Journal of Earth Science and Engineering 7 (2017) 154-174
doi: 10.17265/2159-581X/2017.03.004

WZ Sagittae Space Weather—Global Warming

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Abstract: The planet responds thermally to the impacts of nova WZ Sagittae debris by heating and cooling. The result in the first 19 years of the nova WZ Sagittae cycle is global warming that is hemi-spherically dependent and is detectable in South America ice core data and Antarctica surface mass balance data. Planetary thermal data are correlated in the past by calculating the debris impact times from the super outbursts times of nova WZ Sagittae. The shape of the arctic ice cap is dependent on the 220 degree path of the debris and does not exist southward between the western extension and eastern termini of nova WZ Sagittae that define the Arctic heating path. Future global heating from nova WZ Sagittae will begin in 2020-2021. The increase of 6 to 8 magnitude unusual earthquakes in recent years is the results of nova WZ Sagittae and SN 1054 debris impact. Unusual occurrences in the biosphere indicate the starting time of impacting supernova debris streams. The Antarctic sea ice distribution in November of 2016 defines the termini of maximum particle concentration impact from supernova 1006 in the southern hemisphere. The killing heat in India of the northern hemisphere is associated with the western terminus of this supernova. Novas and supernovas times of impact correlate with plague outbreaks in the western USA marking the particles in the debris streams as the cause of the disease.

Key words: Warming, global, supernova, nova, extinction, ice, crater, meteor.

1. Introduction

WZ Sagittae is the closest recurrent nova to our solar system in the Milky Way Galaxy. It has super outbursts that have been separated by 33 years and frequent normal outbursts in the 33 year periods. All of these outbursts produce debris streams that add energy to our planet during impact. The time in years required for the WZ Sagittae debris stream to impact our planet after an explosion is 0.13337 times the distance to the nova from our planet, 142 light-years, lys, or 19 years. Since WZ Sagittae has had super outbursts in the years 1913, 1946, and 1978 incoming debris will begin near the years of 1932, 1965, and 1997. Internet data are presented that support the Supernova and Nova Impact Theory, SNIT.

2. Nova WZ Sagittae Global Warming

The earth's temperature is affected by our nearest recurrent nova WZ Sagittae at a distance of 142 light-years, lys. When a nova or supernova debris stream impacts our planet declining total solar irradiance, TSI, and fewer sunspots are natural results. Leonids meteor showers are also produced by the debris from the Nova WZ Sagittae. Fig. 1 shows a plot where temperature, irradiation, Leonid meteor showers, and the years of maximum spotless days are noted.

The vertical black lines in Fig. 1 are the years of maximum spotless days [2]. Three observed super outbursts of nova WZ Sagittae occurred in 1913, 1946, and 1978 adding 19 years (0.13337 times 142) for the travel time for nova debris gives impact times of 1932, 1965, and 1997 [3]. The times of impact agree with expected or observed Leonid meteor storms and are noted by red horizontal lines for the years 1899-1902, 1933, 1966, and 1998 that correlate with minimum yearly solar irradiance indicating debris streams of small particles present in our solar system [4]. The nova showed minimum brightness for the outburst years 1946 and 1978 that produce debris impact times of 1965 and 1997. Of these three Leonid meteor storms the highest meteor count was in the year 1966. The year 1966 denotes the impact of nova debris that

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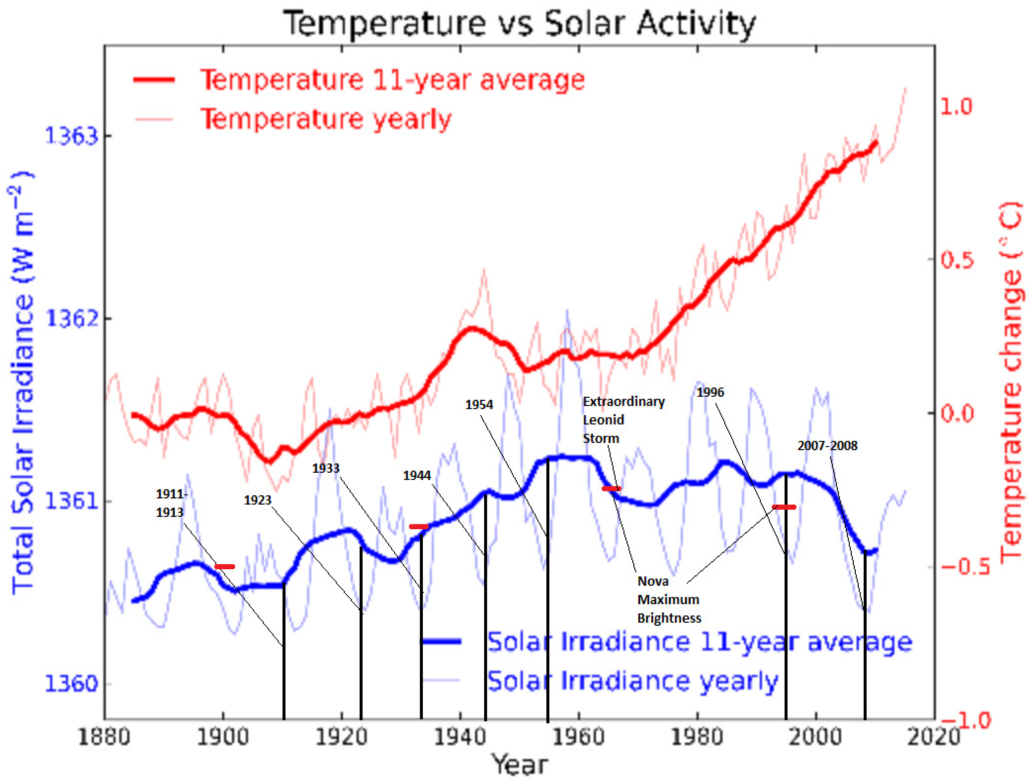

Fig. 1 Temperature, maximum spotless years, Leonid meteor showers, irradiance [1].

initiated global warming with a slight temperature lag indicated in Fig. 2. The 1933 impact showed a temperature increase as shown in Fig. 1 but the debris stream from the nova was not as strong as the 1966 and 1998 impacts. The debris stream in 1933 impacted the planet to cause a temperature increase and spotless days, but meteors were missing. The temperature increase caused by the 1933 impact also decreased by 1950 indicating a limited time for the warming effect of a nova before cooling began.

The WZ Sagitte, outstanding, debris impact of 1966 began the noticeable global warming of the 1970s shown in Fig. 2. The temperature does not respond immediately due to thermal lag. The unusually high solar wind velocities of 1973 to 1975 have affected the heating from the 1966 impacting debris stream in those years [7]. The earth temperature rise for the 1966 impact was stronger than for the 1933 impact and continues to rise through the years before the V606 Aquilae 1989 and WZ Sagittae 1998 impacts. The rise in global temperature was aided by Nova V606 Aquilae's impact in 1989 represented by the orange line in Fig. 2 and then the recurring 1998 impact of Nova WZ Sagittae completed the temperature rise shown in Fig. 2 by the green line. During Nova V606 Aquilae's heating period the world record algae bloom occurred in Australia because of iron particles from WZ Sagittae causing global cooling in 1991-1992. The independent data for Nova V606 Aquilae are: right ascension = 19.33 hours, distance = 700 ± 80 lys, outburst = 1899.

The black line in Fig. 3 shows the response of ice melt area in Greenland as a result of the 1998 debris stream impact of the 1978 outburst of nova WZ Sagittae and the arrival of SN 1054 debris stream in 2007. The time period for increasing temperatures was longer for the WZ Sagittae 1966 impact when compared to the 1998 impact. The major melts of 2007 and 2012 in Fig. 3 are due to the initial impact of supernovas 1054 and 1006, respectively.

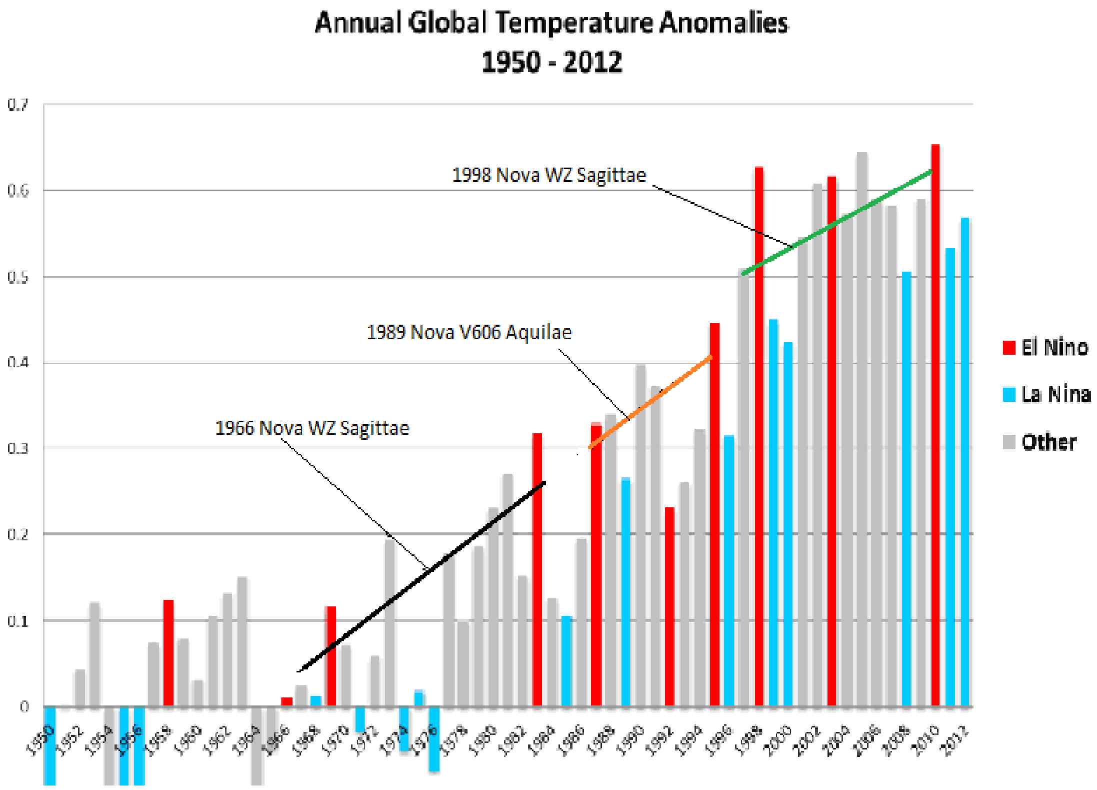

Fig. 2 Global warming beginning 1966 [5].

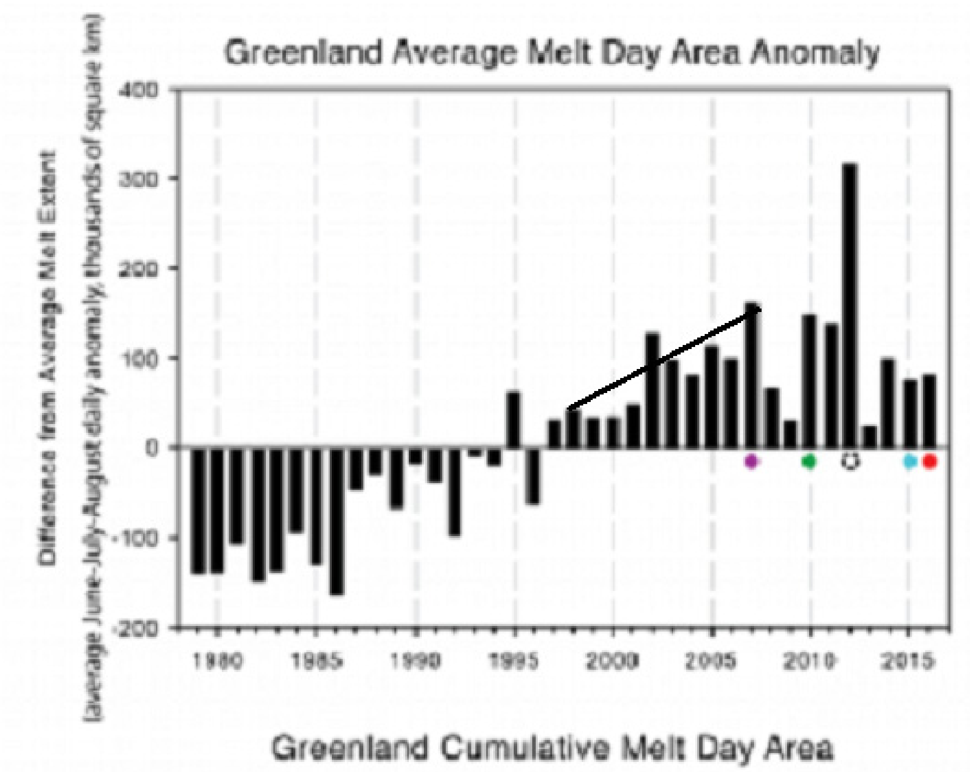

Fig. 3 Greenland melt anomaly [8].

3. Temperature Response to WZ Sagittae Impacts

The temperature changes due to the impact of the WZ Sagittae debris streams for 1933 and 1966 can be clearly seen in Fig. 4. Since the nova is suggested to be recurrent back to 905 with a 33-year time period, the 1630 and 1799 impacts are gratis [4]. The temperature response to an unknown supernova debris stream near the year 1600 also appears in Fig. 4. The temperature rise near 1400 in Fig. 4 is connected to supernova RCW 103 and the possibility of an impacting debris stream also occurs in 1550.

4. Arctic Ice Cap Shape

The western terminus, WT, for the WZ Sagittae nova is 63.5 east longitude. A 90-degree shift to the west from this terminus would define the center of the non-heating zone between the western and eastern termini. If the sun was the only heating source for melting ice in the arctic, the southern borders of the ice cap should be a circle tilted 12 degrees south in mid-winter, February 4th, surrounding the North Pole. The February 4th date corresponds to a location in the middle of North America at a west longitude of 101.4 degrees. It has been shown that incoming nova debris from WZ Sagittae provides additional heat sources for melting ice caps. Supernova debris streams in the last century impact the earth with a smaller frequency than the every 33 years for WZ Sagittae. As a result, WZ Sagittae debris streams become the main source that is secondary only to the sun for melting arctic ice. WZ Sagittae has a declination of +17.75 degrees and is thermally effective in the northern hemisphere. Since the heating for the debris stream for nova WZ Sagittae occurs between 63.5 east longitude and 116.5 west longitude moving from east to west, the opposite 180-degree zone should contain the maximum extension of the northern ice cap to the south. The red line at 26.5 west longitude in Fig. 5 represents the center of the non-heating zone, 116.5 west to 63.5 east longitude. The additional heat source that adds to the thermal analysis is the North Atlantic Current that flows north between Iceland and Norway. The energy transferred by the current melts ice to the east of the red line and skews the southern ice extension to the west. The rotation of the earth and the declination of the nova cause the maximum heating due to the debris stream to be located at constant latitude.

Neither 101.4, the center of winter, nor 26.5 west longitude matches the southern ice extension shown on Greenland in Fig. 5, but western terminus deflection has not been considered in this analysis.

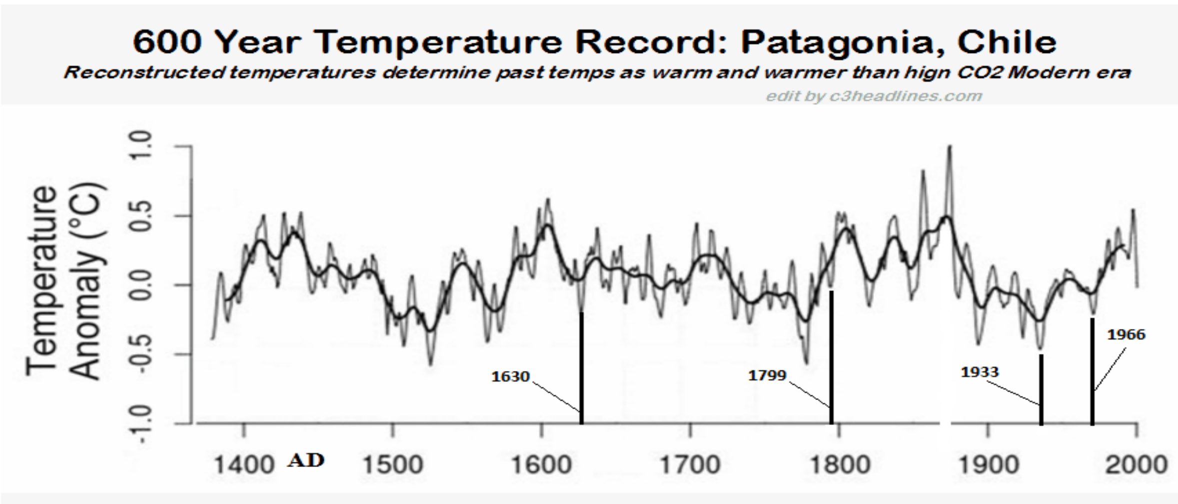

Fig. 4 Southern hemisphere temperature record [6].

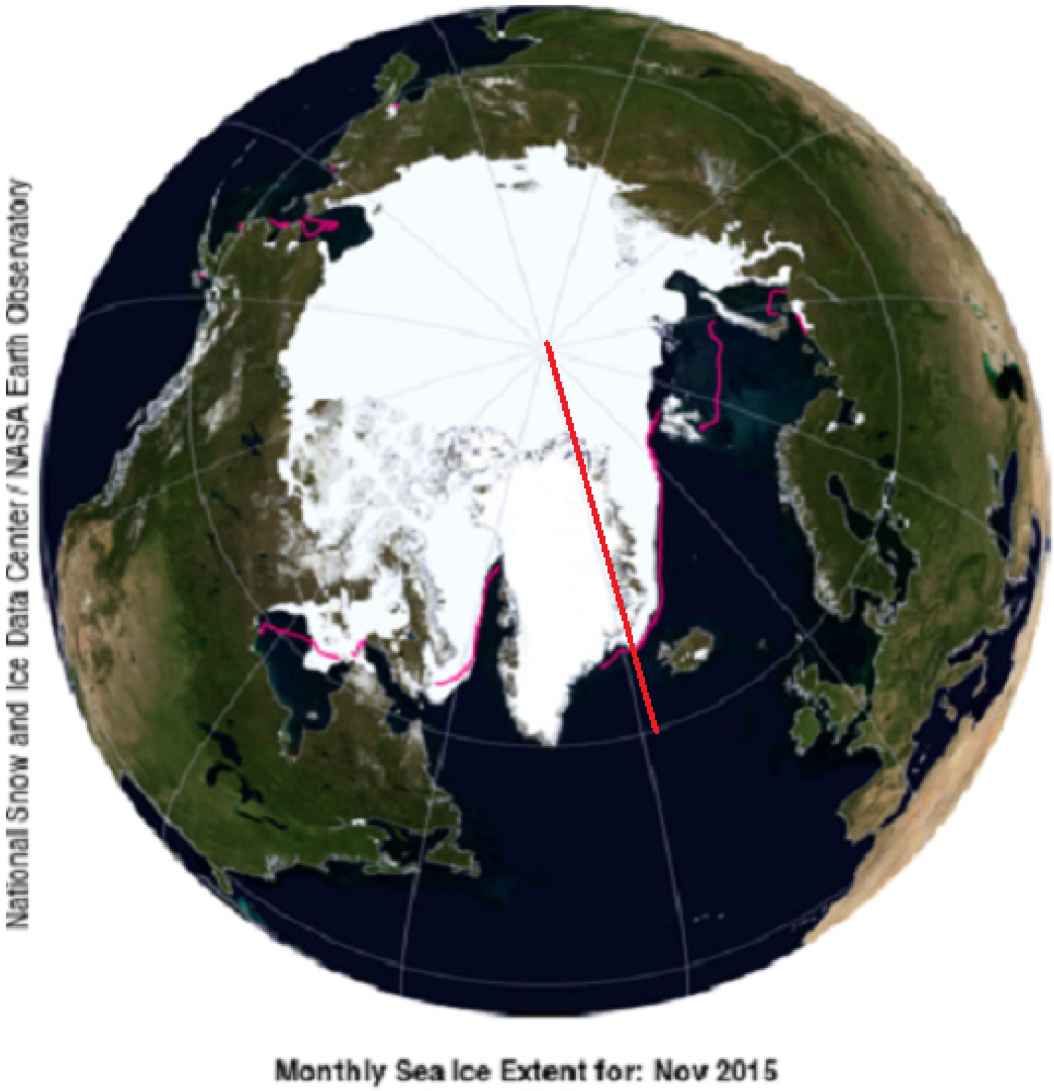

Fig. 5 Extension of ice southward longitude.

5. Debris Stream's Bubonic Plague

The problem of global warming will become more extensive in the future due to supernova 1054 that is thermally effective in the northern hemisphere. Figs. 1, 3 and 6 indicate that supernova 1054 may have impacted the northern hemisphere in 2009. Fig. 6 also implies that SN 1054 may have impacted the northern hemisphere in 2009 by the non-seasonal influenza outbreak [9, 10]. The decrease in irradiance and the spotless days of 2008 also indicate the arrival of Supernova 1054.

Three examples of disease from incoming WZ Sagittae debris imply the arrival of plague in 1933, 1966, and 1998. Hundreds of deaths occurred in Manchukuo on September 20, 1933 [25]. Vietnam reported 25,000 cases of the plague from 1965-1971 [26]. Animals were infected worldwide by the plague in 1998 [27]. Many other examples exist of disease arriving with nova or supernova debris where more lives have been sacrificed than in both world wars. Another beginning plague outbreak in the western USA should be expected from WZ Sagittae debris in 2020 or 2021.

The past correlation of the bubonic plague is possible through the use of the timing of ice melt,

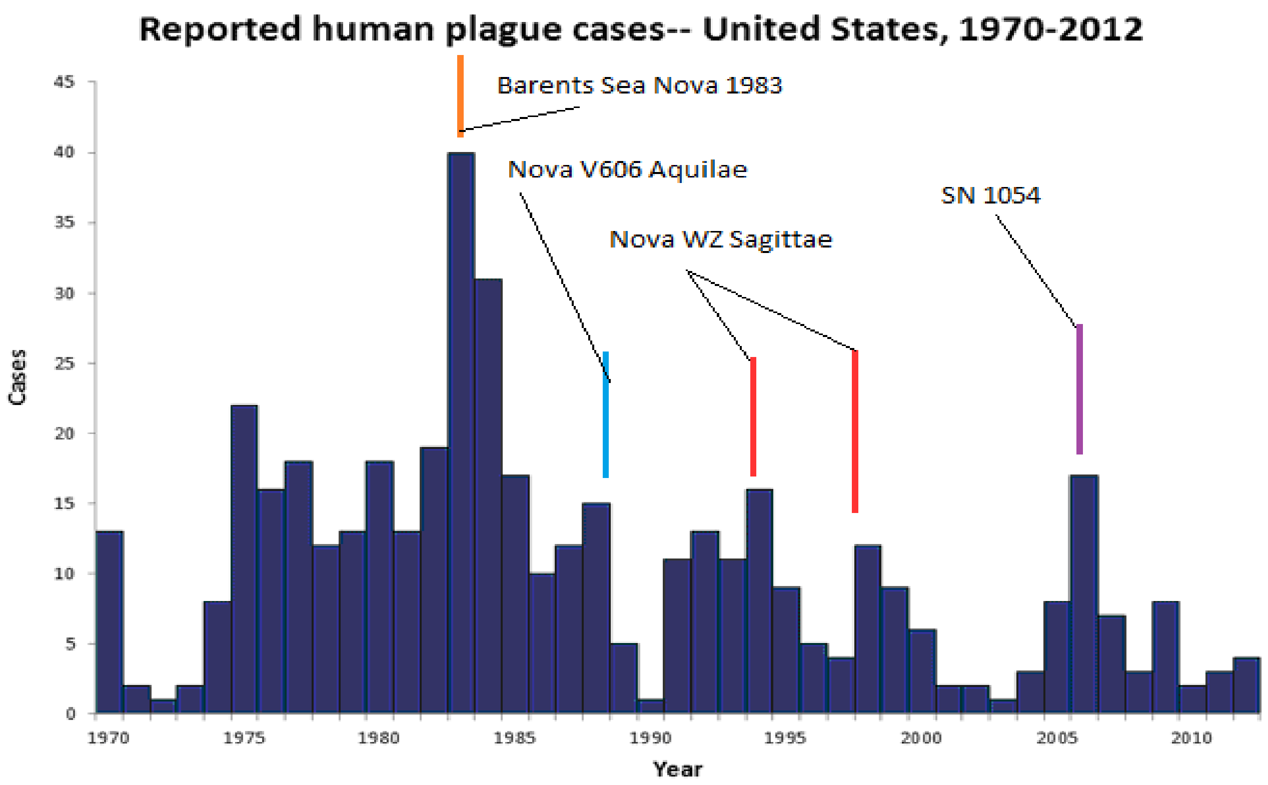

Fig. 5a USA reported plague cases 1970 to 2012 [10a].

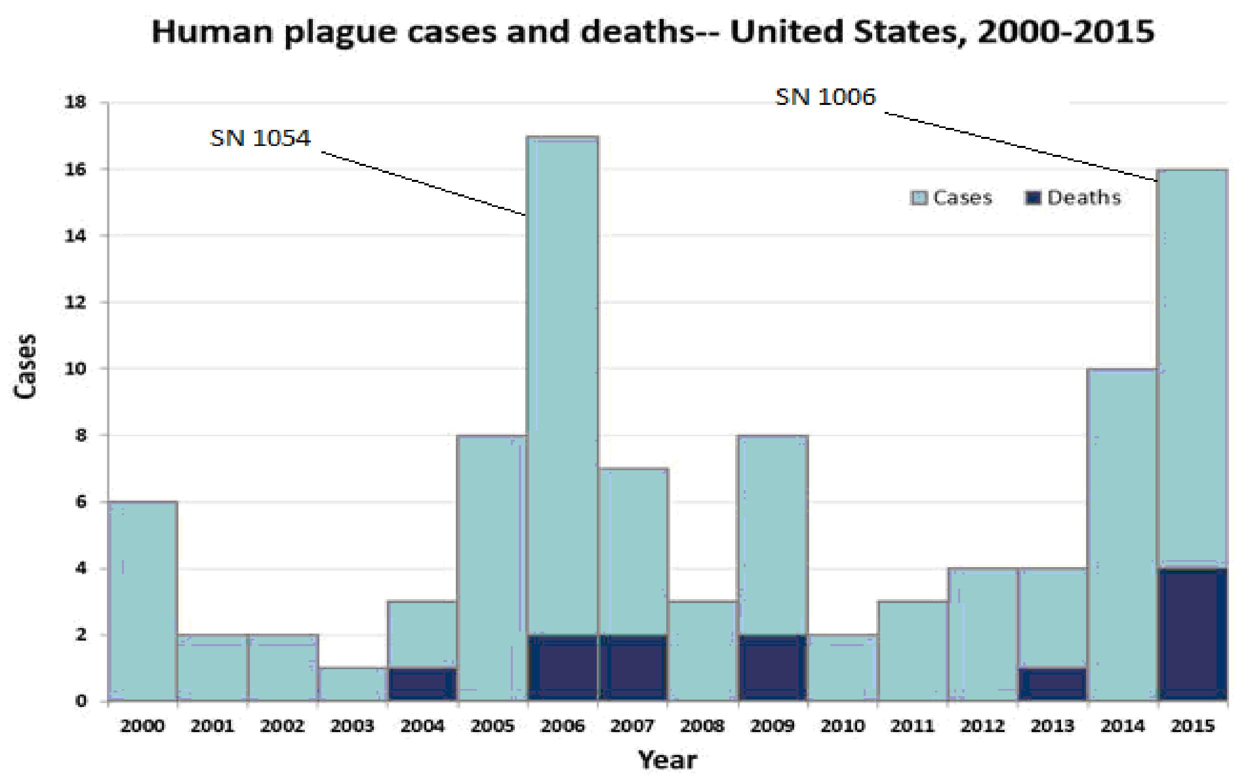

Fig. 5b Extended western USA plague case data [10a].

impacts of novas WZ Sagittae, V606 Aquilae, unknown Barents Sea, and Supernovas 1054, 1006.

The red lines in Fig. 5a show 1994 and 1998 plague outbreaks caused by recurrent nova WZ Sagittae in the USA. The cited years for WZ Sagattie plague outbreaks are the only years of large Leonids meteor showers noted in the time range of data of Fig. 5a [4]. The year of 1994 also had a plague in India of 693 cases and 56 deaths nearly 180 longitude degrees from the USA plague of the same year corresponding to the western terminus of WZ Sagittae [4a]. The CAM date of July 20 is very close to August 28, the outbreak date for the plague in India.

If we extend the concept, it is apparent that other novas must exist that are causing plague outbreaks in the USA at other times. Nova V606 Aquilae is represented by the blue line and an unknown nova in 1983 by the orange line in Fig. 5a. The time of the unknown nova is indicated by the beginning melt at that time in the Barents Sea ice data (Fig. 9, [10b]). The purple line in Fig. 5a denotes the plague maximum in the western USA as a result of the beginning date of SN 1054 near 2007. The western terminus of SN 1054 is located at 155 west longitude near the western USA.

The case of plague outbreak for the Barents Sea Nova 1983 occurs by inference. If novas cause ice melt and novas cause plague outbreaks, then ice melts should correlate in time with plague outbreaks.

The correlation of the times of debris stream impact for the supernovas and novas with the peak times of plague cases in the western USA in Fig. 5a is definite proof that incoming particles of exploding star debris streams cause human diseases in this case the black plague.

The known specific outbreaks of plague associated with nova WZ Sagittae explosions are shown in Table 1.

The 1833 event in Table 1 is certainly outstanding with respect to plague deaths. This event correlates with major surface effects including a 9.1 earthquake. The 1966 event is just the reverse of the 1833 event because its effects on the planet are hardly noticeable. The sequence of plague and Leonids meteor shower for the 1933, 1966, 1994, and 1998 events is incredibly timed. The 1933 event has the plague in September and the Leonids meteor shower in November. It is also observed that the last six cases in Table 1 have plagues in the eastern hemisphere agreeing with the longitude range of the northern terminus. If the bulge was large or the incoming positive particles were deflected to the east by earth's magnetic field for the first three events of Table 1, the longitude values shown may be reasonable.

New SNIT predictions of a plague maximum in the western USA and Barents Sea melt occurring near 2020 will be due to the last known major outburst of Nova WZ Sagittae in 2001.

Table 1 Leonids history plague correlation with longitude.

Leonids meteor storm	Plague	Latitude	Longitude
540 dust event	540 Justin Plague	31 N	32.5 E
902 event	902 Mayan Demise	14.6 N	90.5 W
1799 first recorded meteor shower	1799 Jaffa plague	32 N	34.8 E
Nov. 12-13, 1833	1833 Bagdad plague	33 N	43 E
Stars fell on Alabama	1833 Egypt plague	26 N	30 E
1866	1866 China plague	35 N	135 E
1899	1899 India Rural plague	21 N	78 E
1933	Manchukuo Sept. 20, 1933	31 N	121.5 E
1966	1965 Vietnam plague	21 N	105.8 E
1994	1994 India plague	21 N	78 E
1998	1998 Worldwide Animal plague		63 to 153 E

Fig. 5b extends the years for western USA plague and the maximum of plague cases in 2015 is due to SN 1006.

Since SN 1006 begins its impact in 2012, it can be stated that the southern motion of the western terminus causes the plague cases to increase in the western USA after 2012.

It is also noted that SN 1006 is producing plague in the western USA at a location 100 degrees west of its western terminus. The indication is that particle debris stream effects occur at fixed latitude all around the planet, but may not be as intense at other locations due to the expected maximum particle density at a terminus. When a particle stream is active outside the range between its termini, this action will be called the Dukes Effect. The maximum particle density at a terminus is caused because the earth is at the center of the debris stream coming from the remnant.

Other results to date that correlate supernova and nova impact time and past plagues are shown in Table 2.

The first correlation for SN Vela Jr shows a significant spread in longitude for the year 1334. This occurs because particle densities may be excessive for the first wave. For SN 1006, this was called the blush effect in the year 2012.

6. Debris Stream's Swine Flu

The swine flu outbreak in 2009 was due to SN 1054. The eastern terminus of SN 1054 caused the flu first in Europe near June 1st and the initial outbreak in the United States of America was due to infected people arriving from Europe as noted in Fig. 6. The eastern terminus of SN 1054 was over the eastern seaboard of the United States 91 days later because it was moving west at one longitude degree per day. In the 34th week of 2009, the incoming particles of the debris stream of SN 1054 were infecting people directly in the United States and a large increase of cases is shown in Fig. 6 at that time.

Without more total solar irradiation, TSI, data, the clues to supernova or nova debris streams are unusual events like the moose population decline in Minnesota 2006-2013 and the summertime honeybee deaths 2014 [11, 12]. Supernova 1054 will be detrimental to life in the United States and Europe while Supernova 1006 will cause deaths in Europe and Asia. Supernova 1006 is the one with the most power of the two being a type 1a supernova.

The deaths of the Saiga antelope in 2014 were an effect of Supernova 1006 in the eastern hemisphere. Megafauna extinctions can occur in either the northern or southern hemisphere from one supernova due to the magnetic bottle effect of earth's magnetic field focusing incoming particles in different hemispheres near the same longitude. It is surprising that the bubonic plague has not struck in Europe or Asia. When 17,000 died in India due to high temperatures, it is possible that part of those deaths were the plague.

7. Antarctic Ice Variation

Fig. 7 notes that the Antarctic ice cap is reducing in size in October since 2014. The eastern terminus of SN 1006 agrees with the date of November 2 and an eastern longitude of 167 degrees. This date and longitude specifies the time and location of one of the maximum incoming debris particle densities or focal point of the SN 1006 debris stream. Since SN 1006 is at declination -42 degrees and debris will continue impacting the planet for many years, melting of the Antarctic ice cap will continue near the same location and time of the year. The western terminus of SN 1006 is the other maximum incoming particle density and occurs on May 4th. Since the sun is between the SN 1006 remnant and our planet for the western terminus, deflections will cause the longitudinal location of impact to vary, but the date of impact will not change. The Eta Aquarids meteor shower produced an unusual outburst on May 5th 2013 also marking the arrival of incoming debris from SN 1006 [19].

Table 2 Timing of plague and nova-supernova activity periods.

Plague, supernova or nova, longitude range, active time period, sunspot minimum	Plague year	Latitude	Longitude
Supernova SN 185 25W 155E 1250-1310 Wolf Minimum			
No associated plagues found			
SN Vela Jr 114W 66E 1337			
India	1334	15	78 E
Hebei Province, China	1334	39.3	116.7 E
Great Plague of England	1348-1350	51.5 N	0.12 W
Great Plague of Ireland	1348-1351	53.3 N	6.27 W
Great Plague of Scotland	1348-1350	56 N	3.2 W
Great Plague of Russia	1349-1353	50 N	30 E (Kiev)
Nova WZ Sagittae 25E 115W 1366			
No associated plagues found			
Unknown nova			
Great Plague of Iceland	1402-1404	65 N	18 W
SN RCW 103 0W 180E 1420-1550 Sporer Minimum			
Tutor and Stuart England & Germany London Jy 30 1553	1553	51 N	0.12 W
WZ Sagittae 25E 115W 1582			
London Plague Ju 23 1593	1592-1594	51 N	0.12 W
Unknown Supernova 1600-1680 Maunder Minimum			
WZ Sagittae 25E 115W 1630			
Italian Plague	1629-1631	45.5 N	9.2 E
Venice N 1630	1630	45 N	12 E
Newcastle Plague	1636	55 N	1.5 W
Yorkshire Ju 1645	1645	51 N	0.12 W
Great Plague of Seville	1649	37.4 N	6 W
Naples Plague	1656	41 N	14 E
Amsterdam Plague	1663-1664	52 N	5 E
Great Plague of London	1664-1665	51 N	0.12 W
Great Plague of Vienna	1679-1680	48.2 N	16.2 E
Supernova G11.2-0.3 35E 145W 1730-1799			
Stockholm	1710-1711 A-F	59 N	18 E
Great Plague of Maseille	1720-1722 A-S	43.3 N	5.4 E
Great Plague of Balkans	1738 J-J-A	45 N	19 E
Messina Plague	1743	38 N	15.5 E
Moscow Plague	1771 S-O	55.8 N	37.6 E

(Table 2 continued)

Plague, supernova or nova, longitude range, active time period, sunspot minimum	Plague year	Latitude	Longitude
Nova WZ Sagittae 25E 115W 1799 Dalton Minimum			
Egypt	1812	30 N	31.2 E
Odessa	1812	46.5 N	30.7 E
Istanbul	1812	41 N	29 E
Malta A 1813	1812	36 N	14 E
Bucharest	1813	44.5 N	26.1 E
Iran	1829 - 1835	35.7 N	51.5 E
Gulian	1829	37.3 N	49.6 E
Nova WZ Sagittae 25E 115W 1833			
Egypt	1834-1836		
Egypt	1835	26 N	30 E
Alexandria F 1835	1835	31 N	30 E
Dalmatia	1840	45 N	16 E
Yemen	1853	15 N	48 E
India	1855	21 N	78 E
China	1855	35 N	103 E
Nova WZ Sagittae 25E 115W 1868			
Iraq	1867	33.3 N	44.5 E
Nova WZ Sagittae 25E 115W 1899-1902			
India F 1897 D 1898 1902 JFM	1897-1905	21 N	78 E
China Canton 1894 MA	1894	23 N	113 E
China	1897-1905	35 N	103 E
China Hong Kong 1898 AM		22 N	114 E
Australia	1900-1925	30 S	130 E
South Africa	1901	30 S	25 E
Cape Town F 1901	1901	33.9 S	18.4 E
New Zealand	1918	42 S	172 E
Sydney, Australia	1922		151.2 E
Nova 1670			
Manchuria & Mongolia	1928-1930		
Nova WZ Sagittae 25E 115W 1933			
Madagascar	1933-1937		45E
Nova WZ Sagittae 25E 115W 1966			
Vietnamese	1965-1970		120E
Nova WZ Sagittae 25E 115W 1998			
Animal Plague	1998		worldwide

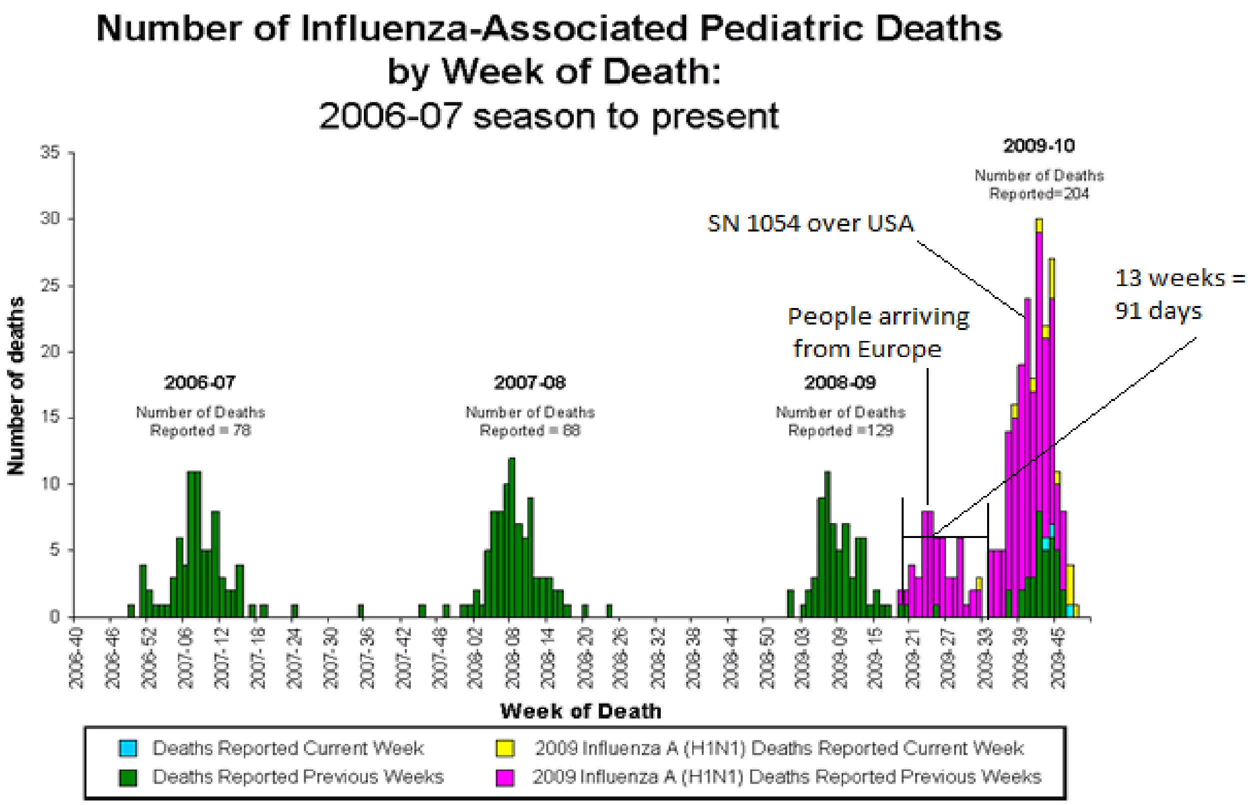

Fig. 6 Unusual swine flu weeks 23-40, 2009.

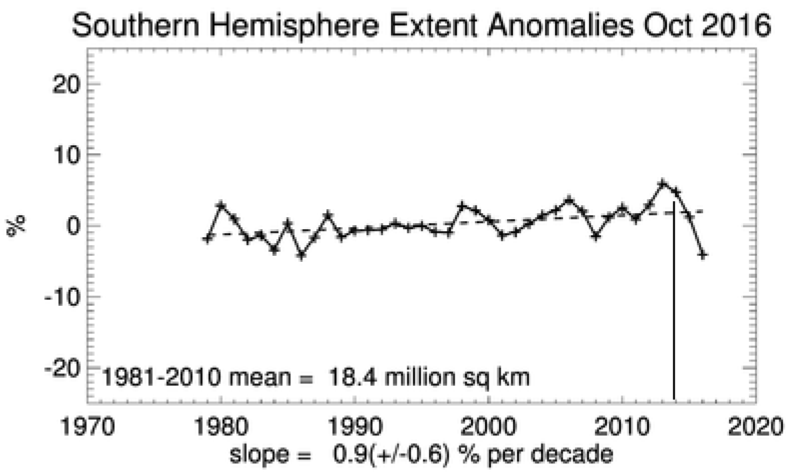

Fig. 7 October Southern Hemisphere Sea Ice [20].

Western Antarctica is contributing 30 percent of the melt water producing rising sea levels before 2013 due to geothermal energy from volcanoes. The Deception Island volcanic eruptions of 1967 and 1969 were responses to the debris stream from nova WZ Sagittae beginning in 1966 [21].

Antarctica varying ice mass is shown in Fig. 8 for an 800-year period before 2000 AD.

The red arrows in Fig. 8 are the location of the beginning impact times for the noted supernovas. The Antarctica, SMB (surface mass balance), shows high accumulation in 1370 and 1630 in Fig. 8 after the effects of supernovas 185, Vela Jr, and RCW 103 have subsided [22]. The high SMBs were due to iron particles in the debris streams of the three oldest supernovas in Fig. 8 that caused extensive algae blooms that reduced atmospheric carbon dioxide and cooled the atmosphere. The location of the vertical black lines indicates years of nova SW Sagittae debris impacts and the green stars locate extinctions. Since debris impacts initially cause heating, Antarctic SMB decrease following the times of impact as shown in Fig. 8. Supernovas 185 and RCW 103 have southern hemisphere declinations and produce a larger effect on SMB than Supernova G11.2-0.3 that has a declination closer to the equatorial plane. The Antarctic SMB data of Fig. 8 indicate a number of debris impacts have occurred that have unknown sources, but some WZ Sagittae impacts have changed the SMB as much or more than SN Vela Jr. The most impressive of these impacts is noted as the second New Zealand extinction that began near 750 years ago caused by Supernova 185. Supernova 185 produced the largest reduction of SMB in Antarctica during the last 800 years. The correlation of WZ Sagittae impacts with the reference dates of Leonids meteor showers, nova WZ Sagittae debris, is impressive [4, 23].

By far, the correlation of supernova impact time with melt data for the Antarctica SMB for the three oldest supernovas shown in Fig. 8 is the supreme accomplishment for this work. It indicates that not only past impacts can be correlated, but future devastating impacts can also be predicted.

The increase in CO_2 parts per million, ppm, after 1800 AD shown in Fig. 9 can be understood by the increased number of WZ Sagittae debris impacts since 1799 shown in Fig. 8 by the vertical black lines. It is a certainty that other nova debris streams have impacted our planet in the northern hemisphere besides WZ Sagittae since 1800 also contributing to the increase in average global temperature. The additional impact streams have also increased the atmospheric CO_2. Fig. 9 indicates CO_2 was increasing at an alarming rate before global warming became an issue. Increased levels of CO_2 occur at the time of extinctions as shown in Fig. 9.

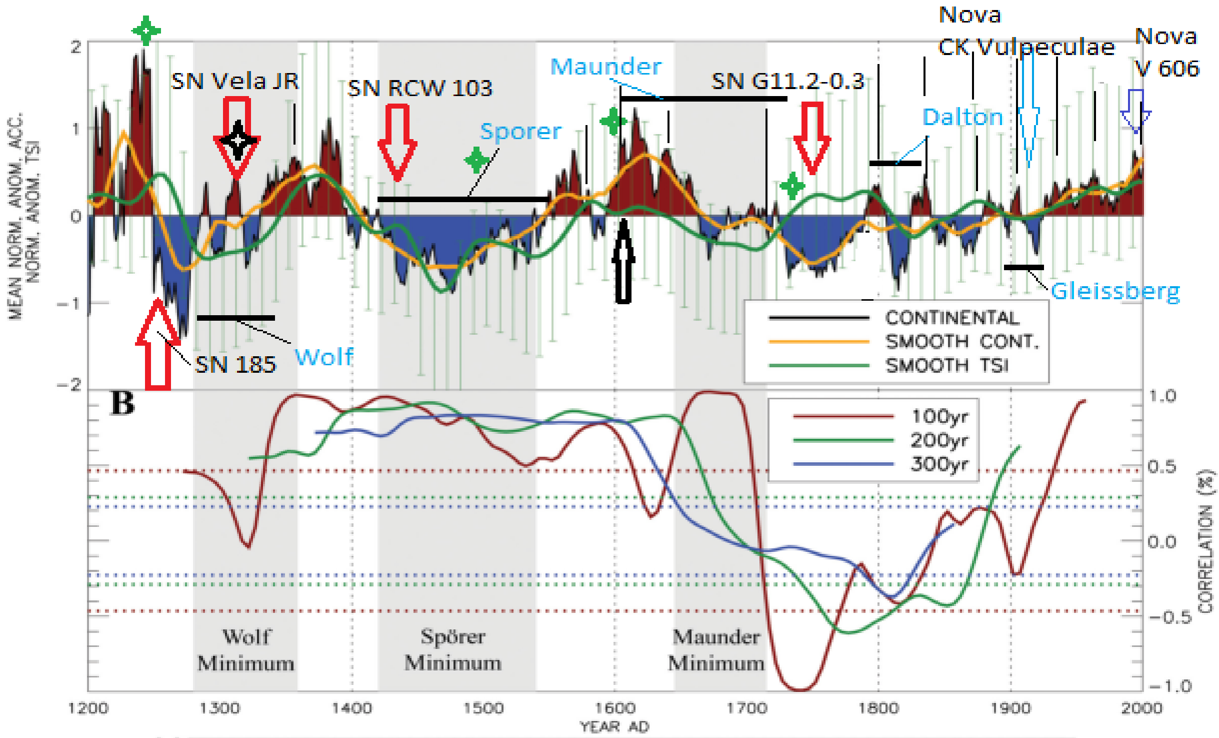

Fig. 8 Antarctica ice mass balance—years of supernova and nova debris impact [22].

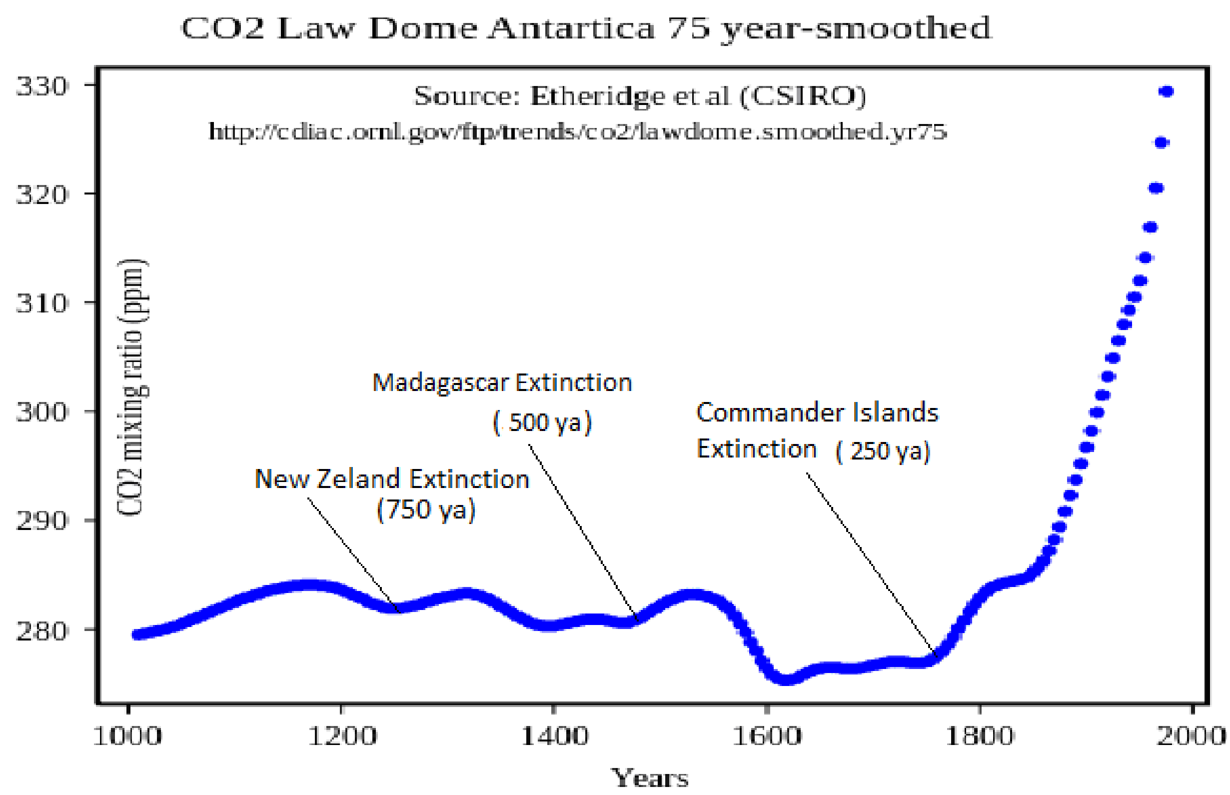

Fig. 9 Variation of CO_2 mixing ratio 1000 to 2000 AD [24].

8. Drought

Drought is suggested to correlate with nova and supernova debris impact. This can be explained chemically by requiring the incoming carbon particles in the debris stream to have a positive charge. When the positive charge of the particle encounters the earth's magnetic field a force will be exerted on the particle to cause it to reduce in velocity. The force does negative work on the particle and the velocity of the particle decreases, but the particle is still travelling at a high velocity. When the carbon particle comes into contact with a water molecule, the following chemical reactions occur.

$$C + H_2O \rightarrow CO + H_2$$

$$2CO + O_2 \rightarrow 2CO_2$$

The first reaction is an endothermic reaction that reduces the number of water molecules in the atmosphere. The incoming carbon particles only need to keep the relative humidity below 100 percent to inhibit rainfall and produce drought. When the CAM date of a terminus of a nova or supernova agrees with the season of maximum precipitation and the incoming debris carbon particles are abundant, there will be no rain at the location where rain would normally occur in abundance.

The California drought that has existed the last five years agrees with the eastern terminus of WZ Sagittae and the CAM date of the terminus is January 20. California's rainy season is during the winter and the eastern terminus date being in the winter is the correct condition for the drought. The California drought appeared during the last five years of the incoming carbon particles from the WZ Sagittae cycle and ends in 2017. Since the last WZ Sagittae impact was in 1998 the carbon part of the stream lasted for 19 years.

The drought of 2005-2008 in the USA corresponds with the maximum number of spotless days in 2008 and this certainly suggests the arrival of SN 1054.

9. Red Tide Algae Bloom

The incoming debris from a supernova will cause iron particles to enter bodies of fresh and salt water. The bodies of water in the western hemisphere will experience iron particles from SN 1054 beginning after 2008. The result will be algae blooms that become more frequent in the western hemisphere after 2008. Notable occurrences of the algae bloom known as the red tide occurred in Northern California and the Gulf of Mexico in 2011, Sarasota Beach and Siesta Key; Florida in 2013, southwestern Florida in the Gulf of Mexico in 2014, and Padre Island Gulf of Mexico 2015. The notable occurrences of the red tide were far less frequent before 2011 [15].

Using the concept that debris streams from WZ Sagittae are similar gives the fact that the carbon stream from the 1966 impact should end in 19 years giving the year 1985. An associated algae bloom should occur due to iron particles from WZ Sagittae after 1985. Fig. 9a shows the time location of the largest algae bloom ever recorded from October to December in 1991 in southeastern Australia.

The analyst that produced Fig. 9a wished to have a straight line represent the trend of decreasing sea ice in the Arctic. The ending and beginning of WZ Sagittae debris streams in conjunction with the arrivals of SN 1054 and 1006 shown in Fig. 9a denotes why the straight line representation is incorrect.

The zigzag variation of ice area in Fig. 9a that is caused by two supernovas since 2007 will also exist for the area of Antarctica sea ice after 2016.

It is proposed that the 1991 algae bloom is due to iron particles from WZ Sagittae because in this work it is the only debris stream under consideration impacting our planet at this time. The path for the focal point of the WZ Sagittae debris stream is from 65 east to 115 west longitude and the algae bloom must be in this longitude range because a high density of incoming iron particles is required.

Calculation to locate algae bloom using October 1 and 15 as CAM dates for eastern terminus:

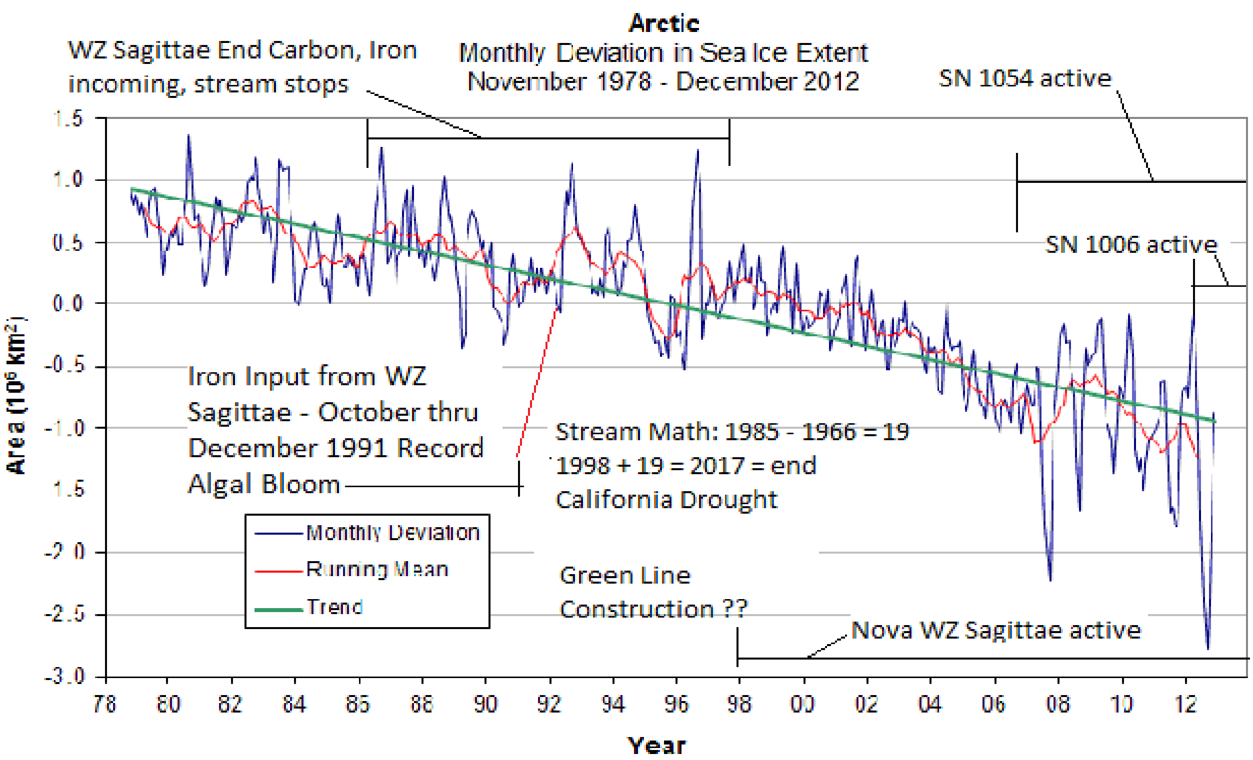

Fig. 9a Monthly Deviation Arctic Sea Ice.

- The bloom occurred from October to December in southeastern Australia;
- October 1, 15 = DOY 274, 288 (CAM date ET);
- Use DOY equation to give Fake RA = 12.8219178, 13.742466 Hours;
- WT from Fake RA: Equation WT = 13W + 360(15 - RA)/24;
- WT = 46W, 32W longitude;
- ET = 134E, 148E Longitude (south eastern Australia) QED.

The only input used in the calculation was the beginning of the range of the DOYs that the algae bloom began, October 1. It is concluded that each DOY has a corresponding longitude location. Two calculations are shown above for dates October 1 and 15. The answers of 134 and 148 east longitude show the locations of the WZ Sagittae eastern terminus focal point on the two October dates and the calculated region agrees with southeast Australia as the location of the algae bloom. It has been shown that the iron seeding from the WZ Sagittae debris stream passes over the Darling River from west to east in south eastern Australia on the specified dates to begin the world record algae bloom.

An algae bloom will also be associated with the nova WZ Sagittae 1998 stream impact and the concentration of iron particles in the debris stream should occur after the drought in California ended in 2017. An approximation from the previous case predicts another large algae bloom in 2023.

10. Earthquakes

The changing frequency of magnitude 6 to 8 earthquakes worldwide is shown in Fig. 10 and Table 3.

The 1998 Leonids storm from nova WZ Sagittae was noted to contain many fireballs and that fact may indicate this storm transferred more energy into our planet's core than the 1933 and 1966 Leonids storms. The 1998 storm had sufficient power to cause Greenland melting and Arctic melting as shown in Figs. 3 and 9a. It also caused a marked increase in the number of 6 to 8 magnitude earthquakes occurring after 1998 as shown in Fig. 10. The increase in the number of 6 to 8 magnitude earthquakes from 2009-2010 shown in Table 3 is due to the impact of the debris stream of SN 1054 and the time coincides with the non-seasonal swine flu outbreak of 2009 previously noted as a phenomenon connected with the

Fig. 10 Number of magnitude 6 to 8 earthquakes worldwide [17].

Table 3 Magnitude 6 to 8 earthquakes versus year.

Year	Number of magnitude 6 to 8 earthquakes
2009	52
2010	171
2011	222
2012	146
2013	143
2014	156
2015	143

incoming debris of SN 1054 shown in Fig. 6.

When the particles of positive charge from a nova or supernova encounter earth's magnetic field, the velocity and/or kinetic energy is reduced. The energy is transferred to the object that is generating the magnetic field which is the iron core of the earth. The energy deposited under the earth's mantle becomes heat and vaporizes a significant portion of the molten iron core. The resulting increase in volume of the molten iron causes the earthquakes and volcanoes. The classic example connecting nova impact debris and earthquakes is the 8.8 to 9.2 1833 Sumatra earthquake that occurred 12 days after the 1833 Leonids meteor storm [4, 16].

11. Disease

The Zika virus was detected in northeastern Brazil in August 2014 [18]. This date is in agreement with the deaths of the Saiga antelope in May 2014, the sudden thinning of the Antarctic ice in 2014, and the increase of 6 to 8 magnitude earthquakes shown in Table 3 in the year 2014. The initial range of the Zika virus was from Brazil to southeastern Asia providing a path in agreement with the high density debris arc of SN 1006 ranging from 13 west to 167 east longitude. Considering these events it is safe to conclude the debris stream of SN 1006 arrived before 2014 and the path of the southern focal point of SN 1006 caused the Zika virus in the southern hemisphere.

12. Regional Heat Waves 2015

Stephanie C. Herring, a scientist at the National Oceanic and Atmospheric Administration, NOAA, reported evidence that climate change is making heat waves more extreme in many regions around the world. Thousands died in India, Egypt, and Pakistan and the European heat wave shattered records in France, Germany, Switzerland, and the United Kingdom [28].

The 180 degree heating paths between the western and eastern termini for the three currently impacting debris streams are shown in Fig. 11. The vertical thicker black lines are at the western and eastern termini and the thinner horizontal black lines are at the correct latitude to specify the hemisphere of maximum heating for each debris stream. The possible north south spread of the heating regions for each debris stream is 180 degrees with the prescribed latitude being the center of the zone. From the countries mentioned in Herring's article, SN 1006 appears to be the major contributor to the heat waves. When considering the new western terminus for SN 1006 found due to deflection, it is concluded that the deflected western termini of SN 1006 (May 4th) and nova WZ Sagittae (July 20) in conjunction with the eastern terminus of SN 1054 (June 12th) are all currently acting on India, Egypt, and Pakistan during the summer months. This conjunction of termini will cause hot summers for Eurasia for the next 40 years. The record number of deaths due to heat in India was during late April in 2014 and May was the month for the years 2015 and 2016 identifying the main culprit or the straw that broke the camels' back as SN 1006.

13. Visible Antarctic Ice Melt

In the section 7, Antarctic Ice Variation; the melt sector was predicted as if the debris stream entered to earth's surface on a line to the 1006 supernova remnant including the earth and the sun. The focusing effect along this line defines the western and eastern termini of SN 1006 as shown in Fig. 11. The maximum particle densities of the debris stream will occur at these longitudinal locations if the stream flows to the earth's surface along the defined lines. From

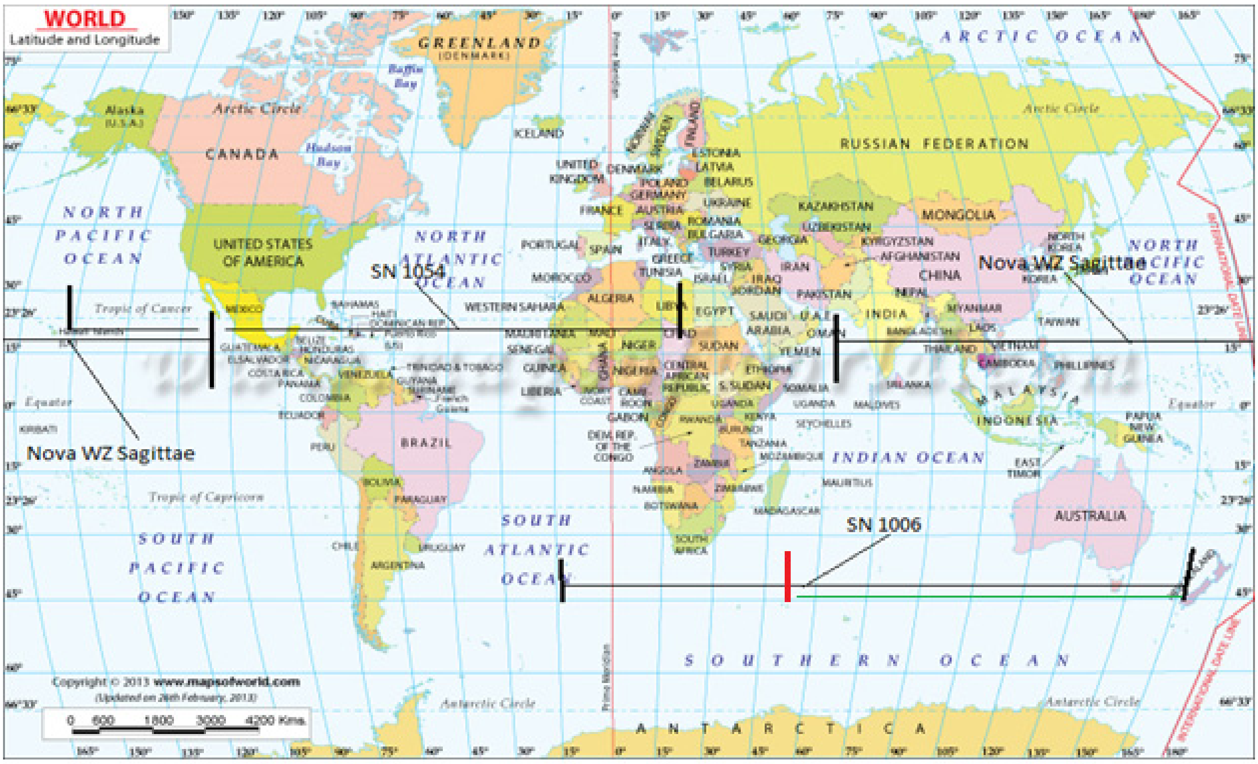

Fig. 11 Heating paths and termini—Nova WZ Sagittae, SN 1006, SN 1054 [29].

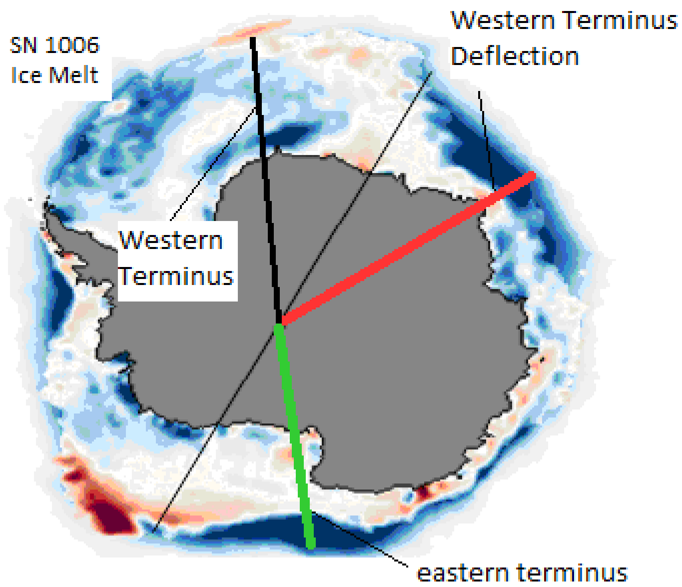

Fig. 12 Antarctic sea ice concentration difference for November 2016 [30].

simple physics, we know a positive particle will change direction when entering a magnetic field. For our example involving the sun's and earth's magnetic field and the 1006 debris stream, the stream will be turned to the east before it splits into a western and eastern terminus because it is entering the southern hemisphere magnetic fields of the earth and sun.

When purposing a new theory, it is rare to have the opportunity to check the theory with current data. The calculation of the eastward displacement of the debris stream due to the impacted magnetic fields would be difficult, but it is not necessary. The death of 134,000 Saiga antelopes in May 2014 in Kazakhstan during a two-week period has been purposed to have resulted from the high density of debris particles at the deflected western terminus of the SN 1006 debris stream that occurs on May 4-18. In Fig. 11, the difference between the ideal location of the western terminus and the western border of Kazakhstan is 63 degrees longitude. This displacement represents the shift of the SN 1006 debris stream from its ideal location on May 4th, 13 degrees west longitude, when passing through magnetic fields of the sun and earth and is represented by a red line for the deflected western terminus in Figs. 11 and 12.

The dark blue areas in Fig. 12 represent the sea ice that is missing due to SN 1006 debris for November 2016 and the average area expected for November. The black line in Fig. 12 connects the extreme of the major melt areas for eastern Antarctica. The melting has occurred by the SN 1006 particle stream that was delivering the thermal energy to the sea ice that provided part of the latent heat of melting. The northern part of the black line appears to be at 30 degrees east longitude rather than 50 degrees east longitude where the Saiga antelopes were killed. The maximum thickness for the northern blue area to the east in Fig. 12 agrees with 50 degrees east longitude (shown red line) and since the most sea ice is melted there, the location should agree with a maximum particle density or focal point of the SN 1006 particle stream in 2014. The sea ice was thinned in May 2014 and 2015 at the deflected western terminus location, but was not exposed as melt to the detecting satellite. The thinned area became exposed as melt in the summer month of November 2016.

The eastern terminus occurs when the earth is on the line between the supernova remnant and the sun. As a result, the debris stream does not pass through the magnetic field of the sun before contact with the earth's surface. The magnetic field of the earth deflects the debris stream to the east but only a few degrees to 170 east longitude shown by the green line in Fig. 12. The high density of the incoming debris particles begins on November 2. Therefore, the maximum Antarctica melt is predicted for the month of November.

The thick black line in Fig. 12 gives the non-deflected location of the western terminus and it should be noted that sea ice thinning occurred at this longitude before the debris stream was deflected. This is concluded due to the dark blue area near the thick black line in Fig. 12.

SNIT receives perfect marks for the location of sea ice melts in November 2016 providing an extraordinary proof for the theory.

The white section to the far right in Fig. 12 is also of interest because it indicates the particle density of the debris stream is too low to cause sea ice melting between the two termini locations indicated in Fig. 12. The western ice of Antarctica melts due to volcanic or geothermal heat. The recent eruptions of the volcanoes were caused by the incoming debris streams. The eastern ice will melt due to direct impact of the SN 1006 debris stream. This pattern will continue with the ice receding southward in the coming years as long as combustible particles are dominate in the SN 1006 debris stream and the sun's magnetic field does not change the deflection of the western debris stream. The current indication is that the sun's magnetic field has been reduced before the noted ice melt pattern, but the location of the eastern terminus melt in Antarctica should not change because the sun's magnetic field has no effect on the location of the eastern terminus.

The month of May 2015 has the largest Antarctic sea ice extent (4.67 million square miles) on record and with the western terminus of SN 1006 being in May it will be many years before that record is seen again [31]. The sea ice melt in Fig. 12 complements the new theory of supernova impact affecting earth's biosphere and was predicted to occur in November before NASA reported the surprisingly

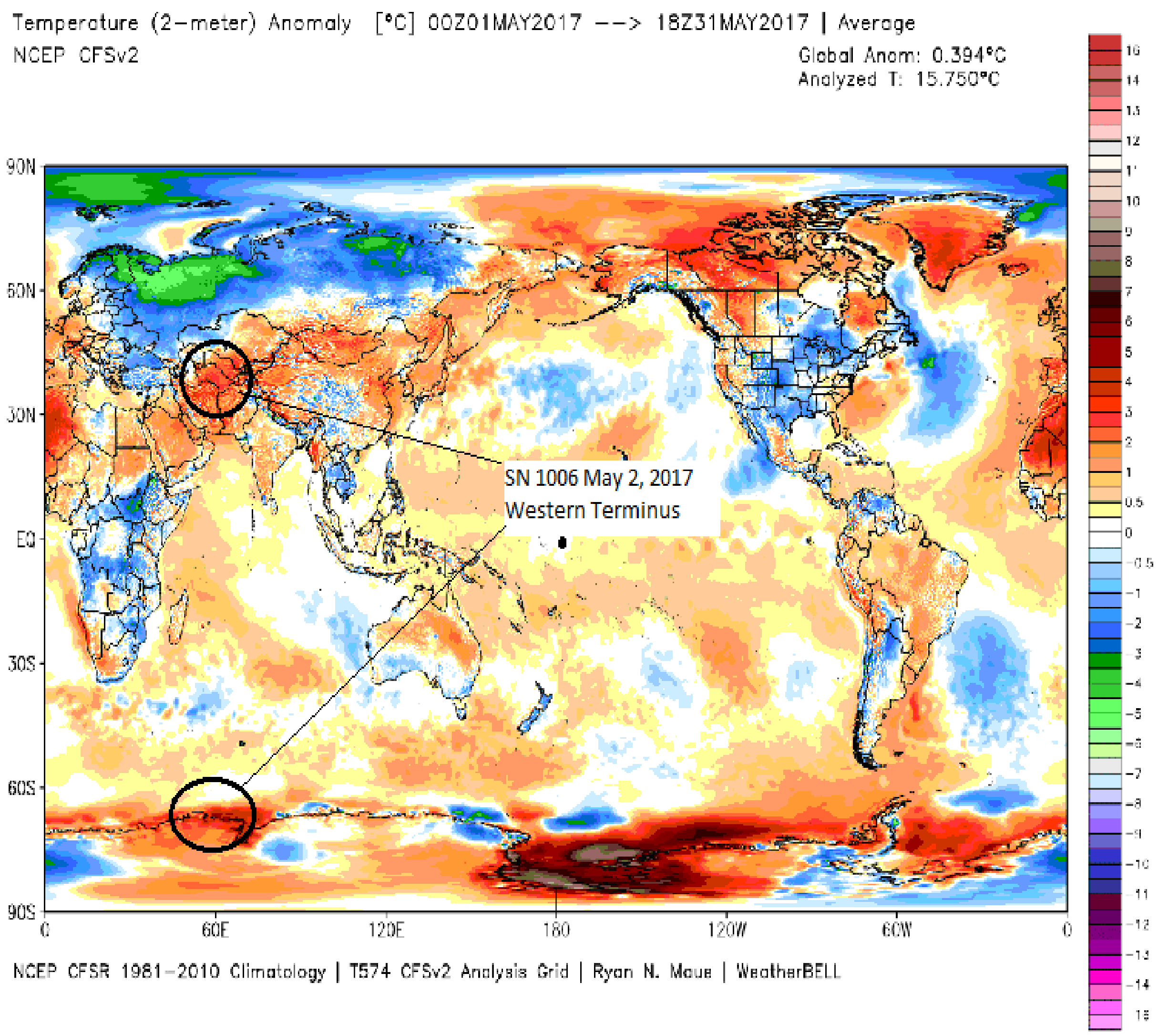

Fig. 13 Western terminus SN 1006 May 2017 [32].

large sea ice melt in Antarctica in December 2016.

Fig. 13 shows the same longitudinal location for the southern part of the western terminus for SN 1006 in May 2017 as was indicated to be the melt location in Fig. 12. Therefore, the maximum ice melt that occurred in November of 2016 will reoccur in November of 2017.

14. Conclusions

Maximum number of spotless days occurs when sunspots are at a minimum during the eleven-year solar cycle. An entering nova or supernova debris stream occurring during the maximum sunspot area of the eleven-year cycles will generate fewer spotless days.

The recurrent nova WZ Sagittae's last outburst was in 2001 and had a brightness of 8.22 [3]. The previous minimum brightness was near 8.0 for the 1946 and 1978 outbursts. The prediction is another outstanding Leonid meteor storm in 1920-1921 and more global warming for the northern hemisphere, but the global warming increase will be mixed with the input from supernovas 1054 and 1006.

The period of modern warming begins near 1950 and is indicated by the last two increases of temperature shown in Fig. 4. The Nova WZ Sagittae was the initial source of the global warming and the human input was minimal as is indicated by the atmospheric carbon dioxide continuing to increase after all the world's efforts to reduce emissions. Half of the increase in carbon dioxide in the atmosphere has occurred since 1980 indicating a large contribution of CO_2 from the three impacting debris streams [13].

Nova WZ Sagittae has caused global warming in the northern hemisphere in three steps beginning in the years 1933, 1966, and 1998. The 1966 impact began the global warming of the 1970s. The 1998 impacted intensified the northern hemisphere global warming and accelerated the melting of Greenland. The future WZ Sagittae impact of 2020-2021 will continue the melting of Greenland and the impact of SN 1006 will add the melting of the Antarctic ice cap to the current sea levels. Rising sea levels in the immediate future is a certainty and may occur faster than predicted.

Since a large portion of the carbon dioxide in our atmosphere is being formed by carbon in the nova or supernova debris, global warming can only be halted by harvesting carbon dioxide from the atmosphere. The harvested carbon dioxide must be stored for future release to avoid a future cooling like the cooling that terminated in 829 AD when the Nile River froze. This cooling period resulted from the debris' iron particles of supernova G43.3-0.2 that caused the warming between the Roman and Medieval warming periods.

Earthquake frequency can be returned to normal levels by converting the incoming kinetic energy of nova or supernova debris streams to clean, non-fossil electrical power that can be used by mankind.

When mankind learns how to harness the nova and supernova debris energy and avoid debris impact in our biosphere, the earth will become a paradise where disease, earthquakes, tsunamis, volcanoes, ice ages, drought, flooding sea levels, and toxic algae blooms are eliminated.

This research is only the beginning of the supernova and nova impact theory, SNIT. Future scientists will have hours and hours of work to perform in this area.

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