

Mission Status Report 265

Reference Period: 23 July 2019 – 29 July 2019

sentinel-1

→ RADAR VISION FOR COPERNICUS

Mission status

- The Copernicus Sentinel-1A and Sentinel-1B routine operations are on-going
- The Copernicus Sentinel-1 observation scenario supports the systematic coverage of Copernicus Services areas of interest, of European land and coastal waters, of global tectonic/volcanic areas, as well as of other areas worldwide for various applications. The observation plan also includes a regular mapping of all land areas worldwide.
- World maps providing a high level description of the Sentinel-1 constellation observation scenario, in terms of SAR modes, polarisation, observation geometry, revisit and coverage frequency are available at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario>
- The detailed observation plan in the form of instrument acquisition segments, for both Sentinel-1A and Sentinel-1B is published at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario/acquisition-segments>
- The operational use of Sentinel-1 data by the Copernicus Marine Environment Monitoring Service (CMEMS) for sea-ice, iceberg and swell monitoring activities is on-going
- The European Maritime Safety Agency (EMSA) operationally uses Sentinel-1 imagery in quasi-real time in the CleanSeaNet services; operations with EMSA service providers local stations are on-going.
- **Specific observations have been planned in response to the call 706 from the International Charter Space and Major Disasters on 24th July 2019, related to floods in Russia Federation**
- **Specific Sentinel-1 observations have been planned to support the monitoring of the tropical cyclone Erick (Eastern Pacific Ocean)**
- **A close approach of an unknown object for a potential collision with Sentinel-1A on 24 July 2019 at 19:04 UTC was carefully monitored over several days, but did not finally result in the need to execute Sentinel-1A collision avoidance manoeuvres**
- Both Sentinel-1A and -1B spacecraft are in a stable state, operating in Nominal Mission Mode (NMM). The Flight Operations Segment (FOS) ensuring the monitoring, control and commanding of the satellites is operating nominally. Orbit control manoeuvres are performed once a week
- The use of the EDRS-A service by Sentinel-1A and -1B is on-going as part of the routine operations
- X-Band data acquisitions are routinely performed over Matera, Svalbard and Maspalomas X-band core stations. The acquired data are circulated within the Payload Data Ground Segment (PDGS), systematically processed to Level-0 and Level-1 products and archived
- Wave Mode data are regularly acquired over open oceans, systematically processed to Level-2 OCN products and made available. Sentinel-1 IW and EW Level-2 OCN products over regional ocean areas are available on the Data Hubs. The operations of the systematic generation and distribution of Sentinel-1 level-2 OCN products derived from IW, EW and SM modes over seas at global level is on-going since 15 November 2017 (relevant for the Wind component - OWI). The operational qualification of the Level-2 the OCN Radial Surface Velocity (RVL) component is on-going.
- Operations are performed regularly at the Processing and Archiving Centres (DLR-PAC and UK-PAC). All other PDGS operational services (i.e. Mission Performance, Precise Orbit Determination, Wide Area Network) are operating nominally
- **By 25 July 2019, a total of 258,271 users have self-registered on the Sentinels Open Access data Hub; 20.9 million Sentinel-1 product download have been made by users, representing 27 PB of data. 4.1 million Sentinel-1 products are available on-line for download, representing 6.6 PB of data. Statistics of last 24 hours are available in real time at the Open Data Hub home page: <https://scihub.copernicus.eu>**

Outlook

- Continuation of Sentinel-1 constellation routine operations
- **An invited Sentinel-1 session will take place on 1st August 2019 at IGARSS 2019, Yokohama, Japan. The session will provide an overview of the Copernicus SAR space component, incl. the current developments (Sentinel-1C/-1D) and the planned SAR missions in the long-term scenario of the Copernicus programme, incl. the Sentinel-1 Next Generation mission. The Sentinel-1A/-1B mission operations status will be presented, as well as the ESA programmatic framework to support the geoscientific exploitation of the Sentinel-1 mission. The session will include invited talks related to the exploitation of Sentinel-1 data for natural disasters and geohazards monitoring (a main thematic of IGARSS 2019), applied in the operational and scientific domain, focusing on areas such as floods, earthquakes, volcanoes, subsidence, landslides and hurricanes.**

Report prepared by the ESA Sentinel-1 Team

