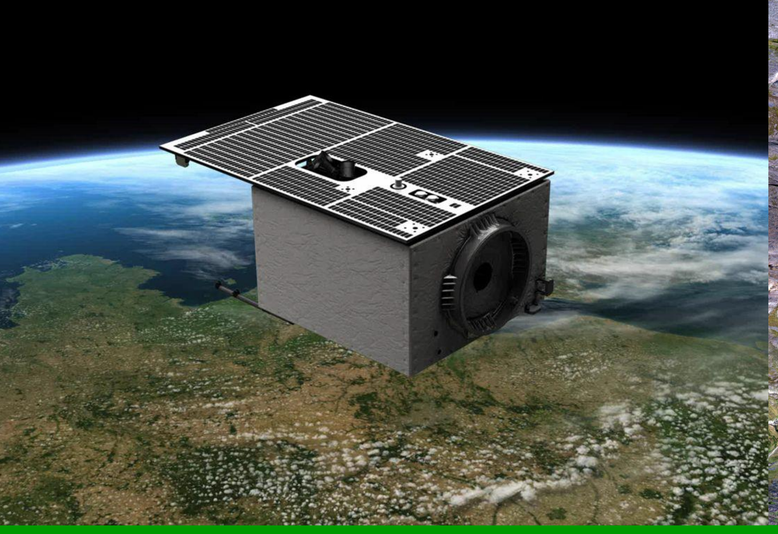
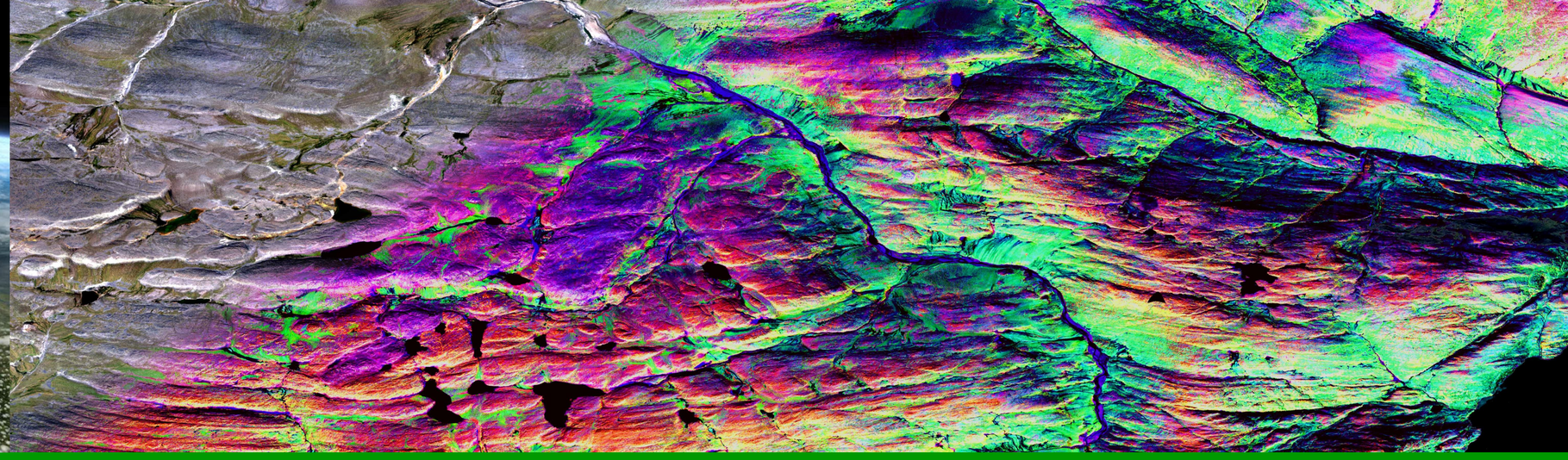


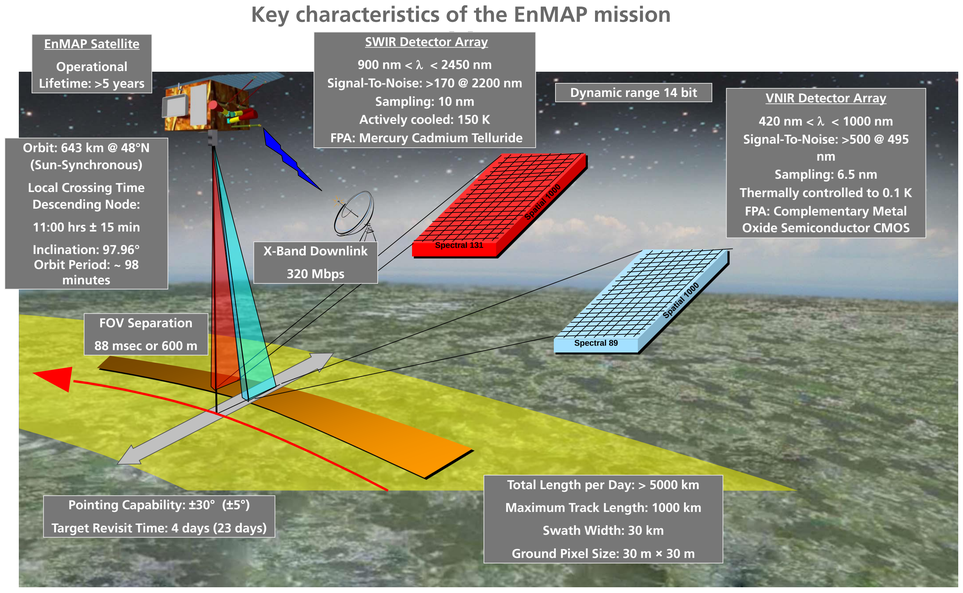


DLR – EOC
Earth Observation Center

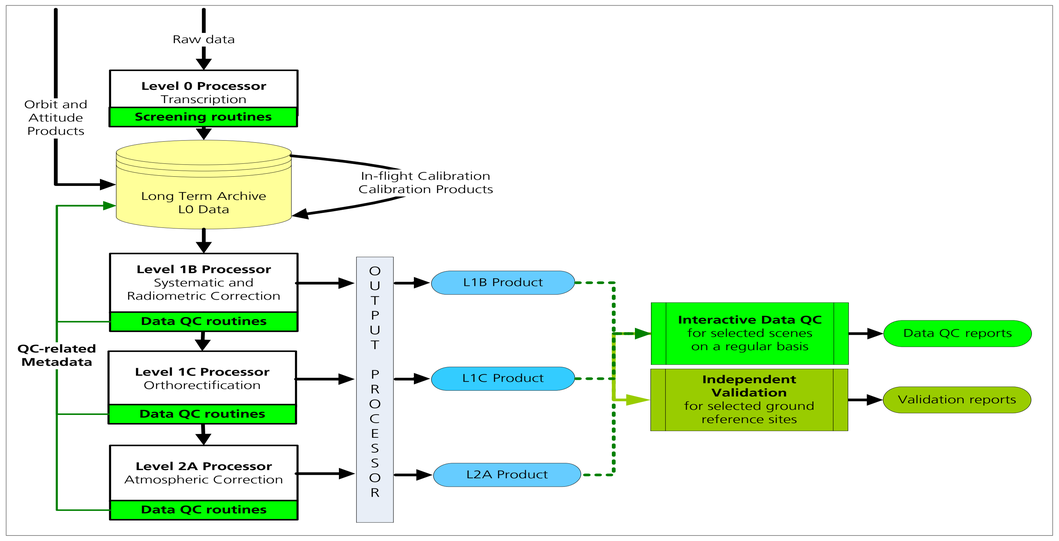
A new German Hyperspectral Mission EnMAP: Image Products

Palubinskas G., Alonso K., Bachmann M., Carmona E., De los Reyes R., Gerasch B. , Krawczyk, H. , Langheinrich M., Pato, M., Schneider M., Schwind P.

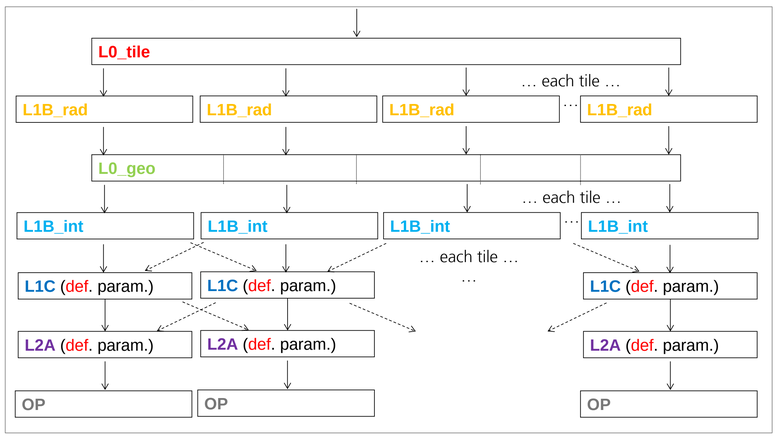
Key characteristics of the EnMAP mission



General processing chain and DataQC integration [2]



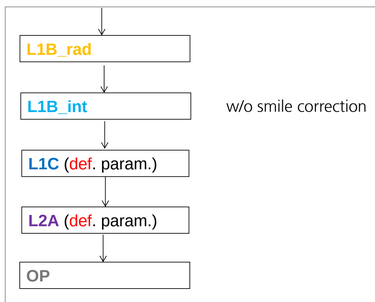
Level 0 processing (Earth observation)



Specifics [3]

- Two instruments
- Full processing to L2A in order to generate rich metadata for L0 products
- Defective pixel interpolation in ground reflectance space already in L1B
- Optional spectral smile correction already in L1B
- Provision of RPCs with L1B data
- Atmospheric correction over land using ATCOR and over water using MIP

Level 1B processing



w/o smile correction

Processing steps

L0_tile
Unpacking/repair and decompression
Byte swap/check/file sorting/channel merging
Dark currect extraction
Tiling and screening (per tile)

L1B_rad
Data quality
Defective pixel flagging and non-linearity correction
Dark signal (& digital offset) correction
Gain matching and straylight correction
Radiometric/spectral referencing
Radiometric calibration

L0_geo
Interior & exterior orientation (per tile)
DEM and REF extraction (per tile)
GCP generation (image matching) (per tile)
Sensor model refinemant (complete Datatake)
RPC generation (per tile)
Geolayer VNIR & SWIR (latitude, longitude, elevation)

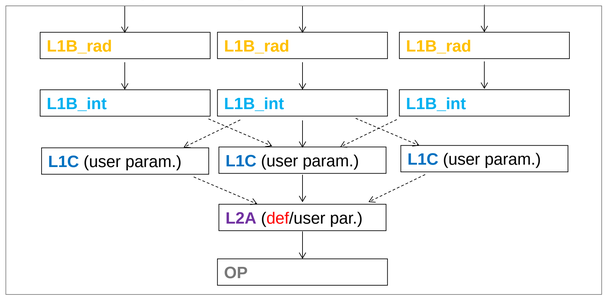
L1B_int
Water Vapour (based on VNIR)
Simplified pixel-based Atmospheric Correction to BOA
(Smile &) defective pixel interpolation
Simplified pixel-based AC to TOA
Data quality (single tile)

L1C
DEM intersection, map projection
Resampling, data quality

L2A
Classification (land-water-background, cloud, cloud shadow, haze, cirrus, snow, Sun glitter)
Haze and cirrus removal (default parameters) over land and water
AOT for land and water
WV for land
Surface and underwater reflectance (including adjacency)
Combination
Data quality

OP
Formatting & quicklooks & metadata

Level 1C/2A processing



Level 1C/2A processing parameters

	Applicable when	Identifier	Value range
Independent options	Always	Map_Projection	• UTM_Zone_of_Scene_Center • UTM_Zone_of_Scene_Center(-1) • UTM_Zone_of_Scene_Center(+1) • UTM_Zone_of_Datatake_Center • Geographic • European_Projection_LAEA
	Always	Image_Resampling	• Nearest_Neighbour • Bilinear_Interpolation • Cubic_Convolution
	Always	Ozone_Column	• 200-500 • Automatic
	Always	Band_Interpolation	• Yes • No
	Always	Correction_Type	• Combined • Land_Mode • Water_Mode
Land Options	Land_Mode OR Combined	Cirrus_Haze_Removal	• Cirrus_and_Haze • Cirrus • No
	Land_Mode OR Combined	Terrain_Correction	• Automatic • No
	Land_Mode OR Combined	Season	• Automatic • Summer • Winter
Water options	Water_Mode ONLY	Cirrus_Haze_Removal	• Cirrus • No
	Water_Mode OR Combined	Water_Type	• Clear • Turbid • Highly_Turbid

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EnMAP Hyperspectral Imager
OHB SYSTEM
GFZ Helmholtz-Zentrum Potsdam

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