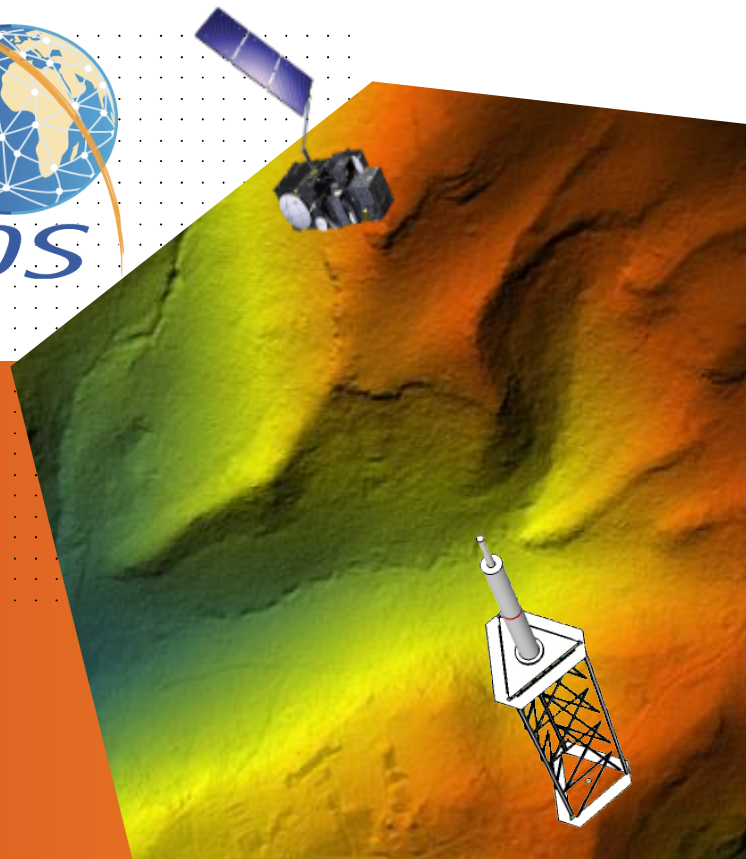




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DORIS NETWORK STATUS REPORT

IDS Analysis Working Group

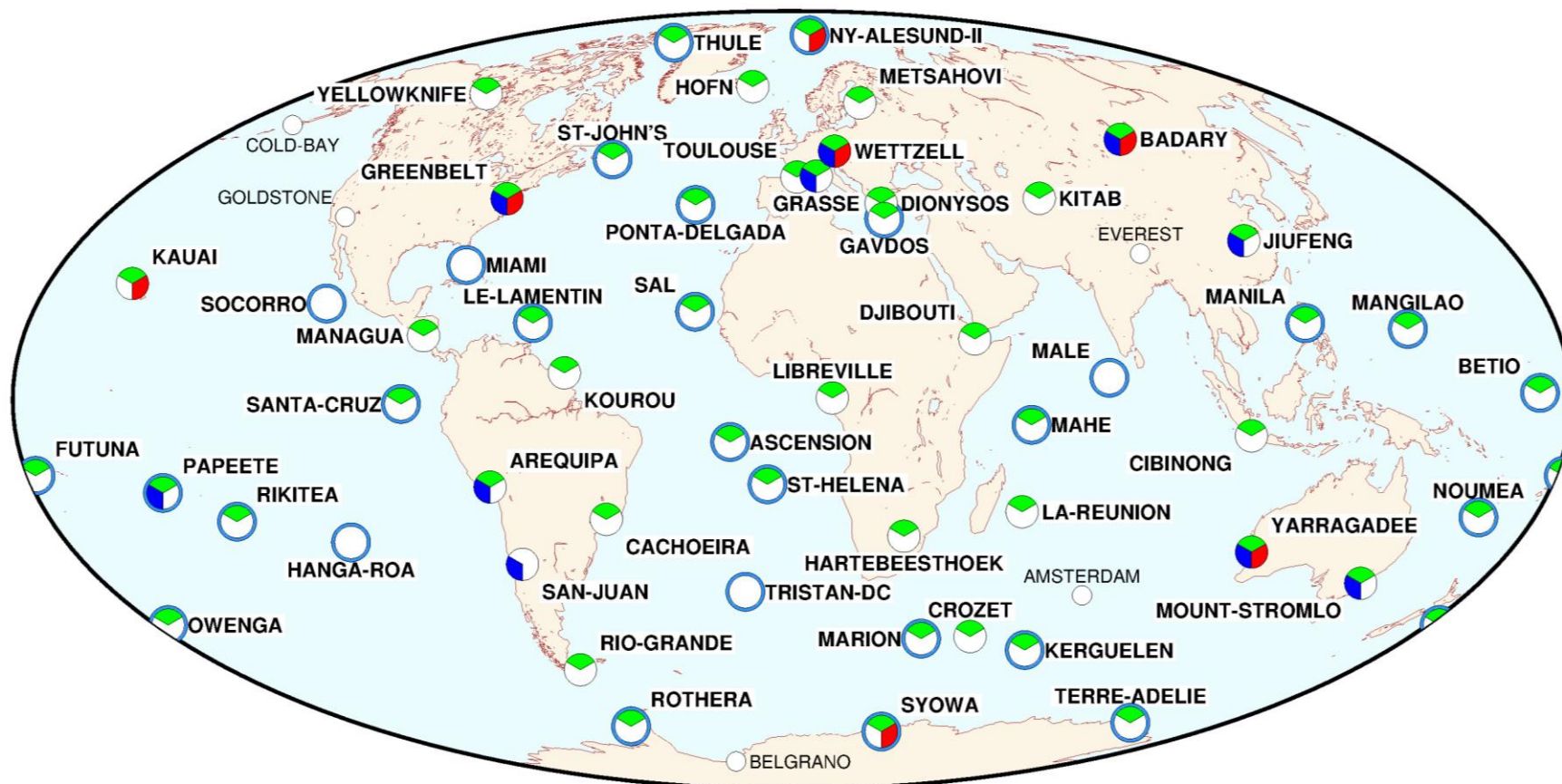
Saint-Mandé, 28 November 2023

Jérôme Saunier, IGN - France

THE IDS NETWORK HAS REACHED 60 STATIONS!

DORIS stations co-located with other IERS techniques and tide gauges

GNSS (IGS) SLR VLBI Tide gauge No active co-location



GMT 2023 Oct 05 11:19:09 This map was created by IGN-France

 Today: 50 stations out of 60 co-located with at least one other IERS technique / 29 with tide gauges

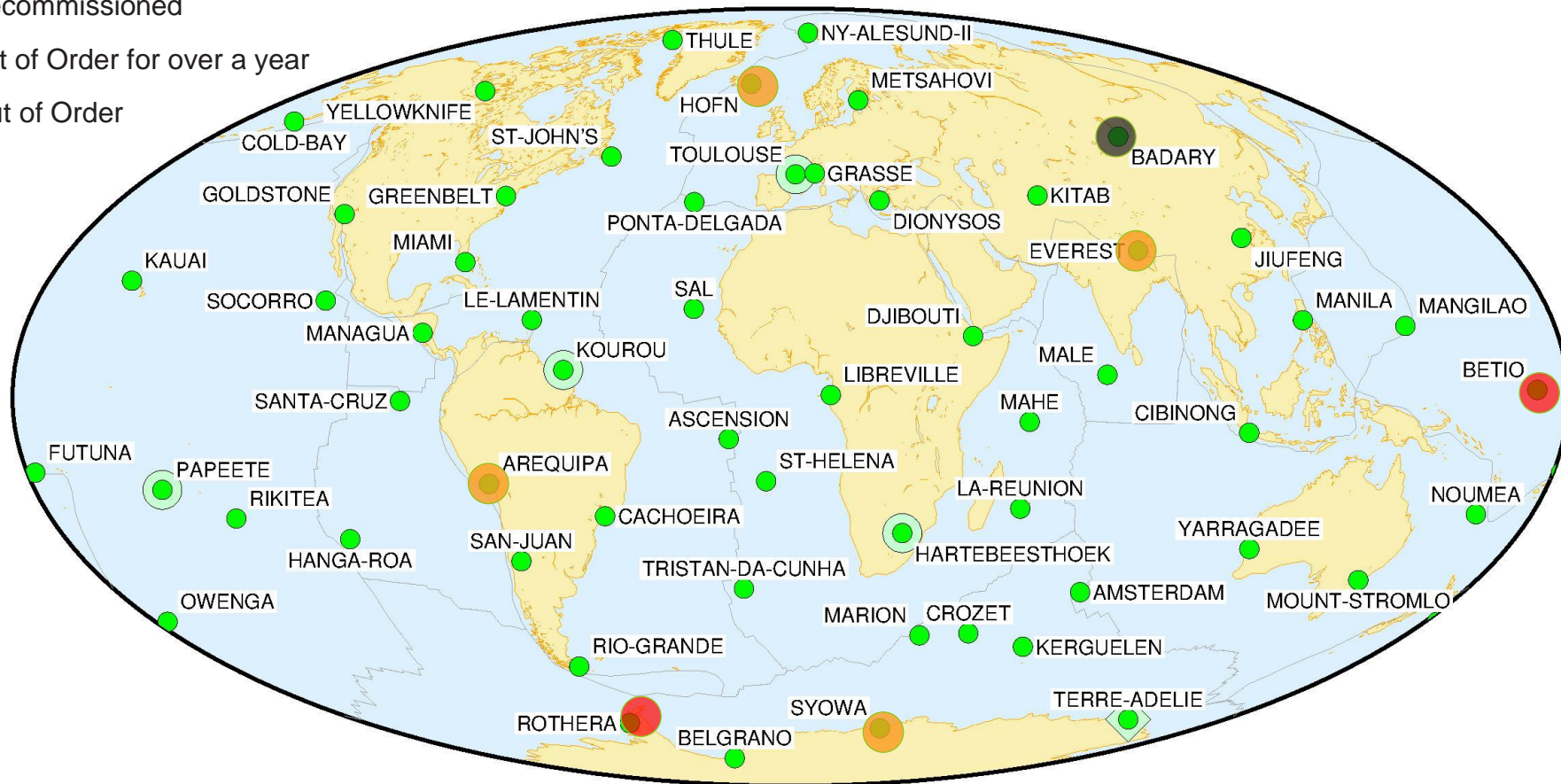
PERMANENT NETWORK OPERATIONAL STATUS

◉ master beacon ◈ time beacon

● Decommissioned

● Out of Order for over a year

● Out of Order



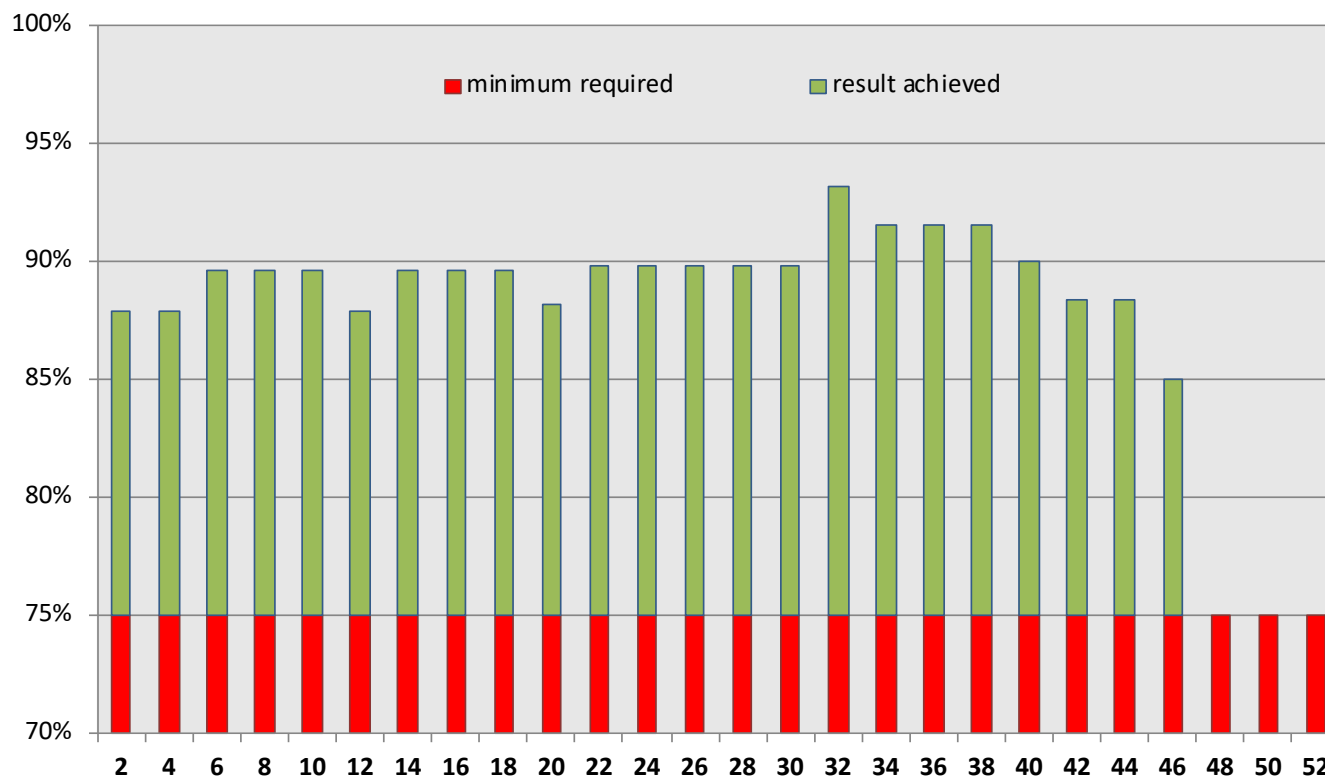
GMD 2023 Nov 08 17:48:30 This map was created by IGN-France

📍 6 beacons are out of order and 1 decommissioned

NETWORK AVAILABILITY

- 📍 Excellent network availability: **89.5% of active stations in 2023**
- 📍 Definitive exit from the Covid-19 crisis that complicated maintenance
- 📍 Network robustness reinforced thanks to the 4th generation beacon deployment

Network availability 2023:
Rate of stations in operation (fortnightly statement)



NETWORK EVENTS 2022

 A number of stations back to operation after 2-year outage due to Covid-19

2022	Station		Event
June	CADB SJVC	Cachoeira San Juan	Reconnaissance with a view to relocate the antenna Beacon replacement: 3G > 4G + Antenna replacement
July	SVBC <i>RIMB</i>	<i>Ny-Alesund II</i> <i>Rikitea</i>	<i>Antenna and Beacon replacement: 3G > 4G</i> <i>Beacon replacement</i>
September	FUUC	Futuna	Antenna and Beacon replacement: 3G > 4G
November	<i>WEUC</i> NOXC OWFC	<i>Wettzell</i> Nouméa Owenga	<i>Beacon replacement: 3G > 4G</i> Antenna and Beacon replacement: 3G > 4G Beacon replacement: 3G > 4G

In normal font: on-site operations carried out by IGN

In italics: operational maintenance (equipment replacement) managed by CNES with the participation of Host Agencies

NETWORK EVENTS 2023



 Bringing some projects to realization in 2023

2023	Station		Event
Jan.	CIDB	<i>Cibinong</i>	<i>Beacon replacement: 3G > 4G</i>
April	KOLB	<i>Kauai</i>	<i>Beacon replacement: 3G > 4G</i>
	HROC	Hanga Roa	DORIS station installation (new site)
	MAVC	<i>Marion</i>	<i>Antenna and Beacon replacement: 3G > 4G</i>
June	SCSC	Santa Cruz	Antenna and Beacon replacement: 3G > 4G
July		Ulaanbaatar	Site reconnaissance for a new DORIS station
<i>September</i>	GAVC	Gavdos	DORIS station installation
	<i>CADB</i>	<i>Cachoeira</i>	<i>Beacon replacement 3G</i>
October	YEMB	<i>Yellowknife</i>	<i>Beacon replacement: 3G > 4G</i>

In normal font: on-site operations carried out by IGN

In italics: operational maintenance (equipment replacement) managed by CNES with the participation of Host Agencies

NETWORK EQUIPMENT UPGRADING

4th generation beacon deployment (B4G)

35 stations now equipped: 58% of the network

Next on the list: Rikitea, Djibouti, Rio Grande...

Gradual replacement of Starec antennae B type with C

Reminder: the uncertainty of the vertical location of the 2GHz phase center is reduced from 5 to 2 mm

27 stations equipped with Starec C: 45% of the network

Last station equipped with Starec C and B4G: Gavdos (GAVC)



2ND STATION DEDICATED TO IDS: KANPUR (INDIA)

2022: start of the process by the IDS GB (Frank, Guilhem, Jérôme)

April 27th: call for proposals for hosting an IDS station

June 30th: 8 proposals from UK, India, Argentina, Czechia, Italia, Cuba, Israël and China

September 15th: first examination => 2 pre-selected sites: Kanpur (India), La Plata (Argentina)

October 19th and 20th: IDS response to non-selected sites and pre-selected sites

2023: start of the project

February 20th : Request for additional information and Doodle poll for a telecon

March 7th: Teleconference with CONICET team (La Plata)

March 24th: Teleconference with IITK team (Kanpur)

April 19th: Final choice during the IDS GB meeting

May 15th: IDS official announcement of the selected site

Early December: site reconnaissance and agreement drafting

Geodesy Village: future 4 techniques site

Current Instruments:

IGS Station (IITK)

Gravimeter

Operated by the **Indian Institute of Technology Kanpur (IITK)**

DORIS antenna location: dedicated area (building + antenna pillar)



NETWORK EVOLUTION



Scheduled in the coming months:

Dec.: **Rikitea**, French Polynesia: major renovation (antenna move + equipment upgrading)
Jan.: **Syowa**, Antarctic: major renovation (station relocation + equipment upgrading)
Mar.: **Cachoeira Paulista**, Brazil: major renovation (antenna move + equipment upgrading)
Apr.: **Everest**: major renovation (antenna move + equipment upgrading)
Jun.: **Katherine**, Australia (co-location GNSS + VLBI): station installation and commissioning

Short term (within a year):

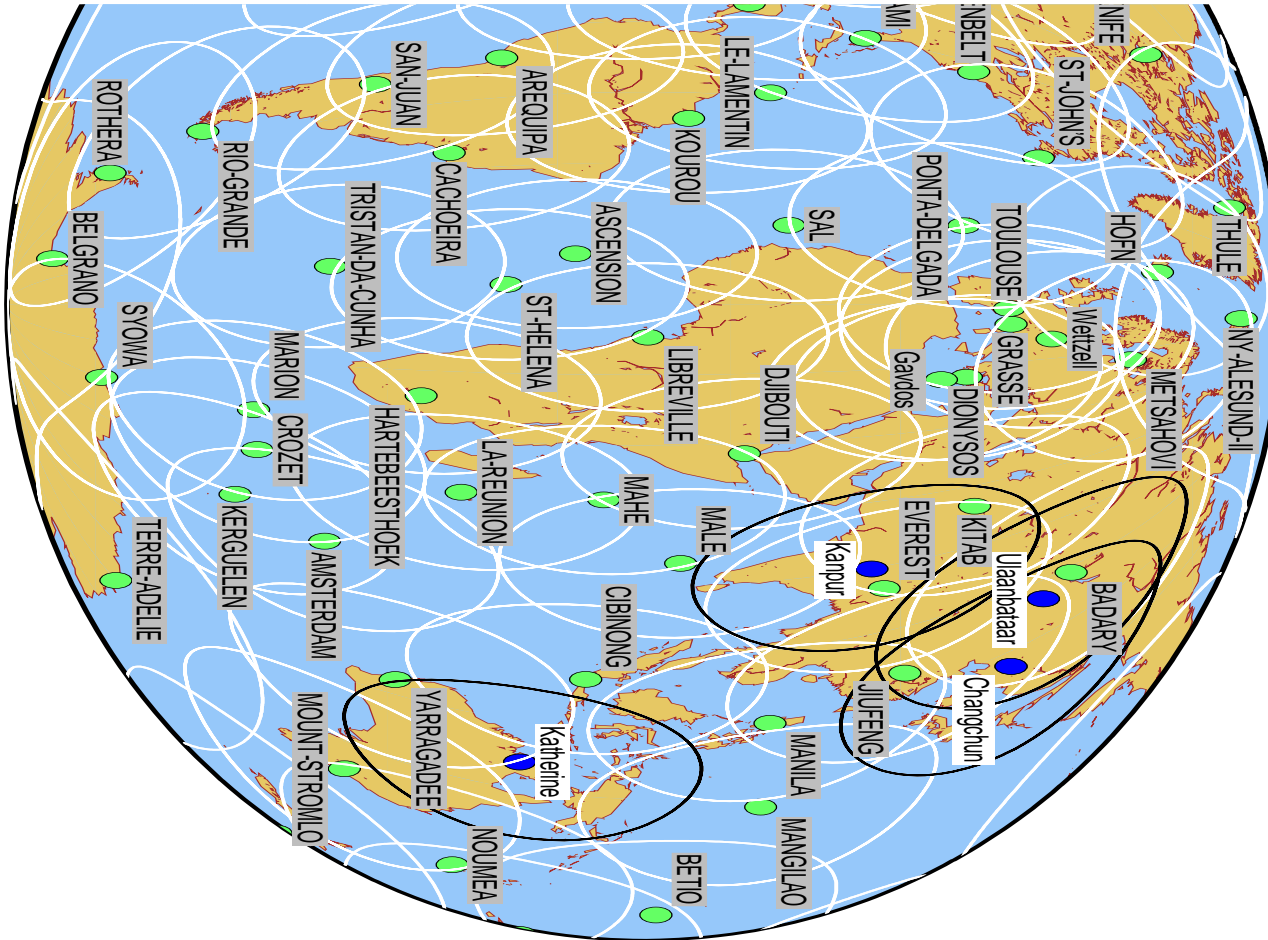
Ulaanbaatar, Mongolia (co-location GNSS): station installation and commissioning
Le Lamentin, French Indies: major renovation (station relocation + equipment upgrading)
Kanpur, India (co-location GNSS): station installation and commissioning
Sal, Cape Verde: major renovation (antenna move + equipment upgrading)
Changchun, China (co-location GNSS + SLR): station installation and commissioning

Longer term:

OG2P, French Polynesia (co-location GNSS + SLR + VLBI): station installation

NETWORK DENSIFICATION

Make the network denser up to 70 stations: 64 (+4) in 2024?



GN 2023 Nov 14 21:28:30

This map was created by IGN-France

LOCAL TIE SURVEYS

Recent Local Tie Surveys:

Site	DORIS	GNSS	SLR	VLBI	Date	
Malé	MALC	HULE	-	-	09/2021	IGN-France
Futuna	FUUC	FTNA	-	-	09/2022	IGN-France
Kauai	KOLB	KOKB KOKV	-	7298 7623	05/2023	NOAA-NGS
Santa-Cruz	SCSC	GLPS	-	-	06/2023	IGN-France
Gavdos	GAVC	GVDG	-	-	09/2023	IGN-France

Conventional method: from terrestrial measurements of angles, distances and height diff.

Reports:

Available on ITRF website: <https://itrf.ign.fr/en/local-ties>

DORIS tie vectors:

Full list of all available DORIS tie vectors at co-located sites:

ftp://ftp.ids-doris.org/pub/ids/stations/DORIS_ext_ties.txt (last update in October 2023)

All available (since 1992) tie vectors between successive antenna locations on the same site:

ftp://ftp.ids-doris.org/pub/ids/stations/DORIS_int_ties.txt (last update in September 2023)



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