10 hPa Global Stratospheric Calendar at Stonehenge and Giza

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SIGNIFICANCE STATEMENT: Analysis of sunset alignment points of Giza and Stonehenge reveals marks of two identical time frames from March 30th till April 7th and from October 21st till November 7th. Ancient civilizations might've even possessed an advanced knowledge of a global stratospheric calendar and unknown methods of registering changes of upper air properties.

ABSTRACT: This article is a pioneer quest for a possible link between the sunset alignment points of Stonehenge and Giza and natural seasonal atmospheric phenomena – global stratospheric calendar. Analysis of the sunset alignments of Giza and Stonehenge reveals marks of identical time frames from March 30th to April 7th and from October 21st to November 7th. Analysis of the constant pressure chart 10 hPa on the northern and southern hemisphere for the period of 2015-2019 shows that the maximal similarity between northern and southern hemispheric 10 hPa geopotential height shapes occurs approximately in periods from March 30th to April 7th and from October 21st to November 7th. Ancient civilizations might've even possessed an advanced knowledge of a global stratospheric calendar and unknown methods of registering changes of upper air properties. Several indications of possible extinct human electroreceptivity were provided.

KEYWORDS: stonehenge, giza, sphinx, archaeology, pyramid, upper air, meteorology, calendar, atmosphere, temple, geopotential, pressure, stratospheric calendar, stratosphere, khafre, menkaure

1. Introduction

Is it possible to create a two-seasonal global climate calendar as a statistical model of some physical property of earth's upper air, independent from interacting factors such as topography, elevation, latitude, nearby water, ocean currents, vegetation and prevailing winds? Which physical properties of the upper air should we register in order to create such a calendar? There are many possibilities. A stratospheric air pressure calendar could be the starting point. End of the stratospheric season should be a moment of maximal statistical similarity of some stratospheric air properties.

2. Two-seasonal global stratospheric calendar

How to construct a two-seasonal global stratospheric air pressure calendar? The two seasons of such global stratospheric calendar should represent periods of fair weather and bad weather, namely stratospheric summer and stratospheric winter.

Let us compare 3D 10 hPa air pressure patterns on January 1st and August 1st 2017 on both hemispheres as described in Figure 1. Figure 1 shows that the fair weather season is associated with highs, ridges, small constant pressure surface and small geopotential height spread. Figure 1 also shows that the bad weather season is associated with lows, troughs, big constant pressure surface and big geopotential height spread. Figure 2 shows 10 hPa geopotential height spreads on both hemispheres for the period 2015-2019.

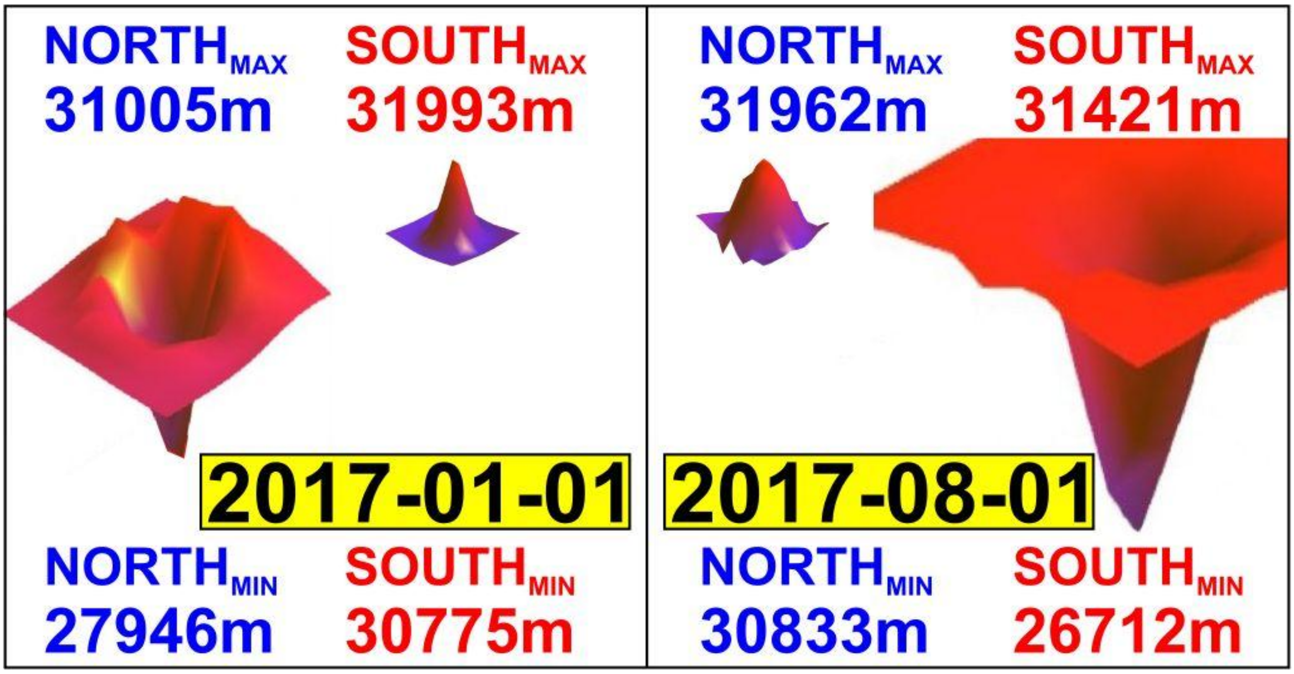

Figure 1. 3D 10 hPa air pressure patterns on January 1st and August 1st 2017 on northern and southern hemisphere. It is based on data provided by Dr. Larry Oolman.

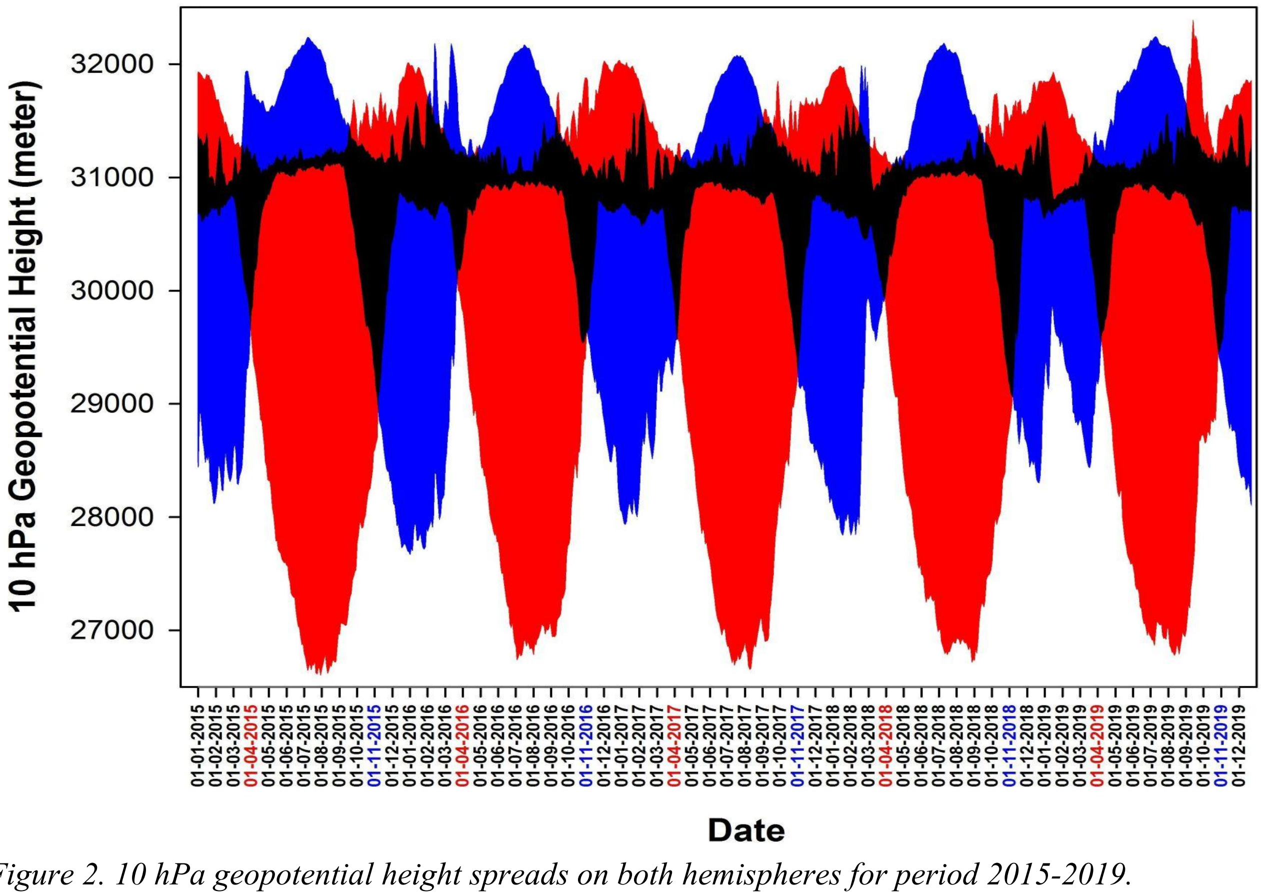

Figure 2. 10 hPa geopotential height spreads on both hemispheres for period 2015-2019.
Blue*=Northern Hemisphere,* ***Red****=Southern Hemisphere,* ***Black****=Cross N/S.*

3. Data and Method

In order to detect the exact end of stratospheric summer and winter, it was necessary to define a simple mathematical function of dissimilarity of air pressure patterns on both hemispheres.

After analyzing Figures 1 and 2 and sunset alignments at many ancient archaeological sites, it was defined a simple dissimilarity function equation 1:

$$\Lambda 1 = \mathrm{SQRT}[(NH_{TOP} - SH_{TOP})^2 + (NH_{BOTTOM} - SH_{BOTTOM})^2]$$

$\Lambda 1$ function is a square root of the sum of squared differences of geopotential height tops and bottoms on both hemispheres. Theoretically, $\Lambda 1 = 0$ when 1D air pressure patterns on both hemispheres are of identical tops and bottoms. The minimal value of $\Lambda 1$ is the end of the current stratospheric season and the subsequent day is the beginning of the new stratospheric season.

The value of the dissimilarity function for several years in the statistical model would be calculated according to the equation 2: $\Lambda 2 = \mathrm{SQRT}[(\overline{NH_{TOP}} - \overline{SH_{TOP}})^2 + (\overline{NH_{BOTTOM}} - \overline{SH_{BOTTOM}})^2]$. The value of the dissimilarity function for several years in the statistical model is not the average value of several $\Lambda 1$ values. First it's necessary to calculate the average values of NH_{TOP} , SH_{TOP} , NH_{BOTTOM} and SH_{BOTTOM} and apply its sum to the equation 2.

$\Lambda 1$ formula is applied for a single year and $\Lambda 2$ formula is applied for statistical model consisted of data from several years.

The daily data of Constant Pressure Chart 10 hPa and 20 hPa covering the period from 2015 to 2019 and 5 hPa (2017-2019) were provided by Dr. Larry Oolman from University of Wyoming. http://weather.uwyo.edu/upperair/uamap.shtml ldoolman@uwyo.edu

Climate is the long-term average of weather, typically averaged over a period of 30 years and removed extreme values which were out of regular range. So that, this 5-year data analyze is just a starting point of research.

4. Preliminary Results

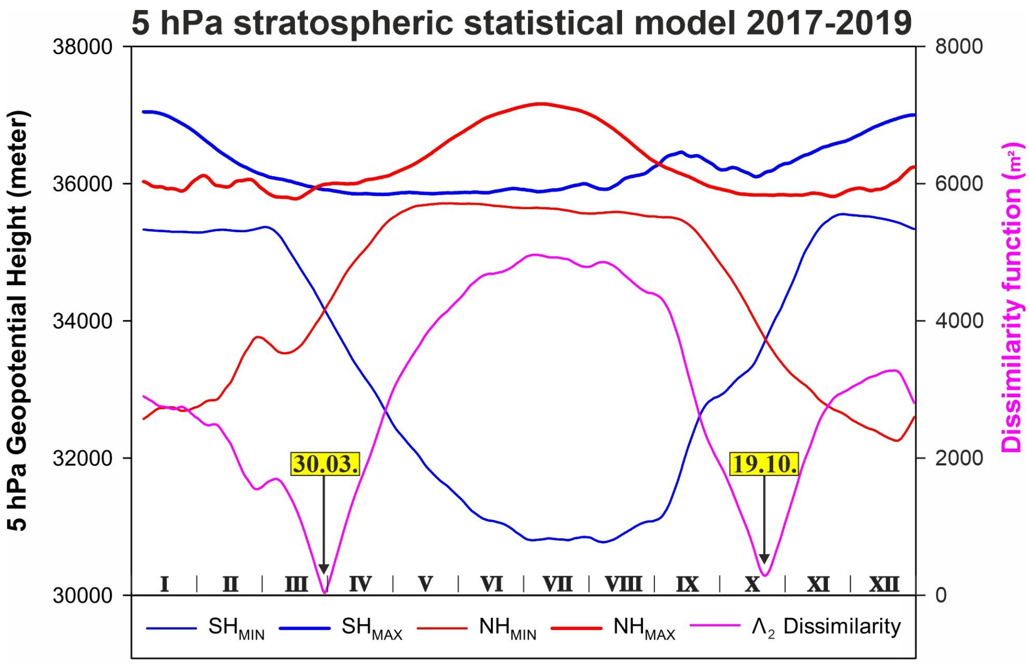

Figure 3. 5 hPa stratospheric statistical model for period 2017-2019 (10 day average).

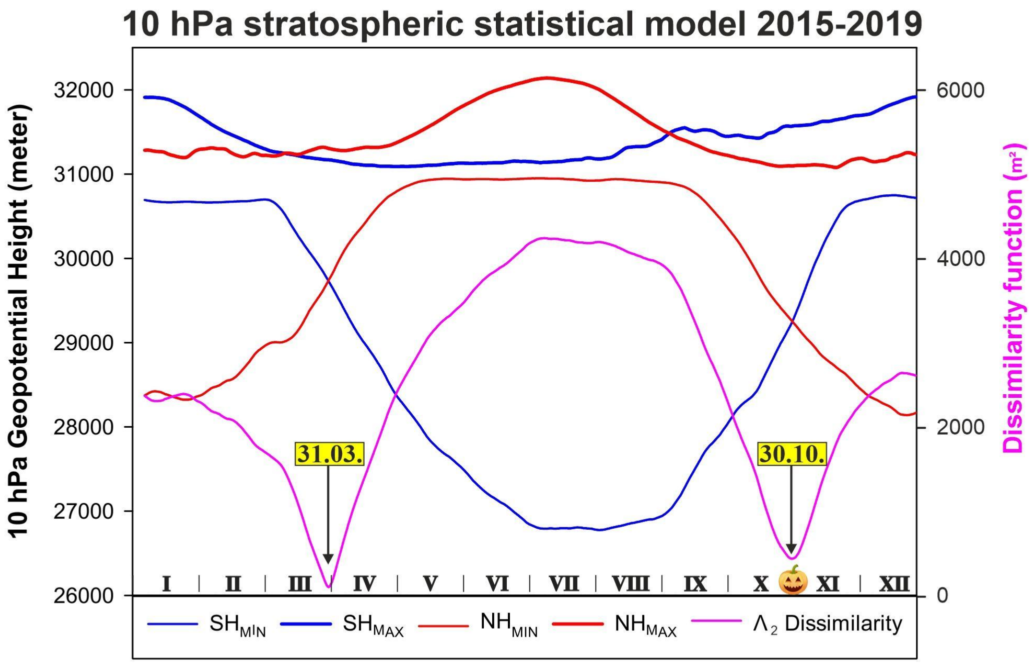

Figure 4. 10 hPa stratospheric statistical model for period 2015-2019 (10 day average).

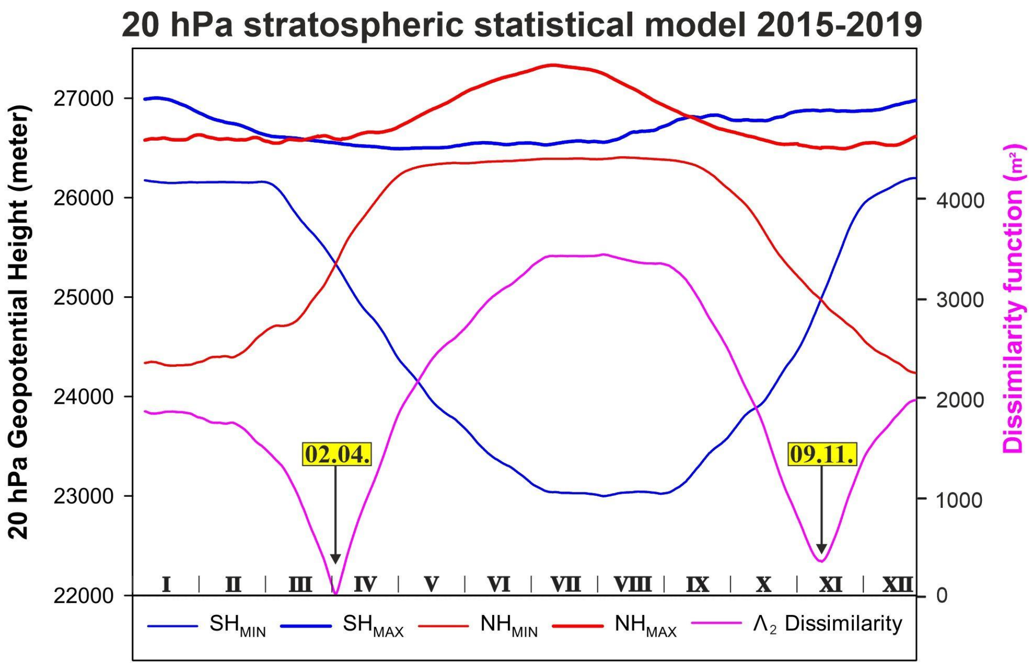

Figure 5. 20 hPa stratospheric statistical model for period 2015-2019 (10 day average).

	5 hPa						10 hPa						20 hPa					
	1st Λ1$_{minimum}$			2nd Λ1$_{minimum}$			1st Λ1$_{minimum}$			2nd Λ1$_{minimum}$			1st Λ1$_{minimum}$			2nd Λ1$_{minimum}$		
Year	Date	Day	Δ/δ	Date	Day	Δ/δ	Date	Day	Δ/δ	Date	Day	Δ/δ	Date	Day	Δ/δ	Date	Day	Δ/δ
2015							02Apr	92	0.43	06Nov	311	1.36	06Apr	96	0.81	13Nov	317	1.04
2016							23Mar	83	1.51	01Nov	304	0.30	26Mar	86	1.72	10Nov	315	0.66
2017	29Mar	88	0.07	18Oct	291	0.22	02Apr	92	0.43	26Oct	299	0.45	03Apr	93	0.05	05Nov	309	0.50
2018	24Mar	83	1.03	22Oct	295	1.09	29Mar	88	0.43	03Nov	303	0.15	04Apr	94	0.30	09Nov	313	0.27
2019	02Apr	92	0.96	16Oct	289	0.87	05Apr	95	1.08	20Oct	293	1.36	06Apr	95	0.56	31Oct	304	1.47
Average(X)	87.67			291.67			90.00			302.00			92.80			311.60		
Stdev(δ)	4.509			3.055			4.64			6.63			3.96			5.18		

Table 1. 5/10/20 hPa minimal disimilarity moments for period 2015-2019.

Table 1 shows 26 relative deviations (Δ/σ) during 26 ends of stratospheric seasons. The two most extreme relative deviations (Δ/σ) occurred in 2016, which is also well-known as the all time hottest year. https://www.giss.nasa.gov/research/news/20170118/

Those are the arguments for re-calculating average (X), standard deviation (δ), and Λ2 without 2016 data.

	5 hPa						10 hPa						20 hPa					
	1st Λ1 minimum			2nd Λ1 minimum			1st Λ1 minimum			2nd Λ1 minimum			1st Λ1 minimum			2nd Λ1 minimum		
Year	**Date**	**Day**	**Δ/δ**	**Date**	**Day**	**Δ/δ**	**Date**	**Day**	**Δ/δ**	**Date**	**Day**	**Δ/δ**	**Date**	**Day**	**Δ/δ**	**Date**	**Day**	**Δ/δ**
2015							02Apr	92	0.09	06Nov	311	1.26	06Apr	96	1.16	13Nov	317	1.12
2017	29Mar	88	0.07	18Oct	291	0.22	02Apr	92	0.09	26Oct	299	0.33	03Apr	93	1.16	05Nov	309	0.31
2018	24Mar	83	1.03	22Oct	295	1.09	29Mar	88	1.31	03Nov	303	0.20	04Apr	94	0.39	09Nov	313	0.40
2019	02Apr	92	0.96	16Oct	289	0.87	05Apr	95	1.13	20Oct	293	1.13	06Apr	95	0.39	31Oct	304	1.21
Average(X)	87.67			291.67			91.75			301.50			94.50			310.75		
Stdev(δ)	4.509			3.055			2.87			7.55			1.29			5.56		

Table 2. 5/10/20 hPa minimal dissimilarity moments for 2015, 2017, 2018 and 2019.

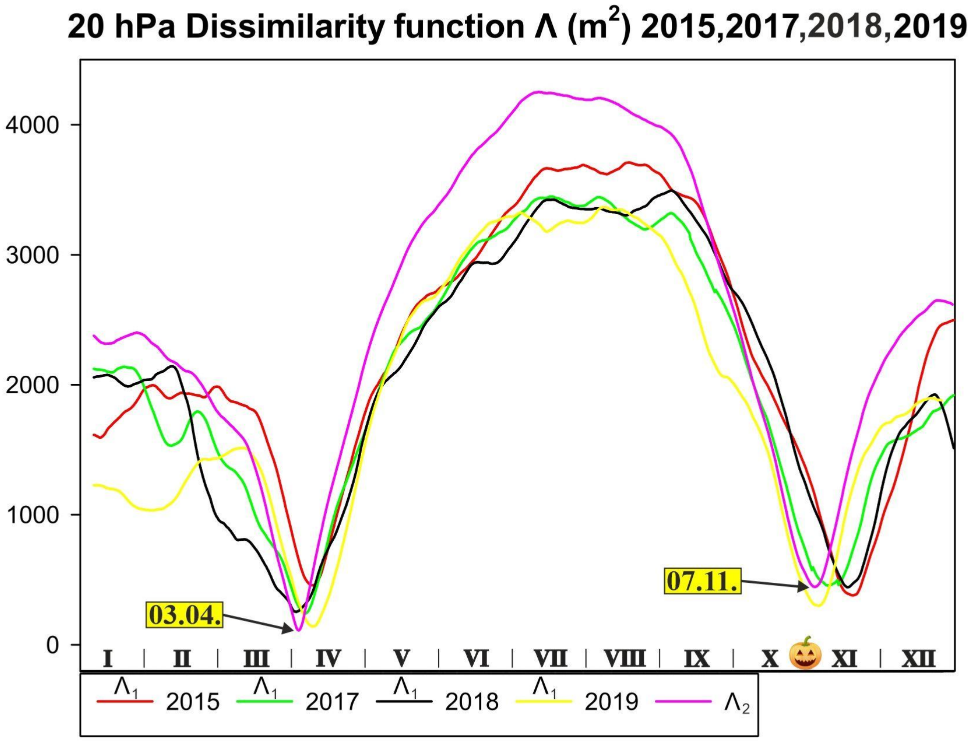

Figure 6a. 20 hPa Λ1 and Λ2 function curves for 2015,2017,2018,2019.

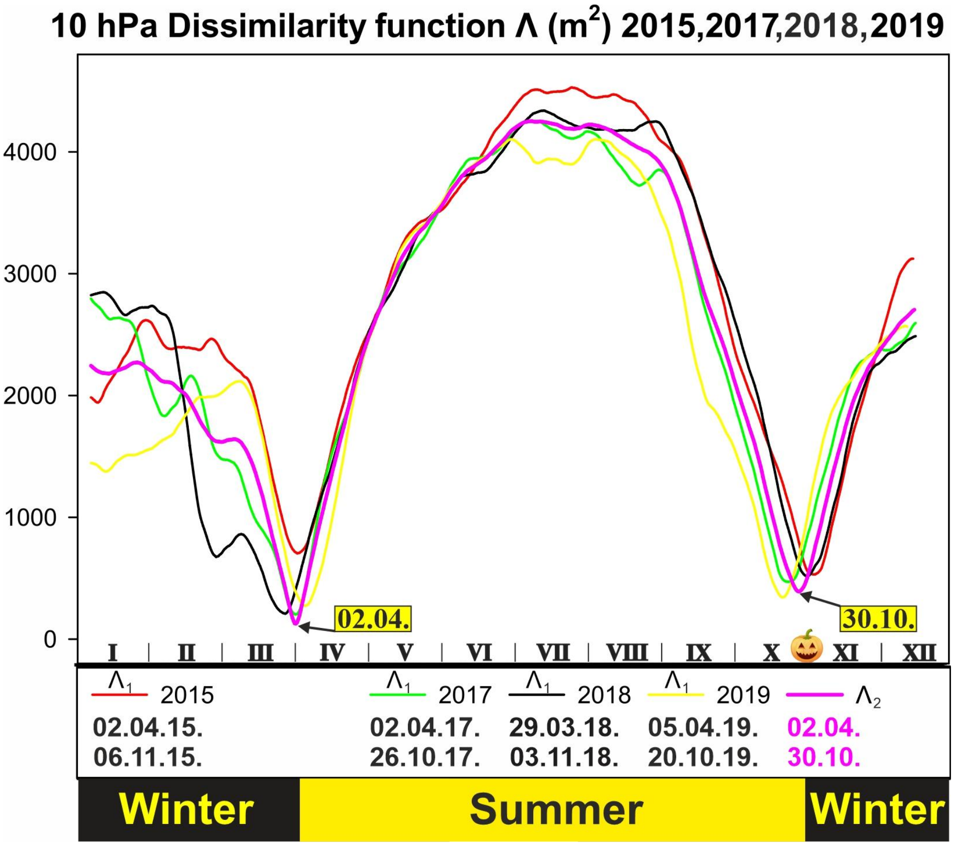

Figure 6b. 10 hPa Λ1 and Λ2 function curves for 2015,2017,2018,2019.

After re-calculating Λ2 values without 2016 data, there were derived statistically most expected beginning dates and preliminary regular ranges of stratospheric seasons:

5 hPa (March 29th, October 20th), (March 25th - April 3rd), (October 17th - October 23rd)
10 hPa (April 3rd, October 31st), (March 30th - April 6th), (October 21st - November 7th)
20 hPa (April 4th , November 8th), (April 4th - April 7th), (November 1st - November 14th).

This model of the global stratospheric calendar needs to be tested in the future and also be compared its performance in previous years. Such tests could reveal that regular range could be wider. Was the earliest beginning of stratospheric summer 2016 an indicator of above average warm summer? Could beginnings of stratospheric seasons out of regular range be indicators of above/below average warm/cold summer/winter? This idea of the stratospheric calendar is in the earliest possible stage and it is necessary to develop it in the future. This paper is an invitation to all researchers from the world.

5. Clues of 10 hPa global stratospheric calendar at Stonehenge and Giza plateau

It is interesting to notice that ancient Celts celebrated beginning of Winter on sunset October 31st. It is a clue that ancient Celts maybe possessed a knowledge about the 10 hPa global stratospheric calendar. Instead of usual sunrise and solar noon alignments at archaeological sites, sunset alignment analyze of Stonehenge and Giza could reveal clues of 10 hPa global stratospheric calendar.

6. 10 hPa global stratospheric temples at Stonehenge

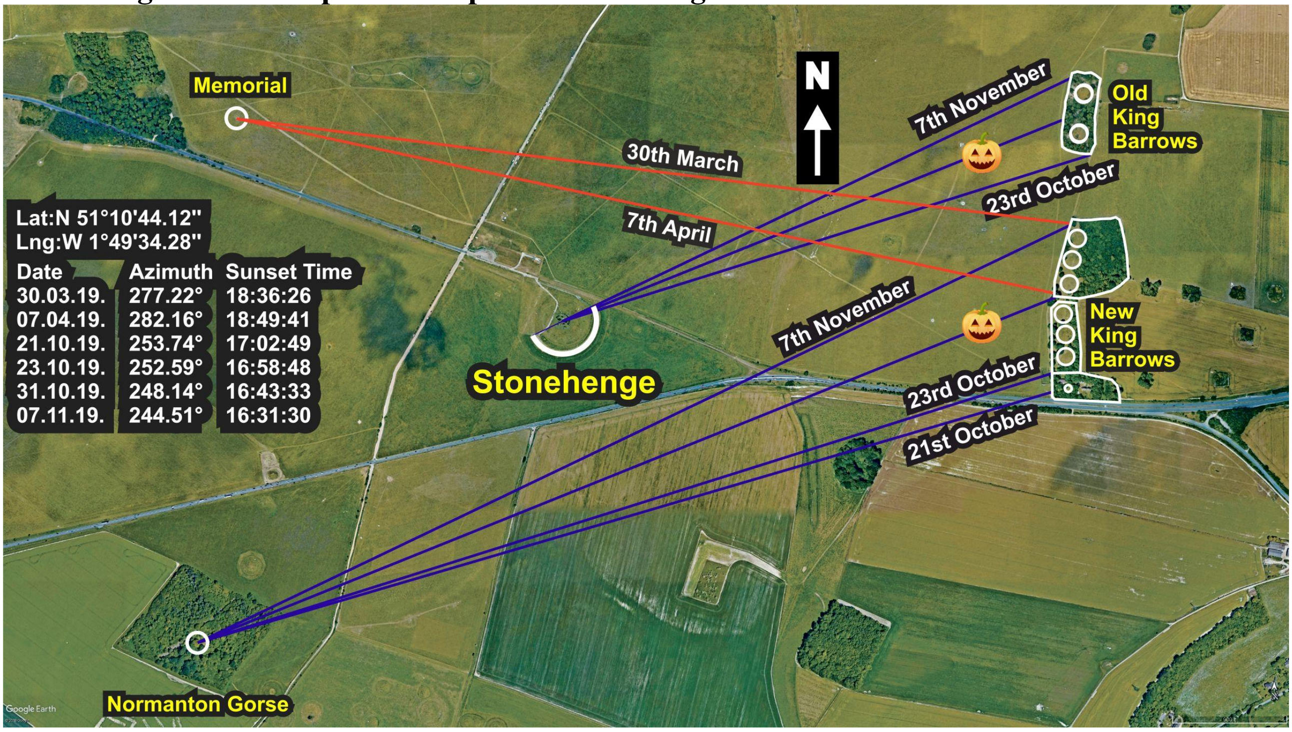

Figure 7. Sunset alignments at Stonehenge in 2019. Reference points were Stonehenge Standing Stone Circle, tumulus Memorial and tumulus Normanton Gorse.

Sunset azimuths at Stonehenge in 2019 were derived from free software Stellarium version 0.19.2. Figure 7 shows that Old King Barrows and New King Barrows were probably constructed as stratospheric winter temples. New King Barrows is consisted of 7 barrows, separated in 3 areas. The southern area with a single small barrow covers sunset dates from October 21st to 23rd. The middle area covers sunset dates from October 23rd to 31st. The northern area covers sunset dates from October 31st to November 7th. All 3 areas of New King Barrows cover sunset date range from October 21st to November 7th. This range was described in the Table 2.

Old King Barrows is consisted of only 2 barrows and covers sunset dates from October 23rd to November 7th. Reference point for Old King Barrows is a standing stone circle. New King Barrows is actually Old King Barrows + 2 days: October 21st and 22nd. It remains unclear the purpose of these additional 2 days. Is there a "regular beginning of stratospheric winter" at Old King Barrows and "extended beginning of stratospheric winter" at New King Barrows? Is the smallest barrow on southern area of New King Barrows an indicator of warm/cold stratospheric winter? Is New King Barrows some kind of "weather forecast instrument"? These hypotheses need to be examined in the future. Reference point for stratospheric winter temple at New King Barrows is tumulus Normanton Gorse. It is interesting to note that Halloween marker splits 6 barrows in 2 groups with 3 barrows. Halloween is a significant marker.

Stratospheric summer temple is consisted of 3 northern barrows on New King Barrows with tumulus Memorial as reference point. 3 northern barrows on New King Barrows cover sunset dates from March 30th to April 7th. The registered range of beginnings of stratospheric summer in the Table 2 was March 30th – April 6th. It misses April 7th in the Table 2. April 3rd is in the middle of the range March 30th – April 7th. April 3rd was calculated as the most expected beginning of stratospheric summer in 10 hPa statistical model for 2015, 2017, 2018 and 2019.

7. 10 hPa global stratospheric temples at Giza plateau

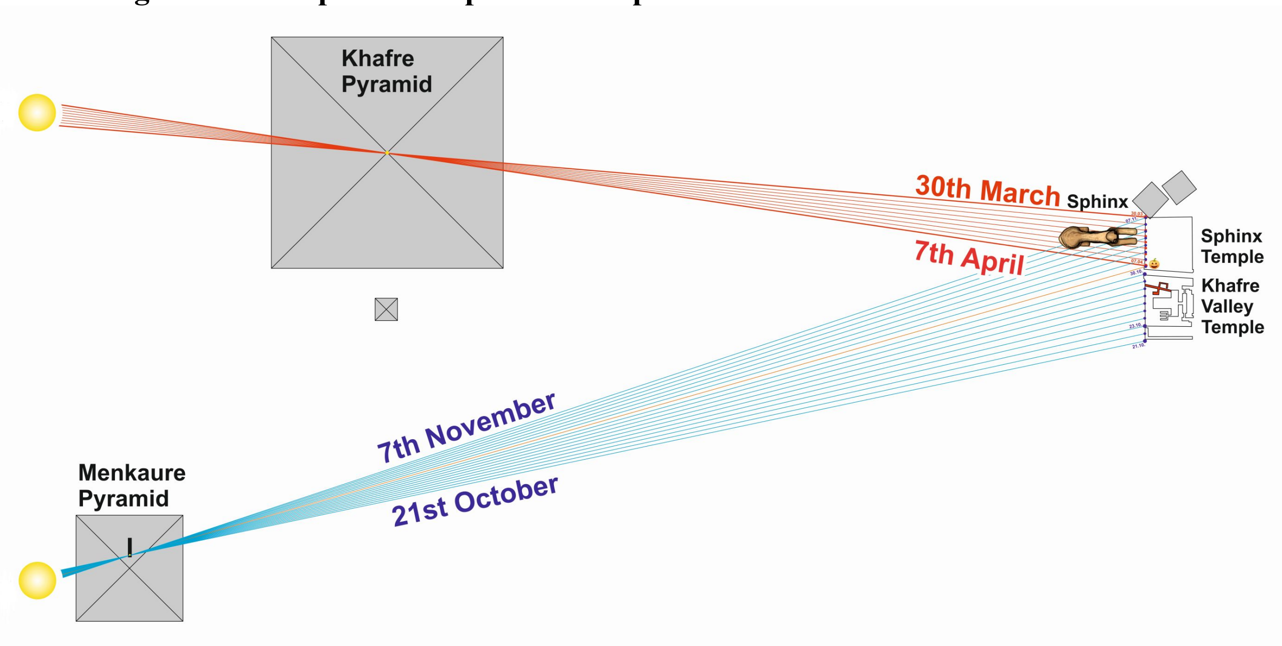

Figure 8a. Sunset alignments at Giza plateau. Reference points were top of the Khafre Pyramid and top of the hole on the northern side on Menkaure Pyramid, 12.5m northern from the top of the Menkaure Pyramid.

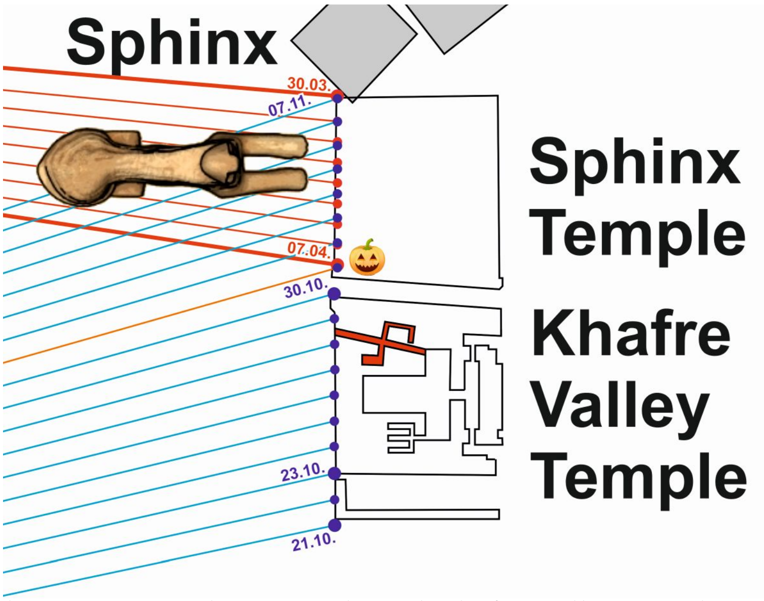

Figure 8b. Sunset alignments at Sphinx Temple and Khafre Valley Temple. Reference points were the top of the Khafre Pyramid and top of the hole on the northern side on Menkaure Pyramid.

Sphinx Temple acts as group of 3 northern barrows at New King Barrows. The top of the Khafre Pyramid acts as tumulus Memorial at Stonehenge. Sphinx Temple is 10 hPa global stratospheric summer temple which covers sunset dates from March 30th to April 7th.
Sunset azimuths on 30.03.2019. and on 7.04.2019. were 275.56° and 278.45°.

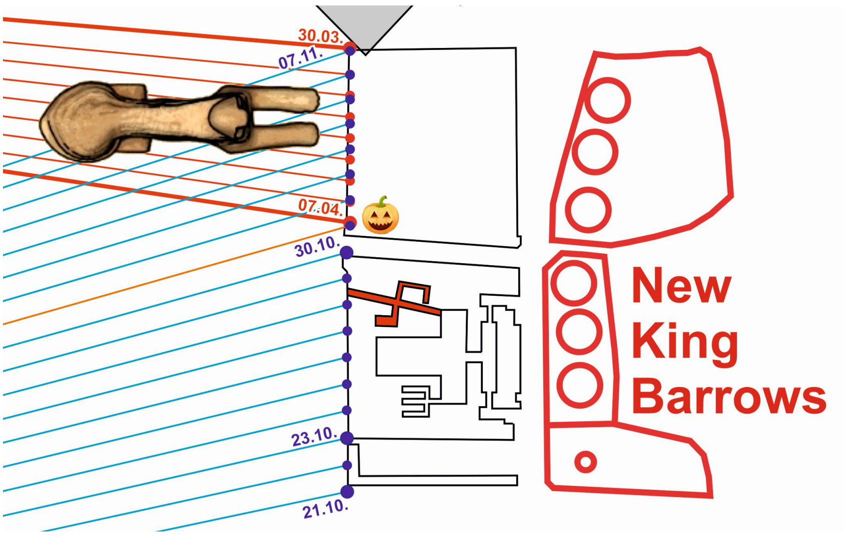

Figure 8c. Similarity of 10 hPa global stratospheric temples at Giza and Stonehenge.

Figure 8c shows similarity of stratospheric winter temple at Giza plateau with New King Barrows at Stonehenge. Sphinx Temple covers sunset dates from October 31st to November 7th as group of 3 northern barrows at New King Barrows does. Khafre Valley Temple acts as 3 middle barrows at New King Barrows and both cover sunset dates from October 23rd to October 30th. The southern isolated part of Khafre Valley Temple is similar as small barrow area at the southern part of New King Barrows. Sunset azimuths on 23.10.2019. and on 7.11.2019. were 257.25° and 251.59°.

8. Preliminary Discussion

The main limitations in this paper are:

1. lack of 10 hPa geopotential height data at time of Giza and Stonehenge civilization
2. lack of 10 hPa geopotential height data before 2015
3. exact dates of construction of stratospheric temples at Giza and Stonehenge
4. ancient method of registering beginnings of 10 hPa stratospheric seasons

What was an ancient method of registering beginnings of 10 hPa stratospheric seasons?
Did ancient civilizations register air pressure heights at all?
Heat from the Sun does not reach the Earth. It is an illusion. Electric field from the Sun reaches the Earth, which carries electricity, not the heat. This incoming solar wind electricity altogether with cosmic radiation generates heat on the Earth. The solar wind is a very influential climate factor.
The most of temporal-spatial changes of properties of Earth's atmospheric air pressure, temperature and humidity were caused by temporal-spatial changes of electromagnetic properties of the Earth's atmosphere. Solar wind change is the cause and the air pressure change is just a consequence.
Is it possible that ancient civilizations, instead of registering changes of air pressure heights, registered temporal-spatial changes of properties of incoming atmospheric electricity? If yes, how did they do it? What instruments did they use?
What if these ancient people were instrument themselves?

"Detecting electrical fields produced by an electric organ is known as active electroreception. Later, **sensitivity to external electrical fields without the use of an electric organ** was demonstrated in sharks and rays (Murray 1960, 1962; Bennett 1971). Experiments on the catshark Scyliorhinus canicula showed that passive electroreception functions in the detection of naturally-occurring electric fields surrounding prey items (Kalmijn 1971)."
"Electroreception has apparently been lost in hagfish, neopterygii fish (including teleosts), anurans (frogs) and amniotes." https://datadryad.org/stash/dataset/doi:10.5061/dryad.hf124

Maybe electroreception has been lost in humans too! Maybe there existed an extinct electroreceptive human race with specialised receptor cells that convert electric currents into action potentials. Maybe the human electroreception was a method of registering beginning of 10 hPa global stratospheric season.

9. Indications of hypothetical extinct human electroreception

Are there at Stonehenge and Giza plateau any indications that extinct human electroreception was the possible way of registering temporal-spatial changes of property of natural electricity flow in the atmosphere? Beside 10 hPa global stratospheric seasons, does exist seasonality of some near-surface natural atmospheric electricity flow phenomenon? If yes, there could be sunset markers of such phenomenon at Stonehenge and Giza plateau too.

9.1 Electrical resistivity seasonality of near-surface layer of the Earth

All the time, natural incoming ions from solar wind and cosmos hit into Earth´s surface and ions from Earth´s underground flow toward ionosphere. All these natural ions have to pass through near-surface layer of the Earth. Electrical resistivity is a fundamental property of a material that quantifies how strongly it resists flow of ions. Near-surface layer of the Earth acts as a gate for the natural flow of the ions. The lower electrical resistivity of the layer, the gate is more open and there will be stronger flow of the ions. The higher electrical resistivity of the layer, the gate is less open and there will be weaker flow of the ions.
Today we know that the stronger the electric current that flows through the human body, the stronger the electrical sensation by man. The lower electrical resistivity of surface, probably the stronger electric sensation of extinct electroreceptive human. The higher electrical resistivity of surface, probably the weaker electric sensation of extinct electroreceptive human.

When occur the seasonal extreme values of electrical resisitivity of near-surface layer of the Earth? It is well known phenomenon in geophysics and it is described on Figure 9. The highest soil resistivity values have been registered around the end of February and the lowest soil resistivity values around the end of August. It is the situation on the Northern Hemisphere. Reference: "User manual for soil resisitivity measuring device Geohm 40D" from manufacturer Gossen Metrawat GmbH, Germany.

Der Verlauf des spezifischen Erdwiderstandes ρ_E in Abhängigkeit von der Jahreszeit (der Bodentemperatur sowie dem negativen Temperaturkoeffizienten des Bodens) kann mit recht guter Annäherung durch eine Sinuskurve dargestellt werden.

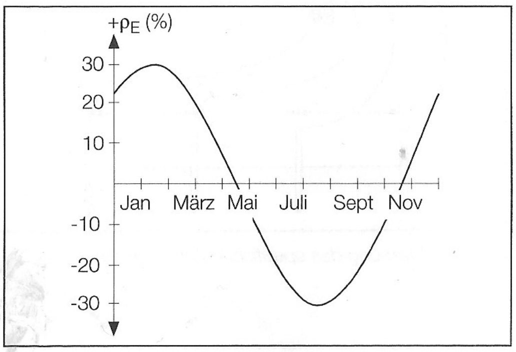

Bild 9 Spezifische Erdwiderstände ρE in Abhängigkeit von der Jahreszeit ohne Beeinflussung durch Niederschläge (Eingrabtiefe des Erders < 1,5 m)

Figure 9. Seasonal soil resistivity ρ_E without being affected by precipitation.

End of February and End of August as moments of seasonal extreme values of electrical resisitivity of near-surface layer of the Earth were also described at Figure 1 in paper "Seasonal Variations in Specific Resistivity in the Upper Layers of the Earth Crust" from Authors A. V. Desherevskii, I. N. Modin, A. Ya. Sidorin, https://doi.org/10.3103/S0747923919030058.

Hypothetical extinct electroreceptive humans probably sensed the weakest annual electrical body sensation around the end of February and the strongest around the end of August. Are there any sunset markers at Stonehenge and Giza plateau around the end of February and around the end of August which could indicate extinct human electroreceptivity?

9.2 "Quazi-Swastika" pattern inside of Khafre Valley Temple as End of August sunset marker

"Quazi-Swastika" pattern is beginning of causeway from the Khafre Valley Temple to Pyramid of Khafre. The center of the "Quazi-Swastika" is at sunset aligned with the Top of the Pyramid of Khafre on August 31^{st}! The sunset angle is 280.0° on 31^{st} August.

Swastika could be an ancient symbol of the Sun. In this case, the Sun is the source of solar wind which brings ions to Earth´s surface and caused electrical sensations of extinct electroreceptive humans. Swastika probably symbolizes moment of maximal electrical Sun`s impact on body of extinct electroreceptive human. End of August was the most important period in whole year and ancient civilizations of Giza probably celebrated it. This marker of End of August exists at many archaeological sites and would be revealed in the future by me. Archaeologists have no proper explanation of this Swastika structure.

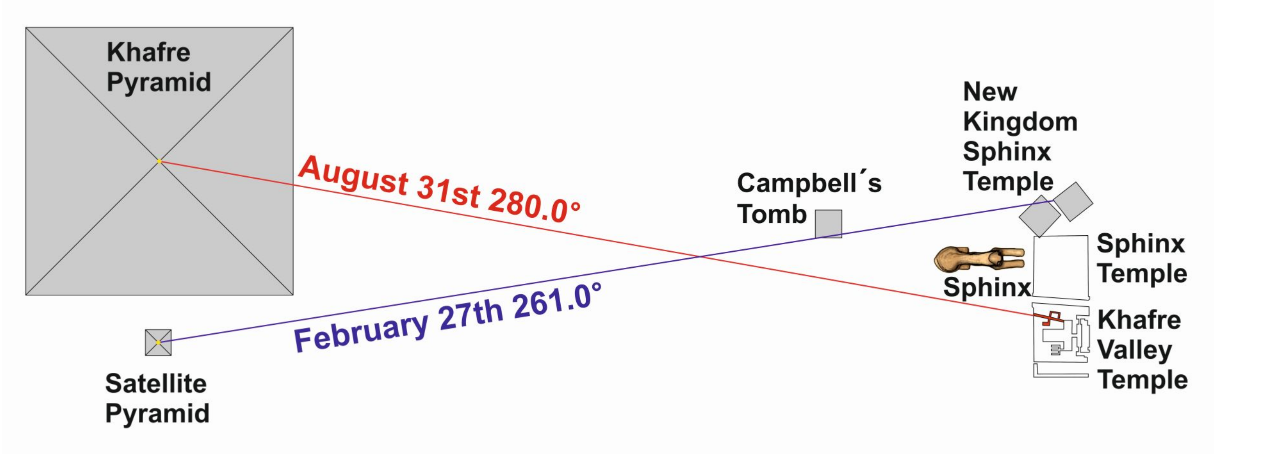

Figure 10. "Quazi-Swastika" sunset alignment on August of 31^{st} inside of the Khafre Valley Temple. The reference point was the Top of the Khafre Pyramid. Campbell´s Tomb and New Kingdom Sphinx Temple sunset alignment on February 27^{th}.The reference point was the Top of the Satellite Pyramid.

9.3 End of February sunset marker at Giza plateau

So-called Campbell´s Tomb, rectangular-shape shaft 8m X 9m, is located around 80 meters North-West from the Sphinx. Top of the satellite pyramid southern from Pyramid of Khafre and south-western corner of Campbell´s Tomb are aligned on sunset February 27^{th} (angle is 261.0°). The top of the satellite pyramid and northern side of the Temple of New Kingdom are also aligned on sunset February 27^{th}. The small satellite pyramid probably symbolizes the weakest annual electrical body sensation of extinct electroreceptive human.

9.4 End of February/August sunset markers at Stonehenge

Apart from worldwide well known Stonehenge Standing Stone Circle, what is the biggest ancient earthwork anomaly which could catch human eye while walking on that area?

"Normanton Down Barrows", which is placed about 1000m south from the Standing Stone Circle megalithic structure, is the area with one of the highest concentration of round Barrows on whole Stonehenge area. This area is also colloquially called "Tumuli Alea" because of alignement of 10 round Barrows with angle 285.3° from North. Why did ancient inhabitants of Stonehenge paid so much effort to align these 10 round Barrows? Sunset alignment with angle 285.3° of these 10 round Barrows occurss on 30^{th} August. It is end of the August. This is "Stonehenge's Quazi-Swastika Structure".

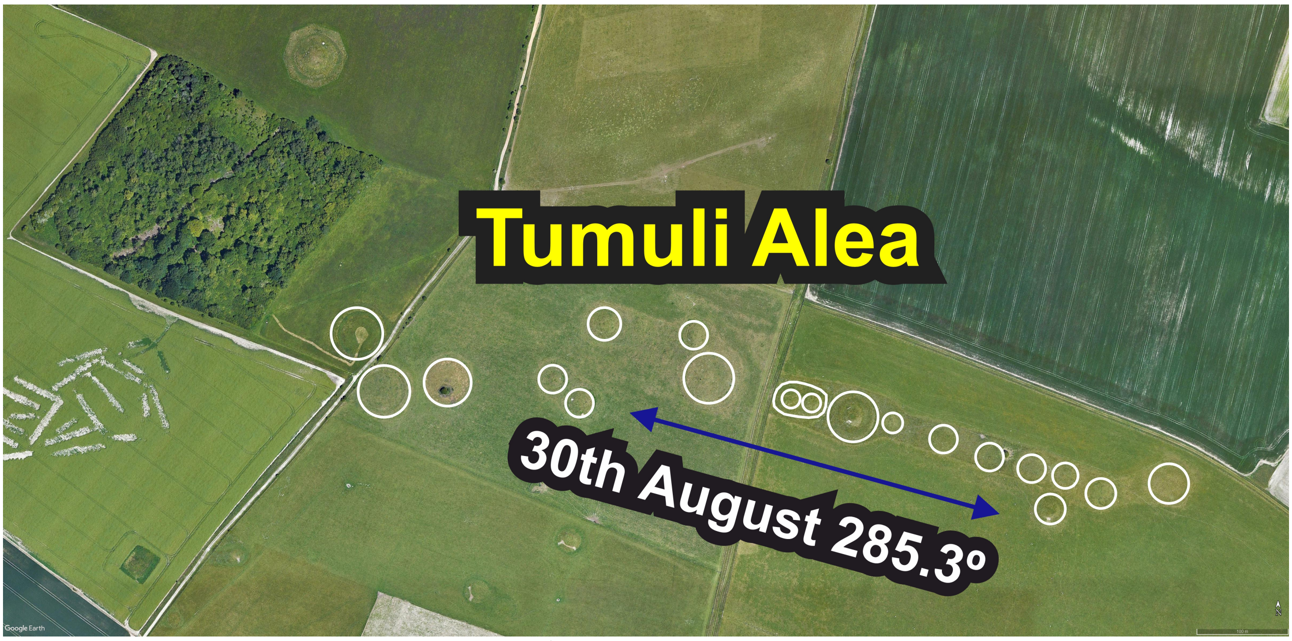

Figure 11. Sunset alignment on August 30th at "Tumuli Alea" – Stonehenge.

Is there any marker at the End of February at Stonehenge? There is a small square-shape tumulus which is sunset aligned on February 27th (257.9º) with center of the Stonehenge Standing Stone Structure. This is "Stonehenge's Campbell's Tomb".

Figure 12. Sunset alignment on February 27th at square-shape tumulus.The reference point was the center of the Stonehenge Standing Stone Structure.

10.Final Conclusions

Extinct human electroreception is the only theory which could fully explain the placement and design of Sphinx Temples, Old/New King Barrows, "Quazi-Swastika structure", *"Tumuli Alea",* Campbell´s Tomb and rectangular-shape tumulus at Stonehenge. This is a unique and original theory, not yet seen in the scientific community. Sphinx Temples and Old/New King Barrows are Calendars of property of natural atmospheric electricity.

Mainstream Archaeologists unsuccessfully try to interpret these famous archaeological structures from the perspective of today's non-electroreceptive man. It is absolutely wrong!

Human electroreception is a lost sixth-sense. Giza pyramid Complex and Stonehenge structures

were built by six-sense Humans, not by nowadays five-sense humans.
More precisely, Giza pyramid Complex and Stonehenge structures were designed, built and used by electroreceptive beings.
Electroreception or the sixth-sense of the human being is the oldest geosensing method of all time. Human Electroreception is origin of the geoscience. Giza plateau and Stonehenge are strong evidences for such claim.

11. References

1. Google map of Stonehenge
2. Sunset azimuths at Giza and Stonehenge from Stellarium software version 0.19.2.
3. 5hPa, 10 hPa and 20hPa geopotential heights from Dr. Larry Oolman, University of Wyoming http://weather.uwyo.edu/upperair/uamap.shtml
4. Electroreception https://datadryad.org/stash/dataset/doi:10.5061/dryad.hf124
5. "Seasonal Variations in Specific Resistivity in the Upper Layers of the Earth Crust" from Authors A. V. Desherevskii, I. N. Modin, A. Ya. Sidorin, https://doi.org/10.3103/S0747923919030058.