

Satellite-based Estimation of Snow Hydrologic and Surface Energy Balance Components

Cezar Kongoli

Reliable large-scale assessments of water and energy balance components over snow are needed for a range of applications including Numerical Weather Prediction (NWP) models, climate studies and regional water management. This presentation will discuss several key NOAA satellite-based products for the retrieval of hydrologic parameters related to solid precipitation and snow on the ground utilizing passive microwave observations from JPSS ATMS and AMSR2. In addition, a new thermal remote sensing-based method for the estimation of surface energy balance over snow-dominated landscapes will be presented. The method consists in the modification of a soil-vegetation energy balance model that diagnoses surface energy fluxes of net radiation, turbulent heat and melt energy over snow using thermal remote sensing measurements from geostationary or polar orbiting satellites without the need for solid precipitation inputs.