Global Journal of Science Frontier Research: H Environment & Earth Science

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### Editorial Board

**Global Journal of Science Frontier Research**

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Electromagnetic Umbrella Modeling of Mega Meteorological Anomaly Disasters and Large Earthquake Associations

By Adom Cao

Abstract- In this paper, we briefly analyze four reasons for the generation of large outbursts of positively charged particle fluxes in the Earth's interior during the gestation period of large earthquakes, and propose a physical mechanism for the formation of an EMB (electromagnetic umbrella) model of the difference between the concentration of positive and negative charged particle fluxes, which can be used to explain the relationship between a mega-meteorological catastrophic event and the generation of excessive charged particle fluxes from the lithosphere prior to the large earthquakes. Causality. We compare some historical records of major earthquakes of magnitude 7.5 around the world, and find that the correlation between mega-meteorological hazard events and large earthquakes has a good fit. Based on this statistic, in this paper, we take three large earthquakes, Wenchuan, May 12, 2008, Fukushima, Japan, March 11, 2011, and Turkey, Feb. 6, 2023, as case studies, to explore the way to assist in locating the epicenter of major earthquakes by reverse tracking method using the major meteorological disaster events

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Electromagnetic Umbrella Modeling of Mega Meteorological Anomaly Disasters and Large Earthquake Associations

Adom Cao

Abstracts- In this paper, we briefly analyze four reasons for the generation of large outbursts of positively charged particle fluxes in the Earth's interior during the gestation period of large earthquakes, and propose a physical mechanism for the formation of an EMB (electromagnetic umbrella) model of the difference between the concentration of positive and negative charged particle fluxes, which can be used to explain the relationship between a mega-meteorological catastrophic event and the generation of excessive charged particle fluxes from the lithosphere prior to the large earthquakes. Causality. We compare some historical records of major earthquakes of magnitude 7.5 around the world, and find that the correlation between mega-meteorological hazard events and large earthquakes has a good fit. Based on this statistic, in this paper, we take three large earthquakes, Wenchuan, May 12, 2008, Fukushima, Japan, March 11, 2011, and Turkey, Feb. 6, 2023, as case studies, to explore the way to assist in locating the epicenter of major earthquakes by reverse tracking method using the major meteorological disaster events.

I. Introduction

The earliest Chinese scholar to study the relationship between meteorological events and earthquake precursors was Geng Qingguo, a former staff member of the China Earthquake Administration, whose ideas are also known as the drought theory. (1) His analysis of the correlation between droughts and earthquakes was questioned and criticized by many later researchers because he used only crude and simple statistical calculations and did not reveal the deeper geophysical mechanisms. (2) In 2023, Indian scholars like Bikash Sadhukhan and others comprehensively evaluated the results of academics in earthquake precursors, which mentioned that a number of studies have found a close relationship between seismic events and climate anomalies, including drought, precipitation, and so on. (2) We agree with the view that data on climate anomalies can be used as an aid in predicting earthquakes as precursors. Meteorology, as a well-established discipline with well-developed theories, is able to predict climate change quite accurately by using meteorological satellite imagery, such as changes in temperature, barometric pressure, cyclones and atmospheric circulations, and the stresses induced by precipitation, barometric pressure, and snow accumulation. However, it is not easy to come up with convincing data to prove that meteorological anomalies are precursors of major earthquakes, as it is well known that the major factors determining climate variability are very complex, and it is difficult to completely exclude the interplay of astronomical, geophysical, anthropogenic industrialized greenhouse gas emissions and other factors.

In the past decade, the theoretical analysis of electromagnetic signals of earthquake precursors by scholars all over the world has been quite abundant, and the research on the dipole theory of the formation of the Earth's interior, the anomalous changes of geoelectricity and geomagnetism, the signals of low-frequency electromagnetic waves of ULF and VLF, the thermal anomalies of the land and the ocean, and the phenomenon of the Earth's 'air-jet' has already provided prospective research results for the correlation study between meteorological hazards and large earthquakes. These studies have provided prospective research results for us to propose the correlation between meteorological hazards and major earthquakes. (3)

One of the main means of studying earthquake precursors in seismic electromagnetism is mainly through NOAA polar-orbiting satellites to monitor data on the time correlation between global electron fluxes and earthquakes, and the study of global electron density (TEC) and low-frequency electromagnetic wave anomalies, which have become the two main research routes for the discovery of earthquake precursors. (4) (5) On the other hand, the latest progress in geophysics of solid geophysical-chemical data from exploration in the depths of the earth, the study of high electrical conductivity of the oceans and lithosphere in localized territories, and the release of heat energy from radioactive elements, etc., have revealed from different sides that during the brewing of earthquakes it is not only the movement of the mechanical mechanics of plates that is traditionally studied by geology, but also the movement of the plates during the brewing of earthquakes, from the thermodynamics, particle physics, and electromagnetism of the Instead, it provides evidence of the existence of various earthquake precursor signals from thermodynamics,
particle physics, electromagnetism, and other fringe sciences, as well as from the interdisciplinary study of the lithosphere-ionosphere-sun magnetic field. Electromagnetism studies of earthquakes have opened up an original way of thinking in the search for a relationship between global mega-climate anomalies and large earthquakes.

The causes of global anomalous climate disasters can usually be simplified into three factors, 1) the disruption of the self-circulating state of the atmospheric circulation between the Earth and the oceans, 2) cosmic ray factors (e.g., sunspots affecting the Earth’s droughts), and 3) factors of human industrialization;

The most talked about topic affecting global climate change in the international community and academia is the excessive greenhouse gas emissions of carbon dioxide and methane resulting from the accelerated industrialization of mankind. It is undeniable that the accelerated industrialization of mankind in the second half of the 19th century contributed to the rise in global atmospheric temperatures, but to attribute greenhouse gas emissions or climatic changes such as high-temperature heat waves and extreme rainstorms and snowstorms to the factors of industrialization of mankind has a large element of wishful thinking and subjectivity.

We propose that the fourth factor influencing the climatic anomaly, the effect of large earthquakes, is the difference in the concentration of fluxes of positively and negatively charged particles formed in the lithosphere and spilled out over the surface during the gestation period of large earthquakes of magnitude 7.5 or greater. This contributes positively to the occurrence of megathrust events, meteorological hazard events with a positive contribution. (Volcanic eruptions and hurricanes have been excluded as influences on mega weather anomalies in order to simplify the research in this paper.)

Based on our long-term experience in actual earthquake prediction and observation of earthquake precursors, we have constructed an EMB (Electromagnetic umbrella) model of the relationship between mega-meteorological catastrophic events and seismic electromagnetism. Note: EMB is the abbreviation for the distribution of charged particle fluxes within the Earth in the atmosphere as an umbrella-shaped state.

The basic elements of the EMB model are expressed below:

Prior to a major earthquake, the thin lithosphere beneath the earth's surface produces a much higher than normal flux of positively charged particles within the earth's surface due to stresses and high temperatures, high pressures, and some unknown particle physics, creating a difference in the concentration of positive and negatively charged particle fluxes. (7) Positively charged particle fluxes in excess of "supply" rise from the land and ocean to the sky, which in turn affects dramatic climate change. Thus, a mega-meteorological disaster is not only defined as a climatic upheaval, but is likely to have a fairly significant correlation with the precursor characteristics of a major earthquake.

First of all, we limit the term "extreme meteorological anomalies" to "extreme droughts and extreme rainstorms and snowstorms that have not occurred in a geographical area of the Earth for more than 50 years". The reason for adopting such a quantitative criterion not only comes from the observation of statistical significance, but also because we recognize that it is difficult to exclude all kinds of meteorological factors affecting climate change from the definition of "extreme meteorological anomalies". It is difficult to rule out meteorological factors affecting climate change, and only a mega-meteorological hazard event that has not been encountered for 50 years could have a statistically significant causal relationship with the electromagnetic precursors of earthquakes in the gestation period of earthquakes of magnitude 7.5 or greater.

The accuracy and immediacy of the data in the European Swarm satellites, which currently monitor earthquake precursor characteristics around the globe, depend on the time of day that the satellite observing conditions circle the Earth and the degree of transparency of the atmospheric clouds, and do not always monitor the anomalies of earthquake precursors. In meteorological satellites, there are two particles, electrons to the east and positrons to the west, and if meteorological satellites can measure the positive and negative charge fluxes of different particles in the total number of charged particles, respectively, it will provide a more solid foundation for our EMB model. However, the limited number of meteorological satellites over the Earth does not allow for the observation of electron density variations on the surface and in space every minute, and it also appears that no satellite observation technique has been developed that can instantly distinguish the respective differences in the fluxes of positively and negatively charged particles in the global TEC density anomalies, and thus it is difficult to advance the study of the correlation between atmospheric fluctuations and earthquake precursors. (8) (9)

In view of this, this paper only analyzes the mechanism of EMB formation on a purely physical level and theoretically;

It is assumed that the positively charged particle flux definitely exceeds the negatively charged particle flux during the preparatory phase of a major earthquake, creating an umbrella-shaped state of distribution of charged particle flux in local space. A large flux of charged particles escaping from thin lithospheric
cracks, metaphorically speaking, if these charged particles rise from the subsurface into the atmosphere in a direction similar to the umbrella handle, the positively charged particle flux would normally occupy the center of the umbrella of the EMB, while the negatively charged particle flux would be distributed at the edges of the umbrella. There are four main reasons why the positively charged particle flux absolutely exceeds the negatively charged particle flux concentration difference during the preparation phase of a major earthquake:

Geophysical exploration data and dipole theory have demonstrated that large igneous rocks in plates can produce positrons in large quantities at high temperatures and pressures; (10) (11)

A large number of radon and helium concentrations increase rapidly before a major earthquake, seismologists called the so-called Earth "jet" phenomenon, has been regarded as a more reliable earthquake precursors, the radioactive element uranium 238 is prevalent in granite, melting granite magma state is no exception, the β-decay of uranium 238 produces radioactive isotopes of radium-226, and half-decay produces intermediate radon-222 itself is unstable, it will release positively charged alpha particles. , while half-decay produces the intermediate radon-222, which is inherently unstable and releases positively charged alpha particles; therefore, there is a direct correlation between the increase in radon and helium concentrations prior to major earthquakes and the overproduction of fluxes of positively charged particles; (12)

Cosmic high-energy protons penetrate deep beneath the earth's surface and strike the nuclei of atoms within rocks, causing them to lose their electrons and producing large numbers of positrons;

Plasma waves and Alfven isolated waves formed in melt-hot, highly magnetic material in the soft rheosphere-lithosphere have the potential for small-scale magnetic reconnection locally and accelerated electron clusters, generating clusters of positively charged particles and continuously accelerating electron momentum. (13)

Self-reinforcing positive feedback mechanisms for positively charged particle fluxes:

In accordance with the dipole mechanism of the large igneous rupture gap in the lithosphere, the positively charged particle flux generated, penetrating the surface of the thin lithosphere rises to the low altitude, in general, the top of the clouds in the atmosphere for the positively charged particle flux, and the bottom of the clouds for the negatively charged particle flux, when the concentration of positively and negatively charged particle flux is basically the same, the positively charged particles in the upper end of the high-altitude cloud layer will be subjected to the negatively charged particles of the low altitude cloud layer attraction, the combination of positive and negative charges in the water vapor molecules is a necessary condition for the formation of CNN (cloud condensation nucleation), that is, for the second law of thermodynamics in the reversible space state, the entropy does not increase overall. And the formation of a large number of heavier and colder droplets produces rain clouds. The necessary condition is the overall equilibrium of the flux of positive and negative charged particles in the atmosphere, and if a huge local difference in the concentration of the flux of charged particles occurs, a climatic anomaly with a very unbalanced regional distribution of extraordinarily large droughts and torrential rains and snowfalls is produced. In the soft flow circle - lithosphere can form plasma material containing metal minerals, in a strong magnetic field, high-speed movement by the Lorentz force, resulting in the separation of positive and negative charges, is ionized by a large number of positively charged charged particle flow, penetrate the surface of the thin lithosphere into the atmosphere. From the properties of the Alvin wave, we can assume that positron or positively charged in the acceleration, if not and negatively charged ions combined annihilation, will certainly produce high heat temperature change.

Here it is necessary to differentiate the process of formation of fluxes of positively and negatively charged particles in different environments on land and in the oceans, and it is also necessary to classify two types of earthquakes, continental and oceanic. It is obvious that large earthquakes on land and large earthquakes on the ocean floor of the ocean have different physicochemical modes of generation of fluxes of positive and negatively charged particles, and different contribution factors to the fluxes of positrons and positively charged particles.

(1) Positively charged particle flux generation mechanisms before strong continental earthquakes:

In the thin lithosphere beneath continental plates, large igneous provinces and highly conductive magmas, large clusters of charged particles are generated and enter the atmosphere, and these large clusters of charged particles enter trace gases, which have the greatest proton affinity, and react with aerosols in complex chemical reactions. Clusters of charged particles, originally distributed haphazardly in the atmosphere, collide with water vapor to form water vapor clouds and aerosols, mainly with sulfate. According to the geographical area of the earthquake, earthquakes can be divided into two types: land earthquakes and ocean earthquakes. Since the EMB is the process of a large outburst of charged particle flux in the preparatory stage of a large earthquake, the flux of positively charged particles rises along the direction of the EMB, which is also compare to as the "Along the
vertical upward direction of the umbrella handle”, in above the top of the “EMB”, therefore it is reasonable to expect that the Poisson distribution in the center of the “EMB of positively charged particles in the center of the EMB is a natural physical phenomenon.

Meteorological hazards characterized by large earthquakes on the continent are mainly mega-droughts:

As a result of the internal changes in the lithosphere during the gestation period of a major earthquake, an excess flux of positively charged particles was generated, the flux of negatively charged particles in the low altitude of the earth's surface was not sufficient to attract positive and negative charges to form a neutralization of the electric elimination, and the excess flux of positively charged particles accelerated with the warm air currents to rise to the high altitude and produce more positively charged particle clusters due to the impact of the high-energy proton streams generated during the solar flares and black-sun outbursts, due to the positively charged protons. Solar flares or blackouts produce cosmic proton streams in the atmosphere, which impact and repel each other with clusters of charged particles in the atmosphere, producing a net increase in the atmospheric flux of total positively charged particles due to the constant stripping of electrons from the atomic structure of compounds contained in the water vapor. When the positrons move in the same direction as the atmospheric electric field, the velocity vector of the positrons accelerates and the opposite decelerates. When upward and downward convection of the atmosphere occurs, the warm air stream moves upward, at which point the positively charged particles are driven by the direction of the solar electric field force and move in the same direction as the warm air stream, accelerating upward. Due to the mutual exclusion of positrons and positively charged particles, only the formation of small condensation nodules molecules, it is easy to be dried by solar radiation, becoming a high-pressure hot dry air, preventing the central position of the EMB umbrella low-pressure cold air into the slightly moist air mass down and constantly be dried for the rise of the dry hot air mass when the EMB umbrella type of the formation of the internal pressure is greater than the outside, to prevent the outside of the humid air cloud into the, so called sinking adiabatic. This is the so-called heat dome phenomenon of sinking adiabatic heat. This results in a catastrophic drought in a certain geographic area. This is also in accordance with the second law of thermodynamics, which states that entropy increases monotonically and marginally in an irreversible space.

In plain language, the electromagnetic changes during the brewing period of the great earthquake were extreme and abnormal, forming a huge and incomparable EMB umbrella over the earth’s surface, and the positively charged particles generated in the lithosphere were vertically upward along the EMB “umbrella handle”, and excessive positively charged particles gathered and distributed around the center of a certain localized space in the atmosphere. The flux of superheated gases in the center of the EMB prevents the formation of heavy rain and snow clouds in the lower part of the atmosphere covered by the EMB, resulting in extreme heat and droughts that do not occur for decades.

Thus, the occurrence of a mega-drought event that has not been encountered in a geographic area for 50 years is a distinctive feature of the production of an excess flux of positively charged particles in the extrusion of the continental plate prior to a major earthquake.

**EMB generation mechanism for the ocean:**

The climate anomaly of oceanic earthquakes is much more complex than the impact of land-based earthquakes on the climate. Meteorologists analyze that the contribution of the ocean to the warm and humid air clouds in the atmospheric circulation is mainly a chain of chemical equilibrium, as follows: abundant planktonic microorganisms in the ocean decompose decaying organisms in the ocean, and the decomposition of the residue produces dimethyl sulfide (DMS) gas, which is the major volatile sulfide emitted by the ocean and accounts for about 95% of the oceanic sulfur emissions. DMS is the main volatile sulfide emitted from the ocean, accounting for about 95% of ocean sulfur emissions, and DMS emitted from the ocean to the atmosphere accounts for about 50% of the natural sulfur emissions to the atmosphere, and is the most important volatile sulfide. The DMS in seawater enters the atmosphere, where it undergoes a series of oxidations to generate methylsulfate and non-sea salt sulfate aerosols. Since sulfate aerosols are an important component in the generation of cloud condensation nuclei, non-sea salt sulfates increase the number of cloud condensation nuclei and increase the density of cloud droplets. A team of researchers led by aerosol physicist Benedet Weisel of the University of Vienna, who revealed data on the formation of global particles covering 40 percent of the Earth's surface through a global circumnavigation of complex airborne meteorological monitoring instruments, found that a new chemical, hydperoxy methylthiocarbonate (HPMTF), in the DMS is converted to sulfate aerosols, which readily dissolves into the water droplets of existing clouds, thus permanently removing the sulfur. 36% of the sulfur in DMS is lost to clouds in the manner described above, and the other 15% is lost through other processes. Thus, less than half of the sulfur released by marine plankton contributes to cloud formation. (14) (15)

Aerosol scientists studying the atmosphere and oceans are further investigating the properties of the new chemical, HPMTF, and there are still many...
unknowns. From the chemical equation of HPMTF, the chemical formula of this new chemical substance has a head of hydroperoxy (HOO-), hydroperoxy radical is an important reactive agent in atmospheric chemical reactions, and other compounds combined with other compounds between the main electrostatic and orbital interaction is mainly dominated by the loss of one or a few electrons easily, and the characteristics of positron and positively charged particles are very similar. Experiments have shown that H2O2 is readily soluble in water and can remove sulfur S in DMS, (16) and CO gas from subsurface gas mines can naturally synthesize methyl thiocarbamate, a very stable organic chemical isomer . (17) Upon combination of hydrogen peroxide radical and methyl thiocarbamate, both sulfur and sulfate aerosols are anionic negatively charged particles properties, and mutual attraction of positively and negatively charged charged particles is a necessary physical condition for cloud condensation nucleation (CNN) generation. Based on the chemical reaction process that HPMTF easily dissolves in the water vapor of fine clouds and then removes sulfur, if our hypothetical EMB model can be valid for describing the formation of an absolute excess of total positively charged particle fluxes and densities under the surface during the brewing period of major earthquakes, the so-called difference in the concentration of positively and negatively charged particle fluxes is precisely the culprit behind the abnormal and drastic changes in the global climate. Then, it can be boldly hypothesized that the charged nature of this new chemical substance HPMTF, which is newly produced in the ocean, may be affected by the disturbing factor of the increasing flux of positron particles before the great earthquake, and formed the cationic property of high electronegativity over the ocean, which ended the physicochemical process of converting most of the DMS into anionic compounds ahead of time, and thus greatly reduced the non-sea-salt sulfate aerosol production rates.

Characteristics of meteorological anomalies of oceanic earthquakes: As a result of large earthquakes under the oceanic crust of the ocean floor in the gestation period, high temperature and high conductivity of the magma and plate extrusion of multiple factors, resulting in the generation of seawater warming to the generation of adverse to the production of plankton dms to the anionic sulfate aerosol direction, the surface of the oceans and seawater generated by the negatively charged particles is not enough to and the positively charged particles flux to the combination of the neutral large droplet cloud, thus The positively charged or cationic compounds and aerosols are carried aloft by the oceanic monsoon to drift along the stratosphere to the northern and southern hemispheres of the Earth, resulting in disruptions in the atmospheric circulation or a country's geographic area of extreme drought and precipitation anomalies in the distribution of the formation of winter blizzards, the formation of summer rainstorms. Unusually hot weather and hot sea water are also formed.

Discounting climate change under normal conditions, as originally estimated by scientists, earthquakes and volcanoes account for only 5 percent of the global geothermal energy in global heat, generating about 46 trillion watts (46 terawatts or TW) of heat energy from the subsurface, with 2 TW of that coming from volcanic eruptions and earthquakes. (18) With the exception of earthquakes and volcanic eruptions, most of the geothermal flux is released as continuous geothermal flow. This is likely to underestimates the thermal energy generated by the accelerated half-life of nuclear decay isotopes such as U-235, U-238, and Thorium and Potassium incorporated into flowing magma during the pre-earthquake gestation period, the subsequent extension of the large mantle column plume into the seismic zone of the thin lithosphere, and the generation of excess positrons in the rock voids, as well as the accelerated half-life of nuclear decay isotopes such as U-235, U-238 and Thorium and Potassium. At the same time, the possibility of plasma wave generation in high conductivity subsurface fluids and localized magnetic reconnection on small scales beneath the surface cannot be ruled out, and it is likely that all four of the above reasons for generating the Earth's heat will multiply the effects of large earthquakes and volcanic eruptions on the release of geothermal energy into the atmosphere.

Making a comparison of the historical data related to mega meteorological disasters and large earthquakes, we find cite Schedule, 1876-1879 North China suffered a great drought, July 1, 1879 A.D. On July 1, 1879, a large earthquake of magnitude 8.0 occurred in Wenxian County, Gansu Province. 1920, the northern provinces of China, such as Shandong, Henan, Shanxi, Shanxi, Shaanxi and Hebei, suffered a great drought not seen for more than 40 years. In 1920, Shandong, Henan, Shanxi, Shaanxi, Hebei and other provinces in northern China suffered a drought that had not been seen for more than 40 years, and on December 16, 1920, an 8.5-magnitude earthquake struck Haiyuan County in Ningxia, China. 1928-1930, Northwest China suffered a century-old drought, centering on Shaanxi, forming a drought-stricken area that accounted for nearly two-thirds of the entire land area of China. The drought lasted for three years, and on December 25, 1932, a 7.6-magnitude earthquake struck Changmabao, Gansu Province, killing and injuring more than 70,000 people, while the 7.8-magnitude earthquake in Tangshan, China, in 1976 was preceded by a major drought in northern China. (19) In 1998, a magnitude 7.1 earthquake occurred off the northern coast of Chile. Although this year of the Great Drought in Chile was more severe than the years
shown earlier, the fact that only strong earthquakes of less than magnitude 7.5 occurred seems to be a paradox in the continental seismic pattern of the EMB model. However between 1998-2001. Two magnitude 8 and 8.4 occurred off the coast of Peru, which is part of the same South American seismic plate as Chile. It was also demonstrated that there is a good fit between mega-droughts and precursors of large earthquakes. According to the records of the World Meteorological Organization (WMO), the period between 1997 and 1998 was the worst year of El Niño in the 20th century, and the average temperature of the ground and sea level in that year was only 0.4 degrees Celsius higher than the average temperature of 16.5 degrees Celsius of the 30-year period from 1961 to 1990; and for all of the year of 1998, the global temperature of the land and the ocean was 0.7 degrees Celsius higher than the 1997 average temperature of 0.7 degrees Celsius. cite https://www.pmel.noaa.gov/elnino/what-is-el-nino. 而 1997-2001 年 六 major earthquakes of magnitude 8 or greater occurred globally, including two major earthquakes in Peru exceeding magnitude 8, and one each in the southern Indian Ocean and Turkey exceeding magnitude 8, all of which had the potential to greatly affect the countries in the seismic zone of atmospheric and oceanic circulation in the east-central equatorial Pacific. If one assumes that the EMB model of oceanic precursors to large earthquakes that can affect the climate along the Pacific coast of the eastern and western hemispheres can be self-consistent, then the two magnitude 8.4-8.6 mega-earthquakes that occurred in Indonesia on the morning of April 11, 2012, including the strong 6.9 magnitude earthquake that struck the U.S. off the coast of California in 2012, can be reconciled even with the resultant El Niño phenomenon and the 2012 U.S. largest earthquake of magnitude 8 or greater since the the hottest and driest meteorological disaster event since meteorological records began in 1895, (20) Cite earthquake information from the German Seismological Network: http://geofon.gfz-potsdam.de/eqinfo/list.php

We have done rough statistics based on the correspondence between some of the global historical records of large 7.5-magnitude earthquakes and mega droughts and heavy rain and snowfalls, and mega meteorological hazard events are formed on average from half a year to 3.5 years before the occurrence of large earthquakes in advance, and there seems to be a more convincing correlation between mega meteorological hazard events that do not occur once every 50 years and the precursors of large earthquakes with a more persuasive correlation of statistical fit. Yet the reasoning that mega-meteorological catastrophe events are precursors of large earthquakes based solely on such a simple enumeration of juxtapositions is sure to be met with the same criticisms of Geng Qingguo's drought-earthquake modeling that have been made previously by fellow seismologists. It is also and likely to be strongly challenged by meteorologists.

It is known that even if it occurs in the center of the magnetic umbrella, the formation of dense clusters of positron particles causes a mega-drought that corresponds directly to the epicenter of the umbrella in the vertical direction of the umbrella's handle. However, large earthquakes occurring directly below the center of the magnetic umbrella are exceptional. That is, the simplest EMB model. Earthquake forecasters have not always been so lucky as to encounter megadroughts in areas where the epicenters of large earthquakes occur in almost the same geographic location. The atmospheric circulation is influenced by the oceanic monsoon, and the spatial state of the positively charged particle flux forming the EMB is constantly shifted with the atmospheric circulation, as if the magnetic umbrella created in the region of the large earthquakes is drifting through the stratosphere.

Therefore, in reality, just using the occurrence of a large meteorological disaster event as a precursor to a large earthquake, although there are meteorological records that do not occur in 50 years and the occurrence of large earthquakes of magnitude 7.5 or more corresponds to the time and magnitude of the two elements of the three elements of the earthquake prediction, the most difficult is how to predict the epicentral range of the large earthquakes?

In the following, we start from the Wenchuan 7.8 magnitude earthquake in China in 2008, and specifically reveal the idea of the backtracking method in the EMB model applied to the medium-term prediction of large earthquakes.

In May 2008, a 7.8 magnitude earthquake struck the Wenchuan region of Sichuan, China, a strong continental-type earthquake typical of the Eurasian continental plate squeezed by the Indian Ocean plate. In terms of unusual meteorological events prior to the earthquake, in 2007, China experienced a 60-year drought in Gansu, a 100-year drought in Heilongjiang, a severe high-temperature drought in Jiangnan and South China, and a 50-year drought in the fall that lasted until early winter. Special drought occurred in some parts of Sichuan, and in early 2008, Hunan and Jiangxi in southern China were hit by a huge blizzard. (21) (22) According to the magnetic umbrella EMB model, at least these mega-meteorological anomalies in mainland China were precursors to major earthquakes.

However, over a wide area spanning thousands of kilometers, it is critical to determine the extent of the epicenter.

According to the central location of the umbrella state geography of the EMB, the predicted positioning of the epicenter of a large earthquake should first correspond to the region of the eruption of the flux of
positively charged particles of the straight-up type under
the c umbrella handle, i.e., Sichuan, Gansu, and
Heilongjiang;

First, the water vapor generated in the Indian
Ocean moves northeastward through the southwest
monsoon, forming the Southwest Warm and Humid
Current (Bay of Bengal Warm and Humid Vapor). As the
Himalayan mountain system blocks part of the northern
cold air from going directly southward and pushes the
cold air along the northern side of the mountain system
to extend to the eastern land, the southwestern warm
and humid airflow enters into the hinterland of China
through the southwestern part of the country, and it is an
indefinite route that dominates the significant
precipitation in the hinterland of northwestern China and
northern China. According to the Chinese hinterland
precipitation conditions in a large degree depends on
the southwest warm and humid airflow into the route,
can not be simply the occurrence of a mega-drought in
Gansu has the potential to occur in Gansu, Ningxia, as a
simple link to a large earthquake prediction basis.
And from Gansu and Heilongjiang have appeared more than
50 years do not meet the mega-drought meteorological
disaster event analysis, Heilongjiang to Gansu, the
distance of 2697.5 kilometers, in mainland China, the
two places so far apart, it is unlikely that two 7.5
magnitude earthquakes at the same time probability of
seismic precursors above the large earthquake.
Therefore, the possibility of a possible epicenter of a
large earthquake must first be ruled out from these two
provinces.

Since in 2007 and early 2008 China appeared to
be in line with the EMB model of the precursor of large
earthquakes in large meteorological disasters, can not
simply use the occurrence of large drought in the region
of the inevitable existence of large earthquakes in a
simple way of thinking, the epicenter of the epicenter is
located in Gansu or Heilongjiang, we have to be
generated from the EMB model of large meteorological
disasters, reverse tracking of large earthquakes in the
epicenter of the range. The so-called reverse tracking
method is to use the reverse thinking, from the root of
the impact of Gansu and Heilongjiang mega-drought, to
trace the warm and humid airflow from the southwest to
enter the hinterland of China to change the route, and to
analyze the cause of the mega-blizzard disaster in
Hunan and Jiangxi.

As mentioned in the EMB model above, near
the end of a major earthquake's gestation period, the
overproduction of positively charged particle fluxes
under the surface gradually diminishes, and the kinetic
energy of the positively charged particles that rise down
the center of the EMB rolls down from the center of the
umbrella to the edges of the umbrella, where it
combines with the flux of negatively charged particles
around the edges of the EMB to create a large
meteorological precipitation condition.

From the scope of the EMB umbrella formed
before the earthquake, Gansu is about 1,625 kilometers
away from Hunan, more than 1,700 kilometers away
from Jiangxi, and Sichuan is almost 1,194 kilometers
away from Hunan, Sichuan's geographic location and
the characteristics of the seismic zone are more likely
to be consistent with the large outbursts of positively-
charged particles fluxes during the period of earthquake
brewing to be concentrated in the central state of the
umbrella. The central state of the umbrella. That is to
say, the drought in Gansu, which has not been
encountered for 60 years, is probably not a precursor of
a major earthquake in Gansu, but due to the excessive
positively charged particle clusters in the EMB over
Wenchuan, Sichuan Province, obstructing the necessary
routes for the Bay of Bengal's warm and humid air to
enter China's inland hinterland of Northwest China and
North China, and altering the uniform distribution of
positively and negatively charged particle fluxes in the
normal period of the Chinese geospace, due to the fact
that the more than normal weather has a greater number
of positively charged particles in the water vapor than in
the normal weather. More than normal weather caused
positively charged particles in water vapor to combine
with negatively charged sulfate aerosols, quickly
causing CNN and evolving into exceptionally heavy rain
and snow clouds sinking to low altitudes, in the winter
cold air exchanges, the formation of large hail and frost
weather and blizzard disasters in southern China in early
2008. This situation is not uncommon in China's
historical records of large seismic events; after a major
drought in Gansu Province in 1920, the December 1920
Guyuan A magnitude 8.5 mega-earthquake in Gansu
Province in 1920, and an 8.5 magnitude earthquake in
Guyuan in December 1920. And before the 1927 Gansu
Gulang 8.2-magnitude earthquake, no major drought
events occurred in Gansu province between 1924 and
1927; instead, extreme rainstorms occurred
continuously in the Jiangnan region of China from 1921
to 1926, with mega-floods lasting more than five years.

And Chinese seismologists' research on the
precursors and plates of the pre-2008 Sichuan
Longmenshan earthquake also suggests that the
Sichuan seismic zone is closer to the territory of high
incidence of large earthquakes. Therefore, as can be
seen from the figure, Cite Attachment Finally, combining
meteorological and seismological analysis, the most
probable range of the earthquake epicenter can be
located in the area of Longmenshan, Sichuan.
Notes:
The multiple thin line arrows show the routes of warm moist moisture from the Bay of Bengal into Yunnan-Sichuan, China;

The large circle is the Longmenshan seismic zone in Wenchuan, Sichuan, and the + represents a positive charge;

The green circle represents that due to the opening of the emb on Wenchuan, the warm and humid water vapor in the Bay of Bengal shifted to the south of China, and part of the flux of positively charged particles tumbled down to the edge of the emb and combined with low-altitude negatively charged particles in the eastern part of China, such as Hunan and Jiangxi, to form a mega blizzard and a cold wave.

The red circle indicates that Gansu in the northwestern interior of China suffered a 60-year drought in the second half of 2007 as a result of a flux burst of positively charged particles exposed to the brewing period of the Wenchuan earthquake.

For oceanic earthquakes, Japan's 9.1 magnitude earthquake of March 11, 2011 belongs to the classic example of mega seaquake because of Japan's relatively simple geographic conditions and climate change, and before the 3,11 earthquake, the plate beneath the offshore of Japan's Fukushima region was in a state of intense extrusion and microfracture of the lithosphere, and huge fluxes of positively charged particles were rising from the surface of the ocean in front of Fukushima and ascending to above the dozens of kilometers the stratosphere, drifting toward South Korea. Korea is adjacent to the Changbaishan mountain range in China, which is the “umbrella edge” of the EMB model. When the positively charged particle flux and sulfate aerosol from the Fukushima sea area in Japan are brought to the eastern part of Korea 1000 km away from the stratosphere by the warm and humid air from Japan, the positively charged particle flux in the high altitude is attracted by the negatively charged particle flux in the low altitude, and condenses into low altitude precipitation clouds quickly, condensed into low-altitude precipitation clouds, which descended from the high altitude to the low altitude several kilometers from the surface, forming the 50-year unprecedented blizzard disaster in Gangwon Province, Korea.... Based on the atmospheric circulation in the two neighboring countries of Japan and South Korea, applying the reverse tracking method, it is also important to focus on the fact that Japan's 2011 was one of the hottest years in terms of temperature on record, and according to the Japan Meteorological Agency’s records, 2011 was the hottest year for weather in Japan after 1995 (the Kobe Earthquake), and thus it can be predicted probabilistically and more readily that a large earthquake of magnitude 7.5 or greater will be highly likely to occur in the sea off the southeastern part of
II. Discussion and Exploration

Turkey's two major earthquakes of magnitude 7.4-7.7 in February 2023 shook Turkey, killing and injuring more than 40,000 people, making it one of the worst continental plate earthquakes in history in terms of seismic hazard. The analysis of earthquake precursors in Turkey using the EMB model is even more complex, the By the standards of a 50-year event of exceptional meteorological disaster, in 2022, Europe and India, Pakistan have suffered from extreme weather, with Europe experiencing the worst drought in at least 500 years,(23) 2022 India's hottest and hottest year in 122 years, and Pakistan suffered the hottest weather in 61 years April to May, daytime temperatures in most areas were 5-8 degrees Celsius warmer than normal for previous years degrees Celsius Pakistan suffered rare extreme heat, in some mountainous areas, the abnormal high temperature accelerated the melting of snow and ice July to August, the State of Pakistan's national rainfall is nearly 190% higher than the average over the past 30 years, while the southeast of Pakistan's Sindh province, which is adjacent to India to the east and bordered by the Arabian Sea to the south, the rainfall is 466% higher than the average, occurring in 30 years have not encountered a mega-flooding. (24)

Using the analysis of the mechanism by which the increasing flux of positively charged particles in the center of the EMB umbrella corresponds to the cause of the formation of megadroughts, both the European continent and the Indian subcontinent can be hypothesized to have the potential for the occurrence of megathrust earthquakes. However, our previous analysis of the cases of great earthquakes in China and Japan has already shown that one cannot simply make a connection between a mega-drought event in a certain geographical area and the possibility of a great earthquake, and that one must apply the principles of the reverse tracking method to strip away the factors interfering with the mega-meteorological event and find clues to the precursors of a great earthquake.

Researchers working under the EU-funded SHARE project have produced a map showing which parts of Europe are most at risk from earthquakes, with Italy, the Balkans, Greece, Bulgaria, Romania and Turkey among the most earthquake-affected parts of the continent, and the continent's Nordic Plain including Poland, and Germany Northern and Denmark and much of western France, like the Central Plateau of the Indian subcontinent, are part of the stable geologically structured Craton continental crust, which is seldom prone to seismic hazards. Therefore, when speculating on the epicentral extent of major earthquakes, one should first focus on those landmasses with high seismic activity.

A 2012 study by geophysicists of global stratigraphic imaging models revealed the presence of a super-mantle column in the lowest mantle beneath Africa. (25)(26) The mega-mantle column beneath East Africa continues to upwell and plume through the dome shaped mantle column into the soft flow ring, forming a 2,500 kilometer long subterranean channel across the African continent, the Mediterranean Sea, to southern Europe and the Balkans. Turkey has no mantle column beneath its geological structure, and the intense extrusion of the lithosphere in the Anatolian region originated from the transportation of highly heated magma from this underground channel of the East African super-mantle column's chondrites, which supplemented the crushing power of the plates. Researchers were surprised to find that, despite passing through 2,500 kilometers of soft flow channels, the hot magma did not cool, but was hotter than average.

Reviewing the positive feedback mechanism of self-reinforcement of positively charged particles of the EMB model expressed in the article above, it seems that a possible answer is found in it.

Assuming that the supply of highly heated mantle material fluid-"highly conductive magma"-supplied by the long-distance lateral transport of supply from the upper mantle of East Africa to the lower Anatolia, Turkey, continues to create excess fluxes of positrons and positively charged particles in melting subterranean channels of igneous rocks in the upper mantle and the soft rheosphere, a new self-consistent conclusion can be drawn for the 2022 European continent and the Indian subcontinent mega-meteorological disasters, a new self-consistent conclusion can be drawn. That is to say this high energy, high heat magma coming from the lower mantle of East Africa, one of the two global super mantle columns, is undoubtedly the culprit for the unprecedented scorching heat and mega not encountered in 500 years in France, Germany, Spain, Italy and 2019-2022. It is also the root cause of the formation of the 50-degree hot climate in India and the mega floods in Pakistan in 2022. (27)(28) It is as if a huge long trench is cracked open in the ground, and the long trench is endlessly burning oil, then this long trench will feel the heat of the blazing moxibustion rising in whatever area and water pool it passes through the perimeter of.

From the above-mentioned analysis of land and sea-based earthquakes, it is clear that the mega-meteorological disasters that occurred at the edge of the embracing umbrella, namely, extremely heavy rainfalls in summer, extremely heavy snowstorms and hailstorms in winter, and the 30-year floods in Pakistan, were meteorological anomalies that occurred around the umbrella, whereas the areas in the central part of the
umbrella were characterized by mega-droughts. Therefore, based on the seismic activity factor of the geological structure and the type of mega-meteorological disaster events, the epicenters were first circled with the driest regions of Europe and the Balkan Peninsula. Then, based on the fact that the plate activity underneath Anatolia in southern Turkey has been recognized by seismologists as the main area of concern for major earthquakes, the possibility of an earthquake of magnitude 7.5 or greater occurring in France, Germany, and the Baltic countries of Eastern Europe was ruled out, and the epicenter was finally located in Turkey.

Certainly, the results of the research on the East African mantle column affecting the thermohydrofluidosphere and plate activity in Anatolia were published on January 19, 2023, and the use of the emb model to study the probable timing of large earthquakes is generally a timescale for medium- to long-term earthquake prediction, and it seems to be an act of hindsight after the horse’s back to analyze the use of a mega-meteorological catastrophe event to circle a large earthquake in Turkey on February 6, 2023 in the way that we have done. However, therefore if one goes back to the mega meteorological hazard events that do not occur for more than 50 years in the three years 2019-2022, and applies the principles of the EMB model to exclude geographic areas with the smallest probability of a major earthquake, Turkey and Greece are the most likely options to arrive at a major earthquake. Among them, a strong earthquake of magnitude 7 has already occurred in the Aegean Sea of Greece in October 2020, and the mega meteorological disaster in 2022 is characterized by a mega drought that has not been encountered on the European continent for 500 years, which can also exclude the option of a major earthquake in Greece more easily, while the Arabian plate has been moving northward and colliding with the southern edge of the Eurasian continental plate Turkey is located exactly at the junction of the three major plates, namely the Asia-European plate, the Indian Ocean plate and the African plate, and crosses the northern part of Turkey. The North Anatolian Fault Zone, which crosses the northern part of Turkey, has been recognized by the international seismological community as one of the most seismically active regions in the world, with strong earthquakes of magnitude 7 or higher occurring in 2015, 2017, and 2021. When combined with the combined efforts of meteorologists, seismologists and geophysicists to analyze the factors influencing the various emb patterns on the European and Indian subcontinents, as well as the Mediterranean Balkan Peninsula, there is a high probability that a more accurate judgment about the possibility of a major earthquake in Turkey could have been made three months ago.

III. Conclusion

The Emb model is a medium-term earthquake prediction method that tracks large earthquakes in reverse with a mega meteorological hazard event, and its mechanism is to take the seismic electromagnetism precursor data during the gestation period of large earthquakes as the intrinsic logic, and to indirectly verify the occurrence of global electron density anomalies and concentration differences in the fluxes of positively and negatively charged particles as precursors of large earthquakes by utilizing a mega meteorological hazard event that does not occur for 50 years against the backdrop of incomplete observations of satellite data, advance warning of the probability of a major earthquake. Of course, the causality of climate variability is highly controversial, and different perspectives on meteorological hazards lead to different conclusions. To make the EMB model a successful model for medium-term prediction of large earthquakes, a comprehensive frontier scientific team involving seismologists, solid-state geophysicists, and meteorologists must be formed to not only collect and pay close attention to mega-hazardous events, but also to carefully differentiate between the influencing factors and the filtering factors that are not precursors of large earthquakes, so that the EMB model can be used to predict large earthquakes in advance. Factors that are not precursors of large earthquakes, and to obtain more adequate and reliable scientific and technological validation results on the observational data of the difference between the flux concentrations of positively and negatively charged particles, in order to move forward the research on seismic precursors of large earthquakes.

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Commitment

The author declares that he has no conflict of interest with others.

References Références Referencias


9. Duncan S. Keller et al. (2023) Links between large igneous province volcanism and subducted iron formations. nature geoscience. https://www.nature.com/articles/s41558-019-06599-1.


Mapping of the Biophysical Impacts of the Opening Works of a New Pass on the Sandy Coast of Grand-Lahou (Ivory Coast)

By Jacques André Tiemele, Brou Roger Sylvestre Brou & Eric Valère Djagoua

Abstract- The problem of the dynamics of the Grand-Lahou sandy coast has led to the design of an investment and management project for coastal areas in Côte d’Ivoire (West Africa Costal Areas project), with the main objective of carrying out work to stabilize the sandy coast. The objective of this study is to map the biophysical environmental impacts of these protection works. To do this, the Land Cover and Land Use (LCLU) was possible thanks to the processing of data from the USGS Earth Explorer (https://earthexplorer.usgs.gov/) and Earthdata, what are Landsat 8 OLI TIRS, Landsat 7 ETM and ASTER DEM images. An interpolation of the NDVI, NDBI and MNDWI indexes was necessary for the realization of of the environment baseline. Google Pro images from the CNES Airbus sensor were used to map the biophysical impacts of the work. These are a total of 98 potentially destroyed trees, a building with an area of 97.14 m², surfaces of aquatic plants of 678.82 m² and 113.54 m², a surface of shrubs and grasses of 327.37 m² and a lake ecosystem of 1646.83 m².

Keywords: sandy coast, grand-lahou, biophysical impacts, integrated coastal development and management plan.

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Abstract- The problem of the dynamics of the Grand-Lahou sandy coast has led to the design of an investment and management project for coastal areas in Côte d'Ivoire (West Africa Coastal Areas project), with the main objective of carrying out work to stabilize the sandy coast. The objective of this study is to map the biophysical environmental impacts of these protection works. To do this, the Land Cover and Land Use (LCLU) was possible thanks to the processing of data from the USGS Earth Explorer (https://earthexplorer.usgs.gov/) and Earthdata, what are Landsat 8 OLI TIRS, Landsat 7 ETM and ASTER DEM images. An interpolation of the NDVI, NDBI and MNDWI indexes was necessary for the realization of the environment baseline. Google Pro images from the CNES Airbus sensor were used to map the biophysical impacts of the work. These are a total of 98 potentially destroyed trees, a building with an area of 97.14 m$^2$, surfaces of aquatic plants of 678.82 m$^2$ and 113.54 m$^2$, a surface of shrubs and grasses of 327.37 m$^2$ and a lake ecosystem of 1646.83 m$^2$. Measures to reduce these impacts should be considered, in particular the planting of plant species to fix the soil effectively against coastal erosion and which plays an important role in carbon sequestration. An adaptation plan for this coastal zone could be developed and used to draw up the Integrated Coastal Development and Management Plan, currently being implemented to sustainably protect the Ivorian coastal zone.

1. Introduction

According to recent observations by the National Aeronautics and Space Administration (NASA), the sea level varies from the 1850s until the 20th century and is rising with increasing speed of 5mm/year (ENGLANDER, 2021). This sea-level rise contributes to coastal erosion and is a major problem for decades to come. Globally, 24% of coastal areas are eroding at rates greater than 0.5 m/year (Luijendijk et al., 2018). These coastal areas are home to valuable wetlands, rich fisheries, oil and gas reserves and high tourism potential (UNIDO, 2011). However, they are under severe pressure, including rapid urbanization and migration to the coast which have increased the demand for land, water and other natural resources (World Bank, 2015a). Artificial infrastructure and sand extraction have contributed to significant coastal retreat, which could reach 10 m/year in highly vulnerable areas (Giardino et al., 2017). In Côte d'Ivoire, research has shown an evolution (erosion/accretion) of sensitive sectors such as the coastal areas of Grand-Lahou, Abidjan and Assinie (HAUHOUOT, 2000, 2008; ABE, 2005; TOURE et al., 2012; NDOUFFOU, 2012) related to developments (KONAN et al., 2016). In Grand-Lahou for example, the variations observed between 1998 and 2014 made it possible to record an erosion of the coasts of the village of Lahou-Kpanda of -0.84 m/year, a village located in the zone of the mouth of the Bandama river (Djagoua et al. 2016). In addition, studies report that the migration of the mouth is accelerating and shows a migration speed that reaches 170 m/year over a coastal length of 1.1 km, between 2010 and 2017 (Lombardo, 2017). To do this, a resilience project for this coastal zone was initiated by the Ivorian Government and financed by the World Bank, called the WACA project (West Africa Coastal Areas project). One of the main activities of the project is to undertake works for the stabilization of the sandy coast, in particular the opening of a new pass and the filling of the existing pass by dredging of sediments. However, these works are not without harmful consequences on the environmental resources of this coastal zone.

Presentation of the study area

The study area includes part of the sandy coast of the city of Grand-Lahou, limited to the north by the Tagba lagoon, to the south by the Atlantic Ocean, to the east by the village of Braffédon and to the west by the village of Lahou-Kpanda (figure 1).
II. DATA AND METHODOLOGY

a) Datas
As part of this study, several data were used, such as the USGS Earth Explorer site (https://earthexplorer.usgs.gov/) and Earthdata, which are Landsat 8 OLI TIRS, Landsat 7 ETM and ASTER DEM images. Indeed, LANDSAT images will make it possible to determine the evolution or change observed in a given area over time. As for the ASTER images (ASTER Global Digital Elevation Model 1 arc second), they are referenced in the geodetic coordinate system (WGS 84) on the 1996 Earth Gravitational Model (EGM 96) geoid and make it possible to observe the relief, the courses of in order to define the surface and depth volumes according to reference points. Theses datas will make it possible to assess the volumes of the right-of-way of the works. Other data comes from the Google Earth Pro application. These are aerial images acquired on January 17, 2020, downloaded from Google Earth Pro, seen at 871 m from the CNES Airbus sensor and constituting data elements recorded in the WGS 84 system. Seven images were recorded with a maximum resolution (4800×2803) marked by twenty-eight (28) points including four (04) per image. The digital processing of the data and the cartographic layout were carried out using the ARCGIS 10 software.

b) Methodology

Techniques for inventorying the environment baseline of the project footprint

The inventory of the environment baseline consisted in the realization of the Land Cover and Land Use (LCLU) of the zone of study by the treatment and the classification of the spectral signature of satellite images. This classification was made by combining known indices such as Normalized Difference Vegetation Index (NDVI), Normalized different Bare Index or Normalized Difference Built-up Index (NDBI) and Modified Normalized Difference Water Index (MNDWI). These respective indices will make it possible to highlight the three main classes of the OSUS, that is to say, vegetation, buildings, bare soil and water. The superposition of these three (03) classes will make it possible to describe the environment baseline.

Identification of the impacts of the works on the environment

The approach to identifying the impacts of the works on the environment was done by creating high-resolution images, taken from Google Earth Pro images of the work site. This approach was based on the pooling of several images recorded with high resolution by creating a single image per mosaic. This technique will highlight the entities or surfaces impacted by spatial interpolation.

III. RESULTS

a) Variation of the indices, NDVI, NDBI et MNDWI

The calculation of NDVI makes it possible to present 3 types of vegetation corresponding to trees, shrubs and grasses. Values from 0 to 9,727 correspond to trees and those greater than 9,727 are shrubs and grasses. As for the NDBI, the value greater than 0.002 makes it possible to highlight the categories of built soils or built surfaces (value 0 to 11, 39) and bare soils (values greater than 11,39). Regarding MNDWI, it highlights 3 main classes of water, namely clear water (0 to 9,398), turbid water (greater than 9,398 to 10,014), visible sandy water (greater than 10,014). Figure 2 presents the variation of the indices.
b) Baseline of the Environment by Combination of Indices

The combination of indices made it possible to observe 3 major classes of land use in the project area, including vegetation, sandy coast and water. The vegetation consists mainly of dense forests, gallery forests, forest islands and mangroves. The aquatic environment is made up of the Tagba lagoon, bordered by the Atlantic Ocean. As for the sandy coast that
separates the Atlantic Ocean from the Tagba lagoon, it includes buildings and bare soil (Figure 3).

![Figure 3: Baseline of the Environment by Combination of Indices](image)

**c) Impacts of the Work to Open a New Pass on the Sandy Coast**

**i. Right-of-way**

Work to open a new pass to the east of the sandy coast will be undertaken to facilitate natural exchanges between the Tagba lagoon and the Atlantic Ocean. A site base with a total area of 45,502.18 m² could be built, consisting of a site fence, parking areas for machinery, storage of materials, site offices, etc. Figure 4 shows the location and surface of the right-of-way for the opening of the new pass on the sandy coast.

![Figure 4: A Right-of-Way of the Opening of a New Pass](image)
ii. Impacts of works

The opening of the new pass on the sandy coast is not without consequence on the biophysical environment, it will cause negative impacts there, in particular the destruction of 98 trees which could belong to the Palmaceae family, a building of a area of 97.14 m², two surfaces of aquatic plants (one of 678.82 m² and the other of 113.54 m²), a surface of shrubs and grasses of 327.37 m² and a lake ecosystem of 1646.83 m². Figure 5 shows the significance of the impacts of the work to open this new pass on the Grand-Lahou sandy coast.

Figure 5: Map of the Impacts of the Opening of the New Pass on the Sandy Coast of Grand-Lahou

iv. Discussion

The realization of the Land Cover and Land Use by the interpolation of the indices NDVI, NDBI and MNDWI is a method which makes it possible to bring out the three main elements of the surface of the ground which are the vegetation, the materials (the buildings and the bare ground) and water. Indeed, NDVI is known for vegetation, NDBI for bare soil and infrastructure and MNDWI for water. These indices are used in mapping studies of urban areas and bare soils (KHALLEF et al., 2020). They can be used to study the evolution of Land Cover and Land Use (EL GAROUANI et al., 2021). The importance of the realization of the Land Cover and Land Use is part of the complexity of the study area, characterized by the mouth of the Bandama river, the lagoon complex, the sandy coast and the Atlantic Ocean, subject of several scientific works and publications for more than 50 years (BEDEVELOPMENT, 2017; DHI, 2015). On the basis of the existing data in the literature and collected, it appears that the stability of the mouth of the Bandama river is conditioned by the conjunction of the concomitant actions of the tidal currents (filling and emptying of the lagoon) and the flow of the river on the one hand, which keep the existing mouth open, and from the littoral drift generated by the swell on the other hand, which tends to close it. To do this, numerical and physical modeling studies were carried out to understand this complex dynamics, which made it possible to highlight the role of helical currents in the updrift migration (direction opposite to the coastal transit), from the ebb delta in the natural bypass of the transit on either side of the outlet and the influence of the position of the mouth of the Bandama river, along the sandy coast in the mechanism of its migration (LE DISSEZ et al., 2022). This therefore made it possible to carry out a phasing study of the opening of the new pass and the closing of the current one, a crucial point for the success of the work based on the numerical model studied.
V. Conclusion

This study is initiated to understand the approach to the environmental impact of coastal protection and preservation works carried out in complex estuarine areas. This approach made it possible to calculate, map the Land Cover and Land Use Indices in order to combine and interpolate them, in order to calculate, map the Land Cover and Land complex estuarine areas. This approach made it possible to identify effective tools for the technical and environmental feasibility of resilience projects against the effects of climate change.

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Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods
Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations
Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations
Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends
Tables: Tables should be cautiously designed, uncrowed, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.
Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Electronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/photos) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

Tips for Writing a Good Quality Science Frontier Research Paper

Techniques for writing a good quality Science Frontier Research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of science frontier then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.
6. **Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. **Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

8. **Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. **Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. **Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. **Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. **Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. **Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. **Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. **Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. **Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. **Never copy others’ work:** Never copy others’ work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. **Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. **Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

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20. **Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. **Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. **Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. **Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

**Informal Guidelines of Research Paper Writing**

**Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

**Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

*The discussion section:*

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

**General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.
Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don’t address the reviewer directly. Don’t use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.
The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.
Results:
The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:
- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:
- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:
As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:
If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:
The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

**The Administration Rules**

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

**Segment draft and final research paper:** You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

**Written material:** You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.
**CRITERION FOR GRADING A RESEARCH PAPER (Compilation)**

**BY GLOBAL JOURNALS**

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

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