

ARMSTRONG ECONOMICS FORECASTING THE WORLD

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Financial-Capital-Equity-Commodity & Political Trends

History is a Catalogue of Solutions

会長
マーティン・A・アームストロング

東日本大震災

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NIHON JISHIN

(JAPANESE EARTHQUAKES)

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2009.846, ideally November 7th, 2009. The first shock came a bit early registering 6.9 in magnitude on June 14, 2008 at Iwate-Miyagi, the known as the **Nairiku Jishin**. While this was close to the next region that was due, there has been 8 major Jishin since this window opened in Japan. Yet 5 have taken place in the Miyagi-Tōhoku region. For you see, there are quiet periods and then there are intensely active periods with increased frequency of occurrences that are even wider distributed.

By inputting the entire earthquake, weather and volcano data into the computer, the correlations with the economy and migration of man was uncanny. It seemed that it was Murphy's Law – whatever could go wrong, just did, shifting the vicissitudes of fortune distinctly against empires, nations, and city states. Thus, for these reasons, this was an interesting, and vital input into our computer model. Japan was certainly no exception.

August 9, 2009	Izu Islands earthquake	(33.144°N, 138.040°E)	6.9-7.1
August 11, 2009	Tokai Area Earthquake	(33.8°N, 138.50°E)	6.5-6.6
February 26, 2010	Ryūkyū Islands earthquake	(25.902°N, 128.417°E)	7.0
December 21, 2010	Bonin Islands Earthquake	(26.866°N, 143.739°E)	7.4
March 9, 2011	Tōhoku Earthquake	(38.424°N, 142.836°E)	7.2
March 11, 2011	Tōhoku Earthquake	(38.510°N, 142.792°E)	9.0
	Aftershock almost 1 hr. later	(38.106°N, 144.553°E)	7.1
April 7, 2011	Miyagi Earthquake	(38.253°N, 141.640°E)	7.1



1906 SAN FRANCISCO EARTHQUAKE

Earthquakes, Volcanoes and weather have been altering the course of economies both in modern as well as ancient times. The **1906 San Francisco Earthquake** was responsible for the **Panic of 1907**. It led to investigations that revealed that the internal regional capital flows were

disrupted causing the **Panic of 1907** that contributed to the creation of the **Federal Reserve**. Obviously, a correlation of natural disasters to the economy reveals striking contributions. This does not end with earthquakes, but also extends to volcanoes as well as weather.



THE VOLCANIC ERUPTION OF THERA CA. 1628 BC MODERN SANTORINI

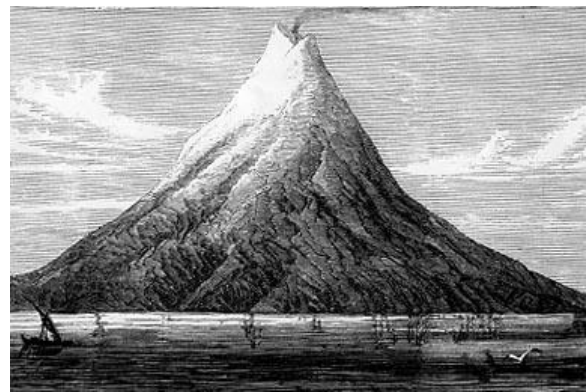
In ancient times, it was the eruption of **Thera** at modern Santorini that altered the course of history. It was this destruction that caused the fall of the Minoan society disbanding its power to Babylon and Greece. The devastating volcanic eruption of **Thera** has become the most famous single event in the ancient world and the Aegean before even the fall of Troy. It may have been one of the largest volcanic eruptions on Earth at least within the last few thousand years. Its magnitude or force is estimated at 7 on the VEI (volcanic explosivity index). New archaeological discoveries in 2006 have revealed that the Santorini event was truly massive expelling some 61 km of magma and rock into the Earth's atmosphere producing an estimated 100 cubic kilometers of tephra. This eruption blotted the sun, altered the weather and shifted the political power of the day.

There has been considerable speculation surrounding this event during the eruption of **Thera** (Santorini) ca. 1628 BC. Some have attributed to it the plagues recorded in Exodus against Egypt in the Bible as being caused by this event, such as blocking the sun. The Biblical dating of Moses in Egypt c. 1500 BC +/-50 has been regarded as closely placed at about the same time period. There certainly would have been tsunamis caused by the explosion that would dwarf what took place in Japan. Thus, it has been argued that it was a tsunami that swept away the army of Pharaoh in Exodus. Others have struggled to find this event at **Thera** that gave rise to the story of Atlantis. Excavations resemble Plato's description and thus many believe this event was the backdrop to Plato's story of Atlantis. Others still point to Antarctica at the South Pole.



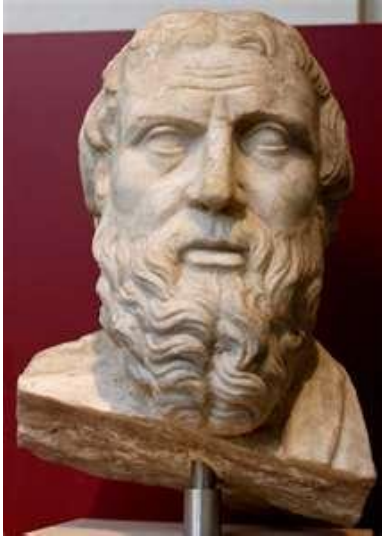
THE 1815 ERUPTION OF MOUNT TAMBORA

The **Thera Eruption** at Santorini has been likened to the **1815 Mount Tambora Eruption** that was the most powerful in modern recorded history and classified as a VEI-7 event. **Mount Tambora** is situated on the island of Sumbawa in Indonesia. The eruption was followed by between six months and three years of increased steaming and small phreatic eruptions (intensity). The eruption column lowered global temperatures, and some experts believe this led to global cooling and worldwide harvest failures. Sometimes this was known as the ***YEAR WITHOUT A SUMMER*** as snow fell in New York during July. There was also the 181 AD **Hatepe eruption (Taupo eruption)** at Lake Taupo in New Zealand that turned the sky red both in China and in ancient Rome. It is the largest known eruption in that region in history. This was also a magnitude 7 and is believed to have exceeded **Thera** by about 20% as to its size. It is possible that the **Tianchi Eruption (Heaven Lake) at Baekdu Mountain** in 969 AD on the border between China and Korea released more material into the atmosphere than **Thera**. We have seen nothing like these events since 1815.



1883 KRAKATOA ERUPTION

The best known eruption post 1815 is **Krakatoa** that culminated in a series of massive explosions on August 26–27, 1883. This was among the most violent volcanic events in modern and recorded history. Observing these events in isolation provides no understanding of the dynamic nature behind them and just gibberish for cocktail parties. Like markets, everything is interconnected. Events on a lesser scale, such as **Mt. Saint Helens**, merely disrupt the economy and perhaps contribute to the overall pre-existing inflationary trend. They do not alter the trend already in motion. But they can be the last straw that breaks the camel's back for they often alter weather patterns near-term.



HERODOTUS
(c. 484 BC – c. 425 BC).

According to the historian **Herodotus** (4.149-165), following a **DROUGHT OF SEVEN YEARS** that struck **Thera** (Santorini), the city was forced to send out colonists who founded a number of other cities in northern Africa, including Cyrene. You will also note the Biblical reference to the forecast that there would be a 7 year drought in Egypt by Joseph. There have been numerous droughts over the centuries that run the course of 7 years in duration.

There is a tremendous correlation between earthquakes, volcanoes, and weather with the rise and fall of empires, nations, and city states. There are some events that just altered the course of the economy rather than bring it crashing down.

What is vital to understand, we are not in control of everything. We are more often than not just a back-seat driver who thinks we can bark out orders. What if the entire system is a vast complex adaptive network where we are simply delusional in assuming such vast power? What if the driver is deaf and does not hear a damn thing we say?



POMPEII ERUPTION 79AD

There are such events that merely contribute to an overall trend. They are not that final event which brings catastrophe upon the people for they lack intensity. **Pompeii** in 79AD was such an event that disrupted the economy and horrified the people, but it did not destroy the Roman Empire. Indeed, **Pompeii** took the life of a great man, **Gaius Plinius Secundus** (23 AD – August 25, 79 AD), known as **Pliny the Elder**, who was a Roman author, naturalist, natural philosopher, naval and army commander in the early Roman Empire. His nephew, **Gaius Plinius Caecilius Secundus** (61 AD – ca. 112 AD), known as **Pliny the Younger**, was a lawyer, author, and magistrate of Ancient Rome, who had witnessed the destruction of **Pompeii** and the death of his uncle while on a ship in the harbor that day of 24 August, 79 AD. **Pliny the Younger** watched the powerful eruption of **Vesuvius** that buried three cities alive and left us with an account of his observations.

There are such events that profoundly alter the course of a trend or accelerate it such as did **Pompeii**. In modern times, it was the **San Francisco Earthquake of 1906**. These events do not bring down the house, but they help to push it along the path.

Major Historical Earthquakes 365 AD - 1989 AD

year, AD	magnitude or intensity*	deaths	affected area
365	...	50,000	Knossos, Crete (Greece)
526	...	250,000	Antioch, Syria
844	...	50,000	Damascus, Syria
847	...	50,000	Mosul, Iraq
847	...	70,000	Damascus, Syria
856	...	200,000	Qumis, Dārmghān, Iran
893	...	82,000	Caucasus
893	...	180,000	Daipur, India
893	...	150,000	Ardabil, Iran
1042	...	50,000	Palmyra, Baalbek, Syria
1138	...	230,000	Ganzah, Aleppo, Syria
1201	...	1,000,000	Upper Egypt or Syria
1268	...	60,000	Cilicia, Anatolia (Turkey)
1290	6.75	100,000	China
1556	XI	830,000	Shensi province, China
1667	6.9	80,000	Shemakha, Azerbaijan
1668	XII	50,000	Shantung province, China
1693	XI	100,000	Sicily, Catania (Italy)
1703	...	200,000	Jeddo, Japan
1727	...	77,000	Tabriz, Iran
1730	...	137,000	Hokkaido, Japan
1731	...	100,000	Peking, China
1737	...	300,000	Calcutta, India
1739	...	50,000	China
1755	...	60,000	Lisbon, Portugal; Spain; Morocco
1780	...	100,000	Tabriz, Iran
1811	8.7	...	New Madrid, Mo., U.S.
1836	7.6	28,321	northern Japan
1857	8.3	...	Tejon Pass (Palmdale), Calif., U.S.
1868	...	70,000	Ecuador
1883	...	100,000	Java, Indon.
1905	8.6	19,000	Jammu and Kashmir, India
1906	8.3	700	San Francisco, Calif., U.S.
1906	8.6	1,500	Valparaiso, Chile
1908	7.5	58,000	Calabria, Messina, Italy
1915	7.5	32,610	Abruzzi, Italy
1920	8.5	200,000	Kansu province, China
1923	8.3	140,000	Tokyo; Yokohama, Japan
1927	8.0	40,000	Nan Mountains, China
1932	7.6	70,000	Kansu province, China
1935	7.5	25,000	Quetta, India
1939	8.0	32,000	Erzincan, Turkey
1939	8.3	28,000	Chillán, Chile
1948	7.3	19,800	Ashkhabad, Turkmenistan
1950	8.7	574	Assam, India
1960	5.9	12,000	Agadir, Mor.
1960	8.5	5,700	Puerto Montt, Valdivia, Chile
1963	6.0	1,070	Skopje, Yugos.
1964	8.3	131	Prince William Sound, Alaska, U.S.
1970	7.7	10,000	southern Yunnan province, China
1970	7.8	66,794	northern Peru
1972	6.2	5,000	Managua, Nic.
1976	7.5	23,000	Guatemala City, Guat.
1976	6.5	929	northeastern Italy
1976	7.8	240,000	T'ang-shan, China
1977	7.2	1,500	Bucharest, Rom.
1978	7.4	25,000	Khorāsān, Iran
1979	7.9	600	Colombia; Ecuador
1980	7.7	4,000	El-Aşnām (Ech-Cheliff), Alg.
1980	7.2	4,800	southern Italy
1983	7.1	1,400	eastern Turkey
1985	8.1	10,000	Mexico City, Mex.
1986	5.4	1,000	San Salvador, El Salvador
1989	7.1	67	northern California, U.S.

*Magnitudes given for pre-20th century events are generally estimations from intensity data. When no magnitude was available, the maximum intensity, written as a Roman numeral, is given.
Sources: World Data Center A for Solid Earth Geophysics, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, *Catalog of Significant Earthquakes 2000 B.C.-1979* (July 1981), *Significant Earthquakes 1900-1979*, map and table; Münchener Rückversicherungs-Gesellschaft, *World Map of Natural Hazards* (1978); Swiss Reinsurance Company, *Atlas on Seismicity and Volcanism* (1978); U.S. Department of the Interior Geological Survey, *Earthquake Information Bulletin*; Smithsonian Institution, *SEAN Bulletin*.

SOURCE: Encyclopedia Britannica

The great drought of the 14th century contributed to the creation of Capitalism helping to end serfdom along with the **Black Plague**. There was the 20th century 7 year drought creating the Dust Bowl during the Great Depression. These are nearly IDENTICAL in number and duration.

In the instant case of Japan, the economy was pointing lower for a 26 year decline from the 1989.95 high. This tends to suggest that Japan could still be acting as a leading indicator in reality, pointing the way into 2016. We may see it heat up on this score by 2013.

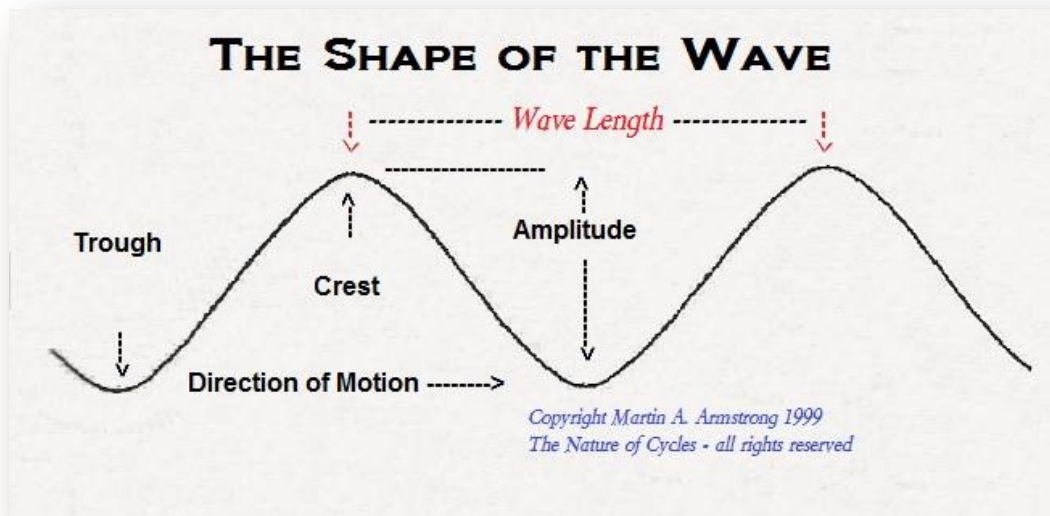
On September 15th, 2009, I first published this list of major earthquakes covering the period 365AD to 1989 for a total of 1624 years with 63 events that followed the first in 365AD.

$$1624 / 63 = 25.77777778$$

$$(3 * 8.6 = 25.8)$$

Even if we take the Great Cycle, the **Precession of the Equinox** used by the Maya of about 25,800 years, this also is a derivative of the 8.6 year cycle. Everything is truly interrelated and connected to the point it becomes impossible to consider anything in isolation. Between now and 2020.05, we appear to be on a collision course with nature with rising intensity. We will especially see erratic weather swings and rising natural disasters. Unfortunately for Japan, the window has not yet closed.

THE NATURE OF CYCLES™

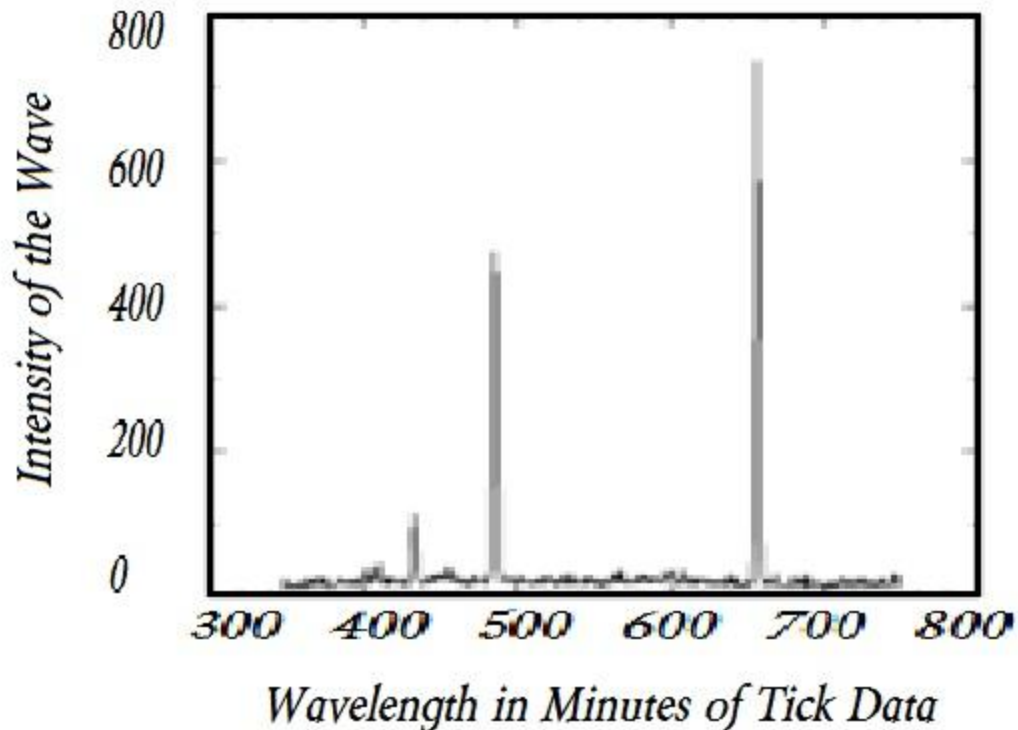


When one pictures cycles in their mind, the pattern that emerges is that of the typical sine and cosign waves. These are picture-perfect structural formations for the flow of energy such as in a sound wave. The limited scope of the symmetrically structure waves leads one astray in their investigation and observation of cyclical activity. In a book I had written about 15 years ago but hadn't published, **The Nature of Cycles™**, I dealt with this subject in detail (*soon to be released in E-Book*). The **sine wave** or **sinusoid** is a mathematical function that describes a smooth repetitive oscillation. It occurs often in pure mathematics, as well as physics, signal processing, and of course electrical engineering. Unfortunately, it is **NOT** the typical economic wave structure, which becomes a far more dynamic adaptive structure involving multiple inputs that collectively produce a wave formation.

While Kondratiev Waves have been called supercycles, great surges, long waves, K-waves or the long economic cycle, none of these descriptions go beyond the basic image of

cycles. Spectrum analysis in chemistry and physics, a method of analyzing the chemical properties of matter from bands in their visible spectrum, when applied to the economic data, this confirms the existence of long waves in economic activity. An spectrum analyzer in signal processing is a device/algorithm that identifies a frequency domain representation of a time domain in a signal. This can be accomplished typically by means of Fourier transform. Spectral analysis (Frequency Domain Analysis) in statistics is a procedure that decomposes a given time series into a spectrum or matrix of cycles of different wavelengths. Because energy moves in a cyclical pattern much as a snake moves without hands and feet side-to-side, nuclear and particle physics also display characteristic features such as spectral line, edges, and various physical processes producing continuum shapes. Cycles come in many different shapes in physics and in economics, there are also multiple shapes as well.

THE SHAPE OF THE WAVE ALTERED BY INTENSITY (VOLATILITY) IN THE DATA

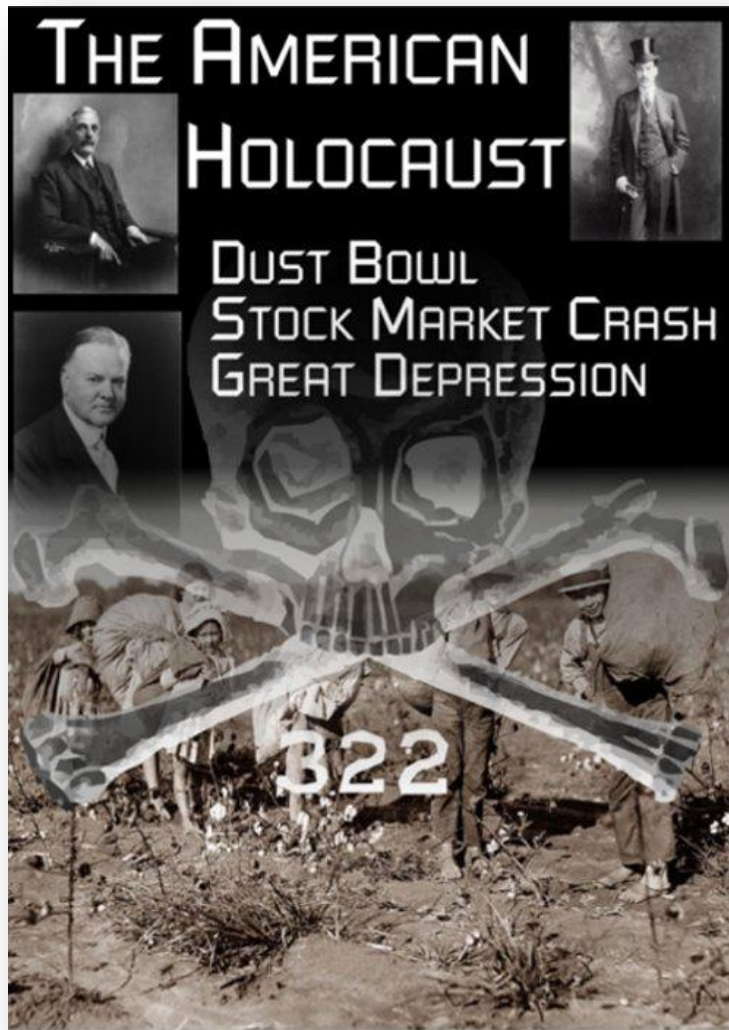


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Here is an illustration of feeding numerous days of tick data (intraday trade by trade) into the sample for cyclical testing. Not merely are cycles verified to exist, we also get different wave shapes based upon intensity (volatility). In other words, there can be low intensity economic declines we would call a recession. And then there is the Great Wave like that of the Great Depression. Close analysis reveals that these Great Waves are created by the combination of numerous waves converging in the same time space coordinates. Thus, creating a model on only one market may work nicely during normal times, but when confronted by a convergence, the Great Wave appears.



The Japanese have long recognized the existence of tsunamis and this has been captured in the famous painting, the Great Wave. It is the intensity of the event that creates the tsunami, not the event itself



It is this combination effect that produces great waves that are monumental in scope and differ structurally from a normal boom bust cycle. To comprehend when these type of waves unfold, requires the multidiscipline approach of correlating all variable components. This is what produces the Great Wave – the combination of factors converging upon the same time-space coordinates. Consequently, the **SHAPE OF THE WAVE** is strikingly different between individual variables. Both in economics as well as events such a weather and earthquakes, intensity plays a vital role. In events such as

volcanoes, the wavelength is typically two to three times the wavelength between earthquakes. This is why volcanoes eruptions tend to be measured in 100s of years between events. Earthquakes, on the other hand, are far more common just as recessions are far more common than Great Depressions economically.

These are important basic first steps into understand the **Nature of Cycles**™ for comprehending HOW a wave will unfold is everything to understanding our environment and what the future truly holds.