

The word 'DORIS' in a white sans-serif font, where the letter 'O' is replaced by a blue globe showing the African continent.

# DORIS MISSIONS & System NEWS

# DORIS CURRENT MISSIONS

Today 7 satellites / 14 missions have contributed to IDS since 1990

- SENTINEL 3B (GMES) : 814km, 98.6° April 25th 2018 → 2026 (DGXXS+LRA+GPS)
- SENTINEL 3A (GMES) : 814km, 98.6° Feb. 16th 2016 → 2024 (DGXXS+LRA+GPS)
- JASON3 (Eumetsat/NOAA/NASA/CNES) : 1336 km, 66° January 17th 2016 → 2022 (DGXXS+LRA+GPS)
  - 10 days of SHM Feb 24 to March 6 : Rinex data still disseminated but non nominal attitude and no significant quaternions
- SARAL (CNES/ISRO): 800km, 98.5° February 2013 → end 2019 (DGXX+LRA)
  - warning: star tracker issue since Feb. 3<sup>rd</sup> → Nadir mispointing, no significant impact on DORIS data and POD except during 2 periods of strong mispointing (- 40° Feb. 4th-5th, - 25° Feb. 13th)
- HY2-A (CNSA, NSOAS): 960km, 99° August 2011 → 2019+ (DGXX+LRA+GPS)
- CRYOSAT-2 (ESA): 717 km, 92° April 2010 → end 2020 (DGXX + LRA)
- JASON2 (Eumetsat/NOAA/NASA/CNES): 1336 km, 66° June 2008 → 2019 (DGXX+LRA+GPS)
  - 3 SHM periods since last meeting (RINEX disseminated but non nominal attitude)
    - 5 days in October
    - 9 days in Dec-Jan
    - since Feb 16 back to nominal scheduled in May 20th → No data dissemination until then

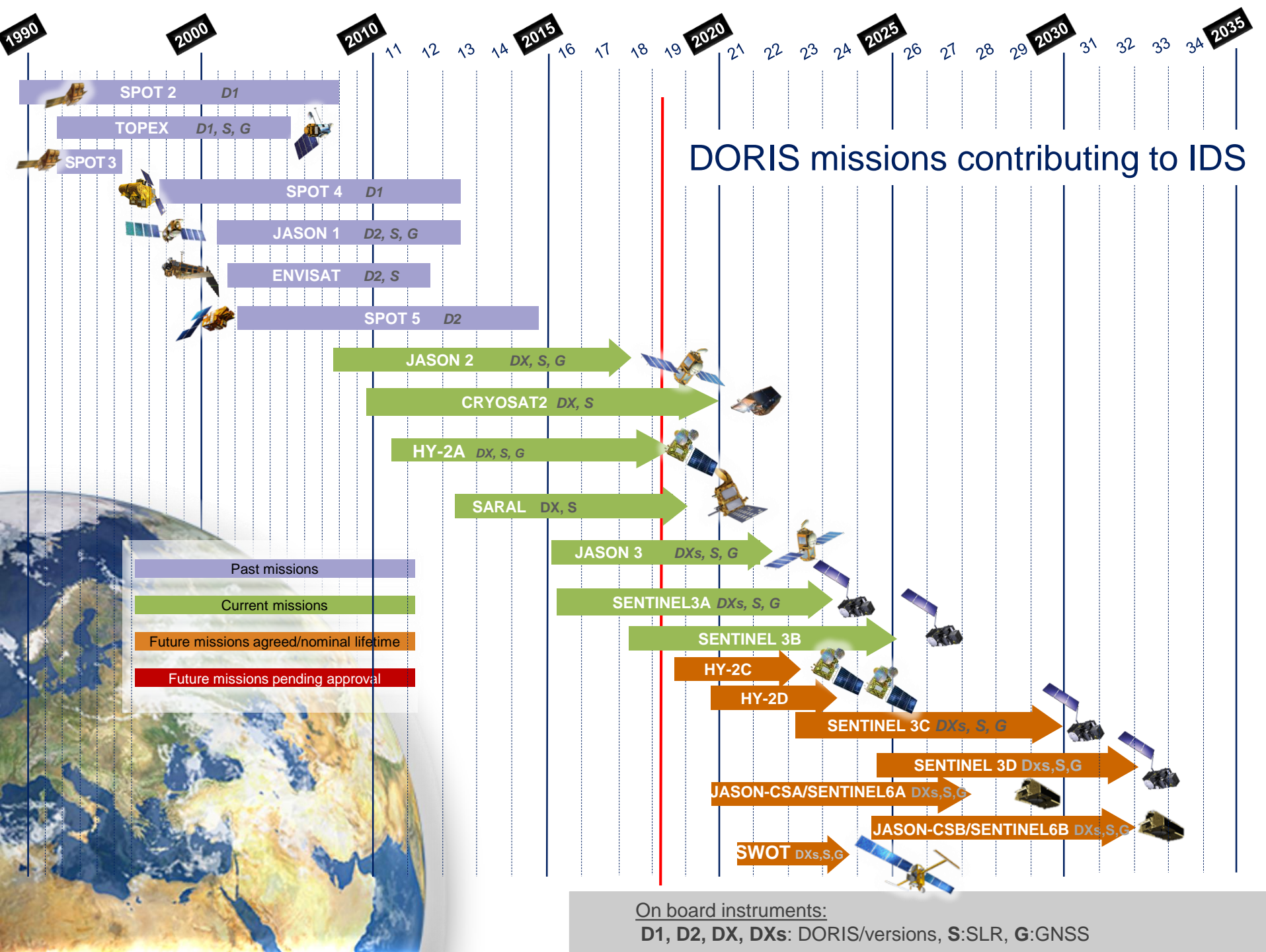
# Future missions (...up to 2032)

- HY2-C (NSOAS) : 958km  
DORIS DGXX-S with USO NG<sup>(1)</sup>  
October 2019 or March 2020
- HY2-D  
DORIS DGXX-S with mini USO <sup>(2)</sup>  
Oct. 2020
- HY2E-F-G-H : (*DORIS not confirmed*)
- Sentinel 3C, 3D (ESA/Eumetsat/CNES) : 814km  
DORIS DGXX-S with mini USO<sup>(2)</sup>  
2023, 2025 (7 years)
- JASON-CSA&B/ SENTINEL 6A, 6B : 1336km  
(ESA/Eumetsat/EU/Cnes/Noaa/Nasa)  
DORIS DGXX-S with mini USO<sup>(2)</sup>  
Oct. 2020, 2025 (7 years)
- SWOT (Cnes/Nasa/CSA/UKSA) : 970km, 78°  
▪ DORIS DGXX-S with USO NG<sup>(1)</sup>  
2021 (3 years)

-----

(1) :DGXX-S with USO NG: current USO as Ja2/3, Cs2, Srl, HY2A, S3a/b

(2): DGXX-S with mini USO : new USO: same specs, smaller, new components (no obsolescence)



# Fourth generation Beacon B4G

- **Designed to be operational up to 2033**

- ✓ New electronic (with up to-date components)
- ✓ Better masks clearance expected thanks to longer distance between beacon and antenna (up to 50 m)



- **Schedule : On time**

- ✓ pre-serie model installed in July 2018 at CLS emitting since then with a shifted frequency:
  - ✓ correct functioning,
  - ✓ Performances in the average of the network
  - ✓ Additional performance tests will be carried out in Grasse
- ✓ April 2019: start of beacons B4G deliveries
  - ✓ 2019: 20 B4G will be delivered, 5 by 5 as follows: 5 with 25 m of cable length, 5 with 50 m cable length, then 5 without OUS, 5 AD until the end of September 2019
  - ✓ 2020: 25 or 24 beacons
  - ✓ 2021: 24 or 25 beacons → ~ 70 beacons

# On board DORIS receiver

## ❑ Technical expertise concerning radiations :

- April 2019: start of R&T study to Reduce the Oscillators Radiations sensitivity and to improve their characterization.
- Sentinel 3A, B, C, D, Jason CSA&B : with coupled GNSS & DORIS → Real time observation of the DORIS USO frequency (by the GNSS)
  - ✓ Available in the TM
  - ✓ Useful to correct the SAA effect on ground processing

## ❑ R&T study : coupled DORIS-GNSS receiver:

- 2018: architecture of a receiver using both DORIS and GNSS signals: (presented by J. Jayles at IDS Workshop in Punta Delgada)
- April 2019: start of a 2 year study to build a prototype with the software implemented in the target ECU.



**Service International DORIS**

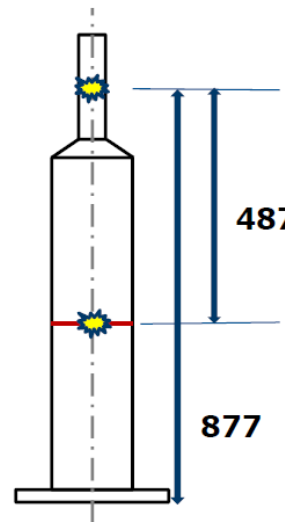
**<http://ids-doris.org>**

**[www.cnes.fr](http://www.cnes.fr)**

# New ground Antenna STAREC

- 20 + 20 antennas, from batches 2016-2017
- **NEW RF characteristics (vs STAREC B, C)**
  - ✓ New center of phase 2 GHz (34 mm lower than on STAREC B,C)
  - ✓ New center of phase 400 MHz (39 mm lower than on STAREC B, C)
  - ✓ New phase law (vs STAREC B,C) → definition and validation in progress
- **IDS will be informed** by DORISmail, and the **documentation will be updated** accordingly
- Antennas will be deployed from 2019

**STAREC B & C :**



**STAREC type D**

