

Mission Status Report 375

Reference Period: 28 September 2021 – 4 October 2021

Mission status

sentinel-1

→ RADAR VISION FOR COPERNICUS

- The Copernicus Sentinel-1A and Sentinel-1B routine operations are on-going.
- **Despite the critical situation in Europe due to the COVID-19, efforts are being made to ensure the continuity of the Sentinel-1 mission operations**
- 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>
- **Specific Sentinel-1 observations were planned and actions performed (NRT data provision) in response to the following calls from the International Charter Space and Major Disasters:**
 - **Call 844 on 29 September 2021, related to flood in Thailand. Examples of flood maps based on Sentinel-1 imagery are available at: <https://disasterscharter.org/web/guest/activations/-/article/flood-large-in-thailand-activation-734>**
 - **Call 846 on 2 October 2021, related to storm and hurricane in United Arab Emirates**
 - **Call 847 on 3 October 2021, related to storm and hurricane in Oman**
- 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
- **Collision avoidance manoeuvres were executed on Sentinel-1B to reduce the risk of collision with an Iridium 33 fragmentation debris, potentially occurring on 2 October 2021 at 01:27 UTC. Six Sentinel-1B data download links through the European Data Relay Satellite System (EDRS), taking place between 18:23 UTC on 1 October and 08:42 UTC on 2 October, were cancelled due to these orbit manoeuvres. SAR acquisitions taking place slightly before and during this period may have been affected. The time of closest approach passed without incident.**
- **As carried out on Sentinel-1A on 15 September 2021, a Sentinel-1B on-board software maintenance activity related to the Payload Data Handling and Transmission (PDHT) system was performed on 30 September and on 1 October 2021. No Sentinel-1B SAR measurements were made on 30 September 2021 between 07:37 UTC and 11:45 UTC, and on 1 October between 10:32 UTC and 12:18 UTC.**
- The use of the EDRS-A service by Sentinel-1A and -1B is on-going as part of the routine operations
- Ground Segment operations have continued smoothly as part of the on-going Payload Data Ground Segment (PDGS) service operations, the transfer to the cloud has been finalised for all production related activities and data flows were modified to use public internet
- Sentinel-1 production is successfully performed on the cloud since 23 February 2021 in line with the new ground segment architecture and interfaces. The legacy PDGS PAC and PDMC centres have been decommissioned end of March 2021
- X-Band data acquisitions are routinely performed over Matera, Svalbard, Maspalomas and Neustrelitz X-band core stations. The acquired data are circulated within the 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.
- **By 30 September 2021, a total of 529,348 users have self-registered on the Sentinels Open Access data Hub; 36.2 million Sentinel-1 product downloads have been made by users, representing 44.8 PB of data. 7.1 million Sentinel-1 products are available on-line for download, representing 11.4 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

Report prepared by the ESA Sentinel-1 Team

