

Re-Evaluation of the Earthquake Catalog for Spain using the EMS-98 scale for the period 1900-1962

J. Fernández-Fraile, M. Mattesini, E. Bufo

SUPPLEMENTAL MATERIAL

List of Supplemental Table Captions

Table S1: Largest earthquakes ($M > 6.0$ or $I_{\max} \geq IX$) occurring in southern Iberia and northern Africa during 1900-2023 (see Data and Resources).

Table S2: Summary of the consulted documents.

Table S3: Original Spanish texts used to evaluate the macroseismic information together with its English translations.

Table S4: EQ1 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S5: IDPs with re-evaluated Intensities (EMS-98) and the geographical coordinates for EQ1.

Table S6: EQ2 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S7: IDPs (F-M) from Mezcu, 1982; used for the macroseismic epicenter estimation of EQ2.

Table S8: IDPs with re-evaluated Intensities (EMS-98) and the geographical coordinates for EQ2.

Table S9: EQ3 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S10: IDPs (Mercalli) from Sánchez Lozano & Marín, 1912; used for the macroseismic epicenter estimation of EQ3.

Table S11: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ3.

Table S12: EQ4 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S13: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ4.

Table S14: EQ5 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S15: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ5.

Table S16: EQ6 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S17: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ6.

Table S18: EQ7 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S19: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ7.

Table S20: EQ8 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S21: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ8.

Table S22: EQ9 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S23: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ9.

Table S24: EQ10 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S25: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ9.

Table S26: EQ11 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Table S27: EQ12 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Table S28: EQ13 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S29: IDPs (F-M) from Rey Pastor, 1944; used for the macroseismic epicenter estimation of EQ13.

Table S30: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ13.

Table S31: EQ14 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S32: IDPs (F-M) from Rey Pastor, 1951; used for the macroseismic epicenter estimation of EQ14.

Table S33: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ14.

Table S34: EQ15 macroseismic intensities comparison: EMS-98 vs previous scales.

Table S35: IDPs (F-M) from Rey Pastor, 1951; used for the macroseismic epicenter estimation of EQ15.

Table S36: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ15.

Table S37: EQ16 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Table S38: Re-evaluated seismic parameters for the 1900-1962 period in this study.

List of Supplemental Figure Captions

Figure S1: Result for EQ1 earthquake. The red star corresponds to the assigned epicenter of this study and the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S2: Results for EQ2 earthquake, the red star (in both figures) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S3: Results for EQ3 earthquake, the red star (in both figures) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S4: Results for EQ4 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter and, the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S5: Result for EQ5 earthquake. The red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter.

Figure S6: Result for EQ6 earthquake. The red star corresponds to the assigned epicenter of this study, the blue star corresponds to the IGN epicenter and the circle corresponds to the re-evaluated IDPs with EMS-98.

Figure S7: Results for EQ7 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter. a) Epicenters obtained with the macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S8: Result for EQ8 earthquake. The red star corresponds to the assigned epicenter of this study, the blue star corresponds to the IGN epicenter and the circle corresponds to the re-evaluated IDPs with EMS-98.

Figure S9: Results for EQ9 earthquake. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter and the red lines correspond with the geological faults. b) Final result, the red star corresponds to the assigned epicenter of this study and the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S10: Results for EQ10 earthquake, the red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter (in the four panels). a) Epicenters obtained with the macroseismic methods and the location errors. b) Epicenters obtained with instrumental methods and the location errors. The red lines correspond with the geological faults in **Figure S10 a)** and **Figure S10 b)**. c) Final result, the circles correspond to the re-evaluated IDPs with EMS-98. d) Final result (detail).

Figure S11: Results for EQ11 earthquake, the red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter (in both panels). a) Epicenters obtained with instrumental methods and the location errors, and the red lines correspond with the geological faults b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S12: Results for EQ13 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S13: Results for EQ14 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S14: Results for EQ15 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter. a) Epicenters obtained with the macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Figure S15: Results for EQ16 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

Table S1: Largest earthquakes ($M > 6.0$ or $I_{\max} \geq IX$) occurring in southern Iberia and northern Africa during 1900-2023 (see Data and Resources).

IGN ID	Date	Origin Time	Latitude	Longitude	Depth	Magnitude	$I_{\max}$	Location
2720	21/01/1909	0:00:00	35,50	-5,60	-	-	IX	Romara.Mac
2742	23/04/1909	17:39:36	38,95	-8,82	-	-	X	Benavente.Por
2890	24/06/1910	13:28:30	36,05	3,42	-	6,4 (-)	X	Masqueray.Arg
3234	11/07/1915	11:29:16	35,50	-11,80	-	6,2 (-)	V	Oceano Atlantico
3552	25/08/1922	11:47:49	36,42	1,20	-	5,1 (-)	IX-X	Cavaignac.Arg
3573	19/11/1922	17:04:56	36,28	1,08	-	5,6 (-)	IX	Fromentin.Arg
3672	05/11/1924	18:54:34	36,65	2,90	-	5,2 MD(M-MS)	IX	Ben Chabane.Arg
4030	20/05/1931	2:24:00	37,60	-16,50	-	7,1 MD(M-MS)	VI	Oceano Atlantico
4149	07/09/1934	3:39:17	36,23	1,72	-	5 MD(M-MS)	IX	Carnot.Arg
4481	25/11/1941	18:03:55	37,42	-19,02	-	8,2 MD(M-MS)	VI	Oceano Atlantico
4558	16/04/1943	11:43:16	36,08	4,55	-	5 MD(M-MS)	IX	Mansourah.Arg
4788	13/03/1948	8:06:00	33,00	0,10	-	4,9 MD(M-MS)	IX	Bou Semrhoun.Mac
5117	29/08/1953	14:08:50	35,80	5,00	-	5,2 MD(M-MS)	IX	Hodna.Arg
5158	29/03/1954	6:16:05	37,00	-3,60	657	7,8 Mw	V	Durcal.Gr
5180	09/09/1954	1:04:37	36,28	1,47	-	6,7 MD(M-MS)	X-XI	El Asnam.Arg
5183	09/09/1954	9:28:42	36,00	1,50	-	6 MD(M-MS)	X	El Asnam.Arg
5677	07/11/1959	2:32:08	36,40	2,50	-	5,1 MD(M-MS)	IX	Bou Medfa.Arg
5696	29/02/1960	23:40:14	30,45	-9,62	-	6 MD(M-MS)	X	Agadir.Mac
5903	04/09/1963	5:06:42	36,00	5,20	-	6,3 MbLg (M-MS)		Bir Hadada.Arg
5933	15/03/1964	22:30:26	36,13	-7,75	30	6,2 MbLg (M-MS)	VII	Golfo De Cádiz
6520	28/02/1969	2:40:34	36,05	-10,63	31	7,8 Mw	VIII-IX	Sw Cabo De San Vicente
7605	26/05/1975	9:11:51	35,96	-17,58	15	7,8 MbLg (M-MS)	VI	Azores-Cabo De San Vicente

8681	10/10/1980	12:25:23	36,15	1,45	5	7,1 Mw	IX	E Chlef.Arg
8690	10/10/1980	15:39:10	36,17	1,65	5	6,2 MbLg (M-MS)	-	E Chlef.Arg
382722	21/05/2003	18:44:19	36,82	3,72	-	6,6 Mw	IX-X	E Boumerdas.Arg
458391	24/02/2004	2:27:46	35,16	-3,98	-	6,2 Mw	VIII	N Tamassint.Mac
724473	12/02/2007	10:35:24	35,91	-10,47	65	6,1 Mw	IV	Sw Cabo De San Vicente
981425	11/04/2010	22:08:11	36,97	-3,54	623	6,2 Mw	II	S Nigüelas.Gr
1362673	25/01/2016	4:22:01	35,60	-3,81	12	6,3 Mw	VI	Alborán Sur

Table S2: Summary of the consulted documents.

ID	Date	Origin Time	I _{max}	Location		Documentación consultada							
						Seismic Bulletins and Catalogs	Isoseis-mal Maps	Specific Studies	Macro-seismic Question naries	Seismograms/ Photographic Reproduction of Seismograms	Pictures (Videos)	Press	Total
1900-1923 Period													
EQ1	16/04/1907	17:30:00	VII	TOTANA.MU		8	-	-	-	-	-	31	39
EQ2	01/07/1909	14:12:18	VII	TORREVIEJA.A		8	1	1	-	-	-	53	63
EQ3	21/03/1911	14:15:35	VII-VIII	LAS TORRES DE COTILLAS.MU		15	1	4	-	2	-	61	83
EQ4	03/04/1911	11:11:11	VII	LORQUI.MU		16	-	4	-	2	3	108	133
EQ5	22/04/1912	3:22:45	VII	SE DOÑA MARÍA OCAÑA.AL		6	-	-	-	-	-	17	23
EQ6	25/04/1912	20:35:00	IV	LORQUI.MU		7	-	-	-	-	-	15	22
EQ7	11/08/1913	1:05:48	VII	ALBUÑOL.GR		7	-	-	-	-	-	8	15
EQ8	25/11/1913	2:27:29	VII	HUESCAR.GR		6	-	-	-	-	-	27	33
EQ9	28/11/1916	22:05:46	VII	SALINAS.A		10	4	2	-	-	-	38	54
EQ10	10/09/1919	10:40:31	VII-VIII	W SAN MIGUEL DE SALINAS.A		7	3	10	114	17	15	131	297
1924-1962 Period													
EQ11	12/06/1926	23:29:22	VI	GOLFO DE CÁDIZ		18	2	1	15	2	-	35	73
EQ12	05/03/1932	2:10:26	VII	LUCAR.AL		14	3	2	-	13	-	46	78
EQ13	23/02/1944	22:34:10	VII	FORTUNA.MU		13	2	1	-	-	-	5	21
EQ14	01/07/1945	3:18:04	VII	ONTENIENTE.V		15	2	-	-	-	-	3	20
EQ15	23/06/1948	3:43:58	VII	SE CEHEGIN.MU		14	4	1	-	1	-	9	29
EQ16	19/04/1956	18:38:54	VII-VIII	NW PURCHIL.GR		19	4	8	-	8	29 (1)	90	159

Table S3: Original Spanish texts used to evaluate the macroseismic information together with its English translations.

ID	Source (NP: Newspaper, SR: Scientific Report)	Original Text (in Spanish)	English Translation
EQ5	El Día (NP), (April 24 th , 1912)	<i>El temblor de tierra ha originado muchos desperfectos en los edificios. Algunas casas han quedado derruidas</i>	The earthquake has caused much damage to the buildings. Some houses have been destroyed
EQ5	La Independencia (NP), (April 24 th , 1912)	<i>bastantes casas han sufrido desperfectos y otras quedaron en ruina</i>	many houses have suffered damage, and others are ruined
EQ5	La Cruz (NP), (April 26 th , 1912)	<i>Algunos edificios se hundieron y otros se agrietaron. Los vecinos, asustados, huyeron al campo</i>	some buildings collapsed, and others cracked. The neighbors, frightened, went to the field
EQ7	El Defensor de Granada (NP), (August 12 th , 1913)	<i>[...] [el pueblo de las Albuñuelas] [...] se sintió un gran terremoto acompañado de formidable ruido y cuya duración fue de bastantes segundos. El vecindario abandonó precipitadamente sus casas. El pánico que se produjo fue indescriptible. No ha habido que lamentar desgracias personales, pero los edificios han experimentado desperfectos</i>	[...] the village of Albuñuelas [...] felt a great earthquake accompanied by a formidable noise that lasted several seconds. The neighborhood hastily abandoned their houses. The panic that ensued was indescribable. There have been no personal misfortunes, but the buildings have suffered damage
EQ7	Gaceta del Sur (NP), (August 13 th , 1913)	<i>en Albuñuelas [...] Se produjo gran trepidación. Todo el vecindario se lanzó a las calles, instalándose fuera del alcance de las edificaciones, por si estas se derrumbaban. El pánico fue terrible</i>	in Albuñuelas [...] There was great trepidation. The entire neighborhood went to the streets, settling out of reach of the buildings, in case they collapsed. The panic was terrible
EQ7	Gaceta del Sur (NP), (August 13 th , 1913)	<i>Muchos vecinos pretendieron que se tocaran las campanas para que nadie permaneciera en su domicilio, pero el cura párroco, Sr. Gámez, no accedió para impedir que aumentase la alarma. Tampoco prestó su consentimiento a que la gente se aglomerase en la iglesia por si al repetirse el fenómeno, como era de temer, se producían</i>	Many neighbors wanted the bells to ring so that no one would stay at home, but the parish priest, Mr. Gámez, did not agree to prevent the alarm from increasing. He did not give his consent for people to gather in the church in case the phenomenon repeated, as was to be feared, there would be outrages and misfortunes

		<i>atropellos y desgracias</i>	
EQ8	El Imparcial (NP), (November 29 th , 1913)	<i>No han ocurrido desgracias. Algunos edificios se han resentido</i>	no misfortunes have occurred. Some buildings have suffered
EQ8	El Globo (NP), (November 29 th , 1913)	<i>son muchos los vecinos que han abandonado sus hogares</i>	many neighbors have abandoned their homes
EQ8	Diario de Valencia (NP), (November 29 th , 1913)	<i>se han sentido veinte sacudidas sísmicas, algunas de bastante intensidad. La persistencia del fenómeno ha sido causa de verdadero pánico en dicho pueblo y los circunvecinos</i>	Twenty seismic shocks have been felt in Huéscar, some quite intense. The persistence of the phenomenon has been a cause of real panic in the town and the surrounding area
EQ8	El Pueblo (NP), (November 29 th , 1913)	<i>[...] pero que no han tenido consecuencias</i>	[...] but that they have had no consequences
EQ8	El Salmantino (NP), (November 29 th , 1913)	<i>Felizmente, no causaron otros efectos más que los de la natural alarma entre los moradores de la indicada localidad</i>	Fortunately, they did not cause any other effects than those of the natural alarm among the inhabitants
EQ8	Sánchez Navarro Neumann (1914) (SR)	<i>Han sido bastantes los tabiques que se hundieron o cuartearon, y muchas las chimeneas desmoronadas, sin que haya que lamentar, empero, ninguna desgracia personal</i>	Many partition walls have fallen down or cracked, and many chimneys have been ruined, without having to lament, however, any personal misfortune
EQ8	El País (NP), (November 29 th , 1913)	<i>Algunos se han notado hasta en el inmediato lugar de Galera</i>	they have also noticed [the earthquakes] in the immediate place of Galera
EQ8	La Correspondencia de España (NP), (November 29 th , 1913)	<i>Dicho fenómeno también se ha notado en el pueblo de Galera</i>	this phenomenon has also been noted in the town of Galera
EQ11	La Independencia (NP), (June 13 th , 1926)	<i>Las paredes de algunas viviendas antiguas o modestas, han sufrido los efectos del temblor de tierra</i>	The walls of some old or modest houses have suffered the effects of the earthquake
EQ11	Diario de Burgos (NP), (June 14 th , 1926)	<i>Algunos edificios viejos se agrietaron</i>	Some old buildings cracked
EQ11	La Independencia (NP), (June 15 th , 1926)	<i>Presentaban grietas, entre otros edificios, dos casas del Paseo del Príncipe, por su parte alta, y algunas otras casas</i>	Two houses on the Paseo del Príncipe, among other buildings, and some other houses had cracks in their upper part

EQ12	Crónica Meridional (NP), (March 9 th , 1932)	<i>El terremoto [...] causó daños en muchas casas y desprendimiento de piedras del cerro denominado Los Cámaras, que hundieron dos edificios</i>	The earthquake [...] caused damage to many houses and detachment of stones from the hill called “Los Cámaras”, which throw down two buildings
EQ12	Diario de Almería (NP), (March 9 th , 1932)	<i>[...] causando daños de alguna importancia, especialmente en la casa número 5 de la calle del Carmen, sobre cuyos techos se derrumbó gran cantidad de piedras del cerro “Las Cámaras” hundiéndose los techos de la citada casa [...] También, aunque de menos importancia, sufrieron daños la Casa Capitular y el cuartel de la Guardia Civil</i>	[...] causing some important damage, especially on number 5 of Carmen street, on whose roofs a large number of stones from "Las Cámaras" hill collapsed, sinking the roofs of the mentioned house [...] Also, although less important, the Chapter House and the Civil Guard barracks suffered damage
EQ12	La Independencia (NP), (March 9 th , 1932)	<i>El pueblo entero se hallaba fuera de sus domicilios ya que muchos de ellos presentaban grietas</i>	The whole town was outside their homes because many of them had cracks
EQ12	La Independencia (NP), (March 9 th , 1932)	<i>se percibió el primer fenómeno sísmico de unos treinta segundos de duración y con tal intensidad que en todas las viviendas no quedó un “cristal sano”</i>	The first seismic phenomenon was perceived, lasting approximately thirty seconds and with such intensity that in all the houses there was not any "unbroken crystal"
EQ12	La Voz (NP), (March 9 th , 1932)	<i>se sintió un terremoto que causó daños de importancia</i>	An earthquake was felt causing significant damage
EQ13	ABC (NP), (February 24 th , 1944)	<i>se notaron sacudidas con bastante intensidad</i>	quite intense shakes were felt
EQ13	Patria (NP), (February 24 th , 1944)	<i>hubo movimiento de cuadros, puertas y lámparas, y un ruido intenso que produjo alarma en el vecindario</i>	there was movement of pictures, doors and lamps, and an intense noise that caused alarm in the neighborhood
EQ13	El Adelanto (NP), (February 24 th , 1944)	<i>El temblor fue tan intenso que en algunos sitios los muebles se movieron y las bombillas que pendían de los cables oscilaron sensiblemente</i>	The shaking was so intense that in some places the furniture moved and the light bulbs that hung from the wires oscillated noticeably

Table S4: EQ1 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1921)	Galbis (1932) Munuera (1963)	IGN (2023)	Re-evaluated
	F-M	F-M	EMS-98	EMS-98
Totana	VIII	IV	VII	VII
Lorca	-	-		IV

Table S5: IDPs with re-evaluated Intensities (EMS-98) and the geographical coordinates for EQ1.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Totana	VII	-1,5026	37,7696
Lorca	IV	-1,6993	37,6770

Table S6: EQ2 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Boletín sísmico Cartuja (1909)	Andreu (1910)	Mezcua (1982)	Re-evaluated
	F-M	F-M	F-M	EMS-98
Torrevieja	VI-VII	VII	VII	VI
Guardamar	VI-VII	VII	VII	S
Torre de la Mata	VI-VII	VII	VII	S
Rojales	VI	VI	-	S
Benijofar	VI	VI	VI	S
Pilar de la Horadada	-	VI	VI	S
Benejuzar	VI	V-VI	V	S
Jacarilla	VI	V-VI	V	S
Almoradí	V	V-VI	V	S
Dolores	V	V-VI	V	S
San Fulgencio	V	V-VI	V	S
Daya Nueva	V	-	V	S
Daya Vieja	V	-	V	S
Bigastro	V	V	V	S
Orihuela	IV	IV	IV	IV
Elche	IV	IV	IV	III-IV
Crevillente	IV	IV	IV	IV
Benterri (Benferri)	IV	IV	IV	S
Callosa	-	IV	IV	S
Santapola	-	IV	IV	S
Alicante	S	IV	IV	II
Murcia	S	S	-	S
San Pedro	-	S	-	S

Table S7: IDPs (F-M) from Mezcua, 1982;
used for the macroseismic epicenter estimation of EQ2.

Place	Seismic Intensity (F-M)	Longitude	Latitude
Torre Vieja	VII	-0.6830	37.9778
La Mata	VII	-0.6568	38.0188
Guardamar del Segura	VII	-0.6548	38.0899
Benijófar	VI	-0.7383	38.0808
Pilar de la Horadada	VI	-0.7924	37.8637
Benejúzar	V	-0.8382	38.0781
Jacarilla	V	-0.8664	38.0607
Almoradí	V	-0.7920	38.1098
Dolores	V	-0.7697	38.1390
San Fulgencio	V	-0.7188	38.1122
Daya Vieja	V	-0.7381	38.1047
Bigastro	V	-0.8953	38.0630
Orihuela	IV	-0.9466	38.0857
Elche/Elx	IV	-0.6978	38.2674
Crevillent	IV	-0.8086	38.2488
Alicante/Alacant	IV	-0.4832	38.3455
Benferri	IV	-0.9623	38.1418
Callosa de Segura	IV	-0.8793	38.1226
Santa Pola	IV	-0.5553	38.1931

Table S8: IDPs with re-evaluated Intensities (EMS-98) and the geographical coordinates for EQ2.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Torrevieja	VI	-0,6830	37,9778
Orihuela	IV	-0,9466	38,0857
Crevillent	IV	-0,8086	38,2488
Elche/Elx	III-IV	-0,6978	38,2674
Alicante/Alacant	II	-0,4832	38,3455
Guardamar del Segura	F	-0,6548	38,0899
La Mata	F	-0,6568	38,0188
Rojales	F	-0,7232	38,0889
Benijófar	F	-0,7383	38,0808
Pilar de la Horadada	F	-0,7924	37,8637
Benejúzar	F	-0,8382	38,0781
Jacarilla	F	-0,8664	38,0607
Almoradí	F	-0,7920	38,1098
Dolores	F	-0,7697	38,1390
San Fulgencio	F	-0,7188	38,1122
Daya Nueva	F	-0,7610	38,1137
Daya Vieja	F	-0,7381	38,1047
Bigastro	F	-0,8953	38,0630
Benferri	F	-0,9623	38,1418
Callosa de Segura	F	-0,8793	38,1226
Santa Pola	F	-0,5553	38,1931
Murcia	F	-1,1285	37,9844
San Pedro del Pinatar	F	-0,7915	37,8350

Table S9: EQ3 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1912a)	Sánchez Lozano & Marín (1912)	Del Fresno (2002)	Re-evaluated
	F-M	Mercalli	EMS-98	EMS-98
Cotillas	VIII	VII	VII-VIII	VII-VIII
Alguazas	VIII	VI	VII-VIII	VII
Campos	¿VIII?	VI	VII-VIII	VII
Archena	VII	VI	VI	VI-VII
Molina	VII	VI	VI	VII
Lorquí	VII	VII	VII-VIII	VI
San Jerónimo	VI-VII	-	V	VI
Murcia	V-VI	V	V	IV
Alhama de Murcia	-	-	-	IV
Abanilla	IV	III	III	II-III
Alicante	III	III	III	II-III
Ceutí	¿VIII?	VII	?	S
Cartagena	V-VI	III	III-IV	S
Orihuela	V	IV	-	S
Lorca	III	-	-	-
Murcia (Provincia)	S	-	-	-
Alicante (Provincia)	S	-	-	-

Table S10: IDPs (Mercalli) from Sánchez Lozano & Marín, 1912;
used for the macroseismic epicenter estimation of EQ3.

Place	Intensidad (Mercalli)	Longitude	Latitude
Cotillas	VII	-1,2412	38,0295
Ceutí	VII	-1,2696	38,0790
Lorquí	VII	-1,2544	38,0819
Campos	VI	-1,3483	38,0388
Archena	VI	-1,2985	38,1130
Molina	VI	-1,2116	38,0506
Alguazas	VI	-1,2414	38,0503
Murcia (Capital)	V	-1,1285	37,9844
Orihuela	IV	-0,9466	38,0857
Cartagena	III	-0,9821	37,6002
Albanilla	III	-1,0426	38,2079
Alicante	III	-0,4832	38,3455

Table S11: IDPs with re-evaluated Intensities (EMS -98)
and the geographical coordinates for EQ3.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Las Torres de Cotillas	VII-VIII	-1,2412	38,0295
Alguazas	VII	-1,2414	38,0503
Campos del Río	VII	-1,3483	38,0388
Archena	VI-VII	-1,2985	38,1130
Molina de Segura	VII	-1,2116	38,0506
Lorquí	VI	-1,2544	38,0819
Los Jerónimos	VI	-1,1862	37,9906
Murcia	IV	-1,1285	37,9844
Alhama de Murcia	IV	-1,4246	37,8524
Abanilla	II-III	-1,0426	38,2079
Alicante/Alacant	II-III	-0,4832	38,3455
Ceutí	F	-1,2696	38,0790
Cartagena	F	-0,9821	37,6002
Orihuela	F	-0,9466	38,0857

Table S12: EQ4 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1912a)	Sánchez Lozano & Marín (1912)	Del Fresno (2002)	Re-evaluated
	F-M	Mercalli	EMS-98	EMS-98
Lorquí	VIII	VIII	VIII	VII
Ceutí	VIII	VII	VII	VI-VII
Alguazas	VIII	VII	VI	VI-VII
Cotillas	-	VII	VI	VI-VII
Molina	VII	VI	VI-VII	VI
Campos	-	VII	V	V-VI
Archena	-	VI	V	V-VI
Murcia	-	VI	V	V
Alcantarilla	-	-	-	IV-V
Lorca	S	-	II-III	S
Monasterio de San Jerónimo	-	-	III	S
Orihuela	-	-	III	S
Alicante	-	-	III	S

Table S13: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ4.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Lorquí	VII	-1,2544	38,0819
Ceutí	VI-VII	-1,2696	38,0790
Alguazas	VI-VII	-1,2414	38,0503
Las Torres de Cotillas	VI-VII	-1,2412	38,0295
Molina de Segura	VI	-1,2116	38,0506
Campos del Río	V-VI	-1,3483	38,0388
Archena	V-VI	-1,2985	38,1130
Murcia	V	-1,1285	37,9844
Alcantarilla	IV-V	-1,2129	37,9717
Lorca	F	-1,6993	37,6770
Los Jerónimos	F	-1,1862	37,9906
Orihuela	F	-0,9466	38,0857
Alicante/Alacant	F	-0,4832	38,3455

Table S14: EQ5 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1912)	Sánchez Navarro Neumann (1913)	Mezcua Martínez Solares (1983)	IGN (2023)	Re-evaluated
	F-M	F-M	MSK	EMS-98	EMS-98
Ocaña (Almería)	VIII	VI	VII	-	V-VI
Santa María de Ocaña	-	-		VII	-

Table S15: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ5.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Ocaña (Almería)	V-VI	-2,7266	37,1310

Table S16: EQ6 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1913).	Mezcua & Martínez Solares (1983)	IGN (2023)	Re-evaluated
	F-M	MSK	EMS-98	EMS-98
Lorquí	V V-VI	IV	IV	IV-V

Table S17: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ6.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Lorquí	IV-V	-1,2544	38,0819

Table S18: EQ7 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Boletín sísmico Cartuja (1913)	Sánchez Navarro Neumann (1914)	Re-evaluated
	F-M	F-M	EMS-98
Albuñol	VII	VII or VII-VIII	-
Albuñuelas	-	-	VII
Lanjarón	-	V	IV
Granada	IV	IV	IV
Almuñécar	-	-	III-IV
Cartuja	III	III	III
Adra	-	VI	-

Table S19: IDPs with re-evaluated Intensities (EMS -98)
and the geographical coordinates for EQ7.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Albuñuelas	VII	-3,6295	36,9293
Lanjarón	IV	-3,4828	36,9178
Granada	IV	-3,6000	37,1764
Almuñécar	III-IV	-3,6909	36,7344
Cartuja	III	-3,5978	37,1900

Table S20: EQ8 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Sánchez Navarro Neumann (1914)	Mezcua & Martínez Solares (1983)	IGN (2023)	Re-evaluated
	FM	MSK	EMS-98	EMS-98
Huéscar	very strong trepidation and great noise	V	VII	V-VI

Table S21: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ8.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Huéscar	V-VI	-2.5401	37,8098
Galera	F	-2.5507	37,7433

Table S22: EQ9 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Fontseré (1917)	Sánchez Navarro Neumann (1921)	Re-evaluated
	Mercalli	F-M	EMS-98
Sierra de Salinas	VI-VII	VI-VII	VI
Salinas	-	V	IV
Villena	IV	IV	S
Yecla	IV	IV	S
Onteniente	IV	IV	S
Cuevas	III-IV	IV	S
Aspe	II-III	III	S
Sax	-	IV	S
Elda	-	-	S
Agost	I	-	I
Benilloba	I	-	I
Bocairente	I	-	I
Fuente la Higuera	I	-	I
Jijona	I	-	I
Onil	I	-	I
Penáguila	I	-	I
Alcoy	-	-	I
Pinoso	-	IV	-
Novelda	-	III	-

Table S23: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ9.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Sierra de Salinas	VI	-0,9600	38,5200
Salinas	IV	-0,9128	38,5201
Villena	F	-0,8614	38,6296
Yecla	F	-1,1153	38,6134
Ontinyent	F	-0,6065	38,8229
La Cueva	F	-1,0884	38,0244
Aspe	F	-0,7685	38,3458
Sax	F	-0,8169	38,5385
Elda	F	-0,7961	38,4788

Table S24: EQ10 macroseismic intensities comparison: EMS-98 vs previous scales.

Población	Sánchez Navarro Neumann (1919)	Galbis (1932)	Re-evaluated Batlló <i>et al.</i> (2015)
	F-M	F-M	EMS-98
Torremendo	VIII	VIII	VII-VIII
Algorfa	-	VIII	VII
Almoradí	VIII	VIII	VII
Benejúzar	VIII	VIII	VII
Bigastro	-	-	VII
Bocanegra	-	-	VII
Jacarilla	-	VIII	VII
Peceto (Lo)	-	-	VII
Rafal	-	VIII	VII
Daya Nueva	-	-	VI-VII
Formentera de Segura (Faro)	-	VIII	VI-VII
Guardamar (del Segura)	-	VII	VI-VII
Rojales	VIII	VIII	VI-VII
San Fulgencio	-	VIII	VI-VII
Venta del Empalme	-	-	VI-VII
Benferri	-	VI	VI
Benijófar	-	VII	VI
Callosa de Segura	-	VI	VI
Catral	-	VII	VI
Dolores	VIII	VII	VI
Elche	-	VI	VI
Granja de Rocamora	-	VI	VI
Montanaro (Lo)	-	-	VI
Rebate	-	-	VI
Redován	-	VII-VI	VI
San Miguel de Salinas	-	VI	VI
San Pedro del Pinatar	-	VI	VI
Torre Pacheco	-	VI	VI
Alicante	-	-	V-VI
Beniel	-	VI	V-VI
Crevillente	-	VI	V-VI
Orihuela	VII	II	V-VI
Torrevieja	-	-	V-VI

Agost	-	IV	V
Albatera	-	VI	V
Aspe	-	V	V
Campos del Río	-	V	V
Fortuna	-	IV	V
Hondón de las Nieves	-	V	V
Hurchillo	-	-	V
La Unión	-	V	V
Pilar de la Horadada	-	VI	V
Puebla de Rocamora	-	VII	V
San Javier	-	VI	V
Tercia (La)	-	-	V
Guadalest	-	V	IV-V
Jijona	-	IV	IV-V
Santa Pola	-	-	IV-V
Alcantarilla	-	III	IV
Alcoy	V-VI	V	IV
Alguazas	-	IV	IV
Campello	-	IV	IV
Cartagena	V-VI	-	IV
Ceutí	-	IV	IV
El Estacio (Faro de)	-	V	IV
Muchamiel	-	IV	IV
Novelda	-	IV	IV
Palos (Faro de)	-	V	IV
Petrer	-	III	IV
Portman (Faro de)	-	-	IV
San Vicente	-	IV	IV
Santa Pola (Faro de)	-	IV	IV
Tabarca (Isla de)	-	-	IV
Tibi	-	IV	IV
Torres de Cotillas (Las)	-	IV	IV
Villanueva del Río Segura	-	IV	IV
Elda	-	III	III-IV
Murcia	-	-	III-IV
Planes	-	-	III-IV
Benimantell	-	III	III
Mazarrón	-	III	III
Mazarrón (Faro de)	-	-	III
Onteniente	-	-	III

Pliego	-	III	III
Relleu	-	III	III
Ricote	-	III-IV	III
Albudeite	-	II	II
Aledo	-	II	II
Archena	-	III	II
Confrides	-	IV	II
Faro de águilas	-	II	II
Faro Huertas	-	II	II
Mula	-	III	II
Onil	-	-	II
Orcheta	-	-	II
Bañeres	-	II	I
Marquesa (La)	-	-	D
Algueña del Pinoso	V	-	S
Beneixama	-	-	S
Los Alcázares	-	-	S
Palma (La)	-	-	S

Table S25: IDPs with re-evaluated Intensities (EMS -98) and the geographical coordinates for EQ9.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Torremendo	VII-VIII	-0,8654	37,9921
Algorfa	VII	-0,7957	38,0868
Almoradí	VII	-0,7920	38,1098
Benejúzar	VII	-0,8382	38,0781
Bigastro	VII	-0,8953	38,0630
Jacarilla	VII	-0,8664	38,0607
Peceto (Lo)	VII	-0,9078	38,0128
Rafal	VII	-0,8489	38,1048
Daya Nueva	VI-VII	-0,7610	38,1137
Formentera de Segura	VI-VII	-0,7465	38,0842
Guardamar (del Segura)	VI-VII	-0,6548	38,0899
Rojales	VI-VII	-0,7232	38,0889
San Fulgencio	VI-VII	-0,7188	38,1122
Benferri	VI	-0,9623	38,1418
Benijófar	VI	-0,7383	38,0808
Callosa de Segura	VI	-0,8793	38,1226
Catral	VI	-0,8046	38,1596
Dolores	VI	-0,7697	38,1390

Elche	VI	-0,6978	38,2674
Granja de Rocamora	VI	-0,8900	38,1526
Montanaro (Lo)	VI	-0,8030	38,0168
Rebate	VI	-0,8690	37,9419
Redován	VI	-0,9052	38,1140
San Miguel de Salinas	VI	-0,7893	37,9771
San Pedro del Pinatar	VI	-0,7915	37,8350
Torre Pacheco	VI	-0,9535	37,7429
Alicante	V-VI	-0,4832	38,3455
Beniel	V-VI	-1,0017	38,0465
Crevillente	V-VI	-0,8086	38,2488
Orihuela	V-VI	-0,9466	38,0857
Torrevieja	V-VI	-0,6830	37,9778
Agost	V	-0,6389	38,4395
Albatera	V	-0,8679	38,1789
Aspe	V	-0,7685	38,3458
Campos del Río	V	-1,3483	38,0388
Fortuna	V	-1,1230	38,1792
Hondón de las Nieves	V	-0,8549	38,3086
Hurchillo	V	-0,9216	38,0589
La Unión	V	-0,8753	37,6191
Pilar de la Horadada	V	-0,7924	37,8637
Puebla de Rocamora	V	-0,7696	38,1179
San Javier	V	-0,8347	37,8060
Tercia (La)	V	-0,8076	38,0159
Guadalest	IV-V	-0,1974	38,6769
Jijona	IV-V	-0,5079	38,5390
Santa Pola	IV-V	-0,5553	38,1931
Alcantarilla	IV	-1,2129	37,9717
Alcoy	IV	-0,4732	38,6984
Alguazas	IV	-1,2414	38,0503
Campello	IV	-0,4009	38,4275
Cartagena	IV	-0,9821	37,6002
Ceutí	IV	-1,2696	38,0790
Torres de Cotillas (Las)	IV	-1,2412	38,0295
El Estacio (Faro de)	IV	-0,7259	37,7459
Muchamiel	IV	-0,4452	38,4137
Novelda	IV	-0,7654	38,3861
Palos (Faro de)	IV	-0,6996	37,6317
Petrer	IV	-0,7695	38,4848
Portman (Faro de)	IV	-0,8420	37,5792
San Vicente	IV	-0,5250	38,3961
Santa Pola (Faro de)	IV	-0,5137	38,2095
Tabarca (Isla de)	IV	-0,4819	38,1664
Tibi	IV	-0,5780	38,5313

Villanueva del Río Segura	IV	-1,3243	38,1373
Elda	III-IV	-0,7961	38,4788
Murcia	III-IV	-1,1285	37,9844
Planes	III-IV	-0,3448	38,7858
Benimantell	III	-0,2098	38,6766
Mazarrón	III	-1,3167	37,5976
Mazarrón (Faro de)	III	-1,2547	37,5605
Onteniente	III	-0,6065	38,8229
Pliego	III	-1,5055	37,9914
Relleu	III	-0,3109	38,5873
Ricote	III	-1,3644	38,1534
Albudeite	II	-1,3855	38,0282
Aledo	II	-1,5732	37,7942
Archena	II	-1,2985	38,1130
Confrides	II	-0,2681	38,6835
Faro de águilas	II	-1,5781	37,4017
Faro Huertas	II	-0,4051	38,3532
Mula	II	-1,4903	38,0420
Onil	II	-0,6740	38,6295
Orcheta	II	-0,2619	38,5640

Table S26: EQ11 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Place	Longitude	Latitude	Rodríguez Navarro Fuentes (Galbis, 1932)	Re-evaluated
			Sieberg	EMS-98
Almería	-2.4641	36.8389	VI	V
Alhama de Almería	-2.5698	36.9572	V	IV-V
Canjáyar	-2.7394	37.0101	V	IV-V
Enix	-2.6018	36.8769	V	IV-V
Felix	-2.6586	36.8690	V	IV-V
Huécija (Canjáyar)	-2,6099	36,9680	-	IV-V
Roquetas de Mar	-2,6151	36,7647	-	IV-V
Bacares	-2.4532	37.2612	III	IV
Berja	-2.9495	36.8473	IV	IV
Doña María Ocaña	-2.7122	37.1352	IV	IV
Los Gallardos	-1.9417	37.1703	IV	IV
Sorbas	-2.1241	37.0982	V	IV
Carboneras (Vera)	-1,8935	36,9974	-	III-IV
Garrucha (vera)	-1.8235	37.1797	IV	III-IV
Alhamilla	-2,3967	36,9605	-	S
Benahadux	-2,4558	36,9258	-	S
Gérgal	-2.5391	37.1208	IV	S
Viator	-2,4278	36,8891	-	S
Cañada de San Urbano	-2,4063	36,8400	-	S
Rioja	-2,4639	36,9427	-	S
Adra	-3.0233	36.7487	IV	S
Fiñana	-2.8418	37.1714	IV	S
Huércal-Overa	-1.9430	37.3894	III	I
Tabernas	-2.3915	37.0498	V	-
Níjar	-2.2061	36.9658	V	-
Vera	-1.8688	37.2468	IV	-
Purchena	-2.3617	37.3473	III	-

Table S27: EQ12 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Place	Longitude	Latitude	Rey Pastor (1932)	Re- evaluated
			F-M	EMS-98
Lúcar	-2,4249	37,4008	VIII	V-VI
Almería	-2,4641	36,8389	IV	IV-V
Huércar	-2.5401	37,8098	VI	IV-V
Serón	-2.5099	37,3430	VII	IV-V
Águilas	-1,5811	37,4043	-	IV
Albox	-2,1480	37,3885	-	IV
Alcaraz	-2,4903	38,6643	-	IV
Cabo de Gata	-2,2437	36,7816	-	IV
Guadix	-3,1364	37,3016	IV	IV
Jaén	-3,7904	37,7652	-	IV
La Carolina	-3,6167	38,2759	II	IV
Los Gallardos	-1,9417	37,1703	-	IV
Úbeda	-3,3712	38,0115	III	IV
Córdoba	-4,7803	37,8795	-	III-IV
Valdepeñas	-3,8197	37,5908	-	III-IV
Caniles	-2,7231	37,4369	-	D
El Hijate	-2.5939	37,3959	-	D
Laujar	-2,8890	36,9946	-	D
Tíjola	-2,4389	37,3444	-	D
Algeciras	-5,4477	36,1314	-	S
Alicante	-0,4832	38,3455	-	S
Huelva	-6,9504	37,2600	-	S
Lorca	-1,6993	37,6770	III	S
Málaga	-4,4200	36,7203	-	S
Cúllar	-2.5760	37.5837	VIII	-
Purchena	-2.3617	37.3473	VIII	-
Urrácal	-2.3652	37.3975	VIII	-
Baza	-2.7749	37.4908	VII	-
Oria	-2.2960	37.4836	VII	-
Gérgal	-2.5391	37.1208	V	-
Sorbas	-2.1241	37.0982	V	-
Vélez-Rubio	-2.0742	37.6480	V	-
Canjáyar	-2.7394	37.0101	IV-V	-
Huércal-Overa	-1.9430	37.3894	IV-V	-
Cazorla	-3.0013	37.9122	IV	-
Orcera	-2.6592	38.3177	IV	-
Ugíjar	-3.0541	36.9629	IV	-
Vera	-1.8688	37.2468	IV	-
Yeste	-2.3190	38.3664	IV	-
Albuñol	-3.2017	36.7913	III	-
Baeza	-3.4693	37.9900	III	-

Berja	-2.9495	36.8473	III	-
Caravaca de la Cruz	-1.8643	38.1049	III	-
Granada	-3.6000	37.1764	III	-
Huelma	-3.4611	37.6507	III	-
Iznalloz	-3.5310	37.3920	III	-
Linares	-3.6350	38.0921	III	-
Mancha Real	-3.6118	37.7863	III	-
Motril	-3.5212	36.7457	III	-
Mula	-1.4903	38.0420	III	-
Órgiva	-3.4239	36.9012	III	-
Villacarrillo	-3.0862	38.1089	III	-
Cieza	-1.4275	38.2369	II	-
Murcia	-1.1285	37.9844	II	-
Orihuela	-0.9466	38.0857	II	-
Totana	-1.5026	37.7696	II	-
Cartagena	-0.9821	37.6002	I	-
Dolores	-0.7697	38.1390	I	-
Elche/Elx	-0.6978	38.2674	I	-
La Unión	-0.8753	37.6191	I	-
Monóvar/Monòver	-0.8378	38.4372	I	-
Novelda	-0.7654	38.3861	I	-

Table S28: EQ13 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Rey Pastor (1944)	Re-evaluated
	F-M	EMS-98
Murcia	-	IV-V
Alicante	-	IV
Elche	-	IV
Monóvar	-	IV
Orihuela	V	IV
Rojales	IV	IV
Santa Pola	-	IV
Albacete	-	S
Fortuna	VII	S
Abanilla	V	S
Cartagena	-	S
Catral	IV	S
Lorquí	VI	S
Los Valientes	VII	-
Los Baños	VI-VII	-
Ajauque	VI-VII	-
Las Casicas	VI-VII	-
Fuente Blanca	VI	-
Campules	VI	-
Ceutí	V-VI	-
Alguazas	V	-
Molina de Segura	V	-
Archena	V	-
Ojós	V	-
Blanca	V	-
Esparragal	V	-
Santomera	V	-
Beniel	V	-
El Partidor	V	-
Ricabacica	V	-
Barinas	V	-
Balonga	V	-
Alcantarilla	V	-
Ricote	IV-V	-
Las Torres de Cotillas	IV-V	-
Benferri	IV	-
Peña Zafra de Arriba	IV	-
Abarán	IV	-
Campos del Río	IV	-

Albudeite	IV	-
Alberca de las Torres	IV	-
Bigastro	IV	-
Jacarilla	IV	-
Benejúzar	IV	-
Albatera	IV	-
Granja de Rocamora	IV	-
Cox	IV	-
Redován	IV	-
Callosa de Segura	IV	-
Rafal	IV	-
Dolores	IV	-
Almoradí	IV	-
Algorfa	IV	-
Puebla de Rocamora	IV	-
Daya Nueva	IV	-
San Fulgencio	IV	-
Daya Vieja	IV	-
Formentera del Segura	IV	-
Benijófar	IV	-
Guardamar del Segura	IV	-
Crevillent	IV	-
el Fondó de les Neus/Hondón de las Nieves	IV	-
Hondón de los Frailes	IV	-
Algueña	IV	-
La Solana	IV	-
El Rodriguillo	IV	-
el Pinós/Pinoso	IV	-
Torremendo	IV	-
Torrevieja	III	-
San Miguel de Salinas	III	-
Librilla	III	-
Mula	III	-
Cieza	III	-
la Romana	III	-
Sucina	II	-
El Escobar	II	-
Los Paganés	II	-
Alhama de Murcia	II	-
Pliego	II	-
Fuente Librilla	II	-

Table S29: IDPs (F-M) from Rey Pastor, 1944;
used for the macroseismic epicenter estimation of EQ13.

Place	Intensity (FM)	Longitude	Latitude
Fortuna	VII	-1.1230	38.1792
Los Valientes	VII	-1.1564	38.1304
Los Baños	VI-VII	-1.1110	38.2081
Ajauque	VI-VII	-1.1100	38.1474
Las Casicas	VI-VII	-1.1742	38.2277
Fuente Blanca	VI	-1.1629	38.2553
Lorquí	VI	-1.2544	38.0819
Campules	VI	-1.0775	38.2436
Ceutí	V-VI	-1.2696	38.0790
Alguazas	V	-1.2414	38.0503
Molina de Segura	V	-1.2116	38.0506
Archena	V	-1.2985	38.1130
Ojós	V	-1.3418	38.1477
Blanca	V	-1.3756	38.1806
Esparragal	V	-1.0803	38.0363
Santomera	V	-1.0475	38.0611
Beniel	V	-1.0017	38.0465
Orihuela	V	-0.9466	38.0857
Abanilla	V	-1.0426	38.2079
El Partidor	V	-1.0444	38.2341
Ricabacica	V	-1.0562	38.2258
Barinas	V	-1.0579	38.2721
Balonga	V	-1.0996	38.2951
Alcantarilla	V	-1.2129	37.9717
Ricote	IV-V	-1.3644	38.1534
Las Torres de Cotillas	IV-V	-1.2412	38.0295
Benferri	IV	-0.9623	38.1418
Peña Zafra de Arriba	IV	-1.1489	38.2889
Abarán	IV	-1.4012	38.2026
Campos del Río	IV	-1.3483	38.0388
Albudeite	IV	-1.3855	38.0282
Alberca de las Torres	IV	-1.1406	37.9400
Bigastro	IV	-0.8953	38.0630
Jacarilla	IV	-0.8664	38.0607
Benejúzar	IV	-0.8382	38.0781
Albatera	IV	-0.8679	38.1789
Granja de Rocamora	IV	-0.8900	38.1526

Cox	IV	-0.8844	38.1397
Redován	IV	-0.9052	38.1140
Callosa de Segura	IV	-0.8793	38.1226
Rafal	IV	-0.8489	38.1048
Catral	IV	-0.8046	38.1596
Dolores	IV	-0.7697	38.1390
Almoradí	IV	-0.7920	38.1098
Algorfa	IV	-0.7957	38.0868
Puebla de Rocamora	IV	-0.7697	38.1178
Daya Nueva	IV	-0.7610	38.1137
San Fulgencio	IV	-0.7188	38.1122
Daya Vieja	IV	-0.7381	38.1047
Formentera del Segura	IV	-0.7465	38.0842
Benijófar	IV	-0.7383	38.0808
Rojales	IV	-0.7232	38.0889
Guardamar del Segura	IV	-0.6548	38.0899
Crevillent	IV	-0.8086	38.2488
el Fondó de les Neus/Hondón de las Nieves	IV	-0.8549	38.3086
Hondón de los Frailes	IV	-0.9270	38.2736
Algueña	IV	-1.0030	38.3380
La Solana	IV	-1.0424	38.3476
El Rodriguillo	IV	-1.0479	38.3652
el Pinós/Pinoso	IV	-1.0420	38.4044
Torremendo	IV	-0.8654	37.9921
Torrevieja	III	-0.6830	37.9778
San Miguel de Salinas	III	-0.7893	37.9771
Librilla	III	-1.3508	37.8862
Mula	III	-1.4903	38.0420
Cieza	III	-1.4275	38.2369
la Romana	III	-0.8960	38.3674
Sucina	II	-0.9423	37.8894
El Escobar	II	-1.2184	37.7705
Los Paganes	II	-1.2517	37.7660
Alhama de Murcia	II	-1.4246	37.8524
Pliego	II	-1.5055	37.9914
Fuente Librilla	II	-1.4142	37.9184

Table S30: IDPs with re-evaluated Intensities (EMS -98)
and the geographical coordinates for EQ13.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Murcia	IV-V	-1,1285	37,9844
Alicante	IV	-0,4832	38,3455
Elche	IV	-0,6978	38,2674
Monóvar	IV	-0,8378	38,4372
Orihuela	IV	-0,9466	38,0857
Rojales	IV	-0,7232	38,0889
Santa Pola	IV	-0,5553	38,1931
Albacete	S	-1,8557	38,9959
Fortuna	S	-1,1230	38,1792
Abanilla	S	-1,0426	38,2079
Cartagena	S	-0,9821	37,6002
Catral	S	-0,8046	38,1596
Lorquí	S	-1,2544	38,0819

Table S31: EQ14 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Rey Pastor (1951)	Re-evaluated
	F-M	EMS-98
Onteniente	VII	VI-VII
Alicante	III	IV-V
Almansa	III	IV-V
Banyeres de Mariola	V	S
Játiva	IV	S
Enguera	IV	S
Montesa	-	S
Vallada	-	S
Albaida	VI-VII	-
Beneixama	VI	-
Alcoy/Alcoi	V	-
Cocentaina	V	-
Muro de Alcoy	V	-
la Pobla del Duc	V	-
I'Olleria	IV-V	-
Canals	IV	-
Quatretonda	IV	-
Gandia	IV	-
Alberic	IV	-
Mogente/Moixent	IV	-
la Font de la Figuera	IV	-
Villena	IV	-
Biar	IV	-
Castalla	IV	-
Jijona/Xixona	IV	-
Petrer	IV	-
Ayora	III	-
Almansa	III	-
Montealegre del Castillo	III	-
Navarrés	III	-
Manuel	III	-
Villanueva de Castellón	III	-
Cullera	III	-
Carcaixent	III	-
Alzira	III	-
Simat de la Valldigna	III	-
Oliva	III	-
Vilallonga/Villalonga	III	-
Relleu	III	-
Sant Joan d'Alacant	III	-
San Vicente del Raspeig/ Sant Vicent del Raspeig	III	-

Novelda	III	-
Monóvar/Monòver	III	-
Villajoyosa/la Vila Joiosa	II-III	-
Tavernes de la Valldigna	II-III	-
Elche/Elx	II	-
El Fondó de les Neus/ Hondón de las Nieves	II	-
Yecla	II	-
Bonete	II	-
Higueruela	II	-
Alpera	II	-
Jalance	II	-
Jarafuel	II	-
Llombai	II	-
Carlet	II	-
Almussafes	II	-
Alginet	II	-
Albalat de la Ribera	II	-
Sueca	II	-
Polinyà de Xúquer	II	-
Pego	II	-
Callosa d'en Sarrià	II	-
Teulada	II	-

Table S32: IDPs (F-M) from Rey Pastor, 1951;
used for the macroseismic epicenter estimation of EQ14.

Place	Intensity (FM)	Longitude	Latitude
Ontinyent	VII	-0.6065	38.8229
Albaida	VI-VII	-0.5199	38.8418
Beneixama	VI	-0.7668	38.7002
Banyeres de Mariola	V	-0.6569	38.7164
Alcoy/Alcoi	V	-0.4732	38.6984
Cocentaina	V	-0.4402	38.7454
Muro de Alcoy	V	-0.4357	38.7800
la Pobla del Duc	V	-0.4198	38.9061
l'Olleria	IV-V	-0.5468	38.9117
Enguera	IV	-0.6874	38.9782
Xàtiva	IV	-0.5187	38.9880
Canals	IV	-0.5856	38.9595
Quatretonda	IV	-0.4025	38.9456
Gandia	IV	-0.1794	38.9674
Alberic	IV	-0.5174	39.1169
Mogente/Moixent	IV	-0.7510	38.8749

la Font de la Figuera	IV	-0.8809	38.8069
Villena	IV	-0.8614	38.6296
Biar	IV	-0.7660	38.6300
Castalla	IV	-0.6703	38.5966
Jijona/Xixona	IV	-0.5079	38.5390
Petrer	IV	-0.7695	38.4848
Ayora	III	-1.0561	39.0598
Almansa	III	-1.0941	38.8697
Montealegre del Castillo	III	-1.3249	38.7872
Navarrés	III	-0.6928	39.1015
Manuel	III	-0.4927	39.0502
Villanueva de Castellón	III	-0.5131	39.0773
Cullera	III	-0.2546	39.1651
Carcaixent	III	-0.4470	39.1228
Alzira	III	-0.4355	39.1494
Simat de la Valldigna	III	-0.3118	39.0435
Oliva	III	-0.1207	38.9209
Vilallonga/Villalonga	III	-0.2089	38.8843
Relleu	III	-0.3109	38.5873
Sant Joan d'Alacant	III	-0.4366	38.4015
San Vicente del Raspeig/ Sant Vicent del Raspeig	III	-0.5250	38.3961
Alicante/Alacant	III	-0.4832	38.3455
Novelda	III	-0.7654	38.3861
Monóvar/Monòver	III	-0.8378	38.4372
Villajoyosa/la Vila Joiosa	II-III	-0.2319	38.5055
Tavernes de la Valldigna	II-III	-0.2672	39.0726
Elche/Elx	II	-0.6978	38.2674
El Fondó de les Neus/ Hondón de las Nieves	II	-0.8549	38.3086
Yecla	II	-1.1153	38.6134
Bonete	II	-1.3483	38.8695
Higueruela	II	-1.4454	38.9646
Alpera	II	-1.2308	38.9597
Jalance	II	-1.0774	39.1920
Jarafuel	II	-1.0722	39.1391
Llombai	II	-0.5718	39.2809
Carlet	II	-0.5198	39.2273
Almussafes	II	-0.4129	39.2900
Alginet	II	-0.4696	39.2615
Albalat de la Ribera	II	-0.3862	39.2013
Sueca	II	-0.3155	39.2024
Polinyà de Xúquer	II	-0.3686	39.1968

Pego	II	-0.1180	38.8420
Callosa d'en Sarrià	II	-0.1224	38.6516
Teulada	II	0.1023	38.7291

Table S33: IDPs with re-evaluated Intensities (EMS -98)
and the geographical coordinates for EQ14.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Onteniente	VI-VII	-0,6065	38,8229
Alicante	IV-V	-0,4832	38,3455
Almansa	IV-V	-1,0941	38,8697
Banyeres de Mariola	S	-0,6569	38,7164
Jàtiva	S	-0,5187	38,9880
Vallada	S	-0,6921	38,8946
Enguera	S	-0,6874	38,9782
Montesa	S	-0,6533	38,9495

Table S34: EQ15 macroseismic intensities comparison: EMS-98 vs previous scales.

Place	Rey Pastor (1951)	Re- evaluated
	F-M	EMS-98
Valentín (Caserío de)	VIII	VII
Cehegín	VII	VII
Caravaca (de la Cruz)	VI	IV-V
Cieza	III-IV	IV-V
Murcia	II	IV-V
Almansa	-	IV-V
La Carrasquilla	-	D
Moratalla	VII	-
Calasparra	VI-VII	-
Bullas	VI	-
Mula	V	-
Yeste	IV	-
Letur	IV	-
Socovos	IV	-
Jumilla	IV	-
Blanca	IV	-
Archena	IV	-
Ceutí	III	-
Molina de Segura	III	-
Librilla	III	-
Yecla	III	-
Hellín	III	-
Totana	II-III	-
Elche de la Sierra	II-III	-
Lorca	II	-
Alcantarilla	II	-
Fortuna	II	-
el Pinós/Pinoso	II	-
Ontur	II	-
Tobarra	II	-
Pozohondo	II	-
Ayna	II	-
Pontones	II	-
Santiago de la Espada	II	-
Beniel	II	-
Orihuela	II	-

Table S35: IDPs (F-M) from Rey Pastor, 1951;
used for the macroseismic epicenter estimation of EQ15.

Place	Intensity (FM)	Longitude	Latitude
Valentín	VIII	-1.7237	38.1828
Cehegín	VII	-1.8005	38.0985
Moratalla	VII	-1.8919	38.1888
Calasparra	VI-VII	-1.6939	38.2312
Bullas	VI	-1.6703	38.0496
Caravaca de la Cruz	VI	-1.8643	38.1049
Mula	V	-1.4903	38.0420
Yeste	IV	-2.3190	38.3664
Letur	IV	-2.1010	38.3663
Socovos	IV	-1.9847	38.3320
Jumilla	IV	-1.3270	38.4762
Blanca	IV	-1.3756	38.1806
Archena	IV	-1.2985	38.1130
Cieza	III-IV	-1.4275	38.2369
Ceutí	III	-1.2696	38.0790
Molina de Segura	III	-1.2116	38.0506
Librilla	III	-1.3508	37.8862
Yecla	III	-1.1153	38.6134
Hellín	III	-1.7034	38.5122
Totana	II-III	-1.5026	37.7696
Elche de la Sierra	II-III	-2.0478	38.4479
Lorca	II	-1.6993	37.6770
Alcantarilla	II	-1.2129	37.9717
Murcia	II	-1.1285	37.9844
Fortuna	II	-1.1230	38.1792
el Pinós/Pinoso	II	-1.0420	38.4044
Ontur	II	-1.4989	38.6147
Tobarra	II	-1.6928	38.5923
Pozohondo	II	-1.9113	38.7211
Ayna	II	-2.0705	38.5522
Pontones	II	-2.6702	38.1184
Santiago de la Espada	II	-2.5507	38.1125
Beniel	II	-1.0017	38.0465
Orihuela	II	-0.9466	38.0857

Table S36: IDPs with re-evaluated Intensities (EMS -98)
and the geographical coordinates for EQ15.

Place	Re-evaluated Intensity (EMS-98)	Longitude	Latitude
Valentín (Caserío de)	VII	-1,7237	38,1828
Cehégín	VII	-1,8005	38,0985
La Carrasquilla	D	-1,7579	38,1346
Caravaca (de la Cruz)	IV-V	-1,8643	38,1049
Cieza	IV-V	-1,4275	38,2369
Murcia	IV-V	-1,1285	37,9844
Almansa	IV-V	-1,0941	38,8697

Table S37: EQ16 macroseismic intensities comparison: EMS-98 vs previous scales, and the geographical coordinates.

Place	Longitude	Latitude	Bonelli Rubio & Esteban Carrasco (1957)	Re-evaluated
			F-M	EMS-98
Albolote	-3,6575	37,2309	VIII	VII
Atarfe	-3,6887	37,2227	VIII	VII
Belicena	-3,6912	37,1719	-	VI
Maracena	-3,6344	37,2072	VII	VI
Santa Fe	-3,7190	37,1894	VIII	VI
Pulianas	-3,6069	37,2231	VII	V-VI
Armilla	-3,6269	37,1403	VI	V
Churriana de la Vega	-3,6458	37,1489	VI	V
Granada	-3,6000	37,1764	VII	V
Güevéjar	-3,5973	37,2571	VI	V
Parque del Cubillas	-3,6686	37,2859	-	V
Peligros	-3,6281	37,2311	VII	V
Purchil	-3,6658	37,1724	VII	V
Pinos Puente	-3,7474	37,2541	VI	IV
Chauchina	-3.7709	37.2017	VIII	-
Fuente Vaqueros	-3.7848	37.2200	VII	-
Caparacena	-3.7143	37.2652	VI	-
Nívar	-3.5794	37.2586	VI	-
Alfacar	-3.5705	37.2369	VI	-
Víznar	-3.5543	37.2310	VI	-
Chimeneas	-3.8211	37.1326	VI	-
Alhendín	-3.6459	37.1082	VI	-
La Zubia	-3.5851	37.1209	VI	-
Íllora	-3.8817	37.2861	V	-
Moclín	-3.7868	37.3427	V	-
Beas de Granada	-3.4815	37.2176	V	-
Huétor de Santillán	-3.5168	37.2185	V	-
Güéjar Sierra	-3.4388	37.1596	V	-
La Malahá	-3.7218	37.1016	V	-
Escúzar	-3.7613	37.0623	V	-
Dílar	-3.6015	37.0745	V	-
Padul	-3.6245	37.0242	V	-
Montefrío	-4.0105	37.3210	IV	-
Villanueva Mesía	-4.0106	37.2139	IV	-
Moraleda de Zafayona	-3.9645	37.1680	IV	-
Agrón	-3.8301	37.0304	IV	-
Cozvíjar	-3.5919	36.9893	IV	-
Cónchar	-3.5888	36.9658	IV	-

Nigüelas	-3.5389	36.9779	IV	-
Acequias	-3.5394	36.9680	IV	-
Béznar	-3.5422	36.9272	IV	-
Izbor	-3.5266	36.8947	IV	-
Cáñar	-3.4278	36.9262	IV	-
Órgiva	-3.4239	36.9012	IV	-
Capileira	-3.3599	36.9613	IV	-
Bubión	-3.3574	36.9487	IV	-
Pórtugos	-3.3111	36.9415	IV	-
Trevélez	-3.2652	37.0006	IV	-
Diezma	-3.3318	37.3211	IV	-
Loja	-4.1522	37.1663	III	-
Alhama de Granada	-3.9861	37.0038	III	-
Arenas del Rey	-3.8944	36.9578	III	-
Játar	-3.9100	36.9354	III	-
Jayena	-3.8235	36.9476	III	-
Otívar	-3.6814	36.8157	III	-
Guájtar Alto	-3.6251	36.8542	III	-
Ítrabo	-3.6390	36.7996	III	-
Vélez de Benaudalla	-3.5159	36.8327	III	-
Rubite	-3.3480	36.8098	III	-
Gualchos	-3.3894	36.7435	III	-
Sorvilán	-3.2669	36.7941	III	-
Albuñol	-3.2017	36.7913	III	-
Torvizcón	-3.2993	36.8794	III	-
Almegíjar	-3.3003	36.9026	III	-
Lobras	-3.2127	36.9297	III	-
Busquístar	-3.2949	36.9376	III	-
Murtas	-3.1084	36.8871	III	-
Juúiles	-3.2251	36.9481	III	-
Bérchules	-3.1901	36.9754	III	-
Yegen	-3.1188	36.9811	III	-
Yátor	-3.1361	36.9571	III	-
Alcalá la Real	-3.9294	37.4598	III	-
Trujillos	-3.7947	37.4573	III	-
Campotéjar	-3.6157	37.4823	III	-
Píñar	-3.4395	37.4424	III	-
Darro	-3.2933	37.3506	III	-
Cogollos de Guadix	-3.1603	37.2250	III	-
Priego de Córdoba	-4.1918	37.4398	II	-
Archidona	-4.3903	37.0972	II	-
Zafarraya	-4.1446	36.9758	II	-
Cómpeta	-3.9748	36.8328	II	-
Vélez-Málaga	-4.1021	36.7827	II	-
Torrox	-3.9529	36.7586	II	-
Molvízar	-3.6080	36.7867	II	-
Motril	-3.5212	36.7457	II	-
Berja	-2.9495	36.8473	II	-

Ugíjar	-3.0541	36.9629	II	-
Laroles	-3.0157	37.0086	II	-
La Calahorra	-3.0637	37.1816	II	-
Alquife	-3.1161	37.1796	II	-
Albuñán	-3.1327	37.2274	II	-
Alcudia de Guadix	-3.0975	37.2563	II	-
Guadix	-3.1364	37.3016	II	-
Alquife	-3.1161	37.1796	II	-
Huélago	-3.2605	37.4194	II	-
Moreda	-3.3322	37.4396	II	-
Pedro Martínez	-3.2312	37.5028	II	-
Torre-Cardela	-3.3564	37.5047	II	-
Huelma	-3.4611	37.6507	II	-
Montillana	-3.6723	37.5019	II	-

Table S38: Re-evaluated seismic parameters for the 1900-1962 period in this study.

ID	Date	Origin Time (UTC)	I _{max} (EMS-98) [IGN data]	Intensity Data Points ⁽¹⁾	Latitude [IGN data]	Longitude [IGN data]	Depth (Km)	Epicenter variation (Km)		Epicenter type
								This study vs IGN	This study vs M-B4M1	
EQ1	16/04/1907	17:30:00	VII [=]	2	37.76 [37.80]	-1.51 [-1.50]	-	5		M-I
EQ1				2	37.77 ± 3	-1.49 ± 3			2	M-B4M1
EQ2	01/07/1909	14:12:18	VI [VII]	5 (+18)	38.00 [=] ± 2	-0.67 [=] ± 2	5 ± 1	-		M-B4M2
EQ2					38.00 ± 2	-0.67 ± 2			0	M-B4M1
EQ3	21/03/1911	14:15:35	VII-VIII [=]	11 (+3)	38.02 [=]	-1.25 [=]	-	-		IGN
EQ4	03/04/1911	11:11:11	VII [=]	9 (+4)	38.07 [38.08] ± 3	-1.26 [-1.25] ± 3	3 ± 1	2		M-M2C
EQ5	22/04/1912	3:22:45	V-VI [VII]	1	37.13 [37.13]	-2.73 [-2.72]	-	1		M-I
EQ5					37.13 ± 999	-2.73 ± 999			0	M-B4M1
EQ6	25/04/1912	20:35:00	IV-V [IV]	1	38.08 [38.10]	-1.25 [-1.20]	-	5		M-I
EQ6					38.08 ± 999	-1.25 ± 999			0	M-B4M1
EQ7	11/08/1913	1:05:48	VII [=]	5	36.93 [36.80]	-3.63 [-3.20]	-	41		M-I
EQ7					36.93 ± 999	-3.63 ± 999			0	M-B4M1
EQ8	25/11/1913	2:27:29	V-VI [VII]	1 (+1)	37.80 [37.78]	-2.55 [-2.53]	-	2		M-I
EQ8					37.81 ± 999	-2.54 ± 999			1	M-B4M1
EQ9	28/11/1916	22:05:46	VI [VII]	2 (+7)	38.52 [38.57]	-0.96 [-0.95]	-	5		M-I
EQ9					38.53 ± 3	-0.98 ± 3			2	M-B4M1
EQ10	10/09/1919	10:40:31	VII-VIII [=]	85 (+5)	38.07[37.98] ± 2	-0.82 [-0.87] ± 2	4 ± (<1)	11		M-B4M2
EQ10					38.07 ± 2	-0.82 ± 2			0	M-B4M1
EQ11	12/06/1926	23:29:22	V [VI]	14 (+8)	36.68 [36.77] ± 27	-2.43 [-2.37] ± 42	-	11		I-HY

¹ Numbers in brackets means the number of places where the only information is that the earthquake has been felt (F) or has caused damage (D), but it is not possible to assign a single value of intensity with the available information.

EQ12	05/03/1932	2:10:26	V-VI [VII]	15 (+9)	37.40 [37.42] ± 3	-2.41 [-2.45] ± 3	4 ± 1	4		M-B4M2
EQ12					37.40 ± 3	-2.41 ± 3			0	M-B4M1
EQ13	23/02/1944	22:34:10	IV-V [VII]	7 (+6)	38.17 [38.17] ± 1	-1.14 [-1.15] ± 1	4 ± (<1)	1		M-B4M2
EQ13					38.17 ± 1	-1.14 ± 1			0	M-B4M1
EQ14	01/07/1945	3:18:04	VI-VII [VII]	3 (+5)	38.80 [38.80] ± 2	-0.59 [-0.58] ± 2	4 ± (<1)	1		M-B4M2
EQ14					38.80 ± 2	-0.59 ± 2			0	M-B4M1
EQ15	23/06/1948	3:43:58	VII [=]	6 (+1)	38.15 [38.05] ± 4	-1.76 [-1.76] ± 4	4 ± 1	11		M-B4M2
EQ15					38.15 ± 4	-1.76 ± 4			0	M-B4M1
EQ16	19/04/1956	18:38:54	VII [VII-VIII]	14	37.21 [37.19] ± 1	-3.67 [-3.68] ± 1	4 ± (<1)	2		M-B4M2
EQ16					37.21 ± 1	-3.67 ± 1			0	M-B4M1

Epicenter Type: **M-I**: Macroseismic Information; **M-B4M1**: Macroseismic – Boxer4.0-Method 1; **M-B4M2**: Macroseismic – Boxer4.0-Method 2; **IGN**: IGN Earthquake Catalogue; **M-M2C**: Macroseismic MEEP 2.0 (Centroid Method); **I-HY**: Instrumental - Hypocenter 3.2

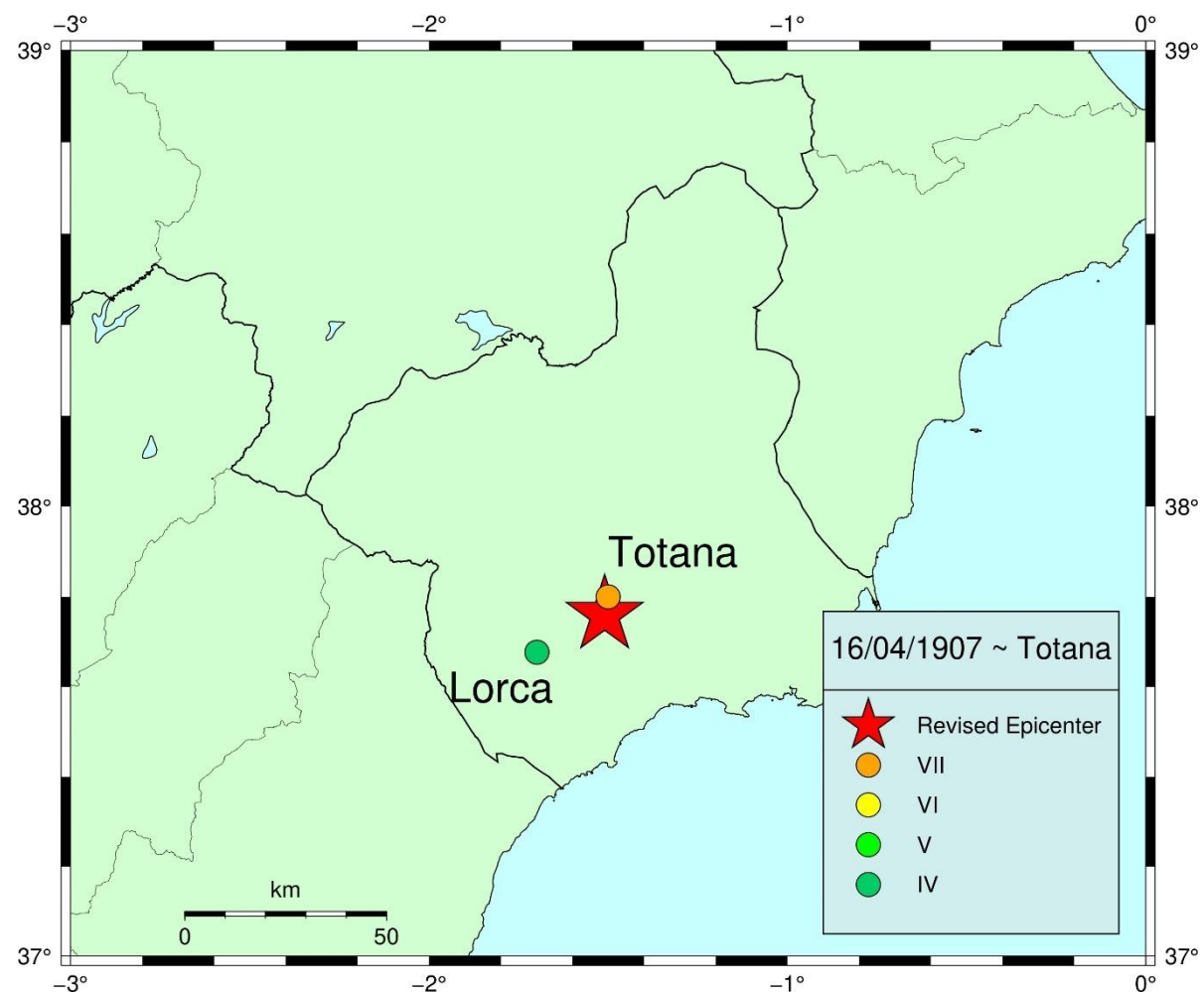


Figure S1: Result for EQ1 earthquake. The red star corresponds to the assigned epicenter of this study and the circles correspond to the re-evaluated IDPs with EMS-98.

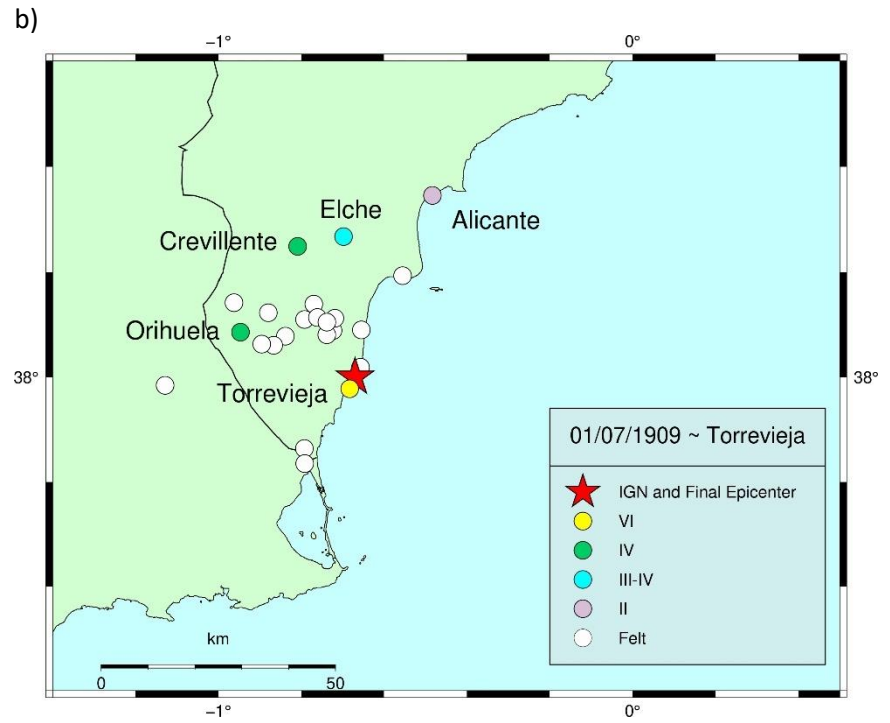
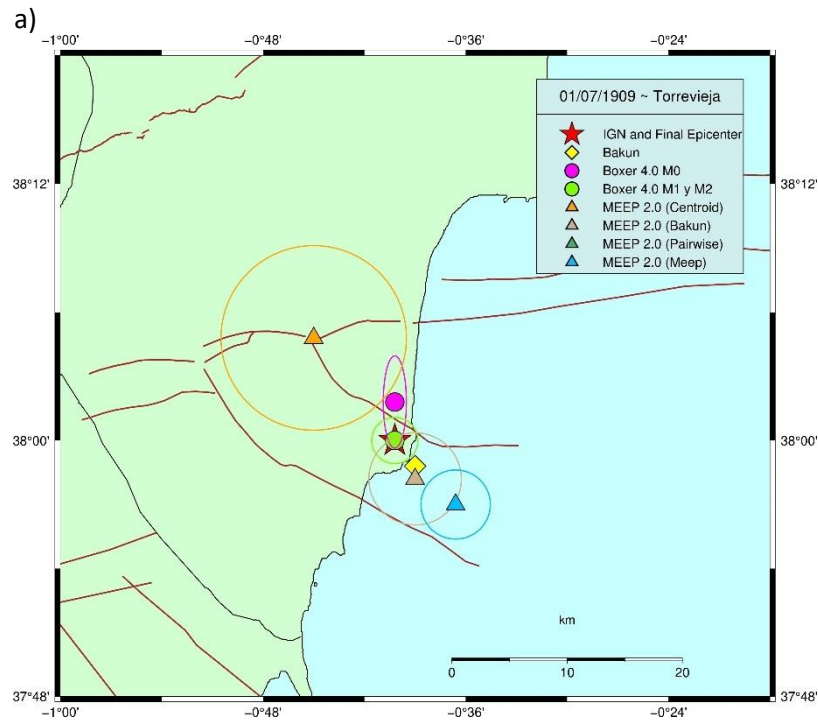


Figure S2: Results for EQ2 earthquake, the red star (in both figures) corresponds to the assigned epicenter of this study.
a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

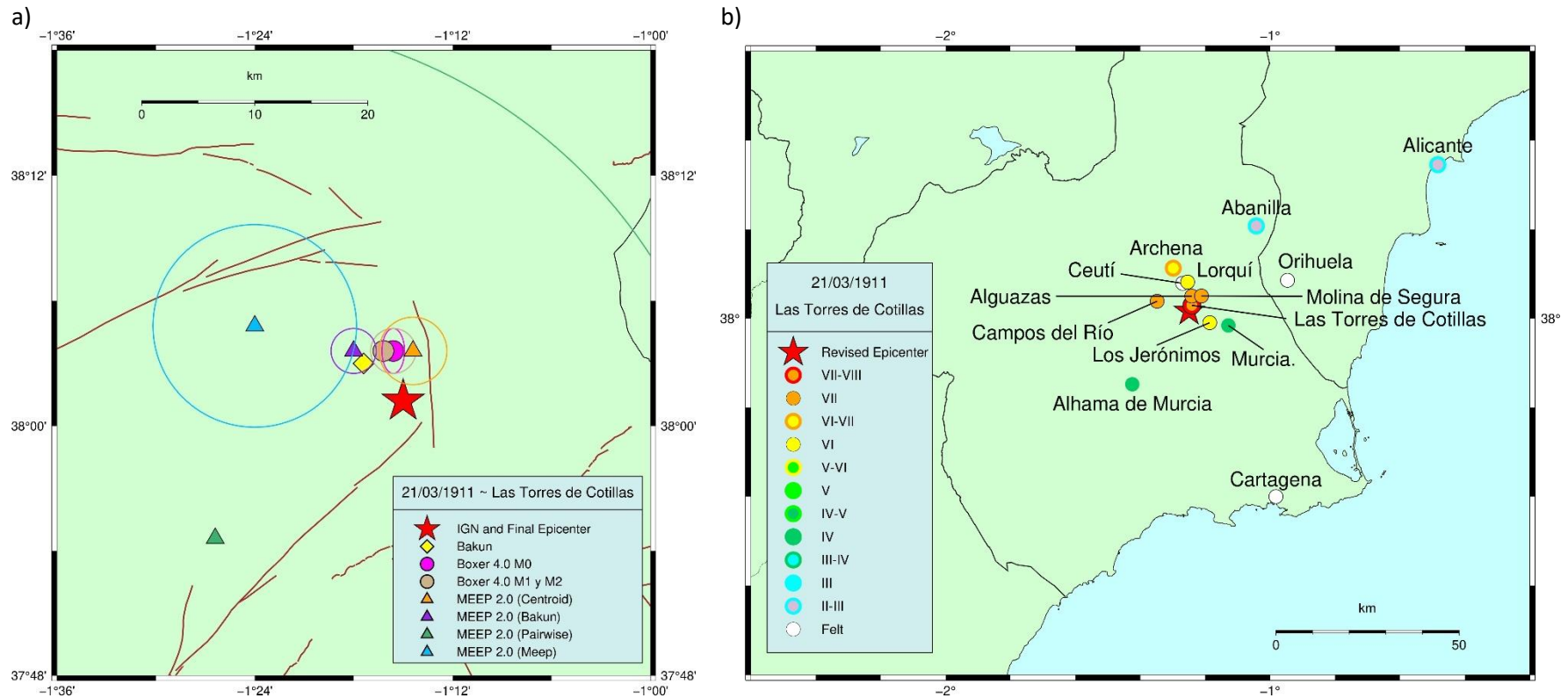
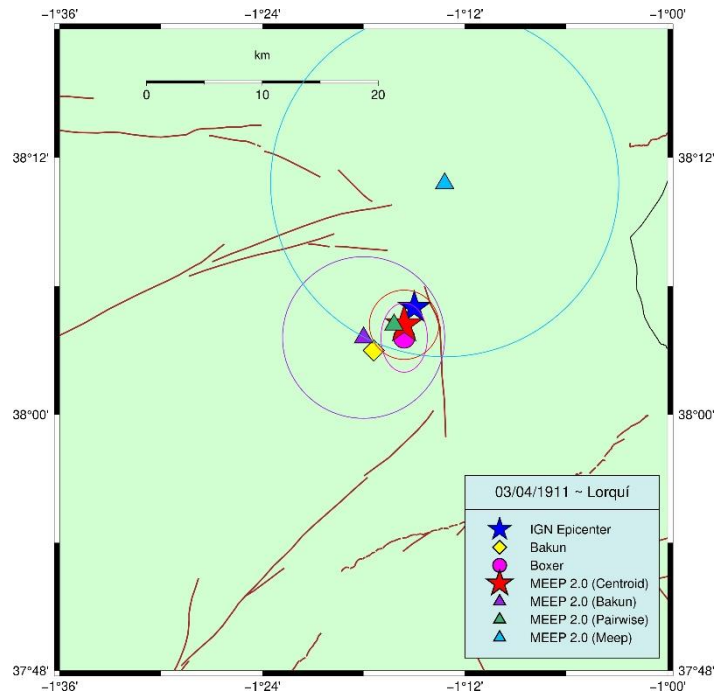


Figure S3: Results for EQ3 earthquake, the red star (in both figures) corresponds to the assigned epicenter of this study.
a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

a)



b)

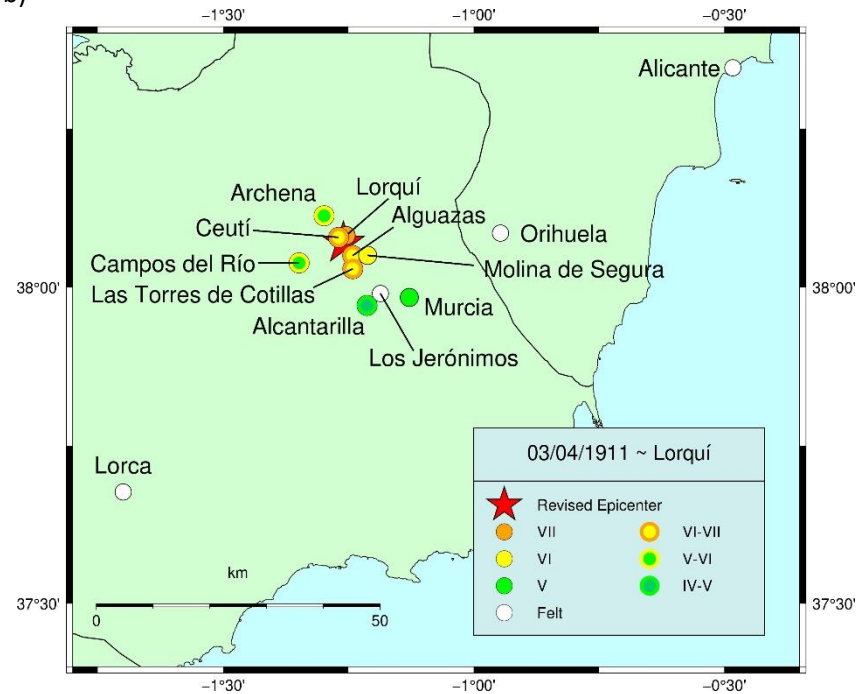


Figure S4: Results for EQ4 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study.
a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

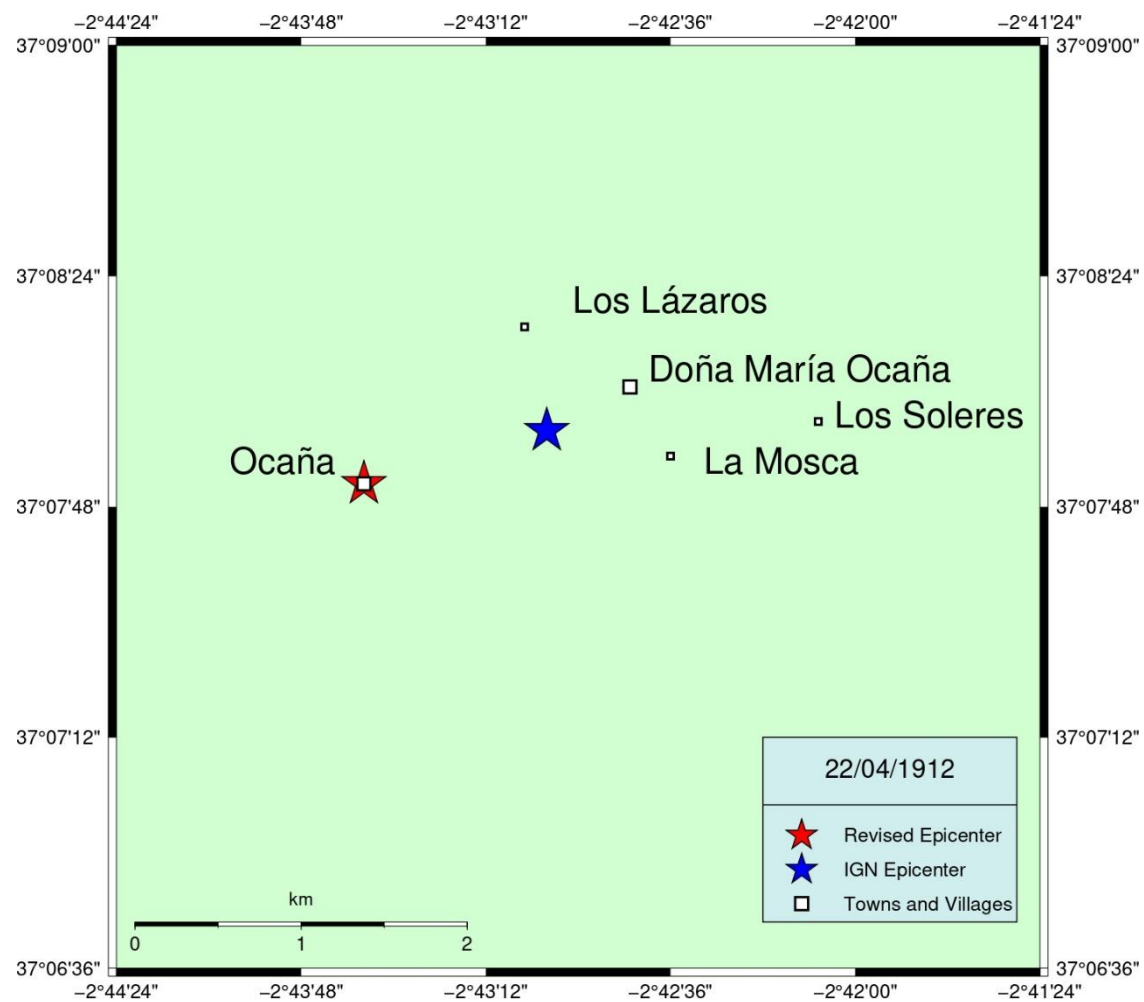


Figure S5: Result for EQ5 earthquake. The red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter.

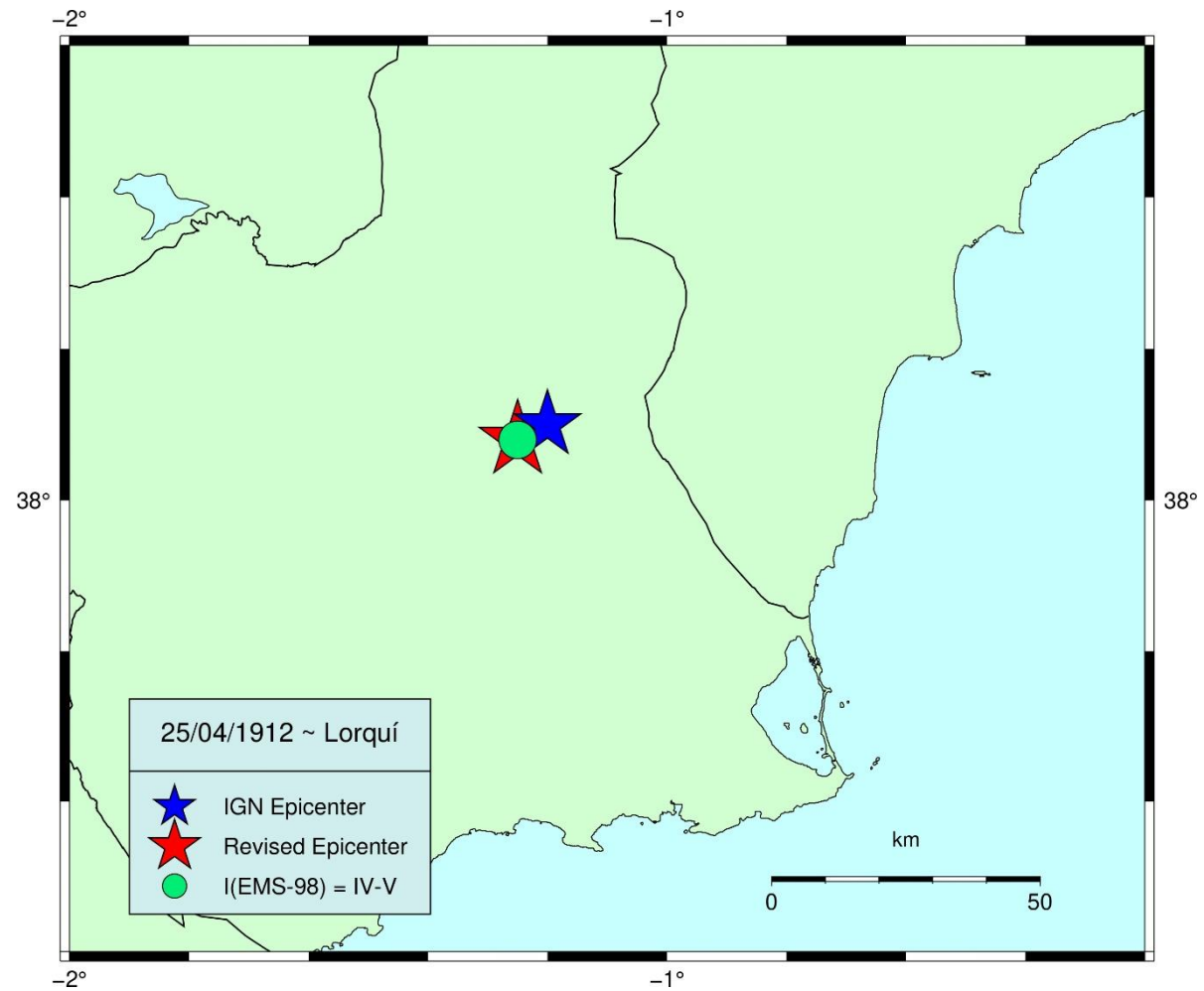


Figure S6: Result for EQ6 earthquake. The red star corresponds to the assigned epicenter of this study, the blue star corresponds to the IGN epicenter and the circle corresponds to the re-evaluated IDPs with EMS-98.

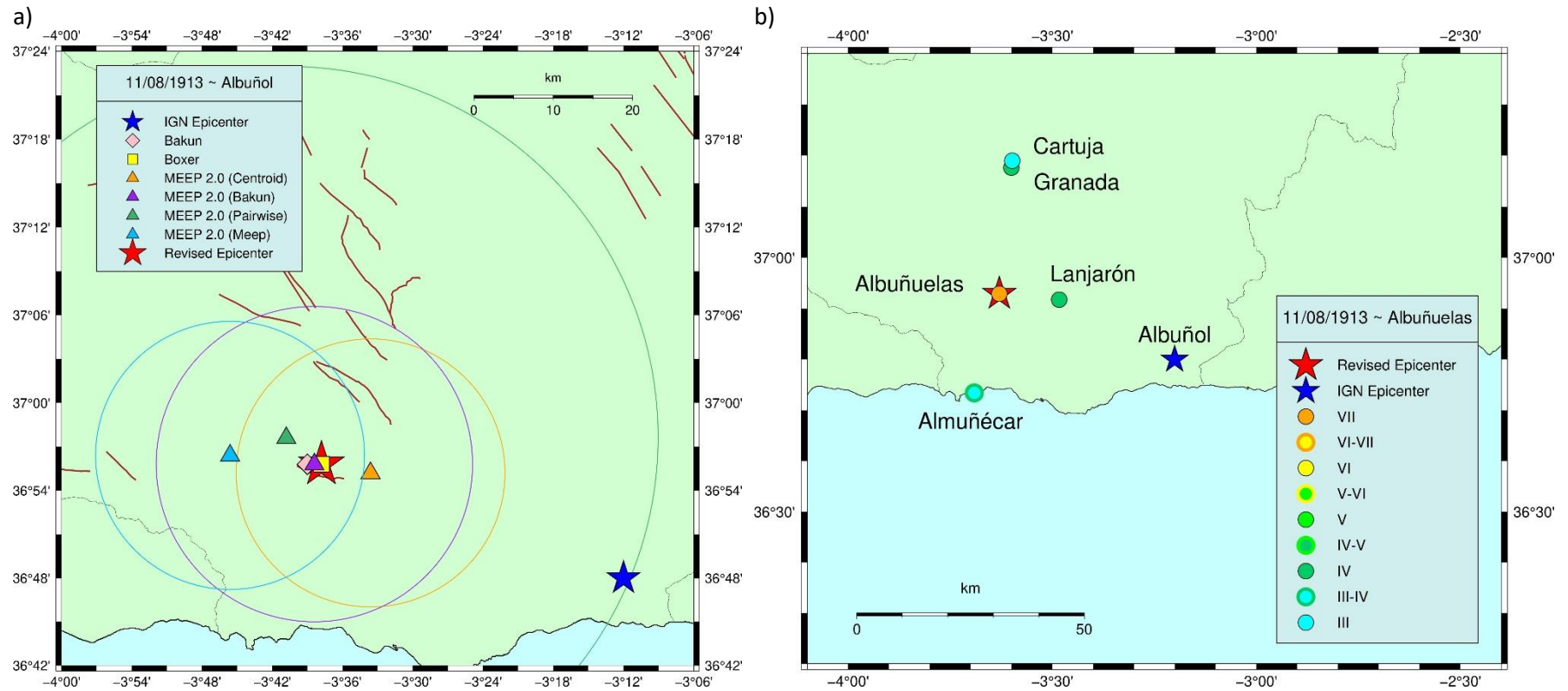


Figure S7: Results for EQ7 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter. a) Epicenters obtained with the macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

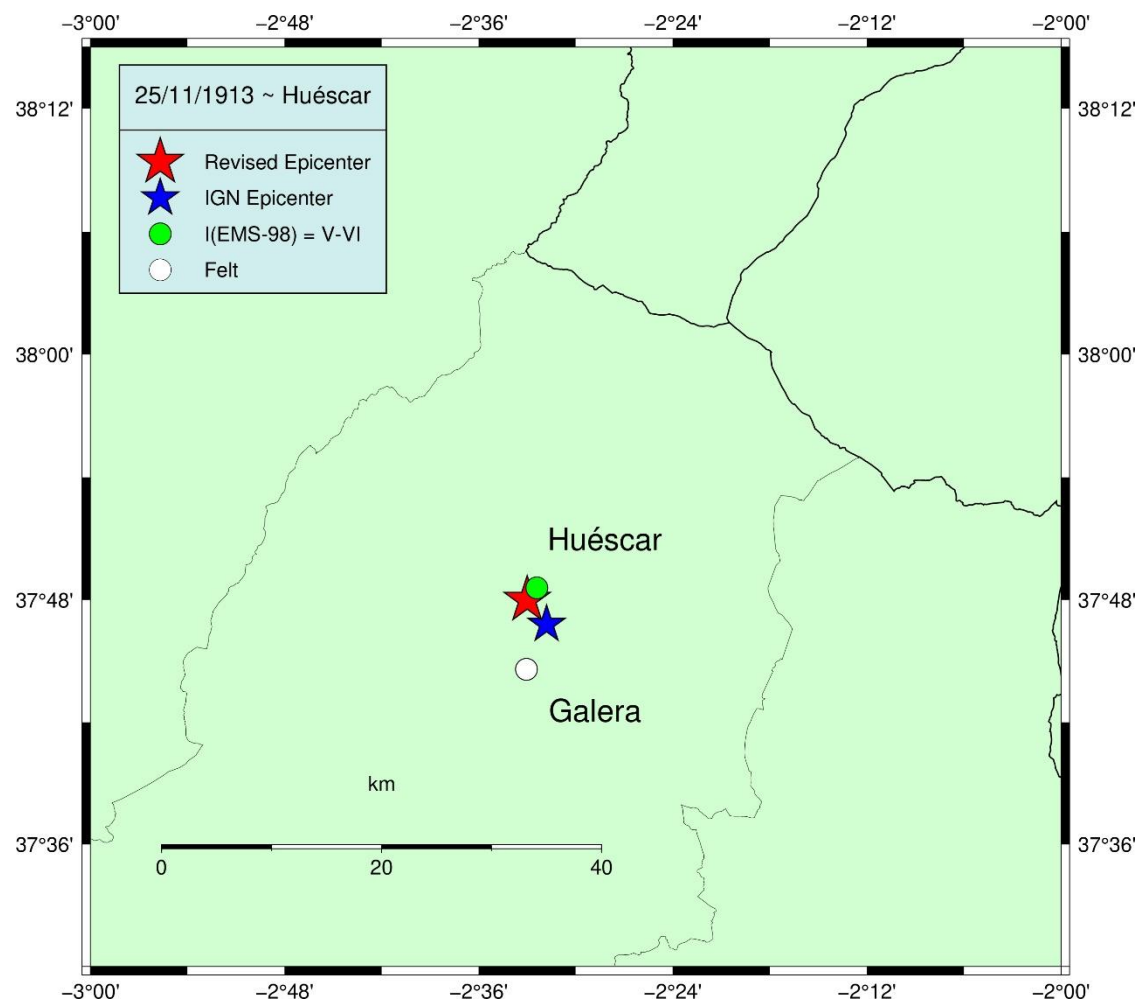


Figure S8: Result for EQ8 earthquake. The red star corresponds to the assigned epicenter of this study, the blue star corresponds to the IGN epicenter and the circle corresponds to the re-evaluated IDPs with EMS-98.

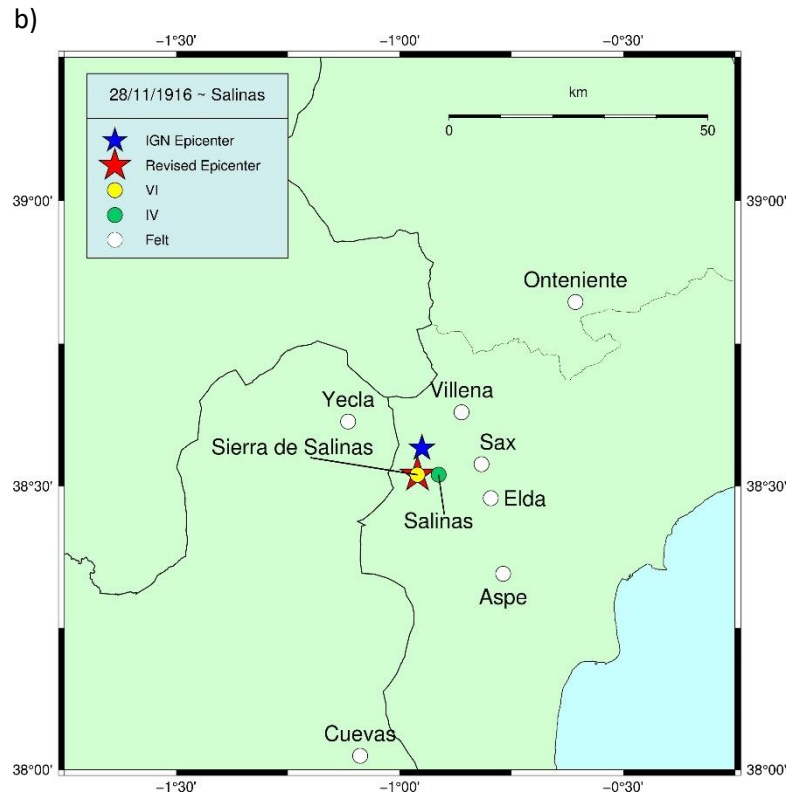
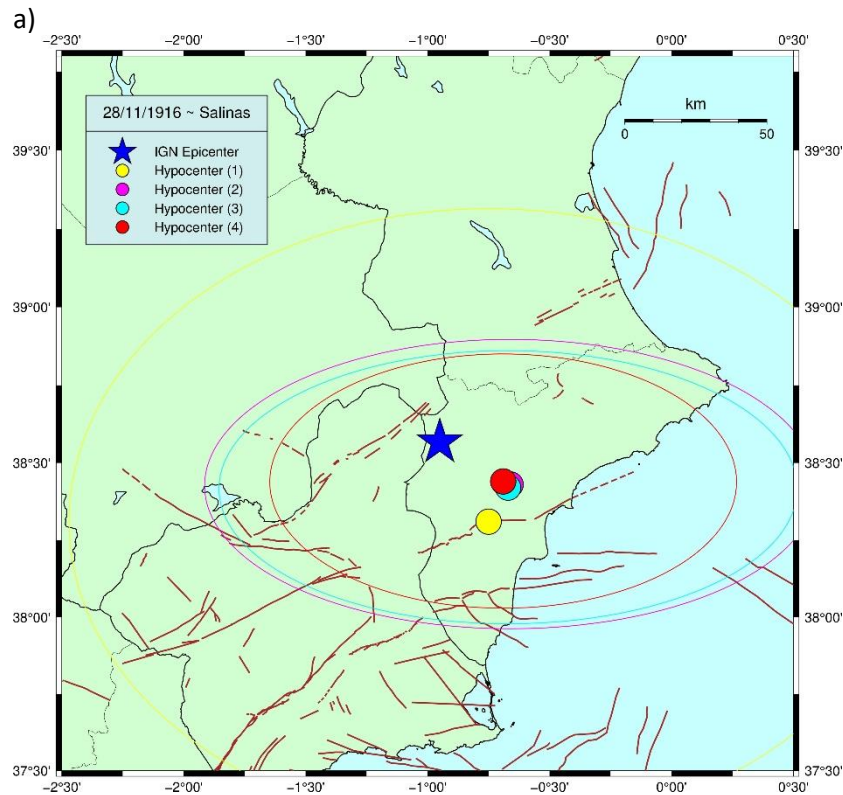
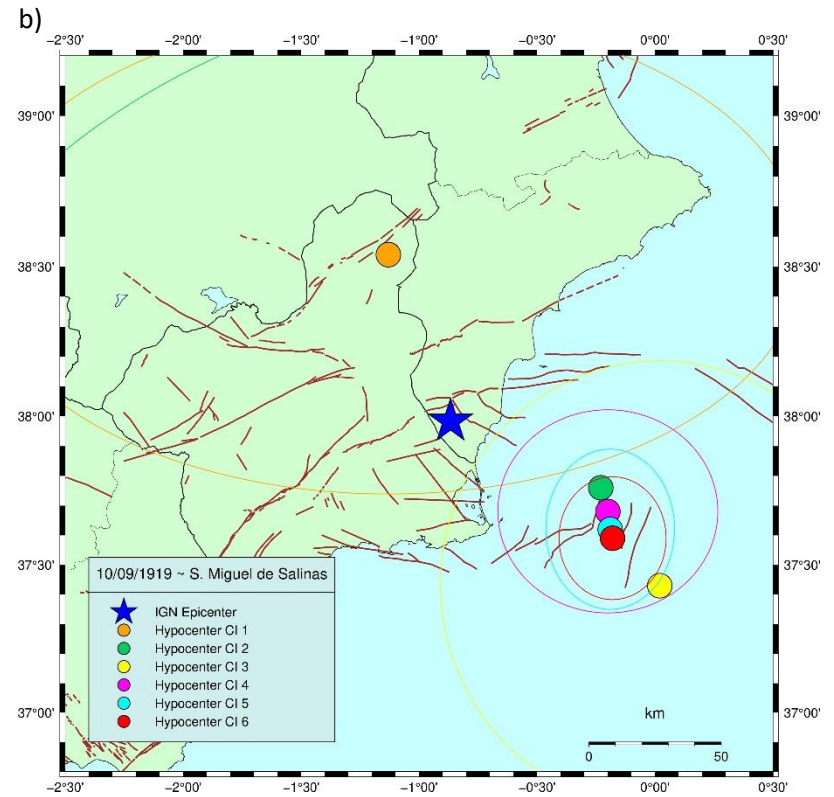
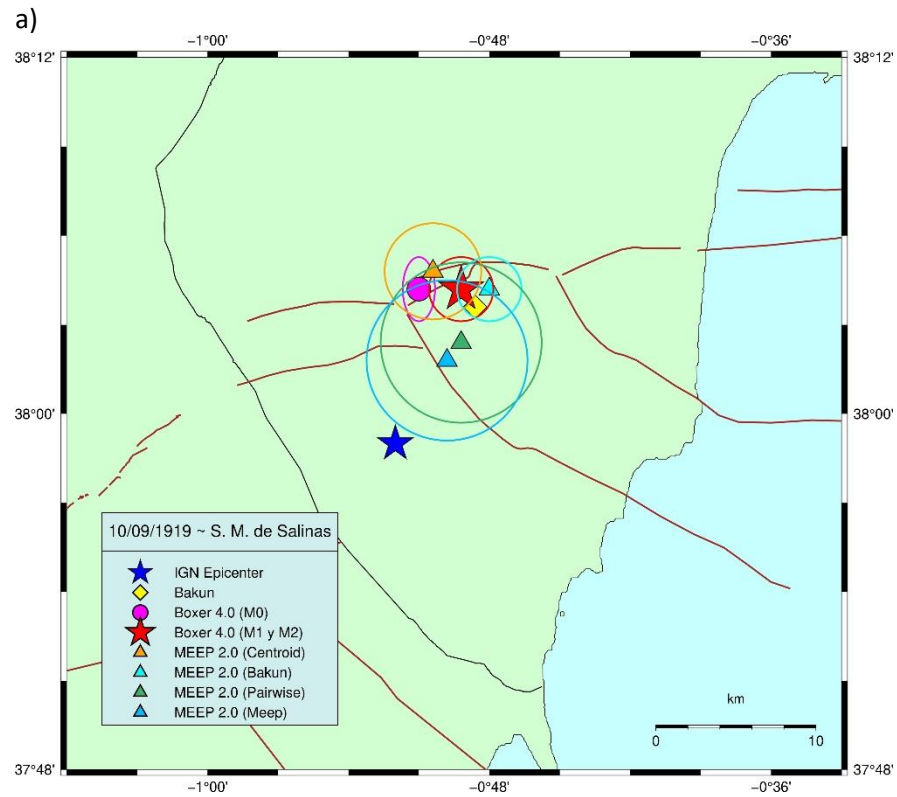


Figure S9: Results for EQ9 earthquake. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter and the red lines correspond with the geological faults. b) Final result, the red star corresponds to the assigned epicenter of this study and the circles correspond to the re-evaluated IDPs with EMS-98.



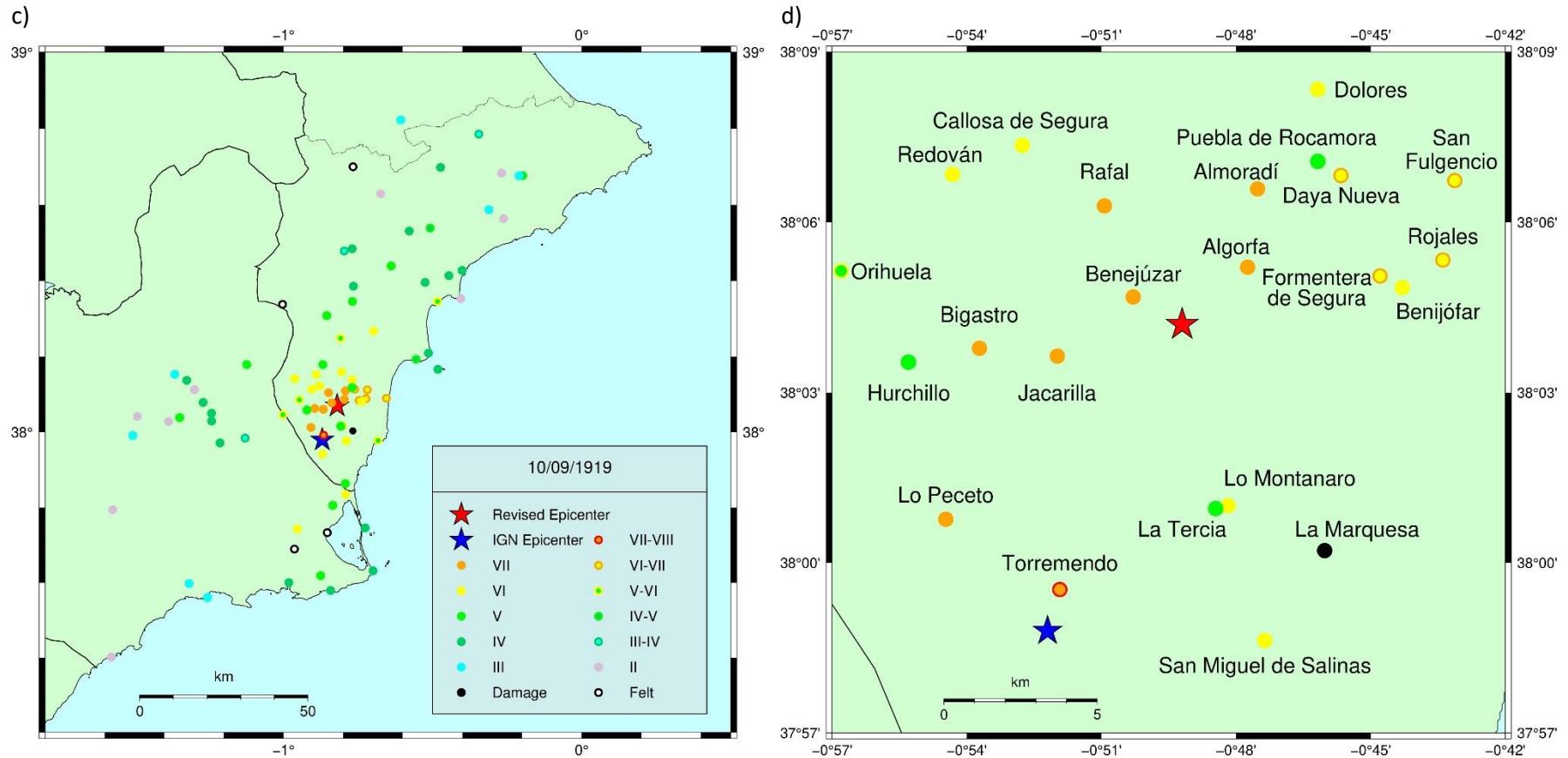


Figure S10: Results for EQ10 earthquake, the red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter (in the four panels). a) Epicenters obtained with the macroseismic methods and the location errors. b) Epicenters obtained with instrumental methods and the location errors. The red lines correspond with the geological faults in **Figure S10 a)** and **Figure S10 b)**. c) Final result, the circles correspond to the re-evaluated IDPs with EMS-98. d) Final result (detail).

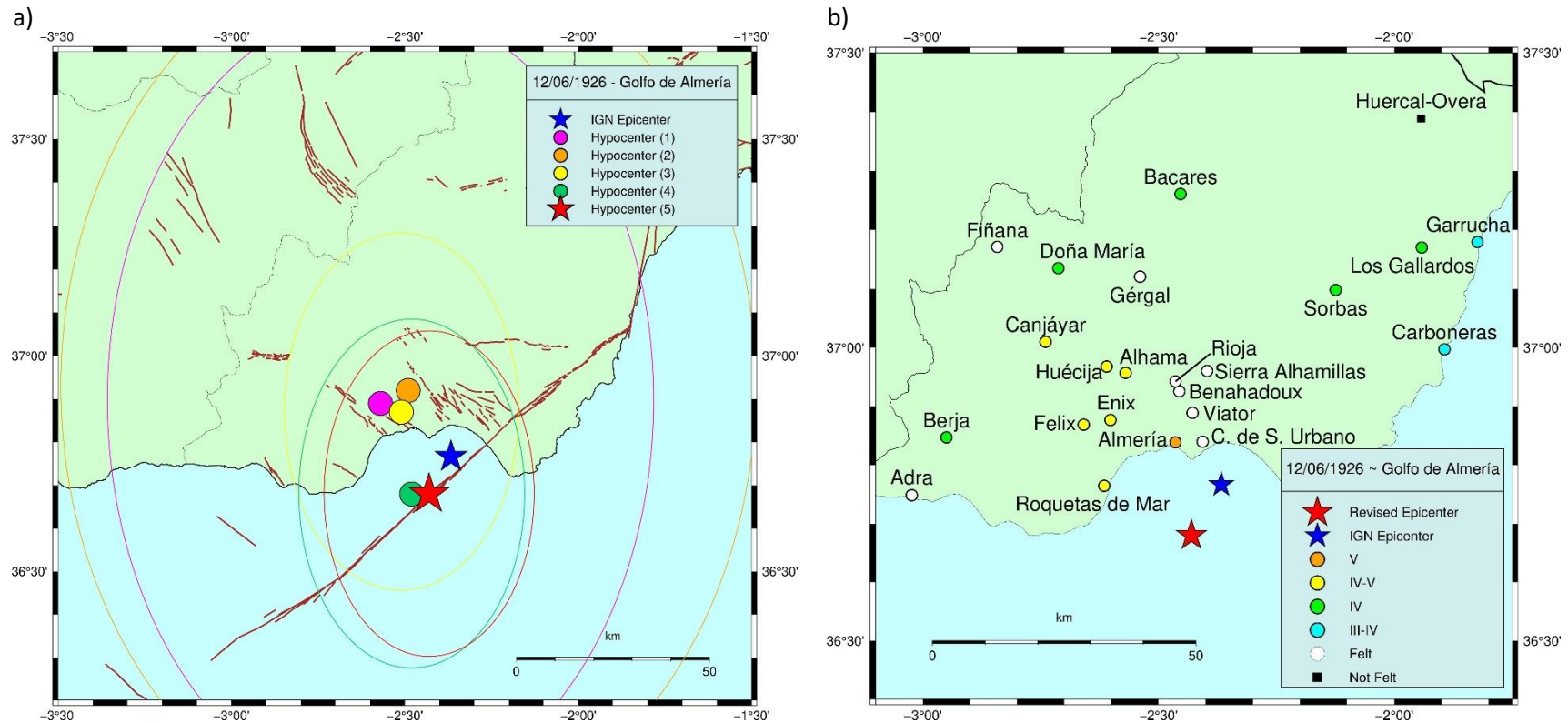


Figure S11: Results for EQ11 earthquake, the red star corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter (in both panels). a) Epicenters obtained with instrumental methods and the location errors, and the red lines correspond with the geological faults b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

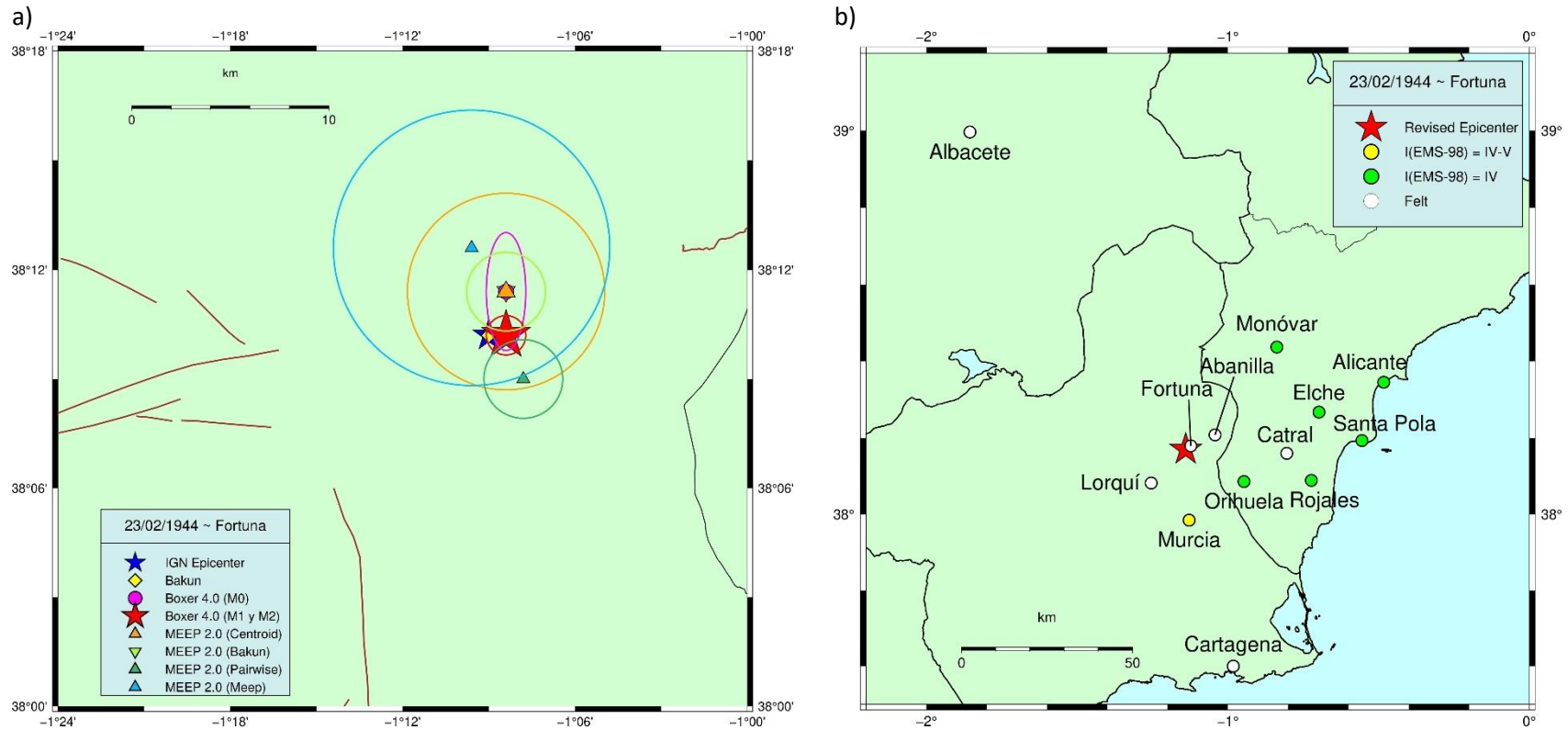


Figure S12: Results for EQ13 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study. a) Epicenters obtained with the macroseismic methods and the location errors, the blue star corresponds to the IGN epicenter, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

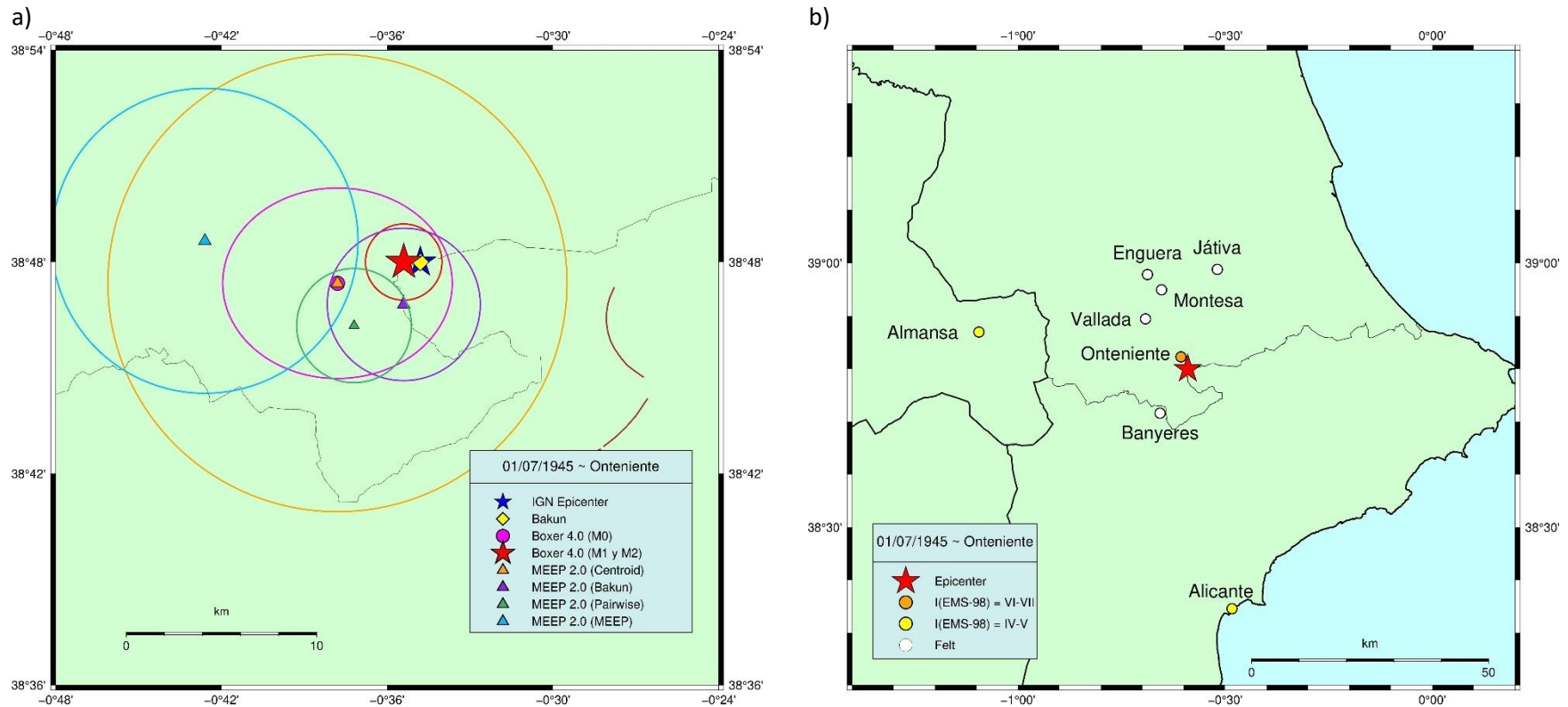


Figure S13: Results for EQ14 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study.
a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults.
b) Final result, the circles correspond to the re-evaluated IDs with EMS-98.

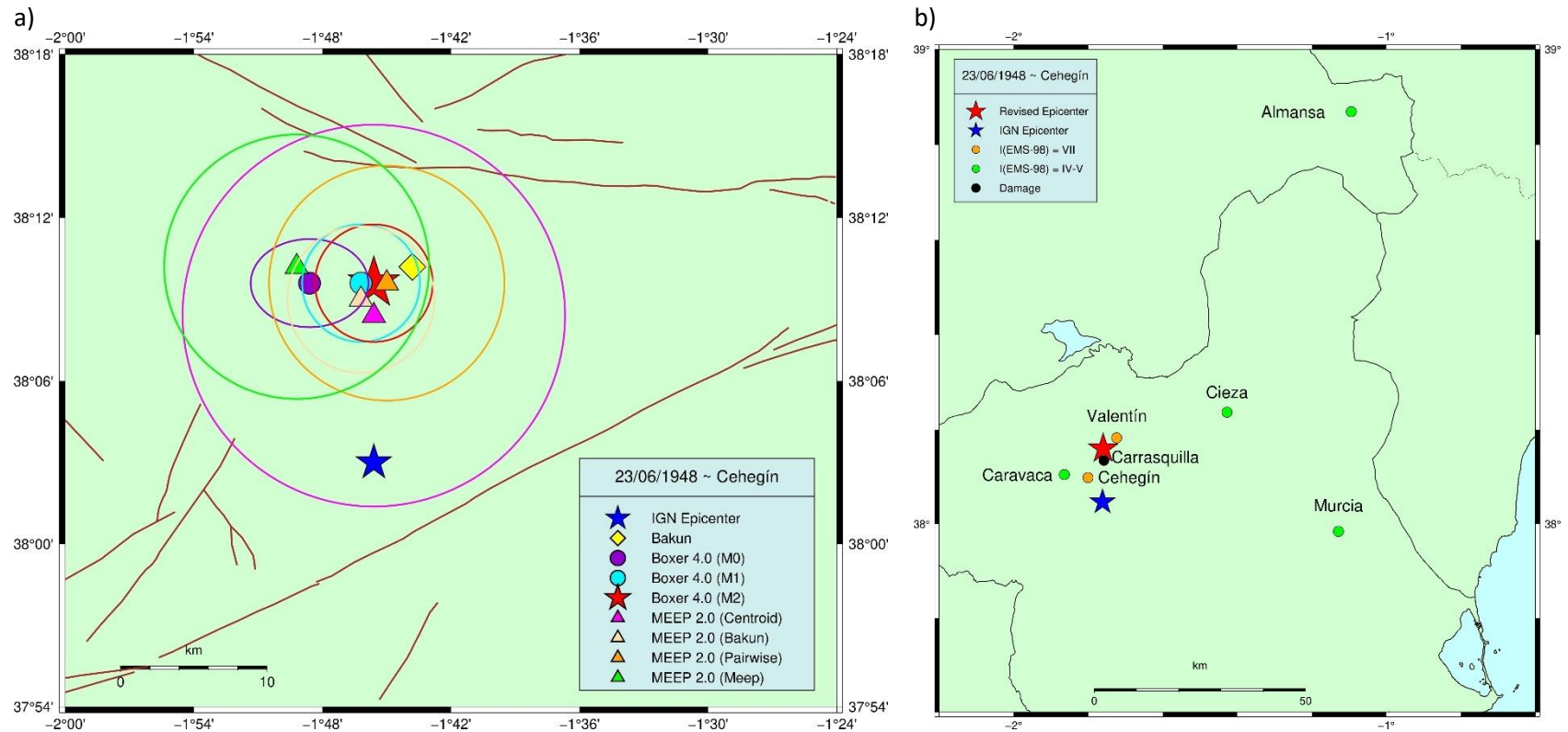


Figure S14: Results for EQ15 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study and the blue star corresponds to the IGN epicenter. a) Epicenters obtained with the macroseismic methods and the location errors, and the red lines correspond with the geological faults. b) Final result, the circles correspond to the re-evaluated IDPs with EMS-98.

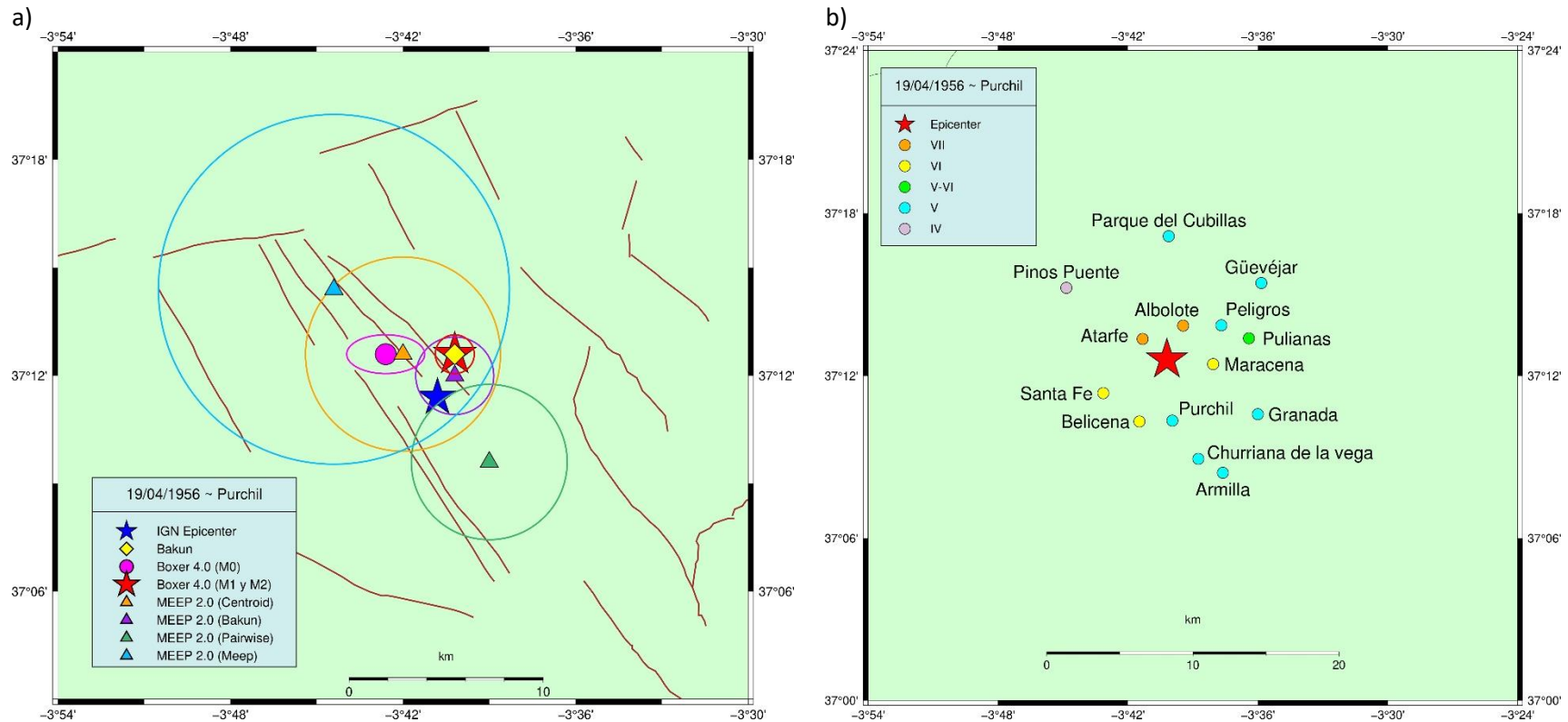


Figure S15: Results for EQ16 earthquake, the red star (in both panels) corresponds to the assigned epicenter of this study.
 a) Epicenters obtained with the different macroseismic methods and the location errors, and the red lines correspond with the geological faults.
 b) Final result, the circles correspond to the re-evaluated IDs with EMS-98.