

Mission Status Report 406

Reference Period: 17 May 2022 – 30 May 2022

Mission status

sentinel-1

→ RADAR VISION FOR COPERNICUS

- The Copernicus Sentinel-1A routine operations are on-going.
- The major anomaly on the Sentinel-1B satellite occurred on 23 December 2021, the latest news has been published on 22 April 2022 at: <https://sentinels.copernicus.eu/web/sentinel/-/copernicus-sentinel-1b-anomaly-6th-update/1.1>
The investigations by the Anomaly Review Board have been concluded, a report is under finalisation. The recent recovery attempts have not been successful.
- The exploitation of Sentinel-1 data has been the object of a great number of oral presentations and posters in the operational, scientific and commercial domains, at the very successful ESA Living Planet Symposium 2022 (<https://lps22.esa.int/>), that took place in Bonn from 23 to 27 May 2022, with over 5000 participants.
- The release of the first (European wide) product from the European Ground Motion Service (EGMS) marks a major milestone in the operational exploitation of Sentinel-1 interferometry data in Copernicus. EGMS, part of the Copernicus Land Monitoring Service, delivers millimetre-accuracy information on natural and anthropogenic ground motion phenomena (landslides, subsidence, volcanic phenomena, etc.). More information at: <https://land.copernicus.eu/pan-european/european-ground-motion-service>
- The 2021 Copernicus Sentinel Data Access Annual Report has been published and is available at: <https://sentinels.copernicus.eu/web/sentinel/-/copernicus-sentinel-data-access-annual-report-2021/1.2>
- 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. This is based on a constellation of 2 satellites, actions are still on-going to adjust the Sentinel-1A observation scenario in order, to some extent, to fill some gaps created by the current unavailability of Sentinel-1B. It should be noted that Sentinel-1A was however already operated close to its maximum capacity.
- 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 Sentinel-1A instrument acquisition segments is published at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario/acquisition-segments>
- Sentinel-1A was unavailable between 16:21 UTC on 23 May 2022 and 08:03 UTC on 24 May 2022, due to a SAR anomaly. No data were generated during this period.
- Two collision risks between Sentinel-1B and two debris (an unknown object and an Iridium 33 fragmentation debris, 1997), separated by 151 min only, potentially occurring on 26 May 2022, were very closely monitored and required the preparation of Collision Avoidance Maneuvers (CAM) actions by the ESA-ESOC expert teams. The situation well improved before the time of closest approach of both debris, it was therefore finally decided not to perform any CAM.
- The Sentinel-1A spacecraft is 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 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
- 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 26 May 2022, a total of 620,959 users have self-registered on the Sentinels OpenAccess data Hub; 39 million Sentinel-1 product download have been made by users, representing 48 PB of data. 7.7 million Sentinel-1 products are available on-line for download, representing 12.5 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-1A routine operations

Report prepared by the ESA Sentinel-1 Team

