

Scientific Declaration about the Urgency of Global Geocological Systems for Humanity Survival at the Epoch of Cosmoplanetary and Climate Changes

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Abstract

According to the data of some geophysicists- from the end of the XX-th century the full vector of the magnetic field of the Earth is gradually weakening. Accordingly the buffering properties of the Earth magnetosphere, which protects biosystems from excess solar proton-electron beams, are decreasing. Using modeled weakening of the geomagnetic field we had to answer the question: what are the possible biotropic consequences of heliophysical pressing for further human development? Our main aim was the development at this conditions of preventive non-medicinal technologies.

Significant differences ($P < 0.05$) between volunteers in the experimental and control groups on the dynamics of electric, psychophysiological and other parameters, coupled with the appropriate genetic markers (genes D4, B1, TNF), and intensity of heliophysical factors at different stages of ontogeny of the examinees and their parents were showed .

The phenomenon of "heliophysical expression of genes", manifested at modeling of the short-term prolonged geomagnetic deprivation, was opened. It is shown, that our new technological means, so as reflected holograms and drinking water has helio-geroprotective properties and contributes to significant positive inversion of the functional dependence of activity and the speed of aging of many human functional systems on heliogeophysical impacts, increasing at geomagnetic deprivation. The necessity for the creation of a global system of geocological human life support in conditions of spreading heliogeophysical changes of our biosphere.

Introduction

The magnetic field of the Earth and its extremely important role in the maintenance and evolution of life on our planet in the late 1900s –earlier 2000s century became the main object of scientific attention by collective of International Institute of Cosmic Anthropoecology (Russia, Novosibirsk) as an Observer responsible for Future, from the position of the strong anthropic principle of Carter - Tsiolkovskii [5].

In the world scientific association, the analysis of the secular variations of the geomagnetic field (GMF) is continued. One of the analytical schemes is represented in-Ron Chaar et al. [3], in which the distinct trend of geomagnetic induction weakening from the Xth century up to the modern period is seen.

There is a discussion of geophysical data on numerous jerks and excursions of the GMF, accompanied by a significant decrease in the intensity [6, 7, 1, 2, 8, 3], for example, with Laschamp excursions, when it dropped by almost 10 times [9]. This discussion is underway.

The problem of the possible relationships between the magnetic inversions and the course of biological evolution is also discussed [10, 11, 12, 4]. With a decrease in the intensity of the GMF the buffer properties of the magnetosphere are reduced. It ceases to properly protect the biosphere from cosmic radiation: reinforced flows of cosmic rays start to penetrate into the atmosphere and cause a progressive increase in the number of secondary ionized particles that form the so called "broad atmospheric showers", reaching the biosphere.

Increased levels of radiation near the Earth`s surface in the periods of geomagnetic excursions can cause numerous genetic changes in biosystems, leading to significant evolutionary consequences [13, 14, 15]. In this case, mutagenic hard radiation from flashes of supernew stars is seen by some authors as a necessary condition for evolution; the GMF excursions can lead to mutations of regulatory genes.

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Russian geophysics ND Kuznetcova and VV Kuznetcov (2012) in their works presented for discussion the comparative chrono-evolutionary analytical assessment of the possible dependence of genetic mutations of different types on a variety of geomagnetic inversions [4] (Table 1).

With the continued decrease in the intensity of the GMF biogeophysical study of its possible functionally-genetic, evolutionary consequences for a modern man and the search for the effective preventive means seems to be especially actual. That is the main motive and the purpose of the study.

Objectives

Problem 1: To study the dynamics of association of human psychophysiological parameters with the gene B1, with the length of the gene D4 alleles and the heliogeophysical situation at different stages of ontogeny of the volunteers` organisms at modeling of repeated weakening of the total vector of geomagnetic induction and transformation of its inclination.

Problem 2: To develop and to test the means of non-medicinal prevention of excess heliomagnetotropic human reactions on the basis of informational holograms (Patent RF № 2239860) and drinking water exposed to the weakened geomagnetic field (Patent RF № 2342149)

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Excursions and inversions, mln years ago	Events in human evolution, mln years ago
0,033 – Mono Lake a	0,03 - disappearance of the Neanderthal men
0,041 – Laschamp a	0,042 –FOXP2 gene mutation 0,037 – microcephalin gene mutation c
0,070 – Norwegian – Greenland Sea a	0,070 - division of ancestral population into three races (according to the mtDNA) d
0,120 – Blake a	0,1 – age of the common ancestor of a modern man (according to Y - chromosome) e
0,211 – Jamaica – Pringle Falls a	0,23 – age of the common ancestor of a modern man (according to the mtDNA) e
0,56 – 0,58 – Big Lost a 0,67 – Stage 17 a 0,78 – Matuyama – Brunhes 0,797 – Brunhes precursor a	660,000±140,000 – division of the lines of a man and the Neanderthal men (according to the mtDNA) f
0,78 - Matuyama – Brunhes h beta-globin g	0,8 – age of the human ancestor according to
1,95 – 1,79 – Olduvai i	1,8 – appearance of <i>Homo erectus</i> j
2,6 – Gauss – Matuyama k	2,4±0,3 –mutation that provides an increase in brain volume among representatives of line Homo l 2,8 –mutation inactivating the gene, that encodes manufacturing of sucrose at the cell surface

Table 1: Excursions, gmf inversions and events in human evolution.

Study design

While solving the problem1, ISRICA, together with the laboratory of helioclimatopathology of Scientific Centre of Clinical and Experimental Medicine of SB RAMS, has used the original shielding installations of YA Zaitsev` design (patent of RF № 2012175 from 30.04.1994) with more than 500-fold weakening of the geomagnetic induction for the research [15]. In solving the 2nd problem small installations of the "TRODR" type weakening of the GMF more than 100 times (the authors: AV Trofimov, GI Druzhinin, 2011) [16, 15], used to exposure therein drinking water in order to give it heliomagnetoprotective properties broadcasted to a man (patent of RF № 2342149 from 27.12.2008), were created and tested.

The scheme of the works on the 1st stage of the study (2002 - 2005), held by "double blind" method, envisaged the 3-month course of the 10 weekly sessions of 50 minutes for the male subjects aged 18-20 years (n = 39) in the screening (1) and transforming (2) GMF installations. At the 2nd stage (2001-2012), while solving the problem 2, volunteers of the same age (n = 24) were investigated in the mode of their testing: in the period of the solar eclipse on July 22, 2009, when there was a redistribution of the flows of solar and galactic protons reaching the Earth's environs. Hemodynamic parameters of the subjects were measured twice: before and after taking in the various phases of the eclipse of 150 ml of heliomagnetoprotective drinking water, prepared in a portable installation "TRODR", which, subsequently, became the prototype for a new generation of screening devices series «HELIO-STAR», intended for industrial production of helioprotective concentrate and water-based beverages "Helio-Star".

On the stage of 2002-2005 years, the genotyping test was applied on the length of the alleles of D4 dopamine receptor gene, as well as on the genes B1 and TNF by the methods of PCP with primers flanking polymorphic regions of DNA (the joint fragment of work with the Institute of Therapy of SB RAMS and the Institute of Cytology and Genetics of SB RAS, conducted under the direction of the current academician MI Voevoda).

Before-, in the middle and after the courses of the test, the computer registration of electroencephalographic, electro-,light- psychophysiological, hemodynamic and gas discharge visualization's

parameters of the volunteers, and also the assessment by the program "Helios" (Certificate of state registration in the Russian Federation № 970125 from 24.03.1997) of cosmic conditions in the period of prenatal development of the subjects, the so-called "phenomenon of heliogeophysical imprinting" largely determining the score of human health in his postnatal development, were conducted [17].

A mathematical processing of the satellite data monitoring (satellites «Goes» NACA, USA) of cosmic corpuscular proton-electron fluxes and multivariate correlation analysis on the program "Decision tree" (Institute of Mathematics of SB RAS, Berikov, 2002) (2) were used.

Results and Discussion

The features of the distribution of the brain electrical potentials of the volunteers in conditions of the repeated short-term geomagnetic deprivation were revealed; it was noted a significant increase in activity in the range of the alpha rhythm (3) and it was shown that the heliogeophysical matrix, imprinted at different stages of prenatal development of the subjects, with the weakening of the geomagnetic induction appeared to be activated and more demanded.

It was noted the disclosure of the brain functional reserves: improvement of memory, concentration, and development of intellectual abilities, in particular, to abstract from the usual associations. By the end of the course of the simulated geomagnetic deprivation the manifested significant direct dependence of the level of mental processes on the intensity of the solar electrons and neutrons flows, as well as the significant reverse link with the value of the solar protons flows were revealed.

The higher nervous activity is realized through a large number of neurotransmitter systems of the brain that play an important role in the psychomotor and cognitive functions that are disturbed in multifactor diseases and conditions with a hereditary predisposition, such as Parkinson's disease, schizophrenia, substance abuse and others. Among the genes involved in the formation of the neurochemical human reactions, researchers pay especial attention to B1 gene and D4 dopamine receptors gene, allelic variants of which contain variable number (from 2 to 10) of imperfect repeats of DNA in the 3-d exon.

The study showed that the volunteers – carriers of short and long alleles of D4 gene react differently to geomagnetic deprivation [18], showing unequal sensitivity of human genetic substrate to the gradients of the magnetic field of the Earth.

With the use of meaningful models identified according to the covariance analysis (2) it was showed that the reactions to the geomagnetic deprivation depended on structure-functional features of the genetic material (different length of the alleles of D4 gene, as well as genes B1 and TNF). According to these data, it can be assumed that with the weakening of the GMF, the increased genetic control over intellectual reserves of the brain not only neurophysiological, cardiovascular, hormonal etc. but cosmophysically dependent, stored in several related generations, occurs (Table 2).

We called this appearance opened for the first time as the phenomenon of "heliophysical expression" of genes [19], showing that the activation of previously "sleeping" genes is accompanied by a lowering of the thresholds of the human body's sensitivity to the weak information signals of cosmogonic content that have important evolutionary significance [12].

So, after a few sessions of the geomagnetic deprivation upon presentation of the information-holographic signals to the examinees (RF patent № 2239860 from 10.11.2004)), it was noted a significant effect of the gene's expression on the spectrum of the EEG parameters (Table 3) and a significant effect of the D4 gene allele's length, in conjunction with the prenatally imprinted heliophysical impacts on the parameters of human magnetosensitivity, electroconductivity

of TR (acupuncture points), the light absorption of the skin, the rheography parameters of the brain and on intellect, memory and creativity (Table 4).

Later, in 2005-2007 studies [19] we have noted other possible consequences of redistribution of the solar-functional dependencies in conditions of the weakening of the GMF: with the use of the same

№	Coupled parameters	Cosmic rays	
1	gene B1	intellect	electrons
2	gene B1	memory	neutrons
3		digital test	neutrons
4	M-test (electroconductivity TR)	creative work	protons (Pr>1 keV) , (Pr>10 keV)
5	M-test (electroconductivity TR)	memory	neutrons
6	operative memory	creative work	electrons
7	M-test (pause, APs)		protons (Pr>1 keV) , (Pr>10 keV)
8	reographic index		alpha particles
9	Light absorption		protons (Pr>1 keV), (Pr>30 MeV)
10	tolerance to physical load		neutrons

Table 4: Peculiarities of covariative dependence of the geno-phenotypical signs, psychophysiological parameters of a man, and the cosmophysical environment (according to the data of Berikov V.B., 2002).

parameter gene	1	2	3	4	5
	Prenatal period				
D4	P28-1P 28_2P		28-1P 28_1,2,4,5,6,7,10P 28+1P		28_9P
TNF				28_1,2,5,7,9F 28+1F	
B1		28-1M 28_3,4,7,9M			

Note 1-EEG,
2-BPS,
3 - Gench's sample,
4 - hormones,
5 - GDV-parameters

P – patient
 M – patient's mother
 F – patient's father

Notes: 1-electroencephalography (EEG), 2- blood pressure systolic (BPS), 3- Gench's sample, 4-hormones, 5- gas discharge visualization (GDV), 28_1,2...28+1: periods pre- postnatal development.

Table 2: The impact of "heliotransparency" on the genetically conditioned dynamics of the physiological parameters in the conditions of the modeling preformation of the geomagnetic field (the weakening of the GMF during prenatal ontogenesis.(according to Maximov VN et al.,2002).

Date	Load type	Amplitude				Frequency			
		delta	teta	alpha	beta	delta	teta	alpha	beta
12-13.11. 2002	control	-	-	-	-	-	-	-	-
	Hologram 1	-	O2, Cz	-	-	Cz	-	-	-
	Hologram 2	T4	F3, T3, Cz	-	T3	-	T3, O1, Cz	-	-
4-5.12. 2002	control hologram	-	-	-	-	-	-	-	-
	hologram 1	-	T3	Cz	T4	T3	T3, T4, O2, Cz	-	-

Table 3: Changes in the spectrum of EEG parameters at the prolonged geomagnetic deprivation, depending on the length of gene D4 alleles in the healthy examinees(according to Devitsin DV,2002).

screening installation, it has been shown that after a short term geomagnetic deprivation (*in vitro*) of blood samples of volunteers (healthy and patients with hypertension) significant associations of hemorheological and heliogeophysical parameters that increase the risk of cardiovascular catastrophes are revealed [20].

The results of the 1st stage of the research made even more urgent the search for such non-medicinal means that would ensure the protection of the biosphere, a man and the entire civilization in conditions of increasing onslaught of galactic and solar-corpular flows with the weakening of the protective magnetosphere cover. Unfortunately, until recently, there were no such effective means.

The development of the heliomagnetoprotective means on basis of water (RF patent № 2342149) in 2008 appeared to be perspective for this purpose. Drinking water treated in the weakened geomagnetic field, proved capable to protect the water structures of the human body, and, consequently, all its functional systems in the periods of solar-magnetospheric disturbances.

The first tests of helioprotective water were conducted in the period of extreme heliogeophysical situation - during one of the solar eclipses in 2009, under which generally component of galactic cosmic rays increases and solar proton flow, reflected by the moon decreases. Corpular flows, redistributed by the Moon subsequently reach the magnetosphere-ionosphere layer of the protective shell of our planet, where, usually, their energy is significantly reduced.

It was shown that a significant ($P < 0.05$) direct dependence of the human vascular tone, estimated by the diastolic blood pressure value on the flow of electrons and protons of different energy occurring in the period after the eclipse(3rd metering, the Table 5), when receiving a small amount of helioprotective drinking water already in 20-30 minutes positively transformed. In the volunteers, who consumed the water, significant ($P < 0.05$ for protons with energies above 100 mV) inverse correlation of diastolic blood pressure with corpular flows of high energies was revealed (4th metering, the Table 5).

Recent studies conducted in the Far North in regime of testing of healthy subjects [21] and volunteers with hypertension who expressed

their consent to pass (by double "blind" method) 2-3 - week courses with the use of control and geomagnetically-deprived drinking water, confirmed our first observations [16, 17]. Helioprotective water can provide a long-term and effective protection of the functional systems of human body in the periods of solar-magnetospheric disturbances.

Conclusion

In conditions of a simulated weakening of the geomagnetic field, more than 500 times, the phenomenon of "heliophysical gene expression" is revealed: significant associations of the parameters that reflect the functional activity of the brain, the state of psychophysiological, intellectual and creative processes with genetic markers (genes B1 and D4) and heliophysical situation in the pre-and postnatal ontogeny of the examinees.

The heliophysical gene expression, manifested at the prolonged short-term geomagnetic deprivation of a man contributes to lowering the threshold of his sensitivity to the information-holographic signals of the cosmogonic content associated with the dynamics of electrophysiological parameters and the length of D4 gene alleles.

Jerks and secular excursions of the geomagnetic field, accompanied by the weakening of its induction and the increased access to the biosphere of solar-galactic corpular flows, increasing the measure of openness of biological systems can have evolutionary consequences for a man.

The non-medicinal means on the basis of drinking water treated in the weakened geomagnetic field, which reduces the excess heliomagnetotropic reactions of a man and promotes prevention of crisis states (on an example of patients with hypertension) was developed and successfully tested.

The necessity of geoeological life support on the Earth and Space in conditions of changing heliogeophysical environment, the ongoing reduction of the geomagnetic induction and the increased access of solar-galactic corpular flows to the biosphere was scientifically based.

parameters	Pr > 1 mV	Pr > 10 mV	Pr > 100 mV	El > 0,6 mV	El > 2 mV	Ne	X-Rays
systolic pressure	0.23	0.23	0.31	0.23	0	0.23	-0.25
diastolic pressure	0.53	0.53	0.54*	0.53	0	0.53	-0.26
IM	-0.03	-0.03	-0.08	-0.03	0	-0.03	-0.15
heart rate	0.13	0.13	0.29	0.13	0	0.13	-0.28
tone	-0.44	-0.44	-0.33	-0.44	0	-0.44	0.02

parameters	Pr > 1 mV	Pr > 10 mV	Pr > 100 mV	El > 0.6 mV	El > 2 mV	Ne	X-Rays
systolic pressure	-0.16	-0.16	-0.12	-0.16	0.34	-0.06	0.17
diastolic pressure	-0.39	-0.39	-0.64*	-0.39	-0.13	-0.11	-0.32
IM	0.53	0.53	0.29	0.53	-0.30	0.34	0.52
heart rate	0.42	0.42	-0.03	0.42	-0.34	0.32	0.31
tone	0.60*	0.60*	0.27	0.60*	-0.45	0.14	0.29

Table 5: Correlation dependences of physiological parameters on the five-minute values of the electrons, protons, neutrons, and X-rays) in the 3rd (1) and 4th (2) meterings.(according to the date of Trofimov AV., 2012)

Note: **-The significance of the correlation coefficient

Pr-protons, El-electrons, Ne-neutrons, X-Rays-radiation of sun

Treatment of drinking water in the weakened geomagnetic field, in our opinion, leads to such changes in its nanocluster structure, energy-information capacity and biocatalytic activity that provide helioprotective effect in relation to a man on the supramolecular, cellular, systemic and organism levels.

Competing Interests

The authors declare that they have no competing interests.

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