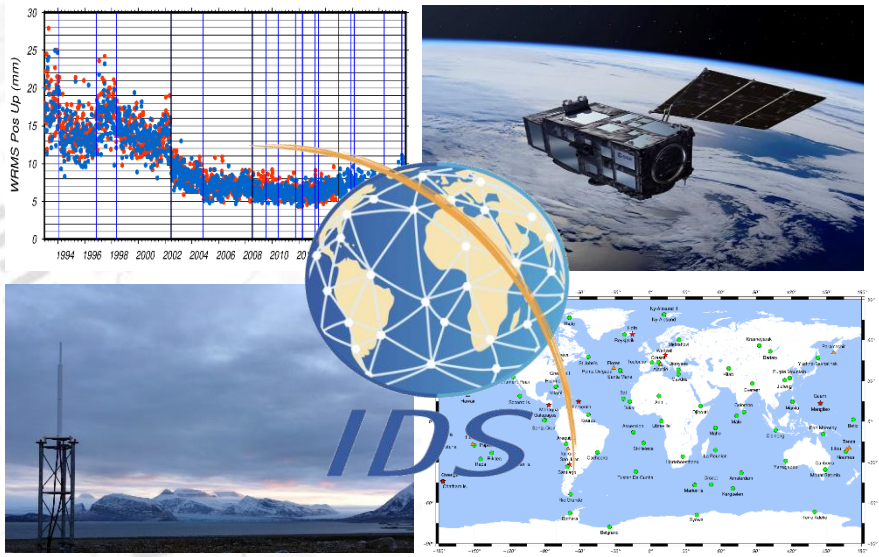
Status of the realization of DPOD2020 version 5.0

Guilhem Moreaux
Collecte Localisation Satellites

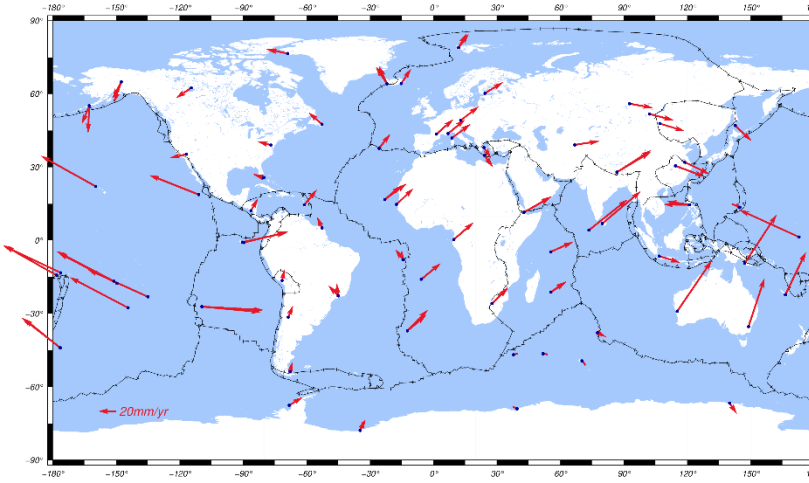
IDS AWG 2025 – Athens (Greece) – 2025/11/06

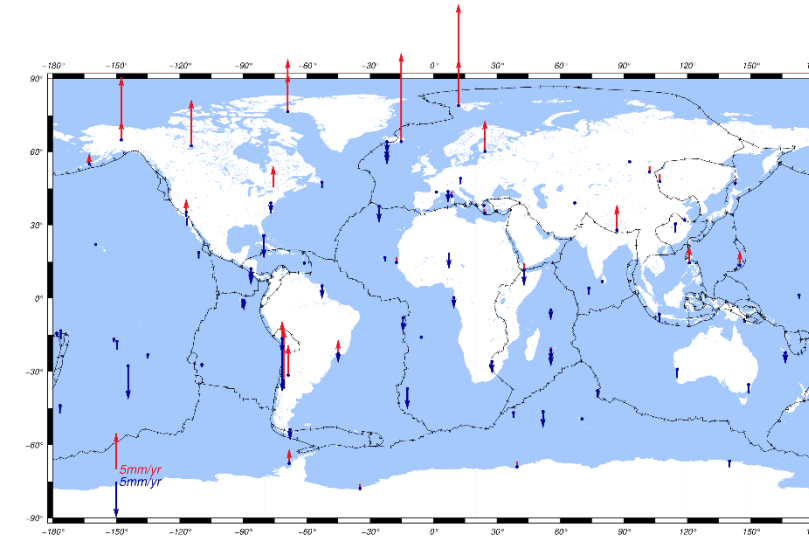


DPOD2020 version 5.0

- **DPOD2020 v5.0 will be deduced from the DORIS position and velocity cumulative solution ids25d02.**
- **ids25d02:**
  - **Is the output of the stacking of the IDS combined series ids 19&26 from 1993.0 to 2025.5.**
  - **Is aligned onto ITRF2020-u2023.**
  - **Includes annual and semi-annual station position corrections.**
  - **Periodic terms are only estimated for sites with observations after mid-2002 and with at least two years of observations.**

- **DPOD2020 v4.0 was based on the ids25d01 cumulative solution as output of the stacking of the ids 19&25 series from 1993.0 to 2025.0.**





ids25d02 – Velocity Constraints

For sites with less than 2 years of observations.

Site	DORIS station	Reference station	Technique	Source
Ajaccio	AJAB	AJAC	GNSS	ITRF2020
Gavdos	GAVC	DORIS mail 1367		
~~Hanga Roa~~	~~HROC~~	~~EISL~~	~~GNSS~~	~~ITRF2020~~
Huahine	HUAA	7123	Laser Ranging	ITRF2020
Ulaanbaatar	ULAC	ULAB	GNSS	ITRF2020

No more external contraints on the HROC velocities.

ids25d02 – Discontinuities

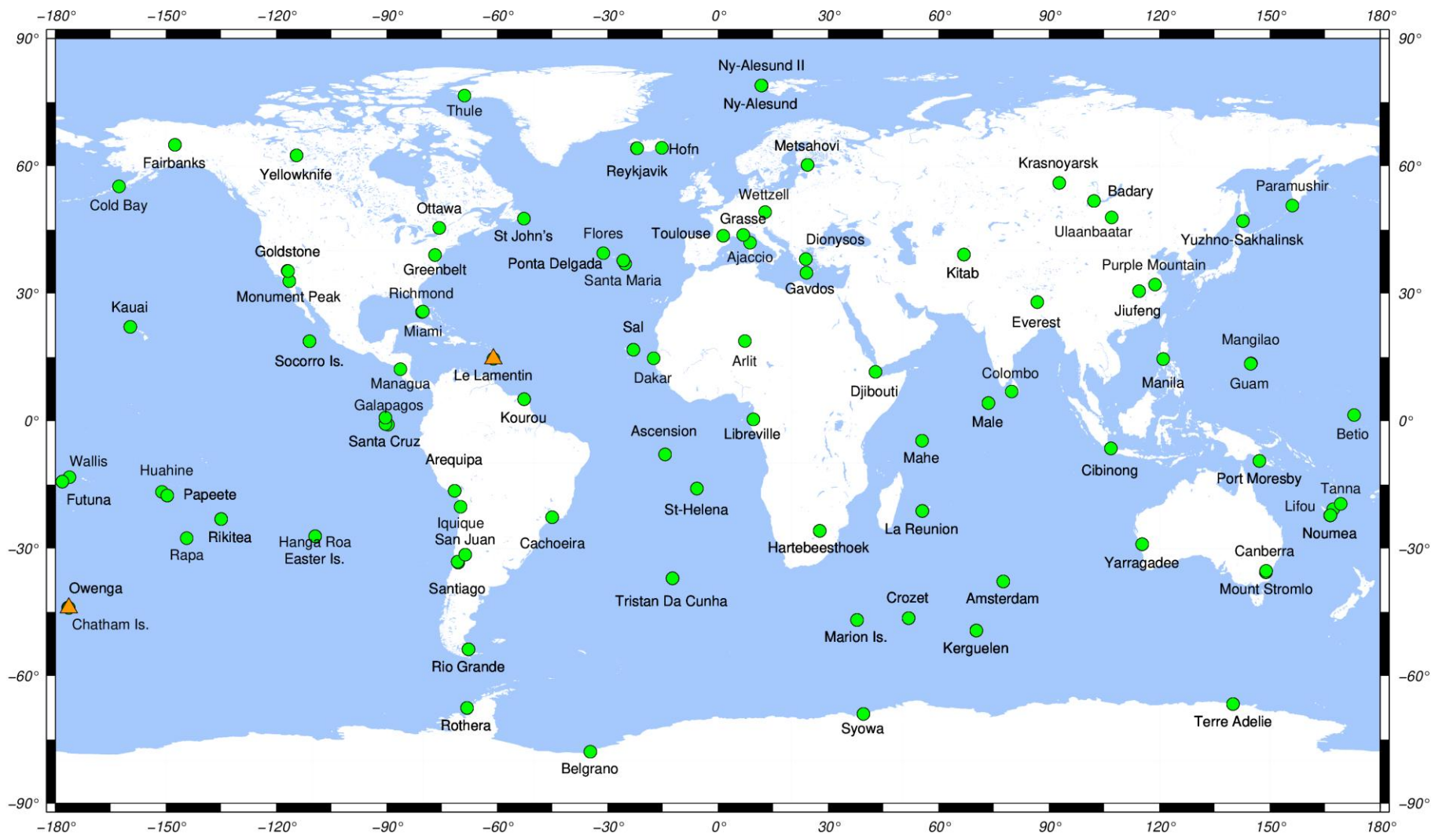
	ids25d01	ids25d02
Observations time span	1993.0-2025.0	1993.0-2025.5
Nb of stations	222	224
Nb of sites	90	90
Discontinuities		
Overall number	135	135
Nb of affected sites	50	50
Nb of affected stations	68	68
With geophysical origin	60	60
With technical origin	25	25
With unknown origin	50	50

Two more stations: LAPB (Le Lamentin) and OWGC (Owenga).
No more discontinuity over the new 6 months of observations.

ids25d02 – DORIS Station Network

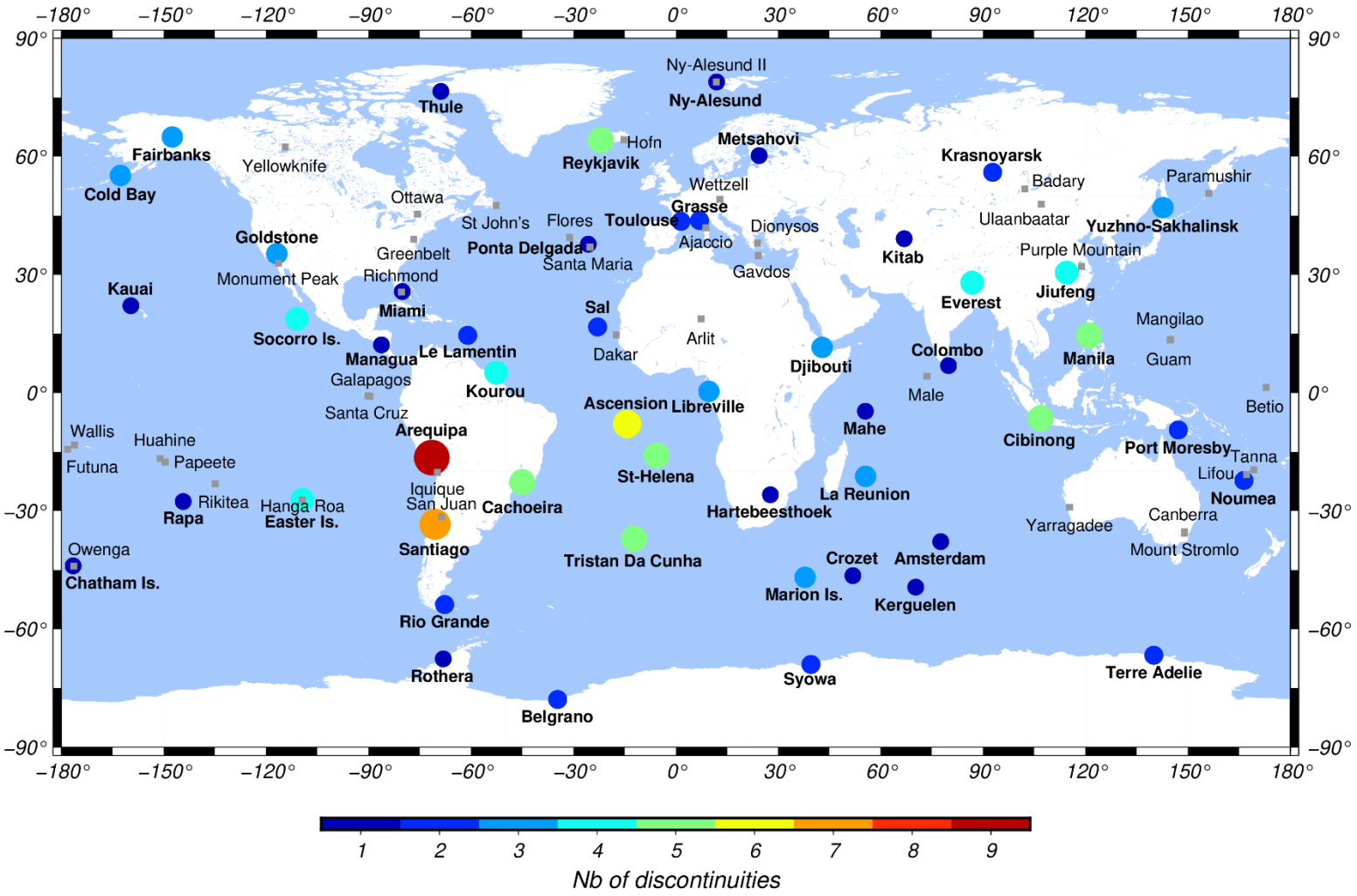
90 DORIS sites – 224 DORIS stations

Two more stations since ids25d01: LAPB (Le Lamentin) and OWGC (Owenga)

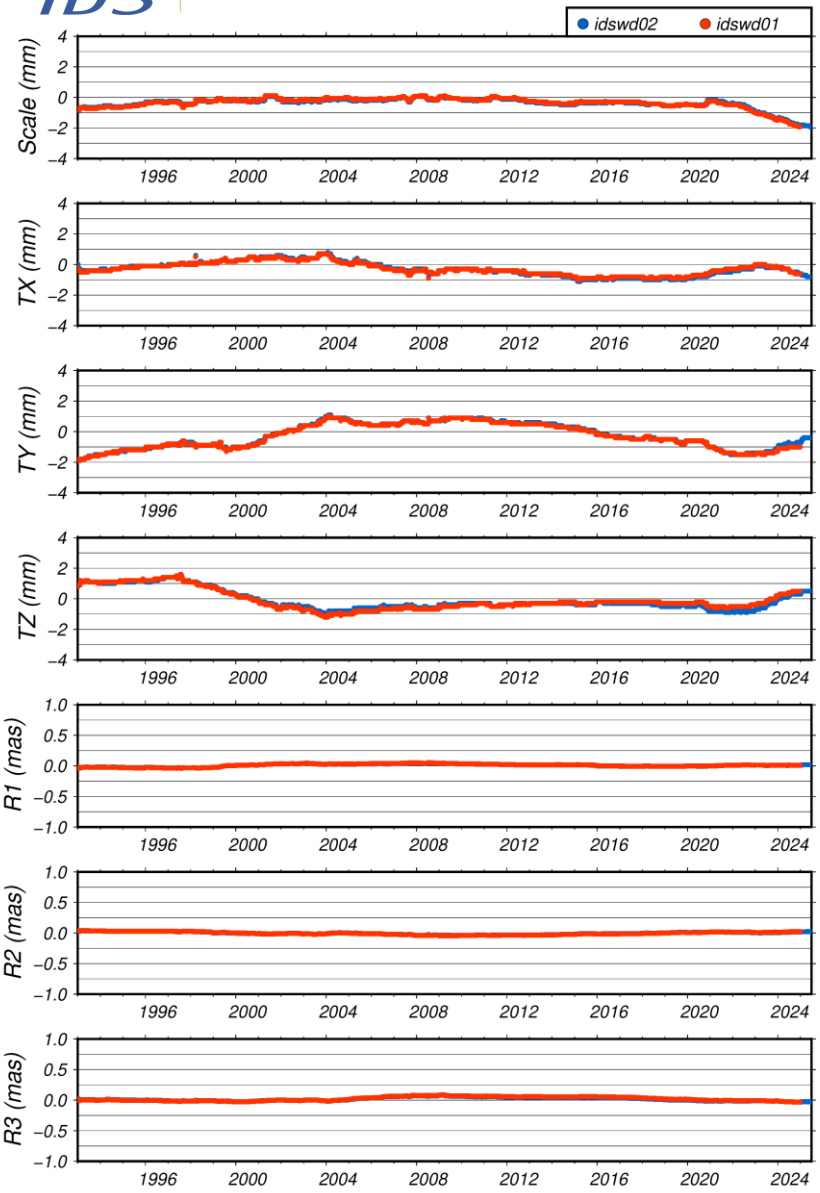


ids25d02 – Discontinuities

Number of discontinuities by DORIS site. Sites with discontinuities are in boldface.
Sites with no discontinuity are indicated with grey squares.



ids25d02 vs ITRF2020-u2023



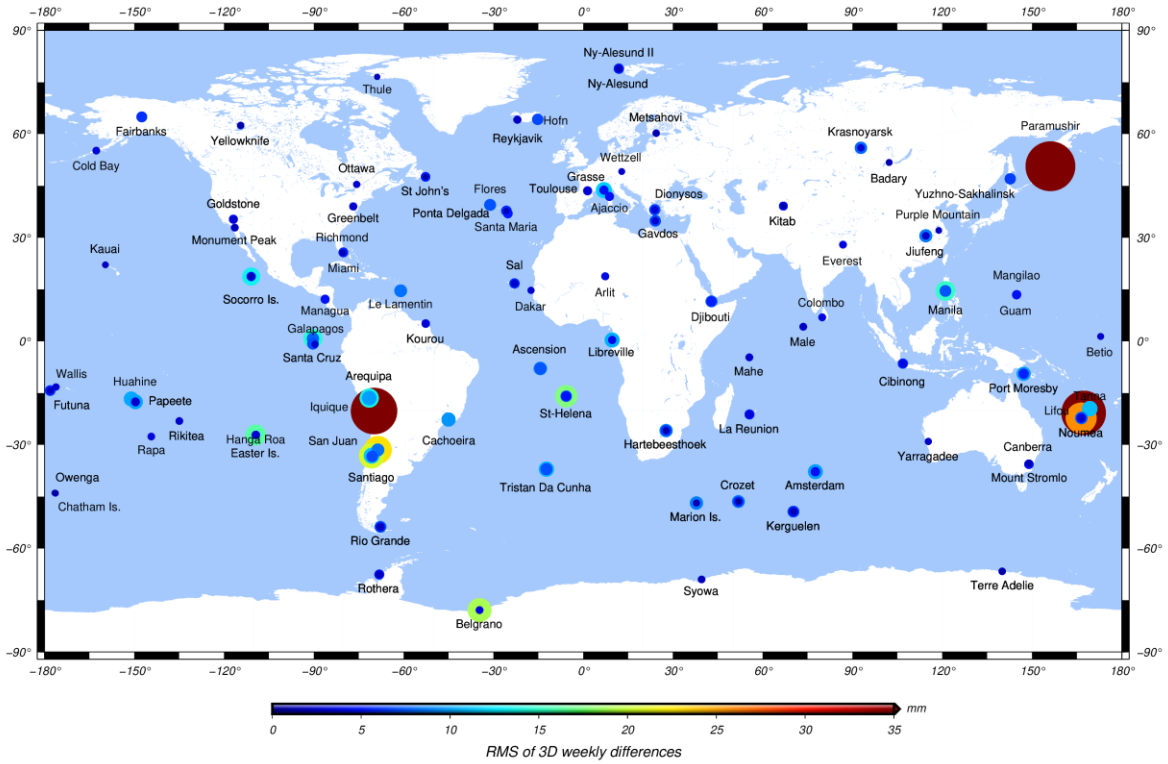
Helmert parameters of the weekly propagations of ids25d01 and ids25d02 wrt ITRF2020-u2023 without annual and semi-annual corrections.

	ids25d01			ids25d02		
	mean	std	rms	mean	Std	rms
Sc [mm]	-0.35	0.36	0.50	-0.38	0.37	0.53
Tx [mm]	-0.27	0.41	0.49	-0.29	0.46	0.54
Ty [mm]	-0.30	0.81	0.86	-0.27	0.80	0.85
Tz [mm]	-0.09	0.68	0.68	-0.10	0.66	0.67
R1 [mas]	0.01	0.02	0.03	0.01	0.02	0.02
R2 [mas]	0.00	0.02	0.02	0.00	0.02	0.02
R3 [mas]	0.02	0.03	0.04	0.02	0.03	0.03

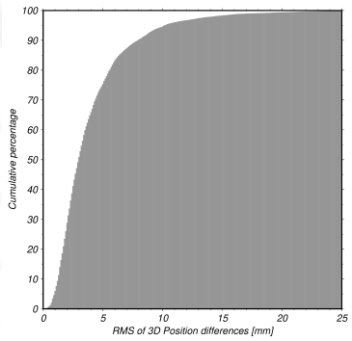
Similar results for ids25d01 and ids25d02.

ids25d02 vs ITRF2020-u2023

Weekly station coordinate differences between ids25d02 and ITRF2020-u2023 from 1993.0 to 2025.5.
Without annual and semi-annual corrections.



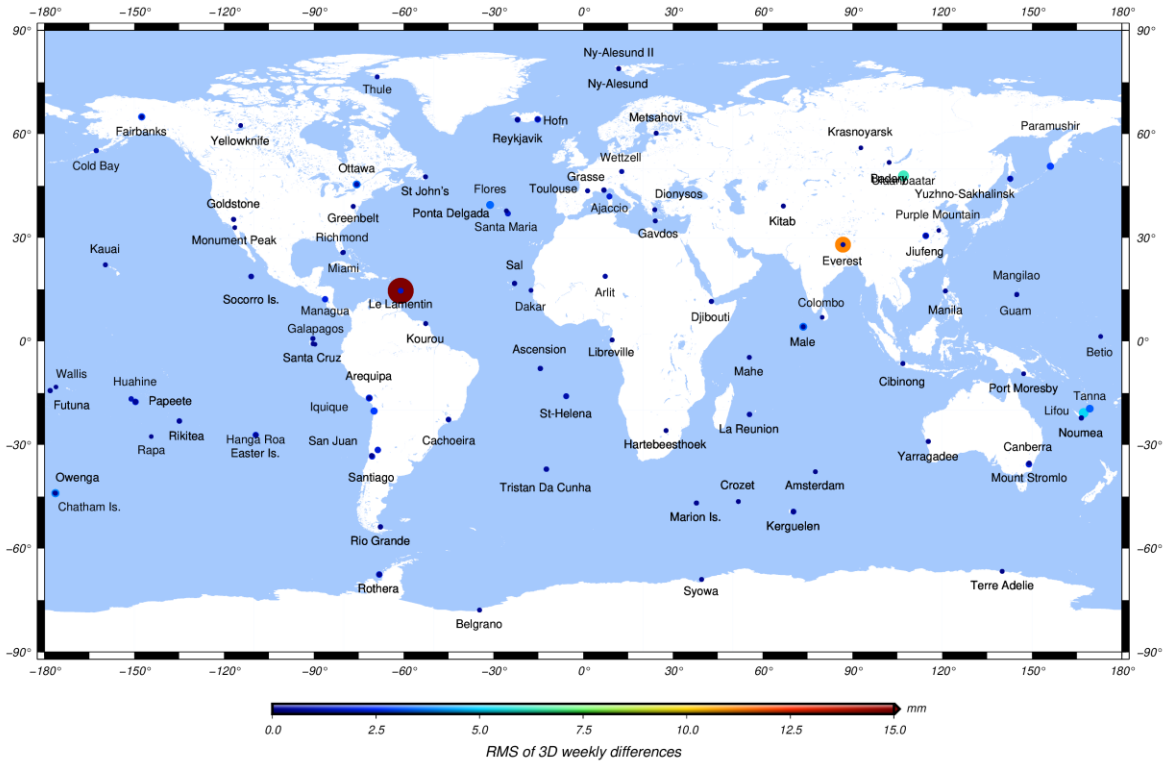
	[mm]
Max	76.3
Median	3.0
RMS	5.9
Mean	4.2
STD	4.1



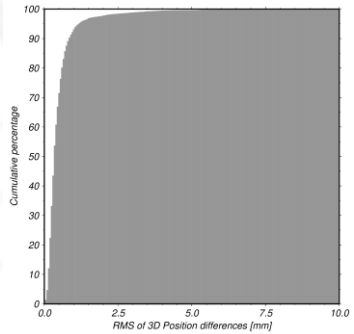
94% of the weekly 3D differences are smaller than 10 mm.
Largest differences are due to very short time spans (Paramushir, Iquique, Lifou, Noumea-NOWB).
Differences @ Belgrano (BEMB) are due to different discontinuities.

ids25d02 vs ids25d01

Weekly station coordinate differences between ids25d01 and ids25d02 from 1993.0 to 2025.0.
Without annual and semi-annual corrections.



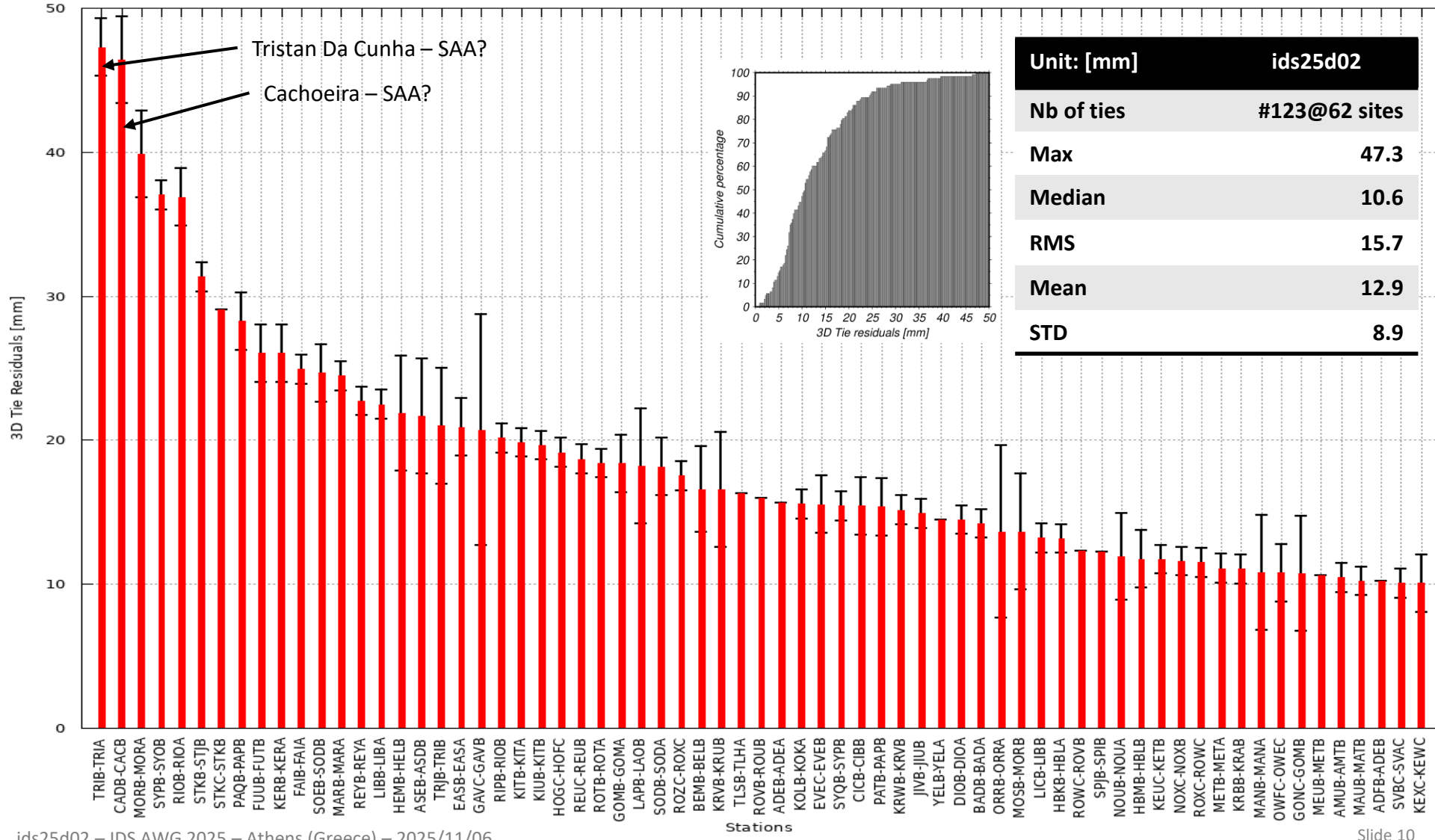
	[mm]
Max	66.5
Median	0.4
RMS	0.9
Mean	0.5
STD	0.8



98% of the weekly 3D differences are smaller than 2.5 mm.
Largest differences are for stations EVEC (Everest) and LAPB (Le Lamentin) which started after 2024.8.

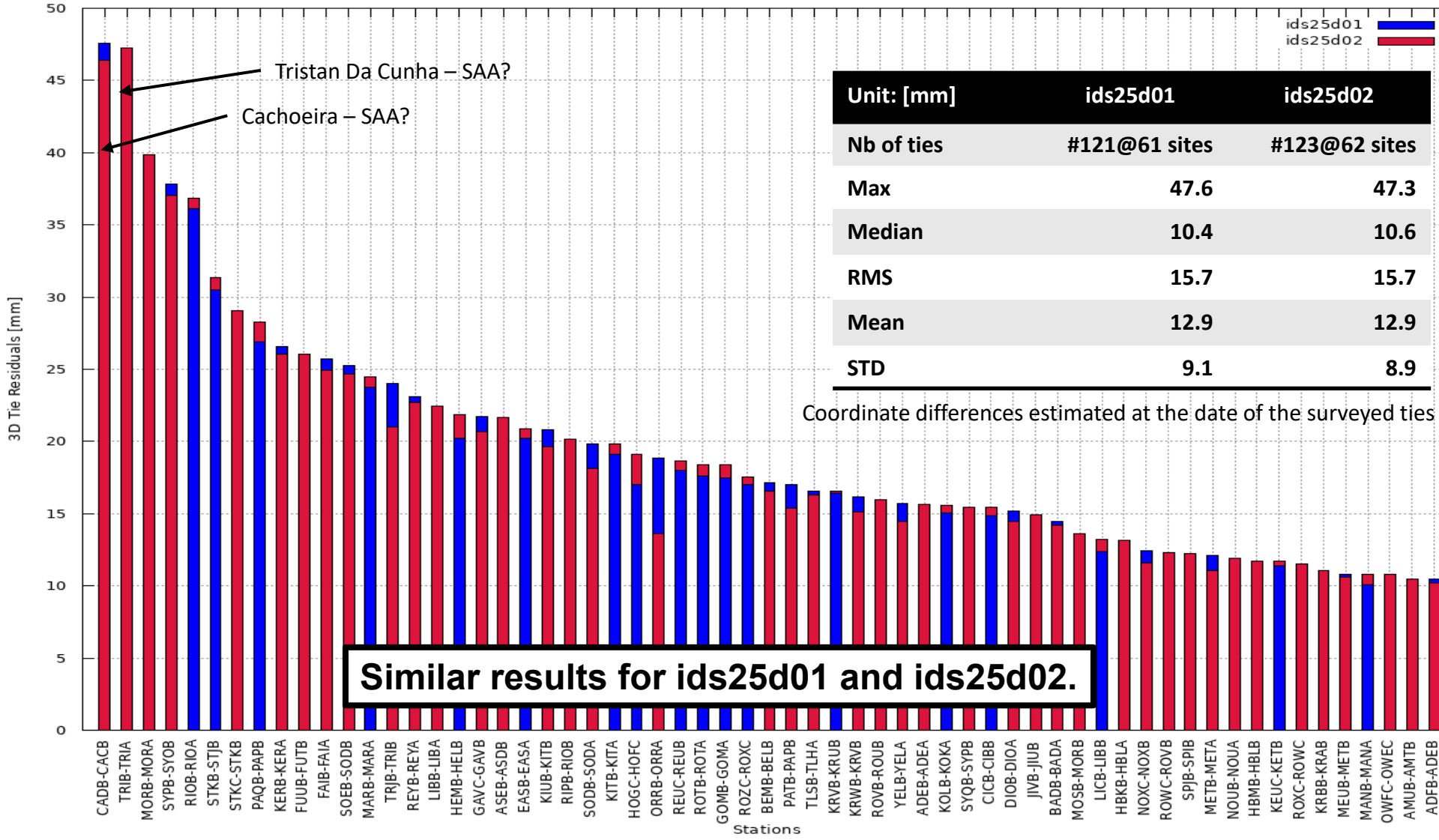
ids25d02 vs IGN DORIS to DORIS Ties

Coordinate differences estimated at the date of the surveyed ties



Unit: [mm]	ids25d02
Nb of ties	#123@62 sites
Max	47.3
Median	10.6
RMS	15.7
Mean	12.9
STD	8.9

ids25d02 vs ids25d01
IGN DORIS to DORIS Tie Residuals



Unit: [mm]	ids25d01	ids25d02
Nb of ties	#121@61 sites	#123@62 sites
Max	47.6	47.3
Median	10.4	10.6
RMS	15.7	15.7
Mean	12.9	12.9
STD	9.1	8.9

Coordinate differences estimated at the date of the surveyed ties

Similar results for ids25d01 and ids25d02.

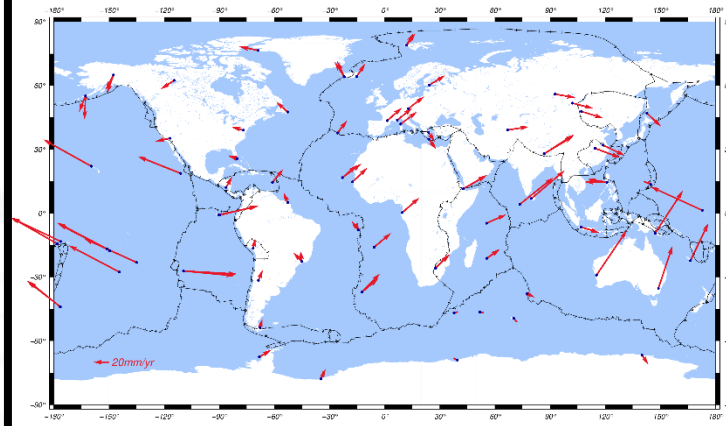
Take Home Message

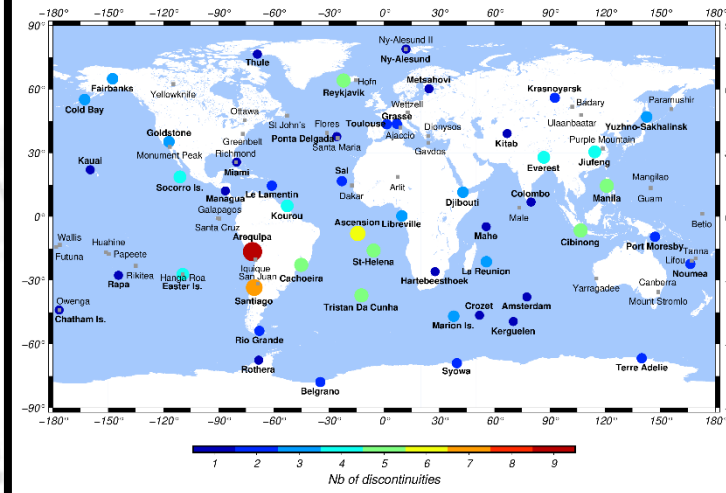
The ids25d02 position and velocity cumulative solution:

- **Is the output of the stacking of the IDS combined series ids 19/26 from 1993.0 to 2025.5.**
- **Is aligned onto ITRF2020-u2023.**
- **Includes annual and semi-annual station position corrections.**
- **Periodic terms are only estimated for sites with observations after mid-2002 and with at least two years of observations.**

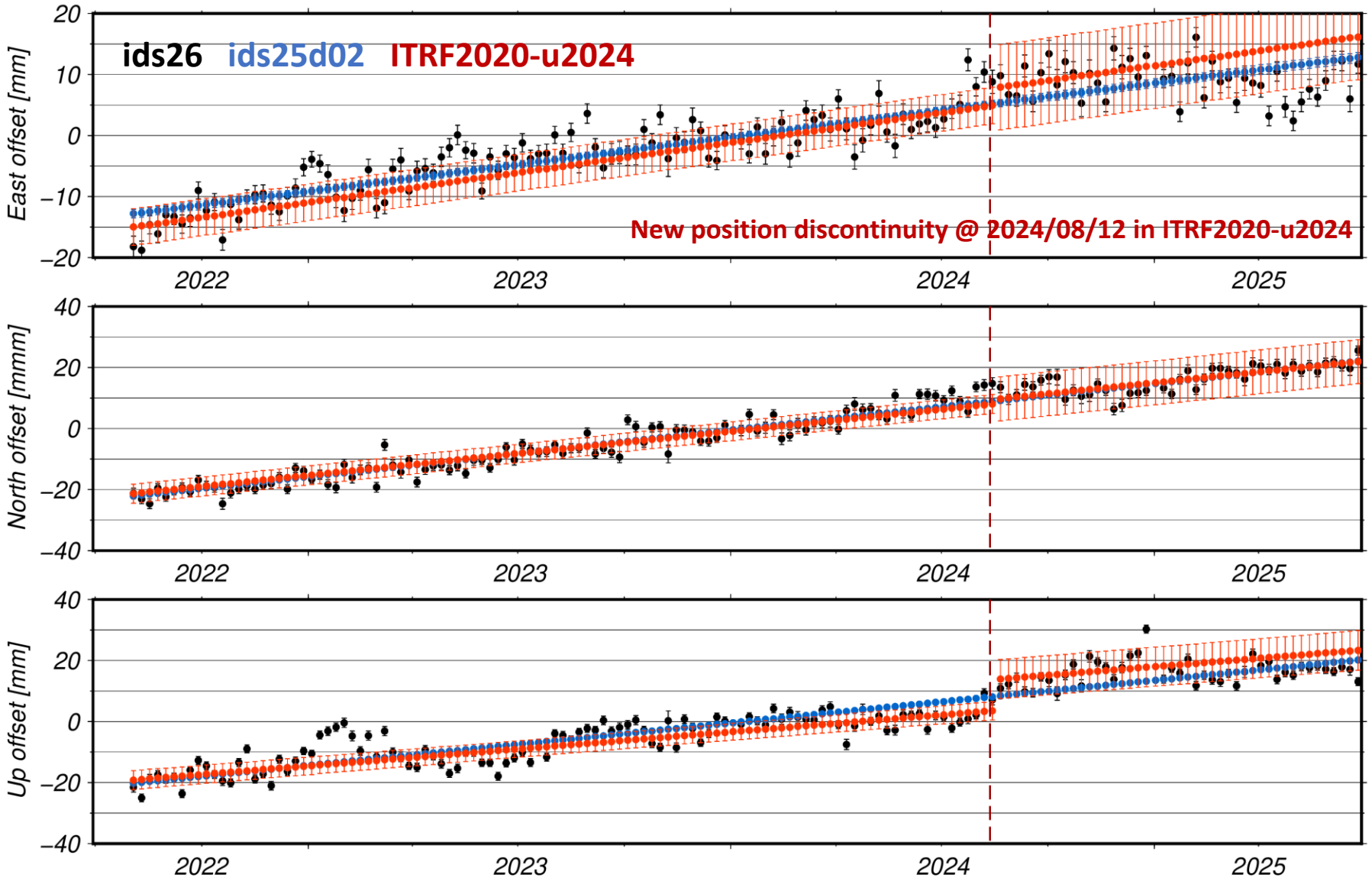
Internal evaluation of ids25d02 did not reveal any issue ➔ realization of DPOD2020 v5.0 will start soon.

DPOD2020 v5.0 may be released before AGU 2025.





SVBC (Ny Alesund II - Svalbard)



HROC (Hanga Roa – Easter Island)