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Relations entre propriétés des failles et propriétés des forts séismes

Relations between fault and earthquake properties

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APPENDICES

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1. Tables

Table 1: Slip profiles surface data ('Green table')

Slip profiles data measured at surface, compiled from literature. Quality weight is assigned depending on age of rupture, timing (i.e., right after the earthquake or not), method and location of measurement, agreement/disagreement of various available measurements. Quality weight ranges from 1 to 3, being higher for best-constrained data. See Appendix 2 for short discussions about the slip profiles. Numbers are under brackets when slip profile is considered only on the main broken fault (see also IDs section)

Table 2: Slip profiles from source inversion models ('Blue table')

Slip profiles data inferred at depth from source inversion model (values concern only along strike data). Data are compiled from Web site of M. Mai (<http://uake-rc.info/SRCMOD/>) and from literature (references of source models are indicated). Quality weight is assigned. See Appendix 2 for more detailed descriptions about quality and discussions about the slip profiles.

Table 3: Surface slip-length data ('Orange table')

Data base modified and expanded from Manighetti et al., 2007. Data are compiled from literature (principal references are indicated). Quality weight is assigned depending on age of rupture, timing (i.e., right after the earthquake or not), method and location of measurement, agreement/disagreement of various available measurements. Quality weight ranges from 0 to 4, being higher for best-constrained data. Quality 0 is assigned to data that are not included in regressions in chapter IV (commonly, earthquakes with unrealistic data or too poorly constrained data). Ruptures with $D_{max} < 1m$ are generally assigned a quality of 1, unless I am confident that they are well constrained. Old ruptures (commonly before 1900) are generally assigned a quality of 1 unless they are large and well described in literature. For ruptures having both vertical and lateral slip components reported, we calculated total slip only when long-term fault kinematics indeed reveals an oblique motion; otherwise, only the dominant component of slip was considered. In 'Kinematic column', RE: reverse, NN: normal, S: Strike-slip, LL: left-lateral, LR: left-lateral and reverse, LN: left-lateral and normal, RL: right-lateral, RR: right-lateral and reverse, RN: right-lateral and normal, LV: left-lateral with unclear dip-slip component, RV: right-lateral with unclear dip-slip component, VV: dip-slip rupture whose kinematics is unclear, SR: rupture with lateral and reverse components, SN: rupture with lateral and normal components. 'Azimuth' is mean rupture strike at surface. 'Maturity' is simplified from classes in Table 5 : class 1 for immature, class 2 for intermediate (interm \rightarrow immature to interm \rightarrow mature) and class 3 for mature faults.

Table 4: Slip-length data at depth deduced from inversion models ('Brown table')

Data base modified and expanded from Manighetti et al., 2007. Data are compiled from Web site of M. Mai (<http://uake-rc.info/SRCMOD/>) and from literature (references of source models are indicated). (D_{max}, L, W) are original data from models. M_w and M_0 are from the Global CMT earthquake catalog. Duration estimated from SCARDEC catalog for the period 1992-2011 and Global CMT for the period 1976-1992. Simplified class of maturity (as in Table 3) is also indicated.

Table 1: Slip profiles surface data

Name / Date	Number	Kinematic	L (km)	Dmax (m)	Dmax/L	Mw	M0 (Nm) (from Global CMT)	Quality	Asymmetry of the best triangle function (%)
Bogd 1957	56	Strike-Slip	243	7,0	2,89E-05	8,1		2	87
Bolu Gerede 1944	2	Strike-Slip	165	3,6	2,15E-05	7,3		1	81
Borah Peak 1983	3	Normal	34	2,7	7,98E-05	6,9	3,12E+19	3	82
Borrogo Mountain 1968	4	Strike-Slip	33	0,4	1,19E-05	6,4		2	86
Chi Chi 1999	5	Reverse	86	10,2	1,18E-04	7,7	4,98E+20	2	84
Darfield 2010	50	Strike-Slip	29	5,4	1,82E-04	7	3,64E+19	3	55
Denali 2002	8	Strike-Slip	302(230)	8,9	2,94E-05 (3,8E-05)	7,8	7,48E+20	2	61(81)
Dixie Valley 1956	44	Normal	46 (35)	3,3	7,03E-05 (9,26E-05)	6,7	1E+19	1	58
Duzce 1999	46	Strike-Slip	41	5,3	1,30E-04	7,1	6,65E+19	2	56
El Asnam 1980	58	Reverse	32	5,0	1,56E-04	7,1	5,07E+19	2	54
Erzincan 1939	10	Strike-Slip	307	7,5	2,45E-05	7,8		1	85
Fairview Peak 1956	59	Normal	50 (45)	3,9	7,89E-05 (8,73E-05)	7,2	5,3E+19	1	89 (89)
Fandoqa 1998	13	Strike-Slip	25	3,0	1,20E-04	6,6	9,4E+18	2	76
Fort Tejon 1857	114	Strike-Slip	327	6,0	1,85E-05	7,9	9E+20	1	75
Fuyun 1931	57	Strike-Slip	163	14,8	9,11E-05	7,9	8,5E+20	1	62
Hector Mine 2002	22	Strike-Slip	58 (40)	6,4	1,10E-04 (1,59E-04)	7,1	5,98E+19	3	61 (68)
Imperial Valley 1940	60	Strike-Slip	58	6,0	1,03E-04	7		1	64
Imperial Valley 1979	23	Strike-Slip	31	0,6	2,06E-05	6,5	7,2E+18	1	99
Kunlun 2001	27	Strike-Slip	450	8,3	1,90E-05	7,8	5,9E+20	2	74
Landers 1992	33	Strike-Slip	67 (60)	6,6	9,85E-05 (1,08E-04)	7,3	1,06E+21	3	65 (77)
Luzon 1990	34	Strike-Slip	125	6,2	4,97E-05	7,7	4,07E+20	2	80
Manyi 1997	35	Strike-Slip	164	7,0	4,23E-05	7,5	2,23E+20	2	69
Mudurnu 1967	36	Strike-Slip	75	2,0	2,68E-05	7,1		2	89
Muzafarabbad 2005	53	Reverse	79	7,3	9,24E-05	7,6	2,94E+20	2	79
Pleasant Valley 1915	45	Normal	60 (45)	6,0	9,96E-05 (1,03E-04)	7	2,7E+19	1	58
San Francisco 1906	38	Strike-Slip	475	8,6	1,81E-05	7,7	4E+20	1	93
Sichuan 2008	52	Reverse	280	11,7	4,16E-05	7,9	8,97E+20	2	93
Tosya 1943	41	Strike-Slip	270	4,5	1,68E-05	7,3		1	93

Table 1-1

Name / Date	Lower uncertainty of asymmetry (%)	Upper uncertainty of asymmetry (%)	Slip deficit (% of the semi-ellipse area)	Number of broken segments (from literature)	Number of broken segments (from our mapping)	Maximum spatial frequency <6 (Stockwell analysis)	References
Bogd 1957	6	7	34	3	3	4	Choi et al., 2012 and references therein
Bolu Gerede 1944	5	1	28	2	2	2	Barka 1996
Borah Peak 1983	8	4	39	2	2	3	Crone & Machete 1984; Crone et al., 1987
Borrego Mountain 1968	3	3	46	3	3	5	Clark 1972
Chi Chi 1999	3	2	31	2		5	Dominguez et al., 2003, composed
Darfield 2010	3	3	21	1-3		2	Quigley et al., 2011
Denali 2002	4(5)	4(7)	24 (39)	3	3	3(2)	Haeussler et al., 2004
Dixie Valley 1956	8 (5)	15 (8)	27 (42)	2	2	4 (4)	Caskey et al., 1996, composed
Duzce 1999	5	5	21	1	2	5	Duman et al., 2005
El Asnam 1980	2	12	29	2		2	Yielding et al., 1981
Erzincan 1939	4	8	33	4	3	1	Barka 1996
Fairview Peak 1956	14 (10)	6 (2)	40 (39)	3	2	5 (4)	Caskey et al., 1996, composed
Fandoqa 1998	3	3	37		2	4	Berberian et al., 2001
Fort Tejon 1857	13	7	28	5	3	3	Zielket et al., 2012
Fuyun 1931	5	28	21	1	3	2	Lin & Lin 1998
Hector Mine 2002	7 (4)	4 (4)	30 (31)	2	2	2 (5)	Jonsson et al., 2002
Imperial Valley 1940	9	16	36		2	2	Sharp 1982
Imperial Valley 1979	1	0	49	1	1	5	Sharp et al., 1982
Kunlun 2001	6	4	31	3	3	4	Lasserre et al., 2005; Xu et al., 2006
Landers 1992	3 (6)	5 (6)	23 (29)	5	3 (faults)	2 (2)	Sieh et al., 1993
Luzon 1990	15	15	34	2		2	Punongbayan et al., 1990
Manyi 1997	2	3	28		3	2	Peltzer et al., 1999
Mudurnu 1967	1	5	37	2	3	2	Barka 1996
Muzafarabbad 2005	2	2	33	2		3	Avouac et al., 2006
Pleasant Valley 1915	5 (5)	6 (8)	30 (27)	4	2	5 (4)	Zhang et al., 1999
San Francisco 1906	7	2	43		5	2	Thatcher et al., 1997
Sichuan 2008	4	4	45	2	2	5	Liu Zeng et al., 2009; Lin et al., 2009, 2012; Zhang et al., 2010
Tosya 1943	6	2	35	5	4	3	Barka 1996

Table 1-2

Table 2: Slip profiles from source inversion models

Name / Date	Number	Best model	Main Kinematic	L (km)	W (km)	LxW (km ²)	Smin (km ²)	Dmax (m)	Dmax/L	Mw (of model)	M0 (Nm) (from Global CMT)
Antarctic 1998	1	Yes	Strike-Slip	305	18	5338	1400	35,2	1,2E-04	7,93	1,7E+21
Antarctic 1998	2	Yes	Normal	90	38	3436	1400	21,1	2,3E-04	6,2	4,41E+17
Baja California 2010	3	Yes	Strike-Slip	135	18	2430	995	7,0	5,2E-05	7,2	7,62E+19
Borah Peak 1983	4	Yes	Normal	52	27	1385	898	1,3	2,5E-05	7,3	3,12E+19
Boumerdes 2003	5	Yes	Reverse	60	24	1440	684	3,0	4,9E-05	6,8	2,01E+19
Buhj 2001	6	Yes	Reverse	40	35	1400	949	13,9	3,5E-04	7,6	3,43E+20
Central-Chile 1985	7	Yes	Subduction	255	132	33660	21375	3,3	1,3E-05	8	1,03E+19
Chichi 1999	8		Normal	90	38	3425	1613	25,8	2,9E-04	7,68	3,38E+20
Chichi 1999	9		Normal	75	30	2260	1279	11,2	1,5E-04	7,66	3,38E+20
Chichi 1999	10		Normal	100	45	4500	2300	15,5	1,5E-04	7,69	3,38E+20
Chichi 1999	11	Yes	Normal	79	40	3150	1750	19,7	2,5E-04	7,69	3,38E+20
Chichi 1999	12		Normal	62	39	2434	1480	11,9	1,9E-04	7,63	3,38E+20
Chichi 1999	13		Normal	85	49	4165	1263	25,2	3,0E-04	7,67	3,38E+20
Chichi 1999	14		Normal	84	42	3528	3504	7,0	8,3E-05	7,61	3,38E+20
Colima 1995	15	Yes	Subduction	200	78	15556	9600	4,8	2,4E-05	8	1,15E+19
Coyote Lake 1979	16	Yes	Strike-Slip	7	7	50	38	1,2	1,8E-04	5,69	5,1E+17
Denali 2002	17		Strike-Slip	293	18	5265	4536	10,6	3,6E-05	7,87	7,48E+20
Denali 2002	18	Yes	Strike-Slip	346	30	10380	4689	10,3	3,0E-05	7,9	7,48E+20
Duzce 1999	19	Yes	Strike-Slip	49	30	1473	400	8,0	1,6E-04	7,1	6,65E+19
Elmoreranch 1987	20	Yes	Strike-Slip	25	10	250	155	2,7	1,1E-04	6,25	7,52E+18
Haiti 2010	22	Yes	Strike-Slip	68	32	2176	501	5,3	7,8E-05	7	4,39E+19
Haiti 2010	23		Strike-Slip	51	22	1122	368	3,9	7,6E-05	7	4,39E+19
Hector Mine 1999	24		Strike-Slip	54	16	864	480	8,2	1,5E-04	7,17	5,98E+19
Hector Mine 1999	25		Strike-Slip	58	21	1228	520	7,6	1,3E-04	7,24	5,98E+19

Table 2-1-1

Duration(s)	Asymmetry of the best triangle function (%)	Lower uncertainty of asymmetry (%)	Upper uncertainty of asymmetry (%)	Slip deficit (% of the semi-ellipse area)	Smin/LW	Smin/L	Hypocenter-Rupture edge along strike distance (normalized by L/2)	Hypocenter-Rupture edge along dip distance (normalized by W)	Hypocenter-Major asperity along strike distance (normalized by L)
140	90	4	3	47	0,26	4,6	0,00	0,29	0,15
7	59	2	2	26	0,41	15,6	0,00	0,65	
33	75	23	7	25	0,41	7,4	0,48	0,72	0,36
11	60	1	7	25	0,65	17,3	0,13	0,19	0,25
24	89	13	2	30	0,48	11,4	0,45	0,63	0,20
35	75	13	2	28	0,68	23,7	0,46	0,29	0,08
69,4	81	10	6	26	0,64	83,8			0,06
51	96			44	0,47	17,9			
51	94			40	0,57	17,0			
51	95			35	0,51	23,0			
51	80	7	13	26	0,56	22,2	0,32	0,63	0,70
51	95			28	0,61	23,7			
51	89			41	0,30	14,9			
51	87			27	0,99	41,7			
73	84	2	3	34	0,62	48,0	0,25	0,26	0,35
7	54	4	10	20	0,74	5,5			
96	72			25	0,86	15,5			
96	68	5	5	29	0,45	13,6	0,07	0,51	0,52
27	89	2	2	38	0,27	8,1			0,10
10	78	3	3	34	0,62	6,2	0,13	0,10	
14	88	2	2	39	0,23	7,4	0,15	0,44	0,00
14	76			30	0,33	7,2			
16	76			32	0,56	8,9			

Table 2-1-2

Hypocenter-Major asperity along dip distance (normalized by W)	Uncertainty of the hypocenter location along strike (normalized by L)	Uncertainty of the hypocenter location along dip (normalized by W)	Depth of hypocenter (km)	Dmax-Wmax distance (normalized by L)	Number of broken segments (from our mapping)	Maximum spatial frequency <6 (Stockwell analysis)	Maturity	Quality	References
0,57	0,02	0,29	12,00	0,03				1	Antolik et al., 2000
				0,11				1	Antolik et al., 2000
0,06	0,04	0,28	5,00	0,10	3	3	2	1	Wei et al., 2011
0,00	0,10	0,19	16,00	0,00	2		2	1	Mendoza & Hartzell 1988
0,00	0,08	0,21	6,50	0,10		3		1	Delouis et al., 2004
0,52	0,08	0,14	23,00	0,12		2		1	Copley et al., 2011
0,00	0,02	0,04	40,00	0,14				1	Mendoza et al., 1994
							2	1	Chi et al., 2001
						4	2	1	Johnson et al., 2002
							2	1	Ma et al., 2000
0,25	0,06	0,13	7,00	0,06		2	2	3	Ma et al., 2001
							2	1	Sekiguchi et al., 2002
							2	2	Wu et al, 2001
							2	1	Zeng & Chen 2001
0,39	0,03	0,06	15,00	0,00				1	Mendoza & Hartzell 1999
				0			2	1	Liu & Helmberger 1983
					3		3	1	Asano et al., 2005
0,00	0,01	0,17	7,50	0,00	3	4	3	2	Oglesby et al., 2004
0,17	0,10	0,17	18,00	0,11	2			3	Delouis et al., 2004
				0				1	Larsen et al., 1992
0,11	0,07	0,16	12,60	0,12		5		2	Mercier de Lépinay et al., 2012
								2	Sladen (Caltech website 2010)
					2		1	2	Ji et al., 2002
					2	2	1	2	Jonsson et al., 2002

Table 2-1-3

Name / Date	Number	Best model	Main Kinematic	L (km)	W (km)	LxW (km ²)	Smin (km ²)	Dmax (m)	Dmax/L	Mw (of model)	M0 (Nm) (from Global CMT)
Hector Mine 1999	26	Yes	Strike-Slip	54	20	1052	579	6,3	1,2E-04	7,2	5,98E+19
Hector Mine 1999	27		Strike-Slip	54	18	972	432	9,5	1,8E-04	7,14	5,98E+19
Huyga(1) 1996	28	Yes	Subduction	13	22	299		2,9	2,2E-04	6,8	1,17E+19
Huyga(2) 1996	29	Yes	Subduction	23	23	516		1,7	7,3E-05	6,7	1,83E+19
Imperial Valley 1979	30		Strike-Slip	42	10	420	230	1,8	4,2E-05	6,53	1,33E+18
Imperial Valley 1979	31	Yes	Strike-Slip	44	10	458	328	1,8	4,1E-05	6,62	1,33E+18
Imperial Valley 1979	32		Strike-Slip	50	10	500	475	1,3	2,6E-05	6,53	1,33E+18
Imperial Valley 1979	33		Strike-Slip	40	10	400	115	3,6	8,9E-05	6,35	1,33E+18
Izmit 1999	34		Strike-Slip	150	18	2700	2077	6,8	4,5E-05	7,59	2,88E+20
Izmit 1999	35		Strike-Slip	170	28	4760	2000	5,5	3,2E-05	7,47	2,88E+20
Izmit 1999	36	Yes	Strike-Slip	188	23	4219	1688	8,0	4,3E-05	7,4	2,88E+20
Izmit 1999	37		Strike-Slip	163	18	2974	2035	5,7	3,5E-05	7,42	2,88E+20
Izmit 1999	38		Strike-Slip	171	23	3984	1573	8,5	5,0E-05	7,44	2,88E+20
Izmit 1999	39		Strike-Slip	174	22	3758	1292	6,3	3,6E-05	7,4	2,88E+20
Izu-Hanto-Toho-OkI 1980	40	Yes	Strike-Slip	25	9	225	150	3,0	1,2E-04	6,55	7,87E+18
Joshua Tree 1992	42	Yes	Strike-Slip	31	20	620	192	0,8	2,7E-05	6,25	2,65E+18
Joshua Tree 1992	43		Strike-Slip	14	17	229	54	2,1	1,5E-04	6,15	2,65E+18
Kobe 1995	46		Strike-Slip	52	20	1040	440	2,8	5,3E-05	6,8	2,43E+19
Kobe 1995	47		Strike-Slip	50	20	1000	782	1,8	3,6E-05	6,89	2,43E+19
Kobe 1995	48		Strike-Slip	55	21	1129	639	4,0	7,3E-05	7,02	2,43E+19
Kobe 1995	49	Yes	Strike-Slip	60	20	1200	667	3,5	5,8E-05	6,91	2,43E+19
Kobe 1995	50		Strike-Slip	60	16	960	656	2,5	4,1E-05	6,86	2,43E+19
Kobe 1995	51		Strike-Slip	60	20	1200	520	3,7	6,1E-05	6,9	2,43E+19
Landers 1992	52		Strike-Slip	80	18	1439	694	6,1	7,6E-05	7,08	1,06E+20
Landers 1992	53		Strike-Slip	85	15	1275	925	5,1	6,0E-05	7,29	1,06E+20
Landers 1992	54		Strike-Slip	80	15	1200	650	6,7	8,4E-05	7,22	1,06E+20
Landers 1992	55	Yes	Strike-Slip	78	15	1170	750	7,9	1,0E-04	7,28	1,06E+20
Landers 1992	56		Strike-Slip	77	15	1147	718	6,8	8,8E-05	7,2	1,06E+20
Lomaprieta 1989	57	Yes	Strike-Slip	39	14	546	300	5,9	1,5E-04	6,89	2,69E+19
Lomaprieta 1989	59		Strike-Slip	40	20	800	400	5,1	1,3E-04	6,94	2,69E+19

Table 2-2-1

Duration(s)	Asymmetry of the best triangle function (%)	Lower uncertainty of asymmetry (%)	Upper uncertainty of asymmetry (%)	Slip deficit (% of the semi-ellipse area)	Smin/LW	Smin/L	Hypocenter-Rupture edge along strike distance (normalized by L/2)	Hypocenter-Rupture edge along dip distance (normalized by W)	Hypocenter-Major asperity along strike distance (normalized by L)
16	85	5	1	36	0,55	10,8	0,41	0,81	0,00
16	71			30	0,44	8,0			
	50	0	3	9			0,50	0,90	0,21
	71	7	2	26			0,38	0,38	0,22
12	64			18	0,55	5,5			
12	56	2	5	20	0,72	7,4	0,02	0,58	0,43
12	60			21	0,95	9,5			
12	61			28	0,29	2,9			
32	64			22	0,77	13,8			
32	61			20	0,42	11,8			
32	63	7	8	23	0,40	9,0	0,39	0,40	0,17
32	70			23	0,68	12,5			
32	65			29	0,39	9,2			
32	63			28	0,34	7,4			
	50	0	2	11	0,67	6,0	0,50	0,17	0,00
17	63	5	6	37	0,31	6,2			
17	85			43	0,24	4,0			
23	92			42	0,42	8,5			
23	73			28	0,78	15,6			
23	96			41	0,57	11,6			
23	94	10	2	43	0,56	11,1	0,25	0,13	0,03
23	64			24	0,68	10,9			
23	81			28	0,43	8,7			
30	54			20	0,48	8,7			
30	56			16	0,73	10,9			
30	60			15	0,54	8,1			
30	56	5	14	19	0,64	9,6	0,30	0,42	0,23
30	82			24	0,63	9,4			
40	68	5	5	27	0,55	7,7	0,03	0,21	0,15
40	73			26	0,50	10,0			

Table 2-2-2

Hypocenter-Major asperity along dip distance (normalized by W)	Uncertainty of the hypocenter location along strike (normalized by L)	Uncertainty of the hypocenter location along dip (normalized by W)	Depth of hypocenter (km)	Dmax-Wmax distance (normalized by L)	Number of broken segments (from our mapping)	Maximum spatial frequency <6 (Stockwell analysis)	Maturity	Quality	References
0,11	0,07	0,16	12,60	0,10	2	4	1	3	Kaverina et al., 2002
					2	2	1	3	Salichon et al., 2004
0,00	0,09	0,26	68,00	0,00				1	Yagi et al., 1999
0,00	0,38	0,22	11,60	0,00				1	Yagi et al., 1999
					1		2	1	Archuleta 1984
0,29	0,11	0,48	8,00	0,00	1	2	2	1	Hartzell & Heaton 1983
					1		2	1	Olson & Apsel 1982
					1		2	1	Zeng & Anderson 2000
					3			1	Bouchon et al., 2002
					3			1	Cakir et al., 2002
0,20	0,04	0,22	17,00	0,00	3	2		2	Delouis et al., 2002
					3			1	Reilinger et al., 2000
					3			1	Sekiguchi & Iwata 2002
					3			2	Yagi & Kikuchi 2000
0,00	0,20	0,56	8,00	0,20				0	Takeo 1988
				0			1	1	Bennet et al., 1995
							1	1	Hough & Dreger 1995
								2	Cho & Nakanishi 2000
								1	Ide et al., 1996
								1	Sekiguchi et al., 1996
0,75	0,08	0,25	14,30	0,00				3	Wald 1996
								3	Yoshida et al., 1996
								1	Zeng and Anderson 2000
							1	1	Cohee & Beroza 1994
							1	1	Cotton & Campillo 1995
							1	2	Hernandez et al., 1999
0,23	0,05	0,33	7,00	0,00		5	1	3	Wald & Heaton 1994
							1	1	Zeng & Anderson 2000
0,29	0,13	0,36	17,60	0,28	1	3	3	1	Beroza 1991
					1	2	3	1	Wald et al., 1991

Table 2-2-3

Name / Date	Number	Best model	Main Kinematic	L (km)	W (km)	LxW (km ²)	Smin (km ²)	Dmax (m)	Dmax/L	Mw (of model)	M0 (Nm) (from Global CMT)
Lomaprieta 1989	60		Strike-Slip	35	14	496	279	8,9	2,5E-04	6,98	2,69E+19
Manyi 1997	104	Yes	Strike-Slip	188	20	3760	2544	7,6	4,1E-05	7,6	2,23E+20
Manyi 1997	105		Strike-Slip	174	25	4350	2875	6,0	3,5E-05	7,6	2,23E+20
Maule 2010	61	Yes	Subduction	560	240	134400	34971	21,3	3,8E-05	8,8	1,86E+22
Michoacan 1985	62	Yes	Subduction	164	139	22745	12093	7,5	4,6E-05	8,02	1,1E+20
Morgan Hill 1984	63		Strike-Slip	25	10	245	93	2,3	9,4E-05	6,28	2,62E+18
Morgan Hill 1984	64	Yes	Strike-Slip	27	12	311	102	1,0	3,7E-05	6,24	2,62E+18
Nahanni(1) 1985	66	Yes	Reverse	37	17	646	195	3,8	1,0E-04	6,7	8,43E+18
Nahanni(2) 1985	67	Yes	Reverse	48	21	1020	208	5,2	1,1E-04	6,78	1,52E+19
Northridge 1994	68		Reverse	17	27	455	207	3,3	2,0E-04	6,66	1,18E+19
Northridge 1994	69		Reverse	20	25	498	351	2,4	1,2E-04	6,73	1,18E+19
Northridge 1994	70		Reverse	18	26	462	464	2,8	1,6E-04	6,81	1,18E+19
Northridge 1994	71	Yes	Reverse	17	24	399	333	3,2	1,9E-04	6,7	1,18E+19
Northridge 1994	72		Reverse	18	24	432	202	4,1	2,3E-04	6,71	1,18E+19
NZ-Canterbury-2010	73	Yes	Strike-Slip	47	10	470	369	7,6	1,6E-04	7	3,64E+19
NZ-Christchurch-dec2011	74	Yes	Strike-Slip	12	9	108	71	1,6	1,3E-04	6,12	3,64E+18
NZ-Christchurch-fev2011	75	Yes	Strike-Slip	14	14	187	67	4,2	3,0E-04	6,15	1,86E+18
Oaxaca 1999	76	Yes	Normal	90	36	3240	2194	2,5	2,7E-05	7,5	1,72E+18
Palmspring 1986	78		Reverse	22	15	334	224	0,5	2,0E-05	6,21	1,61E+18
Palmspring 1986	79	Yes	Reverse	20	15	301	53	0,9	4,5E-05	6,07	1,61E+18
Parkfield 2004	80		Strike-Slip	40	15	600	194	0,5	1,3E-05	6,06	1,13E+18
Parkfield 2004	81		Strike-Slip	34	16	527	121	1,0	3,0E-05	6	1,13E+18
Parkfield 2004	82	Yes	Strike-Slip	40	15	580	212	0,4	1,1E-05	6	1,13E+18
Peru 1996	84		Subduction	180	96	17280	5200	4,4	2,4E-05	7,89	4,57E+18
Peru 1996	85	Yes	Subduction	220	120	26400	16720	3,3	1,5E-05	8,06	4,57E+18
Petatlan 1979	86	Yes	Subduction	87	120	10473	7560	1,2	1,4E-05	7,36	1,72E+19
Playa Azul 1981	87	Yes	Subduction	55	70	3818	1125	4,0	7,4E-05	7,23	7,2E+18
San Fernando 1971	88	Yes	Reverse	18	20	360	223	5,0	2,8E-04	6,73	1,9E+19
Sichuan 2008	189	Yes	Strike-Slip	310	40	12400	3760	16,7	5,4E-05	7,9	8,97E+20
Sichuan 2008	89		Strike-Slip	300	28	8400	4400	14,0	4,7E-05	7,9	8,97E+20

Table 2-3-1

Duration(s)	Asymmetry of the best triangle function (%)	Lower uncertainty of asymmetry (%)	Upper uncertainty of asymmetry (%)	Slip deficit (% of the semi-ellipse area)	Smin/LW	Smin/L	Hypocenter-Rupture edge along strike distance (normalized by L/2)	Hypocenter-Rupture edge along dip distance (normalized by W)	Hypocenter-Major asperity along strike distance (normalized by L)
40	74			29	0,56	7,9			
42	72	3	2	31	0,68	13,5	0,380	0,4	0,05
42	65			25	0,66	16,5			0,06
130	79	2	5	36	0,26	62,4	0,50	0,58	0,29
77	70	5	4	20	0,53	73,9			0,09
9,5	80			28	0,38	3,8			
9,5	62	7	29	24	0,33	3,8			
16	85	4	2	36	0,30	5,2	0,18	0,20	0,00
19	65	4	16	33	0,20	4,3	0,45	0,23	0,05
10	50			13	0,45	12,3			
10	85			29	0,70	17,5			
10	63			21	1,00	26,1			
10	67	17	4	18	0,83	20,0	0,16	0,14	0,55
10	74			26	0,47	11,2			
33	62	5	5	22	0,79	7,9	0,43	0,10	0,13
4	82	9	1	34	0,66	5,9	0,25	0,33	0,38
7	54	4	2	24	0,36	4,9	0,37	0,15	0,51
32	55	5	8	15	0,68	24,4	0,21	0,53	0,46
7	70			24	0,67	10,2			
7	89	13	3	43	0,18	2,7	0,40	0,26	0,10
5	80			26	0,32	4,8			
5	88			43	0,23	3,5			
5	89	3	3	36	0,37	5,3	0,15	0,55	0,01
59	63	4	3	24	0,30	28,9	21	7,89	0,22
59	77	5	3	25	0,63	76,0			0,44
37	63	4	3	18	0,72	86,6	0,34	0,50	0,29
30	60	6	2	25	0,29	20,6	0,46	0,50	0,00
	53	2	6	20	0,62	12,4	0,11	0,10	0,56
105	83	4	7	31	0,30	12,1	0,08	0,45	0,16
105	72			26	0,52	14,7			0,19

Table 2-3-2

Hypocenter-Major asperity along dip distance (normalized by W)	Uncertainty of the hypocenter location along strike (normalized by L)	Uncertainty of the hypocenter location along dip (normalized by W)	Depth of hypocenter (km)	Dmax-Wmax distance (normalized by L)	Number of broken segments (from our mapping)	Maximum spatial frequency <6 (Stockwell analysis)	Maturity	Quality	References
					1		3	1	Zeng & Anderson 2000
0,25	0,03	0,25	12,00	0,00	3	2	2	2	Funning et al., 2007
0,20	0,03	0,20	12,00	0,00	3	2	2	2	Wen & Ma 2010
0,00	0,01	0,02	31,60	0,07				3	Delouis et al., 2010
0,10	0,03	0,04	17,00	0,38				1	Mendoza & Hartzell 1988
							2	1	Beroza & Spudich 1988
				0		2	2	2	Hartzell and Heaton 1986
0,10	0,14	0,29	8,00	0,00				1	Hartzell et al., 1994
0,38	0,10	0,24	8,00	0,00				1	Hartzell et al., 1994
								1	Dreger 1994
								1	Hartzell et al., 1996
								1	Hudnut et al., 1996
0,50	0,30	0,21	17,50	0,14				2	Wald et al., 1996
								1	Zeng & Anderson 2000
0,75	0,11	0,50	8,40	0,00	1	4	1	2	Beavan et al., 2012
0,33	0,42	0,56	6,50	0		1	1	1	Beavan et al., 2012
0,11	0,37	0,37	5,60	0			1	1	Holden 2011
0,31	0,06	0,14	40,00	0,18				1	Hernandez et al., 2001
							1	1	Hartzell 1989
0,07	0,25	0,33	11,00	0,25			1	1	Mendoza & Hartzell 1988
							3	2	Custodio et al., 2005
						5	3	0	Dreger et al., 2005
0,00	0,13	0,35	8,26	0,25		2	3	2	Ji et al., 2005
0,00	0,03	0,05	21,00	0,17				1	Salichon et al., 2003
0,10	0,02	0,04	21,00	0		4		1	Spence et al.1999
0,00	0,06	0,04	15,00	0,00				1	Mendoza 1995
0,14	0,09	0,07	15,00	0,10				1	Mendoza 1993
0,15	0,28	0,25	13,00	0,16			2	1	Heaton 1982
0,13	0,01	0,06	10,75	0,00	2	5	2	3	Fielding et al., 2013
0,00	0,02	0,18	10,00	0,00	2		2	1	Sladen (Caltech website 2008)

Table 2-3-3

Name / Date	Number	Best model	Main Kinematic	L (km)	W (km)	LxW (km ²)	Smin (km ²)	Dmax (m)	Dmax/L	Mw (of model)	M0 (Nm) (from Global CMT)
Sierra Madre 1992	90	Yes	Reverse	5	5	29	11	1,4	2,6E-04	5,53	2,4E+17
Sumatra 2004	91	Yes	Subduction	1500	150	225000	123214	17,0	1,1E-05	9,15	3,95E+22
Sumatra2005	92	Yes	Subduction	416	320	133120	22016	15,2	3,7E-05	8,5	1,05E+22
Sumatra2007	93	Yes	Subduction	240	190	45600	6240	6,0	2,5E-05	7,9	6,71E+21
Superstition Hills 1987	94		Strike-Slip	25	10	250	185	3,1	1,2E-04	6,71	7,18E+18
Superstition Hills 1987	95	Yes	Strike-Slip	20	12	230	118	4,3	2,2E-04	6,51	7,18E+18
Tabas 1978	96	Yes	Reverse	95	45	4275	2202	1,4	1,5E-05	7,12	1,32E+20
Tocopilla 2007	97	Yes	Subduction	180	120	21600	7855	2,9	1,6E-05	7,7	4,77E+20
Tohoku-Oki 2011	109	Yes	Subduction	420	240	100800	33075	63,8	1,5E-04	9,1	5,31E+22
Tohoku-Oki 2011	106		Subduction	375	200	75000	33000	78,7	2,1E-04	9,1	5,31E+22
Tohoku-Oki 2011	108		Subduction	350	175	61250	33125	48,1	1,4E-04	9,1	5,31E+22
Tohoku-Oki 2011	107		Subduction	620	280	173600	88784	31,0	5,0E-05	9,1	5,31E+22
Tottori 2000	98	Yes	Strike-Slip	32	20	640	300	3,2	1,0E-04	6,73	1,19E+19
Tottori 2000	99		Strike-Slip	33	21	693	405	3,8	1,2E-04	6,86	1,19E+19
Tottori 2000	100		Strike-Slip	34	18	598	330	4,0	1,2E-04	6,7	1,19E+19
Yamaguchi 1997	101	Yes	Strike-Slip	10	12	120	67	0,5	5,1E-05	5,78	5,81E+17
Yushu 2010	102	Yes	Strike-Slip	79	19	1501	788	1,4	1,8E-05	6,9	2,53E+19
Zihuatanejo 1985	103	Yes	Subduction	82	74	6025	2925	2,1	2,6E-05	7,38	2,49E+19

Table 2-4-1

Duration(s)	Asymmetry of the best triangle function (%)	Lower uncertainty of asymmetry (%)	Upper uncertainty of asymmetry (%)	Slip deficit (% of the semi-ellipse area)	Smin/LW	Smin/L	Hypocenter-Rupture edge along strike distance (normalized by L/2)	Hypocenter-Rupture edge along dip distance (normalized by W)	Hypocenter-Major asperity along strike distance (normalized by L)
	71	5	9	32	0,36	1,9	0,26	0,45	0,26
224	54	4	35	21	0,55	82,1	0,04	0,25	0,13
120	56	6	4	21	0,17	52,9			0,15
115	79	4	9	42	0,14	26,0			0,00
14	89	13	3	33	0,74	7,4	0,1	0,2	0,18
14	95	2	2	43	0,52	5,9	0,10	0,10	0,00
44	89	2	6	30	0,51	23,2	0,20	0,70	0,06
61	73	4	6	23	0,36	43,6	0,33	0,35	0,40
167	52	2	2	17	0,33	78,8	0,429	0,500	0,04
167	64			22	0,44	88,0			
167	62			22	0,54	94,6			
167	54			18	0,51	143,2			
11	53	3	4	13	0,47	9,4	0,35	0,31	0,03
11	60			21	0,58	12,3			
11	56			24	0,55	9,7			
6	50	0	4	15	0,56	6,7			
20	77	5	4	28	0,52	10,0	0,28	0,11	0,44
77	50	0	7	17	0,49	35,7	0,37	0,51	0,18

Table 2-4-2

Hypocenter-Major asperity along dip distance (normalized by W)	Uncertainty of the hypocenter location along strike (normalized by L)	Uncertainty of the hypocenter location along dip (normalized by W)	Depth of hypocenter (km)	Dmax-Wmax distance (normalized by L)	Number of broken segments (from our mapping)	Maximum spatial frequency <6 (Stockwell analysis)	Maturity	Quality	References
0,23	0,92	0,94	20,90	0				2	Wald 1992
0,00	0,00	0,03	30,00	0,42				1	Chlieh et al., 2007
0,05	0,01	0,02	30,00	0,16				2	Konca et al., 2007
0,05	0,02	0,03	35,00	0,57				2	Konca et al., 2008
0,40	0,20	0,50	10,00	0,00		2	2	1	Larsen et al., 1992
0,00	0,00	0,00	10,00	0		3	2	1	Wald et al., 1990
0,00	0,05	0,11	5,50	0,00				1	Hartzell & Mendoza 1991
0,00	0,03	0,04	45,00	0,07				2	Delouis et al., 2009
0,31	0,01	0,02	16,50	0,000				3	Bletery et al., submitted
								2	Hooper et al., 2013
								2	Romano et al., 2012
								2	Wei & Sladen (Caltech website 2011)
0,50	0,16	0,25	14,50	0		5		2	Semmane et al., 2005
								1	Iwata et al., 2000
								2	Sekiguchi et al., 2003
				0				0	Ide 1999
0,63	0,06	0,26	16,00		3	3	2	1	Li et al., 2011
0,20	0,06	0,07	20,00					1	Mendoza 1983

Table 2-4-3

Table 3: Surface slip-length data

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity	
180	China-Tibet-Qinhai	Gaotai	39,4	99,5	RL	WNW	30	3,50	7,5	Yumushan	Tapponier et al 90	Yeats et al 96	2	1	
11000000	East Central Nepal		27	87	RE	N70E	240	17,00		MFT		Lave et al 2005	0	3	
13030917	Eastern China	Hongdong	36,3	111,7	RN	NNE	45	11,50	8,0	Huoshan	Xi et Deng 88	Yeats et al 96	2	1	
14110929	China-Tibet-Qinhai	Dangxiong	29,7	90,2	LN	NE	136	15,80	8,0	Nyanqing tanggula	Wu et al 90a	Yeats et al 96	2	1	
15000104	China-Tibet-Qinhai	Yiliang	25	103,2	LL	N10E	81	11,40	7,5-8	Xiaojiang	Cao et al 94	Yeats et al 96	2	1	
15050000	Central Himalaya		28	81	RE	N100	600	26,00	8,2			Kumar et al 2006	0	3	
15050706	Afghanistan	Kabul	34,4	69	LV	NNE	60	3,00	7,4	Chaman	Yeats et al	Stirling et al 2002	2	3	
15110601	China-Tibet-Qinhai	Yongsheng	26,7	100,7	LN	N	42	1,20	7,5	Chenghai	Guo et al 88	Yeats et al 96	1	3	
15560123	Eastern China	Huaxian	34,5	109,7	LN	ENE	70	4,00	8,0	Huashan N Piedmont	Zhang et al 89	Yeats et al 96	1	1	
16090712	China-Tibet-Qinhai	Hongyapu	39,2	99	LR	WNW	60	2,90	7,3	Fedongmiao-Hongyapu	Guo et al 93	Yeats et al 96	2	1	
16530222	Turkey	Menderes Valley	37,9	28		ENE	70	3	7,1		Ambraseys et al	L: Altunel 97 D:Stirling et al 2002	1	0	
16680728	Eastern China	Tangcheng	34,8	118,5	RR	NNE	120	9,50	8,5	Tanlu	Gao et al 88	Yeats et al 96	3	0	
16790902	Eastern China	Sanhe-Pinggu	40	117	RN	NNE	10	3,20	8,0	Xiandian	Xiang et al 88	Yeats et al 96	2	1	
16950518	Eastern China	Linfen	36	111,5	LN	NW	40	1,00	7,5	Linfen	Wang et al 91	Yeats et al 96	1	1	
17091014	China-Tibet-Qinhai	Zhongwei	37,4	105,3	LR	WNW	30	7,50	7,3	Xiangshan-Tianjingshan	Zhang et al 88	Yeats et al 96	2	2	
17160000	China Xinjiang	Tekes	43,2	81	LR	N70E	70	11,30	8,0	Tekes	Yang et al 88	Yeats et al 96	3	1	
17250801	China-Tibet-Qinhai	Selaha	30	101,9	LL	NW	30	0,60	7,0	Selaha	Li et al 92a	Yeats et al 96	1	3	
17330802	China-Tibet-Qinhai	Dongchuan	26,3	103,1	LL	N15W	150	10,70	7,7	Xiaojiang	Zhu 88	Yeats et al 96	3	1	
17390103	Eastern China	Pinglu	38,8	106,5	RN	NNE	88	4,00	8,0	Helanshan	Deng et al 84, Zhang et al 86	Yeats et al 96	2	1	
17611209	Mongolia	West Mong	47,5	91,8	RR	N30W	215	7,30		Hovd	Trifonov 88,Khil'ko et al 85	Yeats et al 96	2	2	
17800108	Iran	Tabriz	38,2	46	RL with R cpt at tips and N cpt in center		120	130	10	7,7	Tabriz fault	Ambraseys & Jackson, 98; Berberian & Yeats, 1999	Ambrasey & Melville, 1982; Berberian 97	3	
17860601	China-Tibet-Qinhai	Kangding	29,9	102	LL	N23W	70	7,80	7,7	Xianshuihe	Long et Deng 90, Allen et al 91	Yeats et al 96	1	3	
18030901	Himalaya	Kumaon	30	78	RE	NW	200	6,00	8,0		Oldham 1883	Bilham et al 2001	0	3	
18120308	China Xinjiang	Nileke	43,7	83,5	RL	N80W	100	4,00	8,0	Kaxhe	Feng 87	Yeats et al 96	3	2	
18121208	California	San Juan Capistrano	34,3	-117,6	RL	WNW	85	6,25	7	San Andreas	Sieh et al 89, Salyard et al 92	D: Yeats et al 96 L:Topozada et al 2002	3	3	
18190616	India	Rann of Cutch	24,1	69,1	NN	W	65	3		Allah band	Oldham 98,28	Yeats et al 96	2	0	
18330906	China-Tibet-Qinhai	Songming	25	103,1	LL	N10E	120	10,00	8,0	Xiaojiang	Chen et Li 88	Yeats et al 96	3	1	
18360610	California	Hayward	37,9	-122,3	RL	NW	43	1,9	6,9	Hayward	Jennings 94,WGCEP 90	L et D WGCEP 96	2	2	
18380600	California		37,5	-122,5	RL	NW	140	3		San Andreas		L:Topozada et al 1998	2	3	
18470508,2	Japan	Zenkouji	37	138			43	2,7			Kumamoto 98	Stirling et al 2002	1		
18481016	New Zealand	Marlborough	-41,8	173,7	RLSS	NW	105	8,7	7,8	Awatere		Mason2006+ref therein	3		
18500912	China-Tibet-Qinhai	Xichang	27,7	102,4	LL	NW	90	9,00	7,5	Zemuhe	Ren et Li 89	Yeats et al 96	3	1	
18540709	Japan	Iga Ueno	34,8	136,1	RL	ENE	3	1,5		Iga Ueno	Imamura 13	Yeats et al 96	2		
18541223	Japan	Ansei Tokai	34	137,8		N12E	3	1,5		Iriyamase	Yamazaki 92,Omori 13	Yeats et al 96	2		
18550124	New Zealand	Wairarapa	-41,2	175,3	RL SS	N45E	145	16	8,2						
18570109	California	Fort Tejon	34,9	-119,1	RL	NW	330	6	7,9	San Andreas		Zielke et al., 2012	3	3	
18681021	California	Hayward	37,5	-122	RL	NW	50	1,9	6,8	Hayward	Yu et Segall 96	L et D Topozada et al 1998	2	2	
18691228	Nevada	Ollinghouse	39,5	-119,5	LL	NE	23	3,65	6,7	Ollinghouse	Sanders et Slemmons 79	Yeats et al 96	2	1	
18720314	Japan	Hamada	35	132	LR		17	8			Kumamoto 98	Stirling et al 2002	2		

Table 3-1

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
18720326	California	Owens Valley	36,7	-118,1	RN	N20W	116	11	7,6	Owens Valley		L: Vittori abstract D: Beanland et Clark	3	1
18740503,2	Turkey	Golcuk Golu	38,5	39,5	LL	N250	45	2	7,1	EAF		L et D Ambraseys 88	1	3
18750327	Turkey	Golcuk	38,5	39,5		N250	20	2		Golcuk Golu		Ambraseys 89	1	3
18750503	Turkey	Civril	38,3	29,9	NN	N40	10	1,1	6,5			Ambraseys et al 98 n71	1	1
18800729	Turkey	Emiralan	38,6	27,2	NN	N120	10	0,4	6,5			Ambraseys et al 98 n72	0	1
18850530	Kashmir	Sopor	34,1	74,6	RE		30	2,00	7,0		Bapat et al 83	Bilham et al 2001	1	3
18870930	Turkey	Banaz	38,7	29,8	NN	N290	10	0,5			Ambraseys et Jackson 98 n73	Stirling et al 2002	1	1
18880901	New Zealand	Malborough	-42,6	172,55	RL	ENE	50	6,4	7,1				1	
18881102	China-Tibet-Qinhai	Jingtai	37,1	104,2	LL	N80W	38	2,40	6,3	Laohushan	Yuan et al 94, Deng et al 92	Yeats et al 96	2	2
18900424	California	Chittenden	36,9	-121,3	RL	NW	8	0,3	6,3	San Andreas	Topozada et al 81	Yeats et al 96	1	
18911028	Japan	Nobi	35,6	136,6	LL	N45W	230	9,2				Pollitz et al. 95	2	
18920223	California	Laguna Salada	32,73	-115,5	RN	NW	32	5	7,2	Laguna Salada	Mueller et Rockwel 95	L: Hough et al 2004 D:Dorsey et al 1999(en reference a Mueller et al 95)	2	2
18921219	Iran	Chaman	30,9	66,5	LL	20	30	0,85		Chaman fault	Ambraseys & Jackson, 98; Ambraseys & Bilham 03	Griesbach, 1893; Davison, 1893; autres sources citées ds Ambraseys & Bilham 03	1	
18921220	Pakistan	Chaman	30,9	66,5	LL	NNE	60	0,85		Chaman	Griesbach 93,Davison 93	L: Yeats et al 96 et D: Ambraseys et al 98	1	3
18950705	China-Tibet-Qinhai	Tashikuergan	37,7	75,1	RR	NNW	30	5,30	7,5	Taghman	Bai 86,Lou 93	Yeats et al 96	3	1
18960615	Japan	Sanriku	39,6	144,2	SR		210	9,5		D de surface??		Stirling et al 2002	0	
18960831	Japan	Rikuu	39,5	140,7	RE	NNE	43	4,6			WC94 n6	Stirling et al 2002	3	
18970612	India	Assam			RE	W	110	18,00	8,0			Bilham et al 2001	2	1
18990920,2	Turkey	Menderes Valley	37,9	28,8	NN	W	40	1	6,9			Ambraseys et al 98 n78	2	1
19030201	Mongolia	Uneyt	43,3	104,5	VV	NE	20	0,20	7,5		Khil'ko et al. 85	Yeats et al 96	1	0
19030903	Nevada	Wonder	39,4	-118,1	NN	N5E	5	0,3	6	Gold King	Slemmons et al 59	Yeats et al 96	1	
19050404	India	Kangra	32,3	76,3		NW	280	5,00	7,8		Ambraseys et al 2000	Bilham et al 2001	0	3
19050709	Mongolia	Tsetserleg	49,5	97	LR	N60E	190	3,50	7,8	Tsetserleg	Molnar et Deng 84,Schlupp 97,Ponti 99	Yeats et al 96	2	2
19050723	Mongolia	Bulnay	49,2	96	S	NW	375	11,40	8,2	Bulnay	Ponti 1999	Yeats et al 96	2	2
19060418	California	San Francisco	37,8	-122,6	RL	NW	475	8,6	7,9	San Andreas	Thatcher et al., 1997/Lawson 1908	Yeats et al 96	3	3
19061223	China Xinjiang	Manas	43,5	85	RE	N85W	146	10,00	8,0	Tugulu Dushanzi	Avouac et al 93,Molnar et Deng 84	Yeats et al 96	4	2
19090123	Iran	Silakhor	33,4	49,1		135	45	4,35	7,4	Main recent fault	Jackson et al., 1995; Talebian & Jackson, 2002; Yeats et al., 1997	Ambrasey & Moifar, 1973; Tchalenko & Braud, 1974; Ambraseys&Melville, 1982; Nowroozi, 85; Ambrasey & Jackson 98	1	
19100515	California	Temescal Valley	33,7	-117,5	RL	NW	15	0,35	6	Elsinore	Rockwell 89	Yeats et al 96	1	
19110103	Kyrgyzstan	ChonKemin	42,8	77,3	RE	W	200	11,00	7,8	ChonKemin	Molnar et Deng 84,Arrowsmith 2005	L:Yeats et al 96 D:Arrowsmith 2005	4	1
19110418	Iran	Ravar	31,3-32	56-57,1	RL & R	335	18	0,5	6,2	Lakarkuh fault		Yeats et al., 1997	0	

Table 3-2

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
19120809	Turkey	Saros Marmara	40,8	27,2	RN	ENE	150	6,4	7,4	NAF		L et D Altunel 2004	3	1
19141003,1	Turkey	Burdur	37,6	30,1	RN	NE	25	1,5	7,1	Burdur:southeast coast of the Burdur Lake	Ambraseys et Finkel 87, Ambraseys 88	Yeats et al 96	2	1
19151003	Nevada	Pleasant Valley	40,3	-117,6	NN	NNE	60 (45)	6	7,6	Pleasant Valley	Wallace 84,De Polo et al., 1991, Zhang et al., 1999		3	1
19181111	Japan	Omachi			SR		4	0,5				Stirling et al 2002	1	
19201216	China-Tibet-Qinhai	Haiyuan	36,7	104,9	LR	WNW	237	12,00	8,6	Haiyuan	Molnar et Deng 84,Stirling 2002,WC94	Yeats et al 96	4	2
19220610	New Zealand	Kaiapo	-38,6	175,9	NN	NNE	12	3					2	
19230324	China-Tibet-Qinhai	Daofu	31,5	101	LL	N45W	100	3,00	7,3	Xianshuihe	Qian et al 84, Allen et al 91	Yeats et al 96	3	3
19230901	Japan	Kanto	35,1	139,5	RE	N70W	130	6		Shitaura,Sagami	Imamura 24,30	Yeats et al 96	0	
19250523	Japan	Tajima	35,6	134,8	LV	N30E	1,6	1		Tai	Imamura 28	Yeats et al 96	1	
19270307	Japan	Kita-Tango	35,5	135,2	LL	NW	25	2,8		Gomura	Yamasaki et Tada 28	Yeats et al 96	3	
19270523	China-Tibet-Qinhai	Gulang	37,6	102,6	NN	N60W	61	7,50	8,0	Taerzhuang-Shuixiakou	Liu et al 95	Molnar et Deng 84	3	2
19290309	New Zealand	Arthur pass	-42,8	171,7	RR	NE	30	4	7,1			Berryman & Villamor 2004	2	
19290501	Iran	Baghan	37,96	57,7	RL & R	320	70	2,1	7,1	Baghan fault		Hollingsworth et al., 2006; Ambraseys & Melville 1987; Tchalenko&Berberian, 74-76; Nowroozi, 85; Ambraseys & Melville 82; Ambrasey & Jackson 98; Berberian 97	1	
19300506	Iran	Salmas	38,2	44,6	RL & N	305	35	7,21	7,2	Salmas	Berberian, 1979		2	
19301126	Japan	Kita Izu	35,1	139,1	LL	NNE	35	4,2		Tanna		L Stirling et al 2002 D Yeats et al 96	3	
19310810	China Xinjiang	Fuyun	46,9	90,1	RL	NNW	163	15,00	8,0	Keketuohai-Ertai	Jianbang et al., 1984; Lin & Lin 1998	Yeats et al 96	4	2
19310921	Japan	Saitama	36,1	139,2	S		20	1			WC94 n13	Stirling et al 2002	2	
19321221	Nevada	Cedar Mountain	38,8	-118	RL	NNW	80	2,7	7,2	Stewart Monte Cristo Valley		D: Bell et al 99 L: WC94n19	3	1
19321225	China-Tibet-Qinhai	Changma	39,7	96,7	LR	N80W	148,5	6,30	7,6	Changma	Meyer et al 91, Peltzer et al 88	Yeats et al 96	3	1
19330311	California	Long Beach	33,62	-117,97	RL	NW	14	0,2	6,38	Inglewood fault	WC94 n21	Stirling et al 2002	1	
19331128	Iran	Yazd ou Behabad	32	55,9	R	140	10	0,50	6,2	Kuh Banan fault	Jackson et al., 1995	Ambrasey & Jackson98; Berberian et al., 79; Ambraseys & Melville 82	1	
19340130	Nevada	Excelsior Mts	38,3	-118,4	NN	N65E	1,4	0,13	6,3		Callaghan et Gianella 35	Yeats et al 96	1	
19340312	Utah	Hansel Valley	41,7	-112,5	NN	N5E	11,5	0,5	6,6		McCalpin et al 87	Yeats et al 96	1	
19340321	Japan	South Izu	0	0	S		7	0,1			WC94 n22	Stirling et al 2002	1	
19340608	California	Parkfield	35,8	-120,33	S		20	0,2	6,1		Anderson et al 96 n4	Stirling et al 2002	1	
19341215	China-Tibet-Qinhai	Bihar Nepar	26,6	86,8	RN	N55W	400	5,00	8,2		Molnar et Deng 84	Bilham et al 2001	0	3
19350530	Pakistan	Quetta	29,5	66,8	RE		150	15,50	8,2		Ambraseys et Jackson 98 n95	Stirling et al 2002	1	3
19370107	China-Tibet-Qinhai	Tuosuohu	35,5	97,6	LR	WNW	150	10,00	7,5	Kusaihu-Maqu	Molnar et Deng 84, Van den Woerd et al 2001	Yeats et al 96	2	2
19380419,1	Turkey	Kirsehir	39,5	34	RL	NW	15	1,2	6,8	NAF	Ambraseys 70, Barka 92,Ambraseys et al 98 n96	Yeats et al 96	2	3
19380529	Japan	Kussharo	43,6	144,5	LV	N40W	20	2,7		S. of L. Kussharo	Matumoto 59	Yeats et al 96	2	

Table 3-3

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
19391226,1	Turkey	Erzincan	39,7	39,7	RL	WNW	385	7,5	7,8	NAF Séquence 39-67		D Barka 96 L Barka et Kadinski Cade 88	4	3
19400519	California	Imperial Valley	32,8	-115,5	RL	NW	60	6	7,2	San Jacinto-Imperial	Sharp 1982; Klingler & Rockwell 2013	Yeats et al 96	3	2
19410216	Iran	Mohammadabad	33,4	58,9	RL & R	N-S	12	0,50	6,1	Chahak fault	Walker et al., 2004; Berberian, 2005	Ambraseys & Melville, 82; Ambrasey & Jackson98	1	
19421220,1	Turkey	Erbaa Niksar	40,7	36,5	RN	N60W	70	2	7,2	NAF Séquence 39-67		L: Yeats et al 96 D: Barka 96	4	3
19430910	Japan	Tottori	35,5	134,1	RL	N80E	45,5	2,7	7,2	Shikano	Kanamori 72, Okada et al. 81	Yeats et al 96	2	
19431126,1	Turkey	Ladik(Tosya)	41	35,5	RL	W	280	4,7	7,5	NAF Séquence 39-67		L et D Barka 96	4	3
19440201,1	Turkey	Bolu-Gerede	40,9	32,6	RL	ENE	180	6,3	7,5	NAF Séquence 39-67	Ambraseys 70, Barka 92,WC94 n29	L et D Kondo et al 2005	4	3
19440625,1	Turkey	Saphane(Ucak)	39	29,4	RN	WNW	19	0,3	6		Ambraseys 88	Yeats et al 96	1	0
19450113	Japan	Mikawa	34,7	137,1	RR	N,E	28	2,2		Fukoze		L et D Sugito et al 2004	3	
19460531,3	Turkey	Ustukran	39,3	41,2	RL	N300	10	0,4	5,7			Ambraseys et Jackson 98 n103	1	0
19470317	China-Tibet-Qinhai	Dari	33,3	99,5	LR	N55W	150	5,00	7,7	Richa-Keshoutan	Yeats et al 96	L: Molnar et Deng 84 etD:Yeats	3	2
19470410	California	Manix,Mojave	35	-116,5	LL	ENE	1,6	0,08	6,2	Manix	Richter 58	Yeats et al 96	1	
19470729	China-Tibet-Qinhai	Assam	28,63	93,73	S	N100W	100	4,00	7,7			Bilham et al 2001	0	3
19470923	Iran	Dustabad	33,5	58,7	RL & R	350	20	1,30	6,8	Dustabad fault	Walker et al., 2004	Ambraseys & Melville 82;	2	
19480628	Japan	Fukui	36,2	136,2	LR	N10W	25	2,1		NE of Fukui	Kanamori 73	Yeats et al 96	2	
19490817,1	Turkey	Elmalidere	39,4	40,7	RL	WNW	60	1,5	6,9	NAF		L et D Kadinski et Cade 88	3	3
19500815		Arunchal Pradesh	28,5	96,7	S	N100W	200	16,00	8,5			Bilham et al 2001	1	0
19501214,1	California	Honey Lake Valley	40,1	-120,1	NN	N	9,2	0,75	5,6	Fort Sage	Jennings 94	Yeats et al 96	1	1
19510124	California	Superstition Hills	32,98	-115,73	S		3	0,05	5,6L		WC94 n39	Stirling et al 2002	1	
19510813,2	Turkey	Kursunlu	40,7	33,3	RL	ENE	32	0,7	6,9		Ambraseys et Jackson 98 n108	Stirling et al 2002	2	3
19511118	China-Tibet-Qinhai	Danxiong	31,1	91,1	RL	N55W	200	12,00	7,3	Bengco	Tapponier et al 81, Armijo et al 89	Stirling et al 2002	4	2
19520721	California	Kem County	35,3	-118,7	LR	NE	75	3	7,7	White Wolf		D:Stein et al 81 L:stirling et al 2002	2	2
19520818	China-Tibet-Qinhai	Naqu	31,3	91,5	LN	NNE	58	7,40	7,5	Gulu	Armijo et al 86,80 Wu et al 90b	Yeats et al 96	3	1
19530212	Iran	Semnan	35,4	54,9	R	70	8	1,40	6,5		Jackson et al., 1995	Ambraseys & Moinfar 1977; Ambrasey & Jackson98	1	
19530318,3	Turkey	Canakkala	39,9	27,4	RL	N50E	64	4,3	7,24		Ketin et Roesli 54,Ambraseys et Zatopek 68	Bonilla et al 1984	3	1
19540706	Nevada	Rainbow Mtn	39,4	-118,5	NN	NNE	20	1	6,3	Rainbow Mtn	dePolo et al 91	L:Bonilla et al 84 D:Yeats et al 96	2	1
19540824	Nevada	Stillwater	39,6	-118,5	NN	NNE	34	0,8	6,9	Rainbow Mtn	dePolo et al 91	L:Yeats et al 96,WC94 n46 D: Stirling et al 2002	1	1
19541216	Nevada	Dixie Valley	39,6	-118,2	RN	N	46	3,5	6,8	Dixie Valley		L et D Caskey et al 1996	3	1
19541216,1	Nevada	Fairview Peak	39,2	-118,2	RN	N5E	45	4	7,2	Fairview Peak	WC94n 47	Slemmons 1957; Caskey et al., 1996	3	1
19549211	China-Tibet-Qinhai	Shandan	39	101,3	RN	NW	18	3,00	7,3	Baodehe	Guo et al 93	Yeats et al 96	3	1
19550414	China-Tibet-Qinhai	Kangding	30	101,8	LL	N40E	30	3,30	7,5	Zheduotang	Allen et al 91	Yeats et al 96	3	1
19570526,1	Turkey	Abant	40,6	31	RL	ENE	32	1,7	7	NAF Séquence 39-67		L et D Barka 96	3	3
19571204	Mongolia	GobiAltay	45,1	100,1	LR	N80W	242	7,00	8,3	Bogd.Toromhon	Kurushin 1997, Chpoi et al., 2012	Yeats et al 96	4	1
19580407	Mongolia	Bayan Tsagaan	45,1	98,7	LL	W	15	1,40	6,9		Florensov et Solonenko 65	Yeats et al 96	1	1
19580816	Iran	Kermanshah	34,3	48,17	RL & R	130	28	1,50	6,6	Main recent fault	Jackson et al., 1995	Nowroozi, 85; Ambrasey & Jackson98; Talebian & Jackson 2002	1	
19590131	Japan	Tesikaga	43,4	144,4		WNW	2	0,1			Matumoto 59	Yeats et al 96	1	
19590818,1	Montana	Hebgen Lake	44,8	-111,2	NN	N30W	26	5,5	7,6	Hebgen		witkind et al., 1962; Myers & Hamilton 1964 Zhang et al. 1999	3	1
19601203	Mongolia	Buuryin Hyar	43,1	104,5	RL	NW	18	0,20	7,0		Khil'ko et al. 85	Yeats et al 96	1	0
19610819	Japan	KitaMiyagi	36,2	136,8	SR		13,5	2,5			Kumamoto 98,Kawasaki 75	Stirling et al 2002	3	
19620430	Japan	KitaMiyagi	38,7	141,1	RE		12	0,6			Kumamoto 98,Kawasaki 75	Stirling et al 2002	2	

Table 3-4

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
19620830	Utah	Cache Valley	41,92	-111,73	NN	N13E	7	0	5,78		WC94 n55	Stirling et al 2002	0	
19620901	Iran	Ipak	35,6	50	R and LL	314	80	1,90	7	Ipak fault	Berberian & Yeats, 2001	Ambraseys & Melville, 82	2	
19630328	Japan	WakasaBay			S		20	0,6			WC94 n57	Stirling et al 2002	2	
19630419	China-Tibet-Qinhai	Tuosuohu	35,5	96,5	LR	W	150	8,00	7,1	Kunlun		Van der Woerd 2002	1	2
19630914	Nevada	Watsonville	36,89	-121,6	S	N45W	7	0,2	5,17		WC94n59	Stirling et al 2002	1	
19640616	Japan	Niigata	38,4	139,2	RE	NNE	80	6			WC94 n60	Stirling et al 2002	3	
19641006,2	Turkey	Manyas	40	28	LN	N100	40	0,1	6,8			Ambraseys et Jackson 98 n116	1	
19650000	Japan	Matsushiro swarm	36,5	138,2	RL	N55W	4	0,6		Matsushiro	Nakamura 70	Yeats et al 96	2	
19660628,1	California	Parkfield	35,8	-120,4	RL	NW	44	0,65	6,4	San Andreas		L et D Lienkaemper et al 89	2	3
19660819,1	Turkey	Varto	39,2	41,6	RN	WNW	34	1	6,8	NAF	L Ambraseys et Jackson 98 D Wallace 68	L Ambraseys et Jackson 98 D Wallace 68	2	3
19660912	California	Truckee	39,44	-120,16	LL	NE	13	0,3	5,96		WC94 n66	Stirling et al 2002	1	
19670105	Mongolia	Mogod	48,2	102,9	RL	N	40	4,70	7,8	Mogod,Gurvan Bulag	Khil'ko et al. 85	Yeats et al 96	3	1
19670120	Mongolia	Mogod	48,1	103	RE	NW	9	3,50	6,7	Tuleet Uul	Khil'ko et al. 85	Yeats et al 96	2	1
19670722,1	Turkey	Mudurnu Valley	40,7	31,2	RL	WNW	80	2,25	7,4	NAF Séquence 39-67	Ambraseys et Zatopek 69	Yeats et al 96	4	3
19670726	Turkey	Tunceli	39,5	40,3	RL	N120	4	0,2	6			Ambraseys et Jackson 98 n122	1	
19670730	Turkey	Mudurnu Valley	40,7	30,4	RL	N300	3	0,45	5,5			Ambraseys et Jackson 98 n123	1	
19671130	Turkey	Pulumur	39,5	39,6	RL	WNW	4	0,2	6	NAF	Barka et Kasinski Cade 88	Yeats et al 96	1	
19671210	India	Koyna	17,6	73,8	LL	N	5	0,50	6,5		Cluff 77	Yeats et al 96	1	0
19680409,1	California	Borrego Mountain	33,2	-116,1	RL	NW	33	0,4	6,8	San Jacinto		Clark 1972	2	2
19680831	Iran	Dash-e-Bayaz	34,05	58,96	SS LL	E-W	80	6,50	7,2	North Lut	Tchalenko & Berberian, 1975; Walker et al., 2004	Ambrasey & Tchalenko 1969; Haghipour & Amidi, 1980; Ambraseys & Melville 82	3	
19680924	Turkey	Kigi	39,2	40,2		NNW	6	0,25	5,1		Ambraseys 75, Barka et Kasinski Cade 88	Yeats et al 96	1	
19690328,1	Turkey	Alasehir	38,3	28,5	NN	WNW	36	0,8	6,5	Alasehir	Ketin et Abdusselamcglu 69	D: Mohammadioun et al 2001	2	1
19690909	Japan	Gilu	35,47	137,05	S		18	1,5			WC94 n80,Kumamoto 98	Stirling et al 2002	2	
19700105	China-Tibet-Qinhai	Tonghai	24,1	102,6	RL	N60W	75	2,75	7,7	Qujiang	Zhang 88	Yeats et al 96	3	3
19700328,1	Turkey	Gediz	39	29,4	RN	WNW	45	2,8	7,1	Erdogmus		L: Ambraseys et Tchalenko 72 D:Tasdemiroglu 71	3	1
19700515	Mongolia	Uureg Nuur	50,1	91,3	RL	W	8	2,00	7,0		Khil'ko et al. 85	Yeats et al 96	3	2
19701016	Japan	Akita	39,3	140,7			14	0,25			WC94 n85	Stirling et al 2002	2	
19710209,2	California	San Fernando	34,41	-118,4	RE	WNW	17	2,5	6,5	San Fernando		Yeats et al 96,WC94 n71	3	1
19710512,2	Turkey	Burdur	37,5	29,7	NN		4	0,3	6,2		L et D Ambraseys et al 98 n129	Stirling et al 2002	1	
19710522,3	Turkey	Bingol	39	40,7	LL	N50	38	0,6	6,8			Ambraseys et Jackson 98 n130	2	3
19730206	China-Tibet-Qinhai	Luhuo	31,3	100,7	LL	N55W	110	3,60	7,6	Xianshuihe	Tang et al 76 Allen et al 91	Yeats et al 96	3	3
19740509	Japan	Izu-Hanto-Oki	34,6	138,8	SR	NW	18	1,25			WC94 n 100	Stirling et al 2002	2	
19740704	Mongolia	Tahiyshar	45,1	94	LL	ENE	17	0,40	7,0		Khil'ko et al. 85	Yeats et al 96	1	1
19740811	Siberie	Tadzhikestan	39,46	73,83	SR		30	1,20	7,1		WC94 n102	Stirling et al 2002	2	1
19750123,2	California	Brawley	32,95	-115,5	LL	N10W	10,4	0,2	4,6		WC94 n103	Stirling et al 2002	1	
19750204	Eastern China	Haicheng	40,7	112,7	LL	NW	70	0,60	7,3	Dayanghe	Deng et al 76	Yeats et al 96	1	1
19750328	Idaho	Pocatello Valley	42,06	-112,52	NN	N10E	15	0,35	6		WC94 n105	Stirling et al 2002	1	
19750420	Japan	Cita Prelecture	33,1	131,3	SR		10	0,3			WC94 n106	Stirling et al 2002	2	
19750531,1	California	Galway Lake	34,5	-116,5	RL	N-N25W	6,8	0,02	5,2	Galway Lake	Hill et Beeby 77,Bonilla et al 84	Yeats et al 96	1	
19750801	California	Oroville	39,4	-121,7	NN	N	3,5	0,06	5,7	Cleveland Hill	Clark et al 76, Lahr et al 76	Yeats et al 96	1	

Table 3-5

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
19750906,2	Turkey	Lice	38,4	40,4	RE	W	26	0,6	6,55		WC94 n111	Stirling et al 2002	2	3
19751003	Pakistan	Spinatizha	30,3	66,3	LL	NNE	5	0,04	6,4	Chaman	Farah 76	Yeats et al 96	0	
19760517	Siberie	Uzbekistan	40,4	63,5	RE		48	1,50	6,8		WC94 n115		0	
19760728	Eastern China	Tangshan	39,4	118	RN	NNE	70	3,00	7,8	Tangshan	Guo et al 77	Yeats et al 96	3	0
19761124	Iran	Chalderan	39,1	43,9	RL	110	55	3,53	7,3	Chalderan-Khoy	Berberian, 1979	Toksoz et al., 1977; Ambrasey & Jackson98; Berberian 97	3	
19761124,2	Turkey	Caldiran	39,2	44	RL	WNW	55	3,7	7,23		WC94 n121	Stirling et al 2002	2	1
19770102	China-Tibet-Qinhai	Mangya	38,2	91,2	RE	WNW	21	0,30	6,5	Mangya Youkuangshan	Xu et Deng 96	Yeats et al 96	1	3
19780813	California	Stephens Pass	41,5	-121,9	NN	N	2	0,3	4,6	Stephens Pass	Benett et al 79	Yeats et al 96	1	
19780916	Iran	Tabas	33,25	57,38	R + RL	332	85	4,00	7,7	Tabas	Ambrasey & Jackson98; Walker et al., 2003;	Berberian, 1979	2	
19789114	Japan	Izu-Oshima-kinkai	34,8	139,3	RL	W	50	1,85			WC94 n129	Stirling et al 2002	3	
19790315	California	Homestead Valley	34,3	-116,4	RL	NNW	6	0,2	5,2	Homestead Valley		L: WC94 138 D:Yeats et al 96	2	1
19790315	California	Imperial Valley	32,8	-115,4	RL	NW	30,5	0,6	6,7	Imperial	Sharp 82	Yeats et al 96	3	2
19790806,1	California	Coyote Lake	37	-121,5	RL	NNW	15	0,15	5,9	Calaveras	Reasenberg et Ellsworth 82	L: Yeats et al 96 D: Stirling et al 2002	1	
19791015	California	Imperial Valley	32,6	-115,3	RL	N20W	32	0,8	6,6			cf Manig05	3	2
19791114	Iran	Qainat	33,91	59,79	SS RL	≈N-S	20	1,40	6,6	Abiz Fault	Berberian et al., 1999	Haghipour & Amidi, 1980; Ambraseys & Melville 82	3	
19791127	Iran	Khuli-Buniabad	34	59,6	SS LL	N80	68	5,60	7,1	Dash-e-Bayaz	Ambraseys et Jackson, 1998; Walker et al., 2004	Nowroozi, 85; Nowroozi & Mohajer 85; Haghipour & Amidi, 80; Ambraseys & Melville 82	3	
19800000	Algeria	El asnam	36,2	1,5	RE	NE	32	5	7,3			Yielding et al., 1981	2	
19800124	California	Livermore Valley	37,7	-121,7	RL	NW	6,2	0,03	5,6	Greenville	Bolt et al 81,WC94 n148	Yeats et al 96	1	
19800222	China-Tibet-Qinhai	Gyaring Co	30,8	88,7	RL	N55W	10	1,00	6,8	Gyaring Co	Armijo et al 89	Yeats et al 96	2	2
19800525	California	Mammoth Lakes	37,6	-118,8	NN	NNW	20	0,25	6,1	Hilton Creek	Clark et al 82	Yeats et al 96	1	1
19810124	China-Tibet-Qinhai	Daofu	31	101,2	LL	N55W	46	1,50	6,9	Xianshuihe	Qian et al 84, Allen et al 91	Yeats et al 96	2	3
19810407	California	Lompoc Quarry	34,6	-120,4	RR	N84E	0,6	0,2	2,5		Yerkes et al.83	Yeats et al 96	1	
19810426	California	Westmorland	33	-115,6	RL	NW	16,5	0,11	5,6	Imperial Superstition Valley	Sharp et al 86a	Yeats et al 96	1	
19810611	Iran	Golbaf	29,91	57,72	SS	170	16	0,15	6,6	Gowk fault	Jackson et al., 1995; Berberian et al., 2001	Nowroozi, 85;	1	
19810728	Iran	Sirch	30,01	57,79	RL & R	177	65	0,61	7	Gowk fault	Berberian et al., 2001		1	
19810728	Iran	Sirch	30,01	57,79	RL & R	177	65	0,61	7	Gowk fault	Berberian et al., 2001		1	
19820321	Japan	Urakawa-Oki	42,2	142,5	SR		21	2,1			Anderson et al 96 n27	Stirling et al 2002	3	
19830611,1	California	Coalinga	36,3	-120,5	RE	N	8	0,64	5,4	Nunez	Rymer et al 90	D:Yeats et al 96 L: WC94n172	2	1
19831028,1	Idaho	Borah Peak	44,2	-113,8	NN	NNW	34	2,7	7,3	Thousand Springs (Lost River)		Crone & Machette 1984; Crone et al., 1987	3	1
19831030	Iran		40,33	42,19	R & SS	NE-SW	8	0,60	6,9	Zheltorechensk-Saryghamish		Karakhaniyan 1993; Berberian 1997	1	
19831030,2	Turkey	Pasinler	40,4	42,3	SR	NNE	50	1,2	6,73		WC94 n175	Stirling et al 2002	1	3
19839826	Japan	Kyushu	33,5	131,5	SR		10	3,3			Anderson et al 96 n228	Stirling et al 2002	3	
19840914	Japan	Naganoken Seibt	35,82	137,49	S		12	1			WC94 n183, Kumamoto 98	Stirling et al 2002	2	
19850823	China-Tibet-Qinhai	Wuqia	39,4	75,6	RE	WNW	15	2,30	7,4	Kazikeaerte	Feng et al 88, Feng 94	Yeats et al 96	2	1
19860721,2	California	Chalfant Valley	37,4	-118,3	RL	N55W	20	1,5	6,31		WC94 n203	L WC94 et D Gross et al 87	2	1
19870302	New Zealand	Edgecumbe	-37,89	176,8	NN	NE	18	4	6,5	Edgecumbe+others		Beanland 1990	1	
19871124,3	California	Elmore Ranch	33,02	-115	LL	NE	32	0,3	6,2	Elmore Ranch	Sharp et al 89; Hudnut et al., 1989		2	1
19871124,3	California	Superstition Hills	33,08	-115,8	RL	NW	27	0,5	6,6		WC94 n216,Sharp et al 89; Williams & Magistrale 1989		3	2
19880000	Armenia	Spitak	40,8	44,2	RR	290	40	1,9	6,8				3	
19881105	China-Tibet-Qinhai	Tanggula	34,4	91,9	LL	W	9	4,00	6,8	Wulanwualahu-Ganqqiqu	Wu et al 94	Yeats et al 96	2	1

Table 3-6

Date	Region	Name	Lat (°N)	Long (°E)	Type	Az	L	Dmax	M	Fault name	Other references	References	Quality	Maturity
19881106	China-Tibet-Qinhai	Gengma	23,1	99,4	RN	WNW	46	1,30	7,2	Hangmuba	Zhou et al 90	Yeats et al 96	2	3
19881106	China-Tibet-Qinhai	Langgang	22,9	99,8	RL	NW	80	2,20	7,6	Muga,Datangxi	Yu et al 91	L:Striling 2002 D:Yeats et al 96	2	3
19890122	Tajikistan	Gissar	38,5	68,7	RE		1,4	0,10	5,6		Zerka et Vinnichenko 90	Yeats et al 96	0	
19891018,5	California	Loma Prieta	37,2	-121,9	RR	NW	34	3	7,1	San Andreas,Sargent		L et D Marshal et 91	3	1
19891120	Iran	South Golbaf	29,89	57,72	RL SS	N148E	11	0,01	5,7	Gowk fault	Berberian&Qorashi, 1994		0	
19900620	Iran	Rudbar Tarom	36,96	49,41	LL & R	N110	80	1,17	7,3	Rudbar fault	Berberian et al., 92; Berberian & Yeats 2001	Berberian et al., 92; Ambrasey & Jackson 98	1	
19900716	Philippines	Luzon	15,68	121,17	LL	NW	130	6,2	7,7	Philippine		Punongbayan et al., 1990	3	
19901106	Iran	Furg	28,2	55,5	R	E-W	15	3,00	6,4	Darab	Taleblian & Jackson, 2004; Walker et al., 2005	Raisi, 1991	2	
19920313,2	Turkey	Erzincan	39,6	39,5	RN	N60W	62	1	6,87			L Trifonov 93 et D Barka 92	2	3
19920425	California	PETROLIA*	40,4	-124,3	NN	N10W	27	1,6	7			L et D Murray 96	3	1
19920628,2	California	Landers	34,2	-116,4	RL	NNW	70	6,7	7,3	Camp Rock-Emerson, Johnson Valley	WC94 n240	Sieh et al 93	4	1
19920819	Central Asia	Susamy	42,19	73,32	RE	N75E	50	2,70	7,2			Gomez et al 1997	2	1
19950117	Japan	Kobe	34,6	135	RL	NE	63	2,3	7,2			Yeats et al 96	3	1
19950223	Iran	Sefidabeh Sequence	30,9	60,6	R & LL	320	4	0,30	6,1			Ambrasey & Jackson98	2	
19951001	Turkey	Dinar	38,3	30,3	RN	N330	10	0,3	6,2			Ambraseys et Jackson 98 n150	1	
19951124	New Zealand	Cass	-42,95	171,82	S	176	7,5	3	6,2				1	
19970510	Iran		33,83	59,81	RL SS		125	3,00	7,2		Berberian et al., 1999		3	
19970714	China-Tibet-Qinhai	Manyi	35,07	87,32	S	N100W	170	7,00	7,6		Peltzer et al 1999	Van der Woerd 2001	4	2
19980314	Iran	Fandoqa	30,08	57,6	RR	156	23	3,2	6,6			Berberian et al., 2001	3	1
19990817,9	Turkey	Izmit	40,76	29,97	S	EW	130	5	7,4		Barka et al 2002	L et D Hartleb et al 2002	4	1
19990921	Taiwan	Chichi	23,77	120,98	RE	NS	85	10	7,7	Chelungpu		Dominguez et al., 2003/ Chen et al., 2001	4	1
19991016,4	California	Hector Mine	34,59	-116,27	RL	N30W	55	6,4	7,1			Treiman et al., 2002; Jonsson et al et D Duman et al 2005	4	1
19991112,1	Turkey	Duzce	40,818	31,198	RN	EW	40	5	7,1				4	1
20011114	China-Tibet-Qinhai	Kunlun	35,5	93	S	N80W	450	8,00	8,1	Kunlun		Laserre et al 2005; Xu et al., 2006	4	2
20020203	Turkey	Sultandagi-Çay	38.573	31.271	NN (LL)	N80-N100	30	0,2	6,5	Sultandagi-Akşehir fault	Koçyigit et al. (2002)	Aktug et al., 2010, Emre et al., 2003	1	
20020622	Iran	Changureh-Avaj	35,669	48,933	RE	N110°E	13	0,65	6,5	Abdareh fault		Solaymani and Fegghi2002	1	
20021103	Alaska	Denali	63,52	-147,53	R + RL	100	300 (200)	8,8	7,9	Susitna Glacier, Denali and Totschunda		Ebeheart-Phillips_2003, Haeussler et al., 2004	4	3
20030927	Russia	(Gorny) Altai	49,954	87,832	RR	NW	60	4	7,3	North Chuya fault		Rogozhin2008/Rogozhin2007//Uziro hat2006	2	
20031001	Russia	Altai (aftershock)	50,218	87,685	RE	EW?	20	0,4	6,7			Rogozhin2007	1	
20031210	Taiwan	Chengkung	23,065	121,357	RE	N24	35	0,3	6,8	Chihshang fault		Lee2006/hu2007	1	
20031226	Iran	Bam	29,04	58,36	SS RL		15	1,20	6,6	Secondary Fault East of Gowk	Binet & Bollinger, 2005		3	
20050222	Iran	Dahuyeh/Kerman	30,741	56,877	RE	EW	13	1,2	6,4	Kuh Banan fault		Taleblian2006	2	
20051008	Kashmir	Muzaffarbad	34,493	73,629	RE(LL)	N138	70	7	7,6	Balakot-Bagh		Kaneda2008/Avouac2006	3	1
20060222	Mozambique	Machaze	-21.259	33.480	NN	NNW	30	2	7			Fenton et al., 2006	2	
20060420	Russia	Olyutorskii	61,075	167,085	RR	NE	140	5	7,6			Rogozhin et al., 2009	2	
20080512	China	Sichuan	30,986	103,364	RR	NE	280	12	7,9	Beichuan		Liuzeng et al., 2005//Liu et al., 2006	3	2
20090406	Europe	L'Aquila	42,334	13,334	NN	N135	10	0,15	6,3	Paganica-San Demetrio	Boncio2010	Anzidei et al., 2009, Falucci et al., 2010	1	1
20100404	Mexico	Baja California-El Mayor-Cucanah	32,259	-115,29	(NN) + RL	NW	120	4	7,2	Elsinore		Fletcher 2010, Teran et al., 2011	3	2
20100413	China	Yushu	33,224	96,666	LL	N320	75	1,8	6,9	Garze-Yushu		Li et al., 2012	2	2
20100903	New Zealand	Canterbury (Darfield)	-43,53	172,12	RL	EW	29,5	5,3	7	Greendale		Quigley et al., 2011	4	1
paleo	Japan	Fujikawa			R		24	18		Probablement pls	Shimokawa 99	Stirling et al 2002	0	
paleo	Japan	Higa Taka			SR		85	3		MTL?	Awata 99	Stirling et al 2002	2	
paleo	Japan	MTL			S		215	5,7			Tsutsumi et al 92	Stirling et al 2002	2	

Table 3-7

Table 4 : Slip-length data at depth deduced from inversion models

Name / Date	L (km)	Dmax (m)	W mean (km)	Mw	M0 (Nm) from Global CMT	Duration (s)	References	Maturity
(Gorny) Altai 2003	55	4,3	15	7,3	9,38E+19		Nissen et al., 2007; Barbot et al., 2008	
Al Hoceima 2004	25	2,1	16	6,4	3,93E+18	38	Biggs et al., 2006	
Altai (aftershock) 2003	20	2,8		6,7	1,13E+19		Ulziibat 2006	
Antartic 1- 1998	90	21	60	8,1	1,7E+21	140	Antolik et al 2000	
Antartic 2- 1998	305	35	35	8,1	1,7E+21	7	Antolik et al 2000	
Aqaba 1995	50	2,1	20	7,3			Kikuchi Web site 2003	
Athenes 1999	11	0,95	13	6	1,14E+18		Roumelioti et al 2003	
Baja California 2010	135	7	15	7,2	7,62E+19	33	Wei et al., 2011	2
Bam 2003	16	2,6	10	6,6	9,31E+18	23	Jackson et al., 2006	1
Bhuj 2001	60	13	40	7,7	3,43E+20	35	Copley et al., 2011	1
Borah Peak 1983	50	4,1	26	6,9	3,12E+19	11	Ward & Barrientos 1986	2
Boumerdès 2003	60	3	23	6,8	2,01E+19	24	Delouis et al., 2003	
Canterbury -Darfield 2010	47	7,6	10	7	3,64E+19	33	Beavan et al., 2012	1
Carlsberg 2003	220	4	40	7,7	2,51E+20		Kikuchi Web site 2003	
Chengkung 2003	48	2	30(50)	6,8	2E+19	27	Mozziconacci et al., 2009	
ChiChi 1999	95	16	40	7,6	3,38E+20	51	Chi et al 2002	1
Christchurch dec 2011	12	1,5	9	6	1,09E+18	4	Beavan et al., 2012	1
Christchurch feb 2011	14	4	14	6,1	1,86E+18	7	Holden 2011	1
Colfiorito1- 1997	7,5	0,63	7,5	5,55	2,4E+17		Hernandez et al 2004	
Colfiorito2- 1997	12,5	1,35	7,5				Hernandez et al 2004	
Colfiorito3- 1997	9	0,75	6				Hernandez et al 2004	
Coyote Lake 1979	10	1,2	10	5,7	5,1E+17		Liu & Helmberger 83	
Dahuiyeh 2005	12,5	1,7	15,2	6,4	5,2E+18	15	Talebian et al., 2006	
Damxung 2008	15	2,86	14	6,4	3,65E+18	15	Quiao et al., 2010	
Denali 2002	300 (200)	10,3	15	7,9	7,48E+20	96	Oglesby et al 2004	3
Duzce 1999	50	8	30	7,1	6,65E+19	27	Delouis et al 2003	2
Elmore Ranch 1987	25	2,7	10	6,55	7,52E+18	10	Larsen et al 92	2
Fukui 1948	60	1,55	18				Ichinose et al 2005	
Geiyo 2001	30	2,5	18	6,8	1,97E+19		Takehi 2004	

Table 4-1

Name / Date	L (km)	Dmax (m)	W mean (km)	Mw	M0 (Nm) from Global CMT	Duration (s)	References	Maturity
Gifuken-Chubu 1969	20	1,7	11	6,43	5,03E+18		Takeo & Mikami 1990	
Haïti 2010	68	5,3	26,3	7	4,39E+19	14	DeLepinay et al., 2012	
Hector Mine 1999	55	6,3	15	7,1	5,98E+19	16	Kaverina et al 2002	1
HyugaNada 1968	72	4	60				Yagi et al 98	
HyugaNada1 1996	32	2,9	32	6,81	1,83E+19		Yagi & Kikuchi 99	
HyugaNada2 1996	30	1,65	30	6,68	1,17E+19		Yagi & Kikuchi 99	
Imperial Valley 1979	40	1,8	11	6	1,33E+18	12	Hartzell et al 83	2
Iwate 1998	10	1,4	10	6,1			Miyakoshi et al 2002	
Izmit 1999	185	8	22	7,6	2,88E+20		Delouis et al 2002	2
IzuHanto-Okii 1974	25	3	9	6,56	7,87E+18		Takeo & Mikami 90	
IzuHanto-Okii 1980	20	2,7	12	6,6	8,4E+18		Takeo & Mikami 90	
Japaneachubu 1983	30	4,4	30				Fukuyama & Irukura 86	
Joshua Tree 1992	30	0,8	20	6,25	2,65E+18	17	Bennet et al 95	1
Kagoshima 1997	16,5	0,81	10				Horikawa 2001	
Kamchatka 1996	75	2	60				Zobin & Levina 1998	
Kitamino 1961	12	2,5	12	6,47	5,76E+18		Kawasaki75(ds Bonilla79)	
Kobe 1995	60	3,5	20	6,9	2,43E+19	23	Wald website	1
Kunlun 2001	450	8,3	10	7,8	5,9E+20	145	Antolik et al 2004/Lassere 2005/Wen 2009	3
L'Aquila 2009	18	1	17,5	6,3	3,66E+18	15	Cirella et al., 2009	1
Landers 1992	80(25)	7,9	15	7,3	1,06E+20	30	Wald et al., 1994	1
Lefkada 2003	37,5	0,2	10	6,3	2,98E+18		L=average (Hollenstein et al., 2008; Benetatos et al., 2005; Karakostas et al., 2004; 2010)	
Little Skull Mnts 1992	7	0,5	6,5	5,7			Silva	
Loma Prieta 1989	39	5,9	15	6,9	2,69E+19	40	Beroza 91	3
Manyi 1997	188	7,6	20	7,5	2,23E+20	42	Funning et al., 2007	2
Mikawa 1945	25	2,2	15				Kikuchi et al 2003	
Miyagi-hokubu 2003	12	2	10	5,2	9E+16		Miura et al 2004	
Morgan Hills 1984	27	1	11	6,25	2,62E+18	9,5	Hartzell & Heaton 1986	2
Movri 2008	35	1,5	13	6,4	4,56E+18		Konstantinou et al., 2009	
Muzafarabbaad 2005	75	9	30	7,6	2,94E+20	46	Avouac et al., 2006	
Naganoken-Seibu 1984	12	2,2	9	6,34	3,59E+18		Takeo & Mikami 90	

Table 4-2

Name / Date	L (km)	Dmax (m)	W mean (km)	Mw	M0 (Nm) from Global CMT	Duration (s)	References	Maturity
Nahanni 1-1985	40	3,8	17	6,6	8,43E+18	16	Hartzell et al 94	
Nahanni 2-1985	48	5,2	21	6,7	1,52E+19	19	Hartzell et al 94	
Nenana Mountain 2002	45	2	17	6,7	1,09E+19		Mean values (Wright et al., 2003; Ozacar et al., 2003)	3
New Brunswick 1982	8	0,65	9				Hartzell et al 94	
North Palm Spring 1986	22	0,45	15	6,1	1,61E+18	7	Hartzell 89	
Northridge 1994	16,7	3,7	24	6,6	1,18E+19	10	Wald et al., 1994	2
Oaxaca 1999	90	2,4	45	7,4	1,72E+20	32	Hernandez et al 2001	3
OitaKen-Chubu 1975	10	2,5	10	6,4	4,22E+18		Takeo & Mikami 90	
Olyutorskii 2006	108	3,2	30	7,6	2,99E+20		Levin et al., 2010	
Parkfield 2004	32	0,7	10,6	6	1,13E+18	5	Dreger 2004	3
Petrolia 1992	28	3	29	7,2	6,69E+19		Oglesby & Archul 97	
Queshm 2005	9	1	4,5	6	1,03E+18	7	Nissen et al., 2007,2010	
Saguenay 1988	10	3	10				Hartzell et al 94	
San Fernando 1971	18	5	20	6,82	1,9E+19		Heaton 82	2
San Francisco 1906	480	10	12	8,1			Song et al 2005	3
San Simeon 2003	40	2,4	10	6,5	8,46E+18	13	Rolandone et al., 2006	2
Scotia Sea 2003	60	6,2	30	7,6	2,73E+20		Kikichi Web site 2003	
Sichuan 2008	300	14,5	28	7,9	8,97E+20	105	Fielding et al., 2013	2
Sultandagi-Çay 2002	34	1	12	6,5	6E+18		Aktug et al., 2010	
Superstition Hills 1987	24	3	11	6,5	7,18E+18	14	Larsen 92	2
Tabas 1978	95	1,45	45	7,3	1,32E+20	44	Hartzell & Mendoza 91	1
Tottori 2000	33	3,2	20	6,7	1,19E+19	11	Semmane et al 1998	1
Ungava 1989	13	2,4	6				Hartzell et al 94	
Uttarkashi 1991	48	1,5	36				Cotton & Campillo 1996	
Van 2011	20	4	25	7,2	6,4E+19	21	USGS	2
Whittier Narrows 1987	10	0,9	10	5,93	8,66E+17		Hartzell & Lida 90	
Yamaguchi 1997	16	0,54	13	5,81	5,81E+17	6	Ide 1999	
Yushu 2010	79	2,2	20	6,9	2,53E+19	20	Zhang et al., 2013	2
Ziarat/Baluchistan 2008	14	0,8	10	6,4	5,08E+18		USGS website	

Table 4-3

Table 5: Structural maturity of broken faults

The maturity is defined based on the following criteria (modified from Manighetti et al., 2007):

Class 1, ‘immature’: $L < 300$ km and/or I-Age $<$ few Ma and/or MR $<$ 10 mm/yr and/or $D_{total} <$ 10 km

Class 2 and 3, ‘intermediate-immature’ and ‘intermediate mature’: $300 < L < 1000$ km and/or $5 < I$ -Age $<$ 10 Ma and/or MR \approx 10 mm/yr and/or $D_{total} =$ few 10 km

Class 4, ‘mature’: $L > 1000$ km and/or I-Age $>$ 10 Ma and/or MR = few tens of mm/yr and/or $D_{total} >$ 100 km

With L the long-term fault length, in km; I-Age the age of fault initiation, in Ma; MR the maximum long-term slip rate in mm/yr ; CR is the current slip rate in mm/yr; D_{total} the total maximum displacement accommodated, in km; Below, Kin is dominant current slip motion (SS: strike-slip; R: reverse; N: normal). Segments: number of largest scale long-term segments along the fault

ASIA				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
Altyn Tagh	Kin: SS I-Age \approx 24 L \approx 2000 MR= 31 (over 110 ka) CR: 10-30 D_{total} : 600	4		Tapponnier et al., 2001a-b; Tapponnier et al., 1990; Meyer et al., 1998; Metivier et al., 1998; Peltzer and Saucier, 1996; Lacassin et al., 2004
Assam	Kin: R I-Age: 2-5 MR: 3,3 L \approx 110	1		Bilham and England, 2001
Bogd (Gobi-Altai)	Kin: SS I-Age \approx 2-8 L \approx 430 MR: 1 CR: 1,2 D_{total} : ?	3	5	Tapponnier et al., 2001a; Ritz et al., 1995; Prentice et al., 2002 – see also Bogd ID section-
Bolnai	Kin: SS L \approx 1000	3		Tapponnier et al., 2001a
Fuyun (Mongolian Altai)	Kin: SS I-Age \approx 2-8 L \approx 430 MR: 1-2 CR: ? D_{total} : 20	2	3	see Fuyun ID section
Haiyuan	Kin: SS L \approx 1000 MR= 20 $D_{total} \approx$ 100	4		Tapponnier et al., 2001a-b; Lasserre, PhD 2000
Himalayan Frontal Thrust	Kin: R I-Age: 15 L \approx 3000 MR= 21 (in last 10 ka)	4		Tapponnier et al., 2001a, Avouac and Lavé, 2002; Kumar et al., 2006
Jiali	Kin: SS+N L \approx 300 MR= 15	2		Tapponnier et al., 2001a; Peltzer and Saucier, 1996

Karakax and associated reverse faults	L < 250	1		Lasserre et al., 2002
Karakorum	Kin: SS I-Age: 20 L ≈ 1500 MR: ≈11 (over 140 to 20 ka) D _{Total} ≈ 600	4		Tapponnier et al., 2001a; Chevalier et al., 2005; Wright et al., 2004; Leloup (dossier DR07= Lacassin et al., 2004 ; Valli et al., 2007
Kunlun and associated faults	Kin: SS I-Age: 23-34 L ≈1600 MR ≈ 6-10 CR= 7-11 D _{total} > 100	4	4(5?)	Tapponnier et al., 2001a-b; Peltzer and Saucier, 1996 – see also Kunlun ID section -
Longitudinal valley (Chihshang fault)	Kin: LR L ≈ >150 on shore MR ≈ 2,5 CR= 4	2		Shyu et al (AGU2005)
Longmen Shan	Kin: SS + R I-Age: 5-12 L ≈ 400 MR ≈ 1,5 CR= 1 D _{total} 14-28	2-3	2	see Sichuan ID section
Manyi fault	Kin: SS I-Age: ? L ≈ 350 MR: ? CR= 1-5 D _{total} : ?	3	4	see Bogd ID section
Mogod	≈100 km-long faults	1		Lasserre et al., 2002
Northern India	Faults hardly expressed at surface MR < few mm/yr	1		Bilham et al., 2001
Olyutor Fold System	I-Age: Eocene? L:? CR: ? D _{total} : 40-100?	3		Roghozin, et al., 2009
Ordos	Kin: N L < 150 MR < 2-3	1		Tapponnier et al., 2001a
Philippines	Kin: SS I-Age: 2-4 L ≈ 1500 MR: 2,5	4		Rigenbach et al 1992 and references therein
Qilian Shan and associated faults	L < 300 MR: High	2		Tapponnier et al., 2001a
Red River and associated SS faults	Kin: SS I-Age: 35 L ≈ 1000 MR= 40 D _{total} = 700±200	4		Tapponnier et al., 2001a-b;

SW Tien Shan: intersection with Tarim	MR: 5 mm/yr, higher than elsewhere	2		Sharer et al., 2004
Tibetan inner normal faults	Kin: N L: < 70 I-Age: < 5 D _{Total} : 1.6 (for KungCo fault)	1		Tapponnier et al., 2001a-b; (Leloup dossier DR07)
Tien Shan (overall)	Kin: R I-Age: 2 L: 50-300 MR < 3 cm/yr per fault	1		Tapponnier et al., 2001a, Dominguez (pers. comm., 2005); Brown et al., 1998; Thompson et al., 2002; Peltzer and Saucier, 1996
Xianshui He northern section (Yushu-Garzê)	Kin: SS I-Age: 13 L ≈ 380 MR ≈ 12 CR: 20 D _{total} > 80	3	4	See Yushu ID section
Xianshui He, Central sections	Kin: SS I-Age: 5-13 L ≈ 350 MR ≈ 2 CR: 20 D _{total} > 100	3		Tapponnier et al., 2001a
Xianshui He, Southern section	Kin: SS I-Age: 5 L ≈ 300-400 CR: 12	2		Tapponnier et al., 2001a, King et al., 1997 Wang et al., 2009
Yadong-Gulu rift	Kin: N L ≈ 500 MR ≈ 10 CR: 11			Wu, 2010; Larson et al, 1999 ; Armijo, 1986.
TURKEY				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
East Anatolian	I-Age > 10? (Westaway and Arger 96 suggest 3 Ma) MR: 1 D _{Total} : 30 L ≈ 600 MR ≈ 2	3		McKenzie, 1976; Westaway and Arger, 1996 ; Hubert-Ferrari et al., 2003; Allen et al., 2004
North Anatolian	Kin: SS I-Age ≈ 13 L ≈ 1500 MR ≈ 18-24 CR: 22 D _{total} ≈ 85	4	5	Sengor et al., 1979, 1985; Westaway, 1994; Bennett et al., 1996; Barka et al., 2000 ; Hubert-Ferrari et al., 2002 ; Talebian and Jackson, 2002 ; Allen et al., 2004.

WEST US				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
Basin and Range (Thousand Springs)	Kin: N I-Age \approx 2-7 L \approx 45 MR $<$ 0,3 CR : 1 D _{total} \approx 3	2	2	see Borah Peak ID section
Basin and Range (Dixie Valley)	Kin: N I-Age \approx 3-5 L \approx 85 MR=1 CR : 2 D _{total} \approx 5	1	4	see Dixie Valley ID section
Basin and Range (Cedar Mountain)	Kin: SS L < 100 MR < 1	1		Bell et al., 2004
Basin and Range (Fairview Peak)	Kin: N I-Age \approx 3-5 L \approx 50 MR=1,5 D _{total} \approx 0,7	1	3	see Fairview Peak ID section
Basin and Range (Hebgen Lake)	Kin: N I-Age \approx 0,6-2 L \approx 75 MR=1-6 D _{total} \approx ?	1	3(5?)	see Hebgen Lake ID section
Basin and Range (Pleasant Valley)	Kin: N I-Age \approx 3-5 L \approx 70 MR=0,2 D _{total} \approx 2	1	3	see Pleasant Valley ID section
Denali	Kin: SS I-Age \approx 55-70 L \approx 2000 MR=7-13 CR : 6-10 D _{total} \approx 400	4	6(7)	see Denali ID section
Elsinore	Kin: SS I-Age \approx 5-10 L \approx 600 Branch of SA MR=5 CR : 2-3 D _{total} \approx 15	3	5	see Baja California ID section
Enriquillo-Plantain Garden Fault Zone	Kin: SS CR: 7			Manaker et al., 2008.
Garlock Fault	Kin: SS L \approx 250-300 MR \approx 10 D _{total} \approx 48-64	2		http://earthquake.usgs.gov/regional/qfaults/c/a/index.php ; Stirling et al., 1996; Petersen and wesnousky 1994.

Hayward fault	L ≈ 400 Eastern branch of SA MR ≈ 8-10	3		http://earthquake.usgs.gov/regional/qfaults/ca/index.php
Hector Mine long term fault (Lavic Lake, Pisgah, Bullion, Measquite Lake)	Kin: SS I-Age: 0,6-2 L ≈ 100 MR <10 CR: 2 D _{total} <10	1	4	see Hector Mine ID section
Landers long term faults (Camp-Rock-Emerson, Homestead Valley, Johnson Valley)	Kin: SS I-Age <10 L ≈ 100 MR ≈ 0,2-0,7 D _{total} <10	1	3 (Cam.Ro.-Em.); 3 (Hom. Vall.) 5 (John. Vall.)	see Landers ID section-
Owens Valley fault system	Kin: SS L < 200 MR ≈ 1-4	1		http://earthquake.usgs.gov/regional/qfaults/ca/index.php ;
San Andreas (northern section)	Kin: SS I-Age: 30-40 L ≈ 450 MR ≈ 30 CR: 10 D _{total} ≈ 300?	4	5	see San Francisco ID section
San Andreas (southern section)	Kin: SS I-Age: 12 L ≈ 800 MR ≈ 30 CR: 25 D _{total} : 300	4	4(5?)	See Frot Tejon ID section
San Jacinto	Kin: SS I-Age: 2-12 L: 300 Branch of SA MR ≈ 4-15 CS: 20-25 D _{total} ≈ 25	3	4	See Borrego Mountain, Superstition Hills, Imperial Valley IDs section
Sargent fault	Kin: R L < 200 MR ≈ 3	1		http://earthquake.usgs.gov/regional/qfaults/ca/index.php
Septentrional Fault of Hispaniola	Kin: SS CR: 9 ± 2			Manaker, 2008
Totschunda fault (East Denali)	Kin: SS I-Age: <2 L: 200 MR= 6 CS: 5,5	2	4	see Denali ID section

NEW ZEALAND				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
Greendale	Kin: SS I-Age: 0 L ≈ 30 Dtotal < 1	1		Quigley et al., 2011
ARABIA, IRAN and CAUCASE				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
Chaman fault system	L > 1000	4		Woodcock and Daly, 1986.
Gowk fault	Kin: SS and R I-Age: 5 L ≈ ? MR: 1-2	1		Jackson 2006 et and references therein
Levant	Kin: SS L: 1000 MR=5-7 CR: 2,5-5	3		Meghraoui, 2003; Alchabi 2010; LeBeon, 2008, 2010)
New fault between Gharb and Avaj faults	Kin: R I-Age: 0 L: 14	1	1	Walter, 2005.
EUROPE				
Fault or fault zone	Fault parameters	Maturity	Segments	Principal References
Paganica-San Demetrio	Kin: N I-Age: 0,5 at least L: few km? MR: 0,5	1		Galli, 2011.

Lasserre, et al., in Himalaya-Tibet, le choc des continents, Eds. CNRS, 80, (2002) ; Tapponnier et al., C. R. Acad. Sci. Paris, 333, 483 (2001a) ; Tapponnier et al., Science, 294, 1671 (2001b) ; Tapponnier et al., Nature, 343, 431 (1990) ; Meyer et al., Geophys. J. Int., 135, 1 (1998) ; Métivier et al., Tectonics, 17, 823 (1998) ; Peltzer and Saucier, J. Geophys. Res., 101, 943 (1996) ; Bilham & England, Nature, 410, 806 (2001) ; Ritz et al., Geology, 23, 1019 (1995) ; Prentice et al., J. Geophys. Res., 107 doi 10.1029/2001JB000803 ; Avouac and Lavé, in Himalaya-Tibet, le choc des continents, Eds. CNRS, 62, (2002) ; Kumar et al., J. Geophys. Res., 111, doi:10.1029/2004JB003309 (2006) ; Chevalier et al., Science, 307, 411 (2005) ; Wright et al., Science 305, 236 (2004) ; Bilham et al., Science, 293, 1442 (2001) ; Brown et al., GSA Bull., 110, 377 (1998) ; Thompson et al., J. Geophys. Res., 107, doi:10.1029/2001JB000596 (2002) ; Sharer et al., J. Struct. Geol. (2004) ; Woodcock & Daly, Phil. Trans. Roy. Soc., 317, 13 (1986) ; McKenzie, Earth Planet. Sc. Lett., 29, 189 (1976) ; Westaway & Aeger, J. geol. Soc. Lond., 153, 729 (1996) ; Hubert-Ferrari et al., Geophys. J. Int., 153, 111 (2003) ; Sengor et al., in Strike-slip faulting and Basin formation, 227 (1985) ; Westaway, J. geophys. Res., 99, 12 071 (1994) ; Hubert-Ferrari et al., J. geophys. Res., 107, (2002) ; Barka et al., Tectonophysics, 322, 243 (2000) ; Barka et al., Tectonophysics, 7, 663 (1988) ; Armijo et al., Geophys. J. Int., 126, 11 (1996) ; Schindler, in: Schindler C, Pfister M (eds) Active tectonics of Northwestern Anatolia—The Marmara Poly-Project, ETH, Zürich, 329 (1997) ; Armijo et al., Geology, 27, 267 (1999) ; Jackson & McKenzie, Geophys. J., 93, 45 (1988) ; Tatar et al., Geophys. Res. Lett., 29, doi:10.1029/2002GL015427 (2002) ; Talebian & Jackson, Geophys. J. Int., 150, 422 (2002) ; Regard et al., Geophys. J. Int., 162, doi:10.1111/j.1365-246X.2005.02558.x (2005) ; Bayer et al., Geophys. J. Int., 165, doi:10.1111/j.1365-246X.2006.02879.x (2006) ; Wallace, Seism. Soc. Am. Bull., 74, 1091 (1984a) ; Wallace, U.S. Geol. Survey Prof. Paper 1274-A (1984b) ; Smith & Sbar, Bull. geol. Soc. Am., 85, 1205 (1974) ; Wallace, Bull. seism. Soc. Am., 77, 868 (1987) ; Niemi et al., Geophys. J. Int., 159, doi:10.1111/j.1365-246X.2004.02454.x (2004) ; Friedrich et al., Tectonics, 23, doi:10.1029/2003TC001528 (2004) ; Bell et al., Bull. Seism. Soc. Am., 94, 1229 (2004) ; <http://earthquake.usgs.gov/regional/qfaults/ca/index.php> ; Stirling et al., Geophys. J. Int., 124, 833 (1996).

Table 7 : Maximum slip (D_{max}) to length (L) ratios of the modeled slip profiles.

Blank lines separate the different models.

Pre-existing damage zone characteristics			D_{max}/L	Figure
Geometry	Width (km) (from left to right)	Young modulus (GPa) (from left to right.)		
No damage zone	0	80	1.91×10^{-4}	242
Rectangular	1	70	4.04×10^{-4}	243a
Rectangular	2	70	5.17×10^{-4}	243a
Rectangular	4	70	6.79×10^{-4}	243a
Rectangular	6	70	7.51×10^{-4}	243a
Rectangular	8	70	8.78×10^{-4}	243a
Rectangular	10	70	9.38×10^{-4}	243a
Rectangular	12	70	1.02×10^{-3}	243a
Rectangular	14	70	1.13×10^{-3}	243a
Rectangular	1	60	2.33×10^{-4}	243b
Rectangular	2	60	3.13×10^{-4}	243b
Rectangular	4	60	3.64×10^{-4}	243b
Rectangular	6	60	3.86×10^{-4}	243b
Rectangular	8	60	4.52×10^{-4}	243b
Rectangular	10	60	5.04×10^{-4}	243b
Rectangular	12	60	5.28×10^{-4}	243b
Rectangular	14	60	5.73×10^{-4}	243b
Rectangular	1	50	2.19×10^{-4}	243c
Rectangular	2	50	2.56×10^{-4}	243c
Rectangular	4	50	2.98×10^{-4}	243c
Rectangular	6	50	3.25×10^{-4}	243c
Rectangular	8	50	3.49×10^{-4}	243c
Rectangular	10	50	3.68×10^{-4}	243c
Rectangular	12	50	3.77×10^{-4}	243c
Rectangular	14	50	3.94×10^{-4}	243c
Rectangular	1	40	2.10×10^{-4}	243d
Rectangular	2	40	2.41×10^{-4}	243d
Rectangular	4	40	2.64×10^{-4}	243d
Rectangular	6	40	2.79×10^{-4}	243d
Rectangular	8	40	2.90×10^{-4}	243d
Rectangular	10	40	3.00×10^{-4}	243d
Rectangular	12	40	3.04×10^{-4}	243d
Rectangular	14	40	3.13×10^{-4}	243d
Rectangular	1	30	2.04×10^{-4}	243e
Rectangular	2	30	2.29×10^{-4}	243e
Rectangular	4	30	2.36×10^{-4}	243e
Rectangular	6	30	2.45×10^{-4}	243e
Rectangular	8	30	2.51×10^{-4}	243e
Rectangular	10	30	2.56×10^{-4}	243e
Rectangular	12	30	2.58×10^{-4}	243e

Rectangular	14	30	2.62×10^{-4}	243e
Rectangular	1	20	1.99×10^{-4}	243f
Rectangular	2	20	2.10×10^{-4}	243f
Rectangular	4	20	2.15×10^{-4}	243f
Rectangular	6	20	2.22×10^{-4}	243f
Rectangular	8	20	2.25×10^{-4}	243f
Rectangular	10	20	2.27×10^{-4}	243f
Rectangular	12	20	2.28×10^{-4}	243f
Rectangular	14	20	2.30×10^{-4}	243f
Rectangular	1	10	1.94×10^{-4}	243g
Rectangular	2	10	1.99×10^{-4}	243g
Rectangular	4	10	2.02×10^{-4}	243g
Rectangular	6	10	2.03×10^{-4}	243g
Rectangular	8	10	2.06×10^{-4}	243g
Rectangular	10	10	2.07×10^{-4}	243g
Rectangular	12	10	2.07×10^{-4}	243g
Rectangular	14	10	2.07×10^{-4}	243g
Rectangular	1	70, 50, 40	2.03×10^{-4}	245a
Rectangular	2	70, 50, 40	2.22×10^{-4}	245a
Rectangular	4	70, 50, 40	2.35×10^{-4}	245a
Rectangular	6	70, 50, 40	2.44×10^{-4}	245a
Rectangular	8	70, 50, 40	2.51×10^{-4}	245a
Rectangular	10	70, 50, 40	2.56×10^{-4}	245a
Rectangular	12	70, 50, 40	2.58×10^{-4}	245a
Rectangular	14	70, 50, 40	2.61×10^{-4}	245a
Rectangular	1	40, 20, 10	4.02×10^{-4}	245b
Rectangular	2	40, 20, 10	4.72×10^{-4}	245b
Rectangular	4	40, 20, 10	6.31×10^{-4}	245b
Rectangular	6	40, 20, 10	6.93×10^{-4}	245b
Rectangular	8	40, 20, 10	7.45×10^{-4}	245b
Rectangular	10	40, 20, 10	7.59×10^{-4}	245b
Rectangular	12	40, 20, 10	7.70×10^{-4}	245b
Rectangular	14	40, 20, 10	7.92×10^{-4}	245b
Triangular	12, 8, 4	10	8.69×10^{-4}	246a
Triangular	12, 8, 4	20	4.48×10^{-4}	246a
Triangular	12, 8, 4	40	2.86×10^{-4}	246a
Triangular	3, 2, 1	40, 20, 10	4.09×10^{-4}	246b
Triangular	6, 4, 2	40, 20, 10	4.88×10^{-4}	246b
Triangular	12, 8, 4	40, 20, 10	6.46×10^{-4}	246b
Triangular	12, 8, 4	10, 20, 40	7.22×10^{-4}	246c

Table 8: Amount of modeled off-fault coseismic slip dissipated in the long-term damage zone. Off-fault slip is measured at the center of the damage zone, from Figure 248. D_0 is maximum slip on the elastic crack with no damage. Blank lines separate the different models.

Pre-existing damage zone characteristics				Figure	On-fault coseismic slip normalized to D_0	Off-fault slip at the center of the damage zone, normalized to D_0	Relative off-fault slip at the center of the damage zone, with respect to on-fault slip on same transect (%)	Relative off-fault slip at the center of the damage zone, with respect to maximum slip on the earthquake fault (%)
Geometry	Width (km)	Damage state	Young's modulus (GPa)					
Rectangular	1	High	10	248a	1.95	1.49	76	76
Rectangular	1	Moderate	20	248a	1.21	1.1	92	56
Rectangular	1	Low	40	248a	0.86	0.8	93	41
Rectangular	12	High	10	248a	4.05	1.6	39	39
Rectangular	12	Moderate	20	248a	2.66	1.5	56	37
Rectangular	12	Low	40	248a	1.41	0.93	66	23
Triangular	1	High	10	248b	2.03	1.5	74	74
Triangular	2	Moderate	20	248b	1.46	1.25	86	62
Triangular	3	Low	40	248b	1.08	0.93	86	46
Triangular	4	High	10	248b	3.13	1.95	62	62
Triangular	8	Moderate	20	248b	2.06	1.38	67	44
Triangular	12	Low	40	248b	1.31	0.8	61	26

2. Short discussions explaining the choice or rejection of some of the earthquake data

Surface slip profiles data:

Because absolute uncertainties cannot be defined on the surface slip profiles data, I have assigned a quality factor to each slip profile, which depends on several parameters:

- Quality 1: for old earthquakes (before 1950) and not well constrained slip data
- Quality 2: fairly well constrained slip profile for which some uncertainties remain (especially in determination of net displacement)
- Quality 3: Very well constrained slip profile

The slip profiles are numbered S01, S02, etc. 'S' for 'surface data' and the number of the slip profile as in Table 1. When several slip profiles are available for the same earthquake, I precise in bold the preferred data:

-**S49/S149**: Baja California 2010 (Wei et al., 2011)

Rupture trace was mapped on the field in the NW half of the rupture only. The slip profile estimated from sub-pixel correlation of SPOT/InSAR images (S149) doesn't take into account the large vertical component and is not in good agreement with the slip profile inferred near the surface from the source inversion model (S49)

→ Quality 1. However, because the slip profile is incomplete, I do not consider it in my overall analysis of slip profiles.

-S56 : Bogd 1957 (Kurushin et al., 1997 + Choi et al., 2012)

Old earthquake and late studies but displacement measurements fairly dense and precise along the entire rupture length

→ Quality 2

-**S02/102** = Bolu Gerede 1944 (Barka et al., 1996 / Kondo et al., 2005)

Old earthquake and late studies. S02 is less detailed than S102. S102 measured more displacement data but the measurements are disputable (offset of shrubs and small bushes measured 60 years after the earthquake). Also summed displacements might be included in the surface measurements

→ S02 is preferred but with a small quality (1)

-S03: Borah Peak 1983 (Crone and Machette 1984; Crone et al., 1987)

Complete and robust study. Surface measurements done in the week following the earthquake

→ Quality 3

- S04: Borrego Mountain 1968 (Clark 1972)

Old earthquake but complete surface measurements along the entire rupture, made from 8h after the earthquake.

→ Quality 2 (to 3)

- S05 : Chi Chi 1999 (Dominguez et al., 2003)

Complete measurements along the entire rupture length. Displacements deduced from the composition of the East and North components of the pixel correlation on Spot images. However the vertical component is not taken into account.

→ Quality 2

-S50 : Darfield 2010 (Quigley et al., 2011)

Complete measurements and rupture analysis both on the field and from Lidar data

→ Quality 3

- S08/S108 : Denali 2002 (Haeussler et al., 2004 / Eberheart-Phillips et al., 2003)

Both profiles have a similar overall shape. S08 is preferred because it has more offset measurements along the entire rupture length (ground surface and glacier). Three distinct faults have broken during the earthquake (Susitna Glacier, Denali and Totschunda faults, see IDs for details). The slip profiles do not include slip on the Susitna Glacier oblique reverse fault.

In some cases discussed later on, I will have to only discuss the slip on the Denali fault; I will thus ignore the part of the slip profiles which show the slip on the Totschunda fault.

→ Quality 2 (but particular case because several faults have broken during the earthquake)

-S44 : Dixie Valley 1954 (Caskey et al., 1996)

Old earthquake and late study but surface measurements are dense and robust along the entire rupture length. Net displacement calculated using fault dips described in the literature (see IDs for details)

→ Quality 1

-S46/146 : Duzce 1999 (Duman et al., 2005 / Akyuz et al., 2002)

Both profiles are very similar (length, displacements), and both result from precise and dense measurements along the rupture length. S46 is slightly preferred because Duman et al., 2005 present a more detailed surface mapping.

Slip profile at surface is symmetric whereas slip profile inferred at depth shows a more asymmetric slip profile with maximum displacement deported to the west

→ Quality 2

-S58: El Asnam 1980 (Yielding et al., 1981)

Surface measurements done 10 days after the earthquake. Uncertainties on the estimation of the net displacement (reverse component)

→ Quality 2

- S09: Elmore Ranch 1987 (Hudnut et al., 1989)

The slip profile is the sum of the displacements that occurred on the 6 parallel tiny branches.

Even if surface measurements are detailed, displacements are very low (10 cm); the earthquake occurred in a complex fault zone in interaction with the Superstition Hills fault and that broke the perpendicular Superstition Hills fault a few hours after the Elmore Ranch .

→ Quality 1 but because of the reasons above, I will not consider this surface slip profile in my analyses

-S10: Erzincan 1939 (Barka et al., 1996)

Old earthquake and late study

→ Quality 1

-S59: Fairview Peak 1954 (Caskey et al., 1996)

Late study but dense surface measurements along the entire rupture length. Net displacement calculated by composition of horizontal and vertical components and using fault dips described in the literature (see IDs for details)

→ Quality 1

-S13: Fandoqa 1998 (Berberian et al., 2001)

Measurements done 3 days after the earthquake and over a period of one year. Strike slip major component with a minor reverse component that can induce uncertainties on the net displacement estimation.

→ Quality 2

- S14/S114: Fort Tejon 1857 (Sieh et al., 1978 / Zielke et al., 2012)

Old earthquake that occurred over a very long distance. Late studies reported different maximum displacements (D_{max} [Sieh et al. 1978] = 9 m ; D_{max} [Zielke et al. 2012] = 6 m). However both profiles have a similar overall shape (see IDs for details)

S114 is preferred because Zielke et al. (2012) provide solid arguments against the over-estimated maximum slip measurement done by Sieh et al. (1978).

→ Quality 1

-S57: Fuyun 1931 (Jianbang et al., 1984 + Lin and Lin 1998)

Old earthquake. Late studies but in good agreement with each other (see IDs for details). Dense measurements on the 2/3 southern part of the rupture. The northern part is less described.

→ Quality 1

S19 : Hebgen Lake 1959 (Myers and Hamilton 1964)

Old earthquake but surface measurements done a few days after the mainshock. Complete and precise mapping of the rupture. However the major part of the slip measurements takes into account offsets likely due to landsliding. This part must not be included in the on fault displacement.

→ Not included in my analysis because of these reasons.

-S22/122 : Hector Mine 1999 (Jonsson et al., 2002 / Treiman et al., 2002)

Dense surface measurements (S122) in good agreement with InSAR measurements (S22). S22 is preferred because it is more sensible to ground deformation at rupture tips, not necessarily visible on the field.

→ Quality 3

- S23 : Imperial Valley 1979 (Sharp et al., 1982)

Study done 4 days after the earthquake. Surface measurements dense along the rupture length. However at least 5 km of rupture trace is missing near the hypocenter (uncertainties on the rupture length). Small amplitude of the surface displacements (suggesting that part of the deformation was diffused? Surface slip under-estimated?)

→ Quality 1

- S60 : Imperial Valley 1940 (Sharp et al., 1982)

Old earthquake. Late study but fairly complete along the entire rupture length.

→ Quality 1

-S27/127/1127: Kunlun 2001 (Lasserre et al., 2005 / Klinger et al., 2005 / Xu et al., 2006)

Slip profiles are in good agreement (slip distribution, D_{max}). S27 (InSAR) is preferred because it “captures” deformation along the entire rupture length (over 400 km).

S1127 is also well constrained from field measurements that complete the data where InSAR data are missing (rupture tips and lakes) (see IDs for details)

→ Quality 2

-S33 : Landers 1992 (Sieh et al., 1993)

Precise field measurements done a few days after the earthquake.

Three distinct faults broke (Emerson-Camp Rock, Johnson Valley et Homestead Valley, see IDs for details). Southern part of the slip profile (Eureka Peak fault) is not included in the coseismic slip profile because it corresponds to post seismic deformation (see IDs for details).

→ Quality 3 (but particular case because several faults broke during the earthquake)

-S34/134 : Luzon 1990 (Punongbayan et al., 1990 / Yomogida and Nakata 1994)

Dense measurements done a few days after the earthquake along the entire rupture length (S34). Precise field mapping despite of the dense vegetation and paddy fields.

(S134 are complementary coseismic measurements based on eyewitnesses (local population)

→ Quality 2

-S35 : Manyi 1997 (Peltzer et al., 1999)

No precise field mapping, but precise InSAR measurements in optimal conditions (complete cover of the rupture length, arid climate). However the amount of slip can be over estimated depending on the many assumptions done during the InSAR modeling (fault dip, vertical component, etc.)

→ Quality 2

-S36 : Mudurnu 1967 (Barka et al., 1996)

Old earthquake but detailed study done a few months after the earthquake (Ambraseys and Zatopek 1968). Aftershock (Mw 5.5) occurring 8 days after the mainshock might have contributed to the reverse deformation.

→ Qualité 2

- S53/S54: Muzaffarbad 2005 (Avouac et al., 2006 / Kaneda et al., 2008)

S53 (sub-pixel correlation on Spot images, Avouac et al., 2006) et S54 (field measurements; Kaneda et al., 2008) are in good agreement. S53 is slightly preferred because it offers more surface measurements and a complete description of the deformation along the rupture length.

Uncertainty on the net displacement (reverse faulting)

→ Quality 2

-S45 : Pleasant Valley 1915 (Zhang et al., 1999)

Old earthquake and late study. Almost complete surface slip measured but uncertainty on the rupture length (northern scarp is not included in our analysis, see IDs for details)

→ Quality 1

-S38 : San Francisco 1906 (Lawson 1908 + Thatcher et al., 1997)

Old earthquake. Surface measurements were missing in the northern part of the rupture (off shore) but displacements were modeled along the entire rupture length (see IDs for details)

→ Quality 1

-S52 : Sichuan 2008 (Liu Zeng et al., 2009 + Lin et al., 2009, 2010 + Zhang et al., 2010)

Compilation of dense field measurements available from different studies. Field measurements are in good agreement (except near Beichuan; see IDs for details). There are uncertainty however on the net displacement (oblique strike-slip and reverse fault) that I estimated from the composition of horizontal and vertical components using fault dips available from literature.

→ Quality 2

-S47 : Superstition Hills 1987 (Sharp et al., 1989)

Earthquake that occurred a few hours after the Elmore Ranch on a perpendicular fault. Complete field measurements along the rupture length but the slip distribution and the maximum displacement at surface are very under-estimated compared to slip inferred at depth from source inversion models (as the Imperial Valley, possible diffusion of the coseismic deformation?) (see IDs for details)

Also a very important postseismic deformation was observed one year after the earthquake (amounting to twice of the coseismic slip)

→ Quality 1 but, for the reasons above, I did not consider the slip profile in my analyses.

-S41 : Tosya 1943 (Barka et al., 1996)

Old earthquake and late study.

→ Quality 1

-S51 : Yushu 2010 (Li et al., 2012)

Surface slip measurements are missing on a large part of the rupture (see IDs for details). Large uncertainty of the maximum displacement, which varies from 1.8 to 3 m depending on the studies

→ Quality 1 but, for the reasons above, I did not consider the slip profile in my analyses.

Model-inferred earthquake data:

The slip profiles are numbered M01, M02, etc. 'M' for 'Model data' and the number of the slip profile as in Table 2. I have discriminated the EQ source inversion models on the following criteria.

Underlined model: when several models exist for a same EQ

Model indicated in bold: The preferred model

Quality 0 = not considered (for instance because $D_{max} \text{ model} < D_{max} \text{ surface}$, ... etc)

Quality 1 : poorly constrained : far field data and/or old EQ and/or low D_{max} ($< 1\text{m}$)

Quality 2 : well constrained (dense record, near-field, etc)

Quality 3 : very well constrained (dense record, near-field, multiple complementary data analyzed jointly etc)

-Antarctic 1998-main (Antolik et al., 2000) **M01**

EQ isolated (off shore), Teleseismic data only

Quality 1

- Antarctic 1998-second (Antolik et al., 2000) **M02**

EQ isolated (off shore), Teleseismic data only

Quality 1

- Baja California 2010 (Wei et al., 2011) **M03**

Rupture in Mexico but close to the USA border --> Better constraint close to the USA (GPS-sub pixel correlation of SPOT images, InSAR, Teleseismic) than in Mexico (Teleseismic, sub-pixel correlation of SAR images, no surface trace)

Maximum displacement measured at the SE fault tip

Slip length profile at surface (S149) not in good agreement with slip length inferred at depth (M03)

Quality 1

- Borah Peak 1983 (Mendoza and Hartzell 1988) **M04**

Teleseismic data only ; $D_{model} < D_{surface}$

Quality 0

- Boumerdes 2003 (Delouis et al., 2004) **M05**

off shore but near field data : GPS+uplift coastal+ Teleseismic

Quality 1

- Buhj 2001 (Copley et al., 2011) **M06**

Sub pixel correlation of SPOT images + InSAR data including postseismic deformation (Schmidt and Burgmann 2006) + Teleseismic ;

L overestimated

Quality 2

- Central Chile 1985 (Mendoza et al., 1994) **M07**

Subduction. Teleseismic and strong motions data

Quality 1

- Chichi 1999 (Chi et al., 2001) M08 :

Dense Strong motions data. L overestimated.

Quality 1

- Chichi 1999 (Johnson et al. 2002) M09

Dense GPS data ; fault plane adapted to surface trace

Perpendicular tip not considered in my database

$D_{model} = D_{surface}$

- Quality 1
- Chichi 1999 –(Ma et al., 2000) M10
 Teleseismic data only ; one single fault plane
- Quality 1
- Chichi 1999 –(Ma et al., 2001) M11
 Teleseismic + dense strong motions + dense GPS data
 removal of artefacts at fault edges
- Quality 3
- Chichi 1999 - (Sekiguchi et al., 2002) (not found) M12 :
 Dynamic model ; strong artefacts at the base of the rupture plane.
- Quality 1
- Chichi 1999 –(Wu et al., 2001) M13
 Strong motions + GPS data
- Quality 2
- Chichi 1999 –(Zeng and Chen 2001) M14
 GPS+Strong motions data ; Dmodel < Dsurface
- Quality 1 (or 0)
- Colima 1995 – (Mendoza and Hartzell 1999) M15
 Subduction – Teleseismic data only
 Quality 1
- Coyote Lake 1979 – (Liu and Helmberger 1983) M16
 Old EQ ; Strong motions data close to the fault
 Quality 1 / OUT of graphs
- Denali 2002 – (Asano et al., 2005) M17
 GPS+Strong motions but rupture plane « too small » (High slip patch at fault edges). Segments in good agreement with surface data
 Quality 2-
- Denali 2002 – (Oglesby et al., 2004) M18
 GPS+Strong motions. Segments in good agreement with surface
 Quality 2+
- Duzce 1999 – (Delouis et al., 2004) M19
 Teleseismic data + Strong motions + InSAR
 Slip distribution at depth is asymmetric (different to surface slip length profile)
 Quality 3
- Elmoreranch 1987 – (Larsen et al., 1992) M20
 Old and small EQ ; Sparse GPS data close to the fault
 Quality 1
- Haiti 2010 – (Mercier de Lépinay et al., 2012) M22
 InSAR+Teleseismic+Regional seismology+ structural data
 Part of the rupture trace is offshore
 Quality 2
- Haiti 2010 – (Sladen - Caltech website 2010) M23
 Teleseismic+corals+InSAR but too complex fault geometries ?
 Quality 1
- Hector 1999 – (Ji et al., 2002) M24
 Teleseismic+Strong motions (a little bit far) + dense GPS + Surface data
 Quality 2
- Hector 1999 – (Jonsson et al., 2002) M25

InSAR+GPS data

Quality 2

- Hector 1999 – (Kaverina et al., 2002) M26

InSAR+GPS+local and Broadband regional seismology+Surface data

Quality 3

- Hector 1999 – (Salichon et al., 2004) M27

InSAR+GPS+Teleseismic+Surface data

Quality 3

→24 et 27 could be the best model but M26 is preferred (both far and near field seismological data)

- Huyga1 1996 – (Yagi et al., 1999) M28

Small EQ that occurred off shore ; Strong motions+GPS data

Quality 1

- Huyga2 1996 – (Yagi et al., 1999) M29

Small EQ that occurred off shore ; Strong motions+GPS data

Quality 1

- Imperial Valley 1979 – (Archuleta 1984) M30

Old earthquake but Strong motions data close to the fault

Quality 1

- Imperial Valley 1979 – (Hartzell and Heaton 1983) M31

Old earthquake but Strong motions data close to the fault + Teleseismic data

Quality 1

- Imperial Valley 1979 - Olson and Apsel 1982 M32

Old earthquake but Strong motions data close to the fault (low displacement estimated)

Quality 1

- Imperial Valley – (Zeng and Anderson 2000) M33

Old earthquake but apparently, Strong motions data close to the fault

Quality 1

- Izmit 1999 – (Bouchon et al., 2002) M34

Few strong motions data situated on one side of the rupture

Quality 1

- Izmit 1999 – (Cakir et al., 2002) M35

InSAR+Surface data

Quality 1

- Izmit 1999 – (Delouis et al., 2002) M36

InSAR+GPS+Teleseismic+Strong motions

Quality 2

- Izmit 1999 – (Reilinger et al., 2000) M37

InSAR+GPS+Surface

Quality 1

- Izmit 1999 – (Sekiguchi and Iwata 2002) M38

Strong motions (few stations)

Quality 1

- Izmit 1999 – (Yagi and Kikuchi 2000) M39

Teleseismic+Strong motions (rupture plane too simple)

Quality 1

- Izu-Hanto-Toho-Okii 1980 – (Takeo 1988) M40

Far field strong motions data - Off shore, old and small EQ

Quality 0

- Joshua Tree 1992– (Bennet et al., 1995) M42

GPS close to the rupture plan

Quality 1

- Joshua Tree 1992 – (Hough and Dreger 1995) M43
3 regional broadband stations + temporary postseismic stations
Quality 1

- Kobe 1995 – (Cho and Nakanishi 2000) M46
Strong motions+GPS+leveling data

Quality 2+

- Kobe 1995 – (Ide et al., 1996) M 47
Strong motions data

Quality 1

- Kobe 1995 – (Sekiguchi et al., 1996) M 48
Strong motions data

Quality 1

- Kobe 1995 – (Wald 1996) M 49

Teleseismic+Strong motions+GPS+Leveling data

Show the impact of each data on the slip distribution and estimation of the weight of each datasets=equivalent misfit between the data

Quality 3

- Kobe 1995 – (Yoshida et al., 1996) M 50
Teleseismic+Strong motions+GPS data

Quality 3

- Kobe 1995 – (Zeng and Anderson 2000) M51
Strong motions data

Quality 1

- Landers 1992 – (Cohee and Beroza 1994) M52

Strong motions+Surface data ; Dmodel is a little bit lower than Dsurface

Quality 1

- Landers 1992 – (Cotton and Campillo 1995) M53
Strong motions data- Dmodel < Dsurface

Quality 1

- Landers 1992 – (Hernandez et al., 1999) M54
GPS+(INSAR)+Strong motions data– D model equivalent to Dsurface

Quality 2

- Landers 1992 – (Wald and Heaton 1994) M55
Teleseismic+Strong motions+GPS+Surface data

Quality 3

- Landers 1992 – (Zeng and Anderson 2000) M56
Strong motions data

Quality 1

- Lomapieta 1989 – (Beroza 1991) M57
different

20 Strong motions stations

Quality 1

- Lomapieta 1989 – (Wald et al., 1991) M59
48 Strong motions+ 24 Teleseismic

Quality 1

- Lomapieta 1989 – (Zeng and Anderson 2000)M60
Strong motions

Quality 1

- Manyi 1997 – (Funning et al., 2007) M104

InSAR (+mapping of rupture trace with Landsat data + subpixel correlation SAR images)

Quality 1 because all models are very

Quality 2

- Manyi 1997 – (Wen and Ma 2010) M105

Teleseismic data and comparison with InSAR data

Dmodel < Dsurface.

Quality 2

- Maule 2010 – (Delouis et al., 2010) M61

Subduction- slip occurred mainly under the continental margin –

static&high rate GPS+InSAR+Teleseismic

Quality 3

- Michoacan 1985 – (Mendoza and Hartzell 1988) M62

Subduction but slip occurred mainly under the continental margin–

4 Strong motions+Teleseismic

Quality 1

- Morgan Hill 1984 – (Beroza and Spudich 1988) M63

6 Strong motions stations

Quality 1

- **Morgan Hill 1984 – (Hartzell and Heaton 1986) M64**

11 Strong motions (better distributed) + 4 Teleseismic

Quality 2

- Nahanni1 1985 – (Hartzell et al., 1994) M66

Teleseismic data

Quality 1

- Nahanni2 1985 – (Hartzell et al., 1994) M67

Teleseismic data

Quality 1

- Northridge 1994 – (Dreger 1994) M68

Teleseismic data

Quality 1

- Northridge 1994 – (Hartzell et al., 1996) M69

Dense Strong motions data (35 stations)

Quality 1

- Northridge 1994 – (Hudnut et al., 1996) M70

Dense GPS (66 stations) data

Quality 1

- **Northridge 1994 – (Wald et al., 1996) M71**

Teleseismic+Strong motions (38)+ GPS (26) data

Show the impact of each dataset on the slip distribution

Quality 2

- Northridge 1994 – (Zeng and Anderson 2000) M72

Strong motions (10) data

Quality 1

- NZ-Canterbury 2010 – (Beavan et al., 2012) M73

Dense GPS+INSAR(+comparison with geology and Lidar data)

Quality 2

- NZ-Canterbury dec.2011- (Beavan et al., 2012) M74

Off shore, Dense GPS+INSAR

Quality 2

- NZ-Canterbury fev.2011 – (Holden 2011) M75
Strong motions data
Quality 1

- Oaxaca 1999 – (Hernandez et al., 2001) M76
Off shore- Strong motions data
Quality 1

- Palmspring 1986 – (Hartzell 1989) M78
9 Strong motions
Quality 1
- Palmspring 1986 – (Mendoza and Hartzell 1988) M79
19 Teleseismic
Quality 1

- Parkfield 2004 – (Custodio et al., 2005) M80
Dense Strong motions data (43)
Quality 2
- Parkfield 2004 – (Dreger et al., 2005) M81
8 Strong motions+23 GPS but automatically method (less controlled) data adjustments are not shown
Quality 0
- Parkfield 2004 – (Ji et al., 2005) M82**
1 Strong motions + 27 GPS data
Quality 2

- Peru 1996 – (Salichon et al., 2003) M84**
Subduction but under continental margin-
Teleseismic+incomplete InSAR
Quality 1
- Peru 1996 – (Spence et al.1999) M85
Teleseismic data
Quality 1

- Petatlan 1979– (Mendoza 1995) M86
Old EQ ; subduction-
Teleseismicdata
Quality 1

- Playa Azul 1981 – (Mendoza 1993) M87
Old EQ ; subduction-
Teleseismicdata
Quality 1

- San Fernando 1971 – (Heaton 1982) M88
Old EQ but Teleseismic+Strong motions+uplift surface data
Quality 1

- Sichuan 2008 – (Sladen - Caltech website 2008) M89
Teleseismic data -L underestimated
Quality 1 (revu à la baisse)
- Sichuan 2008 – (Fielding et al., 2013) M189**
Teleseismic+InSAR+Dense GPS data
Quality 3

- Sierra Madre 1992 – (Wald 1992) M90
Teleseismic+Strong motions data
Quality 2

- Sumatra 2004 – (Chlieh et al., 2007) M91
Subduction- near and far-fiels GPS data
Quality 1+

- Sumatra 2005 – (Konca et al., 2007) M92
Subduction- GPS+Corals+Teleseismic data
Quality 2

- Sumatra 2007 – (Konca et al., 2008) M93
Subduction- GPS+Teleseismic data
Quality 2-

- Superstition Hills 1987– (Larsen et al., 1992) M94
GPS-L underestimated
Quality 1
- **Superstition Hills 1987 – (Wald et al., 1990) M95**
Strong motions- L underestimated
Quality 1+

- Tabas 1978 – (Hartzell and Mendoza 1991) M96
Old EQ ; Few Strong motions(3)+Teleseismic(10) data
Quality 1

- Tocopilla 2007 – (Delouis et al., 2009) M97
Subduction but slip under the continental margin
Strong motions+Teleseismic data
Quality 2

- Tohoku-Oki 2011 – (Hooper et al., 2013) M106
Subduction- GPS on shore (far)+tsunami+satellite altimetry
Quality 2
- Tohoku-Oki 2011 – (Wei and Sladen (Caltech website 2011) M107
Subduction- GPS on shore(far)+Teleseismic data
Quality 2
- Tohoku-Oki 2011 – (Romano et al., 2012) M108
Subduction- GPS(on and off shore) + tsunami data
Quality 2
- **Tohoku-Oki 2011 – (Bletery et al., submitted) M109**
Subduction- GPS(on and off shore), (InSAR), strong motion, Teleseismic, tsunami
Quality 3

- **Tottori 2000 – (Semmane et al., 2005) M98**
21Strong motions+14GPS data
Quality 2
- Tottori 2000 – (Iwata et al., 2000) M99
Strong motions data
Quality 1
- Tottori 2000 – (Sekiguchi et al., 2003)M100
12Strong motions+10GPS+59Levelling data
Quality 2 (not best because paper not found)

- Yamaguchi 1997 – (Ide 1999) M101

Strong motions

Quality 1 an OUT in graph

- Yushu 2010 – (Li et al., 2011) M102

InSAR+Teleseismic data (+SPOT images for segmentation)

Dmodel a little bit low

Quality 1

- Zihuatanejo 1985 – (Mendoza 1983) M103

subduction-Teleseismic data

Quality 1