



## Mission Status Report 408

Reference Period: 14 June 2022 - 27 June 2022

## Mission status

## sentinel-1

→ RADAR VISION FOR COPERNICUS

- 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 on 22 April 2022 at: https://sentinels.copernicus.eu/web/sentinel/-/copernicussentinel-1b-anomaly-6th-update/1.1
  - 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: 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 data were used to support the EMSR577 rapid mapping activation from the Copernicus Emergency Management Service related to flood in Suriname. Here is an example of flood map based on S1A data acquired on 16 June 2022:
  - https://emergency.copernicus.eu/mapping/system/files/components/EMSR577 AOI04 DEL PRODUCT r1 RTP01
- Specific actions (product notification from observations part of the baseline plan) were implemented in response to the following calls from the International Charter Space and Major Disasters:
  - Call 875 on 19 June 2022, related to floods in Bangladesh. Here is an impressive example of flood map based on Sentinel-1A data acquired on 21/6/22: https://disasterscharter.org/image/journal/article.jpg?img\_id=12164507&t=1655977397599 A full report based on the use of Sentinel-1 data is available from: https://disasterscharter.org/web/guest/activations/-/article/flood-large-in-bangladesh-activation-762-
  - Call 876 on 22 June 2022, related to earthquake in Afghanistan.
- With the deployment of a new version of the SAR processor (S1-IPF 3.4), a new element has been added to the products annotations: the Burst ID, which should help the end user to identify a burst area of interest and facilitate searches. More information at:
  - $https: \underline{//sentinels.copernicus.eu/web/sentinel/-/publication-of-brust-id-maps-for-copernicus-sentinel-1}\\$
- 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.
- A collision risk between Sentinel-1B and a Fengyun 1C debris (1999), potentially occurring on 21 June 2022 at 21:06 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
- 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 23 June 2022, a total of 630,246 users have self-registered on the Sentinels OpenAccess data Hub; 39.5 million Sentinel-1 product download have been made by users, representing 48.8 PB of data. 7.8 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

