

sentinel-1

Mission Status Report 104

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Reference Period: 26 April 2016 – 2 May 2016

→ RADAR VISION FOR COPERNICUS

Mission status

- The Sentinel-1A routine operations are on-going
- Sentinel-1B has been launched on 25 April 2016, the Launch and Early Orbit Phase has been completed and the Commissioning Phase has started – see next page
- Sentinel-1A data can be accessed from: <https://sentinels.copernicus.eu>
- The observation scenario supports the systematic coverage of a first set of Copernicus Services areas of interest, of European land and coastal waters, of global tectonic/volcanic areas, as well as of other specific targets worldwide for various applications. The observation plan also includes regular mapping of all land areas worldwide. An overview of the observation scenario is available at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario>
- The detailed observation plan in the form of instrument acquisition segments is published on Sentinel Online at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/observation-scenario/acquisition-segments>
- The operational use of Sentinel-1A data by the Copernicus Marine Environment Monitoring Service for sea-ice and iceberg monitoring activities is on-going
- The European Maritime Safety Agency (EMSA) is gradually introducing in the CleanSeaNet service the use of Sentinel-1 imagery in quasi-real time. Preliminary operations with first EMSA local stations are on-going
- 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 satellite is operating nominally. Orbit control manoeuvres are performed once a week
- The Sentinel-1A – Alphasat TDP-1 inter-orbit link characterisation phase is on-going
- 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 Scientific Data Hub. The operational qualification of Level-2 OCN products is on-going (geophysical validation of the Radial Surface Velocity component)
- Operations are performed regularly at the Processing and Archiving Centres (DLR-PAC and UK-PAC). All other PDGS operational services (i.e. Mission Performance, Precise Orbit Determination, Wide Area Network) are operating nominally
- Since 21 July 2015, 100% of the IW and SM data acquired over land are systematically produced to level 1 SLC. More information at: <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1/production-scenario>
- By 28 April, a total of 31,841 users have self-registered on the Sentinels Scientific Data Hub; 4,192,382 product download have been made by users, corresponding to 4.84 PB of data. At the time of publishing this report, 509,000 Sentinel-1A products are available on-line for download, representing 647 TB of data. Statistics of last 24 hours are available in real time at the Data Hub home page (<https://scihub.copernicus.eu>).
- The overall operations mission performance is nominal

Outlook

- Start of EDRS-A - Sentinel-1A user commissioning
- Continuation of Sentinel-1A routine mission operations
- Dedicated Sentinel-1 session on 10 May 2016 at the ESA Living Planet Symposium, Prague, Czech Republic (9-13 May 2016), where more information will be presented on the overall mission status, payload data ground segment, mission performance and product quality as well as examples of Sentinel-1 mission exploitation results

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Sentinel-1B Launch and Early Orbit Phase (LEOP) and Commissioning Phase

- Sentinel-1B was launched on 25 April 2016 from Kourou, French Guiana
- The Soyuz rocket lift-off took place at 21:02 UTC, the separation of Sentinel-1B from the launcher was performed at 21:25 UTC. The first telemetry was then acquired at Svalbard at 21:27 UTC
- The Launch and Early Orbit Phase (LEOP) was successfully completed on 28 April. All deployments were successfully performed during the first 10 hours after launch (i.e. SAR antenna and solar panels) and initial checks of the various Platform and Payload sub-systems were successfully executed
- The SAR payload was activated on 28 April, the first data takes were acquired at 05:37 UTC, only 56 hours after lift-off, and downloaded at the Matera station few minutes later. These data were immediately processed by the Payload Data Ground Segment
- The first Sentinel-1B images were published on 28 April, less than three days after lift-off. See more information at: http://www.esa.int/Our_Activities/Observing_the_Earth/Copernicus/Sentinel-1/Sentinel-1B_delivers
- A potential debris collision was identified for 30 April and closely monitored. Probability of collision decreased and no action was needed
- The satellite Commissioning Phase has started and at the time of finalising this report, the various sub-systems of the platform have been activated and are in nominal state. The satellite, currently in Standby Mission Mode (SMM), is planned to reach its orbital location by mid-June 2016, synchronised with Sentinel-1A at 180 deg. in the same orbital plane
- Detailed tests, characterisation and calibration activities will be performed during the Commissioning Phase, starting with the propulsion sub-system that will allow to consolidate the orbital manoeuvre strategy in the coming days. The SAR calibration and characterisation activities will start mid June.

Outlook

- Continuation of the Sentinel-1B Commissioning Phase
- Start of orbital manoeuvres to reach the nominal orbit, after propulsion sub-system characterisation
- Dedicated Sentinel-1 session on 10 May 2016 at the ESA Living Planet Symposium, Prague, Czech Republic (9-13 May 2016), where more details will be presented in particular on the Sentinel-1B LEOP and Commissioning Status.



One of the first Sentinel-1B images acquired on 28 April 2016, showing the Austfonna ice cap, Svalbard, Norway
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