SENTINEL-3 Payload Data Ground Segment (PDGS) Overview

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Introduction

The Sentinel-3 Payload Data Ground Segment (PDGS) will be in charge of executing the acquisition, processing, archiving and dissemination of data from the OLCI (Ocean and Land Colour instrument), the SLSTR (Sea and Land Surface Temperature Radiometer) the SRAL (Synthetic Aperture Radar Altimeter), the MWR (Microwave Radiometer) instruments, and the GNSS and DORIS assembly embarked in the Sentinel-3 satellite. The Sentinel-3 PDGS will be consisting of centres with the following functionalities:

- **Core Ground Station (CGS)** providing acquisition and Near-Real-Time (NRT) LAND Processing functionality;
- **Land Centre(s)** providing Offline (Short-Time-Critical & Non-Time-Critical) L1 & Land L2 Processing, User Interface and Long Term archiving functionality for LAND products;
- **Marine Centre** providing NRT & Offline L0/L1 & Marine L2 Processing, Mission Planning, Mission Performance Monitoring, Auxiliary Data Coordination, User Interface and Long Term archiving functionality for MARINE products;
- **Mission Performance Centre (MPC)** providing Mission Performance Monitoring
- **Payload Data Management Centre (PDMC)** providing Mission Control Configuration

Circulation, Short Term Archiving, Online Archiving and Monitoring functionality are common to all Centres.

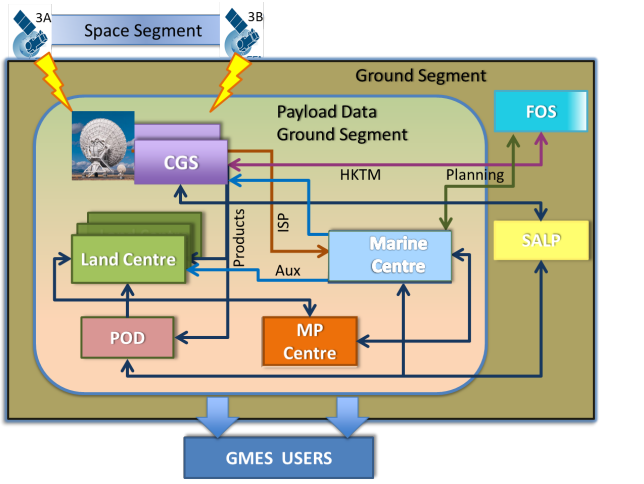
This poster provides an overview of the Sentinel-3 PDGS, with its different centres and functionalities, including user data products which will be generated operationally by the Sentinel-3 PDGS.

PDGS Context and Scope

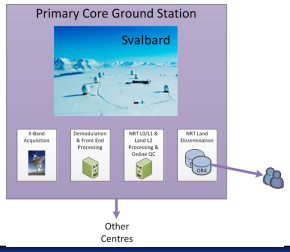
The **Sentinel-3 PDGS** is a component of the overall **GMES Space Component (GSC) Ground Segment**, in charge of the following key activities:

- Implementing the Sentinel-3 mission observation scenario
- Operating the systematic processing activities in response to the GMES services needs and ensuring data archiving
- Providing Sentinel-3 data available on-line from ESA and EUMETSAT (and via EUMETCAST)
- Monitoring Sentinel-3 instruments and mission performance
- Ensuring Sentinel-3 products meet the expected quality, with necessary calibration and validation activities

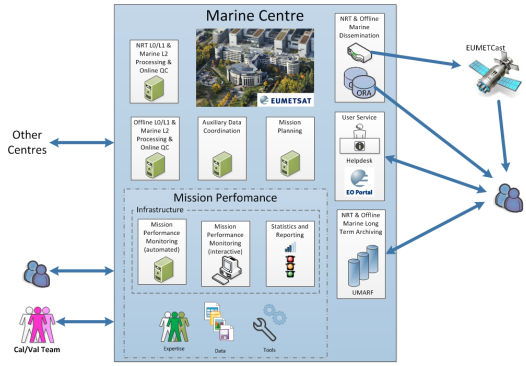
PDGS Centers Layout & Data Flow



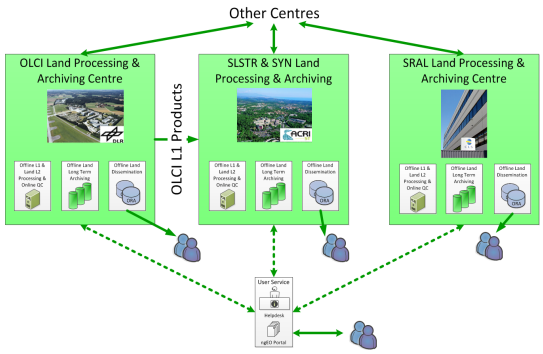
Core Ground Station (CGS)



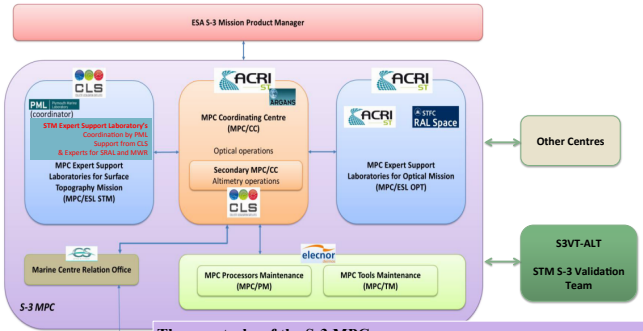
Marine Centre



Land Centres



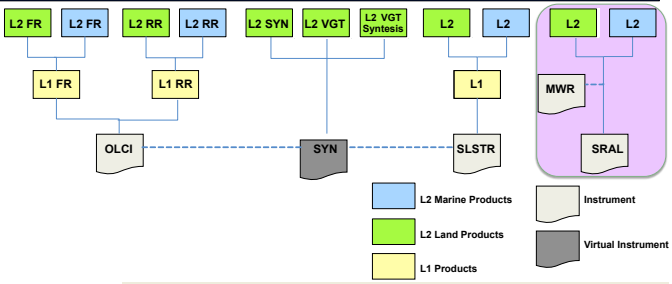
Mission Performance Centre (MPC)



The core tasks of the S-3 MPC are:

- The **calibration** and **characterisation** of the S-3 sensors (A and B unit) and their **monitoring**
- The **products calibration**
- The **validation of the products** using external and independent datasets (e.g. Fiducial Reference Measurement, numerical model or satellite data)
- The **validation and verification of the S3 core products** using statistic and monitoring tools
- The **routine quality control of the S-3 core products** generated by the PDGS
- The **maintenance** and **evolution** of the calibration, validation and processing algorithms

Sentinel-3 PDGS User Products



- S-3 Production is **global** and **systematic**
- S-3 Production is **NRT** (<3h from sensing), **STC** (<48h from sensing) or **NTC** (<30d)
- **ESA** & **EUMETSAT** ensure the same S-3 L1B core systematic production
- Sentinel-3 will produce ~**230 GB of data per orbit**
- **98 GB of NRT** products and **132 GB of STC** products **(<10% for STM mission)**
- Sentinel-3 will produce about different 36 products (packages).
- It will produce about 20 geophysical parameters at different resolution (1km, 300 m)

Potential additional STM L1A and L1B-S products will be made available to the user community after In-Orbit Commissioning Review (IOCR) (i.e. Launch + 5 months)
For more information on the S-3 STM Core Products, see poster:
"Sentinel-3 Surface Topography Mission (STM) User Data Products"

https://sentinel.esa.int