

CWSU Salt Lake City

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Being Your Most Weather Informed Self

By: Rick Dittmann, Meteorologist-in-Charge, NWS CWSU Salt Lake City

The terrain throughout the ZLC air space is magnificent. Glacier, Yellowstone, Teton, Zion, Canyonlands, Bryce Canyon, Arches, Capitol Reef and Great Basin national parks lie within our boundaries. On a summer day, the temperature can reach 115F while on a winter's morning we can see -40F somewhere in the airspace. There is over 9,000 feet of elevation difference. There are the wide-open spaces of Nevada and eastern Montana and the nation's 29th busiest airport in Salt Lake City where nearly 2 million people reside. Parts of Montana receive snow every month of every year. Parts of Utah and Nevada receive scant amounts of precipitation in any given year.

Are you aware of the weather hazards in this part of the world? Are you aware of the weather hazards when you fly? Our air space receives a multitude of general aviation hazards all pilots should be aware of and prepared for. Low-level wind shear occurs not just with thunderstorms, but with frontal boundaries in the proximity of the region's numerous mountains and canyons. From cloudless skies to low clouds obscuring our mountains in just minutes. Icing, turbulence and mountain waves are frequent.

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We hope you know to get a weather briefing from a professional each time you fly. You can enhance that briefing by staying current with weather information from weather.gov and aviationweather.gov. These sites provide myriad sources of weather information. You can access aviation-centric forecasts of icing, turbulence, mountain waves, IFR and mountain obscurations. You can also use these sites to view satellite and radar data, terminal aerodrome forecasts (TAFs), current observations and trends.

While you are at it, how about adding the National Weather Service to your Facebook and Twitter? You can get updates that often include images or loops of trending weather via social media. Do all you can to eliminate weather surprises by routinely visiting these sites.

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NWS Participates in Volcanic Ash Exercise for Mount Baker, WA

By: Scott Birch, Regional Aviation Meteorologist, NWS Western Region, Salt Lake City, UT

During the week of October 15-19, several NWS offices participated in a large volcano eruption exercise for Mount Baker in northwest Washington. The exercise was conducted in the Whatcom County Emergency Operations Center, and was planned for two years by a team from Whatcom County, WA, the United States Geological Survey (USGS), and NWS. This exercise involved 67 different agencies, including the Civil Air Patrol and Washington Air National Guard, international visitors from Ecuador, Colombia, and Canada; Federal, State, and local emergency response officials, and private volunteers in infrastructure and public aid.

The volcano eruption scenario included a "pre-eruption" phase which simulated earthquakes and gas emissions at the mountain, from Aug. 25 - Oct. 16, and involved alert level changes (public and aviation color code changes) from the USGS Cascade Volcano Observatory (CVO). On Oct. 17th, the exercise simulated an eruption of Mount Baker and included a major lahar (volcanic mud/debris flow), river flooding, and significant ash on the ground and in the air. Emergency response was exercised through the day as if the event was occurring. October 18th, the exercise shifted to response and recovery in the 3 months, 7 months and one year post-eruption time periods. The last day of the exercise on Oct. 19th included a "hot wash" to discuss after actions by all participants.



WFO Seattle Senior Service Hydrologist Brent Bower provides a situation update at an Operations Briefing



WFO Seattle Meteorologist Danny Mercer provides simulated remote support to the EOC

The Washington Volcanic Ash Advisory Center (VAAC) provided volcanic ash advisories for aviation, and the Aviation Weather Center issued volcanic ash SIGMETs. CWSU Seattle coordinated with the FAA, and the Western Region Regional Operations Center conducted a conference call with all the offices and simulated resource allocation for onsite support and help to NWS Seattle. NWS Seattle provided three forecasters to work at the Whatcom County EOC simulating both remote and on-site support. NWS and CWSU Seattle collaborated to update TAFs for ash fall at various terminals in Washington State. Forecast products were used by emergency response officials and aviation resources for decisions on how they would react to a real event.

An important part of the exercise (and an exercise within an exercise) was testing NWS aviation forecast information for airborne ash. The federal volcano warning program is a shared responsibility between the USGS, the FAA and the NWS. It is imperative the Federal agencies are constantly communicating during an event because each group requires information from one another to make decisions on ash cloud movements. Cynthia Gardner, Research Geologist from the CVO, provided the following feedback to the NWS after the exercise - "USGS and NWS have fundamental and overlapping responsibilities in giving warnings about volcanic events. For public safety, it is critical that these warnings be coordinated and consistent."

Aviation Weather for FAA Air Traffic Controllers

Low Level Wind Shear

Low Level Wind Shear (LLWS) accounts for 1.2% of all U.S. aviation weather-related accidents.

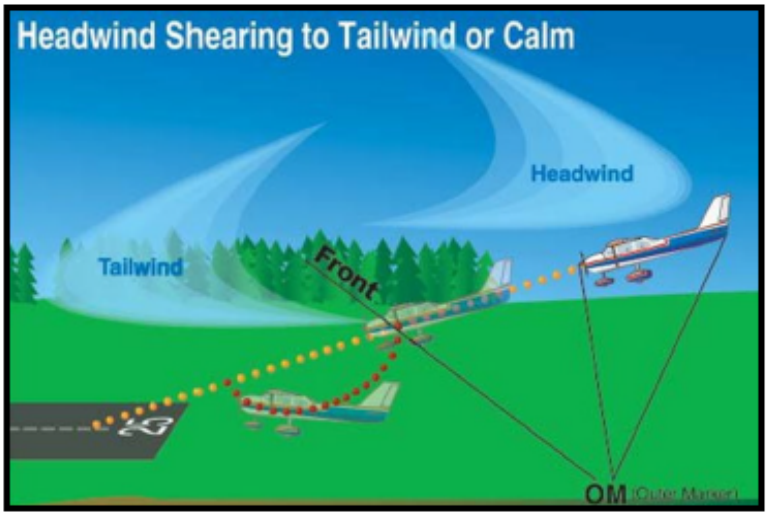
Low-level wind shear (LLWS) – A wind shear of 10 knots or more per 100 feet in a layer more than 200 feet thick which occurs within 2,000 feet of the surface.

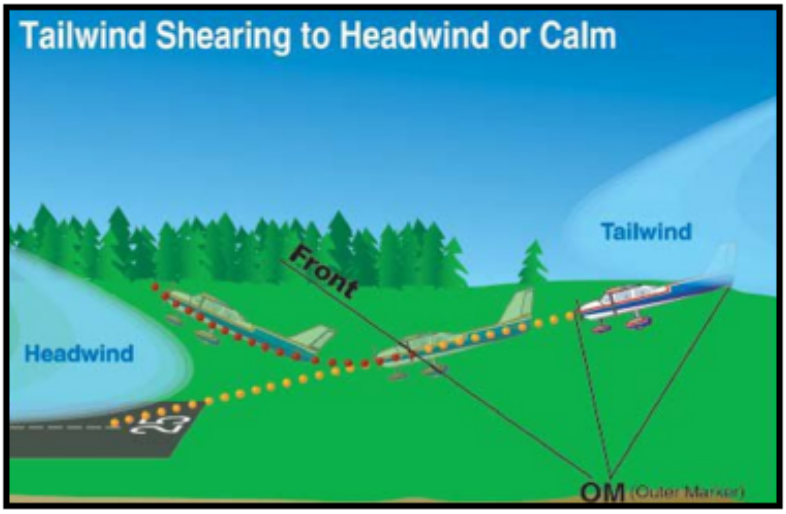
On approach, a shear from a headwind to a tailwind (or calm) causes:

- The airspeed to decrease
- The nose to pitch down
- The aircraft to drop below the glide slope

If the pilot pulls the nose up to compensate, airspeed will be reduced even further.

The pilot will typically compensate by increasing power, but if the engines don't spool up fast enough, the airplane may land short, slow, and hard and could lead to a crash.





On approach, a shear from a tailwind to a headwind (or calm) causes:

- The airspeed to increase
- The nose to pitch up
- The aircraft to balloon upward above the glide slope
- The airplane will land long and could run out of runway.

Small, general aviation aircraft are much more prone to the effects of low-level wind shear than large commercial aircraft because their approach speeds are much closer to their stall speeds.

Material from: NOAA National Weather Service Warning Decision Training Branch

An Aviation Winter Tabletop Exercise for Reno-Tahoe International Airport

By: Dawn Johnson, Meteorologist, NWS Reno

The Reno-Tahoe International Airport (KRNO) is consistently reported as one of the more troublesome airports for pilots due to the surrounding mountainous terrain, issues with winds and wind shear; and in the winter, snow and rapidly changing conditions. While not a major hub, inclement weather can still lead to problems cropping up within the National Aerospace System from delays, cancellations, and reroutes.



Photo courtesy of The Reno-Tahoe Airport Authority .

Working with our partners at the airport, our office was able to host a winter tabletop exercise a couple of seasons ago during a pre-winter meeting. We invited several key players from airport operations to discuss a common winter time scenario -- an incoming winter storm with strong winds, falling snow levels, and a transition from rain to snow with snow accumulating at the airport itself. The goal was to learn what the airport does to prepare for these events and what were critical thresholds for wind and snow. In addition, we wanted to learn how our confidence and the time range leading into the event may change or influence decisions being made.

We ran through the scenario at various time scales starting with a heads up email to our partners at the 7-10 day range, followed by increasing confidence at days 3-5 and finally what preparations are made the final 24-48 hours leading up to the event with high confidence the event will occur. We talked about what went through our minds as forecasters at each stage and how our office prepares and then discussed the same with the airport operations team. We learned how we can best lend our forecasting support ahead of an incoming storm and while the event was occurring.



Photo courtesy of The Reno-Tahoe Airport Authority .

A follow-up to this is to host the KRNO FAA Air Traffic Controllers (ATC) at the office for a tabletop as well to learn how they prepare for various weather events and how we can better offer support. Talks about setting this up are already in the works. We would also like to include the KRNO operations team again along with the ATC to get a multiple perspective view on different weather scenarios.

We would highly recommend doing this with your aviation partners, especially leading into critical weather seasons. Not only does it open the door to increased communication, but it also allows the forecasters to better hit on critical decision making points for the airport.

NWS Salt Lake City Forecast Training at the CWSU

By: Charlotte Dewey, Meteorologist, NWS Salt Lake City

Across the country 21 Center Weather Service Unit (CWSU) offices provide information on hazards that are of concern to the aviation community and weather impacts in the airspace over large sections of the country. Weather Forecast Offices (WFO) are responsible for weather hazards, impacts and forecasts for areas closer to the ground within these larger CWSU forecast spaces. As meteorologists, communicating weather hazards and impacts and providing an up-to-date forecast is one of the the baseline tasks of our jobs. The link between the meteorologists at a CWSU and the FAA management is a close knit relationship. Day to day collaboration and communication on expected hazards and the forecast take place face-to-face as well as through recorded briefings and written statements. The airport tower, Terminal Radar Approach Control (TRACON), and Air Route Traffic Control Center (ARTCC or Center) interact with the CWSU daily to coordinate airspace and ground operations. This is crucial for air traffic management and planning purposes across the country. Having forecasters from a WFO involved in this decision process will only further our deep core partnerships and relationships.

General Forecaster Charlotte Dewey (Salt Lake City WFO) has been working to train on the forecast desk over at the Salt Lake City CWSU (ZLC) to be able to step-in and help out when staffing issues arise and to help provide added support to the Unit. Fortunately for Salt Lake City, the WFO is located just down the street from the CWSU, which makes this opportunity somewhat unique in that SLC and ZLC are one of the few office pairings so close in proximity. Through working at the CWSU, Charlotte is able to bring back to the WFO valuable information about aviation weather impacts and allow forecasters a renewed appreciation of how their forecasts are utilized. It will be very beneficial to have another skilled forecaster able to work shifts at the CWSU when needed. This relationship between the CWSU and the WFO is another step in the evolving National Weather Service to become more unified on the decision support service front.

NWS Boise Meets with Twin Falls Airport Operations to Prepare for Upcoming Winter

By: Elizabeth Padian, Meteorologist, NWS Boise

On October 24 WFO Boise Meteorologists Elizabeth Padian, Korri Anderson, Stefanie Henry, and Anna Lindeman traveled to the Twin Falls airport to meet with Matt Barnes, Operations Manager, and his staff to discuss the upcoming winter. In addition to the Twin Falls TAF, WFO Boise routinely provides IDSS for the Twin Falls airport through NWSChat and phone briefings. During the visit Elizabeth presented some climate data and gave a briefing of the upcoming winter outlooks. Additionally, the group reviewed how communications went last winter, and brainstormed a strategy for this winter so the Twin Falls airport can receive forecasts and remain safely open despite weather impacts. The visit wrapped up with Matt providing a tour of the snow removal equipment and air traffic control tower.

Idaho's Aeronautics Advisory Board Pays Pocatello a Visit

By: Vern Preston, Meteorologist-in-Charge, NWS Pocatello

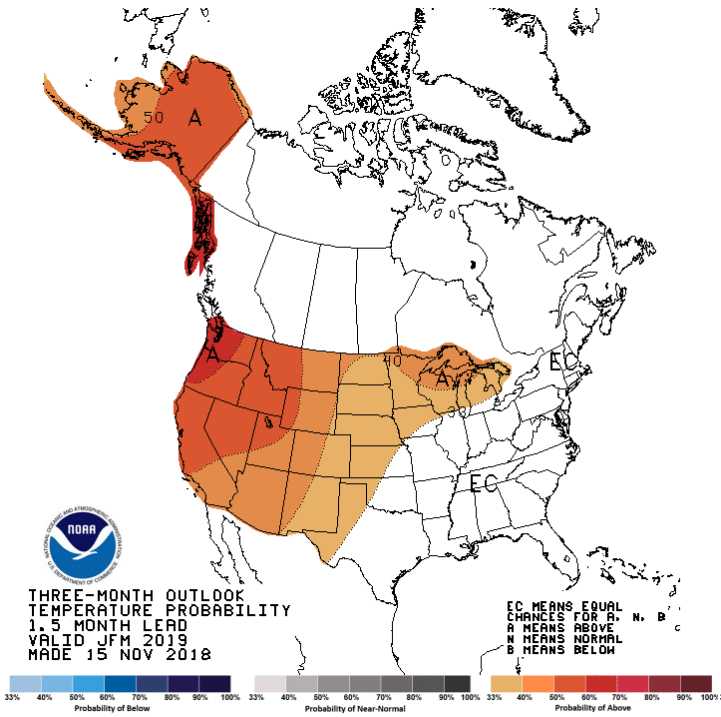
The Idaho Governor's -Aeronautics Advisory Board which is part of the Idaho Transportation Department (ITD) held their quarterly meeting at the Pocatello Regional Airport this month. Their manager requested a tour of our office as an outgrowth from WFO Pocatello's participation/presentations at the Idaho Airport Manager's Association annual meeting. The Board serves the state by ensuring the highest quality, most effective, efficient, and safest airport system for all users of aviation services. To this end, the Division of Aeronautics plans and implements essential programs, services and projects to develop, encourage, and foster an exemplary system of airports that meet the current and future requirements of a growing and diverse Idaho aviation community. ITD maintains over 60 remote airports and backcountry airstrips while partnering with the FAA on 20+ regional and international airports. ITD also operates a fleet of aircraft to assist the Governor and various departments for travel across the state.

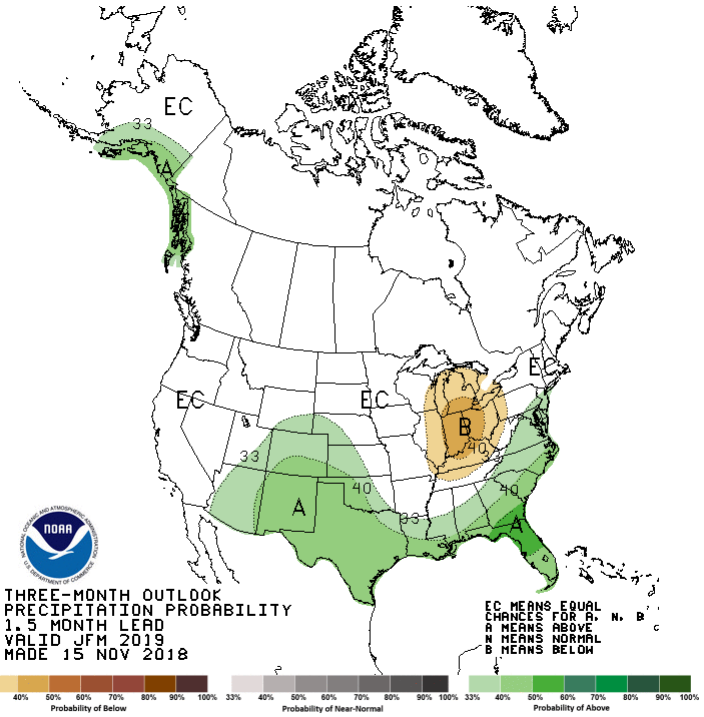


Forecasters John Keyes (left) and Alex DeSmet (right) provide detailed service information to Idaho's Aeronautics Advisory Board.

WFO Pocatello staff provided a guided tour of our facilities and a discussion on how our services impact the general and commercial airlines. We also talked about the extensive use of firefighting support planes across the area. The Pocatello Regional Airport is a main BLM Firefighting Air Attack Base and for the last 5 years has become an instrumental re-fueling and servicing location for the Very Large Air Tanker jet program (VLAT) (DC-10 Air Tanker). With this year's active fires, we had at least one VLAT on our property for nearly three months, and at one point in the season, 3 DC-10s flying from our airport providing support to the Great Basin. We recently learned they plan to expand our airbase so they can accommodate more VLAT operations and we are now investigating additional decision support services for the BLM staff at this airbase.

Seasonal Outlook for January — February — March 2019





There are plenty of ways to keep up with aviation weather!

aviationweather.gov

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Safe Flying!

Questions / Comments? w-zlc.webmaster@noaa.gov