

# DORIS SYSTEM STATUS

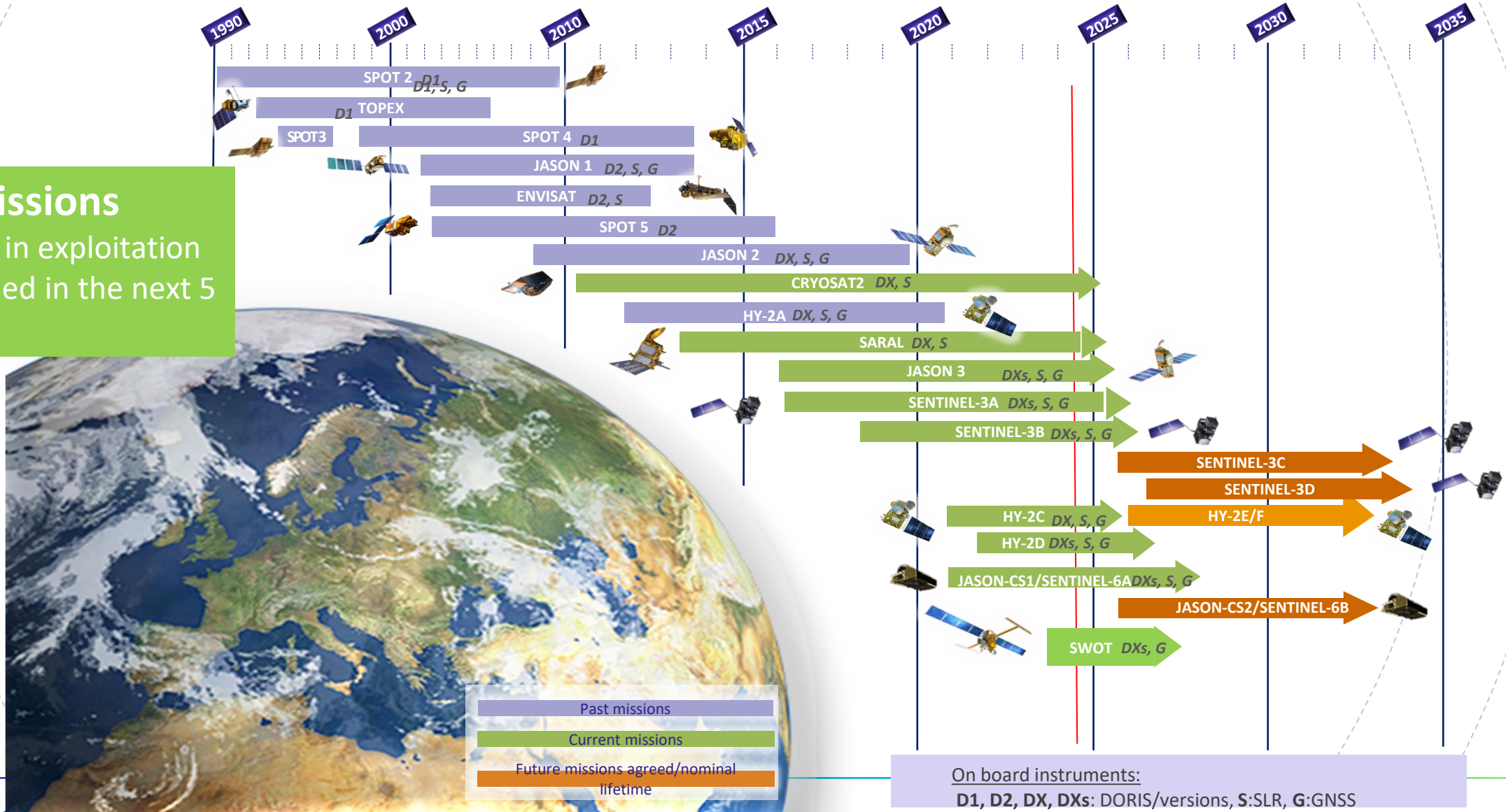
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# AGENDA

- Current constellation
- Future missions
- DORIS NEO
- Studies and opportunities
- Network

# DORIS CONSTELLATION

**Current missions**  
 9 instruments in exploitation  
 5 to be launched in the next 5 years



# FUTURE MISSIONS

## GENESIS

- ✓ ESA Scientific Geodetic mission, planned to launch in 2028
- ✓ 4 Geodetic techniques onboard : VLBI, SLR, GNSS and DORIS
- ✓ Main goal : improvement of the ITRF accuracy

## DORIS/GENESIS

DGXX-SEV model

Procurement supported by CNES

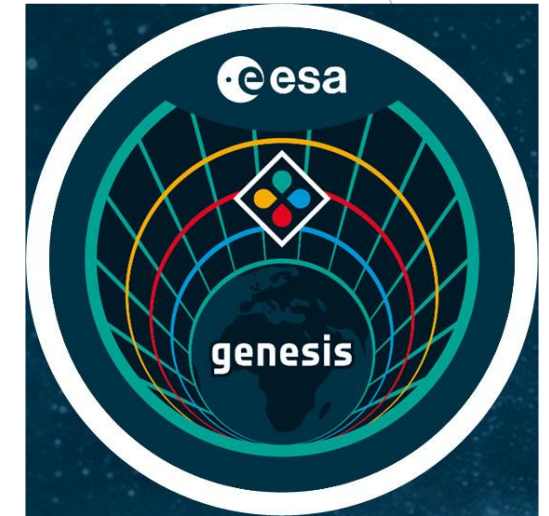
Preliminary technical analyses carried out at CNES DORIS laboratory :

-> to confirm the technical feasibility of flying DORIS instrument on 6000km orbit

-> to identify the main aspects to be addressed during a « phase A » to update the DIODE navigator and the on-board software for the GENESIS orbit

Schedule : Phase A, 6 months from the end of 2024

Manufacturing, 18 months



# FUTURE MISSIONS

## **Sentinel6C**

Data continuity with Jason/Sentinel6A&B

Same organization as Sentinel6A&B : Airbus DS GmbH prime contractor

Launch around 2030

## **Sentinel3 NG Topo**

2 satellites for ESA Copernicus Program

Strong heritage from SWOT altimeter

2 DORIS instruments supplied by CNES (TBC in October, conclusions of CNES Programming Seminar)

Launch around 2032

## **HY2 G & H**

NSOAS confirmed its altimetry constellation HY2

# THE NEW DORIS RECEIVER : DORIS NEO

- ✓ This is the 5th generation of DORIS receiver
- ✓ This new development has started since December 2023 with Thalès-DMS
- ✓ Schedule :
  - Phase B1 conformity study : done in April 2024
  - Phase B2 : design proposal
  - PDR : March 2025

## Our main purposes for this new generation

- Modern electronical design
- Performances at least as good as previous generation
  - Adaptability for the missions need
- High calculation capacity, to improve physical models
  - Number of signals >8

# STUDIES ONGOING

- R&T radiations on USO (Ultra-Stable Oscillator):

Objective: define the pre-irradiation level to obtain USO more robust against the space radiations

Progress and preliminary conclusions:

- Some batches of resonators have been tested with different pre-irradiation
- Very good behavior for Cristal Innov material than NDK
- A pre-irradiation at 100krad seems to be the best choice

Activities on 2024/2025:

- Last measurement campaign to evaluate the annealing effect (July, and December)
- Final conclusion : recommendations for DORIS NEO USO


- R&T Twin DORIS-GNSS receiver

Stand-by situation on 2024, but study to be reconsidered seeing as its technical interest



# BEACONS NETWORK

Positive status on B4G in the network :

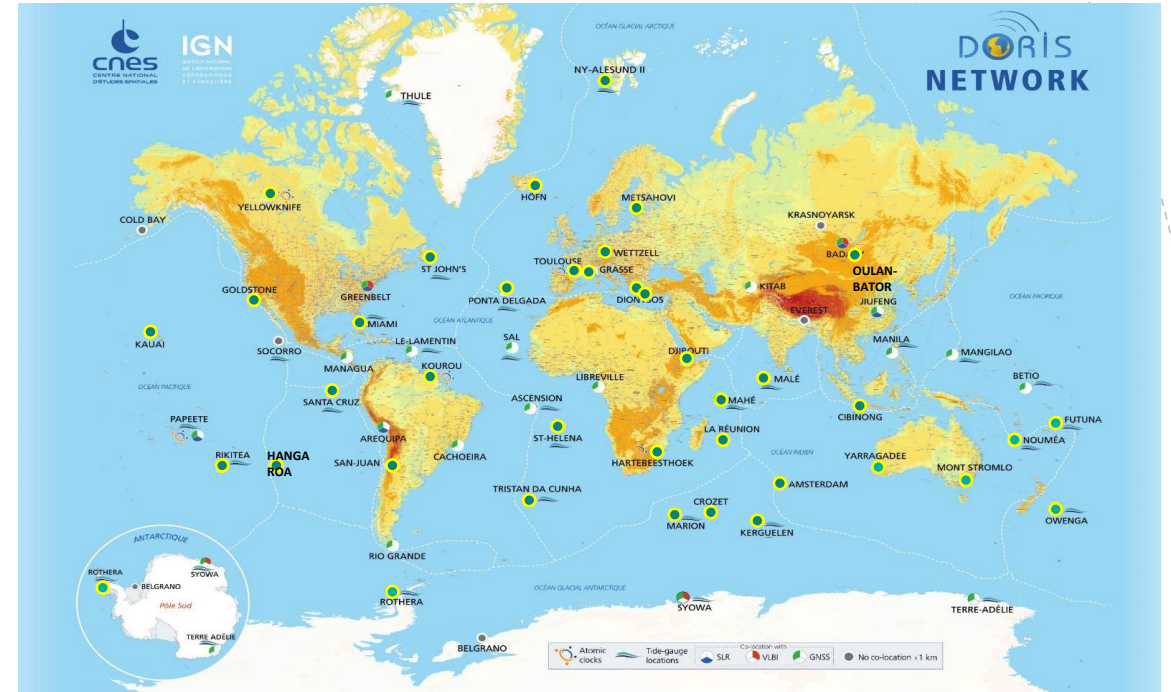
38 B4G are deployed in the DORIS network 

No B4G failure so far

Connection to atomic clocks

- ✓ On Yellowknife site : B4G and passive maser are connected
- ✓ On HBK, Greenbelt, Kauai sites : projected

Connection to colocated GNSS receivers : under study





# CONCLUSION

- ✓ A current full constellation
  - ✓ A dynamic future
- ✓ A new generation receiver
- ✓ A network in good health

## For information :

Job change on my side

DORIS project manager -> CNES Space Geodesy project manager, in charge of IDS and the OG<sup>2</sup>P, Geodesy and Geophysics Observatory of Papeete

# THANK YOU FOR YOUR ATTENTION