

## Abstract for ESA Living Planet Symposium

Abstract Theme: Oceanography

Presentation Request: Oral

Abstract Title: SCOOP: Evaluating the performance of Sentinel-3 SRAL SAR Altimetry in the Coastal and Open Ocean, and developing improved retrieval methods.

### Authors:

David Cotton: Satellite Oceanographic Consultants, United Kingdom

Thomas Moreau, CLS, France

Mònica Roca: IsardSAT, Spain

Paolo Cipollini: National Oceanography Centre, NERC, UK

Mathilde Cancet, Noveltis, France

Francisco Martin: Starlab, UK

Luciana Fenoglio-Marc: Technical University of Darmstadt, Germany

Marc Naeije: Technical University of Delft, The Netherlands

Joana Fernandes: University of Porto, Portugal.

Jérôme Benveniste, ESA/ESRIN, Italy

The ESA Sentinel-3 satellite, within the Copernicus programme, will be the second satellite to operate a SAR mode altimeter. The Sentinel 3 Synthetic Aperture Radar Altimeter (SRAL) is based on the heritage from Cryosat-2, but will be complemented by a Microwave Radiometer to provide a wet troposphere correction, and will operate at Ku and C-Band to provide an accurate along track ionospheric correction. Together this instrument package will allow accurate measurements of sea surface height over the ocean, as well as measurements of significant wave height and surface wind speed.

SCOOP (SAR Altimetry Coastal & Open Ocean Performance) is a project funded under the ESA SEOM (Scientific Exploitation of Operational Missions) Programme to characterise the expected performance of Sentinel-3 SRAL SAR mode altimeter products, in the coastal zone and open-ocean, and then to develop and evaluate enhancements to the baseline processing scheme in terms of improvements to ocean measurements. There is also a work package to develop and evaluate an improved Wet Troposphere correction for application to Sentinel-3 SRAL data, and provide recommendations for use.

At the end of the project recommendations for further developments and implementations will be provided through a scientific roadmap.

In this presentation we provide an overview of the SCOOP project, highlight the key deliverables and discuss the potential impact of the results in terms of the application of delay Doppler (SAR) altimeter measurements over the open ocean and coastal zone. We also present the initial results from the first phase of the project, which involves a review of the current “state of the art” for SAR altimetry, establishes the “reference” delay Doppler processing and echo modelling

/retracking and agrees the specifications for the Test Data Sets to be evaluated in the first part of the project.

Keywords:

Coastal Zones, ESA Programme: Copernicus, ESA Programme: SEOM, New Algorithms, SAR and SARin altimetry, Sensor performance

Satellites:

CryoSat-2 (SAR mode FBR), Sentinel-3 (SRAL),