IGPP Virtual Seminar Series

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Downscaling GPS observations for watershed-scale hydrologic loading

Date: Tuesday, Jun 9, 2020
Time: 12:30 pm, Pacific Time
Host: Tianze Liu
Registration link:
https://ucsd.zoom.us/meeting/register/tJUpcuqtrD4tHdZWhf5BcnjFsI50ZGkXbrF

Because this meeting will be recorded, please make sure that you are comfortable with it before registering.

In mountainous watersheds, quantifying water storage is difficult due to high topographic relief producing large spatial variations in precipitation, energy balance, ecology and subsurface hydrologic parameters. Conventional observational constraints used to predict hydrologic budgets for water management and modeling purposes are limited in spatial and temporal resolution introducing significant uncertainty in resource estimation. GPS provides the opportunity to estimate hydrologic loading at high spatial and temporal scales. We leverage the fact that GPS time series record the elastic response of the Earth due to a linear combination of regional and local loading. Using a stacked common mode analysis, we remove network-coherent signals from the GPS time series in order to isolate local effects and compare them to additional measures of hydrologic mass in the Northern Rockies. This research elucidates the utility of using of GPS observations as an independent measure of water storage at the watershed scale.