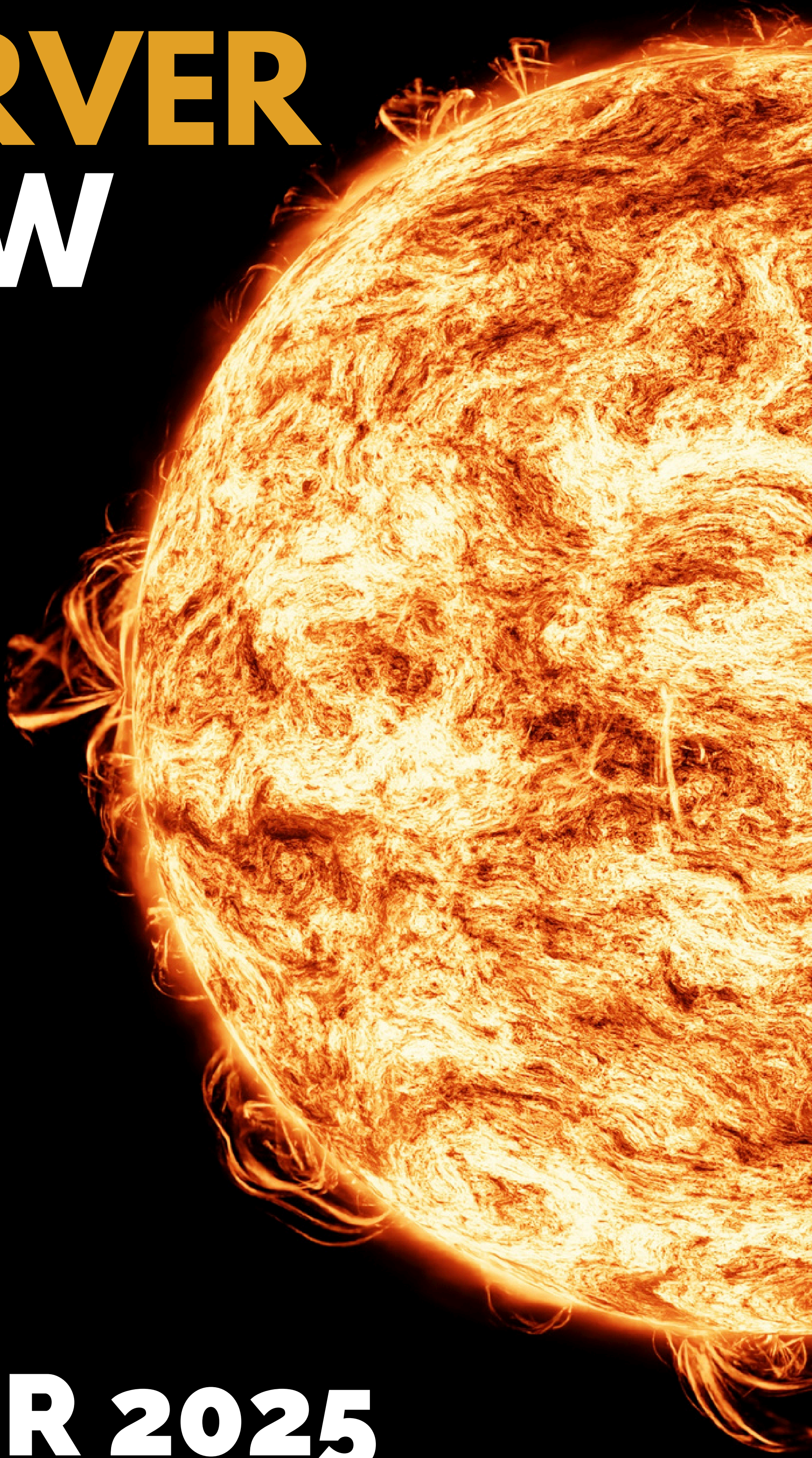
THE OBSERVER REVIEW



OCTOBER 2025

CONTENTS

OCTOBER

AND MORE!

THE OBSERVER REVIEW

POLAR MOTION AND ENSO *(AND THE SUN)*

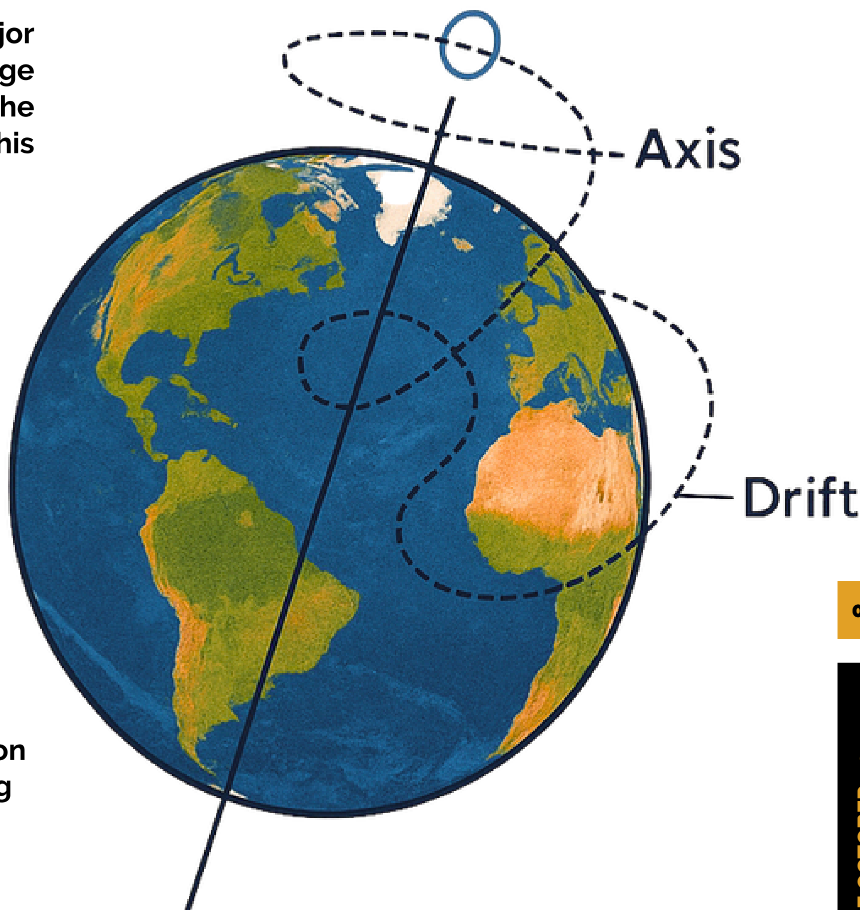
ARTICLE REFERENCED:
ENSO MODULATES THE OCEANIC EXCITATION OF POLAR MOTION

THE EARTH DOESN'T SPIN LIKE A PERFECT TOP.

Its axis drifts slightly over time, tracing loops a few meters wide.

This phenomenon, known as polar motion, occurs because Earth's mass is always shifting, oceans slosh, air currents move, and the planet responds by subtly rebalancing its spin.

Scientists have long known that events like major floods or changes in ocean circulation can nudge the pole of rotation, but as we know one of the most powerful natural cycles influencing this motion is ENSO, the El Niño Southern Oscillation.



WHAT IS ENSO?

For a quick refresher, ENSO is the periodic warming and cooling of the tropical Pacific Ocean. It alternates between El Niño, when the Pacific warms, and La Niña, when it cools. These phases do more than change weather patterns.

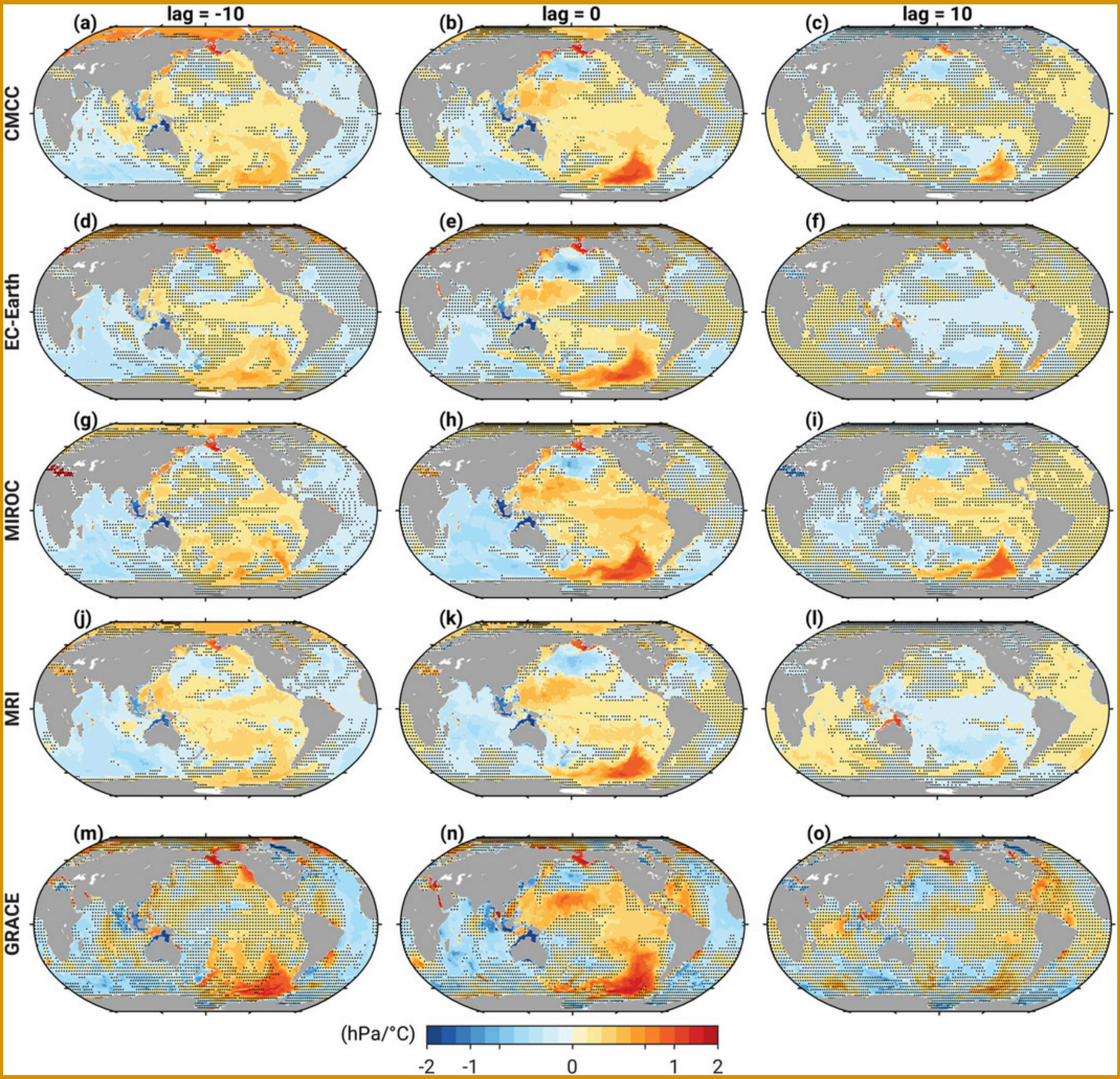
They physically move the ocean's mass.

During an El Niño, warm water spreads eastward across the Pacific while the Indian Ocean and waters near Australia lose mass. This redistribution shifts the planet's center of water weight, causing the axis of rotation to drift slightly toward the Pacific. During La Niña, the pattern reverses and the pole drifts back.

Data from GRACE satellites and climate models show these mass shifts clearly. The strongest changes appear in the Bellingshausen Basin near Antarctica and across the Pacific–Indian Ocean divide. These movements create fluctuations in oceanic angular momentum, which gently push the planet's spin axis along roughly the 90°E line of longitude.

On average, ENSO explains around 40 to 50 percent of the observed variance in polar motion during El Niño and La Niña years. Other factors such as wind-driven ocean currents, atmospheric pressure, and groundwater storage play a role too, but ENSO leaves one of the most distinct marks.

The link between ENSO and polar motion highlights how tightly connected Earth's systems are. When the ocean breathes in and out through El Niño and La Niña cycles, it does more than trade heat. It moves mass, momentum, and even angular velocity. These shifts are physical expressions of climate variability that can be measured in the way our planet spins.

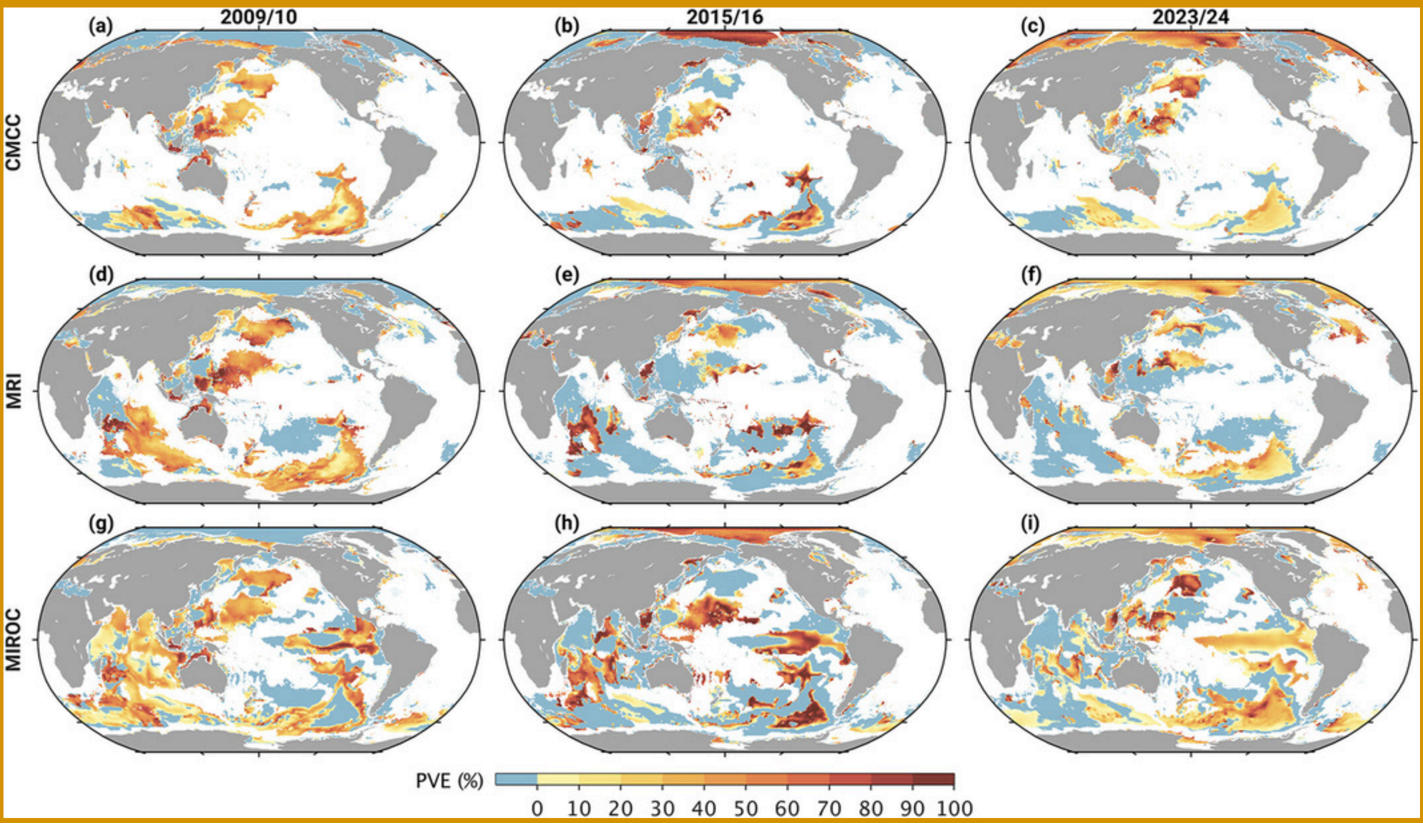


They compared how different climate models and GRACE satellite data respond to El Niño and La Niña (ONI). The maps show patterns 10 months before, during, and after these events, with black dots marking areas where results aren't statistically reliable.

Now, let's look at the sun's influence. Variations in solar activity, through changes in ultraviolet output and solar wind, have a measurable impact on ENSO behavior.

Periods of strong solar activity tend to favor El Niño–like conditions, warming the equatorial Pacific. Quieter solar phases are more often linked to La Niña–like cooling. The connection likely involves changes in upper-atmospheric heating that influence wind patterns and ocean upwelling.

In this way, the Sun indirectly shapes the balance of mass in Earth's oceans. Through its influence on ENSO, solar variability can subtly imprint itself on the planet's rotation and polar motion. Every part of Earth's system moves in rhythm with the Sun. Solar cycles influence winds and ocean currents, which drive ENSO, which in turn redistributes ocean mass and shifts the planet's spin.



The figure shows how much of the year-to-year changes in Earth's gravity (measured by GRACE satellites) can be explained by El Niño patterns, according to three different climate models: CMCC, EC-Earth, and MIROC. It compares three major El Niño events, 2009–2010, 2015–2016, and 2023–2024 — and looks at how these effects change over a period of 10 months before and after each event. White areas on the map show places where the connection between El Niño and gravity changes is too weak to be meaningful.

CO_2 LAGS TEMPERATURE

ARTICLE REFERENCED:
GLOBAL ATMOSPHERIC CO2 LAGS TEMPERATURE BY 150 YR BETWEEN 1 AND 1850 AD

We have been very aware that for decades the dominant view in climate science has been that rising atmospheric carbon dioxide drives global temperature increases.

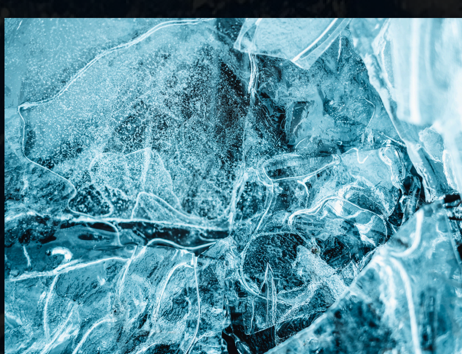
YET A GROWING NUMBER OF LONG-TERM ANALYSES SUGGEST THE OPPOSITE:

THAT TEMPERATURE CHANGES OFTEN PRECEDE CHANGES IN CARBON DIOXIDE LEVELS.

NEW DATA

A new look at this topic examines data over the past 2000 years using high-resolution datasets from ice cores, tree rings, marine sediments, and other paleoclimate proxies. The results indicate that global carbon dioxide concentrations consistently lag temperature by about 150 years between 1 and 1850 AD, centuries before significant human industrial emissions.

Researchers compared 16 global temperature reconstructions and 4 Antarctic carbon dioxide ice core records across multiple timescales. Both original and smoothed datasets (using 50- and 100-year running averages and Loess filters) were analyzed to identify broad trends while minimizing local noise.

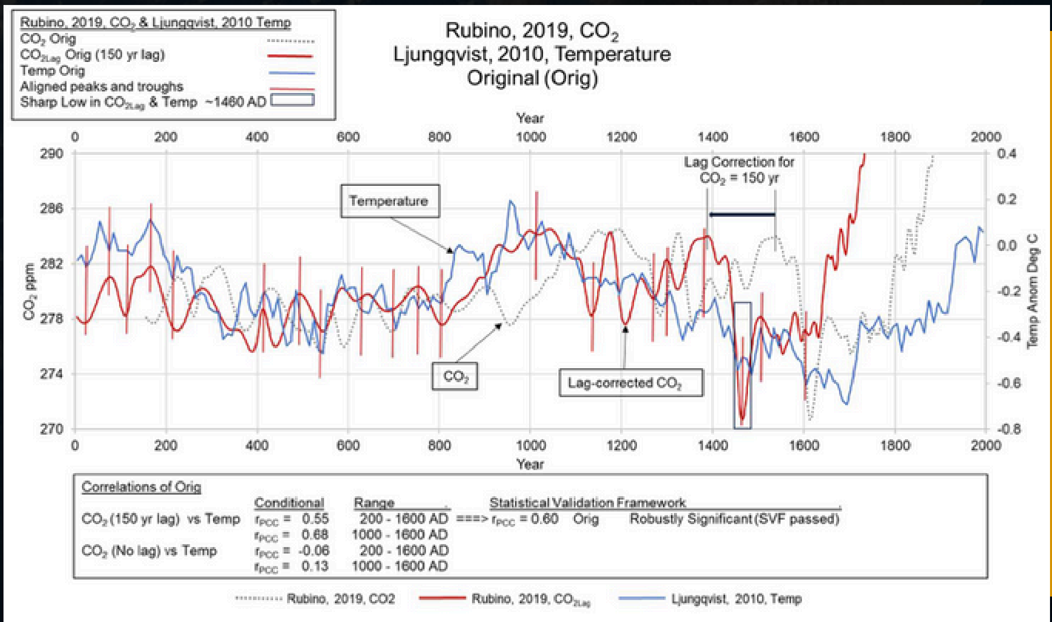


ACROSS EVERY DATASET COMBINATION, FROM 200 TO 1600 AD AND FROM 1600 TO 1850 AD, THE SAME PATTERN EMERGED:

Carbon dioxide changes follow temperature changes by roughly 150 years.

Temperature leads carbon dioxide both before and after the Little Ice Age (1300–1850 AD).

A distinct dip around 1460 AD appears simultaneously in temperature, carbon dioxide (when lag-adjusted), and solar irradiance records; a consistent marker across nearly all datasets.



Temperature and carbon dioxide data from 1–2000 AD are shown, along with a version where carbon dioxide is shifted 150 years later. Red lines show matching peaks and valleys, including a sharp dip around 1460 AD. Correlation tests for both original and lagged data (200–1600 AD and 1000–1600 AD) confirm a strong, statistically reliable relationship.

THESE FINDINGS IMPLY A ROBUST TEMPORAL SEQUENCE: TEMPERATURE RISES FIRST, CARBON DIOXIDE FOLLOWS.

To explore what might drive temperature variability, the study also compared Total Solar Irradiance (TSI) with global temperature records. Over the past two millennia, TSI and temperature show a Strong to Very Strong correlation, especially from 1850 to the present.

SOLAR OUTPUT CONNECTION

Periods of reduced solar output; such as the Maunder Minimum (~1645–1715 AD), coincide with temperature drops and subsequent delayed declines in atmospheric carbon dioxide, consistent with a system where solar variability modulates temperature, which then affects carbon dioxide levels.

The pronounced temperature and carbon dioxide dip around 1460 AD aligns with a deep solar minimum, showcasing solar cycles play a leading role in initiating multi-century climate swings.

The lag likely reflects the slow response of the oceans, which absorb and release carbon dioxide depending on temperature. When oceans warm, dissolved carbon dioxide escapes into the atmosphere; when they cool, carbon dioxide is reabsorbed.
Given the ocean's enormous heat and carbon capacity, these exchanges unfold over centuries, consistent with the 150-year delay observed.

The data suggest that carbon dioxide functions primarily as a response variable, a byproduct of temperature-driven processes, rather than the initiating force behind long-term climate shifts.

OTHER STUDIES ACROSS MULTIPLE ERAS SHOW SIMILAR PATTERNS:

Ice core records reveal carbon dioxide lags of 300–2300 years during glacial cycles.
Millennial-scale reconstructions show ~1000-year lags.

Modern instrumental data show monthly lags of 9–12 months.

The timescale shortens as observation windows shrink, from centuries to months, but the direction remains consistent: temperature first, carbon dioxide second.

WHEN TOTAL SOLAR IRRADIANCE RISES, GLOBAL TEMPERATURES TEND TO FOLLOW, AND CARBON DIOXIDE INCREASES ROUGHLY 150 YEARS LATER.

SOLAR FLARES AND EARTHQUAKES

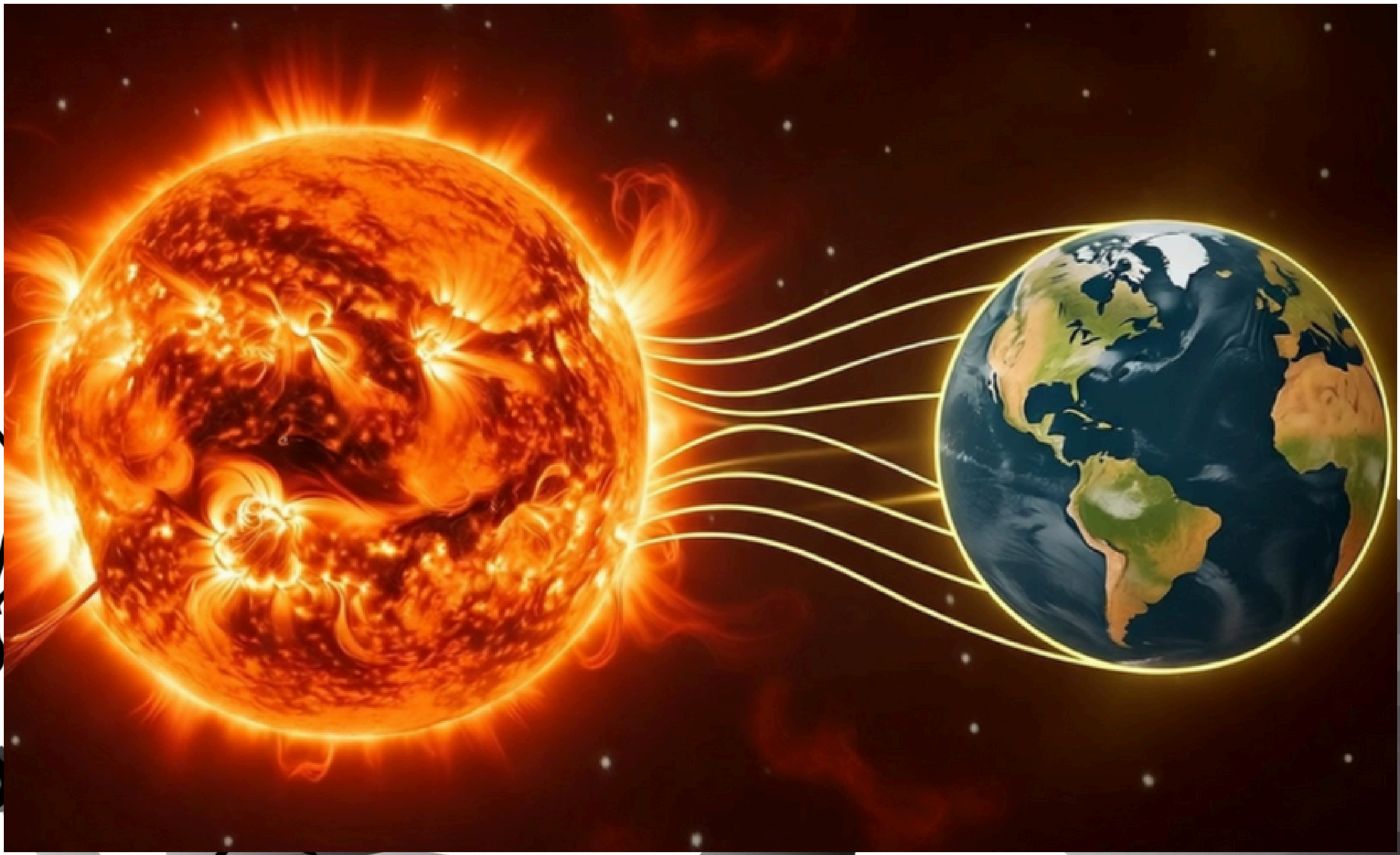
ARTICLE REFERENCED:
HTTPS://CRM-EN.ICS.ORG.RU/UPLOADS/CRMISSUES/CRM_2025_4/32_LYUBUSHIN.PDF (IN RUSSIAN)

BY: BEN DAVIDSON

A new study only available in Russian makes a powerful case for the statistical relationship between solar flares and large earthquakes, while also finding, overall, that 2.5% of all seismic energy released on earth is directly related to solar flares.

While the team neglected to declare the mechanism, instead deciding to focus on the pure math of the correlation, previous studies have suggested that the magnetic crochet effect - where the x-ray energy of the flare creates currents in the ionosphere strong enough to impact the local magnetic fields - could propagate downward along the L shell field lines and into the crust. This is a common mechanism discussed for protons storms and geomagnetic storms as well.

The study mentions that in the Northwest Pacific (Japan/Kamchatka) the correlation can be as high as 5%. Powerful solar flares, protons storms, geomagnetic storms, and peak solar polar magnetic field power all occurred during the March 11, 2011 Japan M9.1 earthquake and tsunami disaster. More broadly, this analysis joins a very long list of positive findings in terms of solar forcing of seismicity, after the field was being strongly pushed to ignore the conversation as recently as 2012.



PRE-EARTHQUAKE SIGNALS

ARTICLE REFERENCED:
HTTPS://WWW.TANDFONLINE.COM/DOI/FULL/10.1080/19475705.2025.2555740
HTTPS://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/ABS/PII/S0031920125001323
HTTPS://PAPERS.SSRN.COM/SOL3/PAPERS.CFM?ABSTRACT_ID=5497493
HTTPS://ISTINA.FICP.AC.RU/PUBLICATIONS/ARTICLE/667794015/

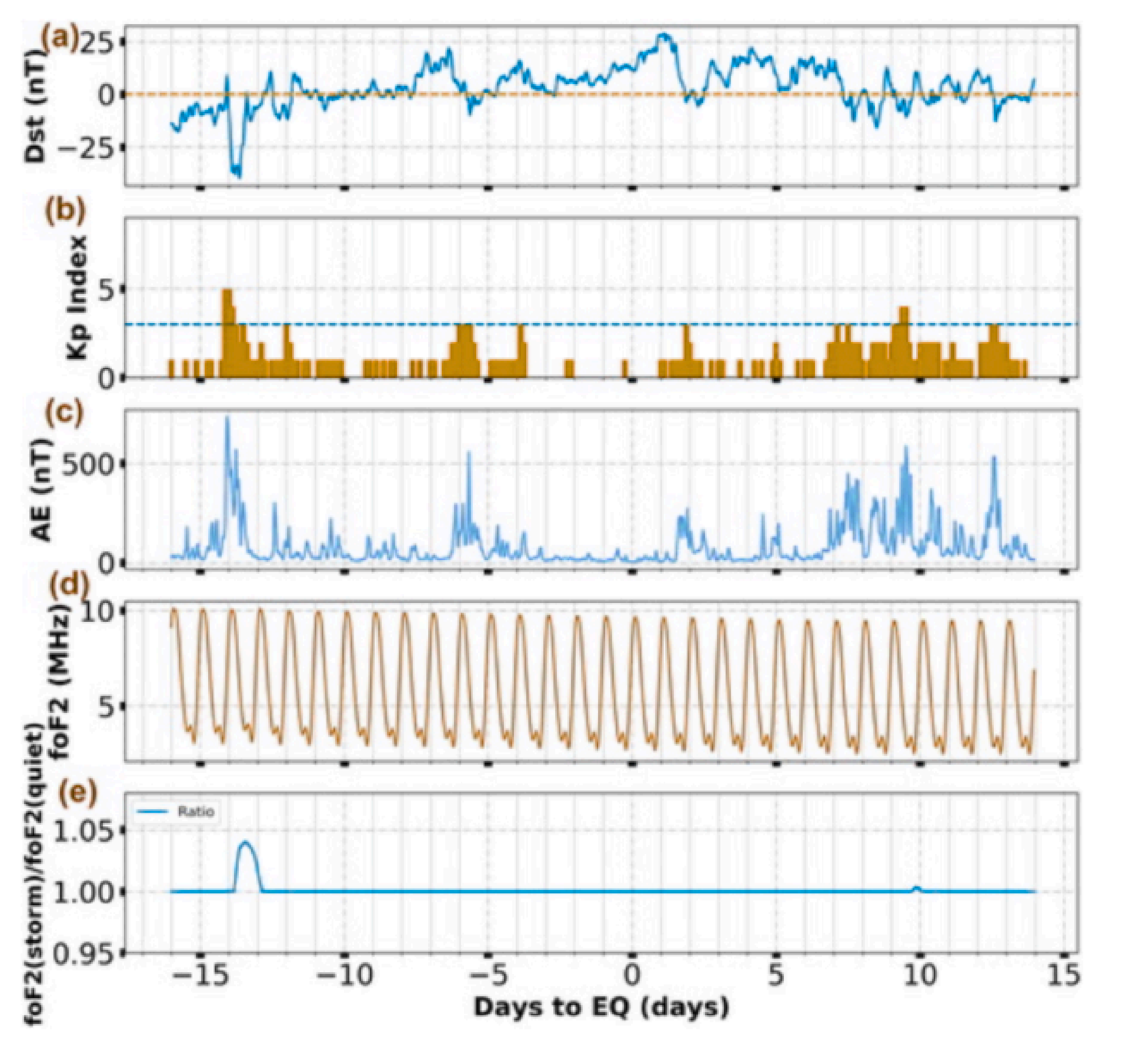
Across several independent datasets and methods, a consistent picture is emerging. In the days to months before many large earthquakes, the solid Earth, the lower atmosphere, and the ionosphere begin to “talk” to each other. Total Electron Content in the ionosphere, the critical frequency of the F2 layer, outgoing longwave radiation in the infrared window, and ground magnetic polarization often drift away from their normal ranges in patterned and time-locked ways.

The strongest and most reliable hints appear when we do three things at once: filter out solar and geomagnetic weather, fuse multiple parameters, and apply statistics that do not assume a tidy bell curve.

WHAT’S THE RESULT?

THE RESULT IS NOT A SINGLE MAGIC INDICATOR BUT A SHORT LIST OF REPEATABLE SIGNAL FAMILIES THAT CLUSTER IN SPACE AROUND THE FUTURE EPICENTER AND IN TIME WITHIN A WINDOW THAT IS USEFUL FOR PREPAREDNESS.

Two offshore events near Honshu, magnitude 7.3 on 7 December 2012 and magnitude 7.1 on 25 October 2013, were examined with Total Electron Content from Global Navigation Satellite Systems, F2-layer critical frequency, and standard geomagnetic indices.



Three independent detectors were run in parallel: mean with standard deviation thresholds, median with interquartile range, and wavelet transform to isolate frequency bands. All three found pre-seismic anomalies several days before the main shocks and again a few days after.

Anomalies peaked between 5 and 10 days before the events and localized over the seismogenic zones in line with Dobrovolsky's preparation radius. Filtering with strict quiet-time constraints on Kp, Dst, and Ap greatly increased the hit rate by removing solar-driven look-alikes. Outgoing longwave radiation composites over the same regions rose and fell in step with the ionospheric changes, which supports a lithosphere → atmosphere → ionosphere coupling pathway.

Furthermore, in the third study, it is shown that several mechanisms can move charge and change plasma density over a seismogenic region. These include stress-activated “positive holes” in rocks, radon and other gas release that changes air conductivity, near-surface ionization layers that couple ground fields to field-aligned ionospheric currents, and gravity waves that lift or sink ionospheric layers. The vertical field near the ground can map to an east-west field along magnetic lines in the F region, which produces electron density anomalies that a receiver reads as a Total Electron Content change.

Lastly, on the 8th August 2017 Jiuzhaigou magnitude 7.1, a dense network of 47 ground magnetometers showed a region-wide evolution in ultralow-frequency magnetic polarization. A new multistation correlation method captured a rise–fall–rise sequence, with earthquakes falling at the inflection points. Prior work shows that single-station polarization can be fooled by space weather. The multistation approach removes much of that risk and maps a coherent regional signal that began many weeks before the main shock. Magnetic polarization offers a longer lead-time context. It is less precise in time but can flag when a region is entering a charged state.

Across these studies a coherent picture emerges that in the preparation phase of many large earthquakes the ground, lower atmosphere, and ionosphere shift together in patterned ways that localize near the future epicenter and tighten in time.

Total Electron Content and the F2 layer critical frequency depart from their learned baselines several days before mainshocks, most often about 4 to 10 days ahead, with both positive and negative swings depending on fault setting and background electrodynamics, and these ionospheric departures weaken with distance in line with the expected preparation radius.

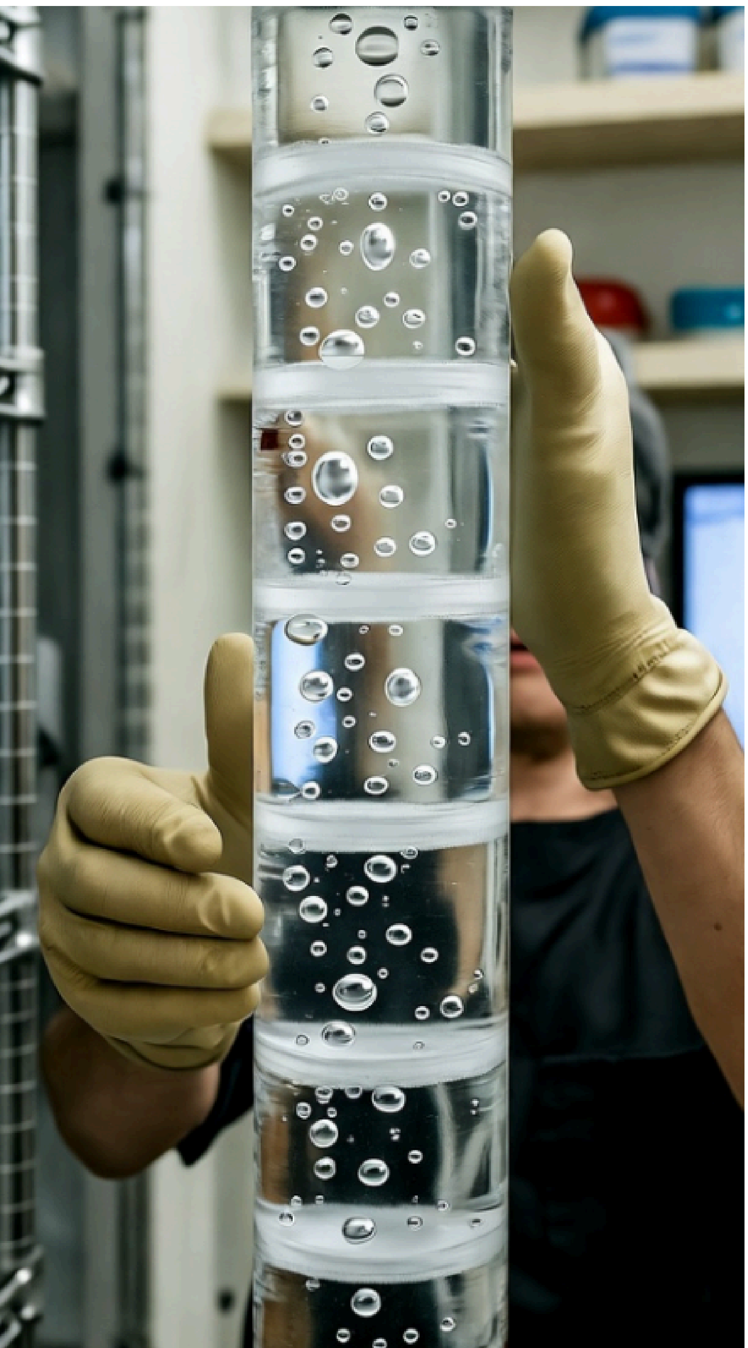
Outgoing longwave radiation over the same regions rises or falls in step with the ionospheric changes, which supports a coupling pathway from crust to air to ionosphere driven by stress activation of positive holes in rocks, release of ionizing gases such as radon that change air conductivity, near surface ionization layers that map vertical electric fields into the F region along magnetic field lines, and gravity waves that lift or sink plasma.

Signals are easiest to trust when solar and geomagnetic weather is quiet, so filtering by things such as Kp, Dst, AE, Ap and by F2 behavior removes look alike disturbances caused by solar flares and geomagnetic storms.

ICE-DATING PROBLEMS CONFIRMED

ARTICLE REFERENCED:
A RADIOMETRIC TIMESCALE CHALLENGES THE CHRONOLOGY OF THE ICONIC 1992 GULIYA ICE CORE

BY: BEN DAVIDSON



The most embarrassing isotope dating mistake on record was just confirmed in, again, the most embarrassing terms. Several years ago a team used Krypton isotope dating to prove that Tibetan ice caps previously believed to be older than 500,000 years were actually less than 17,000 years old. That is astonishing.

Now, a team has gone back and combined Lead, Argon and Carbon (incredible, I know) isotopes dating to adjust a different coring from that same expedition to less than 3000 years old, when previously it had been believed to be over 100,000 years old.

Keen observers know which isotopes to trust, and so we have been able to track the key cycle data for years, even while there is no official agreement about the timing of certain events - the best data stands out if you know which isotopes are which.

So when someone talks about million-year-old ice core data, no... the answer is just no.

The field of geology makes mistakes dating lots of things, but few are worse than ice. It is encouraging to see two recent studies correcting those past errors in the frozen cores.

INTERSTELLAR IONS MAKING WAVES NEAR EARTH

BY: BAILEY

ARTICLE REFERENCED:
SWRI STUDY REVEALS FIRST MMS OBSERVATIONS OF WAVES GENERATED BY PUIS NEAR EARTH

A NEW STUDY FROM SOUTHWEST RESEARCH INSTITUTE HAS REVEALED THE FIRST DIRECT OBSERVATIONS OF WAVES CREATED BY PICKUP IONS WITHIN THE SOLAR WIND NEAR EARTH.

The findings come from data collected by the Magnetospheric Multiscale Mission, a group of four spacecraft that measure magnetic and plasma interactions around Earth. The results show that some of the charged particles moving through our part of space may carry signs of the galactic current sheet, the vast magnetic boundary that threads through the Milky Way.

WHAT ARE PICKUP IONS?

Pickup ions form when neutral atoms from interstellar space drift into the solar system. When these atoms are struck by solar ultraviolet light or charged particles, they lose an electron and become ions. Once charged, they are swept up by the solar wind and begin to spiral around magnetic field lines, forming a population of particles that behave differently from the typical solar wind.

WHAT CHANGED?

Until now, scientists believed that pickup ions were most important far from the Sun, where the solar wind meets the edge of the interstellar medium. However, the Magnetospheric Multiscale spacecraft have detected pickup ions near Earth's orbit, where they appear to generate small but measurable magnetic waves. This marks the first confirmed detection of such waves close to Earth.

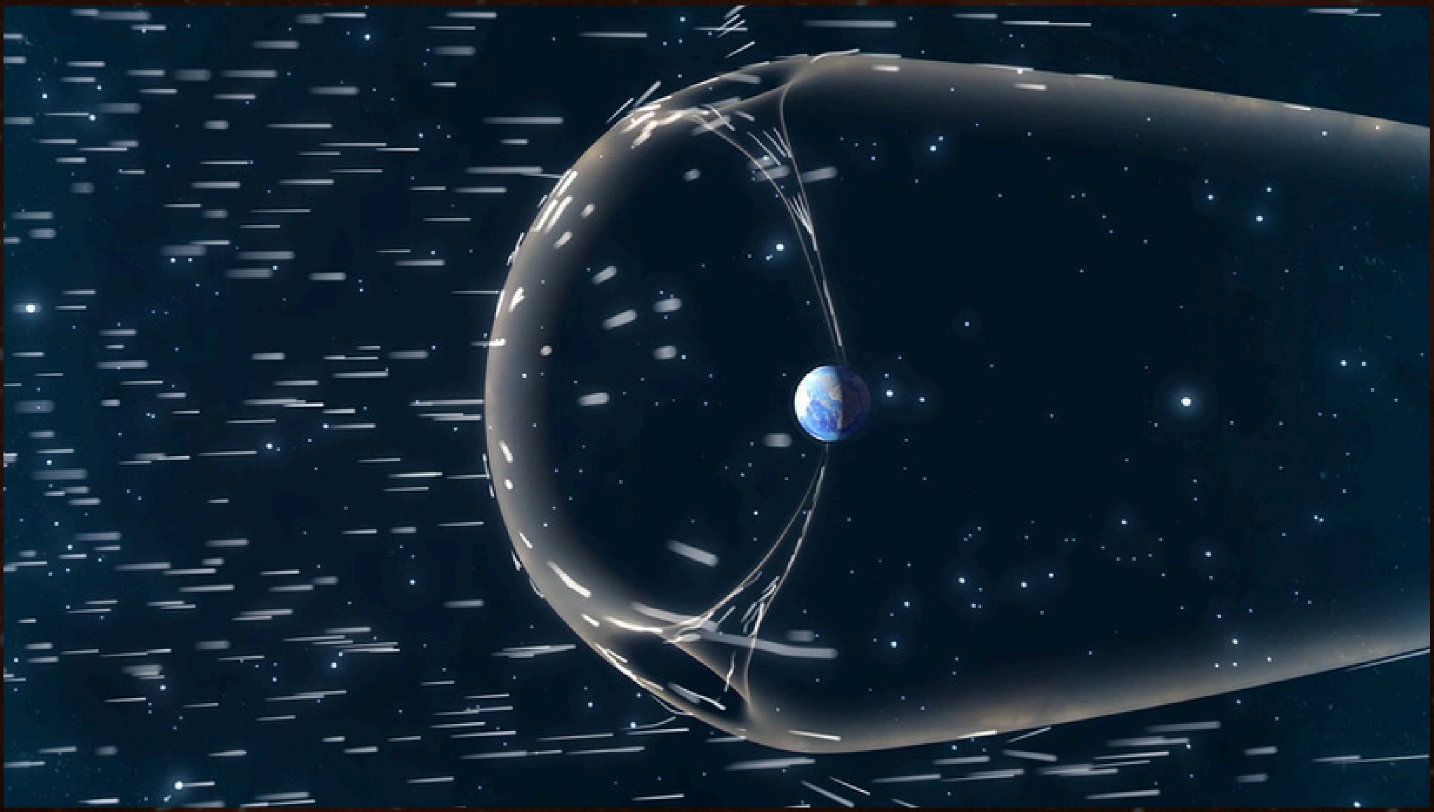
The team analyzed magnetic field data to identify patterns that matched the expected wave behavior from hydrogen and helium pickup ions. These waves appear when the new ion population interacts with the background solar wind, transferring energy and momentum through a process known as wave-particle interaction.

THIS FINDING CHALLENGES A LONG-STANDING ASSUMPTION THAT PICKUP IONS HAVE LITTLE INFLUENCE IN THE INNER SOLAR SYSTEM. IF THEY ARE ACTIVELY SHAPING THE PLASMA NEAR EARTH, THEY COULD ALSO REVEAL TRACES OF THE GALACTIC MAGNETIC ENVIRONMENT THAT SUPPLIES THEM.

The neutral atoms that become pickup ions come from outside the heliosphere, and their flow may be guided by the galactic current sheet. This current sheet is a large, wavy magnetic surface that separates regions of opposite polarity in the Milky Way.

As the solar system moves through this sheet, the flow of interstellar dust, atoms, and energetic neutral particles entering the heliosphere may change. If the pickup ions reflect these variations, then the waves they create near Earth serve as local signs of the galactic current sheet.

Farther from the Sun, pickup ions make up a significant portion of the pressure that shapes the outer boundary of the solar system. Near Earth, they may contribute to the small-scale turbulence that affects how the solar wind heats and flows.



2006 CORE EVENT

ARTICLE REFERENCED:
MYSTERIOUS CHANGES NEAR EARTH'S CORE REVEALED BY SATELLITES IN SPACE

BY: BEN DAVIDSON

Scientists studying the subtle attraction data spanning from the surface to earth's core discovered that something happened in 2006 and they missed it before. A powerful solidification (density increase) occurred at the core-mantle boundary, causing a shockwave of weak magnetism to spread over the course of two years culminating in 2008.

THIS IS CONSIDERED A HIGHLY ABNORMAL EVENT, AND THE TRUTH IS THAT SEEING ONE RIGHT NOW, AMIDST EVERYTHING ELSE WE HAVE BEEN COVERING WITH EARTH'S MAGNETIC FIELD OVER THE LAST CENTURY AND ESPECIALLY THE LAST 20 YEARS, IS LIKELY ANOTHER SIGN AND SYMPTOM OF THE CURRENT MAGNETIC POLE SHIFT.

IMPORTANCE

IT IS NOTEWORTHY THAT THE 2006 MAGNETIC "ANOMALY" WHICH DROVE A SIGNIFICANT ACCELERATION IN EARTH'S MAGNETIC FIELD- THE ONLY ONE ON RECORD STRONGER THAN THE EVENT IN MARCH 2023- WAS ALMOST CERTAINLY RELATED TO THIS MAGNETIC EVENT. IT IS PRUDENT THAT THESE SCIENTISTS CHECK THE DATA FOR A SIMILAR CORE EVENT IN 2023 CORRELATING WITH THE EVENTS AT THAT TIME.

THIS EVENT SEEMS TO BE TIED TO THE 2007 GEOMAGNETIC JERK AS WELL. SO THIS EVENT INCLUDED:

2006 CORE EVENT (THIS ARTICLE)

2006 MAGNETIC ANOMALY - SPEED-UP OF MAGNETIC FIELD LOSS

2007 GEOMAGNETIC JERK

AMOC STARTS IN THE NORTH ATLANTIC

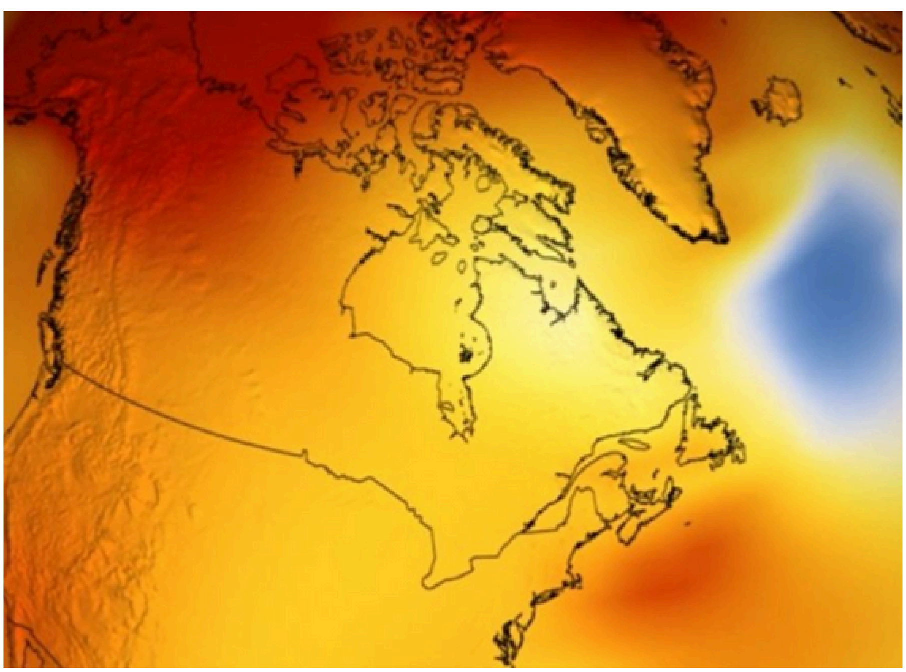
BY: BEN DAVIDSON

ARTICLE REFERENCED:
WHAT CMIP6 MODELS TELL US ABOUT THE IMPACT OF AMOC VARIABILITY ON THE ARCTIC

The North Atlantic Cold Blob is an unusually cold patch of ocean water in the North Atlantic, south of Greenland, that has been cooler than average since around 2014. It's likely caused by a slowdown in the Atlantic Meridional Overturning Circulation (AMOC), which normally carries warm water north but is being disrupted by melting Arctic ice and climate change.

This cold blob can affect weather patterns, potentially leading to more extreme weather in Europe and North America. A new study confirms that this region is the “first sign” of the AMOC collapse, the main driving force behind the cold snap that will hit our planet in the coming years.

The position of the blob indicates that it is highly influenced by the Beaufort Gyre releases and polar ice melt in general. This completes the picture of why the gyre is the “cold climate bomb” that Yale described, and why we are now even more certain that the AMOC is about to collapse.



This confluence of oceanic indicators we have been watching for the last several years are no coincidence. The earth is about to get a major cold snap, it is going to begin in the atlantic ocean, and the cold blob is the first sign, already impacting earth’s wind and temperatures in the region.

UPWELLING FAILURE IN THE EAST PACIFIC

ARTICLE REFERENCED: UPWELLING FAILURE

FOR THE FIRST TIME ON RECORD, THE PACIFIC OCEAN FAILED TO BREATHE.

In early 2025, scientists from the Smithsonian Tropical Research Institute reported a startling absence of the annual upwelling in the Gulf of Panama, a natural process that has occurred without interruption for at least forty years. Each dry season, from January through April, strong northern trade winds normally push warm surface waters away from the coast, allowing cold, nutrient-rich water from the ocean's depths to rise upward. This process feeds marine life, cools coastal waters, and sustains local fisheries. In 2025, it did not happen.

THE SEA STAYED WARM. THE SURFACE STAYED STILL. THE LIFE-GIVING PULSE OF NUTRIENTS THAT SUSTAINS PLANKTON, FISH, AND CORAL PROTECTION SIMPLY FAILED TO RISE.

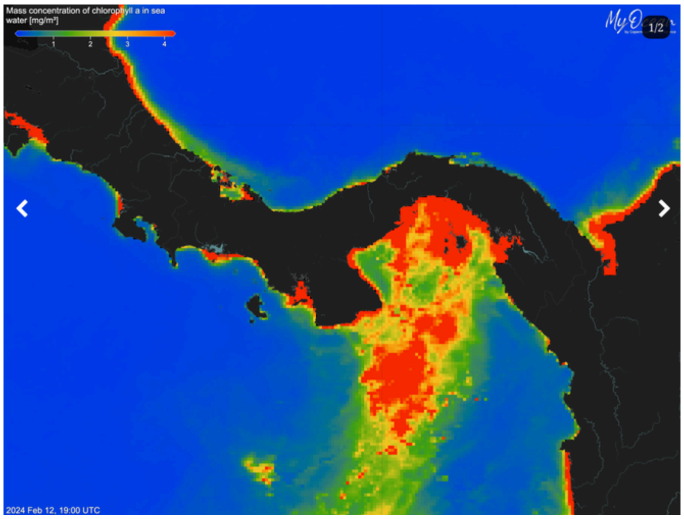
Researchers found that the trade winds weakened so significantly that they could no longer trigger the normal upwelling cycle. This breakdown was not just a localized disturbance, it was a warning sign that one of the planet's essential oceanic systems may be faltering.

Upwelling acts as the ocean's breath. It circulates nutrients from the deep to the surface, fueling the base of the food chain and keeping marine ecosystems alive.

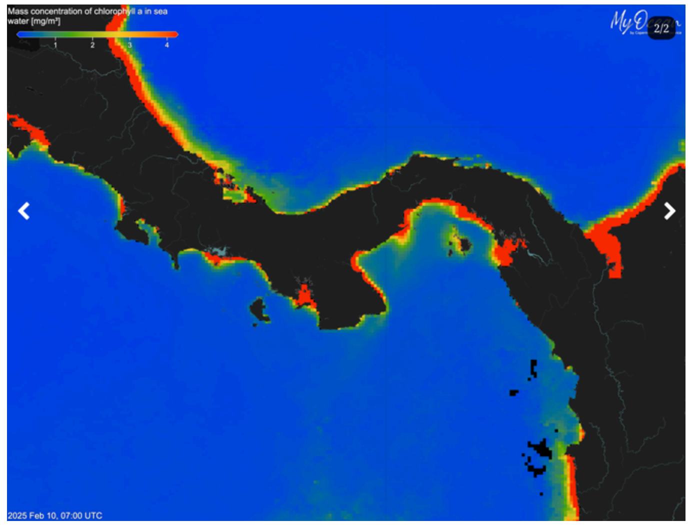
When this process stops, surface waters become stratified, warm layers remain trapped above cooler layers, preventing mixing.

Without that movement, oxygen declines, productivity drops, and ecosystems lose resilience.

The Gulf of Panama's upwelling has been a stable and predictable feature for decades, anchoring regional fisheries and protecting coral reefs from heat stress. Its sudden failure mirrors a larger pattern of instability emerging across the world's oceans. Along the Pacific coast of South America, marine heatwaves are now recurring with increasing frequency. In the North Atlantic, scientists continue to report a weakening of the Atlantic Meridional Overturning Circulation, a global conveyor belt that drives climate stability by redistributing heat and nutrients between the hemispheres.



Chlorophyll concentrations in the oceans around Panama (blue = low, red = high) in February 2024, showing peak productivity in the Gulf of Panama during a period of typical upwelling. Credit: Aaron O'Dea



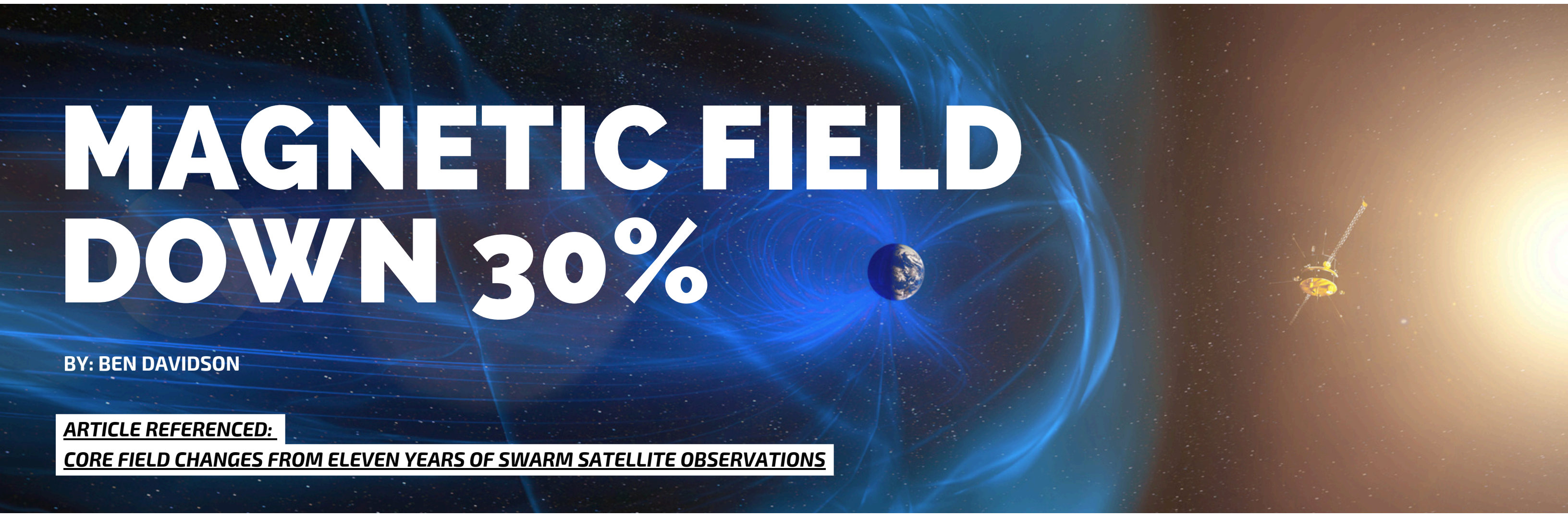
Extremely low chlorophyll concentrations in the oceans around Panama (blue = low, red = high) in February 2025, revealing the failure of the 2025 upwelling in the Gulf of Panama--for the first time in at least 40 years. Credit: Aaron O'Dea

The Pacific and Atlantic systems may appear separate, but they are deeply connected. Together, they regulate the movement of energy, carbon, and life across the planet. Their synchronized weakening hints at a larger structural breakdown, a slow-motion collapse of the ocean's internal balance.

When the trade winds fail, upwelling halts. When upwelling halts, the surface warms, nutrients are depleted, and marine food webs begin to unravel. Each of these failures feeds back into the climate system, further weakening winds and circulation patterns.

The slowing of the Atlantic Meridional Overturning Circulation and the failure of the East Pacific upwelling are parallel symptoms of this global disorder. Both events are caused by changes in temperature, salinity, and wind strength, and both carry the same message: the ocean's vertical exchange is breaking down.

These changes affect more than just marine ecosystems. They influence rainfall, drought cycles, and even atmospheric pressure systems that shape weather worldwide. A weakened Pacific means a distorted El Niño Southern Oscillation, while a weakened Atlantic overturning circulation can trigger colder winters in Europe and rising sea levels along the American coast.



MAGNETIC FIELD DOWN 30%

BY: BEN DAVIDSON

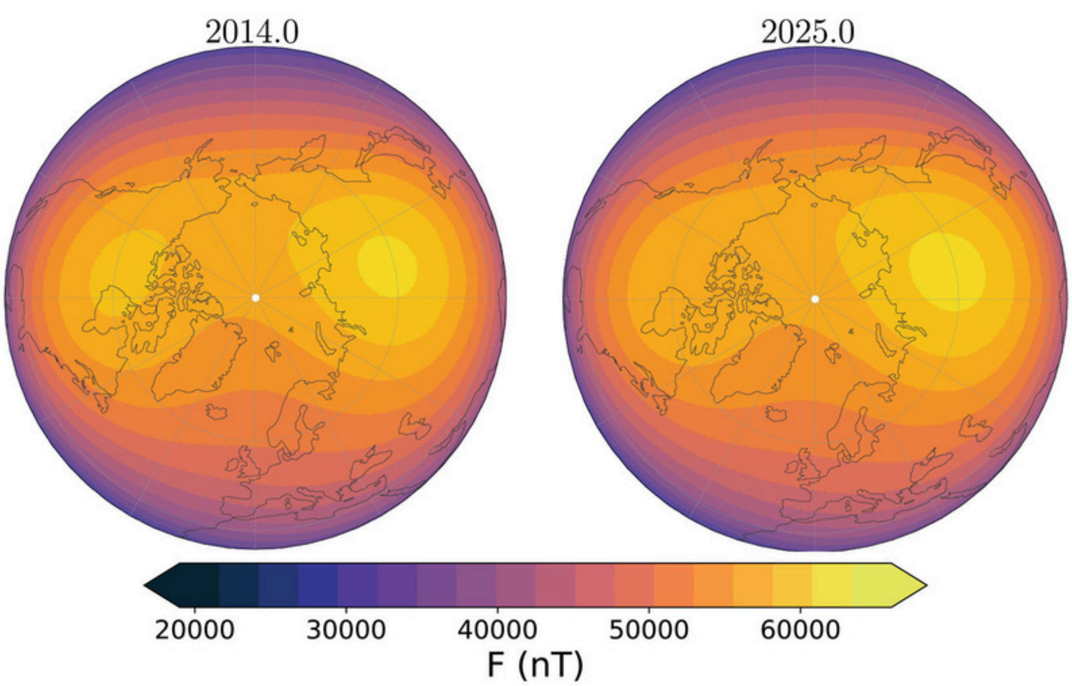
ARTICLE REFERENCED:
CORE FIELD CHANGES FROM ELEVEN YEARS OF SWARM SATELLITE OBSERVATIONS

A new study is showing how much the magnetic field weakened between 2014 and 2025, using data from the magnetic missions monitoring the field from space. The image here shows the comparison, with purple being low strength, and yellow being high.

The last remaining strong patch in North America is gone, and the South Atlantic Anomaly has grown and deepened. It would appear that in this 11 year span, earth lost between 8 and 10% of earth's magnetic field.

We had already seen the loss of 5% per century in the 1900s jump to 5% per decade in the early 2000s, but now it is looking like we have about 8 or 9% loss per decade, and its still speeding up.

While there is still no official "% lost" given to the public, we can reasonably estimate that earth's is now down by 30%, leaving us with only 70% of the magnetic protection we have enjoyed for most of the last few thousand years. Pole shift is marching on, and speeding up.



DOCUMENTARY PREMIERE

THE DISASTER CYCLE

NOVEMBER 15 | 6:30 PM
DOORS OPEN 5:30

5:30pm: Doors Open + Light Fare & Seating
6:30pm: Documentary Premiere (prompt start) + Q&A with Ben

CLICK FOR TICKETS

OBSERVER RANCH

Campground for Today, Education for Tomorrow

Are You Ready for What's Coming?

BEN DAVIDSON

LIVE WINTER TOUR 2025

Omaha, NE

November 29, 2025

San Diego, CA

December 13, 2025

Orlando, FL

January 10, 2026

Dallas, TX

February 21, 2026

Las Vegas, NV

March 7, 2026

EVENT CAPACITY: **80**

TICKET $200

THANK YOU!

WE HOPE YOU ENJOYED OUR OCTOBER ISSUE!
WE APPRECIATE YOUR QUEST AND LOVE FOR KNOWLEDGE ABOUT SPACE AND OUR GREATER COSMOS.

HAVE A TOPIC/DISCUSSION YOU WANT FEATURED?

Email observerreview@observerranch.com with a topic that you'd love to see an article written on!