



IMPACT OF SUNSPOT ON COVID-19 AND BEYOND

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ABSTRACT

COVID-19 was a lethal pandemic disease, and is still co-existing in the contemporary World despite under control by the medical profession. The World recorded around 700 million cases during the 4-year period in 2020-2023, with a recorded death toll of 7 million (1% mortality rate). This research paper is based on the impact of the consistent Sunspot cycle's 11-year variation on mankind. Riding on a similar paper published at the Oxford Business & Economic Conference in 2007 on a hypothesis of Sunspot on "Cosmo-Economic" which was awarded the best paper at the time, the current paper focuses on the impact of Sunspot, but on the front of human health as affected by the Covid-19 pandemic. Dataset over 4 centuries and converging over the past 60 years have been collected to verify the hypothesis of Sunspot on pandemic with a confidence level above 95%. 2019 experienced the lowest sunspot in the history of mankind at 281 days without any Sunspot. In other words, there is a subtle lack of "Energy" for mankind.

One can predict that there will be another Epidemic coming in 2030. What this disease could be will become eminent near the time. It is therefore important for the researchers in epidemiology to be alert by 2029 and search for some possible epidemic disease /virus which could have already come to Earth (like the Ebola). Hopefully, with the theory behind this paper and the advancement in immunology and corresponding vaccine R&D, mankind can stop or avoid the next Epidemic invading us at large. As for the next pandemic in 2118, it is not be something you and I can see. We hope that with the advancement of AI in medical science and immunology, our descendants will be able to learn from our experience, and they will be able to overcome the catastrophes brought by the viruses. As far as we are concern, living up to 150 is no longer a dream.

Keywords: Covid-19; Sunspot Theory; Pandemic; Epidemic; Body Energy Cells; Traditional Chinese Medicine.

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1. INTRODUCTION

COVID-19 is a lethal disease co-existing in the contemporary World. The World recorded about 700 million cases throughout the 4-year span (2020-1-1 to 2023-12-31) when Covid-19 entered into effect, averaging about 613,000/day. Death toll since 2020-1-1 has been around 7 million, with a mortality rate of 1% (compared to 1.95% till end-Nov 2021 when the Omicron Variant came into play). Moreover, the mortality rate caused by the Omicron variant alone is around 0.25% since Dec 2021. Despite the Covid-19 spreading is basically under control, unfortunately new mutations are coming up, in particular the fast-spreading Omicron (see **Figure-1, Figure-2**). Therefore, it is necessary to investigate the reasons behind the pandemic and try to minimize its adversarial impact to mankind (**Figure-3**).

	Variant	Alphabet	Latin	Source	Beginning	Impact to Mankind
0	Covid-19			Cn/US/EU ?	2019-11	Global pandemic
1	Alpha	A	A	UK	2020-9	Variant of Concern
2	Beta	B	B	S. Africa	2020-5	VoC
3	Gamma	C	Γ	Brazil	2020-11	VoC
4	Delta	D	Δ	India	2020-10	VoC
5	Epsilon	E	E	India	2020-10	Variant of Interest
6	Zeta	F	Z	Brazil	2020-4	VoI
7	Eta	G	H	Multiple	2020-12	VoI
8	Theta	H	Θ	Philippines	2021-1	VoI
9	Iota	I	I	USA	2020-11	VoI
10	Kappa	J	K	India	2020-10	VoI
11	Lambda	K	Λ	Peru	2020-12	VoI
12	Mu	L	M	Columbia	2021-1	VoI
13	Nu	M	N	(Skipped)		Close to Surname
14	Xi	N	Ξ	(Skipped)		Close to Surname
15	Omicron	O	O	S. Africa	2021-11 *	VoC – Mild

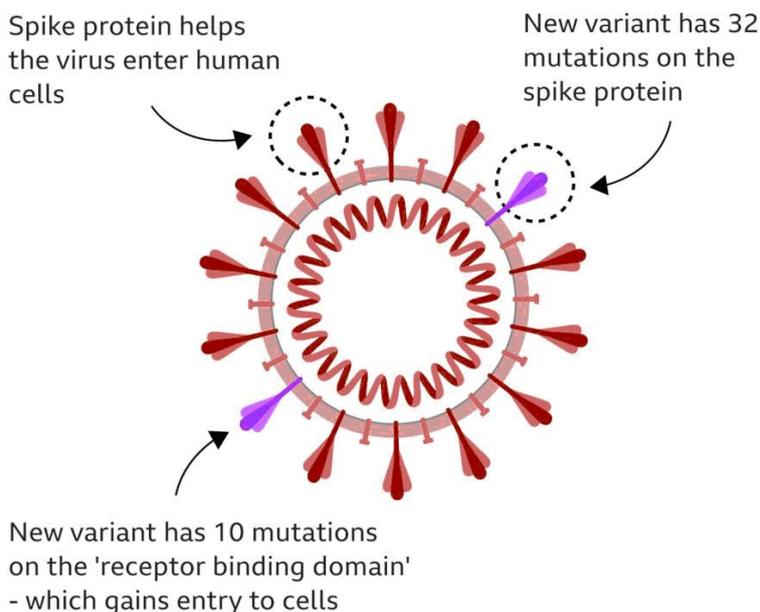
Figure-1 : WHO Covid-19 Variant Nomenclature

* In point of fact, **Omicron** symptom and mortality is much less than **A – B -Γ-Δ** mutations. Dr. Angelique Coetee (Head of S. Africa Medical Asso.) has voiced recently that the symptom of Omicron is mild and there is no need for patients to be hospitalized.

<https://www.cnn.com/2021/11/29/omicron-covid-variant-symptoms-heres-what-we-know-so-far.html>

The new Covid-19 variant: B.1.1.529

More mutations may make it spread faster



Source: South Africa Centre for Epidemic Response and Innovation

BBC

Figure-2 : The new Covid-19 Omicron Variant

Rank	Country	Pop. ('000)	Infected ('000)	%	Mortality	%
224	World	7,917,238	634,612	8.0%	6,589,439	1.04%
1	USA	333,942	99,282	29.7%	1,094,596	1.10%
2	India	1,400,715	44,649	3.2%	528,999	1.18%
3	France	65,489	36,745	56.1%	156,771	0.43%
4	Germany	84,187	35,534	42.2%	153,377	0.43%
5	Brazil	214,853	34,858	16.2%	688,013	1.97%
6	S.Korea	51,780	25,467	49.2%	29,100	0.11%
7	UK	68,419	23,856	34.9%	192,682	0.81%
8	Italy	59,550	23,475	39.4%	178,940	0.76%
9	Japan	125,800	22,149	17.6%	46,485	0.21%
10	Russia	145,934	22,149	15.2%	389,872	1.76%
14	Australia	25,941	10,348	39.9%	15,589	0.15%
17	Taiwan	23,570	7,592	32.2%	12,563	0.17%
27	Malaysia	32,710	4,890	14.9%	36,462	0.75%
33	Canada	38,237	4,315	11.3%	46,025	1.07%
45	Singapore	5,450	2,087	38.3%	1,670	0.08%
47	HKSAR	7,690	1,898	24.7%	10,358	0.55%
49	NZ	4,881	1,831	37.5%	3,085	0.17%
107	China	1,447,705	259	0.0%	5,226	1.96%

Figure-3 : Covid-19 World Infection Statistics

Source: <https://www.worldometers.info/coronavirus/> [2022-10-28]

2. LITERATURE REVIEW

Bhowmik (2022) studied the assessment of data from three surveillance systems related to COVID-19 cases from 2020-12-1 to 2022-1-15. Emergency department (ED) visits, hospital admissions, deaths as well as maximum seven-day moving averages of the daily number of COVID-19 cases during the Omicron period were compared with the Delta and Winter 2020-2021 periods. Moreover, for each period, the hospital admissions, ED visits, and deaths per 1000 cases of COVID-19 were calculated. Taken together, the study demonstrates that the SARS-CoV-2 Omicron variant is associated with lower disease severity as compared to the previous SARS-CoV-2 variants.

On 2022-1-19, WHO announced that « Since the B.1.1.529 variant was declared a Variant of Concern and assigned the name Omicron on 26 November 2021, our understanding of this variant has increased considerably, thanks to collaborative global research and the passing of time, allowing us to observe its behaviour and how it affects individuals and communities over a number of weeks. It is important to recognize that we still have some way to go to ending the pandemic. Although we are currently reporting fewer hospitalizations and deaths across the Region as a whole, we are, however, dealing with a huge surge in COVID-19 cases. And even though Omicron is quickly gaining ground in the Region, the majority of current COVID-19 cases is still being caused by the Delta variant, which is known to cause severe disease and death. »

Iacobucci (2022) pointed out that confidence is growing among experts and ministers in the UK that omicron is milder than previous variants of SARS-CoV-2, and politicians and scientists alike are increasingly bullish that the worst of the covid-19 pandemic is behind us. At the same time, the number of people dying from covid in the UK is higher than it has been since February 2021. Daily deaths (within 28 days of a positive test by date of death) have regularly exceeded 250 in recent weeks. This is some way short of the UK's worst daily death toll, which peaked at 1359 on 19 January 2021. But this year's peak of 276 deaths, on 17 January 2022, was the highest daily total since 23 February 2021, when 288 deaths were recorded. So, this is evidence that Omicron mortality is much 'milder' than the Delta variant.

Nasirpour, et.al (2021) assess the effects of sunspot numbers on the emergence of viruses, including COVID-19. It utilizes wavelet decomposition to smooth the sunspot cycle and predicts past pandemics while forecasting future viral outbreaks. The analysis indicates that many significant pandemics coincide with sunspot extrema, suggesting a potential link between solar activity and viral emergence. The authors call for further experimental studies to confirm these findings. Morchiladze et.al (2021) explore the potential connections between solar activity and pandemics, particularly COVID-19. It discusses historical observations linking sunspot cycles to viral outbreaks and suggests that electromagnetic fields associated with solar activity may influence biological processes. The authors advocate for increased research into these connections to better understand their implications for public health.

Martel et.al (2023) discover that living organisms have evolved within the natural electromagnetic fields (EMFs) of the earth which comprise the global atmospheric electrical circuit, Research suggests that the circadian rhythm, which controls several physiological functions in the human body, can be influenced by light but also by the earth's EMFs. Cyclic solar disturbances, including sunspots and seasonal weakening of the geomagnetic field, can affect human health, possibly by disrupting the circadian rhythm and downstream physiological functions.

Ho & Lau (2009) research on the Earth experiences Solar Minimum, mankind (in particular investors and fund managers) tended to be more conservative and less aggressive. The recent Solar Minima occurs in 1965, 1975, 1986, 1997 and 2008 (11-year cycle). These are the exact years for Global Stock Crashes.

When the World's 4 major Financial Indices (S&P, FTSE, Neikki & HSI) are correlated using daily data over the last 45 years, there were little correlations found. However, when S&P, FTSE, Neikki and HSI were correlated with Sunspot Daily Count from the

last 45 years, the correlations were amazingly good! Statistical tests deployed were: Unit Root Test, Johansen and Juselius Cointegration Test, and Error Correction Model (ECM). The last one was developed by Prof. Clive Granger, the 2003 Nobel Prize Winners on Economics.

Ho (2013) has harnessed a set of system and process that can ensure the long-term productivity and business growth of firms in this contemporary business world. It is predicted with 80 percent confidence that the next property depression in some affluent cities will happen in 2014/2015, with the global financial tsunami coming in 2019. More important is how organizations can make use of the trade-wind and avoid the counter-wind from the Uni-economics phenomena for their quality, productivity and business growth, in accordance to the Deming Cycle. As recalled from the previous two oil crisis (around 1975, 1986) and the two financial tsunami (1997 and 2008), 40-year-old organizations that can still survive today must have done something good, despite all these turmoil confronting them.

Ho (2023) identify that 2019 experienced the lowest sunspot in the history of mankind at 281 days without any Sunspot. In other words, there is a subtle lack of “Energy” for mankind. It is well recognized that, in Tradition Chinese Medicine (TCM) theory, Energy (Chi) is the most important drive and defense line for our human body. Through literature review and critical analysis, most of the pandemic in the human history occurs at the Sunspot Minima years when there were serious lacking of Chi for mankind. Nevertheless, it is expected that the Sunspot day-count will be almost daily in 2023, and hence its radiation on Earth will be approaching Maxima. Therefore, the Covid-19 will subside naturally and will become an Endemic. This has been proven by history.

3. INTRODUCTION TO SUNSPOT

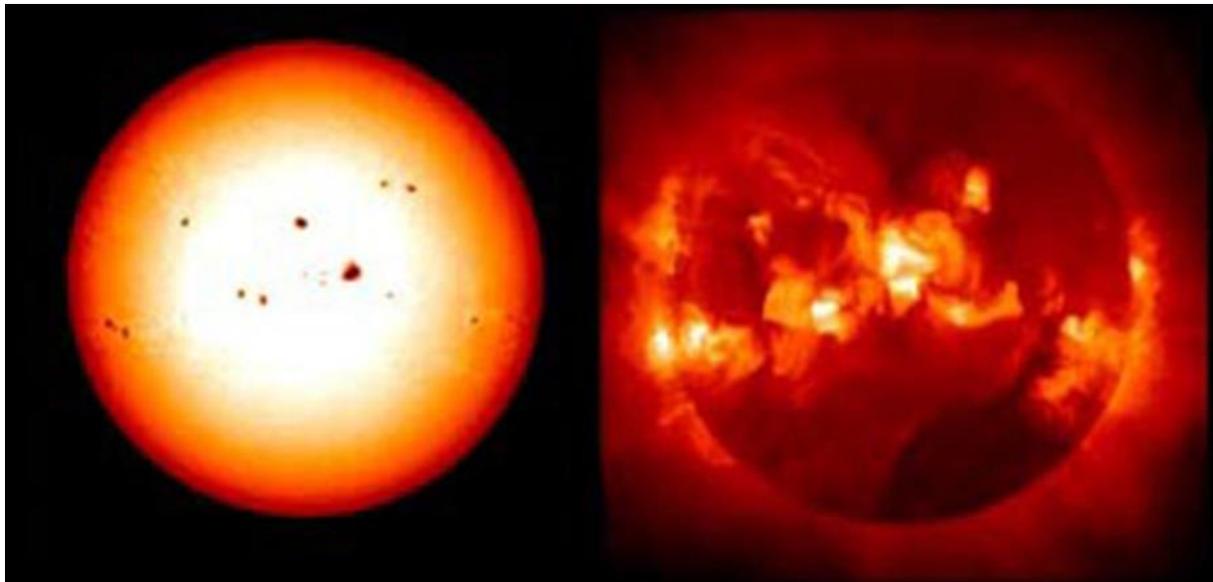


Figure-4 : Sun's Ordinary Photo (Left) and X-Ray Photo (Right)

– a solid proof that the higher the Sunspot, the higher the Radiation

(Source: European Space Agency Sunspot Data)

Sunspot (the largest can be 5 times the diameter of the Earth), is in fact the impurity of the Sun's matter. Like boiling a pot of water, astronomers discovered long time ago (Galileo, 1613), that the cycle for these impurities to re-cycle from the Sun's surface to the centre and back to the surface again is 11.04 earth-year (Mitchell, 1916 & Battros, 2005). This phenomenon never changes in the human history (Fischer, 2009). The impurity consists of highly radioactive electro-magnetic radiation (including X-ray – see **Figure-4**). Consequently, the size and quantity of the Sunspot will affect the radiation level of our Earth (**Figure-5**).

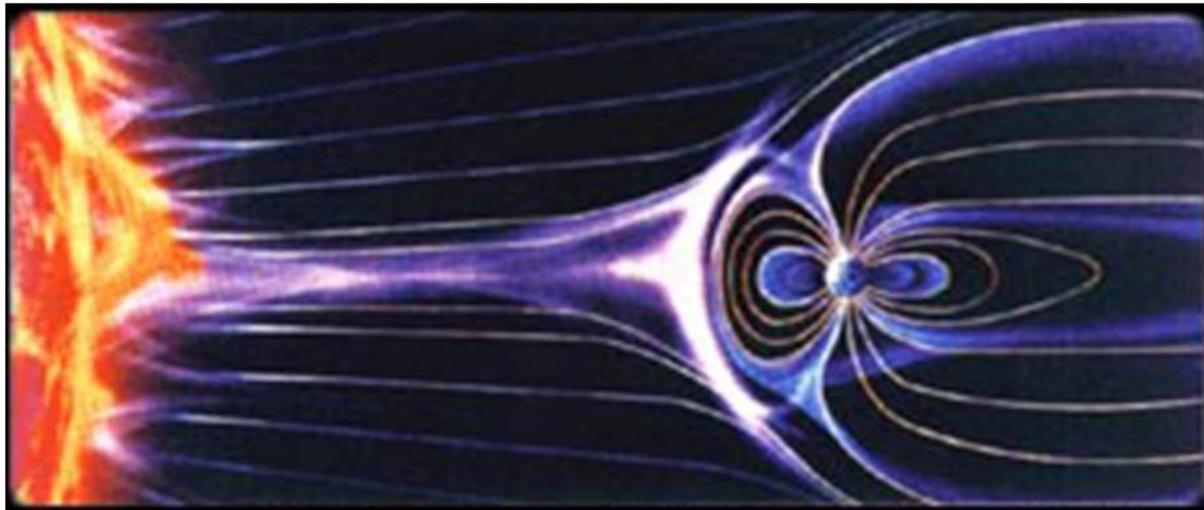


Figure-5 : Showing the relationship between Sun's radiation & the Earth's magnetic field

(Source: The Solar Data Analysis Center)

Daily Sunspot number can range from 0 to 300 (Hufbauer, 1991 & Solar Cycle, 2020). The Sunspot cycle is 11 years (**Figure-6**). According to the USA-NASA's database, the lowest Sunspot year was averaged at 2/day (during 2008 when we have the worst Financial Tsunami in our history with the HSI dropped by 2/3). The highest Sunspot year was averaged at 174/day (during 1949 when the New China was inaugurated). In other words, the PRC was established at the highest Sunspot year in the human history. This agreed with Chairman Mao's motto: "The East came up a Red Sun". Incidentally, there is scientific base from Chairman Mao's sixth sense. On the contrary, 2019 experienced the lowest sunspot in the history of mankind at 281 days (**Figure-5**) without any Sunspot. In other words, there is a subtle lack of "Energy" for mankind. It is well recognized that, in Tradition Chinese Medicine (TCM) theory, Energy is the most important drive and defense line for our human body.

3.1. Sun's Radiation & Human Biological Reaction

Dr. George Washington Crile, (1864-1943), a distinguished American surgeon formally recognized as the first surgeon to have succeeded in a direct blood transfusion saving millions during the WWII, studied the sun in light of its radiant energy. Crile discovered that our human body is composed of **billions of electrical charges** (or "Chi" in TCM), which is resonated by the Sun's radiation. Hsu, et.al, (2016) did a large scale experiment on the relationship of TCM/Chi with radio-therapy and find positive relationship. In the 'Preliminary Remarks' to Lakhovsky's The Secret of Life (1940), Professor d'Arsonval, (1851-1940) quoted Crile: "It is clear that radiation produces the electrical current which operates adaptively the organism as a whole, producing memory, reason, imagination, emotion, the special senses, secretions, muscular action, the response to infection, normal growth, and the growth of benign tumours and cancers, all of which are governed adaptively by the electric charges that are generated by the short wave or ionizing radiation in protoplasm."

D’Arsonval felt that the entire energy system of living beings is controlled by radiant energy and electrical forces. This view was also supported by Stetson, (1937), Petersen, (1947), Breus, (1993), Botezat, (1993), Borges, (2009) & Ertel, (2020). He pointed out that Lakhovsky and Crile found that living cells are electrical cells functioning as system of generators, inductance lines, and insulators. The underlying mechanism is the oscillating circuit. D’Arsonval explained further that a conductor is said to possess inductance if a current flowing through it causes a magnetic field to be set up round it. From such a circuit, energy is readily given off in the form of waves. According to Lakhovsky, **the nucleus of a living cell may be compared to an electrical oscillating circuit.** The nucleus consists of tubular filaments, chromosomes, mitochondria, made up of insulating material and filled with a conducting fluid containing all the mineral salts found in sea water (Hoskin, 1997),. These filaments are thus comparable to oscillating circuits endowed with capacity according to a specific frequency (Goncharov, 1993).

Darras, et.al, (1993) conducted an experiment in a hospital in Paris to investigate the pathways of acupuncture meridians in the human body through the injection of radioactive tracers at acupuncture points. Technetium 99m (99mTc) as sodium pertechnetate, the most common radioactive tracer in nuclear medicine, has been used. The migration patterns were recorded with a scintillation camera associated with computer imaging capabilities. The findings show that the preferential pathways taken by the radiotracer coincide with acupuncture meridians as described in Chinese traditional medicine. More, it has been established that these pathways are distinguishable from either lymphatic or vascular routes. This is possibly the first scientific proof that the **Energy Line** (Chi of TCM) actually **exist** in our body, and it is subjected to external radioactive influence such as that X-ray from the Sunspot.

The cosmic radiation from the Sun is a blessing of Vital Force (Chi). As Lakhovsky has postulated, it is the cosmic radiations that give the cells their vibrant oscillations. While the sunspot maxima is occurring, the solar flares and the subsequent geo-magnetic reactions effect the many subtle reactions that take place within our bodies at the atomic level (Freitas, 2009). It has been theorized that this has a direct relationship to the metabolism of the body. The increase of penetrating waves during a solar storm causes an excitation in these electro-chemical reactions within the body. Chizhevsky, (1897-1964) also identified correlations between changes in solar magnetic activity with biological processes. In light of Lakhovsky’s theory in his own words, “...with the aid of elementary analogies, that the cell, essential organic unit in all living beings, is nothing but an electromagnetic resonator, capable of emitting and absorbing radiations of very high frequency.” A plausible mechanism is provided to understanding the stimulating effects the radiation from the Sun has on human behavior.

3.2. Impact of Sunspot on Epidemic Diseases

By the above deduction, most of the pandemic in the human history occurs at the Sunspot Minima years when there is a **lack of Energy** (Chi) for mankind (see **Figure-6, Figure-7 & Figure-8**)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sunspot Days	295	213	97	105	314	354	365	365	364	365	333

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Sunspot Days	261	144	84	157	305	353	362	365	363

Impact of Sunspot on Covid-19 and Beyond

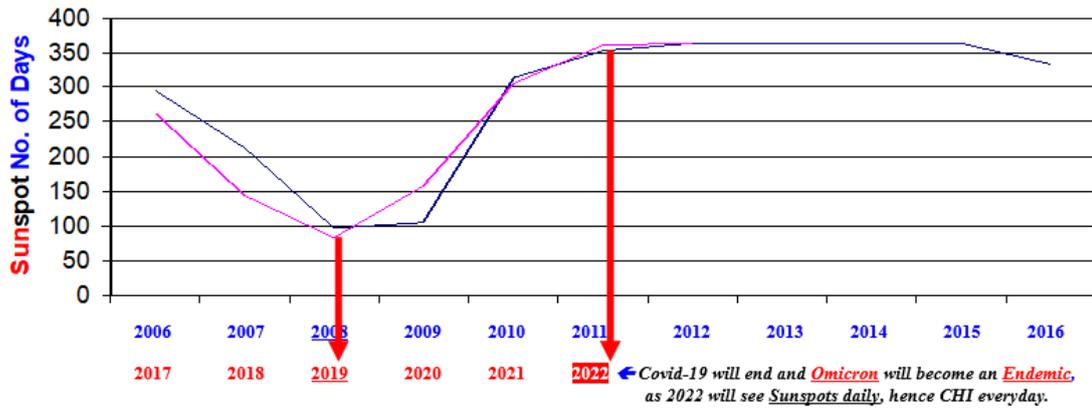


Fig-6 : Number of days with Sunspot during that year <https://www.spaceweather.com/>
 2019 experienced the lowest Sunspot number of days in the history of mankind (at 84), hence acutely lacking Energy (Chi). the 0-sunspot day-count has retreat to 12 in 2022, and hence the Covid-19 has subside by end-2022. The virus (incl. Omicron) hence has become an **Endemic**.

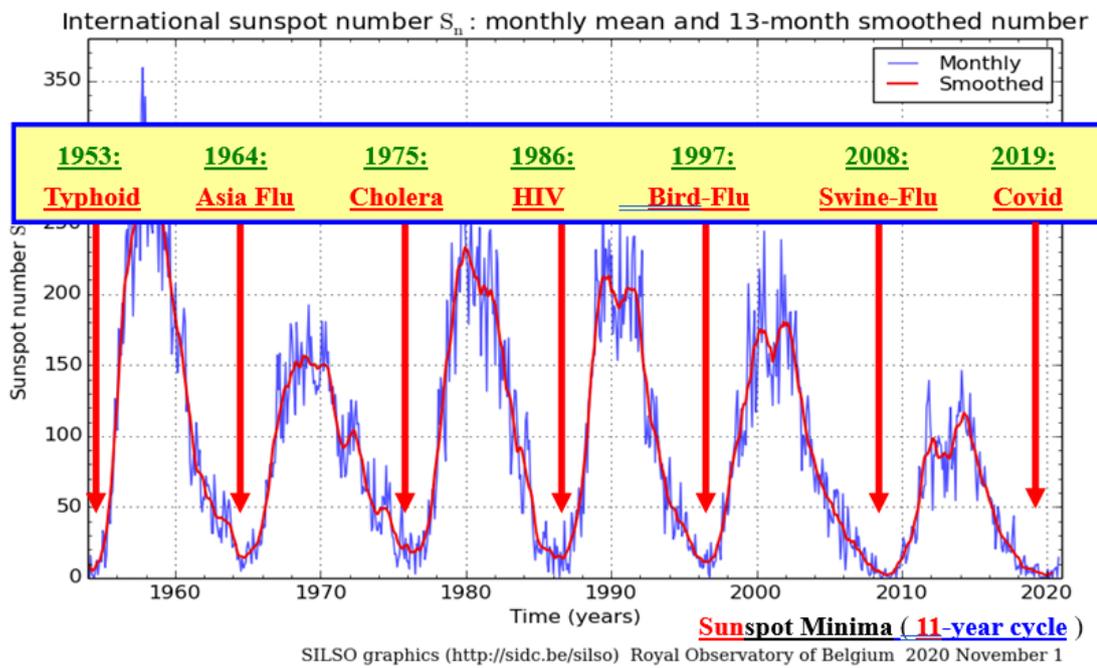
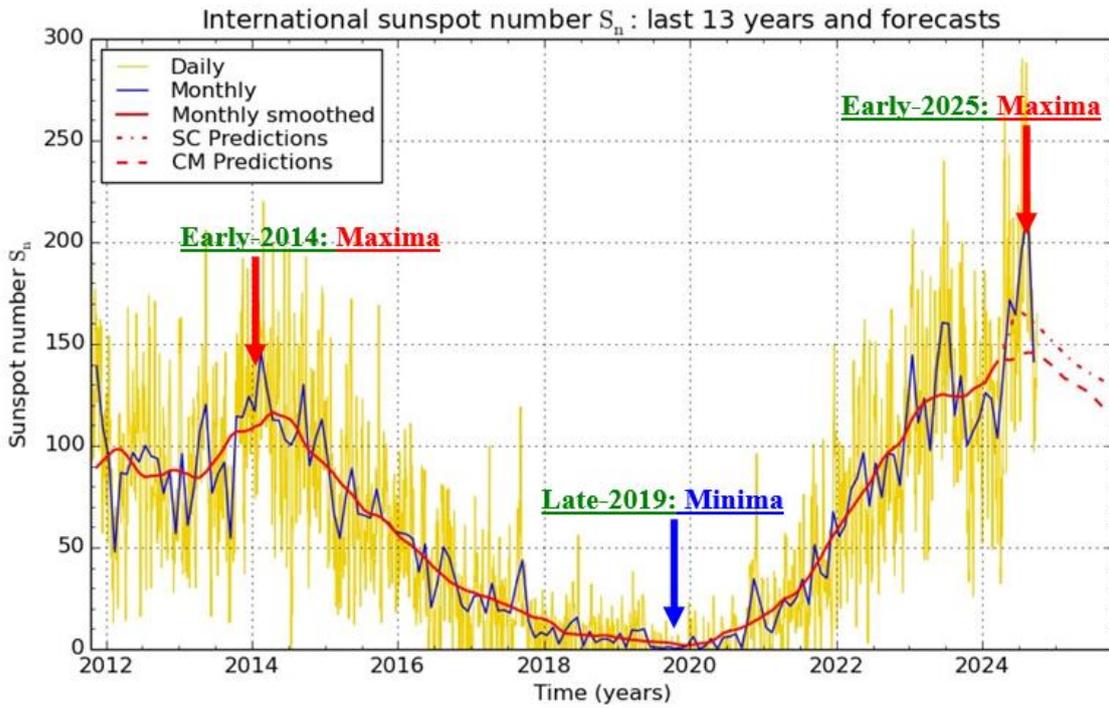


Figure-7 : Sunspot Index and Long-term Solar Observations:- <http://www.sidc.be/silso/datafiles>
 from Wikipedia: "PANDEMIC":- <https://en.wikipedia.org/wiki/pandemic>



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2024 October 1

Figure-8 : Next Sunspot Maxima (early-2025)

What is the next Epidemic Disease (at 11-year Cycle) ???

1953	1964	1975	1986	1997	2008	2019	2030
Typhoid	Asia Flu	Cholera	HIV	Bird-Flu	Swine-Flu	Covid-19	???

From Figure-8 and the associated Table, one can predict that there will be another Epidemic coming in 2030. What this disease could be will become eminent near the time. It is therefore important for the researchers in epidemiology to be alert by 2029 and search for some possible epidemic disease /virus which could have already come to Earth (like the Ebola). It may also be those mutated viruses which have a good chance to turn into another epidemic. Then preventive vaccines should be developed before it comes into play on a massive scale. Hopefully, with the theory behind this paper and the advancement in immunology and corresponding vaccine R&D, mankind can stop or avoid the next Epidemic invading us at large.

3.3. Impact of Sunspot on Pandemic Diseases

From Figure-9 and the associated Table, one can also predict that there will be another Pandemic coming in 2118. What this disease could be will become eminent near the time. Although it seems far too early to talk about it now, with the recent development of AI, it is hope that such Pandemic will be cleared even before it is born. In particular, the 2024 Nobel Winners in Medicine, Physics & Chemistry are unanimously pointing their research direction towards applying AI to analyse the proteins, DNA, RNA and human genes in such a fast speed and vast details that to get rid of the next Pandemic is no longer a legend in the “Tomorrow’s World” Block-buster. Scientists are already advocating that with the advancement of AI research on critical proteins and diseases, human can live up to the age of 150 is fast become a reality!

Impact of Sunspot on Covid-19 and Beyond

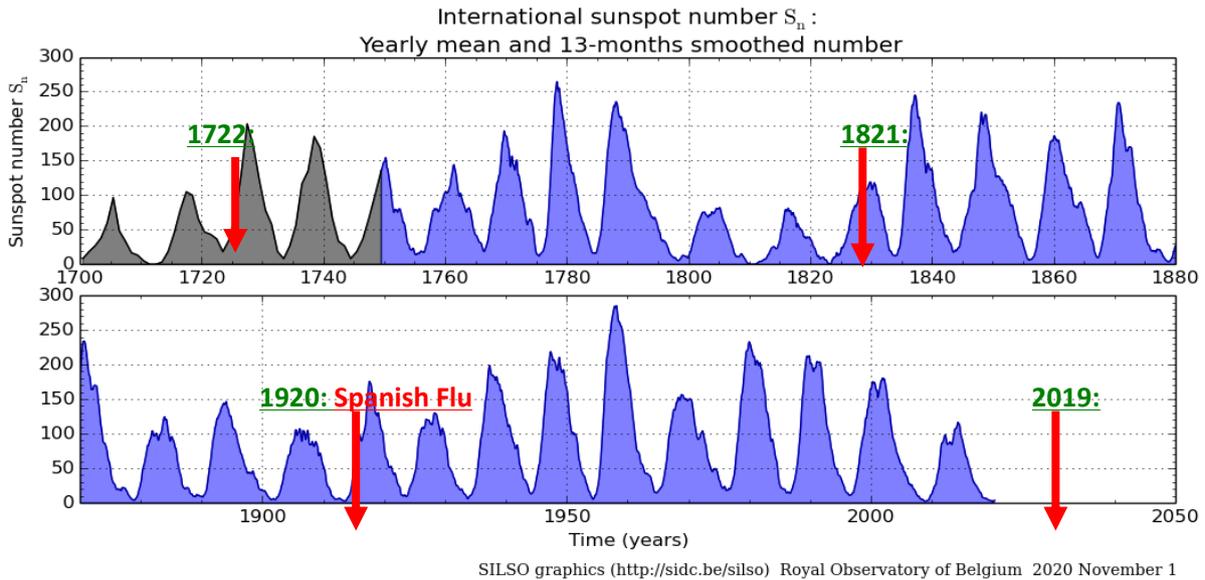


Figure-9 : Sunspot Ultra-Minima (99-year Cycle)

-- Global infection is over 100 million people, with death toll counted in multi-millions

What is the next Pandemic Disease (at $11 \times 9 = 99$ -year Cycle) ???

Year	~1327--1722	~1821	~1920	~2019	~2118
Pandemic	Plague (rats)	Cholera	Spanish Flu	Covid-19	???
Mortality Rate	80-90%	25-50%	10-50%	1%	
Approx. Death	30 million	4 million	25 million	7 million	

4. THEORIES OF CONCERN

When the Author was a Research Fellow at Cambridge in 1996, he came across Prof. Stephen Hawking driving his electrical wheel-chair to his small old office at the corner of a narrow street. No matter how small it was, Stephen saw through his eyes the magnificent big bang and black-hole theory which had created the Sun, and to some extent the Sunspot. Glad to see now that, despite he had gone to his black-hole, the Kavil Institute for Cosmology at Cambridge is now a full fledged green-field site at the peripheral of Cambridge University which must be 1,000 times bigger than his original street-corner office.

The above Sunspot Model was concurred by Prof. Lars Werin, Emeritus Professor, Stockholm University, and Ex-Chairman of the Economic Nobel Prize Committee who was residing in Lund, Sweden, during the Author's discussion with him on 16 December 2007. He wrote the author an email after the meeting stating:-

“When you asked me if research along your lines could be regarded as falling under the sphere of the prize, and I said, **certainly**. It needs not be traditional economic, actually it is an ambition of those who decide upon the prize to interpret ‘economic sciences’ broadly.”

Lambe (2021) concluded that “The pandemic will end; the virus will become endemic,” she stresses. “This is where I get a little macabre. It’s likely that we will get another pandemic of some virus at some point in the future.” So the good and bad lessons need to be learned, notably on the need for effective co-operation between government, academia and industry, Lambe underlines. “We need to keep it going – we need to ensure walls don’t go back up.” Last but not the least, Prof. Ted Kaptchuk, a world-renown expert in Placebo from the Harvard Medical School has commented the theory behind this paper as: ***"Intriguing"***.

5. CONCLUSION

1. When the Earth is going through the **Sunspot Minima**, our immune system (or “Chi” in TCM) is at its weakest point. Thus we are more vulnerable to virus attack.
2. The recent Sunspot Minima occurs in 1964, 1975, 1986, 1997, 2008 & 2019 (**11-year cycle**). These years are the years of Global infectious diseases.
3. The long-term Ultra-Sunspot Minima occurred in 1822, 1821, 1920 & 2019 (at **99-year Cycle**). These are the years of Global pandemic, unfortunately unavoidable by the Will of God.
4. In point of fact, the Omicron is a **weak** virus, as the stronger virus (like Delta-Variant) cannot survive the Sun’s intensified radiation. Moreover, the human body immune system has become **stronger** as a result of the Sun’s greater radiation upon us.
5. One can predict that there will be another Epidemic coming in **2030**. What this disease could be will become eminent near the time. It is therefore important for the researchers in epidemiology to be alert by 2029 and search for some possible epidemic disease /virus which could have already come to Earth (like the Ebola). Hopefully, with the theory behind this paper and the advancement in immunology and corresponding vaccine R&D, mankind can stop or avoid the next Epidemic invading us at large.
6. As for the next pandemic in **2118**, it is not be something you and I can see. We hope that with the advancement of AI in medical science and immunology, our descendants will be able to learn from our experience, and they will be able to **overcome** the catastrophes brought by the viruses. As far as we are concern, living up to 150 is no longer a dream.

Please find below the **Photo** I took at the **Nobel Museum** in Stockholm on 2008-7-19 during the period when I was chairing my Int. Conf. on ISO & TQM (**ICIT**) in Sweden. The Neon sign was taller than myself, and now I understand its true meaning... “ **What is now PROVEN was once IMAGINED**”. It is hope that this paper will set a framework for the dissemination of knowledge and ground-breaking research experience together with you aiming at the global health prevention and protection for mankind.



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USEFUL SUNSPOT DATA WEBSITES:

- [35] The Solar Data Analysis Center at: <http://umbra.nascom.nasa.gov/>
- [36] The Solar Data Analysis Center at NASA's Goddard Space Flight Center has information on many solar research projects, and a fantastic archive of solar images, both past and current, including the SOHO eruptive prominence of the week.
- [37] Today's Space Weather at: <http://www.sel.bldrdoc.gov/today.html>
- [38] Presented by the Space Environment Center, one of NOAA's research laboratories, this site provides a daily update on levels of solar activity, and the intensities of solar emissions reaching Earth.
- [39] European Space Agency Sunspot Data at: http://space-env.esa.int/Data_Plots/noaa/ssn_plot.html
- [40] The YOHO Data Archive at: <http://ydac.mssl.ucl.ac.uk/ydac/>

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Ethical approval is not applicable to the current study, as the paper is based on the Sunspot Theory. Moreover the historical data on Epidemics and pandemics are all in the public domain of mankind.

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