







Supplementary tables:

The co-seismic vertical (reverse) and right- or left-lateral slips are measured along the Beichuan, Hanwang and Xiaoyudong surface rupture zones by means of offsets of planar and linear artificial or geomorphic markers, such as roads, pavements, channels, gullies and terraces, which are generally perpendicular to the surface rupture zone. Both the vertical and horizontal slips are constrained by use of Total station, 3D scan or tape measure. Vertical offsets of the ground surfaces observed in fluvial fill terraces, river beds, small gullies, tilled fields, roads and highways to form flexural scarps and waterfalls attest to the component of reverse-faulting along the segments of the Wenchuan earthquake ruptures, whereas lateral displacement of linear markers, such as road margins, risers, rows of crops and rock wall attest to a component of right-lateral displacements. Then, we obtained vertical and/or vertical offsets at 196 sites along the Beichuan rupture zone, at 46 sites along the Hanwang rupture zone and at 27 sites along the Xiaoyudong rupture zone. All of these data are listed in the Tables DR1, Dr2 and DR3. In the table we give the location for each site by Lon. and Lat. under WGS 84 system.

Table DR1 Parameters of the Beichuan-Yingxiu rupture zone for the Wenchuan earthquake

No	Lon	Lat	Slip type	Strike-slip (cm)	Vertical slip (cm)	Offset features
1	103.4828611	31.0613889	R		100	terrace
2	103.4828611	31.0614167	R		100	highway surface
3	103.4855278	31.0631111	R		150	plantation
4	103.4855833	31.0630833	R		173	highway surface
5	103.4896667	31.0652778	R		230	highway surface, terrace of Min River and waterfall
6	103.4897222	31.0653056	R		200	Highway surface, young terrace of Min River
7	103.5654722	31.0832500	R		150	valley plantation
8	103.5960556	31.0740556	RL, R	100	170	valley plantation, field ridge
9	103.6148889	31.0894722	R		500	young terrace and road
10	103.6149167	31.0892500	R		400	young terrace and road
11	103.6157778	31.0899444	RL, R	280	480	road margin and surface
12	103.6158056	31.0899444	R, RL	450	270	Concrete road margin and its surface
13	103.6222500	31.1047200	R		620	Concrete road surface and courtyard
14	103.6553056	31.1192500	RL, R	280		road margin
15	103.6553056	31.1193333	RL, R	280	250	road margin and terrace riser
16	103.6618611	31.1231389	RL, R	400	300	terrace and its riser
17	103.6642778	31.1252500	RL, R	120	50	terrace and its riser
18	103.6707778	31.1253056	RL, R	75	260	terrace and its riser
19	103.6918889	31.1452222	R		400	terrace

20	103.6920000	31.1453611	R		460	high terrace and road
21	103.8183056	31.2855000	R	220	250	road and its margin
22	103.8183056	31.2855000	R		200	
23	103.8183056	31.2855000	R	200	250	road and its margin
24	103.8303889	31.2857222	RL, R	80	100	road and its margin
25	103.8484722	31.2941944	R		500	courtyard
26	103.9950600	31.4534600	R		340	alluvial fan
27	104.0709167	31.5339722	R		300	road
28	104.1290278	31.5850278	R		350	terrace
29	104.1039167	31.5654722	R		300	terrace
30	104.1305556	31.5868333	R		320	terrace
31	104.1312778	31.5873889	R		325	terrace
32	104.1100000	31.5680278	R		350	terrace
33	104.1094000	31.5699900	R	55	370	terrace
34	104.1132778	31.5724722	R		350	woodland
35	104.1096667	31.5703333	RL, R	150	380	highway and its margin
36	104.1544444	31.6188611	RL, R		320	plantation
37	104.1545833	31.6188888	RL, R		205	plantation
38	104.1731700	31.6286400	RL, R		315	Channel and terrace
39	104.1743211	31.6292731	RL, R		259	Terrace
40	104.1744444	31.6292777	RL, R	160	319	terrace, channel and bridge
41	104.1754722	31.6296666	RL, R		280	House and its courtyard
42	104.1759444	31.6297222	RL, R	165	135	Woodland, ridge of field
43	104.1767222	31.6298888	RL, R		220	road
44	104.2060833	31.6310000	RL, R		16	road
45	104.2811111	31.6470556	RL, R	430	520	Rock margin and scarp
46	104.3820000	31.7248000	R		150	?
47	104.3821600	31.7248600	R		150	?
48	104.3822100	31.7250000	RL, R	120	?	?
49	104.4084100	31.7446000	R		180	terrace
50	104.4199722	31.7803611	R		500	terrace
51	104.4225556	31.7793056	R, RL	200	369	ground work for hogpen
52	104.4201944	31.7803056	R		419	terrace
53	104.4202100	31.7804300	R		340	young terrace
54	104.4202600	31.7812900	R		100	young terrace
55	104.4202700	31.7805700	R		340	young terrace
56	104.4203000	31.7813300	R		100	young terrace
57	104.4203000	31.7807700	R		340	young terrace
58	104.4203056	31.7805278	R		300	young terrace
59	104.4203100	31.7813300	R		100	young terrace
60	104.4203100	31.7802400	R		340	terrace

61	104.4203700	31.7798300	R		310	terrace
62	104.4203800	31.7807200	R		230	terrace
63	104.4203800	31.7808600	R		230	terrace
64	104.4203889	31.7806944	R		314	terrace
65	104.4203900	31.7809100	R		230	terrace
66	104.4203900	31.7809600	R		230	terrace
67	104.4204000	31.7801100	R		340	terrace
68	104.4204100	31.7809400	R		230	terrace
69	104.4204100	31.7801000	R		340	terrace
70	104.4204700	31.7816500	R		100	terrace
71	104.4204722	31.7810833	R	100		terrace
72	104.4204800	31.7800600	R		340	terrace
73	104.4205000	31.7810800	R		230	terrace
74	104.4205300	31.7811900	R		230	terrace
75	104.4206000	31.7812000	R		230	terrace
76	104.4206700	31.7813100	R		317	terrace
77	104.4207000	31.7812700	R		230	Waterfall and young terrace
78	104.4220000	31.7792900	R		95	plantation
79	104.4220278	31.7792778	R		40	plantation
80	104.4221300	31.7791400	RL,R	20	95	plantation
81	104.4225000	31.7792900	RL,R	120	211	plantation
82	104.4225300	31.7793100	RL,R		209	plantation
83	104.4225556	31.7793056	RL,R	130		plantation
84	104.4226900	31.7789900	RL,R	80	307	plantation
85	104.4262222	31.7689722	RL,R	140	150	plantation
86	104.4264600	31.7754100	R		520	plantation
87	104.4264700	31.7773700	R			plantation
88	104.4271389	31.7988056	R	210		plantation
89	104.4272000	31.7989000	RL,R	246	254	plantation
90	104.4273900	31.7705300	RL,R	40		plantation
91	104.4275000	31.7994000	RL,R	220	360	road
92	104.4286000	31.8014000	RL,R	143	160	road
93	104.4316200	31.8057800	RL,R		430	Road and plantation
94	104.4317700	31.8060000	RL,R		390	road
95	104.4463000	31.8151000	R		250	road
96	104.4469400	31.8154900	R		125	road
97	104.4475700	31.8152000	R		25	road
98	104.4476300	31.8156100	R		212	gully
99	104.4476500	31.8157100	R		424	Hillside deposit
100	104.4476944	31.8157222	R		430	Hillside deposit
101	104.4568900	31.8289400	R, RL	240	310	highway and its margin

102	104.4643888	31.8349166	N, RL		400	Lowland on the hillside and bedrock scarp
103	104.4681500	31.8383333	N, RL	220	650	Lowland on the hillside and bedrock scarp
104	104.4698055	31.8396944	N, RL	200	570	Lowland on the hillside and bedrock scarp
105	104.4976944	31.8563055	N, RL		320	Lowland on the hillside and bedrock scarp
106	104.4989444	31.8568611	N, RL	388	300	Hillside deposit, ridge of field
107	104.4990000	31.8568055	N, RL	430	300	Hillside deposit, ridge of field
108	104.4990000	31.8569444	N, RL	430	280	Hillside deposit, ridge of field
109	104.4990277	31.8570000	N, RL	435	290	Hillside deposit, ridge of field
110	104.4990277	31.8570277	N, RL	422	240	Hillside deposit, ridge of field
111	104.5039444	31.8615277	R		410	young terrace
112	104.4568889	31.8289444	R	214	305	plantation
113	103.6126944	31.0875833	RL	160	?	Road and terrace riser
114	103.6118333	31.0865556	RL	400	?	Road and terrace riser
115	103.6161111	31.0902500	R		370	terrace
116	103.6169722	31.0912222	R		100	terrace
117	103.6169722	31.0912222	R		45	terrace
118	103.6169722	31.0912222	R		77	terrace
119	103.6215833	31.1004167	R		330	terrace
120	103.6149167	31.0892500	R		400	terrace
121	103.6553056	31.1192500	RL,R	280	?	plantation
122	103.6918889	31.1452222	R		400	plantation
123	103.4897222	31.0653056	R		200	plantation
124	103.4855278	31.0631111	R		150	plantation
125	103.4828611	31.0613889	R		100	plantation
126	103.6564722	31.1197222	RL,R	430	120	plantation
127	104.3822700	31.7249200	R		150	?
128	104.3823400	31.7249200	RL,R	120	?	?
129	104.4263500	31.7697200	R		50	?
130	104.4265000	31.7698900	R		70	?
131	104.4266600	31.7699400	R		50	?
132	104.4278000	31.7995000	RL,R	228	380	Plantation, ridge of field
133	104.4281000	31.8000000	RL,R		450	plantation
134	104.5339167	31.8741389	RL,R	140	270	plantation, ridge of field

135	104.5339167	31.8741389	RL,R	140	370	plantation, ridge of field
136	104.5339167	31.8741389	RL,R		240	plantation
137	104.5792778	31.9238333	RL,R	220	200	plantation, ridge of field
138	104.5792778	31.9238333	RL,R	220	200	plantation, ridge of field
139	104.5792778	31.9238333	RL,R	345	245	plantation, ridge of field
140	104.5792778	31.9238333	RL,R	260	?	Road
141	104.6197222	31.9936111	RL,R	140	190	plantation, ridge of field
142	104.6201944	31.9943889	RL,R		200	terrace
143	104.6218333	31.9955556	RL,R		280	terrace
144	104.6219444	31.9955556	RL,R	240	238	Road and its margin
145	104.6220000	31.9954722	RL,R	235	234	plantation, ridge of field
146	104.6236111	31.9965278	RL,R	270	?	?
147	104.6236111	31.9965278	RL,R	235	285	Road
148	104.6456667	32.0160278	R	250	?	Channel and waterfall
149	104.6456667	32.0160278	R		250	plantation
150	104.6476111	32.0225278	R	250	?	plantation, ridge of field
151	104.6476111	32.0225278	R		250	plantation
152	104.6772500	32.0540278	RL,R	490	150	Terrace, road and its margin
153	104.6776944	32.0545000	RL, R	440	240	Terrace, road and its margin
154	104.6773333	32.0540833	RL,R	465	150	Terrace, road and its margin
155	104.6780000	32.0547500	R		300	Terrace
156	104.6783611	32.0549722	R	400	400	Terrace, road margin
157	104.6785556	32.0552500	R	380	400	Terrace, road margin
158	104.6785833	32.0543889	RL,R	400	370	Terrace, road margin
159	104.6790278	32.0549444	RL,R	380		Road margin
160	104.6791389	32.0557778	RL,R	370	400	Terrace, road margin
161	104.6793889	32.0559444	R		370	terrace
162	104.6868055	32.0621388	R		253	terrace
163	104.6875000	32.0619444	RL,R	190	200	hillside
164	104.6875000	32.0623889	R		230	Waterfall, channel
165	104.6875556	32.0623611	RL,R	190	230	terrace
166	104.6886944	32.0636111	RL,R	185	200	terrace
167	104.6887778	32.0635556	RL,R	185	250	High terrace, road margin
168	104.6888889	32.0633333	RL,R	185	200	High terrace, road margin
169	104.8406111	32.2035556	RL,R	250	150	Terrace, road margin
170	104.8433611	32.2060833	RL,R	160	120	Rows of corn field, road
171	104.8433889	32.2061389	RL,R	160	120	Rows of corn field, road
172	104.8438611	32.2064722	RL,R		120	Rows of corn field

173	104.8438889	32.2065278	RL,R	240	100	Rows of corn field, road
174	104.8438889	32.2065278	RL,R	240	90	Rows of corn field, road
175	104.8490833	32.2100556	RL,R	130	85	Rows of corn field, road
176	104.8493333	32.2102222	RL,R	140	85	Rows of corn field, road
177	104.8764722	32.2352778	RL,R	210	190	Highway
178	104.8778889	32.2369444	RL,R		180	land
179	104.8793055	32.2381111	RL,R		220	Paddy field
180	104.8799166	32.2386111	RL,R	305	240	Gasoline station, terrace riser, highway
181	104.9451666	32.2856944	R		75	Young terrace
182	104.9461944	32.2869722	N, RL		170	Corn field and bedrock scarp
183	104.9466388	32.2871388	N, RL	220		Ridge of field
184	104.9468889	32.2873611	N, RL	140	170	Gully and its eastern bank
185	104.9480556	32.2883056	N, RL		90	courtyard
186	104.9472778	32.2877778	R	350	107	Road, corn field
187	104.9733889	32.3116389	R	280	0	Tree line and land
188	104.9737222	32.3117778	RL, R	340	52	Tree line and land
189	105.0317778	32.3461389	R		53	courtyard
190	105.0339167	32.3471944	N	0	0	High land
<i>Note</i>		R: Reverse vertical offset; RL: Right-lateral offset; N: Normal vertical offset. Question marks represent unclear features.				

Table DR2 Parameters of the Hanwang rupture zone for the Wenchuan earthquake

No	Lon	Lat	Slip type	Strike-slip (cm)	Vertical slip (cm)	Offset features
1	103.8533889	31.1655278	R		35	Corn field
2	103.8544722	31.1665000	R		60	Small road
3	103.8550278	31.1668889	R		52	Courtyard of Mr. Zhu Yang'an
4	103.8595556	31.1699722	R		70	Road
5	103.8634444	31.1729722	R		230	Road
6	103.8649722	31.1740000	R		180	plantation
7	103.8984167	31.2016389	R		220	plantation
8	103.8993889	31.2026111	RL,R	80	190	Gully, small road
9	103.9011111	31.2038056	R		270	plantation
10	103.9013611	31.2040000	R		275	Young terrace, waterfall
11	103.9124722	31.2114722	R		180	Hillside deposit
12	103.9132500	31.2117500	R		150	Hillside deposit
13	103.9141944	31.2129722	RL,R	96	240	Yang terrace, waterfall
14	103.9142222	31.2129167	LL, R	100	240	Yang terrace, waterfall
15	103.9155278	31.2137778	R		230	Highway

16	103.9160278	31.2143611	RL,R	60		Narrow road, plantation
17	103.9208056	31.2175833	R		100	Plantation ?
18	103.9313056	31.2238611	R		45	Plantation
19	103.9334167	31.2250278	R		138	Plantation
20	103.9350833	31.2275556	RL,R	50	105	Plantation
21	103.9883333	31.2927222	R		55	Gully, waterfall
22	103.9892778	31.2983056	R		50	Plantation
23	103.9930833	31.2960833	R		60	Corn field
24	104.0444167	31.3451111	RL,R	18	?	Plantation, ridge of field
25	104.0453889	31.3452500	R		110	Corn field
26	104.0819444	31.3690000	R		150	Courtyard, bridge
27	104.1182500	31.3995278	R		130	Plantation
28	104.1182778	31.3999167	L,R	200	350	Plantation
29	104.1183056	31.3980278	L,R	290	200	Road and its margin
30	104.1183889	31.3981111	L,R	280	200	Road margin, waterfall
31	104.1232500	31.3969722	R		110	Plantation
32	104.1279722	31.4128889	R		200	Plantation
33	104.1529722	31.4370833	RL,R	25	?	hillside
34	104.1589167	31.4607778	R		80	Plantation
35	104.1626389	31.4598611	RL	52	55	Plantation
36	104.1632778	31.4601389	RL	55	134	Terrace and highway margin
37	104.1643611	31.4605833	R		100	road and waterfall
38	104.1650556	31.4611667	R		80	Terrace, road
39	104.1655556	31.4615278	RL,R	47	75	Highway and its central line
40	104.2035000	31.4781944	R		90	Young terrace
41	104.2038611	31.4779444	R		30	terrace
42	104.2321667	31.5123056	R		46	Road
43	104.3304700	31.6049000	R		20	hillside
44	104.3498333	31.6130556	R		25	Young terrace
45	104.3718611	31.6284167	R		18	Plantation
46	104.3720000	31.6285000	R		18	Woodland

Note

R: Reverse vertical offset; RL: Right-lateral offset; L: left-lateral offset.

Table DR3 Parameters of the Xiaoyudong rupture zone for the Wenchuan earthquake

No	Lon	Lat	Slip type	Strike-slip (cm)	Vertical slip (cm)	Offset features
1	103.718	31.1085	R		30	High terrace
2	103.7501	31.19933	RL,R	160	315	Flat land
3	103.7502	31.20056	R		350	Terrace and road
4	103.7518	31.19683	R	93	200	road
5	103.7519	31.19669	R	350	190	Small gully
6	103.7527	31.19575	R	296	190	road, ridge of field
7	103.7529	31.19536	R	240	?	Plantation, ridge of field
8	103.7539	31.19494	L,R	100	200	plantation, ridge of field
9	103.7539	31.19497	L,R	192	170	plantation, ridge of field
10	103.7545	31.19419	L,R	230	147	Highway and its margin
11	103.7545	31.19417	L,R	230	130	plantation
12	103.7548	31.19406	L,R	100	120	plantation
13	103.7548	31.19406	L,R	180	150	plantation
14	103.7566	31.19247	L,R	30	40	plantation
15	103.7575	31.19261	L,R	30	109	Highway and its margin
16	103.7585	31.12567	RL, R	45	20	plantation
17	103.7585	31.12511	RL	10	?	plantation
18	103.7593	31.19075	RL	120	?	plantation
19	103.7595	31.12606	RL,R	15	6	Terrace and riser
20	103.7621	31.18889	L,R	300	120	Terrace and riser
21	103.7637	31.18828	L,R	130	150	Terrace and riser
22	103.7916	31.16069	L,R		40	Terrace and riser
23	103.7921	31.16267	L,R	50	40	Terrace and riser
24	103.7922	31.16411	L,R	38	30	Plantation, ridge of field
25	103.7923	31.16111	R		100	Plantation, ridge of field
26	103.7927	31.16447	L,R		30	Plantation, ridge of field
27	103.7928	31.16519	L,R	30	?	Plantation, ridge of field
<i>Note</i>		R: Reverse vertical offset; RL: Right-lateral offset; L: left-lateral offset.				