

9/56 YEAR EARTHQUAKE CYCLES: ALASKA

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A 9/56 year cycle was detected in the timing of financial panics over recent centuries ([Home](#)). This cycle was then hypothesised to be also applicable to major seismic events. Remarkably, a 9/56 year seismic cycle was established for most of the countries around the circum – Pacific belt ([David McMinn](#)). The only exceptions were historic quakes in Japan, Taiwan and Kamchatka for whatever reason. All other regions/countries assessed showed positive correlates between 9/56 year patterns and the timing of major earthquakes. This paper considers the prospect of a 9/56 year cycle in Alaskan seismic history.

Major Alaskan Quakes

The [USGS](#) presented a listing of major Alaskan earthquakes for the period 1898 to 2003. Of the 16 biggest quakes in Alaskan history (mag => 7.8) (see Table A, Appendix 1), 10 occurred in 9/56 year patterns as shown in Table 1. This compared with the anticipated frequency of 3.4.

Of the top 11 Alaskan quakes (mag =>7.9), 8 fell in the 12 months ended November 5 of those years in Table 1. whereas 2.4 could have been expected by chance.

Of the top 25 quakes (mag => 7.5), 19 took place in the 22 months ended November 5 of those years in Table 1 (denoted by an # in Table A, Appendix 1), which was highly significant $p < .001$. All top 6 quakes (mag = > 8.0) happened in these patterns.

Table 1

9/56 YEAR CYCLE & ALASKAN EARTHQUAKES: 1898-2004

									1899	1908	1917
									**		*
		1892	1901	1910	1919	1928	1937	1946	1955	1964	1973
										*	
1930	1939	1948	1957	1966	1975	1984	1993	2002			
*	*		*					*			
1986	1995	2004									
*		*									

Each 56 year sequence is separated by an interval of 9 years.

Events (mag =>7.9) in **bold** occurred in the 9.5months ended November 15.

Source of Raw Data: [USGS](#)

The [USGS](#) listed 87 Alaskan earthquakes with a magnitude => 7.0 for the period 1898 to 2003. Of this total, 26 fell preferentially in the calendar years of the 9/56 year patterns as shown in Table 2, which was highly significant ($p < 10^{-4}$).

Table 2**9/56 YC & ALASKAN EARTHQUAKES: 1898-2003**

						1899	1908
						*****	*
1901	1910	1919	1928	1937	1946	1955	1964
*	*			**	**	*	**
1957	1966	1975	1984	1993	2002		
*****	*	*			*		

Calendar years in **bold** contain major Alaskan earthquakes (mag => 7.0) for the period 1898 to 2003.

Source of Raw Data: [USGS](#)

[Appendix 2](#) shows Alaskan earthquakes over the whole 9/56 year cycle. It can be clearly seen that the quakes tend to occur in certain segments of the 9/56 year cycle, while other segments have far fewer events.

Alaskan Mega Thrust Earthquakes

The last major quakes along the Aleutian megathrust are shown in the map [Alaskan Earthquakes, Active Faults and Rupture Zones](#) and are given as follows moving from west to east. Most occur in the 11 months commencing March 5 of those years in the 9/56 year grid as shown in Table 1.

8.7	February 4, 1965
8.6	March 9, 1957
8.0	May 7, 1986
8.3	November 10, 1938
9.2	March 28, 1964
8.0	September 10, 1899
8.1	August 22, 1949 (Canada)
7.9	November 3, 2002 (inland on Denali Fault)

Lunar Tidal Effects

Any events falling with significance in 9/56 year patterns will always correlate with the ecliptical position of the north (ascending) node (see Diagram 2.2, McMinn, 2004). The lunar nodes are imaginary points in the heavens where the plane of the Earth's orbit around the Sun (the ecliptic) is cut the plane of the Moon's orbit around the Earth. The north node occurs where the Moon passes from below the ecliptic to above. All Alaskan earthquakes in Table 1 occurred when the lunar north node was within two narrow segments approximately opposite in the ecliptic circle:

- * 225 - 285 E^o - a 60^o segment
- * 030 - 100 E^o - a 70^o segment.

There were no exceptions, a finding that would be very unlikely to occur by chance. The lunar nodes have been strongly associated with Moon – Sun tidal effects and this is the proposed causative factors explaining why earthquakes fall preferentially in

9/56 year patterns. How these tidal effects actually function remains a great unknown.

Conclusions

Earthquakes in Alaska fall preferentially in patterns of the 9/56 year cycle, at least for the major quakes (mag \Rightarrow 7.0). The 9/56 year effect probably arises because of Moon – Sun tidal influences, a finding strongly supported by the close links between lunar nutation and the timing of earthquakes in 9/56 year patterns. These findings are preliminary and much follow up research is imperative in this area. Any findings could assist in understanding of Moon Sun earthquake cycles and boost the predictability of such events.

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Reference

Alaskan Earthquake Information Center. Alaskan Earthquakes, Active Faults and Rupture Zones. http://giseis.alaska.edu/html_docs/historic_quakes_tectonics.html

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Stover, C W & Coffman, J L. *Seismicity of the United States, 1568-1989* (Revised), U.S. Geological Survey Prof. Paper 1527, 1993.

United States Geological Survey. *Earthquakes in the United States. Magnitude 7.0 and Greater.* http://neic.usgs.gov/neis/eqlists/large_usa.html

.Appendix 1

Table A **ALASKAN HISTORIC EARTHQUAKES**
(mag \Rightarrow 7.5): 1899-2003

Mag	Date	Location
9.2	March 28, 1964#	Prince William Sound
9.1	March 9, 1957#	Andreanof Islands
8.7	February 4, 1965#	Rat Islands
8.2	November 10, 1938#	East of Shumagin Islands
8.0	September 10, 1899#	Yakutat Bay
8.0	May 7, 1986#	Andreanof Islands
7.9	May 31, 1917#	Shumagin Islands
7.9	September 4, 1899#	Near Cape Yakutat
7.9	November 30, 1987	Gulf of Alaska
7.9	June 10, 1996	Andreanof Islands
7.9	November 3, 2002#	Central Alaska
7.8	August 17, 1906	Rat Islands
7.8	March 7, 1929#	Fox Islands
7.8	December 17, 1929#	Near Islands
7.8	March 6, 1988	Gulf of Alaska
7.8	December 17, 2003#	Rat Islands
7.7	October 9, 1900#	Kodiak Island
7.7	February 6, 1916#	South of Rat Islands

7.7	July 10, 1958#	Lituya Bay
7.6	June 29, 1898#	Near Islands
7.6	March 30, 1965#	Rat Islands
7.6	July 30, 1972#	Sitka
7.6	February 7, 1975#	Near Islands
7.6	February 28, 1979	Mt St Elias
7.5	May 14, 1948#	Alaska Peninsula

Events in **BOLD** occurred in the 12 months ended November 5 of those years in Table 1.

Denotes those quakes in the 22 months ended November 5 of those years in Table 1.

Source of Raw Data: [USGS](#)