



November, 3 and 5

# The International DORIS Service (IDS)

November 3

Day 1 – Presentation 4

**Guilhem Moreaux (CLS)**

# What is the IDS ?

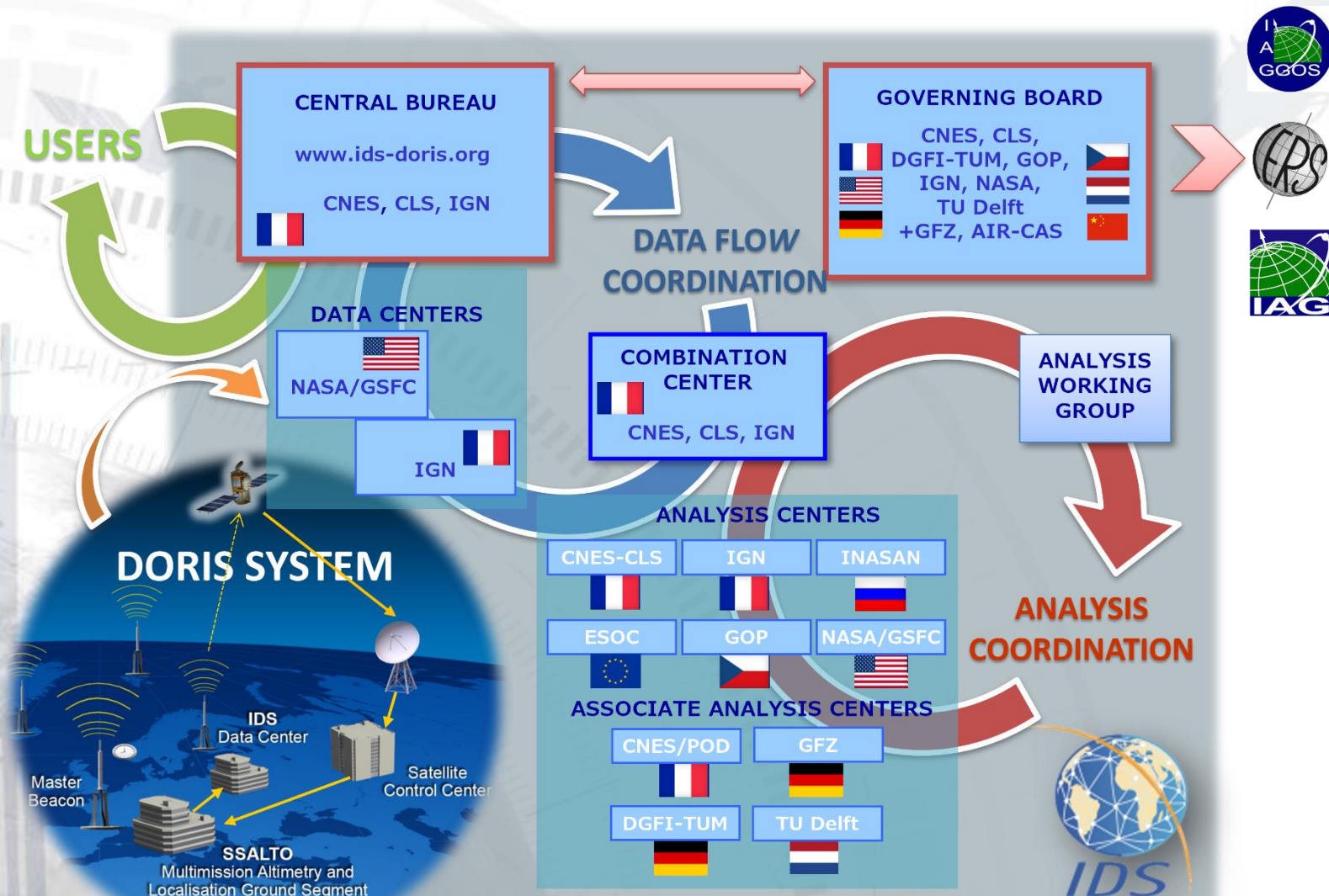
The IDS is an IAG service created in 2003 to:

- develop and support DORIS scientific applications,
- provide access to DORIS data, products and documents,
- contribute to the IERS realizations (ITRF),
- support GGOS objectives.



<https://ids-doris.org>

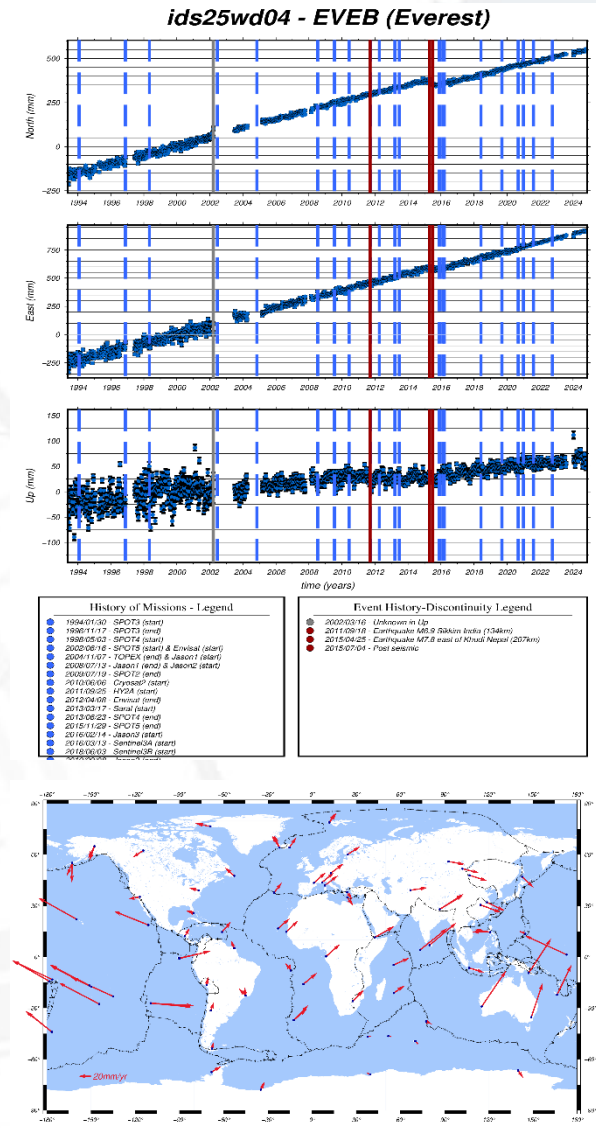
# IDS Organization



+ IDS Working Groups

# DORIS Data Centers

- Two providers:
  - IGN <ftp://doris.ign.fr/pub/doris/>
  - CDDIS <https://cddis.nasa.gov/archive/doris/>
- Access to
  - DORIS system documentation.
  - DORIS observation files.
  - DORIS Metadata.  
(quaternion files, history of mass, history of maneuvers,...)
- IDS Products
  - Station Coordinates.
  - Earth Orientation Parameters.
  - Orbits.
  - DORIS terrestrial reference frame for Precise Orbit Determination (DPOD).
  - Geocenter (to come).
  - ...



# Current IDS Analysis Components

| Analysis Center | Institution(s)     | POD Software | Contact(s)                   | ITRF Contributions                   | Comments                    |
|-----------------|--------------------|--------------|------------------------------|--------------------------------------|-----------------------------|
| ESA             | ESOC               | NAPEOS       | M. Otten                     | 2008, 2024, 2020, u2023, u2024       |                             |
| GOP             | Obs. of Pecny      | Bernese      | P. Štěpánek                  | 2008, 2024, 2020, u2023, u2024       |                             |
| GRG             | CNES/CLS           | GINS/DYNAMO  | H. Capdeville<br>J-M Lemoine | 2005, 2008, 2014, 2020, u2023, u2024 |                             |
| GSC             | NASA/GSFC          | GEODYN       | F. Lemoine                   | 2008, 2024, 2020, u2023, u2024       |                             |
| IGN             | IGN/IPGP           | GIPSY-X      | S. Nahmani<br>A. Pollet      | 2008, 2024, 2020, u2023, u2024       | Previously led by P. Willis |
| INASA           | Inst. of Astronomy | GIPSY-OASIS  | S. Kuzin                     | 2008, 2014                           | No longer operational       |

- **Associated Analysis Centers:**

CNES/POD (A. Couhert); DGFI/TUM (M. Bloßfeld); GFZ★ (P. Schreiner) ; TU Delft (E.J.O. Schrama).

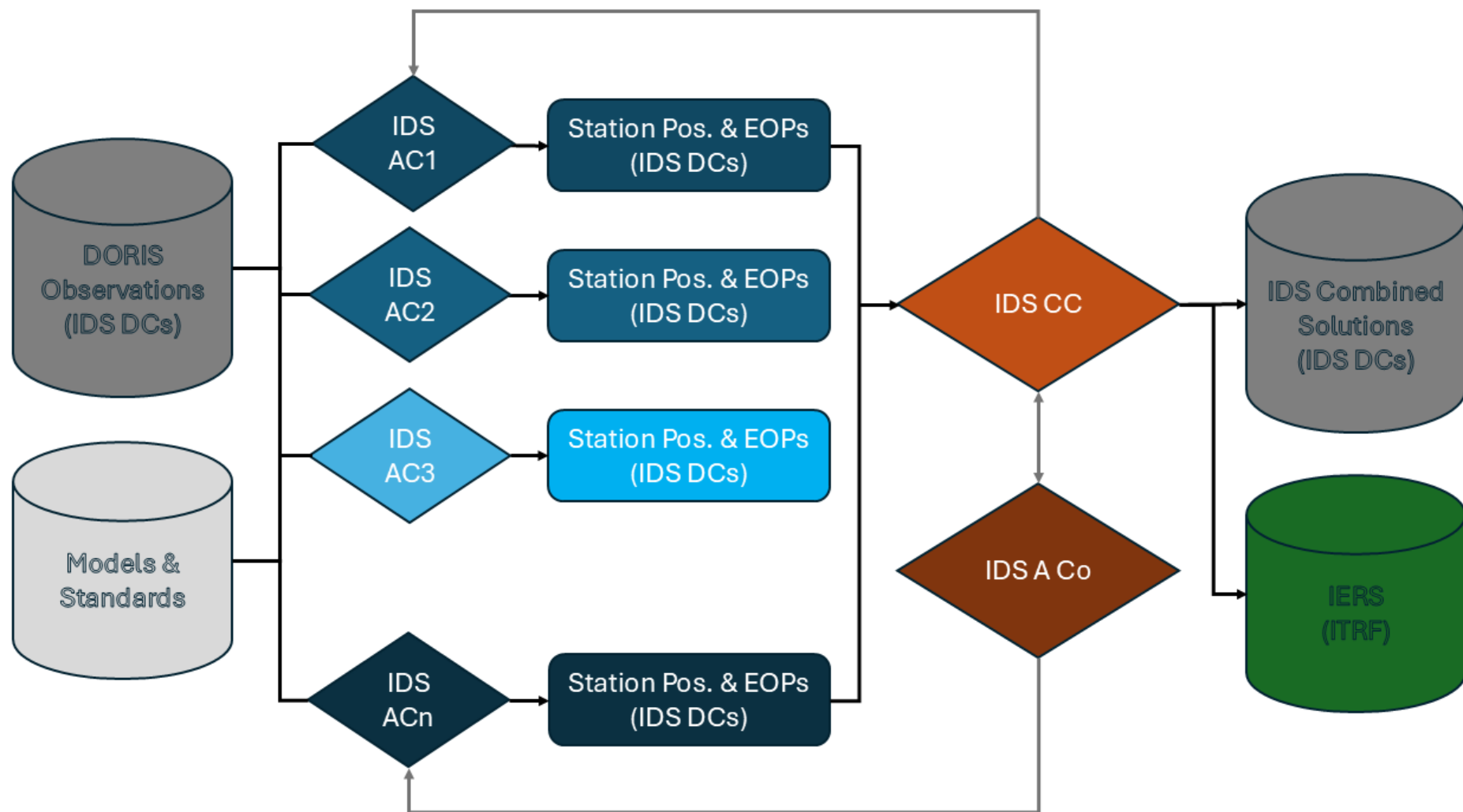
- **Combination Center:** G. Moreaux (CLS) - CATREF software from IGN.

- **Analysis Coordinator:** P. Štěpánek (GOP).

★GFZ: under evaluation to become a new AC.

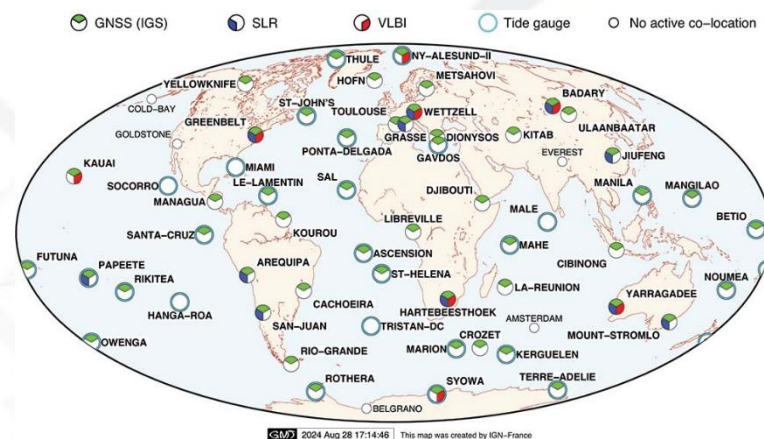


# DORIS Analysis Centers, Analysis Coordinator & Combination Center



# IDS Stations

- The DORIS ground network is composed of two sub-networks: the permanent and the IDS networks.
- The permanent stations are used for altimetric missions currently in orbit, for the Precise Orbit Determination (POD) of these satellites.
- **The IDS stations are devoted to scientific purposes** (geodesy, tectonic plates coverage, co-location, inter-calibration with other techniques, ...) and **their deployment is under the decision of the IDS Governing Board after a dedicated call for participation.**
- Previous call in 2022 ➔ selection of Kanpur (India).  
May be installed by the end of 2025.  
Will be the second IDS station after Wettzell (Germany).



# IDS Communication Channels

- IDS Website <https://ids-doris.org/>

- IDS on LinkedIn

- Mailing lists

(dorismail, dorisreport, dorisstations, ...)

- IDS Newsletter

Regular information on the DORIS system and the life of IDS

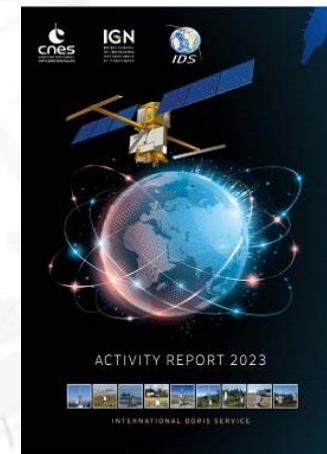
- IDS Annual activity reports

Progress reports about IDS, DORIS system, User service, Analysis Activities.

- IDS Meetings

**DORIS Analysis Working Group** (twice a year)

**IDS Workshop** (every two years)





# IDS Online Tools Network and Stations

**International  
DORIS  
Service**

IDS ▾ **NETWORK & STATIONS ▾** MISSIONS & SYSTEM ▾ DATA & PRODUCTS ▾ USER CORNER ▾ RESOURCES ▾

Section content

Network browser (sitelogs)

Maps

Network on Google Earth

☒ Network viewer

☒ Station position times series





Map of the current DORIS network.

| The DORIS stations list |                                       |          |           |                        |      |
|-------------------------|---------------------------------------|----------|-----------|------------------------|------|
| Name                    | Country                               | Latitude | Longitude | Previous codes         | Code |
| AJACCIO*                | FRANCE                                | 41° 56'  | 8° 46'    |                        | AJAB |
| AMSTERDAM               | FRANCE (Amsterdam Island)             | -37° 48' | 77° 34'   | AMSA, AMSB, AMTB, AMUB | AMVB |
| AREQUIPA                | PERU                                  | -16° 28' | 288° 30'  | AREA, AREB             | ARFB |
| ARLIT*                  | NIGER                                 | 18° 47'  | 7° 22'    | ARLA                   | ARMA |
| ASCENSION               | UNITED KINGDOM (South Atlantic Ocean) | -7° 55'  | 345° 40'  | ASDB                   | ASEB |
| BADARY                  | RUSSIA                                | 51° 46'  | 102° 14'  | BADA                   | BADB |
| BELGRANO                | ANTARCTICA (Argentine base)           | -77° 52' | 325° 22'  | BELB                   | BEMB |
| BETHO                   | KIRIBATI                              | 1° 21'   | 172° 55'  |                        | BETB |
| BREST*                  | FRANCE                                | 48° 24'  | 355° 30'  |                        | BRBA |
| CACHOEIRA-PAULISTA      | BRAZIL                                | -22° 41' | 314° 60'  | CACB                   | CARB |
| CANBERRA-ORRORAL*       | AUSTRALIA                             | -35° 38' | 148° 56'  | ORRA                   | ORRB |
| CARIQUIMA*              | CHILE                                 | -19° 29' | 291° 19'  |                        | CARB |
| CHATHAM-ISLAND*         | NEW ZEALAND                           | -43° 57' | 183° 26'  |                        | CHAB |
| CIBINONG                | INDONESIA                             | -6° 29'  | 106° 51'  | CIBB, CIBC             | CIDB |
| COLD-BAY                | U.S.A.                                | 55° 11'  | 197° 18'  |                        | COBB |

## DORIS station

### DIONYSOS - GREECE



Site logs  
DIOB20020221.LOG (current, see below)  
DIOB20020309.LOG  
DIOB20020320.LOG  
DIOB20020322.LOG  
DIOB20020323.LOG  
DIOB20020324.LOG  
DIOB20020325.LOG  
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DIOB20021231.LOG

Site  
Time series of coordinates

## Site news

### Doris mails

No 0790 ITRF2008-DPOD2008 coordinates for all DORIS  
No 0452 DORIS station upgrade at Dionysos (Greece)  
No 0266 New IDS station at Gavdos (Greece)

### Local events

| Date       | Acronym | Information provided                       |
|------------|---------|--------------------------------------------|
| 2025/08/10 | DIOB    | Earthquake of magnitude:6.1 distance:383km |
| 2025/05/22 | DIOB    | Earthquake of magnitude:6.2 distance:301km |
| 2025/05/13 | DIOB    | Earthquake of magnitude:6 distance:418km   |
| 2025/04/23 | DIOB    | Earthquake of magnitude:6.2 distance:477km |
| 2024/11/01 | DIOB    | data gap (beacon power cut off) END        |
| 2024/08/28 | DIOB    | data gap (beacon power cut off) START      |

## Latest site log

For more recent station positions and velocities, refer to the latest DPOD solution available [here](#)

### DIONYSOS DORIS site description form

#### 0. Form

Prepared by : SIMB (DORIS installation and maintenance department)  
Date prepared : 21/02/2025  
Report type : UPDATE

#### 1. Site location information

Site name : DIONYSOS  
Site DORIS number : 12602  
Host agency : National Technical University of Athens  
City : Dionysos  
State or province : Attica  
Country : GREECE  
Tectonic plate : EURA  
Geological information :

#### Geographical coordinates (ITRF) :

North Latitude : 38 deg 4' 42''  
East Longitude : 23 deg 55' 58''  
Ellipsoid height : 512 m  
Approximate altitude : 473 m

#### 2. DORIS antenna and reference point information

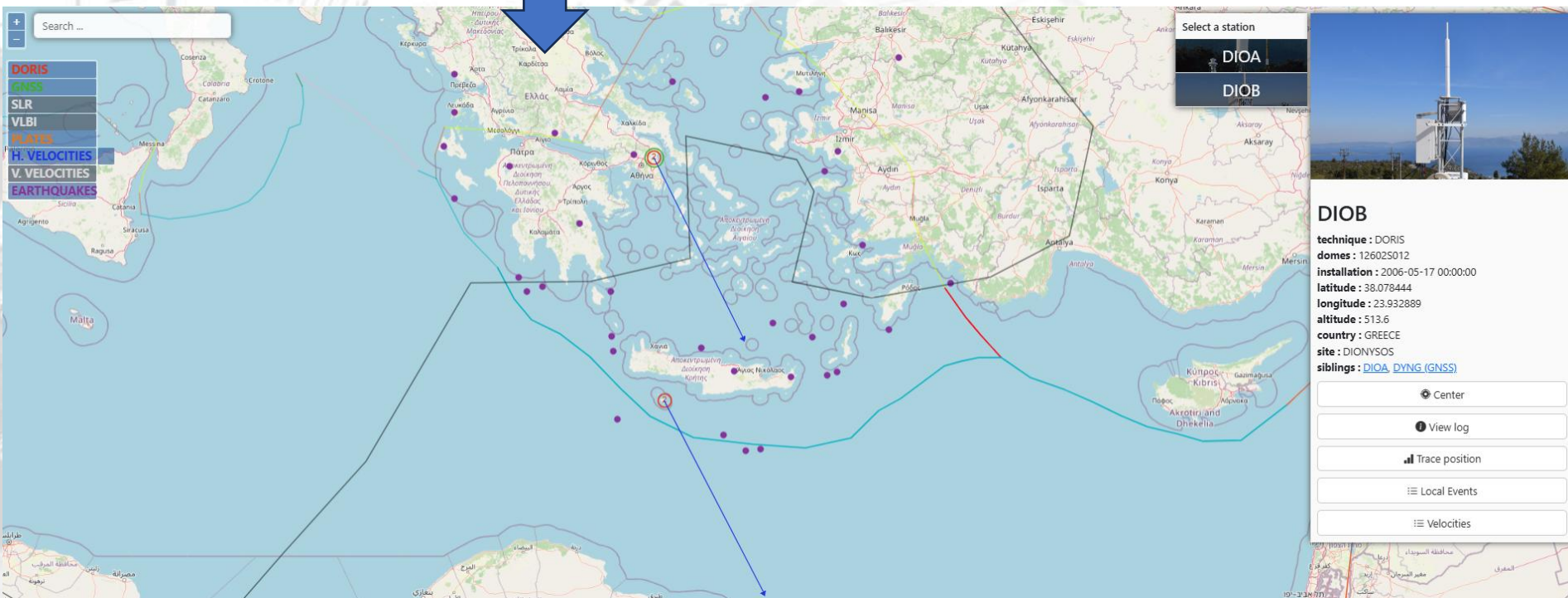
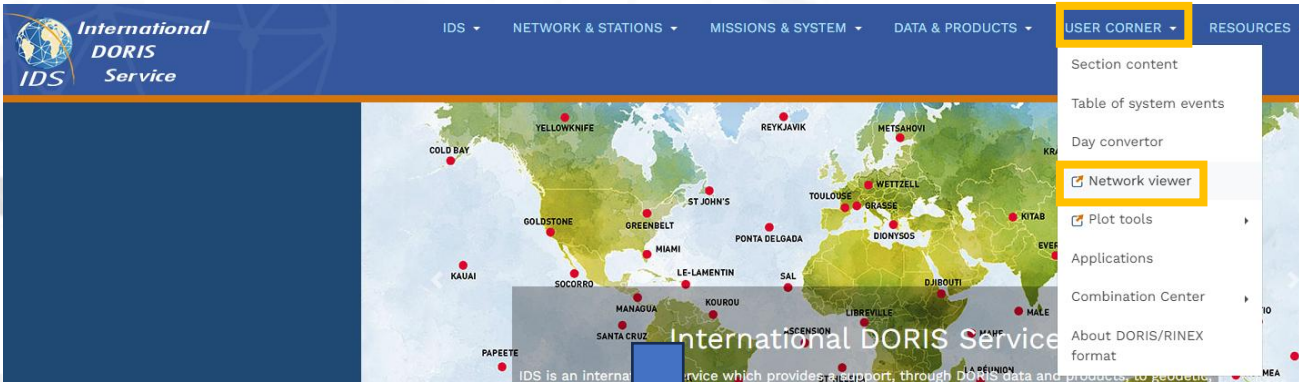
##### 2.1

Four character ID : DIOA  
Antenna model : Alcatel  
Antenna serial number : 47  
IERS DORIS number : 126025011  
CNES/IGN number : 126021  
DORIS SSALTO number : 47  
Date installed (dd/mm/yy) : 15/02/1989  
Date removed (dd/mm/yy) : 16/05/2006



# IDS Online Tools

## Network Viewer





# IDS Online Tools

## Visualization of DORIS coordinate time series

International DORIS Service

IDS is an international service which provides support, through DORIS data and products, to geodesy, geophysical, and other research and operational activities.

**data selection**

You can choose here the data to plot:

1. Select a station from the list.
2. Select data series from the stations table.
3. If desired, complete your selection with additional data.
4. Click on "Plot" when ready.

**data**

DIONYSOS : DIOA, DIOB

| DORIS stations |      | Series                              |                          |                          |                          |                          |                          |
|----------------|------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Name           | Code | ids25swd04                          | sma25swd04               | gop25swd04               | gpr25swd04               | gsc25swd04               | lps25swd04               |
| DIONYSOS       | DIOA | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                | DIOB | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

☐ Unselect all series ☐ Reset all selections

**Additional data optional**

Station events ☐ Show events for the selected stations

Earthquakes events ☐ Show earthquakes near the selected stations

DPOD velocities ☐ Show DPOD velocities for the selected stations

ITRF velocities ☒ Show ITRF velocities for the selected stations

Discontinuities in position and/or velocity ☐ Show discontinuities for the selected stations

Evolution of the DORIS constellation ☐ Show the number of operating satellites

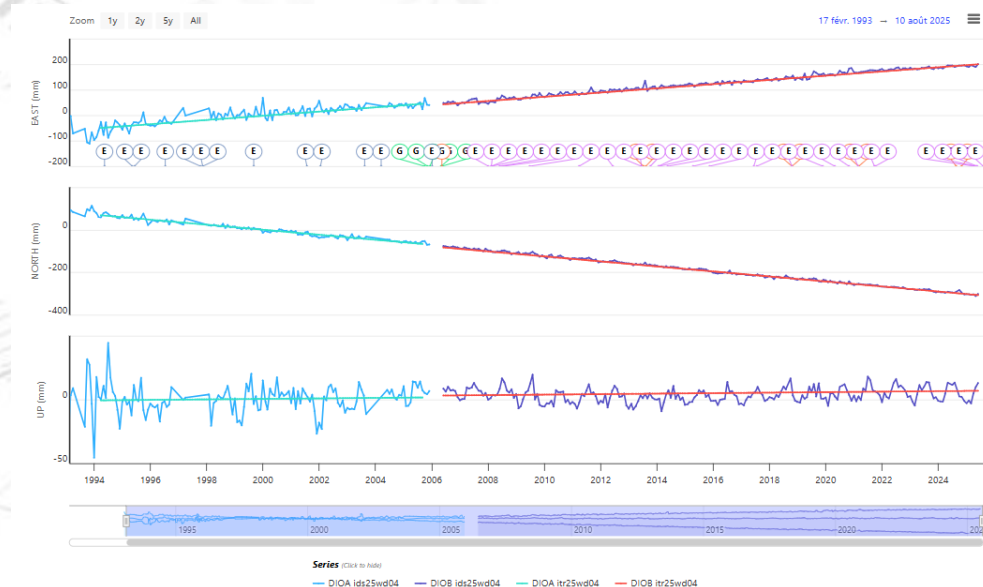
Satellite events

**Appearance**

Show trend line ☐

Show error bars

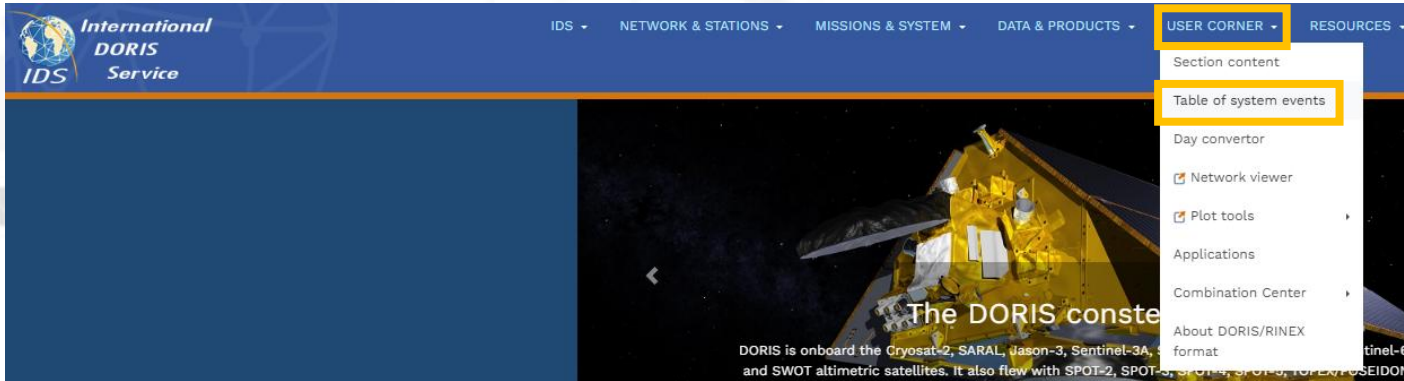
Slope





# IDS Online Tools

## Table of Events



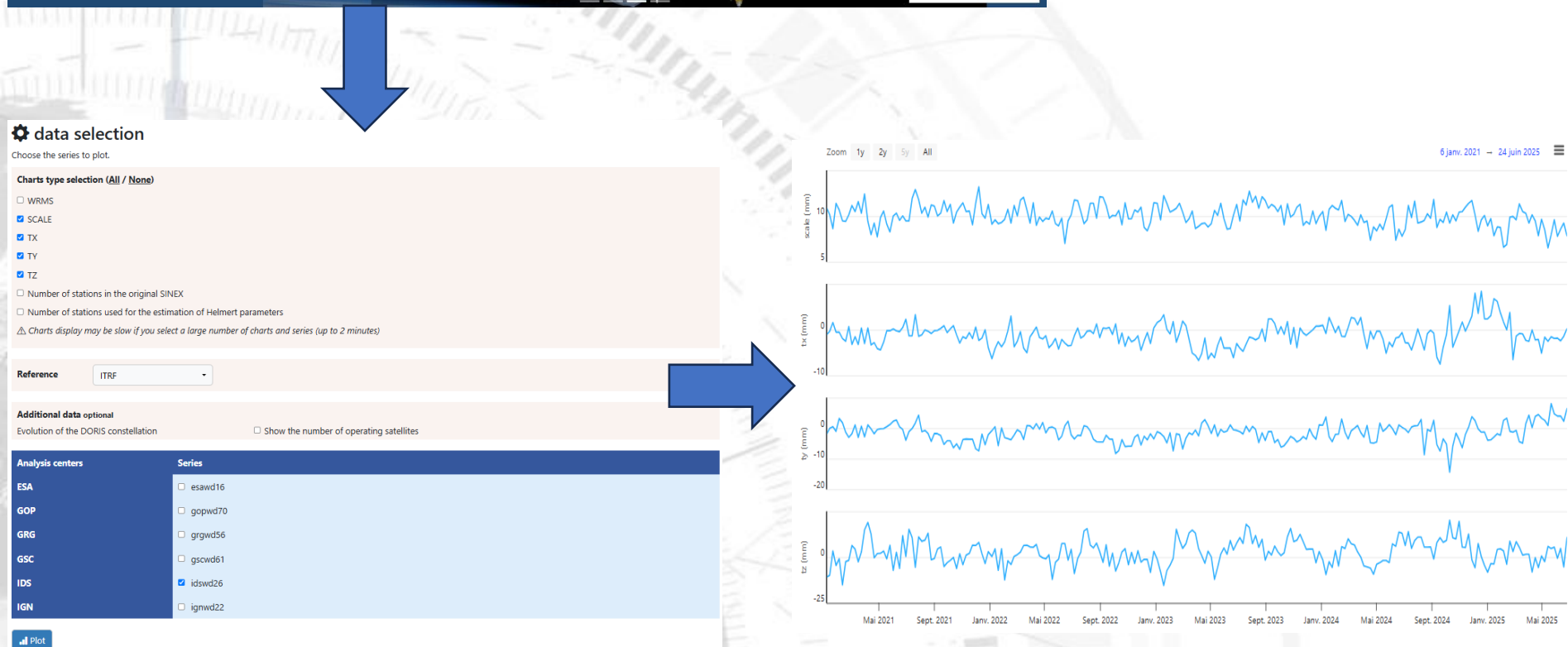
History of all events which may impact the estimation of the DORIS orbits and/or station positions.

| Date                | Type       | Element                   | Event                                 | Source             |
|---------------------|------------|---------------------------|---------------------------------------|--------------------|
| 2025/08/10 16:53:47 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.1 Distance:383km          | USGS (NEW)         |
| 2025/05/22 03:19:35 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.2 Distance:301km          | USGS (NEW)         |
| 2025/05/13 22:51:15 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6 Distance:418km            | USGS (NEW)         |
| 2025/04/23 09:49:11 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.2 Distance:477km          | USGS (NEW)         |
| 2024/11/01 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | data gap (beacon power cut off) END   | dorisstations 0208 |
| 2024/08/28 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | data gap (beacon power cut off) START | dorisstations 0208 |
| 2021/10/12 09:24:05 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.4 Distance:383km          | USGS (NEW)         |
| 2021/09/27 06:17:21 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6 Distance:337km            | USGS (NEW)         |
| 2021/03/06 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | BEACON INSTALLED                      | dorisstations 0177 |
| 2021/03/05 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | BEACON REMOVED                        | dorisstations 0177 |
| 2021/03/03 10:16:09 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.3 Distance:241km          | USGS (NEW)         |
| 2020/10/30 11:51:27 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:7 Distance:251km            | USGS (NEW)         |
| 2020/05/02 12:51:05 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.5 Distance:462km          | USGS (NEW)         |
| 2019/11/27 07:23:42 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6 Distance:270km            | USGS (NEW)         |
| 2018/10/25 22:54:52 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.8 Distance:303km          | USGS (NEW)         |
| 2018/10/25 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | BEACON INSTALLED                      | dorisstations 0143 |
| 2018/10/24 00:00:00 | Station    | [DIONYSOS] DIOB 12602S012 | BEACON REMOVED                        | dorisstations 0143 |
| 2017/07/20 22:31:11 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.6 Distance:333km          | USGS (NEW)         |
| 2017/06/12 12:28:39 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.3 Distance:232km          | USGS (NEW)         |
| 2015/11/17 07:10:07 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6.5 Distance:298km          | USGS (NEW)         |
| 2015/04/16 18:07:43 | Earthquake | [DIONYSOS] DIOB 12602S012 | Magnitude:6 Distance:412km            | USGS (NEW)         |



# IDS Online Tools

## Visualization of Helmert parameter time series



# Take Home Message

The IDS is an IAG service to:

- develop and support DORIS scientific applications,
- provide access to DORIS data, products and documents,
- contribute to the IERS realizations (ITRF).

DORIS data and IDS products can be retrieved from the two IDS Data Centers (IGN and CDDIS).

IDS products can be interactively displayed and analyzed from the IDS website.

More information on DORIS @  
<https://ids-doris.org>

