



FLATHEAD AVALANCHE CENTER

& FRIENDS OF THE
FLATHEAD AVALANCHE CENTER

ANNUAL REPORT

2019/2020 SEASON

TABLE OF CONTENTS

Director's Summary	Page 3
Background	Page 4
Website	Page 5
Communications	Page 6-8
Publications and Presentations	Page 9
FAC Daily Products and Services	Page 10-13
2019-2020 Season Summary	Page 14-19
Accidents & Near Misses	Page 20-25
Education	Page 26-27
Finances	Page 28-29
Partnerships	Page 30-31
Friends of the Flathead Avalanche Center	Page 32-34
Volunteers	Page 34
Supporters	Page 35-36
The Future of the Flathead Avalanche Center	Page 37



FRIENDS ON A POWDER DAY!

DIRECTOR'S SUMMARY

From Zach Guy, Director
Photographs by FAC

Our annual reports over the last few years highlight complete growth in all aspects of the Flathead Avalanche Center: Public engagement, forecast products, partnerships, and media have all significantly grown in the past six years. This isn't by chance - it is because of increasing investment from government agencies and local support. In 2014, our region recognized the need for daily avalanche forecasts. Under the leadership of the newly-created Director position and supported by the newly-created Friends group, the FAC transitioned to a Type 1 Avalanche Center. To meet the needs for a full-time staff, the US Forest Service, Glacier National Park, the State of Montana, and public donors all contributed an increasing amount of funding and time towards the cause. We are now reaping the benefits of those investments and have developed into a highly-valued and credible regional forecast center, one which serves public safety and contributes to regional and national partnerships.

I have no doubt that the unprecedented impacts of the COVID-19 pandemic will cause agencies, businesses, and public donors to re-examine their priorities in upcoming years. I ask that our supporters also examine the contents of this report - which highlights the progress of the FAC in recent years and the value it brings to public safety as a return on your investment. Outdoor recreation is a core value of Montanans. In the Montana Governor's stay-at-home orders this spring, outdoor recreation



was considered an essential activity, including backcountry travel consistent with avalanche recommendations. By providing daily forecasts and avalanche education, the Flathead Avalanche Centers arms locals and visitors alike with the necessary information to decide when and where to recreate safely.

This is the second season in a row without an avalanche fatality in our forecast area, and we went an entire winter without an injury or accident that required rescue. This is what we strive for, and something that everyone can be proud of. This reflects a larger and more robust pattern at the national scale of a flattening curve in avalanche fatalities despite exponential growth in backcountry users. I'm grateful to see public donations, observations, and usage statistics continuing their upward trend. It tells us the public values and is engaged in our products, and it shows us that the forecast center has a meaningful impact on public safety. Community feedback has been overwhelmingly positive. These successes would not be possible without the dedication and support from our community, partners, and staff. Thank you to everyone who contributed time or resources towards avalanche safety in the Flathead Valley.



Intentionally triggered wind slab,
10" thick

BACKGROUND

The purpose of the Flathead Avalanche Center is to prevent the loss of human life, limb, and property by human and naturally occurring avalanches through information and education to the community. The FAC operates as a Type 1 Avalanche Center. With four full-time forecast staff and a professional observer program, current resources allow for daily avalanche forecasts and fieldwork for three geographic regions: the Swan Range, the Whitefish Range, and the Flathead Range and Glacier National Park. This season, the FAC issued 283 products, starting on September 22, 2019 and finishing on April 21, 2020. The center conducted regular fieldwork and daily forecasts for 121 days, starting on December 9, 2019.

STAFFING & OPERATIONS

The Flathead Avalanche Center operates out of the US Forest Service, although it also receives financial support from Glacier National Park, the Montana Recreation and Trails Program, and its non-profit partner, the Friends of the Flathead Avalanche Center. Operations are based out of the Hungry Horse Ranger Station in Northwest Montana. This season, the FAC was staffed by four avalanche specialists and a pro observer, all of whom brought a wealth of diverse experience to the team.

Zach Guy returned for his third year as FAC's Director, a position that he stepped into after 6 years of forecasting and directing an avalanche center in Colorado.

Blase Reardon served as FAC's lead forecaster for a second year, after recently returning to the Flathead Valley from forecasting in Idaho and Colorado for the past 10 years.

Clancy Nelson returned to the forecast team for his second year following 12 years of on-the-snow professional experience from the Eastern Sierra.

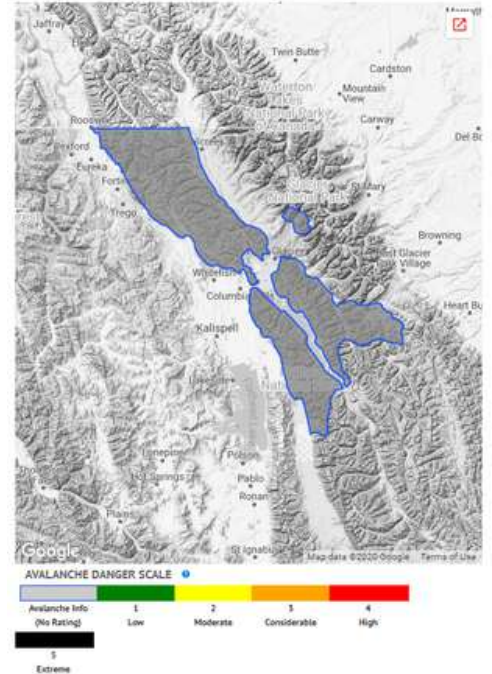
Our most seasoned forecaster, **Mark Dundas**, spent the winter battling leukemia. While he wasn't able to work this winter, Mark made a remarkable comeback this spring and contributed as a key volunteer.

Cameron Johnson stepped into the new forecaster role with 6 years of ski patrol and snow safety experience from Utah.

Guy Zoellner contributed to the fieldwork and educational efforts as a part-time professional observer.

Rob Millspaugh served as the FAC's intern the season.

The program is supervised under the Flathead National Forest's Recreation Program by **Chris Prew**. The center also draws on the resources and staff from the Hungry Horse Ranger District for field and administrative support.



Zach



Blase



Clancy



Mark



Cameron



Guy

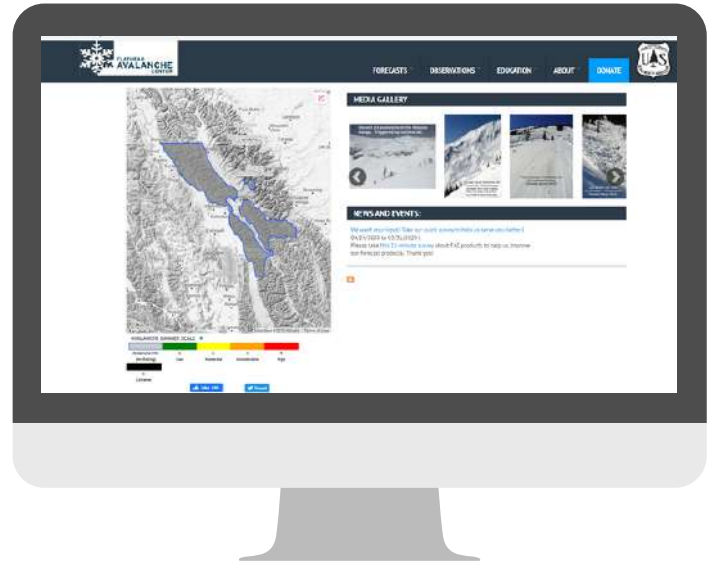


Rob

WEBSITE

FLATHEAD AVALANCHE.ORG

The FAC website is the primary source for communicating avalanche information to the public. The website houses all of the avalanche forecasts, observations, media, reports, and other information provided by the FAC. FOFAC owns the website and funds website maintenance and development. Data visualization tool called Snowpack Tracker allows forecasters and public users to view trends in weather station data, avalanche activity, and danger ratings (snowpacktracker.com/fac/seasontracker).



Total Visits	Total Unique Visitors	Page Views	Pages/Visit	Avg. Visit Duration (minutes)
83,782	32,296	309,642		
Increase of 26% from 2018-2019	Increase of 43% from 2018-2019	Increase of 29% from 2018-2019	3.7	2:49

43%
GROWTH IN
USERS

Website statistics have been collected since the introduction of the new site in November 2012. Site visits and use show substantial growth during this time period. This year's website statistics show the most dramatic growth since the website was born, **highlighted by a 43% increase in unique visitors compared to last season**. Website pageviews have more than doubled since 2015. The FAC emails daily avalanche forecasts to a growing list of email subscribers which increased to 1051 users this year. We also record the forecasts on a phone hotline.

COMMUNICATIONS

OVERVIEW

Over the course of the season, the Flathead Avalanche Center was featured in at least 30 media pieces, including television, newspaper, online news, podcasts, and radio outlets from regional to national level. Topics most frequently revolve around avalanche conditions, particularly during periods of heightened danger, but they also highlight education, avalanche accidents, research, resources provided by the center, and more.

RADIO

In its second year of taking to the airwaves, the Flathead Avalanche Center broadcast daily avalanche information on several regional radio stations (FM 96.5 - KGEZ, FM 98.5 - KBBZ, FM 103.1 - KRVO, and AM 600 - KGEZ). The four stations broadcast the one-minute clips every morning, which highlighted the day's avalanche danger and travel advice.

TV

Flathead, Swan Mountain ranges get stations



Flathead, Swan Mountain ranges get new weather stations

NEWSPAPER/ONLINE NEWS



Empowering Women in the Backcountry

How women in the Flathead Valley and beyond are bridging the gender gap in avalanche education

BY MAGGIE DRESHER // FEB 3, 2020



EXAMPLES

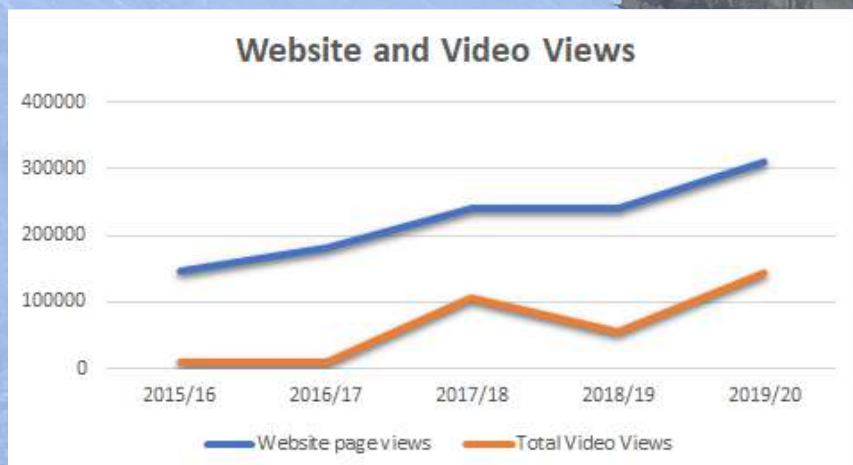
- 1) Channel 9 News Story about Weather Stations
Link to Article: [Click Here](#)
- 2) Daily Interlake Article addressing lessons learned from avalanche fatalities near Seeley Lake
Link to Article: [Click Here](#)
- 3) Flathead Beacon story about empowering women in avalanche education and careers
Link to Article: [Click Here](#)
- 4) Atlas Obscura story about the historic roots of avalanche forecasting
Link to Article: [Click Here](#)
- 5) Podcast interview with FAC forecaster Blase Reardon
Link to Podcast: [Click Here](#)
- 6) Flathead Beacon article focusing on how backcountry travelers should modify behavior during the COVID-19 outbreak
Link to Article: [Click Here](#)

COMMUNICATIONS

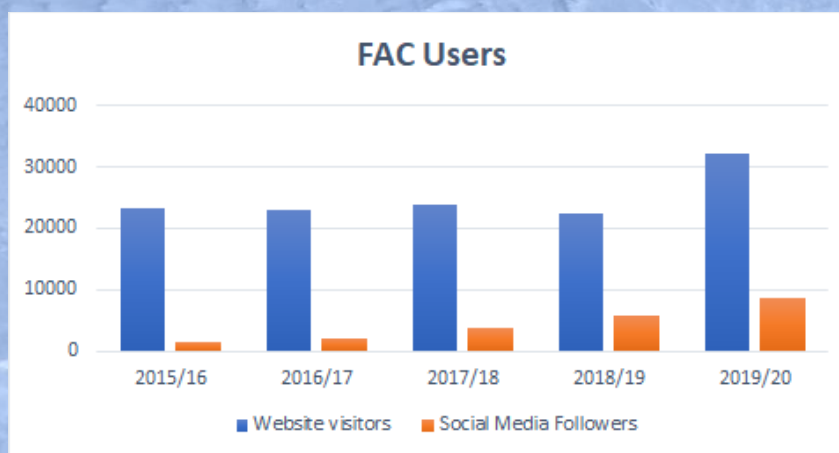
SOCIAL MEDIA

OVERVIEW

The FAC continues to develop and improve its social media content, and our efforts are reflected in significant growth during the past three years. The center uses Twitter, Instagram, Facebook, and YouTube to reach a broader audience. The goal is to steer users to our website while engaging them more frequently with avalanche information and short learning moments. The goal of our videos is to form a holistic message incorporating snowpack observations into decision making and terrain selection.



Positive growth in website and video views in the past 5 years



Audience numbers have continuously increased in social media and made a notable jump in website users this season.

New this season, we also published "Weekend Outlook" videos every Friday. The public applauded this supplemental material, which gave users a summary of conditions leading up to and looking into the weekend.

END OF SEASON SURVEY

In an informal end-of-season survey that drew 90 responses, results suggest social media serves to supplement forecasts and draw users to the site, although a small portion of users admit to substituting the social media products for checking the forecast. The FAC will continue to develop and refine this important means of public communication to best serve the users.

COMMUNICATIONS

SOCIAL MEDIA

DETAILS BY SITE



@friendsofflatheadavalanchecenter

Our Facebook followers grew from 2,414 to 3,737 this season. We published 302 posts with 711,379 post reaches and 74,606 engagements (roughly doubling since last year). Our 37 Facebook videos were viewed 107,794 times (a 414% increase since last year). Some of these higher reach and view statistics are attributed to several captivating posts that went viral.



@flatheadavalanche

The FAC Instagram account has our largest and fastest-growing audience. We made 262 posts this season and followers increased from 2,556 to 4,116, a 61% increase. We posted 30 informative videos with 27,164 views.



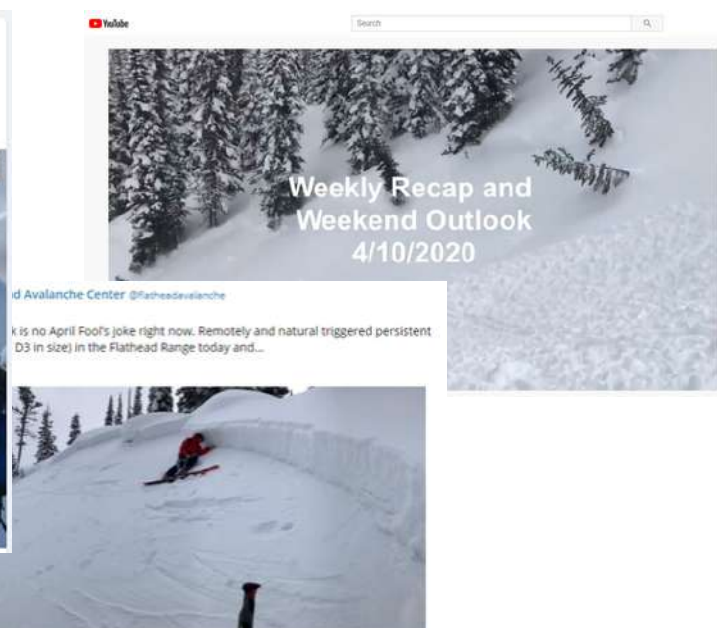
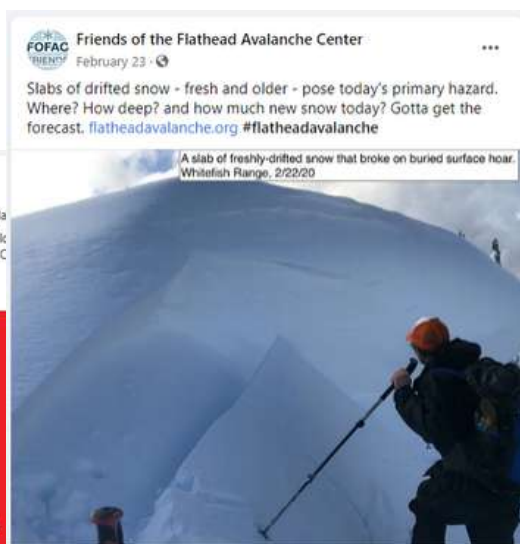
@flatheadavalanche

The FAC Twitter account continues to grow in popularity. Followers increased from 591 to 697 this season. Our 198,965 impressions and 6716 engagements both increased by approx. 70% since last season. We published 243 tweets with 226 retweets and 458 likes.



youtube.com/flatheadavalanche

The Flathead Avalanche YouTube channel stores all of our field based videos which we embed into forecasts and observations pages, and subscribers increased to 140. This season we produced 56 videos from either field visits or weekly summaries. Our YouTube channel had 9,454 views, 10,980 minutes watched. All of these last three metrics decreased by about 30% compared to last season.



Friends of the Flathead Avalanche Center
April 4

A **SPECIAL AVALANCHE ADVISORY** is in effect for the Flathead Range. Dangerous avalanche conditions will develop, complicated by buried weak layers and solar warming. Careful terrain selection is essential.

Details at www.flatheadavalanche.org



222 likes | 3 comments

Write a comment...

View Comments | 3 comments

PUBLICATIONS AND PRESENTATIONS

FAC PROFESSIONAL DEVELOPMENT SEMINAR

In its second year now, the FAC hosted a professional development seminar in Kalispell, MT in early December. The seminar catered to 30 regional professionals in avalanche safety, education, and search and rescue. FAC forecaster Cam Johnson contributed with his presentation on near misses in Utah.

FORECASTER PRESENTATIONS

Blase Reardon presented at two workshops this fall, the Northern Rockies Snow and Avalanche Workshop in Whitefish and SW Montana Ski Patrols Snow Science Day in Bozeman, MT. Both talks emphasized the value of learning from near-misses and accidents, both one's own and those in the large backcountry community.

“

The things that seem to matter in accidents are your practices and your partners.

”

- Blase Reardon

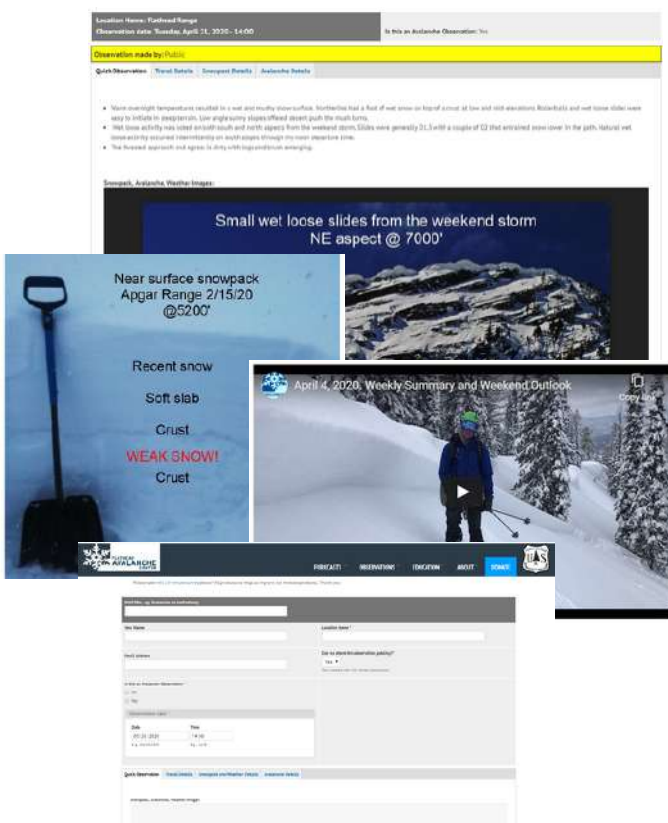
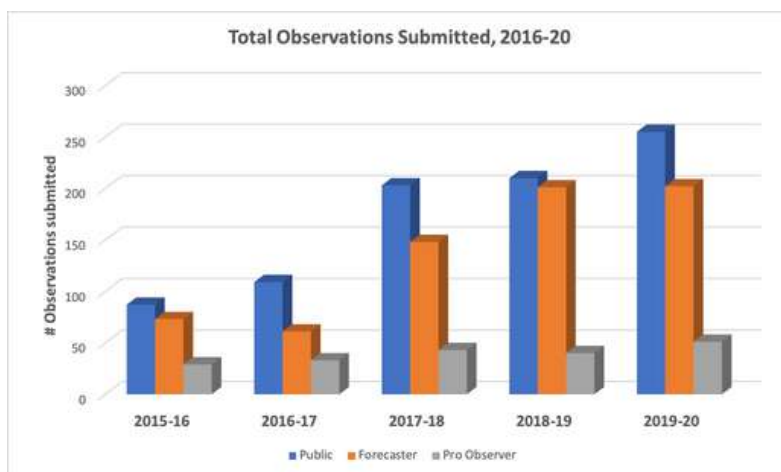


FAC DAILY PRODUCTS AND SERVICES

A key progression for reducing avalanche accidents is matching accurate descriptions of avalanche conditions with conditions-specific tactics to reduce exposure to avalanche hazards. The FAC delivers this information through a suite of products, all of which have seen steady growth since it became a Type 1 Avalanche Center. The growth demonstrates increased engagement from our audience and an improvement in avalanche products – both the result of investment from our agencies and partners.

OBSERVATIONS

Observations are the foundation for FAC’s daily forecasts; they are used to validate predicted avalanche activity and document snowpack and weather conditions, thus improving the accuracy of daily products. The FAC relies on observations from the public, FAC forecasters, and professional observers. The last group is comprised of FAC interns, paid observers, and professional forecasters at the BNSF Railway and the Going-to-the-Sun avalanche safety programs.



In the 2019-20 winter, the FAC logged 508 observations between October 10 and May 7. That represents a 13% increase over the previous season. Most of that growth came in public observations, continuing a positive trend from the previous four seasons. FAC forecaster observations held steady after substantial growth in each of the past two seasons. Professional observations climbed to 51, a highwater mark for the center.

This season’s growth continues trends that are apparent over the past five years, demonstrating that website and operational investments are paying off. The total number of observations submitted in the 2019-20 season is 2.7 times what it was in the 2015-16 season (508 vs. 189). Even more importantly, the number of public observations is up nearly threefold (255 vs 87). That increase demonstrates a significantly higher level of engagement by the public with the FAC, as well as a substantial time donation by those who submit reports.

OBSERVATIONS

The positive trends in forecast products and observations are a product of increased investment from the community and funding partners in avalanche safety. The increased forecaster observations result from expanding full-time staff, an indirect result of increased funding from funding partners and FOFAC support. Our forecast staff engages the public through daily forecasts and observations, which in turn, encourages public sharing their own observations. This has created a positive feedback loop. To encourage more observations, the FAC redesigned the website's public observation platform to enable "Quick Observations" in the fall of 2017. The goal was to foster more reports by making the process of submitting less cumbersome, and the increase in reports indicates success. Along the same lines, the FAC is currently partnering with several other avalanche centers to design a mobile app that will further promote public observations. The app went through beta testing this past winter. Projects like these are funded by FOFAC; a direct return on public donations.

TALLIES OF OBSERVATIONS BY OBSERVER TYPE FOR THE 2016-20 WINTERS

Winter	Public	Forecaster	Pro Observer	Total	Increase
2015-16	87	73	29	189	
2016-17	109	61	33	203	14
2017-18	203	148	43	394	191
2018-19	210	201	40	451	57
2019-20	255	202	51	508	57

THANK YOU!

The FAC offers a heartfelt, enthusiastic thank you to all the people who took time to submit observations. While we don't have space to name everyone who submitted, we list people who dedicated their time to submit three or more reports through the season:

Mark Ambre	BoLars Matson
Nathan Basford	David Micahlove
Kyle Bitney	Alan Myers-Davis
Adam Clark	Kevin Oberholser
Jenny Cloutier	Brian Parker
Alice Ford	Jeremy Primmer
Jake Frerk	Michael Reavis
Kim Givler	Alex Slader
Jackson George	David "Powder" Steele
Brad Lamson	Sarah Williams
BoLars Matson	



These folks provided over a dozen observations:

Kevin Oberholser, Brad Lamson, and Jake Frerk

We'd also like to extend a special thanks to Mark Dundas, for the several dozen observations he submitted as a volunteer, many of which included engaging and humorous history lessons and musical trivia. So glad to have you back in the mountains, Mark.

The primary contributor in the Professional Observers category is the Avalanche Safety Program for the Burlington-Northern Santa Fe Railroad. The forecasters for this program, Ted Steiner and Adam Clark, share detailed observations for each day of their fieldwork. Those reports, along with their network of automated weather stations, improve our understanding of snow conditions in the southeastern corner of our forecast region, between Essex and Marias Pass. Many thanks to Ted and Adam of Dave Hamre Associates.

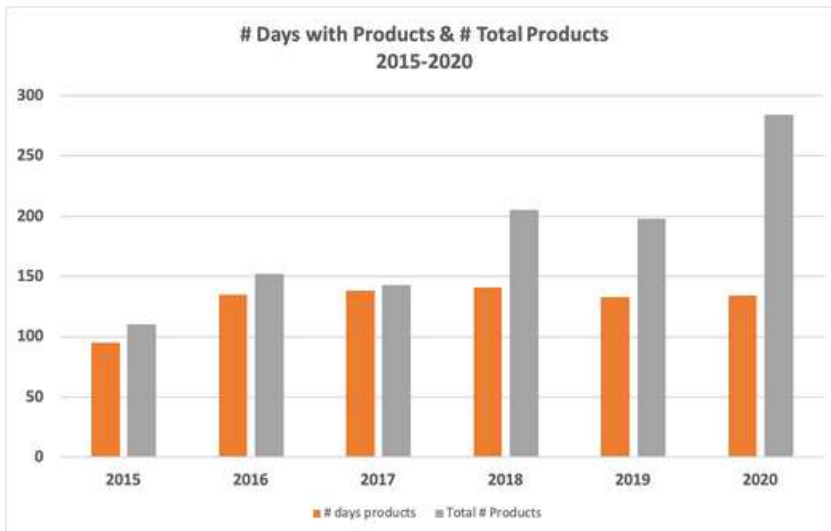


Other Professional Observers included this season's intern, Rob Millspaugh, as well as Guy Zoellner of the Flathead Avalanche Center, and Lloyd Morsett at Whitefish Mountain Resort. Thank you, Rob, Guy, and Lloyd, for contributing your expertise.

DAILY PRODUCTS

The FAC's primary products are daily avalanche forecasts, bookended by early- and late-season snowpack summaries with no danger ratings. We issue a daily forecast for three zones; when conditions in one or more zones differ, we produce separate reports.

The graphs on the right highlight this trend; columns represent the number of days the FAC issued products (orange) and the number of products issued (gray) for the 2015-20 winters. The FAC began issuing 7-day-a-week forecasts in the 2015-16 winter.



For the 2019-20 season, the FAC issued 283 products on 137 days. The products tally includes early- and late-season conditions updates as well as zone-specific forecasts during regular operations when danger ratings or problems differ between mountain regions. We issued our first conditions update on Sept. 22, several weeks earlier than usual, thanks to a dramatic fall storm. We issued daily forecasts from Dec. 7 to April 5, a period very typical for the past six seasons. We continued issuing conditions updates until April 21.

"Hands down most entertaining info delivery of any center right now. Keep up the great work!!"

"I enjoy your forecasts and Instagram. It's pretty entertaining"

- Todd S.

"Good work guys, great report!"

- UT Moab
Avy Center

This winter's 136 days of products is average for the past five seasons. However, the total number of products has grown significantly over the past three seasons; the FAC issued nearly two times as many products in the 2020 winter as it did in the 2017 winter (283 vs. 143). That growth is due to several factors. We're able to issue more zone-specific forecasts (rather than lumping all three zones into one product) because we receive more observations from the public, have four forecasters in the field collecting data and collaborating on forecast products, and have installed a weather station on the crest of the Swan Range. We've also honed our field practices and forecasting workflow. Producing mountain range specific forecasts is a powerful public safety tool because it allows forecasters to highlight which areas are most dangerous on a given day, thus giving travelers the resources to make more informed decisions.

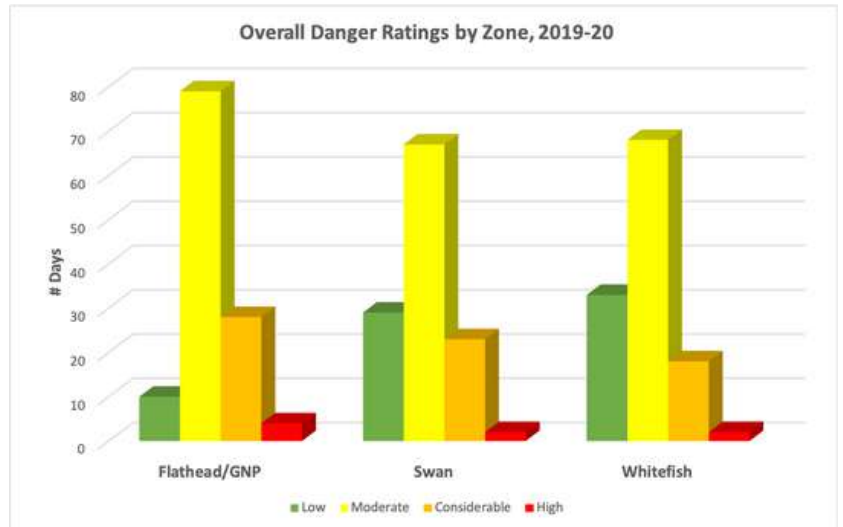
Winter	# days with products	Total # Products	1st Product	Start Daily Forecasts	End Daily Forecasts	Last Product
2015	95	110	Oct. 29	Dec. 6	Apr. 5	Apr. 5
2016	135	152	Oct. 28	Dec. 9	Apr. 10	Apr. 11
2017	138	143	Oct. 9	Dec. 5	Apr. 9	Apr. 30
2018	141	205	Oct. 2	Dec. 9	Apr. 8	Apr. 15
2019	133	198	Oct. 12	Dec. 9	Apr. 6	Apr. 15
2020	136	283	Sep. 22	Dec. 7	Apr. 5	Apr. 21

Tallies of product products and days products issued along with start and end dates, for the 2015-2020 winters.

DANGER RATINGS

During the 121-day span between Dec. 9 and Apr. 5, the FAC issued 268 products which included danger ratings for one or more of the forecast regions three zones. The overall danger was most often Moderate (59% of products) with Low and Considerable the next most frequent ratings. The FAC issued 8 forecasts – 2% of its total forecasts - with High danger ratings. The overall danger was typically higher in the Flathead Range/ Glacier National Park zone, with fewer days of Low danger and more days with Considerable or High danger.

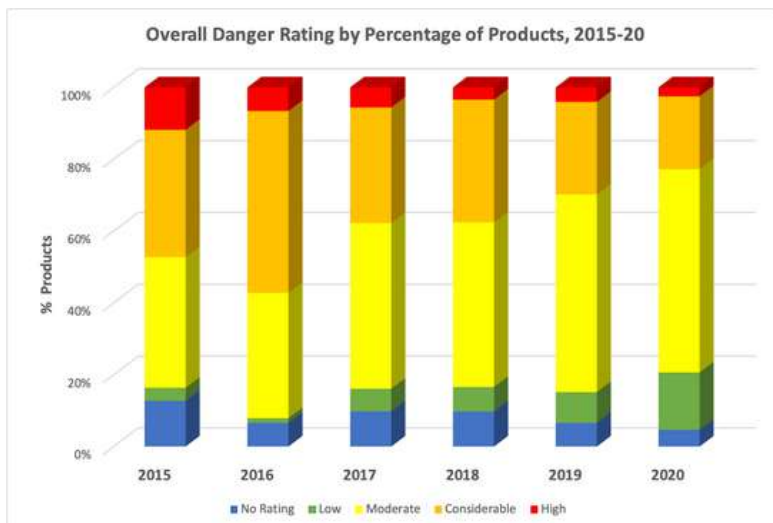
The avalanche danger scale is exponential: the seriousness of avalanche conditions increases profoundly with each step up in the scale. As the frequency of danger ratings this season shows, dangerous avalanche conditions (CONSIDERABLE or HIGH) occurred but did not dominate the winter's conditions. On days with higher danger ratings, our forecasts often point towards patience and conservative terrain selection. Avalanche danger fluctuates and in most seasons, there are ample windows of lower danger for choosing more consequential terrain, as shown by the preponderance of days this season with overall danger ratings of Low or Moderate.



Columns represent the number of days the FAC forecasts listed the danger as Low (Green), Moderate (Yellow), Considerable (Orange), or High (Red) for each of the three zones during the 2019-20 winter.

Zone	Low	Moderate	Considerable	High
Flathead/GNP	10	79	28	4
Swan	29	67	23	2
Whitefish	33	68	18	2
Number products	72	214	69	8
% Total (n=363)	20%	59%	19%	2%

Days at each overall danger rating for the three forecast zones for the 121 days we issued daily forecasts in the 2019-20 season.



Colors represent the percentage of total products issued with a given danger rating for the 2014-15 to 2019-20 seasons. Total number of products per season varies from 95 (2015) to 281 (2020).

Compared to previous seasons, the danger ratings during the 2019-20 season skewed lower, with notably more products published with overall danger of Low and fewer with an overall danger of High. This percentage of ratings for a season reflects that season's snowpack and weather conditions, though it may also be influenced by the availability of data from automated weather stations, the number and distribution of observations that season, or other biases.

2019-2020 SEASON SUMMARY

OVERVIEW

The 2019-20 snowpack was a boxer, feinting, dodging, and disguising its power until mid-January, when it landed a knockout punch. The set-up for a deep slab cycle was apparent by mid-November, when the basal snowpack on many shady, upper-elevation slopes included a series of ice-hard crusts capped by soft facets. While the structure produced some large natural avalanches early in the season, it mostly withstood large loading events, suggesting that maybe it wouldn't be a player. Then, amidst a remarkable seven-week period of sustained snowfall, a natural cycle of destructive avalanches ran in the Flathead Range. These destroyed acres of timber and extended trimlines and paths in what were already large avalanche paths. A second blow landed after a warm storm on February 1. The rest of the season saw drier conditions and mostly surface avalanche problems, but several scary near-misses that ran on a persistent weak layer formed in the dry weather. The snowpack transitioned to a typical diurnal spring cycle in mid-April.



2019-2020 SEASON SUMMARY

SEPTEMBER/ OCTOBER

Our season summaries don't usually start with September, because the snowpack doesn't typically start accumulating until later. And September's technically part of the previous water year. However, a late-September storm jumpstarted the season, walloping the Continental Divide with up to 40 inches of snow and four inches of SWE. Further west, the Swan and Whitefish Ranges wrung a few inches of snow from the storm, not enough to start a snowpack in those ranges. It took another storm in mid-October (10/17-22) for a base to form in the western part of the region.



On Oct. 25, warm temperatures and rain capped the basal snow with a continuous knife-hard melt-freeze crust above 5500 feet (Swan Range) or 6500 feet (Flathead Range/ Glacier National Park). Then arctic air pushed over the Divide late in the month, bringing another 4 to 16 inches of snow to region. The snow began faceting in the subsequent dry weather and cold temperatures, especially on shadier aspects. The first ingredients for a cycle of large, destructive avalanches were coming together: a well-developed persistent weak layer now blanketed the mountains.

NOVEMBER

The first half of the month saw mild, dry weather alternating with weak storms. Many southerly and westerly slopes melted back to bare ground below about 6500 feet. On shady slopes, more crusts and faceted grains stacked up above the Oct. 25th crust and facet layers. The uppermost was a thin, knife-hard rain crust found as high as 8400 feet in the Flathead Range and buried by a mid-month storm. That storm brought one to two inches of SWE with strong southwesterly winds to the region and produced a natural avalanche cycle. Though most slides were D1 to D2 in size, several D3 hard slabs ran in Glacier National Park. The slabs were three to five feet thick and failed at the Oct. 25 crust. While another blast of cold air closed out the month, the FAC forecasting staff discussed the large slides that ran in the park. Two months of snowstorms, rain, and cold temperatures seemed to add up to an upper-elevation snowpack riddled with weak layers and bed surfaces that could be problematic for months to come.



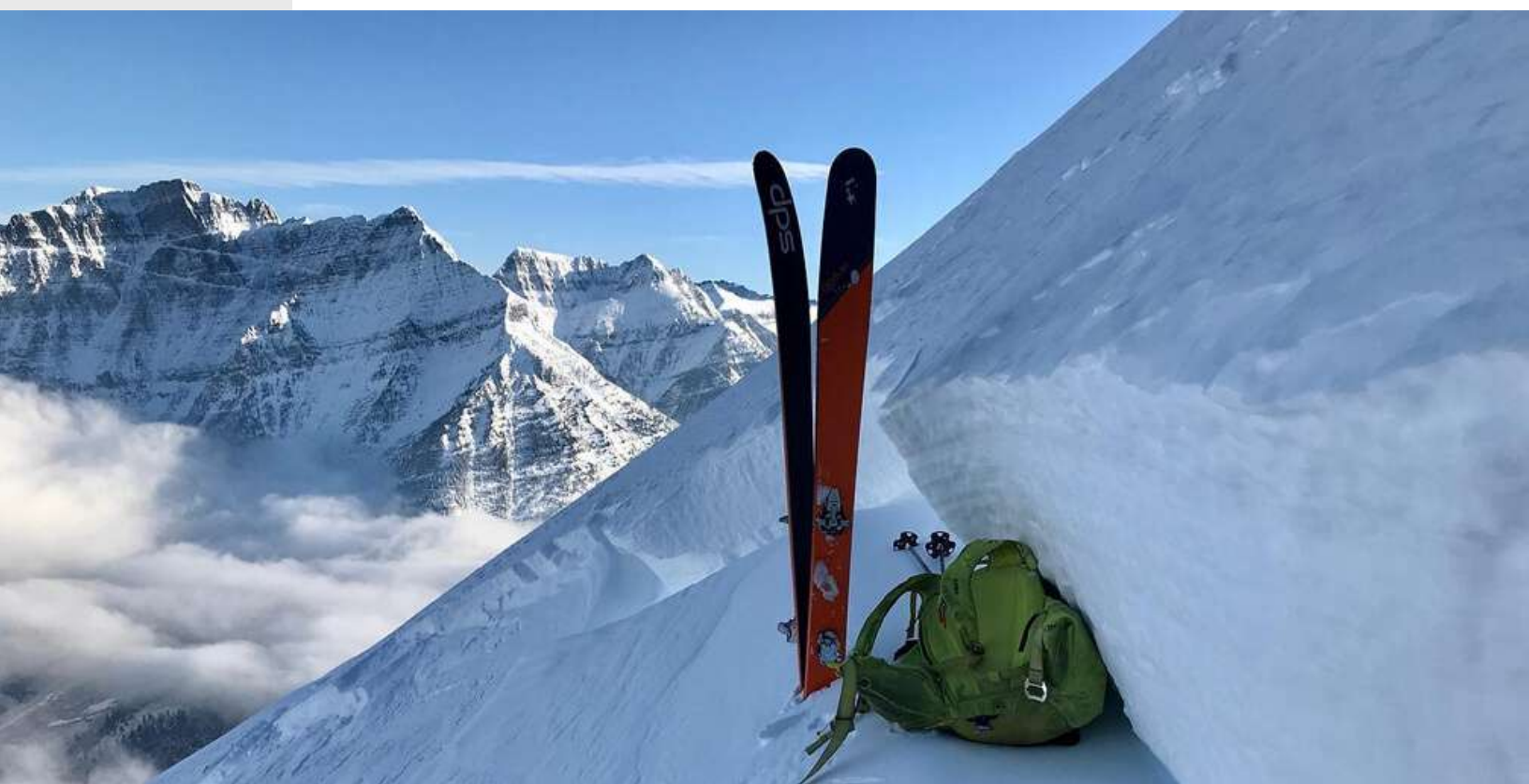
2019-2020 SEASON SUMMARY

DECEMBER



Two weeks of steady snowfall started the month, nearly doubling the water content and height of snow at mid and upper elevations. The FAC issued its first forecast for the season on Dec. 9, and with regular reports of collapses, we bumped the danger to High on Dec. 13 in advance of a storm that dropped over an inch of SWE at upper elevations. A natural avalanche cycle ensued at upper elevations, though it wasn't as widespread as we expected. Perhaps the early-season crusts and facets could hold more load than it seemed. Meanwhile, the snowpack at low elevations remained thin, necessitating hiking or bushwhacking on approaches.

A Winter Solstice storm prompted another high danger rating. Like many of the season's storms, it favored areas near Continental Divide, where it dumped nearly five inches of SWE in as many days. Ranges to the west weren't so lucky, and the warm, windy storm exaggerated the differences in snowpack and avalanche concerns amongst our three elevation bands, prompting the nicknames the Whoosh, the Moosh, and the Bush. Surprisingly, we observed little avalanche activity in Glacier National Park. The Flathead Range, however, saw several large and worrisome hard slab avalanches. These ran on a cold, leeward aspects at upper elevations, on what looked to be on early season weak layers. During a quiet holiday week, another smorgasborg of persistent weak layers developed on the snow surface – a multitude of crusts, surface hoar, and near surface facets. The holiday period was affectionately named “The twelve days of Crustmas” thanks to the numerous freezing rain crusts deposited on an almost daily basis. Our concern and questions about the deeper weak layers continued to grow. Were the few large slides signs of an isolated problem that had mostly run its course? Were most upper elevation slopes still lacking enough load for a widespread cycle?



2019-2020 SEASON SUMMARY

JANUARY



New Year's Eve proved to be the start of a remarkable seven weeks of storms that more than doubled the season's snowpack. At times, strong, southerly winds accompanied the snowfall, with most stations reporting gusts over 50 mph on January 4. The danger peaked at High during the strongest pulse on January 7th. Much of the snow for the first 11 days of January was low-density and relatively cohesionless, so while we recorded nearly 120 avalanches in that period, none was larger than D2. The bulk of avalanche activity was on the "Crustmas" weak layers or storm instabilities. Perhaps those early-season facets and crusts were less problematic than they appeared; only one slide appeared to step down to an older layer.

A multi-day storm arrived on January 10. Another two feet of low-density snow accumulated before the storm ended with subzero temperatures on January 13. From initial reports during the storm, it seemed that the snowfall had resulted in more loose and soft slab avalanches failing in the storm snow. Then, on January 15, skies cleared, revealing the crowns and debris piles of numerous D3 and D4 avalanches. The slides had run from near the crest of the Flathead Range into valley bottoms, widening and extending existing trimlines, and in some cases, destroying acres of mature forest. In the crowns we investigated, the failure plane was facets above an early-season ice crust – likely the October 25th layer. For much of the next month, we listed a Deep Slab avalanche problem in our forecasts for the Flathead Range, where almost all the reported slides occurred.

While snow fell most days in the second half of the month, another round of rain or freezing rain events left a stack of ice layers near the snow surface that marred riding conditions and prompted more holiday-themed monikers, like the MLK Death Crust and the National Eat Ice Cream for Breakfast Day crust. Avalanche activity was limited to wind slab and wet loose avalanches that were mostly D1 to D2. The exceptions were a couple of D3 hard slabs in the Flathead Range that failed on early-season facets and crusts.



2019-2020 SEASON SUMMARY

FEBRUARY

We started the month with High avalanche danger during a warm, windy storm that brought rain to over 7000 feet and 35 to 75 mph winds that downed trees. It also produced a Royal Flush of avalanche activity: hard slabs, soft slabs, wet slabs, loose, and wet loose avalanches. Many slides entrained wet snow as they ran to lower elevations, making for surprisingly long runouts and deep debris piles. We recorded over 40 avalanches size D2 or larger and three deep slabs in the Flathead Range up to D4.5 in size. The largest, off of Grant Peak, broke on the early-season facets and crusts, had a 20-foot crown, ran 4000 vertical feet, and deposited debris estimated to be 50 feet deep.

The subsequent February 1st crust capped the snowpack below about 7000 feet, diminishing the hazard of full-depth avalanches failing on early-season week layers. But snowfall and winds continued into mid-February, punctuated with more warming and freezing rain events. We added more crusts to our list, including the "Shower with a Friend Day" crust on February 5. New snow hazards dominated the problem list, exemplified by three close-calls on February 8, when we rated the danger Considerable. Each involved soft slabs of new and drifted snow and none of the riders suffered injuries.



February 18 marked the start of five days with almost no snowfall, the longest such stretch since the end of December. During that remarkably stormy seven weeks, upper elevation SNOTELs recorded 18 to 23 inches of SWE, more than many Continental Climate stations record in a winter. We had reports of avalanches on all but 12 days in that interval, with twenty-five of the reported slides D3 or larger.

Snowfall returned to close out the month, with upper elevation SNOTELs reporting 1.5-2 inches of SWE from February 23 to 28. When the storm ended, warm temperatures and sun resulted in a widespread wet snow avalanche cycle. That day's observations added over 85 D1 to D2 slides to our database, the highest one-day total for the season.



2019-2020 SEASON SUMMARY

MARCH

The first two weeks of March proved to be the quietest period of the winter: just 1 to 3 inches of SWE, Low or Moderate hazard, and just seven reported avalanches. Temperatures were mild until the March 14, when Arctic air pushing across the Continental Divide brought new low-density snow, subzero temps, and a blast of easterly winds.

Temperatures quickly rebounded, and observers reported over 30 avalanches on March 16. After that interruption, the snowpack and weather quieted again. We issued Low danger on most days through the rest of the month; there were 21 days in March without a reported avalanche, and all of the slides involved surface instabilities such as wind slabs, loose dry, or loose wet sluffs. On the 22nd, a rider was carried and slightly injured in a loose dry avalanche above Marion Lake in the Flathead Range. The dry weather promoted the formation of near-surface facets that survived above about 5700 feet. One to three feet of snow buried the facets by the end of the month, and the danger started to rise. Propagating large column tests and whumping collapses suggested a developing persistent slab problem.



APRIL

The first week of April doubled the near-miss tally for the entire season. The near-surface facets buried by soft slabs up to several feet thick prompted us to raise the danger to Considerable and list Persistent Slabs as a hazard on April 1, for the first time since February. Observations from that day had titles like “This Snowpack is No Joke” and “April Fool;” riders in two separate incidents had near-misses involving remotely-triggered avalanches that failed after at least some in the party had crossed the slope. Several days later, another party remotely triggered a D3 persistent slab. Fortunately, no one was carried or injured in any of these slides. The first week of April brought sporadic natural persistent slab activity as well, D2 to D3 in size, spurred by some combination of new snow, wind loading, and warming temperatures.

The first extended period of sunny and warm weather followed, and dangerous avalanche conditions continued into the second week of April. The warming trend triggered several rounds of natural avalanches. The largest, most widespread occurred April 8 and 9, with over 80 reported avalanches D2 or larger. While most of these were wet snow avalanches, the reports included several D3 slabs that ran on the mid-March facets. These evolved into wet slabs towards the tail of the warmup. The FAC stopped issuing daily forecasts on April 5, then posted snowpack summaries several times a week until April 23, when conditions had transitioned to the more typical diurnal cycle of a typical springtime snowpack.

ACCIDENTS & NEAR MISSES

OVERVIEW

Fortunately, we have only a few near-misses, incidents, or accidents to report from this season, none of which involve serious injuries or fatalities. Our accident reports and this summary aim to document what happened when things went wrong, in hopes readers can learn lessons that will keep them safer. We tally near-misses as well as accidents, because both offer learning opportunities.

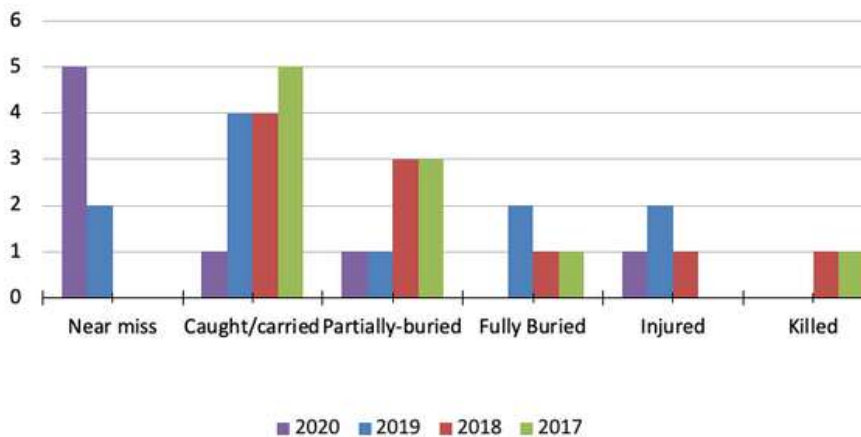
For our records, we use the following definitions:

Near-miss: an unintentionally-triggered slide in which no one was caught but which had a high potential for burying, injuring or killing someone should something have gone differently.

Incident: any time a rider comes into contact with moving avalanche debris.

Accident: A person is partially or fully buried, injured, or killed by an avalanche.

Accident/ Near-Miss Outcomes, 2017-2020



Over the course of the 2019-2020 winter, the FAC recorded eight near-misses or accidents. This tally includes one person caught and carried, one person partially buried, and one minor injury. These numbers reflect all of the incidents that people reported to us and/or that we investigated to confirm details. Many of these people followed up their initial reports with answers to our follow-up questions. In an informal end-of-season survey, three additional parties indicated that they were caught or carried in avalanches that weren't reported. Undoubtedly, there are other near-misses or accidents that go unreported as well. Thank you to all of the groups that contributed to learning opportunities by sharing.

The number of near-misses was higher than last year, while more serious incidents and accidents declined compared to previous seasons. Bars represent the number of people for each outcome over the past four seasons.

Notes: near miss records start in the 2019 season. Near-misses are counted as one person even if multiple people were in the party involved. The caught/carried numbers also include victims who were buried, injured or killed.

ACCIDENTS & NEAR MISSES

Date	Location	Near		Partial Burial	Buried	Injured	Killed	D Size	Activity	Setting	Zone
		Miss	Caught								
Jan. 30	Cascadilla	1						2	Snowboarder	Backcountry	Flathead
Feb. 8	Wahoo Creek		1					1	Skier	Backcountry	Flathead
Feb. 8	Tunnel Ridge	1						1.5	Hybrid Rider	Backcountry	Flathead
Feb. 8	Jewel Basin			1				1.5	Skier	Backcountry	Swan
Mar. 22	Marion Lake					1		1.5	Skier	Backcountry	Flathead
Apr. 1	Wahoo Creek	1						2.5	Skier	Backcountry	Flathead
Apr. 1	Patrol Ridge	1						2	Hybrid Rider	Backcountry	Flathead
Apr. 4	Crystal Creek	1						3	Skier	Backcountry	Flathead

Outcomes for the eight near-misses, incidents, and accidents described in the text, along with characteristics for the riders and setting.

BREAKDOWN OF ACCIDENTS AND NEAR-MISSES

January 30 - Flathead Range

On January 30, a party in Cascadilla Creek in the Flathead Range turned back when they encountered shooting cracks in wind-drifted snow. Shortly afterwards, they watched a solo snowboarder trigger a large wind slab on an adjacent slope as he descended. The rider did not see the slide occur behind him but was not caught by the debris. The avalanche danger in that zone that day was Moderate. This near miss highlights how red flags, such as shooting cracks, are often precursors to avalanches.

February 8 - Flathead Range

Three of the season's near-misses or incidents occurred on February 8. Two occurred in the Flathead Range, where the Danger was listed as Considerable at upper elevations and Moderate at the elevations where the incidents happened. In Wahoo Creek, an FAC forecaster was knocked off his feet and carried a few yards when he triggered a slab that broke higher on a small rollover than expected. This was a good illustration of how testing small, short slopes can be the difference between getting carried a few feet versus carried into more serious consequences.

February 8 - Tunnel Creek

In Tunnel Creek, a skier triggered a slab on the wall of a cross-loaded gully he was descending. The crown of the slide was 200 feet wide and more than a foot deep; it broke on a steep sidewall of a chute but didn't travel far down slope after it broke. Fortunately, the skier escaped the debris after his partner's shouted "Avalanche!" while he was skiing. The skier noted afterwards that several factors contributed to his near miss. It was a familiar slope with moderate angles in the middle of the chute, it was snowing heavily at the time, and the party let their guard down after finding less snow than expected and stable pit results in the start zone of the gully. Another slide came down the chute while they were descending, and they heard what sounded like a large natural avalanche nearby while they were regrouping at the base of the chute. This near miss highlights the value of traveling one at a time and positioning your partners so they have good views of the slope so they can alert to instabilities.



ACCIDENTS & NEAR MISSES

BREAKDOWN OF ACCIDENTS AND NEAR-MISSES CONT.

February 8 - Swan Range

The third accident on February 8 occurred above Camp Misery in the Swan Range, where the avalanche danger was also rated Considerable. From the scant details reported, it appears a party triggered multiple slides that broke two to three feet deep and several hundred feet across. One rider was caught and partially buried, though uninjured and able to extricate herself. A common theme with the string of near misses on February 8th, and in subsequent events later in the year: these events correlate to loading events on recently buried persistent weak layers, which often surprise people with unusual sensitivity or propagation behavior.

March 22 - Flathead Range

It was over a month before the next accident, which occurred above Marion Lake in the Flathead Range on March 22, a day when the danger was Low. A rider in a steep, northerly couloir was caught and carried about 75 feet in a dry snow sluff. He was not buried but did roll an ankle. A nearby couloir sluffed naturally.

This accident highlights how the small or isolated instabilities associated with Low danger can be amplified by extreme or consequential terrain choices.

A small loose snow avalanche that caught and carried a skier near Marion Lake in March



ACCIDENTS & NEAR MISSES

BREAKDOWN OF ACCIDENTS AND NEAR-MISSES CONT.



April 1 - Flathead Range & Skyland Area

Two of the season's more serious near misses occurred April Fools' Day, in the Flathead Range and Skyland areas. Both involved large (D2-2.5) slides that released after one or more people in the party had crossed the slope. The culprit weak layer in both incidents was a layer of near-surface facets that formed during a mid-March dry spell. A slab one to three feet thick built above this weak layer from March 24 to April 1 when a series of small storms dropped 2.5 to 4.1 inches of SWE in the vicinity of the near misses in the Flathead Range. Leading up to the early-April events, we had reports of propagation in Extended Column tests the day prior, with several forecaster parties turning back from their objectives. Still, it was hard to switch from the "open-season" mindset of mid-March to one of stepping back and manage persistent slab problems.

April 1 - continued

In one of the April 1 near-misses, the party involved had investigated a recent avalanche on their ascent, but found no signs of lingering instability in column tests at the crown. They triggered the slab from a ridgeline while transitioning from ascent to descent. The debris took out part of their uptrack. In the second near-miss, an experienced rider took a direct route to a ridge rather than detouring to a lower-angled option. The slab released at the feet of the second person to cross the slope. The avalanches in these two close-calls released on slopes about 33 degrees in steepness – much lower angled than many of the slopes people had been riding without incident in mid-March, or even the prior few days. Both near misses highlighted inconsistent feedback that is common with persistent slabs, as well as their ability to break into lower angle terrain than is common for storm instabilities.

April 4 - Crystal Creek

A third near-miss involving the mid-March facets occurred a few days later, on April 4. A party in Crystal Creek was transitioning into downhill mode when they remotely triggered the slope below them in the vicinity of where they planned to ski. No one was caught, and the party backtracked to a lower angled slope. Meanwhile, an FAC forecaster saw the slide run, skied to the site to investigate, and conducted a transceiver search when they found tracks near the debris. It was soon clear that no one was involved. This avalanche was large enough to snap trees (D3 in size), and while it released on a steeper slope, it pulled out slabs on lower-angled terrain as it ran. Debris released and ran through areas that might have otherwise seemed like good regrouping areas for managing shallower instabilities. A member of the group commented that they had not seen signs of instability and had skied in the same area a few days prior – again, highlighting the inconsistent feedback often associated with persistent slabs.

ACCIDENTS & NEAR MISSES

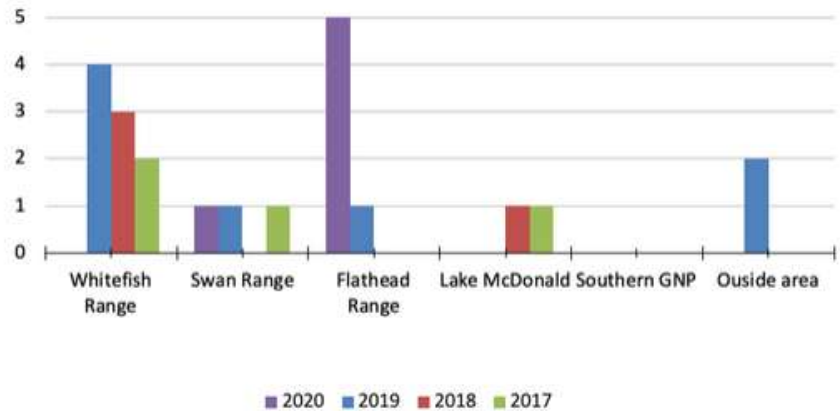
PATTERNS

One common thread in many of the season's near-misses and incidents is the occurrence of other avalanches on nearby slopes. Not all of these additional slides were triggered by the parties involved in the accidents, and in some cases, the party was unaware of the additional slides until after the incident. Nonetheless, the presence of the nearby slides reinforces the avalanche safety adage that one of clearest signs of danger is recent avalanches.

Half of the season's near misses or incidents occurred in terrain where the FAC forecast listed the avalanche danger as Considerable. The danger rating was Moderate (3) or Low (1) for the remaining events. That pattern illustrates that exposure and risk increase with higher danger ratings, though they still exist at lower danger ratings.

The Flathead Range was the site for all but two of the season's close calls. The exceptions occurred in the Swan Range and the Skyland area near Marias Pass. No incidents were reported from the Whitefish Range or the terrain adjacent to the Whitefish Mountain Resort, a marked difference from the prior winter. That shift is reflected in the danger ratings for the two zones; the Flathead Range had more days at Considerable and High than the Whitefish Range. No incidents were reported from Glacier National Park or by recreationists staying overnight at rental cabins or yurts. All the near-misses and incidents involved riders in the backcountry traveling on skis or snowboards, though riders in at least two parties used snowmobiles to access their chosen terrain.

Accidents & Near Misses by location, 2017-2020



Unlike previous winters, this season we saw the bulk of near misses and accidents occur in the Flathead Range. Bars represent the number of people who were involved in near-misses or accidents in each forecast zone for the 2017-20 seasons.

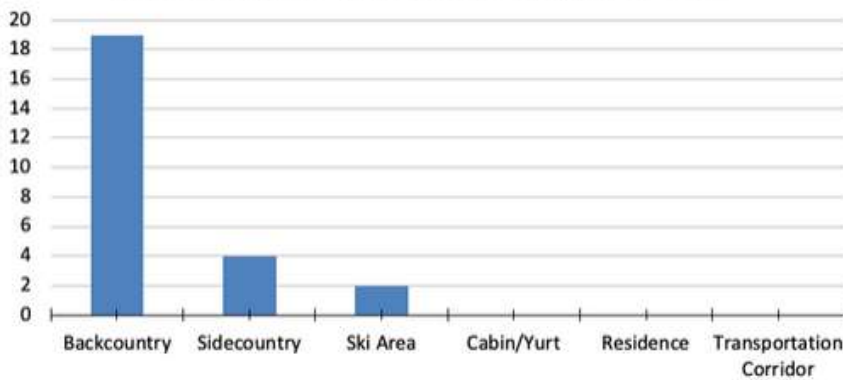


ACCIDENTS & NEAR MISSES

PATTERNS

A review of reported near-misses, incidents, and accidents over the past four winters shows some season-to-season variability as well as some trends. Most reported events have occurred in the Whitefish Range, likely because it is the most accessible terrain. After this past season, the Flathead Range runs a close second. The increase in incidents there may be a function of more use during a season with good riding conditions, riders reporting incidents more readily or a more complex snowpack. We did rate the danger as Considerable more often in the Flathead Range than in the Flathead Range, and half the events occurred in terrain with that rating.

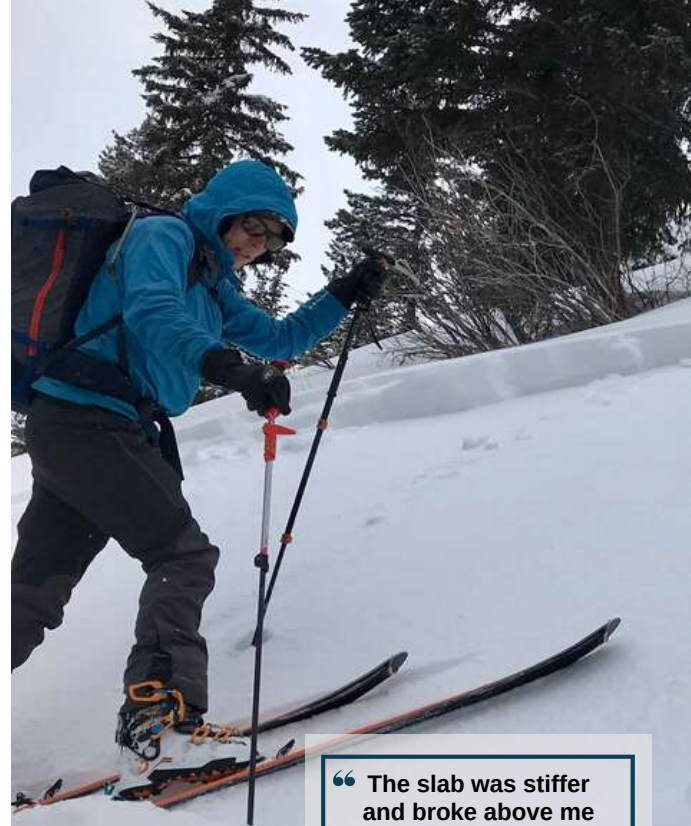
Accidents/ Near-Misses by Setting, 2017-2020



Backcountry users make up the majority of accidents or near-misses. Bars represent the total number of people involved in near-misses or accidents by setting for the 2017-20 winters.

By May 1, the U.S. had seen 23 avalanche fatalities, two of them occurring in one accident just south of our forecast area in the Mission Mountains. We send our sincere condolences to all the family and friends of those killed in avalanches this year, as well as a big thank-you to the many hundreds of people who participated in rescues, attempted rescues, and body recoveries.

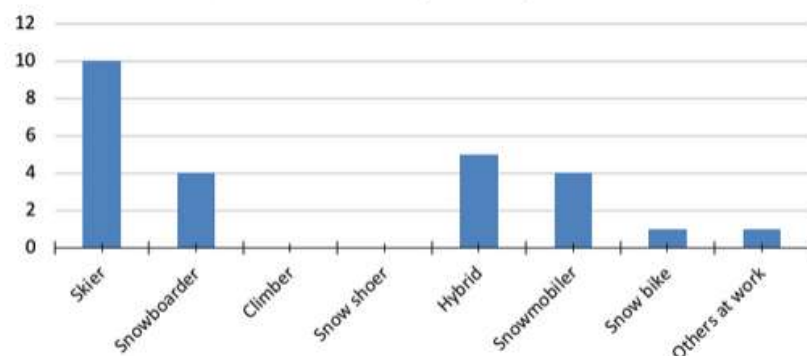
Fortunately, this marks the second season in a row with no avalanche fatalities within our forecast region, although the tragic effects of avalanche fatalities in neighboring regions are felt by our winter recreation community.



“ The slab was stiffer and broke above me higher than I expected. It knocked me off my feet and carried me a few yards. but stopped because we were on a small rollover. ”

The most common setting has been the backcountry, which we define as terrain accessed from trailhead or road shown in the plot on the left. If we include Hybrid Riders (using a snowmobile or snow bike to access terrain before skiing or riding) amongst motorized users, then incidents are split evenly between foot-powered and motorized users shown in the plot below.

Accidents/ Near-Misses by Activity, 2017-2020



Skiers account for the largest number of reported accidents and near misses in recent seasons. Bars represent the number of people participating in each activity who were involved in near-misses or accidents for the 2017-20 seasons.

EDUCATION

SEASON OVERVIEW

Since inception, education has been a pillar of our work at FAC and FOFAC, with tremendous growth each year both in numbers served, and the variety of classes offered. Our 2019/2020 season was no exception, but as with most years, also had some challenges. We cancelled classes due to cold temperatures in January and in response to COVID-19 in March. While it was disappointing for all of us to lose face-time with our students, we still see our season as incredibly impactful, reaching almost 500 youth and over 1200 members of our community overall. We engaged with new partners, tested new learning models, and shared this vital curriculum with many. You can see the full range of our classes below.

1211

TOTAL NUMBER SERVED

Throughout the 2019/2020 season through our classroom, field, and mixed session classes.

420

TOTAL YOUTH SERVED

Throughout the 2019/2020 season through classroom and field outings.

50 CLASSES SCHEDULED FOR THE 2019/2020 SEASON

67 MOTORIZED STUDENTS at THREE different motorized trainings.

21 YOUTH FIELD CLASSES, including 13 field days and 8 classroom sessions.

19 ONE HOUR AWARENESS TALKS at various local business around the Flathead.

3 INTRO TO AVALANCHES CLASSES. Include co-ed, ladies, and motorized 2-day classes.



EDUCATION



LOOKING AHEAD

Our 2019/2020 was a strong year, with many winter users served. And while we mark this year as a success, we are excited to grow this important work and see where next year takes us.

We see tremendous growth opportunities with the motorized community and topics classes for all user groups. We don't know yet how the COVID-19 pandemic will affect next season's training's, but have full confidence in our ability to bring this important curriculum to our community.



SEASON HIGHLIGHTS

NRSAW

Kicked the season off with one of our best Snow and Avalanche Workshops yet!

YOUTH

It continues to be a tremendous joy to teach the young people of our community. From snow sports clubs to 5th and 6th graders meeting us at the Mountain, and many others, there were so many highlights this season.

LADIES SERIES WITH SHEJUMPS

What a fun season with these gals! From companion rescue on the Mountain, to topics classes around the Valley, we had a blast teaching this group of snow seekers.

DREAM CAMP

What a great group of students! We were thrilled to get back in the snow with DREAM at their annual Powder Camp for adaptive recreation.

THE COMMUNITY

So many wonderful people, sharing ideas, showing up, sharing expertise, showing support, and adding to what makes living in the Flathead so special.

FINANCIALS

The Flathead Avalanche Center is funded through federal dollars, public and private grants, and community partners. The U.S. Forest Service Region 1, Glacier National Park, Flathead National Forest, and the Montana Department of Fish Wildlife and Parks Recreation Trails Program are the major federal and state contributors. The Friends of the Flathead Avalanche Center (FOFAC) is a 501(c)3 organization that leverages funding through grants, private donations, sponsorships, events, and other fundraising opportunities. FOFAC financially supports the avalanche center by absorbing the costs of website, education programming, and various purchases and travel expenses. The USFS provides additional operational support outside of FAC's budget including office space, administrative and vehicle support, and resources from other USFS programs.



Cash revenue for the Flathead Avalanche Center Winter 2019-2020

Source	Value (\$)	Details
Forest Service	68,000	Flathead National Forest and U.S. Forest Service Region 1
Glacier National Park	23,000	Glacier National Park for avalanche center operations within GNP and training for GNP staff.
State of Montana	68,000	Montana Department of Fish, Wildlife and Parks (FWP) Recreational Trails Program (RTP) Grant
Total Cash Revenue	159,000	

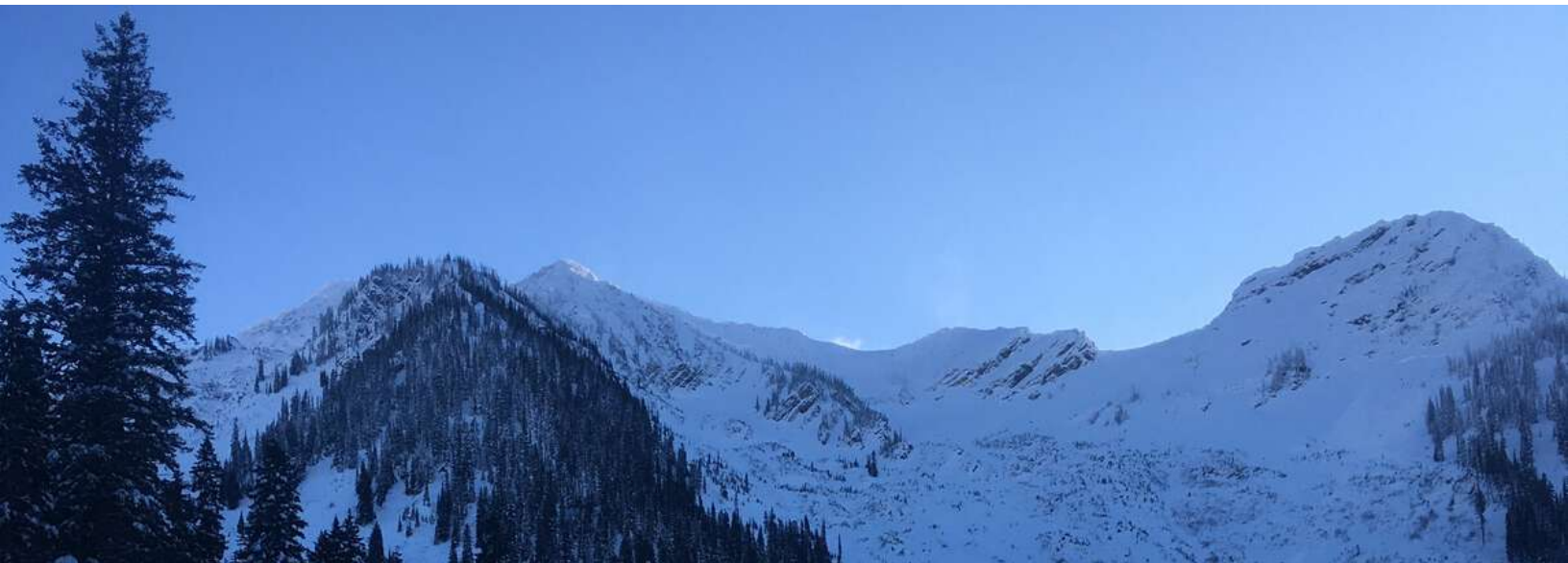
FINANCIALS

Expenses for the Flathead Avalanche Center Winter 2019-2020

Expense	Value (\$)	Details
Salary	144,919	Forecaster and pro observer wages
Vehicles	7,709	Maintenance and fuel for trucks and snowmobiles
Gear & Supplies	3,457	Uniforms, snow safety gear, and office supplies
Training & Travel	4,342	Registration and travel expenses for professional development
Miscellaneous	509	Intern housing, weather station expenses, etc.
Total Expenses	160,936	

In-kind contributions for the Flathead Avalanche Center Winter 2019-2020

Source/ Expense	Estimated Value (\$)	Details
Forest Service in-kind	10,000	Vehicles, office space and maintenance, admin, supplies and field support
FOFAC Snowmobiles	20,894	Purchase of 2 new snowmobiles for FAC fieldwork
FOFAC Weather Station	31,700	Purchase 3 weather stations (Mt. Aeneas, Tunnel Ridge Wind and Tunnel Ridge Snow)
FOFAC Website and other	6,997	Snowpack Tracker, Website maintenance, etc
Total in-kind	59,585	



PARTNERSHIPS

COMMUNITY COMING TOGETHER TO SUPPORT AVALANCHE SAFETY

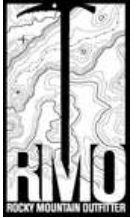
The bottom line is, we cannot do this work alone. Pulling together the additional resources to run FAC and support avalanche education throughout our community, we would come up short without the help of our closest partner, FOFAC. As a government program, we need our nonprofit counterpart for community fundraising, sponsorships, and the flexibility to orchestrate educations and outreach. FOFAC's mission is to financially support the work of FAC, while also saving lives through avalanche education. They host and participate in community fundraisers on FAC's behalf, secure and steward small business partners around the community, facilitate the education programs, host the website, and so much more.

Working together, we use community businesses for venues, sponsorships, outreach, field gear and other needs as they arise. Several small businesses from gear shops to professional services offer in-kind items for various events throughout the season. Both FOFAC and FAC provide services our community wants and needs through daily advisories and education programs. The community rallies behind both groups' joint mission for avalanche information and education by providing donations, dollars, and using their time to further avalanche safety in the Flathead Valley.

We are so grateful to everyone who opened their doors, wallets, and minds for this important curriculum, and love serving this wonderful winter-loving community.

THANK YOU!

Venue and capacity-building partnerships included Flathead Valley Community College and Whitefish Mountain Resort, as well as small businesses such as (but not limited to):



PARTNERSHIPS

FAC OPERATIONAL PARTNERSHIPS

The Friends of the Flathead Avalanche Center (FOFAC) partners with the FAC in fundraising, education, and outreach support. The previous section of this report describes the partnership in greater detail.

Below specifically highlights Flathead Avalanche Center's operational partnerships:

National Weather Service - Missoula

The National Weather Service-Missoula (NWS) continues to be a strong partner, providing valuable support through regular weather forecasts and disseminating avalanche information to the public through warning platforms and social media. Through support from the NWS, we also used snowpack modeling derived from weather models as an additional resource to supplement forecasting and field observations.



Other avalanche centers

The Flathead Avalanche Center works closely with the **National Avalanche Center (NAC)** and the **American Avalanche Association (AAA)**. These organizations provide guidance, technical support, and cost-sharing opportunities for website development, warning platform development and weather station products. The FAC collaborates with **Avalanche Canada (AvCan)** through cross-border observation sharing. The FAC also exchanges information and resources with other U.S. avalanche centers.



U.S. Geological Survey Northern Rocky Mountain Science Center

U.S. Geological Survey Northern Rocky Mountain Science Center (USGS) partners with the FAC through their research program. The USGS shares snow science research resources and maintains a number of useful mountain weather stations. We plan to continue working with the USGS and their research component to improve our forecasting operations.



BNSF Railway Avalanche Safety Department

The BNSF Railway Avalanche Safety Department shares field observations of the John F. Stevens Canyon corridor while maintaining several remote weather stations in the area.



Whitefish Mountain Resort

Whitefish Mountain Resort Ski Patrol assists with maintenance of FOFAC's Big Mountain Summit weather station, shares observations, and provides access to FAC personnel for education venues and field observations. Their snowpack and avalanche observations are an asset to our forecasting operations.



Flathead Valley Search and Rescue

The FAC also partnered with Flathead County Search and Rescue (FCSAR) and the Flathead Nordic Backcountry Patrol (FNBP), providing expertise and several field training sessions. Fortunately this season, there were no avalanche accidents or fatalities that drew upon this resource.



FRIENDS OF THE FLATHEAD AVALANCHE CENTER

Financially supporting the Flathead Avalanche Center and Saving Lives through Avalanche Education.

FOFAC is the premier partner to the Flathead Avalanche Center. It's mission is to support FAC and save lives through avalanche education. Support for FAC may vary from season to season based on need, but largely supports the website, weather stations, snowmobiles, continuing education and travel for forecasters, and other small gear or supplies.

While that part of FOFAC's work is tier one in our mission, education is a close second, working towards creating a community of well-informed, avalanche safety-minded individuals. We scheduled, hosted, or participated in almost 50 classes during the 2019/2020 season that ranged from one-hour classroom sessions to longer field days. We accomplished these successes in spite of more cancellations than usual due to public safety reasons beyond our control (weather and COVID-19).

All legs of our work are substantially supported by volunteer efforts, primarily in the form of event and class support. FOFAC volunteers invested substantial time in continuing the organization's mission and we want to acknowledge their huge support of our work.

Thank you so much for all you do!



SEASON HIGHLIGHTS

WEATHER STATIONS

One of our two capital investments in the Avalanche Center in FY20, the purchase and installation of three weather stations; a wind/temperature sensor on Mt. Aeneas in the Swan Range, and a wind and snow stations at Tunnel Ridge two stations on Tunnel Ridge providing much-needed snow, wind, and temperature data for the Middle Fork Corridor.. Tunnel Ridge installation will happen Summer 2020.

SNOWMOBILES

The second capital purchase came in the form of two new snowmobiles for FAC to use during their field season. FOFAC taking over the purchase of the vehicles gives flexibility with replacement and pricing. **Huge thanks to Jesco Marine & Power Sports for their support!**

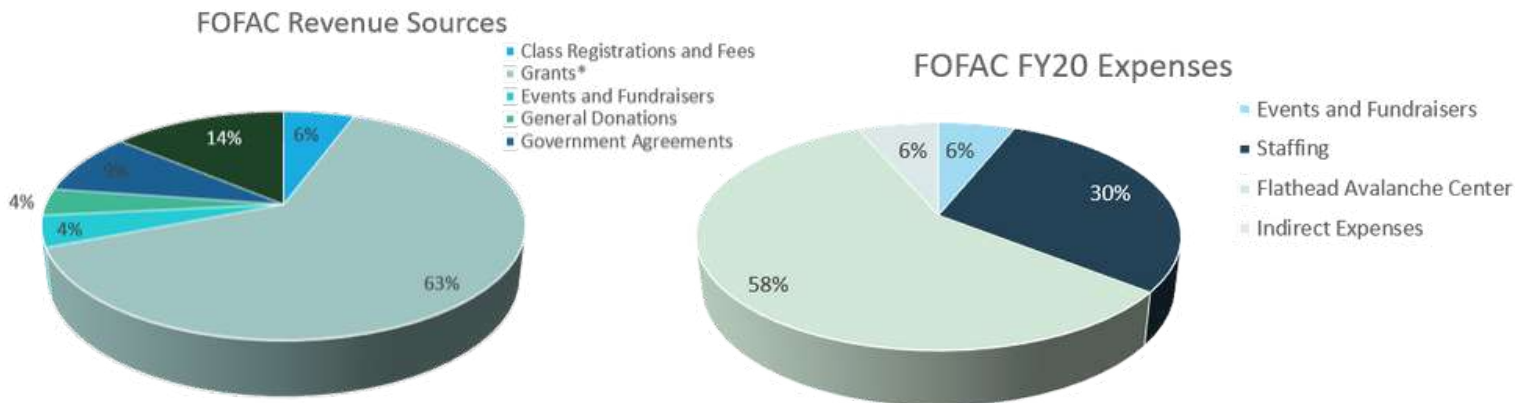
NEW STAFF

We invested in ourselves and hired a Director of Operations, Education Coordinator, and Instructor. Having these positions allows us to be more strategic with our time, pulling from these ladies collective knowledge to create the best programs possible and taking FOFAC to new heights. We are so excited about where this group will be leading us.



FRIENDS OF THE FLATHEAD AVALANCHE CENTER

FOFAC FINANCIALS (at a glance)



MAJOR EVENTS IN FY20

NRSAW

The Northern Rockies Snow and Avalanche Workshop (NRSAW) is FOFAC's largest event of the year and fits perfectly with the group's mission. This educational event provides the community with lectures from renowned experts in the snow science field and raises considerable funds for future educational offerings. Over 300 attendees gathered at the O'Shaughnessy Center in Whitefish for this day-long learning opportunity that generated over \$14,000.



SNOWBALL

Snowball is FOFAC's annual fundraiser held at the Great Northern Bar & Grill, in Whitefish. This year was our best year yet bringing in \$2,750 for Avalanche Safety in the Flathead Valley. New this year was our Bottle Pull which patrons purchased and received a mystery bag with a prize up to \$200. It was a welcomed addition to the event and brought us over our goal.

Huge thanks to our volunteer planning committee:
Lisa Steiner and Kira Frye!

EXCITING UPDATE! After many years as the Snowball, we're excited to give this event a refresh! Join us in January 2021 for the Blizzard, Our new fundraising event! More details will be shared this fall.

FOFAC STAFF



Emily Struss
 Director of Operations



Meg Killen
 Education Coordinator



Kira Frye
 Instructor

FRIENDS OF THE FLATHEAD AVALANCHE CENTER

BOARD OF DIRECTORS

All these courses and community outreach would not be possible without the tireless work of the FOFAC Board of Directors. This volunteer group volunteers hundreds of hours a year to make all of this programming possible.

CURRENT BOARD OF DIRECTORS

President • Dow Powell

Vice President • Ronald Bachrach

Secretary • Cheri DeBeau Carlson

Treasurer • Roland Frey

Becky Smith-Powell

Lloyd Morsett

Felicia Ennis

Ed Visnovske

Jenny Cloutier

Ben Parsons – In Memoriam

VOLUNTEERS

Volunteers for FAC were extremely valuable as field assistants, instructors, and event hosts. Field volunteers donated over 567 hours of time towards FAC operations providing our staff with safe and engaged partners during field work. Most of our volunteers attended a field-based training session in December, and several regular field volunteers completed the USFS snowmobile course to accompany us on motorized excursions. FOFAC board members and volunteers contributed over 320 hours to avalanche education, outreach, events, and fundraising.

FAC extends our personal gratitude to everyone who donate time towards avalanche safety in the Flathead Valley, and special recognition to all of our field volunteers:

Adam Clark	Kelsey Redmond
Alex Bogner	Kevin Freund
Brad Lamson	Kim Givler
Brock Bolin	Kimberly Weichers
Bryan Kreig	Kira Frye
Colin Sibbernsen	Lizzy English
David Powder Steele	Louis Schmidt
Deanna DeWire	Mary Nolan
Emily Struss	Meg Killen
Eric Boyd	Michael Bestwick
Eric Echelmeyer	Michael Reavis
Erich Peitzsch	Patrick Knoll
Felicia Ennis	Paul Fotter
Jackson George	Paul Matthes
Jason Griswold	Quinn Fitzpatrick
Jenny Cloutier	Rachel Kahn
Jess May	Robin Connell
Julie Nissi	Sarah Williams
Keegan Zoellner	Tyler Johnson
Keith Meehan	Zach Gidley

and especially FAC intern Rob Millsbaugh!

PARTNER SPOTLIGHT

Whitefish Community Foundation

Where do we start in recognizing this amazing partner to FOFAC. From hosting and supporting us through the Great Fish Challenge, which in 2019 (FY20) brought in over \$30,000, to the Day of Giving and Unity, the Whitefish Community Foundation is a critical partner in avalanche safety. We are so grateful for their leadership and mechanisms to bring our community together to support our various programs.



FY20 SUPPORTERS TO DATE

EXTREME

Sponsors who donated more than \$500

AGL Foundation
Al Matarazzo
Dow & Becky Smith-Powell
Dr. Robert Novy
Felicia Ennis
Jean Agather
Phyllis & Walter Malzahn Charitable Trust
Ted & Lisa Steiner
Tamarack Foundation, Inc.
Tom & Teresa Quinn



AMERICAN
AVALANCHE
ASSOCIATION



HIGH

Sponsors who donated \$250 or more

Bill & Betsy Bayne
Don & Colleen Scharfe
Fred Jones
Kent & Kim Taylor
Mindful Designs
National Ski Patrol

Raymond & Florence Sponberg Foundation
Richard & Cheryl Gordon
Seth Carbonri
Sierra Nevada Brewing
Stumptown Snowboards
Whitefish Mountain Resort

CONSIDERABLE

Sponsors who donated \$100 or more

Abbey Hughes
Adam Steerer
Alan Meyers-Davis
Alexander Gray & Cameron Blake
Annika Silverman
Bill Sugars
Bonfire Restaurant
Carry & Annell Maetzold
D.L. Morgan Revocable Trust
Erin & Noah Bodman
Glacier Mortgage
Hidden Moose Lodge
Hungry Horse-Glacier View Employees Association
James & Catherine Heitel
Jeff Carlson & Cheri DuBeau Carlson

Jeremy Rossman
Jim Watson & Carol Bibler
Joshua Nielsen
Josie Bestwick
Karen Perser
Katie Callahan
Ken & Karen McFadden
Kevin Oberholser
Kim Givler
Larry Parsons
Maggie Doherty
Marc & Kelly O'Brien
Matt & Saddle Baldwin
Mike & Lindsey Hromadka
Morgan Devonna
Nathan Drendel

North Valley Hospital Foundation
Rob Bachrach
Sacred Waters Brewing Company
Scott & Jane Wheeler
Selah Charitable Trust
Terry Chute & Jane Kollmeyer
Terry Knupp
The Towne Printer
Timothy Strand & Susan Pfirman
Will & Leslie Hunt
Wink & Joy Jordan

FY20 SUPPORTERS TO DATE

MODERATE

Sponsors who donated \$50 or more

Adam & Aubrey Clark
Applied Materials Foundation
BoLars Matson
Brian Miller
Chantel McCormick

Jenny Cloutier
Llouis Schmidt
Meg Killen
Pete Francisco
Randy Gayner

Robert & Christy O'Neill
Stan & Liz Makman
Randy Gayner
Robert & Christy O'Neill
Stan & Liz Makman

LOW

Sponsors who donated \$25 or more

Andrea DiNiro
Brigid Fray
Bruce Lieftring & Brenda Wink
Charles Logan
Cindy Woods
Clare Manzel
Deborah Huntington
Doug Griesel
Genevieve Bennett

Helen Pilling
Jane Hunt
Jennifer Parsons
Jeremiah Martin
Judah Gersh
Keith Meehan
Lloyd & Stephanie Morsett
Matt Kennedy
Emily Struss

Matthew Brake
Megan Eandi
Rebecca Briber
Rebecca Powell
Richard & Glenda Gerhl
Shanon Donaldson
The Cuisine Machine/Last Chair
Travis Vaughn

As of June 1, 2020



THE FUTURE OF THE FLATHEAD AVALANCHE CENTER

2020/2021 GOALS

- Improve the accuracy and quality of avalanche advisories by continuing to develop forecasting resources. These include, but are not limited to, effective and strategic fieldwork, maintaining weather stations, maintaining and developing tools for prediction and pattern recognition, peer feedback, and continuing professional development of staff. Completing the installation of the Tunnel Ridge weather stations this summer is of high priority.
- Expand public outreach through media and public engagement. We see a need to improve our connection with the motorized community.
- Maintain income sources by honoring the terms of grants and agreements and being fiscally responsible.
- Continued staffing of the director, lead avalanche forecaster, avalanche specialists, and professional observers.
- Continue to organize training opportunities for educators, field assistants, and industry professionals in the fall, including the Northern Rockies Snow and Avalanche Workshop, a pro development workshop, and on-field training sessions.
- Continue to work with FOFAC to develop a sustainable education model through increased fundraising and structuring a robust network of volunteers and staffing.
- Continue to expand or modify education opportunities to meet demands for courses such as Avalanche Awareness, Introduction to Avalanches, Level 1, and motorized-specific classes.
- Continue collaborations with existing partners while seeking new opportunities that augment our mission.
- Continue to keep stride with advancing web and mobile technology by partnering with the National Avalanche Center on mobile app development and shared website platform initiatives. We hope to deploy and customize the mobile app by next season.
- Respond when an incident occurs and work closely with all rescue agencies and personnel involved. Prepare a timely report on incident.
- Adapt to any changes in funding or agency requirements under the evolving COVID-19 situation following the guidance of local and regional health experts.

THANK YOU!

FAC would like to extend our gratitude to all of the partners, collaborators, volunteers, supporters, and USDA Forest Service personnel who helped FAC produce advisories, teach classes, provide observations, and generally help in disseminating avalanche information. **Thank You!**

CONTACT US

Flathead Avalanche Center

fac.admin@flatheadavalanche.org

Friends of the Flathead Avalanche Center

friends@flatheadavalanche.org

*Photos in this Annual Report
provided by the
Flathead Avalanche Center.*

A person is seen from behind, skiing down a snowy mountain slope. The skier is wearing dark clothing and has skis and poles. The background features a large, layered rock formation partially covered in snow. A large, semi-transparent diamond-shaped graphic is overlaid on the center of the image, containing text.

**IT WAS A PRIVILEGE TO SERVE
THE COMMUNITY THIS
SEASON!**

**WE CAN'T WAIT TO SEE YOU
AGAIN NEXT YEAR!**