A modern look at the Earth's climate mechanism and the cosmo-geophysical system of the Earth

Bogdan Góralski

Library of the Historical Institute of the University of Warsaw

I. Introduction

Is the earth's climate getting warmer?

My research shows that indeed the atmosphere and hydrosphere of the northern hemisphere warmed up during XIX-XXI centuries but the southern hemisphere getting colder. However, this warming of the northern hemisphere is not caused by excessive carbon dioxide emission caused by the developing human civilization, but is caused by the gravitational-magnetic influences of the Solar System on the rotating Earth as a result of which the outer layer of the Earth's rotates. Being in the move the Earth's coating changes its position relative to the ecliptic plane and along with its movement, over surface of the Earth's, is the shift of the zones of life-giving rainfalls that are stable relative to ecliptic plane. This results in a global economic and social events in the form of regional crises in areas affected by the drought or excessive precipitation. Physical phenomena related to the movement of the Earth's coating and evidence of the occurrence of this phenomenon are presented in the following work.

Jakuszowice, 27 July 2019, 15: 10 Bogdan Góralski

II. Scheme of the climate mechanism of the Earth

1. Northern hemisphere climate warming and southern hemisphere cooling.

Increased magnetic activity of the Sun caused by gravitational interactions of solar system planets is marked in increase of solar wind power and reduction of power of cosmic rays in Earth's atmosphere, gravitational influence of the Sun, Moon, planets on Earth's coating (Earth's coating = crust + earth's mantle) causing rotate of Earth's coating around liquid earth core. The flattening of the globe which is seen on the poles on the moving earth's coating moves in direction to the axis of rotation of the Earth. Appearing the apparent motion of the north magnetic pole approaching the geographic pole, appear the change in the geometry of the geoid, because the geoid flattening moves together with Earth's coating in the direction of the axis of

rotation of the Earth, changing the moment of inertia of the planet results in increasing its velocity of rotation, earthquakes zones shifting on the Earth surface to the new position of the equator increasing the number of earthquakes as a result of increasing the stresses in the earth's crust which are highest around the equator line. In the northern hemisphere decreases insolation and air and surface ocean temperatures versus the southern hemisphere. It is marked decrease the mixing of the ocean water as a result of change moment of Earth's inertia and increasing speed of rotation of the Earth, is marked the decrease of the upwelling ie. the upward and downward flow of oceanic water from the ocean surface to the bottom of ocean reducing biological production and increases ocean acidification and increases carbon dioxide concentrations in the atmosphere. This cause biological reduction the volume of the oceanic phytoplankton and reduction sulphate (produced by phytoplankton) aerosols forming clouds over the oceans, reduction of cloudiness over oceans, ocean surface warming, and change in distribution of Hadley, Ferrell and Polar atmospheric circulation cells. This cause the increasing the NAO index, changing the location of high and low pressure zones in the troposphere, air hot flow from the south, moving the Intertropical Convergence Zone- ITCZ and other precipitation zones in relation to the ecliptic plane.

2. Cooling of the northern hemisphere and warming of the southern hemisphere.

Reduction of the magnetic activity of the Sun caused by the gravitational interaction of a group of planets of the Solar System(Jupiter, Venus, Earth) gathering on one side of the Sun. Appearing the increase the strength of solar wind and increasing strength of cosmic rays in the Earth's atmosphere. Gravitational influence of the Moon, Sun and the group of planets (Jupiter, Venus) on the Earth's coating (Earth's coating = crust + Earth's mantle) cause the coating to rotate around the liquid earth core. It is marked the apparent movement of the magnetic poles on the surface of the moving Earth's coating. North magnetic pole moves towards the ecliptic plane while the flattening on the globe moves in opposite direction. The distance of the northern magnetic pole from the geographic pole is increasing while Earth's coating is moving. The geoid shape changes because northern flattening of the geoid together with Earth's coating moves towards the equator of , changing the moment of inertia of the planet and decreasing its velocity of rotation. Former earthquakes zones change its location. It is marked the increase in the number of earthquakes due to the increase of stress in the Earth's crust around the new position of the equator line. In the southern hemisphere increases quantity of the sunlight and it is warmer the atmosphere and ocean than in the northern hemisphere. There is increasing the upwelling - the flow of deep-ocean water to the surface of the ocean increases the biological production and reduces the acidification of the ocean and reduces the amount of carbon dioxide in the atmosphere. Increasing phytoplankton activity favoring ocean formation of sulphate aerosols that create clouds over the oceans, increasing cloud cover over the oceans. The cooling of the ocean surface is take place, and change in distribution of Hadley, Ferrell and Polar atmospheric circulation cells, changing the course of jet streams towards the equator. Decreasing the NAO index take place. Change of

location of high and low pressure zones take place in the troposphere, inflow of cold air masses from the north take place, shift of the Intertropical Convergence Zone - ITCZ and other precipitation zones in relation to the ecliptic plane.

Constant swinging of the earth's rotation axis, as the earth's coating moves repeatedly, causes the climate changes to repeat in the rhythm of changes in the position of the Solar System objects. The cooling of the Earth's climate during each full moon also confirms the impact of solar system objects on the Earth's climate.
Recognition of the impact of changes in the position of planets and the moon in the solar system on the Earth's climate mechanism will enable precise prediction of weather changes and a significant increase in global food production.

III. Chandler oscillation period and linear systems of the planets

Dear Internauts,

I observed the movement of planets and the Moon in the Solar System using the Solar System Simulator - link: http://www.faustweb.net/solaris/info-en.php and found that starting observations from the moment of the linear system of planets Jupiter, Mars, Earth, Moon, Venus, Mercury and the Sun, the next linear systems of the planets occur in the period of 430-440 days, i.e. during the period of Chandler's oscillation. It is likely that the proper configuration of the planets, the Moon and the Sun, causes a smaller or larger deviation of the Earth's axis of rotation, with an annual period and the Chandler period. Maybe my observation and my article below will help to explain the effects of the rhythm of linear settings of objects within the Solar System.

References

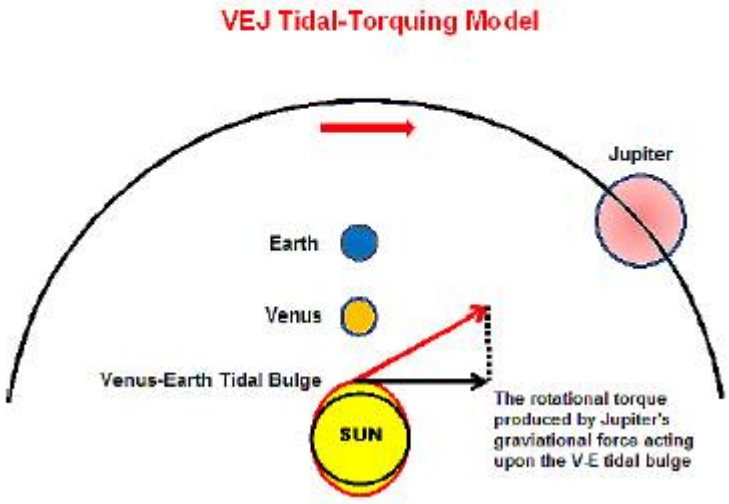
Christopher S. Baird, (2013) (downloaded on 14 April 2019), When do the planets in our solar system all line up?

Link:
http://wtamu.edu/~cbaird/sq/2013/08/28/when-do-the-planets-in-our-solar-system-all-line-up/

.

IV. The mechanism of movement of the Earth's coating and the Earth's magnetic field

I. R. G. Wilson: The Venus–Earth–Jupiter spin–orbit coupling model



Source of above graph:

The Venus–Earth–Jupiter spin–orbit coupling model

I. R. G. Wilson

The Liverpool Plains Daytime Astronomy Centre, Gunnedah, Australia

Correspondence to: I. R. G. Wilson (irgeo8@bigpond.com)

Received: 1 October 2013 – Revised: 30 October 2013 – Accepted: 3 November 2013 – Published: 3 December 2013

Pattern Recogn. Phys., 1, 147–158, 2013

www.pattern-recogn-phys.net/1/147/2013/

doi:10.5194/prp-1-147-2013

The above illustration shows a probable scheme of the formation of the fluctuations of the Sun's magnetic field, which depends on the mutual position of the Earth, Venus and Jupiter, and fluctuates in a similar to the 11-year cycle. In many scientific publications was proofed a correlation between the terrestrial climate and human economy cycles with an approximate 11-year cycle of changes in the magnetic field of the Sun expressed by the number of sunspots. It is likely that the solar fluctuation pattern is also valid for Earth, but it is modified by the interaction of the Moon, whose gravitational pull of the Earth is at least twice as great as the attraction of the Sun. There are calculations indicating that the gravitational interaction of the Sun with the Earth is many times greater than the gravitational interaction of the Moon. In this way, the rhythm of changes in the geophysical system of the Earth (climate changes and of the magnetic and gravitational field) is created, modified by the 28 day cycle of rotation of the Moon around the Earth and correlated with the changes magnetic field of the Sun.

Regarding the principle of the action of the earth's magnetic dynamo, it consists in mutual rotation of the earth's coating (i.e. crust and mantle) rotating (under the influence of gravity coming from the Moon, Sun,

Venus and Jupiter) around the center of gravity of the Earth on the plane the sliding surface of the external metallic Earth's core. The system of the Earth's coating and the external nucleus moves under the influence of gravity around the dense, inner Earth's nucleus causing the effect of eccentric pumping in the liquid interior of the external nucleus, in which flows of molten metal induce eddy currents that excite the Earth's magnetic field.
The Earth's magnetic field has a stable position and direction in the interplanetary space, and the apparent changes in the position of the magnetic poles result from the rotation of the earth's coating around the center of gravity of the Earth.

V. Future Earth climate change

In previous papers, I wrote about the correlation of changes in the position of magnetic poles and changes in the Earth's climate. The apparent, seeming motion of the magnetic pole on the surface of the earth is an indicator of the displacement of the earth's coating (the crust and upper part of the earth's mantle) around the liquid interior of the earth. The Earth's coating, which rotates in relation to the ecliptic, notes the changes in the sunlighting of the Earth's surface, and consequently changes in the location of the climate and precipitation zones.

Today the magnetic pole moves eastward to the Siberia. Its present location near the geographic pole causes that the speed of rotation of the earth increases. This proves the return of the earth's coating to a position of equilibrium. What will be the further movements of the magnetic pole and the earth's coating and what will they bring?
If the North Magnetic Pole approaches Siberia, the earth's coating will move so that Siberia will be close to the axis of rotation of the Earth. The rotational speed of the Earth will then decrease and the phenomenon of upwelling in the oceans will increase and the surface temperature of the oceans will decrease. In general, the global climate will cooling down.
The northern part of the Eurasian continent will be in a less sunny and cooler climate, and the southern part will be affected by drought. North America will be in a warmer climate, which in the north of the continent will favor vegetation and the south of the continent will experience drought. South America will shift to the North and South part of Brasil could be affected by drought all year. North Africa will be in a permanent dry zone and the Sahara perhaps will grow green. The climatic zones will shifted from the current position of about ca. 15 degrees latitude of distance, which will change the spread of vegetation zones. There will be a global increase in the number of earthquakes, especially in the Mediterranean, Central America, the Malay Archipelago and Australia.
My latest works published on Researchgate, are in my opinion, evidence of movements Earth's coating, (ie. the crust and the upper mantle around the Earth's liquid interior. The shift of precipitation zones which is

observed in the USA (50-30 degrees latitude) and India (30-10 degrees latitude) tends to suggest that the precipitation zones seem to migrate. In my opinion rainfall zones have a fixed position relative to the ecliptic, but the movements of the Earth's coating make India move in or out from the zone 20-5 degrees latitude, where are the torrential rains in the summer, like the USA are in and out of the wet zone of winter precipitation of middle latitudes, which causes a cyclical variation of precipitation depends on the movements of the earth's coating.
These climate changes will negatively affect food production and human well-being.
To prevent the development of an unfavorable global situation, I described in my book, "Natural History and Climate Change 2017", an action plan that requires international elites cooperation. It is up to the elites to decide if we can realised this plan.

.VI. Climate changes versus Earth's geoid shape changes

1.Introduction

In my previous work I presented the concept of rotational motion of the Earth controlled by the movements of the masses of the Solar System. Changes in gravity and magnetism (?) in the Solar System cause the Earth's coating move relative to the ecliptic plane. Earth's coating consisting of earth's crust and mantle revolves by slipping over the surface of the outer, liquid and metallic earth's nucleus.

Below I present evidence that the movement of the earth's coating is caused by the planets movement, and the precession of the earth's axis not exists. The observer on Earth is changing its position, and star constellations are probably not moving at all.

2.General causes of changes in climate and speed of rotation of Earth.

The temperature of the interior of Earth is sustained by the constant friction between the COATING of Earth and its LIQUID OUTER CORE. The coating of Earth, consisting of the crust and the upper mantle, is rotating under the influence of the alternating gravitational field of the solar system and is rubbing against a liquid, metallic Earth's outer core, which is a spherical sliding surface for Earth's coating. Solid metallic inner core of Earth stay in the grip of the magnetic field of the Sun, which alternates according to the pulsation of gravity within the solar system. We see that the movements of the masses inside the Earth geoid are coupled with internal interactions within the solar system, which are also subject to the influence of our galaxy.

Changes in Earth’s climate (which are dependent mainly on the heating through the Sun the Earth surface) are an evidence that Earth’s coating moves in relation to its core. Climate change resulting from the tilt of

the globe in relation to the ecliptic plane causing the succession of the seasons. On top of this there are circular movements of Earth's coating around the axis of rotation of Earth and in relation to ecliptic plane. Movements of the coating are mirrored by the apparent changes in the position of north magnetic pole (see Fig.3), which is stable in the grip of Sun's magnetic field. Earth's coating rotates but north magnetic pole is motionless. Throughout the duration of several thousand years, the magnetic poles traveled seemingly on the moving surface of Earth along a curve surrounding geographical pole. Deviations of the north magnetic pole from the north geographic pole reach over twenty degrees of latitude, ie. approximately 2500km and change over time (probably) on a regular basis, ie. determined by cyclical interactions within the solar system. The research of paleomagnetism show deviation of the northern magnetic pole from the north geographic pole (the axis of rotation of Earth) mirror the movements of Earth's coating in relation to the sun. Sometimes movement of Earth's coating reaches this extent that magnetic poles reversing itself but only apparent.

Movements of Earth's coating change the moment of inertia of the Earth, which causes the variations of the speed of rotation. Increase in the speed of rotation of Earth was observing in the time when the northern magnetic pole was close the north geographic pole, and vice versa, ie. for example, around year AD 1600 and nowadays. I believe that changes in Earth's rotation speed reflects variability of the Earth's coating movement in relation to center of Earth's gravity and in relation to the sun.

Deviations of location of the northern magnetic pole NMP- from the north geographic pole over twenty degrees latitude , and the circular apparent motion of NMP around the geographic pole, mirror the moves of Earth's coating which cause regional changes in Earth's climate. The width of climatic zones designated by the seasons on Earth's surface reaches about 5 to 20 degrees latitude. Related to these zones, rainy and dry climates, which are dependent on the latitude and insolation, move along the surface of Earth, together with Earth's coating movements, which are cyclical relative to the Sun. If the coating of Earth moves about 2500 km which is about 20 degrees latitude, climate zones shift respectively on the Earth's surface. In such case, a given region of Earth can experience a dry season instead of rainy season, and vice versa.

The "rising" and "sinking" zones move northward and southward together accordingly to the Earth's coating movements. Thus, the wet area near the Equator moves northward into the Northern Hemisphere in its summer, and southward into the Southern Hemisphere during its Southern summer. Similarly, the dry zones and wet zone at higher latitudes shift northward and southward throughout the year.

The result of these shifting climatic zones are latitude bands with distinctive precipitation characteristics described below:

0–5° latitude: wet through the year (rising zone)

5–20° latitude: wet summer (rising zone), dry winter (sinking zone)

20–30° latitude: dry all year (sinking zone)

30–50° latitude: wet winter (rising zone), dry summer (sinking zone)

50–60° latitude: wet all year (rising zone)

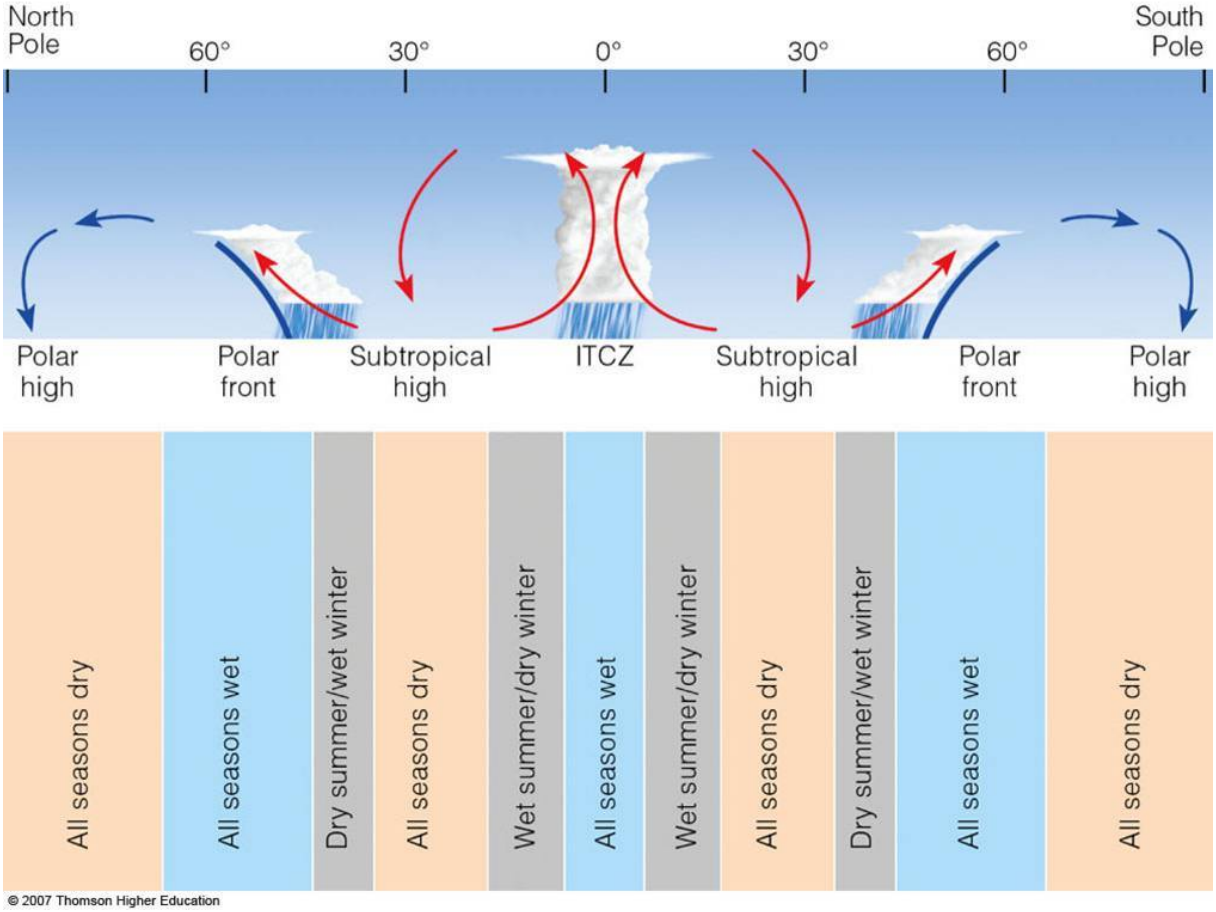
60–70° latitude: wet summer (rising zone), dry winter (sinking zone)

70–90° latitude: dry all year (sinking zone)

Source of above data:

Global Distribution of Precipitation- link:

http://www.waterencyclopedia.com/Po-Re/Precipitation-Global-Distribution-of.html#ixzz4Bj24W4Vx



Source of above graph: http://apollo.lsc.vsc.edu/classes/met130/notes/chapter17/glob_prec_w.html

For example, I suppose that shift of precipitation from summer to winter, observed in Iran for the past several thousand years, is one of the results of the movement of Earth's coating. .

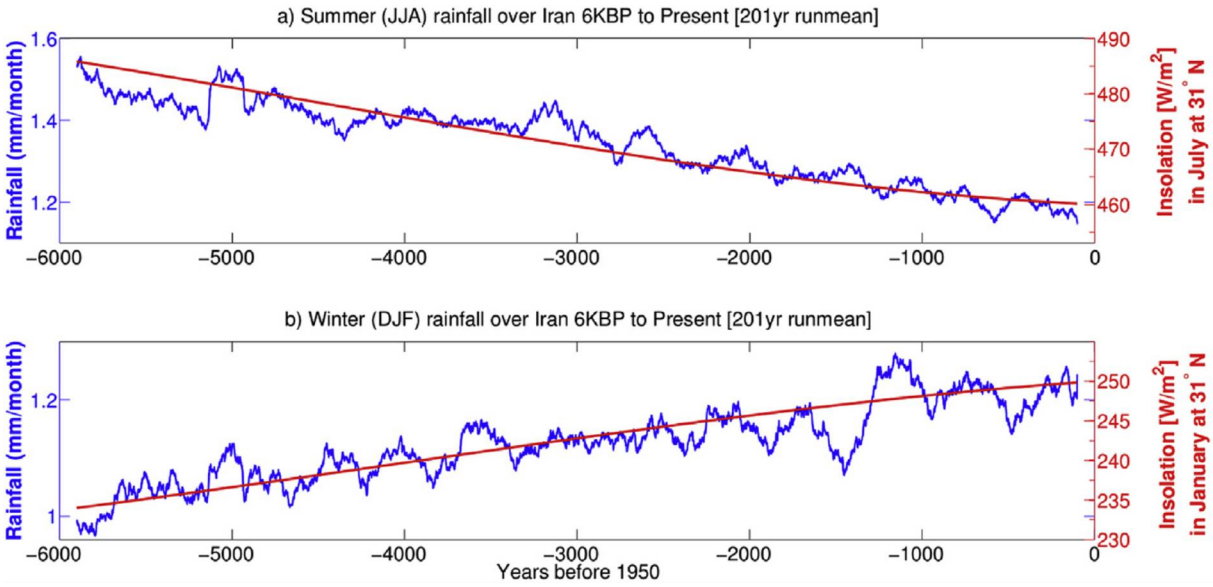


Fig. 1. Rainfall over Iran [42.5_ Ee65.5_ E; 25_ Ne41_ N] for 6 ka BP to present (blue line) and the solar insolation [W/m2] at 31_ N (red line) from ECHO-G simulation during (a)
Summer (JJA) and (b) Winter (DJF). Time-series are smoothed using 201 years running mean. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)
Source of above graph:

Towards modeling the regional rainfall changes over Iran due to the
climate forcing of the past 6000 years
Bijan Fallah*, Sahar Sodoudi, Emmanuele Russo, Ingo Kirchner, Ulrich Cubasch
Institute of Meteorology, Free University of Berlin, Carl-Heinrich-Becker-Weg 6-10, 12165 Berlin, Germany

https://www.researchgate.net/publication/283257953_Towards_modeling_the_regional_rainfall_changes_over_Iran_due_to_the_climate_forcing_of_the_past_6000_years

Earth is flattened at the poles and when Earth's coating rotates, this flattening moves closer to the equator. That is when the moment of inertia of Earth's rotation increases and its speed of rotation decreases. When Earth's coating returns to its equilibrium position (which is when both magnetic and geographic poles are next to each other), the speed of Earth's rotation increases because the moment of inertia decreases.

Currently, the magnetic pole moves eastward, toward the geographic pole, increasing the speed of Earth's rotation . This demonstrates that Earth's coating is returning to the equilibrium position. What will be the next moves of the magnetic pole and Earth's coating and what will they bring?

Cyclical waves of growth in the number of earthquakes in the Mediterranean and Poland (see Fig.2.) observed in the period 750 BC to AD 2000 confirm the movements of Earth's coating. The number of earthquakes rises when the Mediterranean region moves closer to the equator, where the tectonic stress is increased. This is exactly what we are currently observing in Italy. There is an increase in the frequency of earthquakes in the Mediterranean and in Poland during periods of large shifts of Earth's coating , ie. up to 7000km in the years AD 250-700 and 1250-1860.

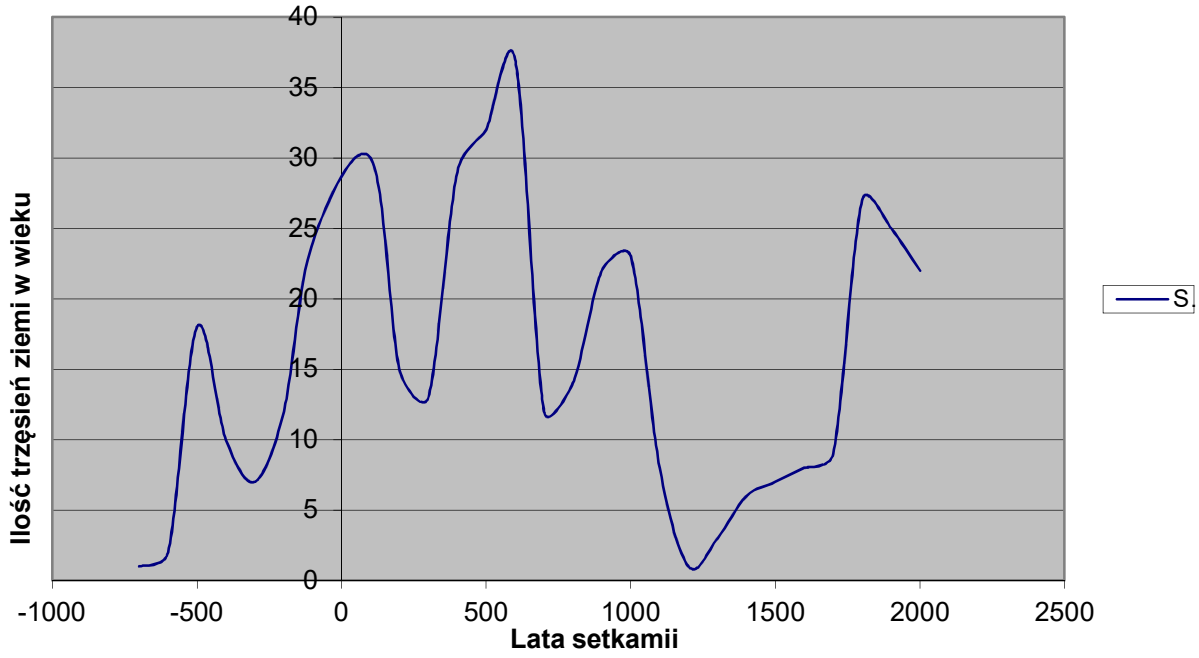


Fig.2 Variability of the number of significant earthquakes in the Mediterranean and Poland between 750 BCE to AD 2000

Based on archival data about earthquakes registered in the period from AD 998 to AD 2000 in Poland (Pagaczewski 1972); (Guterch, Lewandowska -Marciniak 2002) and earthquakes registered in areas adjacent to the Mediterranean basin in the 750 BC period. to AD 995 (Guidoboni et al. 1994) a set of high intensity earthquakes containing 417 events was prepared. On the basis of the above set, a diagram of seismic activity in Europe was made in the period between 750 BC and AD 2000. showing the variation in the number of shocks over time.

Ceaseless movement of Earth's coating, causing cyclical and regional climate changes, causes the birth, rise and fall of civilizations and empires developing from east to west (in agreement with the movement of Earth's coating and climate zones) in the history civilization of Indo-European and Asian civilization.

References

Guidoboni Emanuela, Comastri Alberto, Traina Giusto 1994: Catalogue of ancient earthquakes in the Mediterranean area up to the 10th century, Instituto Nazionale de Geofisica, Rome

Guterch Barbara, Lewandowska – Marciniak Hanna 2002: Seismicity and seismic hazard in Poland, Folia Quaternaria vol.73, Kraków.

Pagaczewski J. 1972: Katalog trzęsień ziemi w Polsce z lat 1000-1970, Materiały Prace Instytutu Geofizyki PAN nr.51, Warszawa .

3.Causes of the fall of the Western Roman Empire

Between the birth of Christ and the fall of the Western Roman Empire, the earth's coating shifted in relation to the ecliptic over 7000 km across the earth's surface. There was then the seeming change in the location of the northern magnetic pole, whose movements were determined by research by:

Gullaume St-Onge and Joseph S. Stoner, Paleomagnetism near North Magnetic Field,

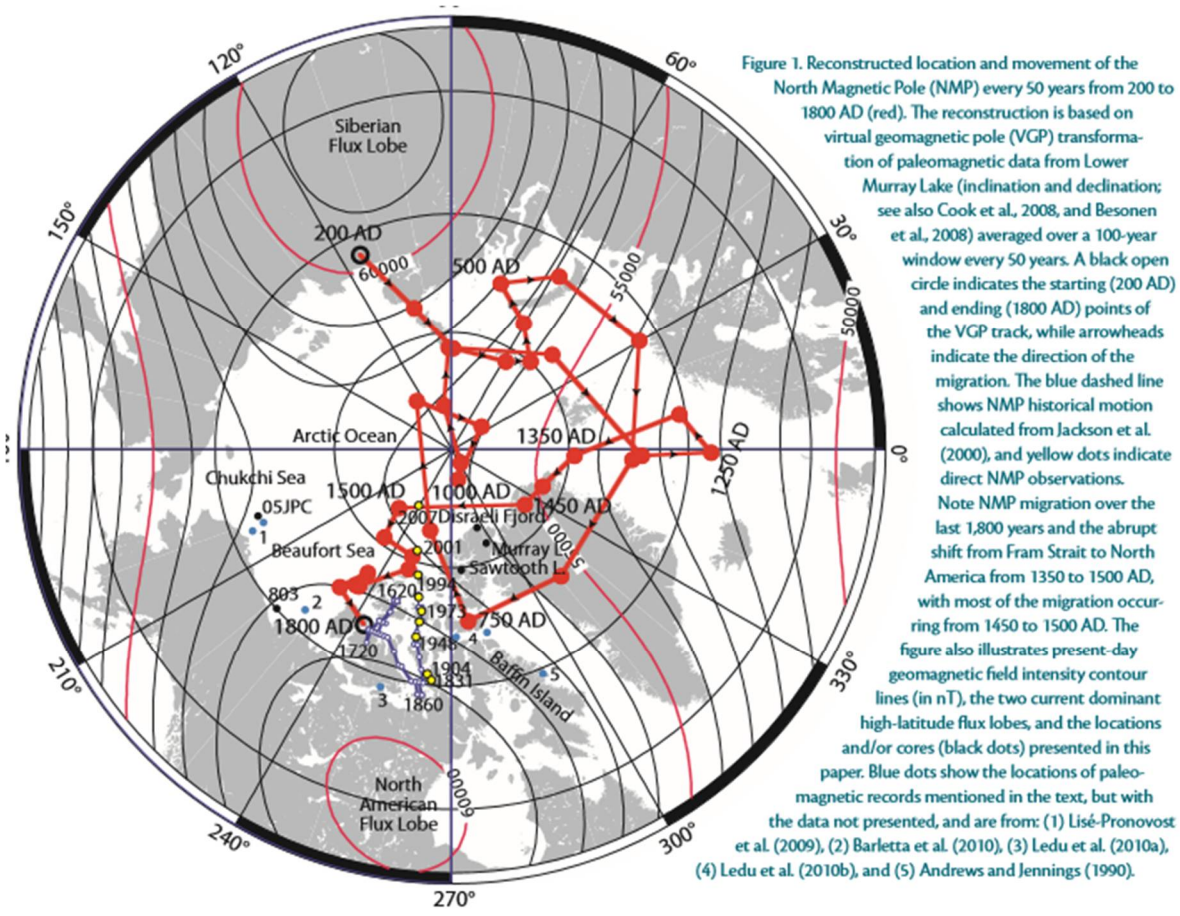


Figure 1. Reconstructed location and movement of the North Magnetic Pole (NMP) every 50 years from 200 to 1800 AD (red). The reconstruction is based on virtual geomagnetic pole (VGP) transformation of paleomagnetic data from Lower Murray Lake (inclination and declination; see also Cook et al., 2008, and Besonen et al., 2008) averaged over a 100-year window every 50 years. A black open circle indicates the starting (200 AD) and ending (1800 AD) points of the VGP track, while arrowheads indicate the direction of the migration. The blue dashed line shows NMP historical motion calculated from Jackson et al. (2000), and yellow dots indicate direct NMP observations. Note NMP migration over the last 1,800 years and the abrupt shift from Fram Strait to North America from 1350 to 1500 AD, with most of the migration occurring from 1450 to 1500 AD. The figure also illustrates present-day geomagnetic field intensity contour lines (in nT), the two current dominant high-latitude flux lobes, and the locations and/or cores (black dots) presented in this paper. Blue dots show the locations of paleomagnetic records mentioned in the text, but with the data not presented, and are from: (1) Lisé-Pronovost et al. (2009), (2) Barletta et al. (2010), (3) Ledu et al. (2010a), (4) Ledu et al. (2010b), and (5) Andrews and Jennings (1990).

Fig.3. Apparent movement of North Magnetic Pole around geographic north pole

Source of above graph:

Gullaume St-Onge and Joseph S. Stoner, Paleomagnetism near North Magnetic Field,

From the above studies it appears that the north magnetic pole has apparently moved about 7 degrees latitude and 180 degrees of longitude (about 7,000 km) from Siberia (Lena mouth) northwest to Greenland (around the land of Francis Joseph). Associated with this seeming shift of the north magnetic pole take place the rotation of the earth's coating (Góralski 2017 B) caused that the Asian territories occupied by the Mongol tribes were in a more dry climatic zone. This led to the long drought in the summer and strong snowy winters in which extinct the herds of animals owned by the Mongolian tribes. This led to migration of the Mongolian tribes towards the west that in the IV-V century they reached Europe as Huns.

At the same time, with the shifting of the earth's coating to the south, northwestern Europe have found itself in the period 0-400 AD in the warmer climate which caused progress in agriculture of German tribes (and drought in Palestine and southern Europe, where drought then caused the food crisis). This is confirmed by the increase of earthquakes in the area of Roman Empire (see Fig.2) in this time what means that this region of the Earth was closer to equator then earlier before Christ birth. See explanation in my work (Góralski B. 2017B).

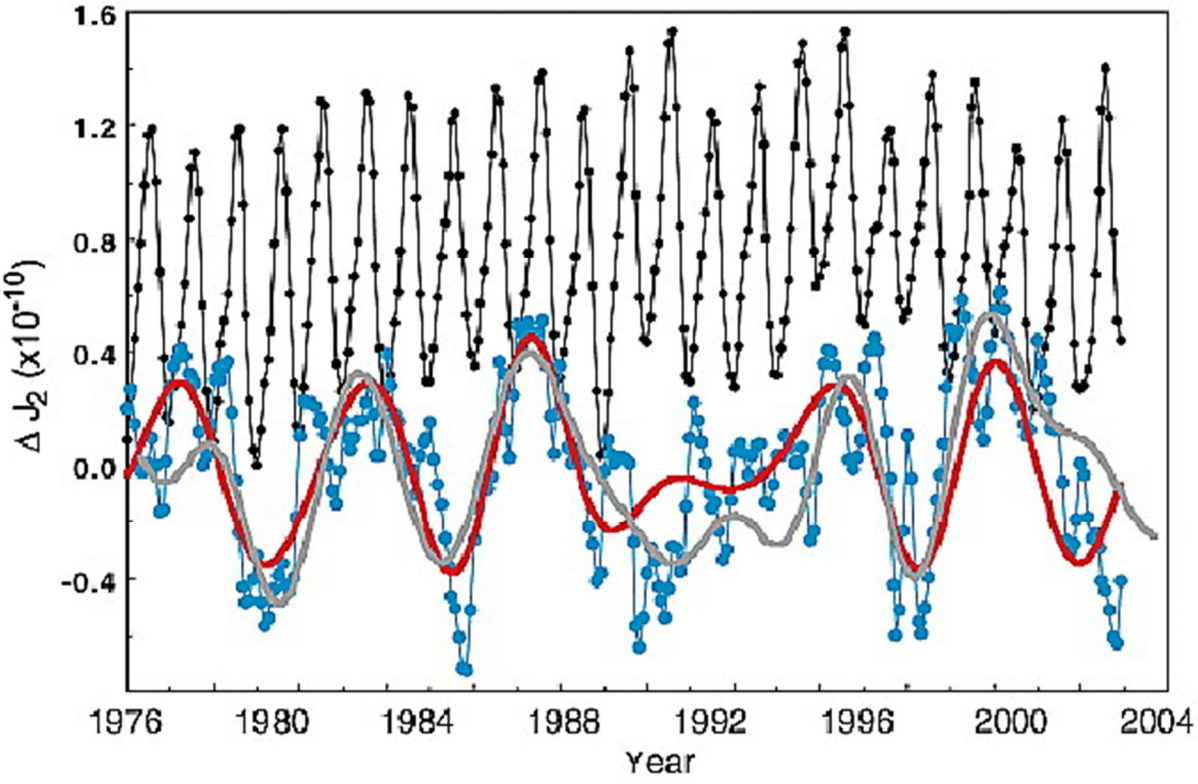
This above warming of European climate resulted in an increase in the population of the Germanic tribes and the increase in their importance in the society and the army of Rome. Then, during the period 400-500 AD, the reverse movement of the earth's coating caused Western Europe to find itself in a colder climatic zone. This caused crop failure and hunger in the Germanic land. This resulted in their mass migration southward to the lands of the Western Roman Empire. The emergence of Huns in Europe accelerated the migration of the Germanic tribes into Rome. The Huns' invasion of central and western Europe and the invasion of the German tribes into southern Europe caused the fall of the Western Roman Empire.
Other consequences of the cyclical movement of the coating of Earth are described in my book available online in Polish language entitled "Natural History and climate change" on the Researchgate Portal

References:

Gullaume St-Onge and Joseph S. Stoner, Paleomagnetism near North Magnetic Field,

VII. Earth coating movements cause climate changes, changes in the velocity of Earth's geoid revolving, and earthquakes.

Earth coating movements cause climate changes, changes in the velocity of Earth's geoid revolving, and earthquakes. These phenomena are correlated, proved by numerous scientific papers, including those cited below. Flattening at the poles of the Earth moves with respect to the ecliptic, along with the earth's coating motion, causing changes in the value of the dynamic shape factor J2, what has been discover during 40 years of SLR-Satellites Laser Ranging study, as illustrated in Figure 1, developed by NASA scientists:



Above Image : Variations in Earth's Oblateness: Variations in Earth's oblateness (flattened top, budging middle or "J2") are indicated on this graph over several areas. Over tropical areas (blue circles) and areas outside of the tropics (black circles) caused by soil moisture changes. Changes in oblateness (J2) from the global soil-moisture-induced changes from year to year in J2 (red line), compared with the unusual mean sea level pressure readings (gray line) warm phase (<0) and cold phase (>0). These signals are dominant in the observed interannual variations of the Earth's oblateness during the strong El Nino/La Nina events. Click on image to enlarge. Credit: NASA

Fig. 4 Correlation of J2 - dynamic shape factor of the Earth and climate change.

Source of the above image:

Most Changes in Earth's Shape Due to Changes in Climate,

https://www.nasa.gov/vision/earth/lookingatearth/earthshape.html

downloaded on 17th December 2016

In the figure No.4 is shown a clear correlation between coefficient J2 and atmospheric pressure at sea level, which demonstrates the impact of movement of the Earth's coating on the planet Earth's atmosphere and climate.

1. **Changes in the shape of the Earth because of movements of the Earth's coating.**

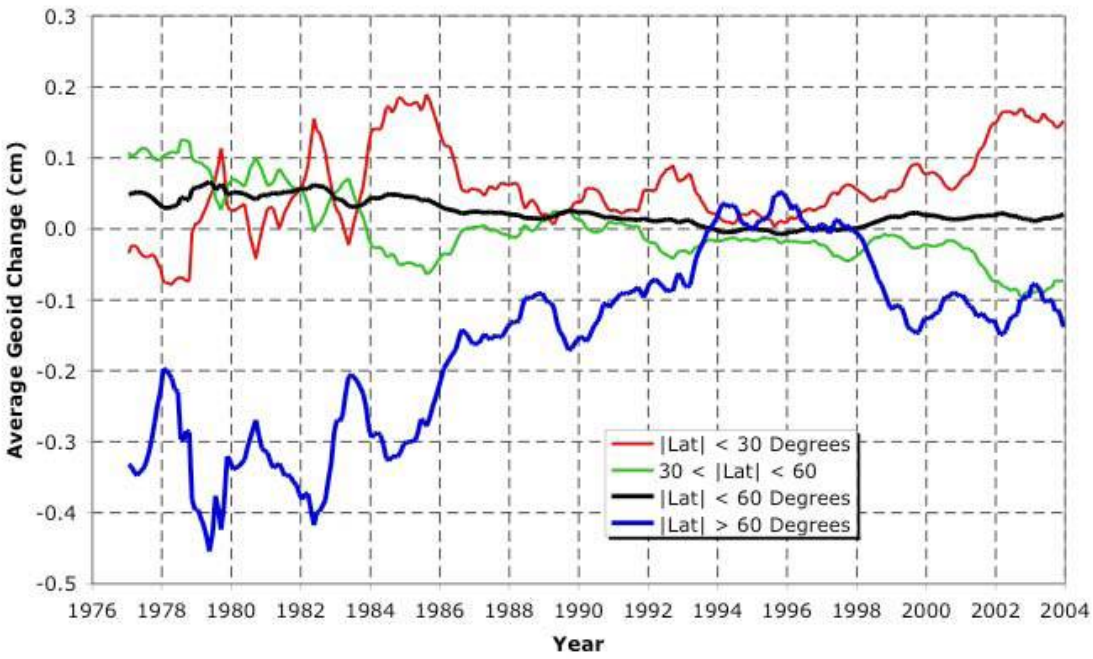


Figure 5. Zonal changes in the geoid over the equatorial (|lat|<30°), mid latitude (30°< |lat| < 60°) and polar regions (60°<|lat|). An annual filter has been applied to the data. (Source of image: Cox C.M., Chao B.F., Au A., 2009).

Observed sinusoidal zonal changes in the shape of the Earth are associated with increasing and decreasing the diameter of the Earth, together with the Earth's coating rotation relative to the ecliptic. The Earth is flattened at the poles, and when the flattening turns along with the Earth's coating surface, the Earth's shape changes and the J2 coefficient changes. This is related to changes in the moment of inertia of the Earth and changes in the speed of rotation of the Earth. Increasing the diameter of the Earth near the equator is accompanied by a decrease in the diameter of the Earth at latitude above 60 degrees of latitude, and vice versa. Increasing the Earth's diameter above 60 degrees of latitude results in a decrease in the speed of rotation and an increase in the number of earthquakes.

References:

Cheng Minkang ,Tapley Byron D. (2004): A 33 Year Time History of the Earth Dynamic

Oblateness changes from SLR data

http://cddis.gsfc.nasa.gov/lw16/docs/papers/sci_7_Cheng_p.pdf

Cox C.M., Chao B.F., Au A. (2010): Interannual and anual variations in the geopotential observed using SLR, http://cddis.nasa.gov/lw14/docs/papers/sci2b_ccm.pdf

2. Oscillations in the Solar System and changes in the shape of the Earth and their effects

It has been found that there are long-term fluctuations of 18.6 years period of the dynamic shape factor of the Earth J2 (Cheng, Tapley 2004), which can be associated with cycle of the nutation of the rotation axis of the Earth of the length of 18.6 years. The geoid deformations shown in Fig. 4 are the largest in the zone above 60 degrees latitude and are likely to oscillate in an 18.6-year cycle, which causes periodic changes in the shape of earth's crust. Visible in this 18.6 year cycle shorter oscillations are likely caused by short-term changes in the gravitational field around the Earth. Movements of the Earth's coating and Earth's shape changes cause changes in LOD (earth's day length) and earthquakes. This is explained on the following pages.

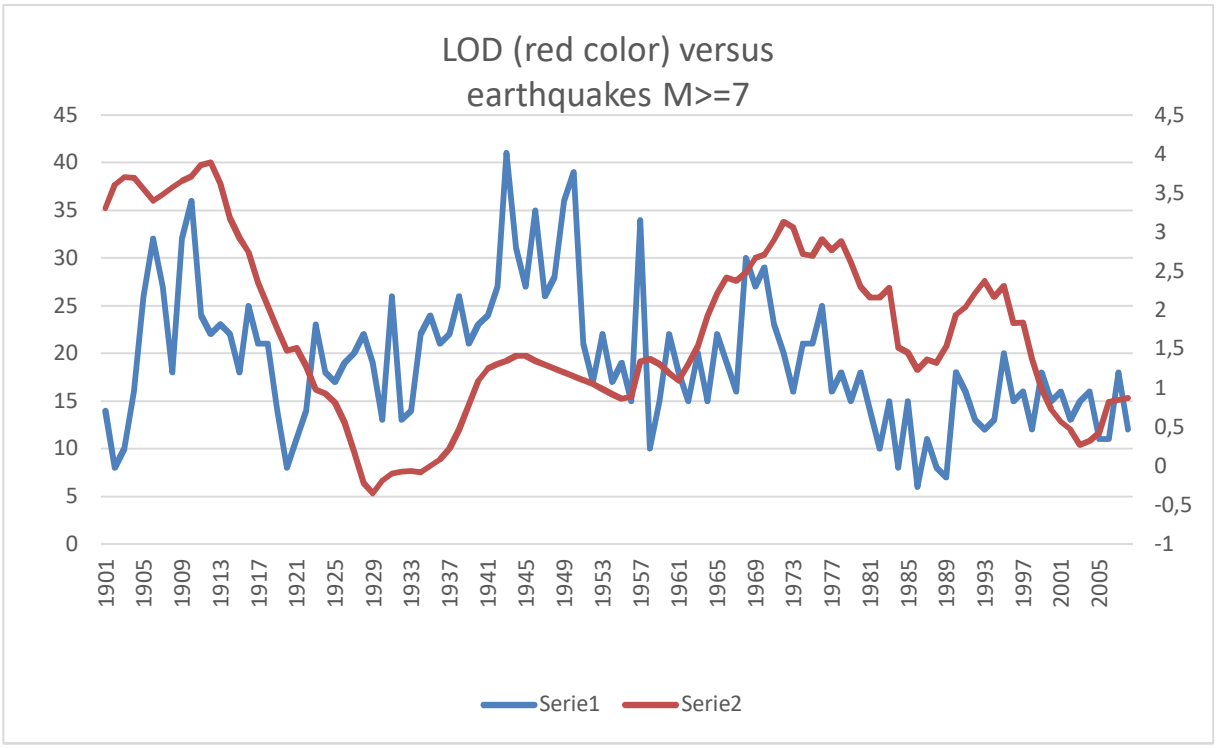


Figure 6. Global seismic activity characterized by earthquakes of magnitude M=7 or greater in the time period of 1900-2007 versus LOD (length of day).

Source: Author's own analysis based on data from the U.S.G.S. Earthquake Hazard Program. Source of data: http://neic.usgs.gov/neis/eqlists/7up.html

Source for information about the values of LOD of the Earth:
Earth Orientation Center http://hpiers.obspm.fr/eop-pc/index.php?index=lod-1623&lang=en

References

Cheng Minkang ,Tapley Byron D. (2004): A 33 Year Time History of the Earth Dynamic

Oblateness changes from SLR data

http://cddis.gsfc.nasa.gov/lw16/docs/papers/sci_7_Cheng_p.pdf

3. The dependence of the number of earthquakes in Italy from changes in angular velocity of the Earth.

Fig.7 is an illustration of the theses of my speech titled "Changes in day length LOD relative to the day SI and risks in mining", which I gave to the Mining Workshop 2012-link

http://warsztatygornicze.pl/wp-content/uploads/2012-11.pdf .

Decreasing rotational speed of the Earth causes increase in number of earthquakes in Italy and vice versa.

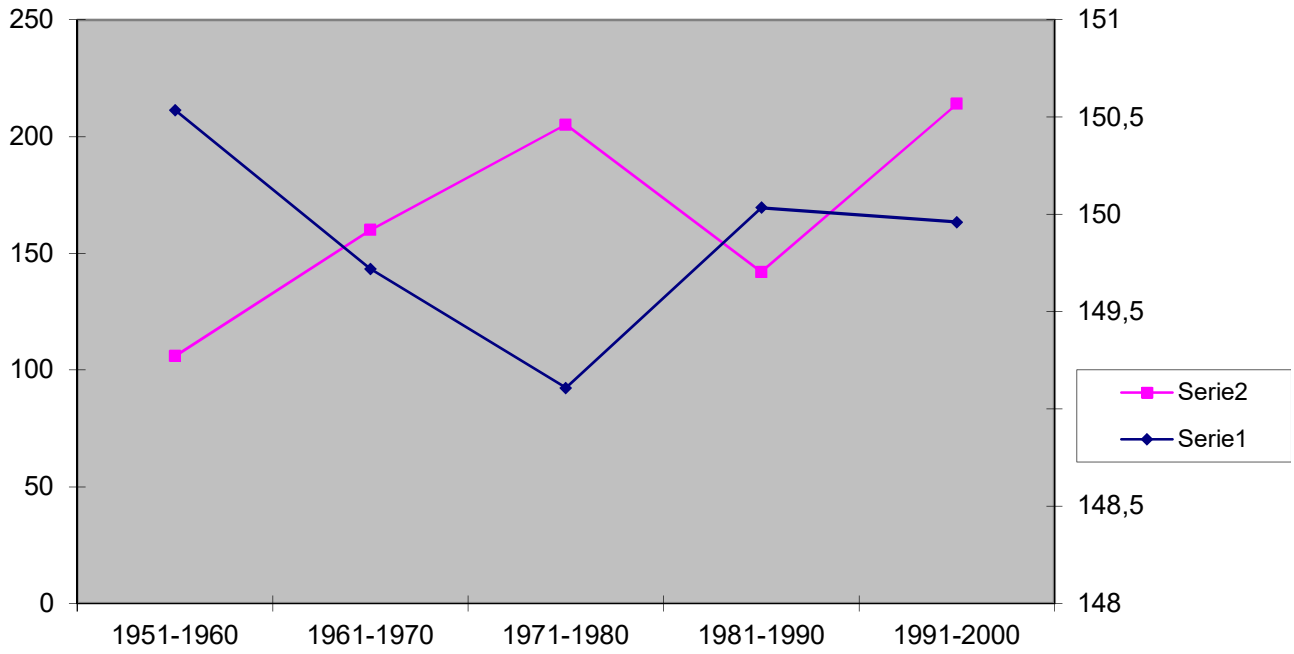


Fig.7. Relationship between the number of earthquakes in Italy (pink color) from changes in angular velocity of the Earth [in pico rad / s]. Values of the angular velocity averaged in periods 10 Years. The source for data on earthquakes in Italy:

A. Rovida, R. Camassi, P. Gasperini and M. Stucchi (eds.), 2011. CPTI11, the 2011 version of the Parametric Catalogue of Italian Earthquakes. Milano, Bologna, http://emidius.mi.ingv.it/CPTI

Sources for information about the angular velocity of the Earth.
Earth Orientation Center http://hpiers.obspm.fr/eop-pc/index.php?index=lod-1623&lang=en

Fig. 6 and Fig.7 reveal the cyclicality of a period about 35 years of occurrence of maxima of shocks, and the minima and maxima of shocks occur in a cycle of the length of about 17-18 years. This is consistent with the periodic changes in the moment of momentum of the Sun around the center of mass of the solar system. Torque pulses in the sun's motion are changing just in this cycle of period 35 years(see Landscheid T., 1990, http://bourabai.narod.ru/landscheidt/relationship.htm). See below.

References

Rovida, R. Camassi, P. Gasperini and M. Stucchi (eds.), 2011. CPTI11, the 2011 version of the Parametric Catalogue of Italian Earthquakes. Milano, Bologna,
Link: http://emidius.mi.ingv.it/CPTI

VIII. Relationship Between Rainfall in the Northern Hemisphere and Impulses of the Torque in the Sun's Motion).

This paper was presented at the Conference on the Climate Impact of Solar Activity, held at NASA's Goddard Space Flight Center in Greenbelt, Maryland, April 24-27, 1990.

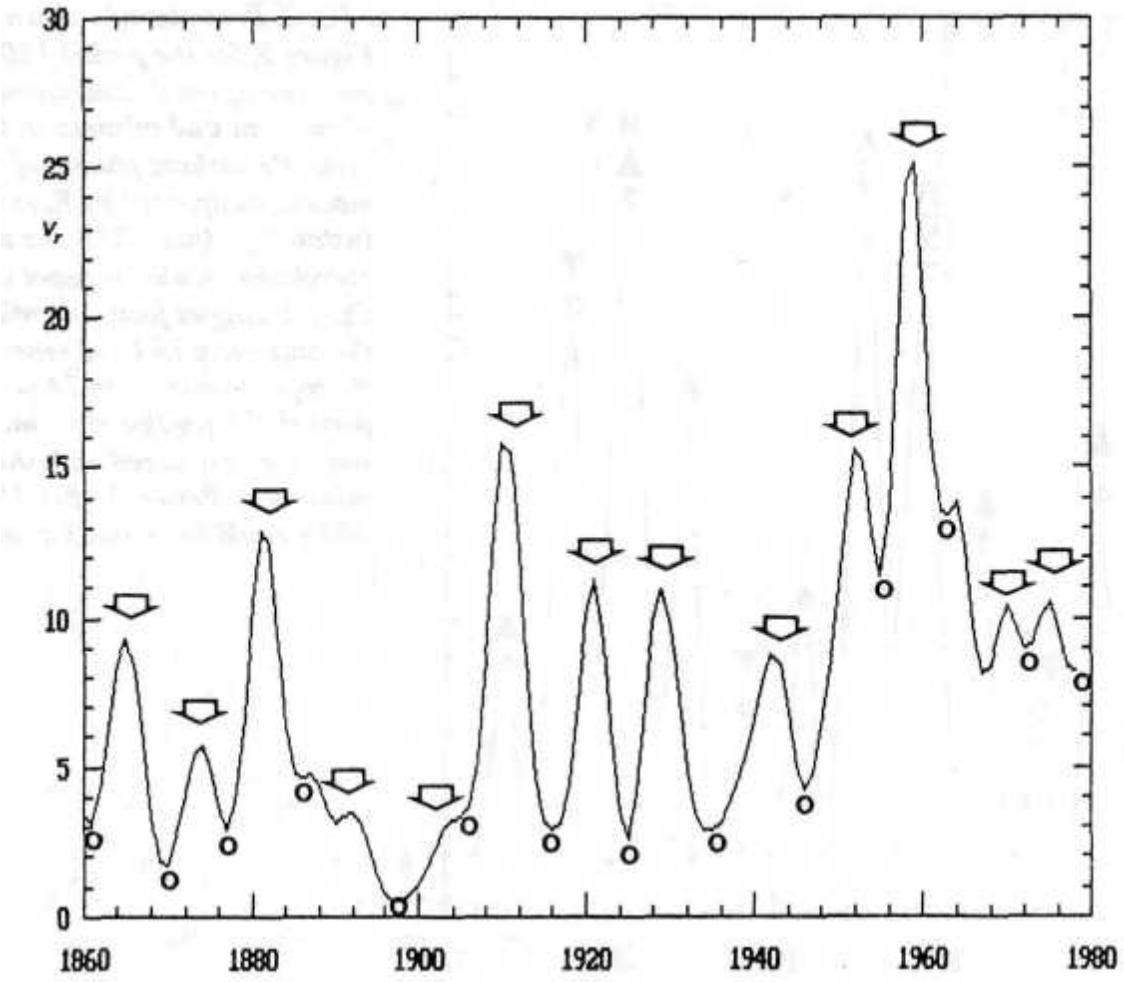


Fig. 8. Smoothed 2-year running variance v, of yearly rainfall totals (mm) derived from observations of 14 German stations by Baur, for the period 1851-1983. Arrows mark epochs of minima in the 9-year running variance v of the sun's orbital angular momentum. Open circles designate respective maxima in v. The significant correlation between these solar and terrestrial data is corroborated by rainfall observations from England, Wales, eastern U.S., and India.

Source of Figure 8.: Landscheid T.,1990, Relationship Between Rainfall in the Northern Hemisphere and Impulses of the Torque in the Sun's Motion, Link:

http://bourabai.narod.ru/landscheidt/relationship.htm

IX. Movement of Earth's coating and circulation of water in Hadley cell

Changes in the location of the Earth's coating cause changes in the Hadley's cell range on the Earth's surface, because the ranges of rainfall zones and droughts resulting from the operation of atmospheric circulation cells, whose position is unchanged with respect to the ecliptic plane, are shifting.

Due to the movement of the Earth's coating, the circulation of the ocean's waters is also changing - vertical and horizontal, which additionally affects the see surface temperature SST of the ocean and the functioning of the atmospheric circulation cells and the changeable time of occurrence of precipitation and droughts on the surface of the Earth. See on the following pages.

X. Predicting, forecasting of earthquakes

Changes in the rotation of the Sun (Sun contains 99.86% of the mass of the Solar System), are due to the variable position of the planets, and reliably affect the rotation of the masses of the Earth and the Moon, resulting the create and the disappearance of the stresses in the earth's crust. Detecting any cyclicality affecting the Earth's rotation and rotation of the coating of the Earth will give rise to the possibility of predicting the rise and decrease of the number of earthquakes. Probably the full knowledge of the causes of cyclical changes in gravitational potentials in the solar system will allow the prediction of changes in the level of stress in the Earth's crust. If we start to study the mechanics of the solar system, it will allow us to forecast periods of intensification of seismic shocks, which will increase the safety of people on Earth.

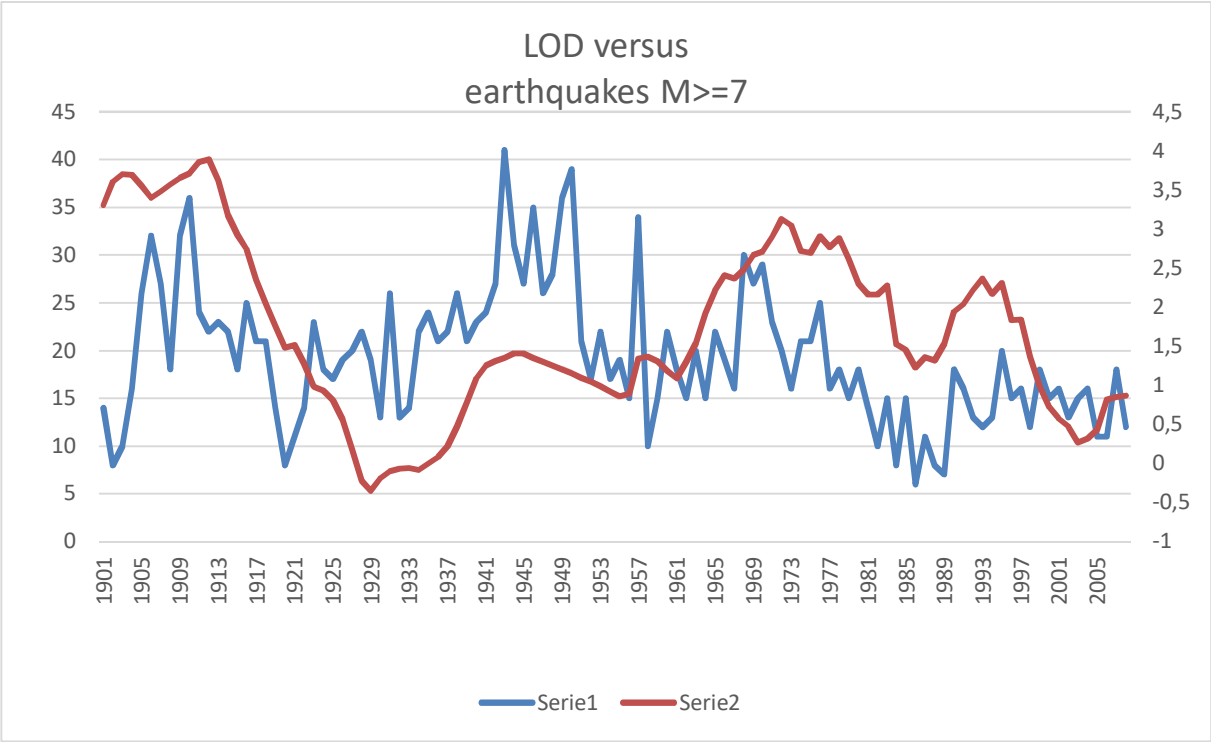


Fig. 9 LOD (length of day) versus significant earthquakes of Magnitude M>=7

Source of data of LOD (color red-right scale in (miliseconds)): https://hpiers.obspm.fr/eop-pc/index.php

Source of data of earthquakes: Author's own analysis based on data from the U.S.G.S. Earthquake Hazard Program. Source of data: http://neic.usgs.gov/neis/eqlists/7up.html

Fig. 7 and Fig. 9 show the negative correlation between changes in rotational speed of the Earth and significant earthquakes and Earthquakes in Italy recorded in the 20-21th century.
As the rotational speed of the Earth decreases, the number of earthquakes increases and vice versa. Earthquakes of magnitude above M=7are usually formed in the earth's crust to a depth of 33 kilometers. Decreasing the Earth's rotation speed (LOD- length-of-day reduction) is accompanied by a displacement of the Earth's coating, resulting in a decrease in the diameter of the Earth in the area of equator and an increase in Earth's diameter above 60 degrees latitude. This causes the lithosphere plates collide with each other (subjected to varying linear velocity of the rotating Earth what increases in them the stresses therein, resulting in an increase in the number of earthquakes.
Presented evidence for movements of Earth's coating and correlations between coating movements, gravity changes around the Earth, changes in Earth's geoid speed, earthquakes and climate change. Further work is needed to confirm the presented concept that explains the connection between geophysical and space processes.

XI. The Solar Wind and Earthquakes

1. Causes of earthquakes

On 7 April 2015, I made graphs based on data from the Internet, which showed the correlation of the angular velocity of the Earth and the density of protons - the parameter of the solar wind and the correlation of the density of solar wind protons and the number of earthquakes during April-July 2012. Because these correlations confirmed my earlier assumptions that the solar magnetic activity resulting from resonances in the solar system causes earthquake activity and climate change, I sent to Polish and world scientists one-page information about my research results entitled "The Solar Wind and Earthquakes". On April 12, 2015 with the help of the internet databases I carried out a survey of significant earthquakes ocured in 2009 and 2011.
A study of 10 strong earthquakes showed that they occurred in 9 cases during the period of rapid decline in the density of solar wind protons after a period of rapid increase in proton density. In one case of the earthquake in eastern Honshu (Fukushima) of April 11, 2011, a seismic episode occurred during the hours of a wave of rapid increase in proton density.
These results may indicate that changes in the intensity of the solar wind cause the movements of the metallic Earth's core. They cause changes in the speed of earth rotation and the increase in stress in the

earth's crust resulting in earthquakes, mainly on the edges of the lithosphere plates. Scientists' efforts should aim to predict seismic shocks that are a threat to life on Earth (see Fukushima). Because the energy carried by the solar wind increases at least twice during the solar magnetic activity minima (measured by the number of sunspots) one should expect in the coming years an increasing seismic activity of the Earth, because the period of minimum solar magnetic activity approaching.
In addition, international scientific research consistently shows that changes in Earth rotation speed are strongly correlated with climate change in the atmosphere and oceans,
and my research probably showed the dependence of the angular velocity of the Earth on solar wind energy. The solar wind energy that will growing in the coming years is likely to cause such changes in the angular velocity of the Earth that there will be a sudden cooling of the Earth's climate.

Is our civilization prepared for a rapid increase in the number and strength of earthquakes and sudden cooling of the climate?

2. The Solar Wind and Earthquakes

The source of the solar wind is Sun’s hot corona. The solar wind speed is high (800km/s) over coronal holes and low (300km/s) over streamers. Sun rotates, and therefore the solar wind creates the Parker’s spiral. Arms of the Parker's spiral hits the Earth’s magnetic field, and this can move Earth’s outer and inner core. Pulsations in the Earth's core and mantle pass into the Earth's crust, causing it stress variable leading to earthquakes, or their disappearance.

In the solar cycle minima, the solar wind is stronger and faster. The sun emits 1.5-2 times more mass and energy in the minimum than the maximum of the cycle (see Veselovsky S., Dmitriev AV, Suvorova AV, Tarsina MV (2000), Solar Wind Variation with the Cycle, J. Astrophysics 21, 423- 429). This observation is confirmed in the images below OMNIWeb Plus Result:

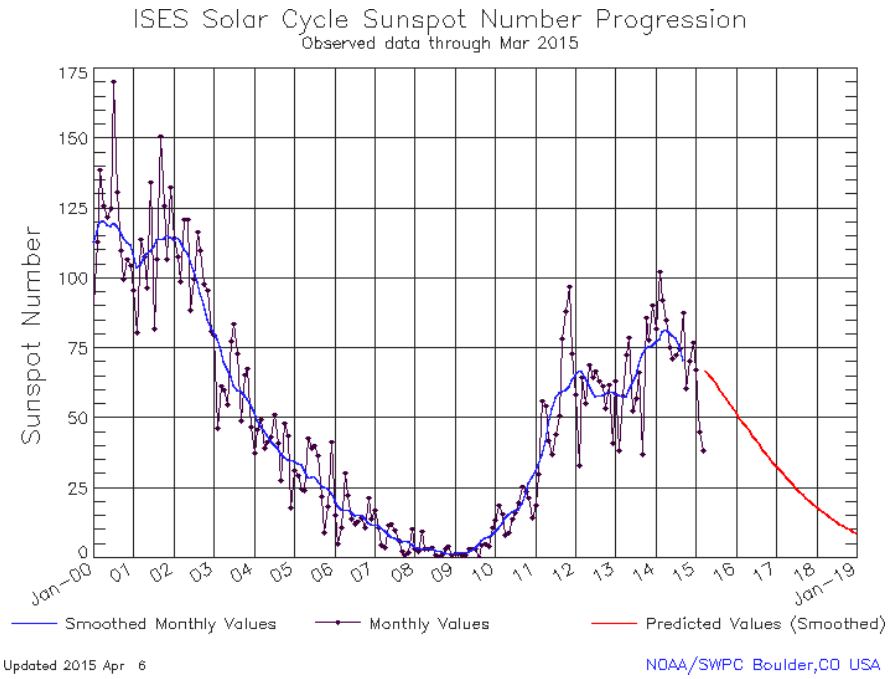


Fig.10. Solar cycle Sunspot Number Progression

For the maximum of the solar magnetic activity graph below:

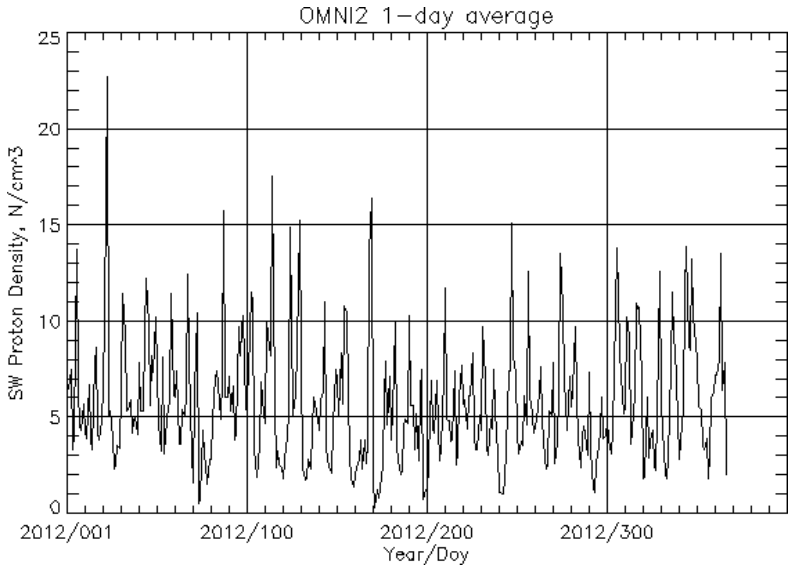


Fig.11. Proton density of the solar wind during maximum SSN cycle

Source of the graph: OMNIWeb Plus Result site

For the minimum of the solar magnetic activity graph below:

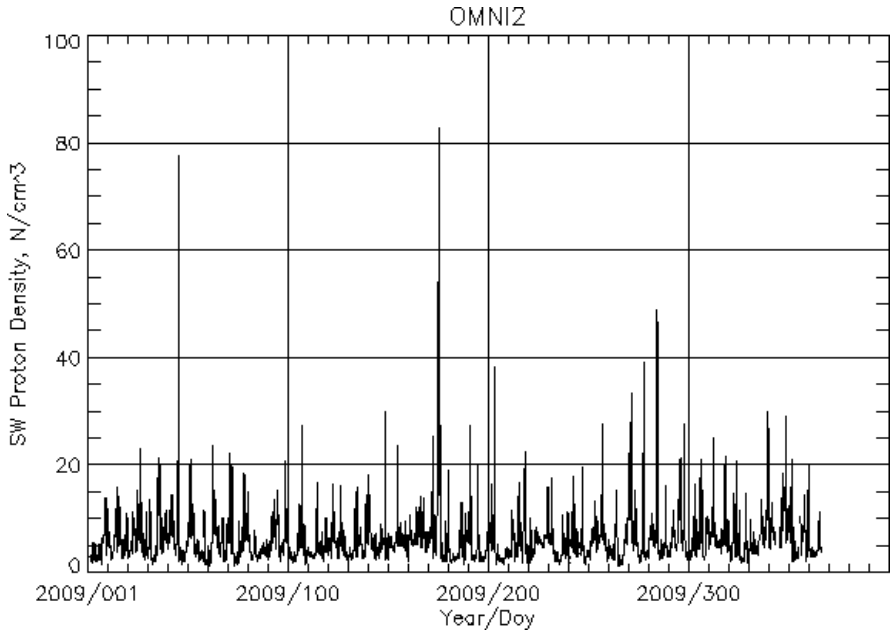


Fig.12. Proton density of the solar wind during maximum SSN cycle

Source of the graph: OMNIWeb Plus Result site

Two times higher density of protons is observed during the minimum of solar magnetic activity and the solar wind increases energy more strongly affecting the Earth's magnetic field.

Significant magnitude earthquakes of magnitude M> 7 which occured in 2009 and 2011:

Indonesia	M7,7-	dnia 03.01.2009	19:43:50 UTC
Indonesia	M7,4-	03.01.2009	22:33:40 UTC
Tonga region	M 7,6-	dnia 19.03.2009r. godzina	18:17:40 UTC
Samoa Islands region	M 8,1-	29.09.2009	17: 48:10 UTC
Vanuatu	M 7,7	07.10.2009	22:03:15 UTC
Santa Cruz	M 7,8	07.10.2009	22:18:26 UTC
Vanuatu	M 7,4	07.10.2009	23:13:49 UTC
Fiji	M 7,3	09.11.2009	10:44:54 UTC
Eastern Honsiu (Fukushima?)	M 7,1	11.04.2011	8:16:13 UTC

Correlation of the anomaly of the Protons density with the time of the earthquake occurence (the time of the earthquake marked on the diagram by the red line and red marked date and time) at six figures:

Indonesia

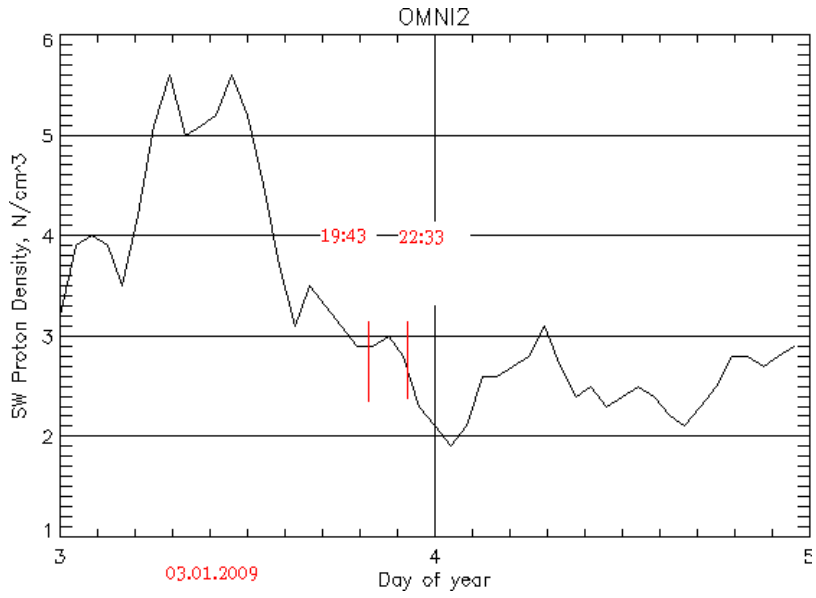


Fig.13A. Significant earthquakes in Indonesia

Indonesia	M7,7-	03.01.2009	19:43:50 UTC
Indonesia	M7,4-	03.01.2009	22:33:40 UTC

Tonga Region

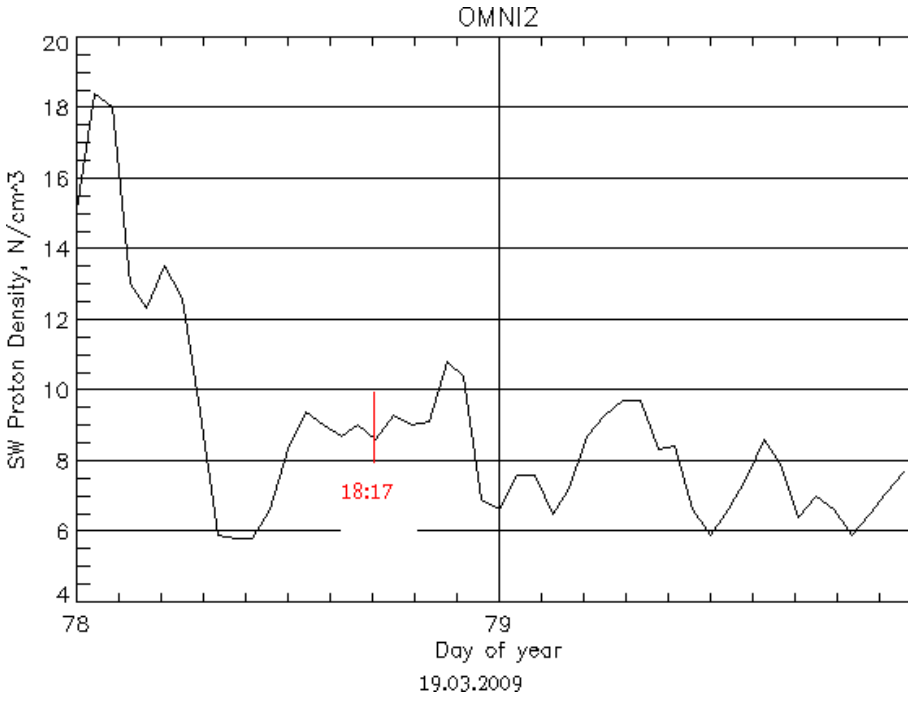


Fig.13B. Significant earthquake in Tonga region

M 7,6-	19.03.2009r.	18:17:40 UTC

Samoa Island Region

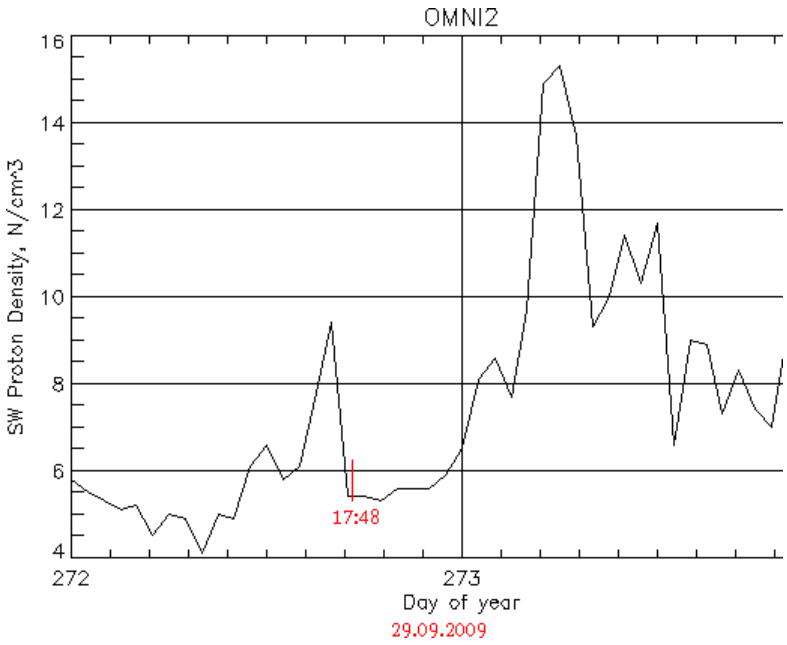


Fig. 14 A. Significant earthquake in Samoa Island Region

Samoa Islands region	M 8,1-	29.09.2009	17: 48:10 UTC

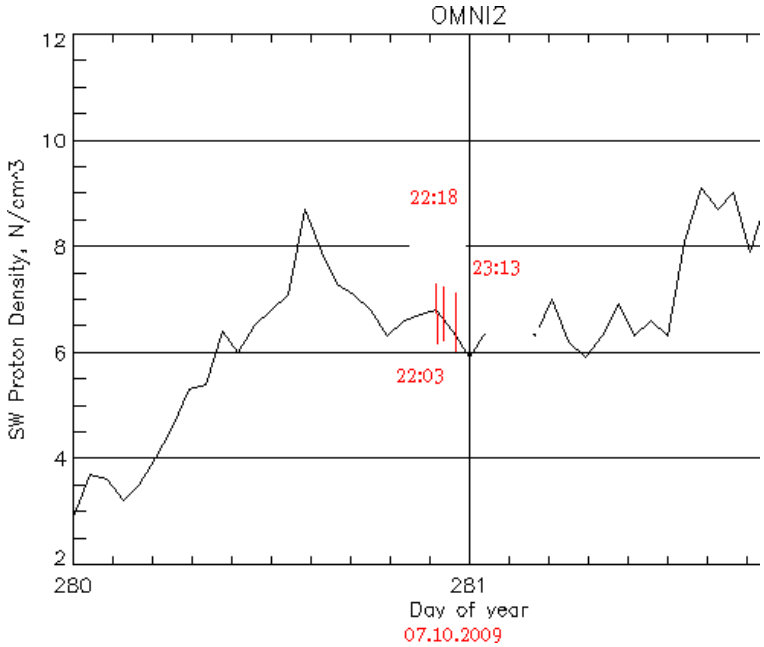


Fig.14B. Significant earthquakes in Vanuatu, Santa Cruz, Vanuatu

Vanuatu	M 7,7	07.10.2009	22:03:15 UTC
Santa Cruz	M 7,8	07.10.2009	22:18:26 UTC
Vanuatu	M 7,4	07.10.2009	23:13:49 UTC

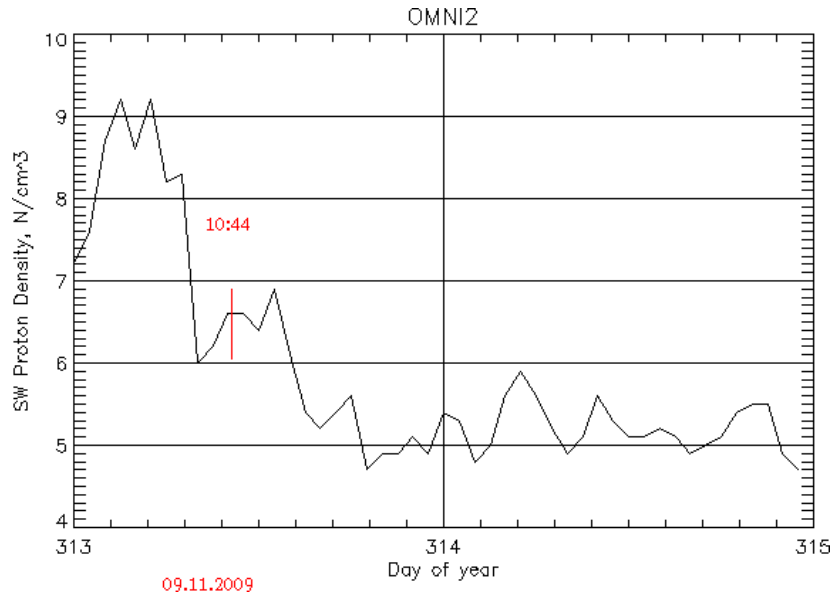


Fig.14C. Significant earthquake in Fiji

Fiji	M 7,3	09.11.2009	10:44:54 UTC

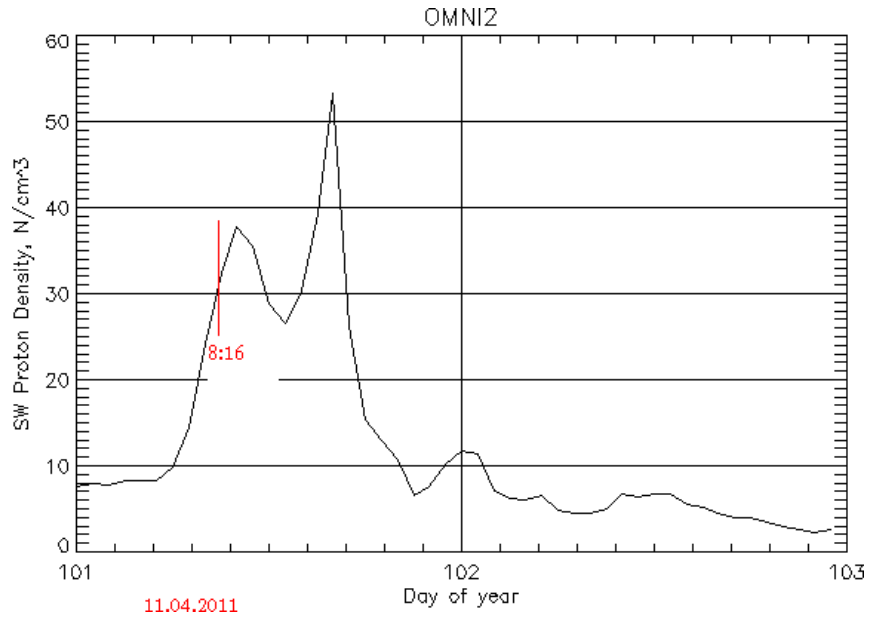


Fig.14D. Significant earthquake in Eastern Honsiu (Fukushima)

Eastern Honsiu (Fukushima?) M 7,1 11.04.2011 8:16:13 UTC

XII. Explanation of sea level changes in the last 500 years in NW Europe and equatorial ocean

On the graph from work by Nils-Axel Mörner (entitled Biology and Shore Morphology: keys to proper reconstruction of sea level changes), that is mentioned below we see sea level changes in NE Europe and equatorial oceans. I make attempt to explain this changes on the basis on my works published on Researchgate.

Biology and Shore Morphology:

keys to proper reconstruction of sea level changes

Nils-Axel Mörner

Paleogeophysics & Geodynamics, Stockholm, Sweden

morner@pog.nu

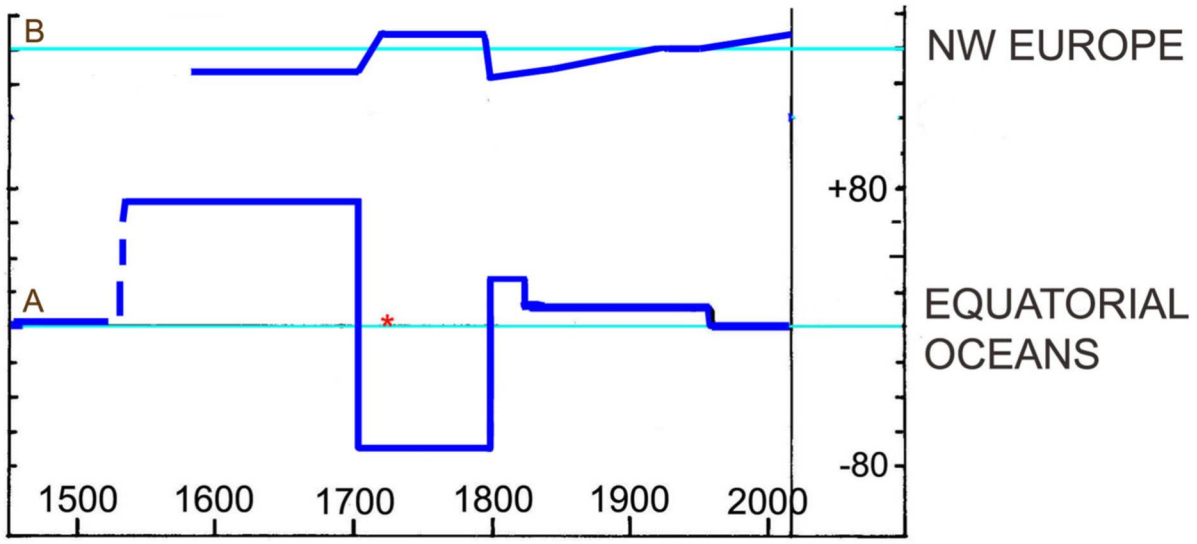


Fig. 15. Sea level changes in the last 500 years. A: the equatorial curve here presented, which is dominated by rotational eustasy (expansion/contraction of the equatorial bulge as a function of changes in Earth's rate of rotation). Red star marks a tsunami event in the Indian Ocean (Mörner, et al., 2008; Mörner, 2017b, 2018a). B: the northwest European sea level curve dominated by climate and glacial eustasy.

Differences in sea level observed in the period between 1700-1800 NW Europe and equatorial oceans is probably due to the movement of the earth coating and occurrence the equatorial bulge. Equatorial bulge moves across the surface of the earth with the movement of the earth's coating resulting in a simultaneous lowering of the level of the ocean in the regions away from the equator and the while increasing sea level in the area NW Europe, which is coming up in that time to the equatorial bulge while moving of earth coating relative to the ecliptic plane. This is confirmed by the phenomenon of increasing the number of earthquakes at that time in Poland (see Fig.2), reflecting the approach of the Polish area to the equator. In the years 1540-1700 sea level around the equatorial ocean rises up because of movement of earth coating and of the coming back of this area to the equatorial region of the globe. At that time, the number of earthquakes in Poland is close to the minimum, which indicates an increase in the distance from the equator of the territory of Poland. This confirms the low level of the sea in NW Europe, which is in that time move away from the equatorial bulge, after moving to the North the area NW Europe together with earth coating moving to direction of the North.

XIII. Hemispheric temperature change versus shift of the Earth's coating

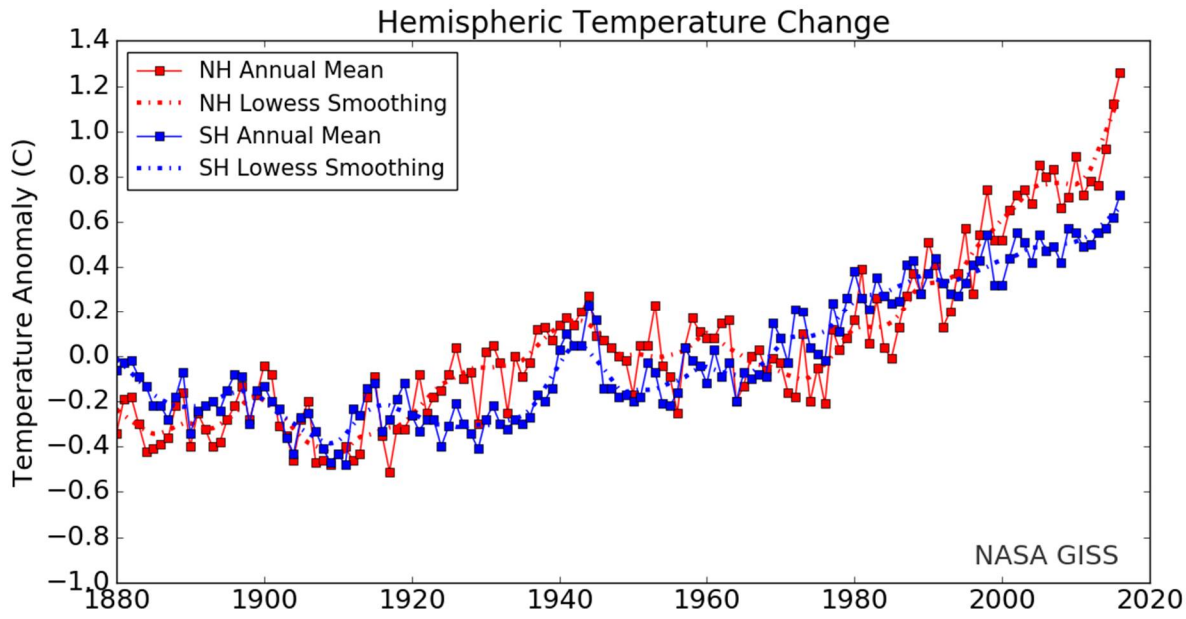


Fig.16. Hemispheric temperature change 1880-2020

Source of image: https://data.giss.nasa.gov/gistemp/graphs/

Date of download 13 August 2017,4:45 Jakuszowice, Poland

What we can see on above picture is higher temperature in Northern Hemisphere NH versus Southern Hemisphere SH in period around 1914-1956 and 1990-2017 years. It can be explained by shift of Earth's coating over liquid Earth's core. Meteorological stations located all around the globe have moved in relation to to the ecliptic plane such way, that on the northern hemisphere is more of solar irradiance versus southern hemisphere, and higher temperatures in NH are being noted, and SH is cooling itself.

The moves of Earth's coating are correlated with LOD (length of day changes). When the coating moves to the north, temperatures in the NH decrease and LOD is increasing (the speed of Earth's rotation slow down) and vice versa as you can see on the Figure below. When LOD is decreasing (speed of Earth's rotation increases) , SST (sea surface temperature) increasing because oceanic upwelling decreasing and vice versa.

For the explanation of Earth's coating movement see my work above.

On the below picture (Fig.17) we see change of the position of North Magnetic Pole what reflect movement of earth's coating. North Magnetic Pole each year is closer to north geographic pole and we know that this should increase the rotational speed of Earth.

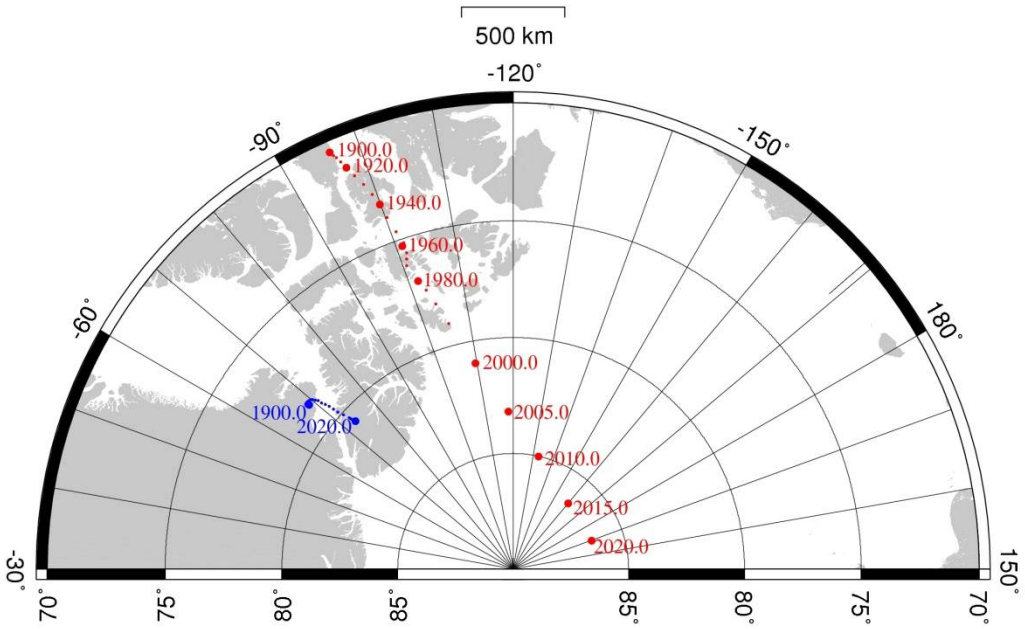


Fig. 17. Positions of the North Magnetic Pole (red) on XX century
Source of the graph: http://www.geomag.bgs.ac.uk/education/poles.html

On the Fig.18 we see that in XX century LOD (length of earth's day) decreased (speed of Earth rotation increase) what confirms my thesis. Moment of inertia of the Earth decreased together with movement of earth's coating to equilibrium position important for the increase rotational speed of the Earth.

Decreasing LOD (increasing rotational speed of the Earth) accompanies increasing air surface temperatures in USA in the same time what means that North America moves in direction to near warmer (near equator) areas of Earth. This confirms movement of this part of Earth coating to the south. The same phenomenon is seen on the Fig.19.

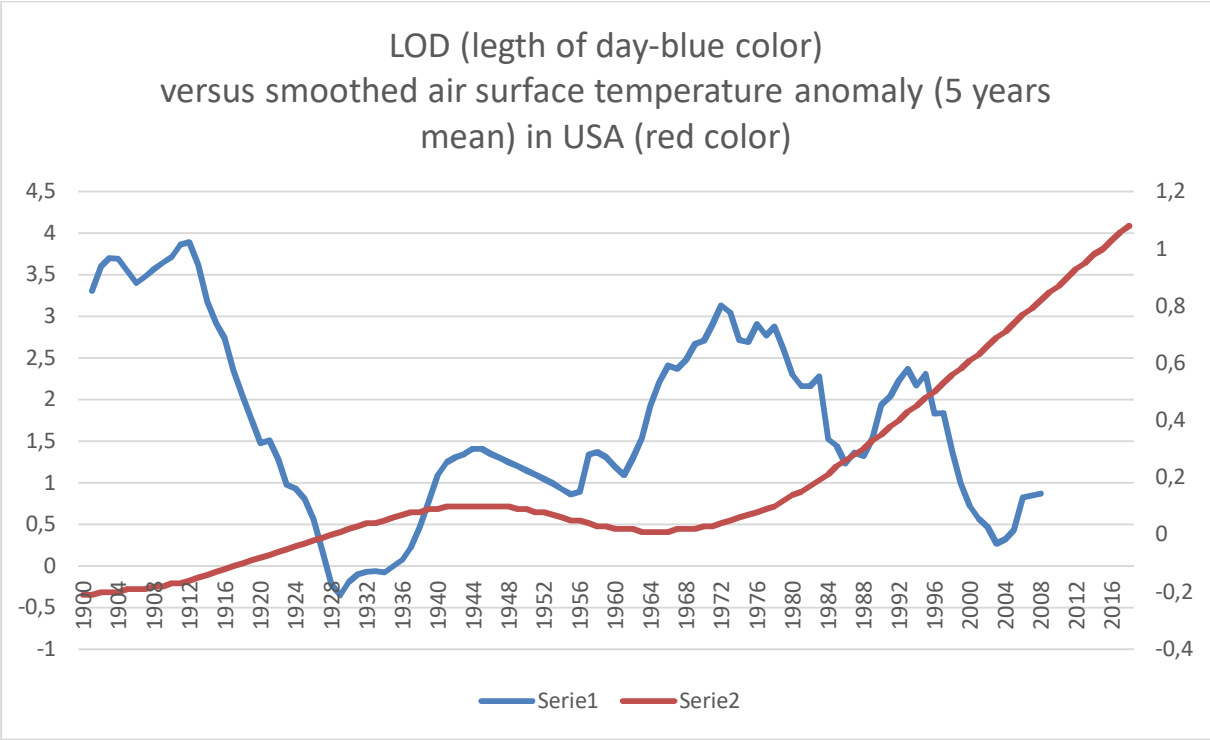
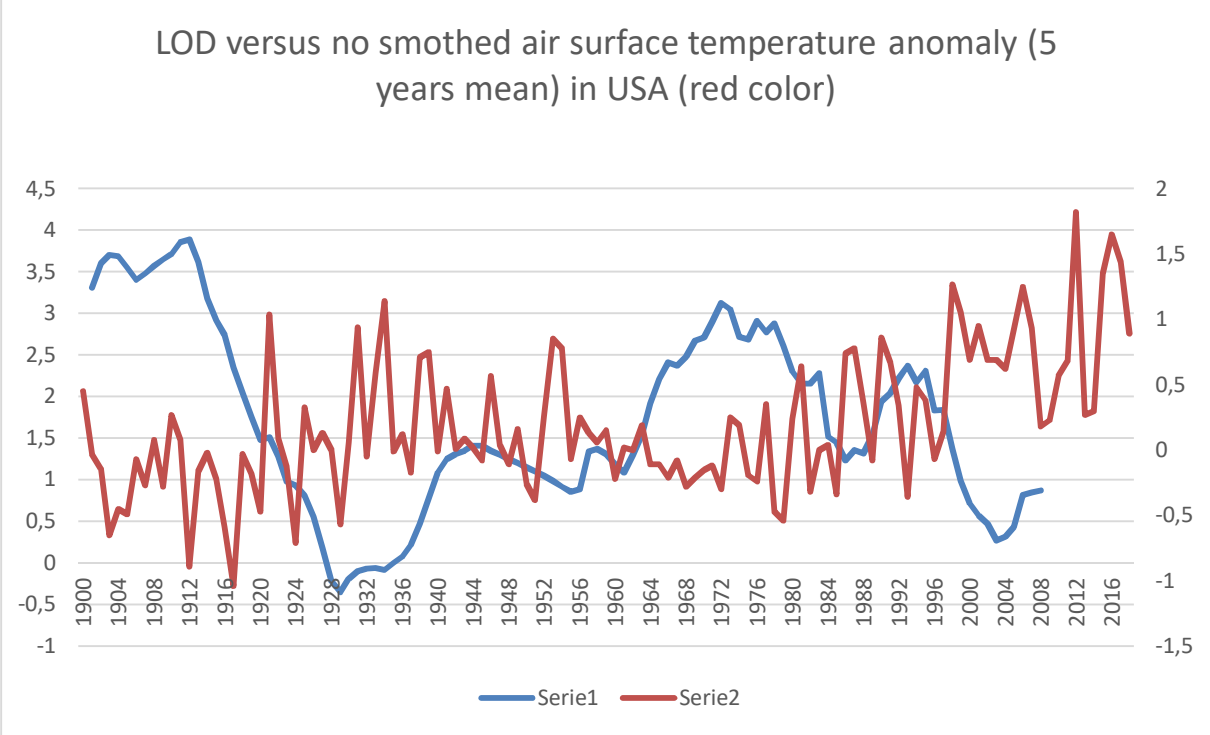


Fig.18. LOD versus smoothed air surface anomaly in USA (5 year mean) red color

Source of LOD : https://hpiers.obspm.fr/eop-pc/index.php

Source of air surface temperature in USA data:

https://data.giss.nasa.gov/gistemp/graphs_v4/customize.html



Fog.19. LOD versus no smoothed air surface temperature anomaly in USA (5 years mean) red color

Source of LOD : https://hpiers.obspm.fr/eop-pc/index.php

Source of air surface temperature in USA data:
https://data.giss.nasa.gov/gistemp/graphs_v4/customize.html

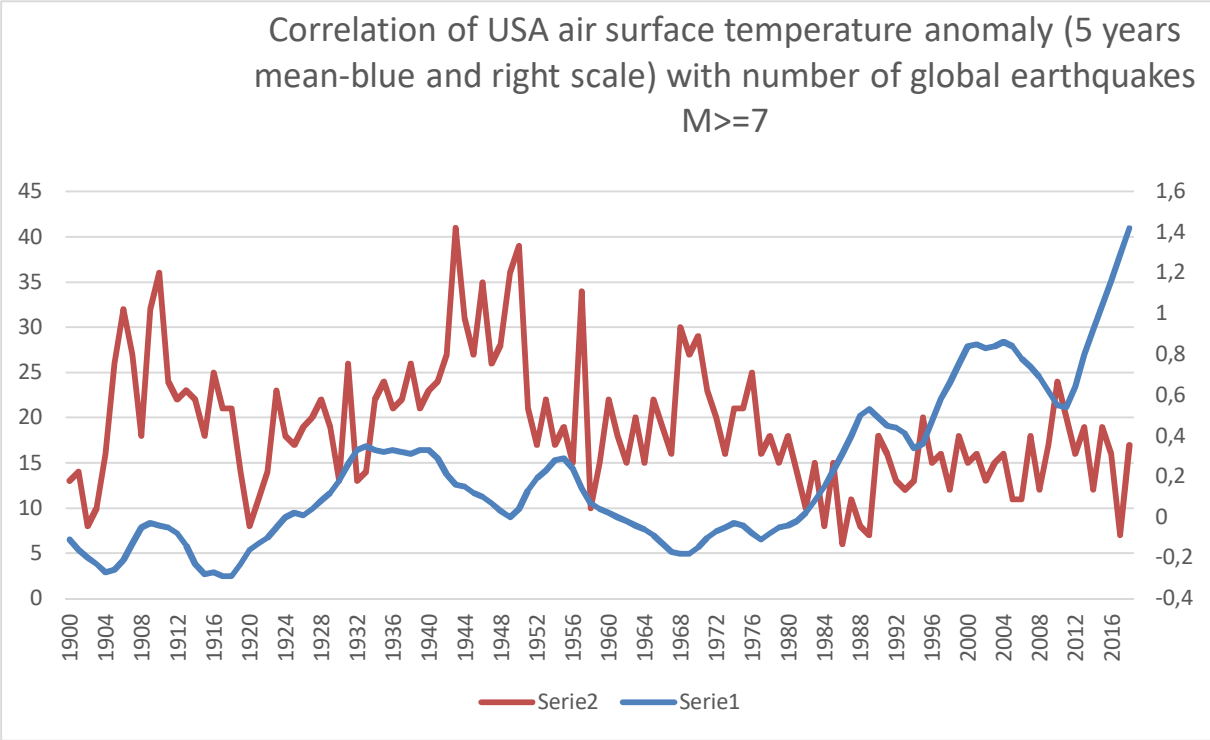


Fig.20. Correlation of USA air surface temperature anomaly (5 years mean) (color blue) with number of significant earthquakes of magnitude M>=7 worldwide

Source of data of significant earthquakes: Author's own analysis based on data from the U.S.G.S. Earthquake Hazard Program. Source of data:
http://neic.usgs.gov/neis/eqlists/7up.html

Source of data of air surface temperature in USA downloaded on May 2019:
https://data.giss.nasa.gov/gistemp/graphs_v4/customize.html

On the Fig.20 we see clearly negative correlation of number of significant earthquakes (most of them occurred in the ring of fire on the Pacific Ocean) and air surface temperature anomaly in USA. This correlation confirms my thesis and means that LOD decreased in the same time

with decrease of number of significant earthquakes and air temperatures in USA grew while area of the globe near the North America approach closer to equator.

XIV. Mechanism of global changes in food prices

1.The Sun sets food prices

Sources of Data:

FAO Food price indices. Link:

http://www.fao.org/fileadmin/templates/worldfood/Reports_and_docs/Food_price_indices_data.xls

Yearly mean total sunspot number. WDC-SILSO, Royal Observatory of Belgium, Brussels link:

http://sidc.be/silso/DATA/monthssn.dat

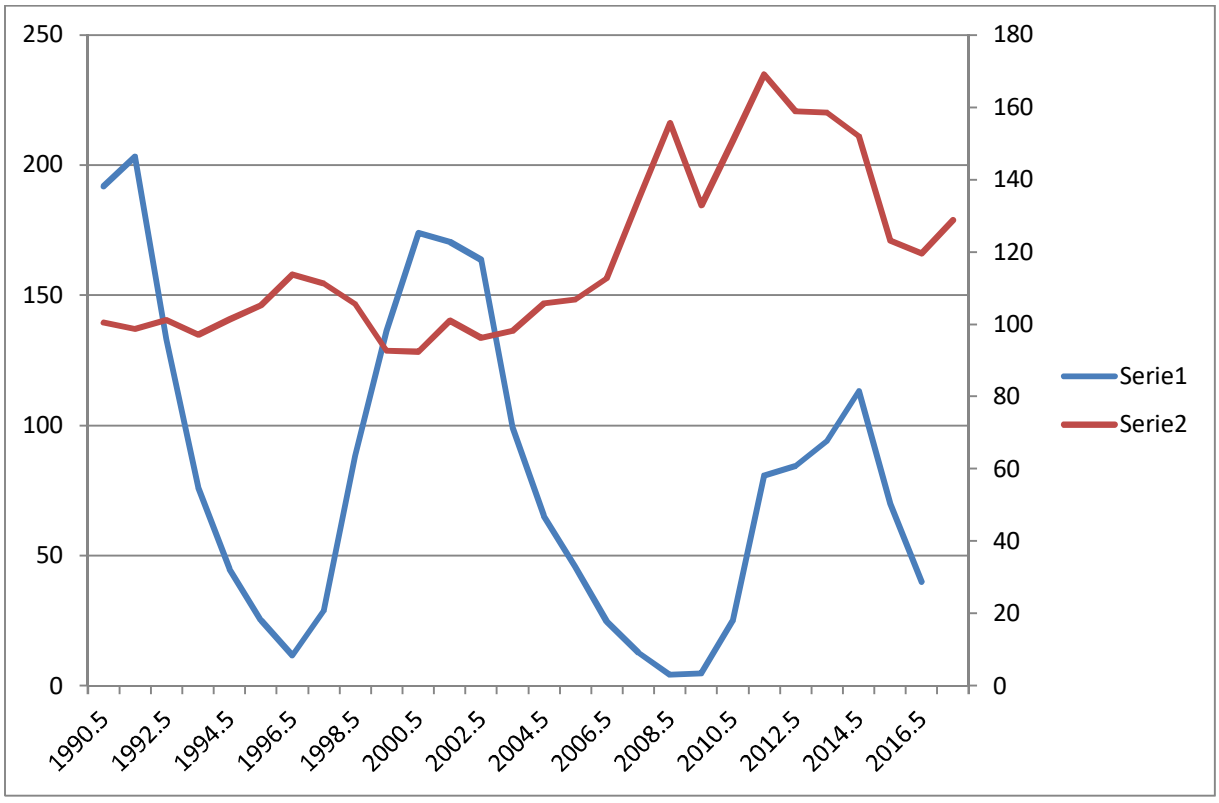


Fig.21 Negative correlation Total Sunspot Number (blue color left scale) with changes in the index of food prices by FAO (red color right scale)

The chart above shows the changes in magnetic activity of the Sun that described by Total sunspot number (color blue) and their

negative correlation with changes in the index of food prices set by FAO. Since 1999, the index of food prices rising, especially in periods of declining activity magnetic of the Sun - decreasing values of Total Sunspot Number. In the period 2019-2040 will age decrease in the magnetic activity of the Sun and with it will increase global food prices, increase of the level of oil and gas prices, and inflation which will lead to a global and very rapid economic and political crisis. I warn against this crisis since many years, but somehow the reaction of scienists is not visible.

See the following articles:

1. Pustilnik, L. A. & Yom Din, G. Influence of solar activity on state of wheat market in medieval England. *Preprint*, http://xxx.lanl.gov/abs/astro-ph/0312244, (2003).

http://www.nature.com/news/2003/031222/full/news031215-12.html

En Excerpt from this work:

At the point in the solar cycle when sunspots were least likely, wheat prices tended to be high, report Lev Pustilnik of Tel Aviv University and Gregory Yom Din of the Golan Research Institute in Kazrin[1].

2. The area of cultivated land changes

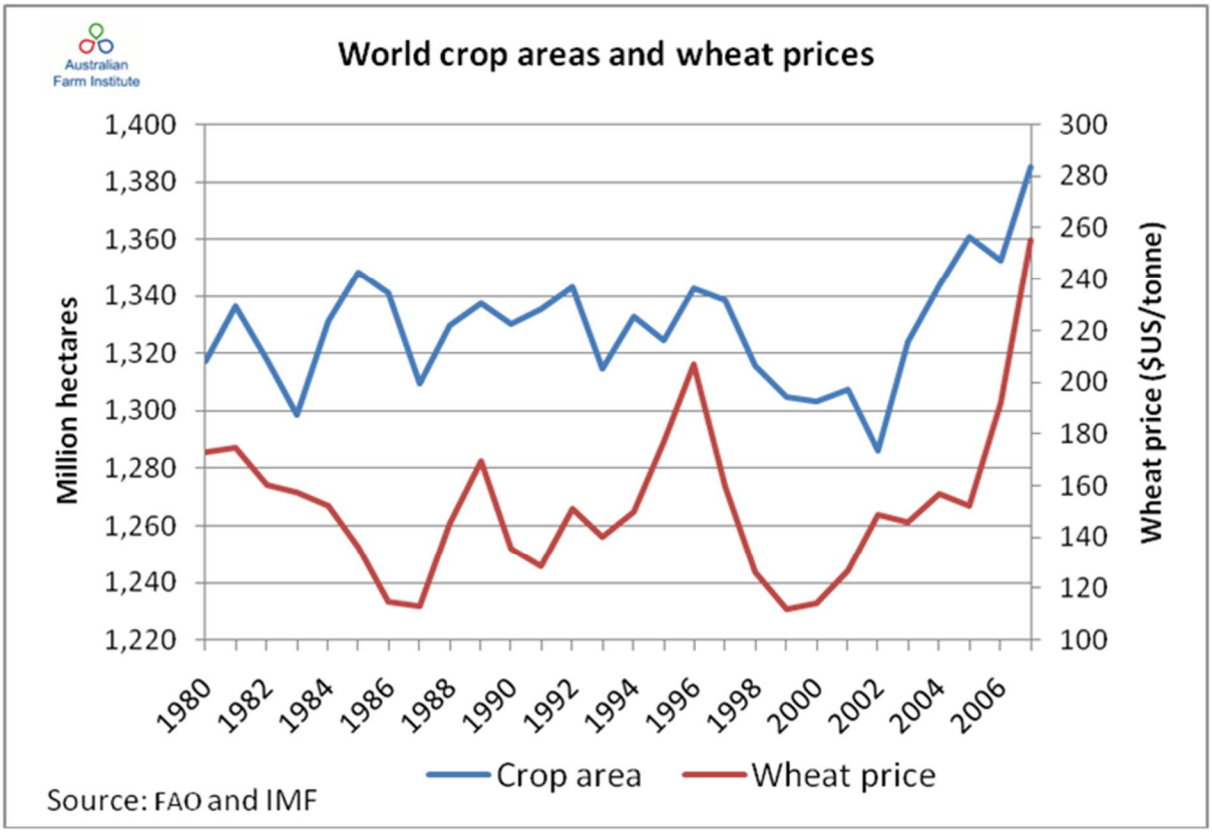


Fig.22 World crop areas and wheat prices

When wheat prices are high world's crop are grows and vice versa.

3.Mechanism of changes in global food prices

What we can see on the picture Fig.16 is higher temperature in Northern Hemisphere NH versus Southern Hemisphere SH in period around 1914-1956 and 1997-2017. It can be explained by shift of Earth's coating over liquid Earth's core. Meteorological stations located all around the globe have shifted in such way to the ecliptic, that on the northern hemisphere is more of solar irradiance versus southern hemisphere, and higher temperatures in NH are being noted, and SH is cooling itself.

Behind the changes in the location of the earth's coating goes the changes in the distribution of precipitation zones in the north-south direction during the reverse movement of the coating from north to south and vice versa.

Food surpluses are produced in the white man civilization countries where there is a great concentration of agricultural property and a reduction in the farmer population. If areas of these countries move along with the earth's coating to areas of unfavorable rainfall, food production is reduced. Reduced agricultural production occurs both during droughts and during an excessive rainfall. Reducing of the surplus of food production results in a global increase in market prices, which in turn increases the area of agricultural crops (Fig. 22) , resulting in an increase in food production and lowering prices of food.

When the earth's coating again moves back, there is a global improvement in the weather conditions in countries of western civilization, an increase in the agriculture output per hectare, and there is excess of food causing a decline in its price. And so on in the circle. Food prices are affected by the freight rates. In periods of decline in production in countries with no surplus food, there is an increase in the import of food from countries with surpluses of food. This results in a significant increase in freight rates, which increases the price of food shipped. So, the drop in food production among the major food consumers in Asia is likely to increase freight rates, ie the BDI Baltic Dry Index?

Since about 1997 the northern hemisphere has begun to warm up, with respect to the southern hemisphere (see Fig. 16), and at the same time, the world food prices have risen sharply (Fig. 21). Also during this period the total amount of precipitation in the USA and India decreased and the speed of rotation of the Earth increased (see link https://www.researchgate.net/publication/318838360_How_to_predict_the_rainfall_in_India_and_USA) and decreased magnetic activity of the Sun (Fig.21). The gravitational forces around the Earth have increased and the earth's coating has shifted that in the Northern Hemisphere is more sunlight and US and India shifted up to the zone of the summer droughts and winter rainfall.

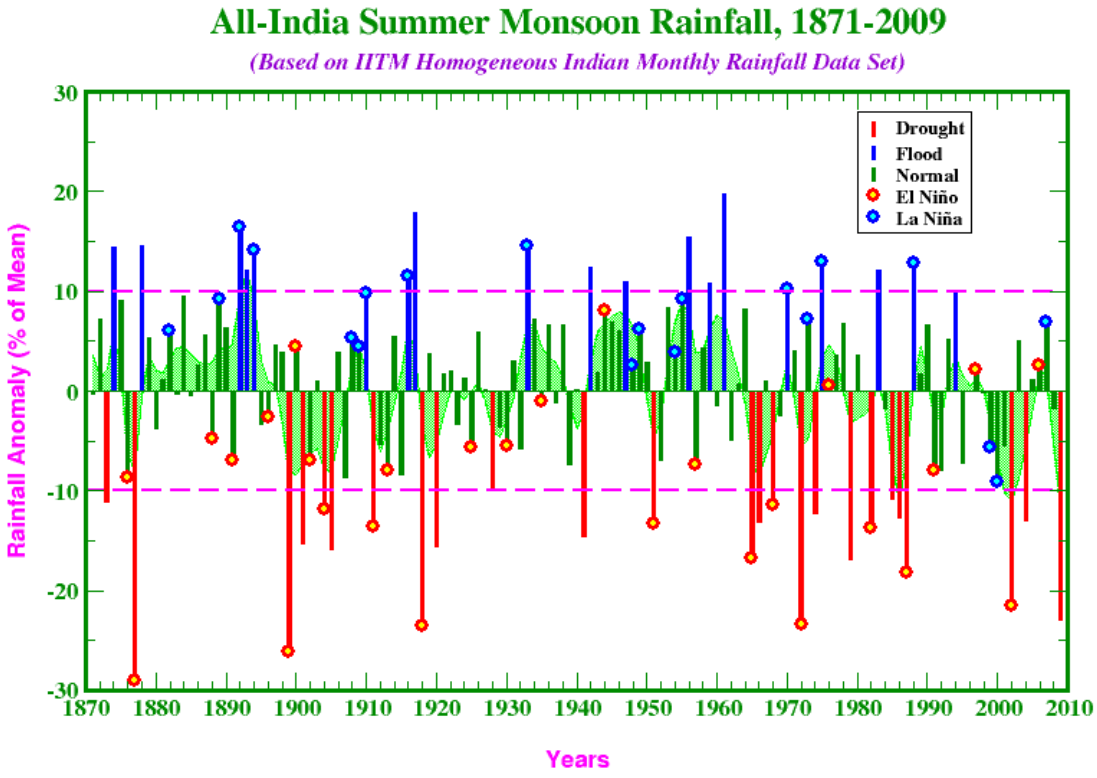


Fig. 23. The course of All-India Summer Monsoon in period 1870-2010 year.

Source of the graph: https://www.rmets.org/sites/default/files/abstracts/Mar/16032013-slingo.pdf

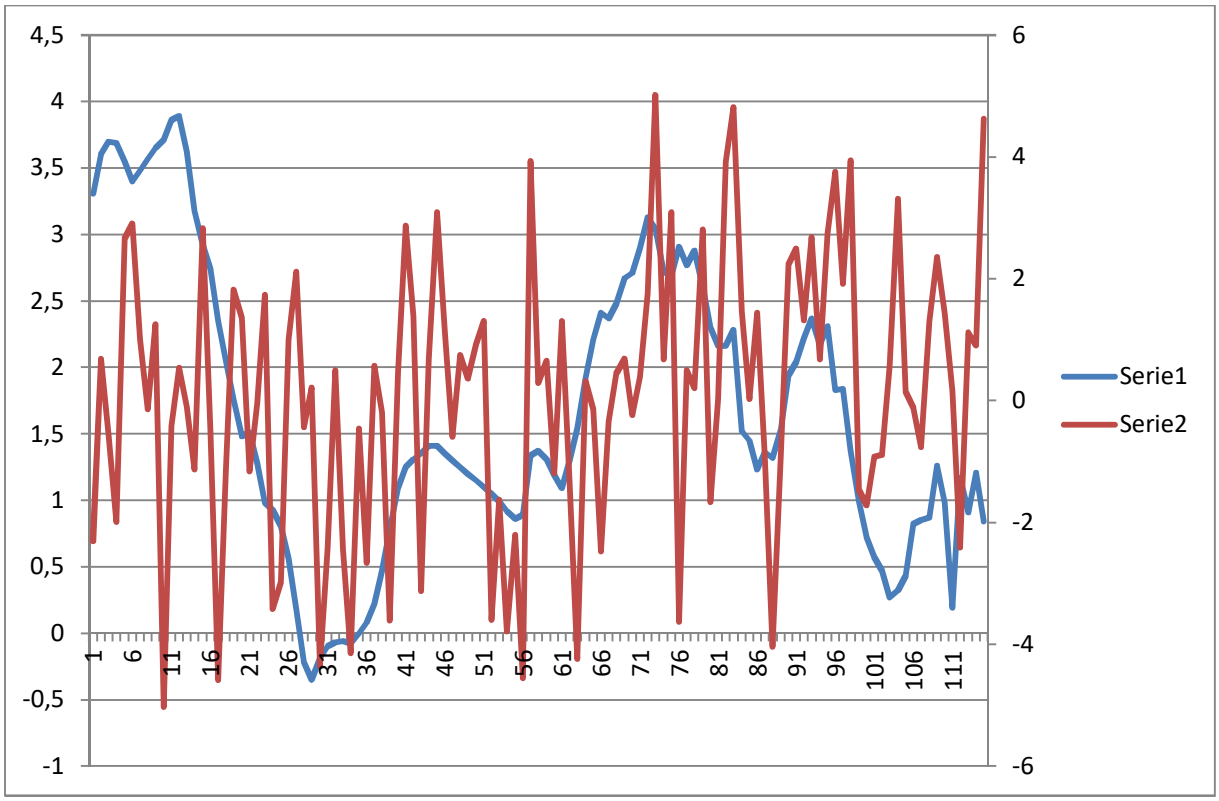


Fig.24. Annual anomaly of rainfall in all USA during period 1901-2015 (in inches-color red) versus LOD -excess of the duration of the day (in miliseconds) to 86400 second (color blue)

Source of data: Annual anomaly of rainfall in all USA during period 1901-2015 link: https://www.epa.gov/sites/production/files/2016-08/precipitation_fig-1.csv

LOD data link: https://www.iers.org/IERS/EN/Science/EarthRotation/LODsince1623.html;jsessionid=720AA8FEA9C00E696AEAE984F3F0BF91.live2?nn=12932

On the Fig.24 we see:

-more dry weather in the USA usually connected with lowering (smaller) length of earth's day and shifting USA area to the South together with Earth’s coating,

-more rain in USA is connected with bigger length of earth's day and shifting USA area to the North together with Earth’s coating,

There is likely to have been a decrease in the volume of food production in the US and India. The same was in the other countries on the same latitude and world food prices have risen . The upcoming decrease in magnetic activity of the sun will likely again result in similar physical effects around the Earth, and on the Earth, and food prices will again begin to rise sharply. I ask the question: What is more effective? Do you move food endlessly to countries that need it? Would not to be better to carry a surplus of population from overpopulated countries to countries with surplus agricultural land? In my opinion, this will safeguard us from the adverse effects of climate change. Further research is needed!!!

XV. The proofs that the Earth's coating is moving

Below on the graph Fig.25 we see reconstruction of the temperatures from Northern and Southern Hemisphere -proxy temperatures from ice cores taken from southern hemisphere – from the Antarctic - Vostok, and northern hemisphere -from the Greenland - GISP2. We see that temperatures in Antarctic are lower than in northern hemisphere but occasionally they are the same or higher than northern hemisphere temperatures. We can explain this by Earth's coating rotation. When Earth's coating is in balance- this means that all northern hemisphere is above ecliptic plane and all southern hemisphere is below ecliptic plane and insolation of both hemispheres are even, temperatures of both hemispheres are the same too. When Earth's coating moves and northern hemisphere is partly below an ecliptic plane the temperatures of Antarctic are lower than Greenland's temperatures because of higher insolation of Greenland. When Earth's coating moves in opposite direction and southern hemisphere is partly above an ecliptic plane the temperatures of northern hemisphere are dropping down and southern hemisphere temperatures are rising. During the Holocene the Northern Hemisphere temperatures are higher than the Southern Hemisphere temperatures and both of them have increased since 10000 BP. If planets of solar system will negatively change their positions on the sky there will be probably again cold period of Earth's climate. We need to research it. Now we know that Earth's coating is moving accordingly to changes of the temperatures of both hemispheres.

During the glacial periods in North America and Europe, the southern hemisphere was above the ecliptic plane and the northern hemisphere had less sunlight, which caused lower temperatures in Greenland than in Antarctica. Temperatures of both hemispheres were much lower than during Holocene. This can be explained only by the increased upwelling of the

ocean cooling the surface of the oceans, what cooled the Earth's atmosphere. The earth's coating was shifted by gravitational forces in such a way that the moment of inertia of the Earth increased and its rotational speed decreased, which caused the swaying of the Earth's axis of rotation causing inertial movements of of oceanic waters which are very cold in the depths. Upwelling means the movements of the oceanic water in the vertical direction which causes the outflow of cold water from the depths of deep ocean to the surface of the ocean and the cooling of the Earth's atmosphere.

Source of the graph Fig.25 under the link:
http://www.climatedata.info/proxies/ice-cores/files/stacks_image_9595.png

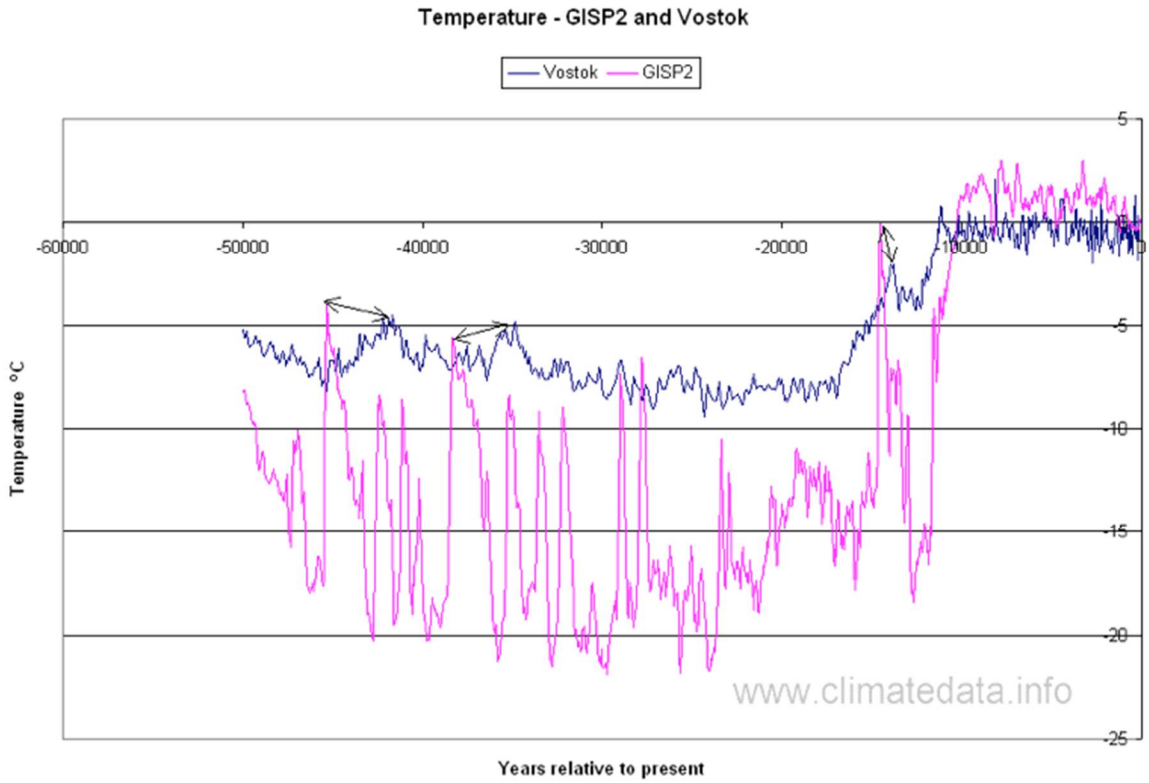


Fig.25. Temperatures reconstructed from ice cores GISP2 in the Greenland and The Vostok in the Antarctica of the last 60000 years

XVI. Changes in surface temperature of the ocean in the Pleistocene off the coast of Spain

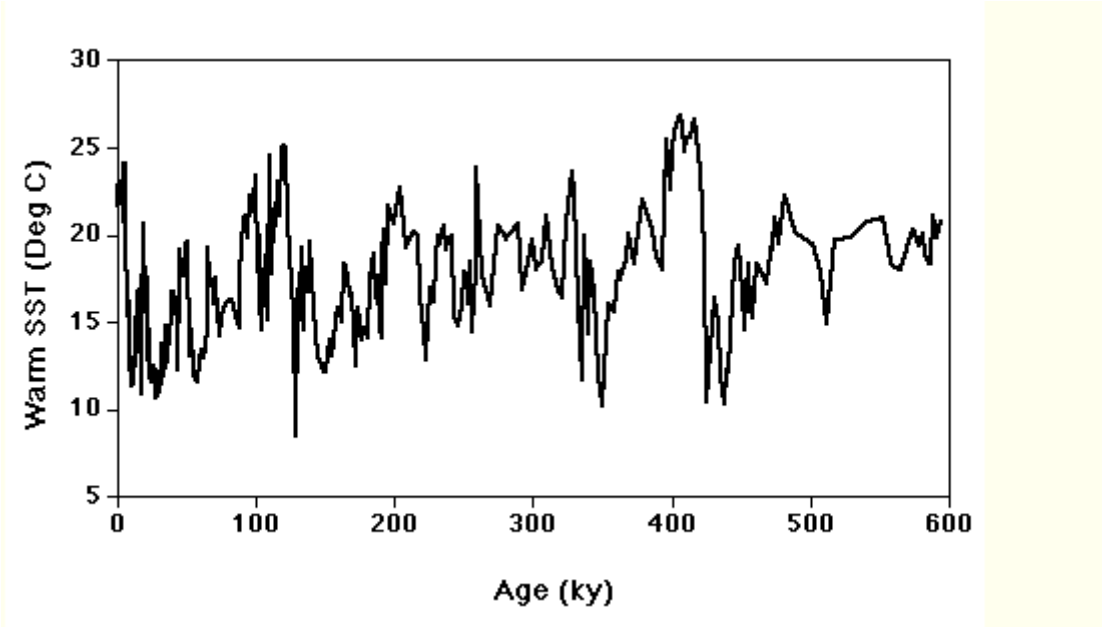


Fig.26. Reconstruction of sea surface temperature (SST) off the coast of Spain (west of Spain, latitude 41 ° N) in the last 600,000 years. Drawing source (Mc Duff et al., 2001).

SST investigations of surface sea waters based on the study of the species composition of planktonic foraminifera (foraminifera are a precise indicator of the environment) found in the bottom sediments of the North Atlantic (west of Spain, latitude 41 ° N), so in sediments of waters lying at the border of the subarctic zone and subtropical showed that SST (sea surface temperature) has been changing cyclically in the last 600,000 years in the range of 8 ° C to 27 ° C. Such large temperature jumps of surface ocean waters in an area where oceanic waters are always warm can only be explained by periodic increasing upwelling, resulting in a lower sea surface temperature and of the cooling the climate (Mc Duff et al., 2001).

References

Mc Duff Russell E, Heath G.Ross (2001), Oceanic records of Pleistocene climatic change, link to work: http://www2.ocean.washington.edu/oc540/lec01-24/

XVII. Global mean change of air surface temperatures on the globe in period 1880-2018

The temperature of the interior of Earth is sustained by the constant friction between the COATING of Earth and its LIQUID CORE. The coating of Earth, consisting of the crust and

the mantle, is rotating under the influence of the alternating gravitational forces of the solar system and is rubbing against a liquid, metallic Earth's outer core, which is a spherical sliding surface for Earth's coating. Solid metallic inner core of Earth is in the grip of the magnetic field of the Sun, which alternates according to the pulses of gravity within the solar system. We see that the movements of the masses within Earth geoid are coupled with internal gravitational interactions within the solar system, which are also subject to the influence of our galaxy.

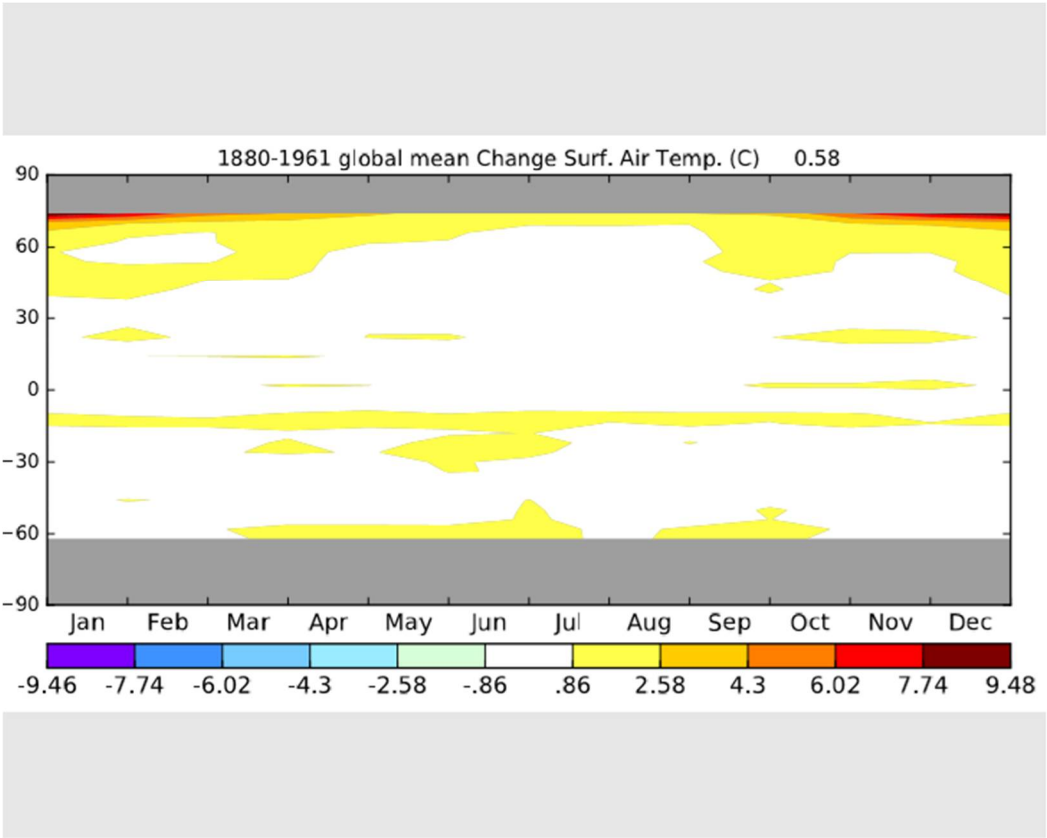


Fig. 27A Global mean change of air surface temperatures on the globe in period 1880-1961.

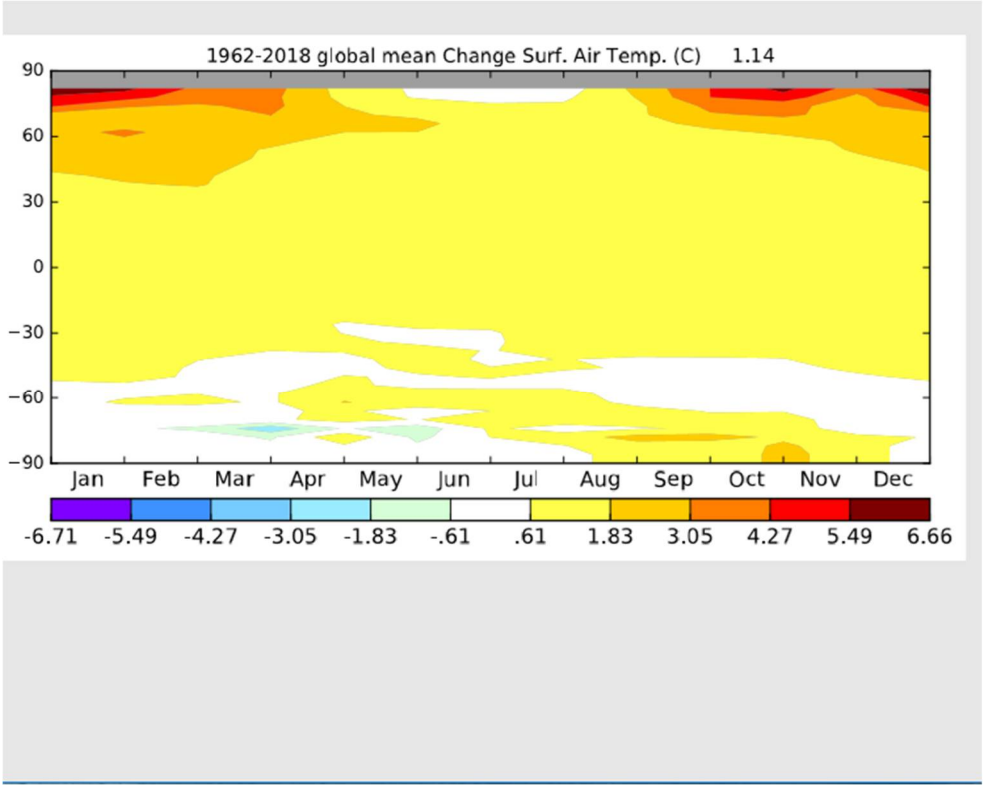


Fig. 27B Global mean change of air surface temperatures on the globe in period 1962-2018.

Source of the graphs Fig.27 A,B**:** https://data.giss.nasa.gov/gistemp/zonal_means/

We see that Southern Hemisphere is cooler in period 1962-2018 than in period 1880-1961. This means that in the Northern Hemisphere is more sunlight than on the south because the more of the area of Northern Hemisphere (for example North America) is closer to equator the higher are the temperatures in the Northern Hemisphere .

The graphs of the zonal temperature (above) distribution on the Earth's globe for the periods 1880-1961 and 1962-2018 presented below show the shift in time of high temperature zones to the North direction of the globe. This may indicate the shift of the northern hemisphere toward the ecliptic plane (and its greater insolation), i.e. shift of the Earth's coating in such way that part of former Northern Hemisphere is below to the ecliptic plane.

XVIII. Why Earth's coating rotates around the liquid core of the Earth

Earth's coating consists earthly crust and mantle. The earthly coating rotates around liquid core of the Earth. Why does it rotate? Because northern hemisphere is heavier than southern hemisphere. In the northern hemisphere is more continents and earthly crust in the continents

is much thicker and much more dense than oceanic crust more common in southern hemisphere. From Newton law we know that power of gravitation is bigger when the pulling masses are bigger, so when the group of the solar planets is approaching to the Earth, their gravitation power is the strongest for the northern hemisphere and pulls down it to themselves. This explains decadal periods of changes of position of the coating of the Earth, but what happen with it during the year? From Newton law we know that the mutual distances of the pulling objects also acts on the gravitation power. From this we know that the gravitation power of Moon acting on the Earth is two times bigger than the Sun gravitation power. Moon and Sun also is causing the rotating of the Earth's coating like the group of planets of the solar system. We see on the below pictures an image of rotating coating of the Earth in the graph of J2 changes which is Earth's shape coefficient = J2.

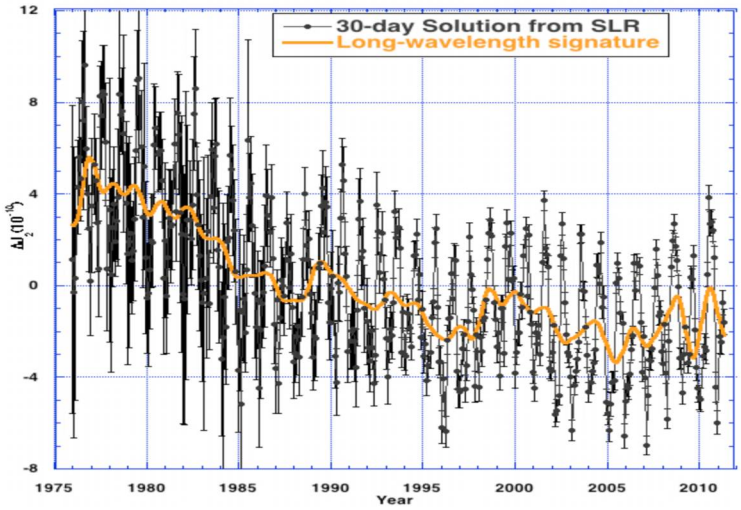


Fig.28. Delta J2 changes from SLR observations

Source of picture in the work:

Degree 2 and Geocenter Variations from Satellite Laser Ranging

Minkang Cheng

Center for Space Research

The University of Texas at Austin

We see on the above picture twelve of monthly changes of J2 in the each year (black line) which are caused by gravitational pulling of the Earth's coating by the Moon.

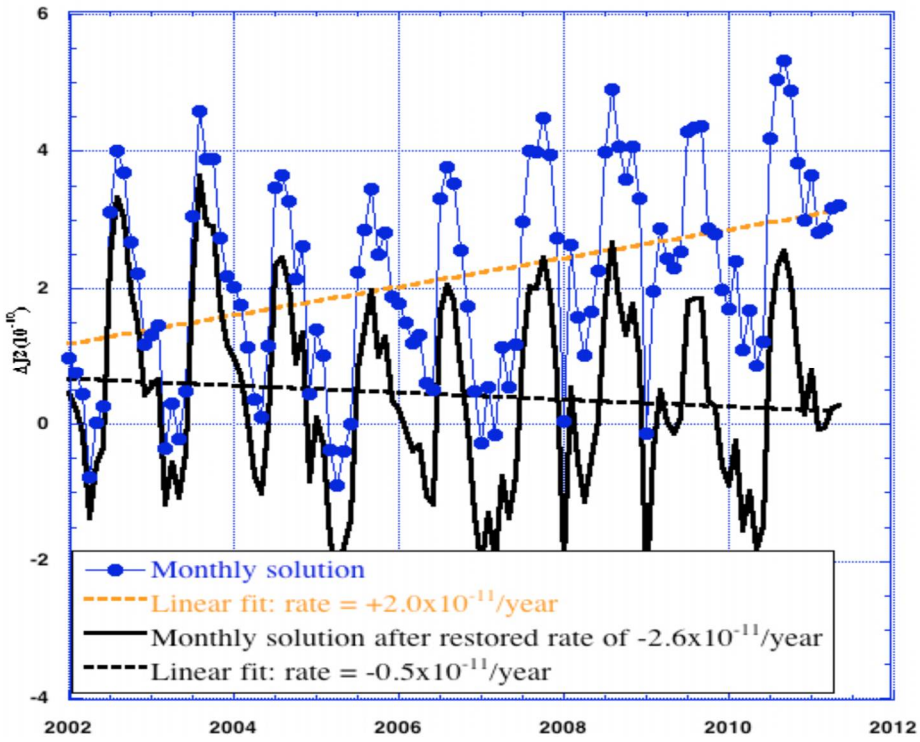


Fig.29. Monthly variations of Delta J2 coefficient

Source of picture in the work:

Degree 2 and Geocenter Variations from Satellite Laser Ranging

Minkang Cheng

Center for Space Research

The University of Texas at Austin

On the above picture we see yearly changes of J2 (blue continuous thin line from GRACE measures) which are caused by gravitational attracting of the Sun.

J2 Coefficients depends from of the Earth's shape. J2 maps changes in the flattening of the earth, which depend on the movements of the Earth's coating around the liquid nucleus of the Earth. When J2 decreases, the flattening of the Earth increases and the angular velocity of the Earth increases, and vice versa.

XIX. Cause of reversals of Earth's magnetic field

In the passes of the Solar System through the arms of the our galaxy (the Milky Way) the gravitational influences in Solar System was increasing and this was resulting in bigger rotation of the Earth's coating. Earth's magnetic field is strong gripped in the solar magnetic field and probably are very stable. When Earth's coating revolves, magnetic record of this is

written in the rocks of earthly crust is changing. To this day scientists have been thought that Earth's magnetic field rotates. In my opinion magnetic poles of the Earth were stable versus rotating Earth's coating. Changes of the apparent position of the North magnetic pole to the reversal position is sign that Solar System shifted through an arm of the Milky Way and gravitational forces were very strong to done it. When Earth's coating was revolving, tectonic plates of the Earth's crust were subjected the variable centrifugal force that caused fast movement of the tectonic plates in the Earth's surface.

XX. Fluctuations of the Earth's dynamic oblateness J2 versus atmospheric emissions of Carbon dioxide

Fluctuations of the Earth's dynamic oblateness J2 are a measure of Earth's coating movement - the movements of the equatorial bulge and flattening of Earth on the poles. It is measured in SLR - geodetic satellite laser research. J2 is directly related to the degree-2 zonal (C20) coefficient of the gravity field

$J2=-\sqrt{5}C20$

Explanation what is this the J2 coefficient is in Reference Earth Model -WGS84(Copyright 2002, David T. Sandwell). According to D. T. Sandwell, J2 coefficient depends from polar radius c, flattening f = (a -c)/a, equatorial radius a, rotation rate of Earth's -omega, gravitational constant G, mass of earth Me.

Fluctuations in the degree-2 zonal spherical harmonic coefficient of the Earth's gravity potential C20 is shoved in the graph below. This coefficient is related to the Earth's oblateness and studying its temporal variations,$\Delta C20$, can be used to monitor large-scale mass movements between high and low latitude regions. $\Delta C20$ has been examining (2003-2019) inferred from six different sources, including satellite laser ranging (SLR), GRACE and global geophysical fluids models. We further include estimates that we derive from measured variations in the length-of-day (LOD), from the inversion of global crustal displacements as measured by GPS, as well as from the combination of GRACE and the output of an ocean model.

Ocean emission of carbon dioxide depends (in my opinion) from rate of photosynthesis in surface layer of ocean which is fed by rising from the bottom fertile and dense waters of ocean - by the oceanic upwelling .

Changes in Earth's shape ie. flattening, equatorial radius changed by movement of earth's coating (with equatorial bulge and flattening on the poles) relative to ecliptic plane cause changes of earth's rotation rate and upwelling changes (the vertical mass movement of oceanic waters due to changes in centrifugal force and swaying of the Earth's axis of rotation) in oceans ie. increasing or decreasing of photosynthesis resulting in carbon dioxide emission changes from oceans (see the explanation to the next chapter). That is why we see almost strict correlation of carbon dioxide emission with Earth's shape changes mirrored by delta C 20 coefficient on the graph below. In my opinion when carbon dioxide emission increases decreases upwelling and photosynthesis in the ocean together with increases flattening of the Earth (due to Earth's coating movement) and C20 increases accordingly because of bigger earth's rotation rate, and vice versa. Carbon dioxide emission from ocean decreases when increase upwelling and photosynthesis in the ocean together with decreasing the flattening of the Earth and the decreasing rotation rate because of increase of the moment of Earth's inertia due to Earths coating movement.

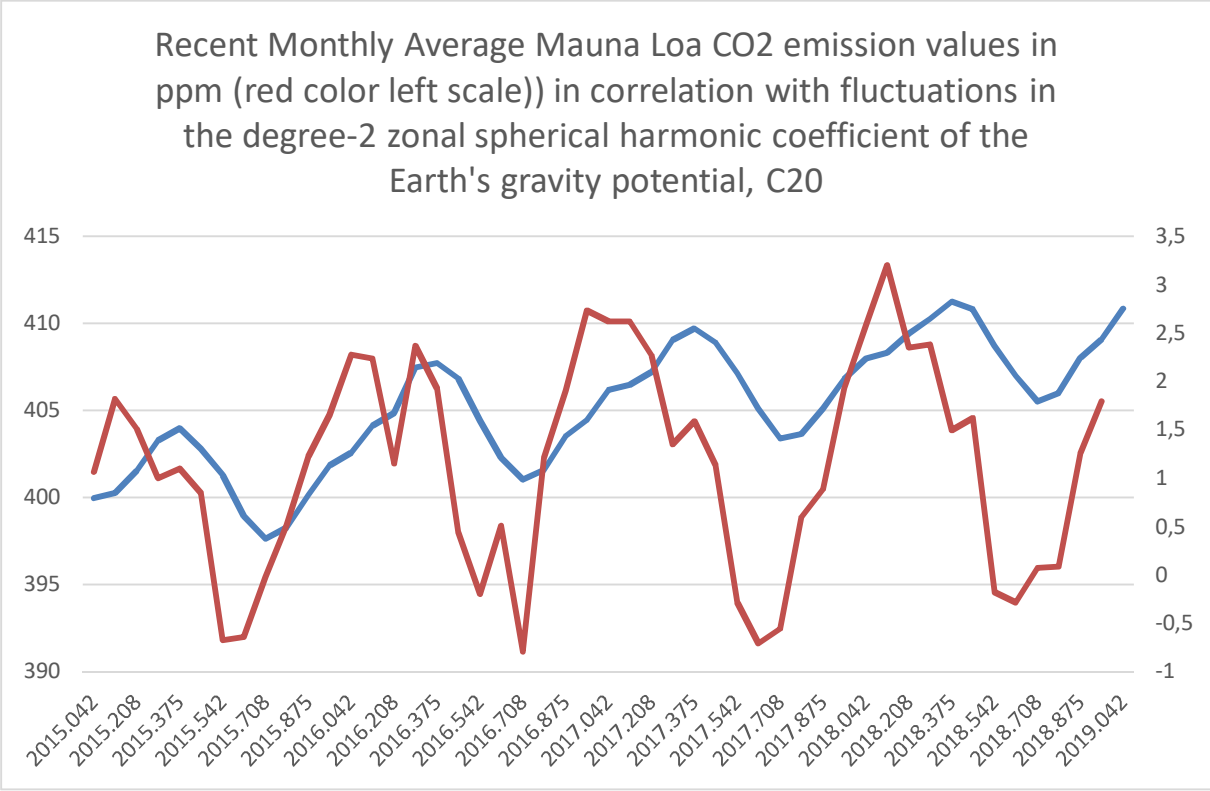


Fig.30. Carbon Dioxide atmospheric emission on Mauna Loa versus variations of flattening of the Earth the degree-2 zonal (C20) coefficient of the gravity field (J2=−√5C20

Sources of data:

Delta C20 relative to a mean value of -4.841694723127E-4 (1E-10)
Data downloaded 2019.02.09 https://grace.jpl.nasa.gov/data/get-data/oblateness/

Recent Monthly Average Mauna Loa CO_2

Data downloaded 2019.02.09 https://www.esrl.noaa.gov/gmd/ccgg/trends/

References

Thierry Meyrath, Paul Rebischung, Tonie Van Dam (2017), GRACE era variability in the Earth's oblateness: A comparison of estimates from six different sources, Geophysical Journal International 208(2):1126-1138, DOI: 10.1093/gji/ggw441, https://www.researchgate.net/publication/316941829_GRACE_era_variability_in_the_Earth%27s_oblateness_A_comparison_of_estimates_from_six_different_sources

Yu Sun, Riccardo Riva, Pavel Ditmar, Roelof Rietbroek, Using GRACE to explain variations in the Earth'soblateness, Paper downloaded 2019.02.10, 8:00 https://wobbly.earth/data/Paper_J2_for_Roelof.pdf

Xinggang Zhang, Shuanggen Jin , and Xiaochun Lu, Global Surface Mass Variations from Continuous GPS Observations and Satellite Altimetry Data. Paper downloaded 2019.02.10; 8:30 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=2ahUKEwiPs_6z0rDgAhWiwAIHHY6pCOE4ChAWMAF6BAgIEAI&url=https%3A%2F%2Fwww.mdpi.com%2F2072-4292%2F9%2F10%2F1000%2Fpdf&usg=AOvVaw0Cc2xWKet81l72omAGuHlR

Reference Earth Model -WGS84 (Copyright 2002, David T. Sandwell). Paper downloaded 2019.02.10:18:00 from site: https://topex.ucsd.edu/geodynamics/14gravity1_2.pdf

XXI. Ocean Physic-chemistry and carbon dioxide emissions versus Earth's oblateness changes

Ocean acidification leading to lowering pH of surface ocean water remains an unsolved problem of science. My article will mark an attempt at proving that this is a regular phenomenon in the ocean history linked to changes in the Earth's shape and climate.

Ocean acidification is the ongoing increase in the concentration of hydrogen ions in seawater, which are formed from dissociated carbonic acid. It has been confirmed that a decline in the pH level is teamed up with a drop in the biological productivity in the oceans, a rise in ocean temperature and a growth in the concentration of carbon dioxide in the atmosphere and in the ocean. The above facts have enabled me to formulate a theory which explains these phenomena. My theory is based on scientifically proven facts from numerous disciplines of science, what explains why researchers narrowly specialising in selected areas have not managed to-date to crunch the secrets of the ocean that call for adoption of a multilateral approach to our Planet as a part of the Universe which surrounds it.

At the beginning, I would like to present the course of the carbon cycle in the natural environment, which highlights the vital role played in this respect by the ocean containing 98% of the Earth's carbon dioxide. Surface ocean water carries more carbon in compounds than the atmosphere. Hiding the key to the mystery of ocean acidification, ocean's interiors are the principal carbon reservoir.

Contemporary models shedding the light at the secret of seawater acidification assume that the ocean waters capture carbon dioxide from the atmosphere. Later, its reactions spur the acid reaction of the ocean. My reasoning has led me to a different conclusion. It is the dwindling ocean productivity which leaves dissolved carbon dioxide in the seawater. Its solubility is diminished by the rise in ocean water temperature (by one degree Celsius since 1910, according to IPCC). Excess carbon dioxide is emitted into the atmosphere, while its growing concentration in seawater leads to ocean acidification.

Declining ocean productivity is triggered by a slump in its nutrient uptake, i.e. shrinking supplies to ocean surface waters of silicates, phosphates, carbonates, iron, etc. elements driving the ongoing photosynthesis process binding carbon dioxide from seawater, carried from the ocean's interior. A decline in ocean productivity is an after-effect of low nutrient

supply. Conversely, surface seawater is poor in life-giving elements as a result of cosmic processes, but let us discuss first things first.

The ocean is a biological machine, and its life depends on the mixing of waters in its deep ocean layers. Much remains to be learnt about this process and currently we have no knowledge of ocean water exchange processes. As life in the ocean thrives continuously, it is clear that water circulation covers the entire volume of the ocean. Circulation is triggered by ongoing and variable impact of the gravitational interaction of the Moon and the Sun (and planets) on ocean waters demonstrating diversified density. Circulation is also triggered by mixing of ocean waters (in my opinion) because of movement of Earth's surface layer ie. movement Earths coating (consisting with crust and upper mantle) relative to ecliptic plane. Oceanic tides are generated in the surface and deep waters. The cold and dense deep water masses carrying particles of bottom sediments (including life-giving elements and dissolved minerals) move upwards to cool down and supply nutrients to surface seawater, while surface waters descend into the ocean's interior to fuel biological processes with oxygen. Moreover, the impact of deep waters (rich in silicates, phosphates, carbonates) on the surface layers possibly alters their acidity by neutralising it. Ocean water exchange between surface waters and the deepest layers is augmented by continuous shifts in the location of Earth's coating - changes in the angle of the Earth's spin, what alters the centrifugal force impacting inert masses of water as well as its vertical and horizontal motions across the ocean. The shift in the location of Earth's coating is caused by changes in the location of objects in the Solar System, by the variable gravitational field. When the heavy metallic core is shifting within the liquid outer core, the location of the centre of Earth's gravity is changed just like its spin axis. This process leads to a change in the location of geographical poles, and consequently, the variable centrifugal force spurs movement of inert ocean waters and their mixing within the volume of the world ocean.

Shifts in the location of poles have probably been minor since the 17th century (LOD - length of day has stabilised according to EIRS). This is testified by migration of the North Magnetic Pole which is drifting in the 20th century towards the north geographical pole (within its close distance). In the 20th century, the Earth's coating and inner core was shifting towards a location assuring its equilibration with the current location of Earth's spin axis.

Therefore, the impact of the location of poles on the mixing of deep ocean water has been reduced. This phenomenon is tantamount to reduced upwelling - motion of cooler and

nutrient-rich deep water towards ocean surface, lowered supply of nutrients to surface layers of the ocean, limited ocean photosynthesis and a rise in surface water temperature, what has led to decline in the biological productivity of the ocean and impaired carbon dioxide binding in seawater. At the same time, this phenomenon was teamed up with a rise in acidification of ocean surface water related to a decrease in carbon dioxide solubility in ocean surface layers. The concentration of liquid carbon dioxide in seawater was increased as a result of a surge in its acidity and diffusion of excess carbon dioxide into the atmosphere where its level reached above 410 ppmv.

Witnessed since 1910 according to IPCC, ocean water warming has led to a shift in location of low- and high-pressure areas in the troposphere, what results in changes in the Earth's climate known as "global warming". More important to global warming is shift of Earth's coating.

According to IPCC (The IPCC Scientific Assessment 1990 : 11, Figure 1.6), the same mechanism involving a rise in the concentration of carbon dioxide in the atmosphere to more than 300 ppmv and the warming of the Earth's climate by 12 degrees Celsius took place approx. 120,000-140,000 years ago, what means that it was not caused by anthropogenic factors. Therefore, reasons behind the seasonal surge in the atmospheric concentration of carbon dioxide should be sought elsewhere, perhaps in processes described above and below. Climate changes, shifts in carbon emissions from the ocean are therefore a side effect of changes in physicochemical processes in the ocean which are controlled by cosmic process described by scores of researchers, including Milutin Milanković. Obliquity changes, a shift in the spin axis and location of Earth's poles are driven by changes in the distribution of masses within the Solar System. Internal mass distribution within the Solar System is sensitive to the gravitational interactions of the Milky Way - our galaxy. Subsequent transitions across its spiral arms are marked by consecutive orogenic eras and related climatic periods - alternatingly cold or warm, as described by Klaus Pfeilsticker of Heidelberg University.

Diagram of cyclic changes in Earth's climate processes:

1. A period of fast and significant changes in the magnetic field of the Sun as a result of internal mass distribution within the Solar System.

2. A period of swift shifts in the location of Earth's poles and Earth's coating.

3. A surge in ocean upwelling leading to intensified photosynthesis and a slump in seawater temperatures.

4. Increased carbon solubility in seawater resulting from a drop in its temperature, capturing more CO_2 during photosynthesis, a decline in concentration of liquid CO_2 in surface waters as a result of their lower acidity, increased absorption of CO_2 from atmosphere and a gradual decline in CO_2 atmospheric concentration to 180 ppmv during intensive shifts of Earth's poles and coating lasting 100,000 years and related cooling of ocean water by approx. 12 ° C and cooling of Earth's climate by 12 ° C.

5. A period of stabilisation of the Sun's magnetic field as a result of internal mass distribution within the Solar System.

6. A period witnessing stable location of Earth's poles and earth's coating.

7. A decline in ocean upwelling leading to a drop in photosynthesis and warming of seawater.

8. 4. Lowered carbon solubility in seawater as a result of higher temperature of ocean surface waters, capturing less CO_2 during photosynthesis, a surge in concentration of liquid CO_2 in surface waters as a result of their higher acidity, lower absorption of CO_2 from atmosphere and a gradual boost in CO_2 atmospheric concentration by diffusion of excess CO_2 from seawater into the atmosphere to over 300 ppmv during non-existent shifts of Earth's poles and coating lasting approx. 20,000 years and related warming of ocean water by approx. 12 ° C and warming of Earth's climate by 12 ° C.

9. The current rise in atmospheric concentration of CO_2 to above 400 ppmv is triggered by both natural ocean processes and the combined impact of anthropogenic factors and natural CO_2 emissions. The effect is augmented by volcanic carbon and methane emissions from the mantle containing approx. 500 million of carbon gigatons from various compounds.

We should follow up on efforts aimed at ultimate identification of Earth's climate mechanisms. My contribution to this research is the Polish book entitled "Historia naturalna i zmiany klimatu" published in the Internet.

References

Pfeilsticker Klaus (2013): Paleo-Climate, link :

http://www.iup.uni-heidelberg.de/institut/studium/lehre/Uphysik/paleo_climate/paleo_climate.pdf

XXII. Global changes of see surface temperature SST and upwelling versus changes in carbon dioxide emissions from the oceans that all correlate with course of East Asian Monsoon, ENSO and NAO.

Below is the modified chapter IV.2.4.4. of Polish book entitled Natural History and Climate Changes by Bogdan Góralski published on the portal Researchgate.

SST (see surface temperature) changes caused by upwelling are the result of simultaneous changes:

- of the centrifugal force acting on stratified (density and temperature) oceanic waters and,

- of the regional changes in insolation caused by the movement of the earth's coating in relation to the ecliptic plane.

Oceanic waters that moving along with the Earth's coating closer to the equator are subjected to greater centrifugal force due to the higher linear velocity of Earth's rotation at the equator. Inertia of the oceanic waters which have brought closer to the equator causes the outflow of cold and fertile deep waters to the surface of the ocean and the increase of biological life in the surface layer of oceanic water while cooling the surface oceanic waters. This results in increased photosynthesis and absorption of carbon in sea water and reduced carbon dioxide emissions to the atmosphere.

Moving the oceanic waters together with Earth's coating close to the equator, where the largest amount of solar energy reaches, heats these waters in the sunlit water layer.

There is one more effect of moving the earth's coating closer equator , farther from the equator, the effect of increasing and decreasing the regional number of earthquakes caused by the increasing and decreasing impact (on tectonic plates of the earth's crust) the centrifugal force causing displacement tectonic plates in Earth's crust which in turn causes tectonic stress that unload in earthquakes.

The centrifugal force is the highest in the area of equator and the lowest on the poles of the Earth's.

The system - the atmosphere- ocean is a homeostat, i.e. it remains in a dynamic balance.

Physicochemical processes occurring in this system, including life processes, cause changes in the content of chemical compounds in seawater. Life in the sea and the course of metabolic processes depends on the content of elements of life in the water, which are there are phosphorus, nitrogen, silicon, and sometimes zinc and iron. When the content of one of these elements falls below a certain minimum, further metabolic processes stop despite the abundance of other nutrients. This is what the so-called the minimum law formulated by the eminent chemist Justus Liebig, the inventor of artificial fertilizers (Szymborski 1981). Under favorable conditions, with an abundance of nutrients and light, life in the ocean can develop very luxuriantly. The vital development of phytoplankton, which is observed periodically on huge areas of the ocean, however, leads to sterilization of seawater in a short time. When micronutrients are gone, the further development of plankton is stopped.

Death of living organisms causes that valuable life substances accumulate close to the ocean floor. The continuity of life in the ocean shows that in the depths there is continuous circulation of oceanic waters supplying valuable nitrates, phosphates and silicates to surface waters rich in oxygen and light. There are zones particularly well "fertilized" by nutritious deep waters. These are areas of deep water interchange to the surface direction, upwelling zones, for example around the Newfoundland Bank or the Peruvian Current. The basic raw materials for the photosynthesis process in the ocean are water with admixtures of mineral substances, carbon dioxide and light energy. Of these products, plants produce sugar, which is subject to further reactions and transformations. The ocean does not lack any of these ingredients. The acidity of the all-ocean (pH) is approximately unchanged in the geological time scale and is pH = about 8.15. This is conditioned by the physicochemical processes constantly occurring in it called pH-stat. Carbon dioxide plays a major role in chemical processes in the ocean. In a cubic meter of seawater there are 28 grams of carbon in the form of various chemical compounds, while in 100 grams of dry mass of marine organic material is 30 grams of carbon (Szymborski 1981). 98% of terrestrial carbon dioxide is dissolved in sea water and only 2% of this gas is in the atmosphere.

The total amount of this gas in the ocean - atmosphere system is about 128.9 thousand billion tons (Szymborski 1981). Increasing the amount of carbon dioxide in the atmosphere may indicate a decrease in its amount in the ocean. It may have to do with the course of life

processes in the ocean, ie with the reduction of their intensity. In coastal ocean waters, the carbon binding rate of photosynthetic phytoplankton plants exceeds 1,000 grams per year per 1 square meter of ocean, while in the open ocean this volume ranges from 25-100 grams per year. In all regions of the ocean, seasonal fluctuations in the growth of the plant world are observed. In every climatic zone, the reproduction of phytoplankton proceeds differently (Boyce at al. 2010) and its content in water varies from 1000 cells per liter to 100 million.

The reduction in the number of earthquakes observed in the 20th century indicates an increase in the speed of rotation of the globe caused by the reduction of Earth's inertia moment.

This is related to the shift of the earth's coating in the region of North America to the south, towards the equator. The Earth's coating in the region of Russia and Siberia moves towards the north. The Earth's shell is now in balance with the center of symmetry of the Earth, which is why the Earth's rotation speed increased.

The increase in Earth's rotation speed is accompanied by the stabilization of oceanic waters and the reduction of upwelling in the oceans. Decreasing upwelling in oceanic pools negatively influenced the process of oceanic water circulation. Reduction in the inflow of deep water rich in mineral nutrients could stop the photosynthesis processes in the oceans, which binding carbon dioxide contained in seawater. Increasing the temperature of oceanic surface waters (as a result of lesser upwelling) can reduce the amount of carbon dioxide dissolved in sea water and excess of the carbon dioxide penetrate into the atmosphere. In addition, in the 20th century, the amount of carbon dioxide from coal and oil combustion increased in the atmosphere, which is related to human activity. This process has contributed to the phenomenon of global warming associated with the decrease of the effects of the Earth's inertia on the ocean environment, as I earlier described.

Instrumental data from the last 220 years (Lorenc 2001) talk about a continuous process of warming the earth's climate, while the impact of energy production on the greenhouse effect can be assumed at the earliest from 1900. According to IPCC, content of carbon dioxide in the atmosphere in 2000 was 388 ppm, and in the years 1000-1750 280 ppm. The increase in carbon dioxide content by 31% since 1750 year can’t be explained only by the effect of human activity, since mass burning of oil and coal has only occurred since 1900. The climate warming process, as shown by instrumental measurements, lasts from around 1790 and this can be explained by analyzing the phenomenon of upwelling. From 1750, the phenomenon of upwelling has decreasing, and with it decreased the enrichment of surface ocean waters into

life-giving substances from the depths. This caused the disappearance of biological life and lack of absorption of carbon from seawater by living organisms. This led to an increase in surface temperature of the ocean (Szymborski 1981: 119), to the passage of excess of carbon dioxide into the atmosphere.

XXIII. Correlation of upwelling and global SST with carbon dioxide content in the atmosphere and East Asian Monsoon, ENSO, NAO

Cesary Emiliani's research proved that in the last 300,000 years the surface temperature of the oceans was periodically dropping by five degrees Celsius.

This has been confirmed by modern research - see (Fromentin, Planque 1996), (Mc Duff 2001), (Wu et al., 2012). The Chinese authors (Wu et al., 2012) write that the SST changes in the current Kuroshio Current in Southern Okinawa Trough in the last 2,700 years remain in close correlation with the changes of East Asian Monsun and ENSO-El Nino Southern Oscilation.

ENSO and NAO changes according to other researchers are also correlated.

Such correlation of climatic phenomena in the distant geographical regions of the globe indicates direct for the one reason for these correlations - the movement of the earth's coating causing simultaneous changes in the atmosphere and oceans in remote regions of the globe. These changes correlate simultaneously with the cycle of changes in the magnetic activity of the Sun, which is dependent on the changes in the distribution of the planets and objects of Solar System.

An excerpt from work (Wu et al., 2012):

The amplitude of 2.6°C in SST variability reflects significant fluctuations of the KC (Kuroshio Current) in the late Holocene (Jian et al., 2000). Such a large SST amplitude has also been reported from the Mexico [Richey et al., 2007], Sargasso Sea [Keigwin, 1966], Chesapeake Bay [Cronin et al., 2003], Indo-Pacyfic Warm Pool [Newton et al., 2006] and the Western Antarctic Penisula [Shevenell et al., 2011] , suggesting that 2-3 °C amplitude natural climate variability is a widespread phenomenon in the late Holocene. (...) *Several centennial-scale warm/cool phases in the SOT (Southern Okinawa Trough) coincide well with those documented for the late Holocene climate anomalies (Figure 5), including warm periods of ca. 120BC-400 AD (Roman Warm Period; RWP), ca. 550-790 AD (Sui-Tang Dynasty Warm*

Period; STWP), ca. 900-1300 AD (Medieval Warm Period; MWP), and ca. 1850 AD-present (Current Warm Period; CWP), (...) and cool periods of ca. 400-550 AD (Dark Age Cold Period; DACP), and ca. 1300-1850 AD (Little Ice Age; LIA) (...). The variability of the SST in the SOT coincides well with that of the solar activity indicated by residual atmospheric ^{14}C from tree-ring record(...).

According to (Wu et al., 2012) statistically significant relationship occurs between SST changes in the SOT profile and changes in winter temperature in eastern China for the last two millennia as well as the uniform occurrences of warm episodes RWP, STWP, MWP and CWP as well as of the cold episodes of DACP and LIA. This correlation indicates the simultaneously evolution of the KC and EAM-East Asian Monsun as well as the NAO index in the late Holocene. This allows us to say that the conjugated evolution of KC, EAM, ENSO and NAO existsted in the late Holocene and was probably related to variable solar activity and oceanic-atmospheric circulation.

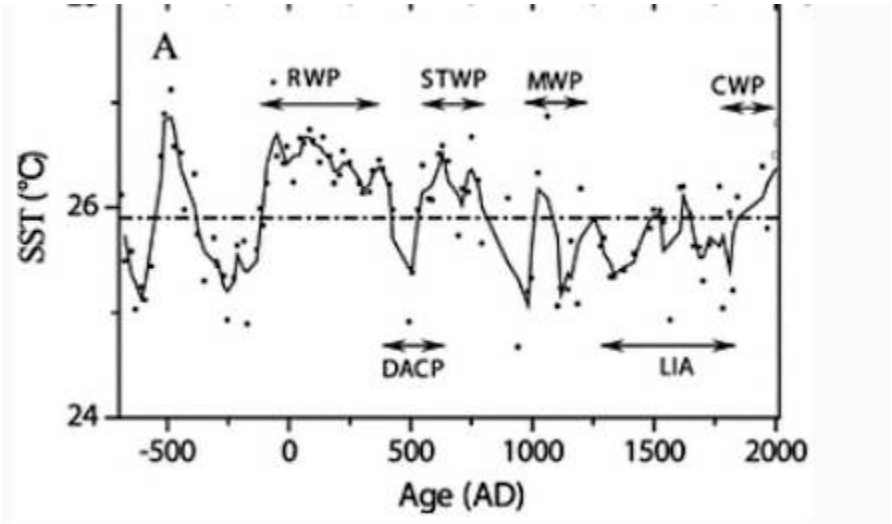


Fig.31. Reconstruction of sea surface temperature - SST in Kuroshio Current in the basin of southern Okinawa in the last 2,700 years. Source (Wu et al. 2012).

The explanation of this phenomenon is possible only when adopting the hypothesis about the movement of the earth's coating and the associated phenomenon of ocean upwelling. The period of the last 10,000 years has been an increase in the surface temperature of the ocean, which indicates the disappearance of massive upwelling. In the years 1000-1750, from 1250

to 1750 year phenomena related to the changeable movement of the Earth's coating increased, i.e. the increase of the upwelling in the ocean, the number of earthquakes increased and the temperature of the sea water decreased. This intensified the phytoplankton production process, lowering the sea surface temperature and, consequently, reducing the carbon dioxide content in the atmosphere to the level of 280ppm. The warming (disappearance of earthquakes) since 1750, shows the reduced upwelling, is related to the movement of the Earth's coating to the South in the area North America and to the North in the region of Euro-Asia, which causes the symmetry in the distribution of the masses of the Earth's coating and increasing the Earth's rotation speed.

This phenomenon to reduce the biological productivity of the sea and reduce the carbon bond in the process of oceanic photosynthesis. This causes an increase in the CO2 content in the atmosphere, also due to a decrease in the dissolution of CO2 in seawater with increasing temperature. So we are dealing with the physico-chemical mechanism in the oceans:

Upwelling is rising, ocean biological productivity is rising, CO2 content in seawater is falling, pH is rising, and vice versa: upwelling is decreasing, ocean bilogical productivity decreases, unbound content of CO2 in seawater increases, pH is lower, which explains the current acidification of the oceans and increasing content of carbon dioxide in atmosphere.

This mechanism is confirmed in the study of changes in phytoplankton production in the oceans in the 20th century (Boyce at al. 2010). Until the 1970s, the production of phytoplankton in the oceans was large and later died, which may be related to the reduction in the number of earthquakes, as it is simultaneously shrinking upwelling. Since the 1980s, we have been observing the intense warming of the sea surface and the disappearance of significant earthquakes which is confirmed by the USGS (see Fig. 20). Simultanously, the acceleration of the Earth's rotation appears, which is confirmed by the observations of the Time Series of Length of Day from 1973-2008 made by IERS.

An excerpt from work (Boyce et al.,2010):

We observe declines in eight out of ten ocean regions, and estimate a global rate of decline of 1% of the global median per year. Our analyses further reveal interannual to decadal phytoplankton fluctuations superimposed on long-term trends. These fluctuations are strongly correlated with basin-scale climate indices, whereas long-term declining trends are related to increasing sea surface temperatures. We conclude that global phytoplankton concentration has declined over the past century; this decline will need to be considered in future studies of

marine ecosystems, geochemical cycling, ocean circulation and fisheries .(...). After de-trending and removing seasonal variation, yearly Chl anomalies were strongly negatively correlated with the bivariate ENSO index in the Equatorial Pacific (r520.45; P,0.0001; Fig. 5a). Positive ENSO phases are associated with warming sea surface temperatures (SSTs), increased stratification, and a deeper nutricline, leading to negative Chl anomalies in the Equatorial Pacific10,11. Negative correlations were also found between the NAO index and Chl in the North Atlantic (r520.31; P50.0002; Fig. 5b) and Equatorial Atlantic (r520.44; P50.001) regions, in accordance with results from Continuous Plankton Recorder surveys [29]. Positive NAO phases are associated with intensifying westerly winds and warmer SST in Europe and the central North Atlantic[30] (Boyce at al. 2010).

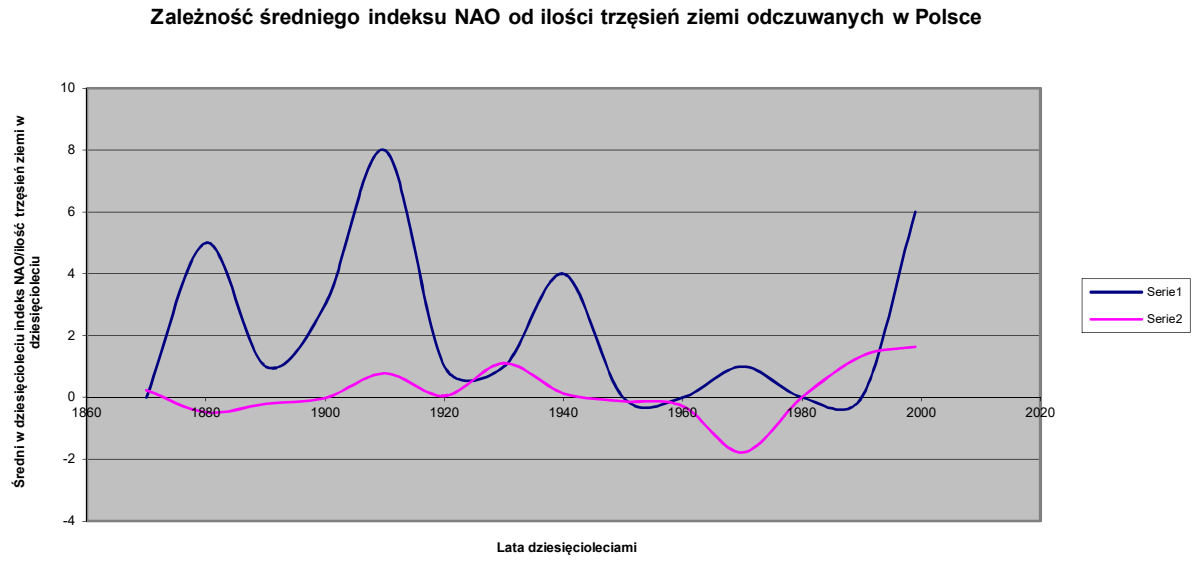


Fig. 32. Dependence of the average NAO index versus the number of earthquakes experienced in Poland.

Source of the graph:

Góralski B. book entitled Historia naturalna I zmiany klimatu changes published on Researchgate Portal

Stresses in the continental crust of Poland resulting in earthquakes originate from the

widening bottom in the Atlantic rift zone and the pressure of the African plate on the Eurasian plate.

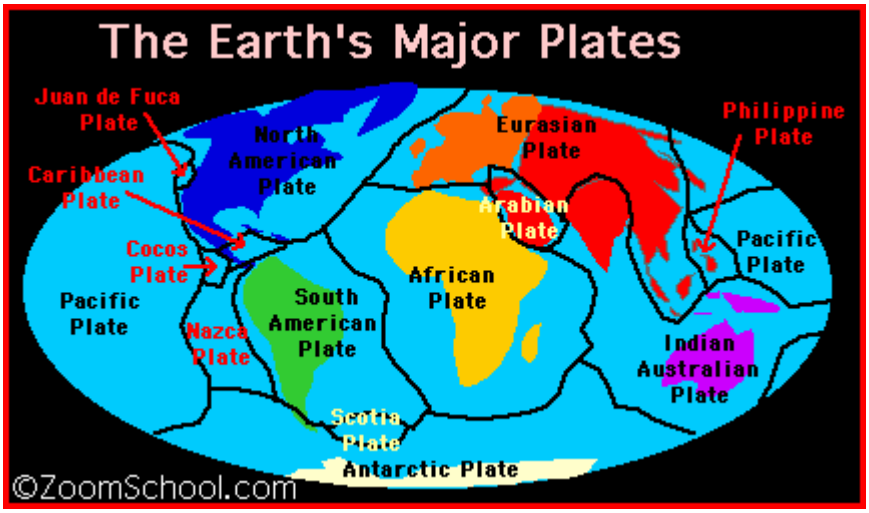


Fig.33. Distribution of terrestrial main tectonic plates. Source: link http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Continents.shtml

Tectonic tensions are the effect of moving of Earth's coating what resulting in waves of earthquakes and changes in Earth's rotation speed.

These waves are simultaneous in the Atlantic zone and in Poland. They are at the same time as changes in ocean upwelling that causes changes in the NAO index, that indicating the difference in atmospheric pressure at sea level between Ponta Delgadas in the Azores and Akureyri in Iceland. Probably the waves of earthquakes originate from changes in tectonic stress caused by the alternate movement of the earth's coating. The proof of this movement are LOD (length of earth's day) changes, which occur continually and testify to changes in the mass distribution on the surface of the spinning terrestrial globe.

The negative correlation of the NAO index with earthquakes felt in Poland is visible in Fig. 32. The explanation of this phenomenon is provided by the work (Fromentin, P1anque 1996) discussing the dependence of the abundance of occurrence in the North Atlantic (depending of

the NAO index) min. Calanus finmarchicus, a large planktonic copepod whose main food is diatoms, flagellates and other microplanktonic organisms, living from the surface up to 4000m in depths.

Negative correlation between NAO and abundance of copepods in surface waters was found.

An excerpt from work) (Fromentin , Planque 1996):

Periods of accentuated pressure difference between the Azores and Iceland, i.e. positive NAO index, are associated with low abundances of C, finmarchicus, e.g. 1972-1976, 1983 and 1989-1992. Conversely, periods of low pressure difference, i.e. negative NAO index, are associated with high abundances of C. finmarchicus, e.g. 1962-1966 and 1977-1980. The regression reveals that 58% of the interannual variability of C. finmarchicus abundance is explained by the NAO (r2 = 0.58; Fig.4b) (Fromentin , Planque 1996).

Data collected from the Comprehensive Ocean Atmosphere Data Sets (COADS), SST and meteorological data allowed to conclude that the strength of the western winds increases with the NAO index. SST and air temperature are strongly associated with the NAO because from the low to high NAO index temperature rises from 0.4 to 1.1 ° C.

Two scientists note the following regularities:

- High NAO index, western winds blow more to the south, air temperature increases and SST grows, the abundance of C. Finmarchicus decreases.

- a small NAO index, the western winds blow more to the north, the air temperature and SST decrease, the abundance of C. Finmarchicus increases.

This can be explained on the basis of my theory, because the abundance of C. Finmarchicus depends on the upwelling which fertilizing the surface of the ocean. When upwelling is bigger SST decreases, because deepand cold and fertile water flows from the depths to the surface of ocean and biological production of the ocean increases, and vice versa. Thus, changes in the upwelling cause changes in the NAO index. And upwelling increases simultaneously with the increase in the number of earthquakes that appear and disappear when the Earth's coating moves.

References:

Boyce Daniel G., Lewis Marlon R., Worm Boris (2010), Global phytoplankton decline over the past Century , Nature Vol 466|29 July 2010| doi:10.1038/nature09268

Fromentin, J. M., Planque, B. (1996), Calanus and environment in the eastern North

Atlantic. 2. Influence of the North Atlantic Oscillation on C. finmarchicus and C.

helgolandicus. Marine Ecology Progress, Ser. 134, 111–118 (1996), link do pracy

http://www.int-res.com/articles/meps/134/m134p111.pdf

Góralski B. Historia naturalna i zmiany klimatu, book in Polish language published in Researchgate portal

Lorenc Halina (2001), Tendencje zmian klimatu Polski, [w] „Funkcjonowanie geoekosystemów w zróżnicowanych warunkach morfoklimatycznych- Monitoring, ochrona, edukacja", Poznań: Stowarzyszenie Geomorfologów Polskich.

Szymborski Stanisław, Szymborski Krzysztof (1981), Wszechocean, Warszawa :Wiedza Powszechna.

Wu Weichao, Tan Wenbing, Zhou Liping, Yang Huan and Xu Yunping (2012), Sea surface temperature variability in the southern Okinawa Trough during last 2700 years. Geophysical Research Letters 39: 10.1029/2012GL052749.

XXIV. Variability ENSO Index and earthquakes in the region of the west coast of Peru versus number of SSN (Solar Sunspot Number)

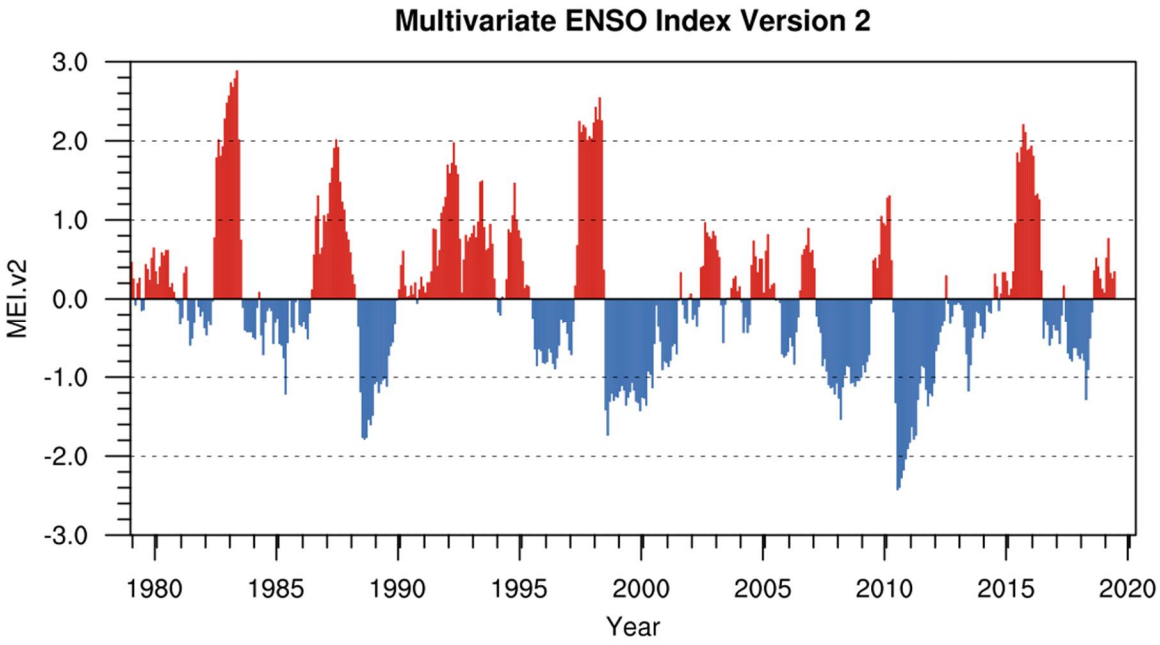


Fig.34. Multivariate ENSO index changes -sea level pressure, zonal and meridional components of the surface wind, sea surface temperature, surface air temperature and cloudiness change during phenomenon El Niño i La Niña - data from the International Comprehensive Ocean-Atmosphere Data Set (ICOADS)

Source of the graph: **NOAA ESRL Physical Sciences Division (PSD) link:**

https://www.esrl.noaa.gov/psd/enso/mei/

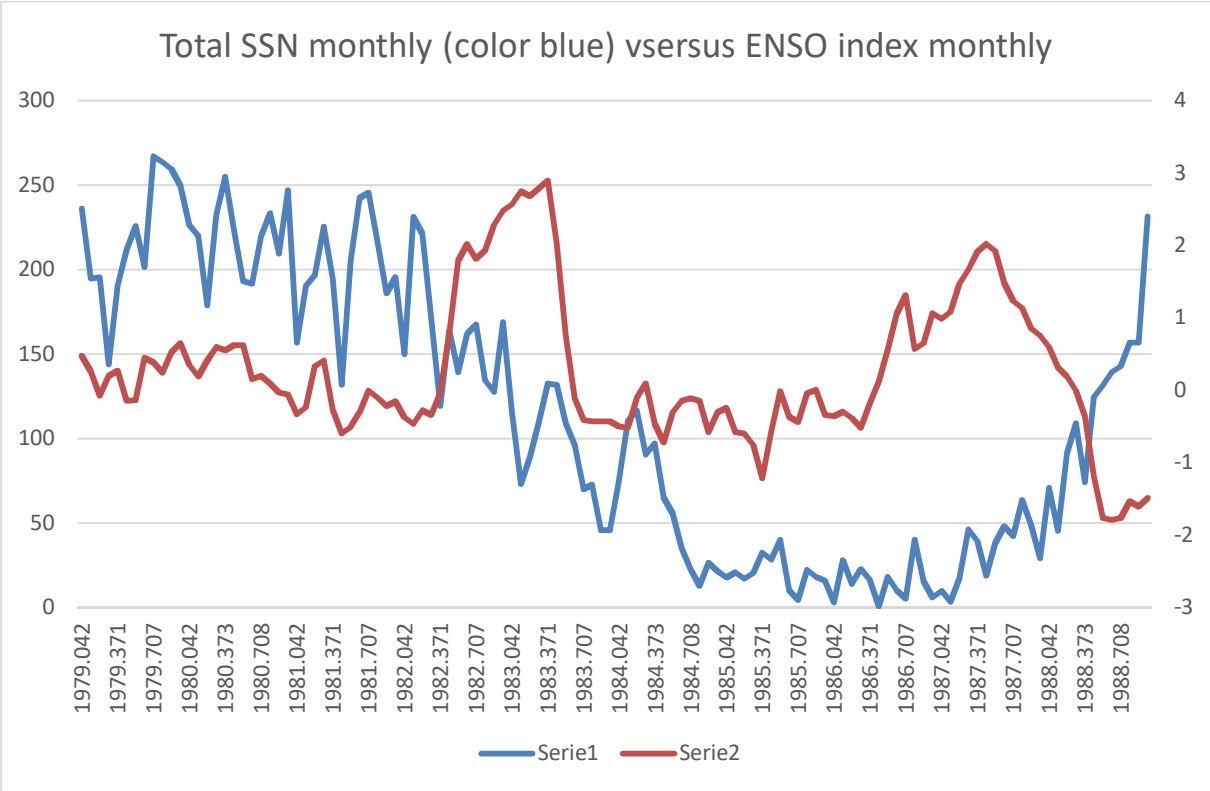


Fig. 35. Number of SSN (Solar Sunspot Number monthly-color blue, left scale) versus values of Index ENSO monthly

Source of Data:

Monthly values of Total Sunspot Number from Solar Influences Data analysis Center (SIDC).

Link: sidc.be/silso/datafiles

Monthly values of ENSO Indeks from **NOAA ESRL Physical Sciences Division (PSD)**

Link: https://www.esrl.noaa.gov/psd/enso/mei/data/meiv2.data

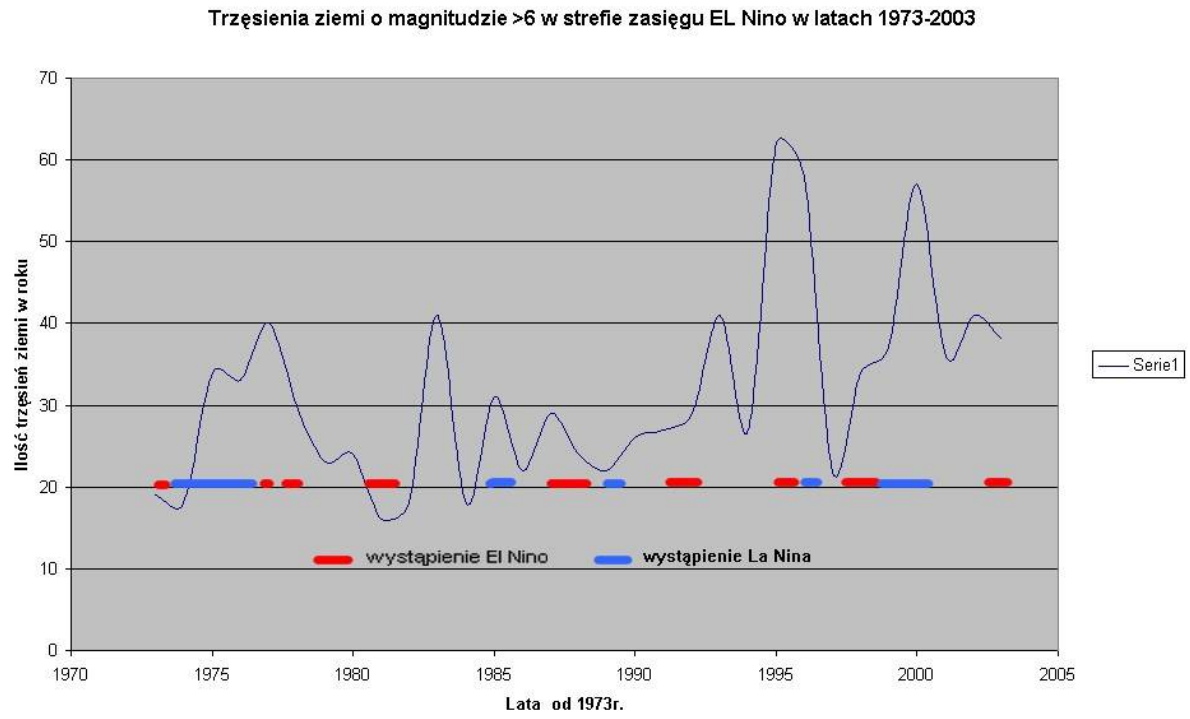


Fig. 36. Seismic activity within the range of El Niño and La Niña range in 1974-2003 and changes in the surface temperature of the seawater within the range of El Niño and La Niña.

Here is what I wrote 6 years ago about the phenomenon of El Nino and La Nina in my in Polish language book entitled The climate mechanism of the Earth and the social consequences of climate change, Published in the CeON Repository.

Oceanologists believe that upwelling is caused by winds blowing over the ocean. Meanwhile, while studying this issue, I found that the process of the outflow of cold deep water to the surface of the ocean appears in the areas associated with oceanic depths and grows when the number of oceanic earthquakes increases. The analysis of the phenomenon of El Niño and La Niña, a global climate phenomenon caused by a periodic change in the temperature of sea waters off the coasts of Ecuador and Peru, confirmed my assumptions. El Niño occurs almost always when the quakes of the seabed in the Peruvian Basin are disappeard, and La Niña occurs almost always when the number of seabed quakes increases (Fig. 36). Upwelling (La Niña) is therefore probably associated with the earthquakes shaking the area of the oceanic ditch (the Peruvian Ditch, the Atacama Rift) in the subduction zone of the western coasts of South America. It is possible to explain the phenomenon of upwelling related to the changing moment of inertia of the Earth.

Oceanic waters are arranged in layers from the deepest, coldest, most saline, densest, to shallow, heated and least dense surface water often fed by precipitation. The terrestrial axis constantly changes its location, which affects the Earth's rotation speed (see http://hpiers.obspm.fr/eop-pc/earthor/ut1lod/UT1.html#figure). Even slight changes in the speed of the Earth are strongly correlated with the atmospheric momentum momentum - Atmospheric Angular Momentum (AAM) (Niedzielski et al., 2006) and climate change on Earth. The sun rushes through the Milky Way 800,000. km / hour, ie 222 km / second, and the Earth rotates at an equatorial speed of 509 m / sec. This releases enormous forces within Earth's phisical system. The Earth's core immersed in the liquid mass of magma changes its position according to the gravitational-magnetic interactions of the Sun, the Moon and the planets. Then, the moment of inertia of our planet changes, which affects changes in the speed of its rotation. The masses of oceanic waters, diversified in density, react differently to changes in rotation speed and moment of inertia. The most react most densest, coldest, heaviest, most fertile, deep bottom waters, changing their position towards the surface of the ocean. Such movement - upwelling is forced by the shape of the ocean floor and occurs in many ocean zones associated with oceanic depths, which is reflected by the sea temperature temperature changes (SST) (see: http://www.osdpd.noaa.gov/ml/ ocean / sst / anomaly.html) occurring cyclically in many areas of the all-ocean.

Upwelling causes the raising of cool deep oceanic waters, along with bottom water raising mineral particles of sediments that fertilize subsurface waters. This results in a dramatic increase in planktonic plant life, causing the release of sulphate aerosols, produced by plankton, into the atmosphere. They determine the formation of clouds over the oceans, because they are seeds of condensation of water vapor in the atmosphere (ESPERE 2009). Thus, periods of increased number of earthquakes and upwelling are also periods of cooling of oceanic waters, increasing cloud cover and rainfall on the land, cooling of the atmosphere that is separated from the Sun by cloud cover and vice versa.

Because the increase in the number of sunspots causes a decrease in the ENSO index, i.e. min. ocean temperatures off the coast of Peru and vice versa,

and the earthquakes in the Peruvian region are correlated with the ENSO index in such a way that the increase in the number of earthquakes accompanies the phenomenon of La Nina,

and the changes in Earth's rotation speed correlate with the number of significant earthquakes in such a way that the decrease in Earth's rotation speed is accompanied by an increase in the number of earthquakes,

and the number of significant earthquakes correlates with the extremes of the sunspot chart (see Fig.),

This cause the conclusion that the changes in the Earth's rotation speed are correlated with the number of sunspots, i.e. the magnetic activity of the Sun, i.e. the cyclicality in setting the solar system planets, and this must be demonstrated on the graph. See below.

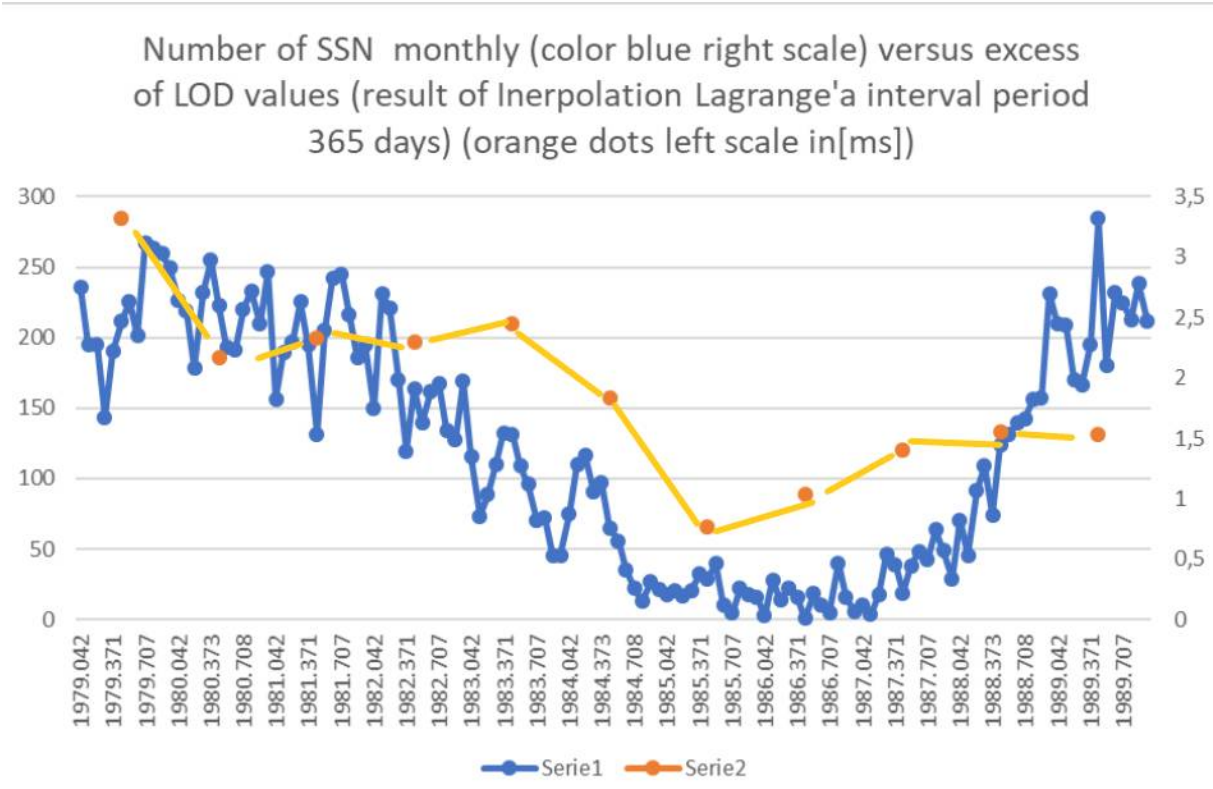


Fig.37. Positive Correlation of Total SSN (Solar Sunspot Number monthly-color blue, left scale) with LOD changes (length of day excess in [ms])

Source of Data:

Monthly values of Total Sunspot Number from Solar Influences Data analysis Center (SIDC).

Link: sidc.be/silso/datafiles

Yearly values of excess of LOD are result of interpolation Lagrange'a with interwal period 365 days

made by Earth Orientation Center software.

In Figure 37, we see a positive correlation between SSN and LOD, which is developed for a short period of time, but shows that the Earth's geophysical system is correlated with solar processes. Solar processes are in turn correlated with the gravitational interactions of the variable position of objects belonging to the solar system.
Based on these findings, in 2013 I started regular observations of weather and climate changes to confirm the conclusions of the research and to find out the correlation of LOD changes with changes in weather and climate in Poland and Europe. The conclusions from these observations are in the next chapter.

References

Niedzielski Tomasz, Kosek Wiesław ,Kalarus Maciej (2006)**,** *MULTIVARIATE STOCHASTIC PREDICTION OF LENGTH OF DAY AND ATMOSPHERIC ANGULAR MOMENTUM TIME SERIES*, American Geophysical Union, Fall Meeting 2006, San Francisco, CA, USA, 11 – 15 December 2006

XXV. Forecasting climate changes, earthquakes and world use of energy

Below is the chapter IV.4. of my book entitled Historia naturalna I zmiany klimatu written in Polsh language published on Researchgate portal:

The mechanism of climate change discovered by me is based on the principle that the reduction in solar activity generates cooling the climate and vice versa. Predicting solar activity is highly accurate now but is still unknown what decide about the mechanism of exact changes of the speed of rotation of the Earth directly decisive for terrestrial climate change. Model based on which are calculated EOP - Earth Orientation Parameters, defining the position of the axis of the Earth, involves influencing changes to the speed of rotation of

the Earth many variables. This is discussed in more details on pages INTERNATIONAL EARTH ROTATION REFERENCE SYSTEMS & SERVICE.

The gravitational and magnetic impact of the Moon, Sun and planets influence on changing the location of Earth's coating (relative to the plane of the ecliptic) and thus to changes in the speed of rotation, which are calculated and predicted in advance of six months in accordance with the model of precession-nutation motion of Earth's poles. Chart of changes in the length of the Earth's day - LOD is listed on the IERS under the link:

https://hpiers.obspm.fr/eop-pc/index.php

Part of the graph illustrating the future changes of LOD Length Of Day (Fig.38) is marked in red are forecasted in advance for 180 days. The values on the graph mean of LOD-deviation from the standard Earth day with length of 86,400 seconds. Deviations of more than zero correspond to the extended day the Earth or reduced speed of rotation of the Earth. Deviations below zero correspond shortened Earth's day below the size of the standard and are the evidence of accelerating the rotation of the Earth. In the real course of the LOD occur hourly and daily changes that are not reproduced in the drawing (too little resolution). Oscillations seen in the figure correspond to the changes described with help on the Julian calendar. Current date stated on the graph determines the first red sign on the graph of expected changes to the LOD.

Oscillations are arranged in an irregular sine wave which determines the change in the speed of rotation of the Earth. On the basis of the mechanism of the Earth's climate developed by me and the six-year observation established that sections of the chart LOD of decreasing the speed of rotation of the Earth (the LOD growing) correspond to periods Poland's weather cooler and more sunny.

Episodes of months and weeks (100 days Julian calendar are the equivalent of 100 days of the Gregorian calendar) with increasing speed of rotation (values of decreasing LOD) correspond to the climate in Poland more warm and wett.

My observations indicate high compliance such forecasts with the observed changes in the Earth's climate and allow for precise weather forecasts in lengths shorter than monthly and general forecasting in half year period. I am convinced that further research will create modern forecasting model the climate and weather that allow for accurate daily forecasts

global. This requires research and comparative analysis of the great complex of variables determining the climate change on individual continents.

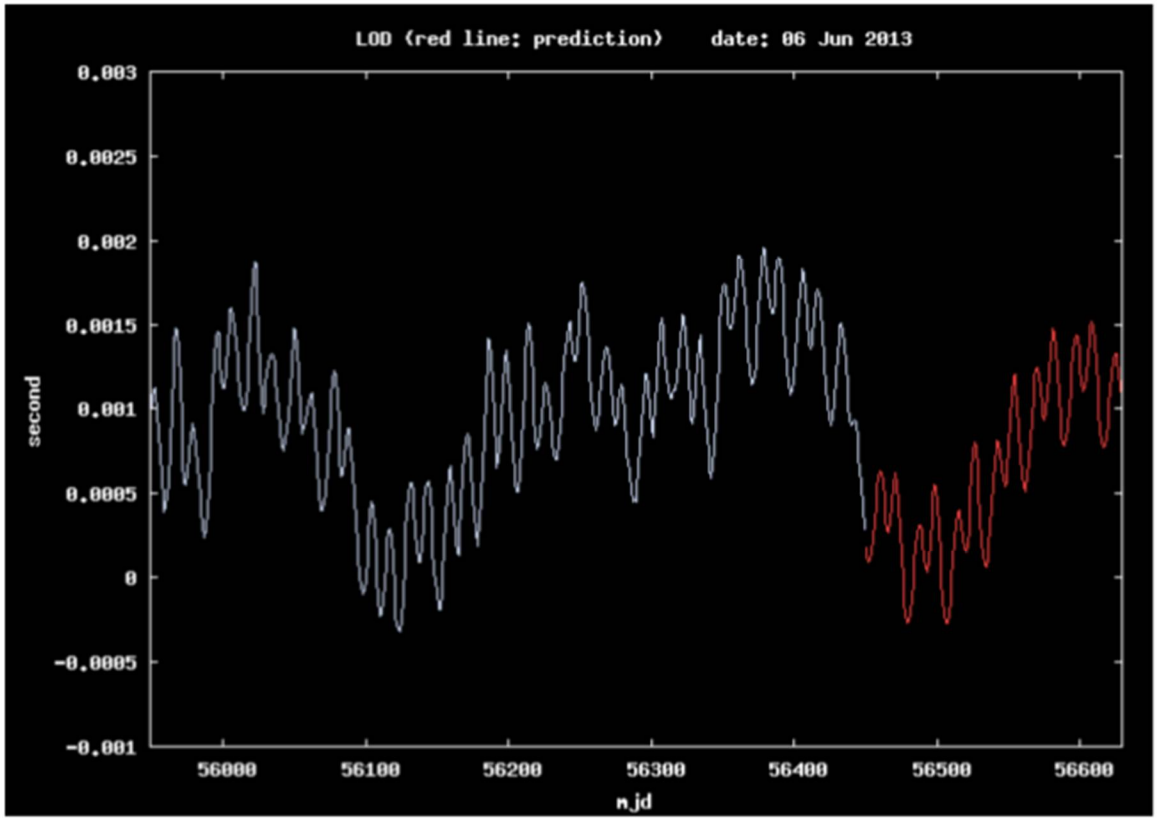


Fig.38. LOD changes in 2012-2013.

Source: INTERNATIONAL EARTH ROTATION & REFERENCE SYSTEMS

Link to the newest graph: https://hpiers.obspm.fr/eop-pc/index.php

Rapid change of LOD, LOD reduction of 0.0015 seconds, on May 25 - June 9, 2013 year which is seen on the graph above (Fig.37) brought torrential rainfall in Europe. It follows that the rapid changes in the speed of rotation of the Earth are the cause of movements of the masses of oceanic waters which brings an increase in cloud cover and precipitation and the cooling of the climate according to my scheme of mechanism of Earth's climate.

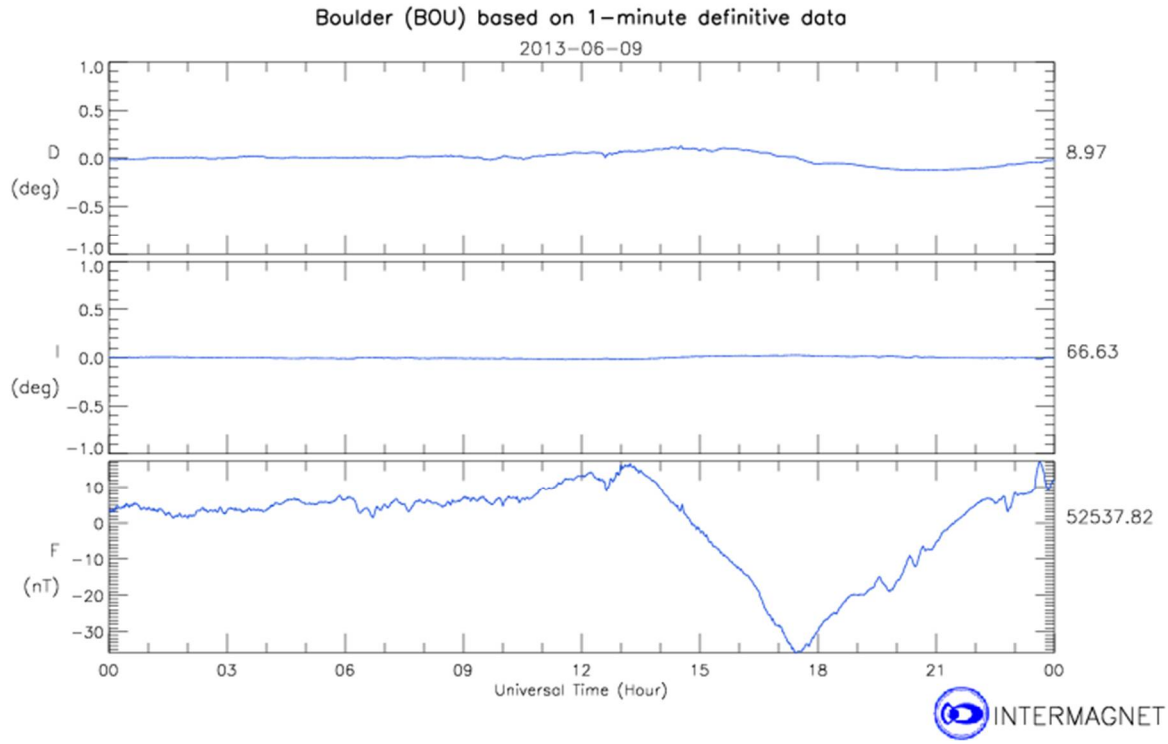


Fig.39. The daily change Earth's magnetic field. (Source of the graph INTERMAGNET data).There is a change in the intensity of the Earth's magnetic field from 28 nT around 14.30 hour UTC to 4.3 nT at 18 hour UTC in a Boulder observatory.

At that time a great downpour and flood occurred in Poland in large areas of Poland.

At the same time on the basis of developed my concept of the Earth's geophysical system that graph LOD is used to forecast the frequency of earthquakes on our planet. Periods of increasing the value of LOD - a drop in the speed of rotation, are the phases of greater frequency of seismic events. Periods of increasing the speed of rotation - the reduction of the value of LOD are a phases of lower frequency of earthquakes on our planet.

Based on the above it can be concluded that during the next few years will increase the seismic hazard on Earth, including the danger in operating of nuclear power plants and coal and other minerals mines.

The origins of the creation of my model were not easy because geophysicists Polish (min. Prof. Slawomir Gibowicz from the Institute of Geophysics PAN) claimed that the course of

earthquakes on our planet is accidental and is not in him any regularity. Meanwhile, examining the distribution of earthquakes in the Mediterranean and in Poland in the period 750 years BC to 2000 A.D. I found a clear 400-year repeatual cycle of seismic activity. Following this line for 12 years, I discovered the causes that conditioning seismic and climatic cycle connected with changes in magnetic activity the Sun and the periodicity of the motion of planets in the Solar System.

Changes in the value Earth's LOD are calculated from 1623 year and the correctness of its conducting shows that in the coming years (until 2030 year) length of Earth's day will probably be lengthened - which will decrease the speed of rotation of the Earth. The result of this will probably be cooling the Earth's climate, increase the intensity of earthquakes and increase in use of energy and decrease in food production on our planet.

In the same period of time will be likely to be observed reduction of magnetic activity on the sun in disappearing solar cycle number 25, which also indicates a cooling of the climate. The data which we have tells as that former reduces of solar activity (Maunder Minimum, Dalton (around 1800), see figure below contains the reconstruction of changes in solar activity based on the content in the atmosphere of the isotope 14C) was accompanied by simultaneous cooling of the climate. Modern studies of solar activity indicate that the coming period to reduce the number of sunspots correlate with a decrease in the activity of the Sun magnetic suggesting imminent cooling of the Earth's climate.

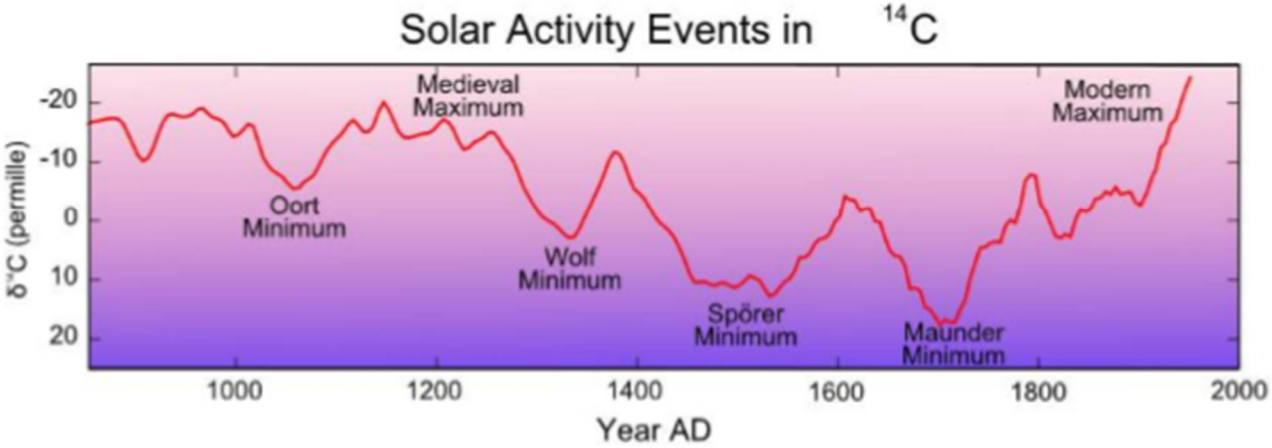


Fig. 40. The reconstruction of changes in solar activity based on the content in the atmosphere of the isotope 14C.

Sourceof the graph: U.S. Geological Survey Fact Sheet 0095-00 „The Sun and climate".

All of these trends are described based on modern reliable geophysical surveys and research, and are consistent with the geophysical model developed by me describing Earth climate system and process seismic events.

It must also be emphasized that the cooling of the Earth's climate and the accompanying earthquakes will mean the human global community crises: lack of food, economic downturn and lack of energy. This coming cooling will reduce food production which will trigger inflation and the global economic and financial crisis and the increase in the number of earthquakes will threaten the nuclear power plants and coal mines affecting the reduction of energy production and cause global energy crisis. All this will exacerbate the international situation and threaten world peace. Anticipating such a crisis, we can prepare for it, to prevent its effects. The condition is to gain knowledge about the Earth's climate and seismic mechanism which requires a reliable and responsible approach to modern achievements of science.

Poniżej są jeszcze rysuneki (Fig.41, 42, 43) pokazujące możliwości prognozowania powierzchniowej temperatury powietrza i opadów atmosferycznych w oparciu o półroczną prognozę wartości LOD.

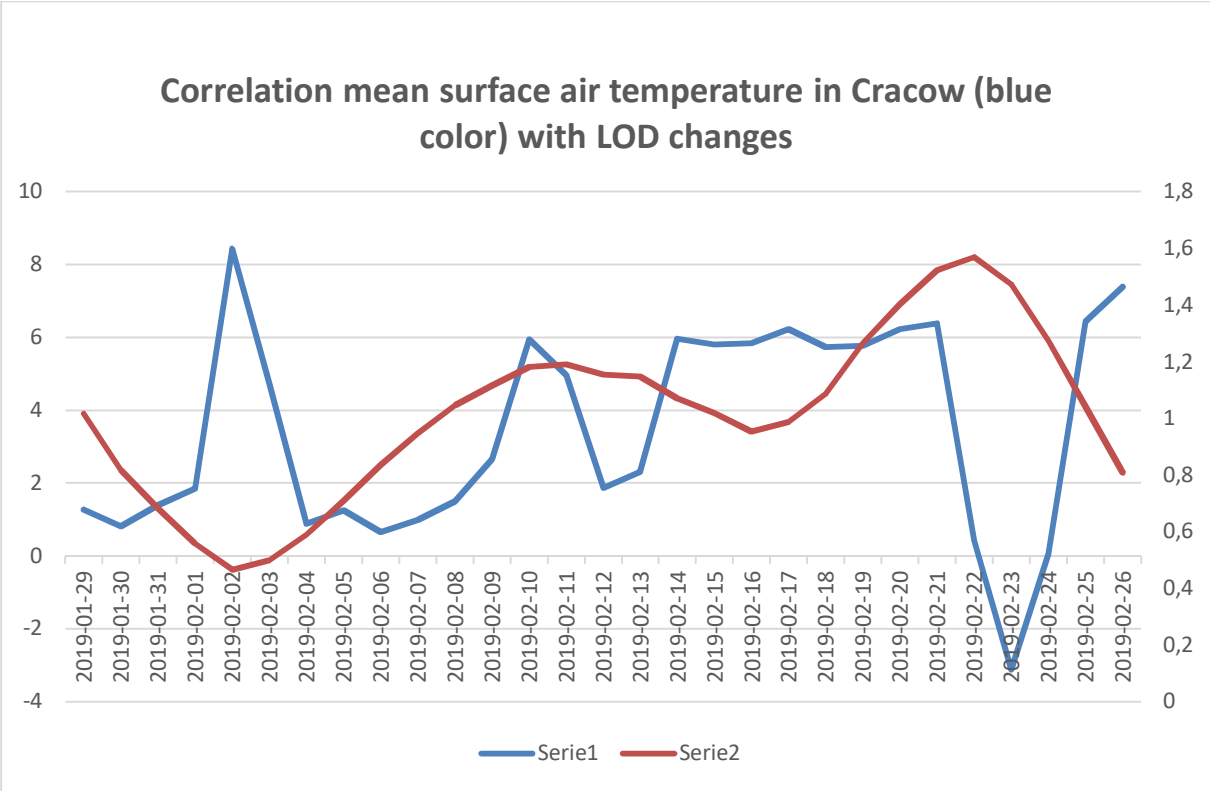


Fig.41. Negative correlation between surface air temperatures in Cracow measured by the METEO AGH Station (area south of central Poland) and excess of LOD measured by Earth Orientation Center IERS

Link to meteorological data of AGH Meteo Station: meteo.ftj.agh.edu.pl/meteo/

On the Fig.41 is seen little bit disrupted correlation of air temperatures near Cracow versus excess of LOD values but generally this negative correlation is seen major points of time.

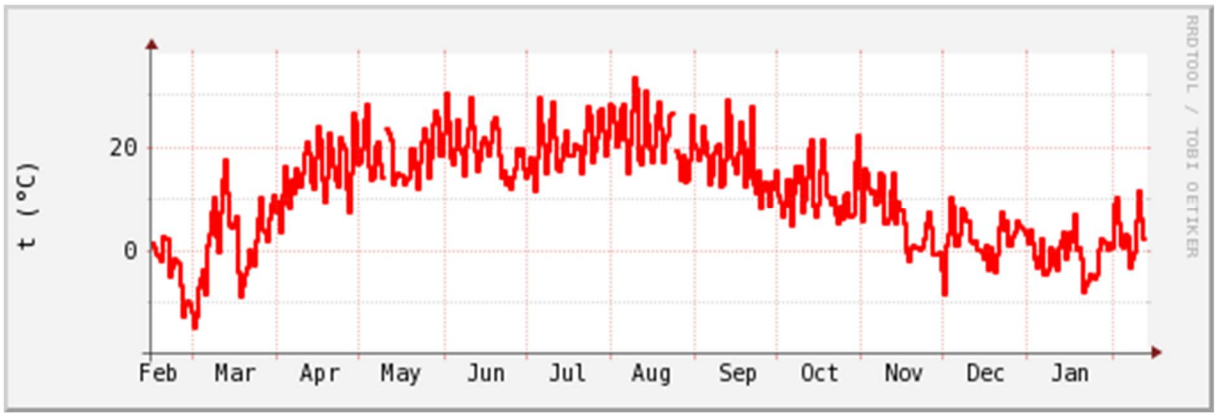


Fig.42. The annual diagram of the surface air temperature from February 13, 2018 measured near Krakow, according to the data of the AGH Meteo Station

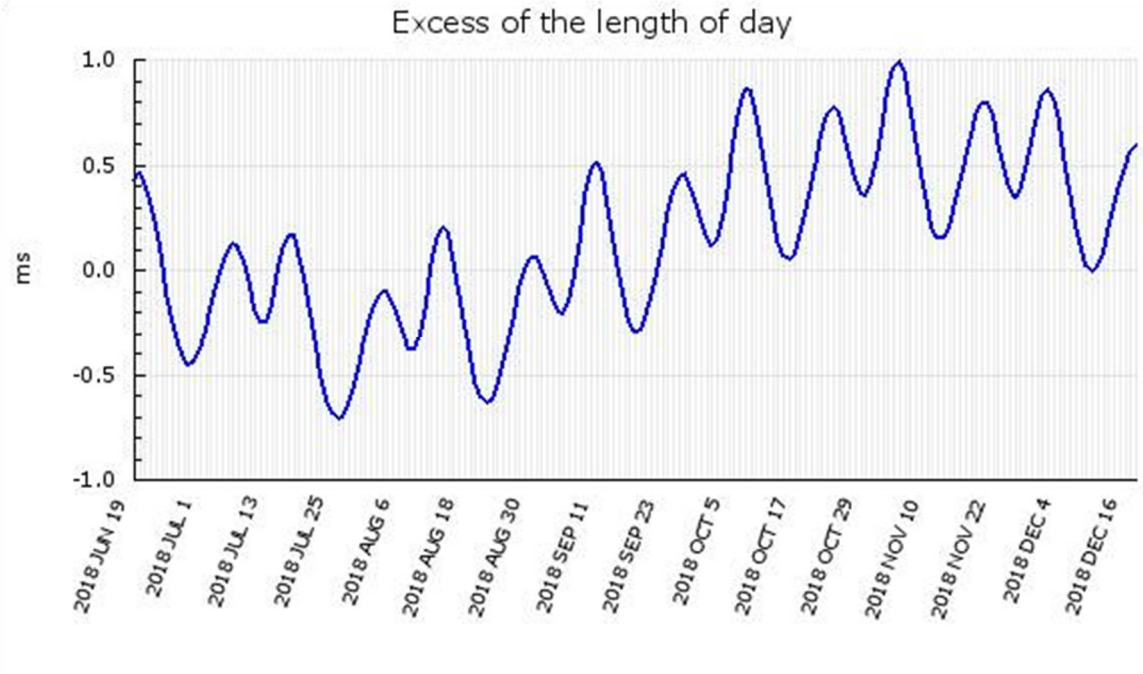


Fig.43. Forecast of excess of LOD made in 19 June 2018 by software from the site Earth Orientation Center IERS

We see in the same periods of time on the Fig.42 and 43 negative correlation between air surface temperature near Cracow in Poland versus forecast excess of LOD values. This is long term confirmation of short term correlation the same values seen on the Fig.41.

This means that we are able to predict in long-term the surface air temperatures in Poland, based on LOD (length of earth's day) forecasts. LOD depends on changes in the magnetic activity of the Sun, which we can predict ahead for many years.

All of the above means that we can predict changes in the Earth's geophysical system that condition life on Earth. I encourage you to set up an international group of researchers to establish a new digital model to predict changes in living conditions on Earth.

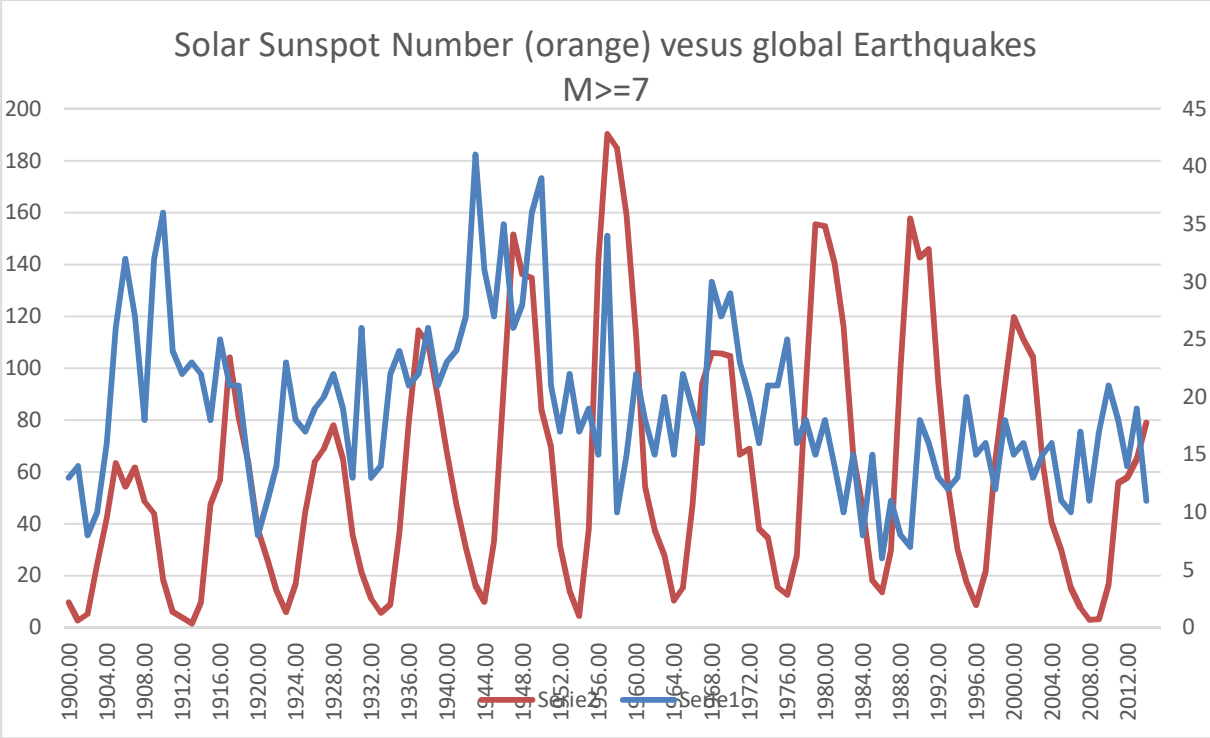


Fig.44. Total Solar Sunspot Number versus number of significant earthquakes of magnitude M>=7 worldwide.

Source of data of Total SSN: values of Total Sunspot Number from Solar Influences Data Analysis Center (SIDC).

Link: sidc.be/silso/datafiles

Source of numer of significant earthquakes:

USGS Earhquakes Hazard Information

Maxima of shocks are visible in extreme points of the graph of SSN-Solar Sunspot Number which may be caused by the largest gravity forces operating on the Earth in periods of the lowest and highest number of SSN, when the largest increase in tectonic stress occurs in the lithosphere while the greatest earth's coating movements. During mining practice in the mine coal I learned from miners that the greatest risk of tectonic shaking in the mine occurs when the rocks relaxes, that is when the tectonic stress decreases in it.

The inversion of the number of earthquakes seen on the graph Fig.45 in basins of the Pacific and North Pacific in the same period of time may be caused by the shift of the Earth's shell in the North Pacific closer to the Earth's equator to the zone of the greatest tectonic stresses caused by the largest on the equator centrifugal force affecting the movement of lithosphere plates . At the same time, along with the movement of the earth's shell, the region of the equatorial Pacific moves away from the equator and the earthquakes in this region expires.

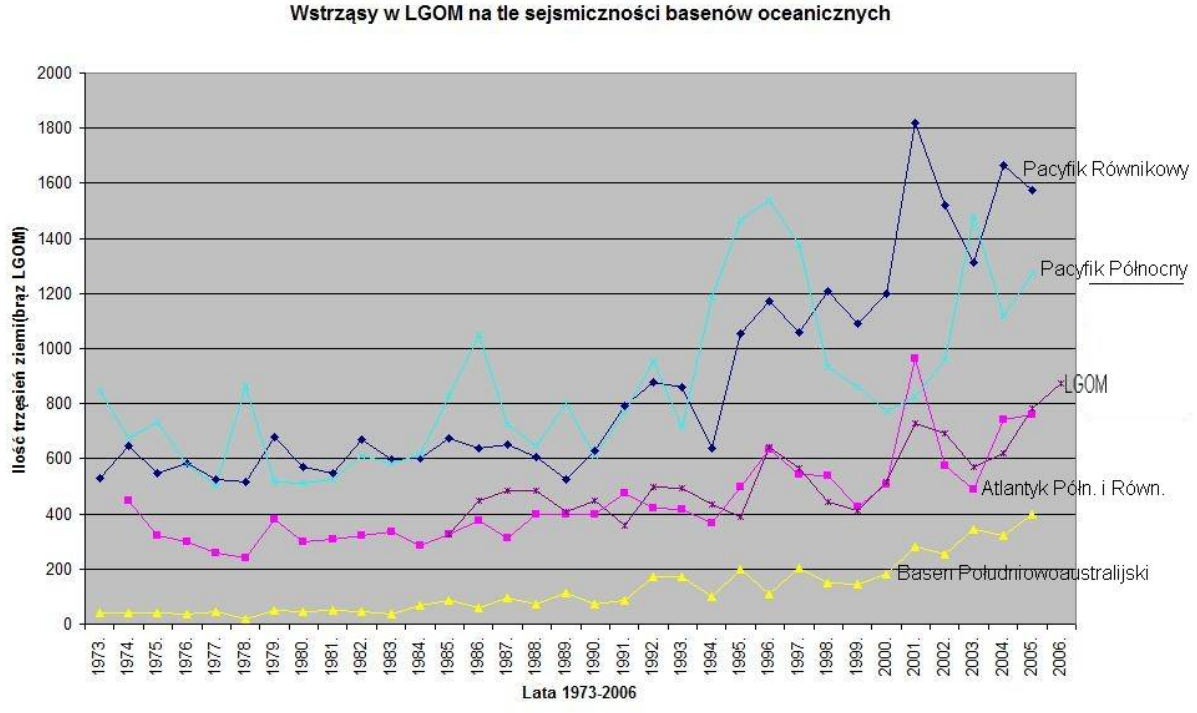


Fig. 45. High energy shocks in LGOM mines (Kłeczek 2007) compared to earthquakes M>4-10 in selected oceanic basins (Góralski 2010)

Equatorial Pacific Ocean -area between 25ºN-20ºS, 70ºW-180ºW

Northern Pacific Ocean-area between 20ºN-60ºN, 150ºE-140ºW
Atlantic Ocean- area between 60ºN-20ºS, 0º-80ºW

South-Australian basin- 30ºS-60ºS, 180ºE-90ºE

LGOM-area of cupper mines in south of Poland in Central Europe

References

Kłeczek Zdzisław (2007): Sterowanie wstrząsami górotworu LG OM
http://www.kopaliny.com.pl/art10.htm

XXVI. Time of forming hurricanes versus changes of SST anomaly in tropics

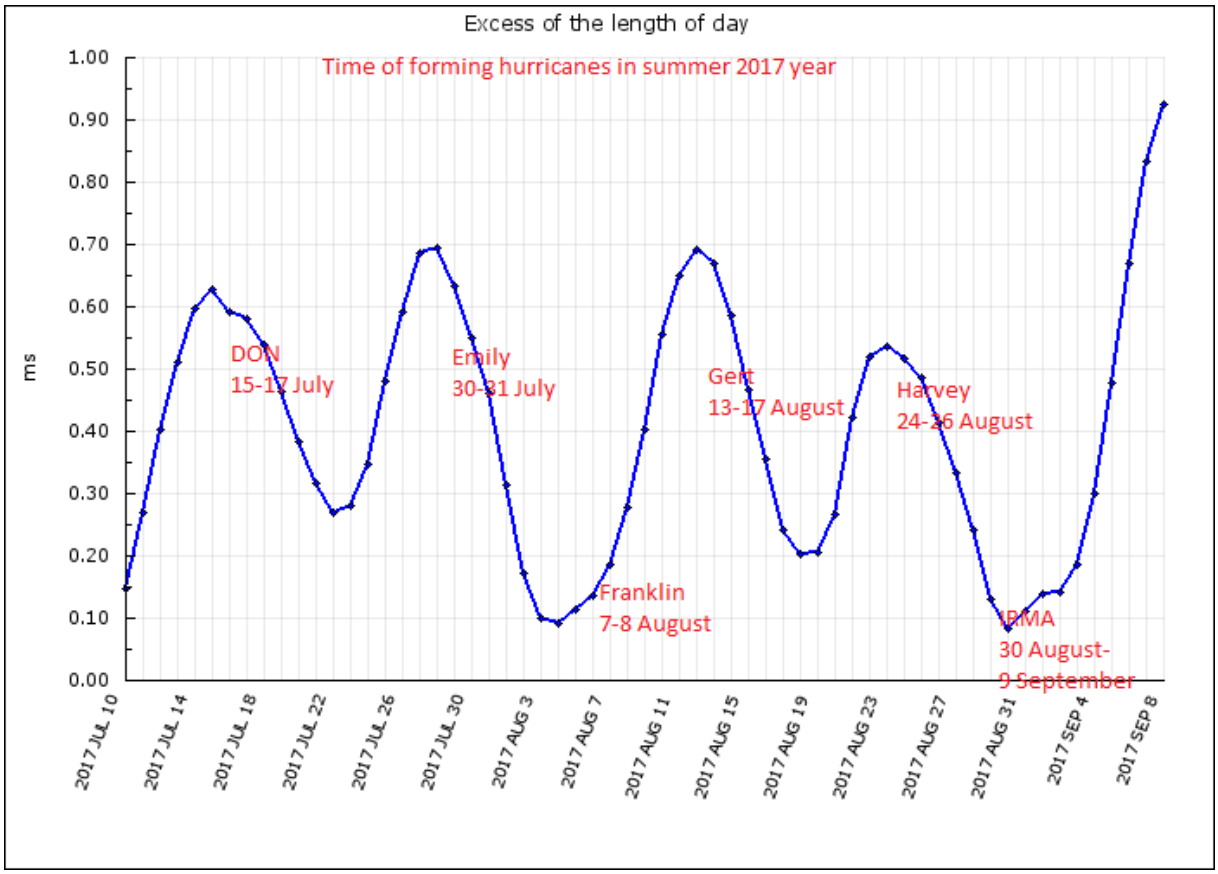


Fig.46. Time of forming hurricanes versus changes of length of earth's day – LOD during summer of 2017 year

Source of data:

LOD values link: http://hpiers.obspm.fr/eop-pc/products/combined/realtime/realtimeplot.php?laps=60&eop=1&graphe=5&dimx=700&dimy=500&tver=0

Date of hurricanes link:
https://en.wikipedia.org/wiki/2017_Atlantic_hurricane_season#Tropical_Storm_Don

Hurricanes probably are forming during SST (sea surface temperature) changes in oceans. Changes in the Earth's rotating speed result in oceanic upwelling that change the surface temperature of sea water. In reaction on the changes of SST (while warming of surfaces waters) are probably forming itself over oceans the centers of low atmospheric pressure from which creates hurricanes. When Earth's rotating speed increases then decrease upwelling and SST of the ocean on the equator is raising(ie. warming oceanic waters) and centers of low atmospheric pressure over equatorial ocean are forming eg. near west coast of Africa continent. On 26 August 2017 when Sun, Mercury, Earth and Neptune was almost on one line (see The Planets Today. com) the gravitational tides on the ocean were the greatest and water was most cold, then oceanic waters started to warm while upwelling decreased during period of increasing rotational speed of Earth. In this moment hurricane Harvey has started. From 26 of August Earth's rotation speed has begun increased and upwelling decreased and with it increased SST of the ocean. When the rotational speed of the Earth and surface temperature of ocean was the greatest hurricane IRMA has started. I need to say that on the equator acts the biggest the centrifugal force and the upwelling which cooling water on the surface of ocean in the moment of decreasing Earth's rotational speed is the biggest on the equator. Up to 6 September where Sun, Earth, Moon, Neptune were on one line and oceanic tides and upwelling remained strong, hurricane IRMA was more and more strongest. Another phenomenon was that from the beginning of season of hurricanes of 2017 speed of wind in each hurricane increases, up to IRMA hurricane. It can be explained by more solar radiation on the surface of the ocean from 1 June to 10 September.

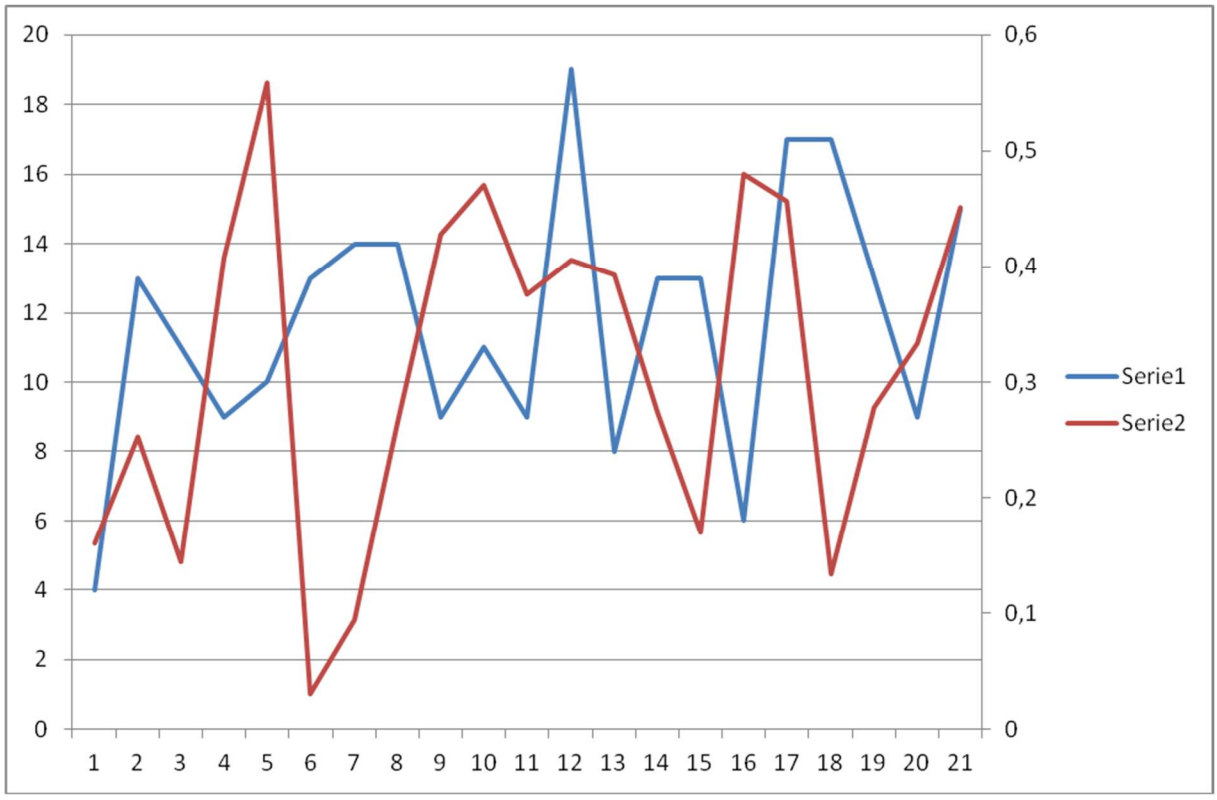


Fig.47. Correlation of number of hurricanes (color blue left scale) in one year versus SST anomaly in tropics (red color right scale) in period 1994-2014

Data Source:

SST Anomaly in tropics from HadSST 3.1.1.0. data set

link:
https://www.metoffice.gov.uk/hadobs/hadsst3/data/HadSST.3.1.1.0/diagnostics/HadSST.3.1.1.0_annual_tropics_ts.txt

Number of Hurricanes over Atlantic Ocean from Hurricane Research Division, Atlantic Oceanographic & Meteorological Laboratory NOAA

Link: http://www.aoml.noaa.gov/hrd/data_sub/hurr2016.html

We see on Fig.2 negative correlation of the two variables. When SST anomaly in tropics is decreasing, number of hurricanes is increasing and vice versa.

XXVII. Correlation of LOD (length of day) versus use of electrical power in Poland

Based on the research done in 2017, I found that electricity consumption in Poland is closely correlated with LOD changes and because it is certain that electricity consumption in every region of the globe is dependent on climate change, this means that climate change in Poland is closely correlated with changes in LOD which confirms my climate theory. The consumption of electricity in Poland depends directly on climate change, which results in a close correlation of energy consumption with the Earth's geophysical mechanism controlled by the surrounding us Kosmos. I can not correct (make it better) the figure below because of that the current data of the amount of electricity consumption) in Poland is secret. Former data I lost.

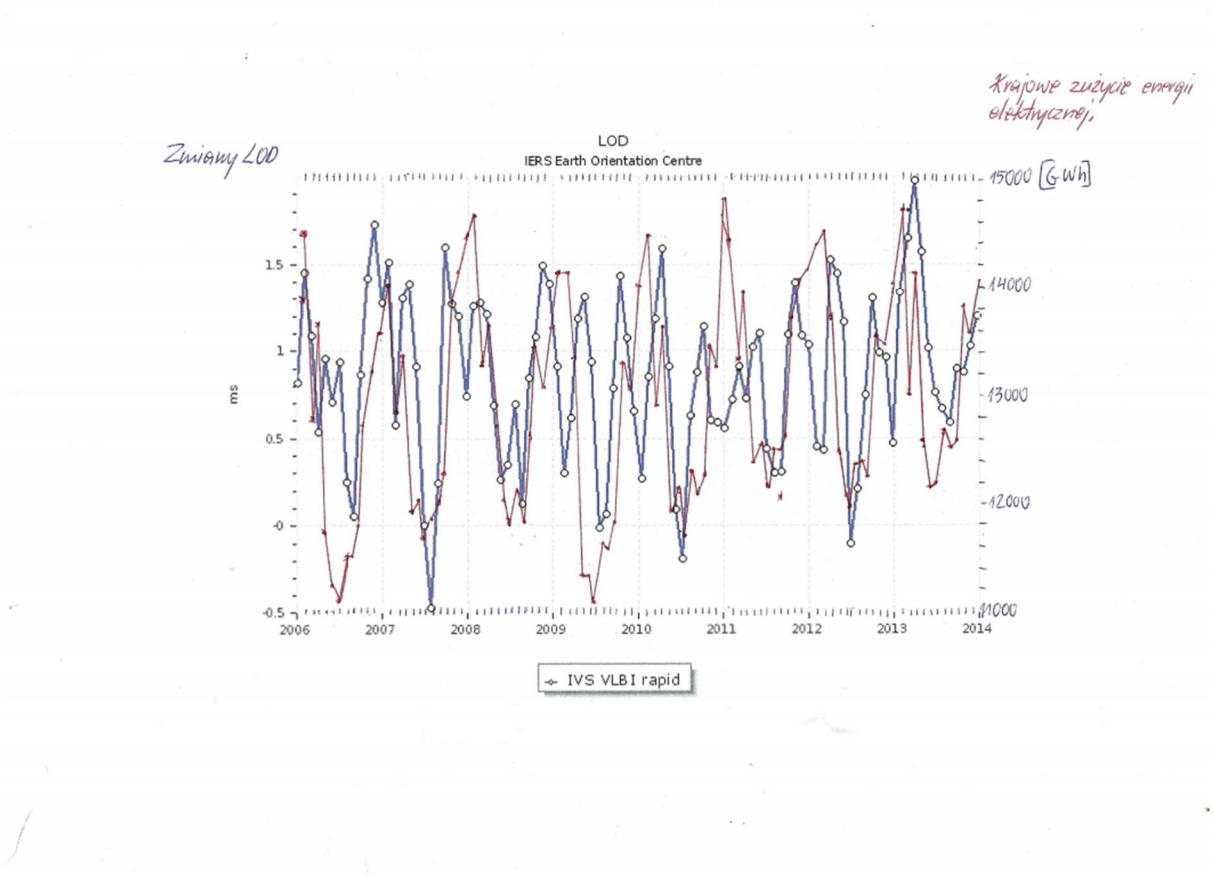


Fig.48. Use of electrical power in Poland versus LOD (length of day)

Blue- LOD source: https://hpiers.obspm.fr/

Red: use of electrical power in Poland 2006-2014. Source: http://www.pse.pl/index.php?modul=8&y=2006&m=1&id_rap=212

Use of electrical power in Poland depends of climate changes. Below is a graph which ilustrated dependence of use of electric power in Poland from LOD changes. There is on the graph strict correlation those two variables. In my theory change of LOD directly influence on climate change. Graph below is evidence of such dependence between LOD changes and climate changes and use of electric power in Poland and in the world.

Bogdan Góralski

XXVIII. The new theory of tectonic plates movement of the lithosphere of the Earth

Abbreviations used in the article:

oceanic plate - OP

continental plate - CP

Earth's upper mantle - EUM

solar system - SS

The Milky Way Galaxy - MWG

interplanetary magnetic field - IMF

the radius of the rotating mass - r

centrifugal force -F

angular velocity - ω

linear velocity-V

angular momentum- L

mass of plate of the lithosphere- m

length of day - LOD

The solar system SS travels through the Milky Way Galaxy MWG at about 250 km / second, swirling around the center of the Galaxy once every 200-250 million years. On the way the SS crosses the four spiral arms of the MWG, which are compacted matter of the Cosmos. Passage through the clusters of stars of galactic arm stars enhances the gravitational action influence from the MWG on the Solar System. This results in periodic changes in the SS geometry and, as a result, changes in the gravitational field SS. The gravitational interaction of differ position of the masses of the Solar System changes the position of the Earth's coating, rotating and sliding it over the liquid layer of the Earth's outer core interior. The solid metallic inner core remains motionless (?) in the strong grip of the magnetic field of the Sun.

As a result of the circular motion of the Earth's coating over the liquid layer of the Earth's outer core we see apparent changes in the position of the magnetic poles on the surface of the earth's crust. So far it has been thought that magnetic poles are moving. My concept assumes that the magnetic poles are stable in the grip of the IMF's magnetic field, whereas the earth's coating move around the liquid interior of the Earth.

I have numerous evidence of this phenomenon, including changes in the location of climatic zones on the surface of the Earth, which can only be explained by the cyclical movements of the Earth's coating relative to the ecliptic and the Sun. So precession of the earth's axis does not exist, because the earth's surface rotating by tilting and deviating from the Sun due to the changes of gravity within SS.

The northern hemisphere's lithosphere consists of more massive continental plates than of the southern hemisphere lithosphere, which contains more lighter oceanic plates. The variable gravitational forces of the Solar System more strongly influence by the heavier lithosphere of the northern hemisphere, causing the Earth's coating continuous motion around the stationary, fluid interior of the Earth. This constant movement of the Earth's coating causes friction within the Earth, which heats the internal Earth masses and keeps them in liquid state. The differences in the Earth's mass distribution result in a change in the position of the Earth's coating, which consists of the crust and the mantle sliding over the Earth's outer core. The location of the Earth's coating is influenced by the gravity of the Moon, the Sun, and the SS planets, as well as the gravity of smaller space objects. Changes in the location of the Earth's coating, which are the result of the above-mentioned interactions, change the moment of inertia of Earth's masses, resulting in oscillations of the Earth's rotation speed.

Changes in the mass distribution on the surface of the Earth cause in the end seeming changes in the position of the magnetic poles. Changes in the location of earth's coating relative to the ecliptic are characterized by cyclical changes in the angular velocity of the earth.

Linear velocity of rotation of Earth V :

$V = \omega r$

- angular velocity "ω",

radius of Earth "r".

Linear speed at the equator is 1667km / h, and at the pole zero. If a part of the earth's crust moves closer to the equator, the effect of the centrifugal force acting on the lithosphere plates increases, which then initiates movement of them on the surface of the Earth. It follows that changing the position of the earth's coating distorts the equilibrium of the placement of the continental plates CP and the ocean plates OP of the lithosphere because when they were at the pole and moved closer to the equator acted on them greater the centrifugal force F:

$F = mr\,\omega 2$,

which caused to them movement on the surface of the globe, which is caused by huge differences in centrifugal forces acting between the equator and the poles. The differences in forces acting on lithosphere plates result from the difference in radius r - the distance of the spinning mass of the plates from the axis rotating at a high velocity of the globe. This difference increases as the OP and CP slid across the globe from the pole to the equator.

The length of Earth's day is constantly growing and the cause of its continuous growth is the gravitational effect of the Moon. Earth Day was 6 hours long when the Earth was formed, and 400 million years ago, the day was 21 hours long, so the speed of rotation of the Earth was much higher, so the centrifugal forces acting on the earth's lithosphere plates were also larger. Higher rotation speeds and greater centrifugal forces was shifting lithosphere plates with greater force during subsequent orogeneses, what corresponded to periods of significant change in the Earth's coating position relative to the ecliptic plane. Former inverse, position of the magnetic poles observed today demonstrates the rotation of the earth's coating, such that the northern and southern hemispheres thanks to full rotation of Earth's coating change itself the places.

The Earth's crust, consisting of rigid lithosphere plates floating in a ductile, viscous upper mantle (EUM), is made up of thick on several kilometers basaltic OP oceanic plates (5 km in Hawaii) and continental plates CP varying in thick to several tens of kilometers (25 up to 60 km in the California area). The lithosphere plates , which contains part of the upper mantle of the Earth, travels on the hot and ductile mantle (at a depth of 100-200 km the rock reaches the melting point) probably under influence continuous changes in the centrifugal force resulting from the changing position of the Earth's coating.

Changes in the angular velocity of the Earth are due to continual changes in the location of the Earth's coating. On the irregularly dense Earth's coating most of the interactions come from the variable forces of gravity of the Solar System.

The angular momentum (L) of the rotating solid depends on its mass, dimensions and velocity and the radius of rotation. Masses of lithosphere plates are very diverse and vary in their susceptibility to changes in angular momentum. Continental plates CP are larger, thicker and more resistant to slipping in the ductile and viscous magma of the upper mantle compared to the OP. The OP performs a greater movement than the CP (at the same time) in response to the centrifugal force resulting from the changing position of the Earth's shell. Larger shift of oceanic plate in the horizontally direction cause the OP to plunge beneath continental plate CP or submerge beneath other and larger OP. Diving of the ocean plate under the continental plate is caused also by the increasing mass of deposits on the older edge (on the older area) of the oceanic plate, which is subject to subduction. Begin of subduction zone starts from the crack oceanic plate on the border with continental plate when weight of sedimented deposits on the OP will exceed shear strength of the oceanic plate OP.

$L = I \times \omega$

angular momentum- L

Moment of inertia - I,

angular velocity $\omega \Rightarrow L = I \times V / r$

The smaller mass, size, and elasticity of the ocean plates (OP) results in greater lability of them during changes of linear velocity changes on the surface of the globe. This causes the OP slides down beneath continental plates which are being more massive (and with higher moving resistance) during moving in the earth's magmatic environment. Subduction initiation occurs when the weight of sediments accumulated on the expanding ocean plate increases to the limit value, which determines the moment of a deep crack, fault in the earth's crust and collapse of the ocean plate under another plate of the earth's crust. A subduction zone then arises, the further development of which depends on the variable rotation of the terrestrial globe.

In this way subduction zones are formed in which fragments of the earth's crust are absorbed by the ductile and hot magma of the earth's mantle. Dipping the OP in the east direction takes

place during the acceleration phase. Dipping the OP in the west direction during the delay of the movement. This leads to continual migration of continents which sometimes results in a collision of several continental plates CP, which then large continental plates are formed.

Variable rotary movement of the Earth's is the result of Earth's coating motion (ie. of the surface of the globe), which is consisting with phases of acceleration and delay during different of periods, from a day to millions of years, and in the consequence to multiple of the angular momentum changes causing continuous motion of the lithosphere plates on the Earth's surface.

This movement was characterized by periods of increased intensity of tectonics known as orogeneses, eg Baikal, Caledonian, Hertzian, Himalayan, and alpine. They were correlated with the cooling of the Earth's climate, which indicates the biggest changes in the location of the Earth's coating and in the speed of Earth's rotation at these periods. Correlation of cool periods with periods of intense earth's coating shifts and accompanying seeming changes in the location of magnetic poles results from my theory of the climatic mechanism of the Earth.

The movement of lithosphere plates may also be due to the movement of magma within the earth's mantle, induced by the more frequent (diurnal) and larger oscillations of the solid metallic inner core moving within the metallic liquid outer core, resulting in the pumping effect of the liquid masses of the outer core on the eccentric pump principle. The denser magma of the lower mantle of the Earth, moving under the influence of movements in the outer core of the Earth, acts on the less dense magma of the upper mantle, which may cause additional movement of the lithosphere plates.

XXIX. The mechanism of inflation

Statistical research conducted by the US and the EU, and my own research reveals the secrets of the mechanism of inflation leading to higher costs and crises in market economies. Inflationary spiral is stimulated by the rise in food prices resulting from natural mechanism coupled with the market. This mechanism relies on cycle pulsing in food prices resulting from variable harvest and the area of agricultural crops. The climate crisis causes an increase in food prices affecting the growth of the area of agricultural crops. The area of crops grows until the fall in food prices resulting also from favorable climatic conditions, which in turn

influences a reduction in crop area. Reduced food prices reduce the cost of living of the employees which leads to a reduction of wages in the national economy the US, the EU and especially in Japan. The fall in food prices results in a drop in prices of goods and raw materials. This is evident in the figures below.

The reduction in salaries leads to increased employment in the economy increasing production and corporate profits leading to the increase of population countries. Increasing population leads to rising food prices and increase the costs of food imports in countries producing oil and gas which results in an increase in oil and gas prices, enabling the balancing of national budgets importers of food and at the same time oil and gas exporters. Inflationary spiral continues to screw, industrial goods prices are rising and demand is decreasing which causes economic depression, decline in employment.

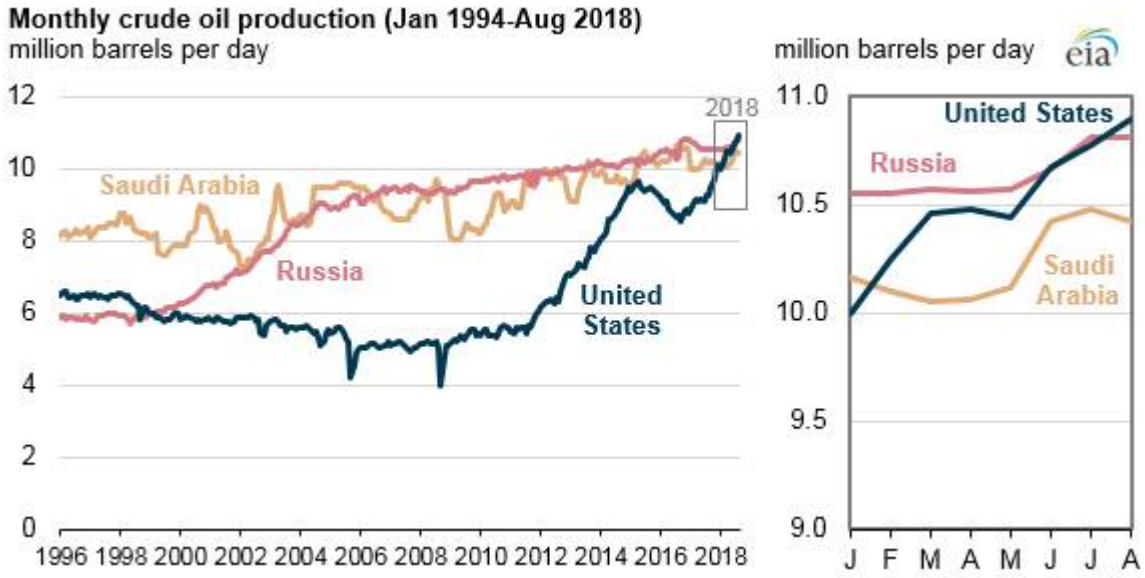


Fig.49. Monthly crude oil production in the world 1994-2018

Source of graph: https://www.americanexperiment.org/2018/09/united-states-now-largest-global-crude-oil-producer/

The price growth mechanism of oil products has been disturbed lately by the global increase in oil and gas production since the year 2013 (especially in the USA). This causes a global decline in oil and gas prices and problems with balancing the national budget by increasing prices of oil and gas among its exporters. This may result in economic and social changes in

countries that have so far remained sustain from the proceeds from the export of natural resources.

The decline in food prices causes a reduction in area of crops. The continuous decline in food prices continuing since mid-nineteenth century due to the globalization of the food market and the progressive warming of the climate. The global increase in food production caused by global warming of climate since the mid-nineteenth century, caused continual decrease in food prices as the following charts and quotes.

This reduced the wages of employees and the share of the wage costs of employees in GDP leading to increased employment and output growth. However, the excessive reduction of food prices causes a fall in demand from agricultural producers and the need to subsidizing farmers. Decrease in demand from agricultural producers causes periodic slowdown in industry and decline in wages and employment of workers in industrial and agricultural economy.

The cool of the climate that is awaiting us soon will reduce food production and increase its prices and thus wages in the economy due to increased costs of living. The cool climate will increase of energy prices. Increased income food producers (because of increase of food prices) and increased (as a result of protests and strikes) wages of workers will lead to short-term sucking in the national economy through increased inflation. Inflation will rise, and with it will rise the production costs whwch cause to fall in demand. There will come an economic crisis that will last until the global increase in food production, which will take place only if the introduction of the most efficient food production system - a modern feudal system in agriculture. Reserves (surplus) production in the current agricultural system is impossible because growth in agricultural production is possible only by changing the system more efficient. The current agricultural system is not efficient because of its agricultural property concentration. Huge agricultural properties lead to extensive agricultural production.

The profitability of food production is currently the lowest in 200 years causing a decline in employment in agriculture and concentration of agricultural property resulting in ownership concentration in the entire economy. This results in a drop in demand and economic efficiency characteristic for economy consisting many small businesses. We look forward to

the deconcentration of farm property and in industry and increase management efficiency in the economies of the US and the EU. It will be forced by future climate change.

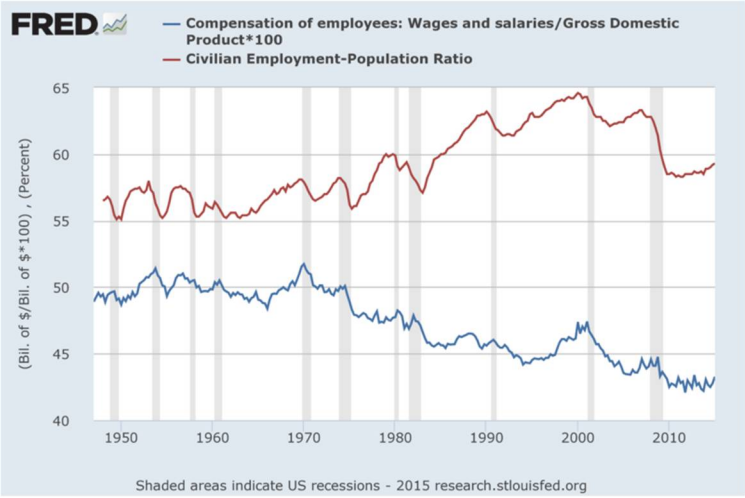


Fig. 50. Federal Reserve Economic Data

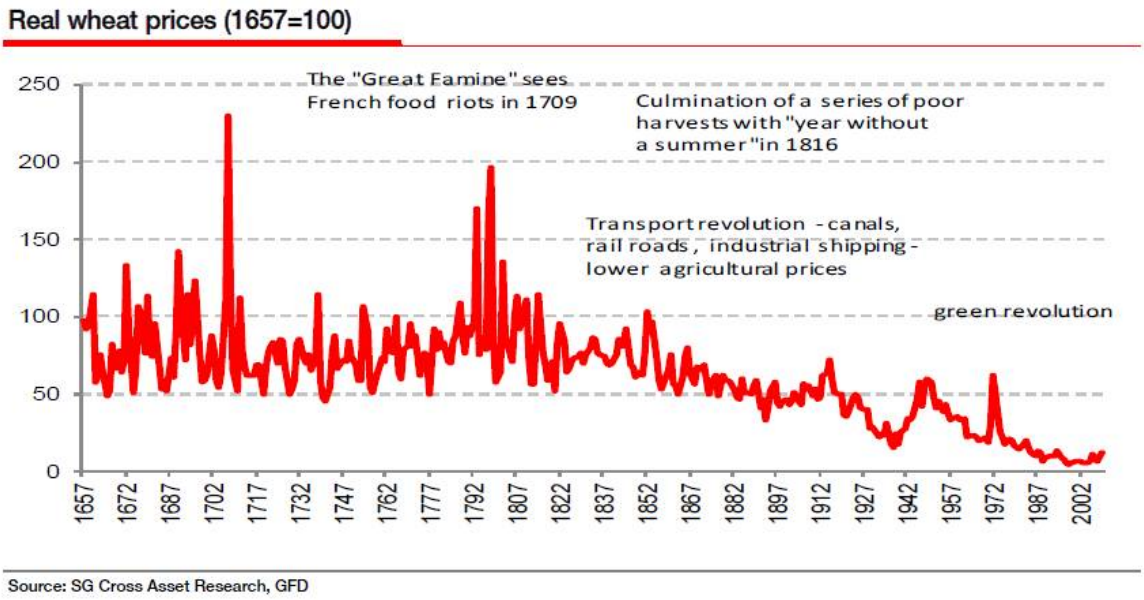


Fig.51. Real wheat prices 1657-2002 years

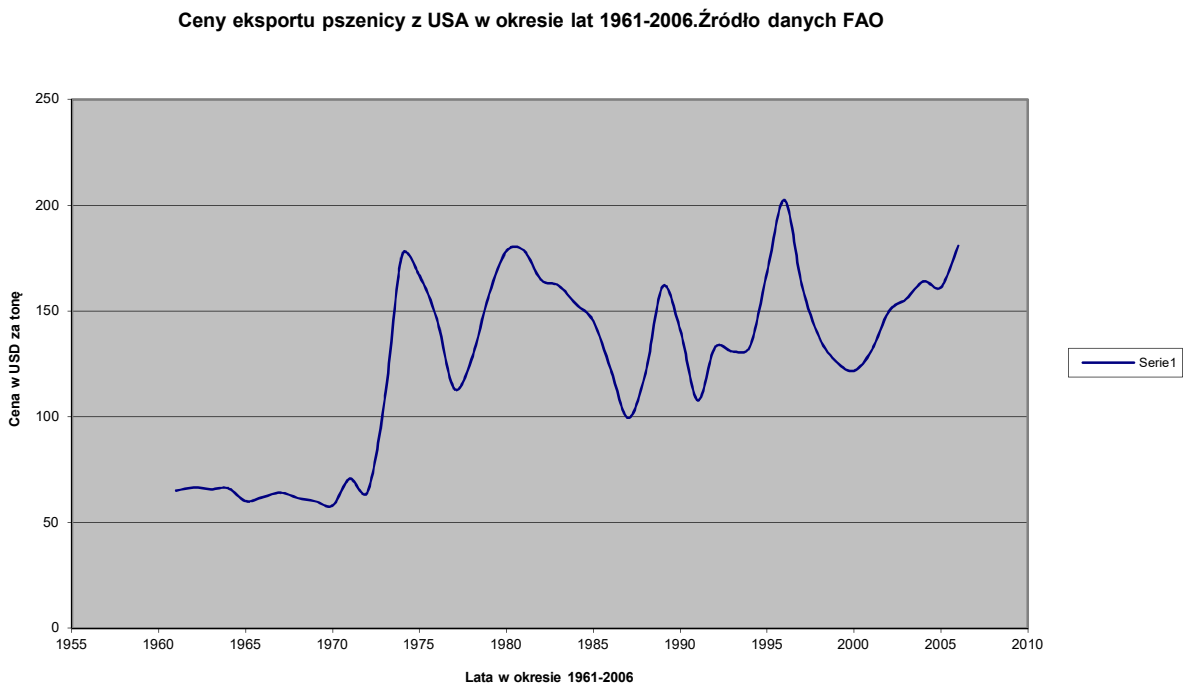


Fig. 52. Prices of wheat exports from the United States in the years 1961-2006. FAO data source. Drawing is available in my Polish language book entitled człowiek I klimat link: http://www.depot.ceon.pl/handle/123456789/4855).

Wage share in the USA, Japan, and Germany.

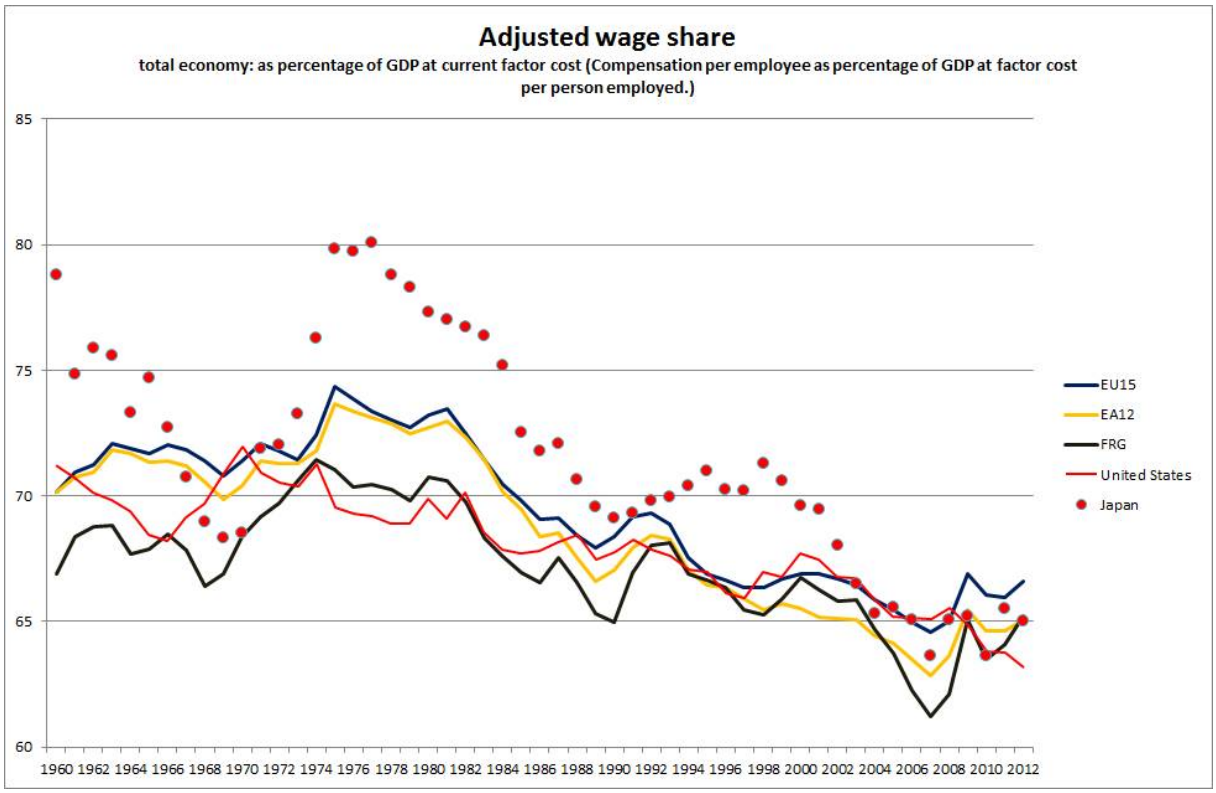


Fig.53. Workers' salaries are at the lowest percentage of GDP since 1929

Workers' salaries are at the lowest percentage of GDP since 1929

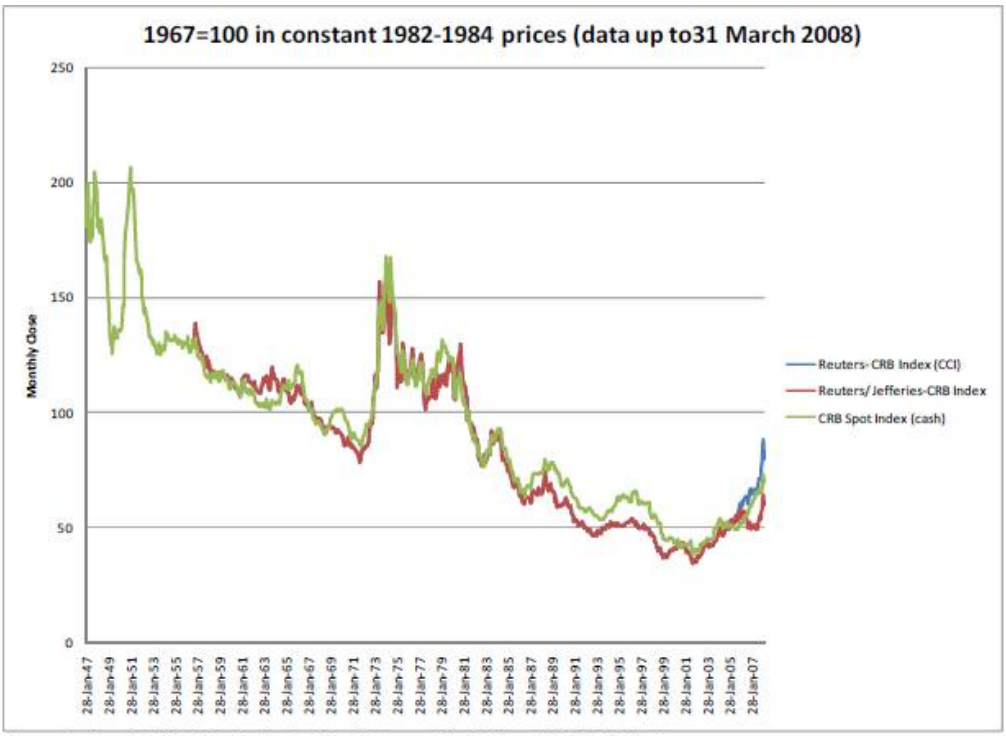


Figure 2- Post WWII Evolution in Real Commodity Prices (CRB Indices)
Source: Commodity Research Bureau.

Fig.54. Post WWII Evolution of Real Comodity Prices

http://www.nytimes.com/2013/08/10/business/economy/us-companies-thrive-as-workers-fall-behind.html?ref=floydnorris&_r=0

Wages and salary income in 2012 amounted to 42.6 percent of GDP, the lowest since 1929.

http://www.nytimes./interactive/2013/08/09/business/economy/Higher-Profits-Lower-Wages.html?action=click&contentCollection=Economy&module=RelatedCoverage&region=Marginalia&pgtype=article Pod tym linkiem są dostępne wykresy z amerykańskiej gospodarki.

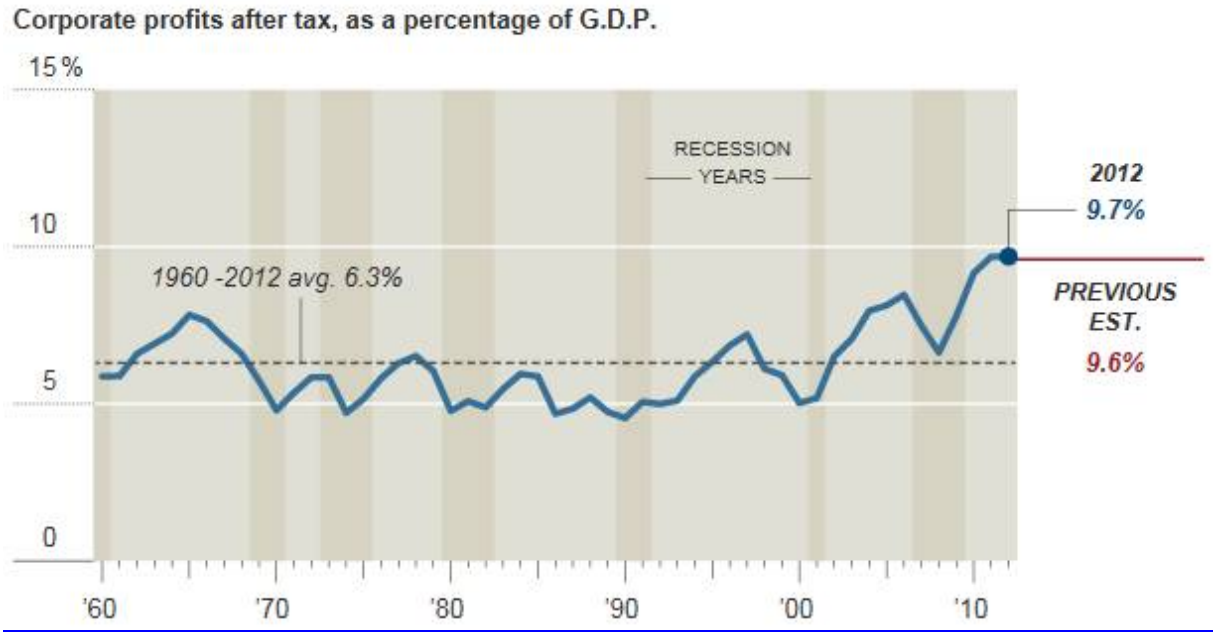


Fig.55. Corporate profits after taxes amounted to a record 9.7 percent of US G.D.P. Each of the last three years has been higher than the earlier record high, of 9.1 percent, which was set in 1929.

Rising Productivity

Between 1930 and 2000 U.S. agricultural output approximately quadrupled, while the United States Department of Agriculture's (USDA) index of aggregate inputs (land, labor, capital and other material inputs) remained essentially unchanged. Thus, multifactor productivity (output divided by all inputs) rose by an average of about 2 percent annually over this period. This rate substantially exceeds the rate of multifactor productivity growth in manufacturing, and

the agricultural rate did not experience the slowdown that occurred in the rest of the U.S. economy during the last quarter of the century.

Falling Real Prices

Prices received by farmers for products they sell decreased by an average of 1 percent annually in real (inflation-adjusted) terms between 1900 and 2000. Real food prices paid by consumers also decreased.

The number of farms decreased from a peak of close to 7 million in the mid-1930s to just over 2 million in 2000. The rate of decline was most rapid in the 1950s and 1960s, and dropped off thereafter until the 1990s, when the number stayed about constant. The U.S. had an estimated 2.16 million farms in 2002 as compared to 2.11 million in 1992 (USDA, 2003, p. 2).

Declining income of 1.2 million farms (59% of all farms) put pressure on the achievement of non-agricultural income, which increased the number of employees in the US market and contributed to the decrease in average earnings. In addition, a reduction from 22 to 7% over the century of food costs in the income of Americans also allow to reduce earnings without prejudice to the budgets of families. Moreover, the reduction in the twentieth century by 100% in real food prices reduced the income of farmers which resulted in a decrease in the share of wages in GDP USA.

Bogdan Góralski

XXX. Redshift and blueshift in astronomical, cosmic research is observed when the observers on Earth changes their position

Redshift and blueshift in astronomical, cosmic research is observed when the observers on Earth changes their position relative to astronomical objects because of the fast movements of Earth's coating.Telescopes of astronomical observatories located in the mountains at various points of the globe are shifting relative the stars along with Earth's coating movement. Since 1860 year has been observed the rapid movement of the earth's coating to the South direction in relation to the ecliptic plane, and the redshift phenomenon has been associated with increasing distance of stars to the Earth, which was to prove the expansion of the

Kosmos. Meanwhile, the observer on Earth changes his position relative to the stars along with the Earth's coating movement, which indicates the constancy of the sizes of the Cosmos.

Bogdan Góralski