

## Mission Status Report 429 Reference Period: November-December 2023



# sentinel-1

→ RADAR VISION FOR COPERNICUS

### **Mission status**

- The Copernicus Sentinel-1A operations went on routinely during the reporting period.
- The Sentinel-1A spacecraft is in a stable state, operating in Nominal Mission Mode. No major S/C anomalies are to be reported.
- The Flight Operations Segment (FOS) ensured the monitoring, control and commanding of the satellites nominally. Orbit Control Manoeuvres (OCM) are performed nominally once a week. During the reporting period, 1 Collision Avoidance Maneuver (CAM) were performed for S-1A (01/11) and two for S-1B (13/12, 31/12). CAMs may cause data unavailability due to the cancellation of the OCP-EDRS links.
- The Sentinel-1 Ground Segment operations have continued smoothly with no major anomaly to report. Missing data-takes resulting from CAMs or system unavailability are notified in the <u>sentinel operation dashboard</u>.
- Access to the Sentinel-1 data is available through the new Copernicus Data Space Ecosystem (CDSE) with no
  major anomalies to report for the Sentinel-1 mission. A new CDSE <u>roadmap</u> has been published to prepare the
  user community for the new features.
- The spacecraft and downlink planning has been made successfully:
  - The use of the EDRS service by Sentinel-1A is on-going as part of the routine operations.
  - The detailed observation plan in the form of instrument acquisition segments has been <u>published regularly</u>.
  - Wave Mode data is acquired globally over open oceans, systematically processed to Level-2 OCN products, and made available to CMEMS for operational assimilation.
  - Specific planning requests were placed to support:
    - Charter calls mainly for flood, landslide, oil spill and Earthquake
    - Monitoring of 2 Tropical cyclone systems (end of Atlantic season)
- S-1A Data Quality is nominal and is being checked routinely by the S-1 Mission Performance Center.
- The following articles related to Sentinel-1 were published during the reporting period:
  - Antarctic ice shelf demise
  - Using AI to measure the size of icebergs
  - Earth from Space: Panama Canal
  - Getz Ice Shelf from Sentinel-1
  - Earth from Space: Scorched Rhodes

#### Latest news

• Other news regarding Sentinel-1 can be found here.

### Sentinel-1B disposal

Disposal operations are happening at slower pace due unexpected and rapid degradation of the propulsion system.

By end of December 2023, S-1B re-entry lifetime is within 25-30 years with still ~85kg of hydrazine to depleted.

Despite these issues, the operations are proceeding with the apogee lowering to circularise the orbit above the Starlink constellation. The perigee has been decreased by ~90km and the apogee by ~70km. The 25 years lifetime orbit should be reached by Q1/2024.

Considering the propulsion system issue, the complete fuel depletion appears like a major challenge.