A protoype observation system for water resources in South - East Asia: ground and space measurements to support hydrological and atmospheric modeling of the Qinghai - Tibet Plateau

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The goal is two-fold: a) to construct out of existing ground measurements and current / future satellites an observing system to determine and monitor the water yield of the Plateau; b) to monitor the evolution of snow, vegetation cover, surface wetness and surface fluxes and analyze the linkage with convective activity, (extreme) precipitation events and the Asian Monsoon. Three main elements are foreseen. A) Observations of the terms of the water balance: precipitation, meltwater from snow and glaciers, changes in soil water content and evaporation for a period of three years will be generated by integrating ground and satellite measurements on weekly and monthly basis. Radiative transfer models and algorithms are being developed for different regions of the electro-magnetic spectrum. B) The water balance of the Plateau will be calculated with a distributed hydrological model. Interactions of land surface hydrology with convective activity and the Asian Monsoon will be investigated by using a meso-scale atmospheric model. C) Time-series of image data are being used to demonstrate a Drought and a Flood Early Warning Systems.

The system relies on an existing and expanding network of observatories and on spaceborne observing systems for which data continuity is guaranteed. A Database Management System will be put in place in Lhasa.