

OBSERVER REVIEW

A COLLECTION OF STUDIES ANALYZING
CORRELATIONS BETWEEN PEOPLE, SOCIETY,
BEHAVIORS, AND THE SUN

THE SUN AND THE FED

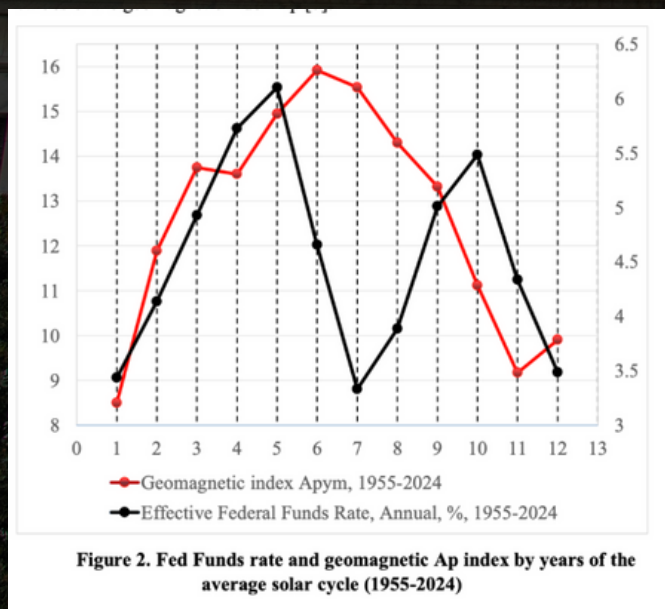
ARTICLE REFERENCED:
FEDERAL FUNDS RATES AND SOLAR ACTIVITY (1955-2024):
EVIDENCE OF A VERY HIGH CORRELATION

The relationship between natural phenomena and human activity has been a topic of interest for us. One of the most intriguing findings in recent research is the discovery of a highly significant correlation between solar activity and the U.S. federal funds rate. This connection, explored in a report analyzing data from 1955 to 2024, highlights the possibility that solar cycles influence economic cycles through mechanisms still being studied. Let's explore what this means and why it could be important.

The idea that solar activity could affect the economy is not new. In the late 19th century, economist William Stanley Jevons suggested that solar cycles, as indicated by fluctuations in sunspots (measured by Wolf numbers), influenced the price of crops such as corn. Jevons observed that periods of heightened solar activity coincided with shifts in agricultural output, which had ripple effects on economic stability.

Similarly, Russian biophysicist Alexander Chizhevsky studied the influence of solar activity on biological and social systems. His work, particularly on the correlation between solar cycles and disease outbreaks like cholera, hinted at a broader cosmic impact on human activity. Building on these ideas, the recent study draws parallels between solar cycles and U.S. federal funds rates, revealing remarkable statistical relationships.

The study analyzed federal funds rates from 1955 to 2024 and compared them with the ordinal years of solar cycles. Solar cycles, typically lasting about 11 years, were numbered according to their standard astrophysical order. Key findings include the following correlation coefficients between solar cycle years and average federal funds rates:



FOR THE 1ST TO 5TH YEARS OF THE SOLAR CYCLE: 0.994

FOR THE 5TH TO 7TH YEARS OF THE SOLAR CYCLE: -0.999

FOR THE 7TH TO 10TH YEARS OF THE SOLAR CYCLE: 0.987

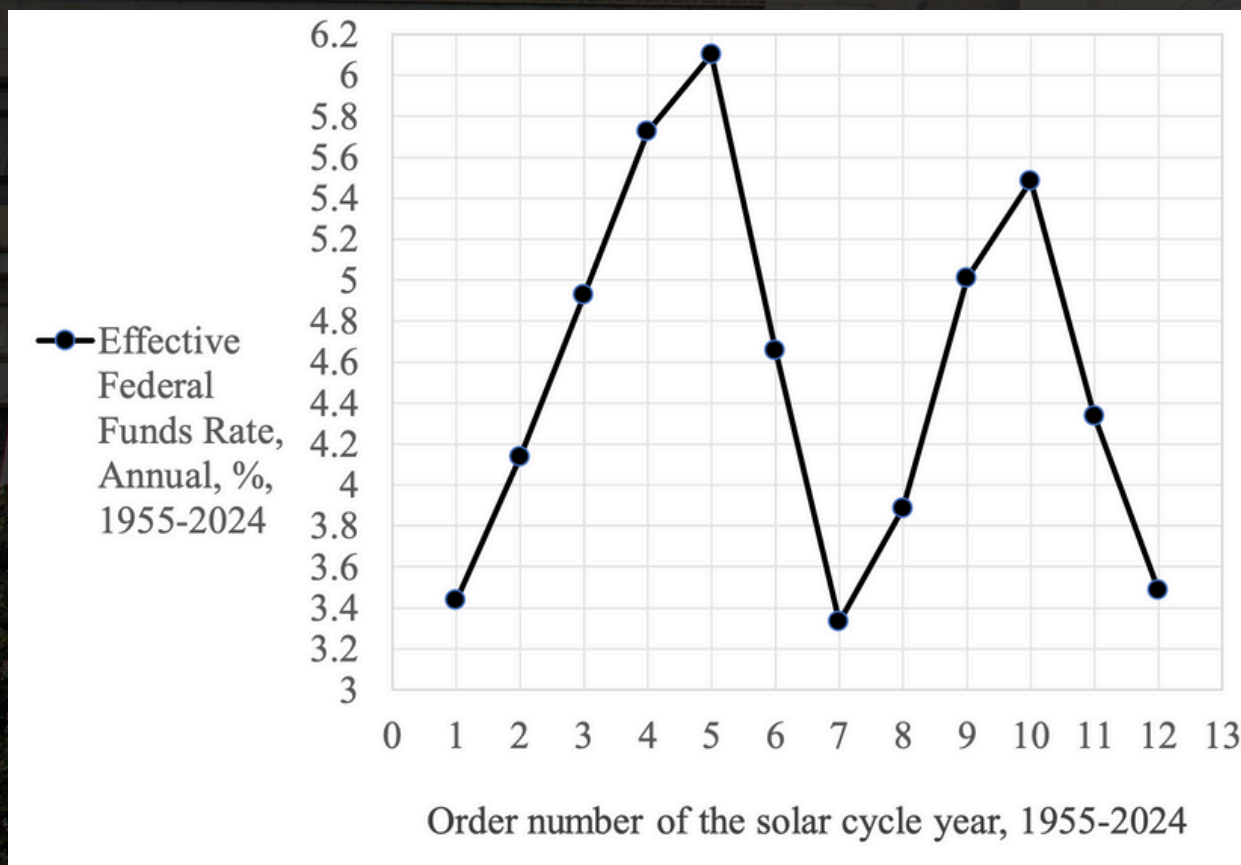
FOR THE 10TH TO 12TH YEARS OF THE SOLAR CYCLE: -0.996

These values demonstrate an extraordinarily high degree of correlation, suggesting a pattern where federal funds rates tend to be at their minimum either during the year of a solar maximum or in the year following it.

The projected federal funds rate for 2025 is estimated at 3.92%, while the rate for 2026 is expected to decline to 2.81%. This projection reflects the study's observation that rates typically bottom out following the geomagnetic disturbances associated with solar cycle extremities. To understand why solar cycles might influence interest rates, we need to consider the role of geomagnetic disturbances—measured by the Ap geomagnetic index. Solar flares and coronal mass ejections release bursts of charged particles, which can interact with Earth's magnetic field and cause geomagnetic storms. These storms have been linked to physiological and psychological effects on humans, such as changes in blood flow and mood.

Dr. Mikhail Blank, a medical scientist, notes that extreme geomagnetic conditions can affect blood composition and overall human health. This, in turn, may influence decision-making, productivity, and economic activity. Another researcher, Dr. Y.I. Gurfinkel, found that capillary blood flow decreases during extreme geomagnetic events, potentially affecting cognitive and physical performance.

ECONOMIC SYSTEMS, DRIVEN BY HUMAN BEHAVIOR, COULD BE SENSITIVE TO THESE SOLAR-INDUCED SHIFTS. WHEN GEOMAGNETIC ACTIVITY REACHES ITS PEAK, IT MAY TRIGGER A CASCADE OF EFFECTS ON FINANCIAL MARKETS, CONSUMPTION PATTERNS, AND ULTIMATELY THE FEDERAL FUNDS RATE.



SOLAR FORCING OVERVIEW

ARTICLE REFERENCED:

[HTTPS://PAPERS.SSRN.COM/SOL3/PAPERS.CFM?ABSTRACT_ID=5144353](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5144353)

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One of the most interesting topics that we like to look into is Solar Forcing. Solar forcing can be analyzed across a number of axis, from weather patterns to human actions and sociology. Think of this article as a look into solar forcing from these number of angles. The articles we looked at focus on the solar forcing of Monsoons, Monsoons and Hydroclimates, the solar forcing of wind, polar ice, and even unemployment and gold prices. So, put your mind into the solar forcing world, and let's dive into it!

Research into the mid-Holocene period has revealed that monsoon precipitation variability in Asia was significantly influenced by solar activity. A high-resolution stalagmite record from Xiaoshanyan Cave in Southwest China shows a correlation between weak monsoon intervals (WMIs) and ~200-year solar cycles. These variations align with El Niño-like conditions, suggesting that the strength of the Asian Summer Monsoon (ASM) was modulated by solar-induced changes in sea surface temperatures.

This study underscores the importance of low-latitude air-sea interactions in shaping monsoon dynamics over centuries.

Hydroclimatic patterns in Eastern China re closely tied to broader oceanic and atmospheric interactions. New research suggests that solar activity modulates these hydroclimatic patterns, particularly through interactions with the Pacific Decadal Oscillation (PDO) and the Atlantic Multidecadal Oscillation (AMO).

The PDO is a long-term fluctuation in sea surface temperatures in the North Pacific Ocean, typically lasting 20 to 30 years per phase. It alternates between warm (positive) and cool (negative) phases, which impact global climate patterns.

The AMO is a climate cycle of sea surface temperature variations in the North Atlantic Ocean, with phases lasting 40 to 60 years. Like the PDO, it has warm and cool phases.

Under strong solar activity, meridional dipole patterns emerge, with increased precipitation in the southern Yangtze River and drier conditions in the north. Conversely, weak solar activity reverses these trends, leading to wetter conditions in the north and drier conditions in the south.



These findings have significant implications for agricultural planning, water resource management, and climate adaptation in China. As hydroclimatic patterns shift due to global warming, understanding their natural solar-driven variability will help policymakers develop more effective mitigation strategies. This research enhances predictive models for future hydroclimate changes, aiding climate adaptation strategies in East Asia. Furthermore, as extreme weather events become more frequent, the ability to anticipate shifts in hydroclimatic patterns will be critical for disaster preparedness and infrastructure resilience.

A study on tropospheric and lower stratospheric wind fluctuations found that 27-day solar cycles influence zonal wind speeds. Data from the Northern Hemisphere during the decline of the 23rd solar cycle (2002–2004) indicate that wind fluctuations with amplitudes of ~8 m/s can shift jet streams by over 1° latitude.

These variations occur due to the dynamic interaction between the stratosphere and troposphere, affecting global atmospheric circulation. The maximum wind changes occur in the southern part of the polar atmospheric cell and the northern part of the Ferrell cell (50°–70° N), gradually decreasing in magnitude to the south and north. Wind changes are many times smaller in the tropical troposphere. The impact is realized through two-way dynamic stratospheric-tropospheric interaction, primarily in the area of the polar night jet and polar front jet stream.

WHAT IS THE POLAR NIGHT JET COMPARED TO THE FRONT JET STREAM?

The Polar Night Jet and the Polar Front Jet Stream are both high-altitude atmospheric jets associated with polar regions, but they have distinct characteristics and roles in global circulation. The Polar Night Jet is found in the stratosphere (around 30-50 km altitude) over the winter pole, forming due to strong temperature gradients between the dark, cold winter pole and the surrounding warmer air. It is a seasonal jet, present only in winter, and is primarily driven by the temperature contrasts caused by the lack of sunlight at high latitudes.

This jet encircles the pole and is closely associated with the polar vortex, influencing stratospheric circulation and sometimes impacting weather patterns in the troposphere when it weakens or strengthens. In contrast, the Polar Front Jet Stream is located in the troposphere (about 7-12 km altitude) and forms along the boundary between cold polar air and warmer mid-latitude air, known as the polar front.

It is a year-round feature, though it shifts in latitude and intensity with the seasons, becoming stronger in winter when temperature gradients are more pronounced.

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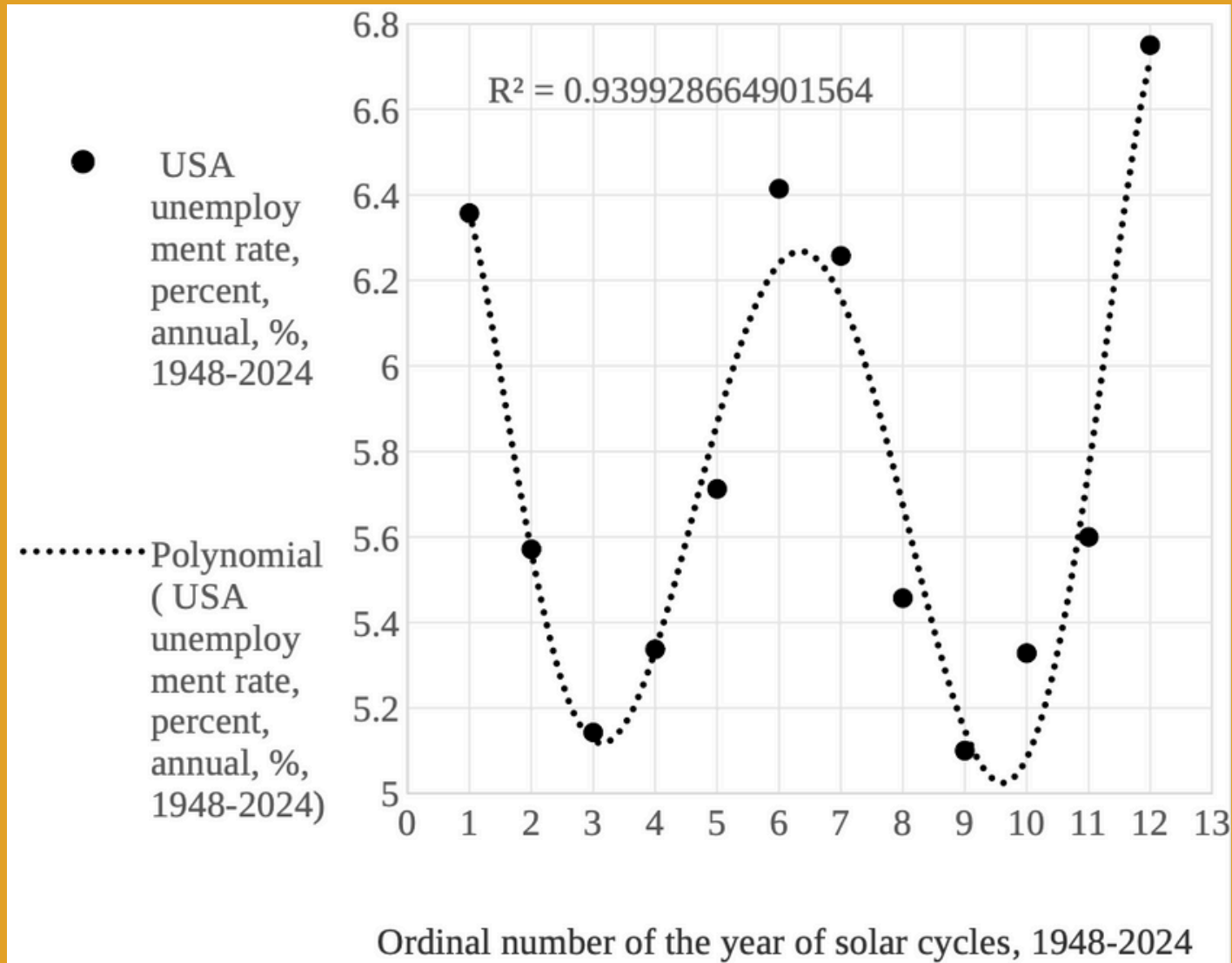
Decadal-scale variability in sea ice in the Okhotsk and Bering Seas exhibits an inverse relationship with the 11-year solar cycle.



During solar maximum years, sea ice increases in the Okhotsk Sea while decreasing in the Bering Sea. This phenomenon is linked to stratospheric ozone variations, which alter atmospheric circulation patterns and the Pacific Meridional Mode (PMM).

The persistence of sea surface temperature anomalies into spring further influences ice distribution. These findings highlight the role of solar forcing in shaping Arctic and sub-Arctic ice trends.

Beyond climate, solar cycles may also influence economic activity, including unemployment rates. A statistical analysis from 1948–2024 demonstrates a strong correlation between U.S. unemployment rates and solar cycle phases. For instance, periods of solar minima and maxima coincide with economic downturns, possibly due to biological and psychological effects of geomagnetic activity on human behavior.

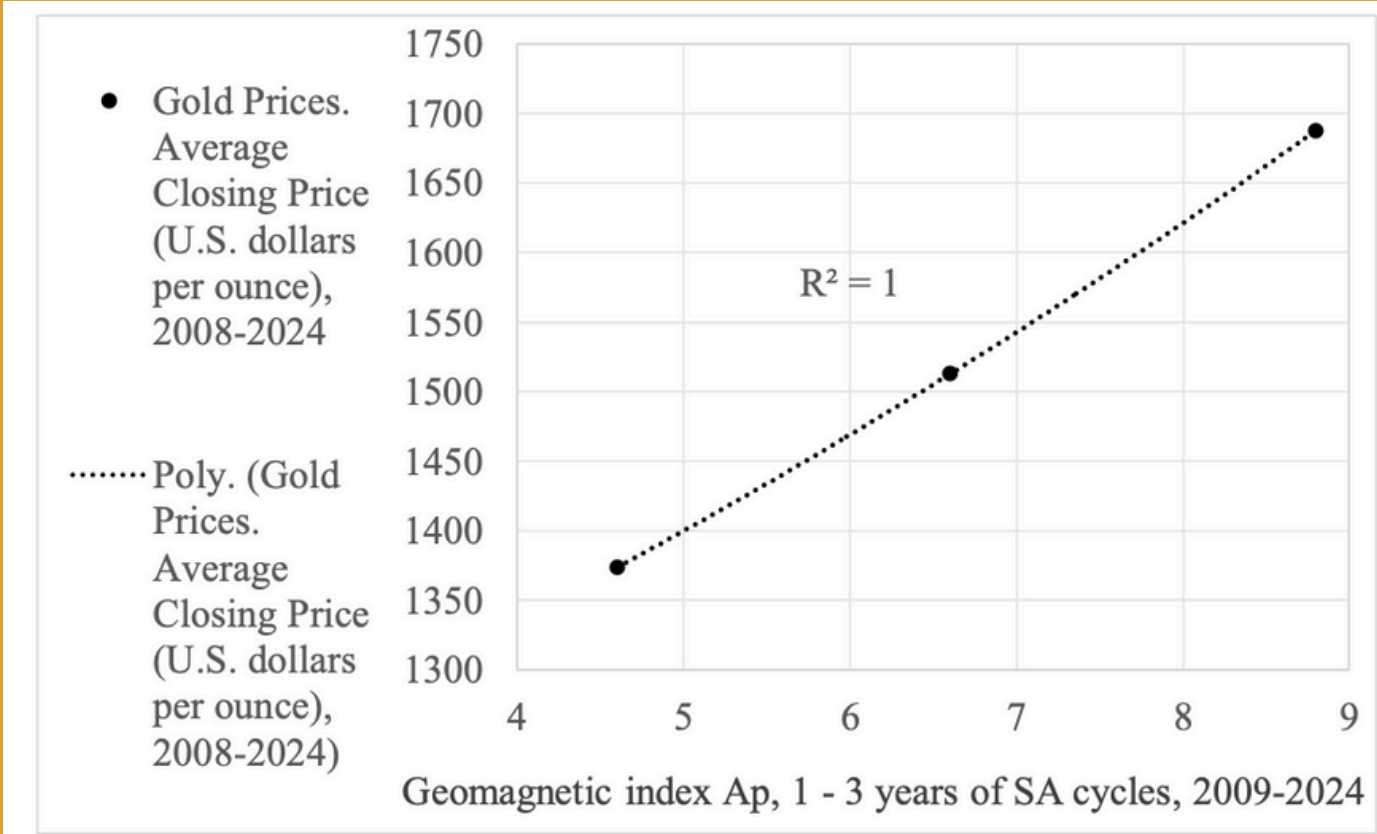


"Unemployment rate in the USA and ordinal numbers of years of the average solar cycle for 1948 - 2024, 77 years of observations"

REDUCED CAPILLARY BLOOD FLOW AND ALTERED MENTAL STATES DURING GEOMAGNETIC EXTREMES MAY CONTRIBUTE TO REDUCED BUSINESS CONFIDENCE, LEADING TO ECONOMIC SLOWDOWNS.

THE PREDICTED U.S. UNEMPLOYMENT RATE FOR 2025, BASED ON THIS MODEL, IS 4.49%. THIS SUGGESTS THAT HUMAN PRODUCTIVITY AND DECISION-MAKING IS SUBTLY INFLUENCED BY SPACE WEATHER.

Furthermore, let's continue to focus on economic cycles, including gold price fluctuations, in relation to solar activity. A study analyzing the relationship between the geomagnetic index (Ap) and gold prices from 2009–2024 found an exceptionally high correlation, with coefficients nearing ± 1.0 at different phases of the solar cycle. This suggests that market behaviors, investor sentiment, and commodity prices may be indirectly influenced by solar-induced geomagnetic changes.



"Gold price as a function of the geomagnetic index Ap, 1 - 3 years of cycles for 2009 - 2024. "

Historical research on solar-commercial cycles supports this connection. Theories dating back to the 19th century proposed that solar activity influences agricultural yields, which in turn affect economic cycles. More recent research suggests that fluctuations in Earth's magnetic field may impact investor confidence and risk-taking behavior.

If these findings hold, they could provide a novel approach to financial forecasting and risk assessment.

THE SUN AND ECONOMICS

ARTICLE REFERENCED:

ECONOMIC CRISES AND SOLAR ACTIVITY EXTREMA: CALCULATION OF THE FALL IN THE GROSS WORLD PRODUCT INDEX IN 2025

Let's discuss how the sun can steer the global economy. In this study, researcher V.A. Belkin presents evidence that solar cycles, measured through sunspot activity (Wolf numbers), are statistically correlated with the ebb and flow of global economic growth. By aligning over 60 years of Gross World Product (GWP) data with solar cycle chronology, Belkin suggests a new interdisciplinary field—**helioeconomics**—is emerging.

Belkin's analysis reveals that the **lowest** economic growth rates consistently occur in the years following these solar extremes:

AFTER SOLAR MAXIMUM: GWP DROPS TO ~2.315%

AFTER SOLAR MINIMUM: GWP DROPS EVEN FURTHER, TO ~2.184%

The upcoming solar maximum, expected to peak in 2024 (according to NASA's solar cycle 25 forecast), is therefore expected to be followed by an economic low in 2025.

By matching the order of each year within the solar cycle (e.g., year 1, 2, ... 12) to global GDP data from the World Bank, Belkin finds strong statistical connections. Correlation coefficient between year-in-cycle and GDP: 0.71 R^2 (predictive power of solar cycle on GDP): up to 0.92, when excluding disruptive economic outliers like the 1970s oil crisis

These findings indicate that economic slowdowns are more than just coincidences—they often occur at predictable intervals relative to solar cycles. The mechanisms behind helioeconomic coupling may include geomagnetic storms, which can disrupt communication, transport, and financial infrastructure; shifts in atmospheric pressure, cloud cover, and agricultural productivity; and physiological impacts on humans—such as changes in blood pressure and cognition—during geomagnetic extremes, potentially influencing worker productivity and decision-making. Belkin references earlier work by historical figures like Jevons and Chizhevsky, who identified correlations between solar variability and commodity prices, epidemics, and even political upheaval. This historical perspective suggests that our economic systems may be more biologically and environmentally sensitive than conventional models typically acknowledge.

Overall, several mechanisms can be hypothesized from this data. Geomagnetic storms can disrupt communications, satellite navigation, and power grids, impacting economic sectors like transport, finance, and logistics. Atmospheric pressure and climate shifts during solar extremes can influence crop yields, energy consumption, and insurance costs. Human physiology is also affected by geomagnetic activity, with research suggesting impacts on cardiovascular health and cognitive performance, potentially influencing worker productivity and decision-making.

THE SUN IMPACTS MURDER RATES

ARTICLE REFERENCED:

SOLAR-DRIVEN GEOMAGNETIC DISTURBANCES IMPACT HOMICIDE RATES IN EUROPE AND THE USA

THIS PAST MONTH, WE MADE A SPECIAL VIDEO HIGHLIGHTING THIS STUDY – SINCE IT TRULY EXHIBITS HOW MUCH SOLAR EVENTS AND SPACE WEATHER AFFECTS HUMAN BEHAVIOR AND PSYCHOLOGY. YES – YOU DID READ THE TITLE CORRECT. IT HAS BEEN OBSERVED THAT “SOLAR-DRIVEN GEOMAGNETIC DISTURBANCES IMPACT HOMICIDE RATES IN EUROPE AND THE USA.”

By delving into the realm of space weather and geomagnetic disturbances (GMD), researchers have uncovered a surprising and significant connection between these celestial phenomena and the occurrence of homicides in Germany, the United Kingdom, and the United States. The study, conducted by a team of researchers, utilized Ordinary Least Squares (OLS) regression analysis to examine the relationship between GMD and homicide rates over a span of three decades, from 1987 to 2018. The research team was motivated by the observation of temporal patterns in homicide rates that transcended local environmental conditions, prompting them to explore the influence of broader, longer-term factors.

The key finding of the study was the strong association between lagged Kp index values for GMD and homicide rates in all three countries. The Kp index measures the magnitude of geomagnetic disturbances on Earth. Strikingly, this cosmic factor explained over 50% of the variance in homicide rates in Germany, the UK, and the USA. Geomagnetic disturbances, occurring as part of the solar cycle, typically take around 11 years to complete. During these cycles, the number of sunspots and the magnitude of the Kp index fluctuate.

The researchers further explored the impact of GMD on homicide rates over 5-year lags, ranging from the same year of homicide to five years prior to the event. The results consistently pointed to a significant connection between GMD and violent behavior, with a lag of two to three years showing the strongest correlation. These findings suggest that GMD may play a crucial role in triggering homicidal intent among individuals.

In addition to the retrospective analysis, the study also made predictions about future homicide rates based on solar activity. Using the number of sunspots (Sunspot Numbers - SSN) as a proxy for solar activity, the researchers forecasted homicide rates for the current solar cycle. Their model projected that the USA would experience a peak homicide rate of 6.0 per 100,000 inhabitants in 2025, the highest since 2003, a year marked by strong GMD. Germany and the UK were anticipated to see their peak homicide rates in 2026, reaching 1.5 and 1.7 per 100,000 inhabitants, respectively, levels not seen since the late 1990s.

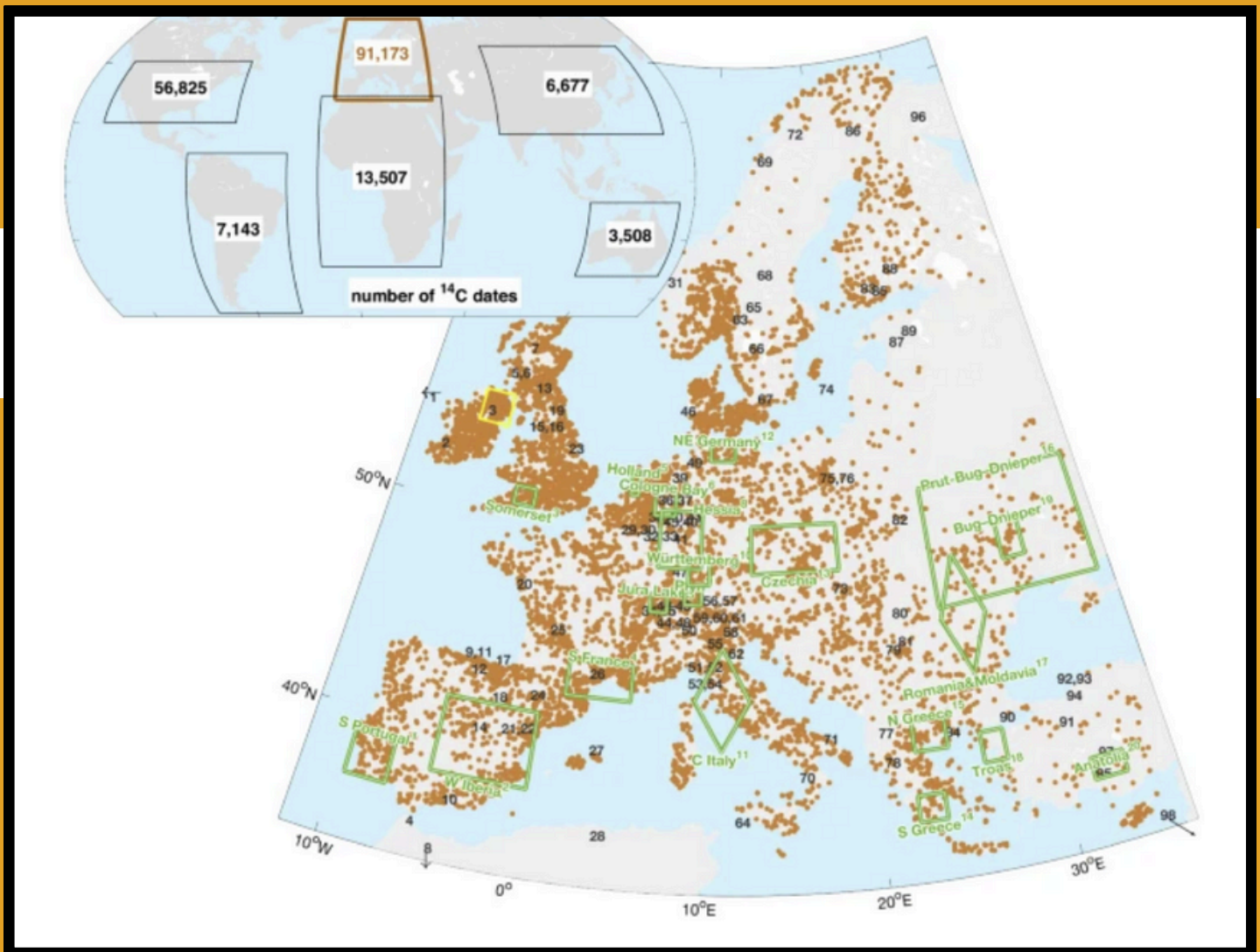
This study opens new avenues of exploration in the field of criminology and psychology. While the focus has traditionally been on local environmental factors, this research underscores the importance of considering broader and longer-term factors, such as space weather and geomagnetic disturbances, in understanding human behavior. Furthermore, it encourages further research into the role of GMD in other aspects of human behavior, including schizophrenia onset, collective behavior during social unrest, and organizational dynamics.

CIVILIZATION AND THE SUN

ARTICLE REFERENCED:

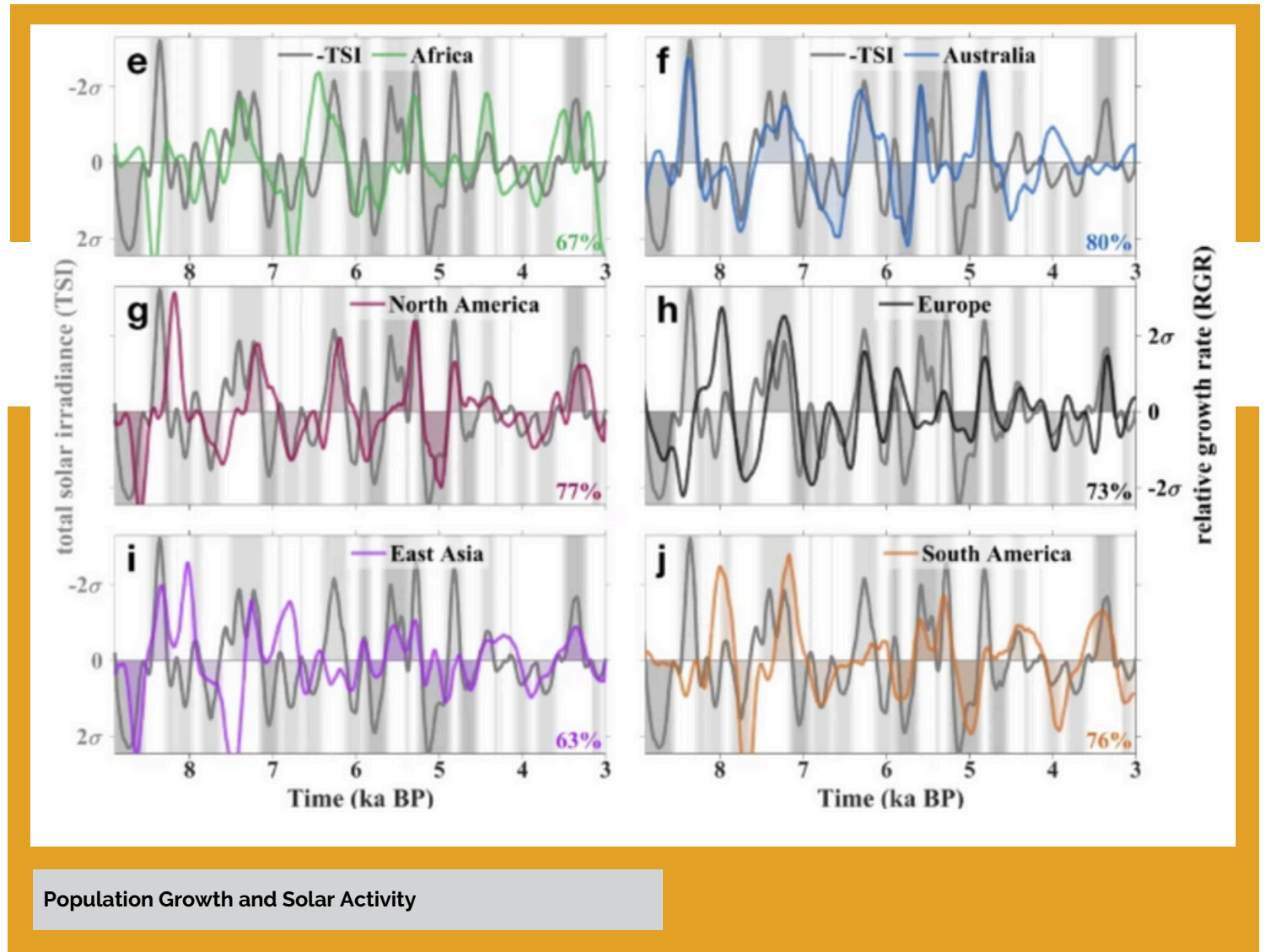
MULTICENTENNIAL CYCLES IN CONTINENTAL DEMOGRAPHY SYNCHRONOUS WITH SOLAR ACTIVITY AND CLIMATE STABILITY

The relationship between human civilization and the environment is a topic that has garnered our attention for millennia. A groundbreaking study delves into this relationship by analyzing population growth cycles over thousands of years in the context of solar activity and climate stability. The findings reveal a remarkable synchronization between multi centennial population cycles and solar activity across all inhabited continents. This research highlights how the Sun's behavior indirectly shaped human societies by influencing climate stability, which, in turn, affected agricultural success and subsistence patterns.



Global partitioning of ^{14}C -dates into continental boxes.

Using radiocarbon dating, researchers reconstructed human population dynamics from 9,000 to 3,000 years before the present (BP). Across Europe, Asia, Africa, the Americas, and Australia, they observed recurring "boom-bust" cycles of demographic growth lasting 400–800 years. Notably, these cycles exhibited similar frequencies and timing across continents, suggesting a shared underlying driver.

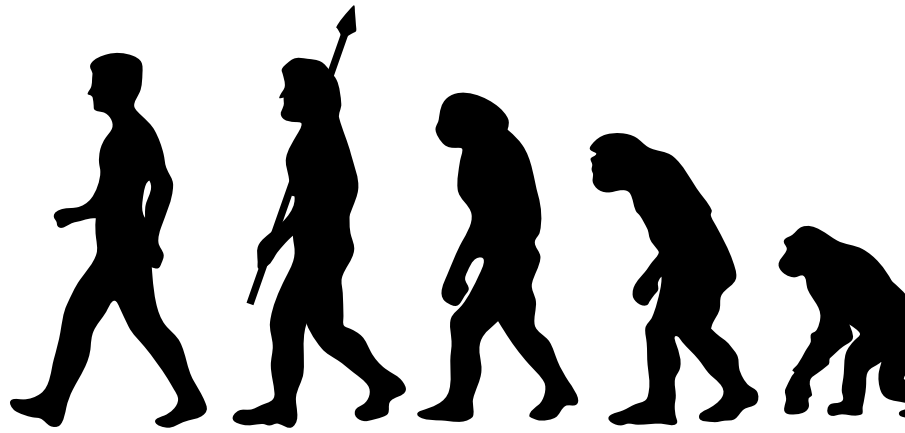


The researchers identified a strong correlation between these demographic cycles and variations in solar activity, as represented by total solar irradiance (TSI). During periods of stable climate, influenced by relatively consistent solar activity, human populations thrived.

In contrast, instability—whether from solar fluctuations or climatic shifts—led to subsistence challenges, increasing mortality and societal disruptions.

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A key insight from the study is that climate stability, rather than specific climatic conditions (e.g., colder or warmer periods), played a more critical role in sustaining population growth. Stable conditions allowed societies to adapt their agricultural practices and subsistence strategies effectively, reducing the risk of widespread famine or societal collapse.

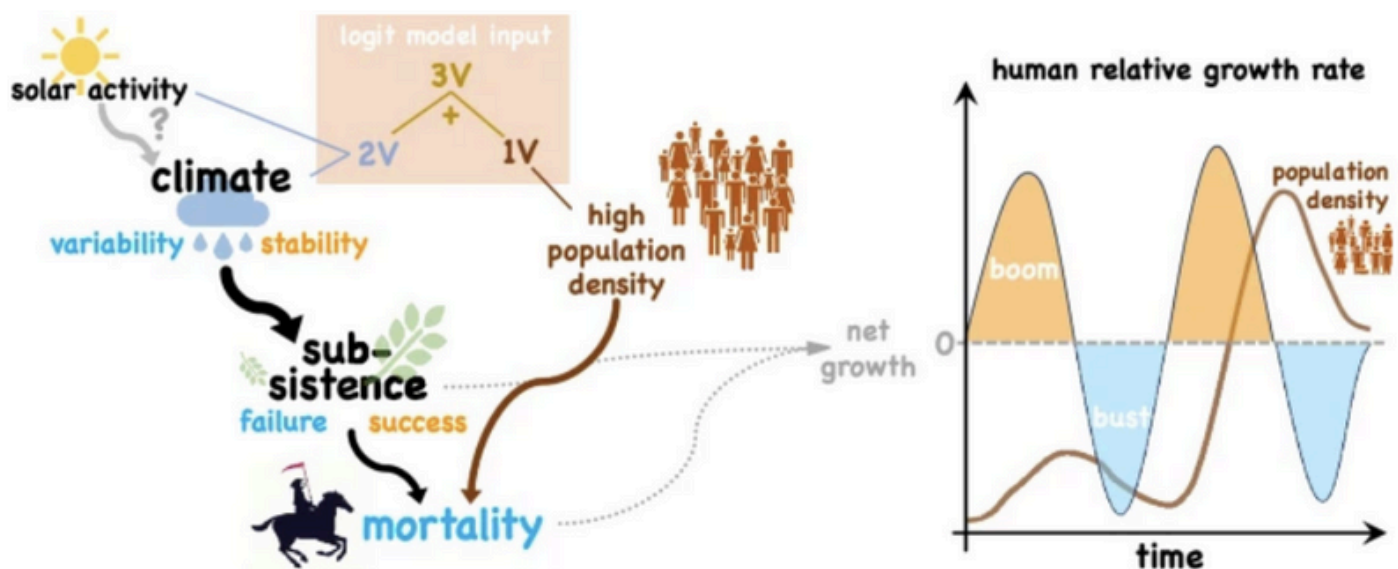


For example, in Europe, the researchers found that periods of population growth coincided with high climate stability, regardless of whether the climate was warm or cold. The 4,200-year dry event, a significant climatic shift, occurred during a period of positive population growth in Southern Europe, suggesting that stability in climatic trends was more important than the direction of change.

Furthermore, it's worth noting that high population densities, typically following a "boom," made societies more vulnerable to environmental and social stressors, leading to subsequent "bust" phases.

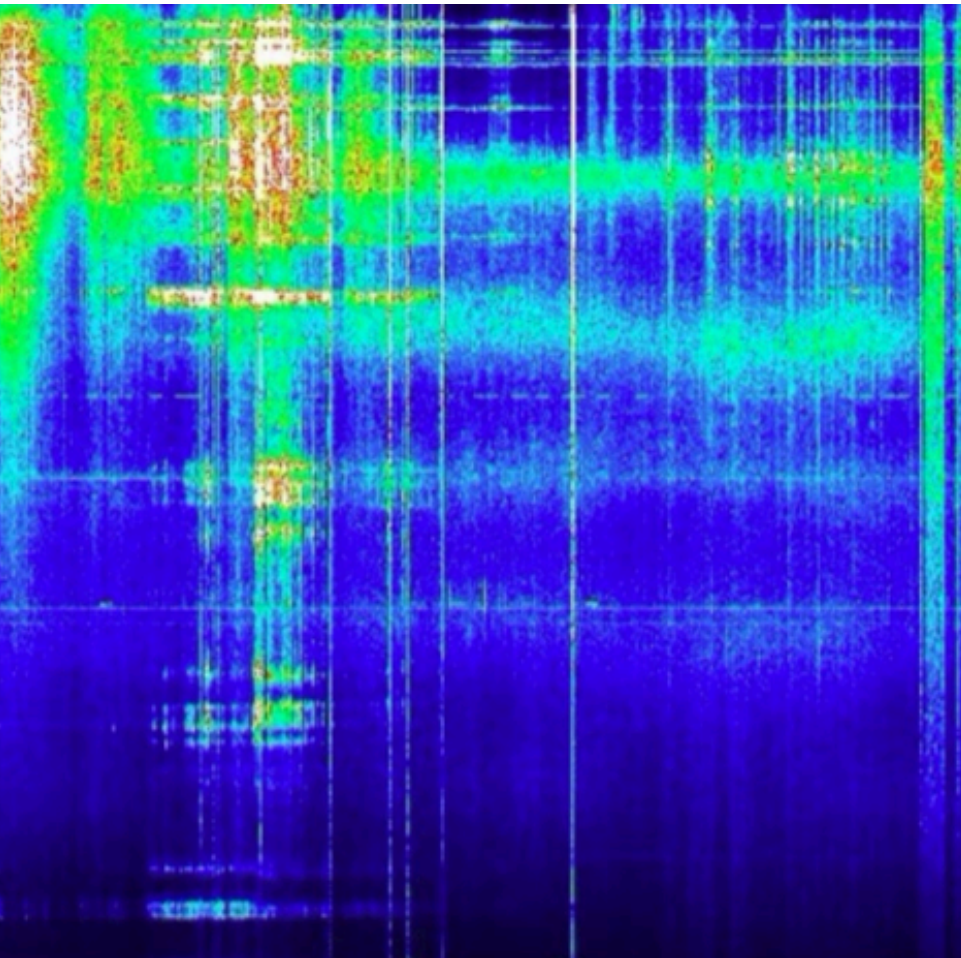
Human populations on all continents exhibited synchronized growth cycles. This global synchrony aligns with solar activity patterns, underscoring the Sun's indirect yet profound influence on human societies.

THE DATA ALSO HIGHLIGHTS THE RESILIENCE OF HUNTER-GATHERER, AGRICULTURAL, AND PASTORALIST COMMUNITIES, ALL OF WHICH RESPONDED SIMILARLY TO THESE MULTI CENTENNIAL SOLAR CYCLES.



MAGNETIC POLE SHIFT & CANCER

ARTICLE REFERENCED:
STUDY OF THE INHIBITION OF SCHUMANN RESONANCE-INSPIRED
ELECTROMAGNETIC FIELD ON CANCER CELL PROLIFERATION



An interesting new study is suggesting a fascinating correlation between the Schumann resonance and cancer. I personally find this one to be highly intriguing, which is unusual for me. 99% of the things you hear about the Schumann resonance online are complete nonsense, and the ones that aren't are usually a function of down-the-line effects. What does that mean?

Let's say you notice that every time the ground is wet, so if your roof. You begin to ask if one causes the other, but you never think about the rain. That's usually what's happening - the resonance and whatever-else is being compared (health outcomes, earthquakes, weather events, etc.) are ringing the bell because of something else electromagnetic impacting them both.

That is NOT the case in this new study. Here, instead of monitoring the resonance and tying it to earth events, they created perfect Schumann Resonance and imperfect resonance environments. So whatever was happening was only from exposure to the energy of the resonance and not something external.

NORMAL CELLS: NO EFFECT.

CANCER CELLS: APOPTOSIS AND CELL DEATH.

What does this mean? Two things come quickly to mind. First, all the human-made EMF that isn't on the earth's existing spectrum is bad for us. Second, as earth's magnetic field changes, those natural frequencies are changing too - is that a bad sign for the next 20 to 40 years?

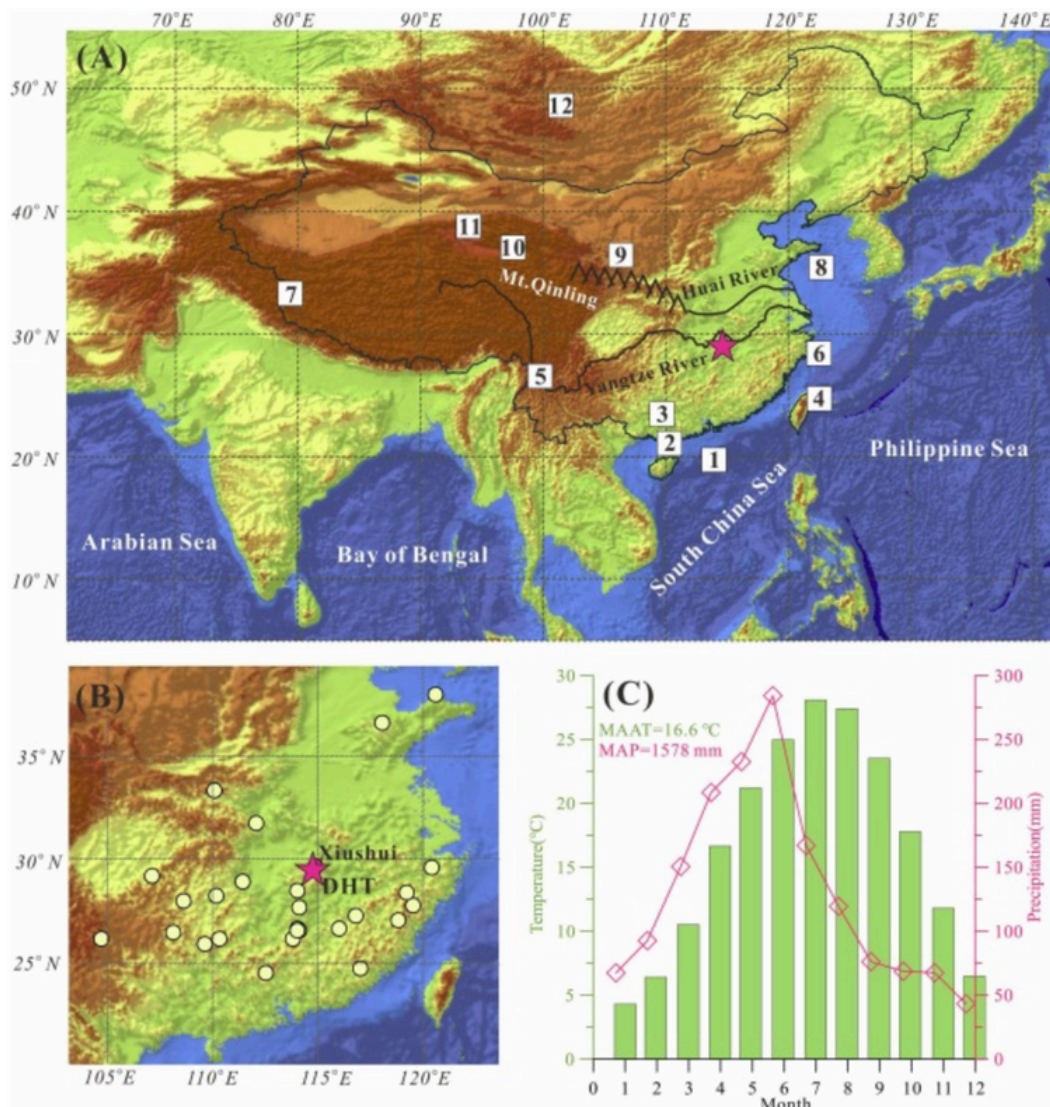
SOLAR MINIMUM AND UNFAVORABLE WEATHER

ARTICLE REFERENCED:

SYNCHRONOUS CLIMATE AND CIVILIZATION CHANGES SPANNING THE COMMON ERA: HIGH-RESOLUTION BIOMARKER RECORD FROM A MOUNTAIN PEAT IN EAST CHINA

RECENT RESEARCH FROM A HIGH-RESOLUTION BIOMARKER RECORD IN EAST CHINA REVEALS SYNCHRONOUS CLIMATE CHANGES AND THEIR POTENTIAL IMPACT ON HUMAN CIVILIZATIONS OVER THE PAST 2,000 YEARS. THIS STUDY FOCUSES ON TEMPERATURE AND MOISTURE FLUCTUATIONS IN THE REGION, USING ADVANCED BIOMARKER PROXIES FROM A MOUNTAIN PEAT CORE AT DAHUTANG (DHT) TO TRACE CLIMATIC SHIFTS.

THESE FINDINGS NOT ONLY CONTRIBUTE TO OUR UNDERSTANDING OF PAST CLIMATE VARIATIONS BUT ALSO SHED LIGHT ON HOW THESE CHANGES MIGHT HAVE INFLUENCED THE RISE AND FALL OF DYNASTIES AND CIVILIZATIONS.



THE STUDY REVEALS THREE MAJOR CLIMATIC PERIODS SINCE 200 CE, CLOSELY ALIGNED WITH HISTORICAL EVENTS:

200–750 CE:

This era was marked by colder and drier conditions. The cooler temperatures might have stressed agricultural productivity, possibly contributing to political instability during this time.

750–1450 CE:

Coinciding with the Medieval Warm Period (MWP), this phase experienced warmer and wetter conditions. Favorable weather likely supported economic growth and stable societies, including the flourishing of the Tang Dynasty.

1450–1900 CE:

The Little Ice Age (LIA), the coldest and driest period recorded, coincided with the collapse of the Ming Dynasty. A more erratic and harsh climate during this time may have intensified conflicts and worsened epidemics, exacerbating societal decline.

Researchers used branched glycerol dialkyl glycerol tetraethers (brGDGTs) to reconstruct the mean annual air temperature (MAAT) and effective moisture at the DHT site. These biomarkers are produced by bacteria that adjust their cell membranes in response to environmental changes. The preserved molecular signatures in peat allow scientists to infer long-term climatic patterns. During the transition from the MWP to the LIA, the East Asian continent experienced a decrease in temperature by 1–3°C.

The LIA was characterized by a "tripole" mode of precipitation in East China, with the northern parts experiencing reduced rainfall while southern areas became wetter. This complex hydrological pattern suggests a more variable climate during the LIA, which had significant consequences for agriculture and human livelihoods.

The cooler and more variable climate during the LIA likely contributed to widespread societal stress. During this period, the Ming Dynasty faced numerous challenges, including famines, epidemics, and invasions, leading to its eventual collapse. The study suggests that unfavorable climatic conditions may have accelerated these events, with lower solar irradiance and changes in sea surface temperatures acting as possible triggers for the harsher climate.

BrGDGTs have emerged as a powerful tool in paleoclimatology, complementing traditional methods like tree-ring analysis. Unlike tree-ring data, which often capture annual to decadal changes, brGDGTs provide longer-term climate signals, making them invaluable for reconstructing multi-century climate patterns. The study also incorporated other proxies, such as total organic carbon (TOC) and total nitrogen (TN), to provide a more comprehensive picture of past environmental conditions.

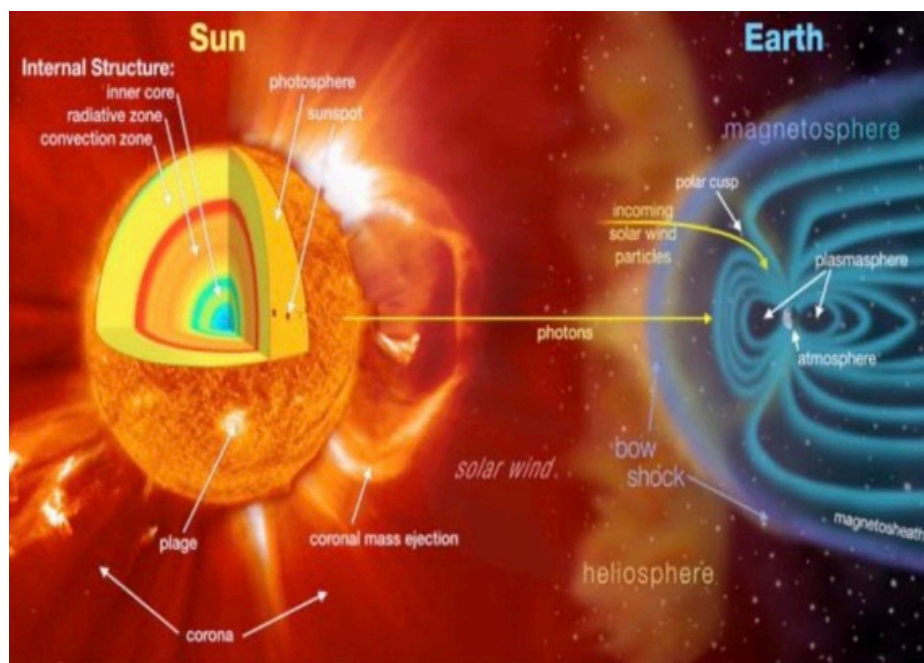


SPACE WEATHER AND HEALTH

ARTICLE REFERENCED:
STUDY OF SPACE WEATHER AND ITS RISKS ON
HUMAN BIOLOGIC PROCESSES

The article explores the effects of space weather and its effects on human biological processes. This study was led by a team from the Faculty of New Sciences and Technologies at the University of Tehran, and their investigation began with an overview of the sun's structure and the layers comprising its atmosphere, extending from the inner core to the outer corona. As we know and discuss frequently, the solar wind, a stream of charged particles, plays a crucial role in influencing Earth's magnetosphere, which acts as a protective shield against the solar wind.

A large portion of this study was devoted to exploring the risks of solar phenomena to human health. Building on past research, the authors established links between space weather events and a range of health issues, like an association between changes in the geomagnetic field and a higher incidence of blood cancer, solid cancer, elevated blood pressure, acute heart attacks, strokes, cerebrovascular insufficiency, severe migraines, depression, and suicide. We also want to use this article to take a look into the electromagnetic field's influence on individuals with pre-existing conditions such as brain, nerve, or heart diseases. Specific attention is given to acute conditions during magnetic storm days, revealing changes in blood clotting, sedimentation rate, and pulse.



Neuropsychiatric diseases were shown to be more unstable in periods of increasing and decreasing solar activity. Research indicates that a minimum of 75% of magnetic storms result in a typical rise of 1.5 times in the hospitalization rate for individuals with cardiovascular conditions. Analysis of the blood from the subjects revealed a rapid surge in blood viscosity during magnetic storms, with instances of nearly doubling; additionally, red blood cells tend to aggregate, causing a slowdown in blood flow. This ties into the observation that magnetic storms were identified as triggers for increased hospitalization due to cardiovascular diseases.

SPACE WEATHER AND FETAL OUTCOMES

ARTICLE REFERENCED:
ENVIRONMENTAL RADIATION AND FETAL OUTCOMES:
FROM THE GROUND TO THE SKY

BACKGROUND RADIATION, A PERVASIVE ENVIRONMENTAL FACTOR, IS OFTEN OVERLOOKED IN DISCUSSIONS ABOUT HUMAN HEALTH. LET'S DELVE INTO THE INTRICATE RELATIONSHIP BETWEEN BACKGROUND RADIATION AND FETAL OUTCOMES, FOCUSING ON TWO KEY SOURCES: PARTICLE RADIOACTIVITY AND SOLAR ACTIVITY. DESPITE THEIR NATURAL OCCURRENCE AT CHRONIC AND LOW DOSES, THESE EXPOSURES HAVE BEEN RELATIVELY UNDERSTUDIED IN THE CONTEXT OF PRENATAL DEVELOPMENT.

THE FINDINGS REVEAL A SIGNIFICANT LINK BETWEEN PARTICLE RADIOACTIVITY EXPOSURE AND ADVERSE EFFECTS ON FETAL GROWTH. RESULTS REVEALED THAT AN RANGE INCREASE IN CUMULATIVE PARTICLE RADIOACTIVITY EXPOSURE WAS ASSOCIATED WITH REDUCED BIPARIETAL DIAMETER AND FEMUR LENGTH IN EARLY SCANS BEFORE 24 WEEKS' GESTATION. INCREASED ABDOMINAL CIRCUMFERENCE WAS OBSERVED IN SCANS CONDUCTED ON OR AFTER 24 WEEKS' GESTATION. FURTHERMORE, CUMULATIVE PARTICLE RADIOACTIVITY EXPOSURE WAS LINKED TO LOWER BIRTH WEIGHT.

The results are consistent with previous studies that have linked exposure to ionizing radiation, including radon and particle radioactivity, with adverse pregnancy outcomes. Radon constitutes a significant portion, contributing to 74% of background radiation exposure. To provide a comparative perspective, the annual radiation dose from radon within an average household approximates that of a single head computed tomography scan. Unlike the radiation emitted during a computed tomography scan, radon's radioactive decay by-products are pervasive and can be inhaled into the lungs, primarily attaching to particulate matter in the air. Overall, this topic highlights the importance of considering natural sources of radiation, particularly in regions with elevated radon levels.

