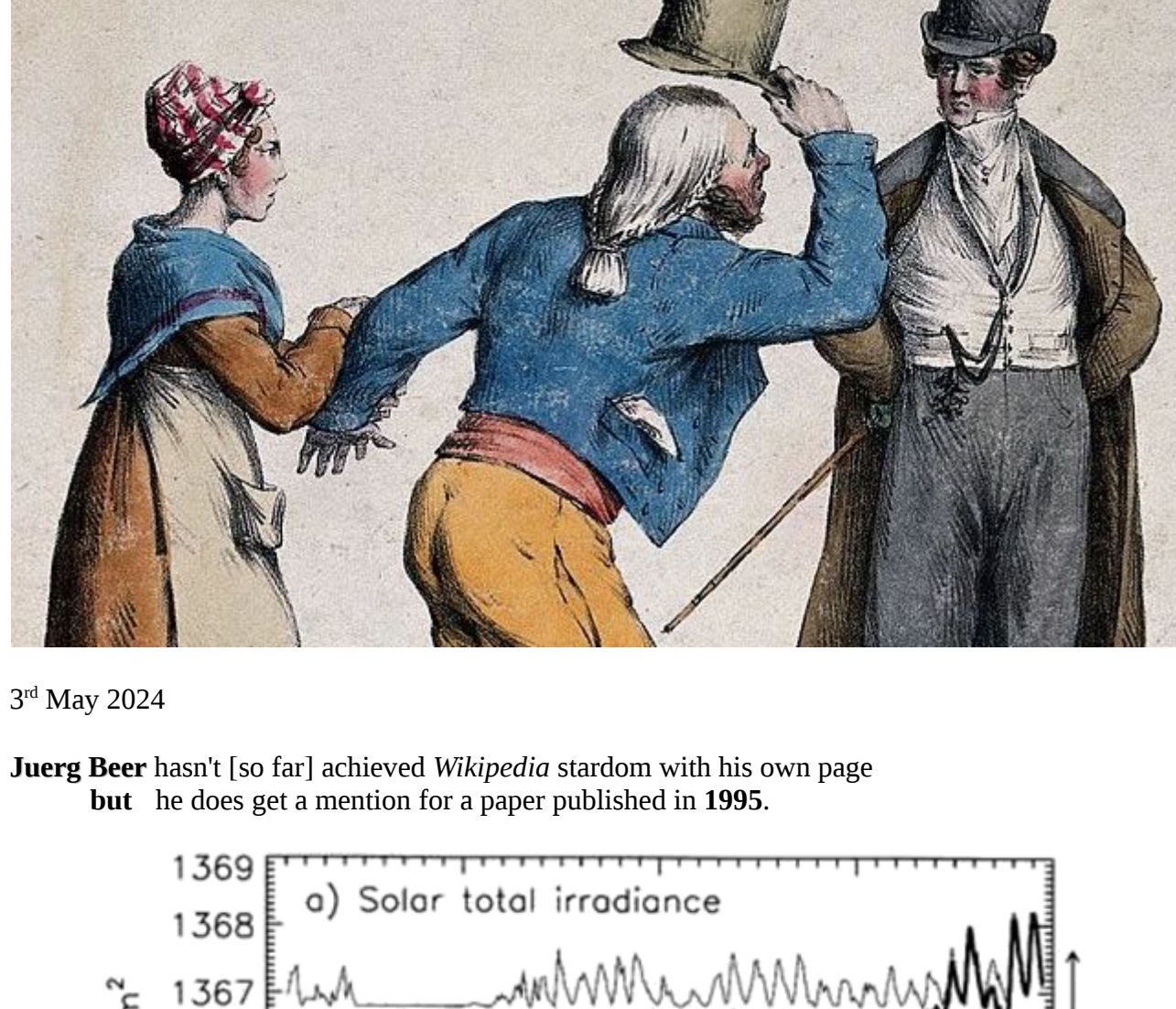
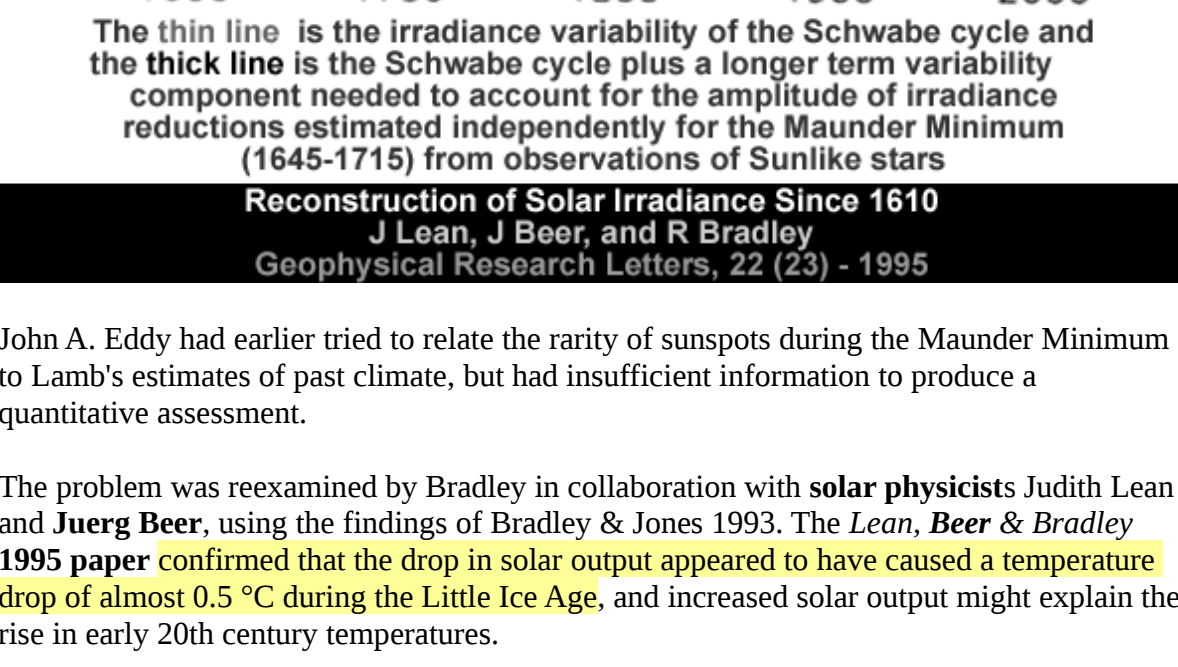


Juerg Beer



3rd May 2024

Juerg Beer hasn't [so far] achieved *Wikipedia* stardom with his own page but he does get a mention for a paper published in 1995.



The thin line is the irradiance variability of the Schwabe cycle and the thick line is the Schwabe cycle plus a longer term variability component needed to account for the amplitude of irradiance reductions estimated independently for the Maunder Minimum (1645-1715) from observations of Sunlike stars

Reconstruction of Solar Irradiance Since 1610
J Lean, J Beer, and R Bradley
Geophysical Research Letters, 22 (23) - 1995

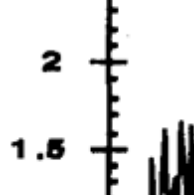
John A. Eddy had earlier tried to relate the rarity of sunspots during the Maunder Minimum to Lambert's estimates of past climate, but had insufficient information to produce a quantitative assessment.

The problem was reexamined by Bradley in collaboration with solar physicists Judith Lean and **Juerg Beer**, using the findings of Bradley & Jones 1993. The *Lean, Beer & Bradley 1995* paper confirmed that the drop in solar output appeared to have caused a temperature drop of almost 0.5 °C during the Little Ice Age, and increased solar output might explain the rise in early 20th century temperatures.

Wikipedia - Hockey Stick Graph (global temperature)
[https://en.wikipedia.org/wiki/Hockey_stick_graph_\(global_temperature\)](https://en.wikipedia.org/wiki/Hockey_stick_graph_(global_temperature))

The correlation of reconstructed solar irradiance and Northern Hemisphere (NH) surface temperature is 0.86 in the pre-industrial period from 1610 to 1800, implying a predominant solar influence.

Reconstruction of Solar Irradiance Since 1610: Implications for Climate Change
J Lean, J Beer, and R Bradley
Geophysical Research Letters, 22 (23) - 1995
https://web.archive.org/web/20141129053822/http://www.atmos.physics.utoronto.ca/people/guido/PHY2502/articles/solar-activity/Solar_Irradiance.pdf



Juerg Beer

Eawag: Das Wasserforschungs-Institut des ETH-Bereichs | Eawag - Swiss Federal Institute for Environmental Science and Technology (EAWAG) and Swiss Federal Institute of Technology (ETH)
PhD

Publications (441)

ResearchGate - Juerg Beer

<https://www.researchgate.net/profile/Juerg-Beer-2>

The year before [1994] **Juerg Beer** [aka Jürg Beer] produced a really remarkable ¹⁰Be chronology for the Dye-3 ice core covering the period 1423-1985 CE.

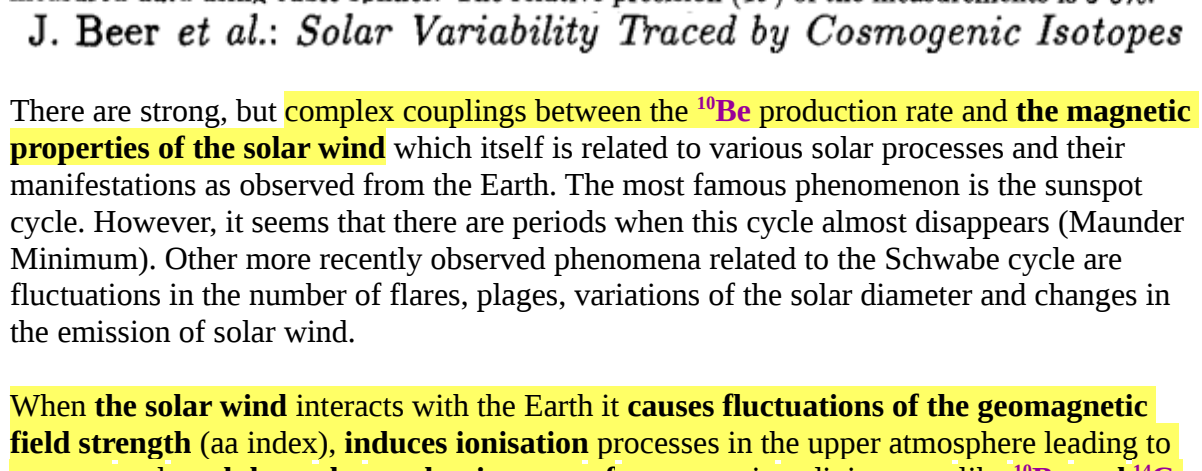


FIGURE 1. (a) Annual ¹⁰Be concentration in 10⁴ atoms per gram ice after interpolation of the measured data using cubic splines. The relative precision (1σ) of the measurements is 5-8%.

J. Beer et al.: Solar Variability Traced by Cosmogenic Isotopes

There are strong, but complex couplings between the ¹⁰Be production rate and the magnetic properties of the solar wind which itself is related to various solar processes and their manifestations as observed from the Earth. The most famous phenomenon is the sunspot cycle. However, it seems that there are periods when this cycle almost disappears (Maunder Minimum). Other more recently observed phenomena related to the Schwabe cycle are fluctuations in the number of flares, plagues, variations of the solar diameter and changes in the emission of solar wind.

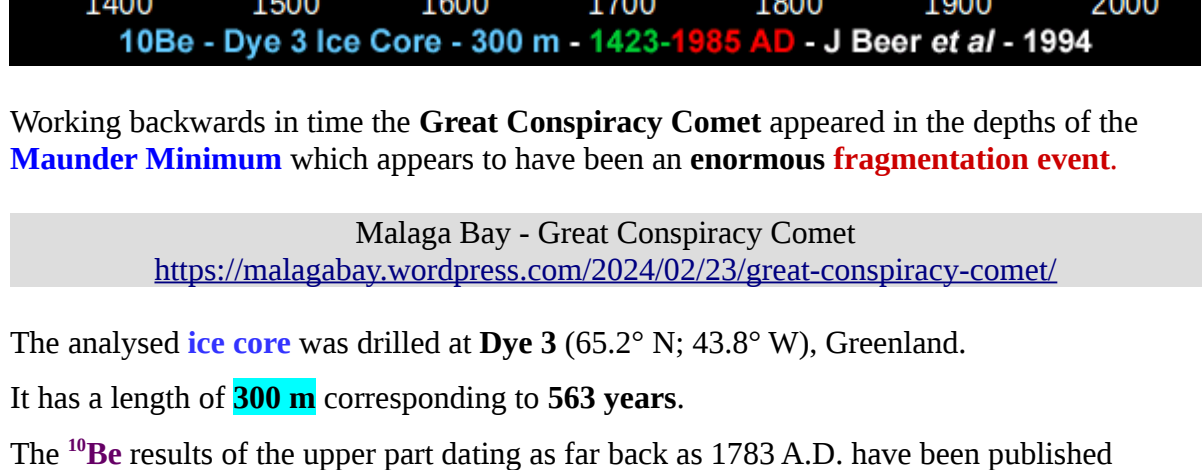
When the solar wind interacts with the Earth it causes fluctuations of the geomagnetic field strength (aa index), induces ionisation processes in the upper atmosphere leading to auroras, and modulates the production rate of cosmogenic radioisotopes like ¹⁰Be and ¹⁴C.

Solar Variability Traced by Cosmogenic Isotopes

Jürg Beer, Stephan T. Baumgartner, Beate Dittrich-Hannen, Jürg Hauenstein, Peter Kubik, Christian Lukaszczk, Werner Mende, Rita Stellmacher, and Martin Suter

International Astronomical Union Colloquium - Volume 143 - 1994
<https://www.cambridge.org/core/journals/international-astronomical-union-colloquium/article/solar-variability-traced-by-cosmogenic-isotopes/EDD8F0EBA3573BC4D577F72E122A1B4C>

1st The headline feature of the ¹⁰Be Dye-3 ice core chronology is it's excellent alignment with Leona Libby's Old Japanese Cedar Tree and the Great Conspiracy Comet chronologies.



Working backwards in time the Great Conspiracy Comet appeared in the depths of the Maunder Minimum which appears to have been an enormous fragmentation event.

Malaga Bay - Great Conspiracy Comet

<https://malagabay.wordpress.com/2024/02/23/great-conspiracy-comet/>

The analysed ice core was drilled at Dye 3 (65.2° N; 43.8° W), Greenland.

It has a length of 300 m corresponding to 563 years.

The ¹⁰Be results of the upper part dating as far back as 1783 A.D. have been published earlier (Beer et al. 1990).

Dating of the upper part is based on determinations of annual layer thicknesses by measuring H₂O₂ which shows strong seasonality.

Before 1783 the core was cut into 50 cm and further down into 40 cm long pieces which is close to the annual accumulation.

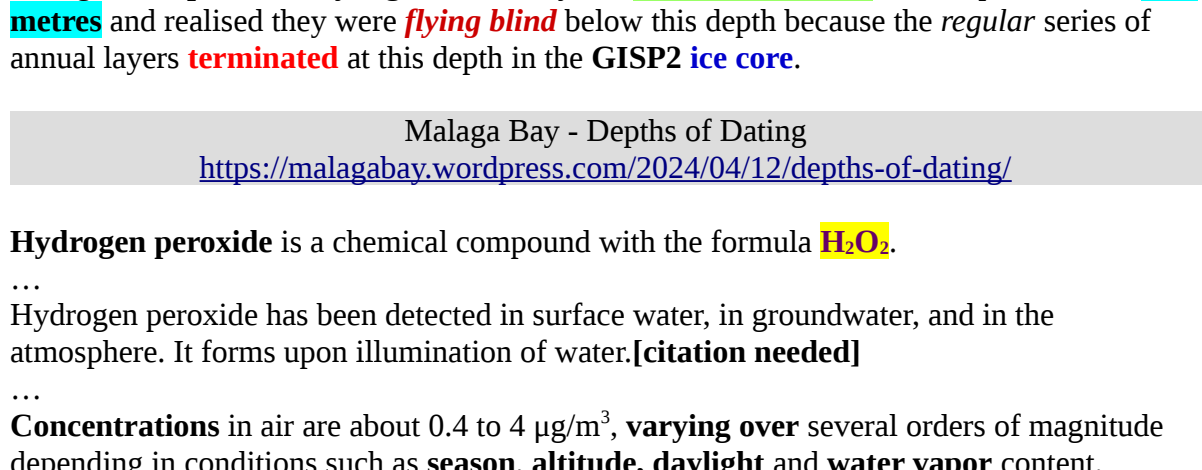
The time scale was established afterwards using δ¹⁸O variations on the nearby deep-drilling core (Claussen, personal communication) assuming that the annual layers do not differ significantly between the two cores.

The measured data which cover the period from 1423 AD, to 1985 AD, have been interpolated using natural cubic splines to obtain equidistant annual data.

Solar Variability Traced by Cosmogenic Isotopes

Jürg Beer, Stephan T. Baumgartner, Beate Dittrich-Hannen, Jürg Hauenstein, Peter Kubik, Christian Lukaszczk, Werner Mende, Rita Stellmacher, and Martin Suter

International Astronomical Union Colloquium - Volume 143 - 1994
<https://www.cambridge.org/core/journals/international-astronomical-union-colloquium/article/solar-variability-traced-by-cosmogenic-isotopes/EDD8F0EBA3573BC4D577F72E122A1B4C>



The sampling regime adopted for the GISP2 ice core suggests they encountered Willi Dansgaard's "particularly high" annual layers "around A.D. 1400" at a depth of about 300 metres and realised they were flying blind below this depth because the regular series of annual layers terminated at this depth in the GISP2 ice core.

Malaga Bay - Depths of Dating

<https://malagabay.wordpress.com/2024/04/12/depths-of-dating/>

Hydrogen peroxide is a chemical compound with the formula H₂O₂.

Hydrogen peroxide has been detected in surface water, in groundwater, and in the atmosphere. It forms upon illumination of water.[citation needed]

Concentrations in air are about 0.4 to 4 µg/m³, varying over several orders of magnitude depending in conditions such as season, altitude, daylight and water vapor content.

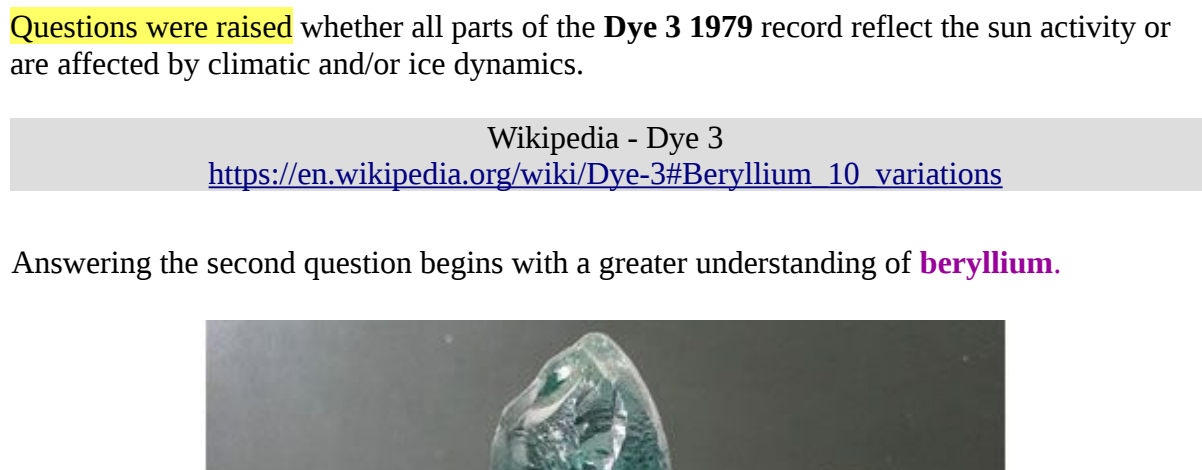
Malaga Bay - Hydrogen Peroxide

https://en.wikipedia.org/wiki/H2O2#Natural_occurrence

However:

There are two intriguing curiosities associated with this ¹⁰Be Dye-3 ice core chronology:

- ▶ Why does the chronology end in 1985 AD when it's reported Dye-3 drilling began in 1979?
- ▶ Why is this the only long record of ¹⁰Be available?



Beryllium 10 variations

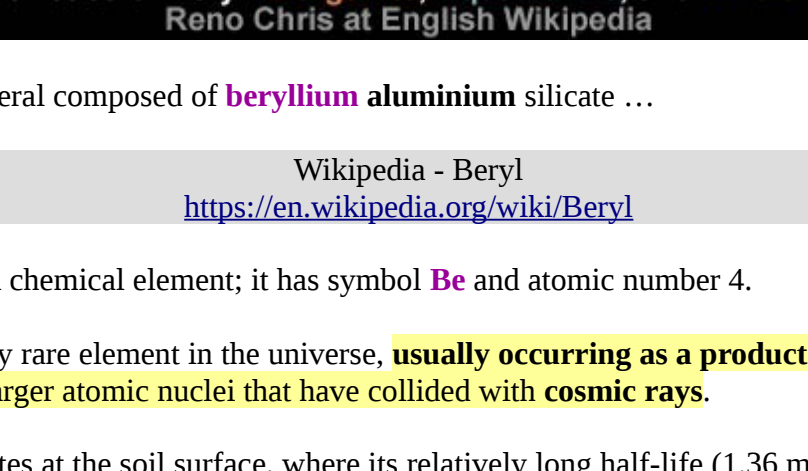
As of 1998 the only long record available for ¹⁰Be is from Dye 3 1979.

Questions were raised whether all parts of the Dye 3 1979 record reflect the sun activity or are affected by climatic and/or ice dynamics.

Wikipedia - Dye 3

https://en.wikipedia.org/wiki/Dye-3#Beryllium_10_variations

2nd Answering the second question begins with a greater understanding of beryllium.



Varieties of Beryl: Morganite, Aquamarine, and Emerald
Reno Chris at English Wikipedia

Beryl is a mineral composed of beryllium aluminium silicate ...

Wikipedia - Beryl

<https://en.wikipedia.org/wiki/Beryl>

Beryllium is a chemical element; it has symbol **Be** and atomic number 4.

It is a relatively rare element in the universe, usually occurring as a product of the spallation of larger atomic nuclei that have collided with cosmic rays.

¹⁰Be accumulates at the soil surface, where its relatively long half-life (1.36 million years) permits a long residence time before decaying to boron-10.

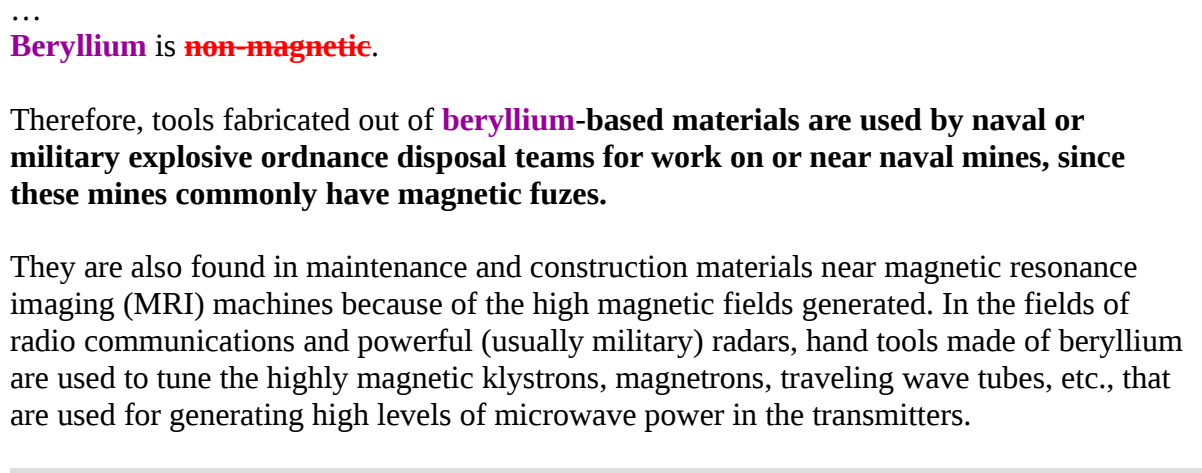
Thus, ¹⁰Be and its daughter products are used to examine natural soil erosion, soil formation and the development of lateritic soils, and as a proxy for measurement of the variations in solar activity and the age of ice cores.

Wikipedia - Beryllium

<https://en.wikipedia.org/wiki/Beryllium>

More specifically:

The repellent diamagnetic properties of beryllium [and water] help explain it's global distribution.



Hollow Beryllium Sphere
Gyrocompass for a Boeing B-52 Stratofortress
Wikimedia: Aatze78

Magnetic ordering diamagnetic

Beryllium is non-magnetic.

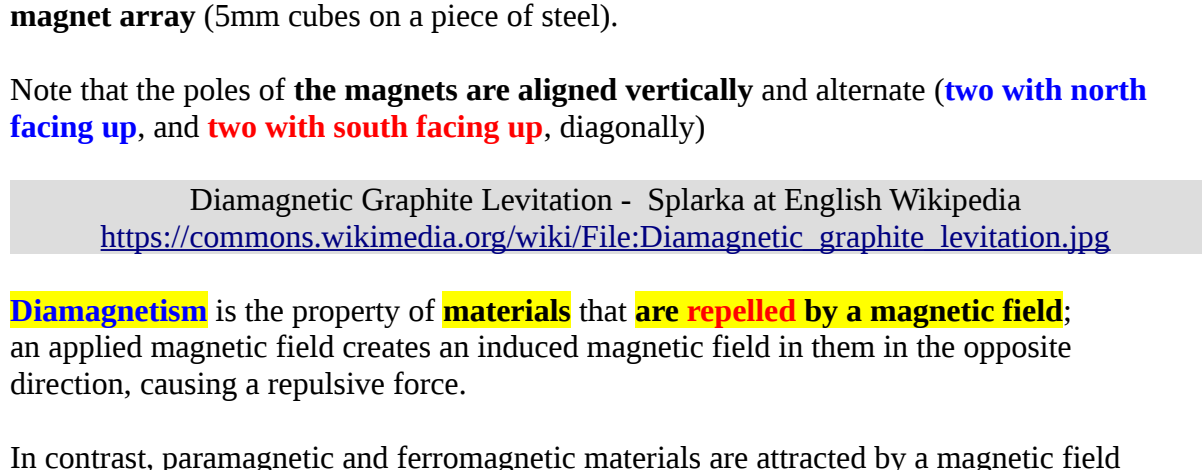
Therefore, tools fabricated out of beryllium-based materials are used by naval or military explosive ordnance disposal teams for work on or near naval mines, since these mines commonly have magnetic fuzes.

They are also found in maintenance and construction materials near magnetic resonance imaging (MRI) machines because of the high magnetic fields generated. In the fields of radio communication and powerful (usually military) radars, hand tools made of beryllium are used to tune the highly magnetic klystrons, magnetrons, traveling wave tubes, etc., that are used for generating high levels of microwave power in the transmitters.

Wikipedia - Beryllium

<https://en.wikipedia.org/wiki/Beryllium>

Although the maximum production of ¹⁰Be occurs in the polar stratosphere it is repelled away from falling in areas of high magnetic intensity i.e. The Geomagnetic North and South Poles.



Splarka at English Wikipedia

A small (~6mm) piece of pyrolytic graphite levitating over a permanent neodymium magnet array (5mm cubes on a piece of steel).

Note that the poles of the magnets are aligned vertically and alternate (two with north facing up, and two with south facing up, diagonally)

Diamagnets Graphite Levitation - Splarka at English Wikipedia

https://commons.wikimedia.org/wiki/File:Diamagnetic_graphite_levitation.jpg

Diamagnetism is the property of materials that are repelled by a magnetic field; an applied magnetic field creates an induced magnetic field in them in the opposite direction, causing a repulsive force.

In contrast, paramagnetic and ferromagnetic materials are attracted by a magnetic field

Wikipedia - Diamagnetism

<https://en.wikipedia.org/wiki/Diamagnetism>

Ice cores are invaluable archives to constrain past atmospheric production rate changes of cosmogenic radionuclides (CRNs, e.g. ¹⁰Be, ³⁶Cl, ¹⁴C). The CRN-production rates depend on the incoming flux of cosmic rays which trigger a nuclear cascade in the atmosphere, eventually resulting in CRN production (Lal & Peters, 1967). The cosmic ray flux inside the heliosphere, in turn, depends on the strength of the interplanetary magnetic field, related to solar activity, and the geomagnetic field.

... roughly two-thirds of the global ¹⁰Be production occur in the stratosphere and one third in the troposphere (Heikkilä et al., 2009).

Second, the Earth's dipole-dominated magnetic field provides no shielding around the geomagnetic poles, where the fieldlines are approximately perpendicular to Earth's surface, as opposed to at the equator, where the shielding is strongest.

The combined effect is a CRN-production maximum in the polar stratosphere, and a minimum in the equatorial troposphere.

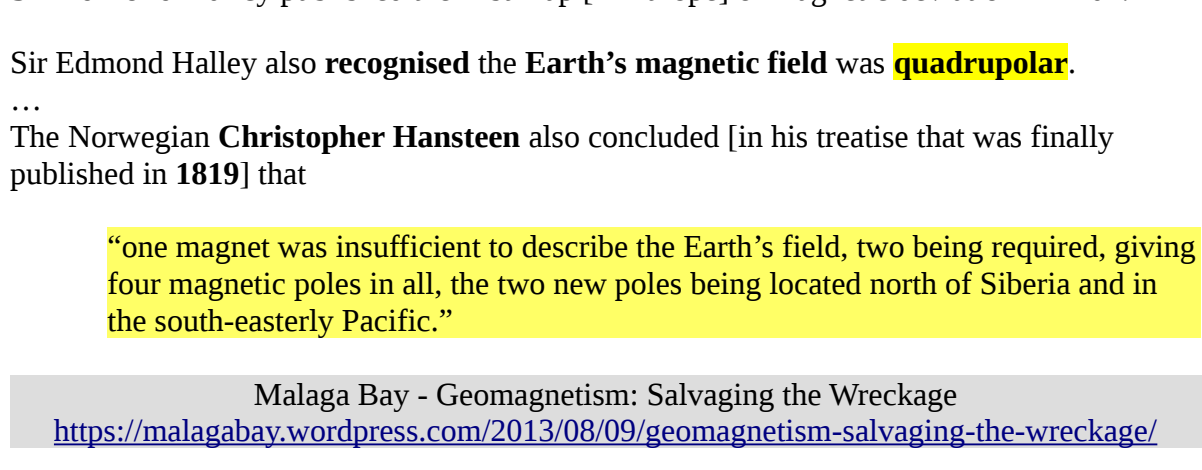
On the Polar Bias in Ice Core ¹⁰Be Data

F Adolph, K Herbst, A Nilsson, and S Panovska

Journal of Geophysical Research: Atmospheres - 128(4) - February 2023

Similarly:

Geomagnetic repulsion prevents the Earth colliding with orbiting objects like the Moon.



Sir Edmond Halley published the first map [in Europe] of magnetic deviation in 1702.

Sir Edmond Halley also recognised the Earth's magnetic field was quadrupolar.

The Norwegian Christopher Hansteen also concluded [in his treatise that was finally published in 1819] that

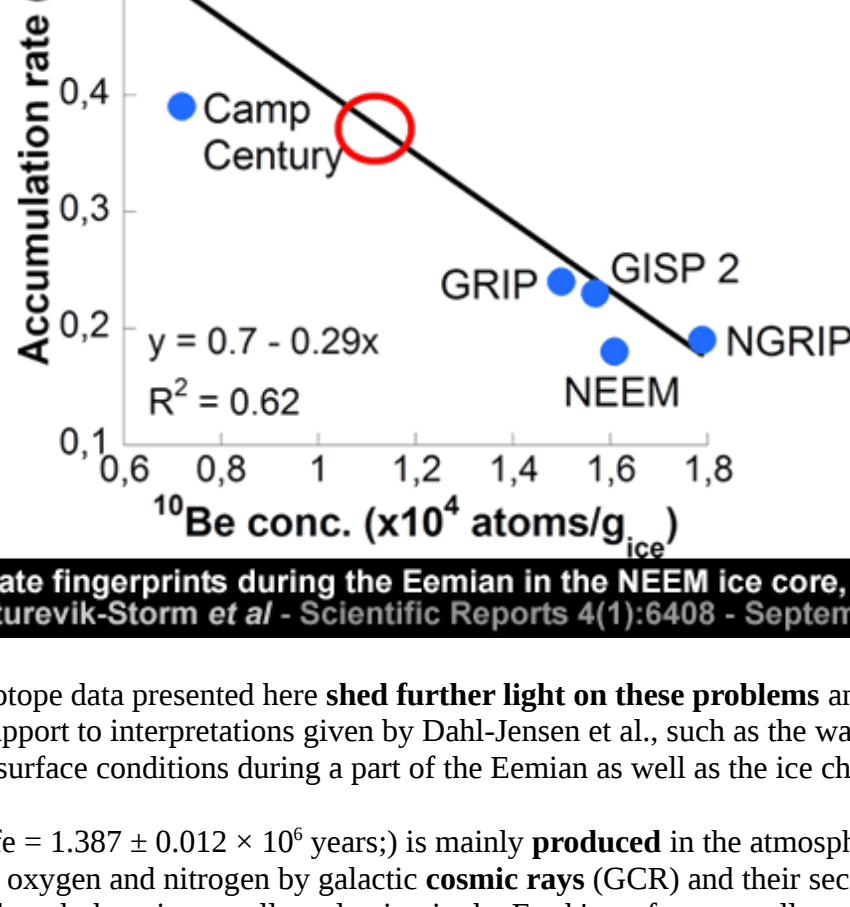
"one magnet was insufficient to describe the Earth's field, two being required, giving four magnetic poles in all, the two new poles being located north of Siberia and in the south-easterly Pacific."

Malaga Bay - Geomagnetism: Salvaging the Wreckage

<https://malagabay.wordpress.com/2013/08/09/geomagnetism-salvaging-the-wreckage/>

The fun really begins when the *gradualist* mainstream tries to interpret the ¹⁰Be measurements and *ice accumulation rates* recovered from the Greenland *ice cores*:

- ▶ The anomalous high *ice accumulation rates* associated with the Camp Century and Dye-3 *ice cores* reflect the clockwise rotation of Greenland during the period of **continuous snowing** triggered by the Southern Hemisphere being continuously tilted towards the Sun.
- ▶ The more modest *ice accumulation rates* associated with GRIP, GISP2, and NGRIP reflects the centre of *ice accumulation* moving to Central Greenland after the **end** of the period of **continuous snowing** when the Southern Hemisphere was tilted towards the Sun.



¹⁰Be climate fingerprints during the Eemian in the NEEM ice core, Greenland Anna Sturevik-Storm *et al* - Scientific Reports 4(1):6408 - September 2014

New ¹⁰Be isotope data presented here **shed further light on these problems** and provide in some part support to interpretations given by Dahl-Jensen *et al.*, such as the warmer climate and the wet surface conditions during a part of the Eemian as well as the ice chronology.

¹⁰Be (half-life = $1.387 \pm 0.012 \times 10^6$ years); is mainly **produced** in the atmosphere through spallation of oxygen and nitrogen by galactic **cosmic rays** (GCR) and their secondary particles, although there is a small production in the Earth's surface as well.

The nuclide is **deposited** on the Earth's surface **through wet and/or dry fallout** and is stored in natural archives such as ice and sediment.

The production of ¹⁰Be is **modulated by the variation in the strength of the geomagnetic field** as well as by solar magnetic shielding.

¹⁰Be Climate Fingerprints During The Eemian In The NEEM Ice Core, Greenland Anna Sturevik-Storm, Ala Aldahan, Göran Possnert, Ann-Marie Berggren, Raimund Muscheler, Dorthe Dahl-Jensen, Bo M Vinther, and Ilya Usoskin Scientific Reports 4(1):6408 - September 2014 <http://dx.doi.org/10.1038/srep06408>



The arrival of the *new regime* at the GISP2 site was triggered by the clockwise rotation of the Greenland landmass caused by the expansion of the Polar and Atlantic basins.



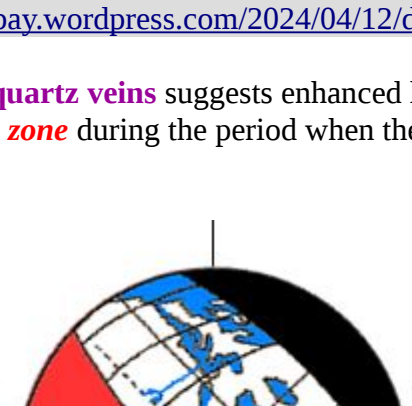
The **clockwise rotation of the Greenland landmass** is vividly illustrated by the current position of the **Eastern Settlement** being to the **South** of the **Western Settlement**.



The **clockwise rotation of the landmass reversed the precipitation pattern** so that the centre of **Ice Sheet** accumulation is now wedged between high mountains in central Greenland.

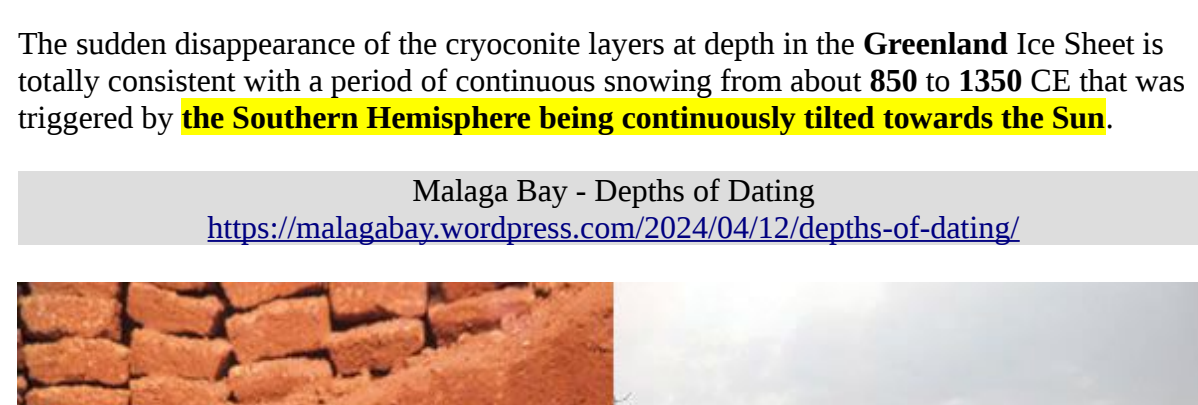
Malaga Bay - Depths of Dating <https://malagabay.wordpress.com/2024/04/12/depths-of-dating/>

The ¹⁰Be found in **laterite soils** and **quartz veins** suggests enhanced levels of atmospheric and *in situ* ¹⁰Be were created in the **burning zone** during the period when the Southern Hemisphere was continuously tilted towards the Sun.



The sudden disappearance of the cryoconite layers at depth in the **Greenland Ice Sheet** is totally consistent with a period of continuous snowing from about **850 to 1350 CE** that was triggered by **the Southern Hemisphere being continuously tilted towards the Sun**.

Malaga Bay - Depths of Dating <https://malagabay.wordpress.com/2024/04/12/depths-of-dating/>



... ¹⁰Be and its daughter products are used to examine ... the development of **lateritic** soils ...

Wikipedia - Beryllium <https://en.wikipedia.org/wiki/Beryllium>

Laterite is a soil type rich in iron and aluminium ... Nearly all laterites are of **rusty-red coloration**, because of **high iron oxide** content. ... The majority of the land area containing laterites is **between the tropics of Cancer and Capricorn**.

... Yves Tardy, from the *French Institut National Polytechnique de Toulouse* and the *Centre National de la Recherche Scientifique*, calculated that **laterites cover about one-third of the Earth's continental land area**.

Wikipedia - Laterite <https://en.wikipedia.org/wiki/Laterite>

¹⁰Be sample location and data

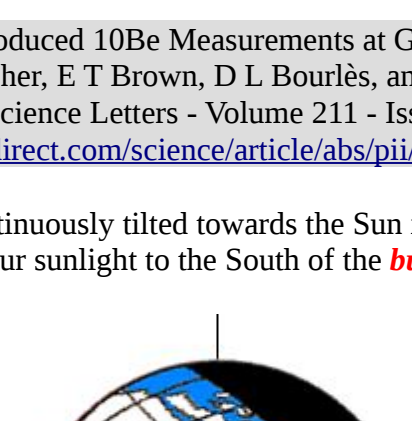
Sample	Sample location	Sampling depth (g/cm ²)	¹⁰ Be (10 ⁴ at/g)	Error (1σ) (10 ⁴ at/g)
BR96-15A	Site 2	0	149.00	43.72
BR96-15B	Site 2	85	107.01	7.42
BR96-15C	Site 2	136	64.30	7.08
BR96-15D	Site 2	300	32.03	3.52
BR96-15E	Site 2	900	8.04	0.923

R. Braucher *et al* - Earth and Planetary Science Letters -211 - 2003

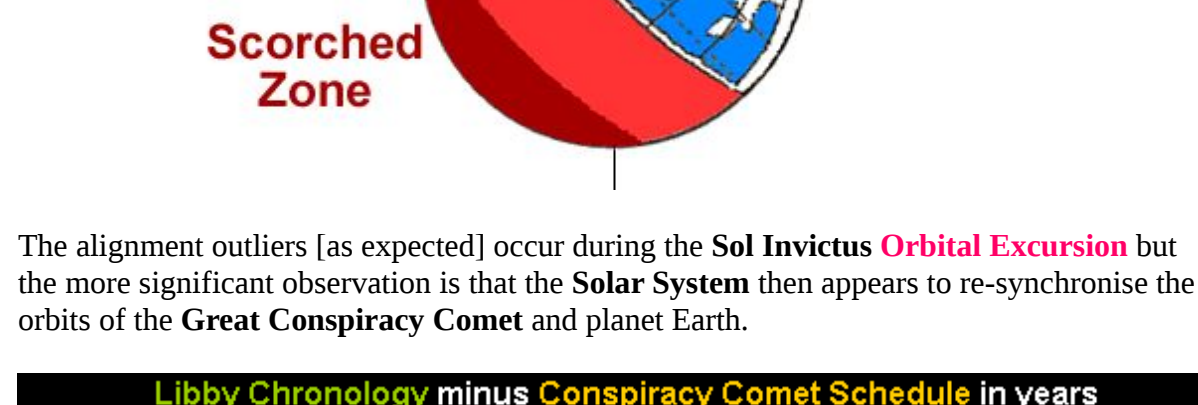
In situ cosmogenic ¹⁰Be values have been used to investigate a **Brazilian quartz vein** from the surface to a depth of **15 m**.

In Situ Produced 10Be Measurements at Great Depths R Braucher, E T Brown, D L Bourlés, and F Colin Earth and Planetary Science Letters - Volume 211 - Issues 3-4 - 30 June 2003 <https://www.sciencedirect.com/science/article/abs/pii/S0012821X0300205X>

The Southern Hemisphere being continuously tilted towards the Sun implies there was an extremely fierce **scorched zone** enduring 24 hour sunlight to the South of the **burning zone**.

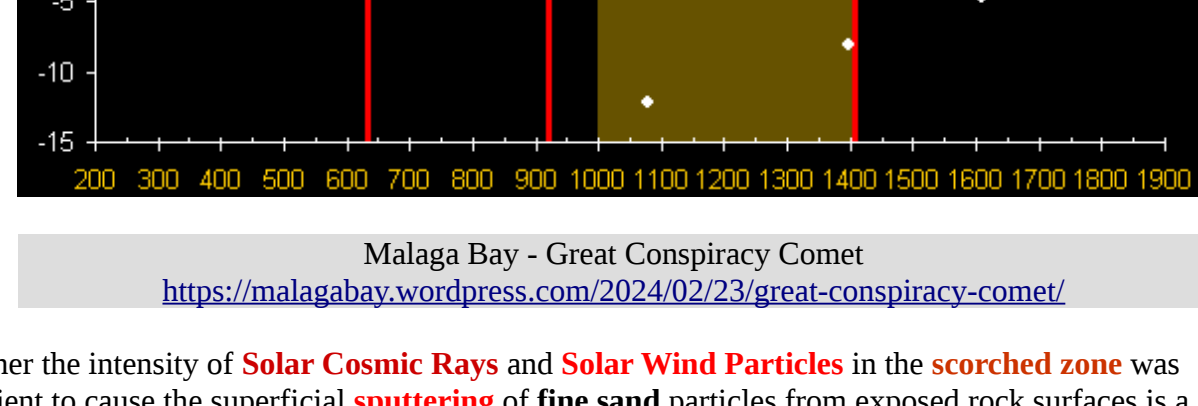


The alignment outliers [as expected] occur during the **Sol Invictus Orbital Excursion** but the more significant observation is that the **Solar System** then appears to re-synchronise the orbits of the **Great Conspiracy Comet** and the **Planet Earth**.



Malaga Bay - Great Conspiracy Comet <https://malagabay.wordpress.com/2024/03/24/great-conspiracy-comet/>

Whether the cause of **Solar Cosmic Rayings** and **Solar Sand Particles** in the **scorched zone** is a matter of conjecture that might explain the vast quantities of remarkably fine grained sand deposited in [for example] North Africa.



In physics, **sputtering** is a phenomenon in which microscopic **particles of a solid material** are **ejected from its surface**, after the material is itself **bombarded by energetic particles** of a plasma or gas. ... **The ions that cause sputtering come from a variety of sources**— they can come from plasma, specially constructed ion sources, particle accelerators, outer space (e.g. **solar wind**), or radioactive materials (e.g. alpha radiation).

Wikipedia - Sputtering <https://en.wikipedia.org/wiki/Sputtering>



Malaga Bay - Malaga Orange Alert <https://malagabay.wordpress.com/2022/03/24/malaga-orange-alert/>



Late Roman settlements - Northern Kharga, Egypt - Google Earth images Wind, Sand and Water: The Orientation of the Late Roman Forts in the Kharga Oasis Corinna Rossi and Giulio Magli - Politecnico di Milano

The draining of surface **water** and the dropping of ground water levels [around] 230 BC will have left many **Roman settlements** [literally] **high and dry**.

Malaga Bay - Enigmatic Egypt: Roman Ruination - Desert <https://malagabay.wordpress.com/2018/05/07/enigmatic-egypt-roman-ruination-desert/>



The dates of the **Late Roman Rulers** should be incremented by **394 years**. The dates of the **Early Roman Rulers** should be incremented by **1,180 years**.

Malaga Bay - Heinsohn Highlanders <https://malagabay.wordpress.com/2023/08/28/heinsohn-highlanders/>

3rd The ¹⁰Be **Dye-3 ice core** chronology produced by **Juerg Beer** confirms the Earth once played **Russian Roulette** with the **Great Conspiracy Comet** every 106 years.

The remnant **Comet Skjellerup-Maristany** suggests the **Great Conspiracy Comet** had an inclination of 85.1° and the ¹⁰Be **Dye-3 ice core** chronology indicates:

the Northern Hemisphere experienced an inbound **Maunder Minimum** centred upon 1715 and the Southern Hemisphere experienced an outbound **Maunder Minimum** centred upon 1503.

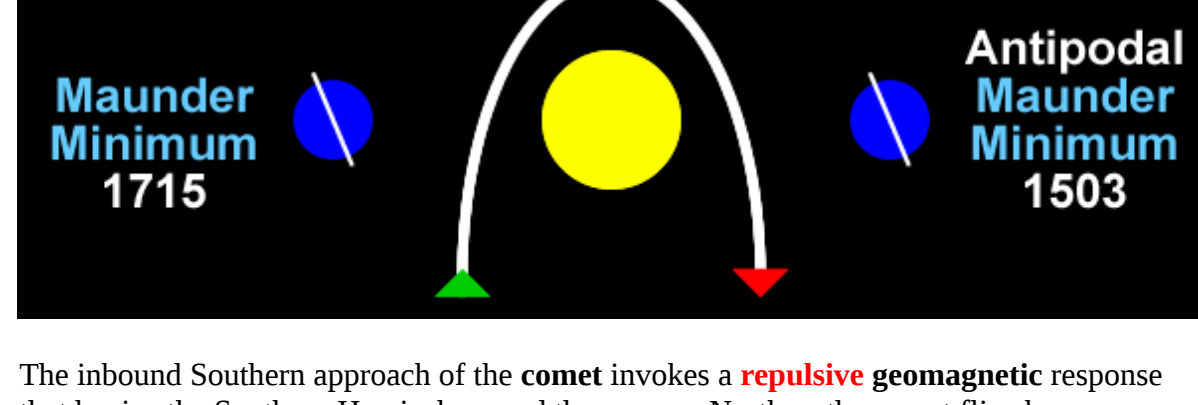


▶ The inbound Southern approach of the **comet** invokes a **repulsive geomagnetic** response that begins the Southern Hemisphere and then moves North as the comet flies-by.

The **repulsive geomagnetic** response in the Southern Hemisphere **repels** atmospheric ¹⁰Be towards the Northern Hemisphere but this scenario reverses as the comet moves Northwards.

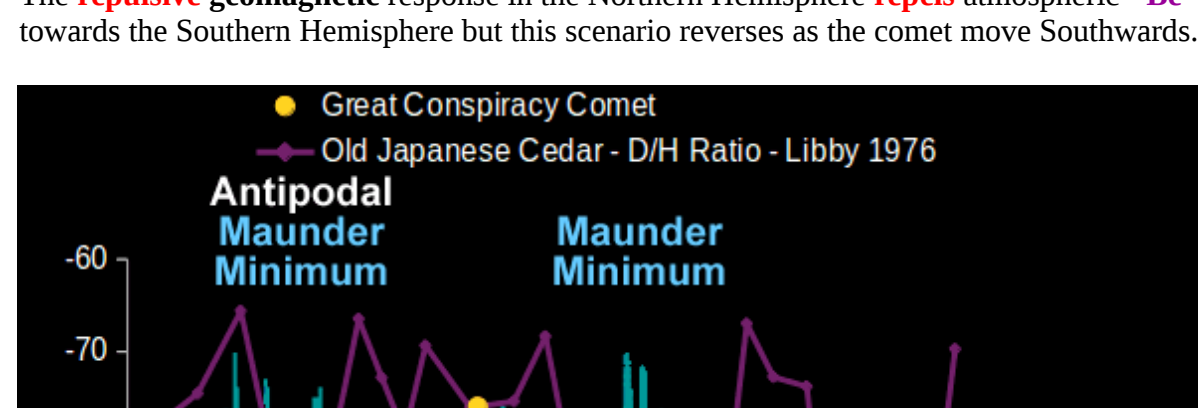
▶ The outbound Northern approach of the **comet** invokes a **repulsive geomagnetic** response that begins the Northern Hemisphere and then moves South as the comet flies-by.

The **repulsive geomagnetic** response in the Northern Hemisphere **repels** atmospheric ¹⁰Be towards the Southern Hemisphere but this scenario reverses as the comet move Southwards.



1503 ... July 23 ... **Pluto** moved outside Neptune's orbit, remaining there for 233 years.

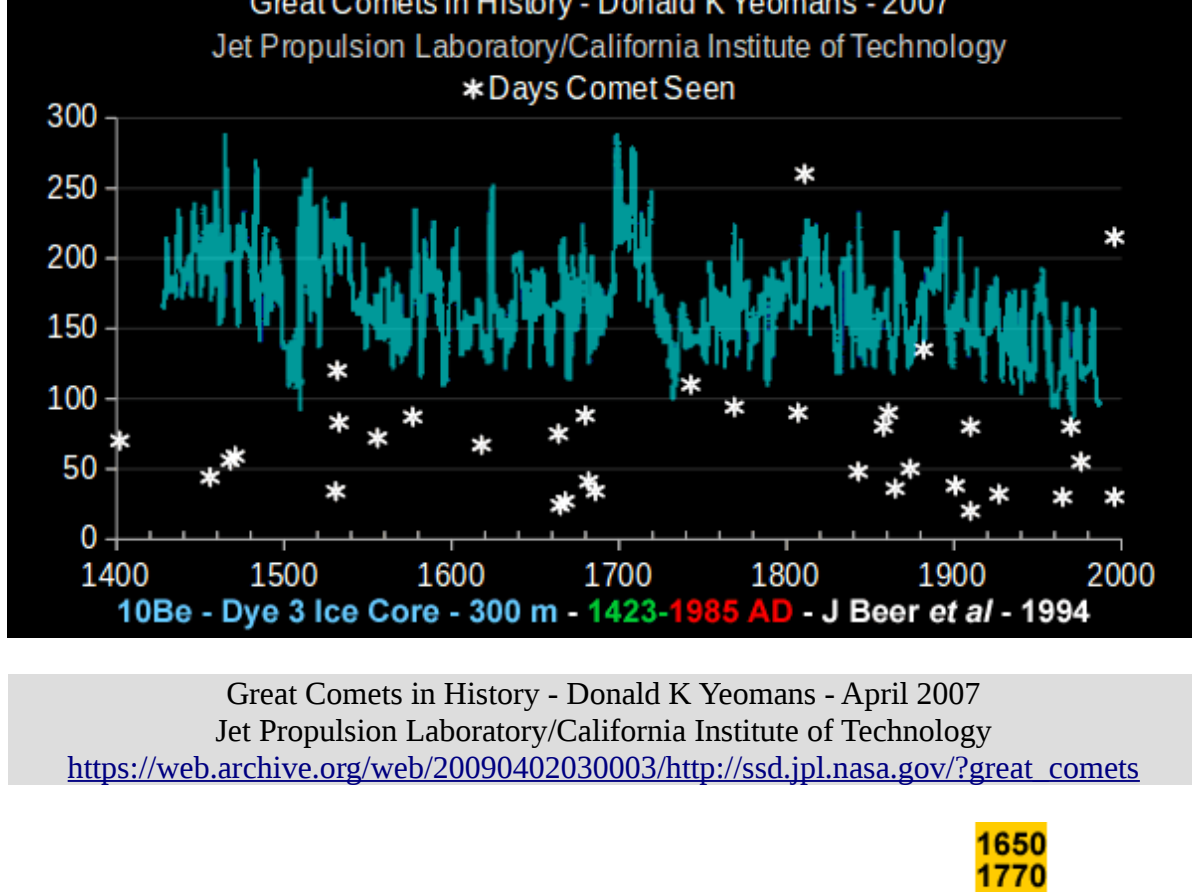
Wikipedia - 1503 <https://en.wikipedia.org/wiki/1503>



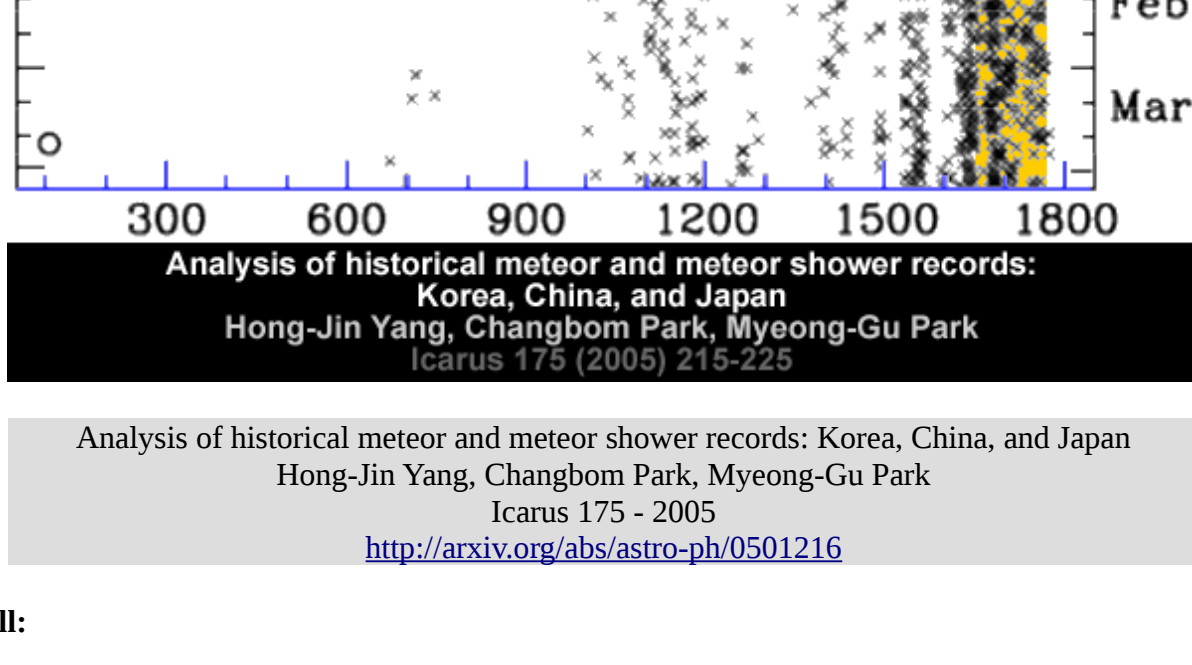
Working backwards in time the **Great Conspiracy Comet** appeared in the depths of the **Maunder Minimum** which appears to have been an **enormous fragmentation event**.

Malaga Bay - Great Conspiracy Comet <https://malagabay.wordpress.com/2024/02/23/great-conspiracy-comet/>

Similar patterns in the ¹⁰Be-Dye-3 ice core chronology reflect the passage of other **Great Comets**.



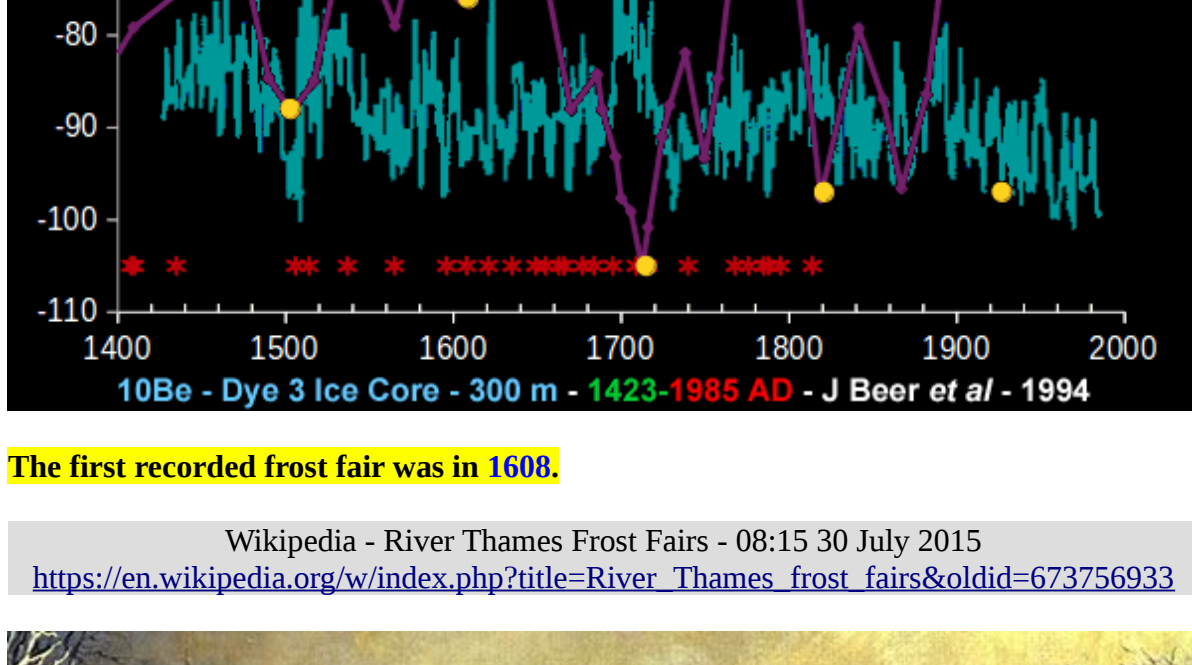
Great Comets in History - Donald K Yeomans - April 2007
 Jet Propulsion Laboratory/California Institute of Technology
https://web.archive.org/web/20090402030003/http://ssd.jpl.nasa.gov/?great_comets



Analysis of historical meteor and meteor shower records: Korea, China, and Japan
 Hong-Jin Yang, Changbom Park, Myeong-Gu Park
 Icarus 175 - 2005
<http://arxiv.org/abs/astro-ph/0501216>

Overall:

Between **1503** and **1821** Londoners endured some very cold winters and enjoyed some **Frost Fairs**.



Wikipedia - River Thames Frost Fairs - 08:15 30 July 2015
https://en.wikipedia.org/w/index.php?title=River_Thames_frost_fairs&oldid=673756933



The most celebrated frost fair occurred in the winter of 1683–84. Activities included horse and coach racing, ice skating, puppet throwing and bull-baiting, as well as football, nine-pin bowling, sledding, fox hunting, and playing at cocks.

Wikipedia - River Thames Frost Fairs
https://en.wikipedia.org/wiki/Frost_fair

Great Frost of 1683-1684 was a frost across England, reported as the **worst in its history**. ... the River Thames was reported as frozen to the depth of one foot (30 cm).

Wikipedia - Great Frost of 1683-84
https://en.wikipedia.org/wiki/Great_Frost_of_1683%E2%80%9384

The *Phantom Frosts* in Tegg's *Frost Chronology* indicate the period of *Phantom History* begins in 220 AD and [if Edwin Johnson is correct] finishes in 1400 CE.

Malaga Bay - 1400 Years of Fabricated Frosts
<https://malagabay.wordpress.com/2021/03/01/1400-years-of-fabricated-frosts/>

With the remnants of the **Great Conspiracy Comet** causing another **Maunder Minimum** in 1821.



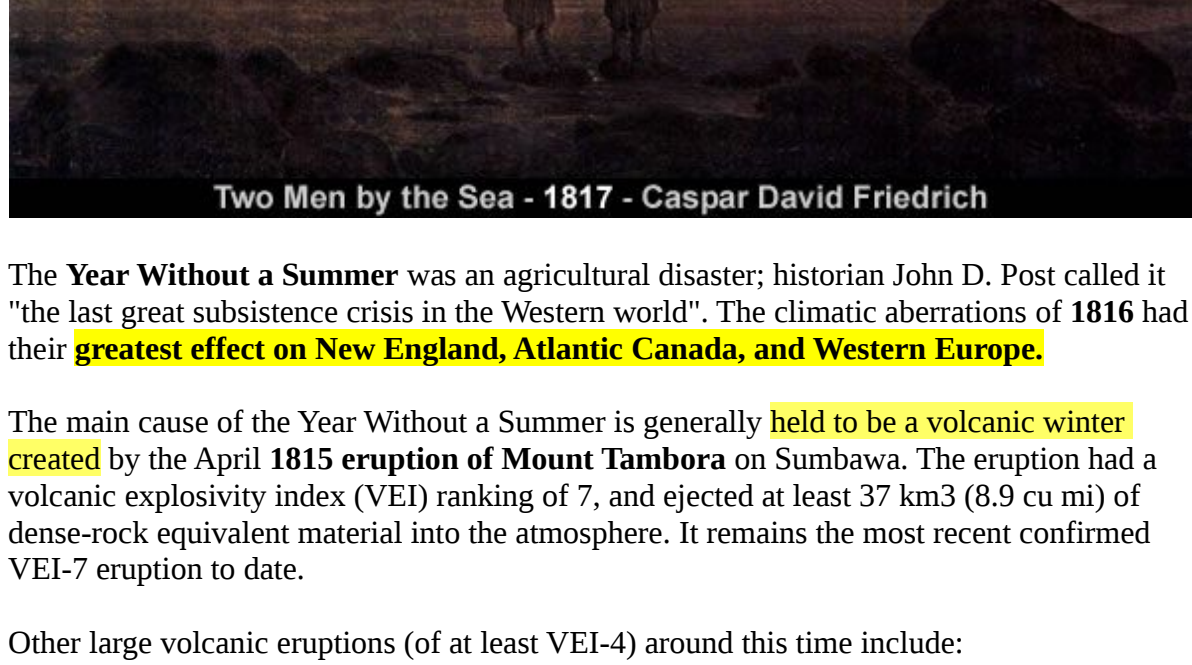
The **frost fair of 1814** began on 1 February, and lasted four days.

Wikipedia - River Thames Frost Fairs - 08:15 30 July 2015
https://en.wikipedia.org/w/index.php?title=River_Thames_frost_fairs&oldid=673756933

The year **1816 AD** is known as the **Year Without a Summer** because of severe climate abnormalities that caused average global temperatures to decrease by 0.4–0.7 °C (0.7–1 °F). Summer temperatures in Europe were the coldest of any on record between 1766 and 2000, resulting in **crop failures** and **major food shortages** across the **Northern Hemisphere**.

Wikipedia - Year Without a Summer
https://en.wikipedia.org/wiki/Year_Without_a_Summer

Only time will tell whether Earth will experience some form of **Maunder Minimum** around 2033.



The **Year Without a Summer** was an agricultural disaster; historian John D. Post called it "the last great subsistence crisis in the Western world". The climatic aberrations of **1816** had their **greatest effect on New England, Atlantic Canada, and Western Europe**.

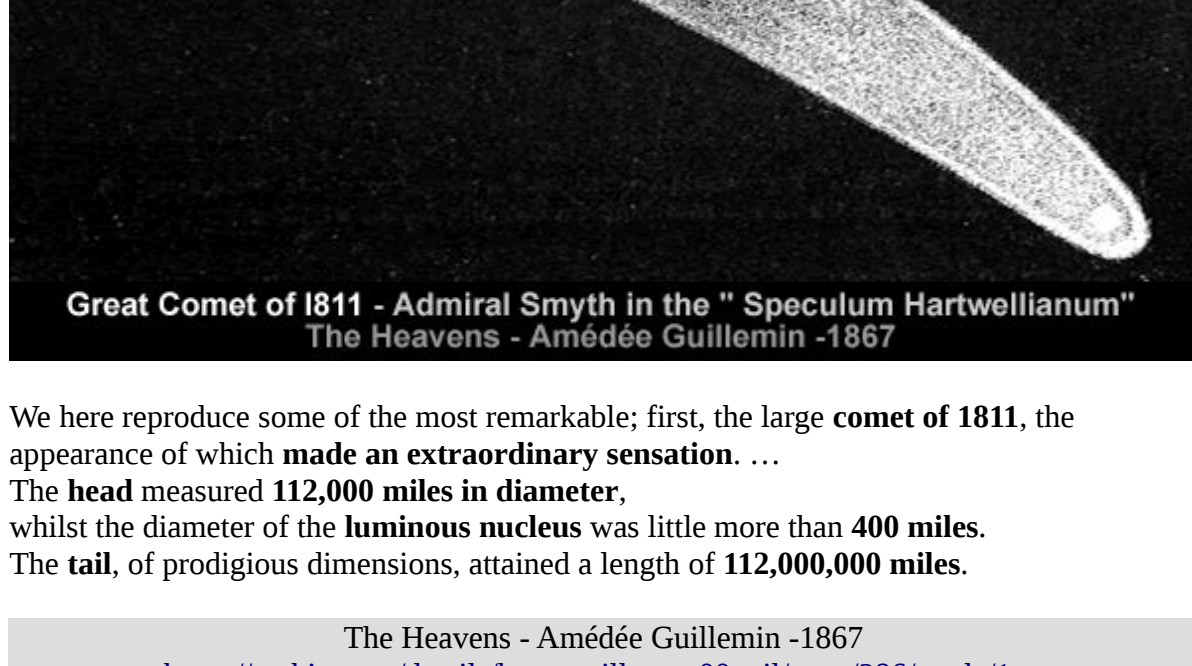
The main cause of the **Year Without a Summer** is generally held to be a volcanic winter created by the April **1815 eruption of Mount Tambora** on Sumbawa. The eruption had a volcanic explosivity index (VEI) ranking of 7, and ejected at least 37 km³ (8.9 cu mi) of dense-rock equivalent material into the atmosphere. It remains the most recent confirmed VEI-7 eruption to date.

Other large volcanic eruptions (of at least VEI-4) around this time include:

The **1808** mystery eruption in the **southwestern Pacific Ocean**
1812, La Soufrière on Saint Vincent in the Caribbean
1812, Awu in the Sangihe Islands, Dutch East Indies
1813, Suwanosejima in the Ryukyu Islands
1814, Mayon in the Philippines

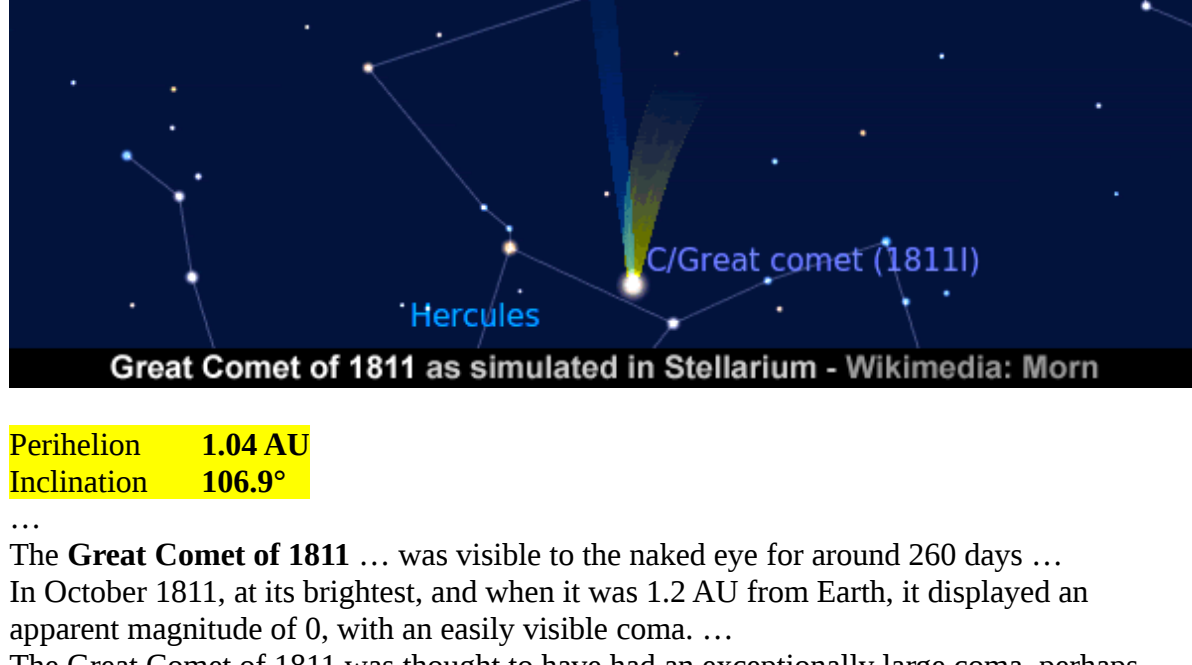
These eruptions had built up a **substantial amount of atmospheric dust**, and thus temperatures fell ... as the **airborne material blocked sunlight in the stratosphere**.

Wikipedia - Year Without a Summer
https://en.wikipedia.org/wiki/Year_Without_a_Summer



We here reproduce some of the most remarkable; first, the large comet of 1811, the appearance of which made an extraordinary sensation. ... The **head** measured **112,000 miles** in diameter, while the diameter of the **luminous nucleus** was little more than **400 miles**. The **tail**, of prodigious dimensions, attained a length of **112,000,000 miles**.

The Heavens - Amédée Guillemin - 1867
<https://archive.org/details/heavensillustra00guil/page/286/mode/1up>



Perihelion: **1.04 AU**
 Inclination: **106.9°**

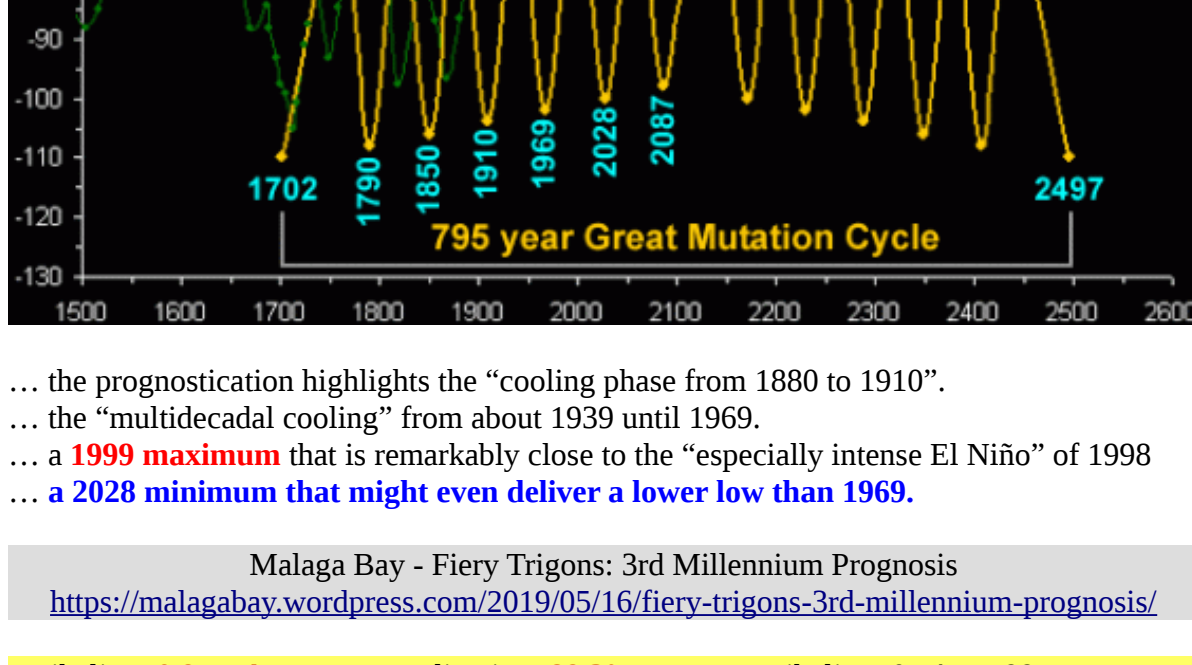
... The **Great Comet of 1811** ... was visible to the naked eye for around 260 days ... In October 1811, at its brightest, and when it was 1.2 AU from Earth, it displayed an apparent magnitude of 0, with an easily visible coma. ...

The Great Comet of 1811 was thought to have had an exceptionally large coma, perhaps reaching over 1 million miles across—fifty percent larger than the Sun. The comet's nucleus was later estimated at 30–40 km in diameter.

... The comet was ... **visible during the New Madrid earthquakes in December, 1811**.

A report on the first steamship to descend the Ohio River as it approached the confluence with the Mississippi River states, "December 18, 1811.—The anniversary of this day the people of Cairo [Illinois] and its vicinity should never forget. It was the coming of the first steamboat to where Cairo now is—the New Orleans, Capt. Roosevelt, Commanding. It was **the severest day** of the great throes of the New Madrid earthquake; at the same time, **a fiery comet was rushing athwart the horizon**".

Wikipedia - Great Comet of 1811
[https://en.wikipedia.org/wiki/Great Comet of 1811](https://en.wikipedia.org/wiki/Great_Comet_of_1811)

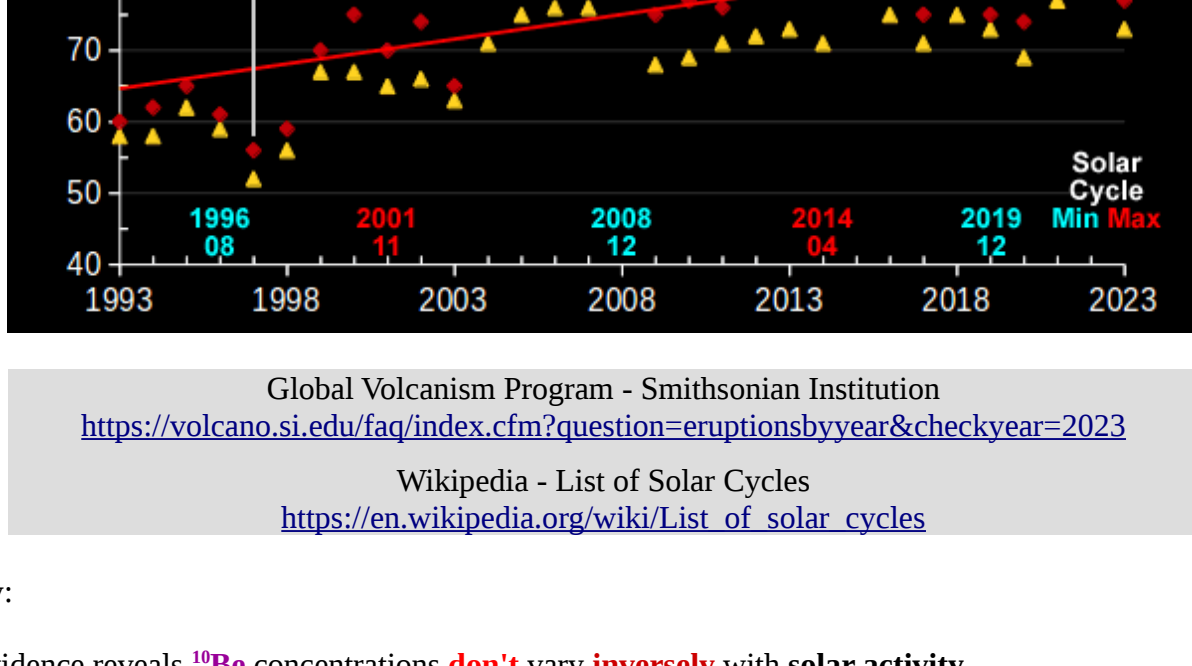


... the multidecadal highlights the "cooling from 1880 to 1910". ... a **1999 maximum** that is remarkably close to the "especially intense El Niño" of 1998 ... a **2028 minimum** that might even deliver a lower low than 1969.

Malaga Bay - Fiery Trumpets of 2019/05/16/fiery-trumpets-3rd-millennium-prognosis/
<https://malagabay.wordpress.com/2019/05/16/fiery-trumpets-3rd-millennium-prognosis/>

Perihelion: **0.914 AU** Inclination: **89.3°** Last perihelion: 01 Apr 1997
Comet Hale-Bopp ... one of the brightest seen for many decades.

Perihelion: **0.1707 AU** Inclination: **77.8°** Last perihelion: 12 Jan 2007
Comet McNaught ... the brightest comet in over 40 years ...



Global Volcanism Program - Smithsonian Institution
<https://volcano.si.edu/faq/index.cfm?question=eruptionsbyyear&checkyear=2023>

Wikipedia - List of Solar Cycles
https://en.wikipedia.org/wiki/List_of_solar_cycles

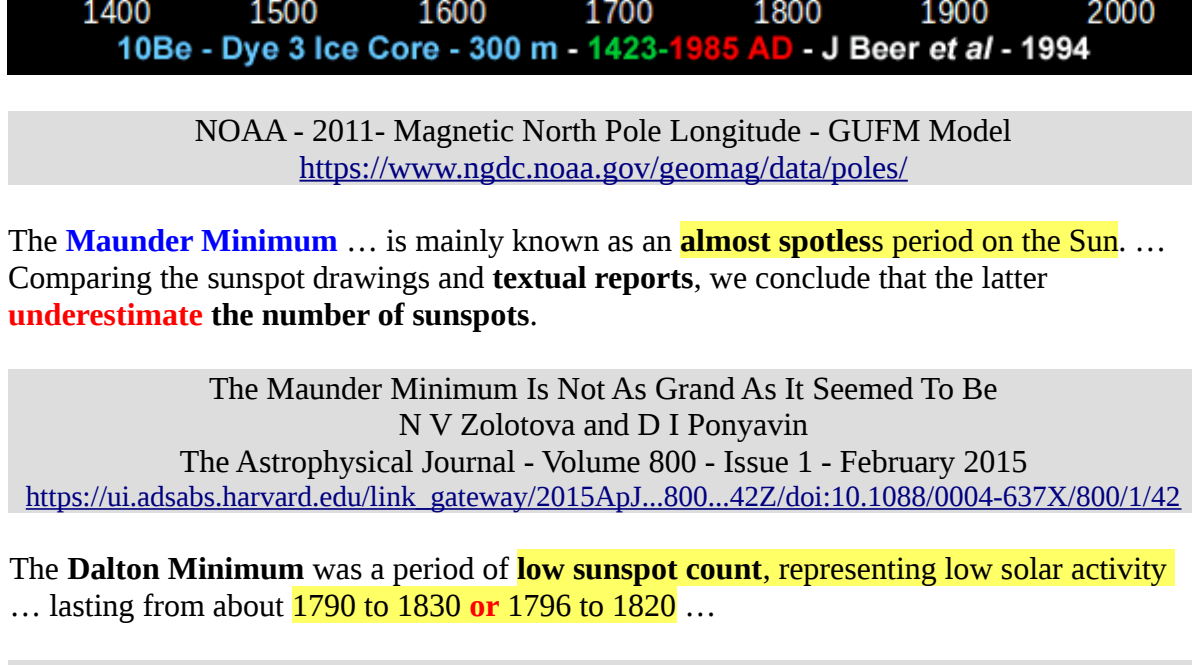
Finally:

The evidence reveals ¹⁰Be concentrations **don't vary inversely** with solar activity.

... variation in ¹⁰Be concentration which **varies inversely with solar activity** ...

Wikipedia - Beryllium-10
<https://en.wikipedia.org/wiki/Beryllium-10>

The evidence indicates ¹⁰Be concentrations vary by location and are inversely significant by short term fluctuations in the strength of the geomagnetic field experienced at that specific location.



NOAA - 2011- Magnetic North Pole Longitude - GUFM Model
<https://www.ngdc.noaa.gov/geomag/data/poles/>

The **Maunder Minimum** ... is mainly known as an **almost spotless period on the Sun**. ... Comparing the modern drawings and textual reports, we conclude that the latter **underestimate** the number of sunspots.

The Maunder Minimum Is Not As Grand As It Seemed To Be
 N V Zolotova and D I Panyav
 The Astrophysical Journal - Volume 800 - Issue 1 - February 2015
https://ui.adsabs.harvard.edu/link_gateway/2015ApJ...800...42Z/doi:10.1088/0004-637X/800/1/42

... The **Dalton Minimum** was a period of **low sunspot count**, representing low solar activity ... lasting from about **1790 to 1830** or **1796 to 1820** ...

Wikipedia - Dalton Minimum
https://en.wikipedia.org/wiki/Dalton_minimum

Just because the sunspots weren't seen it **doesn't** mean the sunspots weren't there. ...

There are very good reasons to believe **Solar Grand Minima don't exist**.

Malaga Bay - Schrödinger's Sunspots
<https://malagabay.wordpress.com/2016/12/03/schrodingers-sunspots/>

It's important to remember:

The geographic co-ordinates of any specific location has historically varied over time and this geographic migration may [or may **not**] be associated with significant changes in the level of received solar radiation, geomagnetic field strength, and the wet and dry precipitation of ¹⁰Be.



Malaga Bay - The Ptolemy Inheritance
<https://malagabay.wordpress.com/2016/10/17/the-arabian-horizon-the-ptolemy-inheritance/>

As always:

Review the evidence and draw your own conclusions.

