SWE Impact Index: Toward Identifying Critical Regions with SWE Observational Needs

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ABSTRACT

Seasonal snow is a vital part of the water cycle, supplying life-giving fresh water to billions of people across the United States and the world. At the same time, large snowpacks with sudden melt events including rain-on-snow events leads to catastrophic extreme flood events, causing large societal and economic consequences. Even though we recognize that human societies in snow-dominant regions are somehow affected by snowpack, an open question still exists: In which regions are more accurate and timely snowpack information critically needed when compared to other regions? Here, we propose a new "SWE Impact index" map showing regions where SWE information is relatively important across the continental U.S. The SWE Impact index is a societal index based on the historical amounts of maximum SWE, rapid snow accumulation and snowmelt, and population. Including population in the index provides a measure of the socio-economic susceptibility for the given areas. In this presentation, we will provide an overview of how we develop the SWE Impact index using a gridded SWE dataset and preliminary results of the index map. This work will help us identify "critical regions" where reliable SWE observations are particularly needed in terms of societal impacts.

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