

NASA SnowEx 2020 and 2021 Campaigns in the Western U.S.

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ABSTRACT

NASA SnowEx's overarching objective is to measure and monitor snowpack properties from space, in particular snow water equivalent and albedo. To achieve this, a series of coincident field, airborne, and modeling campaigns have been initiated. These campaigns are testing a wide range of snow remote sensing technologies, with a focus on a pathway to eventual spaceborne deployment. The NASA snow remote-sensing community has agreed that no single sensor or approach solves the spaceborne snow monitoring problem; therefore, we are testing approaches that combine multiple remote sensing products with field observations within the framework of land surface models. SnowEx 2017 focused efforts on two western Colorado sites: Grand Mesa and nearby Senator Beck Basin, targeting impacts of forest cover on remote sensing approaches. SnowEx 2020 was spatially and temporally broader. It linked a second Intensive Observation Period (IOP) at Grand Mesa with an L-band InSAR time-series experiment for thirteen locations scattered across the Contiguous United States' western half. SnowEx 2021 continued the L-band time series, expanded efforts into northern prairie/agricultural environments, and collected novel albedo measurements. SnowEx 2022 planning is underway, with the campaign moving to Alaska to study various remote sensing technologies in tundra and taiga environments, and the impact of permafrost on radar retrieval.

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