



DPOD2014 version 5.0

Guilhem Moreaux (IDS Combination Center) – June 23rd, 2020

- **Based on the DORIS position and velocity cumulative solution ids20d05 (stacking of the IDS combined series ids 13/14 from 1993 doy 003 to 2020 doy 005).**
- **Available in SINEX and text formats.**
- **SINEX solution contains three additional (and unofficial) blocks:**
 - **SOLUTION/DISCONTINUITY:** origin (ex: earthquake, beacon change, antenna problem...) of the position discontinuities.
 - **SOLUTION/DATA_REJECT:** periods of time not included in the combination.
 - **STATION/TO_BE_UPDATED:** stations with non-negligible position change wrt DPOD2014v03.
- **Text solution contains a new column 11 (from the left) to identify stations with non-negligible position change wrt DPOD2014 v04**
 - **Y** means station to be updated
 - **N** means station no to be updated
 - **X** means period to not use

Sites with less than 2.5 years of observations (1/2)

- **Velocities must be constrained (differences wrt DPOD2014v04).**

Site	DORIS station	Reference station	Technique	Source
Ajaccio	AJAB	AJAC	GNSS	ITRF2014
Flores	FLOA	FLOA	DORIS	DPOD2008 (1.14)
Huahine	HUAA	7123	Laser Ranging	ITRF2014
Iquique	No constraint since seismic active site and no colocation			
Lifou	LIFB	LPIL	GNSS	ITRF2014
Managua	MNAC	MANA	GNSS	ITRF2014
Mangilao (Guam)	MLAC	GUUG	GNSS	ITRF2014
Ny-Alesund II	SVAC	SPJB	DORIS	DPOD2014 (v3.0)
Ottawa	OTTA OTTB	NRC1	GNSS	ITRF2014
Owenga	OWEC OWFC	CHTI	GNSS	ITRF2014
San Juan	SJUC	DORISmail 1159		
Tanna	TANB	TANB	DORIS	DPOD2008 (1.14)
Wetzell	WEUC	WTZS	GNSS	ITRF2014

Discontinuity changes wrt DPOD2014 v04

Station:w	Date	Origin
+ ASDB	01:066:65456	Earthquake M6.0 in 2001/03/07 – Ascension Island region (199km)
- ASDB	02:021:00000	Y velocity change (2002/01/21)
+ ASDB	03:075:00000	New antenna (2003/03/15)
ASEB	15:323:49784	Earthquake M5.2 in 2015/11/19 – ENE of Georgetown St-Helena (91km) In place of discontinuity in 15:319 with unknown origin
EASB	07:063:00000	Beacon change (2007/03/04) In place of discontinuity in 08:196 with unknown origin
EASB	11:060:03226	Earthquake M6.0 in 2011/03/01 – Easter Island region (383km) In place of discontinuity in 11:186 due to beacon change
EASB	12:131:08036	Earthquake M5.9 in 2012/05/10 – Easter Island region (362km) In place of discontinuity in 12:169 with unknown origin
+ EASB	13:306:57166	Earthquake M6.0 in 2012/05/10 – Easter Island region (506km)
+ KRAB	03:270:41605	Earthquake M7.3 in 2003/09/27 – Southwestern Siberia Russia (740km)
MARB	03:027:64585	Earthquake M6.4 in 2003/01/27 – Prince Edward Islands region (234km) In place of discontinuity in 02:169 with unknown origin

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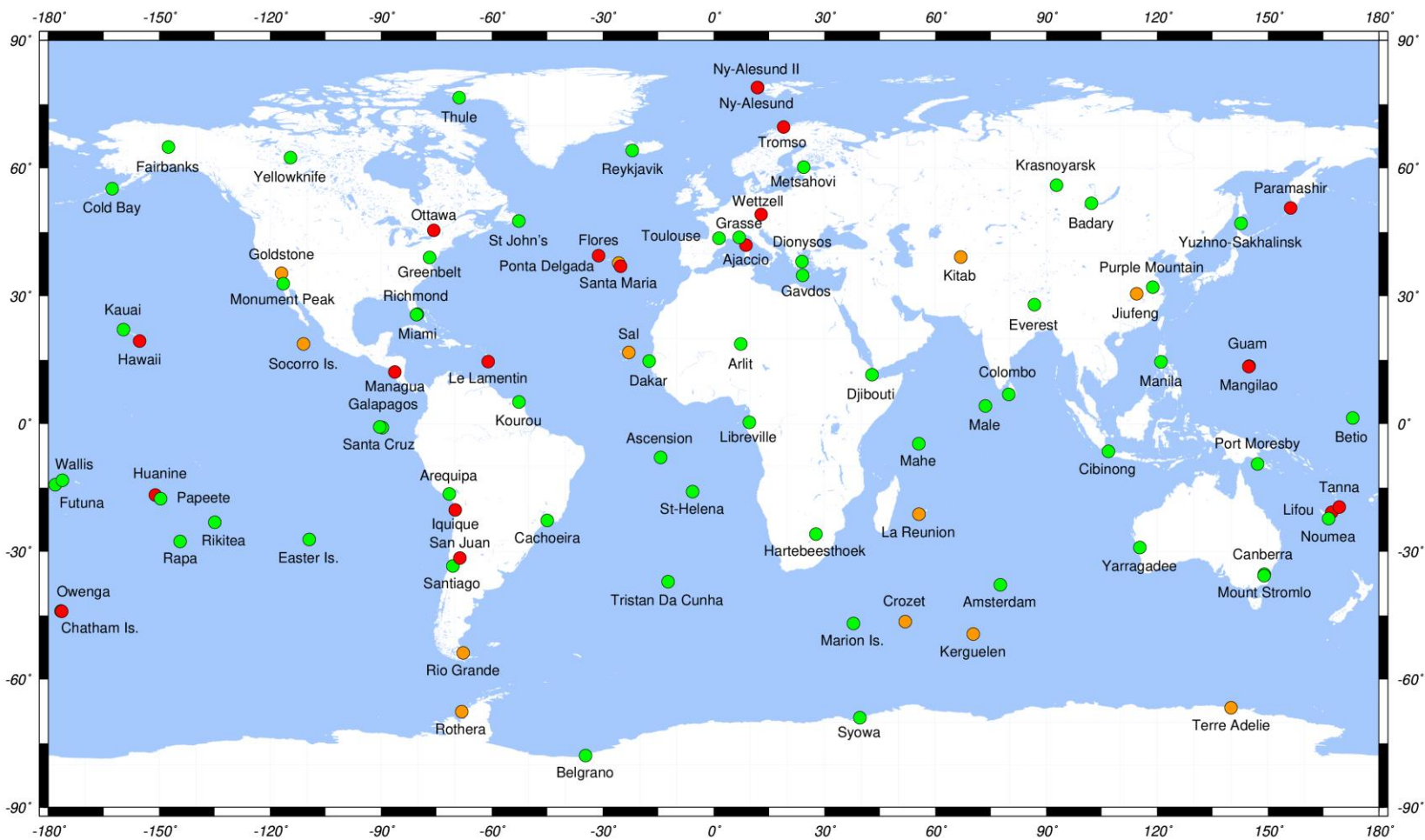
Station:w	Date	Origin
PDMB	09:155:00000	USO change in 2009/06/03 In place of discontinuity in 2008/06/04 due to beacon change
SANB	03:171:48641	Earthquake M6.8 in 2003/06/20 – Coquimbo Chile (297km) In place of discontinuity in 03:147:30585 due to earthquake M4.5 Jujuy, Argentina
+ TRIB	04:211:80466	Earthquake M4.5 in 2004/07/29 - Tristan da Cunha region (28km) In place of discontinuity in 2004/08/15 with unknown origin



<http://ids-doris.org>

DPOD2014 v05 - Network

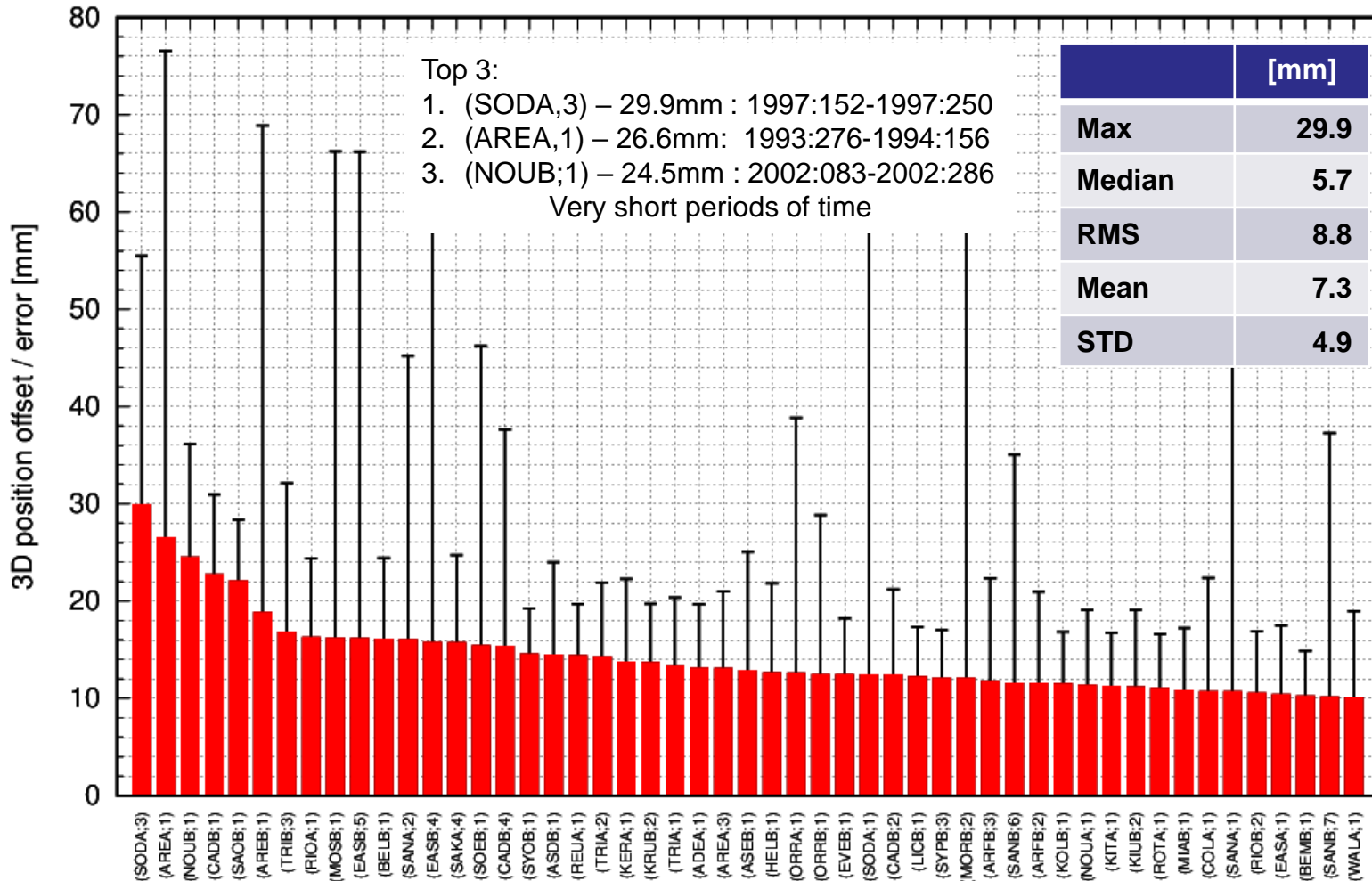
89 DORIS sites – 208 DORIS stations
New stations : CRQC (Crozet), REUC (La Réunion), SCRC (Santa Cruz)



Site not included ITRF2014 (# 18) – Site with new station(s) since ITRF2014 (# 12)

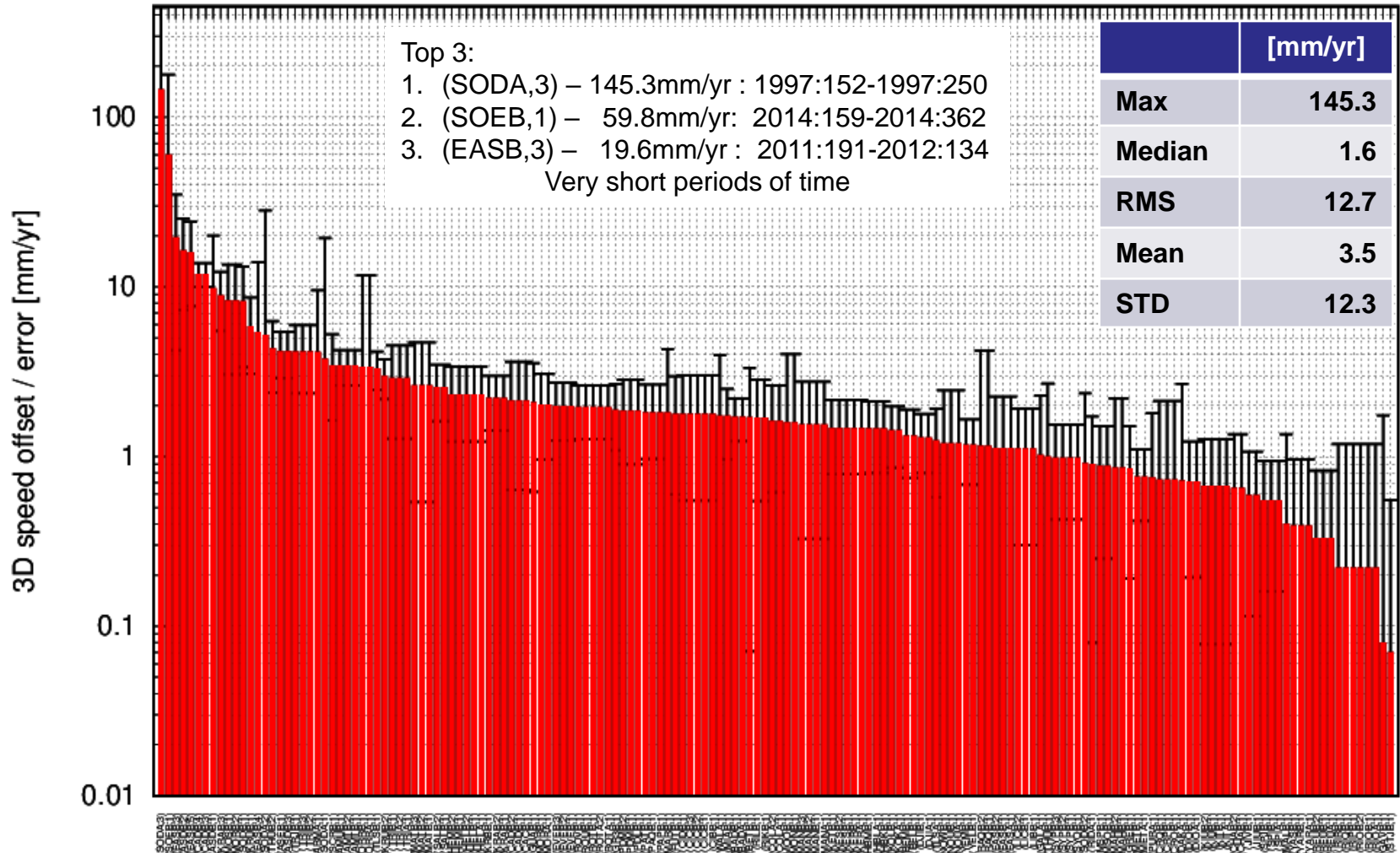
DPOD2014 v05 vs ITRF2014 Position differences

Position differences at the mean epoch of the observations
Differences larger than 10mm only



DPOD2014 v05 vs ITRF2014

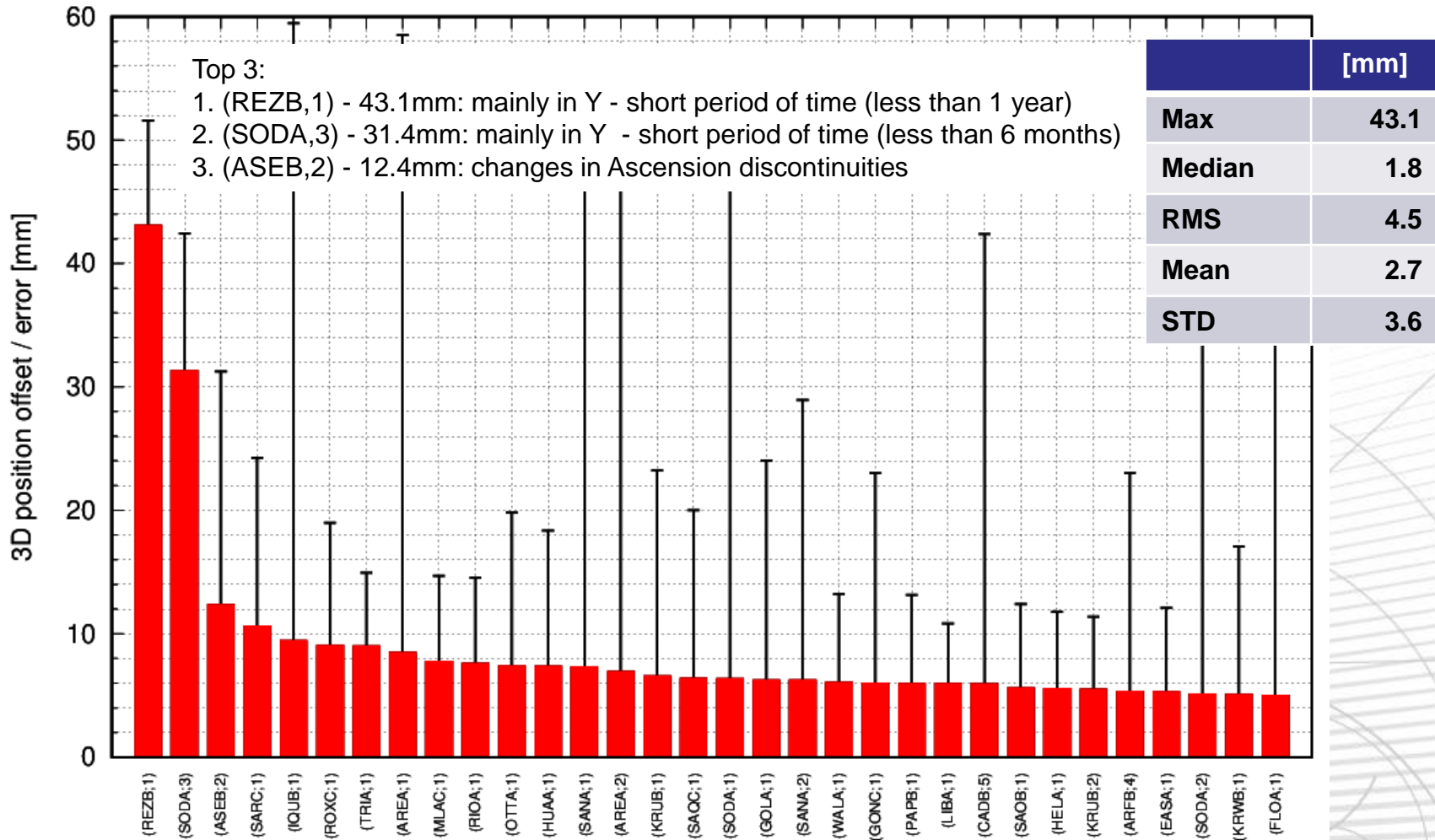
Velocity differences – PSD sites excluded



DPOD2014 v05 vs DPOD2014 v04

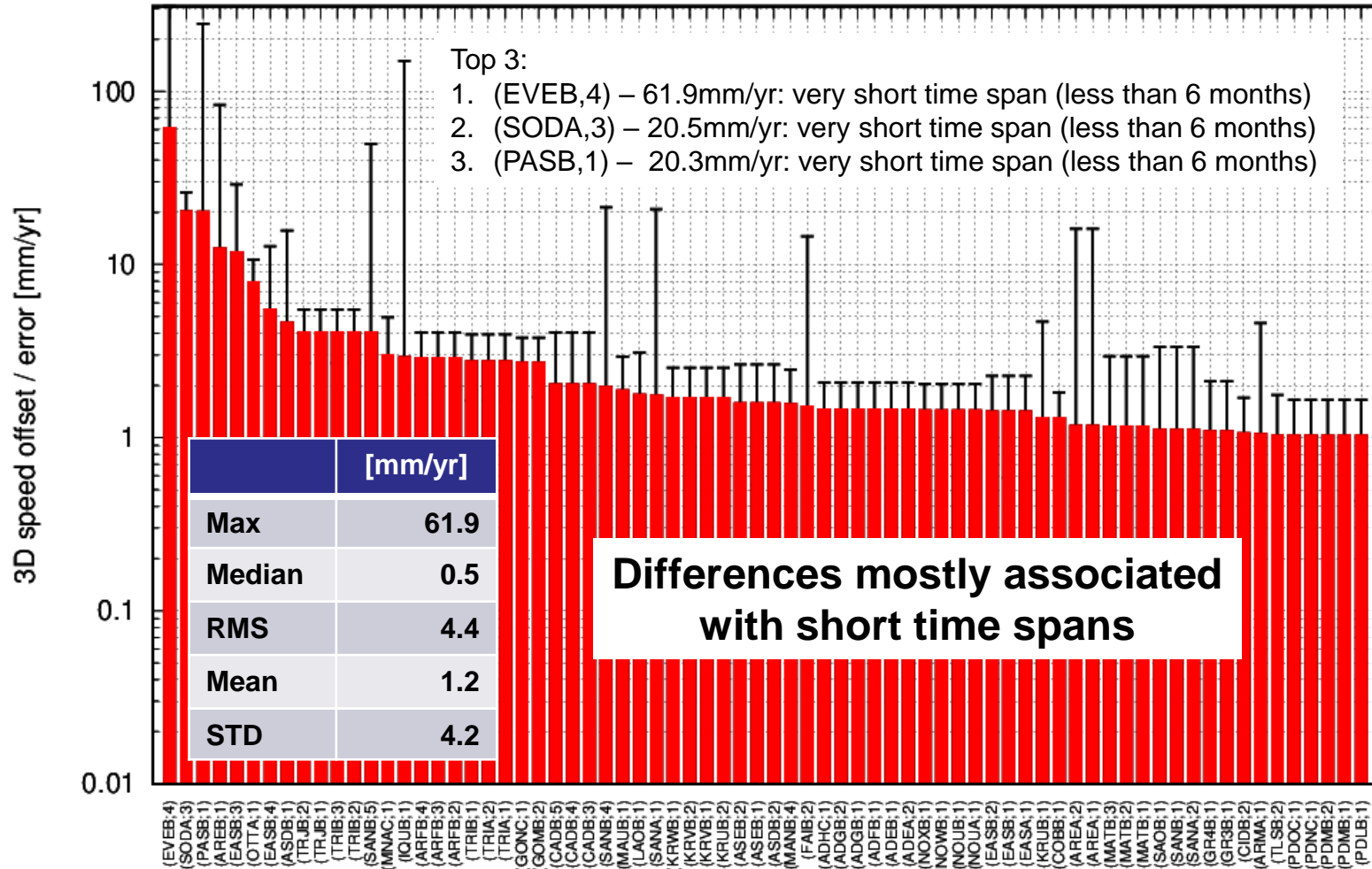
Position differences

Position differences at the mean epoch of the observations
Plot of differences larger than 5mm only



DPOD2014 v05 vs DPOD2014 v04 Velocity differences

Plot of differences larger than 1mm/yr only

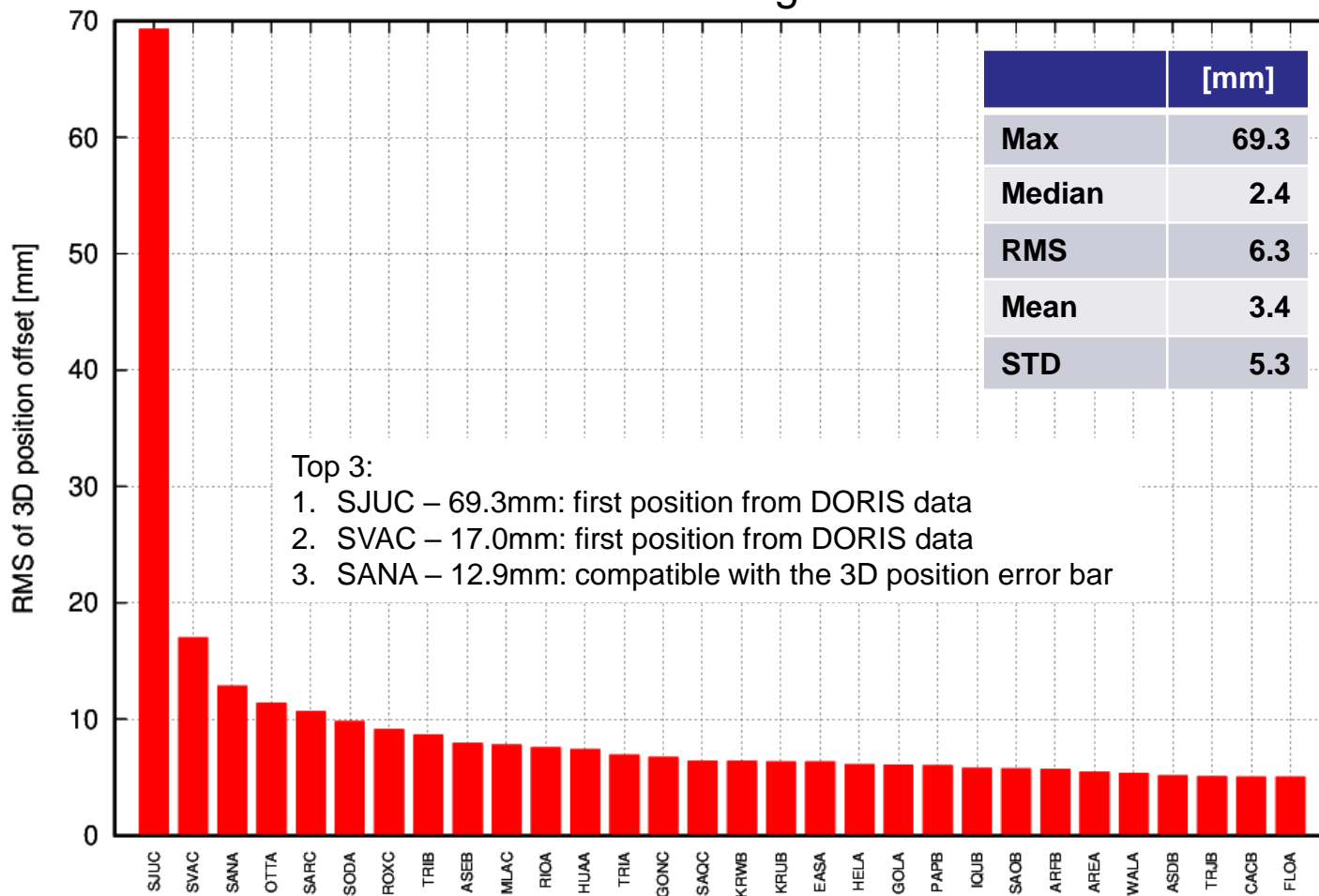


DPOD2014 v05 vs DPOD2014 v04

Position differences

RMS of 3D position differences over the whole period of the observations

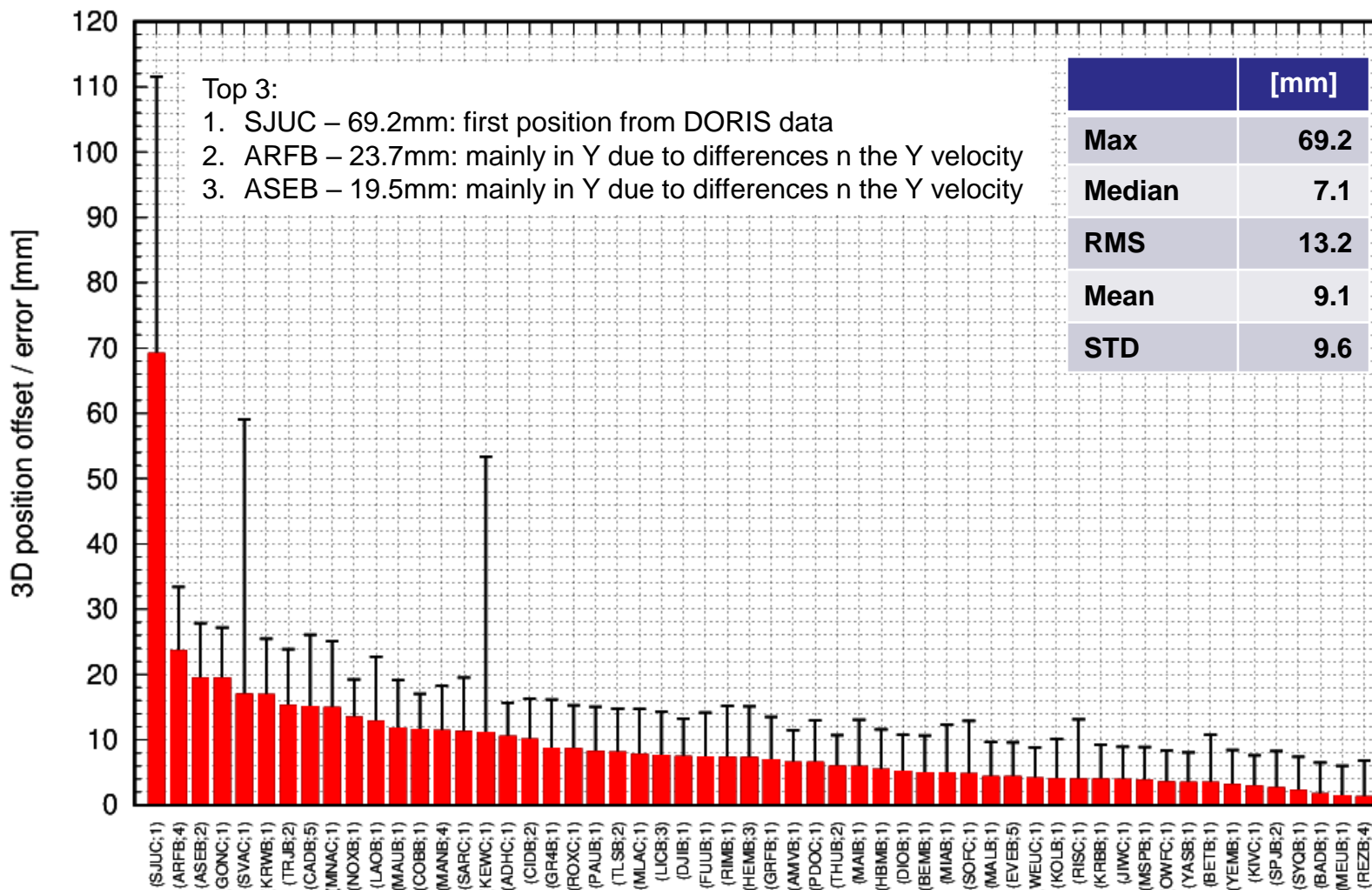
Plot of differences larger than 5mm





DPOD2014 v05 vs DPOD2014 v04

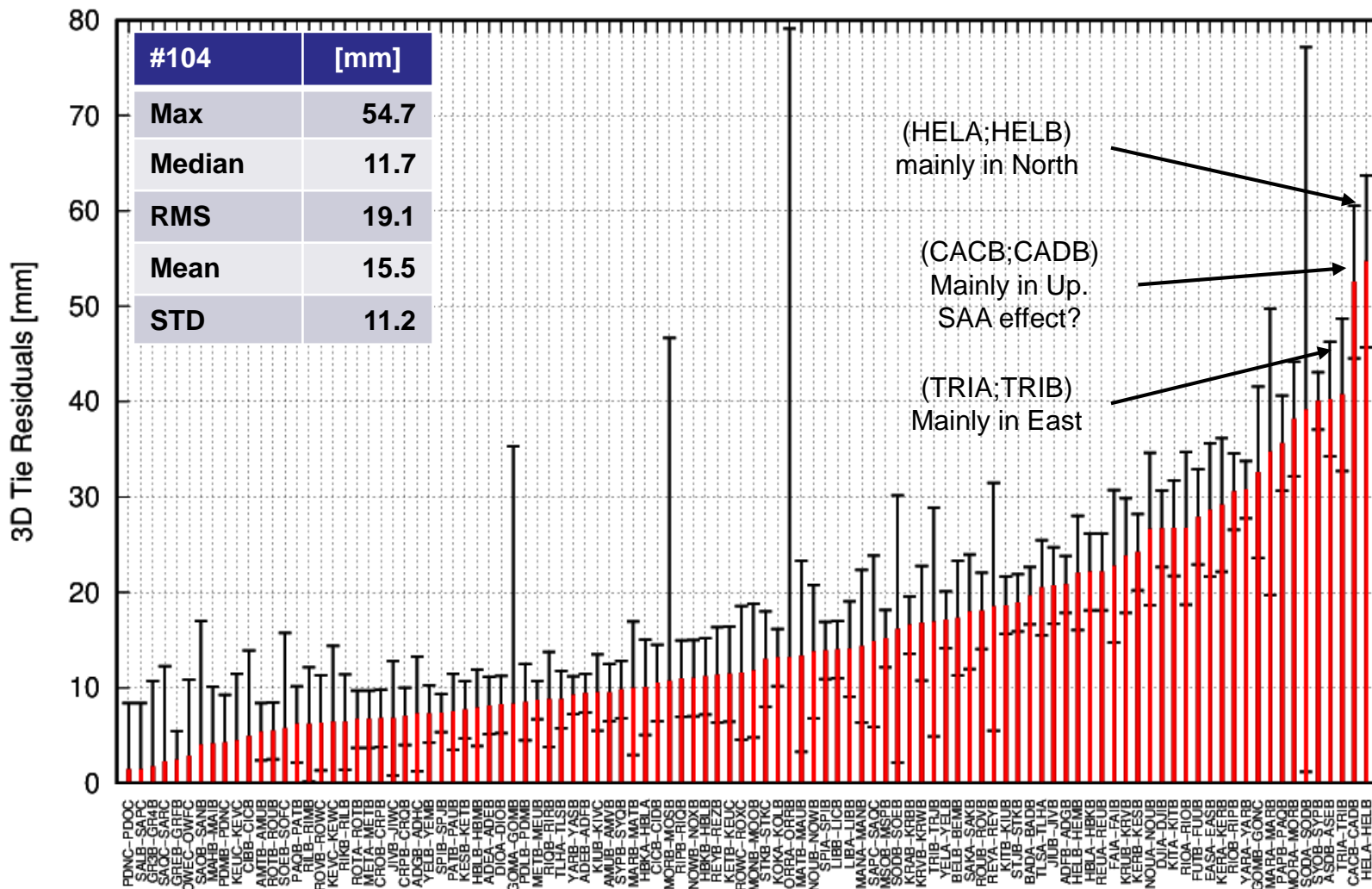
Position differences in 2021:365





DPOD2014 v05 vs IGN DORIS-to-DORIS ties

Coordinate differences estimated at the begin of the most recent station



AREA-AREB removed due to earthquakes in between
 OTTA-OTTB removed due to more than 18 months in between

DPOD2014 v05 vs IGN DORIS-to-GNSS ties

Coordinate differences estimated at max(time_beg_GNSS, time_beg_DORIS)

