

ARA-DAC Weekly Analysis Result: 2389 (GFA)

Technical Report

GPS Week: 2389 (GFA)

<http://geolabpasaia.org/gnss/ARA-euref/>

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1 Introduction

In may 2015 ARA (EUREF's acronym of the ARANZADI's Department of Applied Geodesy), kicks off as a EUREF's Operational Center. In July 2015, the Densification solutions ARA computes routinely in a weekly basis start being submitted to the EUREF's EPN Densification Project.

2 Map of Computed Sites

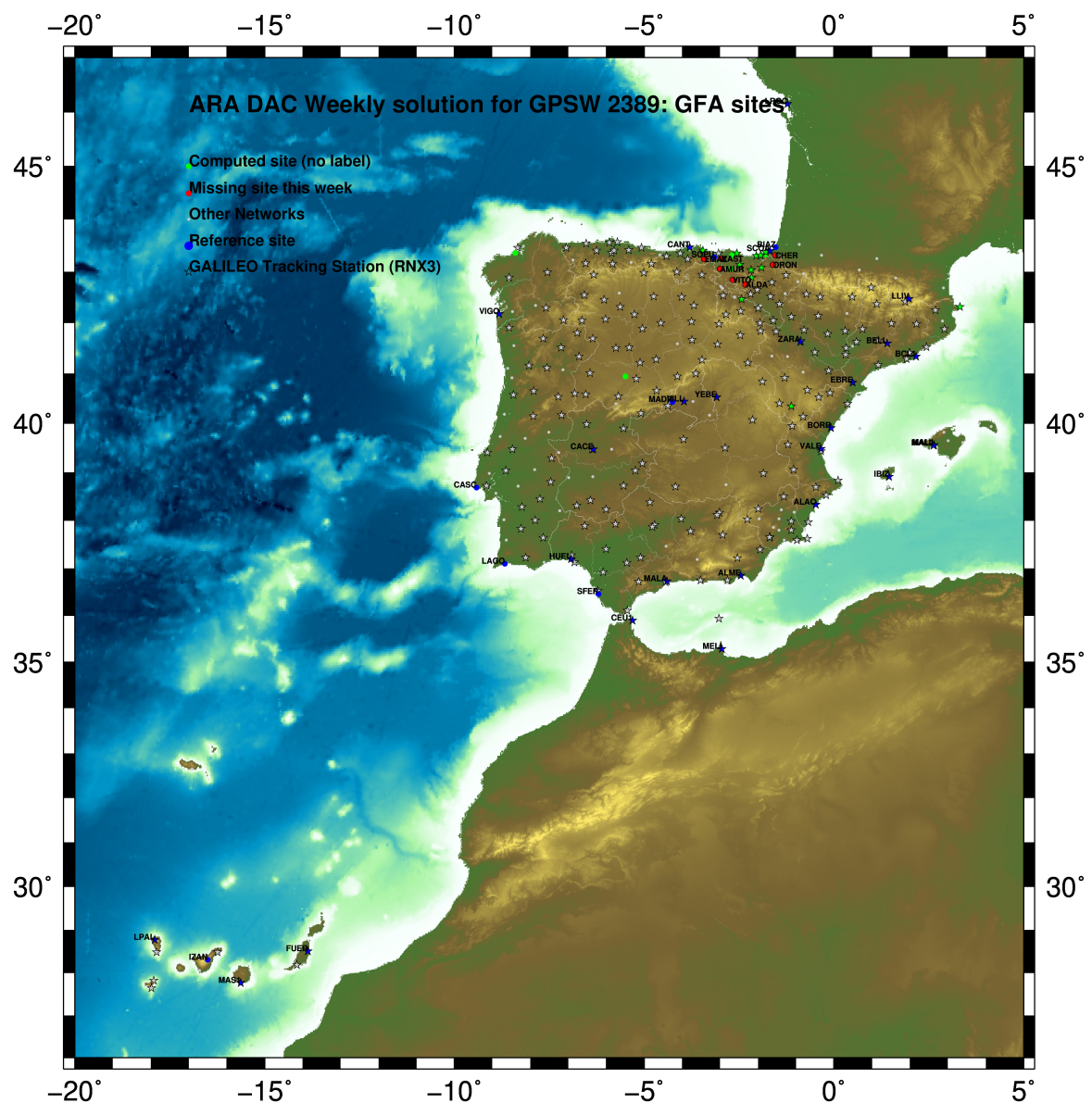


Fig.1: Computed Sites for GPS Week2389 (GFA)

3 Main Computation Parameters

The main parameters considered in the ARA analysis follow strictly the EPN recommendations.

- Preprocessing: Independent baselines are defined by the criterion of maximum common observations. Cycle slips are fixed with the MAUPRP program, analysing triple phase differences for each independent baseline. If MAUPRP does not fix all slips for one station, that station is edited out.
- Basic Observable : Carrier phase, L_1 and L_2 ; a priori sigma of single differences: 0.002 m.
 - sampling (for ambiguity resolution): 30 s
 - sampling (for final processing): 180 s
 - Systems: GPS+GLONASS observations are used (Galileo is used if available starting GPS week 1986)
- Modelled observable: Double differences of carrier phase using different combinations based on the distance.
- Ground antenna phase center calibrations: Group APCV used from the PCV_COD.I20 file and individual calibrations from EPNC_20.ATX. In case no calibration values of an antenna/radome pairs are not available for a certain GNSS system at some station, the observation of this/these GNSS/GNSSs are excluded from the analysis of that station.
- Reference sites: the latest IGS cumulative solution is used to align our solution to the latest IGS20 release, regularly updated and available at: IGS0OPSSNX_1994002_00U_00U_CRD.SNX.gz. Following the EUREF guidelines, no other individual calibrations are included in the analysis starting GPSW 2238 (IGS20); also applies to repro3 solutions, which are based on IGS20 standards.
- Troposphere:
 - minimum elevation is 3 deg.; elevation dependent weighting.
 - VMF3 mapping function. ZPD parameters are estimated using the VMF3 mapping function.
 - CHENHER gradient estimation model.
- Ionosphere: no a priori model, ionospheric effect almost removed by iono free combination.
- Ocean Loading: FES2014b (Scherneck).
- Atmospheric loading: not corrected, following the latest recommendations for IGS20 products.
- Tidal displacements:
 - Mean pole model : IERS2010_v1.2.0
 - Subdaily pole model: DESAI2016
 - Nutation model : IAU2000R06

4 Estimated Parameters

- Adjustment: Least Squares
- Rejection Criteria: 3σ of single differences, in the weekly combination of daily normal equations (ADDNEQ)
- Station coordinates: minimum constraints (MC) to IGS sites (only translations).
- Troposphere: 3 deg. After having obtained coordinates valid for the entire week, tropospheric zenith delay is solved at each site at intervals of 1 hour throughout the week, holding the coordinates constrained at the weekly values.

- Ionospheric: second and third "High Order Ionosphere (HOI)" corrections used, using CODE files, to improve Ambiguity Resolution.
- Satellite clock bias: not estimated because are eliminated by double differencing the phase data.
- Receiver clock bias: not estimated because are eliminated by double differencing the phase data.
- Orbits and ERPs: CODE's orbits and ERP for both rapid and final solutions. DE421 planetary ephemeris and JGM3 Earth geopotential model is used.
- Ambiguity: an advanced ambiguity resolution (AR) scheme is included:
 - Code-Based Widelane (WL) and Narrow Line (NR) AR for baselines shorter than 6000km, a Melbourne-Wuebbena wide-lane and narrow-lane AR is computed.
 - Phase-Based Widelane (L_5) AR for baselines shorter than 200km, the code-based wide-lane AR is replaced by a phase-only wide-lane with a subsequent narrow-lane AR.
 - Quasi-Ionosphere-Free (QIF) AR for the remaining real-valued ambiguities for baselines shorter than 2000km.
 - Direct L_1/L_2 AR for baselines shorter than 20km
- AR Verification: Each baseline is processed by introducing the resolved integer ambiguities and checking the residuals. If there is any problem, the ambiguities are re-initialized.

5 Computed Coordinates

In this section the adjusted coordinates are summarized. Note that the sites with an A flag are the computed ones, whereas sites flagged as W (IGS cumulative solution) are the ones used in the Minimal Constraints condition.

5.1 IGS20

The Reference Frame considered in this section is the IGS20 (IGS cumulative solution), mapped from 2015.0 to the observation epoch.

ARA FINAL WEEKLY COMBINATION: FINAL ORBITS						18-NOV-25 11:33
LOCAL GEODETIC DATUM: IGS20			EPOCH: 2025-10-22 11:59:45			
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.47179	-678367.24430	4357066.33129	A	G
50	ALSA 19419M001	4677250.76657	-176770.27275	4319079.94911	A	GRE
384	BLAZ 10074M002	4634455.98230	-124344.85134	4365785.53442	W	GR
101	BIDA 00000M000	4644177.75267	-145778.19922	4354832.55650	A	GR
113	BRZR 19387M001	4662220.92037	-220769.77842	4333309.50858	A	GR
573	CACE 13447M001	4899866.45041	-544566.91422	4033770.28346	W	GRE
592	CANT 13438M001	4625924.25038	-307096.11345	4365771.63641	W	GRE
908	CREU 13432M001	4715420.05829	273178.18483	4271946.91860	A	GRE
135	EBRE 13410M001	4833519.91785	41537.52149	4147461.79337	W	GRE
180	ELGE 19353S001	4657557.33064	-202241.34698	4338991.96696	A	GRE
209	GERN 19389M001	4642811.25265	-217222.80386	4353278.95483	A	GR
257	HOND 15012M002	4640529.24907	-145676.86346	4358781.83212	A	GRE
235	IGEL 19352S001	4645951.35662	-165574.38111	4352550.50197	A	GRE
240	ISPS 19484M001	4640596.41351	-206963.65588	4356391.99415	A	GRE
252	LARE 19440M001	4632831.88934	-279026.02434	4360314.50399	A	GRE
256	LAZK 19354S001	4666098.27664	-178186.06875	4330463.75000	A	GRE
261	LEIT 19428M001	4663520.87149	-155858.59695	4334519.96621	A	GRE
345	PAS2 19351S001	4644908.99410	-156644.94722	4353623.15529	A	GRE
493	PASA 19351S001	4644908.99422	-156644.94724	4353623.15528	A	GRE
553	RIO1 13448M002	4708446.76413	-199490.16003	4284089.81325	A	GRE
558	SALA 13469M001	4803054.42624	-462130.94805	4158379.15763	A	GR
526	SCOA 10088M002	4639940.43554	-136224.82060	4359552.50048	W	GRE
715	SOPU 19386M001	4643997.84139	-255913.78517	4350063.21593	W	GR
443	TERU 13487M001	4867391.25417	-95523.22133	4108341.76264	A	GRE
616	YEBE 13420M001	4848724.50473	-261631.80501	4123094.40766	W	GRE
655	ZARA 13462M001	4773803.10246	-73505.86147	4215454.17199	W	GRE

5.2 ETRF2000 (ETRS89) Coordinates

European Terrestrial Reference System, 1989 (ETRS89) is realized by ETRF2000 (Boucher and Altamimi, 2011) and (Altamimi, 2017).

CONVERT TO ETRF2000						18-NOV-25 11:33
LOCAL GEODETIC DATUM: ETRF2000			EPOCH: 2025-10-22 11:59:45			
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.82759	-678367.90718	4357065.83413	A	
50	ALSA 19419M001	4677251.19023	-176770.94506	4319079.45184	A	
384	BLAZ 10074M002	4634456.41730	-124345.51809	4365785.04181	W	
101	BIDA 00000M000	4644178.18372	-145778.86726	4354832.06269	A	
113	BRZR 19387M001	4662221.33900	-220770.44896	4333309.01204	A	
573	CACE 13447M001	4899866.79790	-544567.61513	4033769.76042	W	
592	CANT 13438M001	4625924.65952	-307096.77962	4365771.14190	W	
908	CREU 13432M001	4715420.54155	273177.50936	4271946.42433	A	
135	EBRE 13410M001	4833520.35789	41536.83033	4147461.28500	W	
180	ELGE 19353S001	4657557.75237	-202242.01688	4338991.47111	A	
209	GERN 19389M001	4642811.67346	-217223.47193	4353278.46010	A	
257	HOND 15012M002	4640529.68047	-145676.53104	4358781.33864	A	
235	IGEL 19352S001	4645951.78468	-165575.04944	4352550.00771	A	
240	ISPS 19484M001	4640596.83604	-206964.32365	4356391.49977	A	
252	LARE 19440M001	4632832.30200	-279026.69132	4360314.00927	A	
256	LAZK 19354S001	4666098.70105	-178186.73965	4330463.25372	A	
261	LEIT 19428M001	4663521.29940	-155859.26747	4334519.47049	A	
345	PAS2 19351S001	4644909.42351	-156645.61539	4353622.66126	A	
493	PASA 19351S001	4644909.42363	-156645.61541	4353622.66125	A	
553	RIO1 13448M002	4708447.18162	-199490.83632	4284089.31280	A	
558	SALA 13469M001	4803054.79594	-462131.63680	4158378.64468	A	
526	SCOA 10088M002	4639940.86834	-136225.48808	4359552.00720	W	
715	SOPU 19386M001	4643998.25646	-255914.45350	4350062.72053	W	
443	TERU 13487M001	4867391.67154	-95523.91718	4108341.24919	A	
616	YEBE 13420M001	4848724.89984	-261632.49901	4123093.89349	W	
655	ZARA 13462M001	4773803.53198	-73506.54557	4215453.66741	W	

5.3 ETRF2014 (ETRS89) Coordinates

European Terrestrial Reference System, 1989 (ETRS89) is realized by ETRF2014 (Boucher and Altamimi, 2011) and (Altamimi, 2017).

CONVERT TO ETRF2014						18-NOV-25 11:33
LOCAL GEODETIC DATUM: ETRF2014						EPOCH: 2025-10-22 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.78812	-678367.94342	4357065.88736	A	
50	ALSA 19419M001	4677251.14819	-176770.98288	4319079.50496	A	
384	BIAZ 10074M002	4634456.37557	-124345.55632	4365785.09510	W	
101	BIDA 00000M000	4644178.14195	-145778.90536	4354832.11594	A	
113	BRZR 19387M001	4662221.29730	-220770.48668	4333309.06518	A	
573	CACE 13447M001	4899866.75436	-544567.65045	4033769.81276	W	
592	CANT 13438M001	4625924.61854	-307096.81718	4365771.19513	W	
908	CREU 13432M001	4715420.49726	273177.46999	4271946.47768	A	
135	EBRE 13410M001	4833520.31314	41536.79240	4147461.33780	W	
180	ELGE 19353S001	4657557.71066	-202242.05469	4338991.52428	A	
209	GERN 19389M001	4642811.63197	-217223.50975	4353278.51332	A	
257	HOND 15012M002	4640529.63874	-145676.56915	4358781.39191	A	
235	IGEL 19352S001	4645951.74296	-165575.08745	4352550.06094	A	
240	ISPS 19484M001	4640596.79453	-206964.36152	4356391.55300	A	
252	LARE 19440M001	4632832.26084	-279026.72894	4360314.06248	A	
256	LAZK 19354S001	4666098.65915	-178186.77751	4330463.30688	A	
261	LEIT 19428M001	4663521.25745	-155859.30543	4334519.52367	A	
345	PAS2 19351S001	4644909.38177	-156645.65343	4353622.71450	A	
493	PASA 19351S001	4644909.38189	-156645.65345	4353622.71449	A	
553	RI01 13448M002	4708447.13930	-199490.87390	4284089.36582	A	
558	SALA 13469M001	4803054.75337	-462131.67290	4158378.69730	A	
526	SCOA 10088M002	4639940.82658	-136225.52623	4359552.06047	W	
715	SOPU 19386M001	4643998.21509	-255914.49116	4350062.77372	W	
443	TERU 13487M001	4867391.62691	-95523.95442	4108341.30179	A	
616	YEBE 13420M001	4848724.85605	-261632.53569	4123093.94606	W	
655	ZARA 13462M001	4773803.48841	-73506.58333	4215453.72030	W	

5.4 ETRF2020 (ETRS89) Coordinates

European Terrestrial Reference System, 1989 (**ETRS89**) is realized by ETRF2020 (Boucher and Altamimi, 2011) and (Altamimi, 2017).

CONVERT TO ETRF2020						18-NOV-25 11:33
LOCAL GEODETIC DATUM: ETRF2020						EPOCH: 2025-10-22 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.78418	-678367.92856	4357065.89535	A	
50	ALSA 19419M001	4677251.14284	-176770.96755	4319079.51320	A	
384	BIAZ 10074M002	4634456.36994	-124345.54111	4365785.10328	W	
101	BIDA 00000M000	4644178.13642	-145778.89012	4354832.12413	A	
113	BRZR 19387M001	4662221.29205	-220770.47142	4333309.07338	A	
573	CACE 13447M001	4899866.75083	-544567.63456	4033769.82129	W	
592	CANT 13438M001	4625924.61346	-307096.80207	4365771.20325	W	
908	CREU 13432M001	4715420.49066	273177.48562	4271946.48606	A	
135	EBRE 13410M001	4833520.30756	41536.80833	4147461.34634	W	
180	ELGE 19353S001	4657557.70533	-202242.03944	4338991.53248	A	
209	GERN 19389M001	4642811.62665	-217223.49456	4353278.52149	A	
257	HOND 15012M002	4640529.63320	-145676.55393	4358781.40009	A	
235	IGEL 19352S001	4645951.73750	-165575.07222	4352550.06913	A	
240	ISPS 19484M001	4640596.78918	-206964.34633	4356391.56117	A	
252	LARE 19440M001	4632832.25569	-279026.71380	4360314.07062	A	
256	LAZK 19354S001	4666098.65378	-178186.76223	4330463.31510	A	
261	LEIT 19428M001	4663521.25200	-155859.29014	4334519.53189	A	
345	PAS2 19351S001	4644909.37628	-156645.63820	4353622.72268	A	
493	PASA 19351S001	4644909.37640	-156645.63822	4353622.72267	A	
553	RI01 13448M002	4708447.13411	-199490.85848	4284089.37410	A	
558	SALA 13469M001	4803054.74928	-462131.65729	4158378.70569	A	
526	SCOA 10088M002	4639940.82101	-136225.51101	4359552.06865	W	
715	SOPU 19386M001	4643998.20990	-255914.47598	4350062.78188	W	
443	TERU 13487M001	4867391.62184	-95523.93845	4108341.31036	A	
616	YEBE 13420M001	4848724.85145	-261632.51984	4123093.95456	W	
655	ZARA 13462M001	4773803.48301	-73506.56765	4215453.72872	W	

6 Quality Control

6.1 Mean and Daily Repeatabilities

In this section, the mean and daily repeatabilities of the sites are shown. Repeatabilities refer to the IGS20 solution and are given with respect to the Local frame (North-East-Up).

GFA FINAL WEEKLY COMBINATION: FINAL ORBITS									
18-NOV-25 11:33									
Station	#Days	Weekday 0123456	Repeatability (mm)						
			N	E	U				
ACOR 13434M001		7	XXXXXX	1.28	2.09	3.99			
ALSA 19419M001		7	XXXXXX	3.46	2.24	6.31			
BLAZ 10074M002		7	XXXXXX	0.90	1.26	3.16			
BIDA 00000M000		7	XXXXXX	1.25	1.54	2.39			
BRZR 19387M001		7	XXXXXX	2.59	4.83	6.97			
CACE 13447M001		7	XXXXXX	0.91	1.20	3.12			
CANT 13438M001		7	XXXXXX	0.87	0.93	2.75			
CREU 13432M001		7	XXXXXX	1.75	1.17	6.93			
EBRE 13410M001		6	XXX XX	1.60	4.73	4.36			
ELGE 19353S001		7	XXXXXX	1.45	1.66	1.99			
GERN 19389M001		7	XXXXXX	1.51	1.11	5.60			
HOND 15012M002		7	XXXXXX	0.97	1.22	1.67			
IGEL 19352S001		7	XXXXXX	1.42	1.17	2.72			
ISPS 19484M001		7	XXXXXX	1.12	1.15	3.25			
LARE 19440M001		7	XXXXXX	1.54	1.73	3.32			
LAZK 19354S001		7	XXXXXX	2.05	2.03	4.46			
LEIT 19428M001		7	XXXXXX	0.92	1.53	5.49			
PAS2 19351S001		7	XXXXXX	0.85	0.85	2.02			
PASA 19351S001		7	XXXXXX	0.76	0.90	1.91			
RI01 13448M002		7	XXXXXX	1.07	1.14	4.31			
SALA 13469M001		7	XXXXXX	0.59	0.82	3.77			
SCDA 10088M002		7	XXXXXX	2.30	1.23	1.82			
SOPU 19386M001		7	XXXXXX	0.95	1.63	4.83			
TERU 13487M001		7	XXXXXX	1.44	1.44	4.28			
YEBE 13420M001		7	XXXXXX	0.75	0.75	1.78			
ZARA 13462M001		7	XXXXXX	1.30	1.36	2.78			
Comparison of individual solutions:									
ACOR 13434M001	N	1.28	-1.32	1.22	-1.13	-0.66	-0.79	2.06	0.25
ACOR 13434M001	E	2.09	-3.20	-2.87	-0.70	-1.61	-1.38	-1.35	-1.00
ACOR 13434M001	U	3.99	0.22	-3.45	2.07	-8.35	-2.13	-0.09	-2.20
ALSA 19419M001	N	3.46	-6.02	0.34	3.73	1.07	4.05	2.00	0.46
ALSA 19419M001	E	2.24	2.66	-3.65	-1.96	-2.34	0.45	0.16	-0.08
ALSA 19419M001	U	6.31	-0.23	-1.23	-11.16	-1.25	5.14	6.80	6.22
BLAZ 10074M002	N	0.90	0.25	0.29	-0.59	-0.40	2.05	0.16	-0.24
BLAZ 10074M002	E	1.26	-2.47	-0.51	-0.42	-1.25	0.72	-0.96	-0.08
BLAZ 10074M002	U	3.16	-1.50	1.60	2.14	4.39	4.03	-3.72	1.11
BIDA 00000M000	N	1.25	-2.17	0.11	0.75	-0.67	0.71	1.44	1.02
BIDA 00000M000	E	1.54	-0.92	-1.34	-0.23	-0.56	1.94	-1.48	-2.31
BIDA 00000M000	U	2.39	-1.22	-0.74	2.46	3.21	3.74	-0.35	1.35
BRZR 19387M001	N	2.59	-3.33	2.64	2.26	-2.72	-1.30	2.58	1.16
BRZR 19387M001	E	4.83	-1.71	0.81	-3.56	-9.69	3.05	3.15	3.26
BRZR 19387M001	U	6.97	-10.34	5.20	0.42	-6.75	3.26	7.57	6.64
CACE 13447M001	N	0.91	0.08	1.16	-1.48	0.28	-0.82	-0.30	0.77
CACE 13447M001	E	1.20	0.70	1.63	-0.69	-0.60	-1.39	0.67	1.49
CACE 13447M001	U	3.12	-1.23	2.19	-2.53	-1.63	5.18	-0.32	4.03
CANT 13438M001	N	0.87	-1.40	0.15	1.10	-0.31	-0.50	0.14	0.97
CANT 13438M001	E	0.93	-1.56	-0.71	-0.46	-1.12	0.45	-0.68	0.28
CANT 13438M001	U	2.75	-0.33	2.38	-0.57	-0.29	-4.24	2.25	4.02
CREU 13432M001	N	1.75	2.43	0.84	-0.06	-0.23	3.34	0.52	0.56
CREU 13432M001	E	1.17	-0.67	-2.31	-0.50	-1.08	-0.28	-0.60	-0.75
CREU 13432M001	U	6.93	-11.05	1.92	3.39	3.57	9.47	5.98	-3.56
EBRE 13410M001	N	1.60	1.13	1.70	2.26	-0.93		1.61	-0.32
EBRE 13410M001	E	4.73	-3.70	-3.45	6.53	1.89		-6.27	-0.69
EBRE 13410M001	U	4.36	5.82	4.60	-3.62	-4.32		2.48	1.50
ELGE 19353S001	N	1.45	-1.84	0.97	2.74	-0.02	-0.60	0.17	-0.59
ELGE 19353S001	E	1.66	1.68	-1.20	-0.99	-3.23	-0.02	-0.93	-0.25
ELGE 19353S001	U	1.99	0.76	-0.13	0.86	3.70	1.41	-1.84	1.84
GERN 19389M001	N	1.51	-1.71	0.08	1.78	-0.76	0.72	2.20	-1.29
GERN 19389M001	E	1.11	-1.15	-1.26	-1.30	-0.83	0.61	0.30	-1.29
GERN 19389M001	U	5.50	-8.48	0.78	7.43	3.02	0.20	-2.54	6.19
HOND 15012M002	N	0.97	1.54	0.01	0.41	-1.11	0.49	0.76	-1.02
HOND 15012M002	E	1.22	-2.18	-0.84	-1.11	-0.69	0.94	-0.91	-0.10
HOND 15012M002	U	1.57	-0.33	2.47	1.68	-0.03	1.25	1.42	1.47
IGEL 19352S001	N	1.42	0.81	-0.43	1.02	2.14	0.38	-0.75	-2.21
IGEL 19352S001	E	1.17	0.02	-1.66	-0.69	-2.05	0.01	-0.85	0.23
IGEL 19352S001	U	2.72	4.79	-0.96	0.39	2.93	-2.44	1.62	1.79
ISPS 19484M001	N	1.12	1.09	0.65	-0.01	0.09	0.48	0.80	-2.25
ISPS 19484M001	E	1.15	-1.96	-1.60	0.01	-0.36	-0.28	0.28	-1.10
ISPS 19484M001	U	3.25	-2.55	0.70	4.67	3.85	-3.38	0.35	2.85
LARE 19440M001	N	1.54	-1.97	-0.70	2.39	0.12	-0.72	1.48	-1.17
LARE 19440M001	E	1.73	2.70	-0.67	-0.55	-1.87	-2.49	-0.26	0.31
LARE 19440M001	U	3.32	4.77	0.93	-2.00	-1.78	-4.42	-0.94	3.89
LAZK 19354S001	N	2.05	-1.83	0.18	2.65	-0.04	3.65	1.20	-0.29
LAZK 19354S001	E	2.03	-0.59	-1.77	1.62	1.65	-3.67	-0.66	-1.41
LAZK 19354S001	U	4.46	5.82	0.56	4.31	4.13	-5.39	-4.56	0.04
LEIT 19428M001	N	0.92	-0.11	1.39	0.11	-1.24	-0.87	0.92	0.08
LEIT 19428M001	E	1.53	-0.22	0.06	-0.22	-2.77	1.73	-0.93	-1.54
LEIT 19428M001	U	5.49	-9.91	3.14	0.86	5.65	4.93	-0.80	3.89
PAS2 19351S001	N	0.85	0.62	0.38	1.50	-0.69	0.05	0.16	-1.04
PAS2 19351S001	E	0.85	-0.63	-1.00	-0.29	-0.08	-0.82	-1.16	-0.89
PAS2 19351S001	U	2.02	-1.43	0.66	-0.72	2.99	2.08	1.20	2.60
PASA 19351S001	N	0.76	0.55	0.29	1.34	-0.61	0.28	0.21	-0.91
PASA 19351S001	E	0.90	-0.44	-1.04	0.15	-0.70	-0.94	-1.21	-0.87
PASA 19351S001	U	1.91	-0.03	0.29	-1.11	2.93	1.85	0.81	2.80
RI01 13448M002	N	1.07	0.35	0.90	0.65	-0.29	1.58	1.51	0.81
RI01 13448M002	E	1.14	-0.14	0.06	-1.86	0.60	-0.36	-1.82	-0.71
RI01 13448M002	U	4.31	-3.23	-2.03	-2.95	7.72	-1.24	3.64	3.68
SALA 13469M001	N	0.59	-0.04	-0.58	-1.10	-0.52	0.31	-0.22	0.39
SALA 13469M001	E	0.82	0.57	1.06	-1.36	-0.50	0.11	-0.68	0.16
SALA 13469M001	U	3.77	2.23	-5.33	1.89	0.74	-1.21	6.11	-2.97
SCDA 10088M002	N	2.30	4.20	-0.23	0.73	1.12	-1.03	-1.65	-2.93
SCDA 10088M002	E	1.23	-1.13	-1.13	0.39	-0.24	-0.24	-2.33	-0.87

SCDA 10088M002	U	1.82	2.99	-0.19	1.02	2.78	0.66	-0.52	1.19
SOPU 19386M001	N	0.95	2.01	-0.62	-0.62	-0.15	-0.02	0.74	-0.30
SOPU 19386M001	E	1.63	-1.29	-1.85	0.69	1.21	-1.47	-0.03	-2.59
SOPU 19386M001	U	4.83	-0.56	2.02	6.43	6.35	-3.00	-6.33	2.21
TERU 13487M001	N	1.44	-1.74	-2.12	-0.56	-0.43	0.94	-1.48	1.18
TERU 13487M001	E	1.44	1.71	0.21	0.82	-0.07	2.94	-0.29	-0.18
TERU 13487M001	U	4.28	-0.80	-5.91	3.84	-2.30	-6.72	1.38	-2.68
YEBE 13420M001	N	0.75	-0.26	-1.10	-0.59	-0.53	-0.72	0.56	0.82
YEBE 13420M001	E	0.75	0.38	-1.03	-0.78	0.65	-0.64	-0.04	0.86
YEBE 13420M001	U	1.78	1.34	0.46	2.92	-0.70	-2.67	0.08	-0.90
ZARA 13462M001	N	1.30	0.31	-0.12	1.53	0.80	2.54	0.55	-0.48
ZARA 13462M001	E	1.36	-0.79	-0.16	1.43	-0.84	-0.13	-1.67	-2.22
ZARA 13462M001	U	2.78	0.20	-2.43	0.28	4.48	0.35	-0.69	4.44

6.2 Datum verification

In this section, the datum verification is shown. A 3 parameter Helmert 3D (3 translations) is computed to the minimally constrained sites.

TRANSFORMATION IN EQUATORIAL SYSTEM (X, Y, Z):
RESIDUALS IN LOCAL SYSTEM (NORTH, EAST, UP)

LIST OF REMOVED STATIONS:

OUTLIER CRITERIA: 15.00 15.00 20.00

NUM	NAME	FLG	RESIDUALS IN MILLIMETERS				
2	ALAC 13433M001	I W	2.63	-1.85	-0.00		
3	ALME 13437M001	I W	0.09	0.22	4.94		
4	BCL1 19482M001	I W	0.59	-4.03	0.59		
5	BELL 13431M001	I W	-0.58	-1.55	-0.52		
6	BIAZ 10074M002	I W	0.93	-0.86	-10.77		
7	BORR 13480M001	I W	-6.37	0.20	1.81		
8	BRST 10004M004	I W	-0.00	-0.47	4.50		
9	CACE 13447M001	I W	4.04	2.42	0.51		
10	CANT 13438M001	I W	-0.23	0.01	-3.18		
11	CASC 13909S001	I W	1.25	0.25	0.76		
12	CEU1 13449M002	I W	1.09	1.34	-6.24		
14	EBRE 13410M001	I W	-2.38	-3.53	2.09		
16	FLRS 31907M001	I W	1.31	-0.56	-4.60		
17	FUER 31330M001	I W	0.24	0.81	7.34		
19	HUEL 13451M001	I W	3.27	3.35	-9.60		
20	IBIZ 13454S001	I W	-0.92	3.25	4.12		
21	IZAN 31309M002	I W	-1.17	-0.92	-0.87		
22	LAGO 13903M001	I W	1.38	0.92	4.38		
23	LLIV 13436M001	I W	-1.27	0.43	3.42		
24	LPAL 81701M001	I W	2.04	2.63	0.31		
25	LROC 10023M001	I W	0.89	1.87	-3.35		
26	MADR 13407S012	I W	-0.96	-1.11	-3.19		
27	MAL1 13444M002	I W	3.81	-0.53	-3.75		
28	MALA 13443M001	I W	3.33	-0.14	5.99		
29	MALL 13444M001	I W	-1.43	2.24	6.60		
30	MAS1 31303M002	I W	-0.74	-1.65	6.25		
31	MELI 19379M001	I W	0.95	-0.10	3.85		
32	PDEL 31906M004	I W	-2.47	-0.91	1.61		
33	SCOA 10088M002	I W	-3.88	-0.59	-13.99		
34	SFER 13402M004	I W	-0.41	-5.51	4.17		
35	SOPU 19386M001	I W	0.05	0.90	-1.31		
36	VALE 13439M001	I W	1.02	2.31	-2.75		
37	VIGO 13450M001	I W	0.74	3.93	3.04		
38	VILL 13406M001	I W	0.00	-0.84	2.73		
39	YEBE 13420M001	I W	-1.20	0.73	2.76		
40	ZARA 13462M001	I W	0.51	-0.19	-3.91		
41	ZIMM 14001M004	I W	-0.52	-1.43	-4.95		
	RMS / COMPONENT		2.05	2.00	4.98		
	IQR		2.01	1.84	7.04		
	MEAN		0.15	0.03	-0.03		
	MEDIAN		0.09	-0.10	0.59		
	MIN		-6.37	-5.51	-13.99		
	MAX		4.04	3.93	7.34		
OVERALL RMS/IQR/MAX(3D)			3.32	3.21	14.53	SCOA 10088M002	#SUM
ALL	RMS / COMPONENT		2.05	2.00	4.98		
ALL	IQR		2.01	1.84	7.04		
ALL	MEAN		0.15	0.03	-0.03		
ALL	MEDIAN		0.09	-0.10	0.59		
ALL	MIN		-6.37	-5.51	-13.99		
ALL	MAX		4.04	3.93	7.34		
ALL	OVERALL RMS/IQR/MAX(3D)		3.32	3.21	14.53	SCOA 10088M002	#SUM_ALL

NUMBER OF PARAMETERS : 3
NUMBER OF STATIONS : 37
NUMBER OF COORDINATES : 111
RMS OF TRANSFORMATION : 3.32 MM

PARAMETERS:

TRANSLATION IN X : 0.00 +- 0.55 MM
TRANSLATION IN Y : 0.00 +- 0.55 MM
TRANSLATION IN Z : -0.00 +- 0.55 MM

NUMBER OF ITERATIONS : 1

6.3 Adjustment Statistics

In this section, the summary of the global adjustment and not subnetworks are shown. Also, the Helmert parameters of the combined solution with respect to the daily solutions are shown.

```
*. STATISTICAL PARAMETER-----VALUE(S)-----
NUMBER OF OBSERVATIONS              19739022
NUMBER OF UNKNOWN(S)                217219
NUMBER OF DEGREES OF FREEDOM        19521803
PHASE MEASUREMENTS SIGMA            0.00100
SAMPLING INTERVAL (SECONDS)         180
VARIANCE FACTOR                     3.531816271913908
```

7 Equipment

7.1 Receiver List

Serial numbers not shown.

```
*SITE PT SOLN T DATA_START__ DATA_END_____ DESCRIPTION_____ S/N__ FIRMWARE___
ACOR A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
ALSA A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
BIAZ A 1 P 25:292:00000 25:298:86370 SPECTRA SP90M -----
BIDA A 1 P 25:292:00000 25:298:86370 LEICA GR10 -----
BRZR A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
CACE A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
CANT A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
CREU A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
EBRE A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
ELGE A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
GERN A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
HOND A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
IGEL A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
ISPS A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
LARE A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
LAZK A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
LEIT A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
PAS2 A 1 P 25:292:00000 25:298:86370 STONEX SC2200 -----
PASA A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
RI01 A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
SALA A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
SCOA A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
SOPU A 1 P 25:292:00000 25:298:86370 LEICA GR30 -----
TERU A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
YEBE A 1 P 25:292:00000 25:298:86370 LEICA GR50 -----
ZARA A 1 P 25:292:00000 25:298:86370 TRIMBLE NETR9 -----
```

7.2 Antennas

Serial number ONLY provided in case individual calibrations are used.

```
*SITE PT SOLN T DATA_START__ DATA_END_____ DESCRIPTION_____ S/N__ DAZI
ACOR A 1 P 25:292:00000 25:298:86370 LEIAT504 LEIS -----
ALSA A 1 P 25:292:00000 25:298:86370 LEIAR10 NONE -----
BIAZ A 1 P 25:292:00000 25:298:86370 LEIAR25 LEIT -----
BIDA A 1 P 25:292:00000 25:298:86370 LEIAS10 NONE -----
BRZR A 1 P 25:292:00000 25:298:86370 LEIAS10 NONE -----
CACE A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
CANT A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 LEIT -----
CREU A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 NONE -----
EBRE A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 NONE -----
ELGE A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 LEIT -----
GERN A 1 P 25:292:00000 25:298:86370 LEIAS10 NONE -----
HOND A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
IGEL A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
ISPS A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
LARE A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
LAZK A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 LEIT -----
LEIT A 1 P 25:292:00000 25:298:86370 LEIAR10 NONE -----
PAS2 A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
PASA A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
RI01 A 1 P 25:292:00000 25:298:86370 LEIAR25.R4 LEIT -----
SALA A 1 P 25:292:00000 25:298:86370 LEIAR25 NONE -----
SCOA A 1 P 25:292:00000 25:298:86370 TRM55971.00 NONE -----
SOPU A 1 P 25:292:00000 25:298:86370 LEIAS10 NONE -----
TERU A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
YEBE A 1 P 25:292:00000 25:298:86370 LEIAR20 LEIM -----
ZARA A 1 P 25:292:00000 25:298:86370 TRM29659.00 NONE -----
```

7.3 Eccentricities

```
*
*SITE PT SOLN T DATA_START__ DATA_END_____ AXE ARP-->BENCHMARK(M)-----
ACOR A 1 P 25:292:00000 25:298:86370 UNE 3.0460 0.0000 0.0000
ALSA A 1 P 25:292:00000 25:298:86370 UNE 0.0000 0.0000 0.0000
BIAZ A 1 P 25:292:00000 25:298:86370 UNE 0.0000 0.0000 0.0000
```

BIDA	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
BRZR	A	1	P	25:292:00000	25:298:86370	UNE	0.0771	0.0000	0.0000
CACE	A	1	P	25:292:00000	25:298:86370	UNE	0.0600	0.0000	0.0000
CANT	A	1	P	25:292:00000	25:298:86370	UNE	3.0490	0.0000	0.0000
CREU	A	1	P	25:292:00000	25:298:86370	UNE	0.0770	0.0000	0.0000
EBRE	A	1	P	25:292:00000	25:298:86370	UNE	0.0770	0.0000	0.0000
ELGE	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
GERN	A	1	P	25:292:00000	25:298:86370	UNE	0.0771	0.0000	0.0000
HOND	A	1	P	25:292:00000	25:298:86370	UNE	0.0771	0.0000	0.0000
IGEL	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
ISPS	A	1	P	25:292:00000	25:298:86370	UNE	0.0350	0.0000	0.0000
LARE	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
LAZK	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
LEIT	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
PAS2	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
PASA	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
RI01	A	1	P	25:292:00000	25:298:86370	UNE	0.0606	0.0000	0.0000
SALA	A	1	P	25:292:00000	25:298:86370	UNE	0.0600	0.0000	0.0000
SCDA	A	1	P	25:292:00000	25:298:86370	UNE	0.0000	0.0000	0.0000
SOPU	A	1	P	25:292:00000	25:298:86370	UNE	0.0771	0.0000	0.0000
TERU	A	1	P	25:292:00000	25:298:86370	UNE	0.0600	0.0000	0.0000
YEBE	A	1	P	25:292:00000	25:298:86370	UNE	0.0600	0.0000	0.0000
ZARA	A	1	P	25:292:00000	25:298:86370	UNE	3.2590	0.0000	0.0000

8 Inconsistencies (logsheet-RINEX metadata)

The following inconsistencies were found comparing the data available in the logsheets and the RINEX headers:

2025-11-16 13:49 UTC	BIDA2920.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-16 13:49 UTC	BIDA2920.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-16 17:05 UTC	BIDA2930.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-16 17:05 UTC	BIDA2930.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-16 20:15 UTC	BIDA2940.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-16 20:15 UTC	BIDA2940.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-17 01:39 UTC	BIDA2950.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-17 01:39 UTC	BIDA2950.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-17 09:33 UTC	BIDA2960.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-17 09:33 UTC	BIDA2960.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-17 18:17 UTC	BIDA2970.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-17 18:17 UTC	BIDA2970.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-18 05:30 UTC	BIDA2980.250	RECEIVER TYPE		LEICA GR30	->	LEICA GR10	(source: bida_20200626.log
2025-11-18 05:30 UTC	BIDA2980.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.52/6.525	(source: bida_20200626.log
2025-11-16 13:49 UTC	BRZR2920.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-16 17:05 UTC	BRZR2930.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-16 20:15 UTC	BRZR2940.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-17 01:39 UTC	BRZR2950.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-17 09:33 UTC	BRZR2960.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-17 18:17 UTC	BRZR2970.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-18 05:30 UTC	BRZR2980.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: brzr00esp_20240315.log
2025-11-16 13:49 UTC	CANT2920.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-16 13:49 UTC	CANT2920.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-16 17:05 UTC	CANT2930.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-16 17:05 UTC	CANT2930.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-16 20:15 UTC	CANT2940.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-16 20:15 UTC	CANT2940.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-17 01:39 UTC	CANT2950.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-17 01:39 UTC	CANT2950.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-17 09:33 UTC	CANT2960.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-17 09:33 UTC	CANT2960.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-17 18:17 UTC	CANT2970.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-17 18:17 UTC	CANT2970.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-18 05:30 UTC	CANT2980.250	RECEIVER TYPE		LEICA GR10	->	LEICA GR50	(source: cant00esp_20250509.log
2025-11-18 05:30 UTC	CANT2980.250	RECEIVER FIRM. VERS.		4.00/6.713	->	4.80/7.900	(source: cant00esp_20250509.log
2025-11-16 13:49 UTC	ISPS2920.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-16 17:05 UTC	ISPS2930.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-16 20:15 UTC	ISPS2940.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-17 01:39 UTC	ISPS2950.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-17 09:34 UTC	ISPS2960.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-17 18:17 UTC	ISPS2970.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-18 05:30 UTC	ISPS2980.250	ANTENNA SER. NO.		->	24238009	(source: isps00esp_20250114.log	
2025-11-16 13:49 UTC	LEIT2920.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.83.342	(source: leit00esp_20250924.log
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2025-11-17 01:39 UTC	LEIT2950.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.83.342	(source: leit00esp_20250924.log
2025-11-17 09:34 UTC	LEIT2960.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.83.342	(source: leit00esp_20250924.log
2025-11-17 18:17 UTC	LEIT2970.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.83.342	(source: leit00esp_20250924.log
2025-11-18 05:30 UTC	LEIT2980.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.83.342	(source: leit00esp_20250924.log
2025-11-16 13:49 UTC	PASA2920.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-16 17:05 UTC	PASA2930.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-16 20:15 UTC	PASA2940.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-17 01:39 UTC	PASA2950.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-17 09:34 UTC	PASA2960.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-17 18:17 UTC	PASA2970.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log
2025-11-18 05:30 UTC	PASA2980.250	RECEIVER FIRM. VERS.		4.83/7.900	->	4.80/7.900	(source: pasa00esp_20240418.log

9 References

C. Boucher and Z. Altamimi (2011): *Specifications for reference frame fixing in the analysis of a EUREF GPS campaign*. etrs89.ensg.ign.fr/memo-V8.pdf

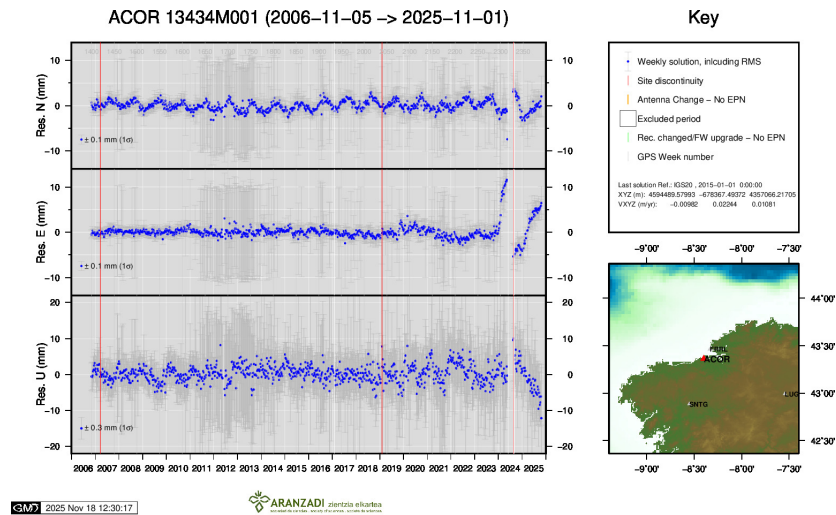
EPN Coordination Group and the EPN Central Bureau (2018): *Guidelines for the EPN Analysis Centres*. epncb.oma.be/documentation/guidelines/guidelines_analysis_centres.pdf

Johnston, G., Riddell, A., Hausler, G. (2017). The International GNSS Service. Teunissen, Peter J.G., Montenbruck, O. (Eds.), Springer Handbook of Global Navigation Satellite Systems (1st ed., pp. 967-982). Cham, Switzerland: Springer International Publishing. DOI: 10.1007/978-3-319-42928-1

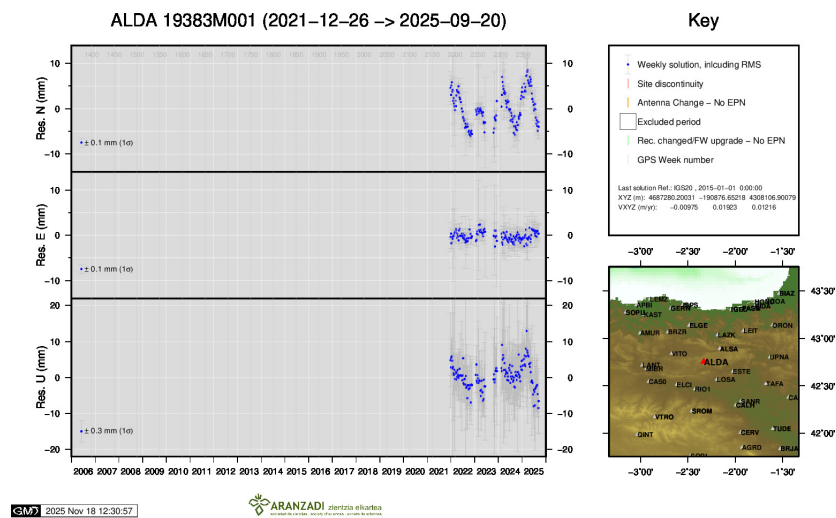
Z. Altamimi (2018): *EUREF Technical Note 1: Relationship and Transformation between the International and the European Terrestrial Reference Systems*. etrs89.ensg.ign.fr/pub/EUREF-TN-1.pdf

10 Cumulative Time Series

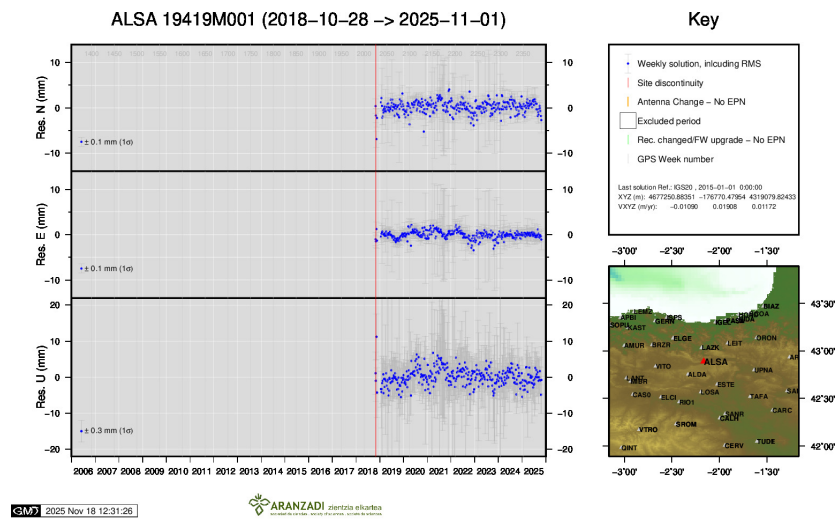
Time series of stations. Latest plots at: <http://geolabpasaia.org/gnss/ARA-net/TSeries/>, or click on the caption of each image.



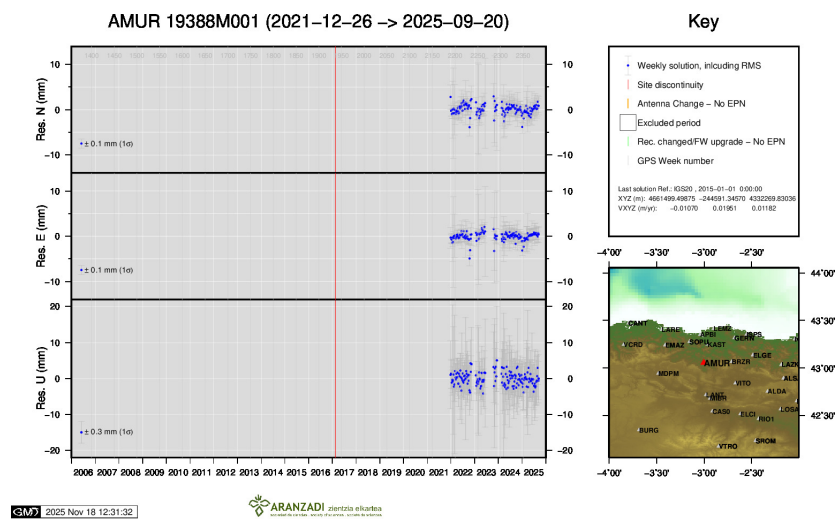
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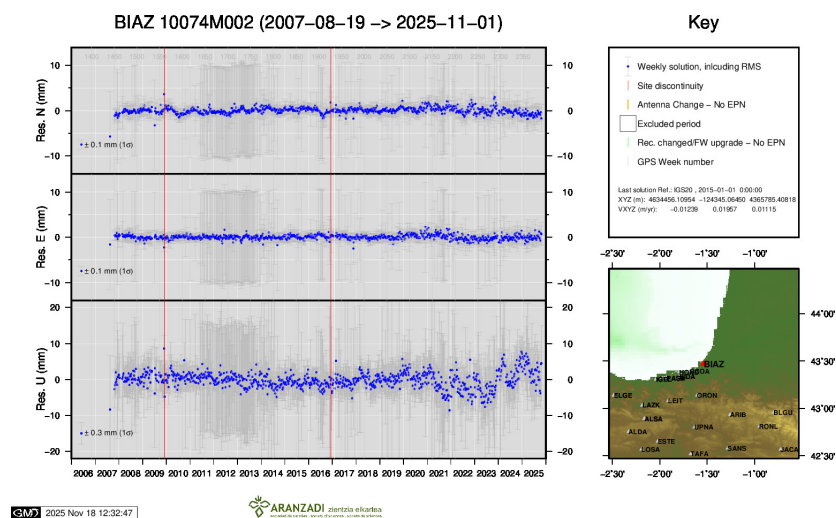
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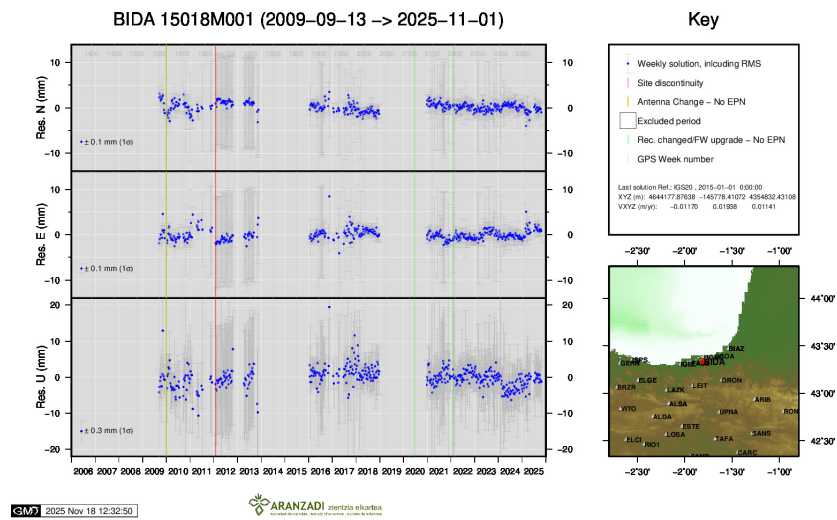
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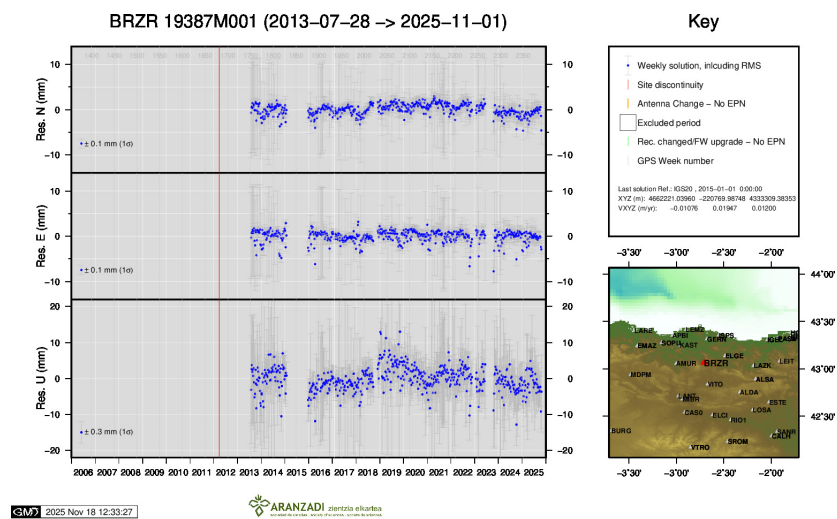
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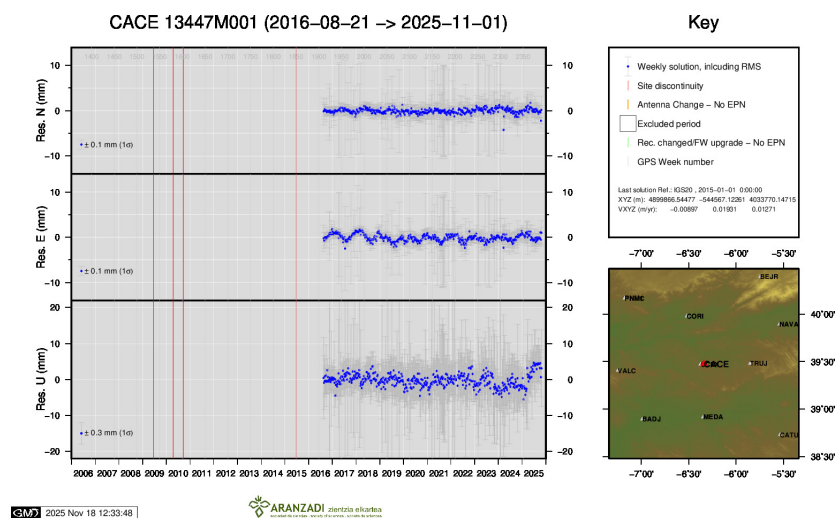
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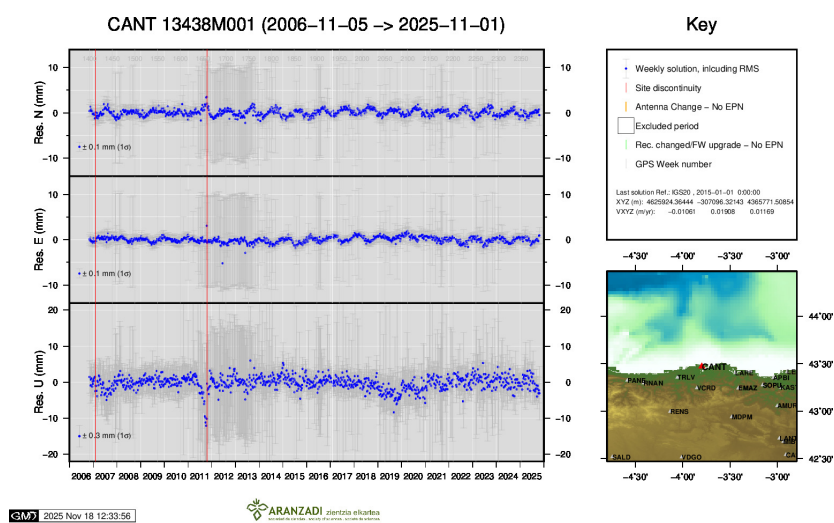
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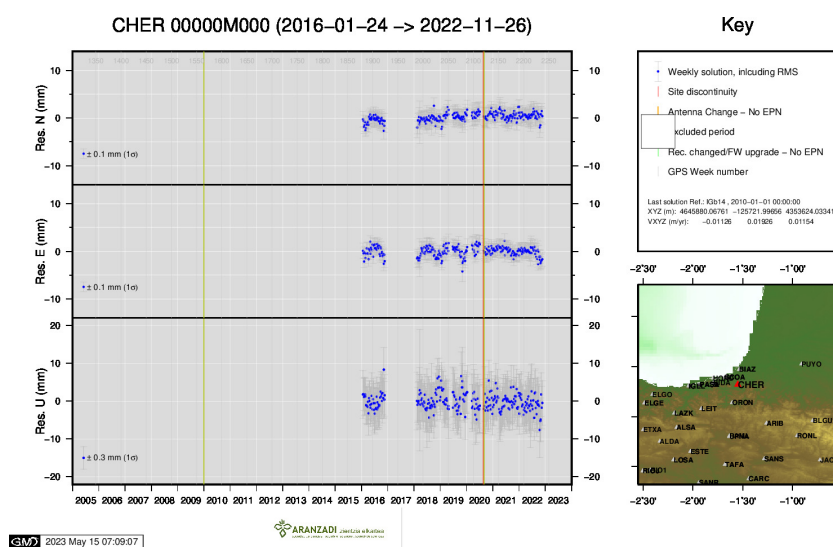
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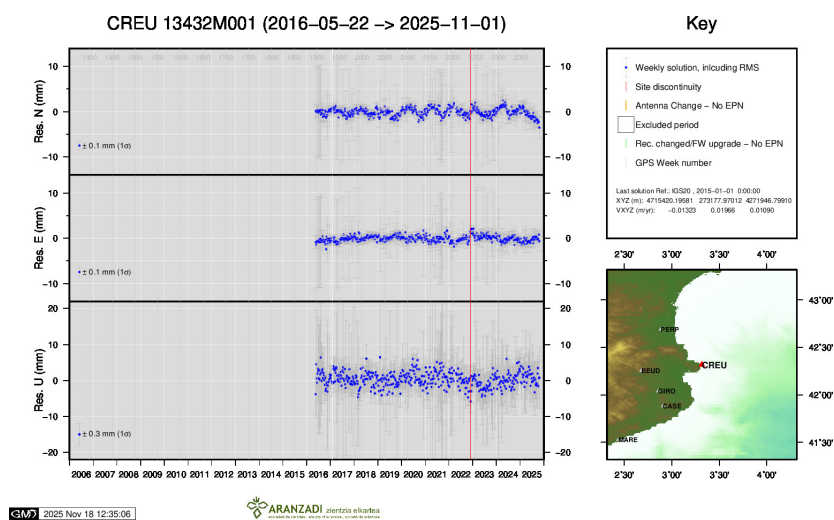
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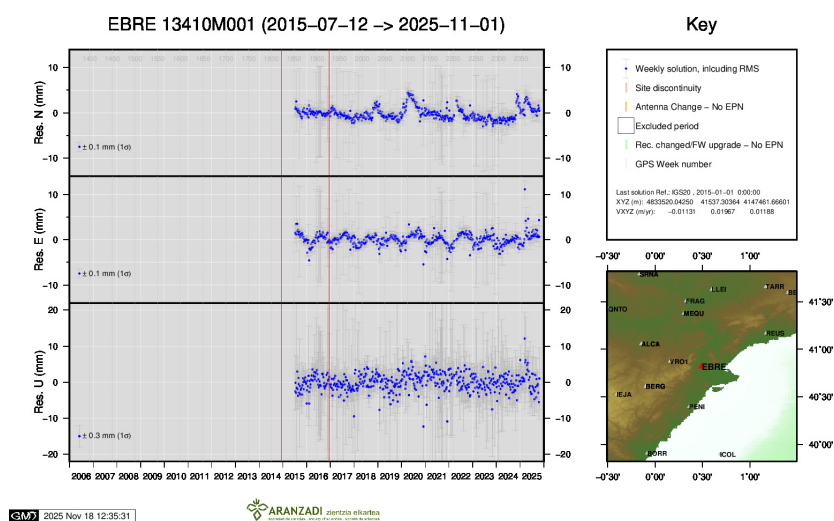
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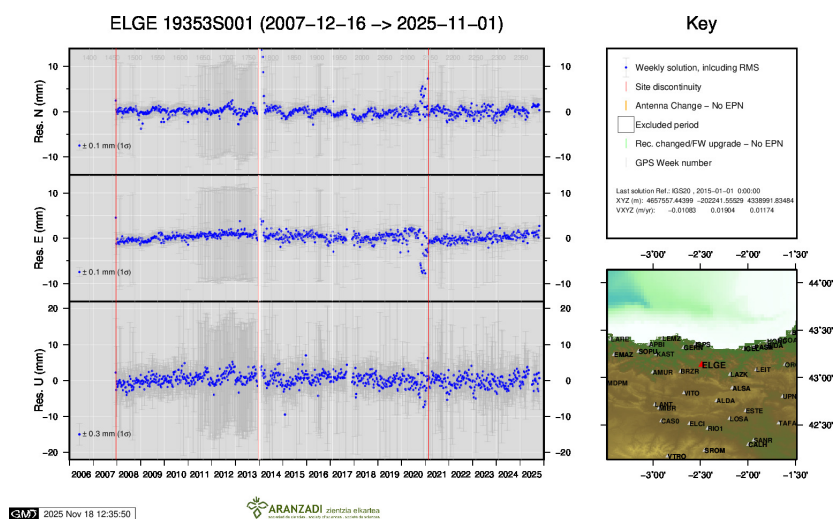
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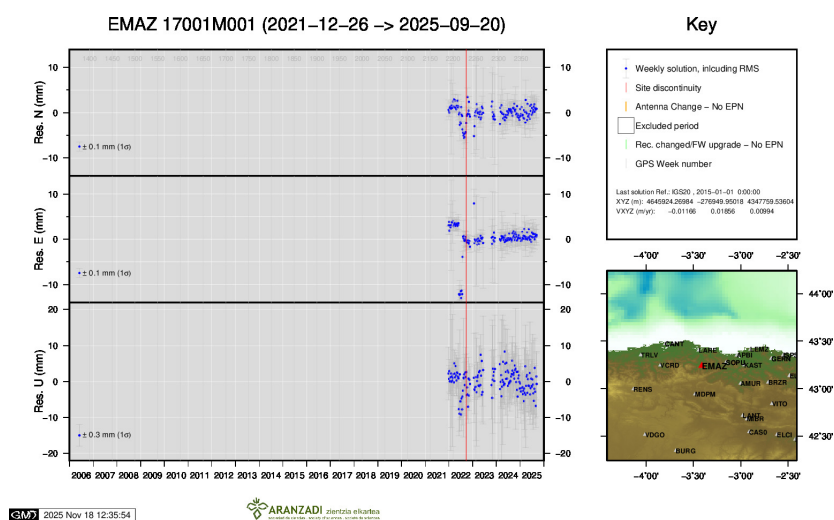
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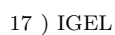
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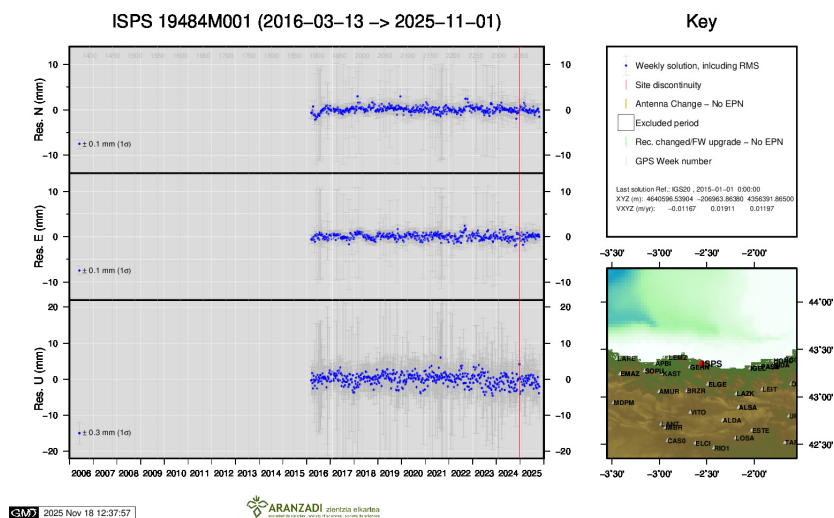


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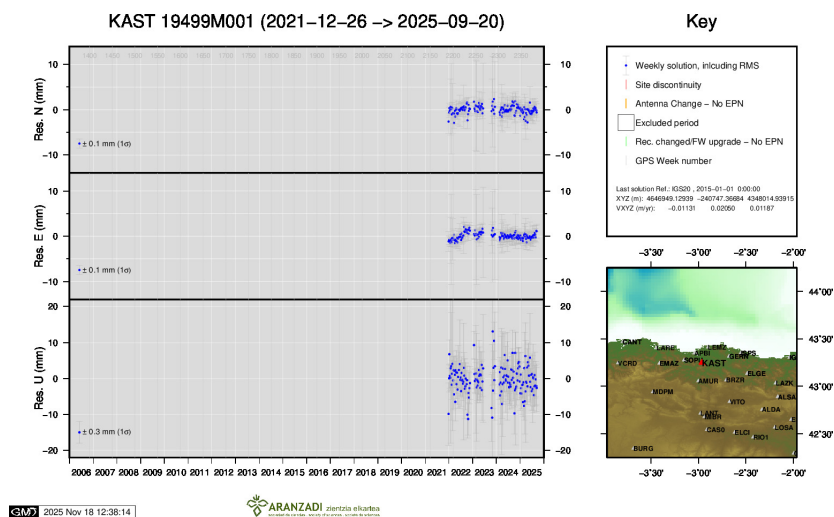


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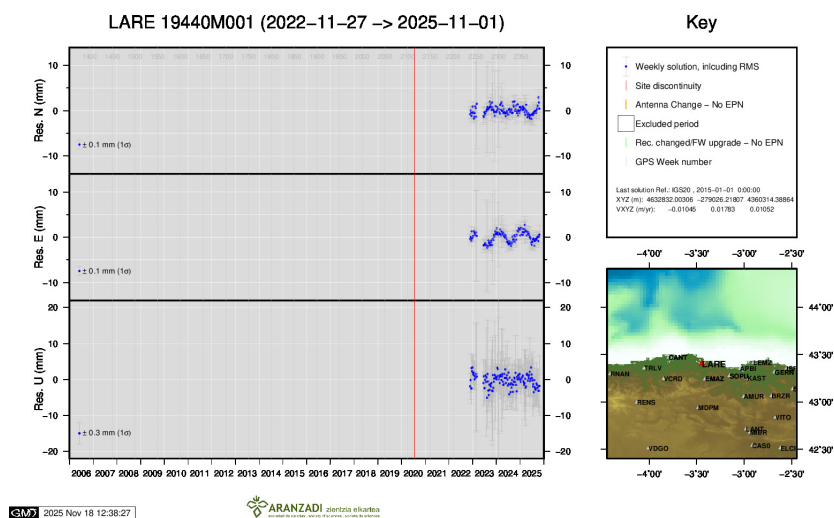




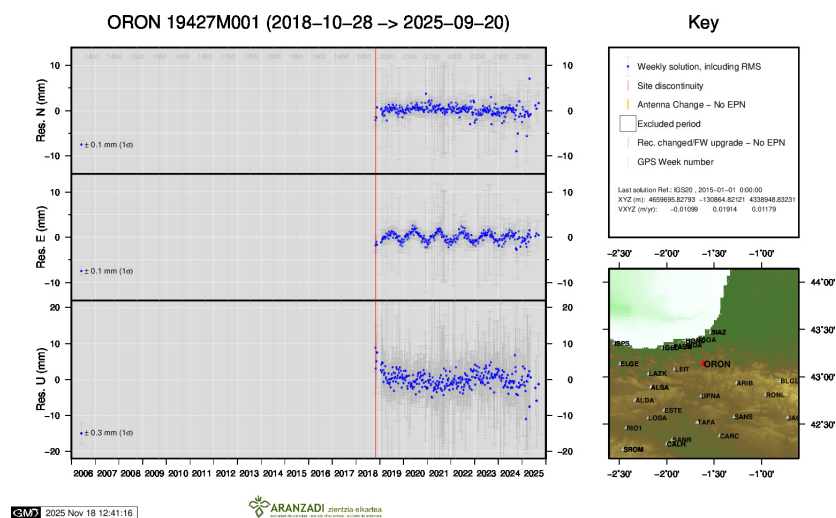
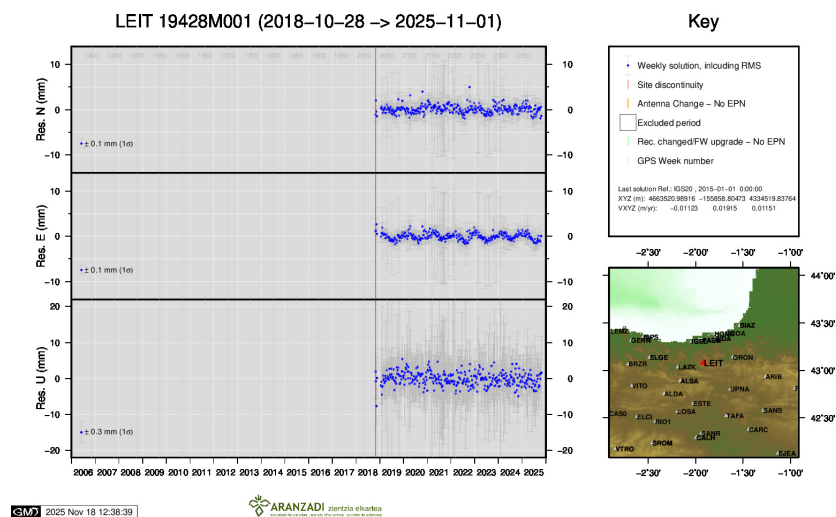
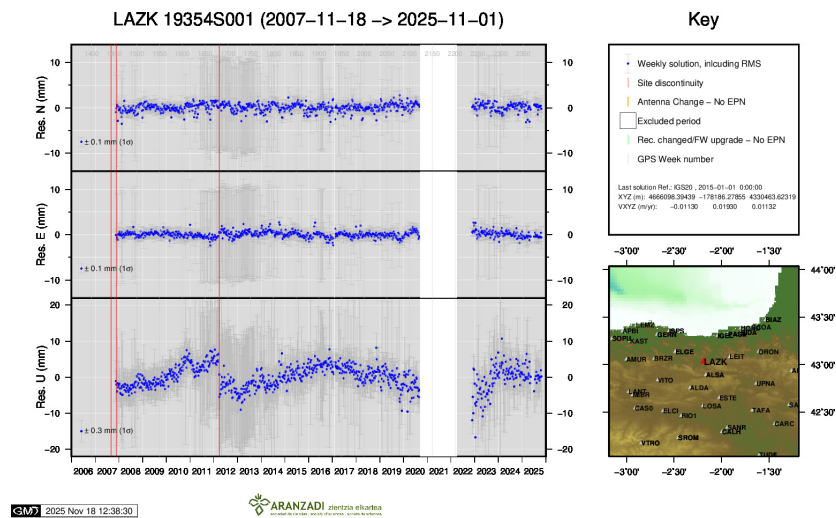
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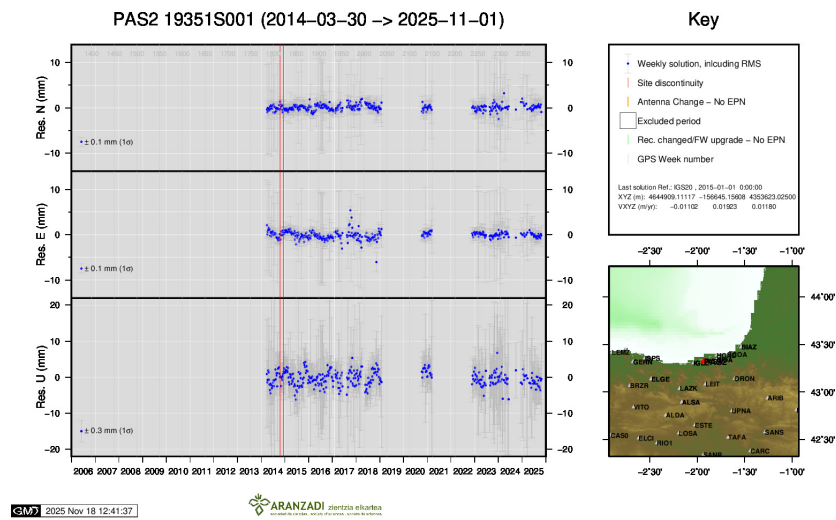


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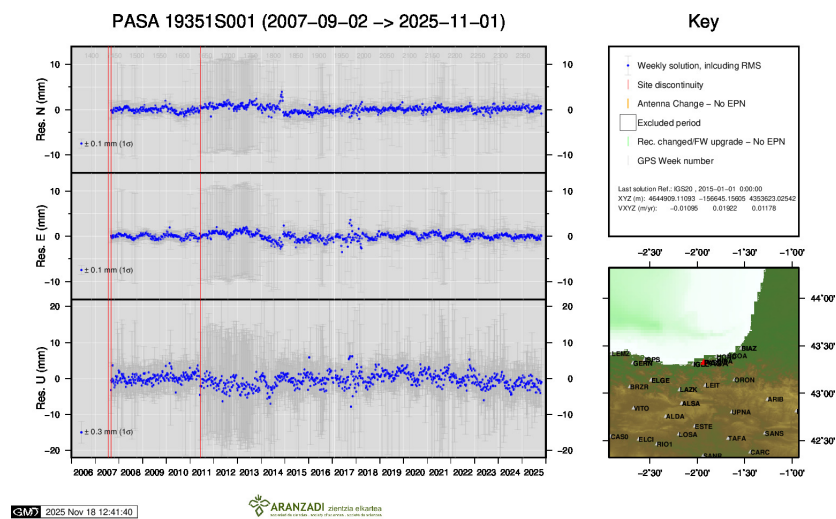


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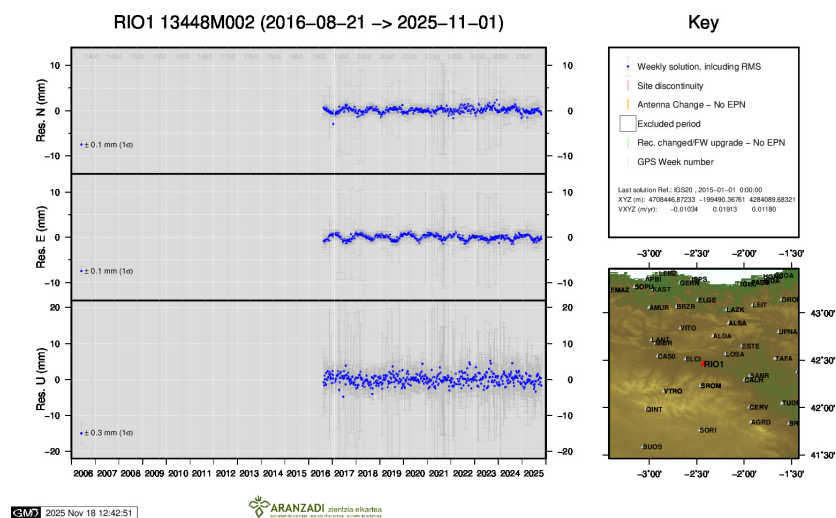




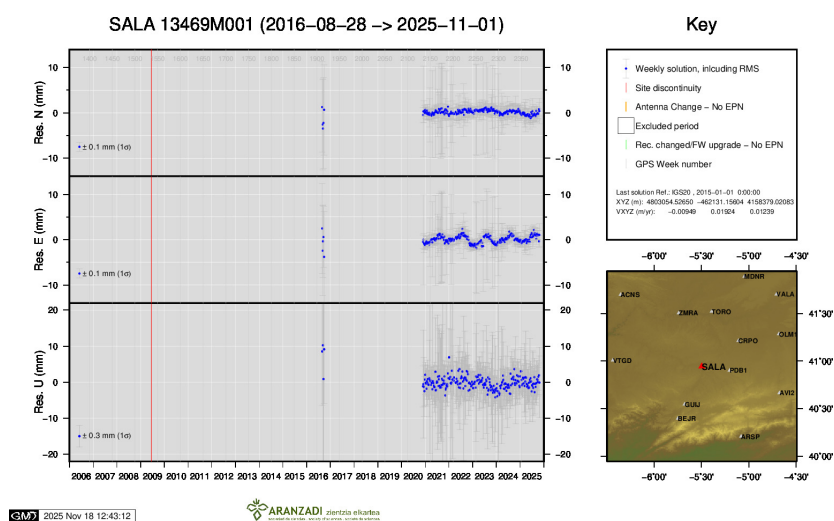
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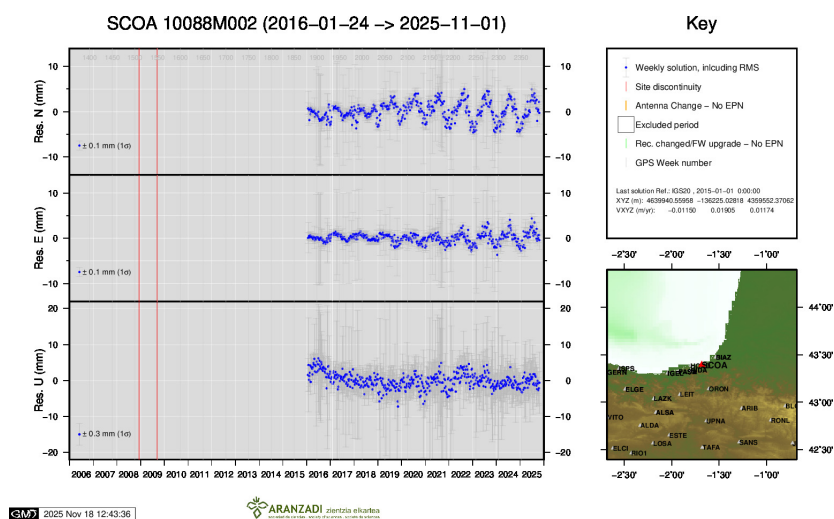
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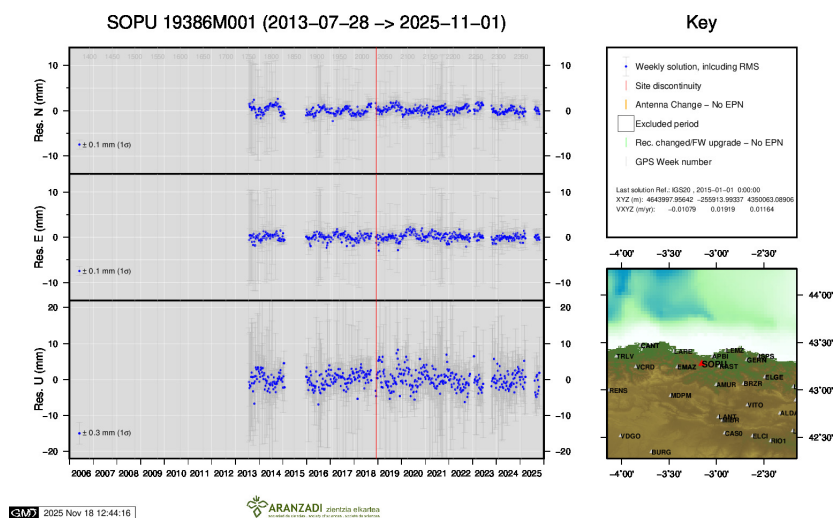
26) RIO1



27) SALA



28) SCOA



29) SOPU

