DORIS SYSTEM NEWS

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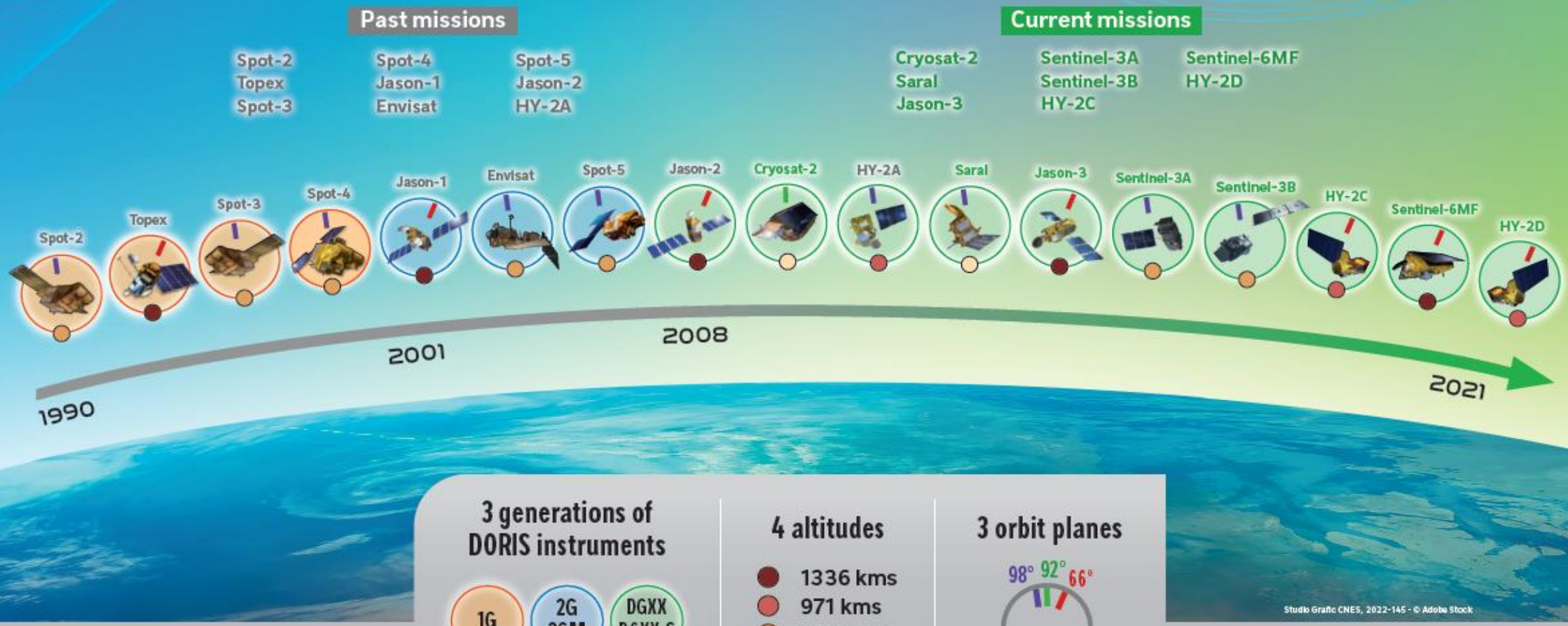
The DORIS constellation 2022



Number of tracked beacons: 1 2 7

DORIS

CONSTELLATION for IDS

(8/17 satellites in flight)

SPOT 2 *D1, S, G*

D1 TOPEX

SPOT3

SPOT 4 *D1*

JASON 1 *D2, S, G*

ENVISAT *D2, S*

SPOT 5 *D2*

JASON 2 *DX, S, G*

CRYOSAT2 *DX, S*

HY-2A *DX, S, G*

SARAL *DX, S*

JASON 3 *DXs, S, G*

SENTINEL-3A *DXs, S, G*

SENTINEL-3B *DXs, S, G*

SENTINEL-3C

SENTINEL-3D

HY-2C *DX, S, G*

HY-2D *DXs, S, G*

HY-2E/F/G/H

JASON-CS1/SENTINEL-6A *DXs, S, G*

JASON-CS2/SENTINEL-6B

SWOT

SENTINEL - 6C

Past missions

Current missions

Future missions agreed/nominal lifetime

Future missions pending approval

On board instruments:

D1, D2, DX, DXs: DORIS/versions, **S**:SLR, **G**:GNSS

FUTURE DORIS MISSIONS

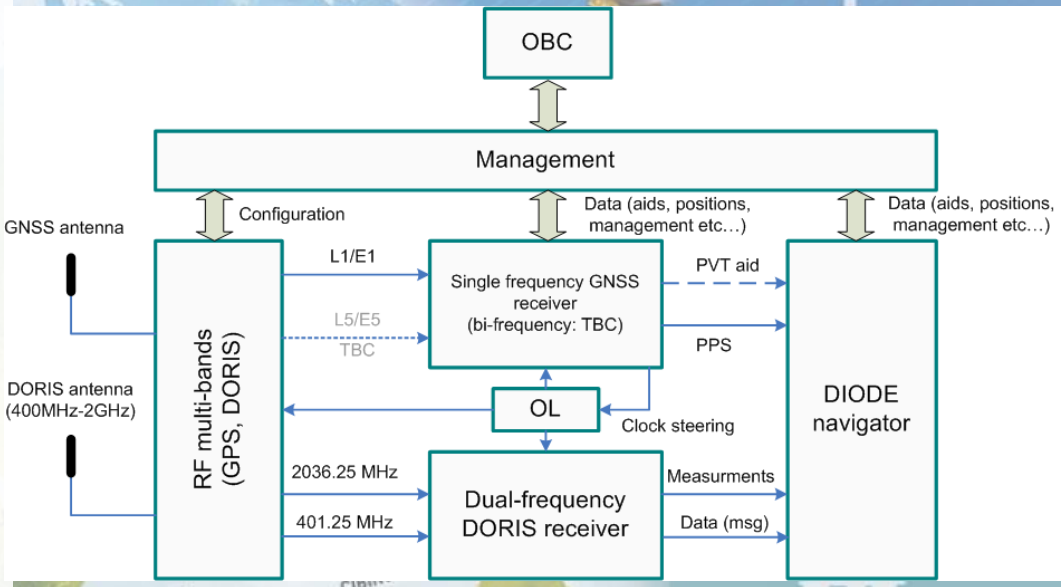
- **HY2-E&F :** continuation of Chinese altimetry missions (NSOAS), recurrent of C&D with 2 last DGXX-S models. The order is expected by T-DMS for this year.
- **ESA altimetry missions**
  - **CRISTAL:** glaciometry, DORIS in "payload of opportunity" pending confirmation for the DORIS instrument
  - **Sentinel6-C:** DORIS instrument is essential on board, launch in 2030 (AC)
  - **Sentinel3 NG:** phase A in progress, DORIS not confirmed yet on board
- **New projects under study:**
  - **NGGM/MAGIC :** ESA phase A, gravity field measurements mission (satellites in tandem at 350km), DORIS contribution by differential Doppler measurements
  - **GENESIS:** ESA phase A, E-GRASP type mission (satellite at 6000km), with the 4 geodetic techniques

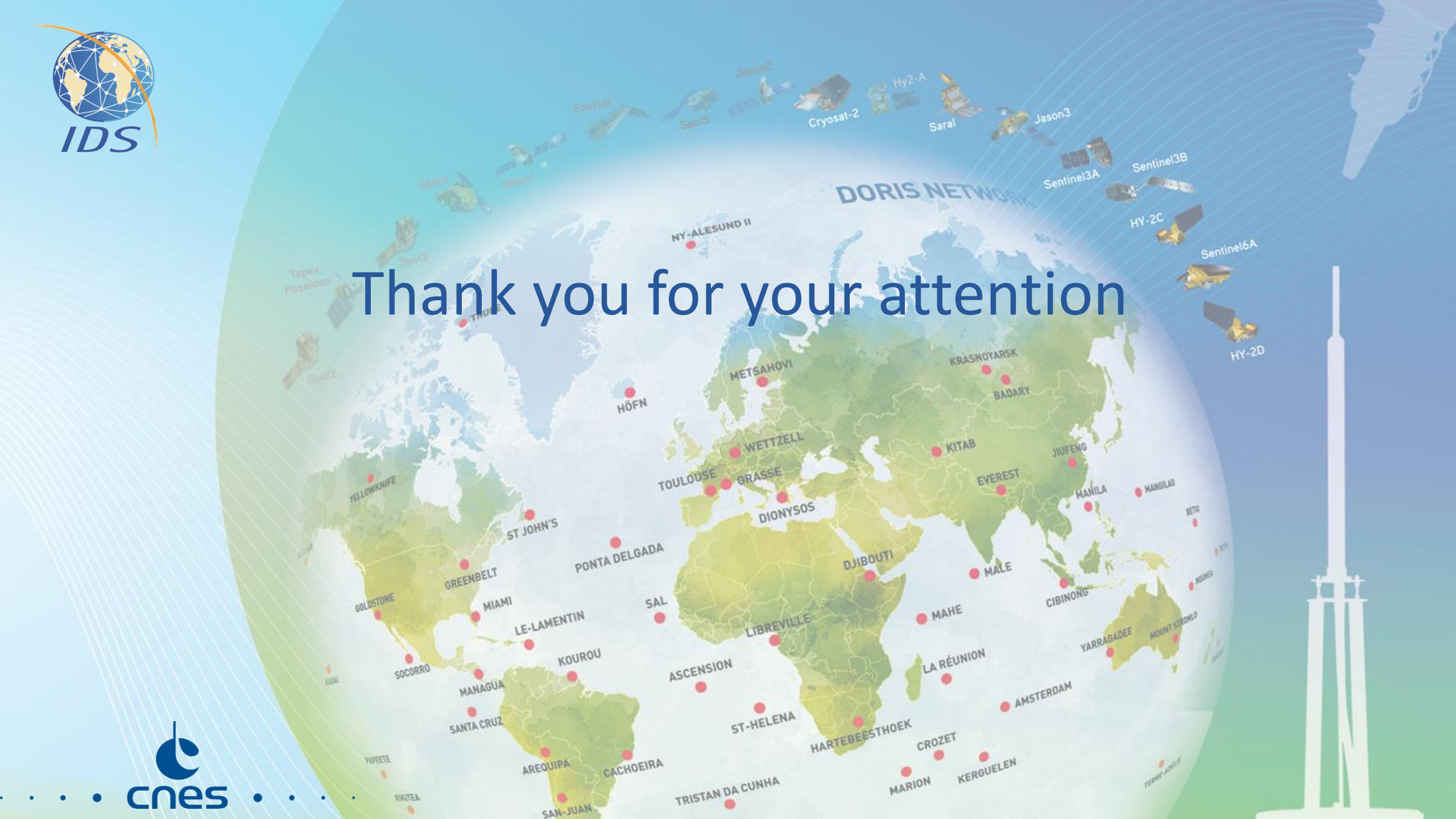
Future DORIS on board Instrument (1/2)

- **A 4th generation instrument is needed → DORIS NEO**
- Phase A work done by T-DMS (6 months in 2021) co-engineering with CNES
  - ✓same-performance and same-functionality
  - ✓A strong objective to reduce costs and manufacturing time, but also the mass and volume of the receiver box
  - ✓Technological breakthrough with recent components and techniques (SDR): AD9361, FPGA, multi-core processor
    - ➔better scalability through software reprogramming
  - ✓Deep re-design of the cards
    - Simplification of the receiver
    - 2 Independent chains with its own OUS on each
    - Proposal of a single-chain receiver for some missions
    - Proposal of modularity of the instrument

Future on board Instrument (2/2)

- **R&T action on a mixed DORIS/GNSS receiver (SYRLINKS carrier)**
  - A single receiver for the 2 GNSS and DORIS signals
  - Significant reduction of Mass, Cost, Volume (use of SDR techniques)
  - Take advantage of each system: time/frequency delivered by GNSS, orbit determination delivered by DORIS/DIODE
  - Objective: "attract" new missions on small platforms (constellations), not necessarily needing ultra-precise POD performances
  - Demonstrator phase to start in 2022
- **In addition a study on DORIS antenna is to be conducted at CNES**





Thank you for your attention