



OBSERVER

REVIEW

FEBRUARY 2024

A Publication by Ben Davidson & Bailey Laurissa - Space Weather News - Observer Ranch

MEET THE AUTHORS

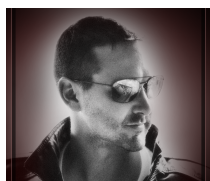
BAILEY LAURISSA



Bailey has worked with Ben and Kat for four years and has been an Observer since 2012. She has her Bachelor's in Science Journalism.

Bailey is also the founder and operator of [Elara Creatives](#), a Digital Marketing Agency. She recently moved to Colorado and enjoys skiing, tennis, and astronomy!

ADRIAN D'AMICO



Adrian D'Amico is a political science major, JD/MBA, who has had a life-long interest in UFOs, obfuscated history, and the

concepts in the book "1984". He has been on the forefront of revealing and analyzing key cultural, social and political issues over the last decade, and currently runs the [website www.SuspectSky.com](http://www.SuspectSky.com). Adrian and Ben Davidson grew up as best friends in Pittsburgh, PA, where he still lives. He has presented at each of the Observing the Frontier conferences and is a key member of the Space Weather News team behind the scenes.

KAT DAVIDSON



Kat has published a series of three children's books (Kira and Lulu Visit the Sun, Planets and Milky Way)!

She also has co-hosted the annual conference series, Observing The Frontier, providing a forum for researchers to share their insights, student sessions, and social events. Her sights are now set on fostering the Observer Ranch community.



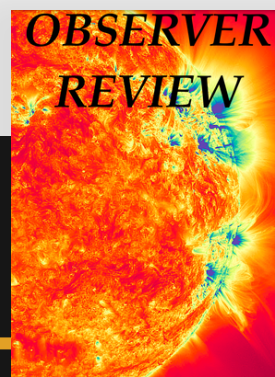
BEN DAVIDSON

Researcher, analyst and author Ben Davidson is the founder of the [Suspicious Observers YouTube channel](#) which specializes in the science of the space surrounding the Earth, the Sun and the Cosmos.

In 2014, Ben and Kat Davidson ran a Kickstarter to bring you The Mobile Observatory Project - an outreach mission to share all things about the sun and space weather! They had 800+ sponsors help make this goal a reality.

The Mobile Observatory Project traveled through 40+ states and 4 provinces from September 2014 through February 2015, with over 75+ events! After putting the RV into storage, Ben and Kat focused on running Observing The Frontier conferences, an app, the Suspiciousobservers YouTube channel and writing books.

Ben is now working on the development of Observer Ranch. Observer Ranch will be an educational campground and learning center in central Colorado. They aim to share and effectively communicate research related to the sun's impact on Earth, to teach skills to aid in sustainable practices of gardening, homesteading, agriculture, and to counter the lack of awareness about science, and the narrative of fear surrounding some of these topics.



THE OBSERVER REVIEW

The Observer Review, written by Ben Davidson and contributors, is a monthly publication that discusses the main scientific findings surrounding space weather, climate science and catastrophism. Each issue will also feature perspective articles, observing the current state of culture and the cosmos.

OBSERVER COMMUNITY PAGE



HI! HERE ARE JUST A FEW COMMUNITY THINGS WE'D LOVE TO TOUCH ON AS THE OPENING OF OBSERVER RANCH BECOMES CLOSER AND CLOSER!

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OBSERVER RANCH

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SPONSOR A CAMPSITE!

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YOUR \$2000 DONATION PROVIDES A SITE WITH THE FOLLOWING:

- **Grill/Fire Pit**



A gift that will keep on giving, providing warmth, the ability to cook, light, and protects natural vegetation caused by open fires.

- **Picnic Table**



Provide a comfortable seating and dining option for campers, a hub to play games, socialize, and share stories.

- **Donation Plaque**



You will have the option to have your name/business name on a plaque on the picnic table. Your donation to Little Spark is tax deductible - thank you for your generous support!

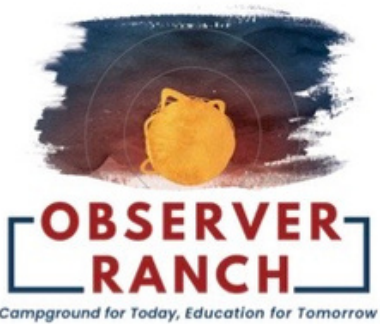
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SPONSOR OUR PLAYGROUND!

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YOUR \$3000 DONATION WILL CONTRIBUTE TO:

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We are narrowing down choices for a robust playground that will be a versatile addition to the campground for many years to come!

- **Shade Structure**

Provide a shaded cover to protect kids from the sun and heat on long summer days!

- **Donation Plaque**

You can have your name/business name on a plaque at the playground. Your donation to Little Spark is tax deductible - thank you for your generous support!

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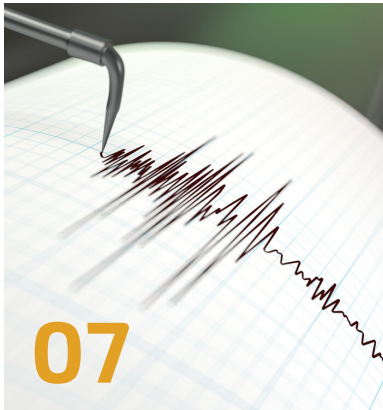


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SUN AND OCEAN TEMPS

BY: BAILEY BUDNIK

ARTICLE REFERENCED:
COMPARATIVE ANALYSIS OF EARTH'S CLIMATE AND SOLAR AND GEOMAGNETIC ACTIVITIES

This paper delves into the intricate dance between solar activity and Earth's climate, exploring data from 1974 to 2021.

The findings unravel a rhythmic correlation between total solar irradiance and Global Ocean Temperature Anomalies with a 12-year periodicity, shedding light on the relationship between solar activity and climate. Recurrence plots and recurrence quantification analysis unveil intriguing phase transitions, notably around 1996, hinting at the influence of transient events on the studied system.

FOR BACKGROUND

IN THIS ARTICLE, WE MENTION TOTAL SOLAR IRRADIANCE. FOR REFERENCE, TOTAL SOLAR IRRADIANCE IS A MEASURE OF THE TOTAL POWER EMITTED BY THE SUN PER UNIT TIME AND UNIT AREA, OBSERVED OUTSIDE EARTH'S ATMOSPHERE. WHERE AS, SOLAR IRRADIANCE, REPRESENTS THE TOTAL POWER OF SUNLIGHT FALLING ON A SPECIFIC SURFACE AREA, BUT IT DOESN'T NECESSARILY ACCOUNT FOR VARIATIONS IN DIFFERENT SPECTRAL COMPONENTS OF THE SOLAR RADIATION.

Building on prior research, this study broadens the understanding of solar activity and Sun-Earth interactions. Essential indices, including Wolf number, Total Solar Irradiance, Ap index, and Global Ocean Temperature Anomalies, serve as key metrics in deciphering solar and geomagnetic activities.

The exploration through linear correlation analysis uncovers a rhythmic correlation between TSI and GOTA, characterized by a 12-year periodicity and a linearly decreasing trend. Strong correlation emerges between TSI and Wolf number, intensifying around 1983, coinciding with the onset of an 11-year solar activity minimum. Recurrence plots hint at regular periodicities in the system, with intriguing phase transitions around 1996. XWT analysis underscores coherent relationships between Wolf number and TSI, featuring consistent phase differences in the 11-year activity modes.

This study paints a picture between solar activity and Earth's climate, marked by a 12-year rhythmic dance and fascinating phase transitions. Changing dynamics over time, increased determinism in TSI during solar activity minima, and irregular recurrence patterns add more background to understanding the mechanism, suggesting a transformative phase in the studied system. This correlates to temperatures measured in the ocean with solar activity, showcasing just how much total solar irradiance effects the ecosystem of the oceans.

PRE EARTHQUAKE SIGNALS

BY: BAILEY BUDNIK

Let's discuss what type of signals we can monitor and decipher to better understand earthquake patterns. A comprehensive global analysis of ionospheric anomalies preceding major earthquakes has been conducted using 20 years of data from 2000 to 2020. The study investigates whether consistent anomalies occur in the 24 hours prior to earthquakes across different regions, magnitudes, and temporal scales. The research matches earthquake data with Total Electron Content (TEC) data, revealing statistically significant regional anomalies but no globally consistent signature. Notably, the Japanese region exhibits a median negative ionospheric anomaly around 0.5 TECU between 3 and 8 hours before earthquakes, while the South American region shows an enhanced median TEC of up to 2 TECU between 7 and 10 hours before an event. The findings suggest the importance of regional analysis in earthquake forecasting and emphasize the potential value of monitoring the ionosphere as part of a multimodal approach.

The study conducts a thorough statistical examination of ionospheric density anomalies in the 12 hours leading up to earthquakes. It also utilizes two decades of Total Electron Content (TEC) data, surpassing previous assessments in resolution and cadence. The study explores changes in the density of Earth's upper atmosphere in the hours preceding earthquakes. By analyzing two decades of data, researchers find significant anomalies in specific regions, suggesting a connection between ionospheric disturbances and seismic events. This regional approach challenges previous global analyses, emphasizing the need for tailored earthquake forecasting models incorporating ionospheric data.

The research opens avenues for understanding the complex interplay between Earth's subsurface properties and ionospheric anomalies. The findings support a shift toward regional analyses in earthquake forecasting, emphasizing the importance of atmospheric disturbances as valuable indicators. The study also calls for increased resolution and real-time availability of ionospheric measurements for more effective earthquake prediction models.

With that, we explore an additional article titled, "Earthquake Prediction Model Based on Geomagnetic Field Data Using Automated Machine Learning" which leveraged the power of automated machine learning (AutoML) to develop robust and reliable earthquake prediction models. Geomagnetic anomalies preceding earthquakes have been a subject of intrigue for researchers. The prevailing theory posits that these anomalies are generated by underground seismic processes, serving as precursors to impending earthquakes. However, these anomalies have only offered retrospective insights, commonly referred to as "postdiction," rendering them less effective for real-time prediction.

ARTICLE REFERENCED: A GLOBAL ANALYSIS OF PRE-EARTHQUAKE IONOSPHERIC ANOMALIES

EARTHQUAKE PREDICTION MODEL BASED ON GEOMAGNETIC FIELD DATA USING AUTOMATED MACHINE LEARNING

SPATIAL ANALYSES ON PRE-EARTHQUAKE IONOSPHERIC ANOMALIES AND MAGNETIC STORMS OBSERVED BY CHINA SEISMO-ELECTROMAGNETIC SATELLITE IN AUGUST 2018

To overcome the limitations of existing methods, researchers embarked on a comprehensive study that spanned more than 50 years of geomagnetic field data recorded at 131 magnetometer observatories worldwide. This extensive dataset served as the foundation for the development of earthquake prediction models.

Wavelet Scattering Transform (WST), a powerful mathematical technique for signal processing, was employed to extract relevant features from the geomagnetic data. These features, crucial for modeling, were then subjected to automated machine learning algorithms for optimization. The heart of the study lay in the adoption of automated machine learning, a cutting-edge approach that automates the laborious tasks associated with model development. The researchers utilized AutoML to streamline the process of algorithm selection and hyperparameter tuning, significantly reducing the time and effort traditionally invested in these tasks.

The asynchronous successive halving algorithm (ASHA) played a pivotal role in the automatic optimization strategy. This algorithm efficiently allocated computational resources to promising models, allowing for a faster convergence towards optimal solutions. The study evaluated the performance of five classification algorithms, with the neural network (NN) emerging as the most effective, achieving an impressive accuracy of 83.29%. This outcome underscored the viability of practical earthquake prediction models even for complex systems such as lithospheric and seismo-induced geomagnetic processes.

The successful integration of AutoML in earthquake prediction models represents a significant leap forward in the field of seismology. The newfound ability to automate the development of accurate and reliable models holds promise for real-time earthquake prediction, enabling timely warnings and proactive measures to mitigate potential damages. As we discuss the prediction of earthquakes, let's also discuss the "Spatial analyses on pre-earthquake ionospheric anomalies and magnetic storms observed by China seismo-electromagnetic satellite in August 2018"

The China Seismo-Electromagnetic Satellite (CSES), launched on 2 February 2018, has been instrumental in advancing our understanding of pre-earthquake ionospheric anomalies (PEIAs) and ionospheric space weather. With a sun-synchronous orbit at 507 km altitude, CSES provides valuable insights into the ionospheric dynamics preceding seismic events and their association with space weather phenomena.

Spatial analyses play a pivotal role in discerning PEIAs from global effects. The study leverages the Global Ionosphere Map (GIM) derived from global navigation satellite systems (GNSS), such as GPS, GLONASS, Galileo, or Beidou. The GIM TEC maps, comprising 5183 grid points, enable a comprehensive examination of latitude-longitude distributions of TEC anomalies. This approach distinguishes local effects, such as PEIAs, from global ones, ensuring more accurate observations.

The CSES satellite, equipped with eight instruments, including a plasma analyzer package and Langmuir probe, facilitates in-situ measurements to detect PEIAs. Notably, the study focuses on observations related to a destructive M7.0 earthquake in Lombok, Indonesia, and subsequent seismic events. Positive anomalies in Total Electron Content (TEC) observed by CSES plasma parameters serve as potential PEIA indicators. The analysis reveals anomalous increases in GIM TEC and CSES plasma density occurring specifically over the earthquake epicenter days 1–5 before seismic events. The spatial distribution of positive TEC anomalies during the PEIA period displays a notable concentration around the epicenter, emphasizing the local nature of these anomalies. Additionally, the study utilizes CSES ion velocities to derive electric fields associated with PEIAs and intense magnetic storms.

To verify the identified positive TEC anomalies as reliable earthquake precursors, the study employs statistical methods and constructs Receiver Operating Characteristic (ROC) curves. The ROC analysis confirms that positive TEC anomalies at 05:00–09:00 UT day 4 before earthquakes meet the characteristic of detecting $M \geq 6.0$ earthquakes in the Lombok area. The study establishes the reliability of positive TEC anomalies as precursors with empirical and Youden index analyses. The integration of CSES observations, spatial analyses, and statistical verification enhances our understanding of PEIAs and their association with seismic events. Overall, we are becoming more keen on pre-earthquake signals, with a number of ways to predict their location and intensity.

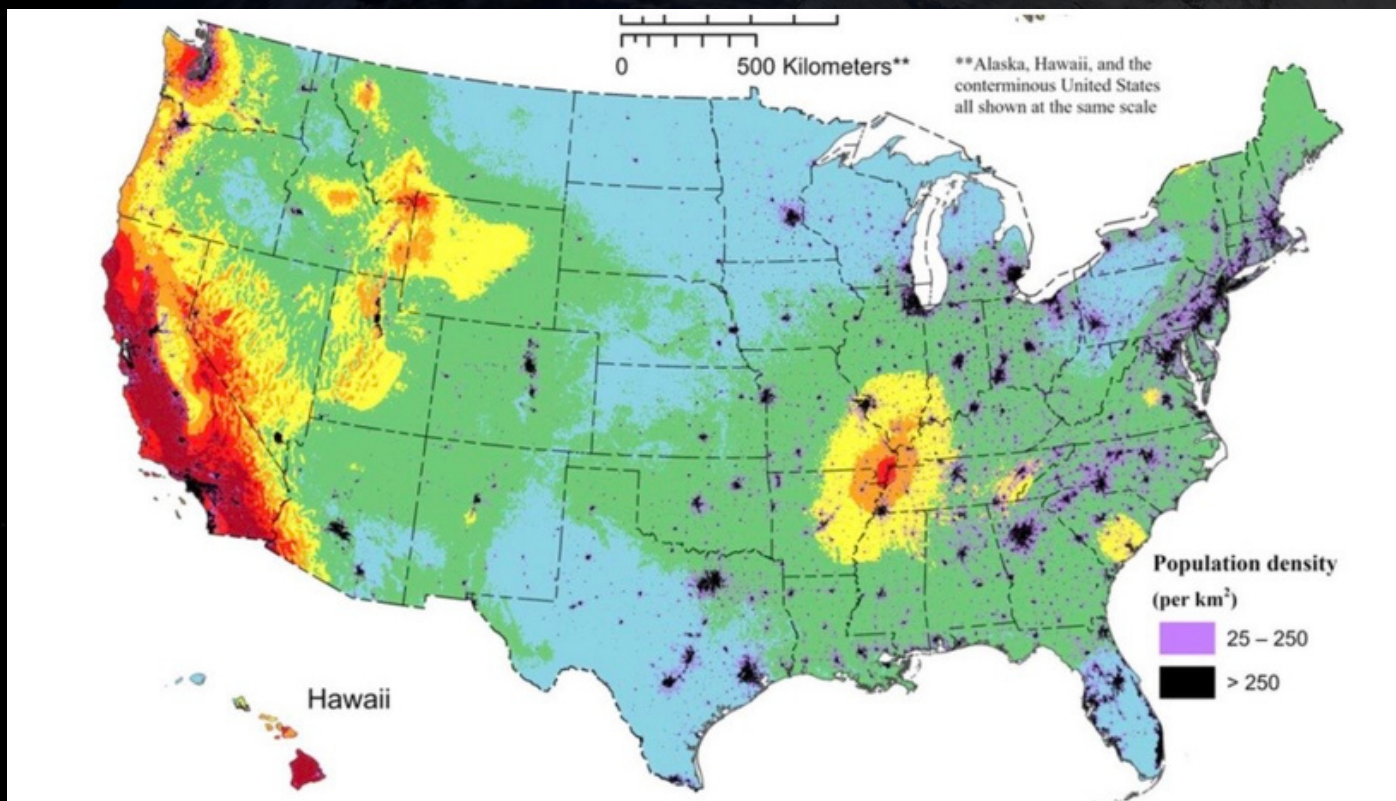
US QUAKE RISK

BY: BEN DAVIDSON

ARTICLE REFERENCED:

[HTTPS://WWW.USGS.GOV/NEWS/NATIONAL-NEWS-RELEASE/NEW-USGS-MAP-SHOWS-WHERE-DAMAGING-EARTHQUAKES-ARE-MOST-LIKELY-OCCUR-US](https://www.usgs.gov/news/national-news-release/new-usgs-map-shows-where-damaging-earthquakes-are-most-likely-occur-us)

Everyone knows the west coast of the United States is an earthquake hazard. Most people have at least hear of the New Madrid fault line which threatens region where Tennessee, Kentucky, Missouri, and Arkansas meet. However, virtually nobody knows about the risk in places like Utah, Wyoming, Idaho and Montana.



When the United States Geological Survey (USGS) released this map it was a shock to many in that area, as few can remember there being a significant earthquake to strike there. However, a closer look at fault systems, aquifers, and the geology of the area reveals that indeed it IS a significant seismic hazard area.

While it is fortunate that the region has remained quiet for a many years, the data suggests that when it does have a seismic rupture, it is going to be a bad one, and that it has done so several times in the past. For those who are into location-based prepping, you know that these states are some of the most favorable in the United States, but this has caused many people to stop and wonder if perhaps they are not as safe as they had believed.

While during most times the risk here is relatively low, our community is looking ahead to the earth disaster cycle reset in the coming years, and in that context, this map should be used along with every other tool and resource to make the best decision possible. If that area is going to rupture, it is most-likely going to during the great catastrophe cycle.

GEOMAGNETIC FIELD AND THE HEART

BY: BAILEY BUDNIK

ARTICLE REFERENCED:

GEOMAGNETIC ACTIVITY AFFECTS ANIMAL MYOCARDIAL ISCHEMIA/REPERFUSION INJURY: AN EXPERIMENTAL-SIMULATED STUDY

GEOMAGNETIC AND COSMIC RAY ACTIVITY EFFECT ON HEART RATE DURING THE SOLAR CYCLE 24

LONG-TERM STUDY OF THE SYNCHRONIZATION EFFECT BETWEEN GEOMAGNETIC FIELD VARIATIONS AND MINUTE-SCALE HEART-RATE OSCILLATIONS IN HEALTHY PEOPLE

Once again, we find ourselves discussing the correlation between the geomagnetic field and our cardiovascular system. The first study we want to discuss aimed to investigate the impact of geomagnetic activity (GMA) on oxidative stress and inflammatory responses in myocardial ischemia/reperfusion injury (MI/RI) rat models. The researchers created rat models exposed to various geomagnetic field conditions and measured cardiac function, markers of myocardial injury, inflammatory factors, and the TLR4/NF- κ B signaling pathway after a 24-hour period. The results indicated that weak GMA significantly improved cardiac function, reduced myocardial infarction size, and decreased markers of injury such as creatine kinase (CK) and lactic dehydrogenase (LDH). Weak GMA also enhanced antioxidant activity and reduced inflammatory cytokine levels. In contrast, severe GMA had opposite effects. Molecular analysis revealed that weak GMA downregulated TLR4/NF- κ B signaling pathway components, while severe GMA upregulated them. The study suggested that weak GMA had a protective effect on MI/RI rat models, while severe GMA exacerbated injury, potentially through oxidative stress and inflammatory responses involving the TLR4/NF- κ B signaling pathway.

With that, "Geomagnetic and Cosmic Ray Activity Effect on Heart Rate during the Solar Cycle 24" discusses the impact of space weather phenomena, such as cosmic rays and geomagnetic activity, on human health, specifically focusing on heart rate variations. The Athens Cosmic Ray Group conducted multiple studies analyzing data from different sources to investigate the relationship between space weather and physiological changes in individuals.

Several studies examined the correlation between cosmic ray intensity (CRI) and heart rate (HR) fluctuations. One study found a positive correlation on days with no geomagnetic activity, while another study observed that intense geomagnetic activity and CRI variations were related to an increase in HR and notable variations in beat-to-beat HR intervals.

The research also extended to air crews' exposure to cosmic rays, where cardiovascular functionality of Slovak aviators was monitored in relation to geophysical variations, showing that variations in cosmic radiation may have an effect on blood pressure. Another study explored the possible connection between geomagnetic and cosmic ray activity and cardiac arrhythmias. The results indicated that various kinds of arrhythmias behaved differently based on solar, geomagnetic, and cosmic ray activity, with alterations in the solar magnetic field's polarity affecting the correlation coefficients.

THE ARTICLE FURTHER DETAILS STUDIES EXAMINING THE OCCURRENCE OF CARDIAC ARRHYTHMIAS, PARTICULARLY ATRIAL FIBRILLATION, IN RELATION TO SUNSPOTS, SOLAR FLARES, CORONAL MASS EJECTIONS, AND COSMIC RAY FLUCTUATIONS.

IT WAS CONCLUDED THAT FLUCTUATIONS IN COSMIC RADIATION AND SPACE WEATHER EVENTS MAY IMPACT THE DEVELOPMENT OF CARDIAC ARRHYTHMIAS.

THE FINAL PART OF THE ARTICLE DESCRIBES A COMPREHENSIVE STUDY INVOLVING THE ANALYSIS OF HEART RATE DATA FROM THREE HOSPITALS OVER A CONSIDERABLE TIME PERIOD (APRIL 2011–JANUARY 2018). THIS STUDY USED VARIOUS STATISTICAL METHODS TO ANALYZE THE HOURLY MEAN HR OF 1353 INDIVIDUALS, CONSIDERING BOTH THE ASCENDING AND DESCENDING PHASES OF SOLAR CYCLE 24. THE INVESTIGATION AIMED TO UNDERSTAND THE POTENTIAL INFLUENCE OF SPACE WEATHER VARIATIONS, INCLUDING COSMIC RADIATION AND GEOMAGNETIC ACTIVITY, ON HEART RATE VARIATIONS.

Lastly, we look at “Long-Term Study of the Synchronization Effect between Geomagnetic Field Variations and Minute-Scale Heart-Rate Oscillations in Healthy People” and highlight the biogeophysical synchronization effect, focusing on the correlation between human heart-rate variations and the geomagnetic field (GMF). Electrocardiogram (ECG) recordings from two healthy middle-aged female volunteers were analyzed using cross-correlation and wavelet analysis.

THE KEY FINDINGS FROM THE STUDY ARE AS FOLLOWS:

THE BIOGEOPHYSICAL SYNCHRONIZATION EFFECT WAS OBSERVED IN 40–53% OF RECORDINGS FOR BOTH PARTICIPANTS.

THE WAVELET ANALYSIS YIELDED INTRIGUING INSIGHTS INTO THE SYNCHRONIZATION PATTERNS BETWEEN HR AND GMF COMPONENTS. VOLUNTEER A EXHIBITED SIGNIFICANT CORRELATIONS OF 37% AND 30% FOR GMF X AND Y, RESPECTIVELY, ALONG WITH A 58% SIMILARITY TO AT LEAST ONE GMF COMPONENT. VOLUNTEER B, ON THE OTHER HAND, DEMONSTRATED CORRELATIONS OF 24% AND 21% FOR GMF X AND Y, RESPECTIVELY, AND A 40% SIMILARITY TO AT LEAST ONE GMF COMPONENT.

The synchronization effect was most pronounced within the period range of 8–13 minutes, as indicated by the wavelet analysis. Interestingly, the study found that the manifestation of synchronization was independent of the level of geomagnetic activity recorded during the observations. This independence from Geomagnetic Activity (GMA) suggests a robust and consistent synchronization effect regardless of external geomagnetic influences.

In conclusion, the study provides compelling evidence of biogeophysical synchronization between HR and GMF components. The findings contribute to the growing body of knowledge in heliobiology, shedding light on the intricate ways in which the human cardiovascular system responds to space-weather factors. The independence from GMA underscores the resilience and stability of the synchronization effect, opening avenues for further exploration and potential applications in health monitoring and space travel.

EMF IMPACT TO CNS

BY: BAILEY BUDNIK

ARTICLE REFERENCED:

UNVEILING THE BIOLOGICAL EFFECTS OF RADIO-FREQUENCY AND EXTREMELY-LOW FREQUENCY ELECTROMAGNETIC FIELDS ON THE CENTRAL NERVOUS SYSTEM PERFORMANCE

GIVING CONTEXT TO EMF'S

IN THE MODERN ERA, ELECTROMAGNETIC FIELDS (EMF) PLAY A VITAL ROLE IN ENHANCING HUMAN LIFE THROUGH VARIOUS TECHNOLOGIES. HOWEVER, CONTINUOUS EXPOSURE TO EMF, ESPECIALLY FROM RF-EMR AND ELF-EMF SOURCES, HAS RAISED CONCERNS ABOUT THEIR IMPACT ON THE CENTRAL NERVOUS SYSTEM (CNS). THE NERVOUS SYSTEM IS CONSIDERED PARTICULARLY SENSITIVE TO EMF, AND WITH THE WIDESPREAD USE OF MOBILE PHONES AND CELLULAR ANTENNAS, UNDERSTANDING THE INTERACTIONS BETWEEN EMF AND BIOLOGICAL SYSTEMS BECOMES CRUCIAL.



EMF is generated by the motion of electrically charged particles, originating from various sources. EMF can exist in static and dynamic forms, the latter leading to the emergence of electromagnetic radiation (EMR). The EMR spectrum encompasses various frequencies, including radio waves and microwaves, with non-ionizing and ionizing radiations. Studies have focused on the impact of EMR on health, including concerns about electromagnetic hypersensitivity, immune dysfunction, neurological diseases, kidney damage, reproductive disorders, and genetic damage.

The brain, as the regulator of cognitive and behavioral functions, is under scrutiny for its response to RF-EMR exposure. The effects can be categorized into thermal and non-thermal effects. Thermal effects involve the absorption of radiation, leading to increased tissue temperature. Non-thermal effects, such as the pearl chain effect and dielectric saturation, result from forces acting on particles. Studies suggest that RF-EMR exposure may affect metabolic processes, alter calcium channels, cause demyelination, and impact autophagic activities in neurons. The debate continues on non-thermal effects, such as changes in blood-brain barrier permeability, blood pressure, and encephalogram.

The BBB plays a crucial role in maintaining a regulated extracellular environment essential for synaptic transmissions and nerve cell protection. Studies indicate that RF-EMR exposure may induce a transient increase in BBB permeability for macromolecules, with variations depending on operational frequencies and exposure levels. However, conflicting results in the literature warrant further investigation into the potential impact of RF-EMR exposure on blood pressure and its complications.

Neurotransmitters are vital mediators in neuronal communication, influencing cognitive and emotional behaviors. Dopamine, a fundamental neurotransmitter, plays a crucial role in various cerebral functions. Studies indicate potential alterations in neurotransmitter concentrations following RF-EMR exposure, raising concerns about its implications for neurological disorders such as Parkinson's disease and Alzheimer's disease. Concerns about brain development issues caused by RF exposure are significant, particularly in fetuses, infants, children, and adolescents.

MONO LAKE ICE RAFTING AND VOLCANOS

ARTICLE REFERENCED:

IDENTIFICATION OF THE CAMPANIAN IGNIMBRITE IN THE DEAD SEA AND CONSEQUENT TIME-TRANSGRESSIVE HYDROCLIMATIC SHIFTS IN THE EASTERN MEDITERRANEAN.

BY: BAILEY BUDNIK

As we are very well aware, the catastrophism cycle is marked by cycles of change, and deciphering these patterns is essential for gaining insights into the mechanisms driving large-scale climatic shifts. One such enigma lies in the interplay between cryptotephra, microscopic volcanic ash, and Heinrich events, particularly focusing on the Dead Sea region.

Cryptotephra, with its ability to serve as a time-synchronous tie-point, plays a pivotal role in reducing chronological uncertainties in paleoclimatic reconstructions. In the Dead Sea Deep Drilling sedimentary record (DSDDP 5017-1A), researchers have conducted major, minor, and trace element analyses of cryptotephra shards, unraveling a remarkable connection to the Campanian Ignimbrite (CI). This geochemical identification expands the known dispersal range of the CI to the southeastern Mediterranean, a staggering distance of over 2,300 km from its volcanic source.



The simultaneous occurrence of the CI eruption and Heinrich Event 4 (HE4) in the North Atlantic adds a layer of complexity to our understanding of regional responses to large-scale climatic changes. As these events unfold near-synchronously, the cryptotephra in the Dead Sea sedimentary record provides a unique window into the climatic dynamics of the southeastern Mediterranean during this period.

When we look at how big icebergs break off and move during Heinrich events, known as Ice Rafts, it turns out they obviously have a big impact on how the land underneath them changes. This is because these events, where a lot of icebergs break off, work together with volcanic ash that gets scattered by tiny volcanic particles called cryptotephra. This combination tells a story about how the environment changes over time. In the records of mud and sand on the ocean floor, you can see distinct layers of debris carried by ice, especially during Heinrich events.

Contrary to expectations, the presence of the CI layer in the Dead Sea sedimentary record is associated with wetter climatic conditions. This intriguing finding contrasts with contemporaneous dry conditions observed in the northern and western Mediterranean.

Just ten years ago, astronomers would have told you with certainty that they knew every kind of star that existed, that their physics was well understood and that no other type of star was possible, and also that there were three types of nova events - massive eruptions of the cosmos. This month astronomers have discovered two new types of stars.

Over the last decade, 6 new types of nova have been discovered, and these new star types - "old smokers" and "squalling newborns" - represent the fourth and fifth new type of star to be discovered.

For those who have seen our video presentation called "They Don't Know Nova", you are already familiar with the failed certainty astronomers have purported to hold for years. Don't forget, when we began discussing the solar micronova potential, those same astronomers told us that no such thing existed... and then they discovered micronova events in 2022.

There are several implications from this continued re-writing of astronomical science. The most important is the recognition that we have no idea what our sun can actually do. They once told us the sun cannot superflare- now they admit that it has, it can, and it likely will again. They don't even have a good grasp of what kind of stars are out there. It is important to always remember that when you hear someone say "the sun cannot micronova" that they have no idea what they are talking about, on the sun, or anywhere else.

NEW STARS

BY: BEN DAVIDSON

ARTICLE REFERENCED:
'OLD SMOKERS' AND 'SQUALLING NEWBORNS' AMONG
HIDDEN STARS SPOTTED FOR FIRST TIME



MAGNETIC REVERSAL MASS EXTINCTION

BY: BEN DAVIDSON

ARTICLE REFERENCED:
LATEST PERMIAN AND EARLIEST TRIASSIC GEOMAGNETIC
POLARITY TIMESCALE: A POLARITY REVERSAL MARKS THE
GREATEST MASS EXTINCTION

We have spent a considerable amount of time going over the extinction risk during geomagnetic excursions - rapid magnetic pole flips. They bring increased radiation, climate shifts, volcanos, tsunamis and more. While the last several excursions have been conclusively shown to coincide with the disappearances of species, the circumstances surrounding the greatest mass extinction in earth's history has remained the subject of speculation.

The End-Permian extinction is the worst disaster that has happened on earth since life began here. It killed more life than nearly every other mass extinction combined. There has been a long-standing debate about what caused it, with most mainstream scientists suggesting it was either climate change or volcanic activity. The main issue with this is that it is difficult to explain both land and ocean extinctions this way.

THERE HAVE BEEN SEVERAL SUGGESTIONS OVER THE YEARS THAT THERE WAS A MAGNETIC POLE SHIFT DURING THIS PERIOD, AND NOW A NEW STUDY CONFIRMS IT - A MAJOR MAGNETIC REVERSAL OCCURRED ON EARTH, EVIDENCED IN THE SAME STRATA (GEOLOGICAL/SEDIMENTARY EVIDENCE) THAT CONTAINS THE FOSSILS OF THE GREATEST MASS EXTINCTION ON EARTH.

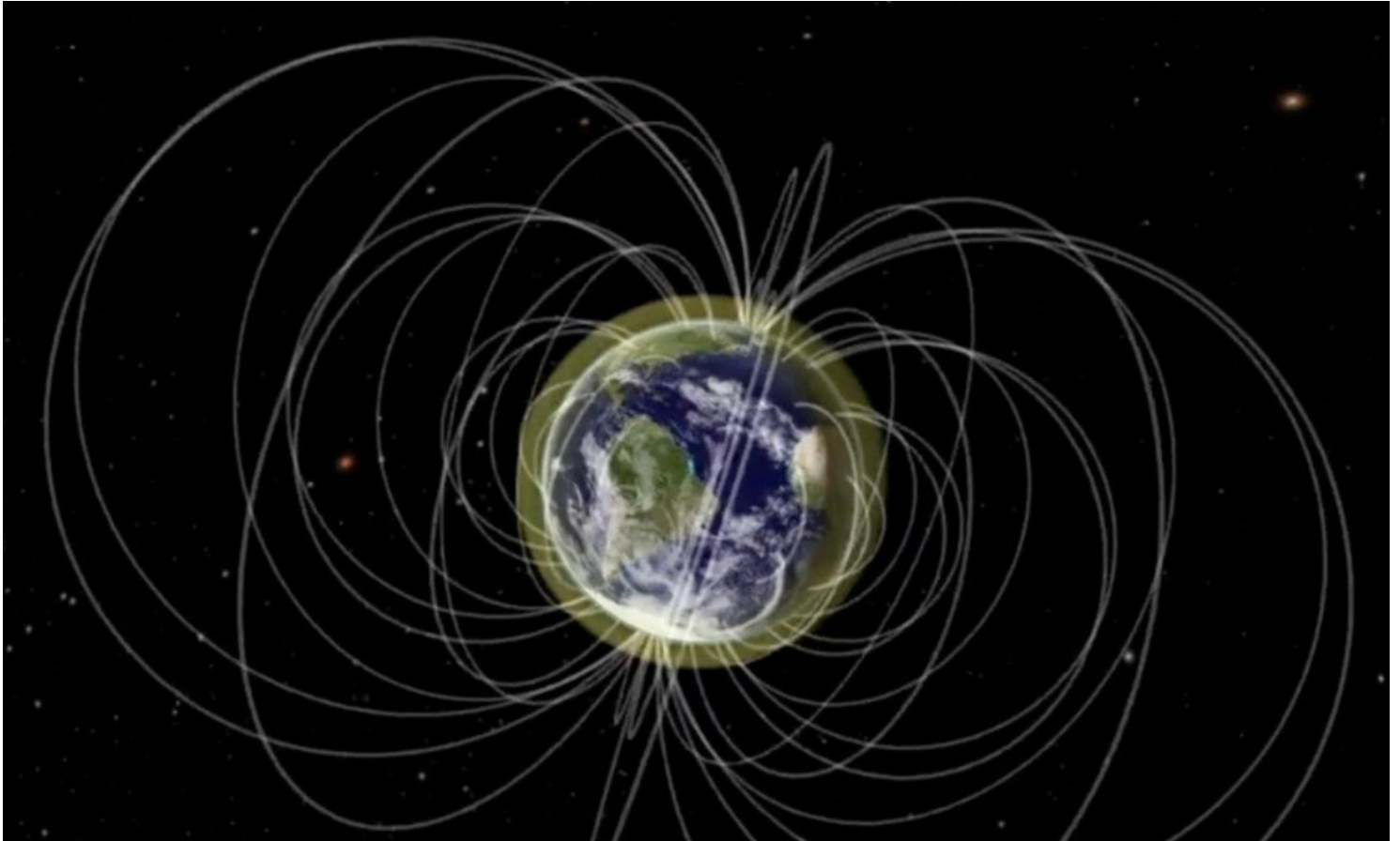
While there is no reason to believe that the rapid flip excursions (like the one we are in now) will be this bad, it is the same sort of environmental disaster, jus on a smaller scale. Horrifying as it is, it is a good thing that this science mystery has finally been solved.



CHANDLER WOBBLE DISAPPEARS

ARTICLE REFERENCED:
CAN WE EXPLAIN THE POST-2015 ABSENCE
OF THE CHANDLER WOBBLE?

BY: BEN DAVIDSON



There is an ongoing mystery in earth science right now - the chandler wobble appears to have stopped.

The chandler wobble is a cyclical motion of the geographic pole of the planet, with a 1.2 year cycle, and a more complete cycle of 6 years. It is a minor wobble, but noticeable, and has existed for as long as scientists have been able to measure it. The wobble was not expected to disappear, and scientists do not know why it has done so.

This is a genuine mystery, since there is no rational explanation for the wobble to have stopped. When we reported on this story in our YouTube reports, a flood of commenters asked if it was due to what is happening with earth's changing magnetic field, and I admit, that's where my head goes as well. The problem is that I cannot work out exactly how that would work.

It is true that most of the earth-changes these days are the result of shifting geomagnetic situation, but this was not expected to be one of them - at least not until the solar micronova unlocks the crust and the planet actually tilts. That hasn't happened, and the changes so far are almost entirely energetic (rather than kinetic/geodesic).

We continue to pay close attention to the situation and explore ideas for this phenomenon. As much as we like to give answers, sometimes we can't - this is one of those cases. The chandler wobble has stopped, and it is genuine mystery.

SOLAR STORMS EXCEED EXPECTATIONS

BY: BEN DAVIDSON

BACKGROUND:

It was 2015 when we first noticed that solar activity was causing excess geomagnetic impacts. The level of auroral activity, solar storm levels (kp index), and technological/meteorological impact were far exceeding what we would expect based on the solar flare power and solar wind data.

NEW SCIENCE:

Two new studies are describing unexpected solar storm impacts that not only cause auroral activity and high geomagnetic storm levels, but expand their effect throughout the globe, even reaching tropical latitudes.



SIGNIFICANCE:

As earth's magnetic field weakens, we have long said to expect more of this exact scenario. Less and less solar activity will have greater and greater impacts. Another notable cause was the February 2022 solar storm (very minor) that took out 38 Starlink satellites. The same vulnerable-earth scenario created by the weakening magnetic field, which also caused the planet to shatter low-latitude auroral records in 2023, is continuing to provide an easier pathway for solar energy to impact the entire world.

Expect this to continue.

BERYLLIUM PRODUCTION

BY: BEN DAVIDSON

ARTICLE REFERENCED:

MODELING ATMOSPHERIC TRANSPORT OF COSMOGENIC RADIONUCLIDE ^{10}Be USING GEOS-CHEM 14.1.1 AND ECHAM6.3-HAM2.3: IMPLICATIONS FOR SOLAR AND GEOMAGNETIC RECONSTRUCTIONS

Beryllium (Be) isotope production in earth's atmosphere is a direct result of space energy penetrating the magnetic field and triggering chemical and energetic processes. This is why great solar storms in the past and geomagnetic changes are so easily discovered in the Be concentrations.

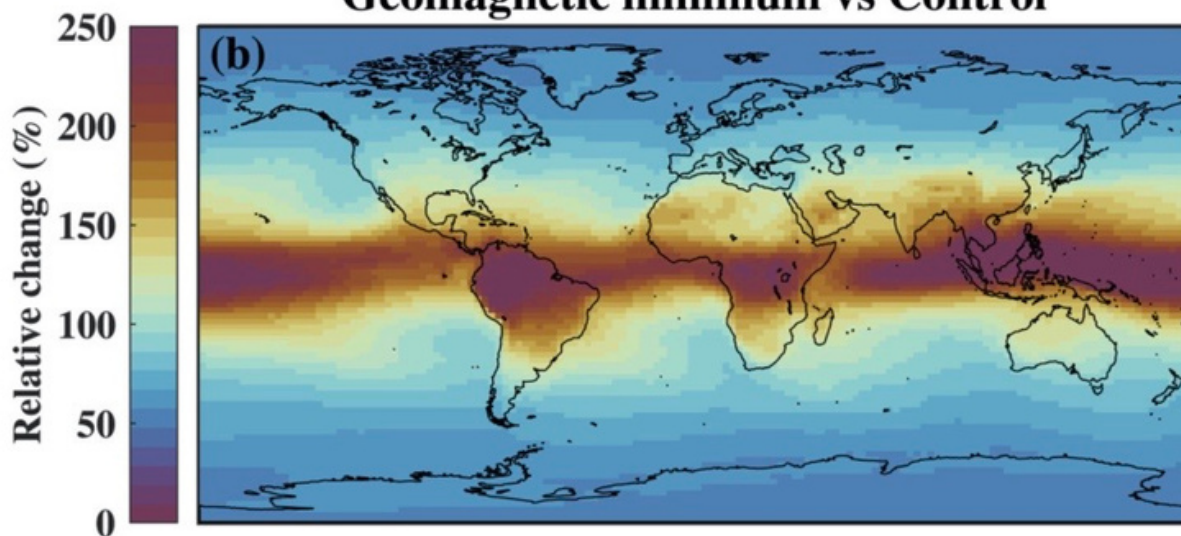
A new study focused solely on information from the time of the Laschamp geomagnetic excursion, which occurred 4 disaster-cycles ago. It was the worst geomagnetic event of the last 100,000 years, caused major climate shifts, and triggered the extinctions of several species, including the neanderthals.

The image here is from that study, and it shows that there was a major surge in Be production, especially in the tropical region, during this time. The sun is the largest source of the energy responsible for this isotope production, but despite the tropical areas being most-directly exposed to sunlight, they are the most-protected by earth's magnetic field. During these excursions, this protection virtually disappears, and leaves the tropical regions extremely vulnerable to this cosmic energy.

The direct correlation between incoming energy and Be production also helps us understand the climate shifts during these events. The ~1% change in solar energy over the 11-year sunspot cycle is enough to impact El Nino, ocean temperatures, monsoons and storm patterns. What does a 50-250% increase do in a geomagnetic excursion?

UNFORTUNATELY, WE'RE GOING TO FIND OUT WHEN THE CURRENT EXCURSION HITS ITS PEAK IN THE 2030S OR 2040S.

Geomagnetic minimum vs Control



EXTRA DUST IN THE OUTER SOLAR SYSTEM

BY: BEN DAVIDSON



We know the earth is changing, but also the other planets, the sun, and interplanetary space. One of the key changes in interplanetary space is the appearance of more dust. This has been detected in the region around Mars, Earth, Venus, and all the way inwards to the upper corona of the sun.

The idea is that this dust is coming with the galactic current sheet, which is the only way to explain the solar system shift we are seeing. While Voyager and New Horizons spacecraft have detected plasma pressure shocks and magnetic switches out past pluto (which are also expected) they have not yet detected the extra dust in the outer reach of the solar system.

THAT JUST CHANGED. A NEW STUDY USING NEW HORIZONS DATA HAS SHOWN GREATER THAN EXPECTED DUST MASS IN THE AREA REACHING NEARLY 60 AU FROM THE SUN. FOR COMPARISON, PLUTO'S OBLONG ORBIT NEVER TAKES IT FURTHER THAN 50 AU FROM THE SUN.

The conclusion is simple: the dust of the current sheet has arrived. Given the several previous studies showing the extra dust in the inner solar system, this was not doubted much by our community, but now that it has been found extending out past pluto, we are settled on our initial conclusion, which confirms that our solar system shift is being caused by the galactic current sheet arrival.

SHOCKINGLY ANCIENT

BY: ADRIAN D'AMICO

In the depths of history, we encounter marvels that defy conventional understanding, stirring curiosity and sparking debate among scholars and enthusiasts alike. Among these enigmas are the ancient electrodes discovered around the world, nestled within the ruins of once-great civilizations like Egypt and Cambodia. These artifacts hint at a profound understanding of electricity and technology, prompting us to explore the science behind them and the techniques ancient peoples may have employed to achieve such feats.

Central to this exploration is the Tesla coil, an invention of the late 19th century by the visionary Nikola Tesla. Harnessing resonant circuits to generate high-voltage, low-current, high-frequency alternating-current electricity, the Tesla coil remains a marvel of engineering even by modern standards. Yet, evidence suggests that ancient civilizations may have possessed similar knowledge and even utilized primitive forms of Tesla coils in their constructions.

Ancient ruins, such as the Great Pyramid of Giza in Egypt and the temples of Angkor Wat in Cambodia, bear witness to the ingenuity of their builders. Some researchers speculate that these structures may have served as nodes in an ancient electrical network, with granite blocks potentially acting as conductive materials. Hieroglyphs resembling electrical diagrams further fuel speculation about the ancient Egyptians' understanding of electricity, while intricate carvings in Angkor Wat hint at a sophisticated knowledge of electrical principles.

However, recent scientific experiments shed new light on ancient building techniques, particularly in the realm of stone manipulation. Research has shown that high-voltage electricity can be used to lift and move heavy rocks, making them easier to transport and manipulate. This discovery suggests that ancient civilizations may have employed similar techniques to construct their monumental stone structures, such as the pyramids and megalithic temples found around the world.

Imagine ancient engineers harnessing the power of electricity to lift massive stone blocks effortlessly, guiding them into place with precision and skill. Such a technique would have revolutionized the construction process, enabling the creation of structures that continue to astound us to this day.

But how did ancient civilizations acquire such advanced knowledge of electricity and technology? One theory posits that they may have inherited this wisdom from a more ancient and technologically advanced civilization, lost to the sands of time. Alternatively, early humans may have stumbled upon these discoveries through centuries of experimentation, inspired by observations of lightning strikes, magnetic phenomena, and static electricity.

As we delve deeper into the mysteries of ancient electrodes, stone melding technology, and high-voltage levitation, we are confronted with more questions than answers. What other technological marvels lie buried beneath the sands of time, waiting to be unearthed? And what lessons can we learn from the ingenuity of our ancestors?

In our quest to understand the past, we are reminded that human history is a tapestry woven with threads of innovation and discovery. As we unravel the secrets of ancient civilizations, we come to appreciate the timeless pursuit of knowledge that transcends the boundaries of time and space. And who knows? Perhaps one day, we may uncover the ultimate truth behind the ancient technologies that continue to inspire wonder and awe.

A FELLOW OBSERVER HAS CREATED THE SOLAR KILLSHOT NETWORK

The Solar Killshot Network is the only worldwide, member-led, collaborative organization on a mission to connect members locally so they can find or form micronova survival groups.

The Network is nurtured by Sol Survivors for Sol Survivors, so you'll get resources, training, and support from people who understand your unique survival goals, and in a format that makes it easy for you to stay focused and take action

SOLAR KILLSHOT ACTION NETWORK

Learn the secrets of successful survival groups; ones you can trust to care for you and your family if—for whatever reason—you can't.

Discover the essential survival skills to focus on first, rather than waste time, money, and energy researching rabbit holes on your own. Coming Soon

Customize our community-built micronova action planner to fit your unique needs, budget, lifestyle, and location.

[CLICK TO LEARN MORE](#)



**Solar Killshot Action Network |
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The Solar Killshot Action Network is a professional survivalist association that connects members...

solarkillshot.org

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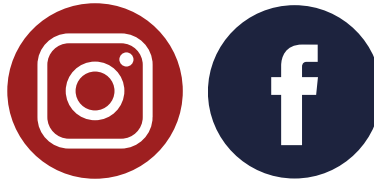
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THANK YOU!

THANK YOU FOR READING OUR FEBRUARY ISSUE OF THE OBSERVER REVIEW.

IF YOU HAVE ANY ARTICLE QUESTIONS OR INQUIRIES, PLEASE CONTACT INFO@OBSVERRANCH.COM.

EYES OPEN, NO FEAR!