ARTICLES

9/56 YEAR CYCLE: EARTHQUAKES IN JAPAN, KAMCHATKA AND ALASKA

"There are two contradictions, which make us suspicious. The old one which does not work and the new one with which we are unfamiliar." Jean de la Bruyere.

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Abstract: This paper examines the prospect of a 9/56 year cycle in the timing of major earthquakes in Japan and Kamchatka. Strangely, a 9/56 year effect could be established for the latter but not the former. However, by combining the data from these two regions, correlates with 54/56 year and 9-45/56 year grids could be achieved for major earthquakes (M ≥ 8.1). Why these grids based on 56 years and multiples of 9 years were so important in the timing of Japan – Kamchatka earthquakes remained unknown. Lunisolar tidal harmonics are fundamental in solving the mystery, but that is all that can be stated. Importantly, Alaska yielded 54/56 year and 9-45/56 year seismic grids that were similar to those established for Japan – Kamchatka.

Keywords*: 9/56 year cycle, 54/56 year cycle, earthquakes, Japan, Kamchatka, Kuril Islands.*

Introduction

A 56 year panic cycle in US financial activity was first proposed by Funk (1932). McMinn (1986, 1993, 1996) expanded upon the concept and presented a 9/56 year cycle in the timing of major US and Western European financial panics since 1760. This cycle was then extrapolated to major earthquakes (McMinn, 2011a, 2011b, 2011d), Category 5 Atlantic hurricanes (McMinn, 2011c), Hawaiian volcanoes (McMinn, 2011d) and world mega eruptions (McMinn, 2012). Firm correlates could be produced with the 9/56 year grid, after assessing historic catalogs in each of the respective disciplines. Even so, McMinn (2011d) could not establish a 9/56 year effect for earthquakes in Japan or Kamchatka. These two assessments were reconsidered and the revised findings supported a 9/56 year cycle in the timing of these events. Surprisingly, Alaska produced similar seismic patterns to those delineated for Japan – Kamchatka.

The 9/56 year grid may be linked intimately with Moon Sun cycles, as several lunisolar cycles aligned very closely at 9.0 and 56.0 solar years. Thus, Moon Sun tidal harmonics were hypothesised to activate events that clustered within 9/56 year patterns. This was extensively covered by McMinn (2011a) in his appraisal of Californian earthquakes. Finance panics and earthquakes are believed to share a fundamental cyclic principle that influences the timing of critical episodes.

The 9/56 year cycle consists of a grid repeating the intervals 56 years vertically (called sequences) and 9 years horizontally (called subcycles). The 56 year sequences have been numbered in accordance with McMinn (1993), with 1817, 1873, 1929, 1985 being designated as Sequence 01; 1818, 1874, 1930, 1986 as Sequence 02 and so forth. McMinn (Appendix 2, 2002) presented the full numbering. The year of best fit has been applied in the various tables. The database at the National Geophysical Data Centre (NGDC) was accessed to produce listings of major earthquakes (M ≥ 7.8) for Japan, as well as Kamchatka - Kuril Islands since 1700 (see **Appendices 1 & 2** respectively). A glossary of terms and an overview of Moon Sun cycles were given by McMinn (2011a) and will not be repeated in this paper.

Kamchatka – Kuril Earthquakes

Of the 29 events (M ≥ 7.8) listed by NGDC, 6 showed up in 50% of the complete 9/56 year grid (significant $p < .01$) (see **Appendix 3**). Of the 16 larger earthquakes (M ≥ 8.1), only one showed up in this half of the complete grid (significant $p < .01$). Curiously, large Kamchatka earthquakes happened preferentially in one half of the complete 9/56 year cycle. Why this pattern arises in the timing of large

Kamchatka earthquakes is unknown.

Japanese Earthquakes

Unfortunately no correlates could be realised for Japanese earthquakes and the 9/56 year grid. However, by combining Japanese and Kamchatka events, major earthquakes can be shown to fall selectively in a 54/56 year pattern. In this arrangement, intervals of 54 years appear on the horizontal and intervals of 56 years on the vertical.

There was a combined total of 37 major quakes ($M \geq 8.1$) for Japan and Kamchatka, of which 15 appeared in **Table 1** compared with an expected 5.3 (significant $p < 10^{-4}$). Curiously, moderate earthquakes ($M \geq 7.8 \leq 8.0$) did not fall selectively in this pattern. The grid in **Table 1** overlapped with the timing of world mega quakes ($M \geq 8.6$) since 1900 (McMinn, 2011b; see **Appendix 4**). Crucially, a 54/56 year grid was first established for major US and Western European financial crises (McMinn, 1993) and then linked to seismic activity.

Table 1
54/56 YEAR CYCLE:
MAJOR QUAKES IN JAPAN - KAMCHATKA - KURIL Post 1800 M ≥ 8.1
Year ended October 31

Sq 31	Sq 29	Sq 27	Sq 25	Sq 23	Sq 21	Sq 19	Sq 17
							1833
						1835	1889
					1837	**1891** (1027)	1943 **1944** (1207)
				1839	1893	1947 **1946** (1220)	2001
			1841 (0517)	1895	1949	**2003 (0925)**	
		1843 (0425)	**1897** (0216)	1951	2005		
	1845	1899	1953 **1952** (1104)	**2007** (0113) **2006** (1115)			
1847	**1901** (0809)	1955	2009				
1903	1957	**2011** (0311)					
1959 (0504) **1958** (1106)	**2013** (0524)						
2015							

NB: The 56 year vertical columns are separated by intervals of 54 years on the horizontal.
Major earthquakes M ≥ 8.1 for Japan and Kamchatka denoted in **red**.
The month and day given in parenthesis.
Source of Raw Data: NGDC.

For world mega quakes, another important grid was based on 56 year intervals on the vertical and repeating intervals 9 - 45 - 9 - 45 - 9 - 45…… years on the horizontal (denoted as a 9-45/56 year cycle) (McMinn, 2011b). The configuration in **Table 1** can be expanded to produce a 9-45/56 year grid, which was highly relevant in seismic trends for Japan – Kamchatka – Kuril. Of the total of 37 quakes ($M \geq 8.1$), 21 fell in the 9-45/56 year layout as presented in **Appendix 5** (significant $p < .001$).

Alaskan Earthquakes

A 9/56 year grid could be correlated with Alaskan earthquakes during the post 1895 era (McMinn, 2011d). However, Alaskan earthquakes (see Grid A **Table 2**) also appeared selectively in a 54/56 year grid, something that was applicable for Japan – Kamchatka (see **Table 1**). The two layouts overlapped as Sequences 27, 29 and 41 appeared in both tables. Grid A in **Table 2** comprised 11% of the complete 9/56

year grid, yet it accounted for 50% of the major Alaskan quakes M ≥ 8.1 and 37% of all quakes M ≥ 7.8. This was based on raw data from NGDC, which gave a listing of 27 Alaskan earthquakes (M ≥ 7.8) since 1895 (see **Appendix 6**). Grids A & B in **Table 2** can be combined to produce a 9-45/56 year pattern (see **Appendix 7**) that comprised 25% of the complete 9/56 year grid and accounted for 52% of all Alaskan events (M ≥ 7.8) over the past 120 years (significant p < .01). More notably, 82% of all major Alaskan quakes (M ≥ 8.1) appeared in the same grid.

Table 2
54/56 YEAR CYCLE:
MAJOR QUAKES IN ALASKA Post 1895 M ≥ 7.8

Grid A
7.5 months ending September 10

Sq 37	Sq 35	Sq 33	Sq 31	Sq 29	Sq 27
					1899 (0904) **1899** (0910) **1899** (0910)
				1901 (0131)	1955
			1903 (0602)	**1957** (0309)	2011
		1905 (0214)	1959	2013	
	1907 (0902)	1961	2015		
1909 (0410)	1963	2017			
1965 (0204)	2019				

Grid B
8.5 months ending December 1

Sq 36	Sq 34	Sq 32	Sq 30	Sq 28	
				1900 (1009)	
			1902 (1201)	1956	
		1904 (0827)	**1958** (0710)	2012	
	1906 (0817)	1960	2014		
1908	1962	2016			
1964 (0328)	2018				
2020					

NB: The 56 year vertical columns are separated by intervals of 54 years on the horizontal. Major earthquakes M ≥ 8.1 for Alaska denoted in **red,** with lesser earthquakes M ≥ 7.8 ≤ 8.0 denoted in **blue**. The month and day given in parenthesis.
Source of Raw Data: NGDC.

Discussion and Conclusions

A 9/56 year effect could be correlated with Kamchatka – Kuril earthquakes, as these events fall preferentially in one half of the complete 9/56 year cycle. Something similar could not be achieved for Japanese events, for whatever reason. The dichotomy cannot be explained and the Japanese findings remained anomalous. However, by combining the data for these two regions, strong correlates could be realized for 54/56 year and 9-45/56 year seismic grids. The two arrangements also have relevance to

Alaskan quakes, as shown in **Table 2** and **Appendix 7** respectively.

Large earthquakes in Japan - Kamchatka most often happened within the 9-45/56 year grid presented in **Appendix 5**, as did Alaskan events in **Appendix 7**. Years in these patterns – 2014, 2015, 2016, 2018 and 2020 – are coming up soon. By implication, additional major earthquakes are likely in the north and northwest Pacific over the next several years.

The patterns of 56 years and multiples of 9 years are hypothesised to arise from Moon Sun tidal harmonics (McMinn, 2011a). The layouts and correlates presented in this paper are all very interesting, but they are based on historical trends and have no potential for making accurate predictions. By understanding how Moon Sun cycles actually influenced seismic timing, it should be possible to predict windows when major earthquakes were most likely to occur.

The findings for Japan – Kamchatka and Alaska added to the body of evidence supporting 9/56 year patterns in seismic cycles. The major problem remains to be solved - How do lunisolar tidal harmonics trigger seismic activity? This is beyond the author's training or interests, but hopefully others will take up the challenge and publish their findings.

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About the author: David McMinn completed a BSc at the University of Melbourne in 1971 and subsequently worked as a mineral economist in the ANZ Banking Group Ltd (a major Australian financial institution). Since leaving this position in 1982, he has conducted private research on cycles, with his main interests centering on Moon Sun cycles and the 9/56 year grid. This was found to be applicable to a range of phenomena – financial panics, earthquakes and volcanoes. McMinn has published numerous papers and articles in the fields of technical analysis and seismology, as well as three books on market timing.

Appendix 1
MAJOR EARTHQUAKES IN JAPAN Post 1700 M ≥ 7.8
National Geophysical Data Center

Year	Mth	Day	M	Location
1703	12	30	8.2	OFF SW BOSO PENINSULA
1707	10	28	8.4	ENSHUNADA
1707	10	28	8.4	NANKAIDO
1763	3	11	7.8	N.SANRIKU
1793	2	17	8.3	SANRIKU, RIKUZEN, RIKUCHU
1843	4	25	8.4	HOKKAIDO: YEZO, KUSHIRO, NEMURO
1854	12	23	8.3	ENSHUNADA SEA
1854	12	24	8.4	NANKAIDO
1856	8	23	8.0	OSHIMA
1891	10	27	8.4	MINO-OWARI
1894	3	22	7.9	OFF COAST OF HONSHU
1896	6	15	8.3	SANRIKU
1897	2	7	8.3	JAPAN
1897	8	16	7.9	JAPAN
1898	6	5	8.7	OFF EAST COAST HONSHU
1900	1	11	7.8	SEA OF JAPAN
1901	6	24	7.9	RYUKYU ISLANDS
1901	8	9	7.9	OFF NORTHEAST COAST HONSHU
1901	8	9	8.2	OFF NORTHEAST COAST HONSHU
1904	6	7	7.9	SEA OF JAPAN
1904	8	24	7.9	KYUSHU
1905	6	2	7.8	AKI
1906	1	21	8.4	NEAR S COAST HONSHU
1909	11	10	7.9	KYUSHU
1911	6	15	8.0	RYUKYU ISLANDS
1914	11	24	8.1	VOLCANO ISLANDS
1915	11	1	7.8	NEAR E COAST HONSHU
1916	2	1	8.0	DUDA
1916	4	21	7.8	OFF EAST COAST HONSHU
1923	9	1	7.9	TOKYO, YOKOHAMA
1933	3	2	8.4	SANRIKU
1944	12	7	8.1	OFF SOUTHEAST COAST KII PENINSULA
1946	12	20	8.1	HONSHU S COAST
1952	3	4	8.1	HOKKAIDO
1968	5	16	8.2	OFF EAST COAST OF HONSHU ISLAND
1994	12	28	7.8	HONSHU
2003	9	25	8.3	HOKKAIDO
2011	3	11	9.0	HONSHU
2011	3	11	7.9	NEAR E COAST HONSHU

Source: NGDC. Parameters: Japan. 1700-2013. M ≥ 7.8

Appendix 2
MAJOR QUAKES IN KAMCHATKA – KURIL ISLANDS Post 1700 M ≥ 7.8
National Geophysical Data Center

Year	Month	Day	M	Location
1737	11	4	7.8	OFF KAMCHATKA
1792	8	22	8.4	NEAR KAMCHATKA
1841	5	17	8.4	OFF KAMCHATKA
1899	11	23	7.9	KAMCHATKA PENINSULA
1900	12	25	7.9	KURIL ISLANDS
1902	6	11	8.0	SEA OF OKHOTSK
1904	6	25	8.3	OFF KAMCHATKA
1904	6	25	8.1	OFF KAMCHATKA
1904	6	27	7.9	OFF KAMCHATKA
1905	9	15	7.8	KOMANDORSKY ISLAND
1907	5	25	7.9	SEA OF OKHOTSK
1915	5	1	8.1	KURIL ISLANDS
1917	1	30	7.8	KAMCHATKA
1918	9	7	8.3	KURIL ISLANDS
1918	11	8	7.8	KURIL ISLANDS
1923	2	3	8.3	KAMCHATKA
1950	2	28	7.9	SEA OF OKHOTSK
1952	11	4	9.0	KAMCHATKA PENINSULA
1958	11	6	8.3	KURIL ISLANDS: S
1959	5	4	8.2	NEAR EAST COAST OF KAMCHATKA

1963	10	13	8.5	KURIL ISLANDS
1963	10	20	7.9	KURIL ISLANDS
1969	8	11	8.2	SHIKOTAN ISLAND, KURILSKIYE
1971	12	15	7.8	OFF KAMCHATKA, SHEMYA, ATTU
1994	10	4	8.3	KURIL ISLANDS; JAPAN: HOKKAIDO
1995	12	3	7.9	KURIL ISLANDS: ITURUP, MATUA, KUNASHIR
1997	12	5	7.8	UST-KAMCHATSK, PETROPAVLOVSK
2006	11	15	8.3	KURIL ISLANDS
2007	1	13	8.1	KURIL ISLANDS
2013	5	24	8.3	SEVERO KURILSKIYE
Source: NGDC. Parameters: Kamchatka – Kuril. 1700-2013. M ≥ 7.8				

Appendix 3
COMPLETE 9/56 YEAR CYCLE: KAMCHATKA - KURIL QUAKES Post 1790 M ≥ 7.8
Year ending August 31

Sq 50	**Sq 03**	**Sq 12**	**Sq 21**	**Sq 30**	**Sq 39**	**Sq 48**	**Sq 01**	**Sq 10**	**Sq 19**	**Sq 28**	**Sq 37**	**Sq 46**	**Sq 55**
											1797	1806	1815
				1790	1799	1808	1817	1826	1835	1844	1853	1862	1871
1810	1819	1828	1837	1846	1855	1864	1873	1882	1891	1900 **1899** (1123)	1909	1918	1927
1866	1875	1884	1893	**1902** (0611)	1911	1920	1929	1938	1947	1956	1965	1974	1983
1922	1931	1940	1949	1958	1967	1976	1985	1994	2003	2012			
1978	1987	1996 **1995** (1203)	2005	2014									
Sq 08	**Sq 17**	**Sq 26**	**Sq 35**	**Sq 44**	**Sq 53**	**Sq 06**	**Sq 15**	**Sq 24**	**Sq 33**	**Sq 42**	**Sq 51**	**Sq 04**	**Sq 13**
									1793	1802	1811	1820	1829
			1795	1804	1813	1822	1831	1840	1849	1858	1867	1876	1885
1824	1833	1842	1851	1860	1869	1878	1887	1896	1905	1914	**1923** (0203)	1932	1941
1880	1889	1898	**1907** (0525)	1916	1925	1934	1943	1952	1961	1970	1979	1988	1997
1936	1945	1954		1972 **1971** (1215)	1981	1990	1999	2008	2017				
1992	2001	2010											
Sq 22	**Sq 31**	**Sq 40**	**Sq 49**	**Sq 02**	**Sq 11**	**Sq 20**	**Sq 29**	**Sq 38**	**Sq 47**	**Sq 56**	**Sq 09**	**Sq 18**	**Sq 27**
								1798	1807	1816	1825	1834	1843
	1791	1800	1809	1818	1827	1836	1845	1854	1863	1872	1881	1890	1899
1838	1847	1856	1865	1874	1883	1892	1901 **1900** (1225)	1910	1919 **1918** (0907) **1918** (1108)	1928	1937	1946	1955
1894	1903	1912	1921	1930	1939	1948	1957	1966	1975	1984	1993	2002	2011
1950 (0228)	**1959** (0504) **1958** (1106)	1968	1977	1986	1995 **1994** (1004)	2004	**2013** (0524)						
2006	2015												
Sq 36	**Sq 45**	**Sq 54**	**Sq 07**	**Sq 16**	**Sq 25**	**Sq 34**	**Sq 42**	**Sq 51**	**Sq 04**	**Sq 13**	**Sq 23**	**Sq 32**	**Sq 41**
												1792 (0822)	1801
						1794	1803	1812	1821	1830	1839	1848	1857
1796	1805	1814	1823	1832	**1841** (0517)	1850	1859	1868	1877	1886	1895	**1904** (0625) **1904** (0625) **1904** (0627)	1913

1852	1861	1870	1879	1888	1897	1906 **1905** (0915)	**1915** (0501)	1924	1933	1942	1951	1960	**1969** (0811)
1908	**1917** (0130)	1926	1935	1944	1953 **1952** (1104)	1962	1971	1980	1989	1998 **1997** (1205)	**2007** (0113) **2006** (1115)	2016	
1964 **1963** (1013) **1963** (1020)	1973	1982	1991	2000	2009	2018							

Major earthquakes M ≥ 8.1 denoted in **red,** with lesser earthquakes M ≥ 7.8 ≤ 8.0 denoted in **blue**.
The month and day given in parenthesis.
Source of Raw Data: NGDC.Parameters – Kamchatka and Kuril. Post 1790. M 7.8.

Appendix 4
54/56 YEAR CYCLE: WORLD MEGA QUAKES SINCE 1900 M ≥ 8.6
7.5 months ending March 31

Sq 29		**Sq 27**		**Sq 25**		**Sq 23**		**Sq 21**
								1949
						1951 **1950** (0815)	**+ 54**	**2005** (0328) **2004** (1226)
				1953 **1952** (1104}	**+ 54**	2007		
1901	**+ 54**	1955	**+ 54**	2009				
1957 (0309)	**+ 54**	**2011** (0311)						
2013								

World mega quakes M ≥ 8.6 presented in **bold**. The month and day given in parenthesis.
Source: McMinn, 2011b.

Appendix 5
9-45/56 YEAR CYCLE:
MAJOR QUAKES IN JAPAN - KAMCHATKA – KURIL Post 1790 M ≥ 8.1
Year ended October 31

Sq 31		**Sq 40**		**Sq 29**		**Sq 38**		**Sq 27**		**Sq 36**
										1796
						1798	+45	**1843** (0425)	+9	1852
1791	+9	1800	+45	1845	+9	1854	+45	1899	+9	1908
1847	+9	1856	+45	**1901** (0809)	+9	1910	+45	1955	+9	1964
1903	+9	1912	+45	1957	+9	1966	+45	**2011** (0311)	+9	2020
1959 (0504) **1958** (1106)	+9	**1968** (0516)	+45	**2013** (0524)						
2015										
	Sq 25		**Sq 34**		**Sq 23**		**Sq 32**		**Sq 21**	
							1792 (0822)	+45	1837	+9
			1794	+45	1839	+9	1848	+45	1893	+9
+45	**1841** (0517)	+9	1850	+45	1895	+9	**1904** (0625) **1904** (0625)	+45	1949	+9
+45	**1897** (0605)	+9	**1906** (0121)	+45	1951	+9	1960	+45	2005	+9
+45	1953	+9	1962	+45	**2007**	+9	2016			

	1952 (1104)				(0113) **2006** (1115)					
+45	2009	+9	2018							
Sq 30		**Sq 19**		**Sq 28**		**Sq 17**		**Sq 26**		
						1833	+9	1842		
1790	+45	1835	+9	1844	+45	1889	+9	**1898** (0605)		
1846	+45	**1891** (1027)	+9	1900	+45	1945 **1944** (1207)	+9	1954		
1902	+45	1947 **1946** (1220)	+9	1956	+45	2001	+9	2010		
1958	+45	**2003** (0925)	+9	2012						
2014										

Major earthquakes M ≥ 8.1 denoted in **red**. The month and day given in parenthesis.
Source of Raw Data: NGDC. Parameters – Kamchatka and Kuril. Post 1790. M ≥ 7.8.

Appendix 6
MAJOR EARTHQUAKES IN ALASKA Post 1700 M ≥ 7.8
National Geophysical Data Center

Year	Month	Day	Location	M
1788	7	21	UNGA ISLAND	8.0
1788	8	6	ALASKA PENINSULA	8.0
1899	9	4	CAPE YAKATAGA	8.2
1899	9	10	CAPE YAKATAGA	7.8
1899	9	10	SE ALASKA	8.2
1900	10	9	KODIAK ISLAND	8.3
1901	12	31	ALEUTIAN ISLANDS: FOX ISLANDS	7.8
1902	1	1	ALEUTIAN ISLANDS: FOX ISLANDS	7.8
1903	6	2	SOUTHWEST	8.3
1904	8	27	RAMPART	8.3
1905	2	14	ANDREANOF ISLANDS	7.9
1906	8	17	ALEUTIAN ISLANDS: RAT ISLANDS	7.8
1907	9	2	ALEUTIAN ISLANDS	7.8
1909	4	10	ALEUTIAN ISLANDS	7.8
1917	5	31	ALASKA PENINSULA	7.9
1929	3	7	ALEUTIAN ISLANDS: FOX ISLANDS	7.8
1929	12	17	ALEUTIAN ISLANDS: NEAR ISLANDS	7.8
1938	11	10	ALASKA	8.2
1946	4	1	UNIMAK ISLAND	8.6
1957	3	9	ALASKA	8.6
1958	7	10	LITUYA BAY	8.3
1964	3	28	ALASKA	9.2
1965	2	4	ALEUTIAN ISLANDS: RAT ISLANDS	8.7
1986	5	7	ALEUTIAN ISLANDS: ADAK	8.0
1987	11	30	YAKUTAT	7.9
1988	3	6	GULF OF ALASKA: ANCHORAGE	7.8
1996	6	10	ANDREANOF ISLANDS	7.9
2002	11	3	SLANA, MENTASTA LAKE, FAIRBANKS	7.9
2003	11	17	ALEUTIAN ISLANDS: RAT ISLANDS	7.8

Source: NGDC. Parameters: Alaska. 1700-2013. M ≥ 7.8

Appendix 7
9-45/56 YEAR CYCLE:
MAJOR QUAKES IN ALASKA Post 1895 M ≥ 8.1
Year beginning March 1

Sq 31		Sq 40		Sq 29		Sq 38		Sq 27
								1899 (0904) **1899** (0910) **1899** (0910)
				1901	+9	1910	+45	1955

1903 (0602)	+9	1912	+45	**1957** (0309)	+9	1966	+45	2011
1959	+9	1968	+45	2013				
2015								
	Sq 36		**Sq 25**		**Sq 34**		**Sq 23**	
							1895	+9
		+45	1897	+9	**1906** (0817)	+45	1951	+9
	1908	+45	1953	+9	1962	+45	2007	+9
+9	**1964** (0328) **1965** (0204)	+45	2009	+9	2018			
+9	2020							
Sq 32		**Sq 21**		**Sq 30**		**Sq 19**		**Sq 28**
						1891	+9	**1900** (1009)
				1902 (1201)	+45	1947	+9	1956
1904 (0827) **1905** (0214)	+45	1949	+9	**1958** (0710)	+45	**2003** (1117)	+9	2012
1960	+45	2005	+9	2014				
2016								

Major earthquakes M ≥ 8.1 denoted in **red,** with lesser earthquakes M ≥ 7.8 ≤ 8.0 denoted in **blue**. The month and day given in parenthesis.
Source of Raw Data: NGDC. Parameters Alaska. Post 1700. M ≥ 7.8.

Appendix 4
9-54/56 YEAR CYCLE:
MAJOR QUAKES IN JAPAN - KAMCHATKA – KURIL Post 1790 M ≥ 8.1
Year ended October 31

Sq 31		**Sq 40**		**Sq 29**		**Sq 38**		**Sq 27**		**Sq 36**
										1796
						1798	+45	**1843 (0425)**	+9	1852
1791	+9	1800	+45	1845	+9	1854	+45	1899	+9	1908
1847	+9	1856	+45	**1901 (0809)**	+9	1910	+45	1955	+9	1964
1903	+9	1912	+45	1957	+9	1966	+45	**2011 (0311)**	+9	2020
1959 (0504) 1958 (1106)	+9	**1968 (0516)**	+45	**2013 (0524)**						
2015										
	Sq 25		**Sq 34**		**Sq 23**		**Sq 32**		**Sq 21**	
							1792 (0822)	+45	1837	+9
			1794	+45	1839	+9	1848	+45	1893	+9
+45	**1841 (0517)**	+9	1850	+45	1895	+9	**1904 (0625) 1904 (0625)**	+45	1949	+9
+45	**1897 (0605)**	+9	**1906 (0121)**	+45	1951	+9	1960	+45	2005	+9
+45	1953 **1952 (1104)**	+9	1962	+45	**2007 (0113) 2006 (1115)**	+9	2016			
+45	2009	+9	2018							
Sq 30		**Sq 19**		**Sq 28**		**Sq 17**		**Sq 26**		
						1833	+9	1842		
1790	+45	1835	+9	1844	+45	1889	+9	**1898 (0605)**		

1846	+45	**1891 (1027)**	+9	1900	+45	1945 **1944 (1207)**	+9	1954		
1902	+45	1947 **1946 (1220)**	+9	1956	+45	2001	+9	2010		
1958	+45	**2003 (0925)**	+9	2012						
2014										
Major earthquakes M ≥ 8.1 denoted in **red**. **Source of Raw Data**: NGDC. Parameters – Kamchatka and Kuril. Post 1790. M ≥ 7.8.										

About the author: David McMinn completed a BSc at the University of Melbourne in 1971 and subsequently worked as a mineral economist in the ANZ Banking Group Ltd (a major Australian financial institution). Since leaving this position in 1982, he has conducted private research on cycles, with his main interests centering on Moon Sun cycles and the 9/56 year grid. This was found to be applicable to a range of phenomena – financial panics, earthquakes and volcanoes. McMinn has published numerous papers and articles in the fields of technical analysis and seismology, as well as three books on market timing.