

Surface hoar morphology and association with snow surface substrate

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Field observations of surface hoar crystal formation onto the snow surface raised the question of the potential influence which the surface snow grains (i.e. the nucleating substrate) may play in the crystal habit of developing surface hoar. Observations made during three seasons in Mount Shasta, CA, USA showed an association of classic planar “feathery” surface hoar with new snow, whereas, observed cup shaped striated surface hoar was associated with weathered snow surfaces. While detailed meteorological data was not available, parameters such as snow surface temperature and humidity likely play a role. Photomacrography was used to show both the surface hoar crystal and the substrate snow grains. These results encourage continued observation and further studies to better understand processes on and within the snowpack. This project continues to suggest that the snow substrate may have an influence on surface hoar morphology.