

# MEOS™ Sentinel CollGS



KONGSBERG

## Collaborative Ground Segment (CollGS) for reception and processing of Sentinel-1 data

MEOS™ S-1 CollGS is a processing suite that provides Sentinel-1 products in near real-time.

### MEOS™ S-1 CollGS ARCHITECTURE

The MEOS™ S-1 CollGS contains several subsystems, as shown in the figure below. The MEOS™ S-1 CollGS Dispatcher subsystem distributes processing jobs based on a priority schedule and available processing resources.

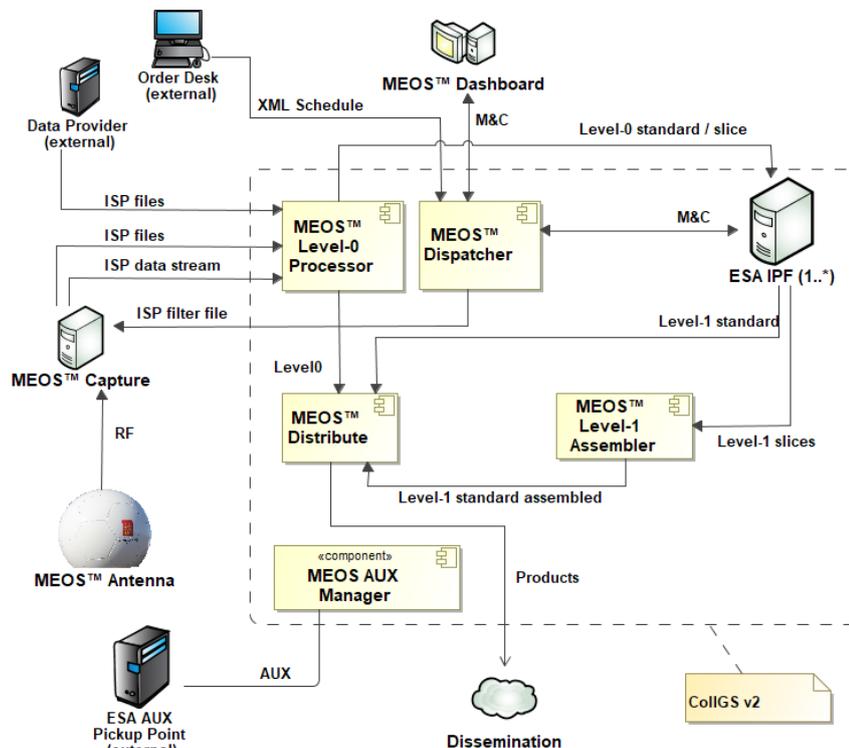
The MEOS™ S-1 Level-0 processor is specifically designed to operate efficiently in connection with the MEOS™ HRDFEP.

Additional processor nodes (ESA IPF) may be added to the MEOS™ S-1 CollGS to increase throughput.

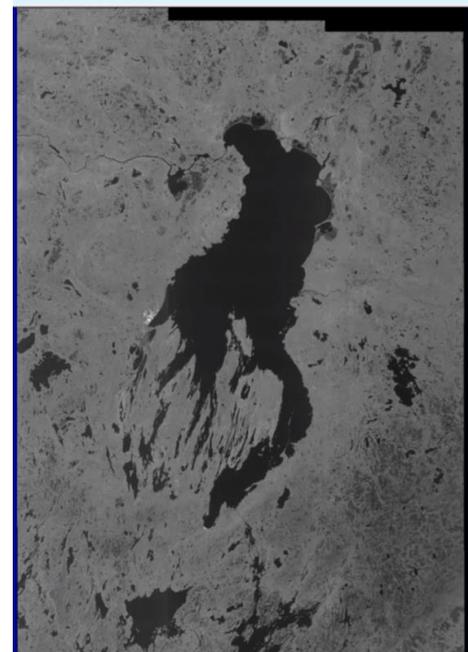
An example of a complete system configuration is also shown in the figure below, including MEOS™ Antenna and MEOS™ Dashboard.

### BENEFITS

- When a MEOS™ HRDFEP is used for downlink, the MEOS™ S-1 CollGS Dispatcher works in close connection with it by commanding it to filter the NRT ISP distribution by sensing time. This improves near real-time throughput and reduces stress on the TCP network. The whole segment can also be distributed post-pass and processed by MEOS™ S-1 CollGS.
- Linux environment that automatically scales to use available processing capacity.
- Fully automated production and distribution based on XML schedule files.
- Highly configurable Level-0 processor operating on raw data (ISPs) on a direct downlink for near real-time services, post-pass distributed ISP-files (one per channel) or S-1 Level-0 from archive. Produces standard L0 and L0 slices.
- Supports Level-1 slice processing and post processing assembly of L1 slices for faster processing in a multi ESA IPF configuration.
- Supports several processing nodes (ESA IPFs) to increase performance.
- Support single and dual polarization.



MEOS™ S-1 CollGS Contents and external relations - overview



# TECHNICAL SPECIFICATIONS

## MEOS™ SENTINEL-1 COLLGS PERFORMANCE DATA

With MEOS™ S-1 CollGS the user may prioritize downlink segments or parts of segments that are needed for near realtime services. This feature requires the MEOS™ HRDFEP as front end. This is done through a filter XML file which lists prioritized sensing time segments for near real-time products.

The CollGS Dispatcher unit distributes this filter XML file to the MEOS™ HRDFEP, which sends the prioritized segments via TCP/IP as soon as they are available. ISP files of the complete dump may also be distributed post-pass.

We have delivered an operational configuration with five MEOS™ HRDFEPs, one server with MEOS™ S1 including S1 Level-0 Processors and ten ESA IPF servers.

The system is fully integrated and capable of receiving and processing from two MEOS™ HRDFEPs simultaneously. The system configuration is flexible with respect to setup for lower or higher performance according to your demands

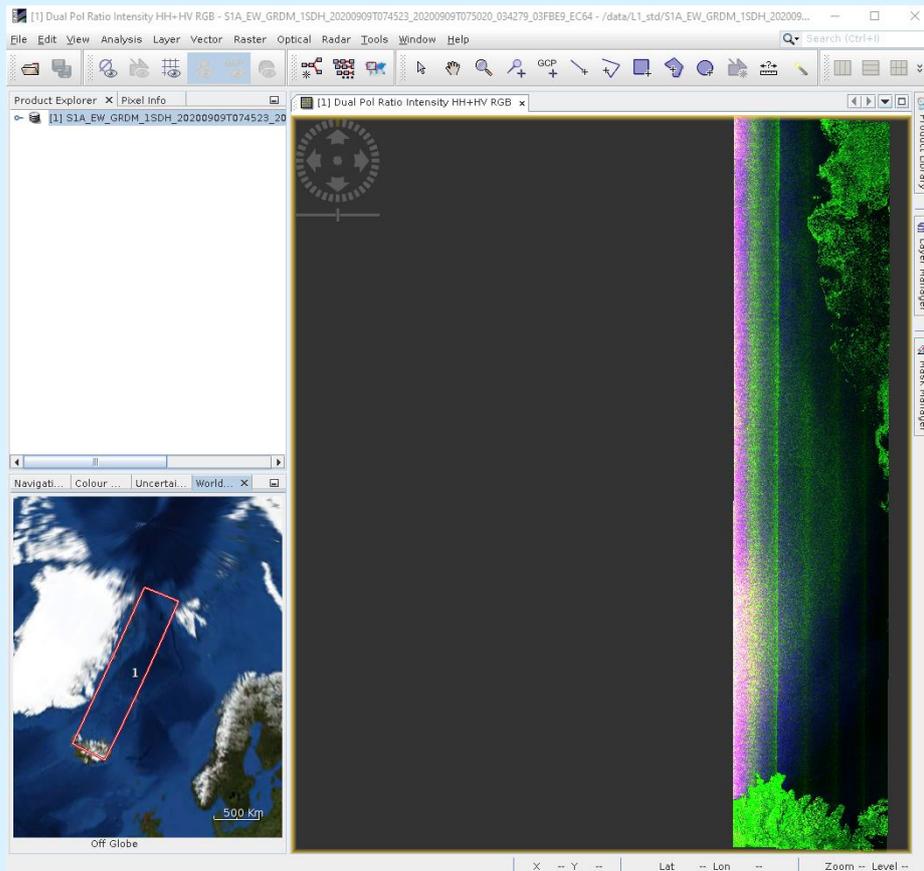
MEOS™ CollGS may be scheduled based on end-user Level-1 product requirements, or it can schedule itself (autonomously) based on an area-of-interest (AOI) and configured Level1 product-

types (GRDM, GRDH, SLC, etc.). Both AOI and L1 product types are configurable.

As of December 2025 MEOS™ CollGS is processing Sentinel-1C in operations.

Observed processing performance with four ESA IPFs (24 cores), one MEOS™ HRDFEP and L1 slicing processing enabled:

| Product Type | Processing Performance | Comments  |
|--------------|------------------------|---|
| IW-GRDM      | 15 min 31 s            | 6 L1 slices, approx.<br>2 min 40 s raw ISP data |
| IW-GRDM      | 8 min 30 s             | 2 L1 slices, approx.<br>1 min raw ISP data      |
| IW-GRDH      | 7 min 57 s             | 1 L1 slice, approx.<br>30 s raw ISP data        |
| EW-GRDM      | 7 min 14 s             | 2 L1 slices, approx.<br>2 min raw ISP data      |
| EW-GRDM      | 7 min 42 s             | 3 L1 slices, approx.<br>2 min 30 s raw ISP data |
| EW-GRDH      | 8 min 30 s             | 2 L1 slices, approx.<br>2 min raw ISP data      |



S1A-EW-snap-tool

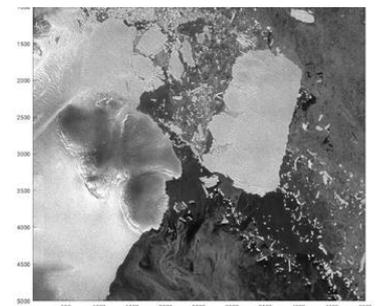


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## FEATURES

- Fast and full featured S-1 CollGS functionality.
- Saves operation costs by automation.
- Supports priority L1-processing for near real-time demands.
- Field expandable capacity and functionality.
- Supports the official ESA IPF, including L1 slicing and assembly.
- Provides S-1 L0 standard and slice products.
- Optimized for near real-time services.
- Supports filtered NRT-distribution from MEOS™ HRDFEP.



Specifications subject to change without any further notice.