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Supporting Information for

5 **[Sensitivity of permeability changes to different earthquakes in a fault zone: Possible**
6 **evidence of their dependence on the frequency of seismic waves]**

7 Xin Liao[1, 2, *], Yun Shi[1], Chun-Ping Liu[1], Guangcai Wang[2]

8 [1] Institute of Disaster Prevention, Beijing, China

9 [2] China University of Geosciences, Beijing, China

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Introduction

The supporting information includes basic information on the earthquakes that induced
permeability changes in the fault zone in this study and that in Elkhoury et al. (2006), as well as the
original data on the water levels in the well Chuan06.

Table S1. Basic information on earthquakes that induced permeability changes in the fault zone in
this study. Earthquake information, including magnitude (M_w), latitude, and longitude, were
obtained from the USGS website. In this table, r is the epicentral distance; e is the theoretical
seismic energy density calculated through the empirical relationship derived by Wang (2007); and
Δh is the coseismic change in the water level in the well Chuan06.

	Date	Magnitude (M_w)	Location	Latitude (N)	Longitude (E)	r (km)	Δh (m)
1	7/16/1990	7.7	Luzon, Philippines	15.679	121.172	2,305	~0.006
2	1/5/1991	7	Myanmar	23.613	95.901	689	~0.004
3	1/21/1994	7	Halmahera, Indonesia	1.015	127.733	3,931	~0.001
4	7/11/1995	6.8	Myanmar-China border	21.966	99.196	564	~0.12
5	10/23/1995	6.2	Yunnan, China	26.003	102.227	38	~0.21
6	2/3/1996	6.6	Yunnan, China	27.291	100.276	208	~0.21
7	11/8/1997	7.5	Xizang, China	35.069	87.325	1,710	~0.05
8	3/25/1998	8.1	Balleny Islands region	-62.877	149.527	10 762	~0.01
9	5/3/1998	7.5	Taiwan, China	22.306	125.308	2,394	~0.009
10	9/20/1999	7.7	Taiwan, China	23.772	120.982	1,925	~0.019
11	6/4/2000	7.9	Sumatra, Indonesia	-4.721	102.087	3,450	~0.019
12	11/14/2001	7.8	Qinghai, China	35.946	90.541	1,531	~0.07
13	11/2/2002	7.4	Simeulue, Indonesia	2.824	96.085	2,688	~0.029
14	7/21/2003	6	Yunnan, China	25.975	101.29	85	~0.09
15	12/26/2004	9.1	Sumatra, Indonesia	3.295	95.982	2,640	~0.21

Table S2. Basic information of earthquakes inducing permeability changes in the fault zone in Elkhoury et al. (2006).

	Date	Magnitude (M_w)	Location	Latitude (N)	Longitude (W)	Epicentral distance (km)
1	10/24/1987	6.6	Supersitition Hills	33.071	115.953	76
2	6/28/1991	5.8	Sierra Madre	34.262	118.002	160
3	4/23/1992	6.1	Joshua Tree	33.866	116.517	29
4	6/28/1992	7.3	Landers	34.184	116.532	64
5	1/17/1994	6.7	Northridge	34.156	118.575	204
6	10/16/1999	7.1	Hector Mine	34.515	116.435	100
7	5/7/1995	4.8	Joshua Tree	33.905	116.288	36
8	10/31/2001	5.1	Anza	33.508	116.514	12
9	6/12/2005	5.2	Anza	33.529	116.572	14

Dataset S1. Water level in the well Chuan06. There are two columns in the dataset file (.txt): the first column represents time while the second column corresponds to the water level (m).

References

Elkhoury, J. E., Brodsky, E. E, & Agnew, D. C. (2006), Seismic waves increase permeability. *Nature*, 441, 1135–138. doi:10.1038/nature04798.