

## **4.17 SNOW-LEVEL ESTIMATES FROM POLARIMETRIC OPERATIONAL WEATHER RADAR MEASUREMENTS**

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Information on snow-level (SL) heights (i.e., the heights in the atmosphere where precipitation type transitions from snow to rain) is important for hydrometeorological forecasts. Operational weather radars provide a convenient tool for estimating SL heights based on polarimetric measurements. The operational melting layer products derived from US National Weather Service next generation radar (NEXRAD) network for slant viewing are used to retrieve SL heights in the vertical atmospheric column. The quality and representativeness of the NEXRAD-based SL heights for the areas around the ground-based radar sites is evaluated by comparing these heights with robust results from several dedicated vertically pointing radars which are deployed at different locations in the Western United States. It is shown that for close radar ranges ( $\sim 15$  km) the NEXRAD-based SL heights are relatively unbiased and the uncertainty of the retrievals is around 170 m. At longer distances from operational radar sites uncertainty in SL heights increases, though results typically do not significantly degrade up to distances of about 50 km. The use of different polarimetric radar variables for retrieving SL heights is discussed.