



IDS REPORT 2020

IERS Directing Board Meeting

May 4, 2021

DORIS



IDS IERS members:
Hugues Capdeville (CLS)
Petr Stepanek (GOP)
Jérôme Saunier (IGN)

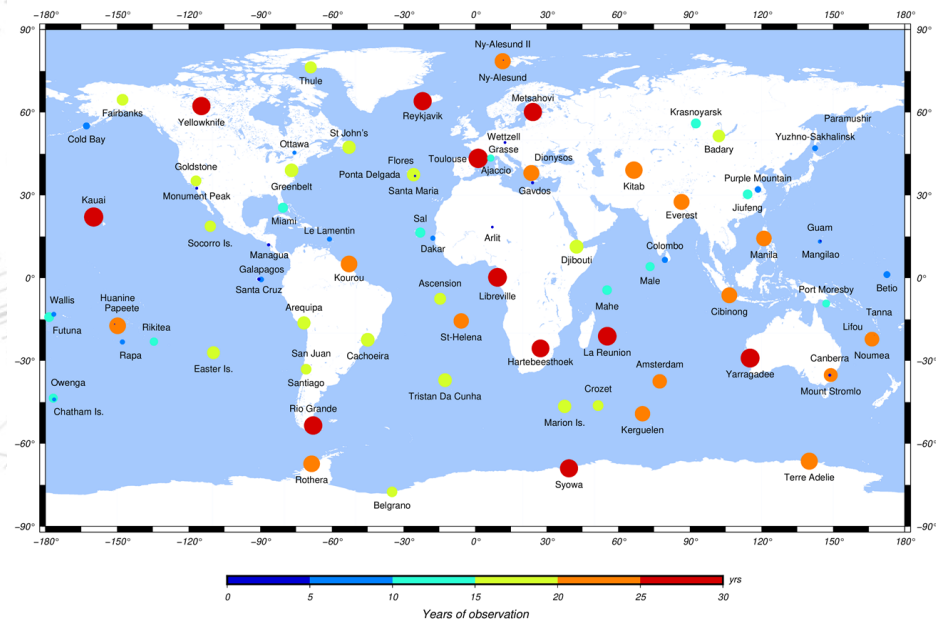
Guilhem Moreaux (CLS)
Pascale Ferrage (CNES)

Status of IDS contribution to ITRF2020

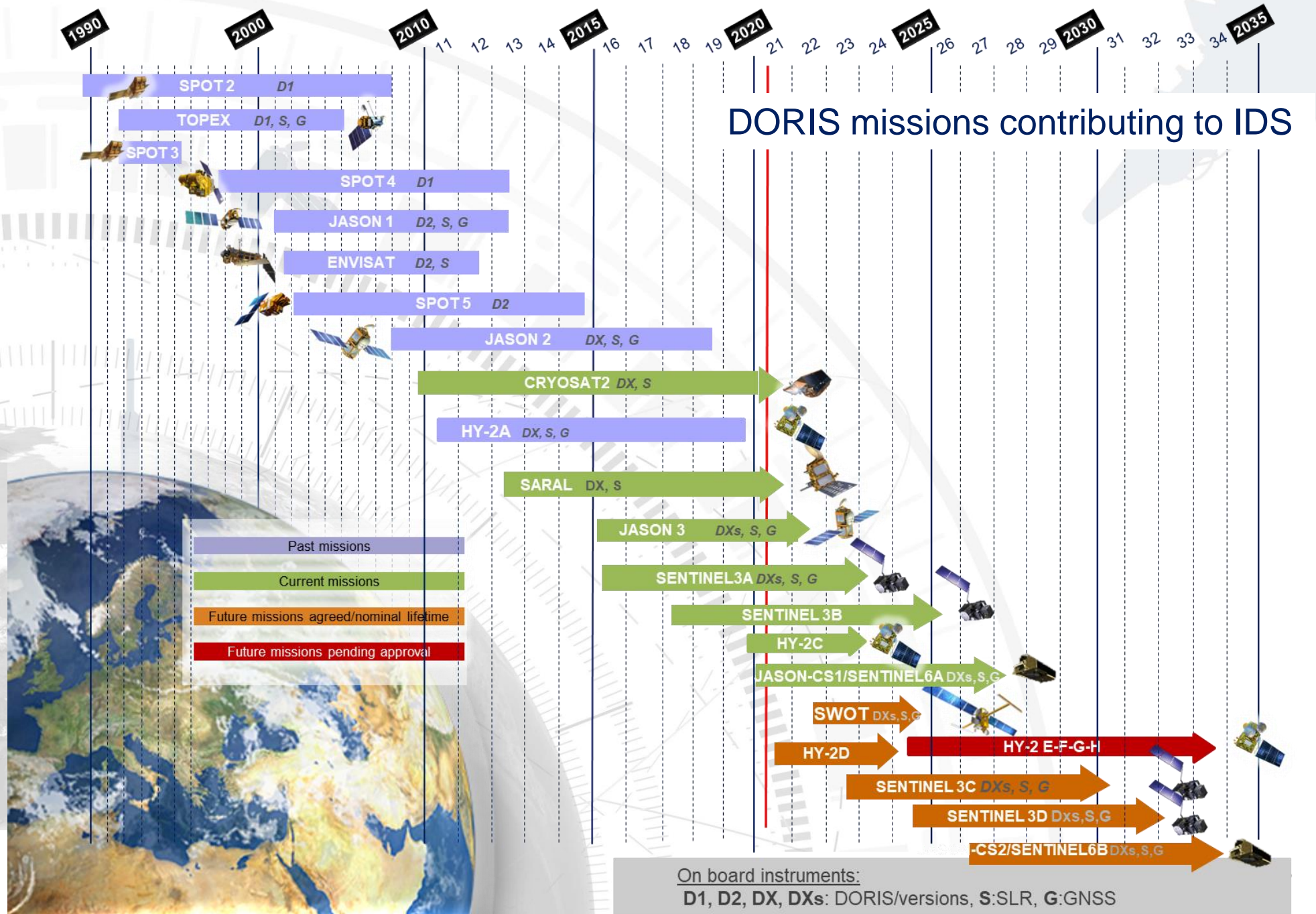
Based on 4 AC contributions from 1993.0 to 2021.0.

AC	Software	Series number	Nb of Files	Nb of Sites	Nb of stations	Solution Type	EOPs
ESA	NAPEOS	12 / 13	1447	87	199	NEQ	(Motion+rate+LOD)
GOP	BERNESE	65 / 66	1458	83	195	COV	Motion+rate
GRG	GINN-DYNAMO	42	1461	86	199	COV	Motion
GSC	GEODYN	48	1461	88	200	NEQ	Motion
IDS	CATREF	15	1456	86	200	COV	Motion

- Includes positions of 200 stations @ 86 sites with 26 sites with more than 20 years of observation.
- There are 15 sites and 40 stations more than for ITRF2014.

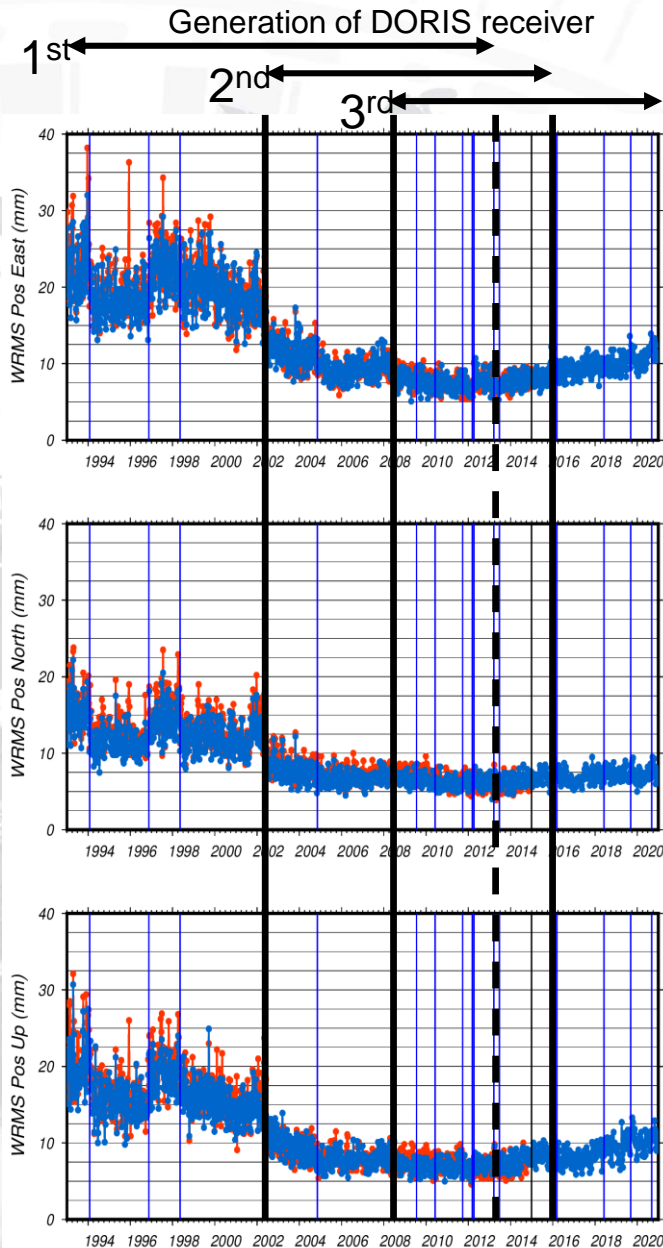


❑ Makes use of 14 DORIS missions.



Status of IDS contribution to ITRF2020

❑ Station Position WRMS wrt ITRF2014



ids 09 (ITRF2014) – **ids 15** (ITRF2020)
Time period: 1993.0-2021.0

3D WRMS [mm]	1993.0 2002.5	2002.5 2008.5	2008.5 2015.0	2015.0 2021.0
ids 09	16.8 ± 2.8	8.7 ± 1.3	7.1 ± 0.7	
ids 15	15.7 ± 2.5	8.4 ± 1.2	6.9 ± 0.6	8.3 ± 0.9

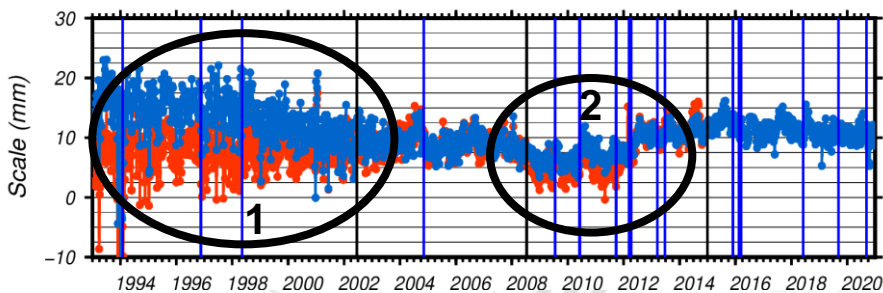
- Results improved when more satellites are available and with more and more recent generation of DORIS receivers.
- 3D WRMS below 10mm after including Jason-1 (late 2004).
- 3D WRMS around 7-8mm since adding of HY-2A (late 2011).

❑ IDS-ITRF2020 solution performs better than IDS-ITRF2014.

❑ Is available for download from CDDIS and IGN (ids 15).

Status of IDS contribution to ITRF2020

□ Scale wrt ITRF2014 from IDS CC

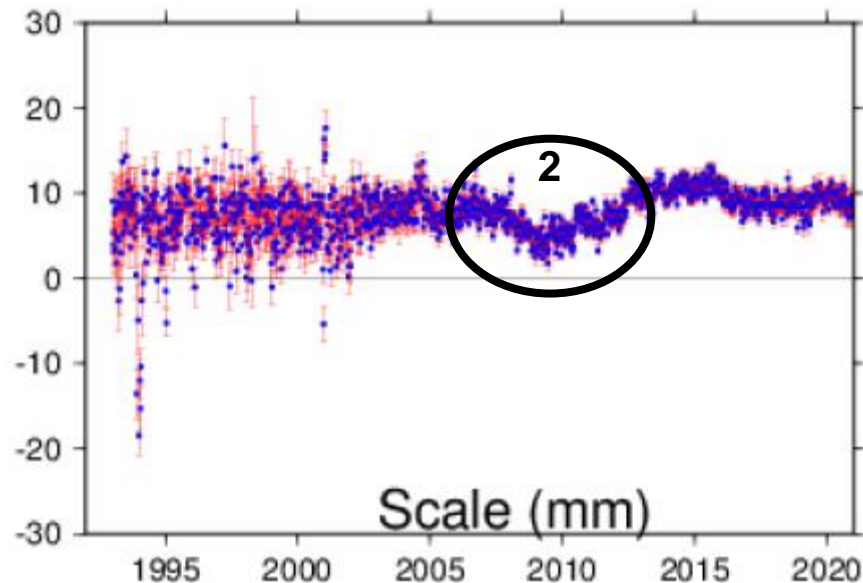


ids 09 (ITRF2014) – **ids 15** (ITRF2020)

Time period: 1993.0-2021.0

1) Scale difference until 2002.5 is due to the new ALCATEL antennae PCV.

□ Scale wrt ITRF2014 from Altamimi & al at EGU 2021



2) There is still a v shaped on the scale certainly due

- to the constellation (number and each satellite is different shape/altitude/inclination)
- evolution of DORIS receivers.
- ...

3) Investigations are ongoing to correct/understand the v shaped BUT the IDS scale is between 0 and ~10 mm (as other technics presented by Zuheir at EGU 2021)

❑ DORIS system

- New DORIS receiver design (at T-DMS) : a new instrument for the next decade
- R&T study / reduction of the oscillator radiation sensitivity and better characterization : still ongoing study, first results will be available in fall 2021.
- Mixed DORIS and GNSS receiver : demonstrator phase planned for the mid 2021 (duration 2 years) and in 2023 : manufacturing of an electrical model
- DORIS-GNSS link (Recom 3 - OSTST/POD): up to 50% improvement in the observability of along-track DORIS-based orbit errors is expected having all DORIS/REGINA stations linked to the same USO
=> a decision should be taken to make this goal a priority

❑ IDS Events

- Virtual IDS AWG focused on ITRF2020 was held 6-7 Apr. 2021
- IDS Workshop, Venice, Italy, 18-20 Oct. 2021 in conjunction with OSTST meeting : a hybrid in-situ and virtual meeting format is planned
- DORIS Day: still to be defined (certainly in 2022)
- A space for discussion and sharing of results and information is being prepared
<https://idsawg.aviso.altimetry.fr/>
- A forum will be set up for the IDS Workshop in addition to the live sessions



<http://ids-doris.org>