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Why Markets Crash

Space Weather and Marco Market Movements

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Summary

Recent market crashes are associated with disruptive electrical events in space. Space weather is already known to have a profound impact upon major global industries such as aviation and utilities. NASA, NOAA[1], and other agencies collect and disseminate complex and detailed data of space weather conditions in real time in order for these industries to mitigate the impact of electrical space activity.

We show here that space weather may also impact the financial markets. Abrupt electrical events in space, especially when coinciding with turning points in the sun's 11 year solar cycle, correlate with major market events. For example the onset of the 2000 'Tech Wreck' crash, and the 2008 Financial Crisis both coincided with major electrical events.

We outline the evidence that abrupt electrical events in space may play a significant role in initiating market corrections. A subsequent paper outlines how similar events may signal the start of major bull runs.

Introduction

There is a growing understanding that the universe we inhabit is fundamentally electrical in nature.[2] Space, itself once considered to be empty, is now understood to be a weak electrical plasma. Indeed 99.9% of the entire universe is composed of this plasma.

This view of the universe significantly changes the way we view the 'operating environment' of our planet. The 18th Century belief in gravity as the major force acting on the Earth is no longer tenable when one realises that electrical phenomena in space can be up to a trillion, trillion, trillion times more powerful.

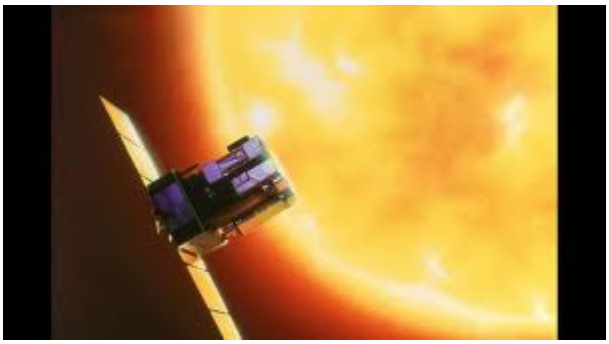

Image 1. The SOHO space satellite is responsible for monitoring solar space weather.

[1] National Oceanic and Atmospheric Administration: http://www.noaa.gov/
[2] For Example See Donald E. Scott *The Electric Sky*, Mikamar Publishing, 2006. and http://www.thunderbolts.info/wp/.

This awareness is already pervasive in other industries such as aviation, electronics and utilities where space weather conditions are continuously monitored in order to provide early warning of potential malfunction of computers, power lines and manufacturing processes. NASA recently funded a study by the National Academy of Sciences entitled *Severe Space Weather Events—Understanding Societal and Economic Impacts*. In the 132-page report, experts detailed what might happen to our modern, high-tech society in the event of a "super solar flare" followed by an extreme geomagnetic storm. They found that almost nothing is immune from space weather. The total economic impact in the first year alone could reach $2 trillion, some 20 times greater than the costs of a Hurricane Katrina.[3] To put it succinctly, the financial markets operate in a dynamic, electrical environment.

Correlations with Major Market Events

Macro movements in the financial markets are correlated with abrupt electrical events generated by comets. Both market crashes and the start of bull runs are connected with these events.

With their highly elliptical orbits comets are well placed to be 'electrical disruptors'. They rapidly travel from areas of relative negative charge when farthest from the sun, to areas of highest positive charge as they approach their perihelion, or closest point to the sun. This journey through a changing electrical environment creates enormous electrical stress.

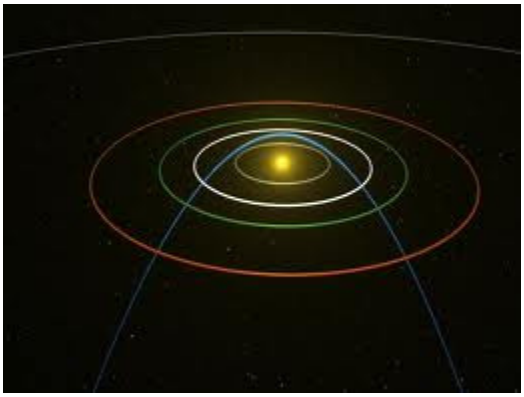

Image 2. The blue line showing the typical highly elliptical orbit of a comet around the sun.[4]

Under normal conditions, this increased electrical stress causes the comet to increase its glow as its approaches the sun. In electrical terms this is similar to a dimer switch on an electric light - as the current increases, the light brightens.

As a comet moves away from the sun after completing its perihelion, the glow from it diminishes. This changing brightness can be captured on a Magnitude chart. The Magnitude chart of comet 251P/2004 HC18 (LINEAR) is typical of normal comet.

[3] http://science.nasa.gov/science-news/science-at-nasa/2009/21jan_severespaceweather/
[4] Source: http://naasbeginners.co.uk/Meteorwatch/Perseids2009.htm

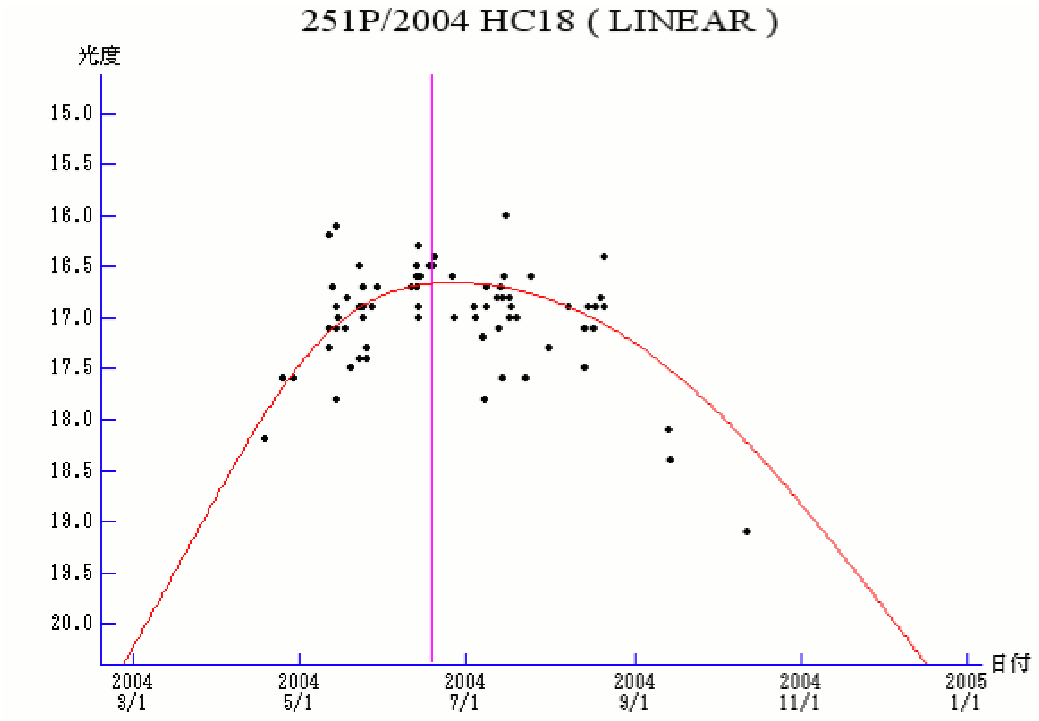

Figure 1. Magnitudes Graph of comet 251P/2004 HC18 (LINEAR) during 2004. The magenta line in June marks the comet's perihelion, or closest point to the sun.[5]

However, if the electrical stress on a comet becomes too great an abrupt electrical event takes place, often with highly visible effect. It is these abrupt events that appear to coincide with macro market movements. For example, the 2000 peak of the Dot-com bubble coincided with the spectacular explosion of comet C/1999 S4 LINEAR at its perihelion. The abrupt demise of the comet can be seen from the following Magnitude chart.

[5] Source: http://aerith.net/comet/catalog/0251P/2004HC18.html

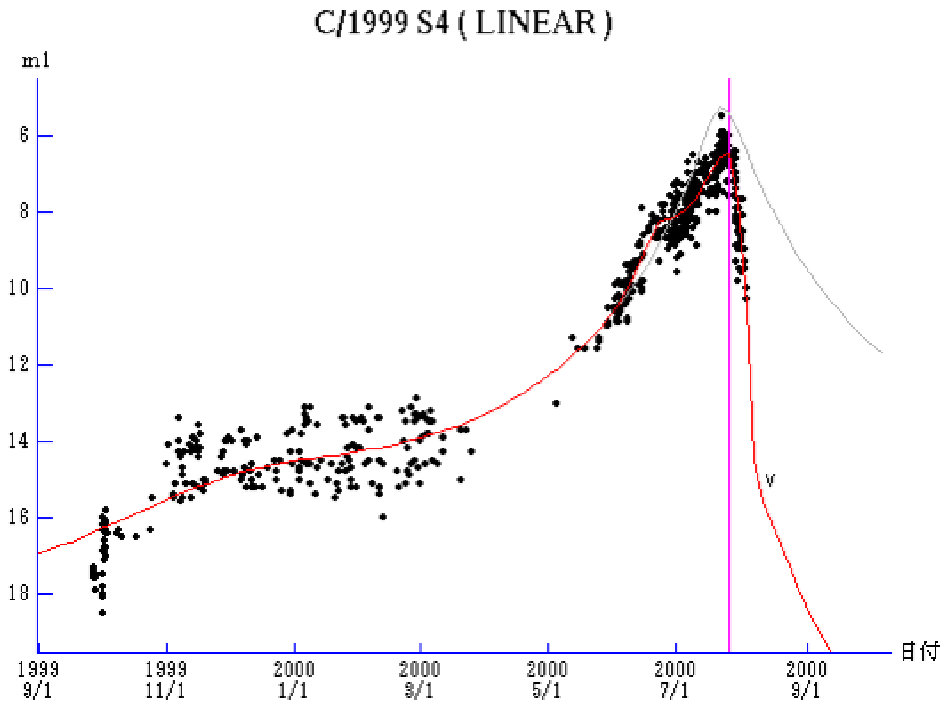

Figure 2. Magnitude chart of comet C/1999 S4 (LINEAR) illustrating the abrupt change in electrical charge carried by the comet. The magenta line on 26th July indicates the comet's perihelion, or closes point to the sun.[6]

Not all Space Weather is Involved in Major Markets Events

However it is probably as important to list what is NOT associated with macro-market movements as to describe what is.

'Normal' Comets

As the above example of 'normal' comet 251P/2004 HC18 (LINEAR) shows, the vast majority of comets do NOT display abrupt changes in luminosity and electrical charge. Nor are they associated with market events. There are over 250 periodic comets, 280 non-periodic comets and 120 comet-like asteroids currently being tracked by astronomers. Only a very small percentage of these create abrupt events that coincide with macro market movements.

Bright Comets

Once in a while a comet will dazzle the astronomy community with its display. For example, comet Ikeya-Seki a.k.a. "The Great Comet of 1965", was bright enough in the sky to be visible during the day. The comet also fragmented into three pieces as it passed its perihelion. However, there was no abrupt electrical event associated with the comet. Indeed, many of the best views of the comet were after its perihelion, indicating that no electrical discharge had taken place as it traveled around the sun. As with other memorable comets, the glow from Ikeya-Seki did not coincide with a major market event.

[6] Source: http://aerith.net/comet/catalog/1999S4/1999S4.html

Image 3. This 4-minute exposure of comet Ikeya-Seki was captured by Roger Lynds at Kitt Peak, Arizona, on the morning of 1965 October 29. Copyright; Roger Lynds, all rights reserved.[7]

Sun-grazer Comets

There is a class of comet, called 'sun-grazers', 'sun-diving comets' or 'Kreutz sun-grazers'. These appear to be fragments of a comet that exploded at least 2000 years ago. Each year many of these plunge into the sun as the pass too close. During December 2010 over 25 of these sun-grazers were seen diving into the sun. These events did not interrupt the strong rise of the S&P500 over that time.

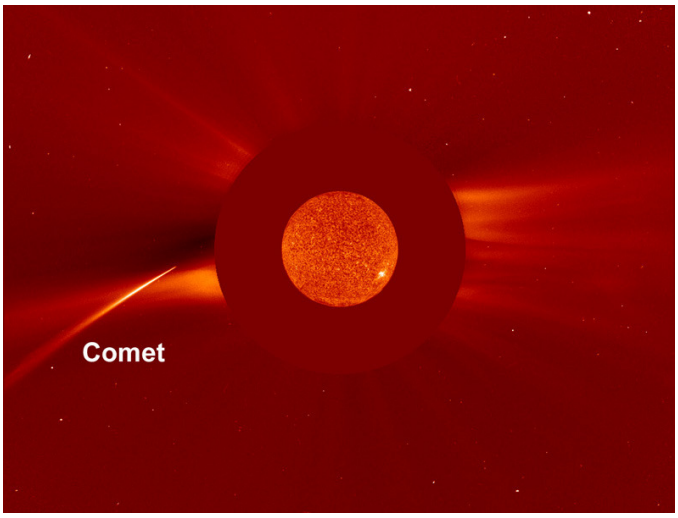

Image 4. A sun-grazer comet heading for the sun in 2010. The brilliance of the sun is covered by a disk.[8]

Enter the Molotov Cocktail

Key to events in space coinciding with major market events appears to be the volatile combination of both a comet event and the turning point of the sun's 11 year cycle.

[7] http://science.nasa.gov/science-news/science-at-nasa/2000/ast07jul_1/
[8] Source: http://apod.nasa.gov/apod/ap100116.html

Solar cycles represent the periodic increase and decrease of solar output. This cycle takes around 11 years. The Solar Maximum represents the peak of the sun's electrical output. It is also the time of the maximum number sun spots. The Solar Minimum is when the current from the sun it at its weakest. Like the turning of the ocean tide, both the Solar Maximum and Minimum appear to be points of electrical instability when the electrical environment in space appears more sensitive to external inputs such as an approaching comet. The Tech-Wreck crash and GFC coincide with the last solar maximum and solar minimum.

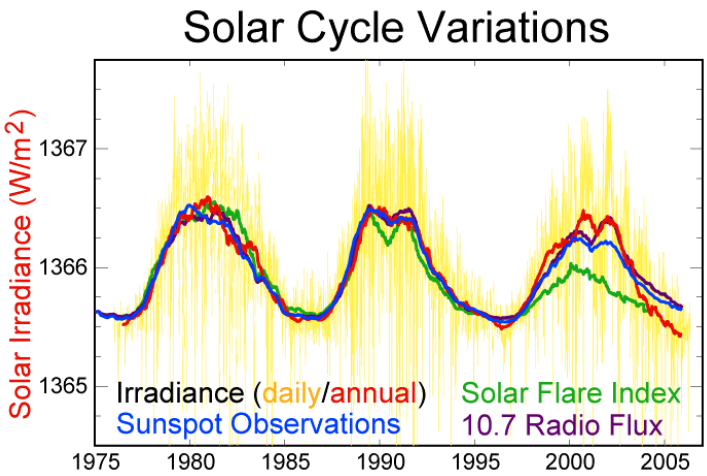

Figure 3. Activity cycles 21, 22 and 23 seen in sunspot number index, TSI, 10.7cm radio flux, and flare index.[9]

The Tech-Wreck Crash: Comet S4 Linear & Solar Maximum

Looking more closely at this Molotov combination on March 24th 2000 the S&P Depository Receipts Fund (symbol SPY) which tracks the S&P500 reached 153.56, a price it would only briefly regain 7 years later. The second peak on 25th August was at 151.25. March 2000 also represented the official solar maximum for solar cycle 23. Five months later in August 5th Comet C/1999 S4 (LINEAR) 'mysteriously' blew up a few days after its perihelion on 26th July. Some astronomers believe this was Comet LINEAR's first visit to the inner solar system. As with other abrupt electrical events, the Comet's demise is associated most closely with the second peak of the market.

[9] Source: http://en.wikipedia.org/wiki/Solar_cycle

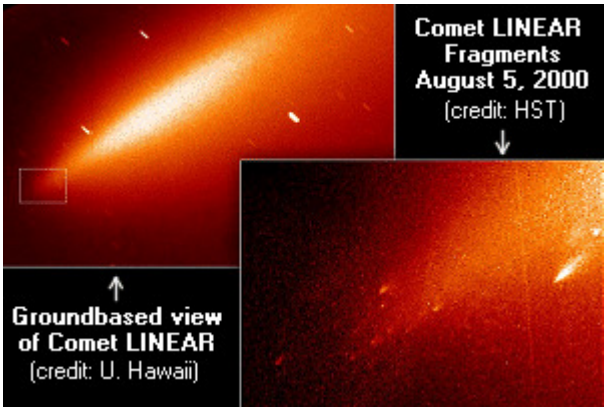

Image 6. The wreckage of Comet C/1999 S4 (LINEAR) as it blew up shortly after its perihelion.[10]

October 2007 Comet 17P/Holmes - The Financial Crisis.

On July 20th 2007 SPY peaked at 153.50. The second peak occurred on 5th October at 155.85, representing a 45% gain from the bottom of the 'Tech-Wreck' crash.

Image 7. Comet Holmes expanding to become briefly the brightest object in the sky.[11]

On 24th October astronomers witness the remarkable break up and brightening of comet 17P/Holmes. This was the largest know outburst by a comet. It also briefly became the largest object in the solar system, as its coma expanded to a diameter greater than that of the Sun.[12] Interestingly, comet Holmes exploded after its 4th

[10] Source: http://science.nasa.gov/science-news/science-at-nasa/2000/ast07aug_1m/

[11] http://apod.nasa.gov/apod/ap071121.html

[12] http://en.wikipedia.org/wiki/Comet_Holmes

May perihelion. Some researchers believe the event took place as the comet struck an area of highly charged plasma.

While officially ending in October 2008, the solar minimum was one of the most protracted in recent history.

Discussion

Like other major sectors, the financial markets appear to be influenced by electric events in space. In particular since 1999 abrupt electrical events generated by comets occurring at turning points in the 11 year solar cycle coincide with the onset of the Tech-Wreck Crash of 2000 and the 2008 Financial Crisis. This suggests that the monitoring of space weather conditions could be as valuable for the financial sector as it is for other industries.

Further Information

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Appendix: List of Solar Cycles

The following is a **list of solar cycles** (sometimes called sunspot cycles), tracked since 1755.[1][2][3][13]

Cycle	Started	Finished	Duration (years)	Maximum (monthly SSN (Smoothed Sunspot Number))[4]	Minimum (monthly SSN; end of cycle)[5][6]	Spotless days (end of cycle)[7][8][9]
Solar cycle 1	1755 March	1766 June	11.3	86.5 (June 1761)	11.2	
Solar cycle 2	1766 June	1775 June	9.0	115.8 (Sep 1769)	7.2	
Solar cycle 3	1775 June	1784 September	9.3	158.5 (May 1778)	9.5	
Solar cycle 4	1784 September	1798 May	13.7	141.2 (Feb 1788)	3.2	
Solar cycle 5	1798 May	1810 December	12.6	49.2 (Feb 1805)	0.0	
Solar cycle 6	1810 December	1823 May	12.4	48.7 (May 1816)	0.1	

[13] http://en.wikipedia.org/wiki/List_of_solar_cycles

Solar cycle 7	1823 May	1833 November	10.5	71.5 (Nov 1829)	7.3	
Solar cycle 8	1833 November	1843 July	9.8	146.9 (Mar 1837)	10.6	
Solar cycle 9	1843 July	1855 December	12.4	131.9 (Feb 1848)	3.2	~654
Solar cycle 10	1855 December	1867 March	11.3	98.0 (Feb 1860)	5.2	~406
Solar cycle 11	1867 March	1878 December	11.8	140.3 (Aug 1870)	2.2	~1028
Solar cycle 12	1878 December	1890 March	11.3	74.6 (Dec 1883)	5.0	~736
Solar cycle 13	1890 March	1902 February	11.9	87.9 (Jan 1894)	2.7	~938
Solar cycle 14	1902 February	1913 August	11.5	64.2 (Feb 1906)	1.5	~1019
Solar cycle 15	1913 August	1923 August	10.0	105.4 (Aug 1917)	5.6	534
Solar cycle 16	1923 August	1933 September	10.1	78.1 (Apr 1928)	3.5	568
Solar cycle 17	1933 September	1944 February	10.4	119.2 (Apr 1937)	7.7	269
Solar cycle 18	1944 February	1954 April	10.2	151.8 (May 1947)	3.4	446
Solar cycle 19	1954 April	1964 October	10.5	201.3 (Mar 1958)	9.6	227
Solar cycle 20	1964 October	1976 June	11.7	110.6 (Nov 1968)	12.2	272
Solar cycle 21	1976 June	1986 September	10.3	164.5 (Dec 1979)	12.3	273
Solar cycle 22	1986 September	1996 May	9.7	158.5 (Jul 1989)	8.0	309
Solar cycle 23	1996 May	2008 January [10]	12.6	120.8 (Mar 2000)	1.7	821 [11]
Solar cycle 24	2008 January [10]					
Mean			11.1	114.1	5.8	