The NASA Soil Moisture Active Passive (SMAP) Mission Status and Early Results

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The NASA Soil Moisture Active Passive (SMAP) mission is launched in early 2015. The objective of SMAP is to produce global estimates of surface soil moisture at 9 km resolution every 2-3 days. It will also provide the freeze/thaw state of land surface north of 45° N at better than 3 km resolution every two days. The mission science data products are derived from the L-band radar and radiometer on board the SMAP spacecraft. The radar and radiometer share a rotating 6-meter mesh reflector antenna. The instruments operate on-board the SMAP spacecraft in a 685-km Sun-synchronous near-polar orbit, viewing the surface at a constant 40-degree incidence angle across the wide 1000-km swath. The radiometer includes several capabilities based on characteristics of data over time, frequency band, and polarization to detect anthropogenic Radio-Frequency Interference (RFI). This presentation includes: 1) the status of SMAP mission related to radar and radiometer performance, 2) report on detected RFI environment, 3) calibration activities, and 4) preliminary assessment of soil moisture retrieval, freeze/thaw detection and model value-added (root-zone soil moisture and Net Ecosystem Exchange) algorithms.