

Table 1. Studied aftershocks

Date	Name	M_J	Epicenter	Threshold magnitudes				
<i>Off the east coast of Hokkaido (Region A)</i>								
1995 Dec 04	Off Iturup Island	7.9	150.1 44.6	4.0	4.5	5.0		
1994 Oct 04	Hokkaido-Toho-Oki	8.1	147.7 43.4	4.5	5.0	5.5 ^A	6.0	
1994 Aug 18	Hokkaido-Toho-Oki	6.4	150.9 45.1	3.5	4.0	4.5		
1993 Jan 15	Kushiro-Oki	7.8	144.4 42.9	3.0	3.5	4.0		
1990 Apr 01	Hokkaido-Toho-Oki	6.0	147.1 42.8	0.0	3.6	3.8	4.0	
1982 Mar 21	Urakawa-Oki	7.1	142.6 42.1	3.3	3.6	4.0	4.2	
1973 Jun 17	Nemuro-Hanto-Oki	7.4	146.0 43.0	4.0	4.5	4.8	5.2	
1952 Mar 04	Tokachi-Oki	8.2	144.1 41.8	0.0	5.0	5.5	6.0	
1932 Nov 26	Hidaka-Chubu	7.0	142.5 42.4	unfelt	felt	4.5		
<i>Off the east coast and inland of Tohoku District (Region B)</i>								
1996 Aug 11	Onikobe	5.9	140.6 38.9	2.5	3.1	3.5	3.8	4.0
1995 Jan 07	Sanriku-Haruka-Oki (2ndary)	7.2	142.3 40.2	3.0	3.5	4.0	4.5	
1994 Dec 28	Sanriku-Haruka-Oki (long)	7.5	143.7 40.4	4.0	4.5	5.0	5.4	
1994 Dec 28	Sanriku-Haruka-Oki (short)	7.5	143.7 40.4	4.0	4.5	4.9		
1994 Apr 08	Sanriku-Oki	6.6	144.0 40.6	3.5	4.0			
1992 Dec 28	Sanriku-Oki	5.9	142.6 38.9	3.0	3.5	3.9	4.4	
1992 Jul 18	Sanriku-Haruka-Oki	6.9	143.7 39.4	3.5	3.7	3.8	4.0	4.5 5.0

Table 1. (continued)

Date	Name	M_J	Epicenter	Threshold magnitudes
1989 Nov 02	Iwate-ken-Oki	7.1	143.1 35.8	4.0 4.5 5.0
1987 Jan 09	Iwate-Ken-Hokubu	6.6	141.8 39.8	0.0 3.0
1981 Jan 19	Miyagi-Ken-Oki	7.0	143.0 38.6	0.0 3.6 4.1 4.6
1978 Jun 12	Miyagi-Ken-Oki	7.4	142.2 38.2	3.4 4.0 4.2 4.5 4.9
1978 Feb 20	Near Ojika-Peninsula	6.7	142.2 38.8	3.0 3.3 3.5
1968 Jun 12	Tokachi-Oki (Southern)	7.2	143.1 39.4	4.5 5.0 5.5
1968 May 16	Tokachi-Oki (Northern)	7.9	143.6 40.7	4.5 5.0 5.5 5.9
1962 Apr 30	Miyagi-Ken-Hokubu	6.5	141.1 38.7	0.0 4.0
1960 Mar 21	Iwate-Ken-Oki	7.2	143.4 39.8	0.0 4.4 4.9 5.4
1938 Nov 05	Shioya-Oki-Swarm	7.5	142.2 37.3	4.5 4.7 5.0 5.5
1933 Mar 03	Sanriku-Oki	8.1	144.5 39.2	0.0 ^A 5.0 ^N 5.5 5.8 ^A 6.0 6.2
1931 Nov 04	Iwate-Ken-Tobu	6.5	141.7 39.5	unfelt felt felt ^A 4.0
1928 May 27	Iwate-Ken-Oki	7.0	143.3 40.0	0.0 5.1 5.3 5.5
<i>Eastern limb in Sea of Japan (Region C)</i>				
1995 Apr 01	Niigata-Ken-Chubu	5.5	139.3 37.9	2.8 ^A 3.0 3.2 3.5
1993 Jul 12	Hokkaido-Nansei-Oki	7.8	139.2 42.8	4.0 ^A 4.5 5.0
1993 Feb 07	Noto-Hanto-Oki	6.6	137.3 37.7	3.0 3.5 4.0
1983 May 26	Nihonkai-Chubu	7.7	139.1 40.4	4.0 4.5 5.0 5.2 5.3
1964 Jun 16	Niigata earthquake	7.5	139.2 38.4	felt 4.0 4.5 5.0

Table 1. (continued)

Date	Name	M_J	Epicenter	Threshold magnitudes
1964 May 07	Oga-Hanto-Oki	6.9	139.0 40.3	unfelt felt 0.0
1939 May 01	Oga-Hanto-Oki	6.8	139.5 40.1	0.0 4.1
<i>Kanto and Tokai District and their offshore regions (Region D)</i>				
1990 Jun 01	Chiba-Ken-Hokubu	6.0	140.7 35.7	2.0 2.5 3.0
1989 Mar 06	Chiba-Ken-Hokubu	6.0	140.7 35.6	2.0 2.5 3.0 3.5
1987 Dec 17	Chiba-Ken-Toho-Oki	6.7	140.5 35.4	2.5 3.0 3.5 4.0
1983 Aug 08	Yamanashi-Ken-Tobu	6.0	139.0 35.5	2.5 2.7 2.9 3.0
1982 Jul 23	Ibaragi-Ken-Oki	7.0	142.0 36.2	3.2 3.7 4.2
1972 Dec 04	Hachijo-Jima-Oki	7.2	141.1 33.2	3.6 4.0 4.5
1972 Feb 29	Hachijo-Jima-Oki	7.1	141.3 33.2	3.6 4.0 4.6
1953 Nov 26	Boso-Oki	7.4	141.7 34.0	0.0 5.0 5.5
1949 Dec 26	Imaichi	6.4	139.8 36.6	felt 4.2
1938 May 23	Ibaragi-Ken-Oki	7.3	141.6 36.7	0.0 4.1
1931 Sep 21	Saitama-Ken-Seibu	6.9	139.2 36.2	0.0 3.0 3.5 3.8 4.0
<i>Hokuriku and Chubu District (Region E)</i>				
1984 Sep 14	Nagano-Ken-Seibu	6.8	137.6 35.8	3.5 4.0 4.5
1978 Oct 07	Nagano-Ken-Swarm	5.3	137.5 35.8	2.5 3.0 3.5
1969 Sep 09	Gifu-Ken-Chubu	6.6	137.1 35.8	0.0 3.9

Table 1. (continued)

Date	Name	M_J	Epicenter	Threshold magnitudes
1963 Mar 27	Echizen-Misaki-OkI	6.9	135.8 35.8	0.0
1961 Aug 19	Kita-Mino	7.0	136.8 36.0	0.0
1952 Mar 07	Daishoji-OkI	6.5	136.2 36.5	felt 0.0 4.2 4.5
1948 Jun 28	Fukui	7.1	136.2 36.2	felt 0.0 3.5 4.0 4.5 4.7
1941 Jul 15	Nagano	6.1	138.2 36.7	felt 0.0
<i>Kinki District and offshore regions (Region F)</i>				
1995 Jan 17	Hyogo-Ken-Nanbu	7.2	135.0 34.6	3.0 3.5 4.0 4.2
1994 Nov 09	Inagawa Swarm	4.0	135.4 34.9	2.0 2.3 2.5 2.6
1984 may 30	Yamasaki Fault	5.6	134.6 35.0	2.5 2.6 3.0
1946 Dec 21	Nankaido	8.0	135.6 33.0	4.0 4.5 4.9 5.0 5.5
1945 Jan 13	Mikawa	6.8	137.1 34.7	felt 0.0 4.4 4.8
1944 Dec 07	Tonankai	7.9	136.6 33.8	4.0 4.5 4.8 5.0
1927 Mar 07	Kita-Tango	7.3	135.2 35.5	0.0 4.5
1925 May 23	Tajima	6.8	134.8 35.6	felt 5.0
<i>Southwestern Japan (Region G)</i>				
1997 Jun 25	Yamaguchi/Shimane-Ken Border	6.1	131.7 34.5	2.6 3.0 3.4
1997 May 13	Northern Satsuma	6.2	130.3 31.9	2.5 2.8 3.0 3.3
1997 Mar 26	Northern Satsuma	6.5	130.4 32.0	2.7 3.0 3.5

Table 1. (continued)

Date	Name	M_J	Epicenter	Threshold magnitudes
1995 Oct 18	Amami-Oshima-Oki	6.6	130.4 28.0	3.5 3.8 4.0 4.5
1987 Mar 18	Miyazaki-Ken-Oki	6.6	132.1 32.0	2.5 2.9 3.4
1984 Aug 07	Miyazaki-Ken-Oki	7.1	132.2 32.4	2.8 3.3 3.8
1983 Oct 31	Tottori-Ken	6.2	133.9 35.4	2.3 2.5 2.7 2.8 3.0
1980 Mar 03	Okinawa-Hokusei-Oki	6.7	126.6 27.0	0.0 4.2 4.5
1978 Jun 04	Shimane-Ken-Chubu	6.1	132.7 35.1	0.0 3.3 3.7
1968 Aug 06	Ehime-Ken-Seigan	6.6	132.4 33.3	3.5 4.0
1955 Jul 27	Tokushima-Ken-Nanbu	6.4	134.3 33.8	0.0 3.0
1943 Sep 10	Tottori	7.4	134.1 35.5	4.0 4.4 4.7 5.0
1943 Mar 04	Eastern Tottori	6.2	134.2 35.4	felt 3.6

Regions A-G into which Japan and its vicinity is expediently divided for the present analysis are also shown in Figure 6. The numbers with bold face, superscript A and superscript N in the last column of the table indicate that a sequence of aftershocks of that magnitude or larger has a significant change-point followed by the *Relative Quiescence*, *Relative Activation*, and neither of them, respectively. The other values with ordinary face and no superscript for threshold magnitudes indicate that the activity was normal for the whole investigated period, namely, no significant change-point is found. The threshold magnitude indicated by **0.0** (or, 0.0) means inclusion of all events whose magnitudes are not determined but locations are identified in the JMA hypocenter catalog. The threshold magnitude indicated by **felt** (or, felt) and **unfelt** (or, unfelt) mean the data set which include all felt shocks and unfelt events in addition

to felt shocks, respectively, listed in the *Kisho-Yoran* or *Zisin-Geppo* together with all available events from the JMA catalog: see Appendix for the details of the aftershock data selection and the results with corresponding figures attached for each data set.