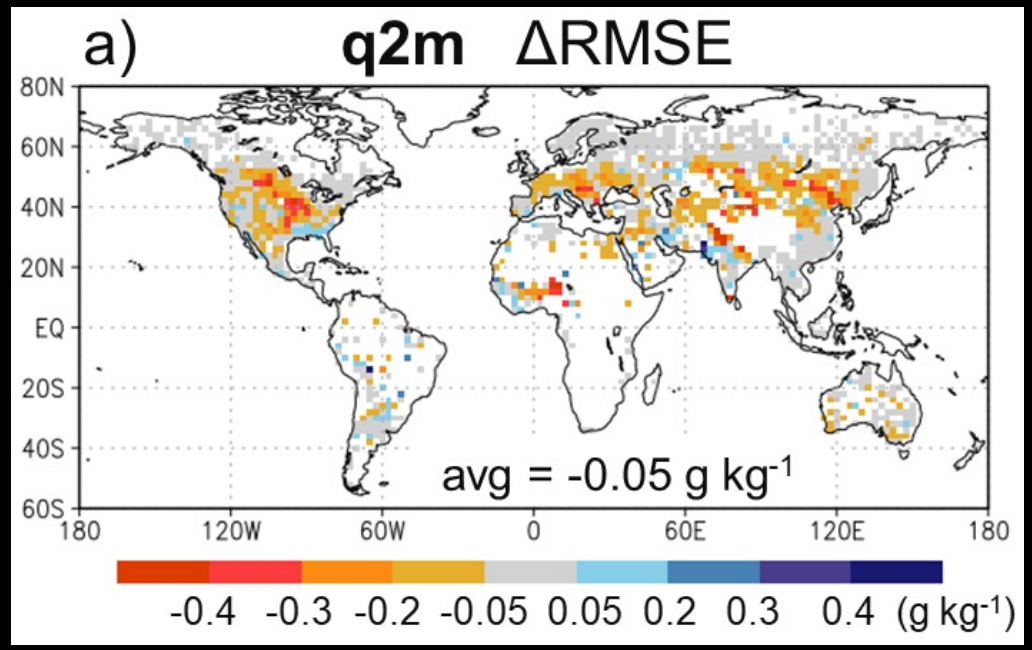
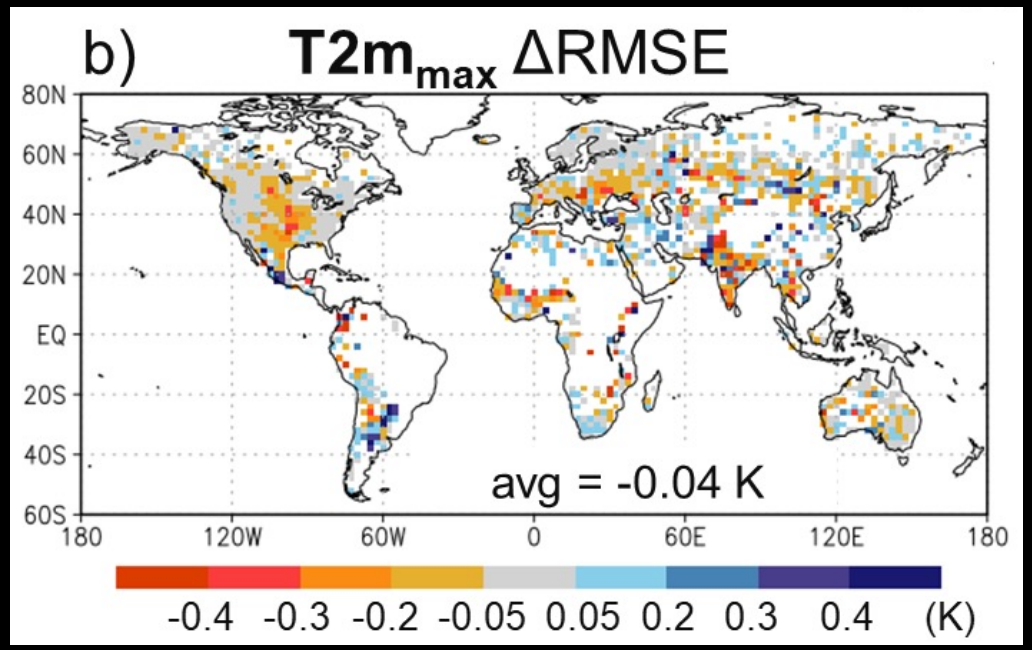
SMAP Observations Can Improve Near-Surface Humidity and Temperature in GEOS Weather Analysis





Assimilating brightness temperature (Tb) observations from the Soil Moisture Active Passive (SMAP) mission in the GEOS weather analysis during boreal summer 2017 improves the skill of soil moisture compared to a system without SMAP assimilation.

Consequently, screen-level specific humidity (q2m) and daily maximum temperature ($T2m_{max}$) also improve, by up to 0.4 g/kg and 0.3 K, respectively, in some regions (red colors in graphic). Results demonstrate the potential of SMAP Tb observations for improving global operational weather analysis and forecasting systems.