ASO + M3 Works Model State Update

Lottis Creek Basin

Model date: May 23, 2023

Historical data and reports can be found at:
data.airbornesnowobservatories.com

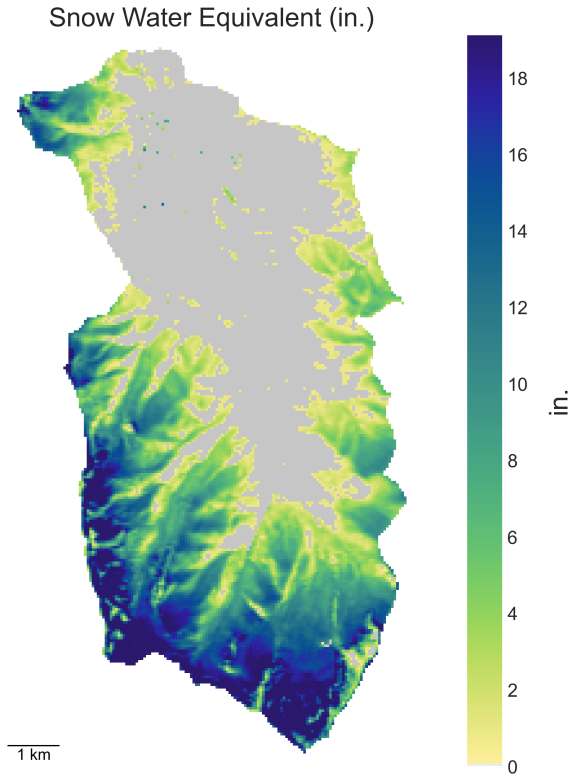
LOTTIS CREEK BASIN
MAY 23, 2023 MODEL STATE UPDATE

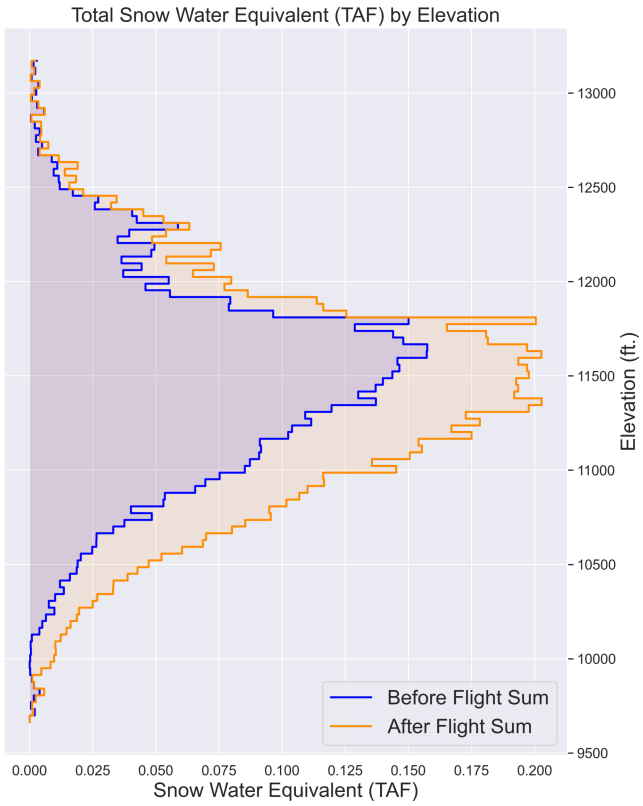
The purpose of this report is to show the changes to the model during the ingestion of the ASO measured snow depth product.

Current model date: May 23, 2023
Model Total Snow Water Equivalent: 7.1 TAF
Model Mean Snow Water Equivalent: 5.2 in.
Model Mean Cold Content: 0.0 kJ/m^2

Changes to model during ASO survey data ingest

Model reporting period: May 22 - May 23, 2023
Change in Total Snow Water Equivalent: 2.5 TAF
Change in Mean Snow Water Equivalent: 1.9 in.
Accumulated Total Surface Water Input: 0.5 TAF
Accumulated Total Precipitation: 0.1 TAF
Change in Mean Cold Content: 0.0 kJ/m^2





DESCRIPTION	TOTAL
Mean SWE in.	5.2
Total SWE TAF	7.1

The model has been updated with ASO survey data, a brief summary of the changes to the model are provided:
April 01 update summary: added 6.7 TAF of Snow Water Equivalent
May 23 update summary: added 2.5 TAF of Snow Water Equivalent

Model changes during ASO survey data ingest

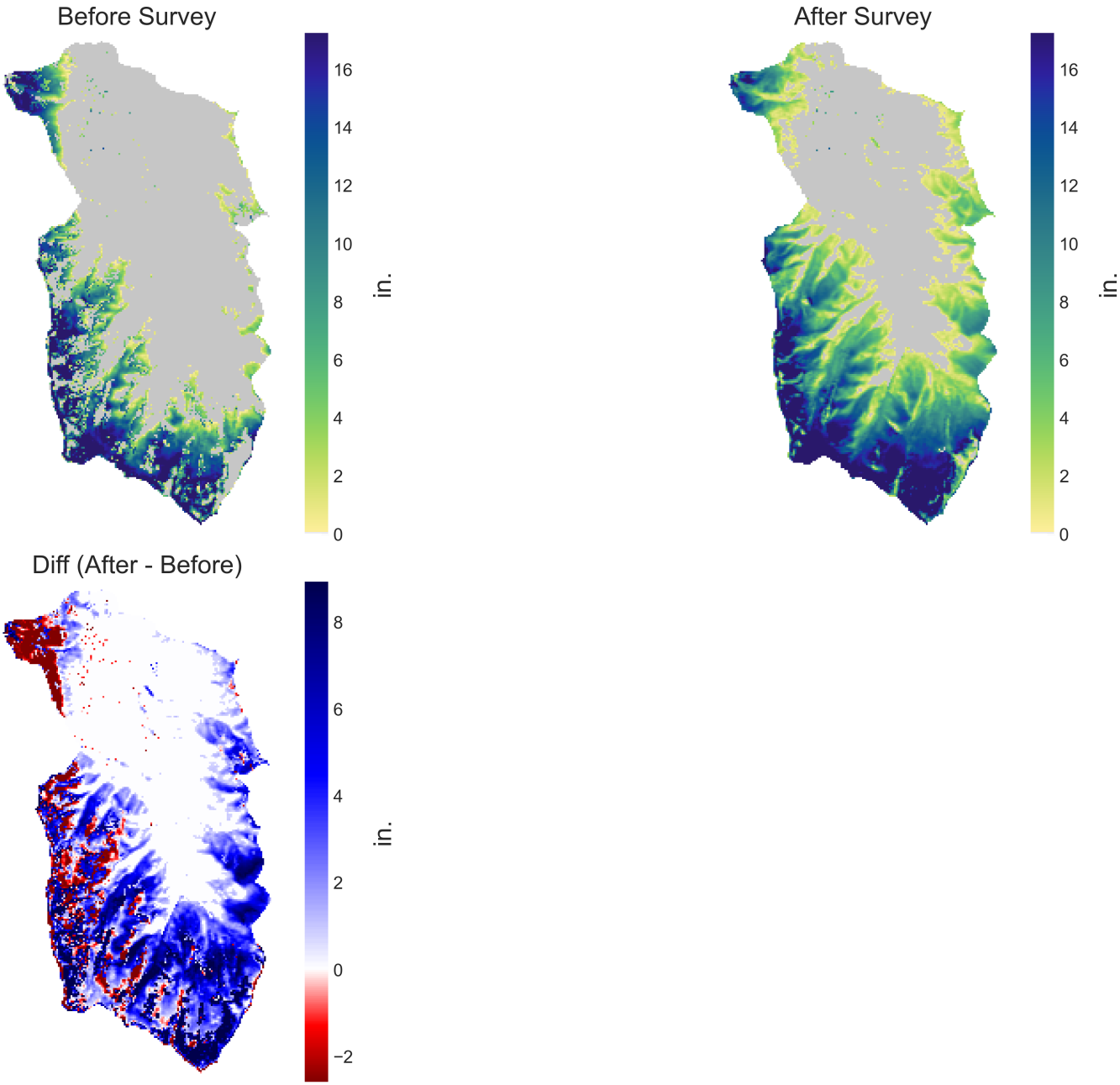


Fig.3 Change in Snow Water Equivalent from 2023-05-22 to 2023-05-23

Prior to updating with the ASO data from 05/23, the model was showing a less extensive snow-covered-area (SCA), due to higher-than-observed melt rates. The update increased the basin SCA from 5,000 to 10,000 acres, and the basin total SWE in the model increased by 2.5 TAF.

State of the Snowpack

Interpretation Notes

Elevation bands are in increments of 1000 ft, e.g., 4000 is 4000 - 5000 ft.

Mean SWE is calculated over the total basin area. Mean cold content is calculated over the snow covered area to reflect the ripeness of the existing snowpack.

Surface Water Input (SWI) includes liquid water leaving the bottom of the snowpack and rain on bare ground.

Forcing data is created with the Spatial Modeling for Resources Framework (SMRF) using the High Resolution Rapid Refresh (HRRR) output fields as inputs. The HRRR data is locally optimized for mass input to the basin.

Model changes during ASO survey updates include both changes due to the depth update and model state changes from running the model over the period containing the depth update.

Model Results

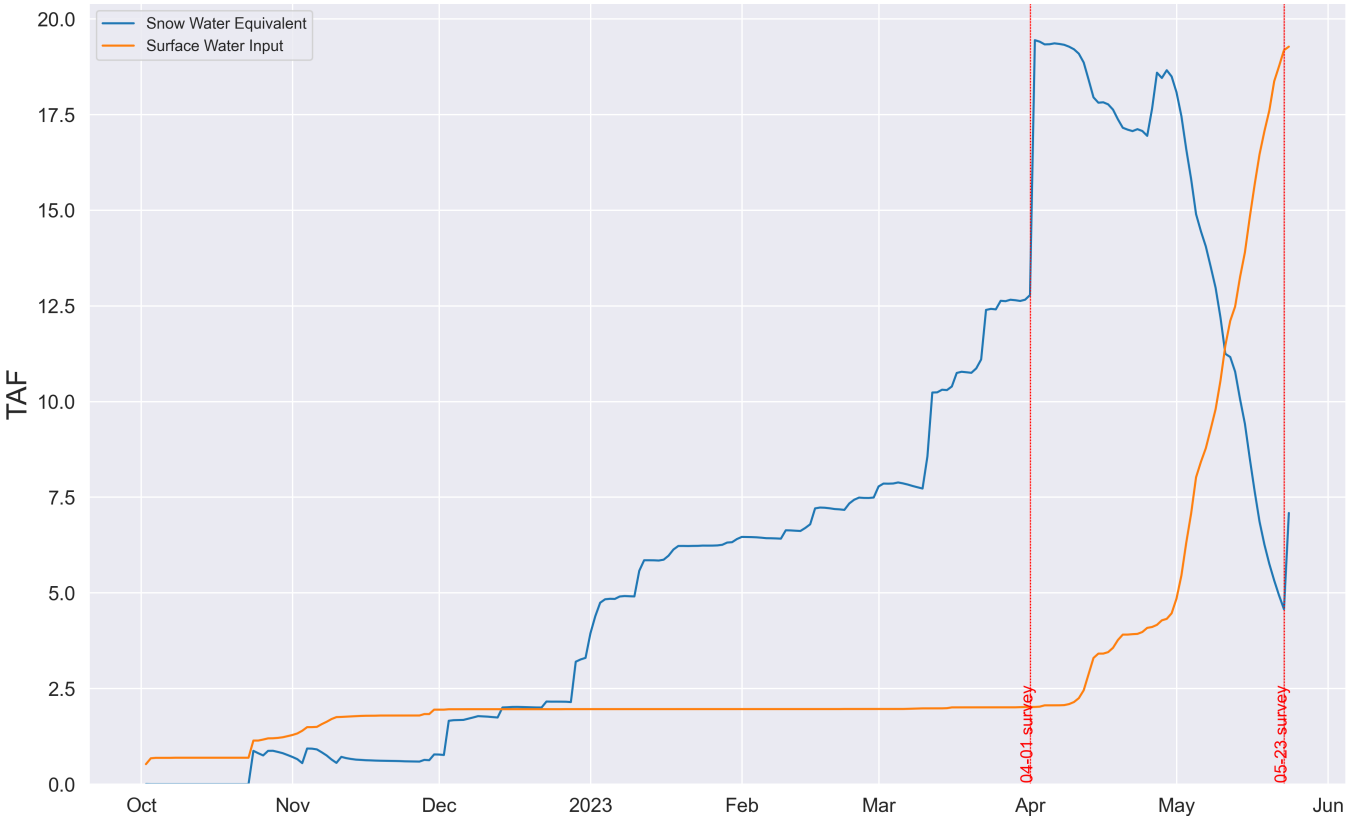


Fig.4 Water Year timeseries. Vertical lines indicated ASO survey dates.

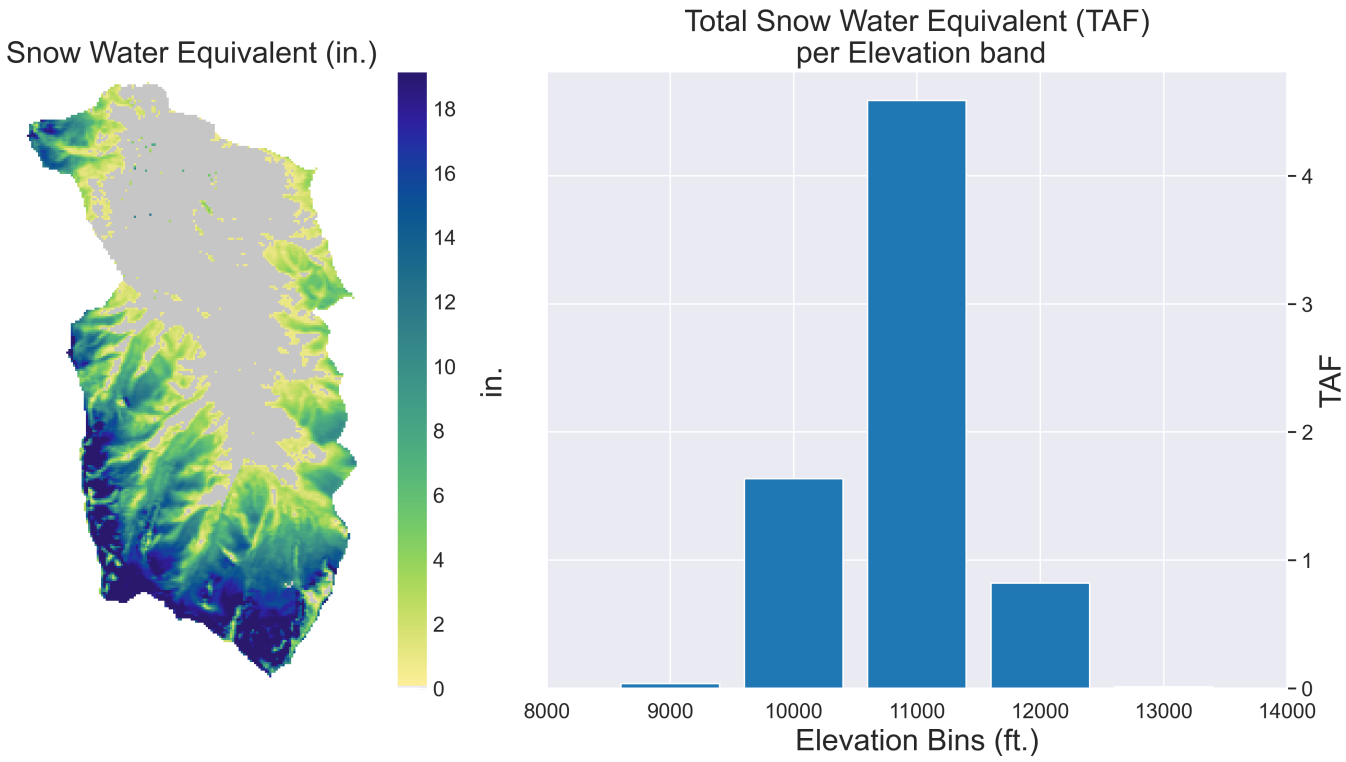


Fig.5 Snow Water Equivalent as of 2023-05-23

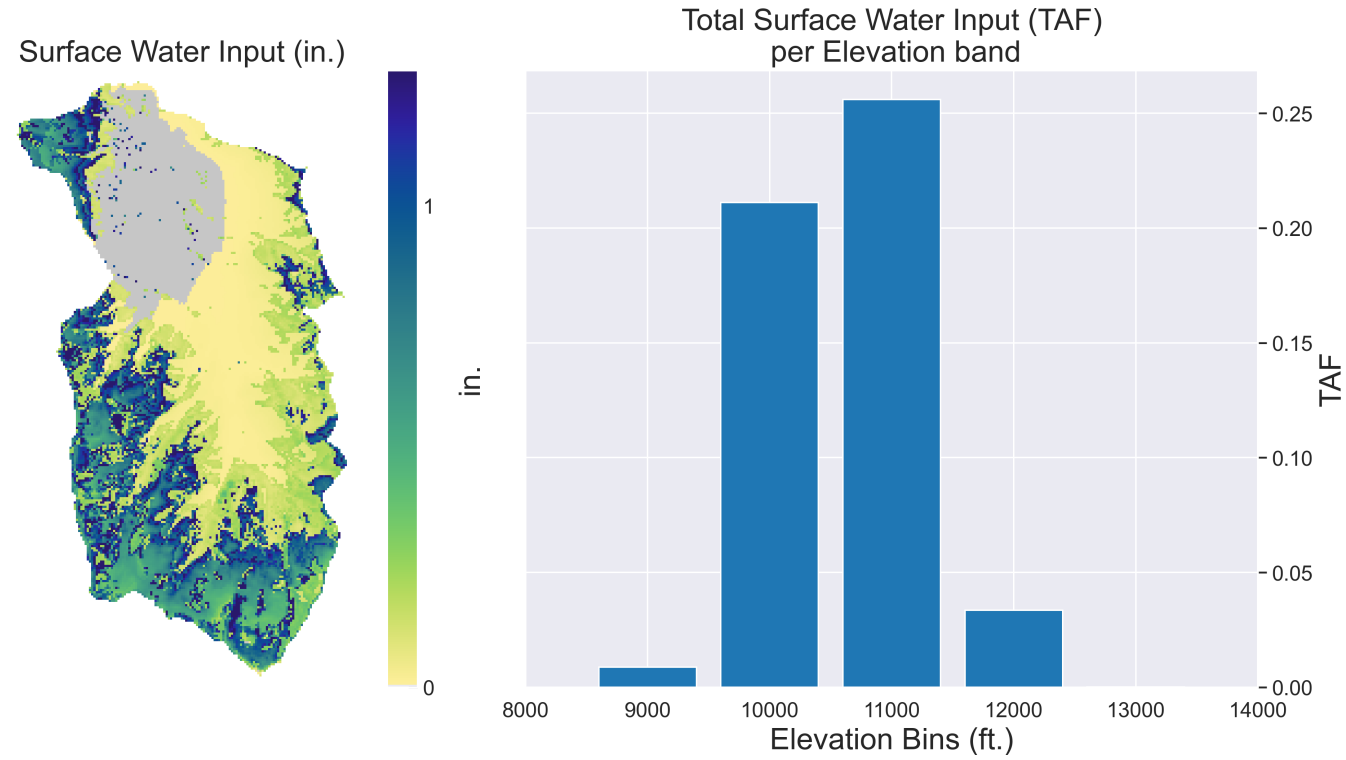


Fig.6 Accumulated Surface Water Input from 2023-05-22 to 2023-05-23

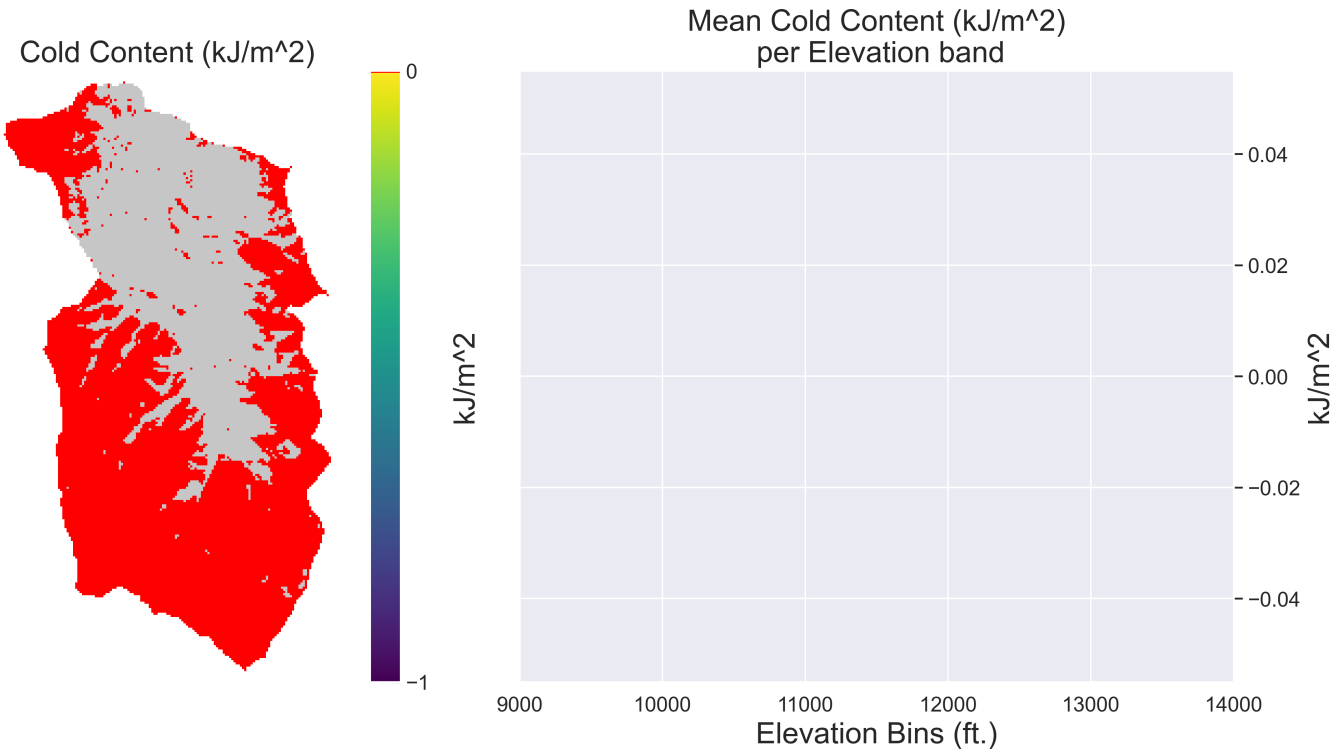


Fig.7 Cold Content as of 2023-05-23

Very little cold content remains in the Lottis Creek basin. Approximately 0% of the basin SWE is un-ripe.

Model Description

Modeled data is generated using the Automated Water Supply Model (AWSM). Underlying forcing data is sourced from the High Resolution Rapid Refresh model (HRRR). AWSM simulates the snowpack state using the physically based, distributed energy and mass balance snow model, iSnobal.

For more information on the Airborne Snow Observatories Inc. visit airbornesnowobservatories.com.

More information about M3 Works can be found at m3works.io.

Additional Details

Total Snow Water Equivalent values (TAF) on 2023-05-23

ELEVATION RANGE	TOTAL
9000 - 9999	0.0
10000 - 10999	1.6
11000 - 11999	4.6
12000 - 12999	0.8
13000 - 13999	0.0

Accumulated Total Surface Water Input values (TAF) from 2023-05-22 to 2023-05-23

ELEVATION RANGE	TOTAL
9000 - 9999	0.0
10000 - 10999	0.2
11000 - 11999	0.3
12000 - 12999	0.0
13000 - 13999	0.0

Change in Total Snow Water Equivalent values (TAF) from 2023-05-22 to 2023-05-23

ELEVATION RANGE	TOTAL
9000 - 9999	0.0
10000 - 10999	0.9
11000 - 11999	1.4
12000 - 12999	0.2
13000 - 13999	-0.0