



Mission Status Report 385

Reference Period: 7 December 2021 – 13 December 2021

Mission status

- The Copernicus Sentinel-1A and Sentinel-1B routine operations are on-going.
- Despite the difficult situation in Europe due to the COVID-19, efforts are being made toensure 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 aregular 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: <u>https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario</u>
- 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 850 on 7 Dec 2021 related to the eruption of Mount Semeru volcano in Indonesia. Here is an
 example of change detection map generated with Sentinel-1 data:
 https://disasterscharter.org/image/journal/article.jpg?img_id=10729054&t=1639060722481
 - · Call 851 on 8 Dec 2021 related to flooding in the Federated States of Micronesia
- Sentinel-1 imagery (from regular observations part of the baseline plan) was used for the activation EMSR555 from the Copernicus Emergency Management Service (CEMS) related to Flood in the Ebro river basin, Spain. Here is an example of flood map based on a Sentinel-1 acquisition of 10 Dec 2021 and on a Radarsat-2 acquisition on 11 Dec 2021:

https://emergency.copernicus.eu/mapping/system/files/components/EMSR555_AOI01_DEL_MONIT01 r1_RTP03_v1.jpg

- Specific Sentinel-1 observations were planned over seas and coastal areas to support the monitoring of the following tropical cyclones:
 - Ruby (South Pacific Ocean)
 - Rai (29W) (South Pacific Ocean)
- 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 routineoperations
- 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, 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 9 December 2021, a total of 555,387 users have self-registered on the Sentinels OpenAccess data Hub; 37 million Sentinel-1 product download have been made by users, representing 45 PB of data. 7.4 million Sentinel-1 products are available on-line for download, representing 11.9 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>

Outlook

Continuation of Sentinel-1 constellation routine operations

sentinel-1

→ RADAR VISION FOR COPERNICUS