



# DORIS OVERVIEW 2015.09

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(on behalf of the International DORIS Service)

*GGOS Bureau of Networks and Observations*

# What is DORIS?

**DORIS: Doppler Orbitography and Radiopositioning Integrated by Satellite.**

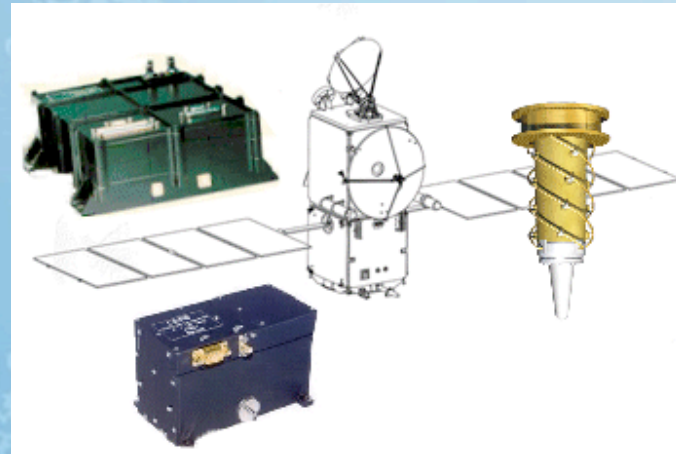
**Conception and implementation: CNES & IGN (France).**

**Purpose: Satellite position (e.g. altimeter satellites), space geodesy for ITRF.**

**Method: Dual frequency transmissions (1-way Doppler) from ground beacons (401.25 Mhz, 2036.25 Mhz).**



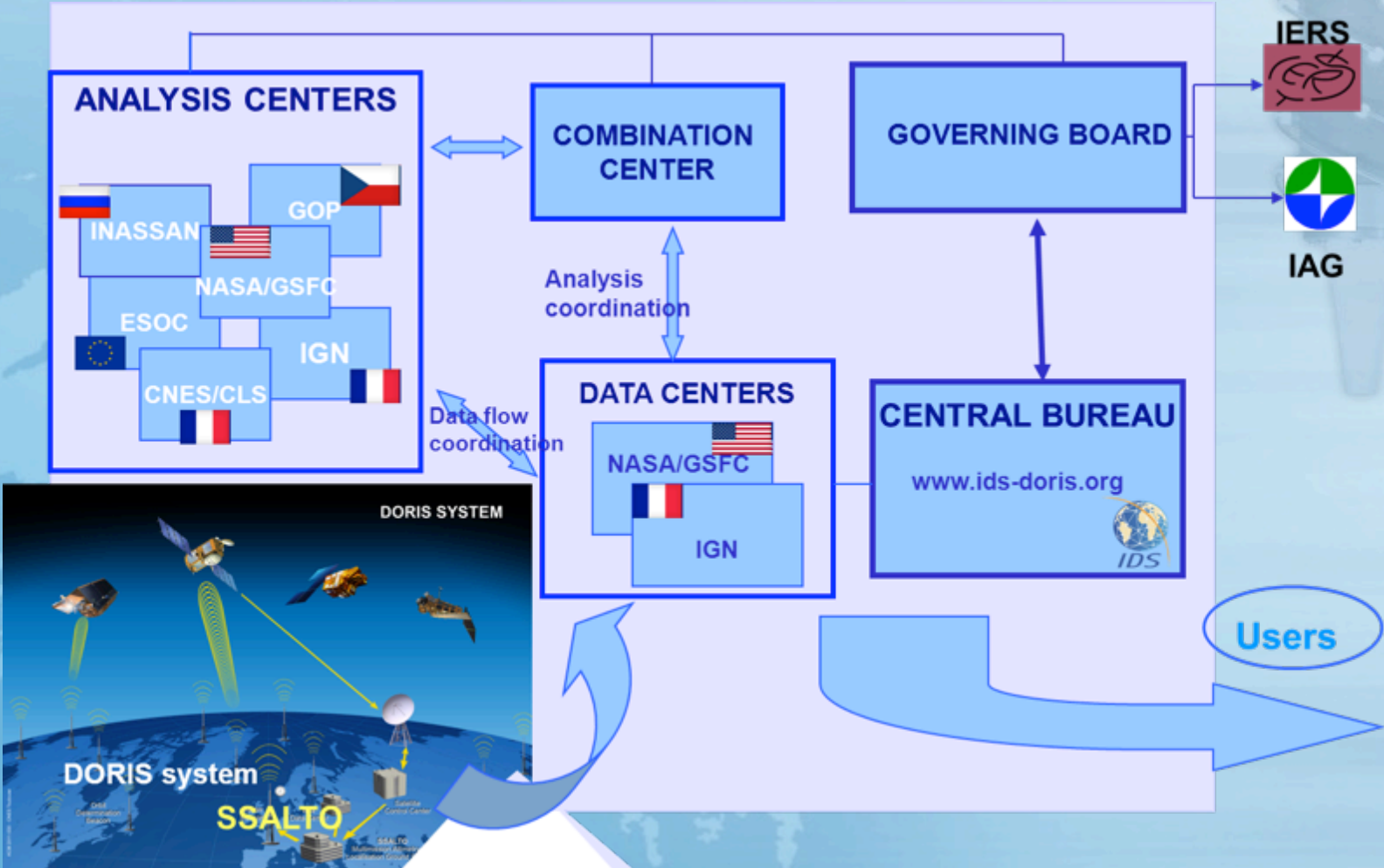
DORIS ground station example  
with **Starec** antenna  
(GRFB, *Greenbelt, U.S.A.*)



## Satellite elements:

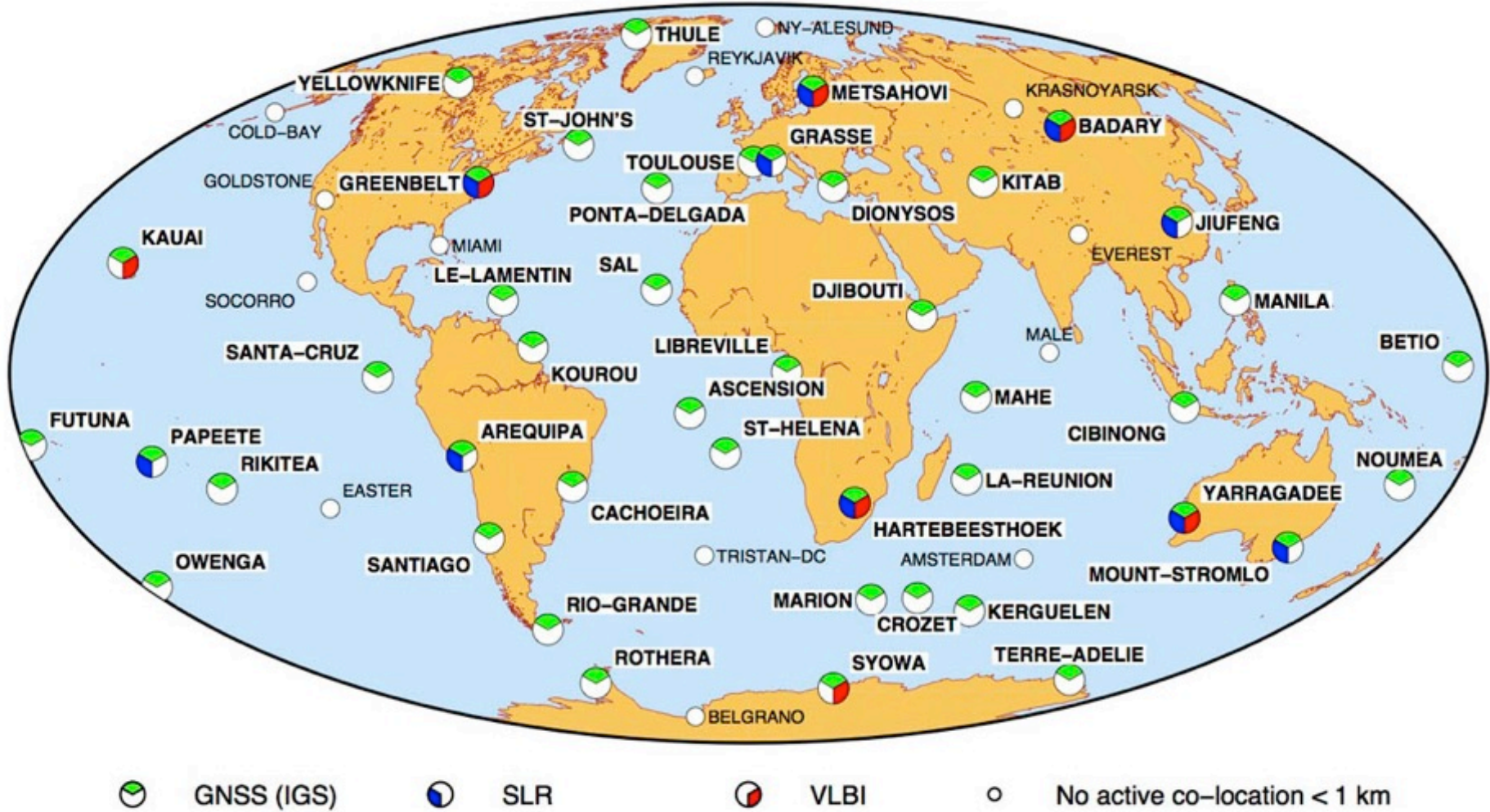
- (1) Satellite in Low Earth Orbit (LEO);
- (2) DORIS receiving antenna;
- (3) DORIS DGXX Receiver (*tracks up to 7 beacons simultaneously*)

# Organization of the International DORIS Service





# Current DORIS tracking network (September 2015)



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**Future colocations:** Wettzell (Germany) [SLR, GNSS, VLBI], San Juan (Argentina) [SLR, GNSS], Ny-Alesund [GNSS, VLBI, SLR]

¶ San Juan, Argentina to host DORIS after decommissioning of Santiago.

# DORIS Satellite tracking coverage

(~800 km altitude, 12° elevation)



**DORIS @ Cachoeira Paulista**

**DOMES Number: 41609**

**Host agency: INPE**

CACB: 1992 - 2004.

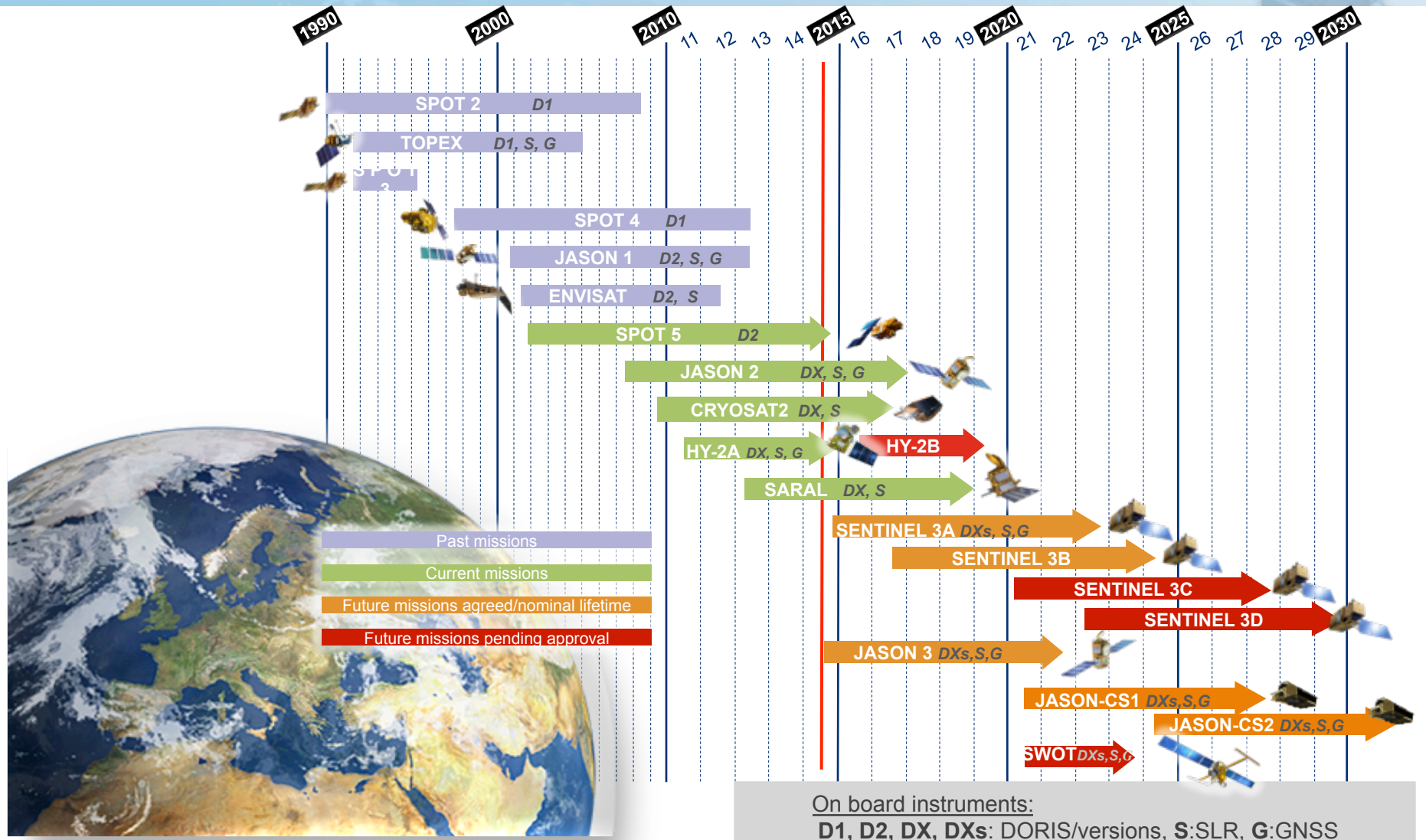
CADB: 2004 - Present.

(one of the longest occupations in the DORIS network).

(<http://ids-doris.org/network/sitelogs.html>)



# DORIS CONSTELLATION SUMMARY



# Analysis Update

1. Six active DORIS analysis centers (**ESA, GOP, GSC, IGN, INA, GRG**). GFZ requested status of Associate Analysis Center. Interest expressed by the Norwegian Mapping Authority (**NMA** or Kartverket).
2. DORIS ACs routinely submit SINEX solutions each quarter (e.g. 3/30, 6/30, 9/30, 12/30) which are now processed by IDS Combination Center.
3. **ITRF2014**: Contributions of Analysis Centers for ITRF2014 have been validated and IDS combination has been submitted for inclusion in ITRF2014.
4. DORIS Special Issue in the journal “Advances in Space Research”. Papers related to analysis or modeling of DORIS data, with emphasis on ITRF2014. Co-editors: E.J.O. Schrama (T.U. Delft, The Netherlands) & F.G. Lemoine (NASA GSFC, Greenbelt, U.S.A.)

Approximately 20 papers have been submitted, and are under review. This is the third DORIS special issue in a peer-reviewed journal, following the “**Journal of Geodesy**” (2006), and the two volumes published in the journal “**Advances in Space Research**” (2010).

# Next IDS Meetings

**IDS AWG (Analysis Working Group):** October 15-16, NASA GSFC  
(Greenbelt, Maryland, USA)

**IDS AWG:** early-mid 2016. Location TBD.

**IDS Workshop:** October 2016, in tandem with Ocean Surface Topography  
Science Team (Jason-2, Jason-3) Meeting, La Rochelle, France



For more information: see URL: <http://ids-doris.org>

or  
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# DORIS Constellation Status - Current Missions



Satellite	Agencies	Altitude (km)	Inclin.	Dates
<b>DGXX Receiver (7 channels)</b>				
Jason-2	NASA/CNES/ EUMETSAT/NOAA	1336	66°	June 2008 → 2017
Cryosat-2	ESA	717	92°	April 2010 → 2017
HY-2A	CNSA, NSOAS	960	99°	August 2011 → ....
SARAL	ISRO, CNES	800	98.5°	Feb. 2013 →
<b>DGM Receiver (2 channels)</b>				
SPOT-5	CNES	830	98°	May 2002 → ~Oct. 2015.



# DORIS Constellation Status - Future Missions



Satellite	Agencies	Altitude (km)	Inclin.	Dates
<b>DGXX-S Receiver (7 channels)</b>				
Sentinel-3A, Sentinel-3B	ESA	814	98.6°	2015, 2017
Jason-3	NASA/CNES/ EUMETSAT/NOAA	1336	66°	2016 → 2021
<b>HY-2B, C, D§</b>	<b>CNSA</b>	<b>960</b>	<b>99°</b>	<b>2016 &amp; later</b>
Jason-CS A,B	EUMETSAT/NOAA	1336	66°	2019, 2025
SWOT	NASA/CNES	970	78°	2020
<b>§ To be confirmed.</b>				

