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TECHNICAL NOTE

ESA EO Operations Framework (EOF) – CSC - Copernicus Sentinel Auxiliary Data Portfolio

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APPROVAL

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CHANGE LOG

Reason for change	Issue Nr.	Revision Number	Date
First Issue	1	0	Jan. 2021
Updates to align with ICDs, Data Flow and data distribution policy	1	1	Oct. 2023
Alignment with S5P Auxiliary distribution setup	1	2	Oct. 2023
Addition of AUX_ML2 and AUX_COMB	1	3	Feb. 2024
Alignment with data flows and addition of new files	1	4	Mar. 2024
Addition of new Sentinel-1 AIS AUX and Sentinel-5P AUX files; Implementation of Checkpoint comments	1	5	Oct. 2024

CHANGE RECORD

Issue Number 1	Revision Number 0		
Reason for change	Date	Pages	Paragraph(s)
First Issue	Jan. 2021		

Issue Number 1	Revision Number 1		
Reason for change	Date	Pages	Paragraph(s)

Addition of “Restricted” access and “Distribution” columns for all tables	Oct. 2023	Multiple	Tables 2-1, 3-1, 4-1, 5-1
Sentinel-1: - Addition of AUX_SCF and AUX_ITC ETAD - Addition of AUX_TRO and AUX_TEC - Addition of AUX_OBMEMC, TLM and REP Auxiliary files - Removal of S1 POD Files (moved to section 6) - Removal of FOS Predicted Orbit Files	Oct. 2023	10	Table 2-1
Sentinel-2: - Addition of AUX CAMS Files - Removal of S2 POD Files (moved to section 6)	Oct. 2023	14	Table 3-1
Sentinel-3: - Addition of SR_2_POT_AX - Addition of SRAL Sea-ice concentration AUX files - Removal of S3 POD Files (moved to section 6) - Removal of IERS Bulletin AUX files - Removal of all GN* AUX files	Oct. 2023	22	Table 4-1
Sentinel-5P: - Addition of L2__FRESCO as AUX restricted files - Addition of new VIIRS_CP, VIIRS_DCOMP and VIIRS_CTH AUX file types - Update of packaging format for VIIRS_CM files	Oct. 2023	25	Table 5-1
Update of GNSS ADF Table to POD Table for the inclusion of all POD ADF	Oct. 2023	26	Table 6-1

Issue Number 1	Revision Number 2		
Reason for change	Date	Pages	Paragraph(s)
Sentinel-5P update for AUX_BG* files	Oct. 2023	25	Table 5-1

Issue Number 1	Revision Number 3		
Reason for change	Date	Pages	Paragraph(s)
Addition of AUX_ML2	Feb. 2024	8	Table 2-1
Addition of AUX_COMB POD Auxiliary Data Files	Feb. 2024	26	Table 6-1

Issue Number 1	Revision Number 4		
Reason for change	Date	Pages	Paragraph(s)
Addition of Sentinel-1 ETAD file types	Mar. 2024	8	Table 2-1
Removal of AUX_RESATT	Mar. 2024	8	Table 2-1



Addition of Sentinel-3 SRAL SR_2_ICT{N,S}AX	Mar. 2024	17	Table 4-1
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Issue Number 1	Revision Number 5		
Reason for change	Date	Pages	Paragraph(s)
Addition of Sentinel-1 AISAUX	Oct. 2024	10	Table 2-1
Addition of Sentinel-5P AUX_O3PPWL and CFG_L2_CMR	Oct. 2024	23	Table 5-1
Update of AUX_MET_2D, AUX_MET_QP and AUX_MET_TP products format	Oct. 2024	23	Table 5-1



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1 INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to list the Auxiliary data managed as part of the CSC Ground Segment for all Sentinel missions. It also indicates which Auxiliary Data Files are to be distributed via the Copernicus Data Access Service and whether access to these will be restricted or not.

1.2 Reference Documents

ID	Document Reference	Document Title
[RD-1]	S1-RS-MDA-52-7443	Sentinel-1 IPF Auxiliary Product Specification
[RD-2]	S2-PDGS-TAS-DI-PSD	Sentinel-2 Products Specification Document
[RD-3]	S3IPF.PDS.001	Sentinel-3 Product Data Format Specification - Level 0 Products
[RD-4]	S3IPF.PDS.002	Product Data Format Specification - Product Structures
[RD-5]	GMES-GSEG-EOPG-FS-10-0075	Sentinels POD Service File Format Specifications
[RD-6]	ESA-EOPG-EOPGC-TN-58	Copernicus Ground Segment Sentinels Data Flow Configuration

Table 1-1 – Reference Documents

1.3 Acronyms and Abbreviations

Acronym	Description
ADF	Auxiliary Data Files
ADGS	Auxiliary Data Gathering Service
AUX	Auxiliary
CSC	Copernicus Space Component
DA	Data Access
ECMWF	European Centre for Medium-Range Weather Forecasts
FOS	Flight Operation Segment
GNSS	Global Navigation Satellite System
GS	Ground Segment
ICD	Interface Control Document
IERS	International Earth Rotation Service
KNMI	Koninklijk Nederlands Meteorologisch Instituut (Royal Dutch Meteorological Institute)
MPC	Mission Performance Cluster
MSSL	Mullard Space Science Laboratory
NetCDF	Network Common Data Format
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NRT	Near Real Time
NTC	Non-Time Critical
OSV	Orbit State Vectors
PDGS	Payload Data Ground Segment
(C)POD	(Copernicus) Precise Orbit Determination
SALP	Service d'Altimétrie et Localisation Précise (Altimetry and Precise Positioning Service)
STC	Short-Time Critical

Table 1-2 – Acronyms and Abbreviations

2 SENTINEL-1 AUXILIARY DATA

Product Type	Auxiliary Data	Description	Frequency	Restricted	For Distribution
S[1..6]_ETA__AX ¹	Ancillary	Extended Time Annotation Products SAR SM Level A		NO	YES
EW_ETA__AX	Ancillary	Extended Time Annotation Products SAR EW Level A		NO	YES
IW_ETA__AX	Ancillary	Extended Time Annotation Products SAR IW Level A		NO	YES
AUX_ML2	L2 Machine Learning Models	L2 Machine Learning Models	On a need basis (typically less than 5 per year)	NO	YES
AUX_PP1	L1 Processor Parameter	The Processor Parameters Auxiliary Data contains parameters and options for configuring the L1 processing.	On a need basis (typically less than 5 per year)	NO	YES
AUX_CAL	Calibration	The Calibration Auxiliary Data contains parameters used to correct and calibrate the imagery during processing.	On a need basis (typically less than 5 per year)	NO	YES
AUX_INS	Instrument	The Instrument Auxiliary Data contains information about the SAR instrument that is required for image processing.	On a need basis (typically less than 5 per year)	NO	YES
AUX_PP2	L2 Processor Parameter	The Processor Parameters Auxiliary Data contains parameters and options for configuring the L2 processing.	On a need basis (typically less than 5 per year)	NO	YES

¹ Note: for SM (Strip-Map) mode the product type code S[1..6]_<Type> means that there are six different codes one per each number (e.g.: S[1..6]_ETA__AX: S1_ETA__AX, S2_ETA__AX, S3_ETA__AX, S4_ETA__AX, S5_ETA__AX and S6_ETA__AX)

Product Type	Auxiliary Data	Description	Frequency	Restricted	For Distribution
AUX_SCS	Simulated Cross Spectra	The OSW processing algorithm requires a lookup table to predict the modulation transfer function (MTF) and to remove non- linear effects from the cross spectra.		NO	YES
AUX_TRO	ECMWF Tropospheric model	Tropospheric model Auxiliary Data		YES	YES
AUX_TEC	IGS Ionospheric model	Ionospheric model Auxiliary Data		YES	YES
AUX_SCF	L1 SETAP	L1 SETAP configuration file controlling the dynamic behaviour of the SETAP processor		YES	YES
AUX_ITC	L1 SETAP	L1 SETAP configuration file holding instrument timing calibration data		YES	YES
AUX_WND	ECMWF Atmospheric Model	The ECMWF atmospheric model provides wind speed and direction at 10 m above the sea surface.		YES	YES
AUX_WAV	WAVEWATCH III MODEL	The Wavewatch III model provides surface stockes drift velocity and direction necessary for the interpretation of the RVL component of the L2 OCN product.		YES	YES
AUX_ICE	Sea Ice Data	Sea ice auxiliary data is used to estimate the percentage of the image covered by ice. Used to process the OWI component of the L2 OCN products.		YES	YES
AMH_ERRMAT AMV_ERRMAT	Excitation Coefficients Error Matrix	Excitation coefficients error matrix auxiliary data is used to derive accurate Doppler estimation using an antenna		YES	YES

Product Type	Auxiliary Data	Description	Frequency	Restricted	For Distribution
		model for the RVL component of the L2 OCN product.			
AISAUX	Automatic Identification System	Automatic Identification System auxiliary product		YES	YES
AUX_OBMEMC		On-Board Memory Configuration Update		n/a	NO
TLM_REQ_A TLM_REQ_B TLM_REQ_C TLM_REQ_D TLM_REQ_E TLM_REQ_F	Telemetry	EDAS telemetry extraction files for prototype RVL production		n/a	NO
REP_MACP_	Manoeuvre Planning	Manoeuvre Acceleration Profile File (Manoeuvre History File		n/a	NO
REP__MCSF_	Manoeuvre Planning	Manoeuvre Calibration Scale Factor File		n/a	NO
REP__SMPR_	Manoeuvre Planning	Satellite Mass Properties Report		n/a	NO

Table 2-1 – Sentinel-1 Auxiliary Data List

3 SENTINEL-2 AUXILIARY DATA

Product Type	Data Provider	Description	Band-ID Discriminator ²	Restricted	For Distribution
AUX_ECMWFD	ECMWF	Auxiliary Data File which contains weather forecast parameters for 3 geophysical variables: total column ozone, total column water vapour and mean sea level pressure. (GRIB format)		YES	YES
AUX_UT1UTC	IERS	The International Earth Rotation Service (IERS) Bulletin A, which contains rapid determinations for earth orientation parameters (Earth orientation parameters x/y pole, UT1-UTC and their errors).		NO	YES
AUX_CAMSFO		Copernicus CAMS 'Forecast' Dataset with a sub-selection of 10 geophysical variables		YES	YES
AUX_CAMSAN		Copernicus CAMS 'Analysis' Dataset		YES	YES
AUX_CAMSRE		Copernicus CAMS 'Re-analysis' Dataset		YES	YES
GIP_ATMIMA	Cal/Val (MPC)	IAS AnaTm image parameters file (Type_1)		NO	YES
GIP_ATMSAD	Cal/Val (MPC)	IAS AnaTm image parameters file (Type_1)		NO	YES
GIP_DATATI	Cal/Val (MPC)	IAS Datation parameters file (Type_1)		NO	YES
GIP_LREXTR	Cal/Val (MPC)	LR Extraction parameters file (Type_1)		NO	YES
GIP_INVLOC	Cal/Val (MPC)	InitLoc Inv parameters file (Type_1)		NO	YES
GIP_VIEDIR	Cal/Val (MPC)	Pixel line of sight for each bands in the focal plane reference frame (Type_1)	X	NO	YES

² Refers to Sentinel-2 Product Data Items which are separated by spectral band (i.e. one product type per spectral band).

GIP_SPAMOD	Cal/Val (MPC)	Platform model (Type_1)		NO	YES
GIP_BLINDP	Cal/Val (MPC)	List of blind pixels (Type_1)		NO	YES
GIP_CLOINV	Cal/Val (MPC)	CloudInv parameter file (Type_1)		NO	YES
GIP_CLOPAR	Cal/Val (MPC)	Cloud mask file		NO	YES
GIP_PRDLOC	Cal/Val (MPC)	InitLoc production parameters file (Type_1)		NO	YES
GIP_R2PARA	Cal/Val (MPC)	RadioS2 parameters file (Type_1)		NO	YES
GIP_R2SWIR	Cal/Val (MPC)	SWIR detectors arrangement parameters (Type_1)		NO	YES
GIP_R2EQOG	Cal/Val (MPC)	Radiometric equalization parameters on ground (on-ground correction) (Type_1)	X	NO	YES
GIP_R2DEPI	Cal/Val (MPC)	List of defective pixels (Type_1)		NO	YES
GIP_R2DEFI	Cal/Val (MPC)	Deconvolution filter for each deconvoluted band (Type_1)	X	NO	YES
GIP_R2WAFI	Cal/Val (MPC)	Wavelets filters (Type_1)	X	NO	YES
GIP_R2L2NC	Cal/Val (MPC)	L2 Norm coefficients (denoising) (Type_1)	X	NO	YES
GIP_R2DENT	Cal/Val (MPC)	Denoising thresholds (denoising) (Type_1)	X	NO	YES
GIP_R2DECT	Cal/Val (MPC)	Threshold file for deconvolution through wavelet Packets (Type_1)	X	NO	YES
GIP_R2NOMO	Cal/Val (MPC)	Noise model (denoising) (Type_1)		NO	YES
GIP_R2ABCA	Cal/Val (MPC)	Absolute calibration parameters		NO	YES

		(Type_1)			
GIP_R2BINN	Cal/Val (MPC)	Binning for 60m bands parameters (filters and undersampling) (Type_1)		NO	YES
GIP_R2CRCO	Cal/Val (MPC)	Crosstalk correction (Type_1)		NO	YES
GIP_G2PARA	Cal/Val (MPC)	GeoS2 parameters file (preProc) (Type_1)		NO	YES
GIP_G2PARE	Cal/Val (MPC)	Geometric parameter to refine (Type_1)		NO	YES
GIP_EARMOD	Cal/Val (MPC)	Earth model (Type_1)		NO	YES
GIP_GEOPAR	Cal/Val (MPC)	Global geometrical parameters (Type_1)		NO	YES
GIP_INTDET	Cal/Val (MPC)	Description of the inter detectors overlapping area (Type_1)		NO	YES
GIP_TILPAR	Cal/Val (MPC)	TilingS2 parameters file (Type_1)		NO	YES
GIP_RESPAR	Cal/Val (MPC)	ResampleS2 parameters file (preProc) (Type_1)		NO	YES
GIP_MASPAR	Cal/Val (MPC)	MaskS2 parameters file (Type_1)		NO	YES
GIP_JP2KPA	Cal/Val (MPC)	Compression JP2K parameters file (Type_2)		NO	YES
GIP_ECMWFP	Cal/Val (MPC)	ECMWF parameters file (Type_2)		NO	YES
GIP_DECOMP	Cal/Val (MPC)	On board decompression parameters file (Type_2)		NO	YES
GIP_OLQCPA	Cal/Val (MPC)	OLQC configuration parameters file (Type_2)		NO	YES
GIP_PROBAS	Cal/Val (MPC)	Processing Baseline parameters (Type_2)		YES	YES

GIP_CONVER	Cal/Val (MPC)	Mapping parameters from 16 to 18 bits (Type_2)		NO	YES
GIP_R2EOB2	Cal/Val (MPC)	Radiometric equalization parameters on board (dark current, on-board inter pixel calibration) (Type_3)	X	NO	YES
GIP_L2ACAC	Cal/Val (MPC)	Calibration parameter for the atmospheric correction algorithm		NO	YES
GIP_L2ACSC	Cal/Val (MPC)	Calibration parameter for the scene classification algorithm		NO	YES
GIP_PROBA2	Cal/Val (MPC)	Processing baseline identifier of the generated L2A products		YES	YES
GIP_HRTPAR	Cal/Val (MPC)	To configure a high or low resolution for the processing		NO	YES
AUX_GRIXXX	Cal/Val (MPC)	Global Reference Image provided to the Sentinel-2 operational processor, for the Level-1B product generation		n/a	NO

Table 3-1 – Sentinel-2 Auxiliary Data List

4 SENTINEL-3 AUXILIARY DATA

Product Type	Data Provider	Description	Restricted	For Distribution
AUX_PRLPTF	POD	Preliminary Platform Data for Sentinel-3	n/a	NO
AX___MF1_AX	ECMWF	ECMWF Meteorological Data (Forecast) FC SFC and FC PL in GRIB1 format	YES	YES
AX___MFA_AX	ECMWF	ECMWF meteo forecast data in GRIB1 format complementary to analysis data - FC SFC parameter	YES	YES
AX___MA1_AX	ECMWF	ECMWF Meteorological Data (Analysis) AN SFC + PL in GRIB1 format	YES	YES
AX___MF2_AX	ECMWF	ECMWF Meteorological Data (Forecast) FC ML in GRIB2 format	YES	YES
AX___MA2_AX	ECMWF	ECMWF Meteorological Data (Analysis) AN ML in GRIB2 format	YES	YES
AX___OSF_AX	Mission Planning	Reference Orbit Scenario File	n/a	NO
AX___FPO_AX	FOS	FOS Orbit File (Predicted)	n/a	NO
AX___FRO_AX	FOS	FOS Orbit File (Restituted)	n/a	NO
AX___DEM_AX	Cal/Val (MPC)	Digital Elevation Model (GETASSE30V2, 288 files)	n/a	NO
AX___LWM_AX	Cal/Val (MPC)	Land/Water Mask file	n/a	NO
AX___OOM_AX	Cal/Val (MPC)	Open Ocean Mask file	n/a	NO
AX___CLM_AX	Cal/Val (MPC)	Coastline Mask file	n/a	NO
AX___TRM_AX	Cal/Val (MPC)	Tidal Regions Mask file	n/a	NO
AX___CST_AX	Cal/Val (MPC)	Universal Constants File	n/a	NO
SR___CHD{N,R}AX	Cal/Val (MPC)	SRAL instrumental characterization data (Nominal, Redundant)	n/a	NO
SR_1_CONMAX	Cal/Val (MPC)	SRAL Configuration Data File - L1 processor	n/a	NO
SR_1_CONCAX	Cal/Val (MPC)	SRAL Configuration Data File - L1 CAL processor	n/a	NO
SR_2_CON_AX	Cal/Val (MPC)	SRAL Configuration Data File - L2 processor	n/a	NO
SR___LSM_AX	Cal/Val (MPC)	SRAL Land/Sea Mask	n/a	NO
SR_2_IC[01..10]AX	Cal/Val (MPC)	SRAL Modelled instrumental corrections (10 files)	n/a	NO
SR_2_EOT{1,2}AX	Cal/Val (MPC)	SRAL Coefficients map for the diurnal and semi-diurnal elastic ocean tide calculation	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SR_2_LT{1,2}_AX	Cal/Val (MPC)	SRAL Coefficients map for the tidal loading effect calculation	n/a	NO
SR_2_LNEQAX	Cal/Val (MPC)	SRAL Coefficients map for long period ocean tide calculation	n/a	NO
SR_2_GEO_AX	Cal/Val (MPC)	SRAL Geoid height map	n/a	NO
SR_2_MSS1AX	Cal/Val (MPC)	SRAL Mean sea surface height map (solution 1)	n/a	NO
SR_2_MSS2AX	Cal/Val (MPC)	SRAL Mean sea surface height map (solution 2)	n/a	NO
SR_2_ODLEAX	Cal/Val (MPC)	SRAL Bathymetry/topography map	n/a	NO
SR_2_POT_AX	Cal/Val (MPC)	SRAL Polar tide harmonic coefficients	n/a	NO
SR_2_WNDLAX	Cal/Val (MPC)	SRAL Wind table LRM mode	n/a	NO
SR_2_WNDSAX	Cal/Val (MPC)	SRAL Wind table SAR mode	n/a	NO
SR_2_SIGLAX	Cal/Val (MPC)	SRAL Expected Ku-band Sigmao table (LRM)	n/a	NO
SR_2_SIGSAX	Cal/Val (MPC)	SRAL Expected Ku-band Sigmao table (SAR)	n/a	NO
SR_2_SET_AX	Cal/Val (MPC)	SRAL Cartwright and Edden tide potential amplitudes for the solid earth tide and the equilibrium long period ocean tide height calculation	n/a	NO
SR_2_SSM_AX	Cal/Val (MPC)	Surface slopes models	n/a	NO
SR_2_MSMGAX	Cal/Val (MPC)	SRAL Map of the slopes of the MSS/geoid with respect to the ellipsoid	n/a	NO
SR_2_CP{00,06,12,18}AX	Cal/Val (MPC)	SRAL Climatological pressure grids (4 files)	n/a	NO
SR_2_S{1,2}AMAX	Cal/Val (MPC)	SRAL S1 and S2 tide grids of monthly means of global amplitude (2 files)	n/a	NO
SR_2_S{1,2}PHAX	Cal/Val (MPC)	SRAL S1 and S2 tide grids of monthly means of global phase (2 files)	n/a	NO
SR_2_MDT_AX	Cal/Val (MPC)	SRAL Mean Dynamic Topography height map	n/a	NO
SR_2_SHD_AX	Cal/Val (MPC)	SRAL Theoretical distance to shore	n/a	NO
SR_2_SSBLAX	Cal/Val (MPC)	SRAL SSB correction table (LRM)	n/a	NO
SR_2_SSBSAX	Cal/Val (MPC)	SRAL SSB correction table (SAR)	n/a	NO
SR_2_SD[01..12]AX	Cal/Val (MPC)	SRAL Snow depth climatology (12 files containing gridded snow depth: one for each calendar month of the year)	n/a	NO
SR_2_SI[01..12]AX	Cal/Val (MPC)	SRAL Sea-ice concentration climatology (12 files, monthly medium ice concentration)	n/a	NO
SR_2_SST_AX	Cal/Val (MPC)	SRAL Sea surface temperature seasonal tables	n/a	NO
SR_2_LRC_AX	Cal/Val (MPC)	SRAL Lapse rate climatology table	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SR_2_SFL_AX	Cal/Val (MPC)	SRAL Seasonal freezing level table	n/a	NO
SR_2_FLT_AX	Cal/Val (MPC)	SRAL Freezing level table	n/a	NO
SR_2_RRC_AX	Cal/Val (MPC)	SRAL Rain rate correction table	n/a	NO
SR_2_CCT_AX	Cal/Val (MPC)	SRAL Coastal configuration type	n/a	NO
SR_2_SURFAX	Cal/Val (MPC)	SRAL Surface classification mask	n/a	NO
SR_2_RET_AX	Cal/Val (MPC)	SRAL Default stack weights	n/a	NO
SR_2_MLM_AX	Cal/Val (MPC)	SRAL Marine/Land Mask	n/a	NO
SR_2_MAG_AX	Cal/Val (MPC)	SRAL Meteo Altimeter Gaussian Grid	n/a	NO
SR_2_LUTFAX	Cal/Val (MPC)	Look-up Table for the fo function (SAMOSA retracking)	n/a	NO
SR_2_LUTEAX	Cal/Val (MPC)	Look-up Table for the Epoch parameter (SAMOSA retracking)	n/a	NO
SR_2_LUTSAX	Cal/Val (MPC)	Look-up Table for the SWH parameter (SAMOSA retracking)	n/a	NO
SR_1_CA{1L,1S,2K,2C}AX	SR1CAL IPF	SRAL Internal calibration Long Term Monitoring parameters (4 files): • CAL1_LRM_LTM • CAL1_SAR_LTM • CAL2_Ku_LTM • CAL2_C_LTM	YES	YES
MW_1_{NIR,DNB,MON}_AX	MW1CAL IPF	MWR Internal calibration and Monitoring Long Term Monitoring parameters (3 files): • MWR_CAL_NIR_LTM • MWR_CAL_DNB_LTM • MWR_MON_LTM	YES	YES
SL_1_VSC_AX	SLSTR L1 IPF	SLSTR VISCAL Data file	YES	YES
SR__MGNPAX	OFL POD	Medium Orbit Ephemerides (MOE) Orbit File	YES	YES
SR__POEPAX	OFL POD	Precise Orbit Ephemerides (POE) Orbit File	YES	YES
SR_2_PMPPAX	OFL POD	Preliminary Platform Files from POD	YES	YES
SR_2_PCPPAX	OFL POD	Precise Platform Files from POD	YES	YES
SR__POESAX	SALP	NTC Precise orbit file (computed with DORIS, GNSS and laser data)	YES	YES
SR_2_PMPSAX	SALP	Preliminary Platform files (from SALP)	YES	YES
SR_2_RMO_AX	SALP	SRAL Preliminary Ocean barotropic correction (MOG2D data)	YES	YES
SR_2_PMO_AX	SALP	SRAL Precise Ocean barotropic correction (MOG2D data)	YES	YES

Product Type	Data Provider	Description	Restricted	For Distribution
SR_2_POL_AX	SALP	SRAL Pole location	YES	YES
SR_2_PGI_AX	SALP	SRAL Along-track ionospheric data (GIM) (for NRT processing)	YES	YES
SR_2_RGI_AX	SALP	SRAL Along-track ionospheric data (GIM) (for STC and NTC Processing)	YES	YES
SR_1_USO_AX	SALP	USO frequency	YES	YES
SR___MGNSAX	SALP	STC Expertise Preliminary orbit file (computed with GNSS data)	YES	YES
SR_2_SIC{N,S}_AX SR_2_SIF{N,S}_AX	OSISAF	SRAL Sea-ice concentration. Nominal and fastrack versions respectively.	YES	YES
SR_2_ICT{N,S}AX	OSISAF	SRAL Sea-Ice Type	YES	YES
MW_1_SLC_AX	Cal/Val (MPC)	MWR Side Lobe correction file	n/a	NO
MW___CHDNAX MW___CHDRAX	Cal/Val (MPC)	MWR instrumental characterization and calibration data (2 files): •nominal path •redundant path	n/a	NO
MW___STD_AX	Cal/Val (MPC)	MWR Satellite Temperature data file	n/a	NO
OL_1_EO_AX	Cal/Val (MPC)	OLC L1 Processing Control Parameter file in EO mode	n/a	NO
OL_1_RAC_AX	Cal/Val (MPC)	OLC L1 Processing Control Parameter file in RC mode	n/a	NO
OL_1_SPC_AX	Cal/Val (MPC)	OLC L1 Processing Control Parameter file in SC mode	n/a	NO
OL_1_CLUTAX	Cal/Val (MPC)	OLCI Classification thresholds LUTs file	n/a	NO
OL_1_INS_AX	Cal/Val (MPC)	OLCI Characterisation and Models Data file	n/a	NO
OL_1_CAL_AX	Cal/Val (MPC)	OLCI Calibration Data file	n/a	NO
OL_1_PRG_AX	Cal/Val (MPC)	OLCI Programmation Data file	n/a	NO
OL_2_PCP_AX	Cal/Val (MPC)	OLCI L2 Processing Control Parameters file	n/a	NO
OL_2_PPP_AX	Cal/Val (MPC)	OLCI Pre Processing data file	n/a	NO
OL_2_CLP_AX	Cal/Val (MPC)	OLCI Climatology Data file	n/a	NO
OL_2_WVP_AX	Cal/Val (MPC)	OLCI Water Vapour Parameters data file	n/a	NO
OL_2_ACP_AX	Cal/Val (MPC)	OLCI Atmospheric Correction Parameters file	n/a	NO
OL_2_OCP_AX	Cal/Val (MPC)	OLCI Ocean Colour Processing Parameters file	n/a	NO
OL_2_VGP_AX	Cal/Val (MPC)	OLCI Vegetation Processing Parameters file	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SL_1_PCP_AX	Cal/Val (MPC)	SLSTR Processing Control Parameter File	n/a	NO
SL_1_ANC_AX	Cal/Val (MPC)	SLSTR Ancillary data file	n/a	NO
SL_1_N_S1AX SL_1_N_S2AX SL_1_N_S3AX SL_1_O_S1AX SL_1_O_S2AX SL_1_O_S3AX SL_1_NAS4AX SL_1_NAS5AX SL_1_NAS6AX SL_1_NBS4AX SL_1_NBS5AX SL_1_NBS6AX SL_1_OAS4AX SL_1_OAS5AX SL_1_OAS6AX SL_1_OBS4AX SL_1_OBS5AX SL_1_OBS6AX	Cal/Val (MPC)	SLSTR Visible and shortwave infrared (Visible-SWIR) characterisation data file (18 files)	n/a	NO
SL_1_N_S7AX SL_1_N_S8AX SL_1_N_S9AX SL_1_N_F1AX SL_1_N_F2AX SL_1_O_S7AX SL_1_O_S8AX SL_1_O_S9AX SL_1_O_F1AX SL_1_O_F2AX	Cal/Val (MPC)	SLSTR Thermal infrared (TIR) characterisation data file (10 files)	n/a	NO
SL_1_VIC_AX	Cal/Val (MPC)	SLSTR Vicarious Calibration Data File	n/a	NO
SL_1_GEO_AX	Cal/Val (MPC)	SLSTR Geometry Data file	n/a	NO
SL_1_GEC_AX	Cal/Val (MPC)	SLSTR Geometric Calibration Data File	n/a	NO
SL_1_CLO_AX	Cal/Val (MPC)	SLSTR Cloud LUT Data File	n/a	NO
SL_1_ESSTAX	Cal/Val (MPC)	Maps of the SST Uncertainties for SLSTR L1 Processing	n/a	NO
SL_2_PCP_AX	Cal/Val (MPC)	SLSTR Processing Control Parameter File	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SL_2_S6N_AX	Cal/Val (MPC)	SLSTR S6 nadir shortwave infrared noise dataset	n/a	NO
SL_2_S7N_AX	Cal/Val (MPC)	SLSTR S7 nadir TIR noise dataset	n/a	NO
SL_2_S8N_AX	Cal/Val (MPC)	SLSTR S8 nadir TIR noise dataset	n/a	NO
SL_2_S9N_AX	Cal/Val (MPC)	SLSTR S9 nadir TIR noise dataset	n/a	NO
SL_2_F1N_AX	Cal/Val (MPC)	SLSTR F1 nadir TIR noise dataset	n/a	NO
SL_2_F2N_AX	Cal/Val (MPC)	SLSTR F2 nadir TIR noise dataset	n/a	NO
SL_2_S7O_AX	Cal/Val (MPC)	SLSTR S7 oblique TIR noise dataset	n/a	NO
SL_2_S8O_AX	Cal/Val (MPC)	SLSTR S8 oblique TIR noise dataset	n/a	NO
SL_2_S9O_AX	Cal/Val (MPC)	SLSTR S9 oblique TIR noise dataset	n/a	NO
SL_2_N2_CAX	Cal/Val (MPC)	SLSTR N2 SST coefficients file	n/a	NO
SL_2_N3RCAX	Cal/Val (MPC)	SLSTR N3R SST coefficients file	n/a	NO
SL_2_N3_CAX	Cal/Val (MPC)	SLSTR N3 SST coefficients file	n/a	NO
SL_2_D2_CAX	Cal/Val (MPC)	SLSTR D2 SST coefficients file	n/a	NO
SL_2_D3_CAX	Cal/Val (MPC)	SLSTR D3 SST coefficients file	n/a	NO
SL_2_SST_AX	Cal/Val (MPC)	SLSTR L2P SST algorithms data file	n/a	NO
SL_2_SDI3AX	Cal/Val (MPC)	SLSTR SDI3 Saharan dust index coefficients aux file	n/a	NO
SL_2_SDI2AX	Cal/Val (MPC)	SLSTR SDI2 Saharan dust index coefficients aux file	n/a	NO
SL_2_SSESAX	Cal/Val (MPC)	SLSTR L2P SSES data file	n/a	NO
SL_2_LSTCAX	Cal/Val (MPC)	SLSTR LST coefficients data file	n/a	NO
SL_2_LSTBAX	Cal/Val (MPC)	SLSTR LST biome data file	n/a	NO
SL_2_LSTVAX	Cal/Val (MPC)	SLSTR LST vegetation fraction data file	n/a	NO
SL_2_LSTWAX	Cal/Val (MPC)	SLSTR LST water vapour data file	n/a	NO
SL_2_LSTEAX	Cal/Val (MPC)	SLSTR LST error data file	n/a	NO
SL_2_FRPTAX	Cal/Val (MPC)	SLSTR FRP test data file	n/a	NO
SL_2_SSTAAX	Cal/Val (MPC)	SLSTR L4 SST analysis data file	n/a	NO
SL_2_IMSCAX	Cal/Val (MPC)	SLSTR LST static snow data file. It is a NetCDF file in SEN3 format	n/a	NO
SL_2_DIMSAX	NOAA	SLSTR LST dynamic snow, daily Map file	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SR_2_NRPPAX	NRT POD	S3 Attitude output product	n/a	NO
OL_1_MCHDAX	Cal/Val (MPC)	OLCI Inter-channel Misregistration Characterization Data File	n/a	NO
SL_1_MCHDAX	Cal/Val (MPC)	SLSTR Inter-channel Misregistration Characterization Data File	n/a	NO
SY_1_PCP_AX	Cal/Val (MPC)	SYN L1 Processing control parameter file	n/a	NO
SY_1_CDIBAX	Cal/Val (MPC)	Map file of the distance to the coast	n/a	NO
SY_2_PCP_AX	Cal/Val (MPC)	SYN L2 Processing control parameter file	n/a	NO
SY_2_PCPSAX	Cal/Val (MPC)	SYN L2 VGS Processing control parameter file	n/a	NO
SY_2_RAD_AX	Cal/Val (MPC)	SYN L2 radiative transfer Simulation dataset	n/a	NO
SY_2_RADPAX	Cal/Val (MPC)	SYN VGT P radiative Transfer simulation dataset	n/a	NO
SY_2_SPCPAX	Cal/Val (MPC)	SYN VGT P spectral response function dataset	n/a	NO
SY_2_RADSAX	Cal/Val (MPC)	SYN VGT S radiative transfer Simulation dataset	n/a	NO
SY_1_GCPBAX	Cal/Val (MPC)	SYNERGY L1 Processor GCP data base	n/a	NO
SL_2_ACLMAX	Cal/Val (MPC)	SLSTR L2 NRT Aerosol Climatology Data	n/a	NO
SL_2_ART_AX	Cal/Val (MPC)	SLSTR L2 NRT Atmospheric Radiative Transfer LUT Data	n/a	NO
SL_2_OSR_AX	Cal/Val (MPC)	SLSTR L2 NRT Ocean Surface Reflectance LUT Data	n/a	NO
SL_2_PCPAAX	Cal/Val (MPC)	SLSTR L2 Processing Control Parameter	n/a	NO
SY_2_ACLMAX	Cal/Val (MPC)	SYNERGY L2 NRT Aerosol Climatology Data	n/a	NO
SY_2_ART_AX	Cal/Val (MPC)	SYNERGY L2 NTC Atmospheric Radiative Transfer LUT Data	n/a	NO
SY_2_LSR_AX	Cal/Val (MPC)	SYNERGY L2 NTC Land Spectral Reflectance LUT Data	n/a	NO
SY_2_OSR_AX	Cal/Val (MPC)	SYNERGY L2 NTC Ocean Surface Reflectance LUT Data	n/a	NO
SY_2_PCPAAX	Cal/Val (MPC)	SYNERGY L2 Processing Control Parameter	n/a	NO
SL_2_CFM_AX	Cal/Val (MPC)	SLSTR L2 Classification Fire Mask	n/a	NO
SL_2_FXPAAX	Cal/Val (MPC)	SLSTR L2 Fire channel Pixel Area	n/a	NO
SL_2_PCPFAX	Cal/Val (MPC)	SLSTR L2 Fire Radiative Power Processing Control Parameter	n/a	NO
SL_2_PLFMAX	Cal/Val (MPC)	SLSTR L2 Potential Land Fire Mask Data	n/a	NO
SL_2_SXPAAX	Cal/Val (MPC)	SLSTR L2 Thermal channels Pixel Area	n/a	NO
SL_1_IRE_AX	Cal/Val (MPC)	SLSTR L1 Input Land surface IR emissivity Data	n/a	NO

Product Type	Data Provider	Description	Restricted	For Distribution
SL_1_LCC_AX	Cal/Val (MPC)	SLSTR L1 Input Land Cloud Coefficient Data	n/a	NO
SL_1_CDP_AX	Cal/Val (MPC)	SLSTR L1 Conditional Probability LUT - Cloudy conditions Data	n/a	NO
SL_1_CLP_AX	Cal/Val (MPC)	SLSTR L1 Conditional Probability LUT - Clear conditions Data	n/a	NO
SL_1_ADJ_AX	Cal/Val (MPC)	SLSTR L1 AVHRR/SLSTR Adjustment Parameters Data	n/a	NO
SL_1_RTT_AX	Cal/Val (MPC)	SLSTR L1 RTTOV Coefficients Data	n/a	NO
SY_2_AODCAX	Cal/Val (MPC)	SYN L2 CAMS AOD climatology Data File	n/a	NO
MPL__NPPF__	EUMETSAT	Nominal Payload Planning File from MP	n/a	NO
MPL_DNPPF	EUMETSAT	Delta Nominal Payload Planning File from MP	n/a	NO
REP__SUP__	EUMETSAT	Satellite Unavailability Reports	n/a	NO

Table 4-1 – Sentinel-3 Auxiliary Data List

5 SENTINEL-5P AUXILIARY DATA

Product Type	Data Provider	Description	Format	Restricted	For Distribution
L2__FRESCO ³	PDGS	L2 TROPOMI	NetCDF-4	YES	YES (PRIP)
CFG_L2_CMV	KNMI	CFI L2 semi-static configuration files	.tar	n/a	NO
AUX_O3PPWL	KNMI	LUT for Time-dependent Soft-calibration in Ozone Profile Processor	NetCDF-4	n/a	NO
AUX_BGHCHO	PDGS (UPAS-BC)	Background correction for HCHO product	NetCDF-4	n/a	NO
AUX_BGSO2__	PDGS (UPAS-BC)	Background correction for SO2 product	NetCDF-4	n/a	NO
AUX_BGO3__	PDGS (UPAS-BC)	Background correction for O3	NetCDF-4	n/a	NO
AUX_BGCLD__	PDGS (UPAS-BC)	Background correction for CLOUD	NetCDF-4	n/a	NO
AUX_CTMCH4	KNMI	CTM model field of CH4 for use with CO and offline CH4 retrieval (CO for NRT, and CO and CH4 for OFFL)	Full tar archive, covering 6-9 months in daily files	YES	YES (PRIP)
AUX_CTM_CO	KNMI	CTM model field of CO for use with CO and offline CH4 retrieval (CO for NRT and CO and CH4 for OFFL)	Single NetCDF-4 file, containing 12 monthly fields	YES	YES (PRIP)
AUX_CTMFCT	KNMI	CTM model field of NO2, SO2 and HCHO for use with NO2 retrieval	Tar archive with 5 days (4 day redundancy). Five files in NetCDF-4	NO	YES (PRIP)
AUX_CTMANA	KNMI	CTM model field of NO2, SO2 and HCHO for use with NO2 retrieval	Single NetCDF-4 file, covering 1 day	NO	YES (PRIP)
AUX_NISE	NASA	Snow and ice cover	HDF-EOS file format	YES	YES (PRIP)
AUX_MET_2D	ECMWF	Meteorological surface fields (wind, surface pressure, etc.)	NetCDF-4	YES	YES (PRIP)
AUX_MET_QP	ECMWF	Meteorological specific humidity profile	NetCDF-4	YES	YES (PRIP)

³ L2__FRESCO is produced and disseminated as Level-2 product by the Sentinel-5P PDGS. However, it is handled as Auxiliary data by the DA service, and therefore, it is also traced in this list of S5P Auxiliary Data.

AUX_MET_TP	ECMWF	Meteorological temperature profiles	NetCDF-4	YES	YES (PRIP)
AUX_IERS_B	IERS	This difference between UT1 and UTC is published by IERS in Bulletin B	ASCII (plain text)	n/a	NO
AUX_IERS_C	IERS	Leap second information	XML	n/a	NO
AUX_ISRF	KNMI	Instrument spectral response function file.	NetCDF-4 (*.nc)	n/a	NO
AUX_L1_CKD	KNMI	The in-flight calibration key data product	HDF5 (*.h5)	n/a	NO
AUX_O3_M	KNMI	O3 profile shape climatology	NetCDF-4 (*.nc)	n/a	NO
MPL_NPIF_	FOS	The NPIF is the output of the FOS Mission Planning System in response to the Nominal Baseline Schedule file (NPPF) provided by KNMI	TGZ contains two files, *.HDR and *.DBL	n/a	NO
MPL_SAF	FOS	The Station Availability file contains all PDGS scheduled Sentinel-5p ground station contacts	TGZ contains single *.EOF file	n/a	NO
MPL_SPF	FOS	The orbital events file is a XML file containing a list of S/C events derived from the S/C orbit history file	TGZ contains two files, *.HDR and *.DBL	n/a	NO
MPL_ORBPRES	FOS	This file contains the Orbit State Vectors (OSV) predicted by the FOS	XML file, *.EOF	n/a	NO
MPL_TLEPRE	FOS	This file contains the orbit predicted by the FOS, defined as a set of Two Line Elements	TGZ contains two files, *.HDR and *.DBL	n/a	NO
VIIRS_CM	NOAA	VIIRS Cloud Mask	.tar (containing .nc)	n/a	NO
VIIRS_L1B_GEO	NOAA	PGE302a VIIRS L1 Moderate Resolution Geolocation	compressed HDF5	n/a	NO
VIIRS_L1B_RR	NOAA	VIIRS Moderate Resolution Radiance/Reflectance Data Band 7,9,11	compressed HDF5	n/a	NO
VIIRS_CP	NOAA	VIIRS Cloud Phase EDR	.tar (containing .nc)	n/a	NO
VIIRS_DCOMP	NOAA	VIIRS Daytime Cloud Optical and Microphysical Properties	.tar (containing .nc)	n/a	NO
VIIRS_CTH	NOAA	VIIRS Cloud Top Height EDR	.tar (containing .nc)	n/a	NO

Table 5-1 – Sentinel-5P Auxiliary Data List

6 POD AUXILIARY DATA OVERVIEW

This section presents an overview of the POD auxiliary files generated for each Sentinel mission. The file naming convention, the file formats and the specifications are described in detail in [RD-5].

6.1 POD Products

Mission	Product Type	Description	Data Provider	Format	Restricted	For Distribution	Rolling Policy
Sentinel-1	AUX_RESORB	Orbit	CPOD	EOF	NO	YES	3 months
	AUX_POEORB*	Orbit	CPOD	EOF	NO	YES	-
	AUX_PREORB	Orbit	CPOD	EOF	NO	YES	3 months
	AUX_GNSSRD*	Daily GNSS L1b RINEX files	CPOD	TGZ	NO	YES	-
	AUX_PROQUA*	Quaternions	CPOD	TGZ	NO	YES	-
Sentinel-2	AUX_GNSSRD*	Daily GNSS L1b RINEX files	CPOD	TGZ	NO	YES	-
	AUX_PROQUA*	Quaternions	CPOD	TGZ	NO	YES	-
	AUX_POEORB*	Orbit	CPOD	EOF	NO	YES	-
Sentinel-3	SR__ROE_AX	Orbit	CPOD	zip	NO	YES	1 month
	AUX_MOEORB	Orbit	CPOD	EOF	NO	YES	1 month
	AUX_POEORB*	Orbit	CPOD	EOF	NO	YES	-
	AUX_PRCPTF*	Platform	CPOD	EOF	NO	YES	-
	AUX_GNSSRD*	Daily GNSS L1b RINEX files	CPOD	TGZ	NO	YES	-
	AUX_PROQUA*	Quaternions	CPOD	TGZ	NO	YES	-
	SR__MDO_AX	Orbit	CNES	TGZ	NO	YES	1 month
	SR__POE_AX*	Orbit	CNES	TGZ	NO	YES	-
	AUX_COMB*	Orbit	CPOD	sp3	NO	YES	-
Sentinel-6	AX__ROE_AX	Orbit	CPOD	tar	NO	YES	1 month
	AUX_GNSSRD*	Daily GNSS L1b RINEX files	CPOD	TGZ	NO	YES	-
	AUX_PROQUA*	Quaternions	CPOD	TGZ	NO	YES	-
	AX__MOED_AX	Orbit	CNES	tar	NO	YES	1 month

	AX____POE__AX*	Orbit	CNES	tar	NO	YES	-
	AUX_COMB*	Orbit	CPOD	sp3	NO	YES	-

Table 6-1 – POD Auxiliary Data Files Overview

* Products marked with (*) represent POD Auxiliary Data Files that need to be published since Beginning of Mission.