

ARA-DAC Weekly Analysis Result: 2008 (GFA)

Technical Report

GPS Week: 2008 (GFA)

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

ARA-DAC details:

Contact person: J. Zurutuza

Contact mail: geodesia@aranzadi.eus

Report generated on 2018/07/23 at 15:51:13



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 also used if available from GPSW 1986 on)
- 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.I14 file and individual calibrations from EPNC_14.ATX. EPN_A class sites (CRD + VEL) IGS14 used to define the reference frame (from GPSW 1934). If individual calibrations, other from these, are available, they are also included in the analysis.
- Troposphere:
 - 3 deg elev. cutoff; elevation dependent weighting
 - VMF1 mapping function. ZPD parameters are estimated using the VMF1 mapping function.
 - CHENHER gradient estimation model.
- Ionosphere: no a priori model, ionospheric effect almost removed by iono free combination.
- Ocean Loading: FES2004 (Scherneck).
- Atmosph. Loading: computed from a global grid using the GRDS1S2 program of Bernese 5.2.

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. DE405 planetary ephemeris and JGM3 Earth geopotential model is used.
- Tidal displacements: according to IERS2010 Conventions. Atmospheric loading corrections used.

- Ambiguity: an advanced ambiguity resolution (AR) scheme is included:
 - Code-Based Wideline (WL) AR for baselines shorter than 6000km, a Melbourne-Wuebbena wide-lane and narrow-lane AR is computed.
 - Phase-Based Wideline (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 are the ones used in the Minimal Constraints condition.

5.1 IGS14

The Reference Frame considered in this section is IGS14, release C1980.

ARA LAC 2008 WEEK FINAL COMBINATION: PRECISE ORBITS					23-JUL-18 11:29
LOCAL GEODETIC DATUM: IGS14					EPOCH: 2018-07-04 12:00:00
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG
1	ACOR 13434M001	4594489.56718	-678367.46814	4357066.27464	W
33	ALDA 19383M001	4687280.16744	-190876.58367	4308106.94831	A
42	ALSA 19419M001	4677250.84489	-176770.41487	4319079.86588	A
44	AMUR 19388M001	4661499.45550	-244591.27719	4332269.87478	A
77	BLAZ 10074M002	4634456.06073	-124344.99507	4365785.44876	A
78	BIDA 00000M000	4644177.83025	-145778.34093	4354832.47249	A
88	BRZR 19387M001	4662220.99958	-220769.91925	4333309.43021	A
9	CACE 13447M001	4899866.50844	-544567.05498	4033770.19216	W
10	CANT 13438M001	4625924.32052	-307096.25218	4365771.54589	W
112	CHER 00000M000	4645880.32836	-125721.94508	4353624.36199	A
15	CREU 13432M001	4715420.14379	273178.04131	4271946.83497	W
16	EBRE 13410M001	4833520.00167	41537.37209	4147461.70692	W
131	ELGE 19353S001	4657557.41154	-202241.49275	4338991.85925	A
133	EMAZ 17001M001	4645924.21410	-276949.88395	4347759.56880	A
153	GERN 19389M001	4642811.32026	-217222.95363	4353278.87633	A
173	IGEL 19352S001	4645951.43720	-165574.52188	4352550.40823	A
178	ISPS 19484M001	4640596.48915	-206963.79472	4356391.90317	A
182	KAST 19499M001	4646949.08950	-240747.29613	4348014.98242	A
185	LARE 19440M001	4632831.95726	-279026.15710	4360314.41587	A
186	LAZK 19354S001	4666098.35092	-178186.20990	4330463.66437	A
190	LEIT 19428M001	4663520.94344	-155858.73693	4334519.87129	A
242	ORON 19427M001	4659695.79608	-130864.75401	4338948.87828	A
249	PAS2 19351S001	4644909.06203	-156645.08645	4353623.06470	A
31	PASA 19351S001	4644909.06463	-156645.08674	4353623.06555	W
34	RID1 13448M002	4708446.83398	-199490.30253	4284089.72769	W
35	SALA 13469M001	4803054.48803	-462131.08820	4158379.06455	W
36	SCDA 10088M002	4639940.50673	-136224.95871	4359552.40475	W
298	SOPU 19386M001	4643997.91742	-255913.92575	4350063.13364	A
40	TERU 13487M001	4867391.32995	-95523.37376	4108341.67248	W
349	VITO 19385M001	4679397.70810	-218436.52501	4314898.35725	A
44	YEBE 13420M001	4848724.57619	-261631.94846	4123094.31874	W
45	ZARA 13462M001	4773803.17461	-73506.00165	4215454.08604	W

5.2 ETRF2000 (ETRS89) Coordinates

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

ETRF2000 FINAL COORD. wk 2008					23-JUL-18 11:29
LOCAL GEODETIC DATUM: ETRF2000					EPOCH: 2018-07-04 12:00:00
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG
1	ACOR 13434M001	4594489.86620	-678367.98828	4357065.86938	W
33	ALDA 19383M001	4687280.51857	-190877.11214	4308106.54203	A
42	ALSA 19419M001	4677251.19845	-176770.94228	4319079.46051	A
44	AMUR 19388M001	4661499.80215	-244591.80319	4332269.46977	A
77	BLAZ 10074M002	4634456.42326	-124345.51800	4365785.04715	A
78	BIDA 00000M000	4644178.18962	-145778.86491	4354832.06991	A
88	BRZR 19387M001	4662221.34901	-220770.44527	4333309.02543	A
9	CACE 13447M001	4899866.80097	-544567.60553	4033769.76597	W
10	CANT 13438M001	4625924.66232	-307096.77475	4365771.14276	W
112	CHER 00000M000	4645880.68992	-125722.46917	4353623.95952	A
15	CREU 13432M001	4715420.54505	273177.51161	4271946.43198	W
16	EBRE 13410M001	4833520.36835	41536.82968	4147461.29255	W
131	ELGE 19353S001	4657557.76345	-202242.01825	4338991.45503	A
133	EMAZ 17001M001	4645924.55812	-276950.40848	4347759.16456	A
153	GERN 19389M001	4642811.67142	-217223.47767	4353278.47301	A
173	IGEL 19352S001	4645951.79417	-165575.04610	4352550.00529	A
178	ISPS 19484M001	4640596.84169	-206964.31851	4356391.50014	A
182	KAST 19499M001	4646949.43764	-240747.82066	4348014.57852	A
185	LARE 19440M001	4632832.30188	-279026.68030	4360314.01256	A
186	LAZK 19354S001	4666098.70498	-178186.73618	4330463.25980	A
190	LEIT 19428M001	4663521.30031	-155859.26290	4334519.46717	A
242	ORON 19427M001	4659696.15608	-130865.27951	4338948.47473	A
249	PAS2 19351S001	4644909.42009	-156645.61053	4353622.66194	A
31	PASA 19351S001	4644909.42269	-156645.61082	4353622.66279	W
34	RID1 13448M002	4708447.18252	-199490.83315	4284089.31975	W
35	SALA 13469M001	4803054.79831	-462131.62895	4158378.64652	W
36	SCDA 10088M002	4639940.86750	-136225.48223	4359552.00259	W
298	SOPU 19386M001	4643998.26398	-255914.45002	4350062.72978	A
40	TERU 13487M001	4867391.67848	-95523.92000	4108341.25402	W
349	VITO 19385M001	4679398.05656	-218437.05275	4314897.95123	A
44	YEBE 13420M001	4848724.90587	-261632.49331	4123093.89971	W
45	ZARA 13462M001	4773803.53283	-73506.53846	4215453.67475	W

5.3 ETRF2014 (ETRS89) Coordinates

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

ETRF2014 FINAL COORD. wk 2008 23-JUL-18 11:29

 LOCAL GEODETIC DATUM: ETRF2014 EPOCH: 2018-07-04 12:00:00

NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG
1	ACDR 13434M001	4594489.82343	-678368.02721	4357065.91738	W
33	ALDA 19383M001	4687280.47367	-190877.15237	4308106.58993	A
42	ALSA 19419M001	4677251.15360	-176770.98260	4319079.50844	A
44	AMUR 19388M001	4661499.75765	-244591.84334	4332269.51771	A
77	BIAZ 10074M002	4634456.37867	-124345.55865	4365785.09520	A
78	BIDA 00000M000	4644178.14499	-145778.90545	4354832.11794	A
88	BRZR 19387M001	4662221.30443	-220770.48550	4333309.07337	A
9	CACE 13447M001	4899866.75487	-544567.64376	4033769.81333	W
10	CANT 13438M001	4625924.61833	-307096.81482	4365771.19076	W
112	CHER 00000M000	4645880.64522	-125722.50977	4353624.00755	A
15	CREU 13432M001	4715420.49839	273177.46995	4271946.48010	W
16	EBRE 13410M001	4833520.32130	41536.78924	4147461.34026	W
131	ELGE 19353S001	4657557.71886	-202242.05855	4338991.50299	A
133	EMAZ 17001M001	4645924.51386	-276950.44858	4347759.21252	A
153	GERN 19389M001	4642811.62702	-217223.51798	4353278.52101	A
173	IGEL 19352S001	4645951.74959	-165575.08657	4352550.05330	A
178	ISPS 19484M001	4640596.79727	-206964.35886	4356391.54814	A
182	KAST 19499M001	4646949.39327	-240747.86087	4348014.62650	A
185	LARE 19440M001	4632832.25774	-279026.72044	4360314.06056	A
186	LAZK 19354S001	4666098.66024	-178186.77654	4330463.30776	A
190	LEIT 19428M001	4663521.25553	-155859.30333	4334519.51514	A
242	ORON 19427M001	4659696.11126	-130865.32005	4338948.52273	A
249	PAS2 19351S001	4644909.37549	-156645.65104	4353622.70996	A
31	PASA 19351S001	4644909.37809	-156645.65133	4353622.71081	W
34	RI01 13448M002	4708447.13743	-199490.87327	4284089.36760	W
35	SALA 13469M001	4803054.75300	-462131.66783	4158378.69408	W
36	SOA 10088M002	4639940.82289	-136225.52282	4359552.05063	W
298	SOPU 19386M001	4643998.21967	-255914.49019	4350062.77776	A
40	TERU 13487M001	4867391.63151	-95523.95987	4108341.30158	W
349	VITO 19385M001	4679398.01181	-218437.09292	4314897.99914	A
44	YEBE 13420M001	4848724.85957	-261632.53269	4123093.94724	W
45	ZARA 13462M001	4773803.48673	-73506.57875	4215453.72252	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 IGS14 solution and are given with respect the Local frame (North-East-Up).

ARA LAC 2008 WEEK FINAL COMBINATION: PRECISE ORBITS 23-JUL-18 11:29

Station	#Days	Weekday 0123456	Repeatability (mm)		
			N	E	U
ACOR 13434M001	7	XXXXXX	1.87	1.13	5.45
ALDA 19383M001	7	XXXXXX	1.40	1.39	3.78
ALSA 19419M001	7	XXXXXX	2.25	1.70	2.47
AMUR 19388M001	7	XXXXXX	1.16	1.13	4.24
BLAZ 10074M002	7	XXXXXX	1.56	1.38	3.95
BIDA 00000M000	7	XXXXXX	1.55	1.19	3.56
BRZR 19387M001	6	XXX XX	0.83	2.28	3.73
CACE 13447M001	7	XXXXXX	0.99	1.06	2.65
CANT 13438M001	7	XXXXXX	0.71	1.18	2.86
CHER 00000M000	7	XXXXXX	1.16	1.07	5.74
CREU 13432M001	7	XXXXXX	1.53	0.84	8.58
EBRE 13410M001	7	XXXXXX	0.85	1.26	4.58
ELGE 19353S001	7	XXXXXX	0.87	1.33	3.22
EMAZ 17001M001	7	XXXXXX	1.63	0.99	4.92
GERN 19389M001	6	XX XXX	0.89	1.69	3.25
IGEL 19352S001	7	XXXXXX	1.07	0.75	3.97
ISPS 19484M001	7	XXXXXX	0.70	0.87	4.02
KAST 19499M001	7	XXXXXX	1.59	0.25	5.99
LARE 19440M001	7	XXXXXX	1.64	0.76	5.46
LAZK 19354S001	7	XXXXXX	1.04	1.67	4.05
LEIT 19428M001	7	XXXXXX	1.37	1.36	4.84
ORON 19427M001	7	XXXXXX	1.03	1.14	3.51
PAS2 19351S001	7	XXXXXX	1.31	0.94	6.31
PASA 19351S001	7	XXXXXX	1.27	0.93	3.67
RI01 13448M002	7	XXXXXX	0.84	0.99	3.11
SALA 13469M001	7	XXXXXX	0.37	0.76	6.25
SCOA 10088M002	7	XXXXXX	1.19	0.58	4.39
SOPU 19386M001	7	XXXXXX	0.74	0.78	4.65
TERU 13487M001	6	XXXXXX	0.28	1.80	4.68
VITD 19385M001	7	XXXXXX	0.94	1.63	5.84
YEBE 13420M001	7	XXXXXX	0.65	0.74	2.60
ZARA 13462M001	7	XXXXXX	1.08	0.79	4.42

Comparison of individual solutions:

ACOR 13434M001	N	1.87	0.24	-0.97	2.04	-0.21	-0.51	-2.63	2.92
ACOR 13434M001	E	1.13	0.77	0.59	0.11	1.27	-1.18	-0.14	-1.91
ACOR 13434M001	U	5.45	0.92	4.12	-0.92	-6.13	-2.90	6.58	-8.38
ALDA 19383M001	N	1.40	0.22	-1.67	1.41	0.66	1.81	0.39	-1.73
ALDA 19383M001	E	1.39	1.49	1.34	0.53	-1.91	-1.16	1.41	0.52
ALDA 19383M001	U	3.78	-0.36	-0.43	0.38	2.45	-3.12	-3.59	7.51
ALSA 19419M001	N	2.25	-3.43	0.18	1.51	3.88	-1.06	0.00	-0.35
ALSA 19419M001	E	1.70	2.61	-0.15	-0.13	-3.10	0.18	0.81	0.48
ALSA 19419M001	U	2.47	-0.39	0.69	-0.93	-4.50	1.61	-3.44	0.66
AMUR 19388M001	N	1.16	2.13	-0.51	-0.03	1.52	-0.40	-0.38	-0.81
AMUR 19388M001	E	1.13	-1.13	1.75	-0.51	0.53	0.18	0.79	1.47
AMUR 19388M001	U	4.24	-3.20	1.88	-2.19	-3.83	0.57	-6.59	5.55
BLAZ 10074M002	N	1.56	-0.36	0.04	-1.27	2.20	1.28	-1.14	-2.27
BLAZ 10074M002	E	1.38	-0.25	-0.25	-2.13	-0.65	1.15	2.23	-0.27
BLAZ 10074M002	U	3.95	-5.59	0.74	3.51	-1.12	6.03	-3.27	1.09
BIDA 00000M000	N	1.55	0.88	-0.36	-0.53	2.08	-0.75	-1.93	-2.16
BIDA 00000M000	E	1.19	0.06	0.82	-1.03	0.01	-2.25	0.84	1.00
BIDA 00000M000	U	3.56	-1.46	-4.08	2.29	3.95	3.84	-4.48	1.19
BRZR 19387M001	N	0.83	-0.08	0.78	0.42	0.57		-0.40	-1.47
BRZR 19387M001	E	2.28	1.29	3.25	-2.11	-1.67		-2.53	-0.19
BRZR 19387M001	U	3.73	3.24	-5.83	4.18	-0.49		-1.51	-2.24
CACE 13447M001	N	0.99	-0.47	0.49	0.90	-1.38	0.59	1.03	-1.15
CACE 13447M001	E	1.06	-1.47	0.17	0.51	0.47	0.38	-1.19	1.58
CACE 13447M001	U	2.65	-2.84	-3.30	-3.51	0.35	-1.14	2.94	-0.79
CANT 13438M001	N	0.71	0.79	-0.20	0.34	-1.25	-0.00	-0.45	-0.69
CANT 13438M001	E	1.18	1.19	-0.34	-1.06	2.15	-0.13	0.26	-1.00
CANT 13438M001	U	2.86	-4.83	-3.57	-1.44	-0.21	2.20	2.35	0.72
CHER 00000M000	N	1.16	-0.30	0.94	-1.34	1.56	-1.36	-1.02	0.02
CHER 00000M000	E	1.07	-0.48	1.10	-0.49	-1.52	-0.94	1.07	0.91
CHER 00000M000	U	5.74	-7.07	-0.79	2.12	6.02	7.76	-6.73	0.88
CREU 13432M001	N	1.53	-0.38	1.58	-0.54	-2.75	-0.28	1.85	-0.05
CREU 13432M001	E	0.84	0.61	1.13	-0.14	-0.04	-0.29	-1.25	-0.94
CREU 13432M001	U	8.58	-4.91	-3.00	-3.55	-12.05	10.64	3.36	11.22
EBRE 13410M001	N	0.85	-0.71	1.10	-0.16	-0.57	-0.90	0.94	0.78
EBRE 13410M001	E	1.26	-0.42	1.89	-0.56	-1.75	1.11	-0.35	-1.03
EBRE 13410M001	U	4.58	0.41	-1.62	-4.62	-5.44	2.31	7.79	2.40
ELGE 19353S001	N	0.87	0.65	0.54	-0.64	0.85	-1.01	0.19	-1.28
ELGE 19353S001	E	1.33	0.09	2.07	-1.00	-0.90	0.49	-1.22	-1.66
ELGE 19353S001	U	3.22	-2.53	-1.80	4.51	-1.74	1.25	-4.26	3.10
EMAZ 17001M001	N	1.63	-0.54	2.75	0.49	-1.84	-0.64	-1.96	-0.33
EMAZ 17001M001	E	0.99	-0.68	0.32	-0.83	1.17	1.19	-0.23	-1.32
EMAZ 17001M001	U	4.92	7.71	-3.86	-2.55	5.60	-0.73	-0.18	-5.70
GERN 19389M001	N	0.89	0.77	0.12	-0.43		-0.34	0.21	-1.74
GERN 19389M001	E	1.69	0.82	1.21	-0.38		-0.82	-3.14	1.24
GERN 19389M001	U	3.25	-3.62	2.89	-2.10		-1.12	-4.33	2.67
IGEL 19352S001	N	1.07	0.49	1.31	-1.18	0.57	-0.90	-1.44	-0.58
IGEL 19352S001	E	0.75	-0.28	0.08	-1.54	0.14	0.43	0.86	0.07
IGEL 19352S001	U	3.97	-3.36	1.86	4.81	-3.67	1.95	-4.57	4.29
ISPS 19484M001	N	0.70	0.47	-0.65	0.19	0.67	-0.91	0.23	-0.98
ISPS 19484M001	E	0.87	0.19	0.55	0.59	-0.77	-1.45	-0.61	-0.86
ISPS 19484M001	U	4.02	-1.67	-3.81	2.80	4.54	-4.19	-3.38	4.73
KAST 19499M001	N	1.59	-0.28	2.23	0.89	2.84	-0.48	-0.16	-0.95
KAST 19499M001	E	0.25	-0.14	0.12	-0.00	0.09	-0.15	0.56	-0.00
KAST 19499M001	U	5.99	-4.94	-5.75	-5.59	6.31	2.53	-8.38	-3.20
LARE 19440M001	N	1.64	-0.19	2.61	-0.69	-2.64	-1.14	0.37	-0.67
LARE 19440M001	E	0.76	-0.79	-0.65	-0.19	1.11	0.92	0.47	0.37
LARE 19440M001	U	5.46	6.61	-8.71	1.71	5.10	2.40	-2.05	-4.48
LAZK 19354S001	N	1.04	1.93	0.21	-0.62	0.52	-0.75	-0.62	-1.04
LAZK 19354S001	E	1.67	-0.92	3.26	-0.76	-1.15	-0.44	-1.70	-0.47

LAZK	19354S001	U	4.05	-0.89	-6.98	4.85	1.02	3.34	0.64	-3.55
LEIT	19428M001	N	1.37	-2.27	1.17	-1.13	0.85	0.19	0.70	-1.48
LEIT	19428M001	E	1.36	-1.09	0.33	-1.75	-0.96	0.77	2.30	-0.04
LEIT	19428M001	U	4.84	-6.39	1.14	2.26	3.86	6.68	-5.69	1.24
ORDN	19427M001	N	1.03	0.14	0.62	-1.48	1.06	0.26	-0.67	-1.44
ORDN	19427M001	E	1.14	-0.52	1.18	-1.06	-0.65	-0.99	1.87	-0.24
ORDN	19427M001	U	3.51	-1.72	-4.37	0.53	4.07	3.60	-2.69	3.85
PAS2	19351S001	N	1.31	-0.94	0.51	-0.87	1.04	-2.46	-0.03	1.14
PAS2	19351S001	E	0.94	-0.49	0.49	-1.37	-0.31	-0.42	1.54	0.55
PAS2	19351S001	U	6.31	-3.50	-1.08	4.86	4.26	9.64	-8.62	-4.04
PASA	19351S001	N	1.27	-0.53	0.49	-0.37	2.22	-1.33	-1.32	-0.74
PASA	19351S001	E	0.93	-0.75	0.87	-1.30	-0.46	-0.30	1.33	0.34
PASA	19351S001	U	3.67	-4.01	0.35	4.46	-1.22	4.66	-4.41	1.40
RID1	13448M002	N	0.84	0.47	-0.57	1.43	-0.90	-0.30	-0.12	-0.82
RID1	13448M002	E	0.99	-0.50	0.53	-1.33	0.67	-0.17	0.36	1.72
RID1	13448M002	U	3.11	2.40	0.86	-5.03	-1.82	-0.74	-1.29	4.57
SALA	13469M001	N	0.37	0.01	0.26	0.34	-0.41	-0.45	0.23	0.46
SALA	13469M001	E	0.76	0.75	0.45	-0.99	0.44	1.01	0.66	0.21
SALA	13469M001	U	6.25	12.73	1.13	2.28	-0.11	3.98	3.28	-6.26
SCDA	10088M002	N	1.19	0.05	0.21	-1.75	2.00	-0.59	-0.42	-0.89
SCDA	10088M002	E	0.58	0.40	0.24	-0.14	-1.14	-0.18	0.30	0.61
SCDA	10088M002	U	4.39	-6.36	-3.51	4.50	1.97	4.96	-2.73	2.58
SOPU	19386M001	N	0.74	1.30	0.13	-0.35	-0.67	-0.15	0.23	-0.95
SOPU	19386M001	E	0.78	-0.56	1.14	0.11	-1.00	-0.61	-0.75	-0.37
SOPU	19386M001	U	4.65	-5.31	5.80	3.79	5.51	-1.53	-4.51	0.71
TERU	13487M001	N	0.28		0.24	-0.32	0.27	-0.24	0.28	-0.15
TERU	13487M001	E	1.80		-1.92	0.01	-0.53	1.84	1.72	-2.42
TERU	13487M001	U	4.68		-9.01	3.25	2.32	-1.03	2.25	2.50
VITO	19385M001	N	0.94	-0.45	-0.39	1.25	1.65	-0.49	-0.05	-0.61
VITO	19385M001	E	1.63	2.86	0.82	-0.16	-2.57	0.22	0.34	0.60
VITO	19385M001	U	5.84	8.77	-1.68	-9.76	1.77	-1.00	-4.49	2.32
YEBE	13420M001	N	0.65	0.79	0.18	-1.18	0.57	-0.29	0.18	-0.08
YEBE	13420M001	E	0.74	0.86	0.71	0.51	-0.24	-1.21	-0.07	0.52
YEBE	13420M001	U	2.60	1.47	-1.18	-3.60	-1.86	-1.72	-3.12	-2.80
ZARA	13462M001	N	1.08	-0.21	-0.90	0.11	0.49	0.28	2.42	-0.07
ZARA	13462M001	E	0.79	0.09	0.61	-0.29	-0.94	-0.13	-1.28	0.88
ZARA	13462M001	U	4.42	5.76	4.20	-6.99	0.04	-0.35	-4.10	-0.77

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.

LOCAL GEODETIC DATUM: IGS14
RESIDUALS IN LOCAL SYSTEM (NORTH, EAST, UP)

NUM	NAME	FLG	RESIDUALS IN MILLIMETERS		
1	ACOR 13434M001	I W	-1.95	1.51	-0.21
2	ALAC 13433M001	I W	0.11	0.11	-1.41
3	ALBA 13452M001	I W	-0.45	-0.61	1.09
4	ALME 13437M001	I W	-1.46	0.57	7.55
5	BCLN 13412M001	I W	2.89	2.42	-10.36
6	BELL 13431M001	I W	-0.50	0.36	-2.99
7	BORR 13480M001	I W	0.23	-0.98	-1.22
8	BRST 10004M004	I W	-2.31	0.31	-4.21
9	CACE 13447M001	I W	-0.02	1.36	2.38
10	CANT 13438M001	I W	-1.15	-0.12	0.40
11	CARG 19412M001	I W	-0.46	1.28	1.22
12	CASC 13909S001	I W	-0.15	-0.17	3.25
13	CEU1 13449M002	I W	0.61	-0.25	1.31
14	COBA 13453M001	I W	0.74	0.52	0.36
15	CREU 13432M001	I W	-1.42	-0.20	-5.20
16	EBRE 13410M001	I W	0.54	-0.18	-4.98
17	ESCO 13435M001	I W	-1.89	2.55	-7.68
18	FUNC 13911S001	I W	2.52	0.17	0.87
19	GAIA 13902M001	I W	-0.17	-1.35	6.82
21	HUEL 13451M001	I W	0.20	-0.70	4.30
22	IZAN 31309M002	I W	0.96	0.51	0.49
24	LLIV 13436M001	I W	-0.71	0.50	3.20
25	LPAL 81701M001	I W	-1.20	0.98	0.07
26	LR0C 10023M001	I W	0.32	-1.33	-3.10
27	MALA 13443M001	I W	-0.66	-0.47	4.82
28	MAS1 31303M002	I W	1.26	1.77	2.80
30	MELI 19379M001	I W	0.60	-1.59	0.42
31	PASA 19351S001	I W	-0.60	-0.01	4.42
32	PDEL 31906M004	I W	-0.55	0.35	-1.46
33	RABT 35001M002	I W	0.52	-0.34	-2.36
34	RID1 13448M002	I W	-1.02	-0.53	-2.26
35	SALA 13469M001	I W	-0.05	0.23	2.43
36	SCOA 10088M002	I W	-3.26	-1.62	-0.14
38	SONS 13446M001	I W	0.09	0.94	-0.45
39	TERC 31909M001	I W	9.23	-4.23	-6.57
40	TERU 13487M001	I W	1.69	1.89	-1.83
41	VALA 13463M002	I W	-0.77	-0.85	1.76
42	VALE 13439M001	I W	-1.19	-0.35	-0.88
43	VIGO 13450M001	I W	-0.21	-0.50	3.22
44	YEBE 13420M001	I W	1.01	-0.72	2.57
45	ZARA 13462M001	I W	-0.86	-0.32	1.07
46	ZIMM 14001M004	I W	-0.52	-0.93	0.49
	RMS / COMPONENT		1.88	1.21	3.66
	MEAN		-0.00	0.00	-0.00
	MIN		-3.26	-4.23	-10.36
	MAX		9.23	2.55	7.55

NUMBER OF PARAMETERS : 3
NUMBER OF COORDINATES : 126
RMS OF TRANSFORMATION : 2.48 MM

BARYCENTER COORDINATES:

LATITUDE : 39 41 12.90
LONGITUDE : - 5 21 29.58
HEIGHT : -48.657 KM

PARAMETERS:

TRANSLATION IN N : 0.00 +- 0.38 MM
TRANSLATION IN E : -0.00 +- 0.38 MM
TRANSLATION IN U : 0.00 +- 0.38 MM

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 the daily solutions are shown.

```
* STATISTICAL PARAMETER-----VALUE(S)-----
NUMBER OF OBSERVATIONS                16730414
NUMBER OF UNKNOWN                    238632
NUMBER OF DEGREES OF FREEDOM          16491782
PHASE MEASUREMENTS SIGMA              0.00100
SAMPLING INTERVAL (SECONDS)           180
VARIANCE FACTOR                       8.410800665735675

Helmert Transformation Parameters With Respect to Combined Solution:
-----
Sol  Rms (m)      Translation (m)      Rotation (")
      X          Y          Z          X          Y          Z      Scale (ppm)
-----
  1  0.00332     0.0365  0.0464 -0.0517 -0.0008  0.0020  0.0013  0.00098
  2  0.00317     0.0178  0.0001 -0.0220  0.0000  0.0009  0.0000  0.00008
  3  0.00311     0.0040  0.0013  0.0048 -0.0000 -0.0000  0.0001 -0.00098
  4  0.00230     0.0013 -0.0096 -0.0049  0.0002  0.0001 -0.0002  0.00012
  5  0.00259     0.0019  0.0004  0.0007 -0.0000  0.0000 -0.0000 -0.00011
  6  0.00270     0.0059 -0.0052 -0.0069  0.0002  0.0003 -0.0001 -0.00001
  7  0.00269     0.0012 -0.0046  0.0043  0.0002 -0.0001 -0.0000 -0.00065
```

```
Statistics of individual solutions:
-----
File  RMS (m)      DOF  Chi**2/DOF  #Observations authentic / pseudo  #Parameters explicit / implicit / singular
-----
  1  0.00168     2343306  2.81                2378531      3          1002    34226    0
  2  0.00321     2358663  10.30               2392298      3           999    32639    0
  3  0.00275     2449198  7.58                2484269      3          1011    34063    0
  4  0.00177     2382801  3.14                2418360      3          1017    34545    0
  5  0.00157     2334945  2.47                2369683      3           978    33763    0
  6  0.00170     2284056  2.88                2318994      3           990    33951    0
  7  0.00544     2332885  29.62               2368279      3           984    34413    0
```

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 18:182:00000 18:188:86370 LEICA GRX1200PRO  -----
ALDA  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
ALSA  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200GGPRO -----
AMUR  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
BIAZ  A   1 P 18:182:00000 18:188:86370 TRI SP90M      -----
BIDA  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
BRZR  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
CACE  A   1 P 18:182:00000 18:188:86370 TRIMBLE NETR9  -----
CANT  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
CHER  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200+GNSS -----
CREU  A   1 P 18:182:00000 18:188:86370 LEICA GR50      -----
EBRE  A   1 P 18:182:00000 18:188:86370 LEICA GR50      -----
ELGE  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
EMAZ  A   1 P 18:182:00000 18:188:86370 LEICA GR30      -----
GERN  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
IGEL  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
ISPS  A   1 P 18:182:00000 18:188:86370 TRIMBLE NETR9  -----
KAST  A   1 P 18:182:00000 18:188:86370 LEICA GR30      -----
LARE  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200GGPRO -----
LAZK  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
LEIT  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200+GNSS -----
ORON  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200GGPRO -----
PAS2  A   1 P 18:182:00000 18:188:86370 TPS NET-G3A    -----
PASA  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
RIO1  A   1 P 18:182:00000 18:188:86370 LEICA GR25      -----
SALA  A   1 P 18:182:00000 18:188:86370 LEICA GRX1200+GNSS -----
SCOA  A   1 P 18:182:00000 18:188:86370 LEICA GR25      -----
SOPU  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
TERU  A   1 P 18:183:32400 18:188:86370 LEICA GRX1200GGPRO -----
VITO  A   1 P 18:182:00000 18:188:86370 LEICA GR10      -----
YEBE  A   1 P 18:182:00000 18:188:86370 TRIMBLE NETR9  -----
ZARA  A   1 P 18:182:00000 18:188:86370 TRIMBLE NETR9  -----
```

7.2 Antennas

Serial number ONLY provided in case individual calibrations are available.

```
*SITE PT SOLN T DATA_START__ DATA_END___ DESCRIPTION_____ S/N__
ACOR  A   1 P 18:182:00000 18:188:86370 LEIAT504      LEIS -----
ALDA  A   1 P 18:182:00000 18:188:86370 LEIAS10      NONE -----
ALSA  A   1 P 18:182:00000 18:188:86370 LEIAX1202GG  NONE -----
AMUR  A   1 P 18:182:00000 18:188:86370 LEIAS10      NONE -----
```

BLAZ	A	1	P	18:182:00000	18:188:86370	LEIAR25	LEIT	----
BIDA	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
BRZR	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
CACE	A	1	P	18:182:00000	18:188:86370	TRM29659.00	NONE	----
CANT	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	LEIT	25066
CHER	A	1	P	18:182:00000	18:188:86370	LEIAX1203+GNSS	NONE	----
CREU	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	NONE	26357
EBRE	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	NONE	26359
ELGE	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	LEIT	----
EMAZ	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
GERN	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
IGEL	A	1	P	18:182:00000	18:188:86370	LEIAR20	LEIM	----
ISPS	A	1	P	18:182:00000	18:188:86370	TRM59900.00	SCIS	----
KAST	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
LARE	A	1	P	18:182:00000	18:188:86370	LEIAT504	NONE	----
LAZK	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	LEIT	----
LEIT	A	1	P	18:182:00000	18:188:86370	LEIAX1203+GNSS	NONE	----
ORDN	A	1	P	18:182:00000	18:188:86370	LEIAX1202GG	NONE	----
PAS2	A	1	P	18:182:00000	18:188:86370	LEIAR20	LEIM	73034
PASA	A	1	P	18:182:00000	18:188:86370	LEIAR20	LEIM	73034
RIO1	A	1	P	18:182:00000	18:188:86370	LEIAR25_R4	LEIT	25138
SALA	A	1	P	18:182:00000	18:188:86370	LEIAR25	NONE	----
SCOA	A	1	P	18:182:00000	18:188:86370	TRM55971.00	NONE	----
SOPU	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
TERU	A	1	P	18:183:32400	18:188:86370	LEIAT504GG	LEIS	----
VITO	A	1	P	18:182:00000	18:188:86370	LEIAS10	NONE	----
YEBE	A	1	P	18:182:00000	18:188:86370	TRM29659.00	NONE	----
ZARA	A	1	P	18:182:00000	18:188:86370	TRM29659.00	NONE	----

7.3 Eccentricities

*SITE	PT	SOLN	T	DATA_START_	DATA_END_	AXE	ARP->BENCHMARK(M)	UP	NORTH	EAST
ACOR	A	1	P	18:182:00000	18:188:86370	UNE	3.0460	0.0000	0.0000	0.0000
ALDA	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
ALSA	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
AMUR	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
BLAZ	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
BIDA	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
BRZR	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
CACE	A	1	P	18:182:00000	18:188:86370	UNE	0.0600	0.0000	0.0000	0.0000
CANT	A	1	P	18:182:00000	18:188:86370	UNE	3.0490	0.0000	0.0000	0.0000
CHER	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
CREU	A	1	P	18:182:00000	18:188:86370	UNE	0.0770	0.0000	0.0000	0.0000
EBRE	A	1	P	18:182:00000	18:188:86370	UNE	0.0770	0.0000	0.0000	0.0000
ELGE	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
EMAZ	A	1	P	18:182:00000	18:188:86370	UNE	0.0350	0.0000	0.0000	0.0000
GERN	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
IGEL	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
ISPS	A	1	P	18:182:00000	18:188:86370	UNE	0.0350	0.0000	0.0000	0.0000
KAST	A	1	P	18:182:00000	18:188:86370	UNE	0.0350	0.0000	0.0000	0.0000
LARE	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
LAZK	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
LEIT	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
ORDN	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
PAS2	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
PASA	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
RIO1	A	1	P	18:182:00000	18:188:86370	UNE	0.0606	0.0000	0.0000	0.0000
SALA	A	1	P	18:182:00000	18:188:86370	UNE	0.0600	0.0000	0.0000	0.0000
SCOA	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
SOPU	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
TERU	A	1	P	18:183:32400	18:188:86370	UNE	0.0600	0.0000	0.0000	0.0000
VITO	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
YEBE	A	1	P	18:182:00000	18:188:86370	UNE	0.0000	0.0000	0.0000	0.0000
ZARA	A	1	P	18:182:00000	18:188:86370	UNE	3.2590	0.0000	0.0000	0.0000

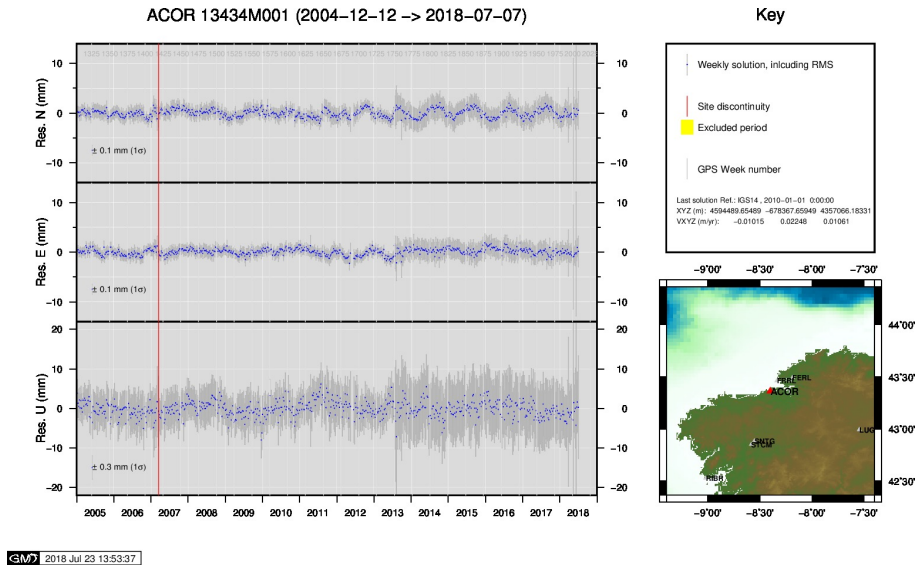
8 Inconsistencies (logsheet-RINEX metadata)

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

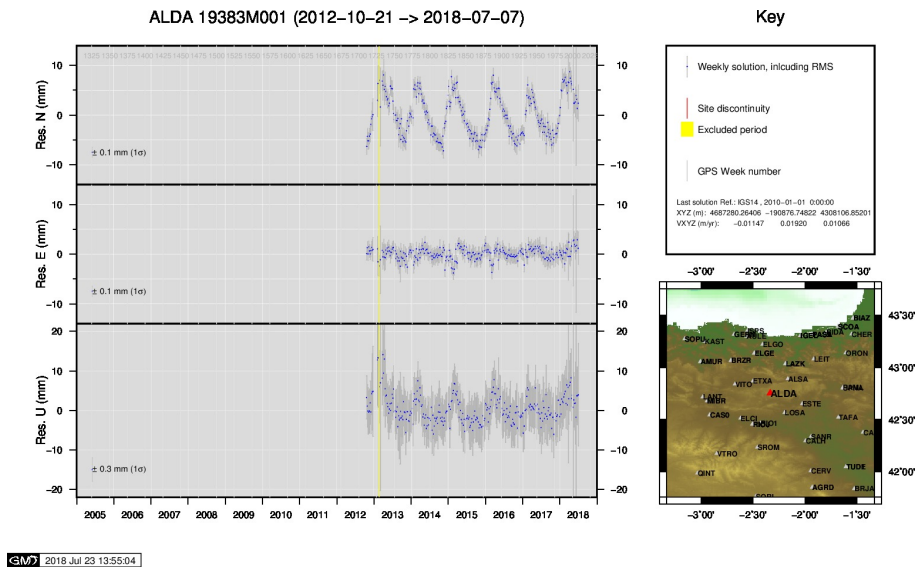
2018-07-16	00:36	UTC		PAS21820.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-17	00:33	UTC		PAS21830.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-18	00:30	UTC		PAS21840.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-19	00:33	UTC		PAS21850.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-20	00:45	UTC		PAS21860.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-21	00:35	UTC		PAS21870.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A
2018-07-22	00:38	UTC		PAS21880.180		RECEIVER TYPE		NET-G3A	->	TPS NET-G3A

9 Cumulative Time Series

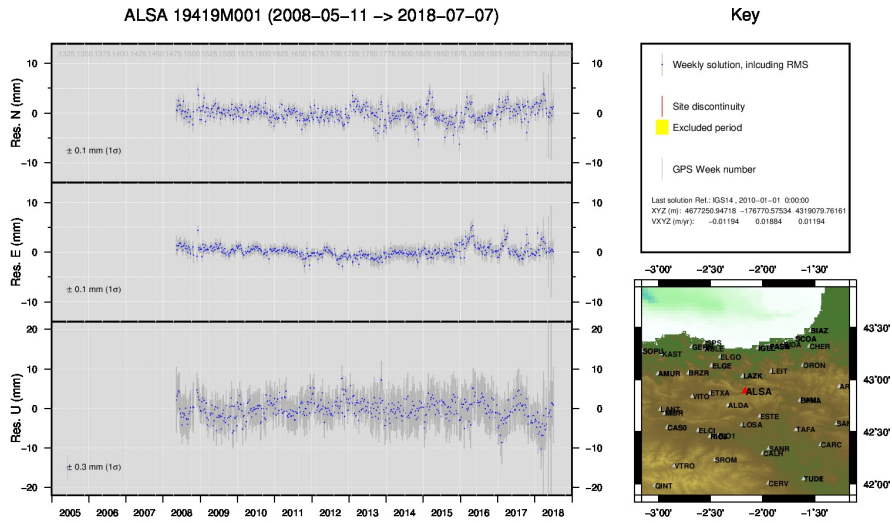
Time series of stations. Latest plots at: <http://geolabpasaia.org/gnss/ARA-net/TSeries/>, or click on the caption of each image.



1) ACOR

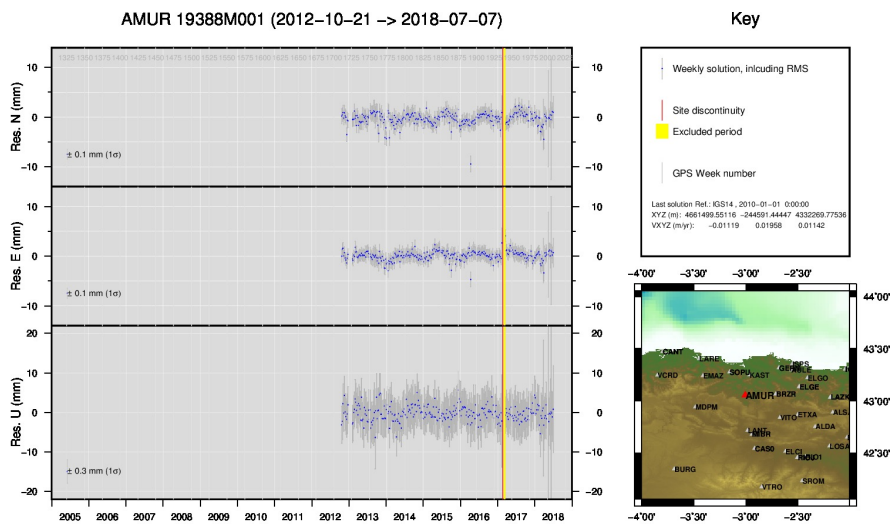


2) ALDA



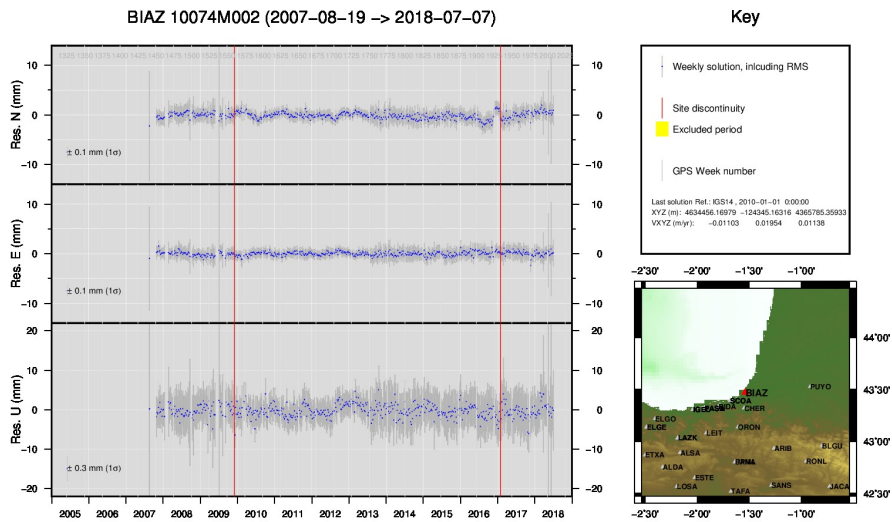
GMW 2018 Jul 23 13:56:04

3) ALSA



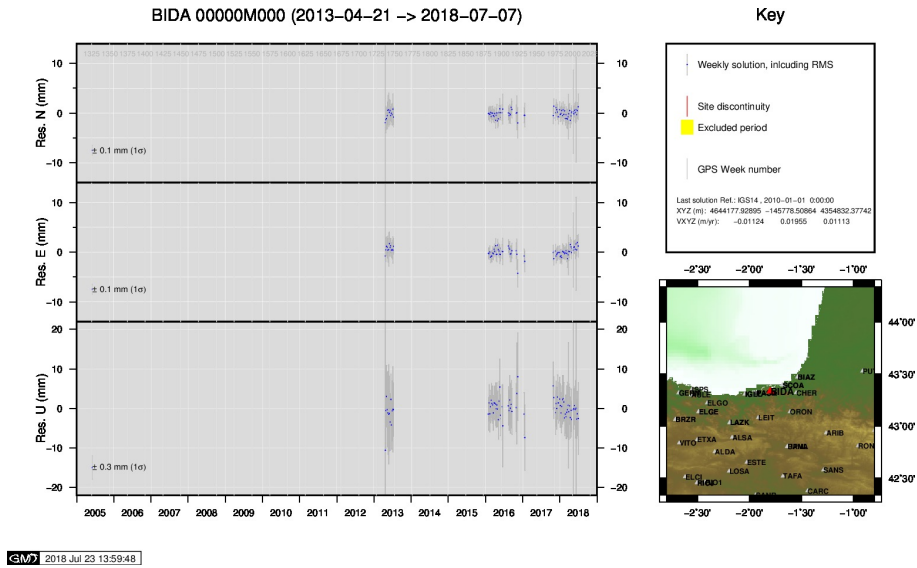
GMW 2018 Jul 23 13:56:17

4) AMUR

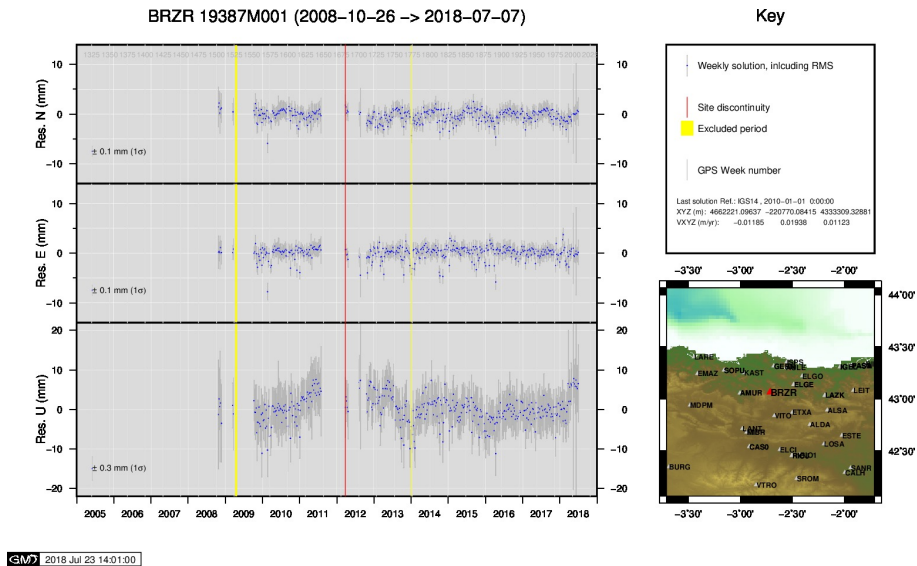


GMW 2018 Jul 23 13:59:42

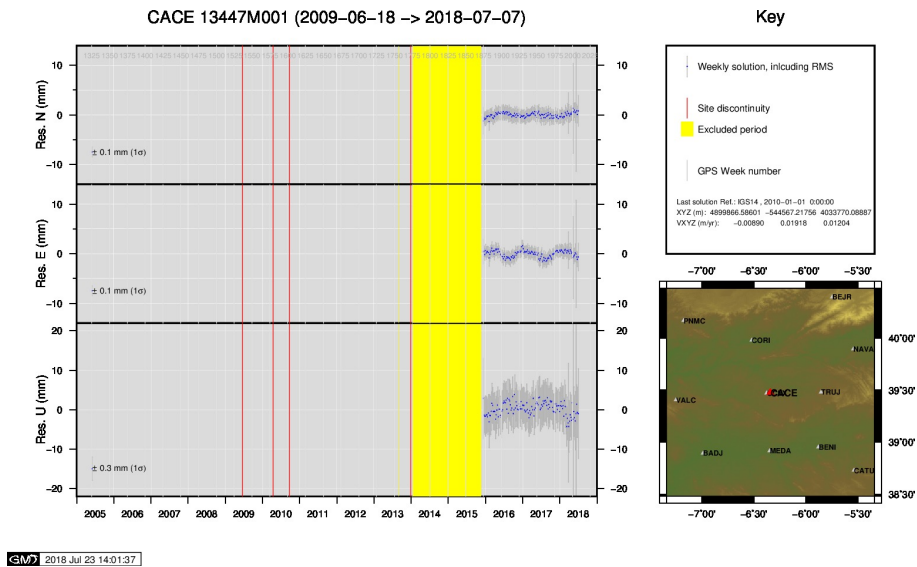
5) BIAZ



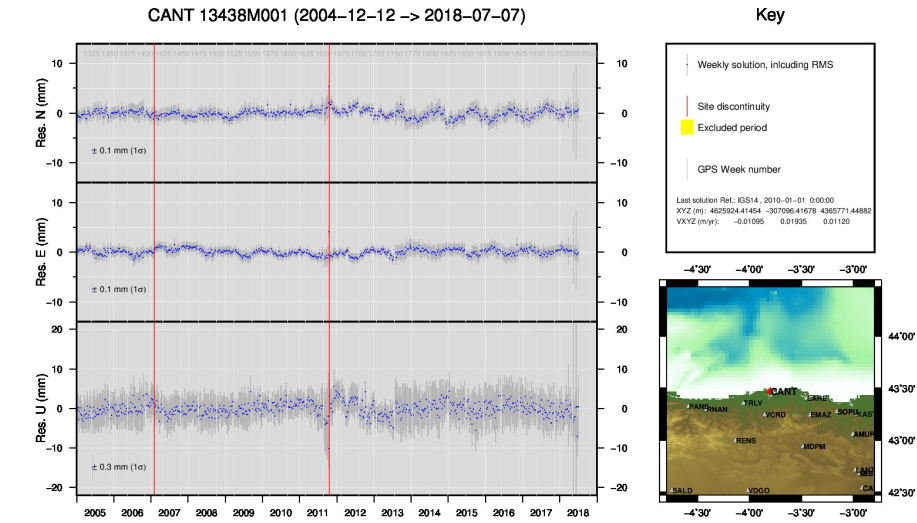
6) BIDA



7) BRZR

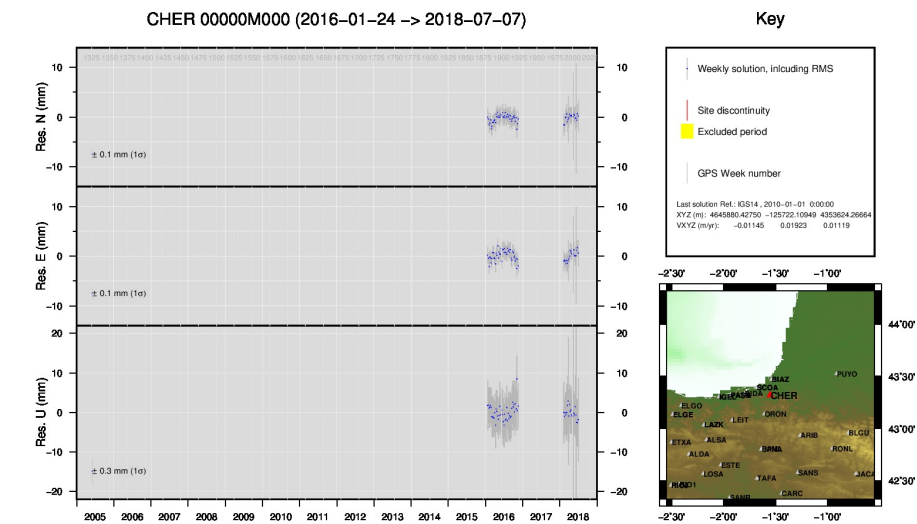


8) CACE



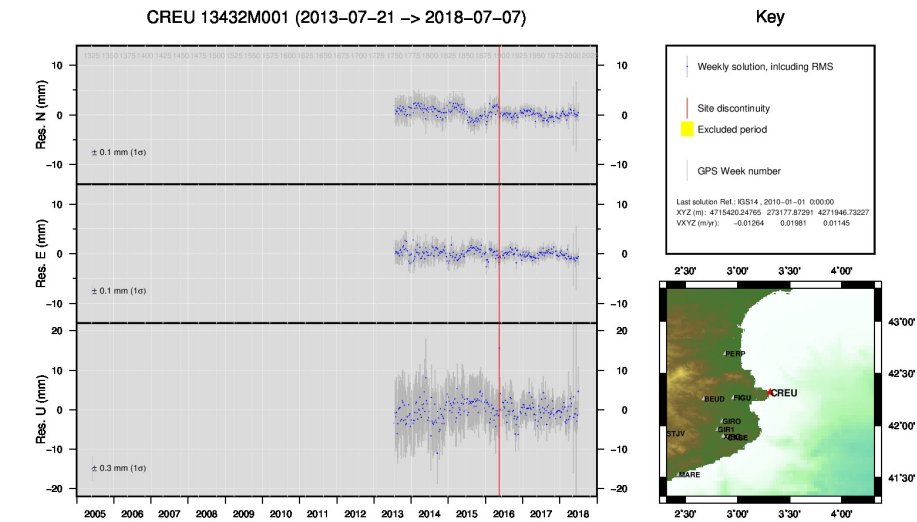
GMW 2018 Jul 23 14:02:01

9) CANT



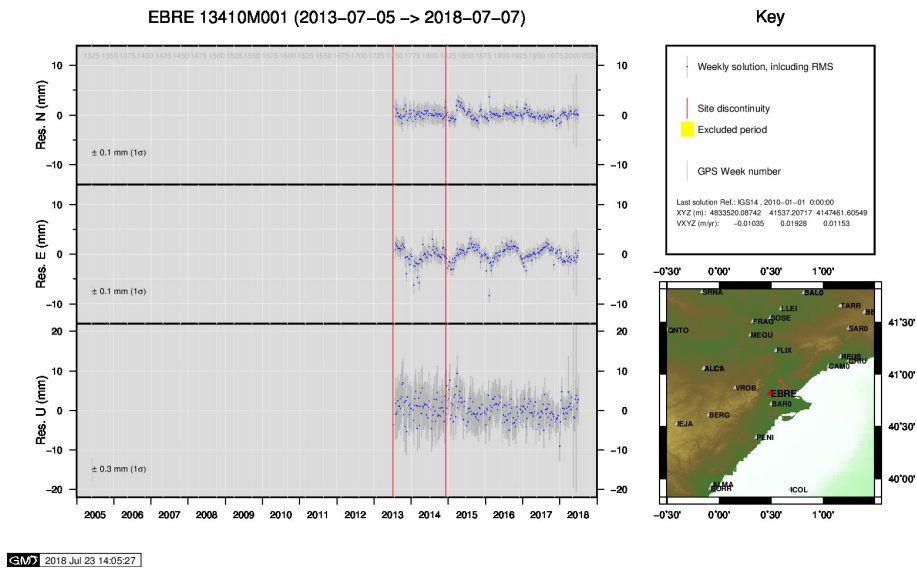
GMW 2018 Jul 23 14:03:50

10) CHER

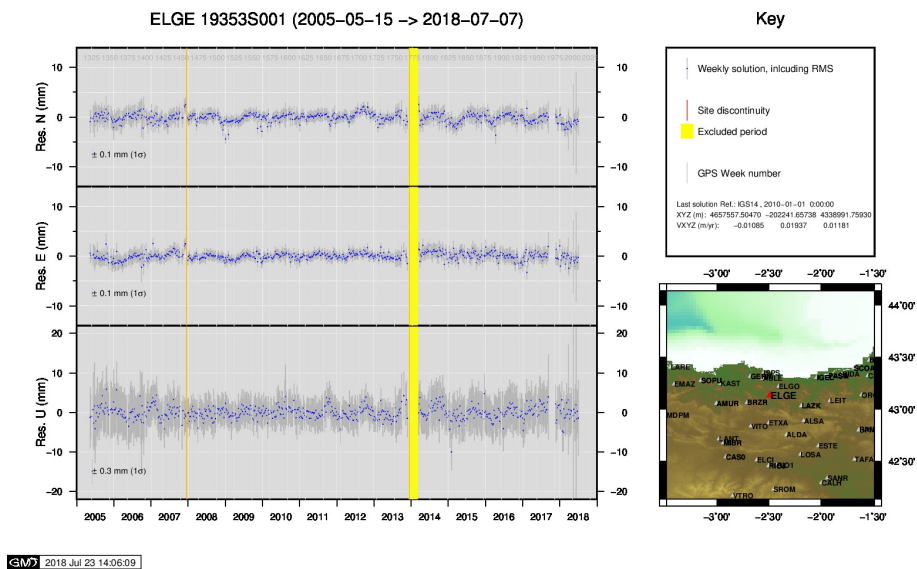


GMW 2018 Jul 23 14:04:27

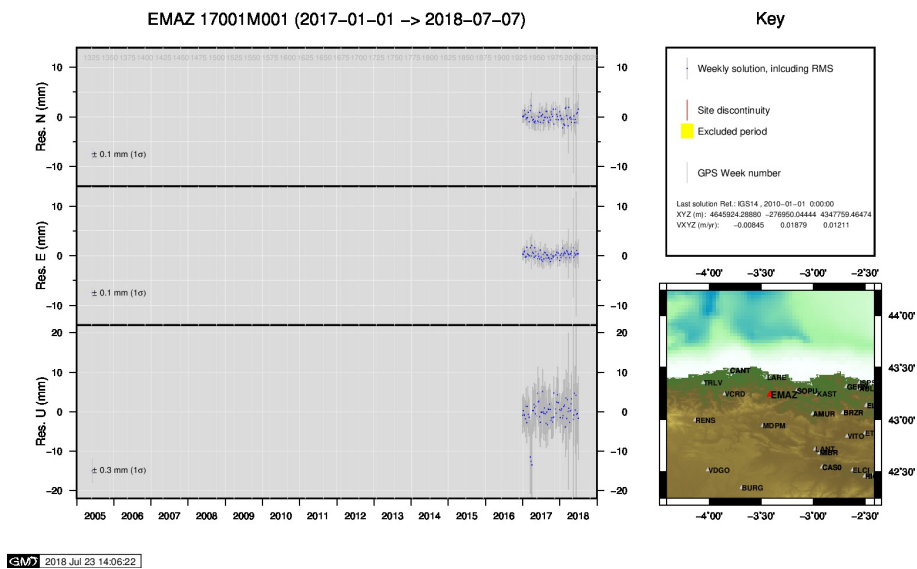
11) CREU



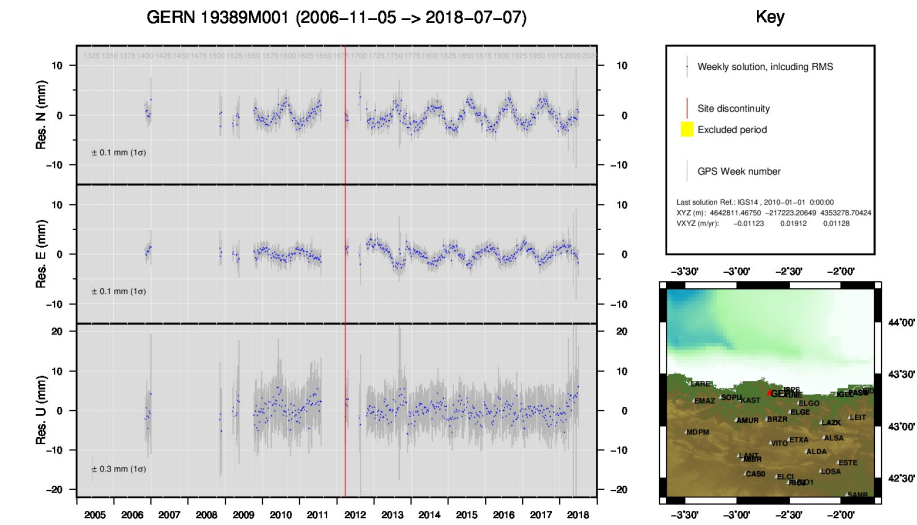
12) EBRE



13) ELGE

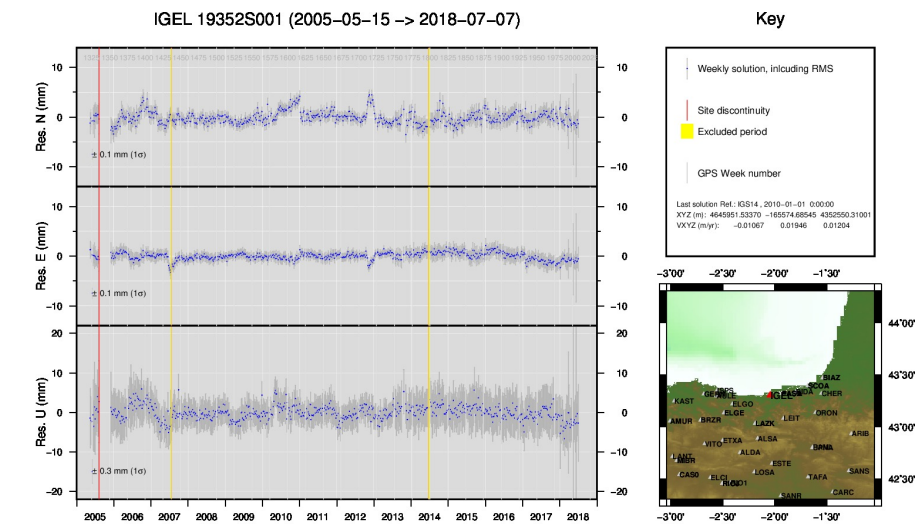


14) EMAZ



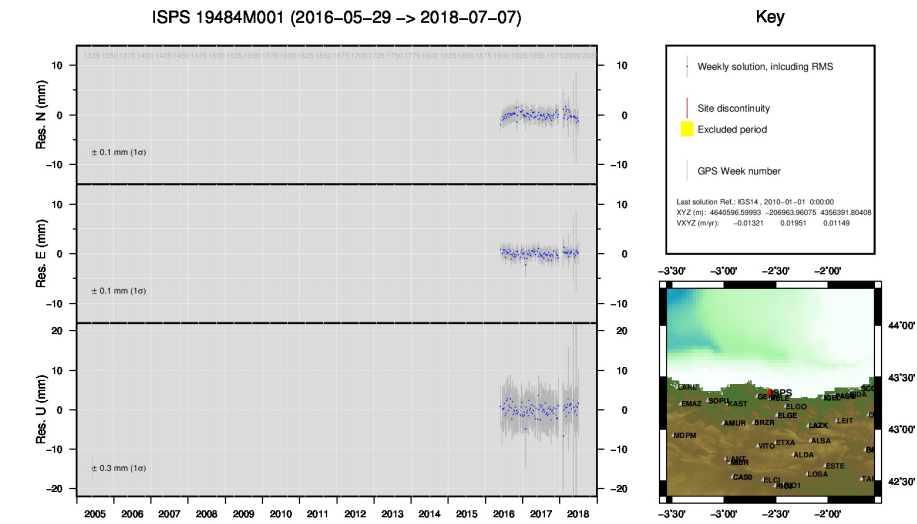
GMW 2018 Jul 23 14:08:40

15) GERN



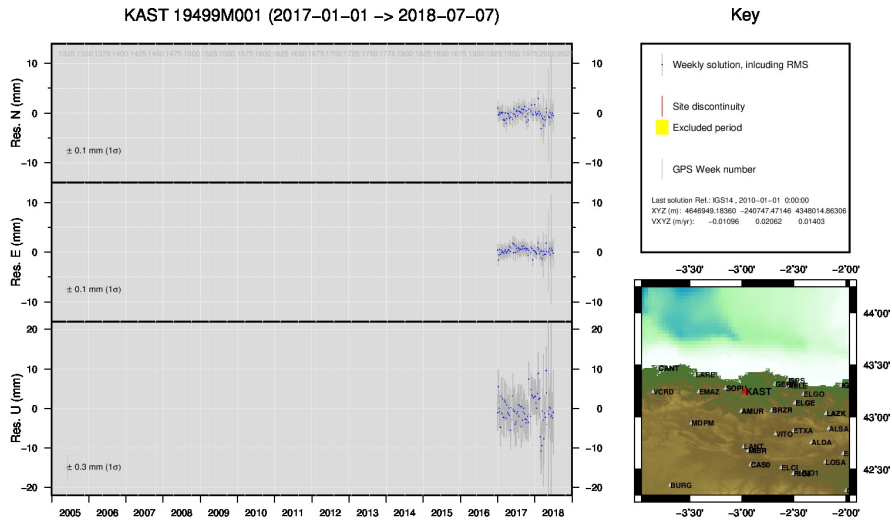
GMW 2018 Jul 23 14:10:48

16) IGEL



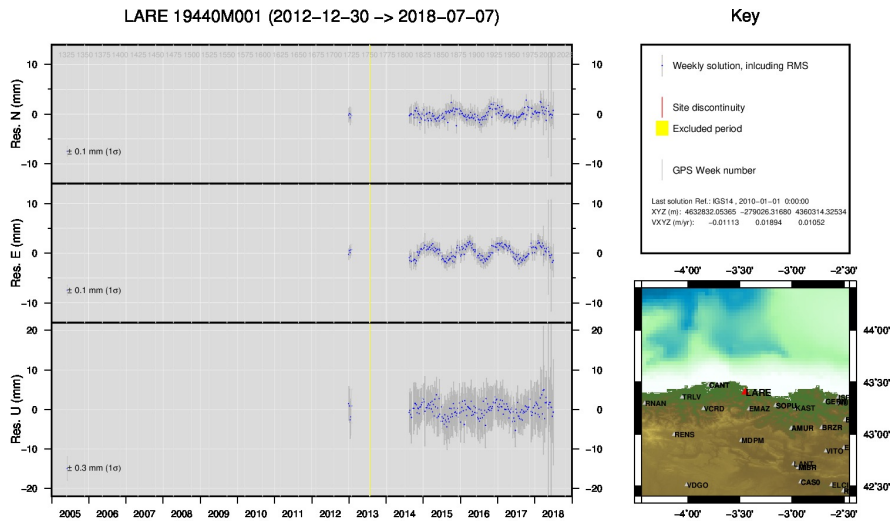
GMW 2018 Jul 23 14:11:13

17) ISPS



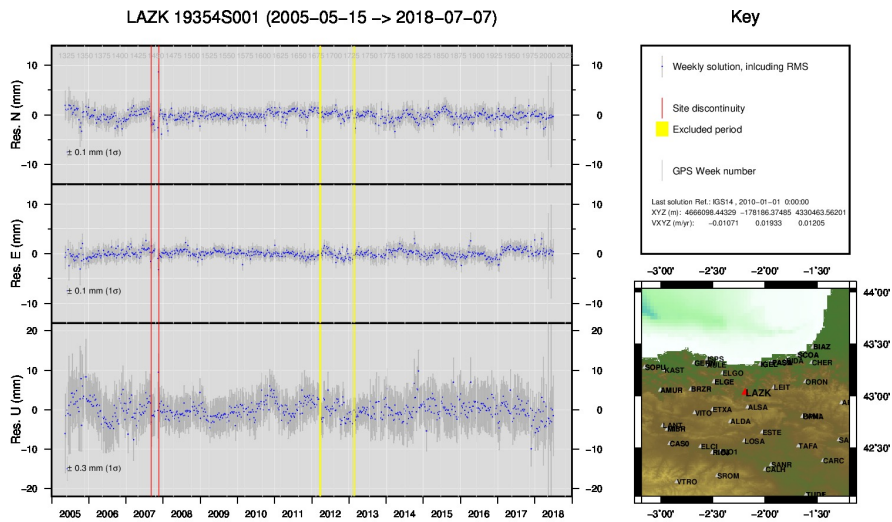
GMW 2018 Jul 23 14:11:44

18) KAST



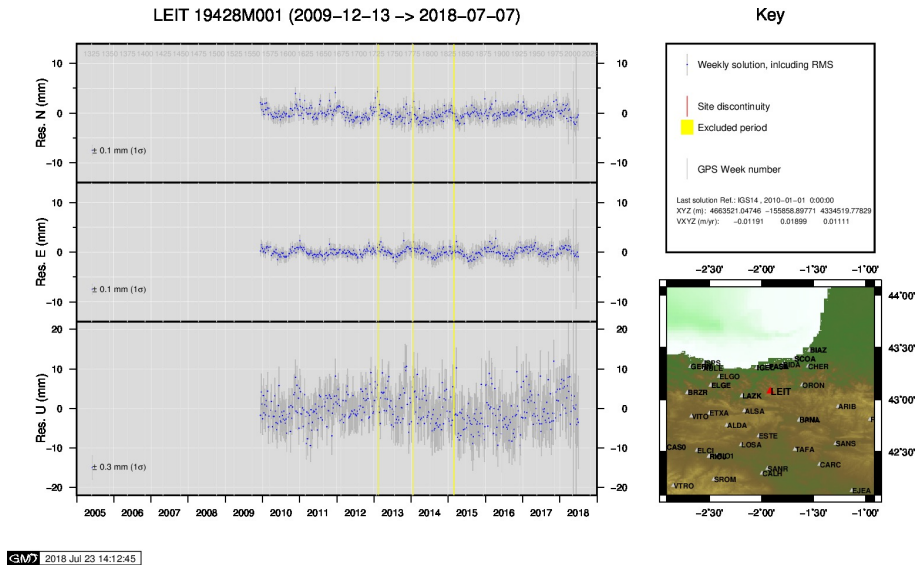
GMW 2018 Jul 23 14:12:14

19) LARE

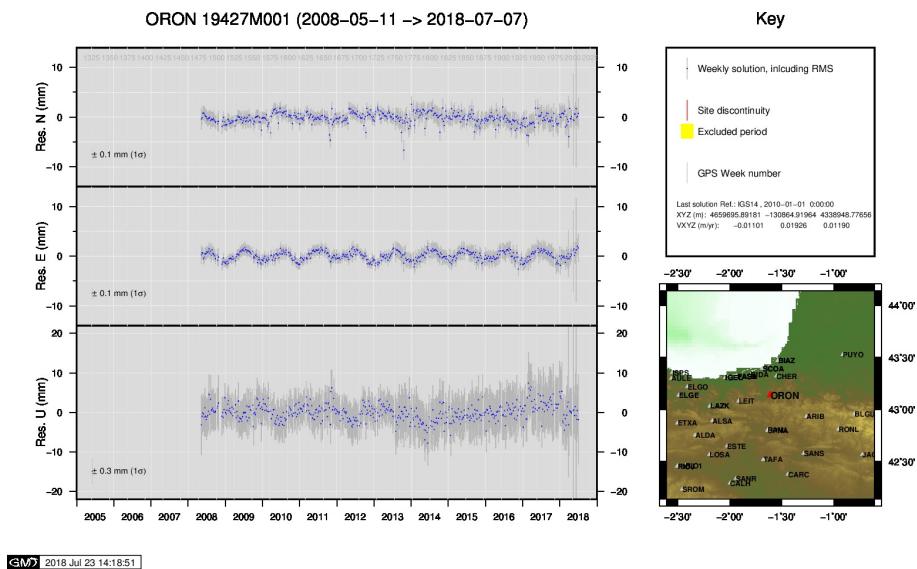


GMW 2018 Jul 23 14:12:20

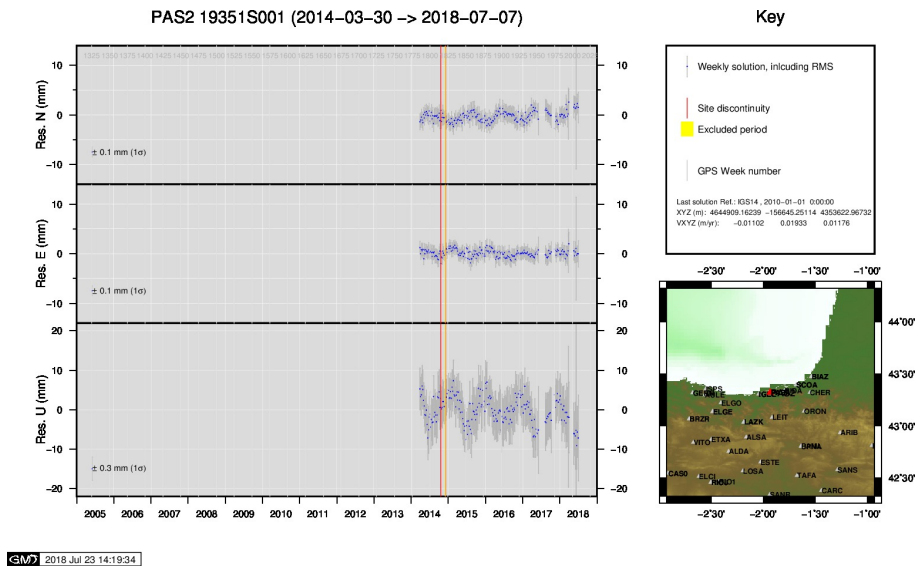
20) LAZK



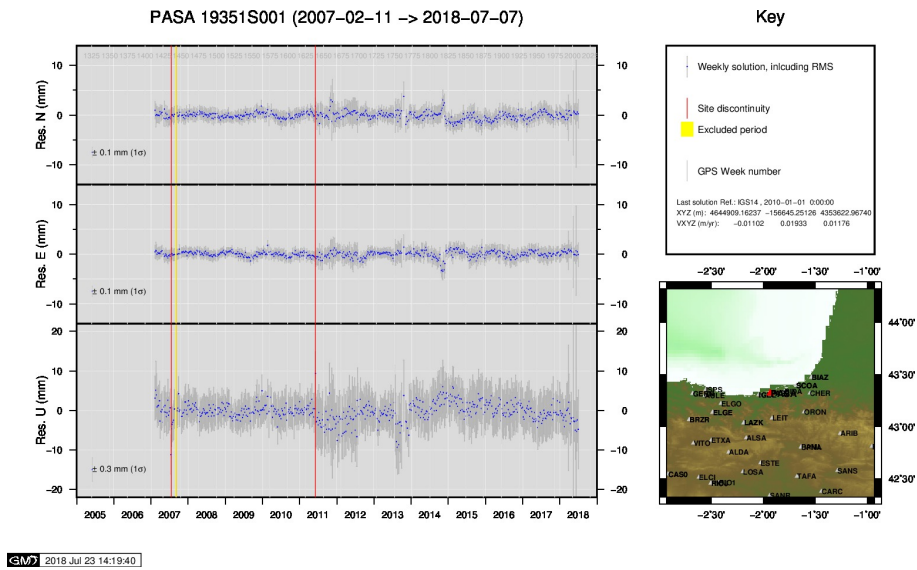
21) LEIT



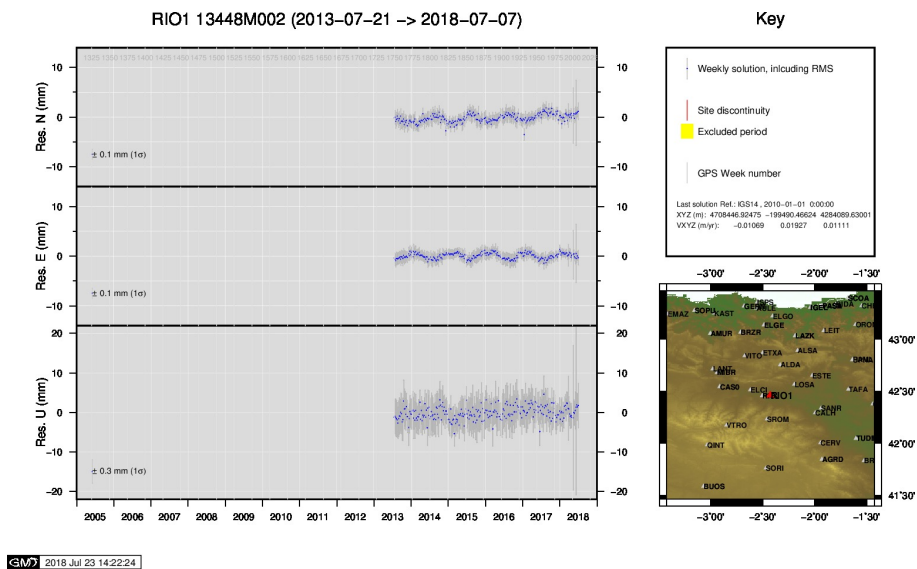
22) ORON



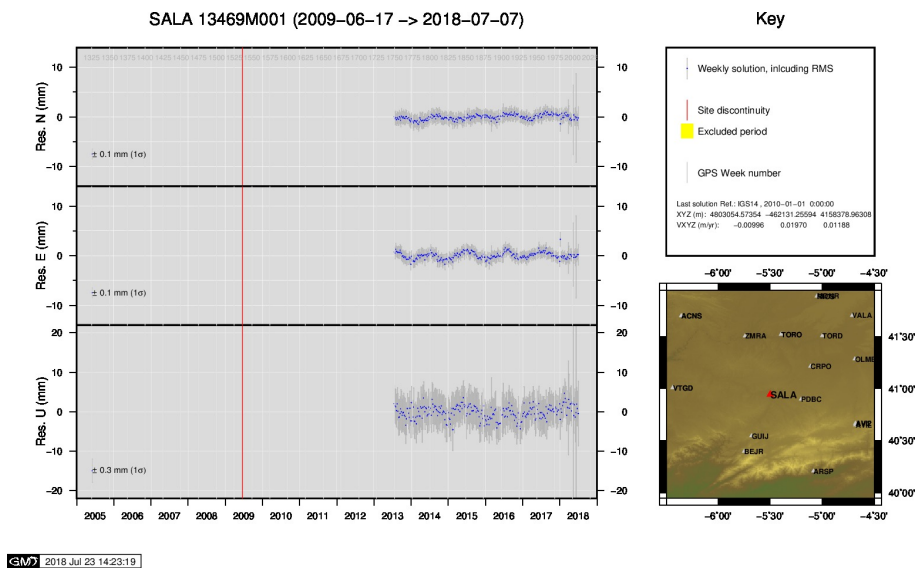
23) PAS2



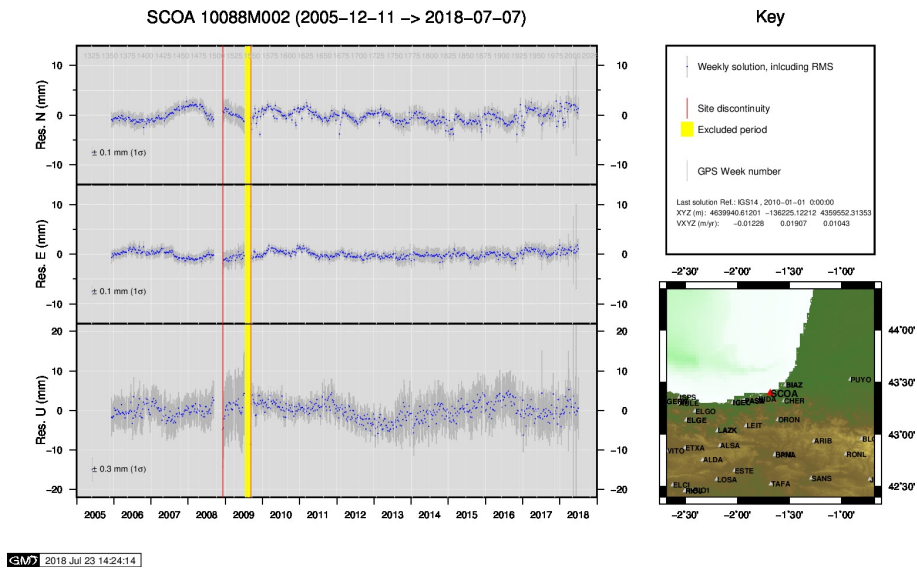
24) PASA



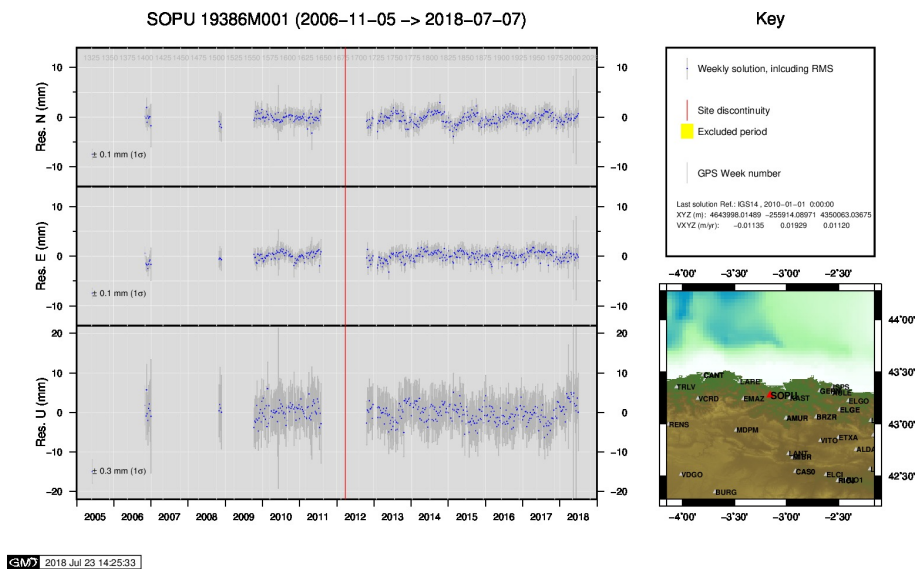
25) RIO1



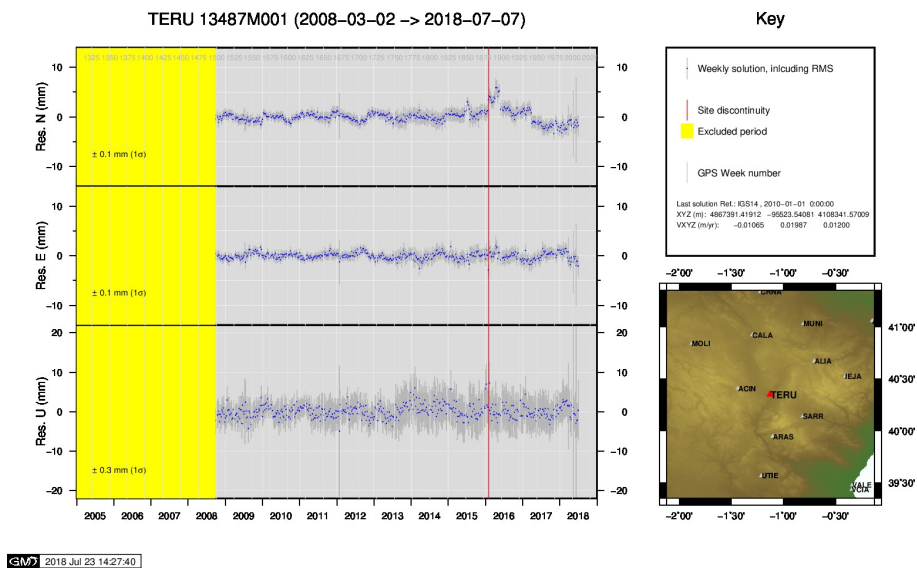
26) SALA



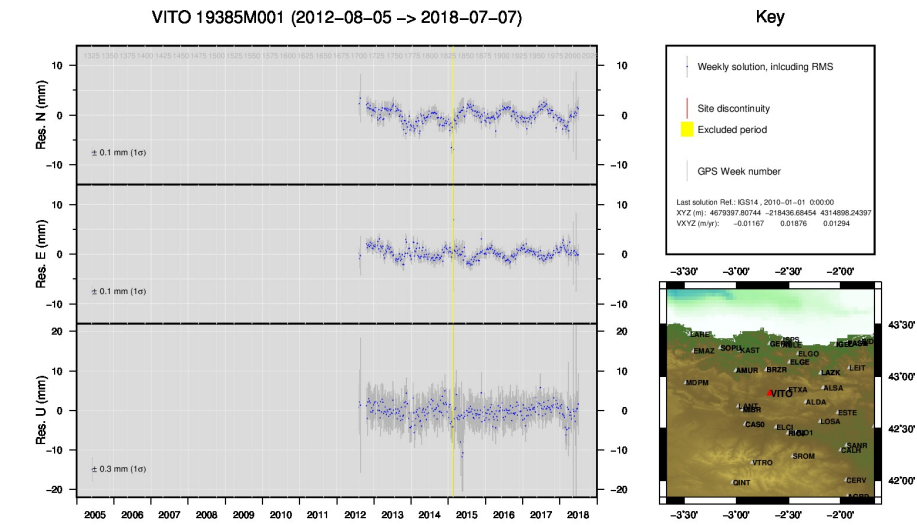
27) SCOA



28) SOPU

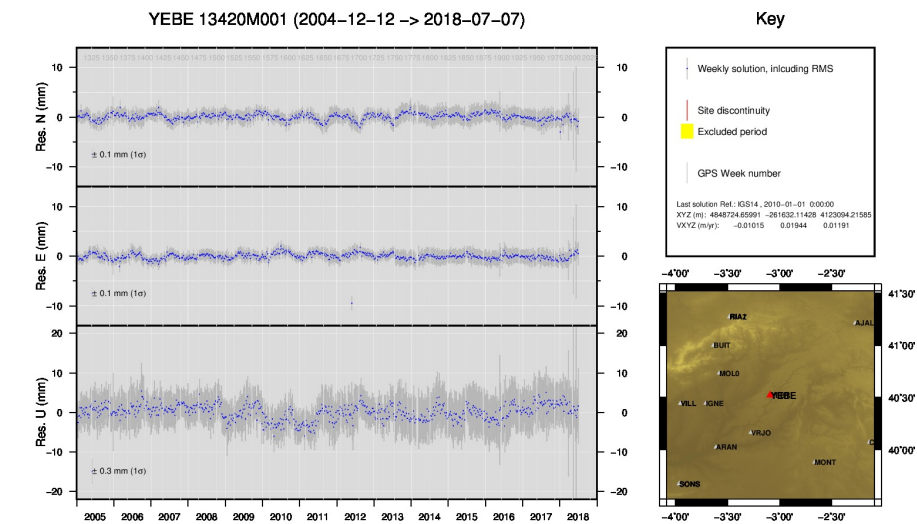


29) TERU



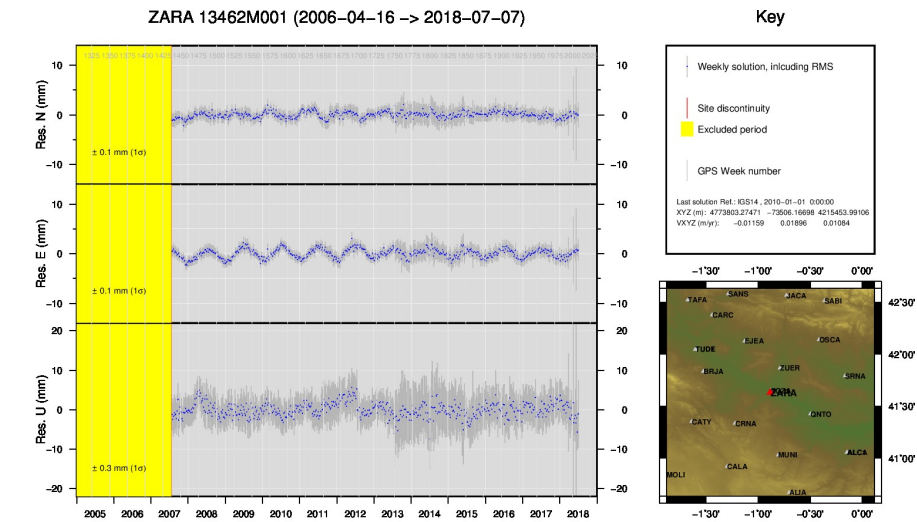
GMW 2018 Jul 23 14:31:10

30) VITO



GMW 2018 Jul 23 14:32:20

31) YEBE



GMW 2018 Jul 23 14:32:27

32) ZARA

