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## Sentinel-3 Validation Team Call



# APPROVAL

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## 1. INTRODUCTION

### 1.1. Scope of the document

This document sets out the joint ESA-EUMETSAT Call for a Sentinel-3 Validation Team (S3VT) to provide external validation inputs to the Sentinel-3 Mission. It defines the purpose and scope of the S3VT, provides a summary of expectations from S3VT members, sets out the boundaries for data provision, and presents the mechanisms to respond to the Call.

A template for prospective members of the S3VT to submit their proposed activities and request membership of the S3VT is also provided. Finally, a schedule and points of contact for this call are presented.

### 1.2. Reference documents

- RD.1 Sentinel-3 Calibration and Validation Plan, S3-PL-ESA-SY-0265, Issue 2.0
- RD.2 Sentinel-3 Mission Requirements Document (MRD), EOP-SMO/1151/MD-md, Issue 2
- RD.3 Sentinel-3 Mission Requirements Traceability Document (MRTD), EOP-SM/2184/CD-cd, Issue 1

### 1.3. Useful URLs

- URL.1 Sentinel-3 ESA web page,  
<https://sentinels.copernicus.eu/fi/web/sentinel/missions/sentinel-3>
- URL.2 Sentinel-3 EUMETSAT web page, <https://www.eumetsat.int/sentinel-3>
- URL.3 Collaborative Ground Segment,  
<https://sentinel.esa.int/web/sentinel/missions/collaborative>
- URL.4 Copernicus Data Space Ecosystem, <https://dataspace.copernicus.eu/>
- URL.5 Sentinel-3 Validation Team, <https://s3vt.org>
- URL.6 Sentinel-3 Cyclic Quality Reports Altimetry,  
[https://sentinels.copernicus.eu/fi/web/sentinel/technical-guides/sentinel-3-  
altimetry/data-quality-rep](https://sentinels.copernicus.eu/fi/web/sentinel/technical-guides/sentinel-3-altimetry/data-quality-rep)



- URL.7 Sentinel-3 Cyclic Quality Reports OLCI, <https://sentinels.copernicus.eu/fit/web/sentinel/technical-guides/sentinel-3-olci/data-quality-reports>
- URL.8 Sentinel-3 Cyclic Quality Reports SLSTR, <https://sentinels.copernicus.eu/fit/web/sentinel/technical-guides/sentinel-3-slstr/data-quality-reports>
- URL.9 Sentinel-3 STM Annual Performance Report 2022, [https://sentinels.copernicus.eu/documents/247904/3519647/S3MPC-STM\\_2022\\_Annual\\_Performance\\_Report.pdf/0ff93f57-45c7-a607-326d-6a3efce0fc25?t=1679738213269](https://sentinels.copernicus.eu/documents/247904/3519647/S3MPC-STM_2022_Annual_Performance_Report.pdf/0ff93f57-45c7-a607-326d-6a3efce0fc25?t=1679738213269)
- URL.10 Sentinel-3 Optical Annual Performance Report 2022, <https://sentinels.copernicus.eu/documents/247904/3519647/OMPC.ACR.APR.002+-i1r1+-+S3+Optical+Annual+Performance+Report+2022.pdf/9fb6a198-f9c3-7c0a-5ddc-fdb7f61610c7?t=1679121417530>
- URL.11 User Access Portal - <https://eoportal.eumetsat.int/>
- URL.12 Generic User Support Knowledge Base - <https://eumetsatspace.atlassian.net/wiki/spaces/EUM/overview>
- URL.13 OLCI product information - <https://www.olci.eumetsat.int>
- URL.14 OLCI product quality information <https://metis.eumetsat.int/oc/>
- URL.15 SLSTR product Information - <https://www.slstr.eumetsat.int/>
- URL.16 SLSTR quality Information - <https://metis.eumetsat.int/sst/>
- URL.17 SRAL product information - <https://www.sral.eumetsat.int>
- URL.18 SRAL quality information – <https://eumetsatspace.atlassian.net/wiki/spaces/PQ/pages/1828126721/Sentinel-3+altimetry+cyclic+reports>
- URL.19 NRT Atmospheric product information - <https://www.eumetsat.int/atmospheric-composition>
- URL.20 NRT FRP product quality information - <https://metis.eumetsat.int/frp/>
- URL.21 NRT AOD product quality information - <https://metis.eumetsat.int/aod/>

## 1.4. Acronyms

CEOS	Committee on Earth Observation Satellites
CVP	Cal/Val Plan



ESA	European Space Agency
EUMETSAT	European Organisation For the Exploitation of Meteorological Satellites
GHRSSST	Group for High Resolution Sea Surface Temperature
IOCCG	International Ocean Colour Coordinating Group
POD	Precise Orbit Determination
S3	Sentinel-3
S3VT	Sentinel-3 Validation Team

## 2. SENTINEL-3 VALIDATION TEAM CALL

### 2.1. Scope of the S3VT Call

ESA and EUMETSAT (the Agencies) seek the involvement of the international community with experience in conducting scientific verification and validation of Sentinel-3 type data, field experiments and campaigns.

The aim of this call is:

**“To engage world-class expertise and activities, through mutual benefit collaboration, that support the implementation of the Sentinel-3 validation activities and ensure the best possible outcomes for the Sentinel-3 Mission”.**

The call is open to relevant and interested groups and individuals worldwide; group responses are particularly welcome.

### 2.2. Mission Status

Sentinel-3 is an ocean (including oceans, seas, coastal and inland water), land, cryosphere and atmospheric mission composed of twin satellites, Sentinel-3A (S3A) and Sentinel-3B (S3B). The main objective of the Sentinel-3 mission is to measure sea surface topography, sea, ice and land surface temperature, and ocean and land surface colour with high accuracy and reliability to support ocean forecasting systems, environmental monitoring, and climate



monitoring. In addition, it provides atmospheric, hydrologic and cryospheric products. The Sentinel-3 mission is jointly operated by ESA and EUMETSAT to deliver operational ocean/water, land, cryosphere and atmosphere observation services.

S3A was launched on 16 February 2016, while S3B joined its twin in orbit on 25 April 2018. The two performed a tandem phase for satellite inter-calibration between 7 June and 12 October 2018.

The currently expected lifetime for each satellite is ten years, thus Sentinel-3C launch is currently expected in 2025 and Sentinel-3D by 2028 to replace the two flying Sentinels.

More information on Sentinel-3 mission status, current performances and scientific achievements is available on dedicated web pages [URL.1] and [URL.2].

### 3. OBJECTIVES OF THE CALL

#### 3.1. Objectives

The intention of this call is to continue to engage and expand the Sentinel-3 scientific validation team, called the S3VT, to provide a structured coordination of international activities that contribute to Sentinel-3 validation across the entire mission.

The S3VT brings together world-leaders in relevant mission validation activities **to provide independent validation evidence, experimental data and recommendations** from such work that will be reported formally to ESA and EUMETSAT to characterize the quality and performance of the Mission. Specifically, under this call, the Agencies seek the interest of institutes, research groups and scientists with expertise to address the following:

- Altimeter validation experiments and support to calibration activities,
- Microwave radiometer validation experiments and support to calibration activities,
- Visible-near infrared (400-1020nm) imaging spectrometer validation experiments over ocean and land and support to calibration activities,
- Visible-thermal infrared (0.55 – 12.0  $\mu\text{m}$ ) scanning radiometer validation experiments over ocean and land and support to calibration activities,



- Active fire and burned area validation experiments and support to calibration activities,
- Precise Orbit Determination (POD) validation experiments and support to calibration activities,
- L2 Ocean, Land, Atmosphere and Ice product validation experiments and support to calibration activities,
- User product development and detailed investigation of L2 retrieval algorithms,
- Multi missions and multi-instruments calibration and validation activities.

A description of proposed validation contributions (including the technical approach and experience of the proposing team) to address these areas forms part of the response to this call.

## 4. STRUCTURE AND MANAGEMENT OF THE CALL

### 4.1. Funding

There will be no ESA or EUMETSAT funding under this call.

### 4.2. Validation Team Activities

Members of the S3VT will be expected to play an **active role** in Sentinel-3 validation or retrieval activities. Members of the S3VT may expect to participate in some, or all, of the following activities:

- Integration of their proposed work within a wider scientific and technical framework, and the establishment of collaborative linkages between specialists within and external to the S3VT sub-groups.
- Participation to the Sentinel-3 Validation Team meetings held on a yearly basis alternatively between ESA ESRIN and EUMETSAT [URL.5].





- Participation in post-launch data product and retrieval algorithm validation, and on-going monitoring of satellite performance and data quality.
- Support the planning and execution of satellite operations required for special validation activities.
- Preparation for the validation activities of Sentinel-3 C/D Commissioning phase (E1) and operations/routine phase (E2) activities.
- Support the Sentinel-3 ESA and EUMETSAT teams during the Sentinel-3 In-Orbit Commissioning Review, which will be held 5 months (TBC) after launch (applicable for Sentinel-3 C and D).
- Support to the Agencies in the definition, in the light of post launch experience, of reprocessing algorithms to be applied to the level 1b and level 2 data.

### 4.3. Organization

The implementation of the Sentinel-3 Scientific Validation Team will be as follows:

1. Publication of the S3VT Call at the ESA and EUMETSAT web sites  
(<https://earth.esa.int/eogateway/announcement-of-opportunity/s3vt>)  
(<https://www.eumetsat.int/sentinel-3>)
2. Submission of proposals explaining the scope of proposed validation activities and associated data requirements.
3. ESA and EUMETSAT review of all proposals for this call to confirm that the proposal is of sufficient quality and relevance.
4. Confirmation that proposals have been accepted and then invitation to join a Sentinel-3 Validation Team sub-group. The following S3VT sub-groups are foreseen:
  - a. Altimetry,
  - b. Ocean Colour,
  - c. Sea and Sea-Ice Surface Temperature,
  - d. Land parameters (including relevant visible, thermal and altimeter products and synergy products),
  - e. Atmosphere.



*Note: All the S3VT sub-groups are also expected to interact with the Agencies for common goals (e.g., vicarious calibration, cal/val systems and tools, options for shared field campaigns, expertise, shared reporting).*

5. A collaborative agreement will be established with the Validation Team members formalizing the terms and conditions of the collaboration.
6. In coordination with the Agencies, the S3VT will plan and execute validation and support the on-going monitoring of the Sentinel-3 satellite system and data products working with the Sentinel-3 Cal/Val plan [RD.1].

#### **4.4. Data Provision**

Members of the S3VT will have access to a range of Sentinel-3 data products. These can include specialist, low-level data products, to support the S3VT validation activity to provide the best validation of the mission, with some of these products not available to the wider user community. S3 data access will be guaranteed to S3VT members through agreed mechanisms. The focus of data provision will be on defined validation targets that are operationally extracted on a routine basis as a response to the requirements expressed in proposals for this call. Validation targets will include those defined by international consensus and with a long heritage (e.g. CEOS, GHRSSST, IOCCG, OSTST), those covering specific validation activities as defined in the S3-CVP [RD.1] that have varied coverage requirements and those proposed and justified by successful applicants of this call.

In some cases, a proposed activity may require access to other, third-party data whose supply is beyond the capability of the proposers. Provision of ESA and EUMETSAT third party mission data is foreseen within the existing constraints and data policy restrictions. While the Agencies cannot generally undertake to supply all data, proposers are requested to identify such data, so that the S3VT and Agencies may, where possible, provide support for data access.

The organizational framework for the Sentinel-3 external validation support will be provided through the Sentinels' collaborative ground segment initiative [URL.3], supporting specialized solutions to further enhance the Sentinel Missions exploitation in various



areas. Sentinel's data products are made available via the EUMETSAT EOPortal [URL.11], and the ESA Copernicus Data Space Ecosystem [URL.4]. As part of the proposal submission, applicants are required to indicate their needs for satellite data products over specific target areas, if any. S3VT Members may be requested to refine these data requirements as part of the planning activity taking account the relevant operational constraints.

#### **4.5. Rolling Call**

The call is implemented as a rolling call with no distinct deadlines for proposal submissions. The call is designed to provide the widest opportunity for the S3VT to engage with the mission. Proposals will be reviewed and those accepted will be added to the register of approved validation activities for Sentinel-3 that will be maintained by the Agencies.

The call is published on the ESA Web site (see <https://earth.esa.int/eogateway/announcement-of-opportunity/s3vt>).

The call is always open, thus it will be possible to submit a proposal at any time.

#### **4.6. Evaluation Criteria**

Internal panels of ESA and EUMETSAT experts will review the proposals received in response to this call and recommend whether they should be accepted, with a final decision taken by the joint S3 Mission Management Team. The following criteria will be used in the evaluation of all proposals:

- a) Relevance of the proposed project to the objectives of Sentinel-3 validation and/or calibration activities,
- b) Scientific quality and integrity of the proposed work,
- c) Collaborative benefit derived from participation as S3VT member,
- d) Feasibility and probability of success,
- e) Credibility of proposed underlying financial support and available infrastructure.



## 5. ADDITIONAL INFORMATION

### 5.1. Person of Contact

ESA Contacts	EUMETSAT Contacts
<b><u>Mission Management/S3VT Management</u></b>	
<p><b>Jérôme Bouffard</b></p> <p><i>Sentinel-3 Mission Manager</i></p> <p>Directorate of Earth Observation Programmes                      ESRIN, via Galileo Galilei, 2 – 00044 Frascati – Italy</p> <p><a href="mailto:jerome.bouffard@esa.int">jerome.bouffard@esa.int</a>                      T. +39 06 9418 8435</p>	<p><b>Hilary Wilson</b></p> <p><i>Sentinel-3 Mission Manager</i></p> <p>Copernicus Programme Office                      EUMETSAT,                      Eumetsat Allee 1, 64295 Darmstadt – Germany</p> <p><a href="mailto:hilary.wilson@eumetsat.int">hilary.wilson@eumetsat.int</a>                      T. +49 6151 807 5740</p>
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<b>Atmosphere</b>	
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## 5.2. Proposal Submission Guidelines

Proposal Submission is performed via an on-line Tool.

- Create a new EO sign In account (see guidelines [here](#)).
- Submit the proposal filling the On-line form (see guidelines [here](#)).