

# Snow depth - liquid ratios at Alta, UT

Steve Vasiloff

NSSL/NWS WR-SSD

Radar snowfall estimates are given in liquid amounts. However, an actual snowfall depth is frequently desired. This TALITE describes snow depth-to-liquid ratios at Alta, UT during the winter of '98-'99. The Alta guard station is in the Wasatch mountains east of Salt Lake City at an elevation of 8800' above sea level. Snow safety personnel record various meteorological data twice daily. These ratios can be used for guidance during future storms.

[Figure 1](#) shows 24-hr snowfall amounts and their snow water equivalent (SWE) for 31 days at Alta. The 31 days had a total snowfall of 348 in and 29.27 in of snow water equivalent (SWE). The depth-to-SWE ratios are shown as a function of temperature in [Figure 2](#). For expediency, the average temperatures were derived from the reported previous 12 hr minimum and maximum. It is recognized that the actual temperatures during the snow event would be most appropriate. The mean ratio is 13 and the median is 11.5. There is a hint of a decrease in the ratios with increasing temperature. There is a clustering of events between 20 F and 25 F, indicating the typical temperature range for snowstorms at Alta.

While the solid-to-liquid ratios reported here may be appropriate for the mountains, additional work needs to be done for valley locations.