7th Sentinel-3 Validation Team Meeting 2022

18-20 October 2022 | ESA-ESRIN | Frascati (Rm), Italy

Introduction of the new Sentinel-3 Mission Performance Cluster
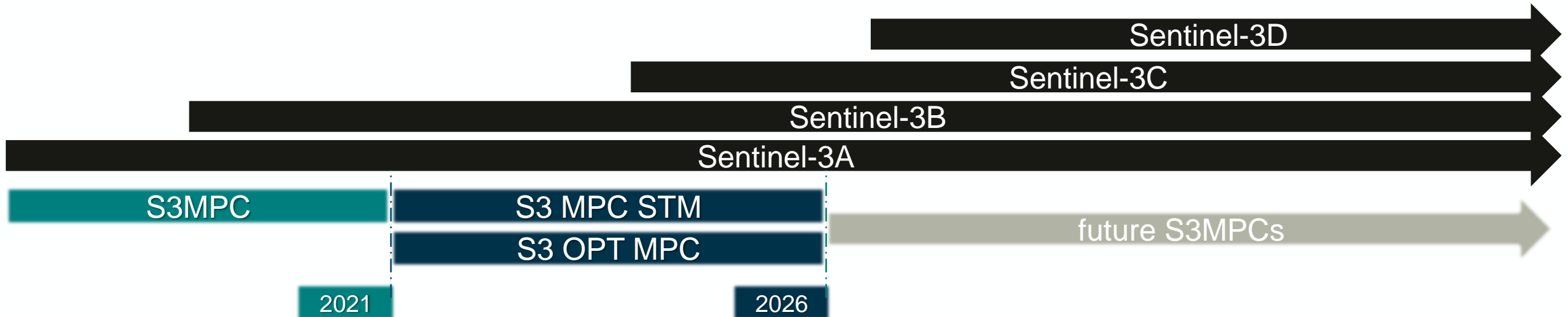
G. Jettou *on behalf of S3MPC-STM Team*
Collecte Localisation Satellites (CLS)

→ THE EUROPEAN SPACE AGENCY

Sentinel-3 Mission Performance Clusters

A Long story

Sentinel-3D

Sentinel-3C

Sentinel-3B

Sentinel-3A

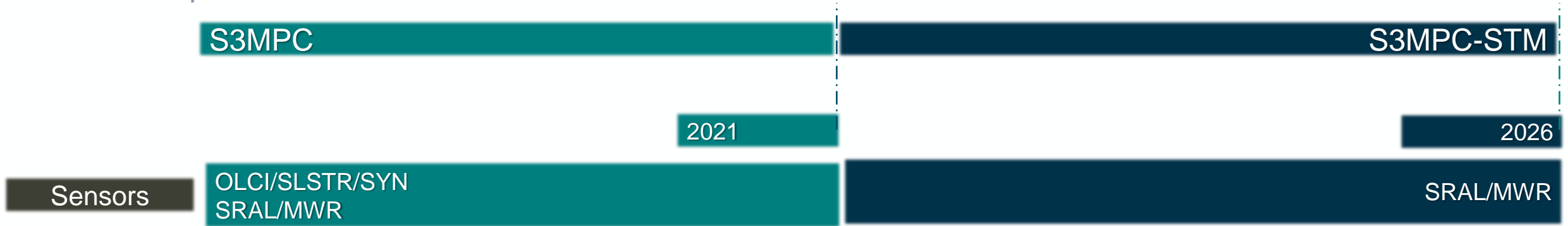| S3MPC | S3 MPC STM | |
| | S3 OPT MPC | future S3MPCs |

2021

2026

In the Copernicus Ground Segment (CGS) the Mission Performance Cluster (MPC) main role is :

- ❖ to characterize the instrument with the aim to detect anomalies or degradation that may impact the data performance
- ❖ to ensure that the Copernicus user level data are in line with their specification in terms of characteristics, performance and accuracy
- ❖ To perform explorative activities aiming at improving the product characteristics or expanding the product family to stay on top of the Copernicus Services evolving expectations.

Two generations of MPCs

Old Vs New perimeter
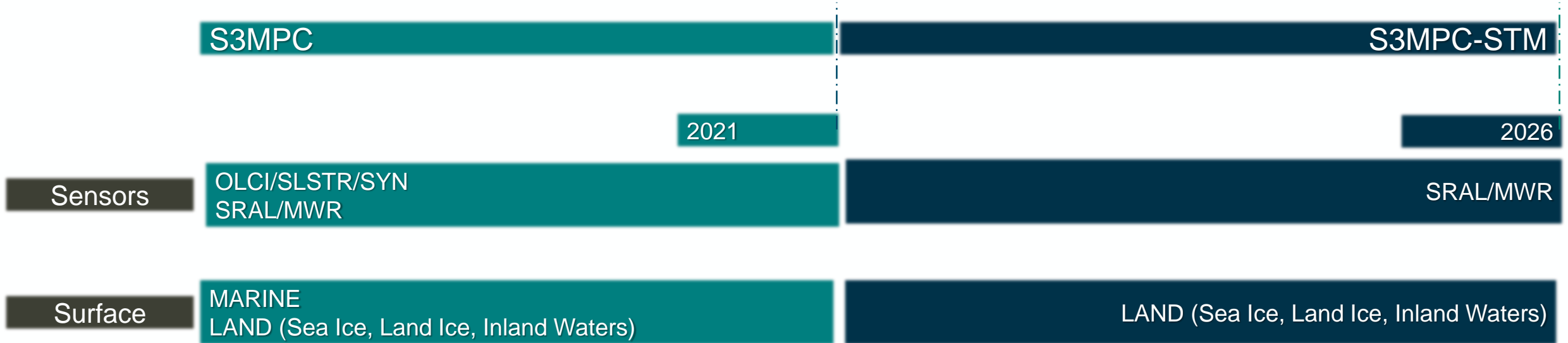
Two generations of MPCs
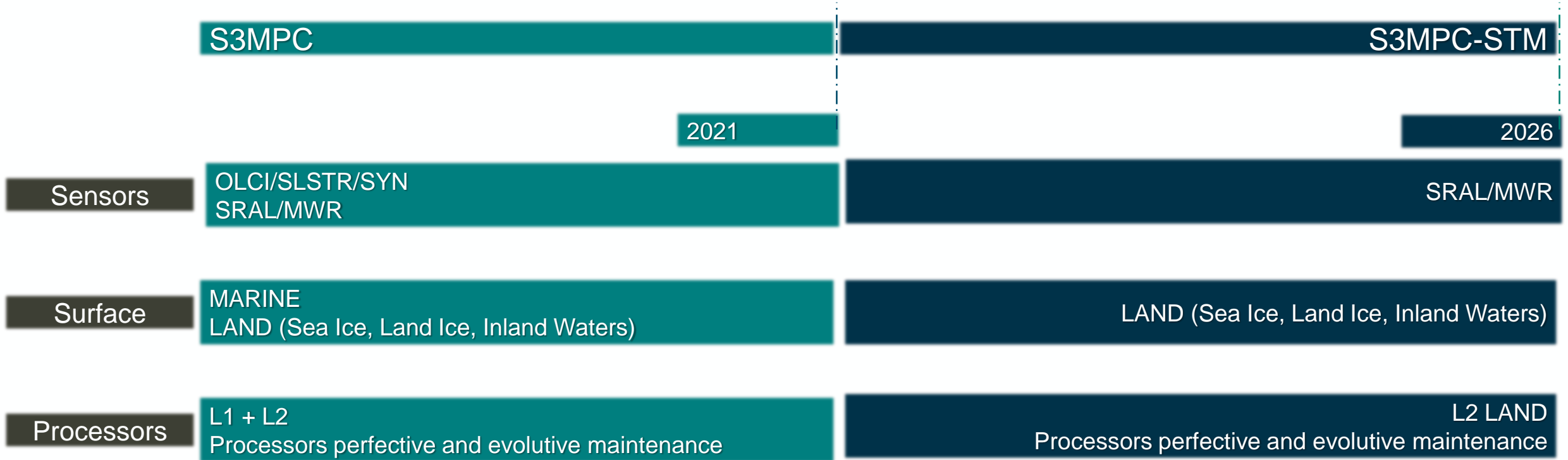
Old Vs New

	S3MPC	S3MPC-STM
	2021	2026
Sensors	OLCI/SLSTR/SYN SRAL/MWR	SRAL/MWR
Surface	MARINE LAND (Sea Ice, Land Ice, Inland Waters)	LAND (Sea Ice, Land Ice, Inland Waters)

Two generations of MPCs

Old Vs New

	S3MPC (2021)	S3MPC-STM (2026)
Sensors	OLCI/SLSTR/SYN SRAL/MWR	SRAL/MWR
Surface	MARINE LAND (Sea Ice, Land Ice, Inland Waters)	LAND (Sea Ice, Land Ice, Inland Waters)
Processors	L1 + L2 Processors perfective and evolutive maintenance	L2 LAND Processors perfective and evolutive maintenance

Two generations of MPCs

Old Vs New

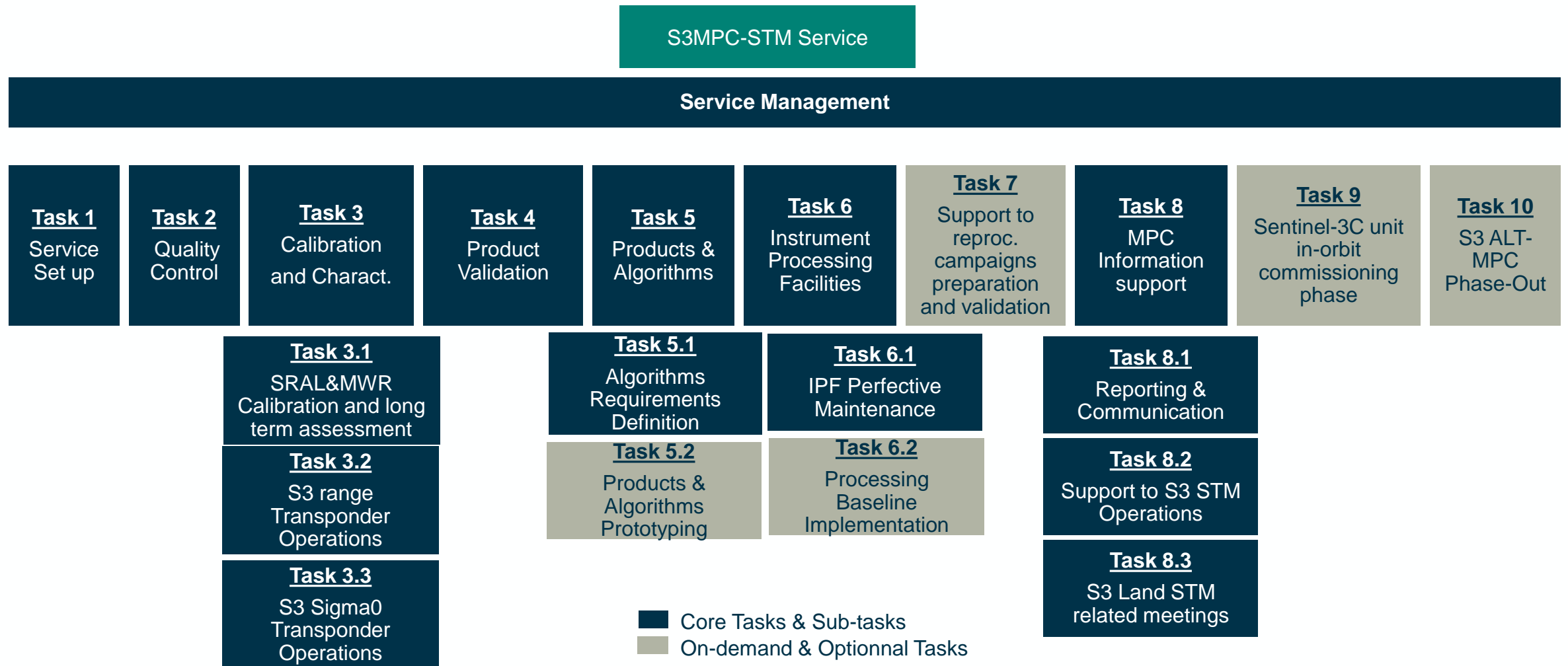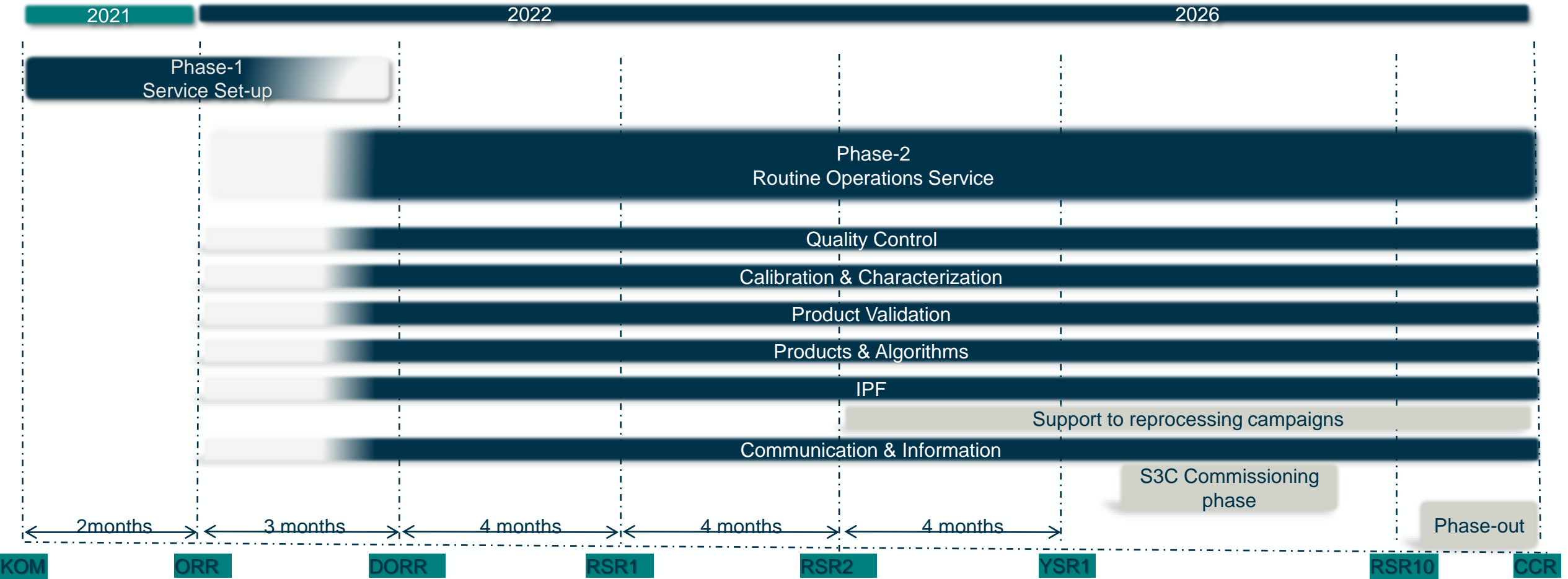|	S3MPC	S3MPC-STM
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Processors	L1 + L2 Processors perfective and evolutive maintenance	L2 LAND Processors perfective and evolutive maintenance
Consortium	ACRI (Prime), CLS, isardSAT, MSSL, Deimos	CLS (Prime), isardSAT, DTU, LEGOS, RAME, Space Geomatica, CNES, TAS

S3 Land STM MPC main tasks

Phasing of the new S3 Land STM MPC Service

Service Overview & Coordination Team
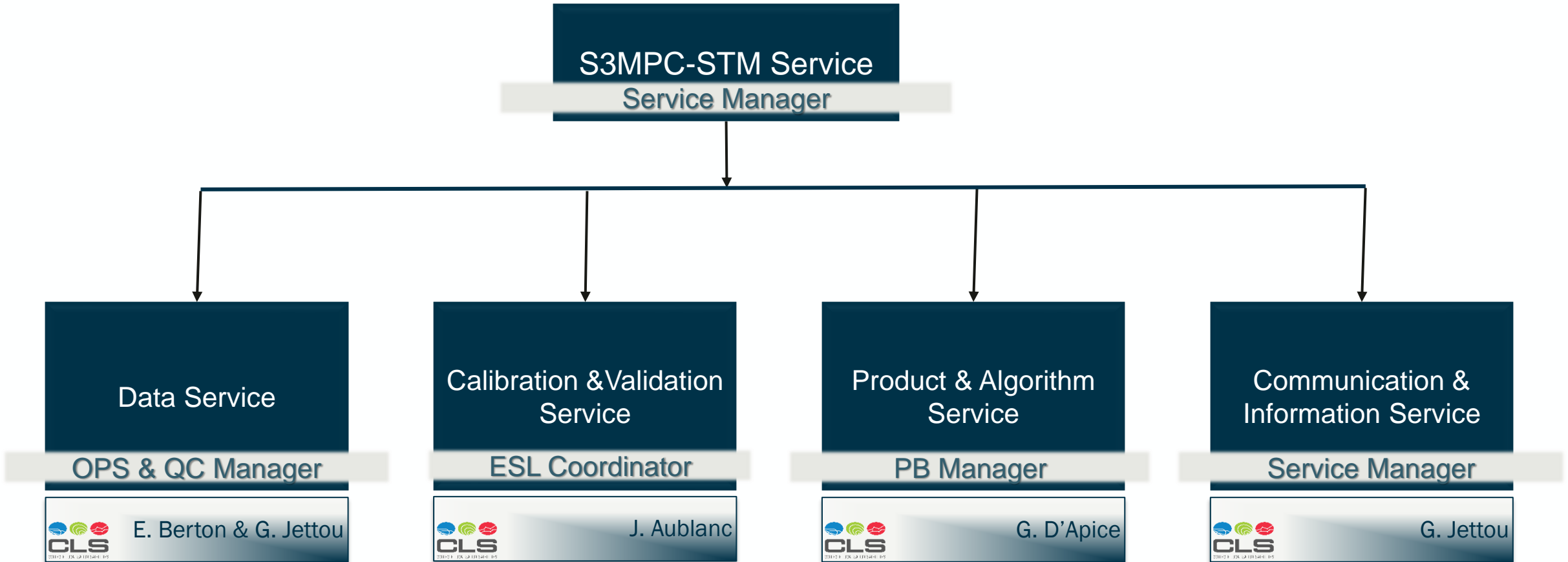
Coordination team main role and duties

Service Manager

➢ Measures and reports on the Service performance (KPIs)

➢ Ensures the compliance of the outcomes from the different tasks with the requirements along the project lifetime.

➢ Reports directly to the ESA Technical Officer and Contract Officer

➢ Is responsible of the preparation of the Service Reviews

➢ Operates the Communication and Information Service assisted by the ESL Coordinator and all ESLs.

➢ Defines the operational procedures

➢ Manages documentation, tickets and anomalies lifecycle

➢ Organizes the ESL Council meeting with the support of the ESL Coordinator

➢ Ensures interfaces with EUMETSAT when needed

Coordination team main role and duties

OPS Manager	QC Manager
➢ Manages the MPC Operational Platform (including the internal data access system, the web-portal, the anomaly tracking system …). ➢ Coordinates the IT team in case of anomalies on one of the Service platforms (Operational Platform, data access system, the web-portal, the anomaly tracking system …). ➢ Oversees the operations of the data acquisition and quality control processors.	➢ Is responsible for the implementation and maintenance of the QC Plan. ➢ Coordinates the maintenance and evolution of the QC Processor. ➢ Coordinates the resolution of product anomalies and liaise with ESLs when needed. ➢ Coordinates communication with Production Services.

Coordination team main role and duties

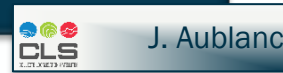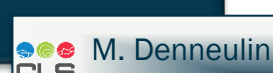| ESL Coordinator	PB Manager
➤ Is responsible for maintenance and evolution of Calibration and Validation plans ➤ Coordinates ESLs between Inland waters, Sea ice and Land ice activities ➤ Maintains links with altimetry related projects to foster improvement of S3-ALT product quality ➤ Is the book captain of the Algorithm RoadMap document ➤ Coordinates the preparation of scientific papers ➤ Coordinate the preparation of the Annual performance report.	➤ Ensures the overall coordination of the Processing Baseline activities (perfective and evolutive maintenance, prototyping etc) ➤ Coordinates the resolution of anomalies related to processing baselines and reports to ESA (SRB meeting) ➤ Actively contributes to ESA and EUMETSAT Joint Anomaly Review Boards (J-ARBs) in case of anomaly ➤ Validates the PB deliverables before final delivery to ESA.

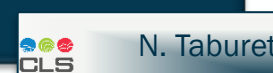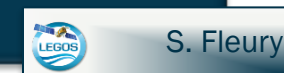# Expert Science Laboratory (ESL) Team

ESL Coordinator — J. Aublanc (CLS)

SRAL ESL Leader — P. Garcia (isardSAT)
ESL Team: P. Garcia (isardSAT), A. Garcia, S. Mertikas, S. Perdicaroli

MWR ESL Leader — M. Denneulin (CLS)
ESL Team: ML Denneulin, M. Mrad (CLS)

HY ESL Leader — N. Taburet (CLS)
ESL Team: K. Nielsen (DTU), J. Renou (CLS), J. Crétaux (LEGOS)

SI ESL Leader — S. Fleury (LEGOS)
ESL Team: S. Fleury (LEGOS), F. Piras, S. Hendricks (CLS, AWI)

LI ESL Leader — S. Simonsen (DTU)
ESL Team: S. Simonsen (DTU), L Sorensen, S. Rose, J. Aublanc (CLS)
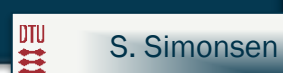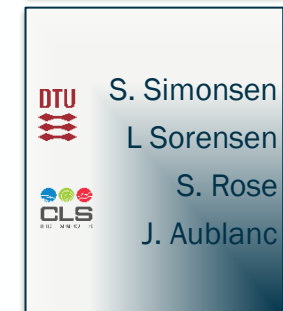
ESLs main role and duties

Expert Science Laboratories (ESLs)

➢ They are responsible for validation activities

➢ They coordinate internal working groups

➢ They translate ESLs activities into effective recommendations for the routine activities

➢ They maintain links with altimetry related projects to foster improvement of S3-ALT product quality

➢ They actively contribute to the definition of the Algorithm RoadMap document

➢ They actively contribute to ESL Council Meeting, Quality Working Group (QWG) and S3VT meetings

➢ They provide support for product anomaly characterization

➢ etc

Communication flows within S3 Ground Segment

- ➢ S3A and S3B Production Services provide S3 core products through the PRIPs to the MPC for the routine QC and cyclic validation.

- ➢ The MPC delivers the L2 LAND processors to the Reference System.

- ➢ The L1 LAND processors Maintainer (ACRI) delivers the L1 LAND processors to the RS (accessible to the MPC) whereas the MPC is responsible of maintaining the L1 processors specification (DPM).

- ➢ The MPC provides all the reports and documentation to ESA on the MPC DMS and through regular meeting.

- ➢ The MPC reports to EUMETSAT on instrumental topics and provides supports for operations.
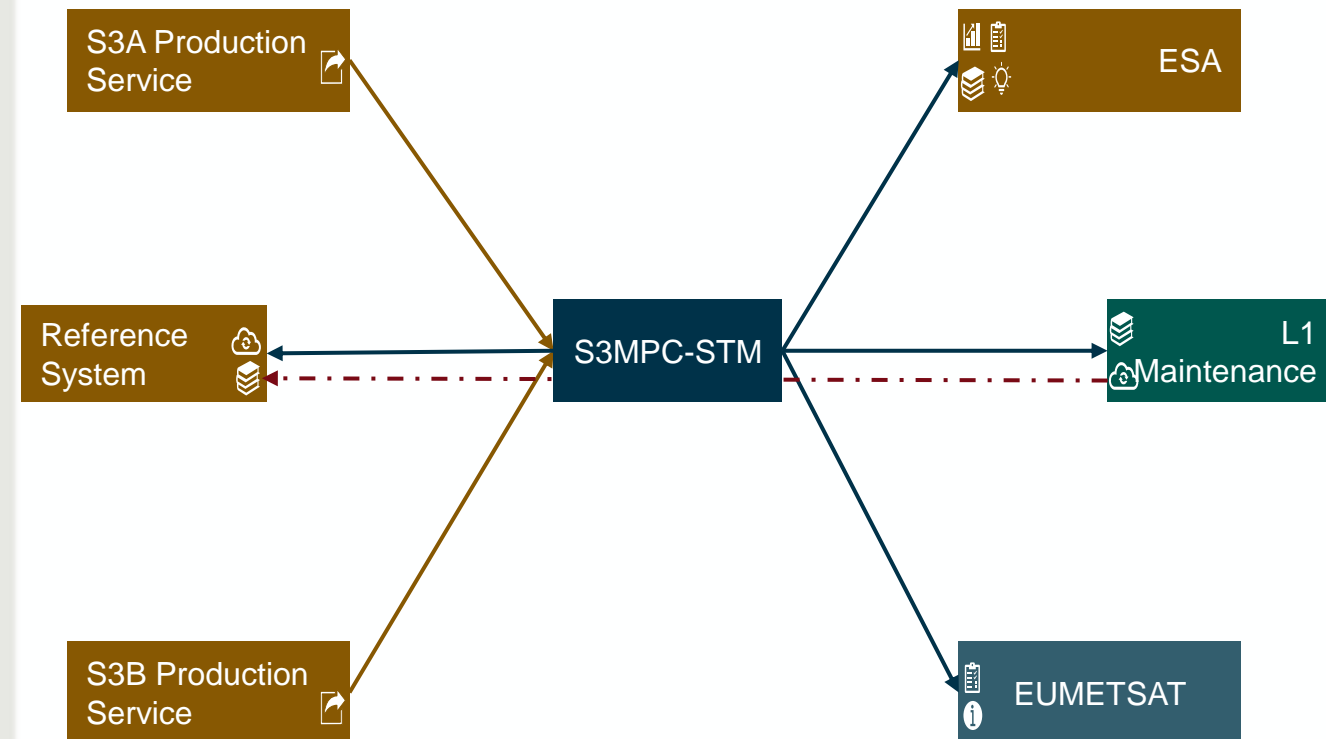
Other Communication Flows

➢ Provide all altimetry related content on SoL

➢ Provide the QC and cyclic validation dashboard on the MPC web portal

➢ Provides support to end users through ESA Earth Observation Helpdesk

➢ Present mission performance at S3VT/QWG meetings

➢ Collect users and experts' recommendations from S3VT/QWG

➢ Discuss S3 altimetry related studies at ESL Council Meetings.

➢ Present processors evolution strategies at S3VT/QWG meetings
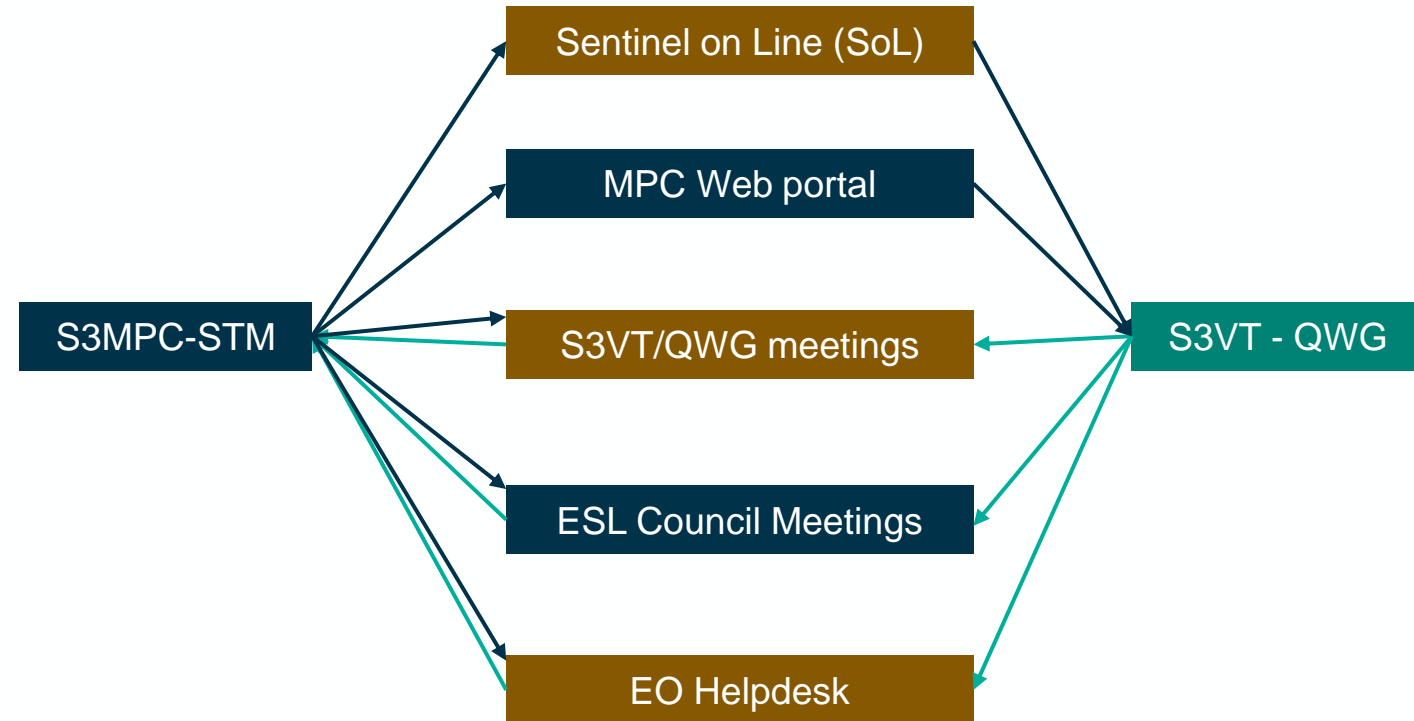
MPC Team as active support to the Sentiel-3 Validation Team

Six talks will be presented on behalf of the S3 STM MPC.

This afternoon

❖ Introduction of the new Sentinel-3 Mission Performance Cluster for Land Surface Topography Mission, *G. Jettou*

❖ Sentinel-3 Land STM : the new thematic level-2 products over hydrology, sea ice and land ice*, G. D'Apice, J. Aublanc*

❖ *Sentinel-3 Land STM : actual performance and new thematic products over land ice,* Sebastian B. Simosen

❖ Sentinel-3 Land STM : actual performance and new thematic products over sea ice, *S. Fleury*

❖ Sentinel-3 Land STM: actual performance and new thematic products over Inland Waters, *N. Taburet*

Tomorrow

❖ *Latest improvement and performance assessment of the Sentinel-3 STM Microwave radiometer, M. Denneulin*

❖ *Sentinel-3 A/B instrument calibration monitoring and absolute calibration assessment, P. Garcia*

Points of contact

Service Manager, QC Manager

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Jérémie AUBLANC

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Processing Baseline Manager

Giovanni D'APICE

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OPS Manager

Elise BERTON

eberton@groupcls.com

Useful links

MPC Web Portal

[S3MPC-STM - Project](#)

Sentinel OnLine (SoL)

[Sentinel Online - ESA - Sentinel OnLine](#)

EO Support Helpdesk

EOSupport@copernicus.esa.int