



2023/2024

ANNUAL REPORT





bridgertetonavalanchecenter.org

Mission:

Founded in 2010, the Bridger-Teton Avalanche Center Foundation is a non-profit organization that assists in the operational and programmatic funding of the Bridger Teton Avalanche Center. Private donations, business supporters, fundraisers, and grants provide critical support to help achieve our collective goal of delivering avalanche and weather information to recreationists and professionals around the region.



Directors Report

The winter season of 23/24 began with a weak snowpack but solid support from the community. The BTAC Foundation received record giving from the Community Foundation of Jackson Hole's Annual Old Bill's Fun Run. Those funds were coupled with increased and continued support from the Wyoming State Trails program, which allocates a portion of snowmobile registration stickers to avalanche education. For BTAC, those funds support field days and forecasting in the Togwotee and Greys River zones, along with avalanche education classes geared toward motorized users. The 24th Annual Avalanche Night, a kick-off party for the season, had a near-record turnout. The combined funding efforts allowed the Bridger-Teton Avalanche Center to provide quality snow and weather information throughout the region for what turned out to be a challenging winter for the entire backcountry community.

Last fall, we expanded our forecasting team from four to five full-time forecasters, plus a part-time observer and forecaster. The added staff allowed more field time in our huge

forecast area, more communication through social media, and more forecasters giving avalanche safety talks. The additional staff also allowed two forecasters to collaborate while writing each morning. Additionally, our community education and outreach events brought the BTAC team face-to-face with over 900 people this season. Events included State of the Snowpack events, guide and employee training, one-and-a-half-day Avalanche Fundamentals courses across Wyoming, trailhead talks, and Avalanche Awareness Night. More staff also allowed forecasters to deliver avalanche talks further from Jackson in places such as Alpine, Lander, Cody, Saratoga, and Rock Springs, Wyoming, as well as Pocatello, Victor, and Rexburg, Idaho. These events are crucial to help connect people to the forecast, refresh on avalanche rescue skills, and better understand the snowpack.

Please take a moment to read this annual report to better understand BTAC's mission, our accomplishments and our challenges. We look forward to continuing to serve this active and passionate community of winter recreationists!

Frank Carus

Director
Bridger-Teton Avalanche Center
US Forest Service

Dwayne Meadows

Executive Director
Bridger-Teton Avalanche Center
Foundation



23/24 Winter In Review

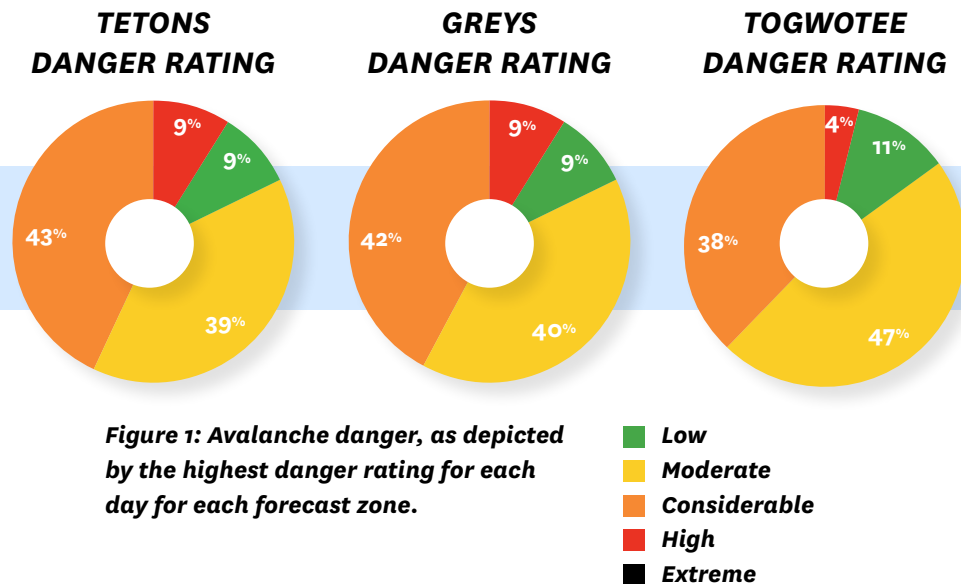
416 FORECASTS ISSUED

141 FORECAST DAYS

286 FORECASTER FIELD DAYS

FORECAST OPERATIONS

Early in the season, a lack of snowfall and low backcountry recreational use prompted us to publish General Snow and Avalanche Information Bulletins rather than daily forecasts. From October 24 through November, avalanche activity was limited to periods during and after the few storms that passed over the area. As our snowpack grew in late November, so did recreation use in the backcountry. The first daily avalanche forecast was published on December 2nd for the Teton and Togwotee zones, followed by the Greys River zone on December 4th. We published our last daily avalanche forecast on April 20th. Due to a deep spring snowpack and continued recreational use, we issued General Snow and Avalanche Information Bulletins twice a week until May 17th.



Snowmobiles are critical tools for forecasters. They help us connect to the motorized user group and allow us to access many remote places in our forecast zones where regular access on foot would be impractical. Thanks to the support of the Wyoming State Trails program, we can field two snowmobiles each season. Other snowmobiles come from various donations, including Ski-Doo, who has loaned a machine for the past three years. We are looking for another sponsor to loan or purchase a sled and sled deck to enable us to stage one machine in the Victor/Driggs area.

WEATHER AND SNOWPACK SUMMARY

This winter's snowpack created challenges for the entire community as below-average precipitation and elevated avalanche hazard periods characterized winter's first half. Two early-season drought periods — one in November and one in December — made for a significant increase in natural and human-triggered avalanche activity throughout the months of January and February (Figure 2). The longest drought period (~24 days) occurred from early to late December, and formed a thick layer of near-surface facets and surface hoar. SNOTEL sites reported 65% of normal at this time. These weak layers of facets formed a poor foundation that caused an atypically widespread avalanche cycle in January and elevated avalanche danger through much of the winter.

Snowfall picked up again on January 4th, with over 3 feet of snow and 3 inches of snow water equivalent (SWE) at Jackson Hole Mountain Resort (JHMR) by January 12th. This rapid loading event stressed the weak snowpack, resulting in heightened avalanche conditions and the largest avalanche cycle of the season. **The metrics for this cycle looked like this:**

- 8 days of High avalanche danger in January, with Avalanche Warnings issued for seven days.
- 213 avalanche events were reported across all three forecast zones from Jan 10-20 during the rapid loading of snow. This number represents 40% of all avalanches reported during the season.
- Another 2-3" SWE fell after Jan 12, with a total of 5-6" SWE from Jan 4-20 (as reported at JHMR Mid Mountain and Rendezvous Bowl).

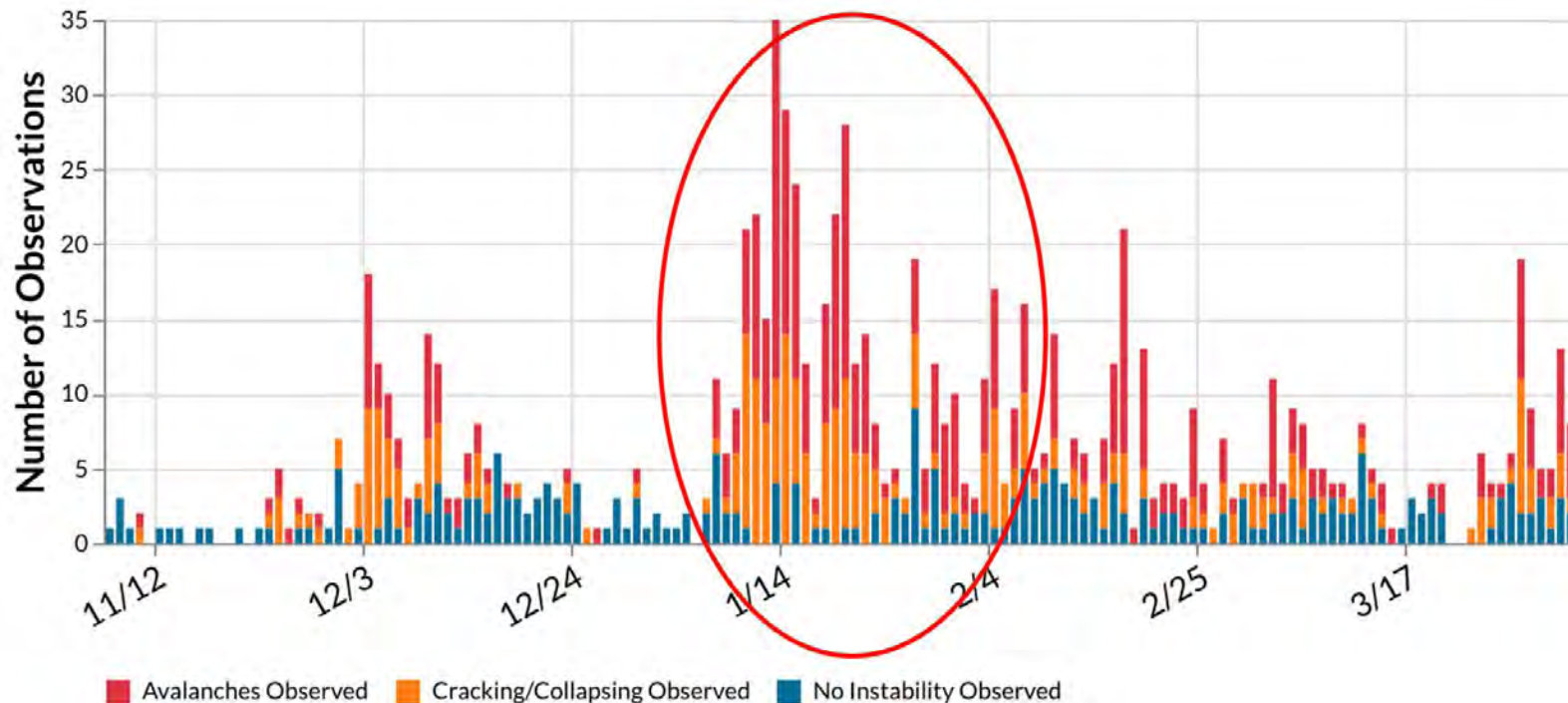


Figure 2: Peak instability for the 2024 season was noted in January, with four spikes in activity noted after separate storm cycles and subsequent reactivity throughout February.

WEATHER AND SNOWPACK SUMMARY (CONTINUED)

Backcountry recreation became increasingly dangerous during this period of increased avalanche activity. From January 14-23, five significant avalanche incidents were reported, all of which occurred within the middle elevations (7500-9000'). Unfortunately, one of these incidents resulted in the death of long-time local skier and avid musician David Rice. A full report of the incident in Prater Canyon can be found on our website. Our heartfelt condolences go out to our friends and family, and we are grateful for the memorial donations in his honor that were given to BTAC.

The weather pattern became very active in February, with the most snowfall of any winter month. Avalanche activity on the December drought layer continued with multiple D2.5+ avalanches triggered naturally and remotely. Only eight days out of the month saw no new snow or only trace amounts. Avalanche danger was rated Moderate or Considerable for all of February, with two days of High danger.

March 1st brought the season's biggest snowstorm to the Tetons, with 40" of snow containing 4.5" SWE in 36 hours at Jackson Hole Mountain Resort. This was also the most significant storm at Togwotee, where 22" of snow containing 2.2" SWE fell in 24 hours at Angle Mtn weather station. This storm created quite a stir around the community as Teton Pass, Jackson Hole Mountain Resort, Grand Targhee Resort, and Grand Teton National Park all closed on March 2nd. Another Avalanche Warning was issued the same day. Avalanche danger was rated High for two days following the storm.

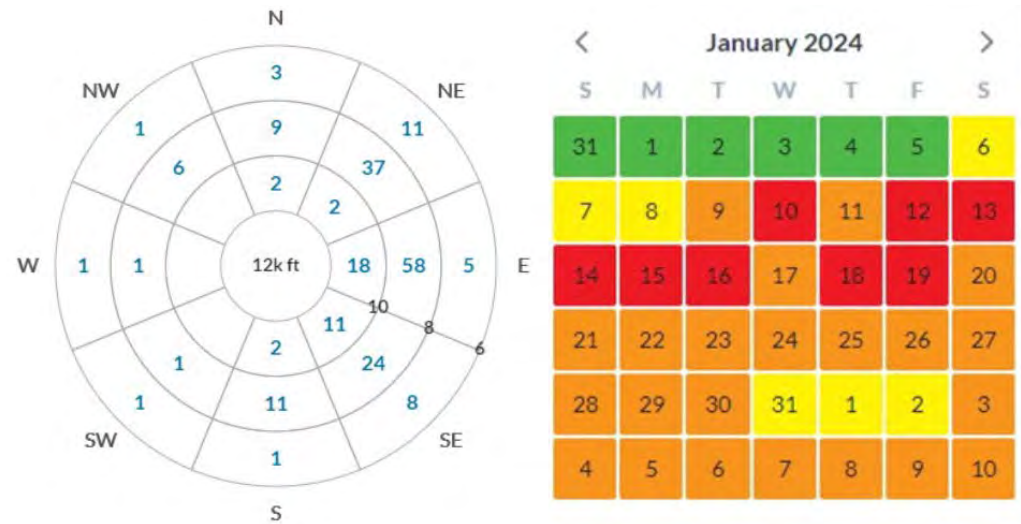
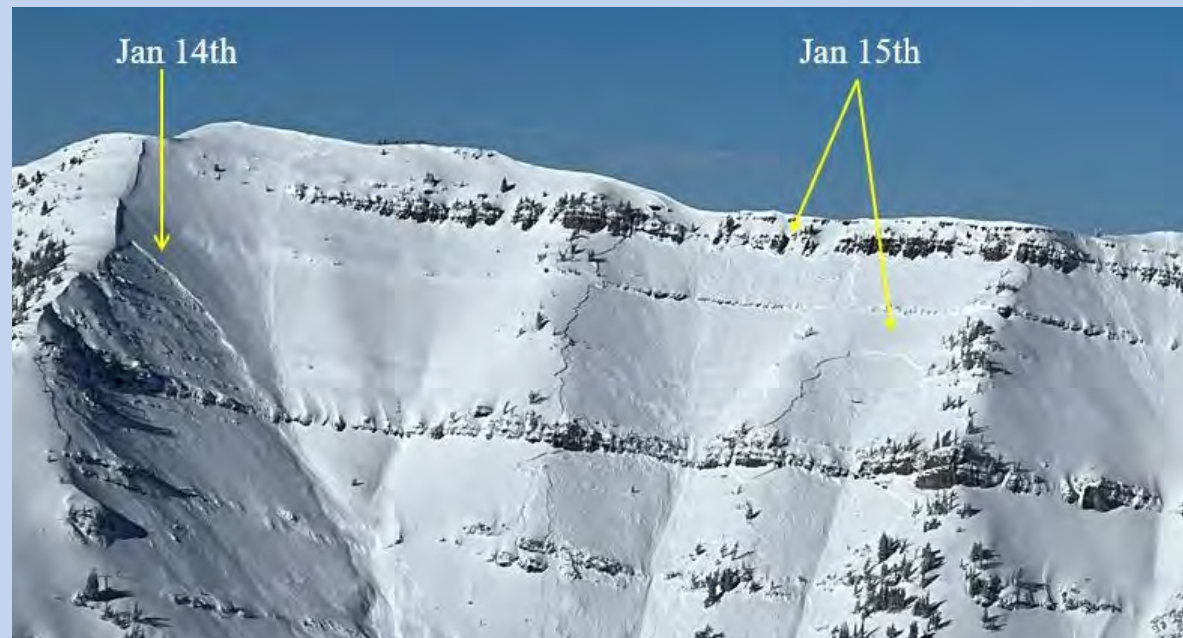


Figure 3: Radial plot of reported avalanches across all three forecast zones from 1/10-1/20 and Avalanche Danger for January.



Mt. Taylor Avalanche

Mid-March transitioned to spring conditions quickly, with temperatures above freezing and stronger solar influence. Dry snow problems evolved quickly to wet snow problems. The warming cycles signified a drastic change as free-flowing water percolated through the snowpack with many large and potentially dangerous wet loose avalanches. The last week in March to the beginning of April transitioned back to winter conditions with consistent snowfall and cold temperatures. Avalanche problems oscillated between dry and wet snow problems with avalanche danger remaining Moderate or Considerable until it finally dropped to Low danger in the third week in April. BATC transitioned from daily forecasts to General Snow and Avalanche Information Bulletins.

The Nose on Edelweiss Bowl



Yearly Snowfall

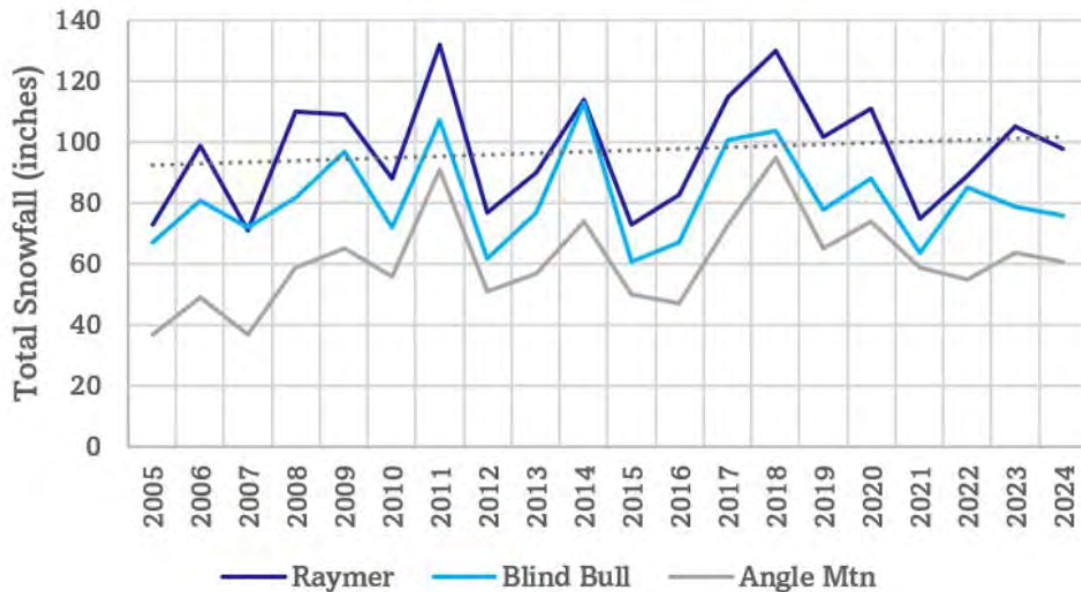


Figure 4: Average peak snowfall depth since 2005 as reported from primary weather stations in each zone above 9,000 feet.



Horseshoe Bowl

OBSERVATIONS

2023/24 marked our second full season using the National Avalanche Center forecast platform. We received more observations this season than last despite the late start to winter. We saw a significant increase in observations by snowmobilers and in the overall number of observations in the Greys River forecast zone. Over the last several years, we've focused on engaging with the communities where we lack observations. The Star Valley community really stepped up this season with increased observations. We'd like to thank everyone who submitted observations this season. Submitting observations and sharing this information is critical to help the community make the most up-to-date and informed decisions about backcountry travel. Let's continue to increase the number of observations every year!

829 TOTAL OBSERVATIONS
387 PUBLIC
181 PROFESSIONAL
261 BTAC

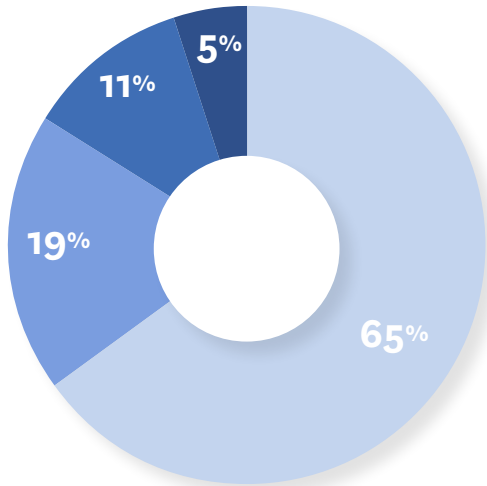


Figure 5: Percentage of observations by forecast zone for 2023/24 winter (September 1st-May 15th).



REPORTED AVALANCHES

There were 525 avalanches reported this season, with 122 human-triggered. Every year presents new challenges, as each winter's snowfall and weather patterns are unique. This year, we learned a great deal digging in the snow, observing conditions, and spending countless hours analyzing telemetry. We hope this summary provides some takeaways you can analyze and apply to your understanding of snow and avalanches.

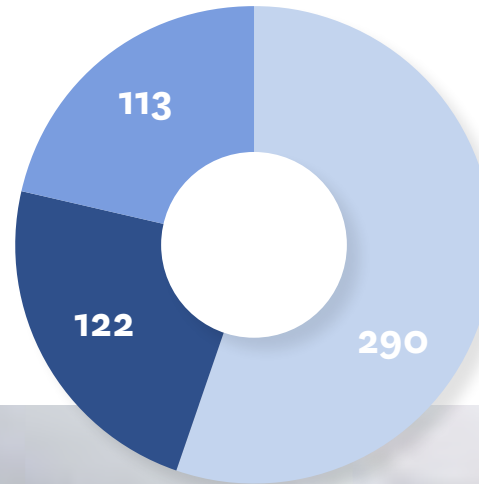


Figure 6: Total reported avalanches (525) for the 2024 winter season, separated by reported trigger type.

- Natural
- Human
- Unknown/Other



WEATHER STATIONS

Our avalanche center operates and maintains 11 weather stations across the forecast area. These weather stations are strategically located, and currently lack any other telemetry, such as those supplied by ski resorts or USGS SNOTEL sites. These weather stations consist of 6 snow measuring stations and 5 wind stations. We also rely on our partners at Jackson Hole Mountain Resort, Grand Targhee, Snow King, and the Box Y Guest Ranch. They provide critical daily service to our weather stations by clearing interval boards and providing key reconnaissance when instruments break. **Critical Funding for this work comes from the Wyoming State Trails Program, through snowmobile sticker dollars and the Avalanche Alliance.**

Considering the size and remoteness of our forecast regions, certain areas are candidates for improved weather and snow data. As recreational use increases so does the need for improved data sets and awareness. The Bridger-Teton Avalanche Center has identified the northern portion of Grey's forecast region as an area of high winter use with sparse data. We seek funding to build additional wind and snow interval weather stations in this region. We continue to increase field time in this zone as winter recreational use increases. We have determined additional weather stations would improve our forecasting capability in these data-sparse areas.

This spring, we received a \$5,000 grant from the Avalanche Alliance to partially fund a new weather station called Palisades WX Station. The total cost of the station is \$26,200. This includes all the equipment needed to build a wind and snow interval site and the labor and helicopter service needed to construct it.

PLEASE consider donating to the Palisades Weather Station Fund by scanning this QR code.



WEBSITE

This winter was the second season using the National Avalanche Platform running on a new WordPress website, “wrapper.” Several backend databases and NAC platform customizations yielded easier snow and weather data access. Further, they leveraged the robust data set provided by regional snow and weather telemetry and historical snow data. This year, we are working on merging the past 14 years of avalanche forecasts into a searchable forecast archive. Also, our fatality database is being streamlined, with records and details from diverse sources integrated into a single database.

113,000 INDIVIDUAL USERS

1.9 MILLION TOTAL PAGE VIEWS

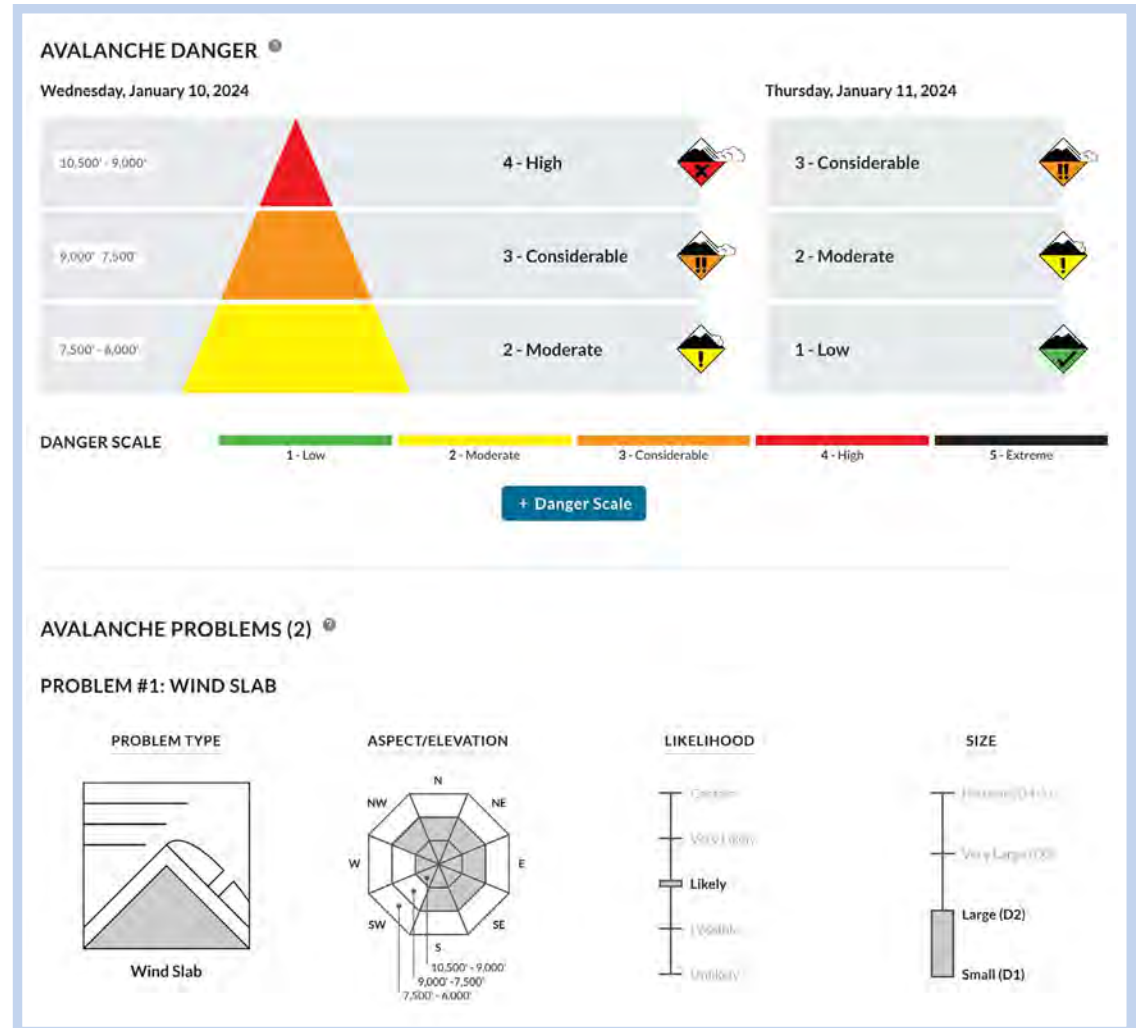
750,000 FORECAST VIEWS

600,000 OBSERVATION PAGE VIEWS

**34,000 “BIG SHEET” WEATHER STATION
SUMMARY PAGE VISITS**

26,000 WEATHER STATION PAGE VIEWS

20,000 WEATHER RESOURCES PAGE VIEWS



MOBILE FORECAST APP



While our website is optimized for mobile use, certain elements do not perform as well as an application might. BTAC staff beta-tested a forecast app produced with generous volunteer labor this spring in concert with the Northwest Avalanche Center. The Northwest Avalanche Center and Sawtooth Avalanche Center communities of users have successfully used the app for an entire season. This summer, developers are integrating all this feedback and our requests for more features. The

development group plans to release an updated version, funded by the BTACF and made publically available to BTAC users by next season. **Some helpful features include:**

- Cached forecast data for access outside of coverage zones
- Real-time observations geo-located from the field
- Offline observations that upload on reconnect
- Easier photo submission from your phone

EDUCATION & OUTREACH EVENTS

This season, we focused on getting more involved with the local communities surrounding and encompassing our forecast area. To do so, we prioritized increasing and expanding the number of avalanche education courses, snowpack talks, and outreach events. All these events were led by BTAC forecasters so the community could get to know us more. Some of the education had been contracted by third-party instructors in previous years. This was a significant change, as the public could interact directly with the forecasters. We found this work very meaningful, as we hope

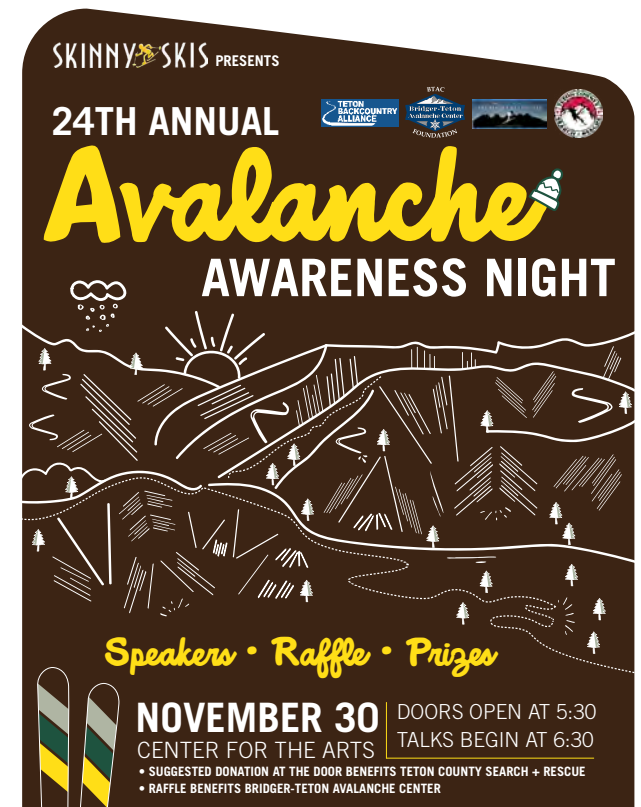
to continue to expand snow and avalanche awareness across Wyoming and Idaho.

- **30 outreach events**
- **Over 950 participants**
- **Across the entire state of Wyoming, including Cody, Lander, Saratoga, and Rock Springs; Idaho locations include Pocatello, Rexburg, and Victor.**
- **All led by BTAC Forecasters.**

In addition to these formal outreach events, we engaged with the public daily at trailheads

within our forecast area. One of our forecasters tracked the number of people engaged throughout the season and found that number to be over 400! Each of the forecasters enjoys interacting with the community. One-on-one conversations in the field are some of the most important, as they provide an opportunity to talk directly about what is happening in the backcountry.

Say hello if you see us at an outreach event, on a skin track, or a sled. We love to talk about snow and avalanches!



BRIDGER-TETON AVALANCHE CENTER FOUNDATION

Founded in 2010, the Bridger-Teton Avalanche Center Foundation is a non-profit organization that assists the Bridger-Teton Avalanche Center's operational and programmatic funding. Private donations, business supporters, fundraisers, and grants provide critical support to help achieve our collective goal of delivering avalanche and weather information to recreationists around the region. The Foundation works tirelessly to raise awareness of the BTAC's essential contributions to detailed daily avalanche forecasts, snow, weather data, and avalanche awareness education for Northwest Wyoming.

The Avalanche Center's funding is derived from community donations, grants and support from the State of Wyoming each year.

If you are a winter backcountry skier, snowboarder, or snowmobiler and value the free, scientific, decision-guiding information the BTAC provides, please support our work.

Executive Director: Dwayne Meadows

Board Chair: Mitch Dann

Vice Chair: Jon Klaczkiewicz

Secretary: Paul D'Amours

Treasurer: Stuart Johnson

Fundraising Chair: Bob Peters

Board Members: Tana Hoffman Cooke, Lynne Wolfe, Mark Snell, Chris Harder, Jen Reddy, Jesse Stover

STAFFING

This season, we expanded our forecasting team thanks to local Forest Service resources supported by generous funding from the community and the BTAC Foundation. Two previous positions were converted from temporary to permanent positions and filled by Gabrielle Antonioli and Alex Drinkard. A temporary, seasonal forecaster position was created and filled by former GTNP forecaster/intern Noah McCorkle. The forecaster position funded by the Grand Teton National Park Foundation was filled by Travis Baldwin. Avalanche Center Director Frank Carus and Lead Forecaster Mike Rheam returned to their respective positions. In addition, the Foundation funded several part-time positions throughout the season, filled by John Fitzgerald, Cameron Galt, and Liz King. Our staff spent 3-6 days per week in the field and submitted 265 observations throughout the season.



Gabrielle Antonioli
Avalanche Specialist



Travis Baldwin
Avalanche Specialist



Frank Carus
Director/Avalanche Specialist



Alex Drinkard
Avalanche Specialist



John Fitzgerald
Avalanche Specialist



Noah McCorkle
Avalanche Specialist



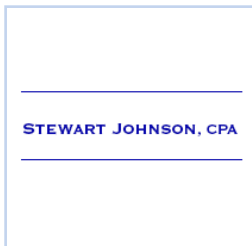
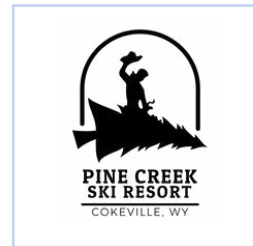
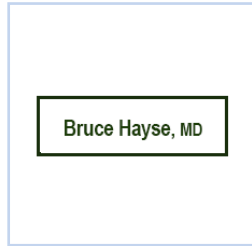
Mike Rheam
Avalanche Specialist

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Base Level Sponsors





In memory of David John Rice
August 25, 1981 - January 14, 2024