



Figure S1. Levelling marks of the RENID network fixed on volcanic rocks. **a.** Elements to construct the levelling mark. **b.** GPS antenna placed on a levelling mark.

#	POINT	Latitude S (° ' ")	Longitude W (° ' ")	h (m)	σ_φ (m)	σ_λ (m)	σ_h (m)
1	BEGC	62 58 43.6576	60 40 27.5304	82.070	0.001	0.001	0.002
2	BALL	62 58 38.5553	60 33 52.5089	25.968	0.003	0.001	0.006
3	FUMA	62 57 41.0170	60 42 59.3471	22.911	0.001	0.001	0.006
4	PEND	62 56 09.8456	60 35 34.3437	28.841	0.001	0.001	0.003
5	COLA	62 59 27.9180	60 37 31.8014	48.050	0.003	0.001	0.009
6	GLAN	62 57 58.3621	60 35 23.8528	27.541	0.003	0.003	0.012
7	GEOD	62 58 56.4127	60 39 11.7290	42.182	0.003	0.001	0.009
8	UCA1	62 56 28.4103	60 41 28.0891	28.667	0.003	0.001	0.009
9	CR70	62 55 23.6706	60 38 01.0013	23.600	0.003	0.003	0.015
10	TELE	62 55 37.9905	60 41 25.5485	23.791	0.003	0.003	0.012
11	BOMB	62 55 08.4201	60 39 33.8481	23.785	0.003	0.003	0.015
12	BARG	62 58 30.2679	60 41 53.3601	22.283	0.001	0.001	0.006

Table S1. The REGID network stations. Coordinates and precisions relative to ITRF2000.0, where h is the ellipsoidal height and σ is the precision in metres, obtained in latitude, longitude and h respectively, from Bernese post-processing.

#	Station	Latitude S (° ' ")			Longitude W (° ' ")			Δn 2014 (m)	$\sigma\Delta n$ 2014 (m)	#	Station	Latitude S (° ' ")			Longitude W (° ' ")			Δn 2014 (m)	$\sigma\Delta n$ 2014 (m)
1	LN00	62	58	36.2056	60	40	35.8957	0.000	0.000	34	LN119	62	57	28.0209	60	43	7.5322	-1.94	0.020
2	BEGC	62	58	43.6576	60	40	27.5304	57.025	0.003	35	LN120	62	57	24.5739	60	43	10.1855	-0.38	0.020
3	BALL	62	58	38.5553	60	33	52.5089	0.723	0.026	36	LN121	62	57	17.4314	60	43	7.3549	2.949	0.018
4	FUMA	62	57	41.0170	60	42	59.3471	-2.771	0.007	37	LN122	62	57	12.2873	60	42	59.6374	5.776	0.018
5	PEND	62	56	9.8456	60	35	34.3437	3.562	0.038	38	LN123	62	57	6.5336	60	42	42.2591	12.02	0.013
6	COLA	62	59	27.9180	60	37	31.8014	22.847	0.010	39	LN124	62	57	15.3448	60	42	29.5474	0.051	0.008
7	GLAN	62	57	58.3621	60	35	23.8528	2.213	0.033	40	LN125	62	57	28.5470	60	43	2.0867	-4.123	0.002
8	GEOD	62	58	56.4127	60	39	11.7290	17.018	0.014	41	LN201	62	56	30.0095	60	41	48.8256	17.845	0.009
9	UCA1	62	56	28.4103	60	41	28.0891	3.513	0.032	42	LN202	62	56	36.6164	60	41	45.5859	6.567	0.011
10	CR70	62	55	23.6706	60	38	1.0013	-1.531	0.042	43	LN203	62	56	41.6640	60	41	50.8872	12.550	0.022
11	TELE	62	55	37.9905	60	41	25.5485	-1.394	0.068	44	LN301	62	55	17.3106	60	37	48.3141	5.757	0.046
12	BOMB	62	55	8.4201	60	39	33.8481	-1.353	0.020	45	LN302	62	55	7.5517	60	37	53.8953	19.817	0.050
13	GRAV	62	58	40.5263	60	40	34.0082	23.456	0.000	46	LN303	62	55	15.5437	60	38	14.8131	-0.109	0.034
14	BARG	62	58	30.2679	60	41	53.3601	-2.883	0.008	47	LN401	62	58	43.0473	60	40	41.2241	4.645	0.003
15	TOCO	62	59	26.3322	60	37	34.0251	-3.640	0.008	48	LN402	62	58	50.7123	60	40	43.2290	12.409	-0.013
16	LN101	62	58	32.2136	60	41	10.2854	2.136	0.003	49	LN403	62	58	54.2936	60	40	56.8809	20.640	-0.020
17	LN102	62	58	31.3355	60	41	29.2690	8.606	0.004	50	LN404	62	59	0.5932	60	41	8.3345	32.454	-0.012
18	LN103	62	58	35.3070	60	42	3.8501	-0.756	0.008	51	LN501	62	56	15.0552	60	35	44.5756	-2.270	0.074
19	LN104	62	58	42.8213	60	42	14.3732	-3.485	0.014	52	LN502	62	56	16.9665	60	35	24.7448	19.396	0.056
20	LN105	62	58	51.8343	60	42	8.2849	4.960	0.009	53	LN503	62	56	10.6673	60	35	19.4667	26.238	0.061
21	LN106	62	58	48.3910	60	42	18.2240	1.167	0.006	54	BR-01	62	58	46.3306	60	34	58.2683	17.059	0.031
22	LN107	62	58	36.8334	60	42	31.6770	2.843	0.007	55	LN601	62	59	10.0432	60	33	2.2151	-4.347	0.054
23	LN108	62	58	25.9484	60	42	18.3389	0.266	0.000	56	LN602	62	58	45.2830	60	33	14.7469	1.785	0.050
24	LN109	62	58	13.2676	60	42	30.0081	3.758	0.004	57	LN603	62	58	39.4300	60	34	19.7415	8.617	0.043
25	LN110	62	58	16.3419	60	42	39.1766	20.362	0.003	58	LN604	62	58	59.1811	60	34	34.8541	-3.911	0.046
26	LN111	62	58	14.5447	60	42	48.5352	24.279	0.001	59	LN605	62	58	31.1053	60	35	12.9326	3.668	0.048
27	LN112	62	58	5.7220	60	42	44.2175	10.539	0.009	60	LN606	62	58	21.7289	60	34	34.6931	7.238	0.053
28	LN113	62	58	7.0971	60	42	35.7230	-1.488	0.004	61	LN607	62	58	7.2749	60	35	9.8278	12.875	0.074
29	LN114	62	57	53.8232	60	42	47.9024	-4.002	0.008	62	LN608	62	58	13.5512	60	35	21.6130	1.995	0.070
30	LN115	62	57	50.8129	60	42	50.9820	-4.655	0.011										
31	LN116	62	57	46.4973	60	42	53.2490	-3.804	0.011	201	BEJC	62	39	46.77401	60	23	19.9867	0.000	0.000
32	LN117	62	57	36.4112	60	42	58.0599	-3.74	0.012	202	BEJ1	62	39	46.44273	60	23	16.6494	1.025	0.002
33	LN118	62	57	32.4807	60	43	4.0144	-2.082	0.012	203	TOJO	62	39	35.6708	60	22	30.1424	-9.482	0.000

Table S2. The RENID network and the errors obtained in levelling measurements, where Δn is the levelling difference in metres regarding to LN00 and $\sigma\Delta n$ is the error in metres obtained in the geometric levelling.

LINKAGE	POINT	LEVELLING DIFFERENCE (m)	LEVELLING ERROR (m)	ELEVATION (m.a.m.s.l.)	LEVELLING TYPE
1	LN000	0.000		6.200	
	TOCO	-3.640	0.0076	2.560	GEOM
	COLA	26.487	0.0103	29.047	GEOM
2	COLA	0.000		29.047	
	LN604	-26.758	0.023	2.289	TRIG
	BR01	20.970	0.008	23.259	GEOM
	COLA	5.788	0.022	29.047	TRIG
3	LN125	0.000		2.077	
	UCA1	7.636	0.011	9.713	TRIG
4	UCA1	0.000		9.713	
	TELE	-4.907	0.071	4.806	TRIG
5	TELE	0.000		4.806	
	BOMB	0.041	0.021	4.847	TRIG
6	BOMB	0.000		4.847	
	CR70	-0.178	0.022	4.669	TRIG
7	CR70	0.000		4.669	
	PEND	5.141	0.071	9.810	TRIG

Table S3. Linkages between levelling lines of the RENID network and their errors obtained.

#	PUNTOS	Lat S (° ' ")			Long W (° ' ")			h (m)	G (mGal)	σG (mGal)
1	EG01	62	58	48.1094	60	40	12.3818	78.456	982198.173	0.055
2	EG02	62	59	01.2970	60	39	11.4625	71.178	982199.122	0.066
3	EG03	62	59	30.2762	60	37	21.8428	52.532	982205.529	0.057
4	EG05	62	59	53.8791	60	34	47.5026	20.146	982209.584	0.053
5	EG06	62	58	37.6953	60	41	07.9465	39.988	982204.119	0.053
6	EG07	62	58	43.2210	60	42	50.4931	69.735	982197.927	0.053
7	EG09	62	57	14.5726	60	42	26.6680	25.443	982204.825	0.057
8	EG10	62	56	31.9871	60	41	58.0812	52.152	982200.187	0.062
9	EG11	62	55	35.7940	60	41	22.7860	28.703	982204.052	0.053
10	EG13	62	55	09.7657	60	37	45.4645	36.295	982200.685	0.062
11	EG14	62	56	07.0910	60	35	20.8290	50.980	982198.213	0.071
12	G02	62	58	46.7819	60	39	38.2754	112.127	982190.083	0.065
13	G03	62	59	08.8696	60	40	31.9497	104.678	982195.895	0.053
14	G04	62	59	14.7016	60	39	37.4031	82.573	982199.635	0.065
15	G07	62	58	59.4249	60	39	39.0242	52.816	982203.413	0.055
16	G09	62	59	14.1399	60	38	56.6499	57.371	982202.777	0.067
17	G10	62	59	10.8655	60	38	48.9905	35.889	982205.576	0.057
18	G11	62	59	44.1112	60	37	08.5360	80.317	982199.422	0.062
19	G12	62	59	36.1661	60	37	35.4294	89.251	982201.818	0.053
20	G14	62	59	45.3668	60	35	12.4745	27.704	982208.779	0.053
21	G15	62	59	54.2475	60	34	22.3007	41.089	982205.265	0.064
22	G16	63	0	02.2715	60	34	29.7894	59.787	982201.591	0.064
23	G17	62	58	38.1730	60	41	37.8158	80.573	982197.149	0.064
24	G18	62	58	40.1888	60	40	45.1809	51.776	982202.092	0.052
25	G19	62	58	44.8427	60	41	29.3256	97.453	982194.442	0.064
26	G20	62	58	38.3412	60	42	52.5674	58.462	982200.199	0.054
27	G21	62	58	39.2400	60	43	05.2908	80.672	982196.137	0.065
28	G22	62	58	44.3870	60	43	06.3874	60.864	982199.178	0.065
29	G26	62	57	03.9356	60	42	29.2077	47.694	982201.559	0.065
30	G27	62	57	00.8922	60	42	15.8027	80.152	982195.785	0.066
31	G28	62	57	14.9726	60	42	09.9771	19.951	982205.054	0.053
32	G31	62	56	24.6032	60	41	55.3321	69.506	982196.543	0.062
33	G32	62	56	21.8587	60	42	19.3941	103.483	982191.824	0.087
34	G33	62	56	35.4428	60	42	35.5984	87.088	982195.299	0.092
35	G34	62	56	39.9117	60	42	22.1502	70.898	982197.392	0.092
36	G35	62	55	42.7556	60	41	17.3589	23.395	982204.237	0.049
37	G42	62	55	14.9427	60	38	32.1780	23.961	982202.504	0.061
38	G43	62	55	07.3829	60	38	06.7445	42.856	982199.992	0.073
39	G44	62	55	02.8139	60	37	38.3307	63.968	982196.250	0.077
40	G45	62	55	11.1201	60	37	23.6366	45.943	982198.709	0.073
41	G48	62	56	01.4956	60	35	41.7043	26.274	982202.010	0.057
42	G49	62	55	44.3922	60	36	24.7356	24.443	982201.488	0.055
43	G53	62	56	18.9500	60	36	03.6615	60.691	982197.149	0.065
44	G55	62	56	23.2707	60	36	03.9003	56.375	982198.337	0.065
45	G57	62	56	54.0885	60	36	01.2493	18.737	982204.579	0.053
46	TOCO	62	59	26.3322	60	37	34.0251	21.563	982205.580	0.011

Table S4. REGRID Auxiliary gravimetric points and values