

Dust Associated Microorganisms and Impacts on Snow Melt and Snow Structure

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ABSTRACT

Dust is transported onto snow covered regions either via wind redistribution (dry deposition) or from the atmosphere during a snowfall event (wet deposition). Dust particles carry microbial and chemical signatures from the dust source region to the deposition region. Microorganisms become incorporated into, and can greatly alter, snowpack physical properties including snow structure, pore structure and resulting radiative and mechanical properties. These processes affect the surrounding hydrology on a macro-scale. In this interdisciplinary study, we examined microbial-associated dust-dependent melt effects on snow melt and snow strength predictions. Our ultimate goal was to determine if we could find unique microbial communities according to a dust event to eventually attempt to characterize microbial signatures.

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