

2017-18 Annual Report



Shasta/Trinity National Forest MOUNT SHASTA AVALANCHE CENTER



Sponsors



Reported by:

Nick Meyers
Director/Lead Avalanche Forecaster

Andrew Kiefer
Avalanche Forecaster

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Cover: Mount Shasta's Eastside viewed from Ash Creek Butte

Mount Shasta Avalanche Center

Season Summary

The Forest Service Mount Shasta Avalanche Center just finished its 20th season of operation. The 2017-18 winter was characterized by well below average precipitation and unseasonably warm temperatures. During the wet season (October-April) Mount Shasta City received 17.17 inches of water which is 47% of the historic average of 36.27 inches. April snow surveys also revealed Mount Shasta area snowpack heights to be less than half of historic averages. One of the most painful statistics was that this December was the second driest December in the past 107 years. Many zones in our advisory area struggled to form a snowpack this season. Fortunately, the upper elevation snowpack on Mount Shasta slowly grew, and frequent storms in March and April ended the season on a high note.

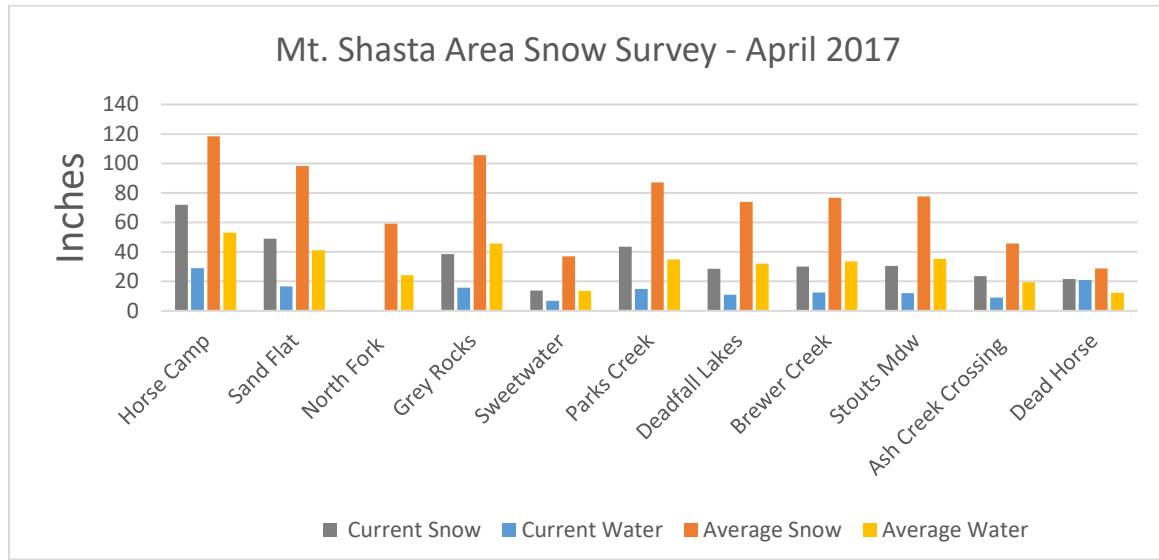
For the 2nd season in a row, the MSAC had 3 full-time employees. Nick Meyers returned for his 9th season as the Director and Lead Forecaster, Andrew Kiefer worked his 2nd season as an Avalanche Forecaster, and Aaron Beverly worked his 2nd season as a Professional Observer. The USFS funds the Forecasters' salaries, while the Friends of the Mount Shasta Avalanche funds the Professional Observer's salary.

Despite the low snow winter, the backcountry community in Mount Shasta stayed positive and took advantage when conditions were good. Overall, avalanches were a rare occurrence and LOW avalanche danger was issued in 67% of this season's avalanche advisories. The MSAC is happy to report that no one was caught, injured or killed in an avalanche in our advisory area during the 2017-18 winter.

Avalanche education, outreach events and several projects kept us busy. MSAC staff delivered 18 avalanche presentations reaching 527 people in California and southern Oregon. Our 6th Annual Snowmobile Avalanche Workshop attracted 43 riders from California and Oregon. We were fortunate to have great turnouts at our movie night and Annual Snowball as well as 67 participants compete in the Backcountry Ascension Race. The MSAC website received a makeover with several updates and new features added. The MSAC launched a snowmobile ambassador program as well. Finally, we conducted an operations review with the USFS National Avalanche Center.

The Friends of the Mount Shasta Avalanche Center is essential to our operations, and its members coordinate several events and fundraisers throughout the season. We could not do our work without them, and we extend a huge thank you for their support.

Statistics



Sacramento, Shasta and Trinity Watersheds*

Course	Elevation(ft)	Last Month Snow(in)	2018 Snow(in)	2018 Water(in)	2017 Snow(in)	2017 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Horse Camp	7900	57.9	72	29	172	73.5	118.3	53.1
Sand Flat	6800	21.8	49	16.5	110	42	98.1	41
North Fork	6900	N/S	N/S	N/S	57.5	21.5	59.2	24.2
Grey Rocks	6200	N/S	38.4	15.6	108	42	105.4	45.6
Sweetwater	5850	18.3	13.8	6.9	41.5	17	36.9	13.6
Parks Creek	6700	28.6	43.5	14.8	95	38.5	87.2	34.8
Deadfall Lakes	7200	28.5	28.5	11	70.5	34.5	73.9	32
			2018 Snow(in)	2018 Water(in)	2017 Snow(in)	2017 Water(in)	Hist. Average Snow(in)	Hist. Average Water(in)
Averages of Courses Sampled			41	15.6	93.50	38.4	82.7	34.9
Percent (%) of Historic Average			49	45	113	110		

Website/Social Media/Email

2017-18 Number of MSAC Avalanche Advisories: 136

Number of Unique Website Users: 22,971

Total Number of Website Visits: 64,023

Average Session Duration: 2 minutes 23 seconds

Number of Facebook Followers: 4,236

Number of Instagram Followers: 561

Number of advisory email subscribers: 119

Education

Number of People Reached: 527

Number of Avalanche Presentations Delivered: 18

Avalanches 2017-18 Season

Number of National Avalanche Fatalities: 20

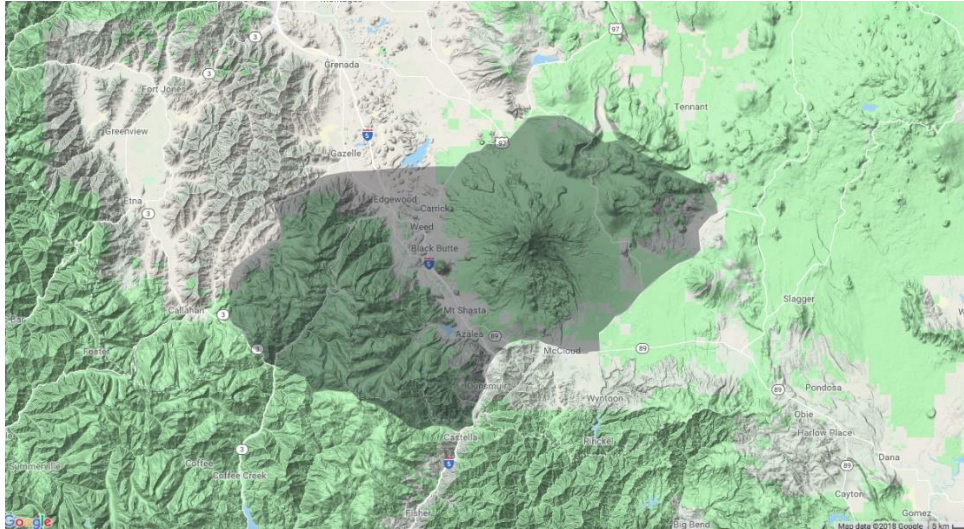
Number of Fatalities in the MSAC Advisory Area: 0

Number of people caught in avalanches in the MSAC Advisory Area: 0

Avalanche Advisories

The primary goal of the MSAC staff is to communicate current avalanche, snowpack and mountain weather information through our avalanche advisories. The 2017-18 season was the third year in a row we were able to issue daily advisories. A total of 136 advisories were published between December 1, 2017 and April 15, 2018 on our website www.shastaavalanche.org.

MSAC's 800 Square Mile Advisory Area



In order to convey the most accurate message to the public, it is critical to get out into the backcountry regularly to gather current information on conditions. Days began early for us to be able to publish the advisory by 7am and were followed by field outings on skis and snowmobiles in our 800 square mile advisory area. Coverage on Mount Shasta was decent by December, while all other areas remained shallow with unreliable access until March. Low avalanche danger was issued for 91 out of 136 advisories, or 67% of the days this winter.

The MSAC website experienced steady use this season. For the 2017-18 winter, www.shastaavalanche.org received 64,023 total visits, of which 22,971 were unique users. The average session duration was 2 minutes and 23 seconds. Of website visitors, 24% were returning while 76% were new.

Avalanche Danger Ratings 2017-18 Season

Overall Avalanche Danger Rating	LOW	MODERATE	CONSIDERABLE	HIGH	EXTREME
Number of Days Issued	91	31	12	2	0

Avalanche Incidents

Fortunately, no avalanche fatalities occurred in our advisory area during the 2017-18 season. In the U.S., there were 20 avalanche fatalities this winter which is fewer than the national average of 27.

Natural and human triggered avalanches were a rare occurrence this season in Mount Shasta. There were 3 documented reports of human triggered avalanches up to destructive size 1. Only 23 natural avalanches were documented by MSAC staff, 2 of which were classified as destructive size 2, the rest were destructive size 1. We observed 3 types of avalanches: wind slab, loose wet and storm slab. Shallow snowpack hazards, falling rime ice and slide for life conditions posed greater hazards for backcountry travelers than avalanches most days this season.

Avalanche Education

The Mount Shasta Avalanche center delivered 18 avalanche presentations this season reaching 527 people throughout northern California and southern Oregon. The MSAC provided free avalanche awareness and companion rescue clinics the first Friday and Saturday of December, January, February and March. These clinics were held in the Shasta Mountain Guides' store front and at Bunny Flat trailhead and were open to the public. Similar presentations were given in southern Oregon in Ashland and Medford. We also held our sixth annual Snowmobile Avalanche Workshop in Mount Shasta with 43 snowmobilers in attendance. In addition, avalanche awareness presentations were given to local school groups from Weed and Yreka. Avalanche trainings were also provided to Forest Service employees.



12/6/17 Bunny Flat Companion Rescue Clinic



1/13/18 Snowmobile Avalanche Workshop

Date	Speaker	Group/Topic	Participants
10/14/17	Kiefer	California Avalanche Workshop	200
12/1/17	Meyers/Kiefer	Mount Shasta Avalanche Awareness	16
12/2/17	Meyers/Kiefer	Mount Shasta Companion Rescue	15
12/12/17	Meyers/Kiefer	Medford REI Avalanche Awareness	20
12/19/17	Meyers/Kiefer	Ashland Outdoor Store Avalanche Awareness	30
1/4/18	Meyers/Kiefer	Mount Shasta Avalanche Awareness	22
1/5/18	Meyers/Kiefer	Mount Shasta Companion Rescue	22
1/13/18	Meyers/Kiefer	MSAC Snowmobile Avalanche Workshop	43
1/17/18	Meyers	USFS Fire/Snow Survey Avalanche Awareness	25
2/2/18	Meyers/Kiefer	Mount Shasta Avalanche Awareness	16
2/3/18	Meyers/Kiefer	Mount Shasta Companion Rescue	16
3/1/18	Meyers/Kiefer	Mount Shasta Avalanche Awareness	1
3/2/18	Meyers/Kiefer	Mount Shasta Companion Rescue	1
3/9/18	Beverly	Weed Elementary School Avalanche Awareness	20
3/15/18	Beverly	Weed High School Avalanche Awareness	20
3/20/18	Beverly	Weed High School Avalanche Awareness	20
3/22/18	Beverly	Yreka High School Avalanche Awareness	20
3/27/18	Beverly	Yreka High School Avalanche Awareness	20

Finances of the MSAC

The Shasta Trinity National Forest funded 34% of the MSAC's total operating costs for the 2017-18 season. The MSAC was awarded a CA state OHV grant (other agency cash) that provided 46% of the total cost for this season, and the FMSAC funded 20%.

Shasta Trinity National Forest Service cash	\$25,169
Shasta Trinity National Forest Service in-kind	\$4,500
Other Agency Cash	\$41,168
Friends of the Mount Shasta Avalanche Center cash	\$18,113

Total - \$88,950

Friends of the 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 the 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, Justi Hansen. FMSAC members include Hanne Meyers, Sean Malee, Dave Brown, Jason Coster, Nicole Dove, Terra Yaeger, Nick Caselli, Nick Joslin, and Brian McCall.

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.



FMSAC Snowmobile Ambassador Program



12/20/18 Start of the Backcountry Ascension Race



12/15/17 Beacon Checker Installed at Bunny Flat

Snowpack, Weather and Avalanche Summary

The season began with a very promising outlook in early November. Several cold storms laid a 1-3 ft deep snowpack above 7,000 ft in the first half of the month. A wet and warm storm hammered the region during Thanksgiving week, with rain up to 10,000 ft. This event melted the existing snowpack below 7,500 ft, and above, formed the Thanksgiving crust that would remain the snow surface for an extended drought period through December and early January.

December is typically the wettest month of our winter and a critical time for seasonal snowpack formation. In 2017-18, Mount Shasta City had its second driest December in the past 107 years. We received 0.29 inches of water with high snow levels during two

storm events. Within a few days following both storms, evidence of recent snow had almost disappeared, and a dangerously slick and icy snow surface remained.



12/25/17 Thanksgiving Rain Crust still existed at the snow surface



1/1/2018 Thin coverage in Avalanche Gulch

A handful of warm storms occurred in January. Snow levels ranged from 7,500-9,000 ft which improved coverage in upper elevation terrain on Mount Shasta, but rain below continued to delay snowpack formation in all other advisory area zones. A potent storm on January 26-28 delivered 23 inches of snow with 1.8 inches SWE. The storm was accompanied by several days of strong westerly winds. Immediately following this late January storm, we experienced the most avalanche activity of the season with natural and human triggered wind slab avalanches occurring on easterly aspects above treeline.



1/27/18 SS-AM-R3-D1 Small snowmobile triggered wind slab avalanche in the Old Ski Bowl

February was mostly dry, warm and uneventful. High pressure dominated the weather pattern and daytime mountain temperatures regularly hit the mid-50s, with 60s degree weather in Mount Shasta City. A handful of storms each delivered a few inches of snow above 7,000 ft.



2/2/2018 Diller Canyon and the West Face

March brought the late arrival of winter. Precipitation occurred on 20 of 31 days during 5 storms. For the month, the Old Ski Bowl weather station at 7,600 ft received 94 inches of snow. Storm events came in warm and wet and finished cold. In each storm, the new snow bonded well to the old snow surface. Hardly any wind was associated with the March storms, and overall, snowpack stability was good and avalanche activity was limited.



3/18/18 Good snowpack stability on Rainbow Mountain



4/7/18 WL-N-R1-D1 Natural wet loose avalanche on Yellow Butte

April started out wet and warm. We received over 3 inches of water during the first week of the month with rain up to 10,000 ft. Wet loose activity was widespread, with numerous natural avalanches observed on April 7th. The snowpack has held in there despite the rain, and 6-8 ft of snow cover exists in terrain 8,000 ft and above on Mount Shasta. We are expecting a great (although short) spring ski season despite the low snow winter. Come and get it before melts!