This dataset is being superseded by [SPL4SMGP.007](https://developers.google.com/earth-engine/datasets/catalog/NASA_SMAP_SPL4SMGP_007)

The NASA-USDA Enhanced SMAP Global soil moisture data provides soil moisture information across the globe at 10-km spatial resolution. This dataset includes: [surface](https://gimms.gsfc.nasa.gov/SMOS/SMAP/Surface_Soil_Moisture_SMAP.pdf) and [subsurface](https://gimms.gsfc.nasa.gov/SMOS/SMAP/Sub_SurfaceSoil_Moisture_SMAP.pdf) soil moisture (mm), [soil moisture profile](https://gimms.gsfc.nasa.gov/SMOS/SMAP/SoilMoisture_Profile_SMAP.pdf) (%), as well as surface and subsurface soil moisture anomalies (-).

The dataset is generated by integrating satellite-derived Soil Moisture Active Passive (SMAP) Level 2 soil moisture observations into the modified two-layer Palmer model using a 1-D Ensemble Kalman Filter (EnKF) data assimilation approach. Soil moisture anomalies were computed from the climatology of the day of interest. The climatology was estimated based on the full data record of the SMAP satellite observation and the 31-day-centered moving-window approach. The assimilation of the SMAP soil moisture observations help improve the model-based soil moisture predictions particularly over poorly instrumented areas of the world that lack good quality precipitation data.

This dataset was developed by the Hydrological Science Laboratory at NASA's Goddard Space Flight Center in cooperation with USDA Foreign Agricultural Services and USDA Hydrology and Remote Sensing Lab. As of August 2022, the NASA-USDA Enhanced SMAP Global soil moisture product has been discontinued. However, there are comparable SMAP-based soil moisture products that are recommended.

+ The Level-3 (L3) (SPL3SMP\_E.005) soil moisture product [ee.ImageCollection("NASA/SMAP/SPL3SMP\_E/005")] provides a daily composite of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) L-Band radiometer (https://developers.google.com/earth-engine/datasets/catalog/NASA\_SMAP\_SPL3SMP\_E\_005).

+ The SMAP Level-4 (L4) SPL4SMGP soil moisture [ee.ImageCollection("NASA/SMAP/SPL4SMGP/007")] product includes surface and root-zone soil moisture, as well as additional research products (https://developers.google.com/earth-engine/datasets/catalog/NASA\_SMAP\_SPL4SMGP\_007). Please note, the SPL4SMGP soil moisture estimates are obtained by merging SMAP observations with estimates from the Catchment Land Surface Model in a soil moisture data assimilation system. The product is 3-hourly instead of daily (see table below).

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Asset name | | |
| Band description | [NASA-USDA Enhanced SMAP](https://developers.google.com/earth-engine/datasets/catalog/NASA_USDA_HSL_SMAP10KM_soil_moisture) | [SPL4SMGP.007](https://developers.google.com/earth-engine/datasets/catalog/NASA_SMAP_SPL4SMGP_007) | [SPL3SMP\_E.005](https://developers.google.com/earth-engine/datasets/catalog/NASA_SMAP_SPL3SMP_E_005) |
| Surface soil moisture | ssm | sm\_surface | soil\_moisture\_am  soil\_moisture\_pm |
| Subsurface soil moisture | susm | sm\_rootzone | NA |
| Soil moisture profile | smp | sm\_profile | sm\_profile |
| Surface soil moisture anomaly | ssma | sm\_surface\_anomaly | soil\_moisture\_am\_anomaly  soil\_moisture\_pm\_anomaly |
| Subsurface soil moisture anomaly | susma | NA | NA |