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Validation of surface temperature and soil moisture MM5-NOAH simulations within the framework of CEOP (coordinated enhanced observing period) Asia-Australia monsoon project (CAMP) on the Tibetan Plateau

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The energy and water balance cycle over the Tibetan Plateau plays an important role within global and continent scale climate systems. In order to understand the seasonal hydro-meteorological cycle on the Tibetan Plateau, intensive and long-term observations have been collected within the framework of the Global Energy and Water Cycle Experiment (GEWEX) Coordinated Enhanced Observing Period (CEOP). In this investigation, the Pennsylvania State University/ National Center for Atmospheric Research (PSU/NCAR) Meso-scale Model version 5 (MM5) has been used in combination with the NOAH[1] Land Surface Modeling (LSM) approach to simulate the meso-scale atmospheric circulation on the Tibetan Plateau in 2005. Concurrent to the simulation period an extensive set of satellite observations has been collected over this region by the Advanced Synthetic Aperture Radar (ASAR) and Advanced Along Track Scanning Radiometer (AATSR) onboard the European Environmental Satellite (EnviSat). The satellite observations are used, here, to validate the MM5-NOAH modeled land surface states: soil moisture and surface temperature. The C-band (5.3 GHz) ASAR backscatter observations are compared to the surface soil moisture. The thermal observations (10.8 and 12.0 μm) acquired by AATSR are compared to the simulated surface temperatures.

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