

Gallatin National Forest

AVALANCHE CENTER



2020-21 Annual Report



GRIZZLY OUTFITTERS

MONTANA CHEVY DEALERS

BLITZ MOTORSPORTS and YAMAHA

SUMMIT MOTORSPORTS and SKI-DOO

YELLOWSTONE CLUB COMMUNITY FOUNDATION

MONTANA STATE PARKS

GALLATIN COUNTY SEARCH AND RESCUE

Highline Partners

Spark R&D

Uphill Pursuits

World Boards

Mystery Ranch

Cooke City Super 8

Alpine Orthopedics
Stronghold Fabrication
Gallatin Valley Snowmobile Association
Community Food Coop
MAP Brewing
Cooke City Motorsports
Knoff Group Real Estate
Community Food Co-op

Montana Backcountry Alliance
Upper Yellowstone Snowmo Club
Werner Wealth Management
Gallatin Valley Snowmo Assoc.
Bridger Bowl
Cooke City Motorsports
Beartooth Powder Guides
Yellowstone Ski Tours

GNFAC Staff: Doug Chabot, Alex Marienthal, Ian Hoyer and Dave Zinn



2020-2021 Annual Report Gallatin National Forest Avalanche Center

APRIL 2021



We just ended our 31st year of operation after a winter of increased backcountry traffic on an avalanche prone snowpack. The season started on October 14 with an early season snowstorm and first recorded avalanches. We issued 12 early season bulletins before the start of the daily forecasts which ran for 121 days from December 12 to April 11.

This was the first season we've had 4 full-time forecasters which gave us increased flexibility to cover more areas and get out in the field with each other. Because COVID-19 put a crimp in our volunteer program we relied on our intern Zach Keskinen to be a regular field partner.

The season was defined by weak, sugary snow near the ground which avalanched on many slopes, sometimes more than once. Cooke City was spared this weakness, but our forecast area as well as most of the Rocky Mountains were not. This resulted in 36 avalanche fatalities in the United States: 22 skier/snowboarder, 8 snowmobiler, 5 climber/hiker. Tragically a local splitboarder was killed in an avalanche on February 14 in Beehive Basin, our only fatality. Throughout the Custer Gallatin National Forest there were 53 avalanche incidents reported (aka. close calls), some resulting in injuries and partial burials. The busiest week for avalanche activity was between January 2-9 when over 60 avalanches and 12 incidents were reported.

We worked with the Friends of the Avalanche Center to move our education platform online and dropped our student to instructor ratios to 4:1 in response to the pandemic. We taught 43 classes to 3,136 participants, including 458 snowmobilers and 467 kids under 18. With funding from Montana State Parks we continued our weekly Cooke City education program consisting of a Friday weather and avalanche video update and Saturday rescue practice. This is the 5th year of the program and 5th year without a fatality in Cooke City.

GNFAC INDEX

- Total number of people getting our daily forecast: 6,951
- Percentage of people accessing mtavalanche.com on a smartphone, desktop, or tablet: 62%, 36%, 2%
- Number of Beacon Checkers at trailheads: 9
- Number of field days: 112
 - Area with the most field days: Cooke City with 29
- Number of snowpits we recorded in SnowPilot.org: 135
- Number of snowmobile a-arms broken by rocks in the first 100 miles of riding: 3
 - Forecaster with the most: Dave with 2
- Highest wind gust reported: 104 mph on Lone Peak Summit, March 29
- Most number of skiers caught in a single avalanche: 3
 - Where and when: on The Fin outside Cooke City, January 8
- Percent annual increase of vehicle traffic to Hyalite in January: 67%
 - Total number of vehicles in January: 17,297

THIS WINTER

6,951 PEOPLE A

DAY RECEIVED

OUR AVALANCHE

ADVISORY.

- Reported avalanches and incidents: 318 and 53
- The most avalanches recorded in a single day this season: 17+ on January 9
- Number of videos and total views: 146 and 1,118,039 views
 - % increase in views from last winter: 97%
- Total number of minutes/days watched on YouTube: 523,152 minutes/363.3 days
 - Aka. a year of non-stop YouTube avalanche bliss
- Number of times Doug was witnessed double-ejecting out of his skis: 1
 - Number of times unwitnessed: he's not saying
- Total followers on Instagram, Facebook, YouTube and Twitter: 16,300; 13,796; 5,800; and 2,197
 - Percentage increase from last year: 25%

AVALANCHE FORECASTS

Every day, all winter long, we issue an avalanche advisory by 7:30 a.m. Last winter we issued 121 advisories that reached 6,951 people a day, mostly through email. We also wrote 12 pre-season avalanche bulletins and 7 post-season. Each advisory details mountain weather, snowpack stability and recent



avalanche activity. We rely on pictures and videos to augment the avalanche safety message. Our goal is simple: to give current and relevant information so people can make good decisions in the backcountry. It is created for all user groups and we pride ourselves on making it accessible to everyone, regardless of avalanche training.

The official forecast gets released every morning, but those that follow us on social media get a teaser of the next day's forecast by watching our afternoon field videos. These are supplements to our daily avalanche message and give viewers a head start on thinking about the next day's avalanche concern.

FIELD DAYS

We try and get into the field most days. This season we had 112 days outside digging and recording 135 pits and investigating avalanches. We never go in the field solo and this year because of COVID-19 we kept our "pod" tight and



prioritized getting into the field with each other. When this was not feasible we went out with vetted volunteers. For the avalanche forecast to be accurate we rely on our field work. "To know there, go there" is a maxim we embrace. This season most field days were in Cooke City (29) followed by the Bridger Range

(27) and Northern Madison (21). This changes year-to-year as we follow the worst, most unstable snows that effect the most popular recreation sites.

WWW.MTAVALANCHE.COM

Our website is an online portal to all things avalanche related. Weather, education, forecasts, snowpits, articles, pictures and videos are easy to navigate. It's all there: snowpits, weather data and avalanche activity. Anyone planning a day in the backcountry can click on a Regional Page for a specific mountain range and get valuable trip planning resources.

Most people read our forecasts on a smartphone (62%) vs a desktop (36%) or tablet (2%). This has necessitated making the email and website mesh with a small screen.

VIDEOS

We created 146 videos this winter that were watched 1,118,039 times on YouTube, Facebook and Instagram. This is an astounding 97% increase from last season. Most days one of us was in the field and we would film a 1-minute clip about our avalanche concerns and post it that same afternoon. By evening hundreds would have seen it. An illiterate person who only watched our videos would still come away with a solid understanding of the region’s snowpack stability.

Social Media Video Tallies 2020-21	
146 videos with 1,118,039 views	
YouTube	
Total Videos	146
Total Views	473,480
Minutes Watched	517,962
Hours Watched	8632.7
Hours Translated to days	359.7
Videos with over 1000 views	74
Videos with over 1000 views accounted for:	434420 views
	92% of total
Median # of Views	1060
FaceBook	
Total Videos	99
Total Views	198,532
Minutes Watched	82,994
Hours Watched	1,383.20
Hours Translated to days	57.6
Top Viewed	9,370
InstaGram	
Total Videos	112
Total Views	446,027
Average views	3982



YOUTUBE, INSTAGRAM, FACEBOOK and TWITTER

There is no escaping the power of social media. It's become our primary platform to inform the public about avalanche safety. We post our videos every afternoon and use social media to advertise education programs, plug the avalanche danger and inform people of recent avalanche activity. The number of likes and followers increased 25% this year with 16,300 Instagram followers, 13,796 on Facebook, 5,800 subscribing on YouTube, and 2,197 on Twitter.

AVALANCHE INCIDENTS and ACCIDENTS

Nationally, 37 people died in avalanches this season, a big increase compared to the 10-year average of 27. In southwest Montana the backcountry was busy with record numbers of people touring, riding and hunting powder. The snowpack was dangerous and 318 avalanches were reportedly triggered, one of them fatal. On February 14 a splitboarder was killed in Beehive Basin. We had many close calls and heard of 53 unintentionally triggered avalanches, some resulting in injuries and partial burials.



THE
SNOWPACK
WAS
DANGEROUS
AND 318
AVALANCHES
WERE
REPORTEDLY
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ONE OF THEM
FATAL.

Over the last ten years Montana has had 30 avalanche fatalities, the fourth highest in the nation. Pages 20 and 21 have graphs showing the last 10 years of avalanche incidents grouped by activity and state.

AVALANCHE EDUCATION

The Friends of the Avalanche Center (FOAC) work closely with the GNFAAC to bring high quality avalanche education to the public. The pandemic forced us to make significant changes. Education Coordinators Jodi Redfield and Nina Hance brought most of our avalanche education online, no small feat. This was Nina's last season with the Friends and Shannon Regan was hired as her replacement. We are sad to see Nina go. She has been a coordinator for the last 4 winters and successfully expanded the avalanche education program. We all benefitted from her expertise and enthusiasm.

Season Totals:

WE TAUGHT 43
CLASSES TO
3,136
PARTICIPANTS.

- 43 classes (62 days of classes coordinated and staffed by the Friends).
- 3,136 total participants.
- 444 sled specific participants.
- 41 instructors teaching Avalanche Awareness, Companion Rescue Clinics, Cooke City classes, and SAR group programs.
- 36 field instructors working ASMSU Programs at Bridger Bowl.

Accomplishments:

- Completely revamped the education curriculum to adapt to COVID-19.
- ASMSU classroom courses went live online with a reach of over 200 participants per night.
- Field sessions were taught at a 1:4 ratio compared to a 1:6 ration in years past. We offered an extra weekend to both December and January field sessions to manage social distancing and COVID-19 safety.
- All Avalanche Awareness courses and classroom sessions went online.
- Built a video library for online content and outreach.
- School outreach packages included packets of stickers and brochures as well as access to our video library.
- Cooke City courses became much more interactive every Saturday at the Round Lake Warming Hut with snowpack updates and beacon training.
- We added a beacon park to Cooke City which saw a lot of traffic this year from skiers.
- We offered our 4th Annual Staff Training in November 2020 via an online session.
- Hired 7 new instructors to take on the extra demands this year.
- Updated our *Know Before You Go* presentation with new videos and content.



- Created a new partnership with Crosscut Mountain Sports Center to host Companion Rescue Courses.
- Continued our SAR specific training presentations with field sessions for Gallatin County, Park County and Red Lodge.
- Offered unique staff outreach programs to our major donors upon request: Uphill Pursuits, Spark R&D, and Highline Designs.

BEACON CHECKERS

Beacon checkers are effective tools and simple to use. Just stand next to one and it blinks green if your avalanche transceiver is on. They are also a mental prompt that avalanche terrain lurks down the trail. The FOAC has worked with many groups to buy, install and maintain these during the winter. Currently we



have 9 with 2 more planned for next winter.

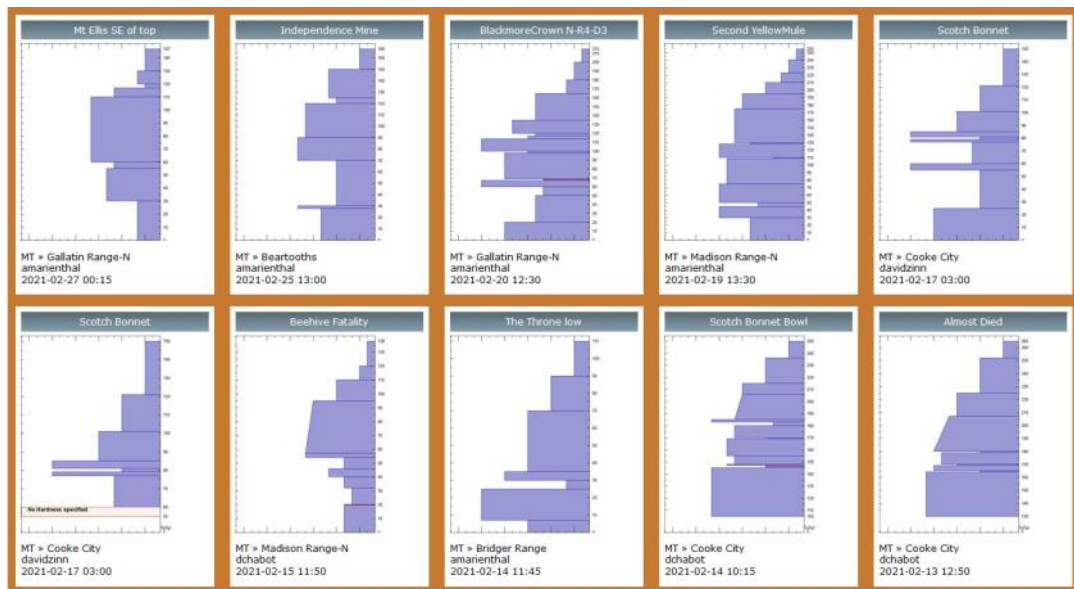
- The north gate at Bridger Bowl that leads to Bradley's Meadow.
- On the Beehive Basin trail north of Big Sky (Big Sky Owners Assoc).
- At the Buck Ridge trailhead on highway 191 (Gallatin Valley Snowmobile Assoc).
- At the Sage Creek parking lot heading into Taylor Fork on highway 191 (GVSA).
- On the snowmobile trail leading to Lionhead outside West Yellowstone.
- On the groomed snowmobile trail heading to Two Top outside West Yellowstone.
- There are 2 in Cooke City, one leading east of town on the Beartooth Highway and another leading north on the road towards Sheep Creek

(Upper Yellowstone Snowmobile Assoc).

- At the trail junction in Fisher Creek leading to Round Lake outside Cooke City (UYSA).
- Two more are planned for the parking area to Fairy Lake and Fir Ridge near West Yellowstone.

SNOWPILOT

SnowPilot (www.snowpilot.org) is open-source, free software that allows users to graph, record and database snowpit information. We developed this program in 2004 and it currently has over 5,000 users and 33,000 snowpits in 4 languages (English, Spanish, Icelandic and Swedish). This season we dug 135 snowpits and recorded them all on SnowPilot. We also added a map of all our snowpit locations on our snowpit profiles page on mtavalanche.com.



FINANCES OF THE GNFAAC

The Custer Gallatin National Forest provided the Avalanche Center with 48% of its funding to cover salaries, benefits, travel, vehicles, computers and office space. We rely on our long-term supporters, Friends of the Avalanche Center (38%) and Montana Fish, Wildlife & Parks (14%), for the shortfall.

FRIENDS OF THE AVALANCHE CENTER

The Friends of the Avalanche Center is a nonprofit organization whose mission is simple and focused:

The Friends of GNFAAC supports the Gallatin National Forest Avalanche Center in



providing quality avalanche education and awareness programs to the greater Gallatin community and all backcountry users in southwest Montana.

Their support falls into 3 core areas:

1. Direct support of the GNFAAC,
2. Avalanche Education Program,
3. SnowPilot (funded through a restricted donation).

The Friends cover expenses related to the avalanche education program, as well as administrative, snowmobile, weather station and website costs. The Friends is run by a Board of Directors, all volunteers, with four paid, part-time staff: 3 Education Coordinators (Nina Hance, Jodi Redfield and Shannon Regan) and Treasurer (Allyson Fauver).

The Friends were founded in 1992 and have donated over \$972,231 to the operation of the GNFAAC. This year their total contribution was \$117,982. This total reflects spending \$74,217 for avalanche education, \$41,413 for direct GNFAAC support and \$2,352 for SnowPilot maintenance. Almost all monies came from local businesses and individuals in southwest Montana with the following long term, recurring support:

- 21st Annual Powder Blast, *online* (\$69,937)
- Yellowstone Club Community Foundation (\$10,000)
- 18th Annual King and Queen of the Ridge at Bridger Bowl (\$8,467)
- Bozeman SplitFest (\$2,400)
- Give Big Gallatin Valley (\$7,720)

BOARD OF DIRECTORS

Friends of the Avalanche Center:

Jeannie Wall (President), Ben Nobel, Tyler Allen, Mark Greeno, Laura Ryan, Dawn Brown and Leah Knickerbocker.

DONATED LABOR AND EQUIPMENT

The Avalanche Center could not operate at its current level without the local community donating time, expertise and equipment. Added up, their donated work totals \$44,650, a dollar estimate of what it would cost to hire people and buy/rent equipment.

SNOWMOBILES

This winter we were graciously awarded 4 loaner snowmobiles for the winter.

SINCE 1992 THE
FRIENDS OF THE
AVALANCHE
CENTER HAVE
DONATED
\$972,231 TO
THE OPERATION
OF THE GNFAAC.

Two of them lived in Cooke City and the other 2 were used in Gallatin Valley. Blitz Motorsports and Yamaha loaned us two 2021 Mountain Max snowmobiles. Summit Motorsports and Ski-Doo loaned us two 2021 Summit X snowmobiles. These loaners were essential to our ability to get far afield to gather snowpack data. Sleds are an expensive part of our operation and having these two companies support us was a huge donation.

AVALANCHE INTERN

22 VOLUNTEERS
ACCOMPANIED
US ON 39 FIELD
DAYS.

This winter Zack Keskinen was our intern. Zack completed his Master's in Earth Sciences at MSU with his thesis studying avalanche and snow dynamics through remote sensing. He was our field partner 21 times, taught for the FOAC, and helped us post pictures, videos and snowpits. This spring Zack was accepted into the PhD program at Boise State University, Department of Geoscience, where he will continue his study of snow and avalanches.

FIELD VOLUNTEERS AND OBSERVERS

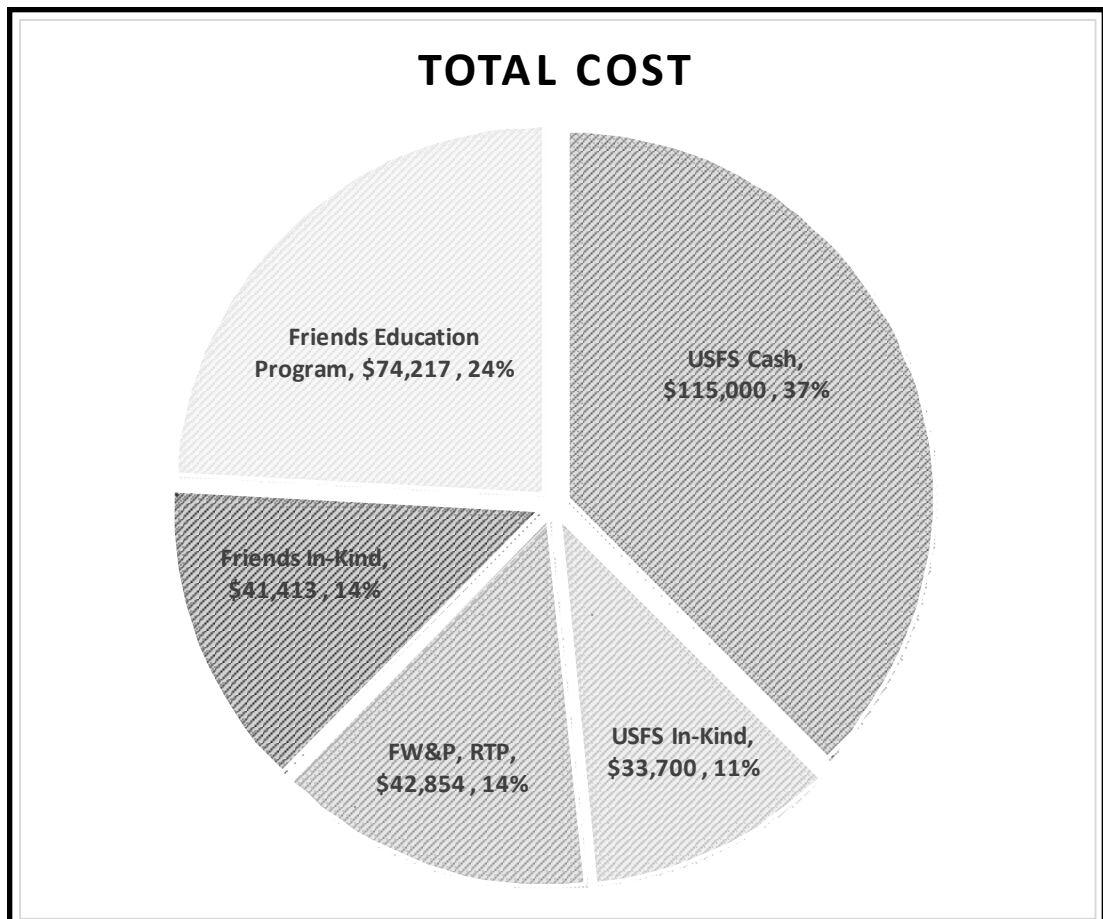
We do not go in the field solo and it's not always possible for us to partner with each other, so we rely on a team of skilled volunteers to help. Twenty two volunteers accompanied us on 39 field days: Tyler Allen, Tim Baucom, Anneka Door, Chris Ennis, Eric Knoff, Allyson Fauver, Isaac Fleming, Nina Hance, Mason Griffin, Kevin Hammonds, Katie Hammonds, Jerry Johnson, Spencer Jonas, Claire Kleese, Jordan Mancey, Zachary Miller, Andrew Morehouse, Elise Otto, Ry Phipps, Mark Shaffer, Jed Weingarten and Oliver Wood.

These folks are our peers and several are professional snow workers. We also rely on folks emailing their personal field observations, stability test results and snowpits. The accuracy of our forecasts is a direct reflection of their detailed and steady reports. We owe a special thanks to Big Sky and Bridger Bowl Ski Patrols for their daily observations as well as Beartooth Powder Guides, Yellowstone Ski Tours, Montana Alpine Guides and Six Points Avalanche Education.



Total Costs

Custer Gallatin National Forest (salaries/benefits)	\$115,000
◆ CGNF In-Kind (vehicles, office, etc)	\$33,700
Montana FW&P Rec Trails Program (salaries)	\$42,854
Friends of the Avalanche Center: Education program	\$74,217
Friends of the Avalanche Center: Direct Support	\$41,413
Friends of the Avalanche Center: SnowPilot	\$2,352
Total Costs	\$309,536 (100%)
<i>CGNF Contribution</i>	<i>\$148,700 (48%)</i>
<i>Outside Contributions (non federal government)</i>	<i>\$160,836 (52%)</i>





SNOWPACK AND WEATHER SUMMARY

By Alex Marienthal

All winter we talked about weak, sugary snow near the base of the snowpack creating unstable conditions, especially in the mountains near Bozeman, Big Sky and West Yellowstone. From late October through November the mountains received 2-4 feet of snow, followed by mostly dry and cold weather through mid-December. This long period of high pressure caused the early season snow to become faceted, sugary and weak.

From late December through mid-January, steady light snowfall accompanied by wind formed slabs on top of the weak snow at the ground. Signs of instability like collapsing and cracking were widespread. Avalanches 1-3' deep were triggered by skiers and riders and broke naturally. Activity peaked during and after an avalanche warning on January 5th, and more human triggered and natural avalanches occurred through mid-January.

Although Cooke City had less avalanches break on weak facets near the ground compared to the rest of our area, on January 8th three skiers from a group of six triggered and were caught in a large avalanche on The Fin. Two were injured with one requiring helicopter evacuation. Almost completely dry conditions during the second half of January gave the snowpack a break and there were





less avalanches, but still propagating stability test scores and the occasional whumph, collapse or crack. The first few inches of snowfall at the end of January elevated the avalanche danger to Considerable and the snow at the ground was not shy in expressing its weakness. On January 30th skiers remotely triggered a very large avalanche in the southern Madison range, and widespread collapsing and unstable test scores continued throughout the advisory area.

A snowy, cold pattern the first week of February brought nearly continuous heavy snowfall. We issued an avalanche warning for the Bridger Range on Feb 5th and for most of the advisory area on Feb 7th, and natural and human triggered avalanches occurred everywhere. A brief dry period allowed danger to decrease to a spicy moderate as human triggered avalanches continued to break on the weak snow near the ground. Tragically, on February 14th a splitboarder was killed in one of these avalanches in Beehive Basin near Big Sky.

Heavy snow returned and we issued an avalanche warning for the mountains near Bozeman and Big sky on February 17th. Snowfall amounts and loading rates were less than storms earlier in February and we saw less avalanche activity as snowfall let up. Then strong winds drifted snow into thick slabs which tipped the scales of the weak snow near the ground. In Hyalite, natural avalanches broke 4-10' deep in the now average, deep late winter snowpack, and near Big Sky a snowmobiler triggered a 10' deep avalanche.

Snowfall continued at a slower, but steady rate through the end of February. Avalanches breaking on weak snow near the ground became infrequent. There were minimal signs of instability like collapsing, unstable stability tests or recent natural activity. On the final days of February, a snowmobiler triggered a 3-4 foot deep, relatively very large avalanche on the weak snow near the ground in the southern Madison Range, and near Big Sky skiers that were filming and hitting a jump triggered an avalanche on the slope where they were landing. It broke 4-6' deep, 200' wide and sympathetically triggered another similar sized slide 300' away. Luckily, nobody was caught in either of these incidents.

In the first half of March there was almost no new snow and it became difficult to trigger monster avalanches breaking at the bottom of the snowpack. Warm and dry weather turned our concerns to wet avalanches, and caused weak layers to form on the snow surface. A week into March it became unlikely to trigger a deep slab avalanche and danger was low until more snow fell. Snowfall became more frequent, but modest storm totals kept our primary concerns to avalanches breaking within the new snow and 1-2' deep on weak layers that formed in early March.

By the end of March, a week of storms totaling 2.5-3 feet of snow had us considering the return of avalanches breaking on sugary snow at the bottom of the snowpack. At the end of this week of snow a skier remotely triggered a 50' wide, 8-12' deep slab avalanche near Mt. Blackmore in Hyalite, and a natural 3-5' deep slab avalanche was reported near Flanders Mountain. Three days of strong wind followed this snow storm, with gusts of 60-100 mph. Danger rose to considerable and there were plenty of wind slab avalanches, but no more deep slabs were reported.

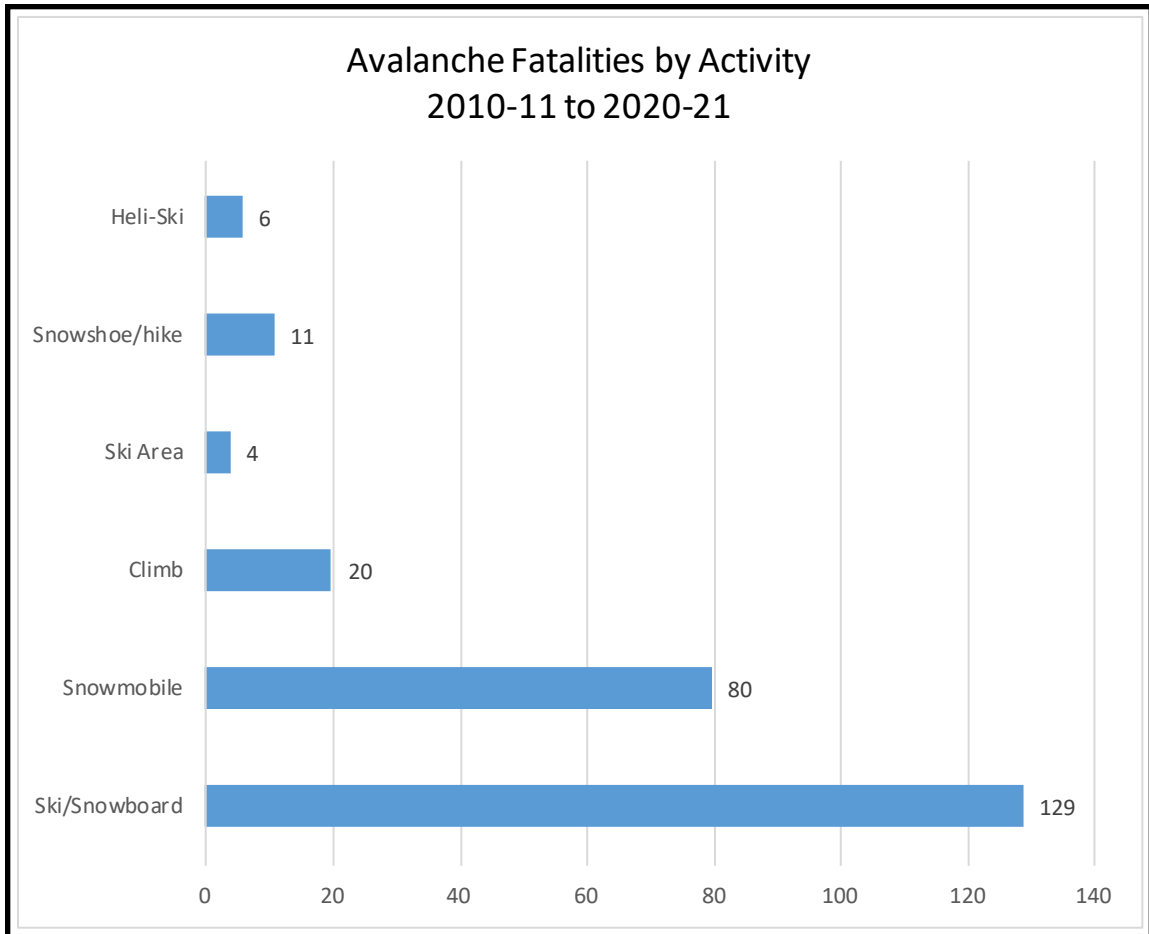
April began with above freezing temperatures and sunny skies, and our concerns shifted back to wet snow avalanches. Most nights had near freezing temperatures and clear skies which kept avalanche activity to shallow loose snow slides. Four days into April we heard of a few shallow wet slabs, and on slopes that receive more sun and warm temperatures the snowpack was wet all the way through. Light freezes for a few nights allowed the wet snowpack to barely hold together before cold, wind and snow returned on April 7th. On shady, high elevation slopes the snowpack stayed mostly dry. Danger dropped to low on April 8th. After a few small storms and moderate winds, avalanche hazards were limited to small drifts and loose snow avalanches. We issued our final daily forecast on April 11th.

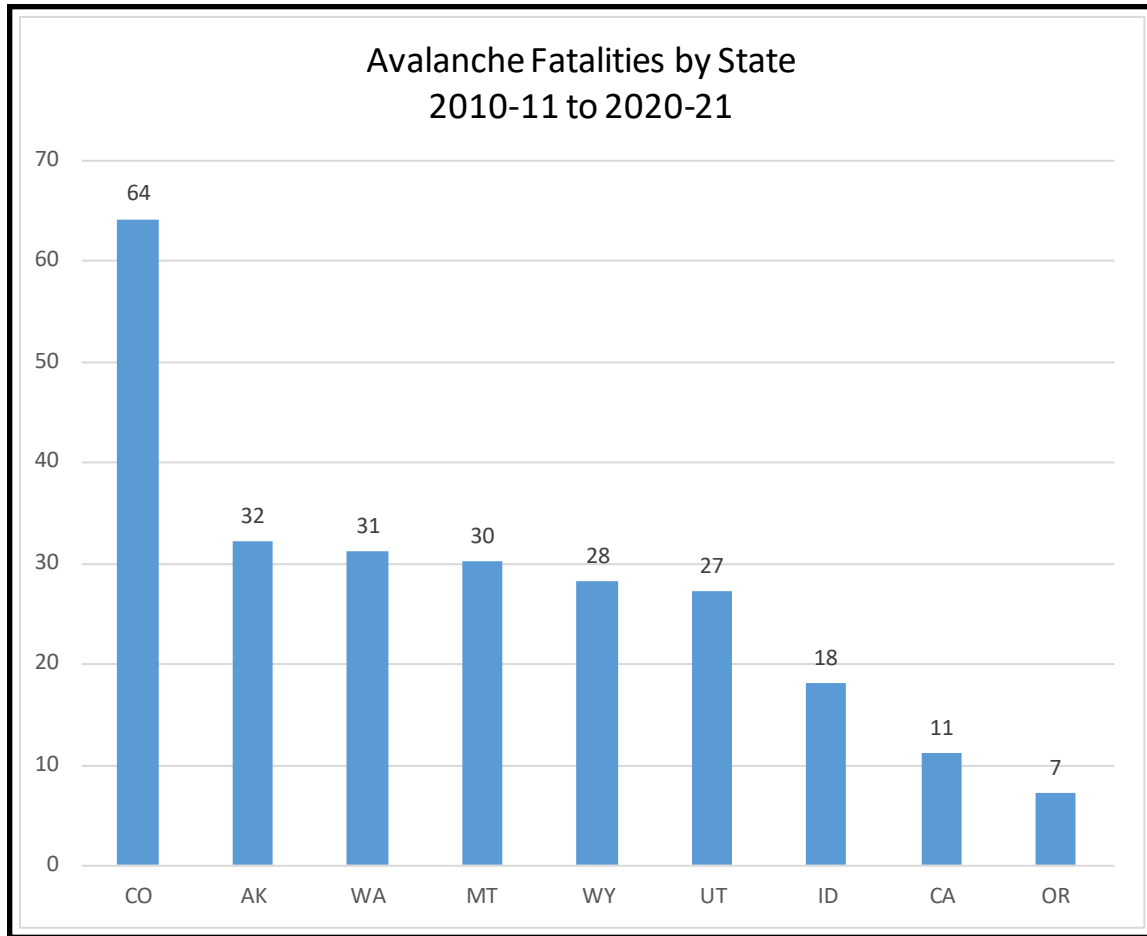
This was one of the worst years for stability with no time or space to step out carelessly. Until mid-March our only safe strategy was to avoid travel on and underneath slopes steeper than 30 degrees. The support from our local community and the forest service, with some luck of course, prevented many more accidents. Thank you for your patience and diligence with safe travel this season, for reading the forecast, taking classes, submitting observations, or donating money or time. Have a fun and safe spring and summer.



Damn, another gravity burst.

Avalanche Incident Graphs: 10 Years





US Avalanche Fatalities
2020-2021 SEASON

37 US fatalities

*Compiled by Colorado Avalanche Information Center

Activity	Killed
Skier [†]	17
Snowboarder [†]	5
Snowmobiler	9
Snowshoer/Climber/Hiker	5
Other	1
Total	37
[†] Inbounds skier/boarder	0



Date ▲	State	Location	Description	Killed
05/13	AK	Ruth Glacier, Denali National Park and Preserve	2 climbers caught in serac fall, 1 killed	1
03/27	AK	Matanuska Glacier	1 heliskier killed	1
03/22	CO	Lime Creek south of Edwards	2 sidcountry skiers caught, 1 buried and killed	1
03/20	CA	Frog Lake Cliffs, north of Donner Pass	1 snowmobiler caught and killed	1
02/27	ID	Tiger Peak, north of Burke	3 snowmobilers caught, 2 partially buried, 1 buried and killed	1
02/22 †	WY	Broken Thumb Couloir, Peak 9,975 (25 Short), Grand Teton National Park	1 backcountry tourer caught and killed	1
02/20	ID	Near Sherman Peak, Southeast of Pocatello	1 snowmobiler, caught, buried, and killed	1
02/20	NV	Near Castle Lake, Ruby Mountains, Southeast of Elko	2 snowmobilers caught, 1 buried and killed, 1 injured	1
02/19	ID	Smiley Creek Drainage, Smoky Mountains	1 snowmobiler caught and killed	1
02/18	WY	Togwotee Pass, WY	1 backcountry snowboarder caught and killed	1
02/17	WY	Squaw Creek Drainage, Southeast of Alpine, WY	8 snowmobilers caught, 7 partially buried, 1 buried and killed	1
02/16	CO	West of Ruby Mountain, southeast of Rand	2 snowmobilers caught, 1 partially buried, 1 buried and killed	1
02/14	CO	Pumphouse Lake, southwest of Rollins Pass	1 snowmobiler caught, partially buried-critical, and killed	1
02/14	MT	Beehive Basin, north of Big Sky Montana	2 splitboarders caught, 1 partially buried and killed	1
02/14	CO	Near Mount Trelease, north of Loveland Pass	1 backcountry snowboarder caught, partially-buried critical, killed	1
02/08	WA	Knox Creek, Salmon la Sac area, near Cle Elum Lake	2 snowbikers caught, 1 partially buried, 1 buried and killed	1
02/06	UT	Wilson Glade, Mill Creek Canyon	7 backcountry tourers caught, 1 partially buried, 2 buried, 4 buried and killed	4
02/06	MT	Wounded Buck Creek, northwest of Wildcat Lake	5 snowmobilers caught, 1 partially buried-critical and killed	1
02/04	CO	Marvin's West, East Vail backcountry southeast of Vail	2 sidcountry skiers caught, 1 buried and killed	1
02/03	CA	Etna Summit, west of Etna	2 backcountry tourers caught, 1 partially buried, 1 buried and killed	1
02/02	AK	Bear Mountain, Chugach State Park	3 climbers caught, buried, and killed	3
02/01	CO	The Nose, Middle Fork Mineral Creek southeast of Ophir	4 backcountry tourers caught, 1 partially buried-critical, 3 buried and killed	3
02/01 †	NH	Ammonoosuc Ravine, north of Mount Monroe	1 backcountry skier caught, buried, and killed	1
01/30	UT	Squaretop, Park City Ridgeline	1 sidcountry skier caught, buried, and killed	1
01/08	UT	Dutch Draw, Park City Ridgeline	1 sidcountry rider caught, buried, and killed	1
12/26	CO	First Creek, north of Berthoud Pass	1 backcountry skier caught, buried, and killed	1
12/19	CO	North Face of Battleship, southeast of Ophir	2 backcountry skiers caught, buried, and killed	2
12/18	CO	Near Ohio Pass, Anthracite Range	1 backcountry skier caught, buried, and killed	1
12/18	WY	Near Sheep Pass, Salt River Range	1 snowmobiler caught, buried and killed	1

Avalanche Education

TOTAL: 3,136 (467 kids; 458 snowmobilers)

Date	Instructor	Group/Topic	Class Total
10/6/20	Chabot	VSSW: Mentorship Panel	400
10/15/20	Marienthal	CSAW: Stability tests usefulness	350
11/6/20	Chabot	Uphill Pursuits: Early Season Snow	118
11/9/20	Marienthal/Hoyer	MSUSAW: Local terrain, and Using the	179
11/10/20	Hance, Redfield	Outreach Packet: Big Sky Freeride Team	40
11/10/20	Hance, Redfield	Outreach Packet: Helena High School	60
11/10/20	Hance, Redfield	Outreach Packet: Elevated Powersports	50
11/10/20	Hance, Redfield	Outreach Packet: Big Sky School District	30
11/10/20	Hance, Redfield	Outreach Packet: Chief Joseph Middle	150
11/10/20	Hance, Redfield	Outreach Packet: Redline Sports	50
11/10/20	Hance, Redfield	Outreach Packet: Headwaters Academy	50
11/12/20	Darham	Spark R&D Staff Training	24
11/16/20	Regan	Avy Board Demo: MOSS Science Night	40
11/18/20	Chabot	MSU Snow Science Seminar: Avalanche	9
11/19/20	Regan, Nina, Jodi	KBYG: Avalanche Awareness Online	52
11/28/20	Olson	Cooke City: Round Lake Avalanche	16
11/30/20	Darham	KBYG: Avalanche Awareness Online	60
12/2/20	KB, IH, AM, DZ	Avalanche Fundamentals	182
12/3/02	Chabot	GCSAR Heli Coordinators	12
12/5/20	Olson	Cooke City: Round Lake Avalanche	16
12/7/20	Olson	KBYG: Snowmo Specific	23
12/7/20	Zinn	West Yellowstone Snowmobile Class	12
12/8/20	Hance	KBYG Awareness: Patagonia	150
12/12/20	Kory J	Cooke City: Round Lake Avalanche	17
12/14/20	Regan	Park County SAR	20
12/15/20	Chabot	Ava Awareness and Field for Centenni-	14
12/16/202	Darham	KBYG: Uphill Pursuits	16
12/19/202	Olson	Cooke City: Round Lake Avalanche	20
12/19/202	Regan, Maily, Birke-	BSF Avalanche Awareness - Field Ses-	21
12/21/202	Alloway	KBYG: Knoff Group/ Mystery Ranch	10
12/26/202	Olson	Cooke City: Round Lake Avalanche	23
1/2/21	Turnage	Cooke City: Round Lake Avalanche	25

1/2/21	Gage, Hannah, Nel-	BSSEF Field Training	18
1/3/21	Gage, Hannah, Nel-	BSSEF Field Training	18
1/5/21	Darham	KBYG: Sponsored by Alpine Ortho and The	43
1/8/21	Jonas, Marshall,	CRC Classroom + Field on 1/9/21	13
1/9/21	Larson	Cooke City: Round Lake Avalanche Training	10
1/11/21	Regan	KBYG: Uphill Pursuits	20
1/15/2021	Hannah, Gloria,	CRC Classroom + Field on 1/16/21	7
1/16/21	Olson	Cooke City: Round Lake Avalanche Training	23
1/19/21	Dunn	KBYG: Dillon	10
1/20/2021	Karl, Zinn, Alex,	Avalanche Fundamentals	180
1/22/2021	Alloway	KBYG: Big Sky Bravery	5
1/23/2021	Larson	Cooke City: Round Lake Avalanche Training	9
1/26/2021	Freeman	KBYG: Hi-Line Climbing & Stronghold Fabri-	4
1/28/2021	Darham	KBYG: U.S. Fish and Wildlife	12
1/30	Kory J	Cooke City: Round Lake Avalanche Training	20
2/4	Dunn	Avalanche Fundamentals: Dillon	6
2/5/21	Darham	KBYG: USFS Madison Ranger District	7
2/5/21	Regan	KBYG: Mount Ellis Academy	15
2/5/21	Regan	CRC: She Jumps	8
2/6/21	Snow Rangers	Cooke City: Round Lake Avalanche Training	20
2/12/21	Larson	Cougar Friday Pop up	7
2/12/21	Regan	KBYG: Showdown Ski Area	25
2/13/21	Larson	Cooke City: Round Lake Avalanche Training	15
2/19/21	Hannah, Maily	CRC	14
2/19	Alloway	Red Lodge SAR: Online and Field	18
2/20/21	Mike, Larson	Park County SAR: Cooke Training	10
2/23/21	Zinn	Forecaster Chat: Uphill Pursuits	170
2/26/21	Regan, Hannah,	CRC: She Jumps	12
3/4/21	Chabot	KBYG: Belgrade High Schoolers	25
3/6/21	Larson	Cooke City: Round Lake Avalanche Training	10
3/14/21	Cimonetti	Park County SAR Training at Lee's	14
3/20/2021	Zinn	SplitFest: Snowpack Update and Fundamen-	12
3/20/2021	Chabot	KLIM Frozen Cowtag Snowbike conditions	80
3/20/2021	Zach and Sam	CRC: Splitfest	2
3/21/2021	Regan	Field Intro for Highline Partners	5
4/5/2021	Marienthal	Forecaster Chat online: Uphill Pursuits	30



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