

DORIS

DAYS
2021

November 16,17 and 18

DORIS beacon of 4th generation

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Session 3 – Presentation 4



DORIS NETWORK

HY-2D

Sentinel6A

HY-2C

Sentinel3A

Sentinel3B

Jason3

Saral

Hy2-A

Cryosat-2

Spot5

Jason2

Envisat

SETTING UP OF THE B4G PROJECT

Assessment in the early 2010s :

- the B3G beacons were aging (at least 10 years old).
- The failures were numerous.

The CNES takes decision to **ensure the DORIS service continuity until 2033 at least**

⇒ B4G project was decided in 2015.

⇒ After a request for proposals, the ECA company was chosen.

B4G PROJECT MAIN GOALS

- **The B3G feedbacks show some required improvements**
 - obsolescence of components addressed.
 - make the installation and maintenance easier.
 - improve the antenna environment and its field of view.
 - remote access to improve the availability of the network, and make hosts's job easier.
 - reduce the cost.
- **Major improvements**
 - ⇒ fewer electronic cards and less settings : costs reduced and higher autonomy.
 - ⇒ amplification module deported on the antenna mast and RF cables with 25m or 50m of length. : optimization of the antenna position, far from the buildings, to avoid masks and disturbances.
 - ⇒ an indoor rack which integrates the battery : compact configuration.
 - ⇒ a MGM (Meteorology GPS Module) module which integrates a meteo station, a GPS and an Iridium (satellite) connection : autonomy to set the clock.
- Concerning the antenna : no change.

TECHNICAL DESCRIPTION

BEACON B3G

Gestion rack with
power amplifier

Iridium module

Power supply and
battery charger

Battery



Meteo station



Iridium antenna



Cables of 15m and antenna



- ⇒ Many elements to install.
- ⇒ Many cables between them.
- ⇒ Short distance between the antenna and premises.

TECHNICAL DESCRIPTION

BEACON B4G

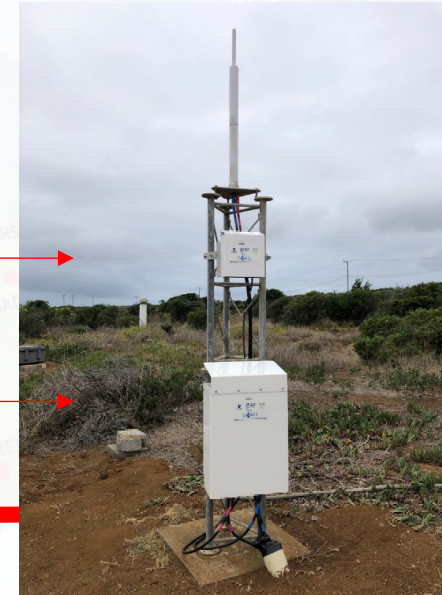
A simple gestion rack, with battery inside



Small white box : MGM module

Medium white box : deported amplifier

RF cables of 25m or 50m



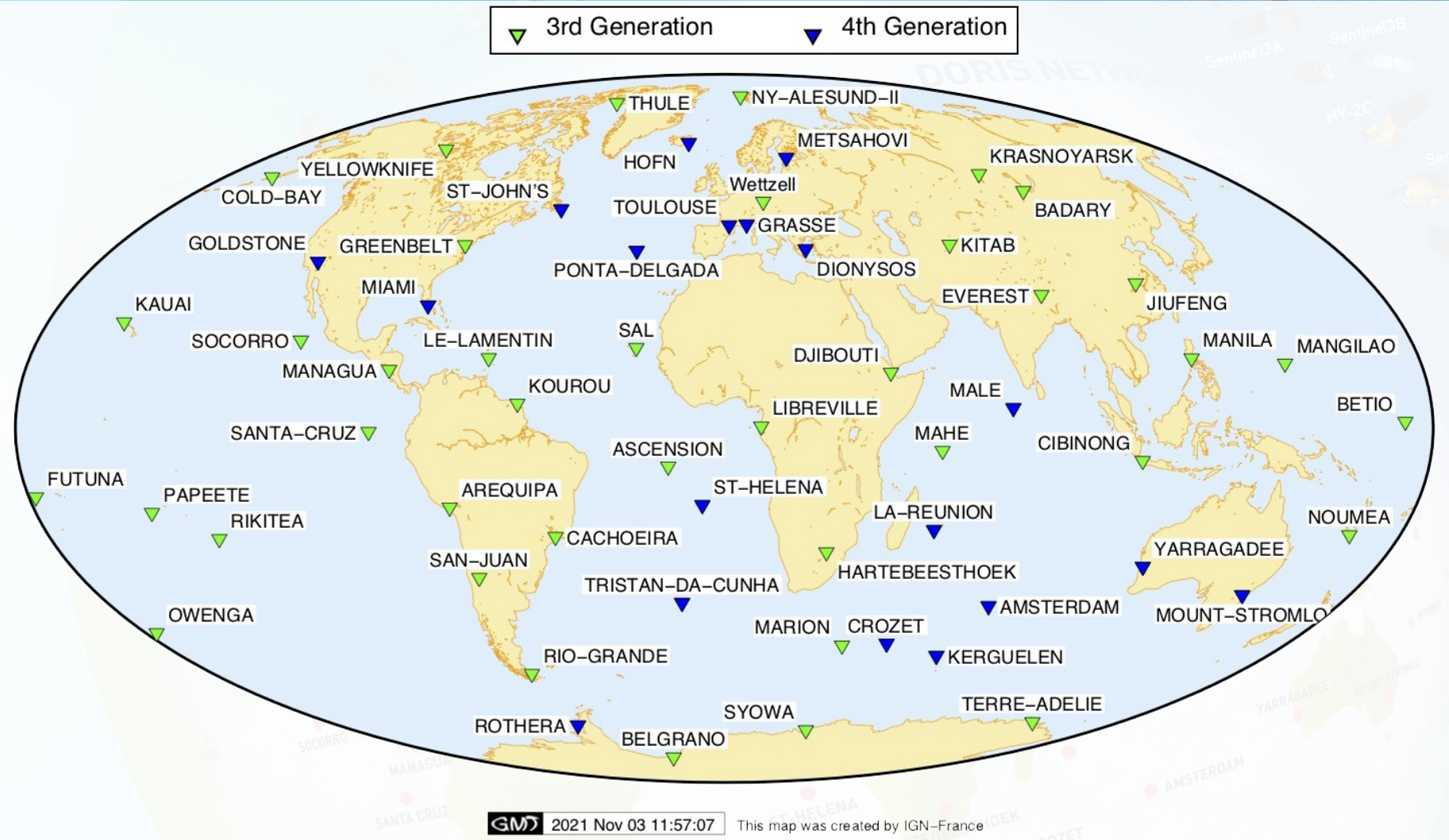
Saint Helena antenna with Leclerc pillar

- ⇒ Compact configuration
- ⇒ Less cables
- ⇒ Clear field of view for the antenna

DEPLOYMENT : how is it managed?

- 80 supplied B4G beacons
- The deployment is ongoing, the first one was installed in 2019
 - Failures of B3G
 - Facility to go to the site
 - Autonomy of the hosts
- Today 19 B4G are in the network, with validated functioning, and good performance.

DORIS BEACONS NETWORK



Key points

- ✓ The B4G deployment is ongoing.
- ✓ The involved teams (IGN and CNES) are dynamic.
- ✓ The DORIS signal will still be emitted for several years (2033 at least) and is freely available.