

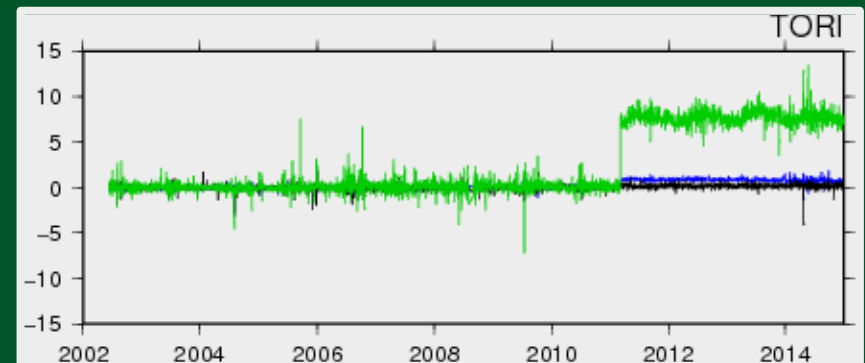
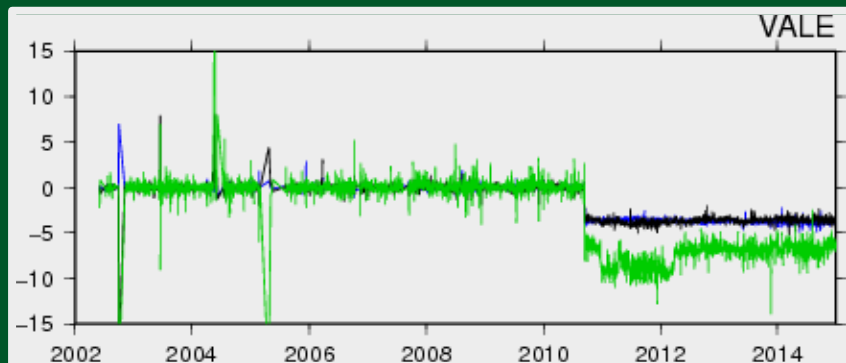
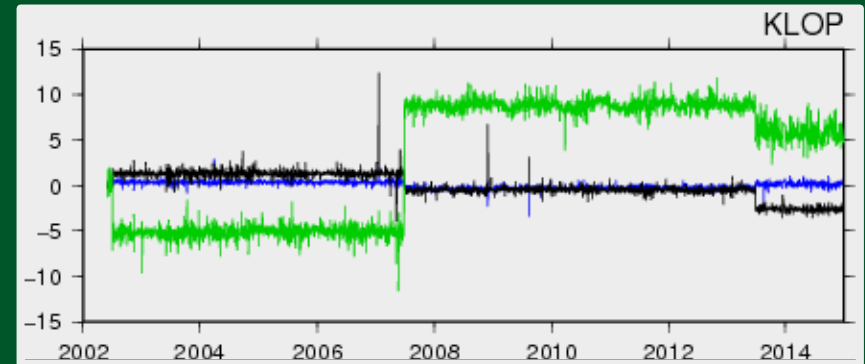
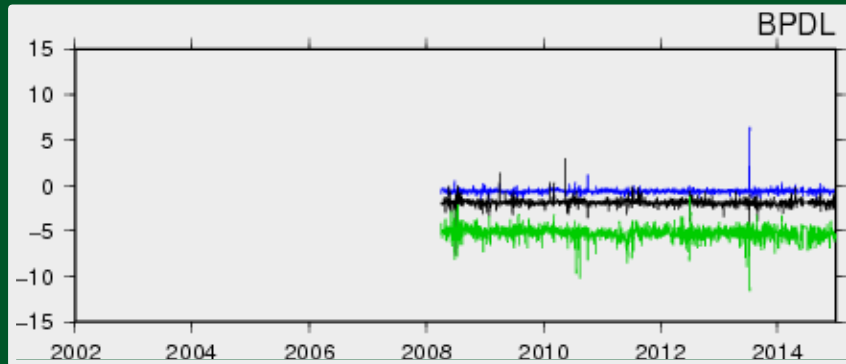
Impact of mixing antenna calibration – lesson from EPN-Repro2

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- ✓ **MU1** (EPN individual calibrations + IGS type mean) vs **MU4** (IGS type mean)
- ✓ Coordinate differences and the impact on:
 - network alignment
 - stability of the time series
 - size of the jumps

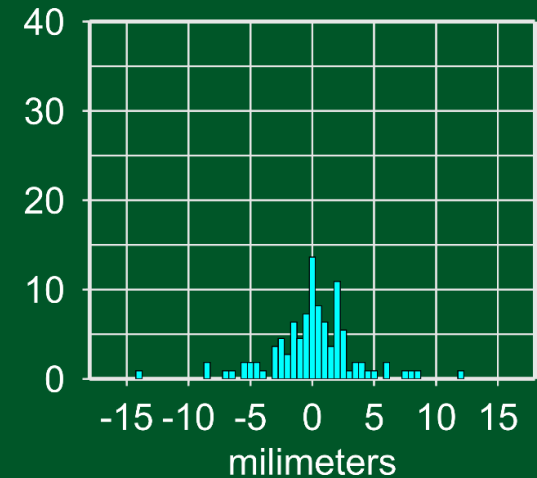
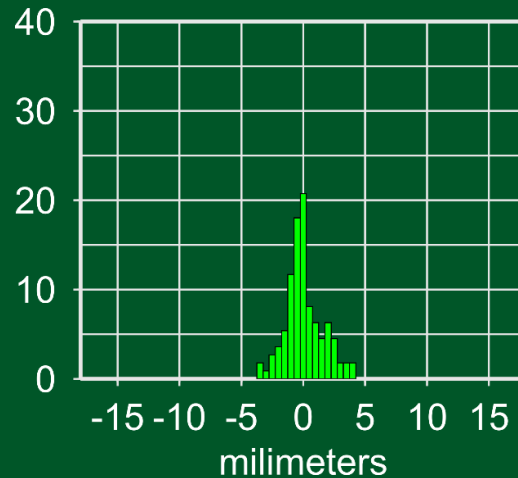
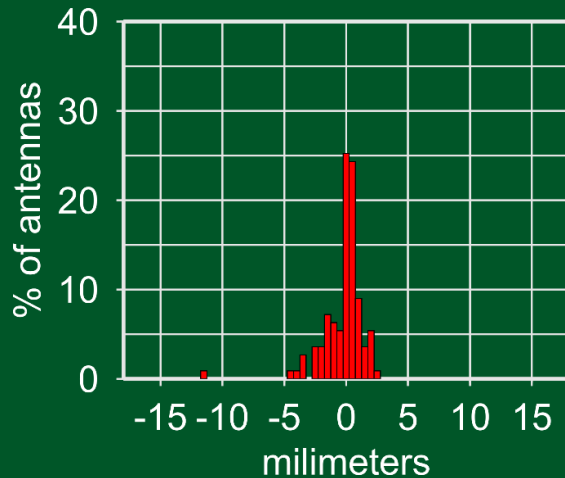
✓ 110 antennas and 75 stations affected



Mismatch of coordinates

- ✓ 110 antennas and 75 stations affected
- ✓ Coordinate differences vary from -11.7 mm to 2.7 mm for North
 - 3.7 mm to 4.1 mm for East
 - 13.9 mm to 11.9 mm for Up

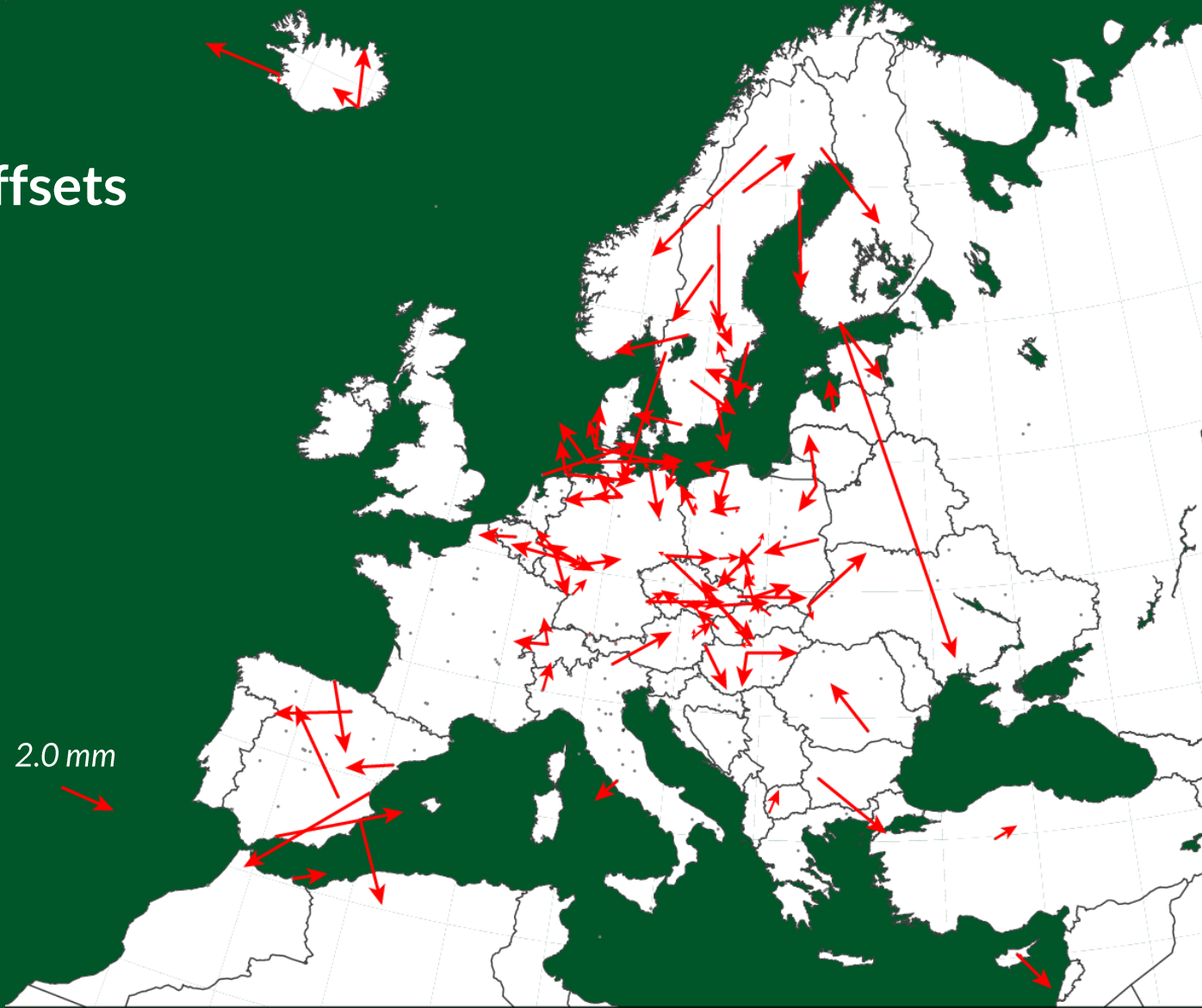
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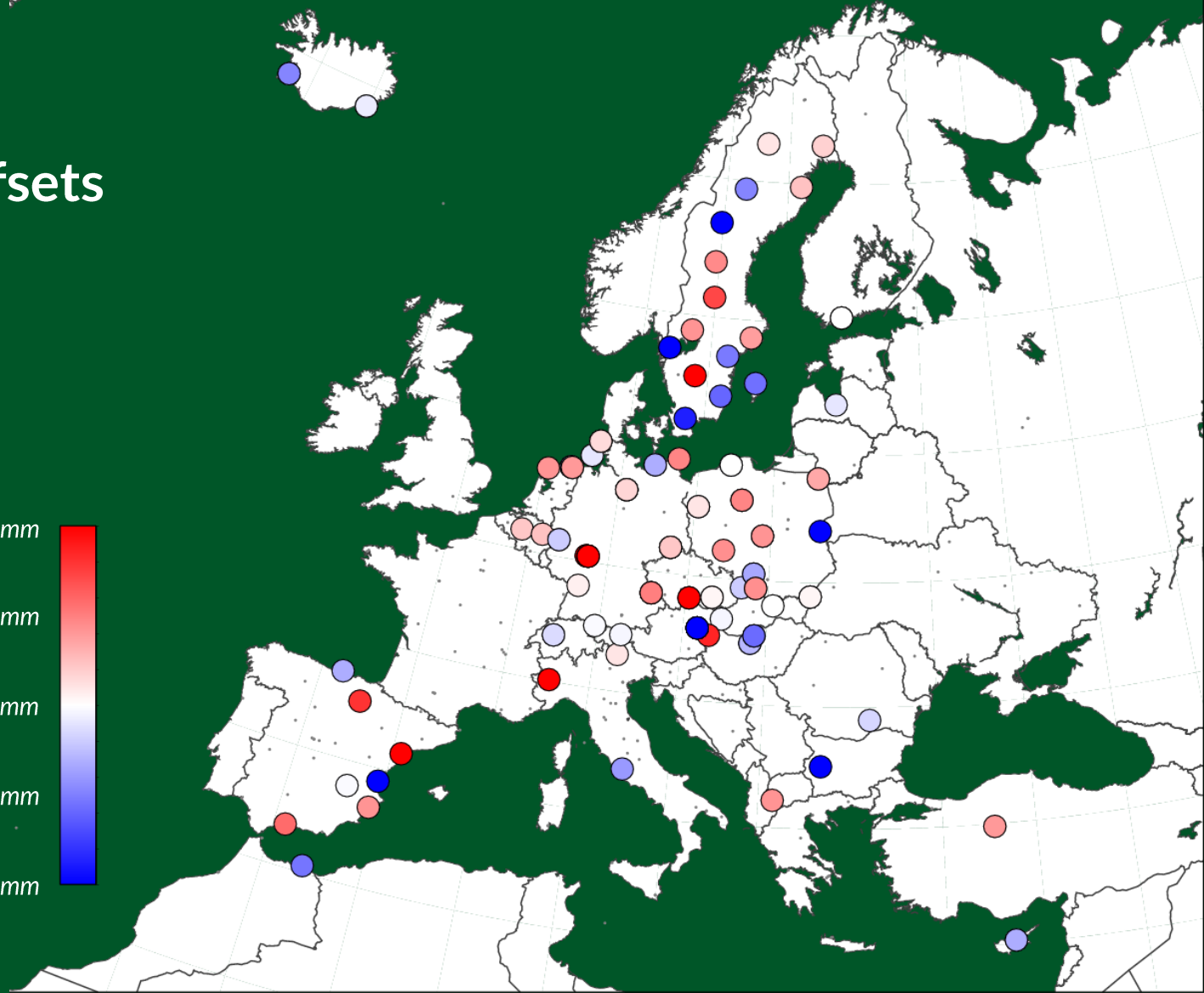
- ✓ Mean values

1.8 mm / 1.5 mm / 3.7 mm for N/E/U

Horizontal offsets



Vertical offsets

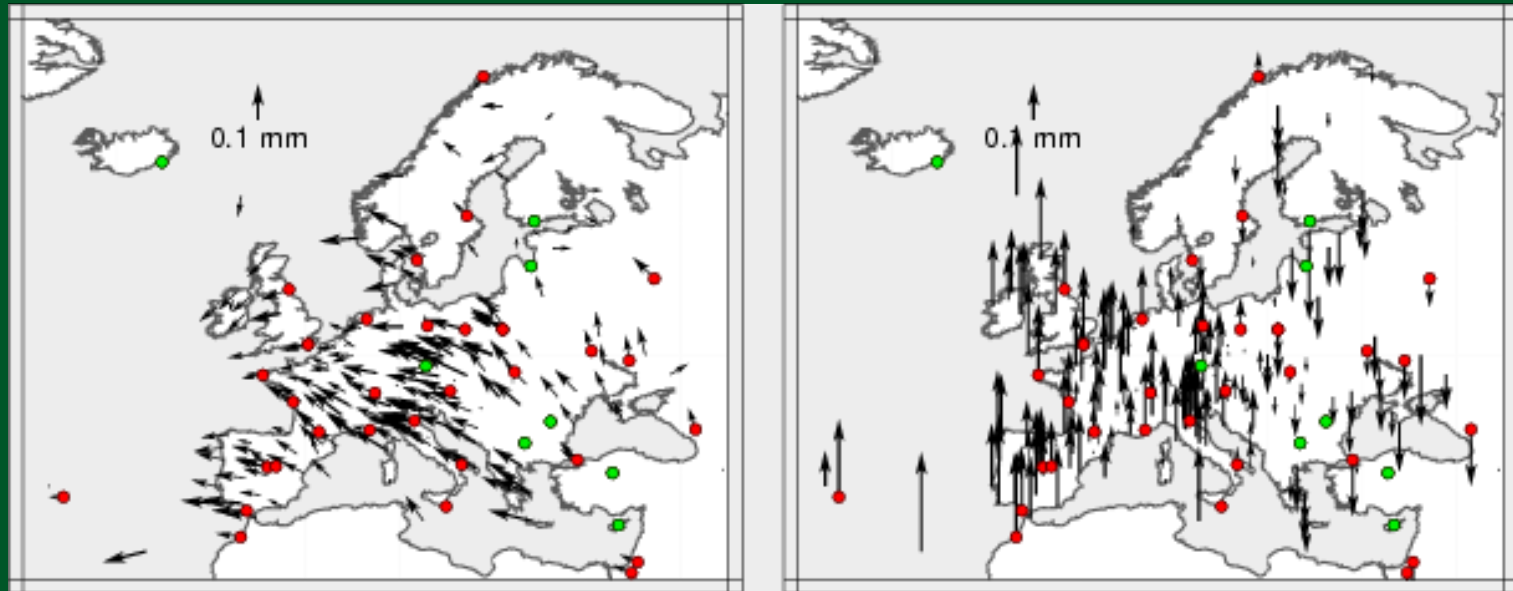


- ✓ 8 of 46 reference stations are affected (valid for GPSWEEK 1768)

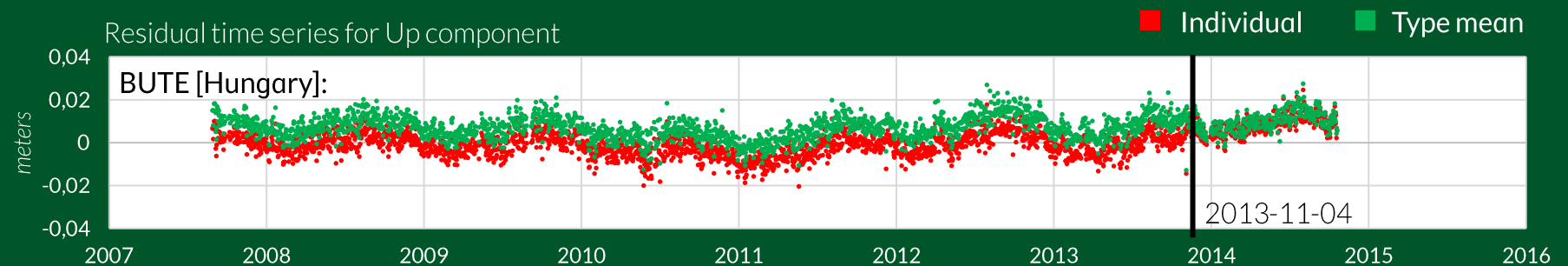
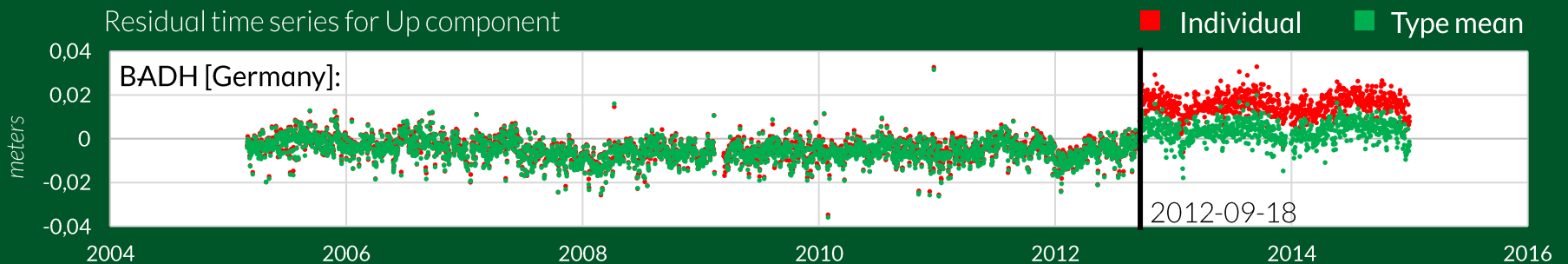
Station	Offset [mm]			Station	Offset [mm]		
	North	East	Up		North	East	Up
ANKR ^{TP}	0.4 ± 0.2	0.8 ± 0.3	2.0 ± 0.5	NICO ^{L4}	-0.1 ± 0.3	0.2 ± 0.5	-1.6 ± 0.7
BUCU ^{LG}	1.7 ± 0.3	-1.3 ± 0.2	-0.8 ± 0.5	RIGA ^{L4}	1.1 ± 0.3	-0.2 ± 0.4	-0.5 ± 0.7
HOFN ^{L4}	2.0 ± 0.4	-0.6 ± 0.6	-0.4 ± 0.7	SOFI ^{L3}	-1.9 ± 0.3	2.4 ± 0.3	-8.6 ± 0.7
METS ^{AS}	-2.0 ± 0.3	1.5 ± 0.3	0.0 ± 0.6	WTZR ^{L3}	0.4 ± 0.3	0.6 ± 0.3	2.5 ± 0.5

^{AS}ASH700936C_M NONE; ^{LG}LEIAT504GG LEIS; ^{L3}LEIAT25.R3 LEIT; ^{L4}LEIAT25.R4 LEIT; ^{TP}TPSCR3_GGD CONE.

- ✓ 8 of 46 reference stations are affected (valid for GPSWEEK 1768)
- ✓ No significant impact on frame realisation



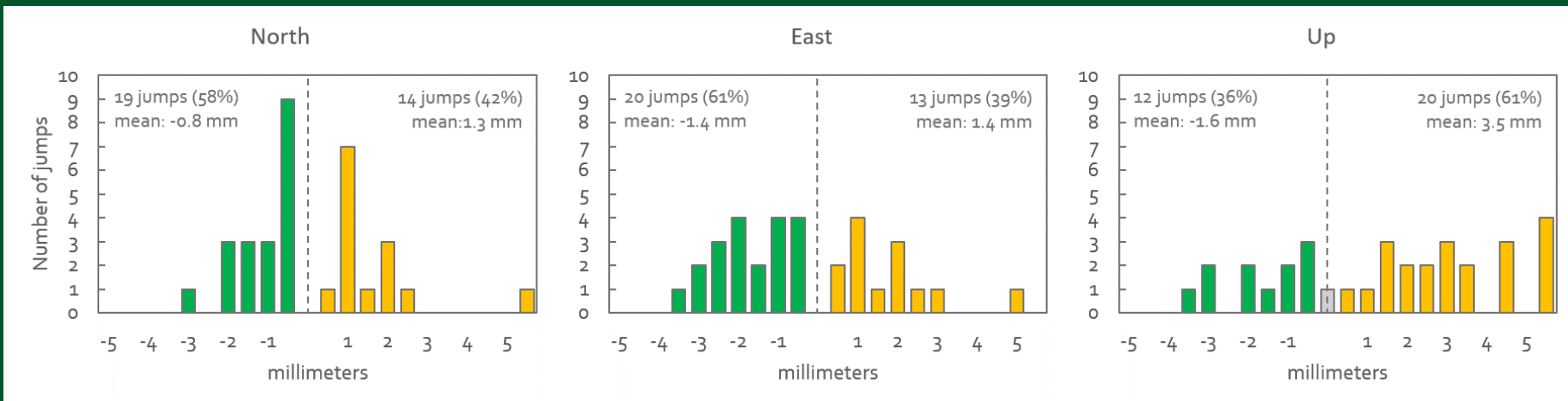
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- ✓ A slight improvement [51% (North) and 53% (East) coordinate time series have smaller std.] in the horizontal components, if the individual calibrations are used.
- ✓ Worse repeatability in Up component for 59% analyzed antennas, if individual calibrations are used instead of IGS type mean.
- ✓ No type-dependent effect.

	North	East	Up
Mean improvement:	0.9 mm (57)*	0.9 mm (59)	2.4 mm (46)
Mean degradation:	0.9 mm (54)	0.9 mm (51)	2.1 mm (65)

* Numbers in brackets correspond to the numer of included antennas.

- There is no clear indication that any ground antenna phase centre corrections is superior to the other.
- Statistically, individual calibrations slightly improve the horizontal part [in 55%] and degrade the heights [in 63%] in all three aspects [annual signal, repeatability, jumps].

