



IDS news

Governing Board



Arnaud Sellé changes of activity and is replaced by **Claude Boniface** as CNES/IDS project manager and representative of the DORIS system within the IDS.

Results of the IDS elections

Two positions renewed in the IDS GB for the period 2023-2026.

- Analysis Coordinator: **Petr Štěpánek** (Geodetic Observatory Pecný, Czech Republic)
- Member-at-large: **Laura Sanchez** (DGFI-TUM, Germany)

Swot data and documentation

Data and auxiliary data available at IDS for SWOT:

- DORIS/RINEX and sp3 POE orbits at IDS Data Centers
- History files for mass, maneuver, and attitude + rotation angles are at IDS Central Bureau (ftp)

NB: quaternions files (netcdf) and solar panel angles (xml) will be provided in a second step.

Documentation

- DORIS satellites models implemented in POE processing by the CNES SOD (updated)
- Description of the theoretical attitude laws for the satellites Sentinel-6 and Swot
- Description of the quaternion files for Swot
- Swot characteristics for POD processing



Swot data and documentation

- DORIS/RINEX

Files are delivered on a daily basis (from 2023/01/12) and stored in the directory doris/data/swo/

File name : sworxYYDDD.LLL.Z

Note that some DORIS/RINEX files do not exist (information given at <https://ids-doris.org/ids/data-products/tables-of-data-products.html#non-existent-files>)

Consequently, you will note some gaps in POE sp3 series.

- Precise Orbit Ephemeris from CNES/SOD (in sp3c format)

One file per 7-day arc stored in the directory doris/products/orbits/ssa/swo

File name: ssaswoVV.bXXDDD.eYYEEE.DG_.sp3.LLL.Z

Mass, maneuver and attitude history files are available at IDS Central Bureau

<ftp://ftp.ids-doris.org/pub/ids/satellites/>

- mass & center of mass history file: swomass.txt

- maneuver history file: swoman.txt

- attitude history file: swoatt.txt (includes angle values of Solar Panel 1 after rotation; see satellite model description)

Note that SWOT initial values of mass and center of gravity coordinates are added in <https://ids-doris.org/documents/BC/satellites/MassCoGInitialValues.txt>

Documentation + SWOT Characteristics for POD processing document

DORIS satellites models implemented in POE processing by the CNES SOD :

<https://ids-doris.org/documents/BC/satellites/DORISSatelliteModels.pdf> (updated)

Description of the theoretical attitude laws for the satellites Sentinel-6 and Swot :

<https://ids-doris.org/documents/BC/satellites/SWOTandSentinel6AttitudeLaws.pdf>

Description of the quaternion files for Swot :

https://ids-doris.org/documents/BC/ancillary/quaternions/swot_quaternions_CNES_product_description.pdf

Swot characteristics for POD processing

https://ids-doris.org/images/documents/BC/satellites/Swot_CharacteristicsForPODprocessing.pdf

NRT data

IDS request: RINEX/DORIS + DIODE sp3 orbit in NRT for Sentinel-3A&B, Sentinel-6A, Saral in addition to Jason-3

- NRT data for Jason-3 delivered by a non-operational chain
- Developments were necessary to include NRT data deliveries in the operational production chain for CNES altimetry products.
- These developments were included in a set of chain evolutions. The new version is currently being tested. It will be operational by the end of the year.
- NRT data production will be introduced mission by mission during S1
→ 5 missions by the end of June 2024.

IDS Activity report

- AR 2021

DOI: [10.24400/312072/i02-2023.001](https://doi.org/10.24400/312072/i02-2023.001)

→ <https://ids-doris.org/ids/reports-mails/governing-board/ids-activity-report-2021.html>

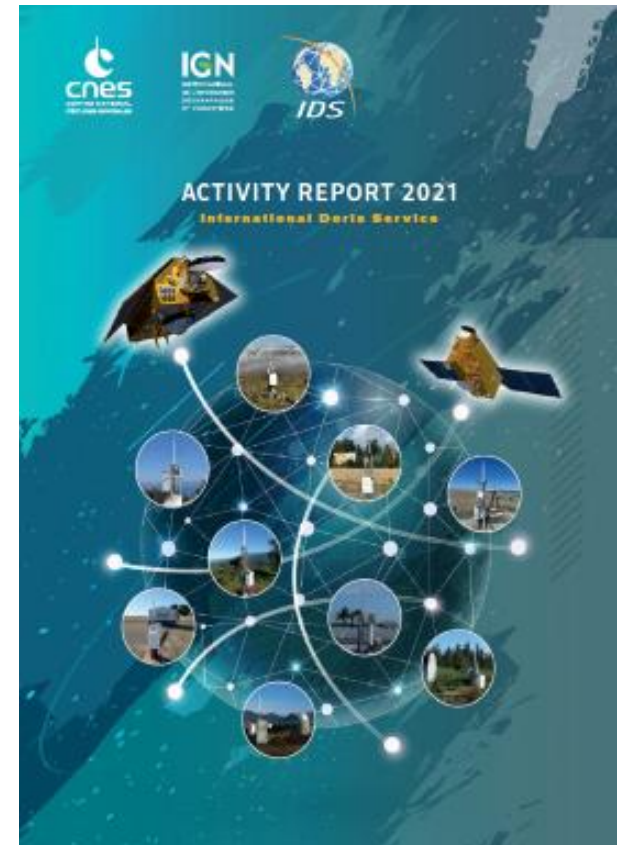
- AR 2022

Coming soon

- AR 2023

Contributors can start the reports.

Call to be sent in January



Newsletter #10 (April 2023)

- DORIS is on SWOT
- Using Near-Real-Time DORIS Data for Validating Real-Time GNSS Ionospheric Maps
by Denise Dettmering (DGFI-TUM) and Ningbo Wang (AIR-CAS)
- IDS contribution to the 2020 realization of the International Terrestrial Reference Frame
by Guilhem Moreaux (CLS, IDS Combination Center)
- Höfn, new DORIS site in Iceland
by Jérôme Saunier (IGN, IDS Network representative)
- The host agency in short: HÖFN
by Gunnar H. Kristinsson (LMI, Director)
- IDS Life



IDS # 10
Newsletter of the International DORIS Service April 2023

DORIS is on SWOT

A new satellite recently joined the constellation of DORIS satellites. It is SWOT, launched on 16 December 2022. There are now nine active DORIS instruments. Never before have so many DORIS instruments been in operation simultaneously.

SWOT (Surface Water Ocean Topography) is a joint project developed by NASA and Centre National d'Etudes Spatiales (CNES) with contributions from the Canadian Space Agency (CSA) and United Kingdom Space Agency. Thanks to its new technical concept, a wide-swath interferometric altimeter named KaRIn for Ka-band Radar Interferometer, the SWOT mission is the first satellite to address both ocean and hydrology objectives. It constitutes a major system design change for space altimetry.

SWOT includes the 18th DORIS receiver contributing to IDS and provides the DORIS constellation with a 4th orbit plane (78°). The instrument, a type DGXX-S receiver as on Jason-3, Sentinel-3A and Sentinel-3B, includes the DIODE navigation software (DORIS Immediate On-Board Determination) which processes the DORIS measurement to produce an estimation of the satellite orbit in real-time with a precision of a few centimeters.

On SWOT, the estimated orbit is used to drive the open loop tracking mechanism of the nadir altimeter Poseidon-3C supplied by CNES, and for the first time, DIODE also provides a 20-second prediction of the satellite position to KaRIn, thus enabling better altimeter data acquisition in areas like coastal zones, inland waters and ice.

DORIS was switched on on 11 January 2023 and very quickly the analysis of DIODE's calculations showed excellent performance for orbit determination and time tagging. Once again, the instrument has proven its autonomy and reliability.

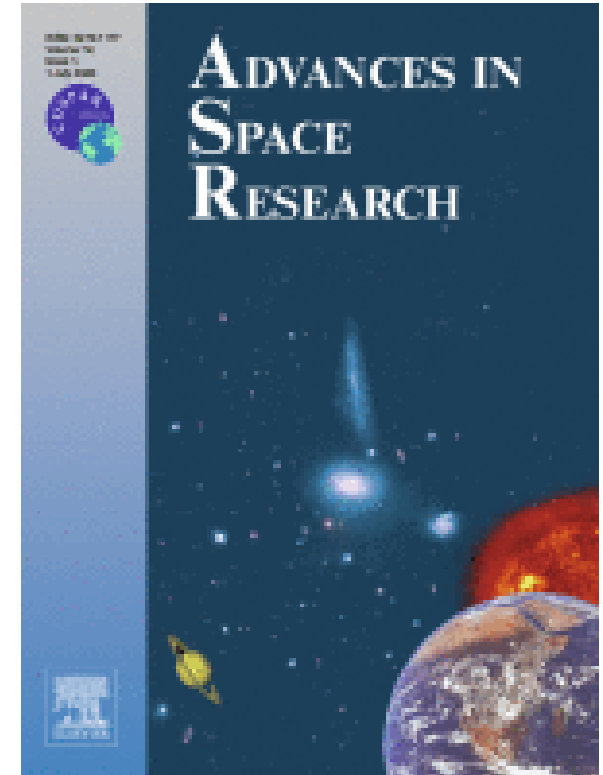
SWOT (© CNES / MIRA PRODUCTIONS)

If you want to subscribe to the newsletter, please send an e-mail to ids.central.bureau@ids-doris.org

Contributions and feedback are welcome at any time. Please send them to: ids.central.bureau@ids-doris.org. The editors reserve the right.

DORIS special issue

- [New Results from DORIS for Science and Society](#),
E.J.O. Schrama and D. Dettmerig
(Eds.), *ADVANCES IN SPACE RESEARCH*,
72(1):1-128 (1 July 2023)



<https://ids-doris.org/ids/reports-mails/doris-bibliography/peer-reviewed-journals.html>

IDS Workshop (TBC)

in conjunction with

« 30 years of progress in radar altimetry symposium »

2-6 September 2024, Montpellier, France

