

Mission Status Report 327

Reference Period: 13 October 2020 – 19 October 2020

sentinel-1

→ RADAR VISION FOR COPERNICUS

Mission status

- 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>
- 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 for CleanSeaNet services; operations with EMSA service providers local stations are on-going.
- The Copernicus Global Land Service operationally uses Sentinel-1 imagery for the generation of Surface Soil Moisture & Soil Water Index products
- **Specific Sentinel-1 observations were planned and actions performed (NRT data provision from already planned acquisition) in response to the call 782 on 15 October 2020 from the International Charter Space and Major Disasters related to floods in Vietnam.**
For this event Sentinel-1 data are also being exploited by the Copernicus Emergency Management Service that was activated as well. See an example of flood delineation map based on Sentinel-1A data acquired on 10 October 2020, with a Sentinel-2 image at the background, at: https://emergency.copernicus.eu/mapping/system/files/components/EMSR472_AOI01_DEL_PRO DUCT_r1_RTP01_v1.jpg
- **Two potential collisions between Sentinel-1B and objects in orbit potentially occurring respectively on 15 and 18 October 2020 were closely monitored over several days, but did not finally result in the execution of Collision Avoidance Manoeuvres (CAM). In both cases the Time of Closest Approach passed without incident.**
- 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. All other PDGS operational services (i.e. Mission Performance, Precise Orbit Determination, Wide Area Network) are operating nominally
- **By 15th October 2020, a total of 388,462 users have self-registered on the Sentinels Open Access data Hub; 29 million Sentinel-1 product download have been made by users, representing 37 PB of data. 5.8 million Sentinel-1 products are available on-line for download, representing 9 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

