

2022-23 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 completed its 25th season, providing daily avalanche forecasts and condition reports. January and March proved to be very busy months in terms of snowfall. Multiple atmospheric river events and a long period of cold temperatures kept Mount Shasta blanketed with feet of snow. Daily avalanche forecasts began on the 1st of December and continued until April 16th. Education and outreach events occurred on a weekly basis. This was a successful season for the MSAC. Last year we ran out of green ink. This year, yellow and orange ink was most common.

The heavy snowfall and frequent avalanche danger kept skiers near and below treeline for much of the season. Only a handful of climbers successfully summited.

The MSAC had a full staff of three full time forecasters this season. Sam Clairmont and Eric Falconer clocked in for their first season as avalanche forecasters. Eric comes from an education background teaching with Prescott College, and extensive backcountry experience in Colorado, Wyoming, and Mount Shasta. Sam made the move to Mount Shasta from Utah/Oregon, where he was a ski patroller and a USFS Climbing Ranger on Mount Hood. Nick Meyers continued to lead the charge as Director for his 14th season. All three forecasters are federally funded. Casey Glaubman continued as Executive Director of the Friends of the Mount Shasta Avalanche Center (FMSAC), by which his position is funded.

Along with normal operations, extra focus for the season included increasing education outreach programs to broader audiences, improving our oral and written communication styles, and keeping our weather stations running.



Right to left: Nick Meyers, Sam Clairmont and Eric Falconer

Statistics

The figures below summarize snowpack surveys conducted for April 2023.

MT. SHASTA AREA SNOW SURVEY RESULTS – APRIL 2023

Sacramento, Shasta and Trinity Watersheds*

Course	Elevation(ft)	Last Month Snow(in)	2023 Snow(in)	2023 Water(in)	2022 Snow(in)	2022 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Horse Camp	7900	N/S	156.5	46.5	30	13	116.89	52
Sand Flat	6800	N/S	110	25	9.5	4	96.85	40.04
North Fork	6900	N/S	111	40	0	0	59.17	23.96
Grey Rocks	6200	N/S	138	37	23.5	10.5	103.72	45.13
Sweetwater	5850	66	74	26.5	5.5	2.5	37.17	13.55
Parks Creek	6700	N/S	120	45	22	10	86.19	34.32
Deadfall Lakes	7200	101.5	111	41	19.5	8.4	73.63	31.38
			2023 Snow(in)	2023 Water(in)	2022 Snow(in)	2022 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Averages of Courses Sampled			117	37.3	16	6.9	81.9	34.3
Percent (%) of Historic Average			143	109	19	20		

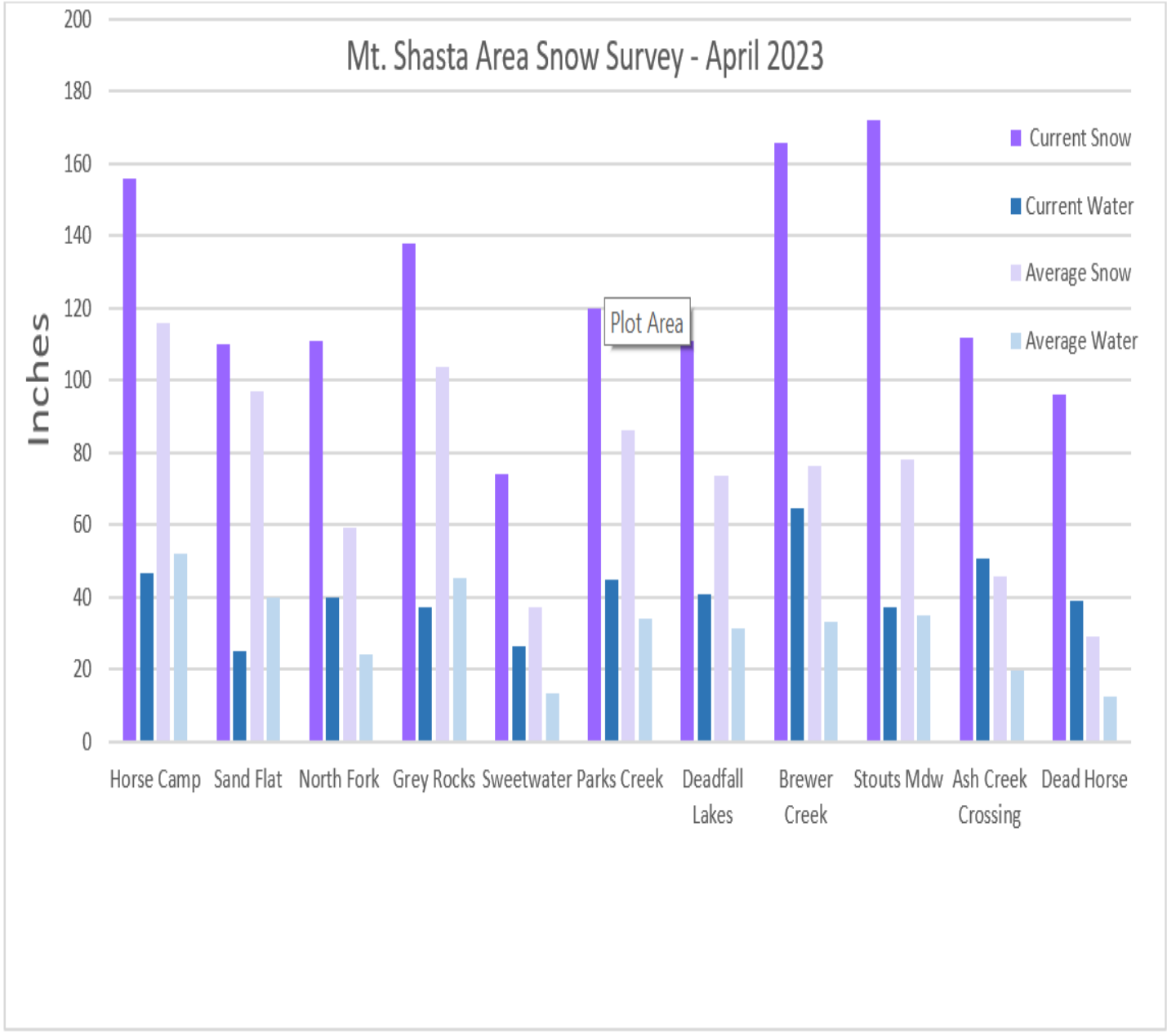
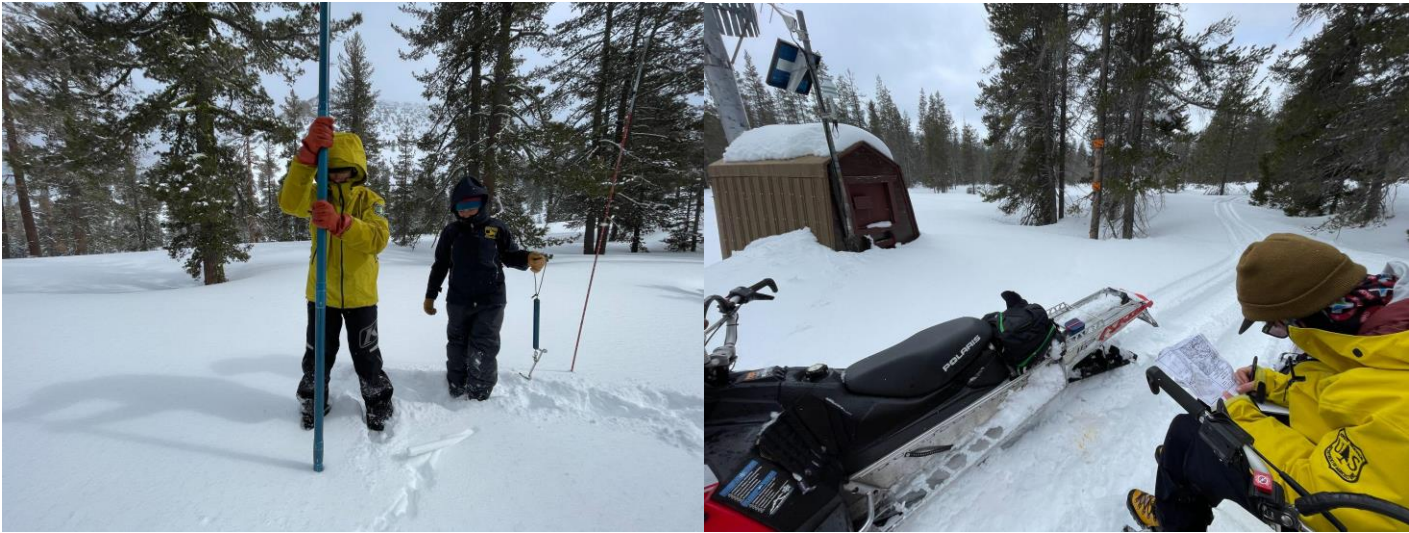
Similar Years: 1940, 1952, 1956, 1969, 1978, 1999, 2011, 2019

McCloud Watershed*

Course	Elevation(ft)	Last Month Snow(in)	2023 Snow(in)	2023 Water(in)	2022 Snow(in)	2022 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Brewer Creek	6250	N/S	166	64.5	9	4	76.37	33.17
Stouts Meadow	5400	N/S	172	37	18.5	9	78.2	34.9
Ash Creek Crossing	5000	N/S	112	50.5	0	0	45.8	19.5
Dead Horse Canyon	4500	N/S	96	39	0	0	28.95	12.28
			2023 Snow(in)	2023 Water(in)	2022 Snow(in)	2022 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Averages of Courses Sampled			137	47.8	3.0	1.3	57.3	25.0
Percent (%) of Historic Average			238	191	5	5		

N/S = Not Sampled

Similar Years: 1952, 1963, 1983, 1999, 2011



Website/Social Media/Email

The MSAC website experienced a substantial increase in visits this season. For the 2022-2023 winter (December 1st, 2022 – April 16th, 2023), www.shastaavalanche.org received 106,891 total visits, of which 39,898 were unique users. The average session duration was 2 minutes and 15 seconds.

Website

- Number of MSAC Avalanche Advisories: 136
- Number of Unique Website Users: 39,898 (+21% change from last year)
- Total Number of Website Visits: 106,891 (+30%)
- Mobile Users: 66,272 (+35%)
- Average Session Duration: 2 minutes 15 seconds (-9%)

Social Media / Email

- Number of Facebook Followers: 7,050 (+26%)
- Number of Instagram Followers: 6,776 (+47%)
- Number of Advisory Email Subscribers: 214 (0%)

Education

- Number of People Reached: 500 (+138%)
- Number of Avalanche Presentations Delivered: 22

Avalanches 2022-23 Season

- Number of National Avalanche Fatalities: 24 (+47%)
- Number of Fatalities in the MSAC Forecast Area: 0
- Number of people caught in avalanches in the MSAC Forecast Area: 0

2022-2023 SEASON

24 US fatalities

Activity	Killed
Skier †	8
Snowboarder †	3
Snowmobiler	8
Snowshoer/Climber/Hiker	5
Other	0
Total	24
† Inbounds skier/boarder	0

This season we have seen an increase in website visits, social media followers, and participation in our educational outreach. This is likely due to the increased snowfall and avalanche hazard compared to previous seasons. On another note, the average amount of time spent per page on our website has decreased 9%.

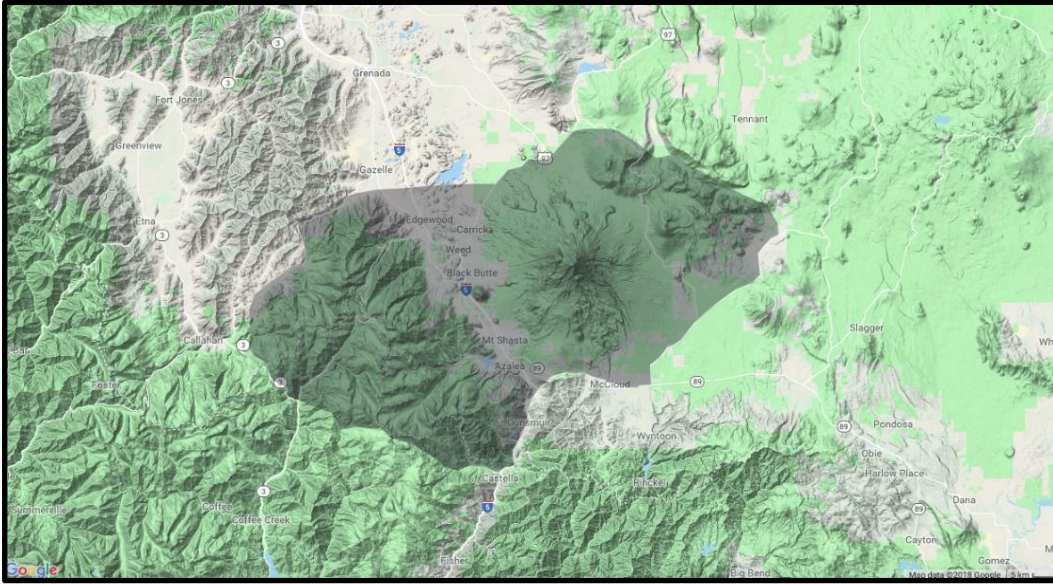


Avalanche Advisories

The Mt Shasta Avalanche Center's primary mission is to communicate current avalanche, snowpack and mountain weather information through our daily avalanche forecasts. A total of 136 advisories were published between December 1, 2022, and April 16, 2023, 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, 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 and viewed by the public. In addition, public observations can also be posted to the website, from the forecast area and within the greater sphere of influence outside of the forecast area. These areas include Crater Lake and Lassen National Park, the Trinity Alps Wilderness, Carter and Etna Summit and the Mt. Ashland area.

Avalanche Danger Ratings 2022-23 Season

Overall Avalanche Danger Rating	LOW	MODERATE	CONSIDERABLE	HIGH	EXTREME
Number of Days Issued	36	42	40	18	0



Avalanche Incidents

We are happy to report that zero avalanche fatalities occurred this season. While many avalanches occurred, nobody was caught, carried, or buried.



Avalanche Education

The Mount Shasta Avalanche Center delivered 22 avalanche presentations this season reaching over 500 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 and companion rescue clinics were conducted at Bunny Flat. Training was also provided to Siskiyou County school groups, Lassen National Park, and Klamath National Forest personnel.

Date	Speaker	Event	Location	People
12/3/2022	Casey	Know Before You Go (KBYG)	Virtual	23
12/4/2022	Casey, Michael	Companion Rescue	Bunny Flat	9
12/14/2022	Nick, Michael	KBYG	Lassen NPS	10
1/7/2023	Casey, Nick	KBYG	Deadwood	61
1/8/2023	Casey, Sam	Companion Rescue	Castle Lake Rd	22
1/12/2023	Casey, Clayton	KBYG	Sports LTD	45

1/15/2023	Casey, Eric	KBYG Awareness/Companion Rescue	Deer Mountain	9
2/1/2023	Casey, Eric	KBYG/Companion Rescue	Weed Elementary	27
2/2/2023	Casey, Eric	KBYG/Companion Rescue	Klamath National Forest crew	19
2/4/2023	Casey, Nick	KBYG	Deadwood	40
2/5/2023	Casey, Sam	Companion Rescue	Bunny Flat	20
2/8/2023	Nick, Eric	Snowmobile Training	Pilgrim Creek	17
2/9/2023	Casey, Sam	Kids Class	Nordic Center	28
2/10/2023	Casey, Sam	Kids Class	Bunny Flat	26
2/14/2023	Casey	KBYG	Salmon-Scott (Fort Jones)	18
2/16/2023	Casey, Sam	Kids Class	Nordic Center	19
2/16/2023	Casey	SOU Outdoor Adventure Class	SOU Science Building	26
2/17/2023	Sam	SOU Outdoor Adventure Class	Bunny Flat	26
2/22/2023	Casey, Eric	KBYG/Companion Rescue	Weed Elementary	19
3/4/2023	Casey, Nick	KBYG	Deadwood	25
3/5/2023	Casey, Eric	Companion Rescue	Ball fields	11
3/20/2023	Casey, Sam	Combo kids class	Golden Eagle	26





Finances of the MSAC

The Shasta Trinity National Forest funded 50% of the MSAC's total operating costs for the 2022-23 season and the FMSAC funded the other 50%. The funds came via a mix of fundraising and volunteer hours, or contributions in-kind. Traditionally the funding comes in part through the state OHV grant but, this season that money was not available. In light of that, the Forest Service and the Friends Group stepped up and provided all the necessary funding to keep operations running throughout the season.

Shasta Trinity National Forest Service cash	\$33,544.00
Shasta Trinity National Forest Service in-kind	\$18,530.51
Friends of the Mount Shasta Avalanche Center cash	\$22,445.57
Friends of the Mount Shasta Avalanche Center in-kind	\$28,158.45

Total - \$102,678.53



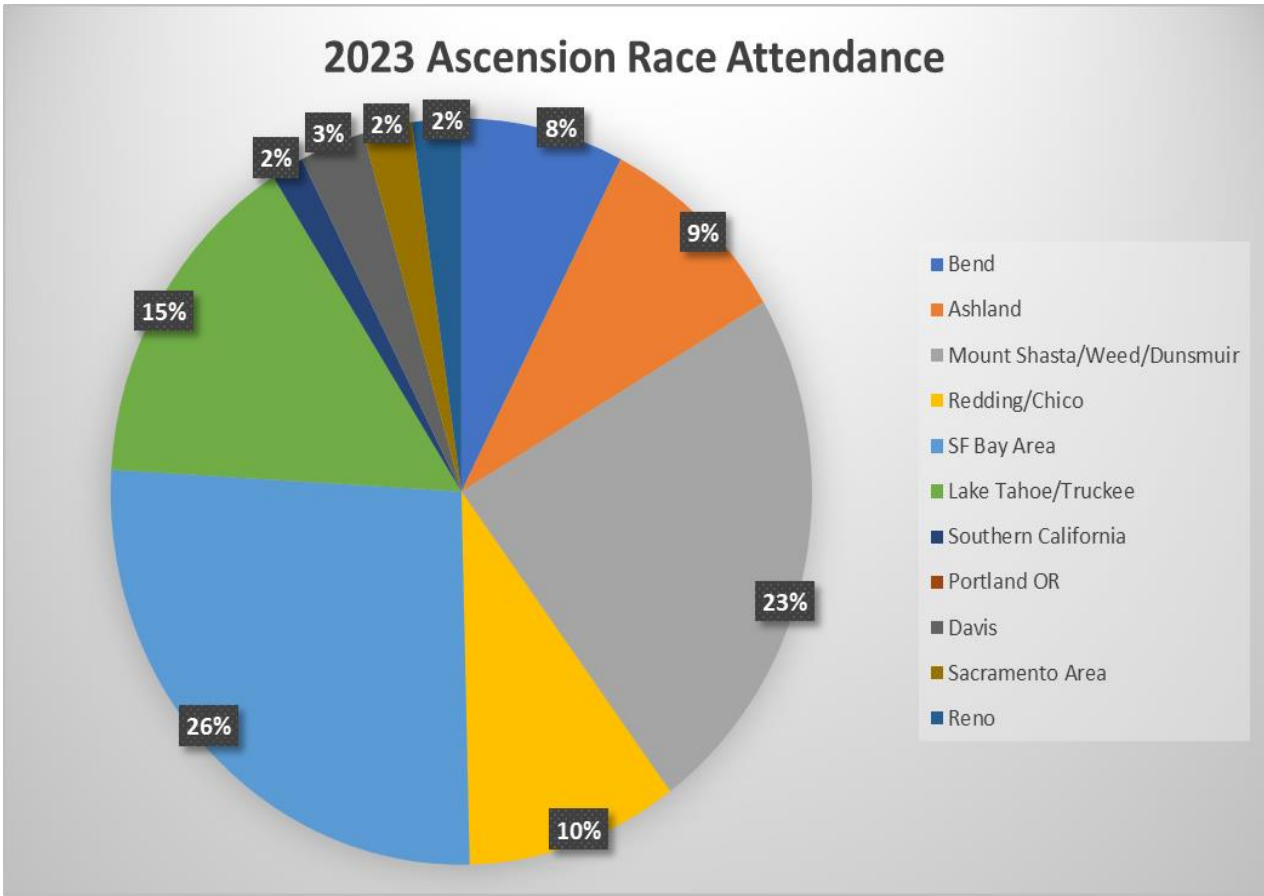
Friends of the Mount Shasta Avalanche Center

The Friends group is a nonprofit that was created in 2002 and is an essential component of the avalanche center. The Friends fund and operate the MSAC website and all our remote weather stations. They also organize all fundraising events, as well as organizing and running the education and outreach components of the avalanche center.

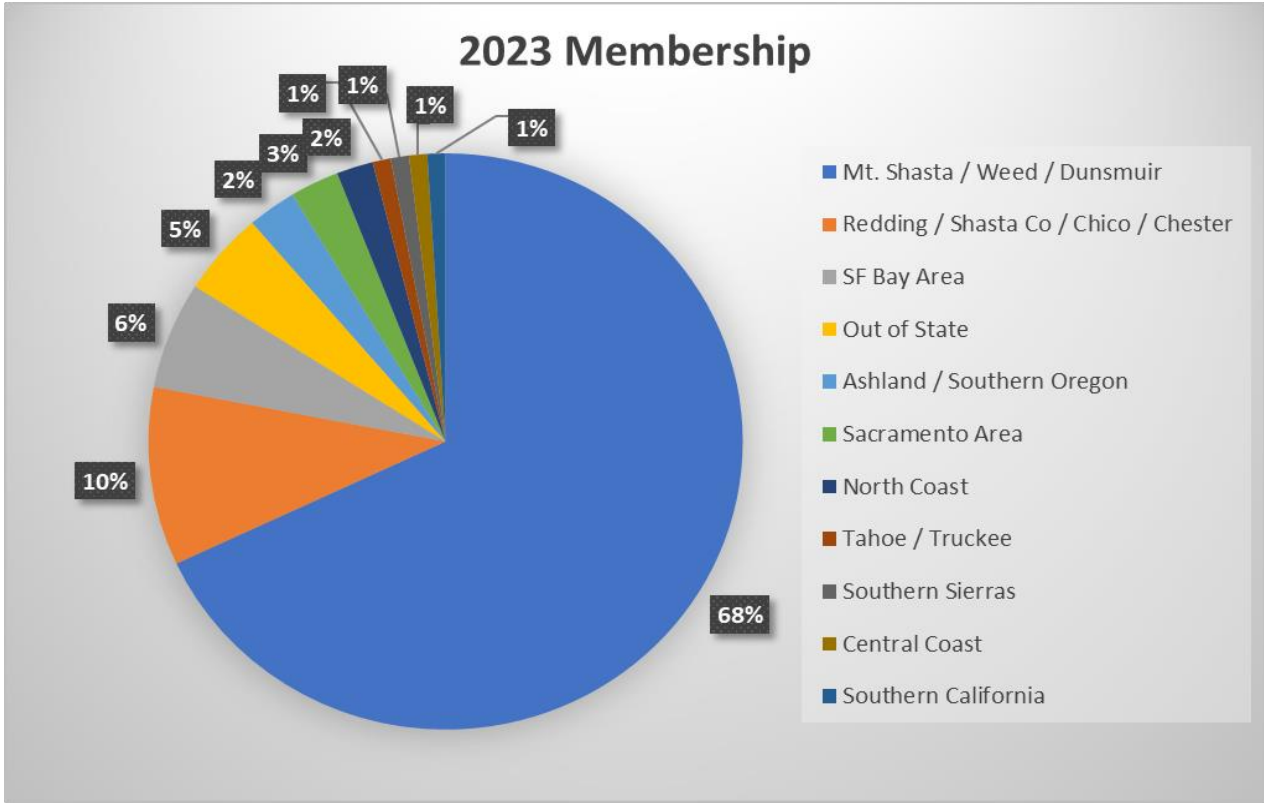
FMSAC is a volunteer group with one paid position, the Executive Director, Casey Glaubman. FMSAC board members include the president Hanne Meyers, treasurer Jason Koster, secretary Clayton Coles, tribal elder Sean Malee, Dave Brown, Nick Joslin, Stacia Anderson, and Justi Hansen.

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 their effort and support this season.

This season, the FMSAC held the 9th Annual Mt. Shasta Ascension Backcountry Ski Race fundraiser at the Mt. Shasta Ski Park. The race had 133 attendees coming from across California and beyond. 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 currently includes approximately 148 members. As shown on the following chart, most of the members are from Siskiyou County, Shasta County, and the San Francisco Bay Area.



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 crucial in providing data for 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 is recorded and available to the public on the MSAC website, providing a history of observed weather. This past winter, weather station durability tested with the deep snowpack. Some stations were almost buried like pictured below (photo left) at the Castle Lake station. Our snow depth sensor at the Old Ski Bowl station (photo right) is 20 feet off the ground.



Snowpack, Weather and Avalanche Summary

The season promptly began November 1st with multiple storms through the beginning of the month. These early season storms brought thirty inches of snow to Bunny Flat. Turns could be made from Lake Helen in early November. A short break ensued and then the faucet turned back on at the beginning of December with over 70 inches of snowfall during the first week and a half. Natural and human triggered avalanche activity followed with two notable soft slab avalanches occurring near treeline on Mount Shasta. At this point the foundation of the snowpack was set, and most recreation sites were seeing use. On December 23rd an atmospheric river event deposited another 32 inches of snow, closing out the month.

The New Year brought in multiple natural wind slab avalanches above treeline on Mount Shasta. Snowfall continued through early January resulting in an additional six feet of snow. A 16-day dry spell lasted from January 18th through February 3rd. During that time, a major wind event occurred January 21st and 22nd. Strong north and northeast wind completely scoured the north half of Mount Shasta sending lofty plumes of snow overhead. These extreme winds resulted in the large Cascade Gulch avalanche, leaving a crown line that could

be seen from town. Early February was characterized by below average temperatures and trickles of cold low-density snow. On February 23rd, a southwest atmospheric river crashed into the Pacific Coast and persisted through March 1st. This event brought 55 inches to the forecast area.

March packed a punch. On the 12th and 13th rain fell up to 6,600 feet causing a significant wet slab avalanche off Middle Peak in the Castle Lake Basin. The deep rain runnels and damp surfaces were quickly amended as the weather cooled down provided more snow to cover up the wet destruction. A storm on March 28th delivered 21 inches of low-density snow resulting in large wind slabs and soft slab avalanches in the Eddy Mountains. One notable avalanche was remotely triggered with large propagation along Parks Creek snow survey site. Regional differences caused westerly mountains to experience significant wind loading while Mount Shasta stayed relatively untouched.

With a fat April snowpack, the MSAC made the transition to spring and no doubt will enjoy a long and bountiful spring climbing and ski season on one of the world's best ski mountaineering destinations!







Thank you for the continued support and we'll see you on the mountain!

-The MSAC Team