



Mission Status Report 409

Reference Period: 28 June 2022 – 11 July 2022

Mission status

- The Copernicus Sentinel-1A routine operations are on-going.
- A major anomaly on the Sentinel-1B satellite occurred on 23 December 2021, the latest news has been published at: <u>https://sentinels.copernicus.eu/web/sentinel/-/copernicus-sentinel-1b-anomaly-6th-update/1.1</u>

The investigations by the Anomaly Review Board have been concluded. A summary report will be published in the coming days.

- 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: <u>https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario</u>
- The detailed observation plan in the form of Sentinel-1A instrument acquisition segments is published at: <u>https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario/acquisition-segments</u>
- Specific actions (NRT data provision of Sentinel-1A products from acquisitions part of the standard plan) were performed in response to the Rapid Mapping activation EMSR586 from the Copernicus Emergency Management Service related to floods in Australia. Here is an example of flood map of Maitland based on S1A imagery acquired on 6 July 2022:
- https://emergency.copernicus.eu/mapping/system/files/components/EMSR586_AOI06_DEL_PRODUCT_r1_RTP03_v1.jpg
- Specific Sentinel-1A observations were planned to support the monitoring over ocean of the tropical cyclone Bonnie and Darby (both in Pacific Ocean)
- 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.
- Sentinel-1A was unavailable between 18:26 UTC on 9 July 2022 and 12:15 UTC on 10 July 2022, due to a SAR anomaly, most probably due to environmental effects. No data were generated during this period.
- A collision risk between Sentinel-1A and a Tsyklon rocket fragmentation debris (1987), potentially occurring on 9 July 2022 at 06:31 UTC, was closely monitored, but no execution of Collision Avoidance Maneuvers (CAM) was finally necessary. The time of closest approach passed without incident.
- The use of the EDRS-A service by Sentinel-1A is on-going as part of the routine operations
- Since the beginning of operations of the Sentinel-1 mission, Wave Mode Ocean (OCN) products contain the significant wave height of the swell for each wave partition observed by the SAR instrument. Since 7 June 2022, the Wave Mode OCN products contain as well the "Total" significant wave height (not only from the swell component). More information at: https://sentinels.copernicus.eu/web/sentinel/-/total-significant-wave-height-is-now-provided-for-the-sentinel-1-wave-mode-acquisitions/1.3
- 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, systematicallyprocessed 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 7 July 2022, a total of 6334,965 users have self-registered on the Sentinels OpenAccess data Hub; 39.6 million Sentinel-1 product download have been made by users, representing 48.9 PB of data. 7.8 million Sentinel-1 products are available on-line for download, representing 12.6 PB of data. Statistics of last 24 hours are available in real time at the Open Data Hub home page: <u>https://scihub.copernicus.eu</u>

Report prepared by the ESA Sentinel-1 Team

Outlook

Continuation of Sentinel-1A routine operations

sentinel-1

→ RADAR VISION FOR COPERNICUS