparents established, where weather observations began on August 1, 1930. The homestead is Northdale, Colorado, which is northwest of Dove Creek, Colorado.**

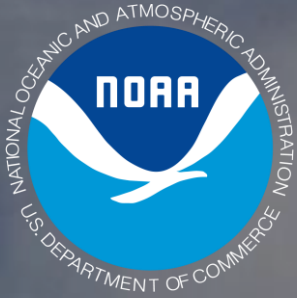
**Photo credit: NWS**



**Image 10: Aspen Water Department representative Laura Taylor has been the focal point for daily weather observations in Aspen for 10 years. DAPM John Kyle from NWS Grand Junction presented the award.**

**Photo credit: Aspen Water Department**





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