

2021-22 Annual Report



Shasta/Trinity National Forest MOUNT SHASTA AVALANCHE CENTER



Summit Sponsors



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Mount Shasta Avalanche Center

Season Summary



The Mount Shasta Avalanche Center is now in its 24th season of operation. It was another dry winter in Northern California with far below average snowfall, but a few big storms in fall and early winter created a usable snowpack that provided for winter recreational opportunities. The MSAC began issuing daily avalanche forecasts on December 1st and provided them until April 3rd. Many educational programs and events were also provided. Overall, it was a safe and successful winter season.

Due to the stable weather and snowpack of midwinter, there were many climbers on the mountain and avalanche advisories reflected this in targeted messaging and more frequent updates to the climbing advisory section of the website.

For the 6th season in a row, the MSAC had 3 full time employees. Nick Meyers returned for his 13th season as director, forecaster, and ranger. Aaron Beverly worked his 6th season as a professional observer and forecaster. Ryan Lazzeri joined the team in September as a permanent avalanche forecaster and climbing ranger. Prior to joining the MSAC Ryan was a climbing ranger at Mt Rainier National Park and a ski patroller in Telluride, Colorado. The USFS funds portions of Nick and Ryan's salaries, while the Friends of the Mount Shasta Avalanche Center (FMSAC) funds some of Aaron's. The remainder of their salaries are funded through the Department of California State Parks OHV Program. The MSAC has been successful for many years in receiving OSV grant funds that contribute to the success of the center.

Weather station upgrades from last season have allowed the MSAC's stations to run well all season providing critical real-time data to avalanche forecasters. A manual was developed over the winter to function as a guide in understanding and maintaining the MSAC's station network for future employees.

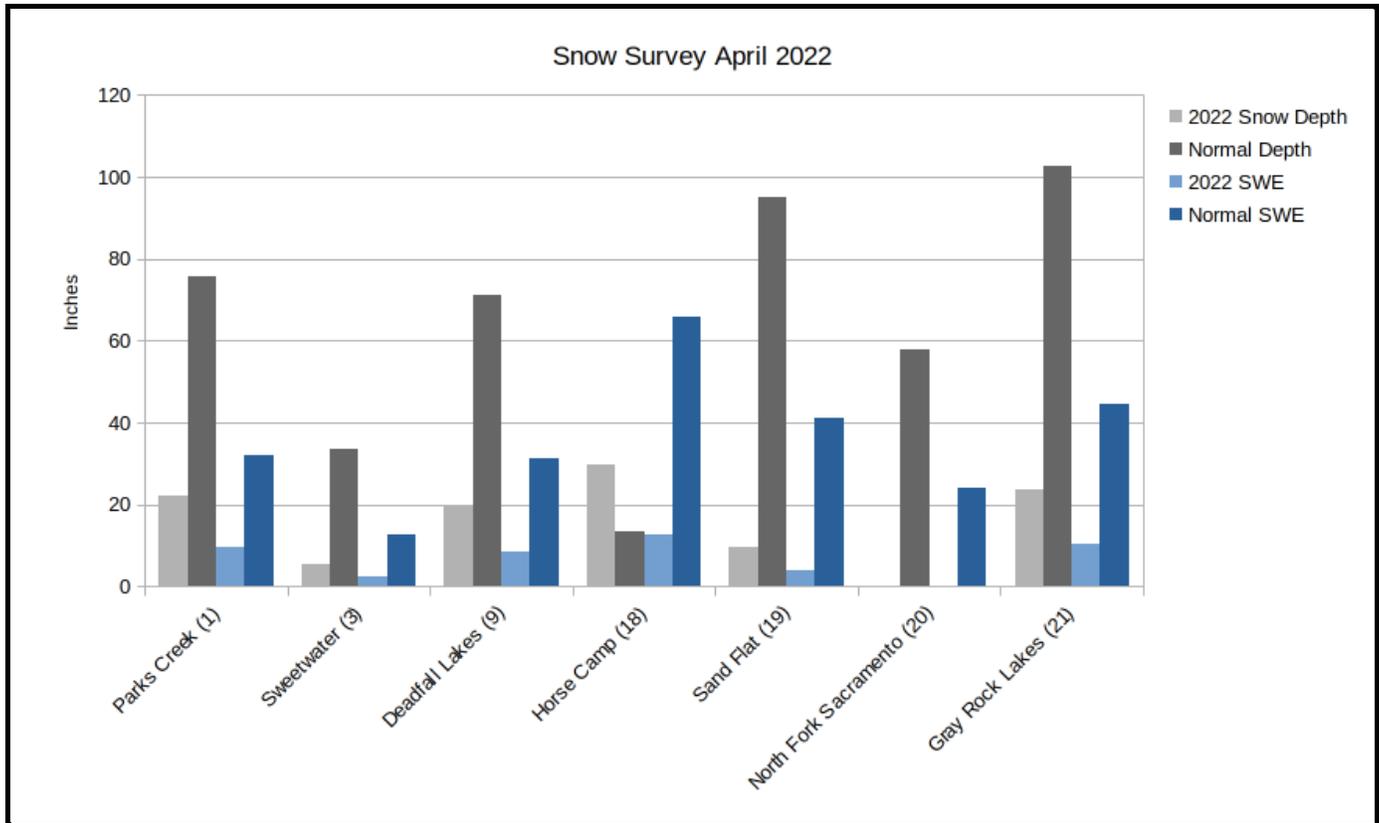


Statistics

The figures below summarize snowpack surveys conducted for April 2022.

Snow Survey Results April 2022							
Sacramento, Shasta, Trinity Watersheds							
Course Name (Course #)	Elevation (ft)	2022 Snow Depth	2021 Snow Depth	2022 SWE	2021 SWE	2022 % Normal Depth	2022 % Normal SWE
Parks Creek (1)	6700	22	66.3	9.5	25.3	29	29.7
Sweetwater (3)	5850	5.6	44.3	2.5	10.4	16.7	19.6
Deadfall Lakes (9)	7200	19.5	55	8.5	22	27.4	27.2
Horse Camp (18)	7900	29.8	68	12.7	27	27.2	24.4
Sand Flat (19)	6800	9.5	63	4	27	10	9.7
North Fork Sacramento (20)	6900	0	42.5	0	16.6	0	0
Gray Rock Lakes (21)	6200	23.5	73	10.5	52	22.9	23.5





Website/Social Media/Email

The MSAC website experienced steady use this season. For the 2021-2022 winter (December 1st, 2021 - April 12th, 2022), www.shastaavalanche.org received 75,835 total visits, of which 31,704 were unique users. The average session duration was 2 minutes and 29 seconds. Of website visitors, 23.6% were returning while 77.4% were new.

Website

- 2021-22 Number of MSAC Avalanche Advisories: 121
- Number of Unique Website Users: 31,704 (-15% [change from last year])
- Total Number of Website Visits: 75,835 (-21%)
- Mobile Users: 43,030 (+111%)
- Average Session Duration: 2 minutes 29 seconds (-3%)

Social Media / Email

- Number of Facebook Followers: 7,050 (+27%)
- Number of Instagram Followers: 4,601 (+98%)
- Number of Advisory Email Subscribers: 216 (0%)

Education

- Number of People Reached: 210
- Number of Avalanche Presentations Delivered: 15

Avalanches 2021-22 Season

- Number of National Avalanche Fatalities: 15
- Number of Fatalities in the MSAC Forecast Area: 0
- Number of people caught in avalanches in the MSAC Forecast Area: 0

The takeaway from the above numbers is that our audience is increasing, particularly on social media, but website visits have decreased. This decrease can likely be attributed to a generally low avalanche danger season.

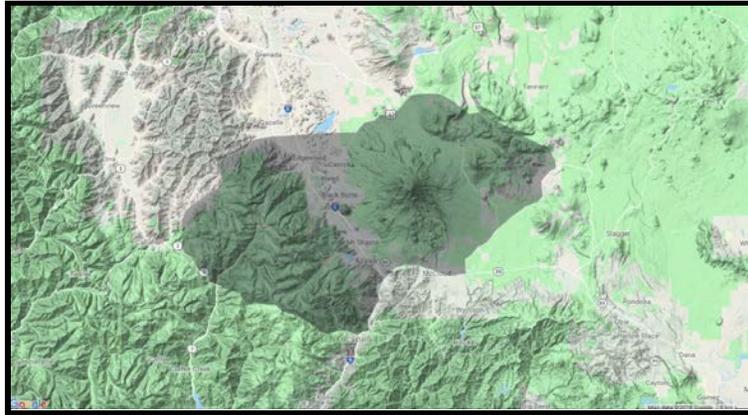


Avalanche Advisories

The Mt Shasta Avalanche Center's primary mission is to communicate current avalanche, snowpack and mountain weather information through our daily avalanche forecasts. The 2021-22 season was the sixth year in a row we were able to issue daily forecasts. A total of 121 advisories were published between December 1, 2021 and April 3 on our website www.shastaavalanche.org. Additionally, the website provides information about current conditions relating to recreational use, recent observations of avalanches, skiing/snowboarding/snowmobiling and climbing conditions, and general information on recreational opportunities in the mountains around Mt Shasta.



MSAC's 800 Square Mile Advisory Area



To provide the most accurate information possible, forecasters get into the backcountry regularly to gather observations of current conditions. In the winter, forecasters publish the daily avalanche forecast by 7 a.m. and then choose a field destination to gather information from using skis and snowmobiles to access our 800 square mile advisory area. Test-pit measurements, observations, and photographs are posted the same day on the website to be viewed by the public. In addition the public can post observations to the website, both within the advisory area and within the greater sphere of influence outside of the advisory area (generally Ashland Oregon and south to Mt. Lassen).

Avalanche Danger Ratings 2021-22 Season

Overall Avalanche Danger Rating	LOW	MODERATE	CONSIDERABLE	HIGH	EXTREME
Number of Days Issued	101	9	10	1	0

Avalanche Incidents

The MSAC did not have any avalanche incidents or avalanche fatalities this season. We did not hear of any incidents nearby, either.



Avalanche Education

The Mount Shasta Avalanche center delivered 16 avalanche presentations this season reaching over 250 people throughout northern California and southern Oregon. MSAC provided free avalanche awareness and companion rescue clinics the first Saturday and Sunday of December, January, February, and March. Avalanche awareness was conducted through online Zoom meetings and companion rescue clinics were conducted at Bunny Flat using facemasks and social distancing standards for COVID-19 precautions. Training was also given to Siskiyou County school groups, Boy Scout troops, Search and Rescue teams and Klamath National Forest personnel.

Date	Speaker	Group/Topic	Participants
12/11/21	Meyers/Glaubman	Monthly Avalanche Awareness	20
12/12/21	Glaubman/Beverly/ Lazzeri	Monthly Companion Rescue	15
1/1/22	Meyers	Monthly Avalanche Awareness	16
1/2/21	Glaubman/Beverly/ Lazzeri	Monthly Companion Rescue	16
1/13/22	Beverly	School group - Nordic Center	18
1/14/22	Meyers/Lazzeri	School group - Nordic Center	20
1/15/22	Meyers/Lazzeri/Gla ubman	Snowmobile Companion Rescue and Avalanche Awareness	5
2/5/22	Meyers/Lazzeri	Search and Rescue Training	9
2/5/22	Meyers/Lazzeri	Monthly Avalanche Awareness	10
2/6/22	Glaubman/Lazzeri	Monthly Companion Rescue	11
2/10/22	Glaubman	School group - Nordic Center	19
2/10/22	Meyers/Lazzeri	Snowmobile Training	9
2/11/22	Meyers/Glaubman	Castle Rock School Snow School	18
2/24	Beverly	Delphic Elementary	20
3/5/22	Glaubman	Monthly Avalanche Awareness	4
3/6/22	Glaubman/Lazzeri	Monthly Companion Rescue	5



Finances of the MSAC

The Shasta Trinity National Forest funded 34% of the MSAC’s total operating costs for the 2021-22 season. The MSAC was awarded a CA state OHV grant (other agency cash) that provided 30% of the total cost for this season, and the FMSAC funded 36%.

Shasta Trinity National Forest Service cash	\$33,544
Shasta Trinity National Forest Service in-kind	\$21,327.35
Other Agency Cash	\$64,664.00
Friends of the Mount Shasta Avalanche Center cash	\$17,362.22
Friends of the Mount Shasta Avalanche Center in-kind	\$14,617.50
	Total - \$151,515.07



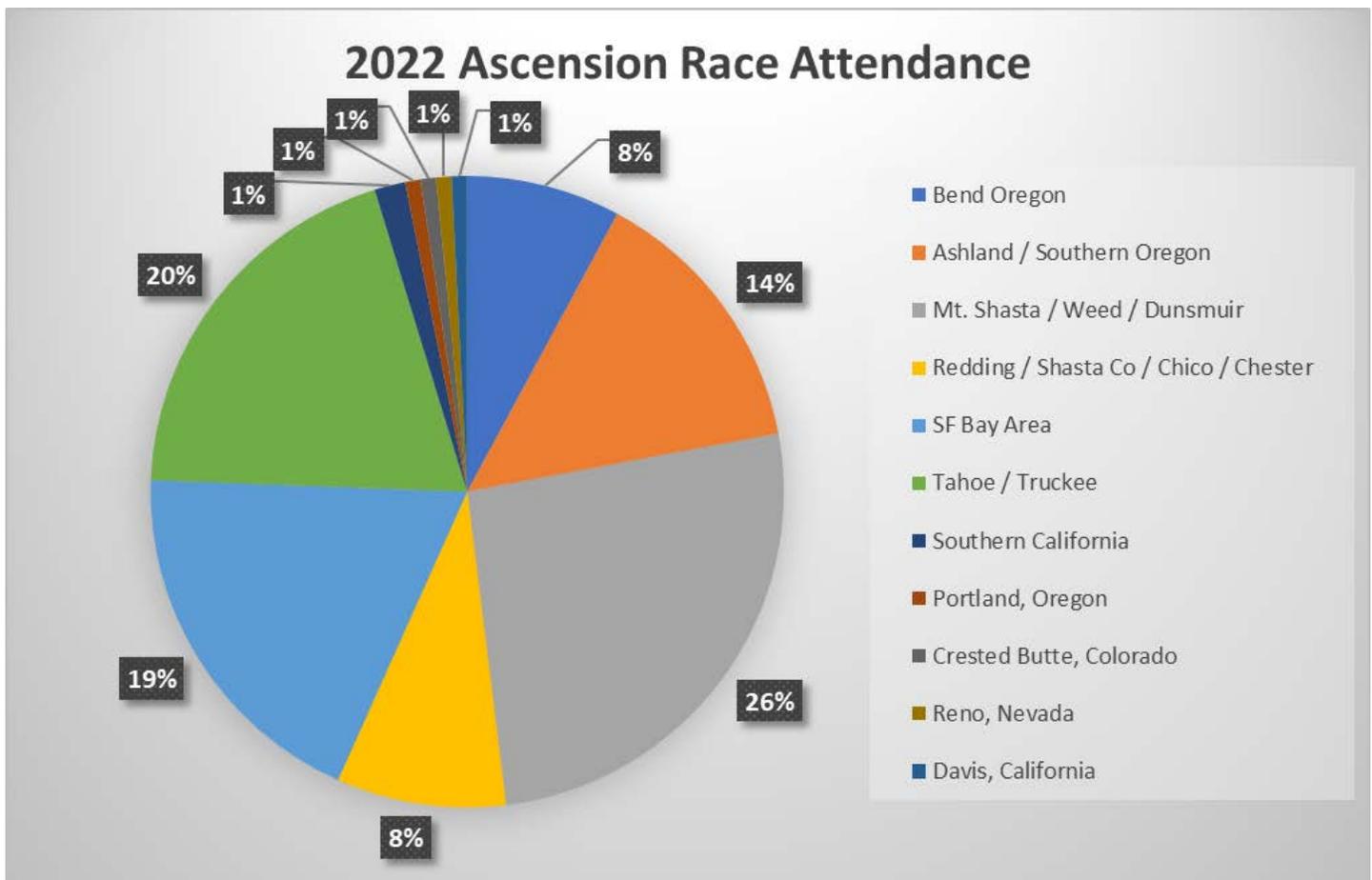
Friends of the Mt. Shasta Avalanche Center

The Friends group is a nonprofit that was created in 2002, and is an essential component of the Avalanche Center. FMSAC funds Aaron Beverly's position as a Forecaster and Professional Observer. The Friends fund and operate the MSAC website and all of our remote weather stations. They also organize all fundraising events, and help with the education and outreach components of the avalanche center.

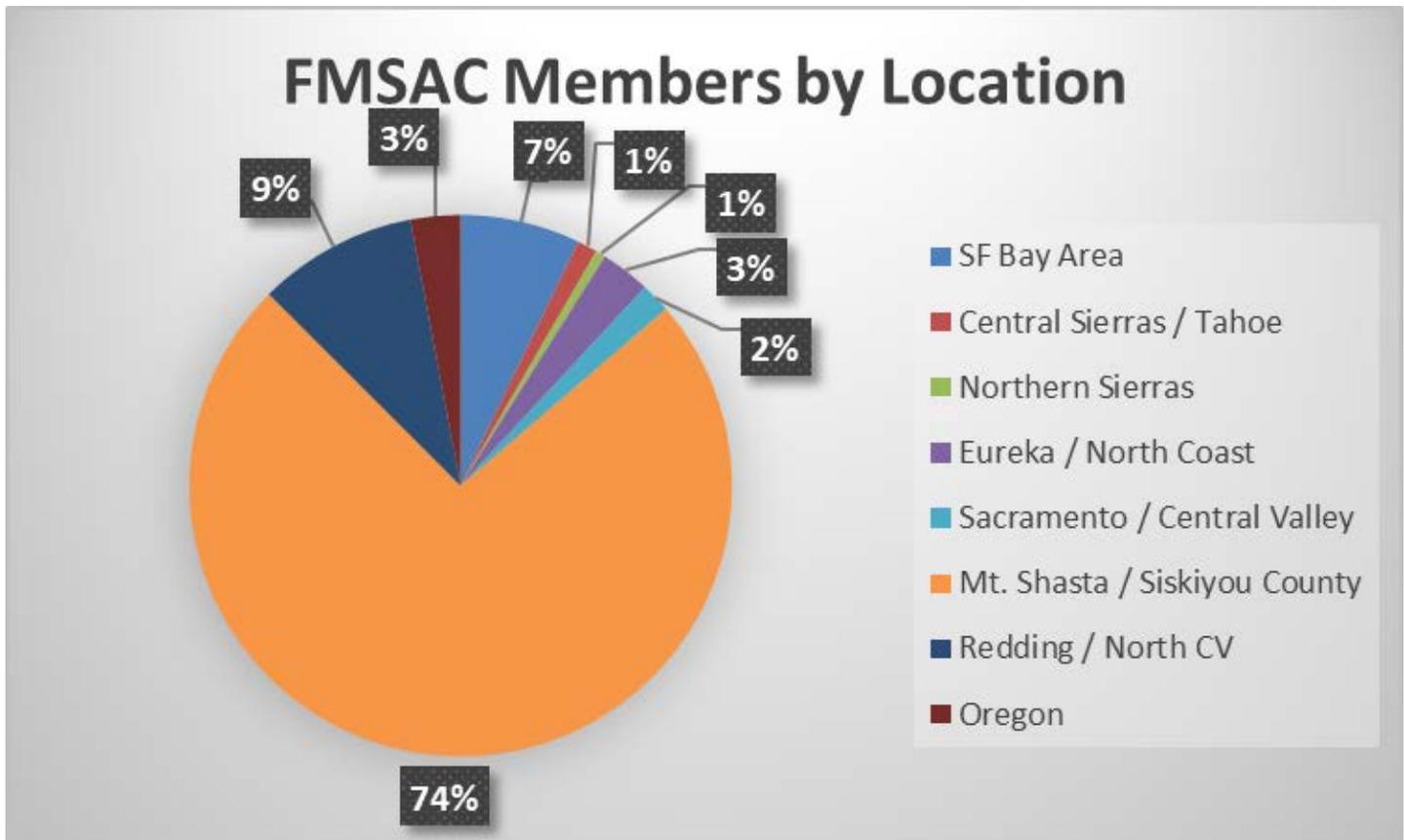
FMSAC is a volunteer group with one paid position, the Executive Director, Casey Glaubman. FMSAC board members include Hanne Meyers, Sean Malee, Dave Brown, Jason Koster, Nick Joslin, Justi Hansen and Clayton Coles.

The group represents the soul of adventure and passion for backcountry mountain recreation in the greater Mount Shasta area. We extend a huge thank you for all of their effort and support this season.

This season, the FMSAC held the 8th Annual Mt. Shasta Ascension Backcountry Ski Race fundraiser at the Mt. Shasta Ski Park. The race had 127 attendees, nearly twice the previous year's entrants. As shown in the chart below, the entrants to the race provide a cross section of the public served by the MSAC.



The FMSAC membership increased by 50% and includes approximately 176 members. As shown on the following chart, most of the members are from Siskiyou and Shasta Counties (83%), but there is a contingent from the San Francisco Bay Area and some from as far away as New Jersey.



Weather Stations

MSAC maintains six weather stations within its coverage area - Castle Lake, Mount Eddy, Gray Butte, Old Ski Bowl, Ash Creek Butte, and Ash Creek Bowl. These stations are important in providing data to inform our daily avalanche forecasts. They provide data such as temperature, relative humidity, snow depth, snow water equivalent, wind speed, wind direction, wind gusts, and wind chill. Data from these stations are recorded and available on the MSAC website to provide a history of observed weather and avalanche danger.

Last season, all weather station components were upgraded to modern technology. The stations have been working well. PacificCorp installed a weather station next to the MSAC's Old Ski Bowl weather station. This new station is believed to cause occasional interference with the MSAC's station. A radio reset corrects the issue on the rare occasion it occurs. New heating tape was installed around the Old Ski Bowl's tipping bucket to correct a circuit overload problem.

The Sand Flat weather station, which is maintained by the Department of Water Resources (DWR), but utilized by the MSAC, has had a broken snow depth sensor for two seasons. The DWR installed a new sensor in January and it has been working well.

An in-depth manual was developed over the winter to aid future forecasters and employees of the MSAC in the understanding and maintenance of its weather station network.



Snowpack, Weather and Avalanche Summary

After a below-average 2020-21 winter, hopes were high for a wetter 2021-22 season. Fall stoked that promise with a record-breaking atmospheric river event in late October bringing feet of snow to Mt Shasta. Backcountry skiers began skiing Avalanche Gulch and could slide all the way back to Bunny Flat on consistent snow. Another storm in early November further increased snow coverage and by 11/8 there was 33 inches on the ground at Old Ski Bowl weather station (7,600'). Weather then turned warm and dry for the rest of November and early December. Winter weather returned on December 12th and the area continued to get consistent low-elevation snow through January 8th. At this time the height of snow at Old Ski Bowl was 80 inches and there was a healthy snowpack throughout the forecast zone. Then it shut off, and a persistent ridge of high pressure parked itself off of the coast of California. From January 8th, until we finally measured some precipitation on February 14th, there was a record breaking mid-winter dry spell of 37 consecutive days without ANY precipitation.

Only a few inches of snow fell in late February and early March – not nearly enough to switch the net balance in a positive direction. Temperatures during this time were above average. Some media reports stated that it was the driest January/February in the past 127 years in Northern California. As of April 3rd, we've measured just 1.95 inches of liquid precipitation in 2022 in Mt Shasta City, only 11% of average. In terms of the water for the season starting in October 2021 and ending April 3rd, 15.3 inches of water were recorded which is 50% of average. The snowpack continued to melt quickly in March. Most south facing terrain was devoid of snow by early March. Mt Shasta Ski Park had to shut down on March 23rd due to lack of snow. By March 24th, it was no longer possible to find consistent snow from Bunny Flat into Avalanche Gulch...

Avalanche activity was almost nonexistent. There were a few small natural wind slabs observed in December (one on the backside of Coyote Butte, one above Little Castle Lake, and a couple off of the Powder Bowl ridgeline) but overall the snow that we did receive bonded well and there were not any persistent weak layers of concern. For most of the winter the snowpack resembled that of a late spring/early summer type: well-consolidated, firm, and dominated by melt/freeze conditions.

As of April 21st and wrapping up this report, the mountain received 30-40 inches of snow since April 11th. The avalanche center did not re-open, but continued to update the climbing advisory with avalanche related information.





Thank you and we'll see you on the mountain!

-The MSAC Team