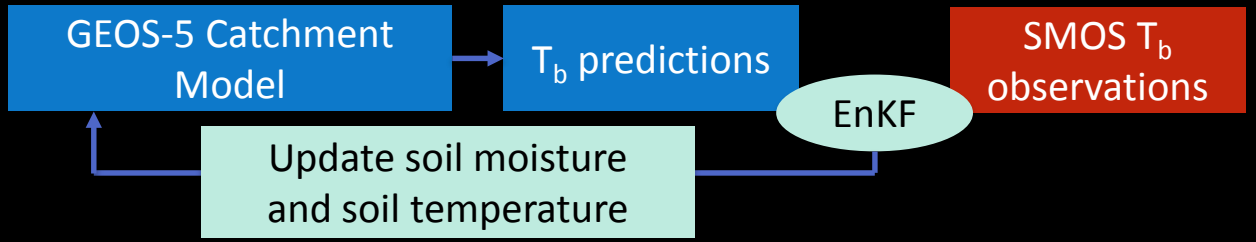
Assimilating SMOS Brightness Temperatures into the NASA GEOS-5 Catchment Land Surface Model for Soil Moisture Estimation

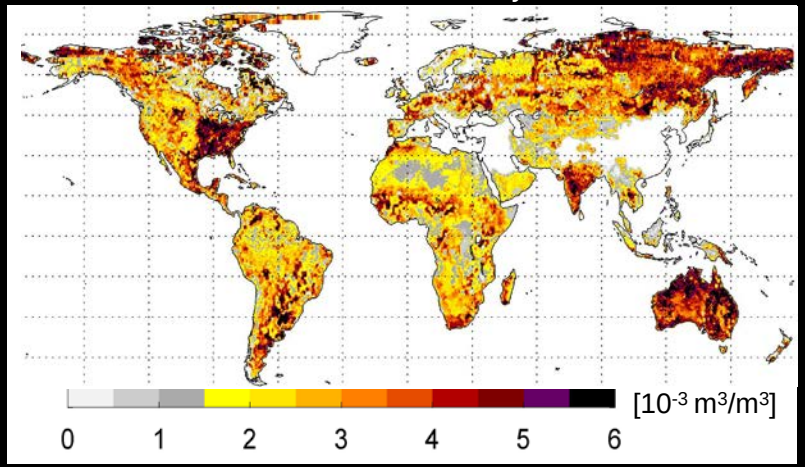
Objectives

- Global estimates of surface and **root-zone soil moisture** and related fields (incl. fluxes).
- Prototype for SMAP L4_SM data product.



Data Assimilation System

- Brightness temperature (T_b) observations from the Soil Moisture Ocean Salinity (SMOS) mission.
- NASA GEOS-5 Land Data Assimilation System.



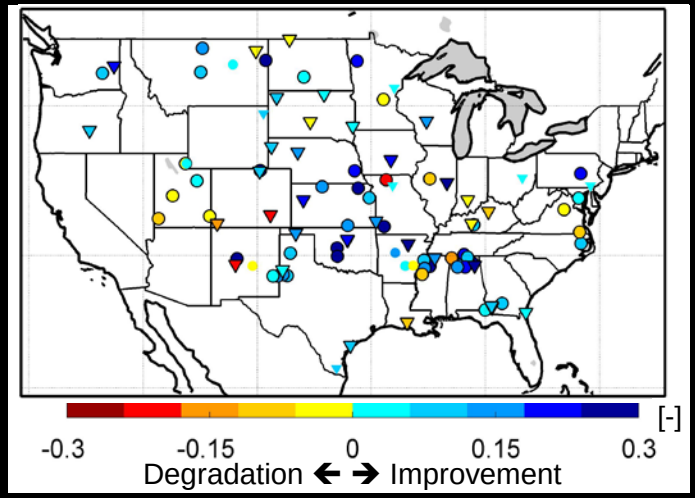
Average magnitude of profile soil moisture increments from SMOS assimilation.

Validation

Generally improved soil moisture estimates when compared to in situ measurements.

Skill improved at 77 out of 100 locations.

ΔanomR: mean=0.10 [-]



Skill change (ΔanomR) between root zone soil moisture estimates from SMOS assimilation and the land model alone.