

ARA-DAC Weekly Analysis Result: 2268 (GFA)

Technical Report

GPS Week: 2268 (GFA)

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

ARA-DAC details:

Contact person: J. Zurutuza

Contact mail: geodesia@aranzadi.eus

Report generated on 2023/07/20 at 12:35:27

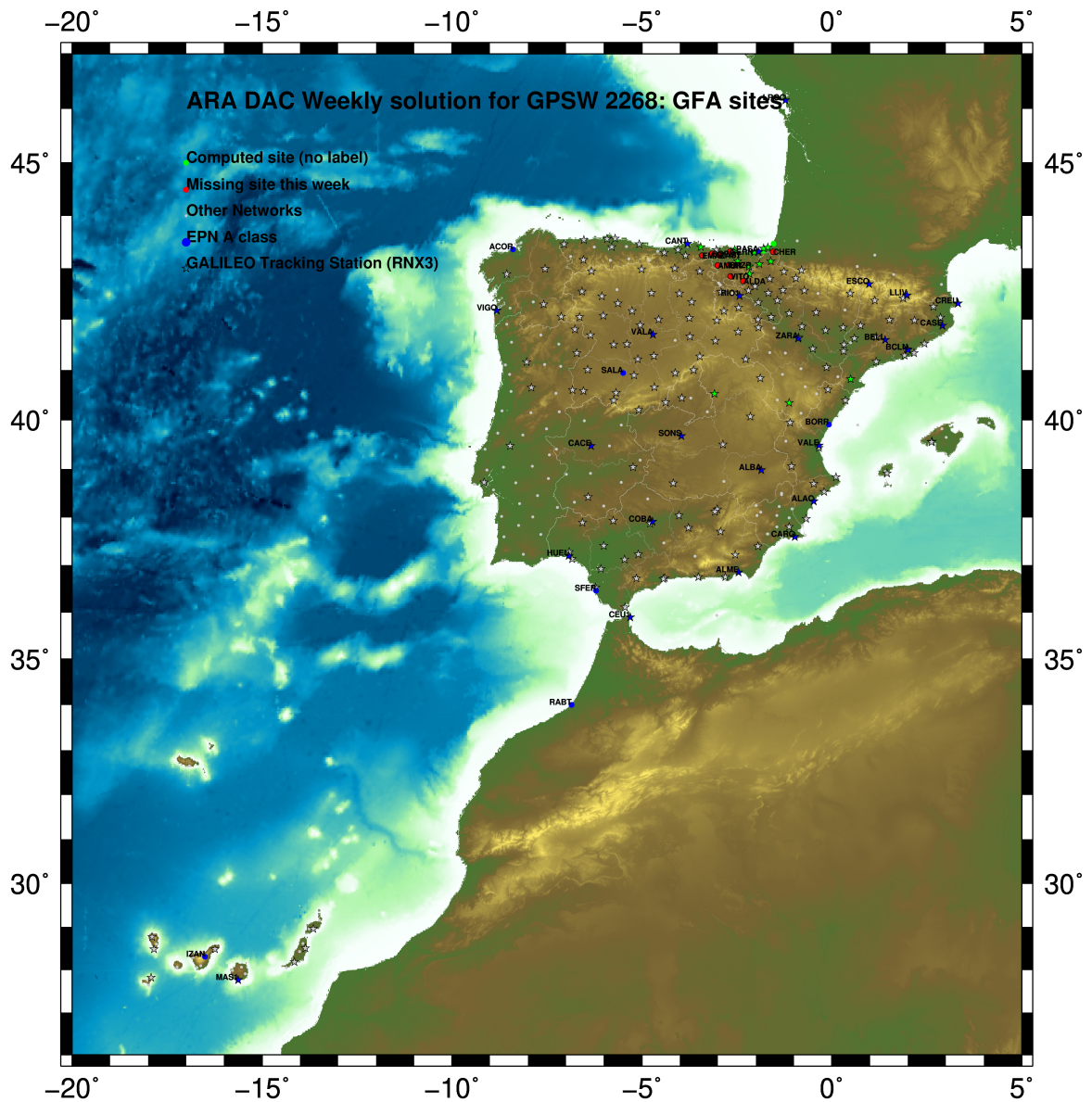


ARANZADI zientzia elkartea
sociedad de ciencias . society of sciences . société de sciences

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



2023 Jul 20 12:35:22

Fig.1: Computed Sites for GPS Week2268 (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. EPN_A class sites (CRD + VEL) IGS20 used to define the reference frame (no EPN release is available at the time this report is generated). Following the EUREF guidelines, no other individual calibrations are included in the analysis starting GPSW 2238 (IGS20).
- 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*rms of single differences, in the weekly combination of daily normal equations (ADDNEQ)
- Station coordinates: minimum constraints (MC) to EPN A class 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.

NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG	SYSTEM
4	ACDR 13434M001	4594489.80977	-678368.01148	4357065.91128	W	
50	ALSA 19419M001	4677251.14371	-176770.98313	4319079.51053	A	
100	BLAZ 10074M002	4634456.36589	-124345.55924	4365785.09009	A	
101	BIDA 00000M000	4644178.13719	-145778.90744	4354832.11622	A	
104	CACE 13447M001	4899866.74757	-544567.65008	4033769.81436	W	
116	CANT 13438M001	4625924.61456	-307096.82003	4365771.19635	W	
162	CREU 13432M001	4715420.48757	273177.46789	4271946.47606	W	
204	EBRE 13410M001	4833520.31149	41536.78743	4147461.33879	A	
180	ELGE 19353S001	4657557.70234	-202242.05694	4338991.52019	A	
257	HOND 15012M002	4640529.63386	-145676.56964	4358781.39202	A	
235	IGEL 19352S001	4645951.74384	-165575.08839	4352550.05911	A	
240	ISPS 19484M001	4640596.79019	-206964.36096	4356391.55030	A	
252	LARE 19440M001	4632832.25798	-279026.72877	4360314.06405	A	
256	LAZK 19354S001	4666098.64950	-178186.77885	4330463.30307	A	
261	LEIT 19428M001	4663521.25018	-155859.30692	4334519.52014	A	
334	ORON 19427M001	4659696.09680	-130865.32099	4338948.52139	A	
345	PAS2 19351S001	4644909.37596	-156645.65443	4353622.71388	A	
493	PASA 19351S001	4644909.37569	-156645.65458	4353622.71307	W	
553	RI01 13448M002	4708447.13080	-199490.87419	4284089.36479	W	
558	SALA 13469M001	4803054.74508	-462131.67119	4158378.69421	W	
566	SC0A 10088M002	4639940.82298	-136225.52711	4359552.06345	A	
443	TERU 13487M001	4867391.61951	-95523.95410	4108341.30028	A	
752	YEBE 13420M001	4848724.85217	-261632.53392	4123093.94731	A	
755	ZARA 13462M001	4773803.48104	-73506.58268	4215453.72123	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).

Comparison of individual solutions:

ACOR 13434M001	N	0.83	-0.76	-0.12	1.76	0.48	-0.26	-0.16	-0.38
ACOR 13434M001	E	0.72	1.06	-0.39	0.06	0.19	0.28	-0.85	-1.02
ACOR 13434M001	U	3.49	-3.58	2.22	-2.27	5.35	1.80	-3.90	-1.72
ALSA 19419M001	N	1.24	2.07	0.85	-0.65	-0.99	0.96	-0.26	-1.96
ALSA 19419M001	E	0.55	0.47	0.27	0.56	-0.01	-0.92	-0.56	0.14
ALSA 19419M001	U	2.05	-0.33	0.23	2.68	1.26	2.56	1.07	-2.92
BLAZ 10074M002	N	1.48	-1.32	-0.82	-0.19	0.88	2.68	-1.55	-0.59
BLAZ 10074M002	E	0.56	-0.66	-0.22	0.09	-0.32	-0.94	0.06	0.64
BLAZ 10074M002	U	4.79	-2.37	4.08	4.82	2.76	0.16	2.23	-8.92
BIDA 00000M000	N	1.58	-0.74	-0.36	-1.74	-0.04	2.49	1.46	-1.69
BIDA 00000M000	E	0.60	-0.79	0.17	0.21	0.76	-0.60	-0.41	-0.59
BIDA 00000M000	U	4.10	3.99	-1.75	4.99	4.59	-2.78	-1.53	-5.09
CACE 13447M001	N	1.10	-2.34	1.12	-0.34	-0.03	0.37	0.25	-0.36
CACE 13447M001	E	1.12	-0.14	2.20	0.55	-1.26	-0.06	-0.38	0.84
CACE 13447M001	U	1.52	0.46	2.38	-0.98	-0.53	-0.15	0.51	2.53
CANT 13438M001	N	0.49	-0.15	0.14	0.42	-0.27	0.71	-0.67	0.48
CANT 13438M001	E	0.81	0.20	1.32	-0.72	-0.46	-0.97	-0.04	0.68
CANT 13438M001	U	3.22	3.10	0.60	-6.00	-0.58	-2.86	2.49	-1.16
CREU 13432M001	N	1.72	2.24	0.10	0.75	-3.24	1.30	-0.05	-0.01
CREU 13432M001	E	0.67	0.07	-0.72	-0.68	-0.32	-0.04	-0.76	1.01
CREU 13432M001	U	6.46	0.40	2.42	7.27	-11.73	6.02	-3.44	2.42
EBRE 13410M001	N	0.87	0.94	-0.36	-1.08	0.37	1.34	0.45	-0.47
EBRE 13410M001	E	1.59	0.22	0.11	0.14	1.34	-0.16	-3.60	0.64
EBRE 13410M001	U	3.92	-6.98	-0.62	5.91	1.82	1.63	-0.24	1.38
ELGE 19353S001	N	0.87		-1.56	-0.54	0.62	0.54	-0.18	0.61
ELGE 19353S001	E	0.79		1.24	-0.59	0.16	-0.73	-0.28	-0.78
ELGE 19353S001	U	3.79		-2.00	0.07	7.12	-2.10	-3.57	-0.29
HOND 15012M002	N	0.85	0.42	-0.52	0.17	-1.41	1.23	0.10	-0.61
HOND 15012M002	E	0.73	-1.15	0.35	0.32	0.32	-0.67	0.46	-0.93
HOND 15012M002	U	2.09	2.56	0.20	2.80	1.12	-2.66	-1.83	0.13
IGEL 19352S001	N	0.63	0.26	-1.01	-0.78	0.56	0.51	-0.32	-0.00
IGEL 19352S001	E	0.53	-1.20	0.16	0.32	-0.15	-0.28	-0.22	-0.02
IGEL 19352S001	U	2.93	1.64	-0.46	1.60	4.49	-2.28	2.07	-4.03
ISPS 19484M001	N	0.73	0.17	0.96	-1.22	-0.12	0.76	-0.28	-0.23
ISPS 19484M001	E	0.82	-0.48	1.14	0.31	-0.85	-0.90	-0.31	-0.89
ISPS 19484M001	U	3.00	3.40	3.57	-4.28	1.20	-0.86	0.27	-3.02
LARE 19440M001	N	1.01	-0.26	-1.12	1.44	-0.01	0.31	1.59	-0.22
LARE 19440M001	E	0.67	-0.32	1.03	-0.63	0.01	-0.46	-0.59	0.76
LARE 19440M001	U	4.10	4.06	3.25	-7.12	-2.24	-2.00	-2.54	-2.75
LAZX 19354S001	N	1.13	0.99	-1.22	-0.68	0.87	1.04	1.01	-1.35
LAZX 19354S001	E	0.63	-0.61	0.71	1.02	-0.04	-0.48	-0.05	-0.48
LAZX 19354S001	U	3.05	1.51	-4.93	5.00	0.14	-0.03	1.08	1.77
LEIT 19428M001	N	1.39	-0.02	-0.26	-1.23	-1.57	1.87	1.98	0.19
LEIT 19428M001	E	0.84	-0.23	-0.46	1.26	-0.55	-1.13	0.79	0.47
LEIT 19428M001	U	1.70	0.24	0.61	3.47	-0.20	-0.38	-2.15	0.40
ORON 19427M001	N	1.31	-0.67	-1.32	-0.97	0.16	2.67	-0.19	-0.21
ORON 19427M001	E	0.78	-0.23	-0.51	0.78	0.76	-0.88	0.12	-1.17
ORON 19427M001	U	2.80	3.42	-0.84	4.25	0.53	-3.58	-1.75	0.50
PAS2 19351S001	N	1.18				-0.86	1.77	-0.37	-0.40
PAS2 19351S001	E	0.63				-0.15	0.27	-0.82	-0.65
PAS2 19351S001	U	2.64				2.37	-2.11	1.60	-2.87
PASA 19351S001	N	1.01	-0.08	0.35	-1.46	-0.81	1.74	-0.02	-0.38
PASA 19351S001	E	0.51	-1.09	0.02	0.30	-0.04	0.06	-0.23	-0.46
PASA 19351S001	U	2.01	-0.49	-0.84	1.57	3.59	-0.78	1.60	-2.18
RIO1 13448M002	N	1.14	0.14	0.89	-1.90	-0.13	0.82	1.49	-0.74
RIO1 13448M002	E	0.59	-0.43	-0.07	0.48	1.04	-0.27	-0.71	-0.09
RIO1 13448M002	U	3.62	-1.45	0.27	-1.70	-4.46	3.58	5.99	2.19
SALA 13469M001	N	1.04	2.22	0.78	-0.54	0.36	-0.52	-0.23	-0.46
SALA 13469M001	E	0.68	-0.96	0.62	0.98	-0.52	0.18	-0.17	0.40
SALA 13469M001	U	3.53	4.85	-0.66	-4.65	2.56	2.45	1.53	-3.78
SCDA 10088M002	N	1.88	1.69	1.03	-0.03	-1.76	2.49	-1.65	-2.31
SCDA 10088M002	E	1.43	-0.17	1.95	-0.68	1.45	-1.42	-0.59	-1.89
SCDA 10088M002	U	2.98	1.25	0.95	5.62	1.63	-2.68	-2.35	-2.01
TERU 13487M001	N	1.61	1.27	-1.53	-1.07	-2.22	2.31	0.34	-0.25
TERU 13487M001	E	0.77	0.49	-0.20	-1.31	-0.10	-1.10	-0.52	0.25
TERU 13487M001	U	2.90	-4.68	-2.11	1.94	0.64	4.29	0.53	1.03
YEBE 13420M001	N	0.50	0.16	0.39	-0.50	0.85	0.50	-0.25	0.21
YEBE 13420M001	E	0.38	0.04	0.81	-0.14	-0.33	0.31	-0.07	-0.02
YEBE 13420M001	U	3.38	-4.08	5.71	-2.83	3.16	0.27	-1.18	0.28
ZARA 13462M001	N	0.48	-0.01	0.50	0.58	-0.24	-0.09	0.39	0.76
ZARA 13462M001	E	0.53	0.20	0.37	-0.64	0.64	-0.52	-0.62	0.07
ZARA 13462M001	U	2.99	2.42	3.15	1.36	1.63	2.00	-3.79	3.86

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		
1	ACOR 13434M001	I W	-2.47	1.86	2.21
2	ALAC 13433M001	I W	-1.88	1.26	4.19
3	ALBA 13452M001	I W	4.09	-1.82	-4.18
4	ALME 13437M001	I W	-1.93	-0.30	6.39
5	BCLN 13412M001	I W	2.03	-1.91	1.96
6	BELL 13431M001	I W	-0.05	-0.16	1.97
7	BORR 13480M001	I W	-0.83	0.57	0.30
8	BRST 10004M004	I W	-2.59	0.37	0.91
9	CACE 13447M001	I W	0.48	2.30	3.49
10	CANT 13438M001	I W	-3.76	3.50	-8.21
11	CARG 19412M001	I W	0.49	2.13	-4.15
12	CASE 13494M001	I W	-3.89	-0.64	-4.05
13	CEU1 13449M002	I W	0.65	-1.27	-2.60
14	COBA 13453M001	I W	2.57	0.51	-5.97
15	CREU 13432M001	I W	-1.63	0.30	1.21
17	ESCO 13435M001	I W	-3.25	0.60	1.13
18	HUEL 13451M001	I W	10.12	-8.10	11.25
20	IZAN 31309M002	I W	1.55	3.84	-0.06
21	LLIV 13436M001	I W	1.02	0.98	1.99
23	LROC 10023M001	I W	0.96	1.35	8.43
25	MAS1 31303M002	I W	0.65	-0.59	-1.77
26	PASA 19351S001	I W	0.86	0.78	-5.84
27	RABT 35001M002	I W	0.15	-0.24	-10.54
28	RID1 13448M002	I W	-1.80	-1.92	0.15
29	SALA 13469M001	I W	1.23	0.42	0.13
31	SFER 13402M004	I W	-3.49	-10.12	0.90
32	SONS 13446M001	I W	-0.35	3.09	-0.89
33	VALA 13463M002	I W	1.28	-0.35	2.29
34	VALE 13439M001	I W	-4.53	2.16	-7.72
35	VIGO 13450M001	I W	4.19	1.43	2.53
38	ZARA 13462M001	I W	-1.19	-0.27	-0.17
39	ZIMM 14001M004	I W	-0.59	-1.48	2.88
RMS / COMPONENT			2.88	2.82	4.68
IQR			3.03	2.01	5.57
MEAN			-0.06	-0.05	-0.06
MEDIAN			0.05	0.39	0.60
MIN			-4.53	-10.12	-10.54
MAX			10.12	3.84	11.25
OVERALL RMS/IQR/MAX(3D)			3.57	3.49	17.16
					HUEL 13451M001 #SUM
ALL	RMS / COMPONENT		2.88	2.82	4.68
ALL	IQR		3.03	2.01	5.57
ALL	MEAN		-0.06	-0.05	-0.06
ALL	MEDIAN		0.05	0.39	0.60
ALL	MIN		-4.53	-10.12	-10.54
ALL	MAX		10.12	3.84	11.25
ALL	OVERALL RMS/IQR/MAX(3D)		3.57	3.49	17.16
					HUEL 13451M001 #SUM_ALL

NUMBER OF PARAMETERS : 3
NUMBER OF STATIONS : 32
NUMBER OF COORDINATES : 96
RMS OF TRANSFORMATION : 3.57 MM

PARAMETERS:

TRANSLATION IN X : -0.00 +- 0.63 MM
TRANSLATION IN Y : 0.00 +- 0.63 MM
TRANSLATION IN Z : -0.00 +- 0.63 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          16600297
NUMBER OF UNKNOWN               174159
NUMBER OF DEGREES OF FREEDOM    16426138
PHASE MEASUREMENTS SIGMA        0.00100
SAMPLING INTERVAL (SECONDS)     180
VARIANCE FACTOR                  2.263386289193154
```

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 23:176:00000 23:182:86370 LEICA GR50 -----
ALSA A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
BIAZ A 1 P 23:176:00000 23:182:86370 SPECTRA SP90M -----
BIDA A 1 P 23:176:00000 23:182:86370 LEICA GR10 -----
CACE A 1 P 23:176:00000 23:182:86370 TRIMBLE NETR9 -----
CANT A 1 P 23:176:00000 23:182:86370 LEICA GR10 -----
CREU A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
EBRE A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
ELGE A 1 P 23:177:00000 23:182:86370 LEICA GR30 -----
HOND A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
IGEL A 1 P 23:176:00000 23:182:86370 LEICA GR30 -----
ISPS A 1 P 23:176:00000 23:182:86370 TRIMBLE NETR9 -----
LARE A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
LAZK A 1 P 23:176:00000 23:182:86370 LEICA GR30 -----
LEIT A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
ORON A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
PAS2 A 1 P 23:179:00000 23:182:86370 STONEX SC2200 -----
PASA A 1 P 23:176:00000 23:182:86370 LEICA GR30 -----
RI01 A 1 P 23:176:00000 23:182:86370 LEICA GR25 -----
SALA A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
SCDA A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
TERU A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
YEBE A 1 P 23:176:00000 23:182:86370 LEICA GR50 -----
ZARA A 1 P 23:176:00000 23:182:86370 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 23:176:00000 23:182:86370 LEIAT504 LEIS -----
ALSA A 1 P 23:176:00000 23:182:86370 LEIAR10 NONE -----
BIAZ A 1 P 23:176:00000 23:182:86370 LEIAR25 LEIT -----
BIDA A 1 P 23:176:00000 23:182:86370 LEIAS10 NONE -----
CACE A 1 P 23:176:00000 23:182:86370 TRM29659.00 NONE -----
CANT A 1 P 23:176:00000 23:182:86370 LEIAR25_R4 LEIT -----
CREU A 1 P 23:176:00000 23:182:86370 LEIAR25_R4 NONE -----
EBRE A 1 P 23:176:00000 23:182:86370 LEIAR25_R4 NONE -----
ELGE A 1 P 23:177:00000 23:182:86370 LEIAR25_R4 LEIT -----
HOND A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
IGEL A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
ISPS A 1 P 23:176:00000 23:182:86370 TRM59900.00 SCIS -----
LARE A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
LAZK A 1 P 23:176:00000 23:182:86370 LEIAR25_R4 LEIT -----
LEIT A 1 P 23:176:00000 23:182:86370 LEIAR10 NONE -----
ORON A 1 P 23:176:00000 23:182:86370 LEIAR10 NONE -----
PAS2 A 1 P 23:179:00000 23:182:86370 LEIAR20 LEIM -----
PASA A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
RI01 A 1 P 23:176:00000 23:182:86370 LEIAR25_R4 LEIT -----
SALA A 1 P 23:176:00000 23:182:86370 LEIAR25 NONE -----
SCDA A 1 P 23:176:00000 23:182:86370 TRM55971.00 NONE -----
TERU A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
YEBE A 1 P 23:176:00000 23:182:86370 LEIAR20 LEIM -----
ZARA A 1 P 23:176:00000 23:182:86370 TRM29659.00 NONE -----
```

7.3 Eccentricities

```
*
*SITE PT SOLN T DATA_START__ DATA_END_____ AXE ARP->BENCHMARK(M)-----
ACOR A 1 P 23:176:00000 23:182:86370 UNE 3.0460 0.0000 0.0000
ALSA A 1 P 23:176:00000 23:182:86370 UNE 0.0000 0.0000 0.0000
BIAZ A 1 P 23:176:00000 23:182:86370 UNE 0.0000 0.0000 0.0000
BIDA A 1 P 23:176:00000 23:182:86370 UNE 0.0000 0.0000 0.0000
CACE A 1 P 23:176:00000 23:182:86370 UNE 0.0600 0.0000 0.0000
CANT A 1 P 23:176:00000 23:182:86370 UNE 3.0490 0.0000 0.0000
CREU A 1 P 23:176:00000 23:182:86370 UNE 0.0770 0.0000 0.0000
```

EBRE	A	1	P	23:176:00000	23:182:86370	UNE	0.0770	0.0000	0.0000
ELGE	A	1	P	23:177:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
HOND	A	1	P	23:176:00000	23:182:86370	UNE	0.0771	0.0000	0.0000
IGEL	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
ISPS	A	1	P	23:176:00000	23:182:86370	UNE	0.0350	0.0000	0.0000
LARE	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
LAZK	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
LEIT	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
ORON	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
PAS2	A	1	P	23:179:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
PASA	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
RI01	A	1	P	23:176:00000	23:182:86370	UNE	0.0606	0.0000	0.0000
SALA	A	1	P	23:176:00000	23:182:86370	UNE	0.0600	0.0000	0.0000
SCDA	A	1	P	23:176:00000	23:182:86370	UNE	0.0000	0.0000	0.0000
TERU	A	1	P	23:176:00000	23:182:86370	UNE	0.0600	0.0000	0.0000
YEBE	A	1	P	23:176:00000	23:182:86370	UNE	0.0600	0.0000	0.0000
ZARA	A	1	P	23:176:00000	23:182:86370	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:

2023-07-16 03:43 UTC	ALSA1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 07:01 UTC	ALSA1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 10:09 UTC	ALSA1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 12:41 UTC	ALSA1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 15:15 UTC	ALSA1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 17:47 UTC	ALSA1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 20:17 UTC	ALSA1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: alsa00esp_20230530.log
2023-07-16 03:43 UTC	BRZR1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 07:01 UTC	BRZR1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 10:09 UTC	BRZR1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 12:41 UTC	BRZR1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 15:15 UTC	BRZR1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 17:47 UTC	BRZR1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 20:17 UTC	BRZR1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: brzr00esp_20220408.log
2023-07-16 03:43 UTC	GERN1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 07:01 UTC	GERN1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 10:09 UTC	GERN1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 12:41 UTC	GERN1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 15:15 UTC	GERN1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 17:47 UTC	GERN1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 20:17 UTC	GERN1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: gern00esp_20220408.log
2023-07-16 03:43 UTC	ISPS1760.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 07:01 UTC	ISPS1770.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 10:09 UTC	ISPS1780.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 12:41 UTC	ISPS1790.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 15:15 UTC	ISPS1800.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 17:47 UTC	ISPS1810.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 20:17 UTC	ISPS1820.230	RECEIVER	FIRM. VERS.		5.30	->	5.22	(source: isps00esp_20220907.log
2023-07-16 03:43 UTC	LEIT1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 07:01 UTC	LEIT1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 10:09 UTC	LEIT1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 12:41 UTC	LEIT1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 15:15 UTC	LEIT1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 17:47 UTC	LEIT1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 20:17 UTC	LEIT1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: leit00esp_20230530.log
2023-07-16 03:43 UTC	ORON1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 07:01 UTC	ORON1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 10:09 UTC	ORON1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 12:41 UTC	ORON1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 15:15 UTC	ORON1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 17:47 UTC	ORON1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 20:17 UTC	ORON1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.61	(source: oron00esp_20230530.log
2023-07-16 03:43 UTC	SOPU1760.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 07:01 UTC	SOPU1770.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 10:09 UTC	SOPU1780.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 12:41 UTC	SOPU1790.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 15:15 UTC	SOPU1800.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 17:47 UTC	SOPU1810.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log
2023-07-16 20:17 UTC	SOPU1820.230	RECEIVER	FIRM. VERS.		4.61/7.811	->	4.51/7.710	(source: sopus00esp_20220408.log

9 References

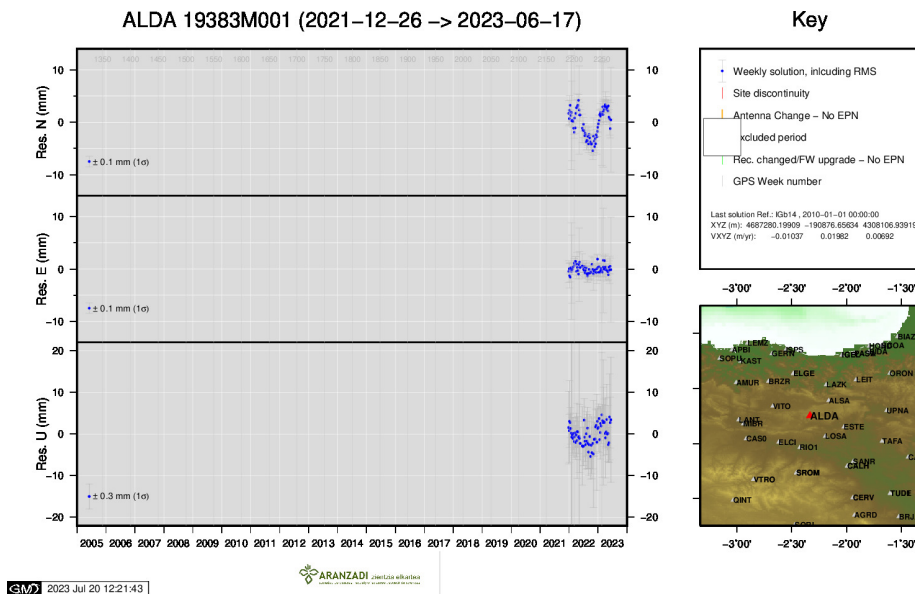
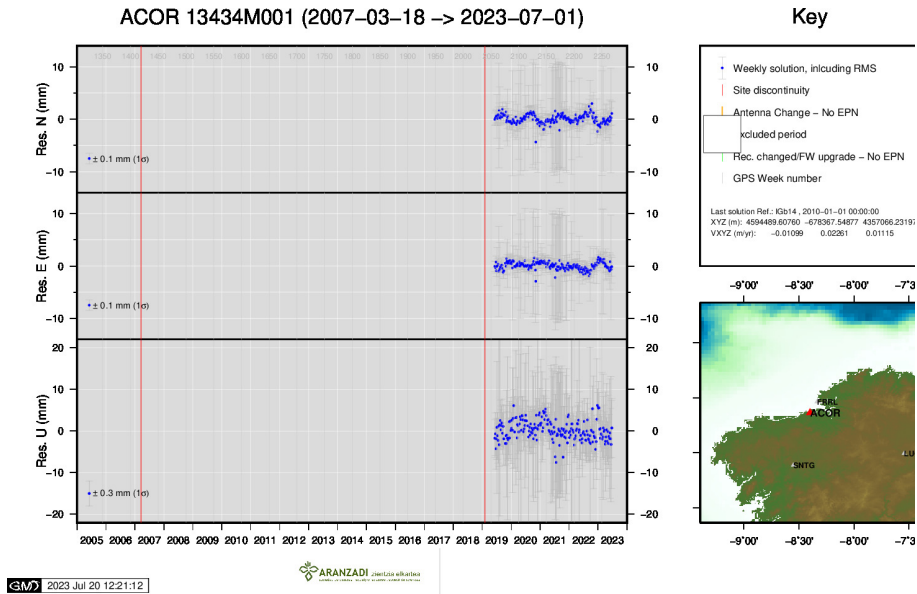
C. Boucher and Z. Altamimi (2011): *Specifications for reference frame fixing in the analysis of a EUREF GPS campaign*. etrs89.ensg.ign.fr/memo-V8.pdf

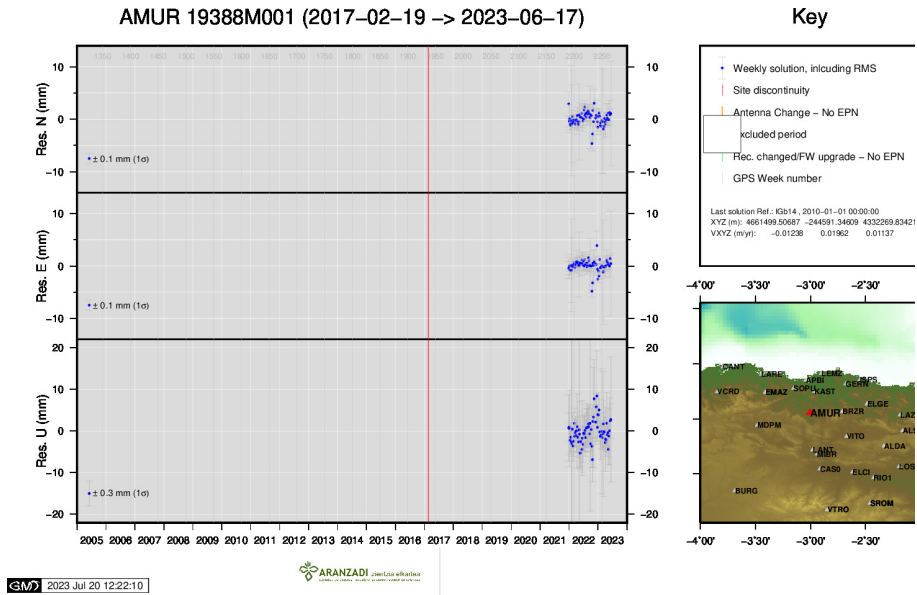
EPN Coordination Group and the EPN Central Bureau (2018): *Guidelines for the EPN Analysis Centres*. epncb.oma.be/documentation/guidelines/guidelines_analysis_centres.pdf

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

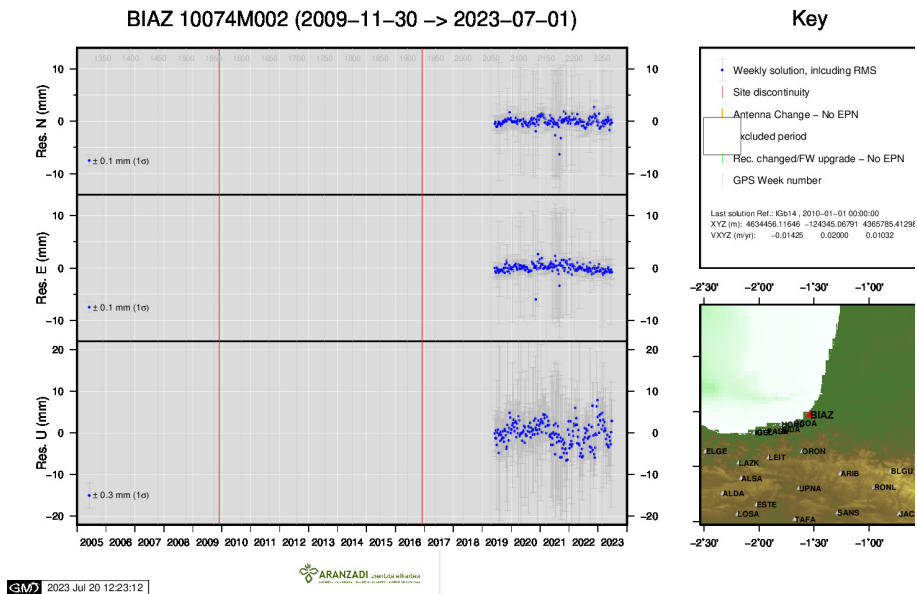
10 Cumulative Time Series

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

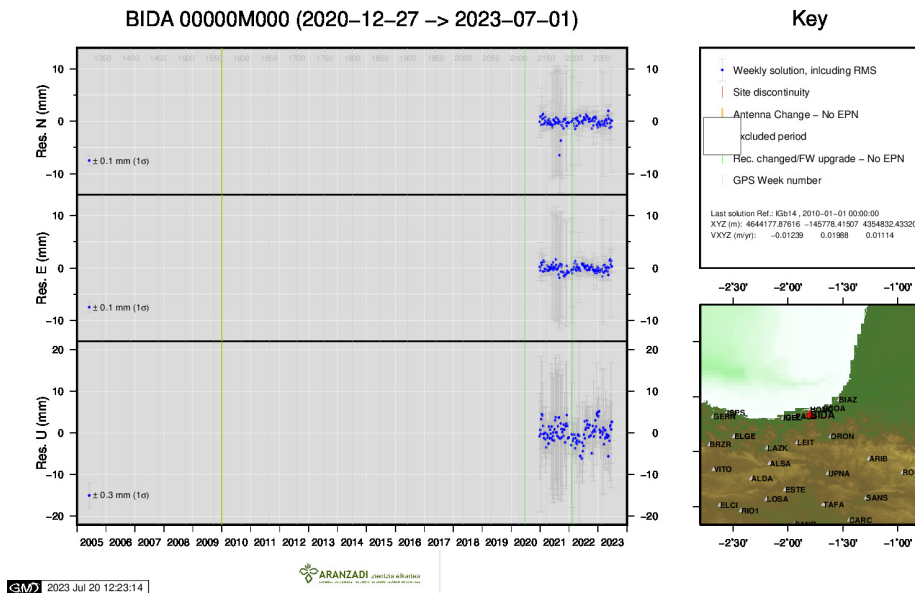




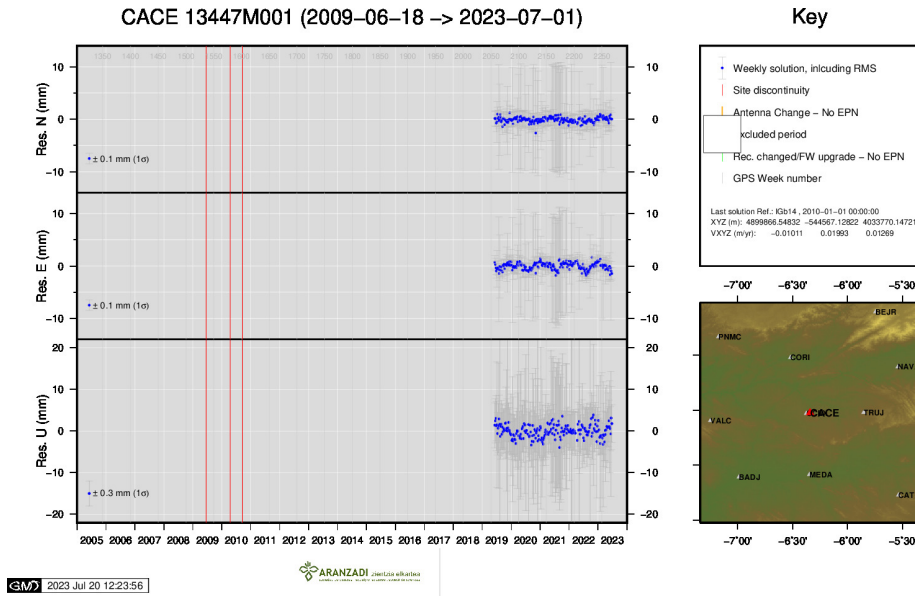
3) AMUR



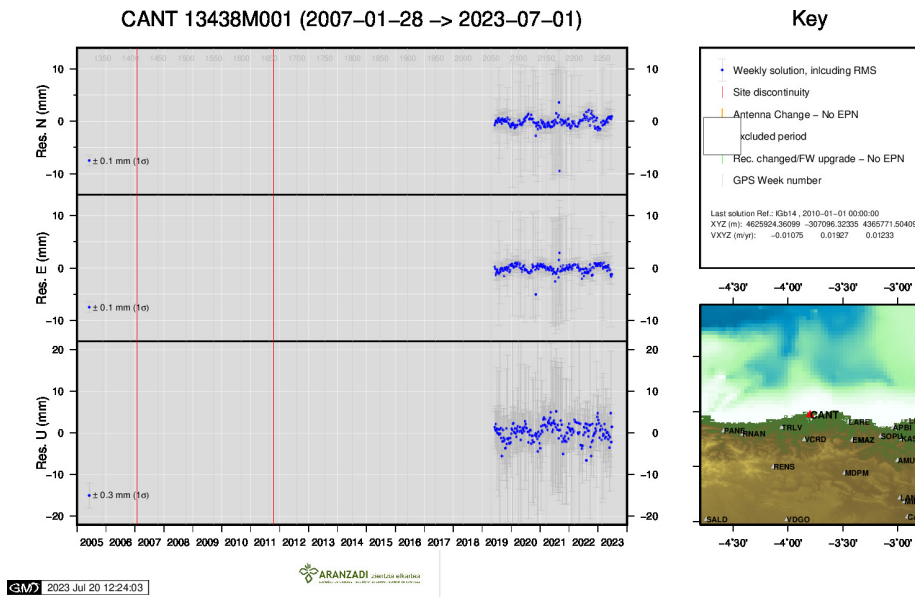
4) BIAZ



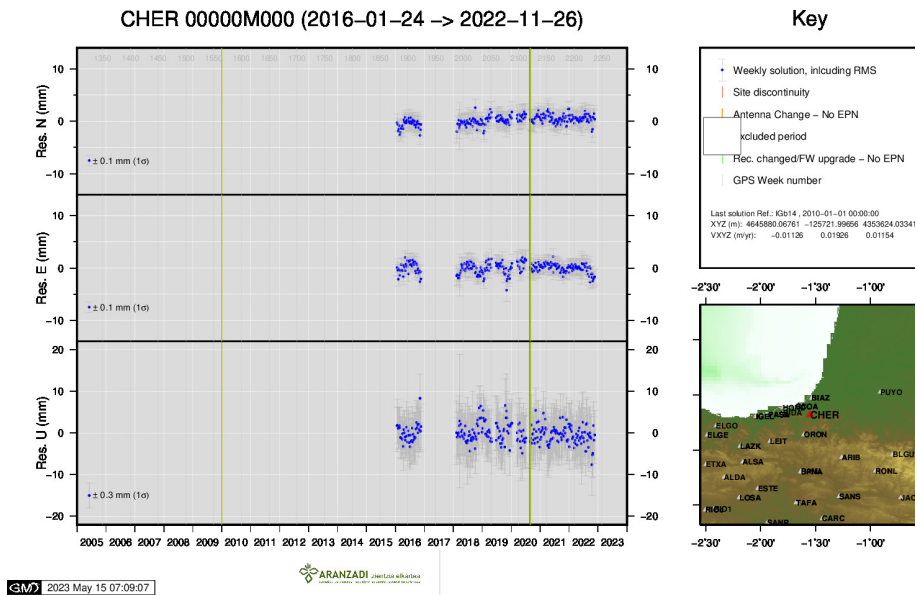
5) BIDA



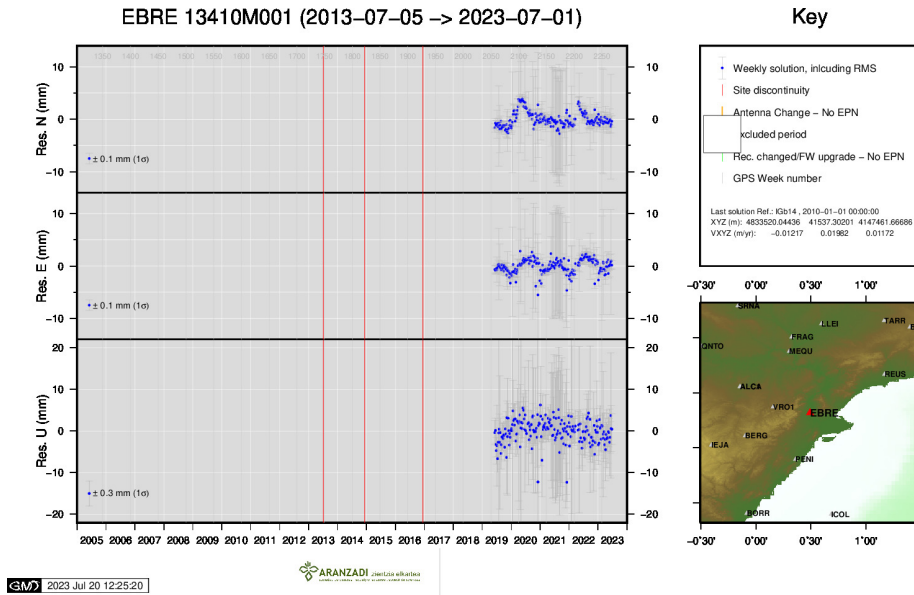
6) CACE



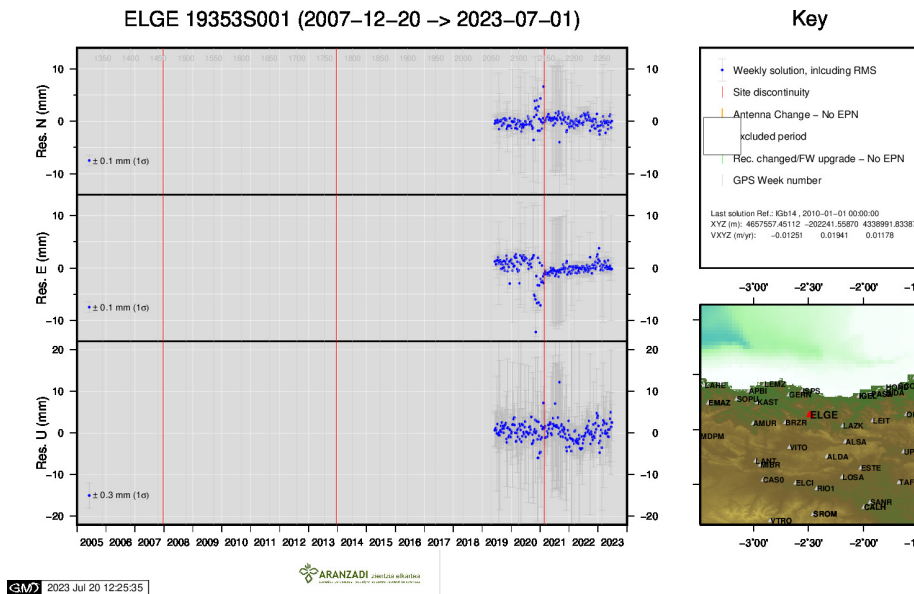
7) CANT



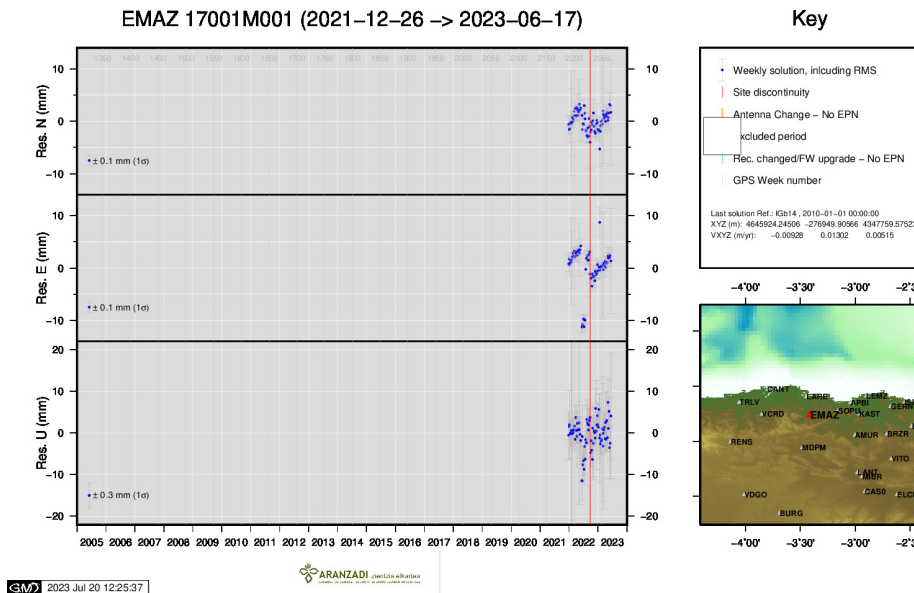
8) CHER



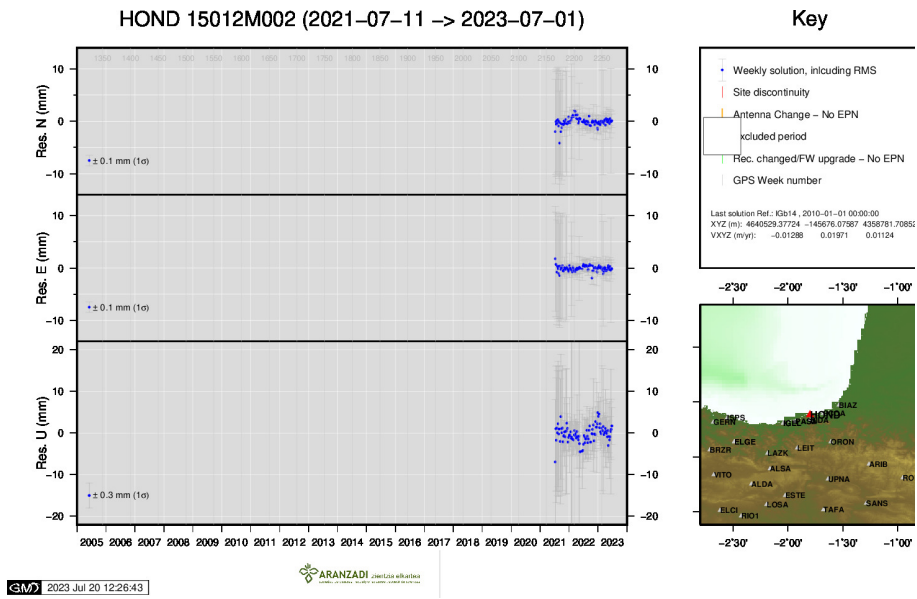
9) EBRE



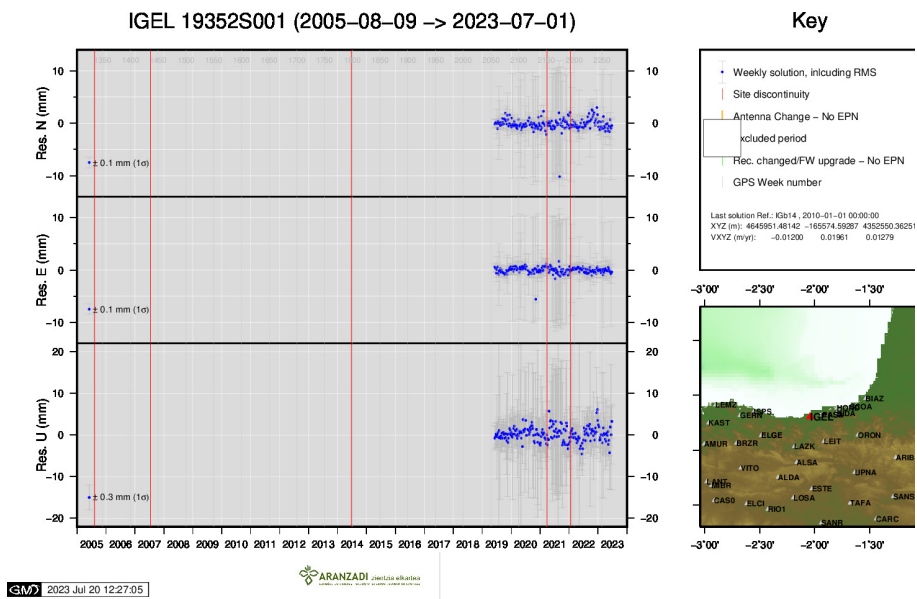
10) ELGE



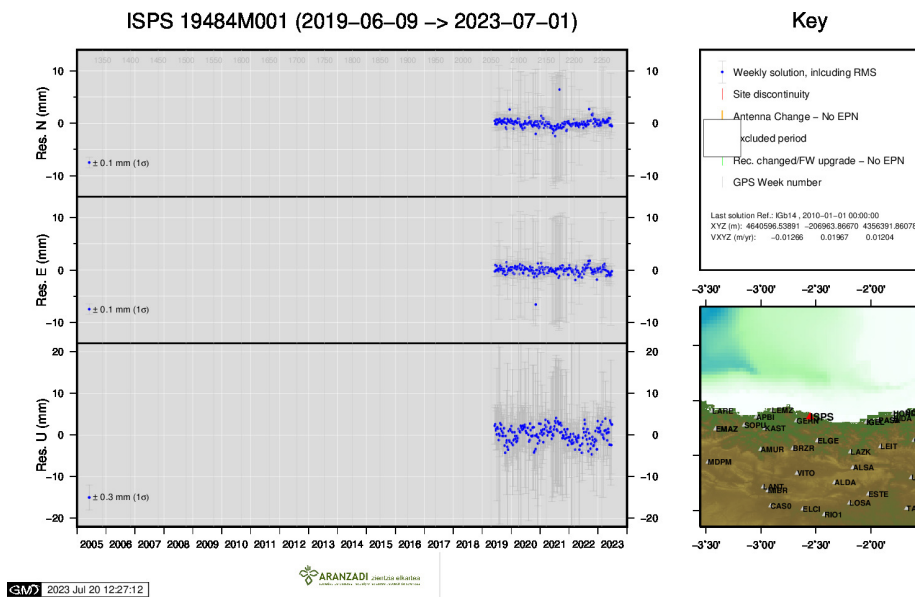
11) EMAZ



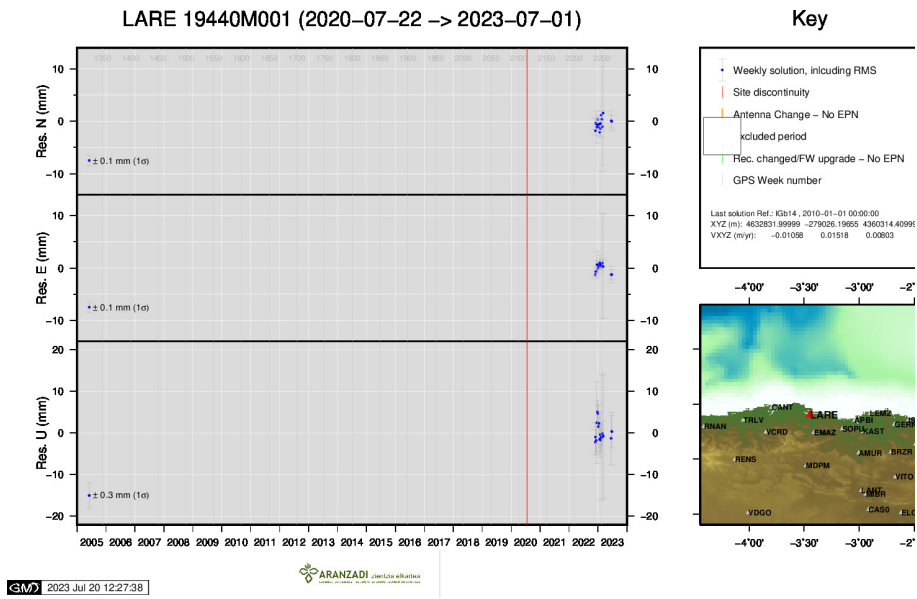
12) HOND



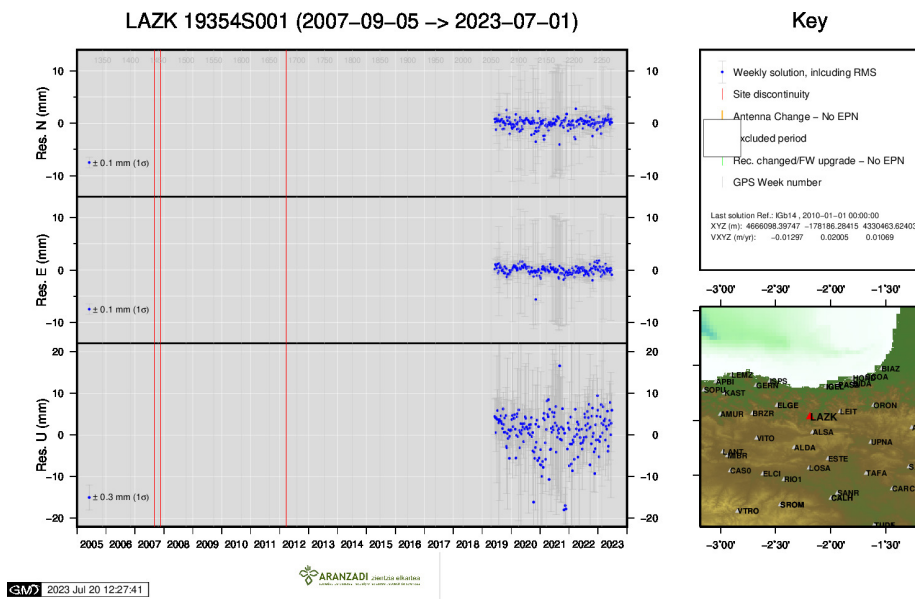
13) IGEL



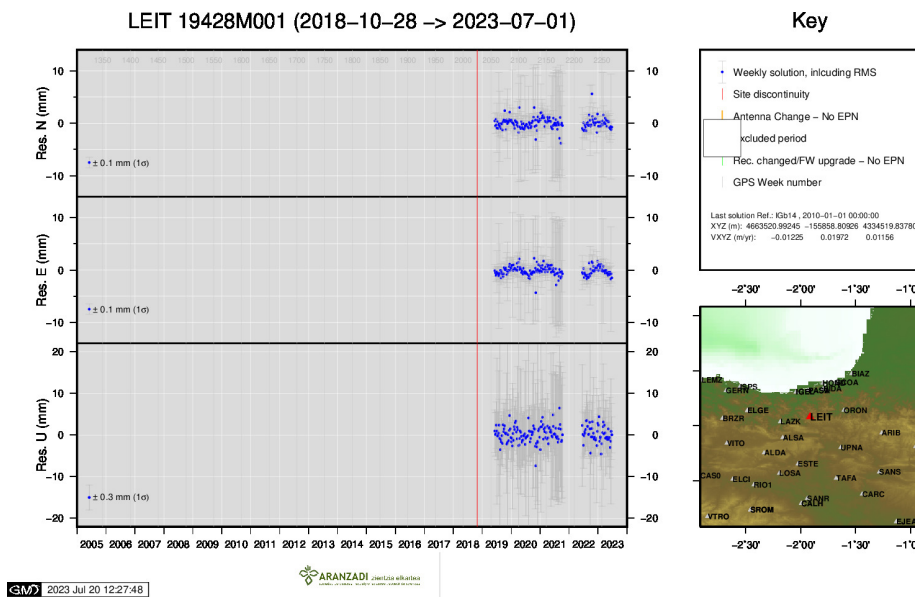
14) ISPS



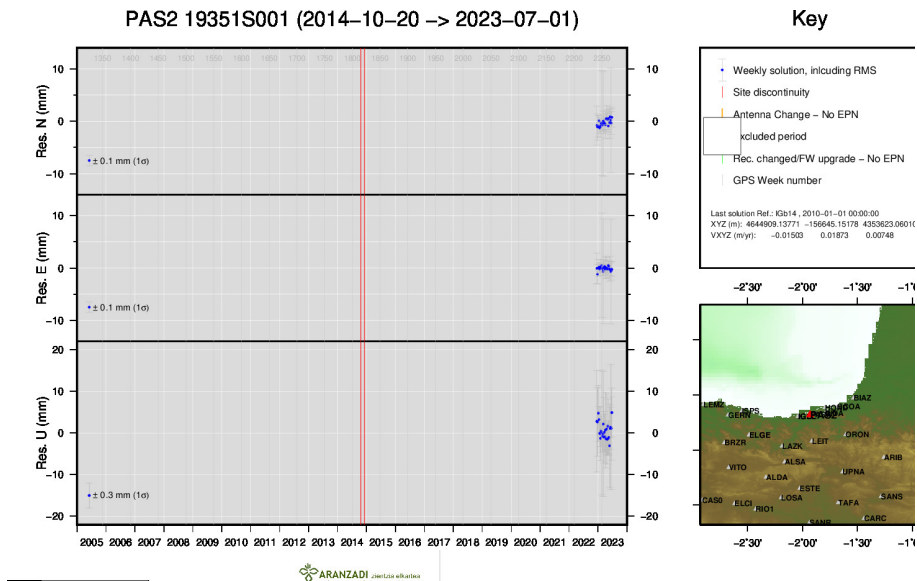
15) LARE



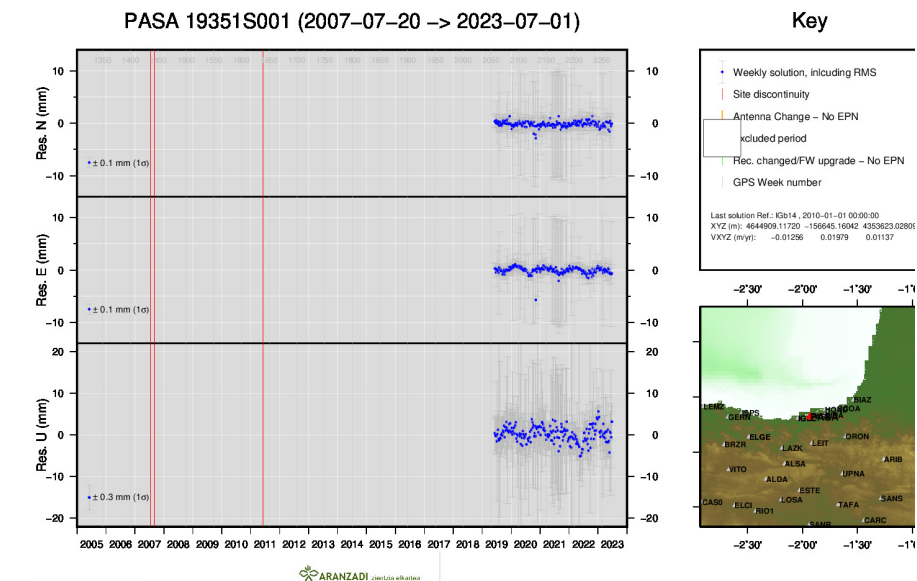
16) LAZK



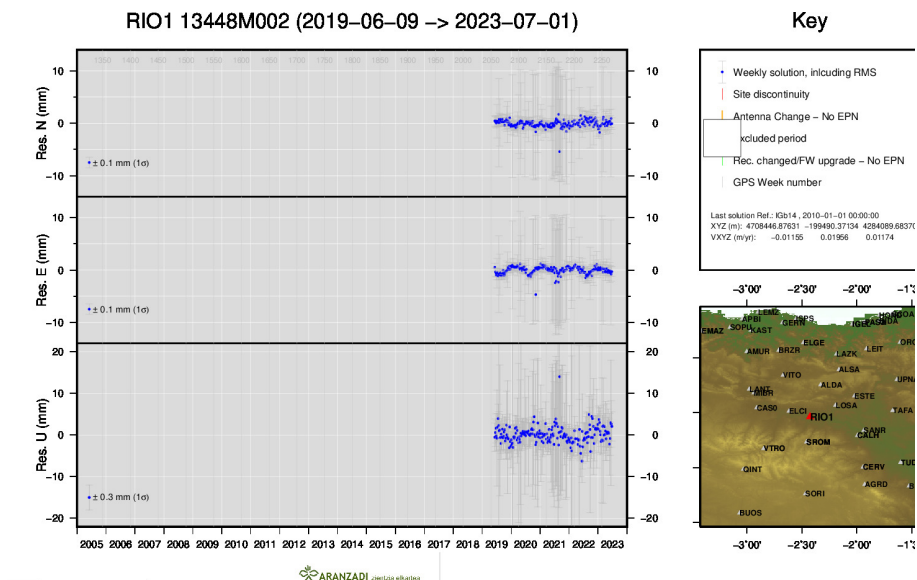
17) LEIT



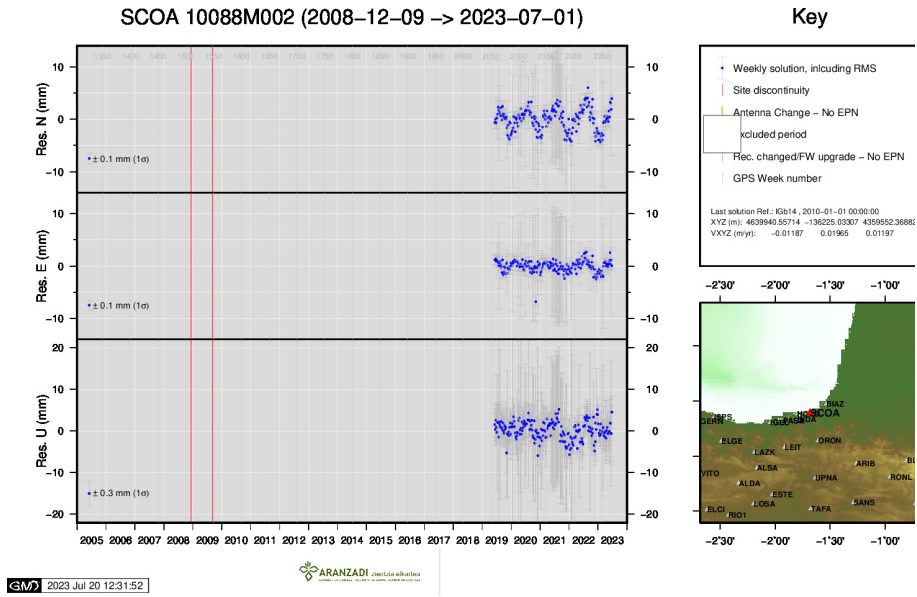
18) PAS2



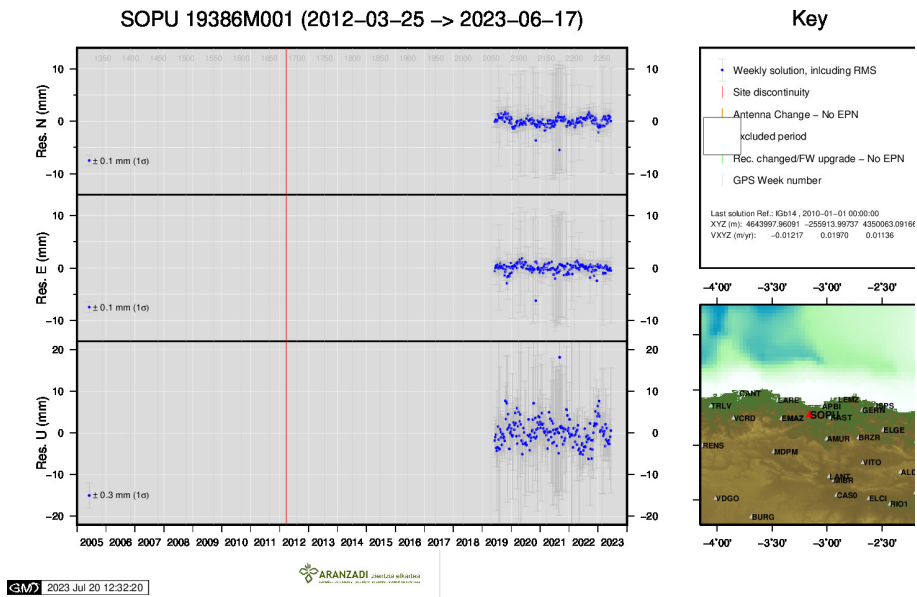
19) PASA



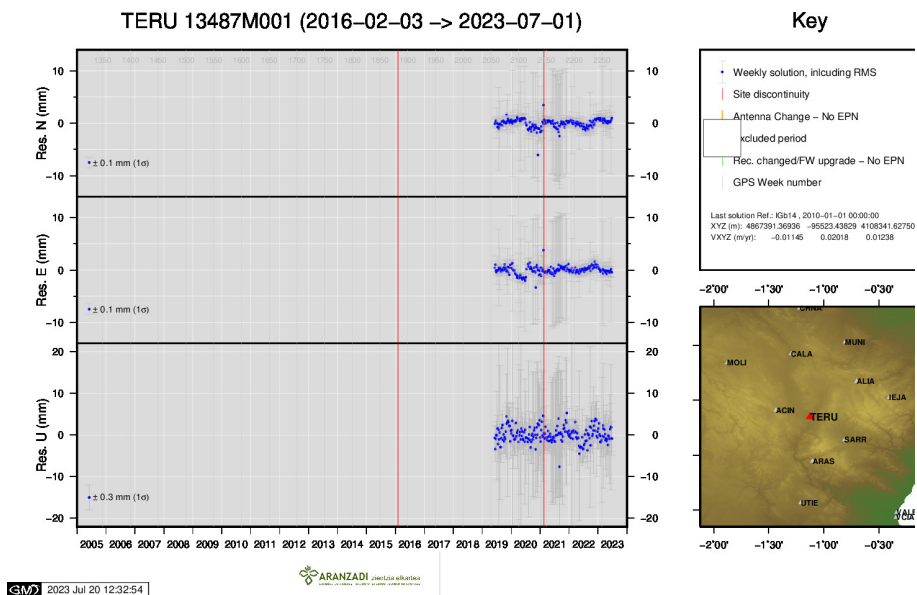
20) RIO1



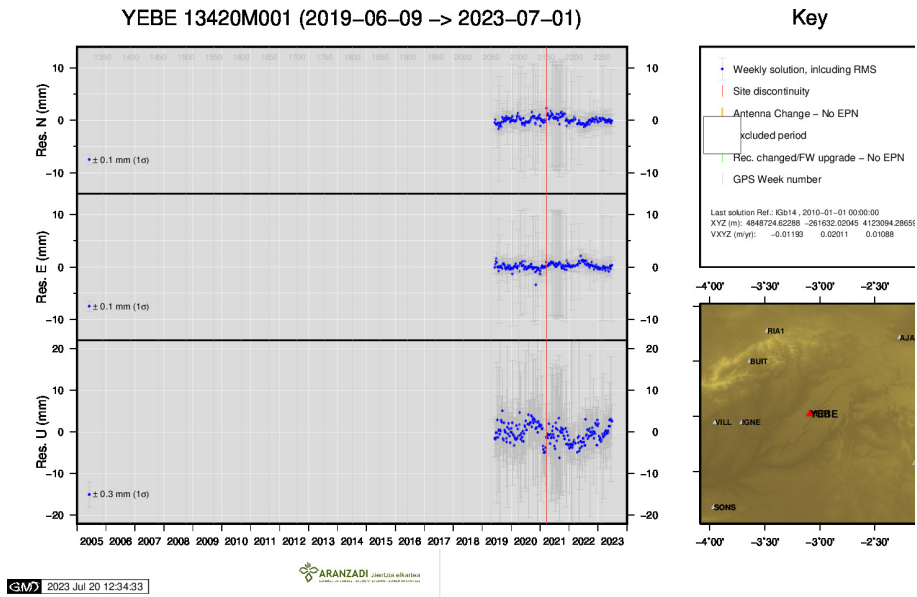
21) SCOA



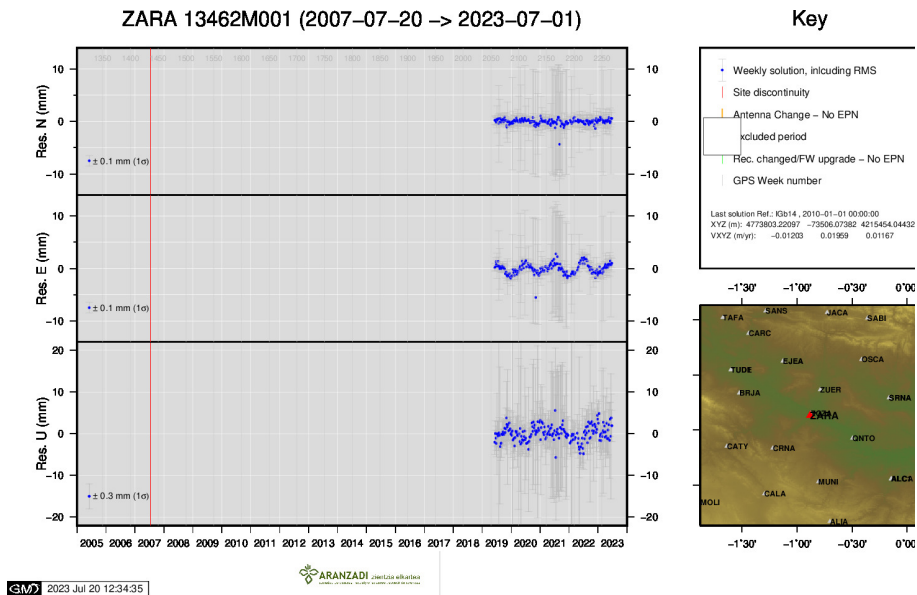
22) SOPU



23) TERU



24) YEBE



25) ZARA