

ARA-DAC Weekly Analysis Result: 2413 (GFA)

Technical Report

GPS Week: 2413 (GFA)

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

ARA-DAC details:

Contact person: J. Zurutuza

Contact mail: geodesia@aranzadi.eus

Report generated on 2026/04/27 at 04:53:02



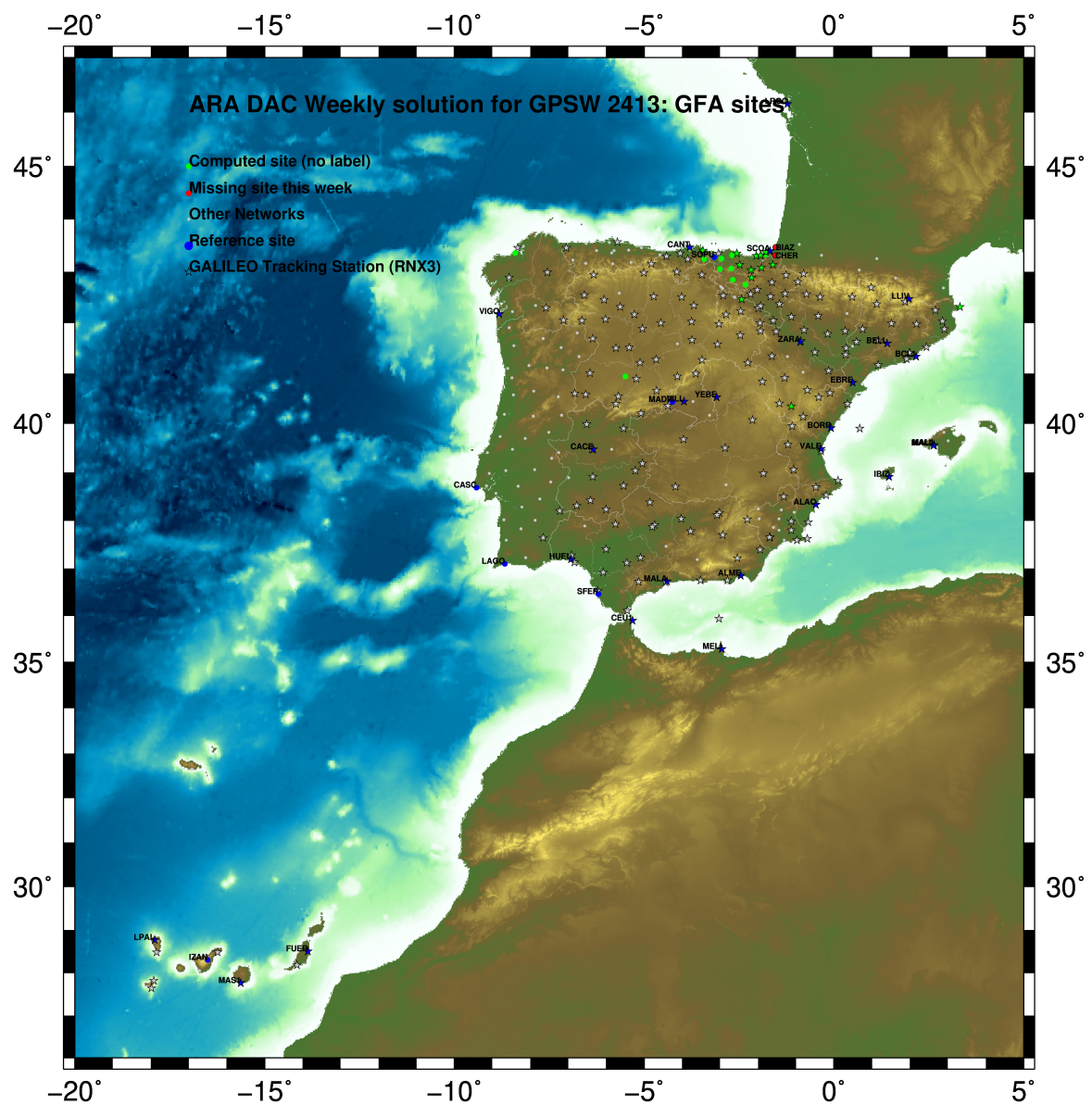
Contents

1	Introduction	3
2	Map of Computed Sites	3
3	Main Computation Parameters	4
4	Estimated Parameters	4
5	Computed Coordinates	6
5.1	IGS20	6
5.2	ETRF2000 (ETRS89) Coordinates	6
5.3	ETRF2014 (ETRS89) Coordinates	7
5.4	ETRF2020 (ETRS89) Coordinates	7
6	Quality Control	8
6.1	Mean and Daily Repeatabilities	8
6.2	Datum verification	10
6.3	Adjustment Statistics	11
7	Equipment	11
7.1	Receiver List	11
7.2	Antennas	11
7.3	Eccentricities	12
8	Inconsistencies (logsheet-RINEX metadata)	12
9	References	13
10	Cumulative Time Series	14

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



2026 Apr 27 04:52:57

Fig.1: Computed Sites for GPS Week2413 (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: $3 \times \text{rms}$ 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						27-APR-26 03:23
LOCAL GEODETIC DATUM: IGS20						EPOCH: 2026-04-08 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.46581	-678367.22898	4357066.33555	A	G
39	ALDA 19383M001	4687280.08594	-190876.43333	4308107.03775	A	GR
50	ALSA 19419M001	4677250.76444	-176770.26333	4319079.95822	A	GRE
53	AMUR 19388M001	4661499.37735	-244591.12565	4332269.96072	A	GR
101	BIDA 15018M001	4644177.74502	-145778.18938	4354832.55916	A	GR
113	BRZR 19387M001	4662220.91760	-220769.76791	4333309.51613	A	GR
573	CACE 13447M001	4899866.44439	-544566.90336	4033770.29160	W	GRE
592	CANT 13438M001	4625924.24573	-307096.10465	4365771.64003	W	GRE
908	CREU 13432M001	4715420.05295	273178.19059	4271946.92382	A	GRE
135	EBRE 13410M001	4833519.91393	41537.52609	4147461.80307	W	GRE
180	ELGE 19353S001	4657557.32214	-202241.33984	4338991.96732	A	GRE
182	EMAZ 17001M001	4645924.13661	-276949.73893	4347759.64774	A	GR
209	GERN 19389M001	4642811.24642	-217222.79386	4353278.95519	A	GR
257	HOND 15012M002	4640529.24379	-145675.85438	4358781.83671	A	GRE
235	IGEL 19352S001	4645951.35005	-165574.37185	4352550.50331	A	GRE
240	ISPS 19484M001	4640596.40866	-206963.64801	4356391.99991	A	GRE
245	KAST 19499M001	4646949.00270	-240747.13488	4348015.07122	A	GR
252	LARE 19440M001	4632831.88545	-279026.01450	4360314.50709	A	GRE
256	LAZK 19354S001	4666098.26963	-178186.06069	4330463.75085	A	GRE
261	LEIT 19428M001	4663520.86375	-155858.58875	4334519.96782	A	GRE
334	ORON 19427M001	4659695.70513	-130864.60414	4338948.96628	A	GRE
345	PAS2 19351S001	4644908.98586	-156644.93866	4353623.15620	A	GRE
493	PASA 19351S001	4644908.98631	-156644.93854	4353623.15673	A	GRE
553	RID1 13448M002	4708446.75740	-199490.15106	4284089.81688	A	GRE
558	SALA 13469M001	4803054.42029	-462130.93838	4158379.15982	A	GR
526	SCDA 10088M002	4639940.43187	-136224.81187	4359552.50193	W	GRE
715	SOPU 19386M001	4643997.83399	-255913.77620	4350063.21866	W	GR
443	TERU 13487M001	4867391.24648	-95523.21211	4108341.76363	A	GRE
493	VITO 19385M001	4679397.62774	-218436.37349	4314898.45003	A	GR
616	YEBE 13420M001	4848724.49832	-261631.79550	4123094.41045	W	GRE
655	ZARA 13462M001	4773803.09597	-73505.85363	4215454.17738	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						27-APR-26 03:23
LOCAL GEODETIC DATUM: ETRF2000						EPOCH: 2026-04-08 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.82545	-678367.90080	4357065.83269	A	
39	ALDA 19383M001	4687280.51133	-190877.11601	4308106.53364	A	
50	ALSA 19419M001	4677251.19279	-176770.94469	4319079.45524	A	
53	AMUR 19388M001	4661499.79710	-244591.80518	4332269.45819	A	
101	BIDA 15018M001	4644178.18085	-145778.86642	4354832.05969	A	
113	BRZR 19387M001	4662221.34086	-220770.44748	4333309.01389	A	
573	CACE 13447M001	4899866.79562	-544567.61368	4033769.76253	W	
592	CANT 13438M001	4625924.65938	-307096.77980	4365771.13985	W	
908	CREU 13432M001	4715420.54165	273177.50603	4271946.42388	A	
135	EBRE 13410M001	4833520.35887	41536.82565	4147461.28885	W	
180	ELGE 19353S001	4657557.74854	-202242.01876	4338991.46578	A	
182	EMAZ 17001M001	4645924.55305	-276950.41657	4347759.14617	A	
209	GERN 19389M001	4642811.67188	-217223.47093	4353278.45479	A	
257	HOND 15012M002	4640529.67997	-145676.53095	4358781.33758	A	
235	IGEL 19352S001	4645951.78285	-165575.04918	4352550.00338	A	
240	ISPS 19484M001	4640596.83586	-206964.32477	4356391.49987	A	
245	KAST 19499M001	4646949.42435	-240747.81255	4348014.57009	A	
252	LARE 19440M001	4632832.30266	-279026.69046	4360314.00669	A	
256	LAZK 19354S001	4666098.69874	-178186.74062	4330463.24888	A	
261	LEIT 19428M001	4663521.29641	-155859.26829	4334519.46642	A	
334	ORON 19427M001	4659696.14174	-130865.28311	4338948.46560	A	
345	PAS2 19351S001	4644909.42003	-156645.61582	4353622.65650	A	
493	PASA 19351S001	4644909.42048	-156645.61570	4353622.65703	A	
553	RID1 13448M002	4708447.17951	-199490.83645	4284089.31069	A	
558	SALA 13469M001	4803054.79401	-462131.63638	4158378.64097	A	
526	SCDA 10088M002	4639940.86947	-136225.48834	4359552.00299	W	
715	SOPU 19386M001	4643998.25364	-255914.45353	4350062.71758	W	
443	TERU 13487M001	4867391.66846	-95523.91731	4108341.24427	A	
493	VITO 19385M001	4679398.04976	-218437.05524	4314897.94624	A	
616	YEBE 13420M001	4848724.89777	-261632.49882	4123093.89036	W	
655	ZARA 13462M001	4773803.53026	-73506.54693	4215453.66700	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						27-APR-26 03:23
LOCAL GEODETIC DATUM: ETRF2014						EPOCH: 2026-04-08 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.78613	-678367.93686	4357065.88614	A	
39	ALDA 19383M001	4687280.46935	-190877.15357	4308106.58695	A	
50	ALSA 19419M001	4677251.15087	-176770.98235	4319079.50859	A	
53	AMUR 19388M001	4661499.75562	-244591.84265	4332269.51156	A	
101	BIDA 15018M001	4644178.13921	-145778.90436	4354832.11317	A	
113	BRZR 19387M001	4662221.29928	-220770.48504	4333309.06726	A	
573	CACE 13447M001	4899866.75218	-544567.64882	4033769.81508	W	
592	CANT 13438M001	4625924.61853	-307096.81719	4365771.19331	W	
908	CREU 13432M001	4715420.49744	273177.46679	4271946.47746	A	
135	EBRE 13410M001	4833520.31420	41536.78787	4147461.34187	W	
180	ELGE 19353S001	4657557.70695	-202242.05642	4338991.51918	A	
182	EMAZ 17001M001	4645924.51187	-276950.45399	4347759.19957	A	
209	GERN 19389M001	4642811.63052	-217223.50860	4353278.50823	A	
257	HOND 15012M002	4640529.63837	-145676.56891	4358781.39107	A	
235	IGEL 19352S001	4645951.74126	-165575.08704	4352550.05684	A	
240	ISPS 19484M001	4640596.79449	-206964.36249	4356391.55332	A	
245	KAST 19499M001	4646949.38302	-240747.85010	4348014.62350	A	
252	LARE 19440M001	4632832.26163	-279026.72793	4360314.06014	A	
256	LAZK 19354S001	4666098.65696	-178186.77833	4330463.30227	A	
261	LEIT 19428M001	4663521.25458	-155859.30611	4334519.51982	A	
334	ORON 19427M001	4659696.09986	-130865.32104	4338948.51903	A	
345	PAS2 19351S001	4644909.37842	-156645.65372	4353622.70997	A	
493	PASA 19351S001	4644909.37887	-156645.65360	4353622.71050	A	
553	RI01 13448M002	4708447.13730	-199490.87387	4284089.36392	A	
558	SALA 13469M001	4803054.75155	-462131.67232	4158378.69381	A	
526	SC0A 10088M002	4639940.82784	-136225.52634	4359552.05649	W	
715	SOPU 19386M001	4643998.21240	-255914.49104	4350062.77099	W	
443	TERU 13487M001	4867391.62392	-95523.95438	4108341.29710	A	
493	VITO 19385M001	4679398.00797	-218437.09273	4314897.99956	A	
616	YEBE 13420M001	4848724.85407	-261632.53533	4123093.94315	W	
655	ZARA 13462M001	4773803.48679	-73506.58454	4215453.72012	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						27-APR-26 03:23
LOCAL GEODETIC DATUM: ETRF2020						EPOCH: 2026-04-08 11:59:45
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
111	ACOR 13434M001	4594489.78210	-678367.92179	4357065.89416	A	
39	ALDA 19383M001	4687280.46397	-190877.13801	4308106.59523	A	
50	ALSA 19419M001	4677251.14541	-176770.96681	4319079.51686	A	
53	AMUR 19388M001	4661499.75033	-244591.82719	4332269.51978	A	
101	BIDA 15018M001	4644178.13356	-145778.88892	4354832.12138	A	
113	BRZR 19387M001	4662221.29392	-220770.46957	4333309.07550	A	
573	CACE 13447M001	4899866.74857	-544567.63270	4033769.82365	W	
592	CANT 13438M001	4625924.61335	-307096.80187	4365771.20146	W	
908	CREU 13432M001	4715420.49072	273177.48265	4271946.48587	A	
135	EBRE 13410M001	4833520.30851	41536.80401	4147461.35045	W	
180	ELGE 19353S001	4657557.70152	-202242.04095	4338991.52741	A	
182	EMAZ 17001M001	4645924.50664	-276950.43860	4347759.20776	A	
209	GERN 19389M001	4642811.62510	-217223.49319	4353278.51643	A	
257	HOND 15012M002	4640529.63272	-145676.55348	4358781.39928	A	
235	IGEL 19352S001	4645951.73569	-165575.07159	4352550.06506	A	
240	ISPS 19484M001	4640596.78902	-206964.34708	4356391.56152	A	
245	KAST 19499M001	4646949.37768	-240747.83469	4348014.63171	A	
252	LARE 19440M001	4632832.25638	-279026.71258	4360314.06831	A	
256	LAZK 19354S001	4666098.65148	-178186.76283	4330463.31051	A	
261	LEIT 19428M001	4663521.24902	-155859.29060	4334519.52807	A	
334	ORON 19427M001	4659696.09421	-130865.30554	4338948.52728	A	
345	PAS2 19351S001	4644909.37281	-156645.63828	4353622.71819	A	
493	PASA 19351S001	4644909.37326	-156645.63816	4353622.71872	A	
553	RI01 13448M002	4708447.13200	-199490.85824	4284089.37224	A	
558	SALA 13469M001	4803054.74737	-462131.65648	4158378.70223	A	
526	SC0A 10088M002	4639940.82216	-136225.51090	4359552.06470	W	
715	SOPU 19386M001	4643998.20710	-255914.47564	4350062.77919	W	
443	TERU 13487M001	4867391.61875	-95523.93819	4108341.30570	A	
493	VITO 19385M001	4679398.00265	-218437.07720	4314898.00782	A	
616	YEBE 13420M001	4848724.84937	-261632.51927	4123093.95169	W	
655	ZARA 13462M001	4773803.48128	-73506.56864	4215453.72857	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						27-APR-26 03:23			
Station	#Days	Weekday 0123456	Repeatability (mm)						
			N	E	U				
ACOR 13434M001	7	XXXXXXX	1.61	1.37	6.44				
ALDA 19383M001	7	XXXXXXX	1.63	1.02	2.88				
ALSA 19419M001	7	XXXXXXX	2.20	0.55	4.15				
AMUR 19388M001	7	XXXXXXX	1.60	1.05	2.80				
BIDA 15018M001	7	XXXXXXX	1.03	1.57	2.53				
BRZR 19387M001	7	XXXXXXX	1.41	0.91	5.09				
CACE 13447M001	7	XXXXXXX	0.81	0.78	2.42				
CANT 13438M001	7	XXXXXXX	1.34	0.55	2.95				
CREU 13432M001	7	XXXXXXX	1.30	1.25	3.18				
EBRE 13410M001	7	XXXXXXX	1.24	0.82	2.13				
ELGE 19353S001	7	XXXXXXX	1.09	0.61	3.49				
EMAZ 17001M001	7	XXXXXXX	2.28	0.97	2.03				
GERN 19389M001	7	XXXXXXX	1.52	0.54	2.11				
HOND 15012M002	7	XXXXXXX	1.25	0.77	2.40				
IGEL 19352S001	7	XXXXXXX	1.15	0.81	1.04				
ISPS 19484M001	7	XXXXXXX	1.24	0.52	1.38				
KAST 19499M001	7	XXXXXXX	1.96	0.76	4.78				
LARE 19440M001	7	XXXXXXX	1.71	0.72	1.47				
LAZK 19354S001	7	XXXXXXX	2.33	1.18	5.67				
LEIT 19428M001	7	XXXXXXX	1.70	0.55	2.42				
ORON 19427M001	7	XXXXXXX	1.38	0.85	3.04				
PAS2 19351S001	7	XXXXXXX	1.10	0.39	2.30				
PASA 19351S001	7	XXXXXXX	1.04	0.33	1.81				
RI01 13448M002	7	XXXXXXX	1.17	0.46	2.49				
SALA 13469M001	7	XXXXXXX	0.40	0.73	2.29				
SCOA 10088M002	7	XXXXXXX	1.53	1.02	2.94				
SOPU 19386M001	7	XXXXXXX	1.17	1.02	2.51				
TERU 13487M001	7	XXXXXXX	1.01	0.63	4.54				
VITO 19385M001	7	XXXXXXX	1.32	1.00	2.82				
YEBE 13420M001	7	XXXXXXX	0.44	0.37	0.99				
ZARA 13462M001	7	XXXXXXX	1.17	0.65	1.26				
Comparison of individual solutions:									
ACOR 13434M001	N	1.61	1.04	1.01	-0.37	-0.59	2.38	2.70	-0.14
ACOR 13434M001	E	1.37	2.67	0.12	-0.53	0.24	0.19	1.37	-1.39
ACOR 13434M001	U	6.44	-0.27	10.48	-1.32	3.23	-5.29	-9.91	-0.64
ALDA 19383M001	N	1.63	0.84	0.33	-1.83	-0.09	1.91	2.17	1.85
ALDA 19383M001	E	1.02	-1.33	1.67	0.75	0.48	-0.85	-0.09	0.43
ALDA 19383M001	U	2.88	2.80	-4.10	-1.68	-1.18	-0.60	-3.70	2.62
ALSA 19419M001	N	2.20	1.28	-0.41	-2.15	-2.26	2.11	2.06	2.96
ALSA 19419M001	E	0.55	-0.23	0.82	0.17	-0.70	0.32	-0.61	0.33
ALSA 19419M001	U	4.15	3.01	1.81	5.22	1.06	-3.20	-7.25	-0.01
AMUR 19388M001	N	1.60	-0.29	0.99	-0.16	-0.44	0.86	0.84	3.55
AMUR 19388M001	E	1.05	0.41	1.87	-0.94	-0.84	-0.09	-0.70	0.96
AMUR 19388M001	U	2.80	2.71	2.55	1.13	-0.21	-1.03	-5.27	1.69
BIDA 15018M001	N	1.03	0.19	-0.17	0.65	-0.03	1.11	1.67	1.36
BIDA 15018M001	E	1.57	-0.80	2.55	1.85	-0.50	-0.37	-1.14	-1.58
BIDA 15018M001	U	2.53	3.25	-4.05	-1.32	0.32	1.24	1.17	2.58
BRZR 19387M001	N	1.41	-0.69	-0.05	-0.19	-0.04	1.14	2.40	2.11
BRZR 19387M001	E	0.91	1.30	-0.75	-1.09	-0.53	0.66	-0.34	0.81
BRZR 19387M001	U	5.09	2.18	-1.83	-3.20	-1.63	0.52	-4.39	10.73
CACE 13447M001	N	0.81	-1.02	-1.35	0.27	-0.19	-0.37	-0.22	-0.89
CACE 13447M001	E	0.78	0.51	0.69	0.32	0.78	-0.15	0.06	-1.48
CACE 13447M001	U	2.42	-2.12	-1.21	0.37	-1.78	2.31	3.52	-2.86
CANT 13438M001	N	1.34	-1.51	1.71	-0.39	-0.40	0.48	1.58	1.58
CANT 13438M001	E	0.55	0.88	-0.06	-0.89	-0.45	-0.11	0.02	-0.19
CANT 13438M001	U	2.95	1.38	1.41	5.20	0.12	-4.59	-0.50	0.31
CREU 13432M001	N	1.30	0.02	1.16	0.65	-0.44	0.03	2.85	0.31
CREU 13432M001	E	1.25	-1.29	0.23	-0.89	-0.76	0.90	2.10	1.07
CREU 13432M001	U	3.18	3.50	0.80	-0.85	-5.74	-1.69	1.20	3.11
EBRE 13410M001	N	1.24	0.74	0.70	0.32	-1.21	0.42	2.09	1.46
EBRE 13410M001	E	0.82	0.40	1.27	-0.42	-1.11	0.75	0.51	-0.21
EBRE 13410M001	U	2.13	2.77	-2.11	-0.18	0.66	-0.38	-2.97	2.39
ELGE 19353S001	N	1.09	0.31	0.60	-0.37	0.17	0.40	1.86	1.68
ELGE 19353S001	E	0.61	0.23	-0.32	-0.89	0.27	-0.50	0.43	0.86
ELGE 19353S001	U	3.49	0.47	0.84	-2.24	0.53	0.39	-4.31	6.93
EMAZ 17001M001	N	2.28	-2.00	2.82	3.63	-1.97	-0.37	1.35	-0.48
EMAZ 17001M001	E	0.97	1.35	-0.27	-1.78	0.59	0.10	-0.17	-0.40
EMAZ 17001M001	U	2.03	0.69	-2.20	0.10	-0.22	-1.13	-0.92	4.14
GERN 19389M001	N	1.52	-0.86	-0.51	0.28	0.02	0.69	2.33	2.64
GERN 19389M001	E	0.54	0.35	0.92	-0.19	0.29	-0.45	-0.53	-0.38
GERN 19389M001	U	2.11	2.74	-2.19	3.44	-0.26	-0.52	-1.23	0.85
HOND 15012M002	N	1.25	-0.23	1.21	1.81	-1.04	0.94	1.38	0.81
HOND 15012M002	E	0.77	0.36	1.53	-0.84	-0.02	-0.15	-0.51	-0.31
HOND 15012M002	U	2.40	3.99	0.51	2.73	-2.42	0.87	-1.77	-1.04
IGEL 19352S001	N	1.15	-0.87	0.79	1.14	0.19	0.42	2.03	0.98
IGEL 19352S001	E	0.81	0.53	0.65	-1.73	0.38	0.22	-0.19	0.15
IGEL 19352S001	U	1.04	1.31	0.36	1.05	-0.05	1.13	-1.46	0.39
ISPS 19484M001	N	1.24	-0.53	-0.16	1.00	-0.05	0.47	1.99	1.94
ISPS 19484M001	E	0.52	0.63	0.15	-1.02	0.04	-0.00	-0.15	0.36
ISPS 19484M001	U	1.38	2.55	-0.57	-0.94	-0.54	1.81	0.02	0.32
KAST 19499M001	N	1.96	0.85	-0.42	-2.75	0.30	1.54	2.59	2.32
KAST 19499M001	E	0.76	-0.46	1.20	-0.63	-0.61	-0.24	-0.25	0.97
KAST 19499M001	U	4.78	0.54	-0.08	-1.90	-1.26	0.58	-5.35	10.13
LARE 19440M001	N	1.71	-1.35	1.33	-1.30	0.80	1.23	3.18	-0.25
LARE 19440M001	E	0.72	-0.44	1.44	-0.18	-0.70	-0.32	-0.30	-0.39
LARE 19440M001	U	1.47	1.15	-0.97	2.47	1.73	0.16	-1.17	-0.37
LAZK 19354S001	N	2.33	0.29	-1.79	-2.93	0.51	1.51	2.96	3.05
LAZK 19354S001	E	1.18	-0.20	1.66	-1.65	-1.18	0.84	-0.22	0.85
LAZK 19354S001	U	5.67	-0.77	-1.13	12.35	0.67	-2.11	-4.41	-3.76
LEIT 19428M001	N	1.70	-0.53	2.40	-0.34	-0.86	-0.78	2.53	1.86
LEIT 19428M001	E	0.55	-0.07	1.11	0.58	-0.28	-0.11	-0.23	-0.34
LEIT 19428M001	U	2.42	2.41	-0.81	-4.53	2.60	0.52	-0.01	1.00

ORON	19427M001	N	1.38	-0.45	-1.08	1.93	0.09	0.52	1.55	1.89
ORON	19427M001	E	0.85	-0.23	0.76	-0.71	1.64	-0.19	0.10	-0.67
ORON	19427M001	U	3.04	0.34	-0.98	5.32	2.44	-2.22	-3.90	-0.32
PAS2	19351S001	N	1.10	0.22	1.14	0.75	-0.85	0.66	1.68	1.15
PAS2	19351S001	E	0.39	-0.01	-0.31	-0.67	0.37	-0.17	0.25	0.35
PAS2	19351S001	U	2.30	2.82	-1.72	1.71	-2.42	2.43	-1.78	1.68
PASA	19351S001	N	1.04	0.09	0.64	0.82	-0.59	0.73	1.62	1.38
PASA	19351S001	E	0.33	-0.02	0.49	-0.60	-0.08	-0.01	0.01	0.24
PASA	19351S001	U	1.81	2.21	0.47	1.71	-2.06	1.39	-2.06	1.13
RI01	13448M002	N	1.17	0.47	0.06	0.49	-0.62	-0.57	1.88	1.89
RI01	13448M002	E	0.46	-0.03	0.57	0.49	-0.22	0.12	0.08	-0.79
RI01	13448M002	U	2.49	2.31	-0.73	3.48	0.39	-2.74	-3.04	1.48
SALA	13469M001	N	0.40	-0.87	-0.20	-0.02	0.27	0.11	0.31	0.05
SALA	13469M001	E	0.73	0.56	1.35	-0.09	0.37	0.01	-0.26	-0.90
SALA	13469M001	U	2.29	0.07	-2.33	1.19	2.65	-3.46	-1.08	2.10
SCDA	10088M002	N	1.53	-1.38	0.42	2.35	0.89	1.43	1.86	-0.42
SCDA	10088M002	E	1.02	0.03	1.03	0.93	0.55	-0.44	-1.94	-0.19
SCDA	10088M002	U	2.94	4.03	-2.95	2.84	2.30	-1.50	1.31	-3.11
SOPU	19386M001	N	1.17	0.22	0.97	-1.01	0.09	1.04	1.75	1.44
SOPU	19386M001	E	1.02	-0.27	1.99	-1.20	-0.37	0.14	-0.66	0.37
SOPU	19386M001	U	2.51	0.00	-0.14	0.23	2.54	-1.64	-2.79	4.55
TERU	13487M001	N	1.01	-1.49	-1.05	0.15	-0.02	0.31	-1.60	-0.30
TERU	13487M001	E	0.63	-0.37	-0.07	1.29	0.18	-0.52	0.44	-0.24
TERU	13487M001	U	4.54	-9.73	-1.26	2.90	0.57	-2.10	3.70	0.81
VITO	19385M001	N	1.32	0.54	-1.16	0.73	0.29	0.14	2.25	1.75
VITO	19385M001	E	1.00	-0.10	1.98	-0.81	-0.97	0.11	-0.27	0.61
VITO	19385M001	U	2.82	3.62	-3.74	-0.99	-0.64	-2.16	-1.75	3.41
YEBE	13420M001	N	0.44	-0.69	0.60	-0.17	-0.39	-0.11	0.37	-0.03
YEBE	13420M001	E	0.37	0.45	0.54	0.21	0.20	0.29	-0.36	-0.13
YEBE	13420M001	U	0.99	-0.05	-1.19	-0.25	0.90	-1.34	0.27	-1.31
ZARA	13462M001	N	1.17	-0.50	0.09	0.50	-0.73	0.92	2.22	1.18
ZARA	13462M001	E	0.65	0.29	0.76	0.08	-1.00	0.83	0.24	-0.33
ZARA	13462M001	U	1.26	2.89	-0.14	-0.23	-0.73	0.73	-0.09	-0.03

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	1.27	-1.11	2.50		
3	ALME 13437M001	I W	-0.98	0.66	-0.25		
4	BCL1 19482M001	I W	-0.16	0.17	3.12		
5	BELL 13431M001	I W	-0.81	0.67	1.05		
6	BORR 13480M001	I W	-5.72	-0.57	0.32		
7	BRST 10004M004	I W	-0.54	-2.04	-1.10		
8	CACE 13447M001	I W	1.02	0.81	0.77		
9	CANT 13438M001	I W	1.20	0.03	-2.14		
10	CASC 13909S001	I W	3.98	-0.56	-1.16		
11	CEU1 13449M002	I W	1.11	1.05	-4.35		
13	EBRE 13410M001	I W	-4.90	0.99	-1.54		
15	FLRS 31907M001	I W	-0.56	-4.77	-4.48		
16	FUER 31330M001	I W	-0.09	-0.53	-1.08		
18	HUEL 13451M001	I W	1.52	2.36	-3.66		
19	IBIZ 13454S001	I W	-0.68	1.42	0.24		
20	IZAN 31309M002	I W	0.23	-3.16	-3.77		
21	LAGO 13903M001	I W	1.74	-0.03	2.97		
22	LLIV 13436M001	I W	-3.12	2.88	7.24		
23	LPAL 81701M001	I W	2.27	1.74	-6.36		
24	LROC 10023M001	I W	0.98	-0.45	0.96		
25	MADR 13407S012	I W	-0.61	2.09	-0.17		
26	MAL1 13444M002	I W	2.62	-0.05	-11.95		
27	MALA 13443M001	I W	2.53	1.64	9.07		
28	MALL 13444M001	I W	-1.37	0.45	-0.84		
29	MAS1 31303M002	I W	-1.70	-3.43	-1.91		
30	MELI 19379M001	I W	-0.42	0.74	3.02		
31	PDEL 31906M004	I W	-4.42	-3.95	12.61		
32	SCOA 10088M002	I W	-0.06	-0.59	-12.99		
33	SFER 13402M004	I W	-1.48	-4.11	6.13		
34	SOPU 19386M001	I W	0.24	0.95	2.28		
35	VALE 13439M001	I W	1.04	3.33	-3.21		
36	VIGO 13450M001	I W	2.24	0.85	1.69		
37	VILL 13406M001	I W	-0.88	-0.49	3.88		
38	YEBE 13420M001	I W	-0.34	0.26	6.16		
39	ZARA 13462M001	I W	-0.51	0.87	-2.86		
40	ZIMM 14001M004	I W	0.04	0.89	3.77		
	RMS / COMPONENT		2.07	1.92	5.06		
	IQR		2.00	1.54	5.49		
	MEAN		-0.15	-0.03	0.11		
	MEDIAN		-0.13	0.35	0.04		
	MIN		-5.72	-4.77	-12.99		
	MAX		3.98	3.33	12.61		
OVERALL RMS/IQR/MAX(3D)			3.34	2.45	13.93	PDEL 31906M004	#SUM
ALL	RMS / COMPONENT		2.07	1.92	5.06		
ALL	IQR		2.00	1.54	5.49		
ALL	MEAN		-0.15	-0.03	0.11		
ALL	MEDIAN		-0.13	0.35	0.04		
ALL	MIN		-5.72	-4.77	-12.99		
ALL	MAX		3.98	3.33	12.61		
ALL	OVERALL RMS/IQR/MAX(3D)		3.34	2.45	13.93	PDEL 31906M004	#SUM_ALL

NUMBER OF PARAMETERS : 3
NUMBER OF STATIONS : 36
NUMBER OF COORDINATES : 108
RMS OF TRANSFORMATION : 3.34 MM

NUMBER OF PARAMETERS : 3
NUMBER OF STATIONS : 36
NUMBER OF COORDINATES : 108
RMS OF TRANSFORMATION : 3.34 MM

PARAMETERS:

TRANSLATION IN X : -0.00 +- 0.56 MM
TRANSLATION IN Y : -0.00 +- 0.56 MM
TRANSLATION IN Z : 0.00 +- 0.56 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              18003559
NUMBER OF UNKNOWN                   173861
NUMBER OF DEGREES OF FREEDOM        17829698
PHASE MEASUREMENTS SIGMA             0.00100
SAMPLING INTERVAL (SECONDS)          180
VARIANCE FACTOR                      5.836080299447780
```

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 26:095:00000 26:101:86370 LEICA GR50 -----
ALDA A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
ALSA A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
AMUR A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
BIDA A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
BRZR A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
CACE A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
CANT A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
CREU A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
EBRE A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
ELGE A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
EMAZ A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
GERN A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
HOND A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
IGEL A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
ISPS A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
KAST A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
LARE A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
LAZK A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
LEIT A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
ORON A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
PAS2 A 1 P 26:095:00000 26:101:86370 STONEX SC2200 -----
PASA A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
RIO1 A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
SALA A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
SCOA A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
SOPU A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
TERU A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
VITO A 1 P 26:095:00000 26:101:86370 LEICA GR30 -----
YEBE A 1 P 26:095:00000 26:101:86370 LEICA GR50 -----
ZARA A 1 P 26:095:00000 26:101:86370 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 26:095:00000 26:101:86370 LEIAT504 LEIS ----
ALDA A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
ALSA A 1 P 26:095:00000 26:101:86370 LEIAR10 NONE ----
AMUR A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
BIDA A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
BRZR A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
CACE A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
CANT A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 LEIT ----
CREU A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 NONE ----
EBRE A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 NONE ----
ELGE A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 LEIT ----
EMAZ A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
GERN A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
HOND A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
IGEL A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
ISPS A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
KAST A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
LARE A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
LAZK A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 LEIT ----
LEIT A 1 P 26:095:00000 26:101:86370 LEIAR10 NONE ----
ORON A 1 P 26:095:00000 26:101:86370 LEIAR10 NONE ----
PAS2 A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
PASA A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
RIO1 A 1 P 26:095:00000 26:101:86370 LEIAR25.R4 LEIT ----
SALA A 1 P 26:095:00000 26:101:86370 LEIAR25 NONE ----
SCOA A 1 P 26:095:00000 26:101:86370 TRM55971.00 NONE ----
SOPU A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
TERU A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
VITO A 1 P 26:095:00000 26:101:86370 LEIAS10 NONE ----
YEBE A 1 P 26:095:00000 26:101:86370 LEIAR20 LEIM ----
ZARA A 1 P 26:095:00000 26:101:86370 TRM29659.00 NONE ----
```

7.3 Eccentricities

*SITE	PT	SOLN	T	DATA_START__	DATA_END__	AXE	UP-----	NORTH----	EAST----
							ARP-->	BENCHMARK(M)	
ACOR	A	1	P	26:095:00000	26:101:86370	UNE	3.0460	0.0000	0.0000
ALDA	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
ALSA	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
AMUR	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
BIDA	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
BRZR	A	1	P	26:095:00000	26:101:86370	UNE	0.0771	0.0000	0.0000
CACE	A	1	P	26:095:00000	26:101:86370	UNE	0.0600	0.0000	0.0000
CANT	A	1	P	26:095:00000	26:101:86370	UNE	3.0490	0.0000	0.0000
CREU	A	1	P	26:095:00000	26:101:86370	UNE	0.0770	0.0000	0.0000
EBRE	A	1	P	26:095:00000	26:101:86370	UNE	0.0770	0.0000	0.0000
ELGE	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
EMAZ	A	1	P	26:095:00000	26:101:86370	UNE	0.0350	0.0000	0.0000
GERN	A	1	P	26:095:00000	26:101:86370	UNE	0.0771	0.0000	0.0000
HOND	A	1	P	26:095:00000	26:101:86370	UNE	0.0771	0.0000	0.0000
IGEL	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
ISPS	A	1	P	26:095:00000	26:101:86370	UNE	0.0350	0.0000	0.0000
KAST	A	1	P	26:095:00000	26:101:86370	UNE	0.0350	0.0000	0.0000
LARE	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
LAZK	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
LEIT	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
ORDN	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
PAS2	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
PASA	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
RI01	A	1	P	26:095:00000	26:101:86370	UNE	0.0606	0.0000	0.0000
SALA	A	1	P	26:095:00000	26:101:86370	UNE	0.0600	0.0000	0.0000
SCDA	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
SOPU	A	1	P	26:095:00000	26:101:86370	UNE	0.0771	0.0000	0.0000
TERU	A	1	P	26:095:00000	26:101:86370	UNE	0.0600	0.0000	0.0000
VITO	A	1	P	26:095:00000	26:101:86370	UNE	0.0000	0.0000	0.0000
YEBE	A	1	P	26:095:00000	26:101:86370	UNE	0.0600	0.0000	0.0000
ZARA	A	1	P	26:095:00000	26:101:86370	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:

```

2026-04-26 06:47 UTC | ALDA0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 09:46 UTC | ALDA0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 12:40 UTC | ALDA0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 15:36 UTC | ALDA0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 18:35 UTC | ALDA0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 21:58 UTC | ALDA1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-27 03:21 UTC | ALDA1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: alda00esp_20241008.log
2026-04-26 06:47 UTC | AMUR0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 09:46 UTC | AMUR0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 12:40 UTC | AMUR0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 15:36 UTC | AMUR0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 18:35 UTC | AMUR0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 21:58 UTC | AMUR1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-27 03:21 UTC | AMUR1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amur00esp_20241008.log
2026-04-26 06:47 UTC | BRZR0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 09:46 UTC | BRZR0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 12:40 UTC | BRZR0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 15:36 UTC | BRZR0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 18:35 UTC | BRZR0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 21:58 UTC | BRZR1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-27 03:21 UTC | BRZR1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: brzr00esp_20240315.log
2026-04-26 06:47 UTC | EMAZ0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 09:46 UTC | EMAZ0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 12:40 UTC | EMAZ0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 15:36 UTC | EMAZ0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 18:35 UTC | EMAZ0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 21:58 UTC | EMAZ1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-27 03:21 UTC | EMAZ1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: amaz00esp_20241008.log
2026-04-26 06:47 UTC | ISPS0950.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 09:46 UTC | ISPS0960.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 12:40 UTC | ISPS0970.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 15:36 UTC | ISPS0980.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 18:35 UTC | ISPS0990.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 21:58 UTC | ISPS1000.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-27 03:21 UTC | ISPS1010.260 | ANTENNA SER. NO. | -> 24238009 (source: isps00esp_20250114.log
2026-04-26 06:47 UTC | KAST0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 09:46 UTC | KAST0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 12:40 UTC | KAST0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 15:36 UTC | KAST0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 18:35 UTC | KAST0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 21:58 UTC | KAST1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-27 03:21 UTC | KAST1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: kast00esp_20241008.log
2026-04-26 06:47 UTC | VITO0950.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-26 09:46 UTC | VITO0960.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-26 12:41 UTC | VITO0970.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-26 15:36 UTC | VITO0980.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-26 18:35 UTC | VITO0990.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-26 21:58 UTC | VITO1000.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.log
2026-04-27 03:21 UTC | VITO1010.260 | RECEIVER FIRM. VERS. | 4.83/7.900 -> 4.80/7.900 (source: vito00esp_20241008.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

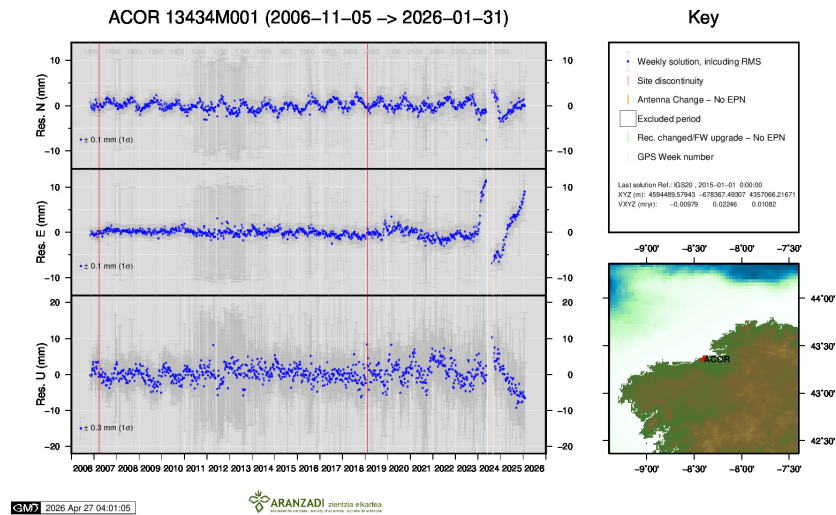
EPN Coordination Group and the EPN Central Bureau (2018): *Guidelines for the EPN Analysis Centres*. epncb.oma.be/documentation/guidelines/guidelines_analysis_centres.pdf

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

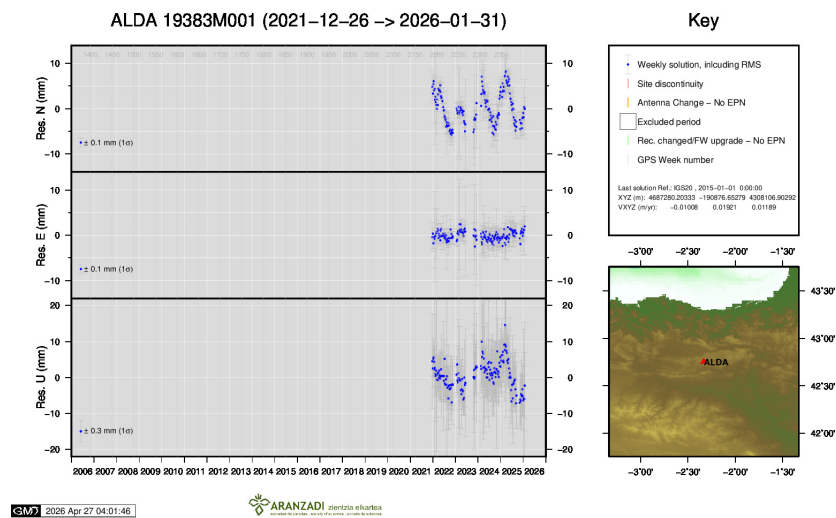
Z. Altamimi (2018): *EUREF Technical Note 1: Relationship and Transformation between the International and the European Terrestrial Reference Systems*. etrs89.ensg.ign.fr/pub/EUREF-TN-1.pdf

10 Cumulative Time Series

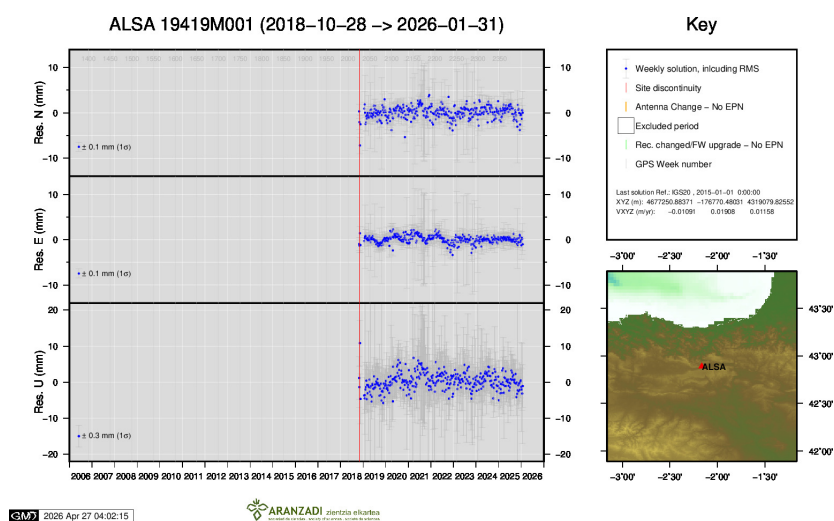
Time series of stations. Latest plots at: <http://geolabpasaia.org/gnss/ARA-net/TSeries/>, or click on the caption of each image.



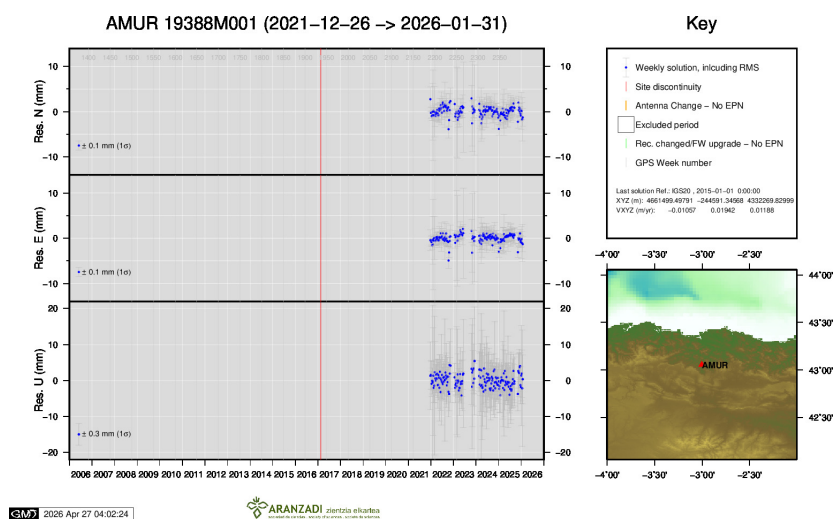
1) ACOR



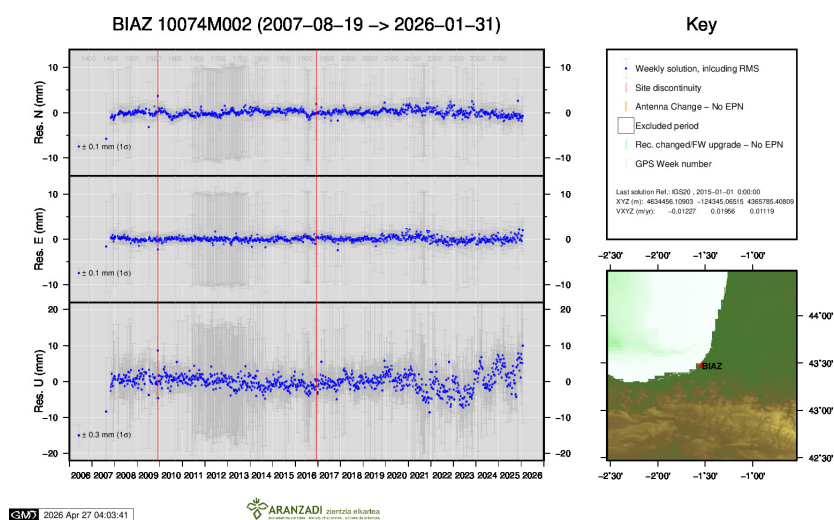
2) ALDA



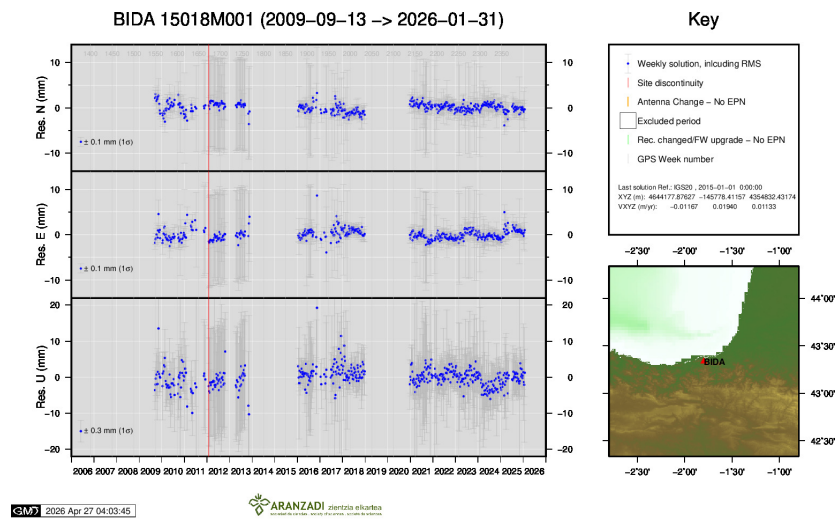
3) ALSA



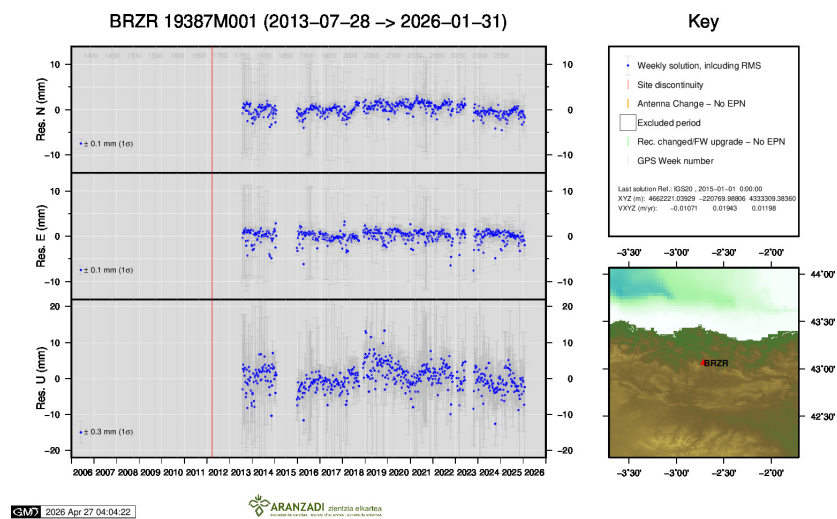
4) AMUR



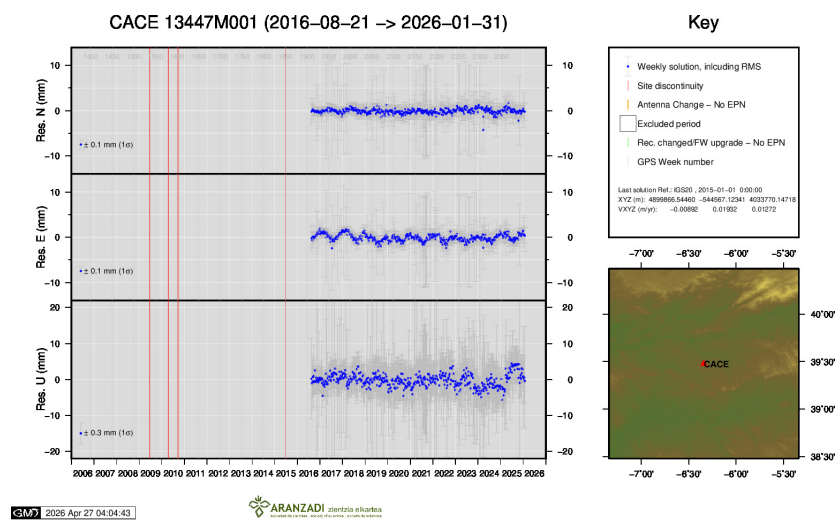
5) BIAZ



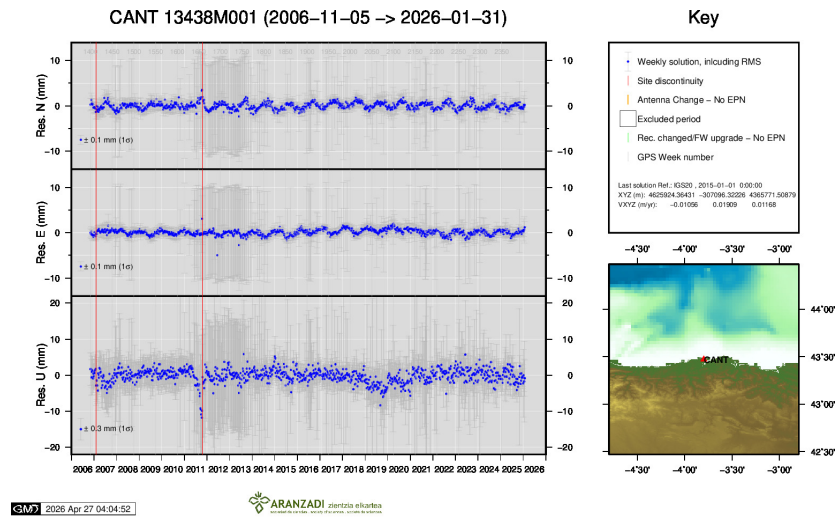
6) BIDA



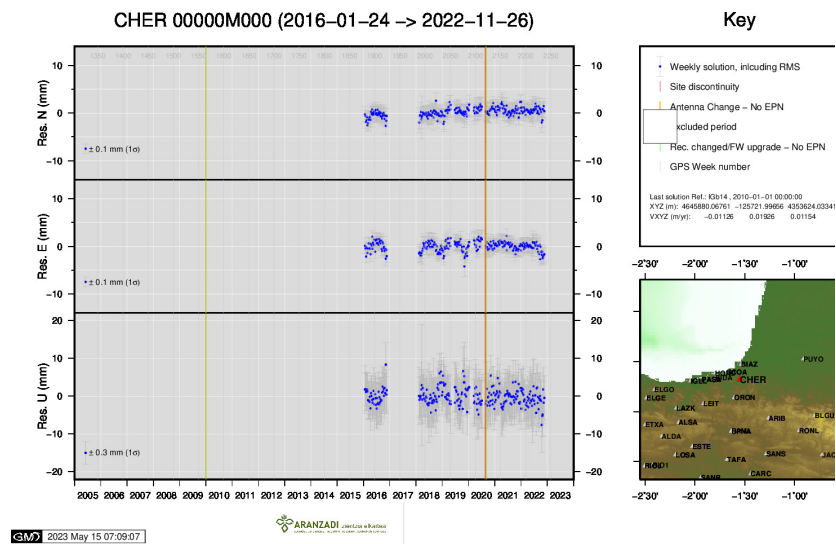
7) BRZR



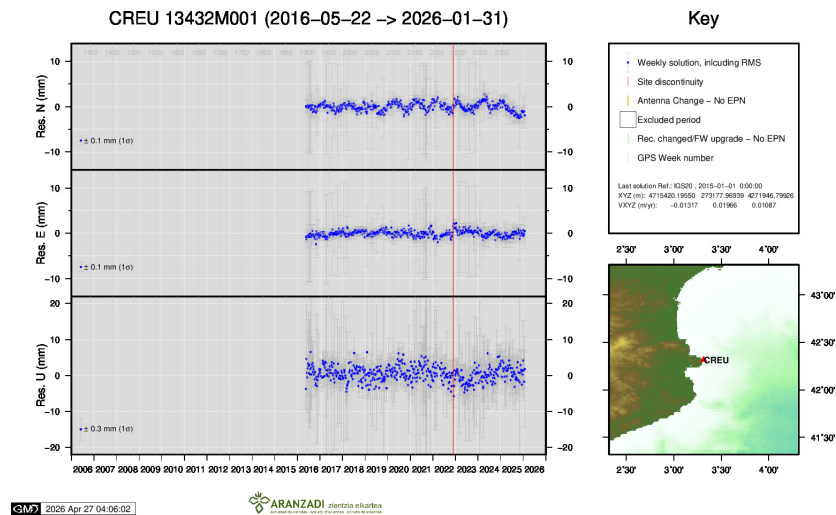
8) CACE



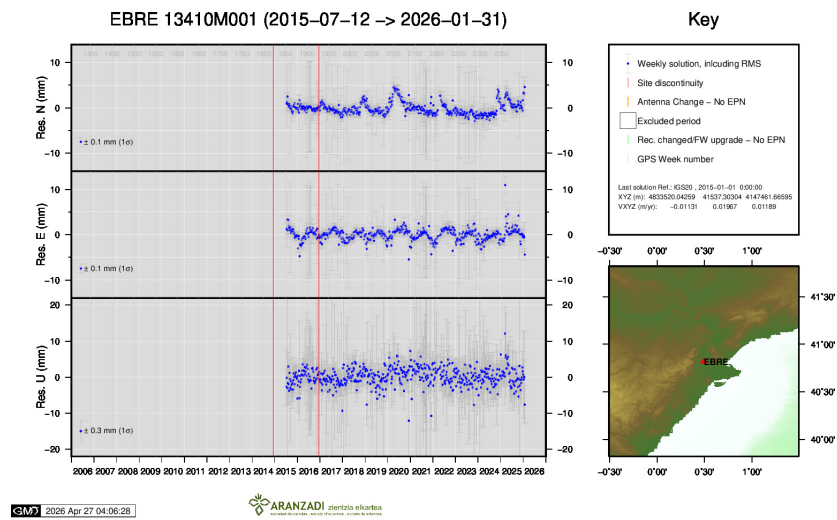
9) CANT



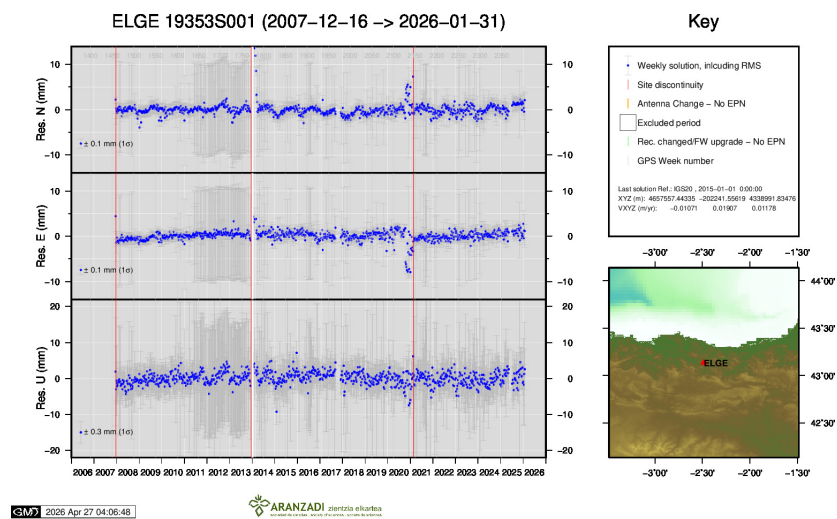
10) CHER



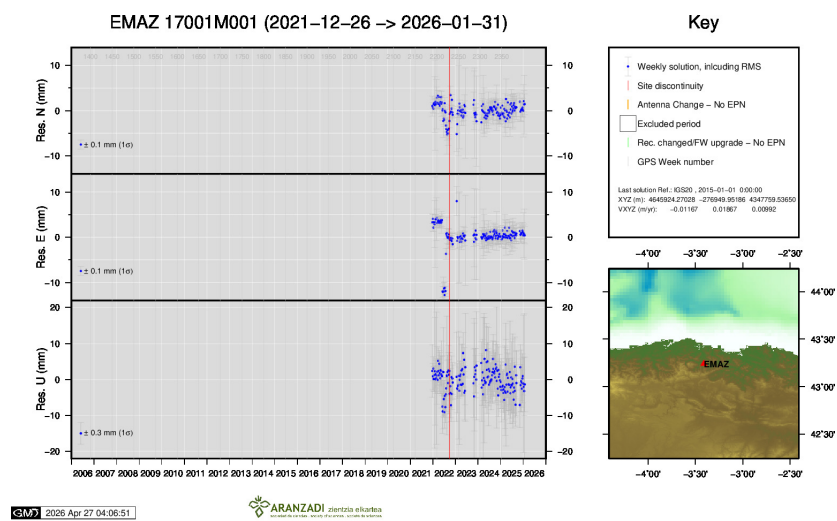
11) CREU



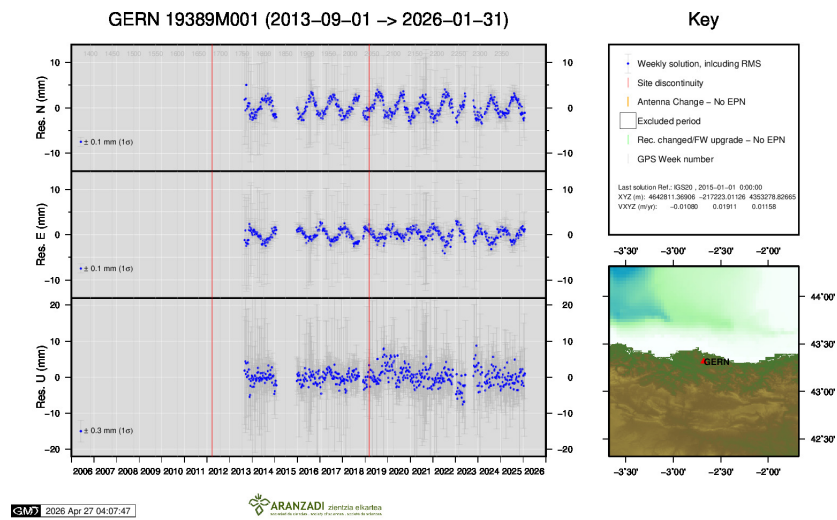
12) EBRE



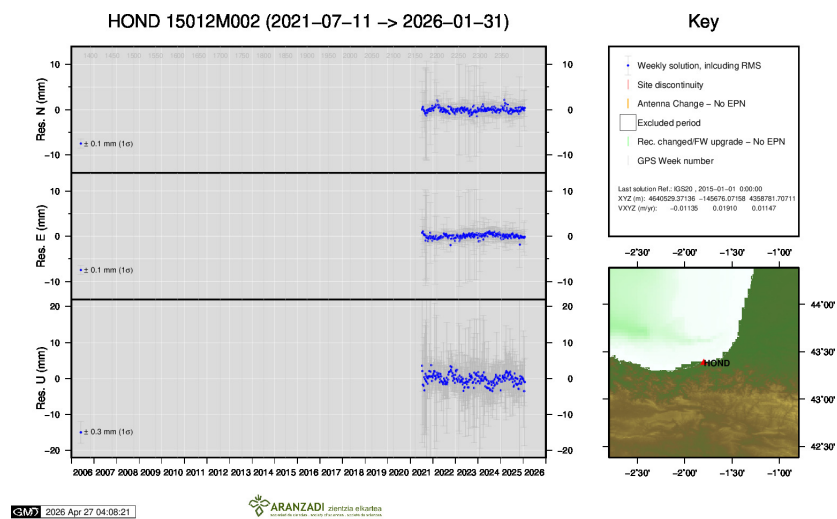
13) ELGE



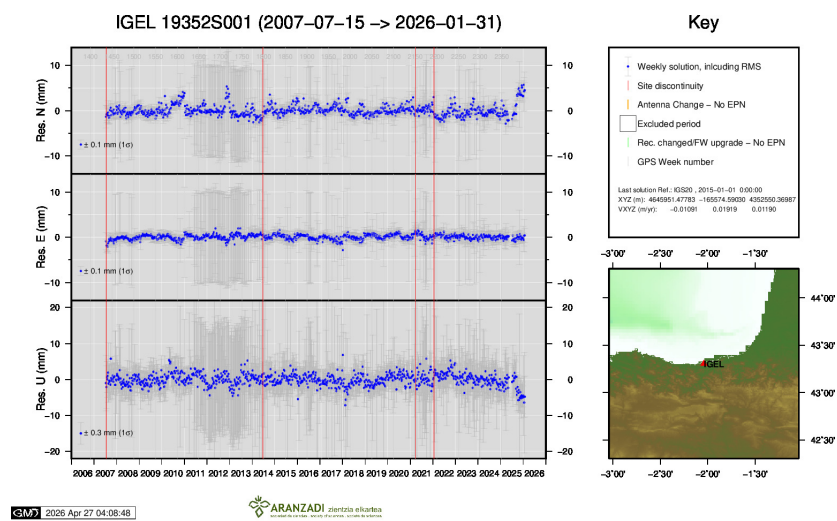
14) EMAZ



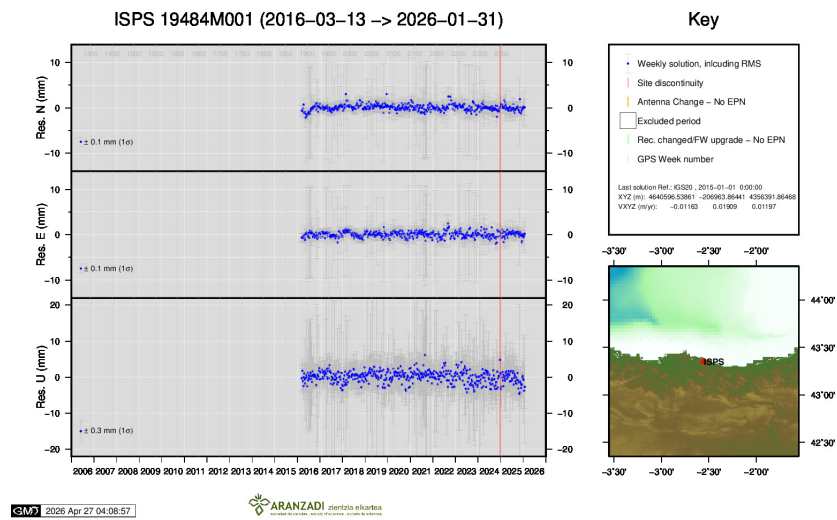
15) GERN



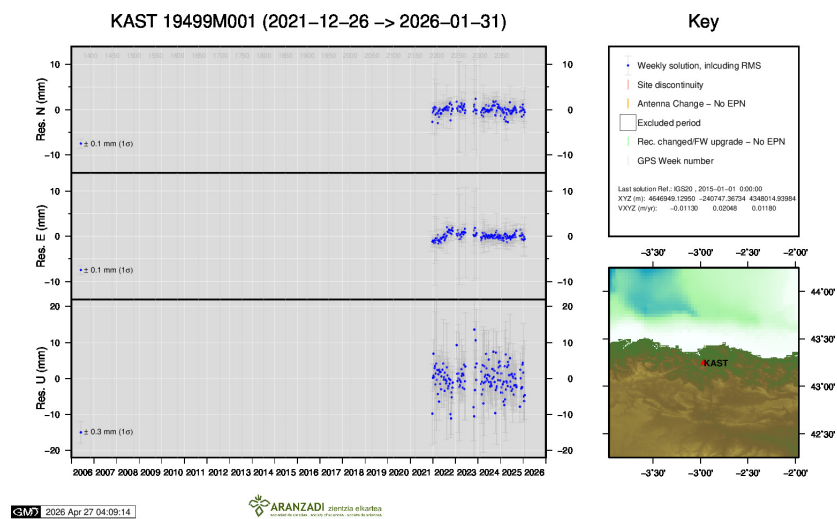
16) HOND



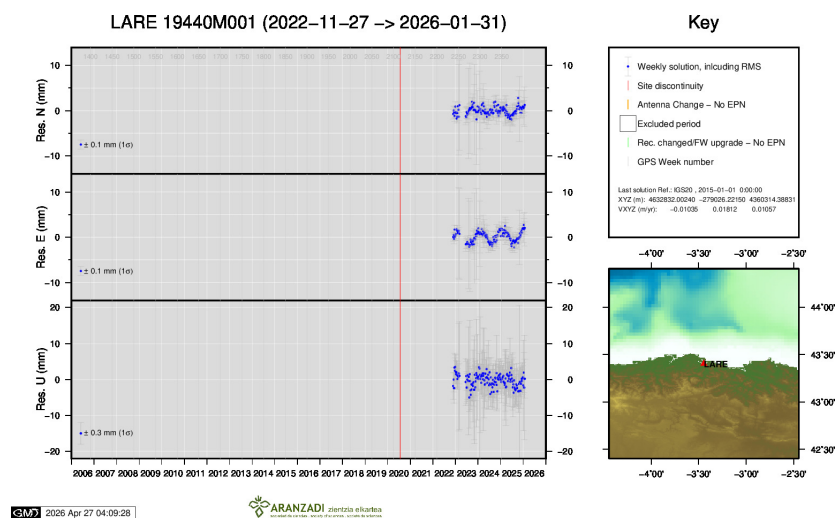
17) IGEL



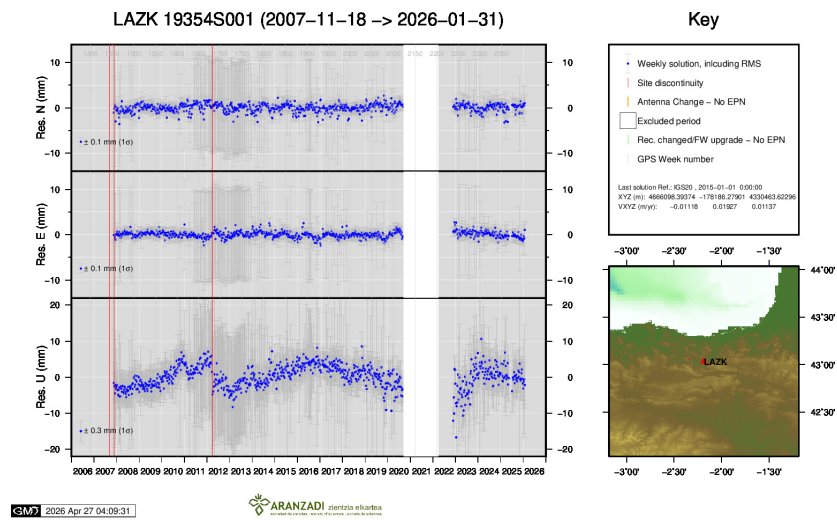
18) ISPS



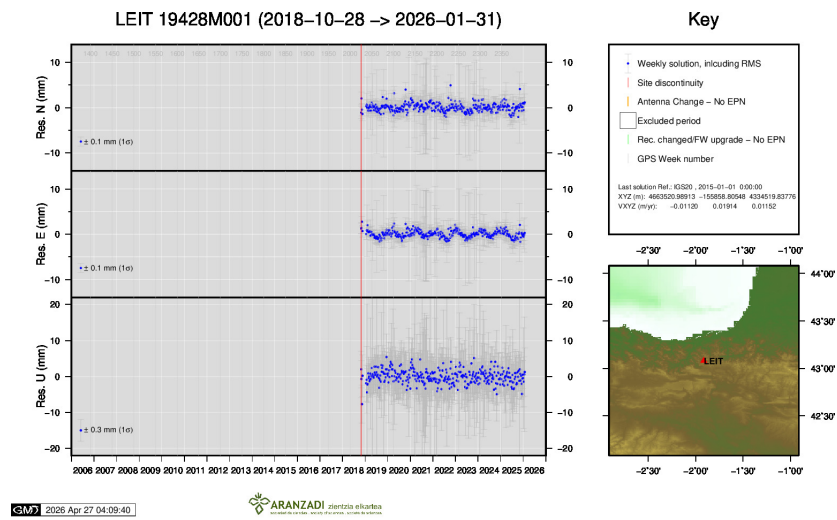
19) KAST



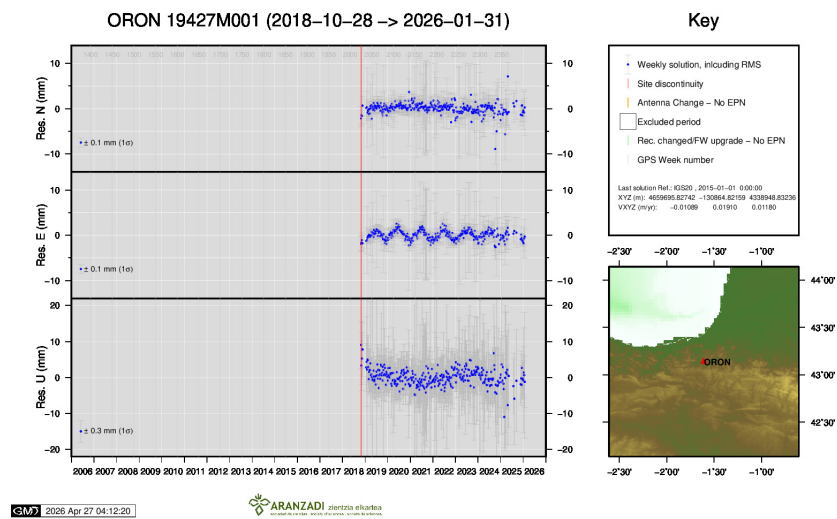
20) LARE



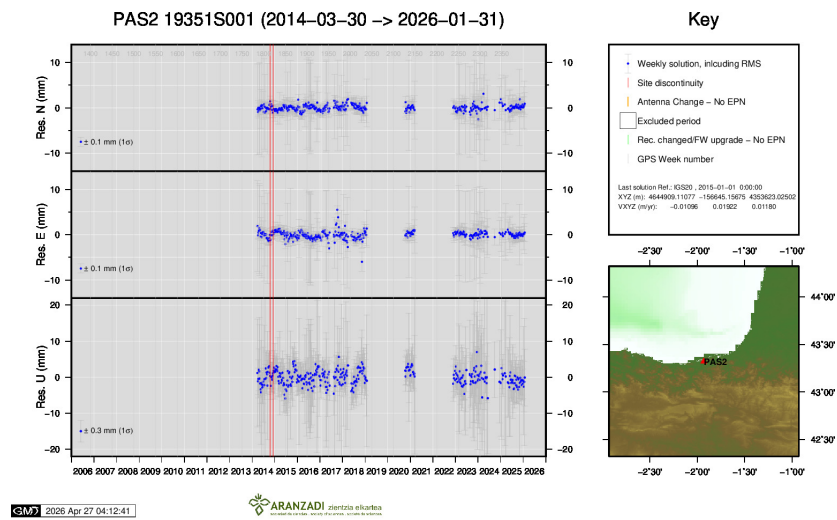
21) LAZK



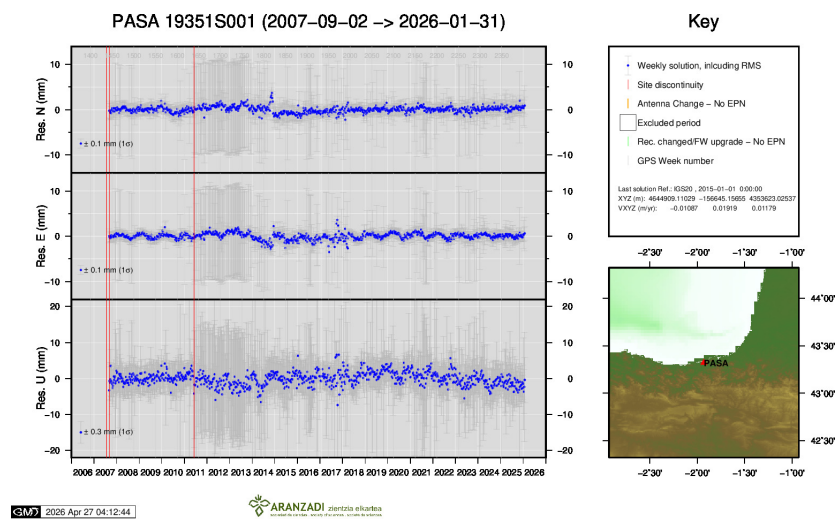
22) LEIT



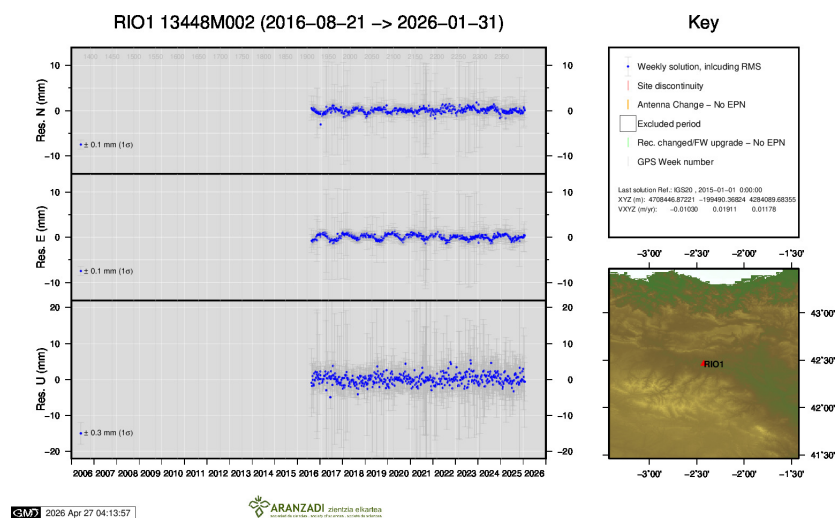
23) ORON



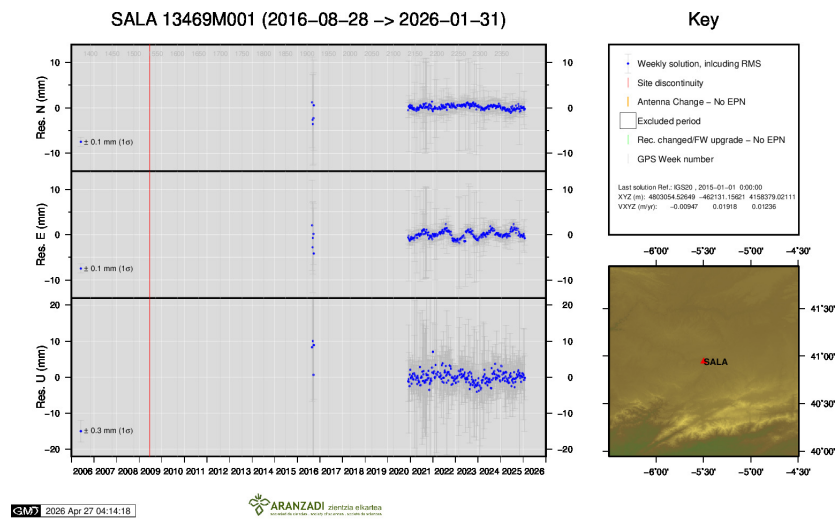
24) PAS2



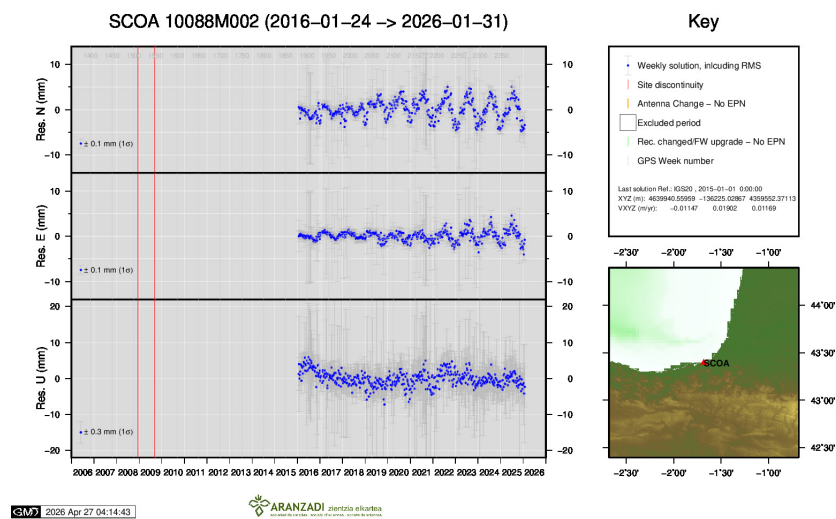
25) PASA



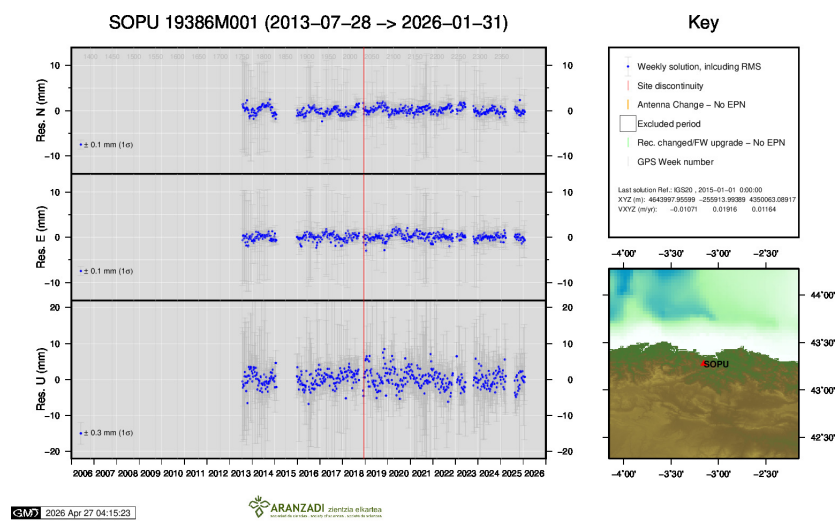
26) RIO1



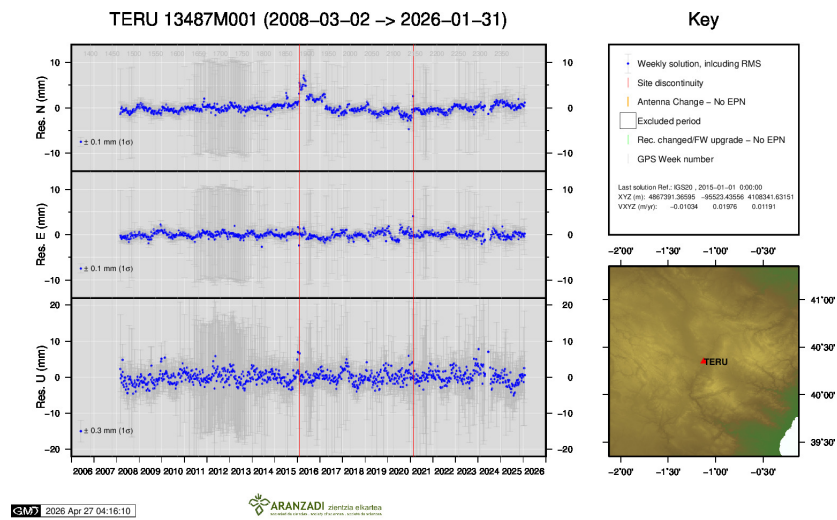
27) SALA



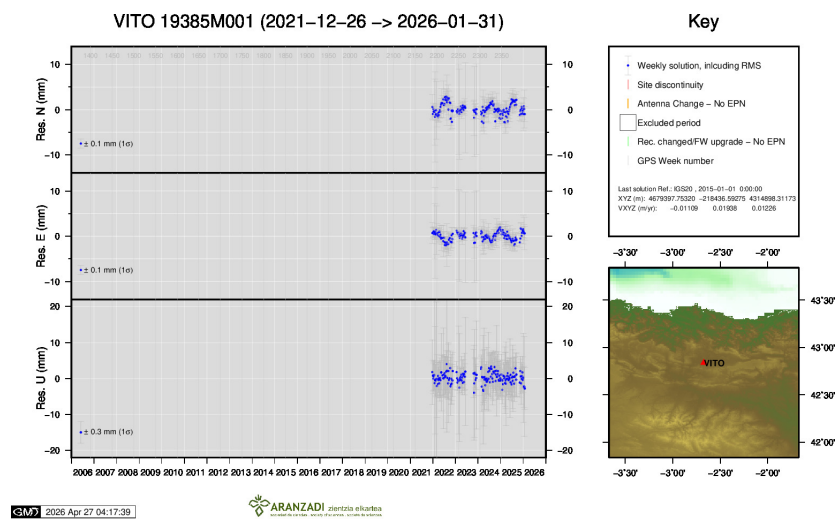
28) SCOA



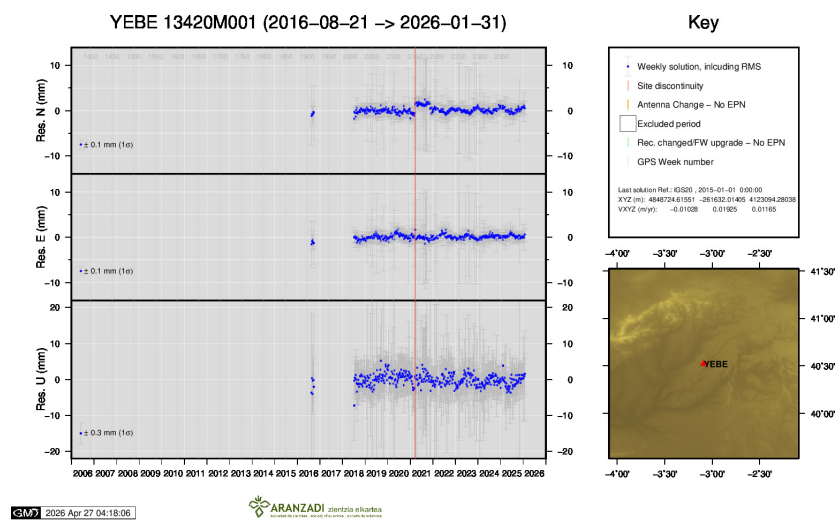
29) SOPU



30) TERU



31) VITO



32) YEBE

