L1- L3 ANCILLARY PRODUCTS						
Data Set ID	**Data Set Title**	**Data Set Summary**	**Sub-Product Title**	**Sub-Product Description**	**Standard SMAP Products Used In**	**Sub-Product File Naming Convention**
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	AngularPosition	Provides the angular position of the 48 pins that underlie the rotating antenna assembly	SpiceAntennaAzimuth	**File Name:** SMAP_IP_Angular_Position_v002.xml
			AntPatternCorr	SMAP antenna pattern correction calibration table used for transforming antenna temperature to brightness temperature in L1B_TB.	SPL1BTB	**File Name:** AntPatternCorr_170830_v010.h5
			BETA_PARAM_DEFAULT	Pre-computed beta parameter coefficients, providing a default set of Tb disaggregation parameters to use in L2_SM_AP active/passive retrievals.	SPL2SMAP	**File Name:** BetaParamDefault_B00000000_0000_v03_R00000_006.float32
			BFPQ_DECODE_EXP	Block Floating Point Quantizer Decoding Table for Exponent. Used by high-res L1C processor to decode high-res samples in telemetry.	SPL1CS0	**File Name:** bfpq_mult_decode_arr_16_4_5_20120101_v001.bin
			BFPQ_DECODE_MANT	Block Floating Point Quantizer Decoding Table for Mantissa. Used by high-res L1C processor to decode high-res samples in telemetry.	SPL1CS0	**File Name:** bfpq_decode_mant_arr_m4_20120101_v001.bin
			CAL_LT_HIRES_DEFAULT	The default version of the Hi Res Long Term Radar Calibration Record Product.	SPL1CS0	**File Name:** SMAP_CAL_LT_HIRES_DEFAULT_v006.xml
			CAL_LT_LORES_DEFAULT	The default version of the Lo Res Long Term Radar Calibration Record Product.	SPL1BS0	**File Name:** SMAP_CAL_LT_LORES_DEFAULT_v006.xml

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	CAL_ST_DEFAULT	The default version of the short term radar calibration Product	RadarCal	**File Name:** SMAP_CAL_ST_DEFAULT_v008.xml
			CHANGE_INDEX_REF_S0	Backscatter reference (low, high) table used in the soil moisture change index algorithm for L2_SM_A.	SPL2SMA	**File Name:** sigma0RefState4mv_004.float32
			COASTALMASK	Table containing distance of each grid cell center from the nearest coastline, used for coastal-cell flagging in L2_SM_A and L2_SM_AP retrievals.	SPL2SMA, SPL2SMAP	**Generic File Name:** CoastlaMask_M[##]_002.float32 **File Naming Convention:** [##] - Grid resolution, in km (e.g. 03, 09)
			CROP_TYPE	The SMAP crop type ancillary dataset is a composite derived from USDA (US), AAFC (Canada), ECOCLIMAP (Europe) and a statistical database for the rest of the globe by Monfreda (2008). This ancillary data is expected to change on a seasonal to annual basis, as new data become available.	SPL2SMA	**File Name:** 4crops_M03_B20100101_004.uint8
			CUBESET_CONFIG	The cubeset configuration file is a text file that defines the mapping of landcover class index to specific radar data cube files, used in the active soil moisture retrieval processing.	SPL2SMA	**File Name:** CubesetConfig_B20010101_003.txt
			DATACUBE	A table of radar backscatter as a function of dielectric constant, vegetation water content, and surface roughness, used in the retrieval of soil moisture for the active (radar-only) L2_SM_A product. Each of the 16 data cube files represents a different landcover and/or crop type.	SPL2SMA	**Generic File Name:** Datacube_<type>_###.float32 **File Naming Convention:** <type> - Ecosystem (e.g. MixedForest, ClosedShrub, BareSoil, etc.) ### - Version number (e.g. 002, 003)
			DataVolumeEstimate	The contents of the DataVolEstimate file has information per oribt path for how much hi Res data vs total data is expected for both RAD and SAR	SPL1AA, SPL1AP,	**File Name:** DataVolLUT_160307212420_v01.txt

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	DEM	Digital Elevation Map data, derived from SRTM topography, gridded on EASE grid.	SPL2FTA, SPL2SMA	**Generic File Name:** DEM_[M|N][##]_003.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North) [##] - Grid resolution, in km (e.g. 01, 03)
			DEM_LIST	Digital Elevation Map List. The SMAP spacecraft travels in a cycle that repeats after 117 orbits. Each of thoses orbits flies over a subset of the tilles that comprise the complete Digital Elevation Map. The Radar team provides a library of 234 list files, one for each ascending half orbit path and one for each descending half orbit path. Used by high-res L1C processor for SAR correlation and geo-location.	SPL1BS0, SPL1CS0	**Generic File Name:** smap_dem_###_[A|D].tm **File Naming Convention:** ### - Orbit number (0 - 117) [A|D] - Ascending (A) or Descending (D)
			DEMSLP	Terrain slope derived from the GMTED2010 digital elevation map (DEM).	SPL2SMP, SPL2SMAP	**Generic File Name:** DEMSLP_[M|N][##]_003.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)[##] - Grid resolution, in km (e.g. 01, 03)
			DEMSLPSTD	Terrain slope standard deviation, derived from the GMTED2010 digital elevation map (DEM).	SPL2SMAP	**Generic File Name:** DEMSLPSTD_[M|N][##]_003.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)[##] - Grid resolution, in km (e.g. 01, 03)
			DEMSTD	Elevation standard deviation derived from the GMTED2010 digital elevation map (DEM).	SPL2FTA, SPL2SMA	**Generic File Name:** DEMSTD_[M|N][##]_003.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)[##] - Grid resolution, in km (e.g. 01, 03)
			DirectGalaxyLUT	Lookup table for applying the direct galaxy correction to the L1B_TB antenna temperature.	SPL1BTB	**Generic File Name:** DirectGalaxyLut_####_v003.0 **File Naming Convention:** #### - File version (e.g. 0101, 1231)
			DIST2WATER	Table providing the distance from a grid cell center to the nearest open water body.	SPL2SMP	**Generic File Name:** dist2water_M[##]_002.float32 **File Naming Convention:** [##] - Grid resolution, in km (e.g. 03, 09)
			DSK	SPICE Digital Shape Kernels (DSK) each of which supplies one tile of the digital elevation map (DEM).	SPL1BS0, SPL1CS0	**Generic File Name:** DSK_LL##[N|S]###E_UR##[N|S]###E_YYYYMMDD_GMTED2010_v000.bds **File Naming Convention:** LL##[N|S] - Latitude of lower left tile ###E - Longitude (000 - 359) UR###[N|S] - Latitude of upper right corner of tile ###E -Longitude (000 - 359) YYYYMMDD - Date in year-month-day format

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	EASEGRID	The EASEGRID files EZ2Lat and EZ2Lon are precomputed tables of latitude and longitude of the EASE 2.0 grid cell centers. These are available at 1 km, 3 km, 9 km, and 36 km postings for global and polar grids.	SPL1CTB, SPL2FTA, SPL2SMA, SPL2SMAP, SPL3SMA, SPL3SMP, SPL3SMAP, SPL3FTA	**Generic File Name:** EZ2[Lat|Lon]_[M|N|S]##_002.float32 **File Naming Convention:** [Lat|Lon] - Latitude or Longitude [M|N|S] - Grid type, (M = Mid and low latitudes, N = North, S = South) ## - Grid resolution, in km (e.g. 01, 03)
			EPS_TO_MV_DOBSON	Dielectric constant to soil moisture inversion table, using the Dobson dielectric model, used in active soil moisture retrievals.	SPL2SMA	**File Name:** eps2mvDobson_002.float32
			EPS_TO_MV_MIRONOV	Dielectric constant to soil moisture inversion table, using the Mironov dielectric model, used in active soil moisture retrievals.	SPL2SMA	**File Name:** eps2mvMironov_002.float32
			FT_PARAMETERS	Table of freeze and thaw reference backscatter states and the retrieval algorithm thresholds, at each EASE grid cell, used in the L2_FT_A and L2_SM_A freeze-thaw flag determination.	SPL2SMA, SPL2FTA	**Generic File Name:** FTParameters_[M|N]03_007.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)
			FT_PASV_PARA	Parameters used for passive freeze-thaw retrieval. These include freeze and thaw reference states for NPR retrieval, thresholds for SCV retrievals, and AMSR-E based never-frozen/never-thawed flags for false-flag mitigation. Separate files used for Polar and Global processing, at both 36 km and 9 km grid resolutions.	SPL3FTP, SPL2FTP_E	**Generic File Name:** FT_PASV_Params_[M|N]##_vvv.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)## - Grid resolution, in km (e.g. 09, 36) vvv - Version number (e.g. 002, 005)
			FullBandCoeffs	Coefficients for internal calibration sources used to convert raw instrument counts to L1B_TB antenna temperatures.	SPL1BTB	**Generic File Name:** FullBandCoeffs_YYMMDDhhmm_v016.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format hhmm - Time in hours and minutes
			GBTS_DEFAULT	Dummy Global Backscatter Time Series file, filled with FillValues, used at the start of the SMAP radar time series where there are no prior measurements available.	SPL2SMA, SPL2SMAP	**File Name:** GBTS_E00000000_035_v03_R00000_000.float32
			HiResExternalTargets	Locations of external targets for the L1C_S0_HiRes data calibration, used for Cal/Val only.	SPL1CS0	**File Name:** HiResExternalTargets_131120_v001.xml
			IMS_LAT	Pre-computed latitudes for NOAA IMS snow data grid, at 4 km resolution.	SNOW_EXT	**File Name:** imslat_4km_NH.bin
			IMS_LON	Pre-computed longitudes for NOAA IMS snow data grid, at 4 km resolution.	SNOW_EXT	**File Name:** imslon_4km_NH.bin
			INDEX_2D1D	To economize disk space, GBTS keeps the backscatter time-series record over global land only and in a 1D array. The 2D to 1D conversion table is used by GBTS.	SPL2SMA	**File Name:** Index2D1D_M03_002.int32
			L1BAdHoc	Empirically derived bias corrections to the low-res radar data as a function of scan angle and orbit position. These are all set to unity as no relative bias corrections were needed by low-res radar data.	SPL1BS0	**Generic File Name:** L1BAdHoc_YYMMDD_V###.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format### - Version number (e.g. 001)

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	L1CAdHoc	Empirically derived bias corrections to the high-res radar data as a function of scan angle and orbit position. These were set to statistically match the low-res radar data.	SPL1CS0	**Generic File Name:** L1CAdHoc_YYMMDD_V###.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format### - Version number (e.g. 001)
			L2_SM_A_DEFAULT	A dummy HDF5 L2_SM_A file used by the L2_SM_P SPS when a required L2_SM_A input file is not available.	SPl2SMP	**File Name:** SMAP_L2_SM_A_00000_D_00000000T000000_D00000_005.h5
			L3_FT_A_DEFAULT	A dummy HDF5 L3_FT_A file used by the L3_FT_A SPS when the prior-day L3_FT_A input file is not available.	SPL3FTA	**File Name:** SMAP_L3_FT_A_00000000_D00000_006.h5
			L3_FT_P_DEFAU	Dummy L3_FT_P file with empty data arrays, used as a prior-day input when there is no full prior-day product available.	SPL3FTP	**File Name:** SMAP_L3_FT_P_00000000_D00000_007.h5
			L3_FT_P_E_DEF	Dummy L3_FT_P_E file with empty data arrays, used as a prior-day input when there is no full prior-day product available.	SPL3FTP_E	**File Name:** SMAP_L3_FT_P_E_00000000_D00000_007.h5
			L3_SM_COMPOSITE_DEFAULT	A dummy L3_Composite file used by the Beta_Parameter preprocessor at the startup of the SMAP time series, when no prior sigma0 and brightness temperature data are available.	BetaParam internal product	**File Name:** CompositeL3SM_B00000000_v03_D00000_000.float32
			LAND_MASK	Global land/ocean mask used by the L1B_S0_LoRes ocean calibration analaysis during cal/val only.	SPL1BS0	**File Name:** LandMask_140302_v001.dat
			LAND_MASK_1	Land-water mask at 1 km resolution used in the TB water correction algorithm in L1B_TB.	SPL1BTB	**File Name:** Land_Mask_1km_EASE2_grid_150101_v004.h5
			LANDCOVER_CLASS	Dominant IGBP landcover class index, based on largest areal fraction in the EASE grid cell.	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** dominantIGBP_[M|N]##_B20120101_003.uint8 **File Naming Convention:** [M|N] - Grid type, (M = Mid and low latitudes, N = North) ## - Grid resolution, in km (e.g. 01, 03)
			LANDCOVER_CLASS_FRACTION_TOP3	Fractional areal coverage for the top three landcover classes appearing in each EASE grid cell.	SPL2SMP	**File Name:** top3IGBPfrac_M36_B20120101_004.float32

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	LANDCOVER_CLASS_TOP3	IGBP landcover class indices of the top three classes appearing in each EASE grid cell.	SPL2SMP	**File Name:** top3IGBPtype_M36_B20120101_004.uint8
			LinearCoeffs	Coefficients used to correct raw instrument counts for nonlinear instrument response when generating L1B_TB antenna temperatures.	SPL1BTB	**File Name:** LinearCoeffs_1309010000_v006.h5
			LoResExternalTargets	Locations of external targets for the L1B_S0_LoRes data calibration, used for Cal/Val only.	SPL1BS0	**File Name:** LoResExternalTargets_131120_v001.xml
			NDVI	The Normalized Difference Vegetation Index (NDVI) is a numerical indicator that uses the visible and near-infrared bands of the electromagnetic spectrum, and is adopted to analyze remote sensing measurements and assess whether the target being observed contains live green vegetation or not. The NDVI climatology used by SMAP is derived from MODIS data.	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** NDVI_M[??]_###_002.int16 **File Naming Convention:** [??] - Grid resolution, in km (e.g. 01, 09)### - Day of year, where Jan 1 = 001
			OCEAN_MODEL	These files contain parameters that define the ocean model in the L1B S0 LoRes. The SPS reads four files, one for each of the polarization channels	SPL1BS0	**Generic File Name:** OceanModel_<pol>_140302_v###.dat**File Naming Convention:** <pol> - Polarization (e.g. VV, VH) ### - Version number (e.g. 001, 002)
			PASSIVE_COEF	Extended table of tau-omega model coefficients used in passive SM retrieval. Currently a "dummy" file not actually used in L2_SM_P/_E.	SPL2SMP_E	**Generic File Name:** pasv_[??]_M##_001.float32 **File Naming Convention:** [??] - Polarization (e.g. hh, hv) M## - Grid type (M = Mid and low latitudes) and resolution, in km (e.g. 09)
			PRECIP_DEFAULT	A dummy PRECIP ancillary file, in which the grid is filled with fillValues, used by L2 SPSes when no valid PRECIP data are available.	SPL1SMA, SPL2SMP	**Generic File Name:** PrecipSMAP_[M|N]##_P00000000T000000_A_00000000T000000_R00000_002.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)## - Grid resolution (e.g. 03, 09)
			RadarAntennaPattern	The SMAP radar antenna gain pattern, provided in dB relative to the peak gain, in azimuth/elevation coordinates.	SPL1BS0, SPL1CS0	**Generic File Name:** Elaz_Complete_SAR_Band_[V|H]pol_v001.grd**File Naming Convention:** [V|H] - Polarization (V = vertical, H = horizontal)
			RadiometerAntPattern	Antenna pattern model output used when correcting for solar and lunar contamination to convert L1B_TB antenna temperatures to Tb's. The data file (HDF5 format) of the SMAP radiometer antenna pattern has two groups (Grid, Gain). The spherical coordinate system is used in this data file. The group 'Grid' has two fields (theta, phi). The value of the element 'theta' is from 0 to 180 degrees with 0.1 degree resolution, while the value of the element 'phi' is from 0 to 360 degrees with 0.1 degree resolution. The group 'Gain' contains 8 fields of gains which are in linear scale. The name of these gain fields and their explanations are listed below.	SPL1BTB	**File Name:** RadiometerAntPattern_170830_v011.h5

				G1v: V-pol, Co-pol component, real part G2v: V-pol, Co-pol component, imagine part G3v: V-pol, Cross-pol component, real part G4v: V-pol, Cross-pol component, magine part G1h: H-pol, Co-pol component, real part G2h: H-pol, Co-pol component, imagine part G3h: H-pol, Cross-pol component, real part G4h: H-pol, Cross-pol component, imagine part The 8 fields in Group 'Gain' are two-dimensional matrices. The top and left coordinates correspond to (theta=0, phi=0); while the bottom and right coordinates corresponds to (theta=180 deg, phi=360 degrees).		

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	ReflectedGalaxyLUT	Approximation of galaxy reflected off Earth contribution to antenna temperatures used when converting to Tb.	SPL1BTB	**File Name:** ReflectedGalaxyLUT_0000_v008.h5
			ReflectedSunLUT	Approximation of sun reflected off Earth contribution to antenna temperatures used when converting to Tb.	SPL1BTB	**File Names:** ReflectedSunLUT_0101_v004.h5 ReflectedSunLUT_1231_v004.h5
			Reflector	Coefficients related to the reflector and radome used to convert raw instrument counts to L1B_TB antenna temperatures and Tb's.	SPL1BTB	**Generic File Name:** Reflector_YYMMDD_v003.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format
			RFIKurtosisParameters	Coefficients used in the RFI detection algorithms.	SPL1BTB	**Generic File Name:** RFIKurtosisParameters_YYMMDD_v###.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format ### - Version number (e.g. 012, 013)
			RFIParameters	Coefficients used in the RFI detection algorithms.	SPL1BTB	**Generic File Name:** RFIParameters_YYMMDD_v###.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format ### - Version number (e.g. 012, 013)
			ScaleFactors	Coefficients used when converting raw instrument counts to L1B_TB antenna temperatures.	SPL1AA	**File Name:** ScaleFactors_140131_v002.bin
			SignedMasks	Coefficients used when converting raw instrument counts to L1B_TB antenna temperatures.	SPL1AP	**File Name:** SignedMasks_130820_v001.bin
			SNOW_DEFAULT	A dummy SNOW ancillary file, in which the grid is filled with fillValues, used by L2 SPSes when no valid SNOW data are available.	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** SnowSMAP_[M|N]##_P00000000T000000_R00000_002.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North)## - Grid resolution, in km (e.g 03, 09)
			SOIL_TEXTURE	Soil Texture attributes include sand and clay fractions, bulk density, and organic content. The dataset used by SMAP is compiled from the Harmonized World Soil Database and regional datasets (ASRIS, STATSGO, NSDC).	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** [clay|sand|bulk]_M##_004.float32 **File Naming Convention:** [clay|sand|bulk] - Soil type ## - Grid resolution, in km (e.g. 01, 03)
			SpiceEarthFixedFrame	SPICE kernel containing definition of Earth body fixed coordinate system.	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** earth_assoc_itrf93.tf
			SpiceEarthOrientation	SPICE kernel containing Earth pole orientation geometric data	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** earth_000101_190326_190103.bpc
			SpiceLeapSecond	SPICE kernel containing leap second (TAI-UTC) data	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Names:** naif0011.tls naif0012.tls
			SpicePlanetaryConstants	SPICE kernel containing solar system data (including Earth)	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** pck00010.tpc

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	SpicePlanetaryTrajectory	SPICE kernel containing solar system ephemerides	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** de421.bsp
			SpiceProjectFrames	SPICE kernel containing the definitions of the SMAP coordinate systems	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** smap_pf_v14.tf
			SpiceSCLK	SPICE kernel containing the correlation between the spacecraft clock (SLCK) and UTC, expressed as a basetime UTC and a slope parameter of UTC seconds per spacecraft "seconds"	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**File Name:** smap_cl_v00097.tsc
			SubBandCoeffs	Coefficients for internal calibration sources used to convert raw instrument counts to L1B_TB antenna temperatures.	SPL1BTB	**Generic File Name:** SubBandCoeffs_YYMMDDhhmm_v017.h5 **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format hhmm - Time in hours and minutes
			SURFACE_ROUGHNESS	The effective roughness of the surface as a function of landcover type, used in the Tau-Omega radiative transfer model.	SPL1BTB	**Generic File Name:** roughness_M##_002.float32 **File Naming Convention:** ## - Grid resolution, in km (e.g. 01, 03)
			SURFACE_ROUGHNESS_COEFF	The physical (RMS) roughness of the surface in centimeters, based on statistics of surface roughness as a function of landcover type	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** h_M##_002.float32 **File Naming Convention:** ## - Grid resolution, in km (e.g. 03, 09)
			SurfaceWaterFraction	The main-lobe gain weighted water fraction output is based on a water fraction look-up table (waterTable). The waterTable is generated with Matlab code by smoothing a 1-km land/water map using a Gaussian mask based on the SMAP radiometer antenna mainlobe shape.	SPL1BTB	**File Name:** SurfaceWaterFraction_141212_v002.h5
			TempCoefs	Temperature-dependent calibration coefficients used for converting L1A telemetry values to engineering units.	SPL1AP	**Generic File Name:** TempCoefs_YYMMDD_v001.bin **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format
			TEMPORAL_WINDOW	The Temporal Window grid is an array containing the number of days required to obtain a time series of brightness temperature and radar backscatter with the assumption that the surface conditions (e.g., vegetation and surface roughness) are not changing much. This is essential to obtain physically relevant and statistically robust Beta Parameter at each grid cell.	internal BETA_PARAM product	**File Name:** TemporalWindow_M36_002.int32

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_STATIC	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Static Data	This ancillary SMAP product contains more than 50 data sets. These data sets contain the inputs necessary to create SMAP products from raw instrument counts, such as permanent masks (land, water, forest, urban, mountain, etc.), the grid cell average elevation and slope derived from a Digital Elevation Model (DEM), permanent open water fraction, soils information (primarily sand and clay fraction), vegetation parameters, and surface roughness parameters.	URBAN_FRACTION	Urban area fraction based on the GRUMP database, giving the areal fraction of each EASE grid cell devoted to urban land-use.	SPL2SMA, SPL2SMP, SPl2SMAP	**Generic File Name:** UrbanFraction_M##_002.float32**File Naming Convention:** ## - Grid resolution, in km (e.g. 03, 09)
			VoltageCurrentCoefs	Coefficients used to convert raw engineering telemetry counts to engineering units (voltage, current and temperatures).	SPL1AP	**Generic File Name:** VoltageCurrentCoefs_YYMMDD_v001.bin **File Naming Convention:** YYMMDD - Date in abbreviated year-month-day format
			WATER_FRACTION	Static water fraction based on 12-year MODIS 44W dataset, giving the areal fraction of each EASE grid cell containing open water.	SPL2FTA, SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** waterfrac_[M|N]##_002.float32 **File Naming Convention:** [M|N] - Grid type (M = Mid and low latitudes, N = North) ## - Grid resolution, in km (e.g. 09, 36)
SMAP_L1_L3_ANC_SATELLITE	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary Satellite Data	This ancillary SMAP product contains two dynamic data sets describing 1) the attitude and 2) the trajectory of the SMAP satellite. The data files are generated using quaternions from the SMAP spacecraft and inputs from earth receiving stations, respectively.	SpiceSpacecraftAttitude	Processed Attitude based on quaternions from SMAP spacecraft	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**Generic File Name:** smap_at_[##########]_[??????????]_v##.bc **File Naming Convention:** [##########] - Start time, in abbreviated year-month-day-hour-minute format [??????????] - End time, in abbreviated year-month-day-hour-minute format ## - Version number (e.g. 00, 01)
			SpiceSpacecraftTrajectory	Processed spacecraft trajectory of SMAP based on inputs (doppler) from earth receiving stations	SPL1AA, SPL1AP, SPL1BTB, SPL1BS0, SPL1CS0	**Generic File Name:** traj_SPK_[##########]_[??????????]_[**********]_sci_[OD####]_v??.bsp **File Naming Convention:** [##########] - Coverage start time, in abbreviated year-month-day-hour-minute format [??????????] - Coverage end time, in abbreviated year-month-day-hour-minuteformat [**********] - Reconstructed end time, in abbreviated year-month-day-hour-minute format [OD####] - Serial number ?? - Version number (e.g. 00, 01)

Data Set ID	Data Set Title	Data Set Summary	Sub-Product Title	Sub-Product Description	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L1_L3_ANC_NOAA	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary NOAA Data	This ancillary SMAP product contains six dynamic data sets originally produced by NOAA or NOAA-affiliated organizations. 1) NCEP Geophysical Forecast System modeled data provided in 6-hour time steps 2) Daily Reynolds Sea Surface Temperature data 3) Snow Cover data from NOAA Interactive Multisensor Snow and Ice Mapping System 4) NOAA Solar Radio Flux 5) GPS-derived total electron content used to compute the Faraday rotation correction for the SMAP radar 6) Instantaneous wave height measures	NCEP_GFS_ASM	Analysis model data from NCEP Geophysical Forecast System (GFS). Provided on instantaneous 6-hourly time centers for each day. Variables used include sea ice fraction and sea surface vector winds.	SPL1BTB, SPL1BS0	**Generic File Name:** SSW_[I|U|V]_gfs_anl_YYYYMMDD[T##]_t000_v001.txt **File Naming Convention:** [I|U|V] - I = Ice, U = Horizontal component of the wind, V = Veritconal component of the wind YYYYMMDD - Date in year-month-day format [T##] - Time in hours
			SeaSurfTemp	Daily Reynolds Sea Surface Temperature (SST) data used for estimate of ocean surface reflectivity needed to process Tb.	SPL1BTB	**Generic File Name:** avhrr-only-v2.YYYYMMDD.nc **File Naming Convention:** YYYYMMDD - Date in year-month-day format
			SNOW_EXT	Snow cover data from NOAA IMS, providing 4 km polar gridded pixels of binary snow (1) and no snow (0) cover in each pixel.	SPL1SMA, SPL2SMP	**Generic File Name:** imsYYYYMMDD_4km.asc **File Naming Convention:** YYYYMMDD - Date in year-month-day format
			SolarRadioFlux	NOAA Solar Radio Flux (updated at local solar noon) for last 30 days used to correct for solar contributions to process Tb.	SPL1BTB	**Generic File Name:** SolarRadioFlux_YYYYMMDD[THHMMSS]_v???.txt **File Naming Convention:** YYYYMMDD - Date in year-month-day format [THHMMSS] - Time in hour-minutes-seconds ??? - Version number (e.g. 001, 002)
			TotalElectronContent	GPS-derived total electron content (TEC) used to compute Faraday rotation correction for SMAP radar.	Spl1BS0, SPL1CS0	**Generic File Name:** ig[r|s]g###0.??i **File Naming Convention:** [r|s] - r = rapid solution file, s = analysis file #### - Day of year, where Jan 1 = 001 ?? - File extension (15 - 19)
			WAVE_HEIGHT_ASM	Assimilated instantaneous significant wave height measures used for radar ocean calibration.	SPL1BS0	**Generic File Name:** SWH_nww3_anl_YYYYMMDD[T??]_t000_v001.txt **File Naming Convention:** YYYYMMDD - Date in year-month-day format [T??] - Time in hours
SMAP_L1_L3_ANC_GEOS	Soil Moisture Active Passive (SMAP) L1-L3 Ancillary GEOS Data	This ancillary SMAP product contains three dynamic GMAO GEOS-5 modeled data sets. Each data set contains surface and atmospheric parameters pertinent to SMAP provided in 1) hourly, 2) 3-hour, and 3) averaged over 3-hour intervals.	GEOS_INST1_ASM	GMAO GEOS-5 hourly analysis model data package. Contains a number of selected surface and atmospheric parameters pertinent to SMAP on instantaneous hourly intervals.	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** GEOS.fp.asm.inst1_2d_smp_Nx.YYYYMMDD_####.V??.nc4 **File Naming Convention:** YYYYMMDD - Date in year-month-day format #### - Hours, in miliatry time ?? - version number (e.g. 01, 02)
			GEOS_INST3_ASM	GMAO GEOS-5 3-hourly analysis model data package. Contains a number of selected surface and atmospheric parameters pertinent to SMAP on instantaneous 3-hourly intervals.	SPL1BTB	**Generic File Name:** GEOS.fp.asm.inst3_2d_smp_Nx.YYYYMMDD_####_V??.nc4 **File Naming Convention:** YYYYMMDD - Date in year-month-day format #### - Hours, in military time ?? - version number (e.g. 01, 02)
			GEOS_TAVG3_ASM	GMAO GEOS-5 hourly analysis model data package. Contains a number of selected surface and atmospheric parameters pertinent to SMAP averaged over 3-hour intervals.	SPL2SMA, SPL2SMP, SPL2SMAP	**Generic File Name:** GEOS.fp.asm.tavg3_2d_smp_Nx.YYYYMMDD_####.V??.nc4 **File Naming Convention:** YYYYMMDD - Date in year-month-day format #### - Hours in military time ?? - Version number (e.g. 01, 02)

L4 ANCILLARY PRODUCTS				
Data Set ID	**Data Set Title**	**Data Set Summary**	**Standard SMAP Products Used In**	**Sub-Product File Naming Convention**
SMAP_L4_C_ANC_BPLUT	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Biome Parameter Look Up Table	This ancillary SMAP product contains biophysical characteristics (biome parameters) used to estimate carbon fluxes and soil organic carbon in the SMAP L4 Carbon algorithm. Biophysical characteristics were established from previous studies and the parameters defined for the MODIS MOD17 operation GPP algorithm. This data set was refined through regional and global comparisons and calibration of prototype SMAP L4 Carbon calculations.	SPL4CMDL	**File Names:** SPL4C_Vv5040_SMAP_L4_C.BPLUT.csv SPL4C_Vv5040_SMAP_L4_C.BPLUT.csv
SMAP_L4_C_ANC_FPAR_CLIM	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary FPAR Climatology	This ancillary SMAP product contains a static climatology data set. The climatology data is derived from MODIS Fractional Photosynthetically Active Radiation (FPAR) models and represents a global 8-day average.	SPL4CDML	**File Name:** SPL4C_Vv5040_SMAP_L4_C.FparClimtaology.h5
SMAP_L4_C_ANC_MDL_LOG	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Model Output Log Files	This ancillary SMAP product contains SMAP L4 Carbon model log files, including model outputs.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.model_log.YYYYMMDD.text **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_MDL_RIP	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Model Run Time Input Parameters	This ancillary SMAP product contains SMAP L4 Carbon model configurations, including model inputs.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.model_runtime_input_param.YYYYMMDD.rip **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_MET	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Surface Meteorological Forcing Data	This ancillary SMAP product contains dynamic surface meteorological forcing data. The meteorological model is derived from the Modern-Era Retrospective Analysis for Research and Applications (MERRA) data set and used as an input in the SMAP L4 Carbon algorithm. The forcing data is processed from hourly GEOS-5 files into daily values. Daily files are processed every eight days.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.MET.YYYYMMDD.h5 **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_MET_LOG	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Meteorology Preprocessor Output Log Files	This ancillary SMAP product contains daily meteorological model log files, including model outputs. The meteorological model is derived from the Modern-Era Retrospective Analysis for Research and Applications (MERRA) data set and used as an input in the SMAP L4 Carbon algorithm.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.met_log.YYYYMMDD.txt **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_MET_RIP	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Meteorology Preprocessor Run Time Input Parameters	This ancillary SMAP product contains meteorological model configurations, including model inputs. The meteorological model is derived from the Modern-Era Retrospective Analysis for Research and Applications (MERRA) data set and used as an input in the SMAP L4 Carbon algorithm.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.met_runtime_input_param.YYYYMMDD.rip **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_MOD_LOG	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary MODIS FPAR Preprocessor Output Log Files	This ancillary SMAP product contains MODIS Fractional Photosynthetically Active Radiation (FPAR) model log files, including model outputs.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.modis_log.YYYYMMDD.txt **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format

Data Set ID	Data Set Title	Data Set Summary	Standard SMAP Products Used In	Sub-Product File Naming Convention
SMAP_L4_C_ANC_MOD_RIP	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary MODIS Preprocessor Run Time Input Parameters	This ancillary SMAP product contains MODIS Fractional Photosynthetically Active Radiation (FPAR) model configurations, including model inputs.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.modis_runtime_input_param.YYYYMMDD.zip **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_C_ANC_PARAM	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Parameters	This ancillary SMAP product contains assorted static ancillary parameters, such as reference grids and land cover classifications, also referred to as Plant Function Type (PFT) maps.	SPL4CDML	**File Names:** SPL4C_Vv5040_SMAP_L4_C.Ancillary.h5 SPL4C_Vv5040_SMAP_L4_C.Ancillary.h5
SMAP_L4_C_ANC_SOC_RST	Soil Moisture Active Passive (SMAP) L4 Carbon Ancillary Soil Organic Carbon Restart File	This ancillary SMAP product contains the yearly soil organic carbon (SOC) restart files. These files contain the area density of SOC at the start of the year, which is used to calculate daily SOC based on defined deposition and decay rates.	SPL4CDML	**Generic File Name:** SPL4C_[Version]_SMAP_L4_C.SOC.YYYYMMDD.h5 **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_SM_ANC_CAT_TILE	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary Catchment Model Tile Space	This ancillary SMAP product contains tile information for the NASA Land Data Assimilation System (LDAS) Catchment model, including center-of-mass latitude/longitude, minimum/maximum latitude/longitude, and the land area fraction of tiles.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version]_ldas_[tilecoord | domain| tilegrids].txt **File Naming Convention:** [Version] - Science Version ID [tilecoord | domain| tilegrids] – tilecoord indicates the file contains IDs, latitude and longitude coordinates, and tile area; domain indicates the file lists IDs of the tiles in the model domain; tilegrids provides additional tilegrid information
SMAP_L4_SM_ANC_CLIM	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary Climatology Files	This ancillary SMAP product contains a static soil moisture climatology data set. Specifically, this data set includes root zone and profile soil moisture climatology files for percentile conversion and post-processing of Land Data Assimilation Systems (LDAS) output.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version].clim_sm_wetness_EASEv2_M09.nc4 **File Naming Convention:** [Version] - Science Version ID
SMAP_L4_SM_ANC_LOG	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary Output Log Files	This ancillary SMAP product includes Land Data Assimilation Systems (LDAS) Catchment model log files, including model outputs.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version].ldas_[obslog | log].YYYYMMDD_0000z.txt **File Naming Convention:** [Version] - Science Version ID YYYYMMDD - Date in year-month-day format
SMAP_L4_SM_ANC_PARAM	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary LDAS Parameters Files	This ancillary SMAP product contains three dynamic Land Data Assimilation Systems (LDAS) data sets. These data sets include Brightness Temperature (TB) scaling parameters; catchment model parameters such as topographic statistics, soil texture, and soil hydraulic parameters; and LDAS L-band microwave radiative transfer model parameters.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version].L1C_zscore_stats_[A | D]_p##.bin SPL4SM_[Version].ldas_catparam _0000z.bin SPL4SM_[Version].ldas_mwRTMparam.0000z.nc4 **File Naming Convention:** [Version] - Science Version ID [A | D] - Ascending (A) or Descending (D) p## - pentad of year (e.g. p02 = Jan 6-10) YYYYMMDD - Date in year-month-day format
SMAP_L4_SM_ANC_RIP	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary Run Time Input Parameters	This ancillary SMAP product contains Land Data Assimilation Systems (LDAS) model configurations, including model inputs.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version].ldas_<???>.YYYYMMDD_0000z.nml **File Naming Convention:** [Version] - Science Version ID <???> - ??? (LDAS, ensprop_inputs, ensupd_inputs, catbias_inputs)

SMAP_L4_SM_ANC_RST	Soil Moisture Active Passive (SMAP) L4 Soil Moisture Ancillary Restart Files	This ancillary SMAP product contains static restart files for the Land Data Assimilation Systems (LDAS) Catchment model. This product includes prognostic variables for both the catchment model and perturbations model.	SPL4SMGP, SPL4SMAU, SPL4SMLM	**Generic File Name:** SPL4SM_[Version].ens####.<???>__rst.YYYYMMDD_0000z.nc4 **File Naming Convention:** [Version] - Science Version ID <???> - ??? (catch_internal, landpert_internal, vegdyn_internal] - Indicates to which model the restart file is associated vegdyn_internal files also available in .xml format YYYYMMDD - Date in year-month-day format