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The Cosmic Gravitational Genesis of the Predicted Intensifications of the Global Natural Processes Since 10 April, 2017 and Before 26 February, 2018

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Abstract

The article presents the prediction of the established global prediction thermohydrogravidynamic principles (of the developed thermohydrogravidynamic theory containing the cosmic geophysics and the cosmic seismology based on the author's generalization of the first law of thermodynamics for non-stationary cosmic gravitation) concerning the predicted (on 10 April, 2017) strongest intensifications (since 10 April, 2017 and before 26 February, 2018) of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth determined by the minimal (near 20 April, 2017) and the maximal (near 7 November, 2017) combined integral energy gravitational influences on the internal rigid core of the Earth (and on the Earth as a whole) of the planets (the Mercury, Venus, Mars and Jupiter) and the Sun due to the gravitational interactions of the Sun with the Jupiter, Saturn, Uranus and Neptune. The analyzed different events (since 10 April, 2017 and before 9 September, 2017) of the strongest intensifications of the global natural processes of the Earth confirm the prediction of the thermohydrogravidynamic theory concerning the first subrange (since 10 April, 2017) and the second subrange (since 18 July, 2017) of the predicted intensifications of the global natural processes of the Earth determined by the (minimal near 20 April, 2017, and the maximal near 7 November, 2017, correspondingly) combined planetary and solar integral energy gravitational influences on the internal rigid core of the Earth.

Keywords

Thermohydrogravidynamic Theory, Cosmic Geophysics, Cosmic Seismology, Generalized First Laws of Thermodynamics, Seismotectonic, Volcanic and Climatic Activities, Non-stationary Cosmic Gravitation, Natural Disasters

1. Introduction

The long-term predictions of the devastating earthquakes [1-4], volcanic [4, 5], climatic [4, 6, 7] and geomagnetic [8-13] processes of the Earth are the urgent problems [14-16] related with the founded [15, 16] increased intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes [15, 16] of the Earth during the established [15, 16] ranges 2020÷2026, 2037.38÷2043.38 and 2055÷2064. The thermohydrogravidynamic theory [2-4, 7, 13-17] of the global natural processes of the Earth is expanded to the thermohydrogravielectromagnetic theory [13, 15] (of the controlled thermonuclear reactions [13, 18-20]) related [13] with the problem [8-12] of the geomagnetic reversals. We presented [21] the confirmed validity of the prognostication [21, 22] based on the global prediction thermohydrogravidynamic principle (8) (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22]) concerning the strongest intensifications of the global natural (seismotectonic and climatic) processes of the Earth in 2016 (since 1 September, 2016 and before 26 January, 2017) near the calculated (in advance [22], on 31 August, 2016) numerical time moment $t^*(\tau_{c,r}, 2016) = 2016.7666$ corresponding approximately to 6 October, 2016. We established [21] the unquestionable fact that the date of 6 October, 2016 (when "Hurricane Matthew has gained new muscle over the Bahamas" [23]) is in the perfect agreement with the calculated (in advance [22], on 31 August, 2016) numerical time moment $t^*(\tau_{c,r}, 2016) = 2016.7666$ (corresponding approximately to 6 October, 2016) of the maximal (in 2016) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth (and on the Earth as a whole). We concluded [21] that the probability of this perfect agreement (considered as casual coincidence) is approximated by the obvious numerical value $(1/365)\cdot(1/365)$, which is the very small number confirming that this perfect agreement is not a casual coincidence. We concluded [21] that this perfect agreement may be considered as the convincing evidence of the validity of the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principle (8) concerning the maximal intensifications of the global and regional climatic processes of the Earth. We can conclude now that this perfect agreement may be considered also as the convincing evidence of the validity of the thermohydrogravielectromagnetic theory [13, 15] (of the controlled thermonuclear reactions [13, 18-20]) concerning the cosmic energy gravitation determination (control) of the thermonuclear reactions in the Sun and on the Earth.

In this article, we present (to the American Journal of Earth Sciences) the prognosticating deductions of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22] of the global natural processes concerning the different forthcoming ranges (characterized by the calculated probabilities) of the strongest intensifications (since 10 April, 2017) of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 and before 26 February, 2018.

Section 2 presents the established generalized formulations (1) and (5) of the first law of thermodynamics [2-4, 7, 13-17, 21, 22, 24] for the symmetric stress tensor $\mathbf{T}$ [25] and the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principles (8) and (9) determining the maximal temporal intensifications of the global and regional natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth related with the maximal and minimal combined cosmic integral energy gravitational influences ((8) and (9), respectively, for the time moments $t = t^*(\tau_{c,r})$ and $t = t_*(\tau_{c,r})$) on the considered internal rigid core $\tau_{c,r}$ (of the Earth) subjected to the combined cosmic integral energy gravitational influence of the planets of the Solar System, the Moon and the Sun (owing to the gravitational interaction of the Sun with the Jupiter Saturn, Uranus and Neptune).

Section 3 presents the confirmed validity of the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth in 2017 since 10 April [26, 27] and before 6 August, 2017 [28]. Section 3.1 presents the prognostications (based on the global prediction thermohydrogravidynamic principle (9)) concerning the predicted (on 10 April, 2017 [26]) strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth (determined by the minimal (for the time moment $t_*(\tau_{c,r}, 2017) = 2017.3$, which corresponds approximately to 20 April, 2017) combined planetary and solar integral energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth) since 10 April [27] and before 6 August, 2017 [28]. Section 3.2 presents the confirmed validity of the global prediction thermohydrogravidynamic principle (9) concerning the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April [26, 27] and before 6 August, 2017 [28].

Section 4 presents the prognostication (made on 10 April, 2017 based on the global prediction thermohydrogravidynamic principle (8)) concerning the strongest intensifications of the global natural (sesmotectonic, volcanic, climatic and magnetic) processes of the Earth (determined by the maximal (for the time moment $t^*(\tau_{c,r}, 2017) = 2017.85$, which corresponds approximately to 7 November, 2017) combined planetary and solar integral energy gravitational influences on the internal rigid core $\tau_{c,r}$ of the Earth) since 18 July, 2017 and before 26 February, 2018. Section 4 presents also the confirmed validity of the global prediction thermohydrogravidynamic principle (8) concerning the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic and climatic) processes of the Earth since 18 July, 2017.

Section 5 presents the prediction (made on 9 August, 2017 based on the global prediction thermohydrogravidynamic principle (8)) concerning the strongest intensifications of the seismotectonic, volcanic and climatic processes in Japan and Kuril Islands since 24 July, 2017 and before 16 March, 2018.

In Section 6 we present the main results and conclusions.

2. The Fundamentals of the Thermohydrogravidynamic Theory

2.1. The Generalized Formulations of the First Law of Thermodynamics

Based on the general equation of continuum movement [25] determined by the symmetric stress tensor $\mathbf{T}$ [25], the classical differential formulation [29] of the first law of thermodynamics for the one-component macrodifferential continuum element with no chemical reactions, the decomposition $\mathbf{P}=p\boldsymbol{\delta}+\boldsymbol{\Pi}$ [29] for the pressure tensor $\mathbf{P}=-\mathbf{T}$ [25] and the viscous-stress tensor $\boldsymbol{\Pi}$ [29] (where $\boldsymbol{\delta}$ is the Kronecker delta-tensor, p is the thermodynamic pressure), we derived [2-4, 7, 13-17, 21, 22, 30] the generalized differential formulation of the first law of thermodynamics (for individual finite continuum region τ considered in a Galilean frame of reference with respect to a Cartesian coordinate system K shown on Figure 1):

$$dU_\tau + dK_\tau + d\boldsymbol{\pi}_\tau = \delta Q + \delta A_{np,\partial\tau} + dG, \qquad (1)$$

where δQ is the classical [25, 29, 31, 32] infinitesimal change of heat across the continuum boundary surface $\partial\tau$ of the continuum region τ, dU_τ is the classical [25, 29, 31, 32] infinitesimal change of the internal thermal energy U_τ, dK_τ is the established [2-4, 7, 13-17, 21, 22, 24] infinitesimal increment of the macroscopic kinetic energy K_τ [24, 33] of the continuum region τ, $d\pi_\tau$ is the infinitesimal increment of the gravitational potential energy π_τ [2-4, 7, 13-17, 21, 22, 24] determined by the potential ψ of the combined (cosmic and terrestrial) non-stationary gravitational field, $\delta A_{np,\partial\tau}$ is the generalized [2-4, 7, 13-17, 21, 22, 24] infinitesimal work done by non-potential terrestrial stress forces acting on the continuum boundary surface $\partial\tau$ of the continuum region τ,

$$dG = dt \iiint_\tau \frac{\partial\psi}{\partial t} \rho dV \tag{2}$$

is the infinitesimal combined (cosmic and terrestrial) non-stationary energy gravitational influence [2-4, 7, 13-17, 21, 22] on the continuum region τ during the infinitesimal time interval dt. The established infinitesimal combined (cosmic and terrestrial) non-stationary energy gravitational influence dG [2-4, 7, 13-17, 21, 22] takes into account the partial derivative $\partial\psi/\partial t$ of the potential ψ of the combined (cosmic and terrestrial) non-stationary gravitational field and the local mass density ρ of the differential volume dV in the continuum region τ.

The relation (2) results to the following relation:

$$dG = dt \iiint_\tau \frac{\partial\psi}{\partial t} \rho dV = -dt \iint_{\partial\tau} (\mathbf{J}_g \cdot \mathbf{n}) d\Omega_{\mathbf{n}}, \tag{3}$$

which is the theoretical foundation [3, 4, 15, 16, 21] of the power $\mathbf{J}_g$ of the gravitational energy (of the detected [1] non-relativistic classical "gravitational" waves [3, 4, 15, 16] propagating from the focal regions of the significant earthquakes) across the surface element $d\Omega_{\mathbf{n}}$ determined by the external normal unit vector $\mathbf{n}$. The relation for the divergence $\operatorname{div}\mathbf{J}_g$ [3, 4, 15-17, 21]:

$$\operatorname{div}\mathbf{J}_g = -\rho \frac{\partial\psi}{\partial t} \tag{4}$$

is the basis of the theoretical foundation (3).

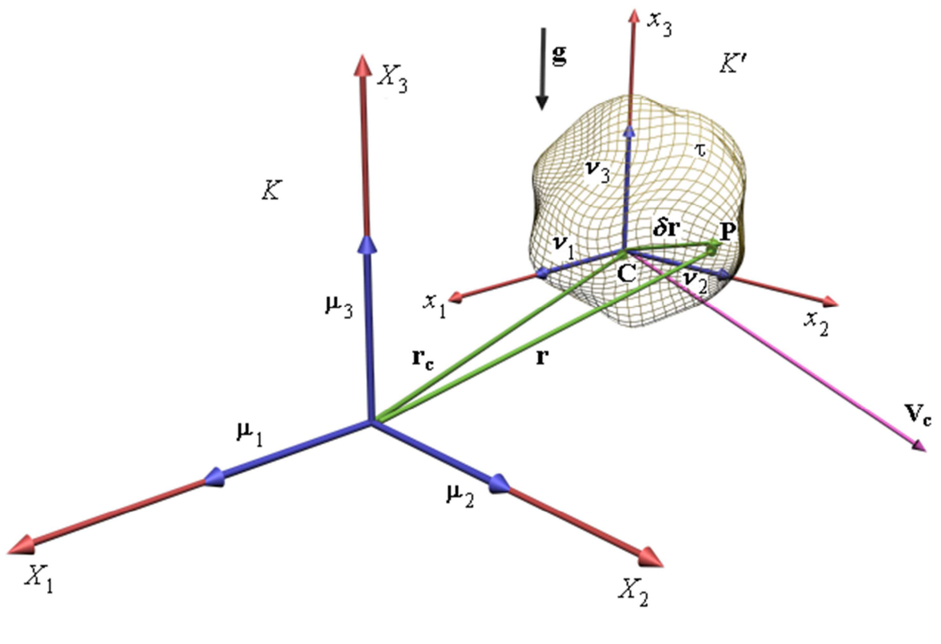

Figure 1. *Cartesian coordinate system K of a Galilean frame of reference and an individual finite continuum region τ subjected to the non-stationary Newtonian gravitational field, non-potential terrestrial stress forces and non-stationary electromagnetic field.*

Considering the problem [8-12] of the geomagnetic reversals, we founded the generalized differential formulation of the first law of thermodynamics [13, 17, 30]

$$dU_\tau + dK_\tau + d\pi_\tau + dE_{e,m,\tau} = \delta Q_{e,m} + \delta Q + \delta A_{np,\partial\tau} + \delta\Phi_{e,m} + dG, \tag{5}$$

which extends the established generalized formulation (1) of the first law of thermodynamics by taking into account (along with the classical terms δQ and dU_τ [25, 29, 31, 32] and the established [2-4, 7, 13-17, 21, 22, 24] terms dK_τ, $d\pi_\tau$, $\delta A_{np,\partial\tau}$ and dG) the differential change $dE_{e,m,\tau}$ [13, 15, 17, 30] of electromagnetic energy $E_{e,m,\tau}$ inside the individual continuum region τ (considered in the Galilean frame of reference), the differential energy flux $\delta\Phi_{e,m}$ [13, 15, 17, 30] of the electromagnetic energy exchanged across the boundary surface $\partial\tau$ (of the individual continuum region

τ), and the differential heating $\delta Q_{e,m}$ [13, 15, 17, 30] due to the differential work of electrodynamic forces and due to the dissipated electromagnetic waves.

2.2. The Established Global Prediction Thermohydrogravidynamic Principles

Based on the general relation (2) (participating in the generalized differential formulations (1) and (5) of the first law of thermodynamics) for the infinitesimal energy gravitational influence dG, we established [16, 21] the following relation for the combined (planetary, lunar and solar) differential cosmic non-stationary energy gravitational influence $dG(\tau_{c,r})$ (during the infinitesimal time interval dt) of the Solar System on the internal rigid core $\tau_{c,r}$ of the Earth:

$$dG(\tau_{c,r}) = dt \iiint_{\tau_{c,r}} \frac{\partial \psi_{comb}}{\partial t} \rho_{c,r} dV, \qquad (6)$$

where $\rho_{c,r} = 12800\ \mathrm{kg \cdot m^{-3}}$ is the mass density [34] of the internal rigid core $\tau_{c,r}$, $\partial \psi_{comb} / \partial t \equiv \partial \psi_{comb}(\tau_{c,r}, t)/\partial t$ is the partial derivative. The combined (planetary, lunar and solar) cosmic gravitational potential $\psi_{comb} \equiv \psi_{comb}(\tau_{c,r}, t)$ is approximated (in the internal rigid core $\tau_{c,r}$ of the Earth) as follows [15, 16, 21]

$$\psi_{comb}(\tau_{c,r}, t) = \psi_{3MOON}(C_3, t) + \sum_{i=1, i \neq 3}^{9} \psi_{3i}(C_3, t) + \sum_{j=5}^{8} \psi_{3j}^{S}(C_3, t)\ , \qquad (7)$$

where $\psi_{3MOON}(C_3, t)$ is the gravitational potential [2, 7, 35] created by the Moon at the mass center C_3 of the Earth, $\psi_{3i}(C_3, t)$ is the gravitational potential [2, 7, 14, 35] created by the planet τ_i (Mercury, i = 1; Venus, i = 2; Mars, i = 4; Jupiter, i = 5) at the mass center C_3 of the Earth, $\psi_{3j}^{S}(C_3, t)$ is the gravitational potential [15, 16] created by the Sun due to the gravitational interaction of the Sun with the outer large planet τ_j (Jupiter, j = 5; Saturn, j = 6; Uranus, j = 7; Neptune, j = 8) at the mass center C_3 of the Earth.

We founded [15, 16, 21, 22] that the combined (planetary, lunar and solar) cosmic differential energy gravitational influence (per unit time) $dG(\tau_{c,r})/(dtV(\tau_{c,r}))$ (per unit volume of the internal rigid core $\tau_{c,r}$ of the Earth) has the maximal absolute value for the internal rigid core $\tau_{c,r}$ of the Earth since the mass density $\rho_{c,r} = 12800\ \mathrm{kg \cdot m^{-3}}$ [34] (of the internal rigid core $\tau_{c,r}$) has the maximal value and the partial derivative $\partial \psi_{comb} / \partial t$ is nearly constant value [7, 21, 22, 35] for all interior of the Earth. Based on this fact, we founded [16, 21, 22] the maximal power of the thermohygrogravidynamic processes [15, 16, 21, 22] in the internal rigid core $\tau_{c,r}$ of the Earth and in the boundary region τ_{rf} between the internal rigid core $\tau_{c,r}$ and the fluid core $\tau_{c,f}$ of the Earth.

Based on the established [16, 21] relation (6) (for the combined (planetary, lunar and solar) differential cosmic non-stationary energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth), we founded [15, 16, 21, 22] the global prediction thermohydrogravidynamic principles determining the maximal temporal intensifications of the established [15, 16, 21, 22] thermohygrogravidynamic processes (in the internal rigid core $\tau_{c,r}$ and in the boundary region τ_{rf} between the internal rigid core $\tau_{c,r}$ and the fluid core $\tau_{c,f}$ of the Earth) subjected to the combined (planetary, lunar and solar) cosmic non-stationary gravitation. Based on the generalized formulation (1) of the first law of thermodynamics used for the internal rigid core $\tau_{c,r}$ of the Earth, we founded [15, 16, 21, 22] that the maximal intensifications of the established thermohygrogravidynamic processes are related with the corresponding maximal intensifications of the global and regional natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth.

The global prediction thermohydrogravidynamic principles (determining the maximal temporal intensifications near the time moments $t = t^{*}(\tau_{c,r})$ and $t = t_{*}(\tau_{c,r})$, respectively, of the thermohydrogravidynamic processes in the internal rigid core $\tau_{c,r}$ and in the boundary region τ_{rf} between the internal rigid core $\tau_{c,r}$ and the fluid core $\tau_{c,f}$ of the Earth) are formulated as follows [15, 16, 21, 22]:

$$\Delta G(\tau_{c,r}, t^{*}(\tau_{c,r})) = \max_{t} \int_{t_0}^{t} dt' \iiint_{\tau_{c,r}} \frac{\partial \psi_{comb}}{\partial t'} \rho_{c,r} dV \ - \text{local maximum for time moment } t^{*}(\tau_{c,r}), \qquad (8)$$

and

$$\Delta G(\tau_{c,r}, t_{*}(\tau_{c,r})) = \min_{t} \int_{t_0}^{t} dt' \iiint_{\tau_{c,r}} \frac{\partial \psi_{comb}}{\partial t'} \rho_{c,r} dV \ - \text{local minimum for time moment } t_{*}(\tau_{c,r}). \qquad (9)$$

The global prediction thermohydrogravidynamic principles (8) and (9) define the maximal and minimal combined cosmic integral energy gravitational influences ((8) and (9), respectively, for the time moments $t = t^*(\tau_{c,r})$ and $t = t_*(\tau_{c,r})$) on the considered internal rigid core $\tau_{c,r}$ (of the Earth) subjected to the combined cosmic integral energy gravitational influence of the planets of the Solar System, the Moon and the Sun (owing to the gravitational interaction of the Sun with the outer large planets).

3. The Confirmed Cosmic Gravitational Genesis of the Predicted Intensifications

3.1. The Predicted Strongest Intensifications of the Global Natural Processes Since 10 April and Before 6 August, 2017

To predict in advance (on 10 April, 2017 for the article submitted on 11 April, 2017 to the American Journal of Earth Sciences) the forthcoming ranges of the active forthcoming intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 (owing to the absence of the strong earthquakes (characterized by the magnitudes $M \geq 7.0$) in the range from 31 January, 2017 to 10 April, 2017) and before 16 July, 2017, we used the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principle (9) determining the maximal temporal intensification (of the thermohydrogravidynamic processes [15, 16, 21, 22] in the internal rigid core $\tau_{c,r}$ and in the boundary region τ_{rf} between the internal rigid core $\tau_{c,r}$ and the fluid core $\tau_{c,f}$ of the Earth) near the time moment $t = t_*(\tau_{c,r})$. The principle (9) was used to obtain (for the considered real planetary configurations of the Earth and the planets of the Solar System) the numerical time moment $t_*(\tau_{c,r}, 2017)$ corresponding to the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the considered internal rigid core $\tau_{c,r}$ (of the Earth). Based on the global prediction thermohydrogravidynamic principle (9) and considering the real planetary configurations of the Earth and the planets of the Solar System for 2017, we obtained the numerical time moment (related with the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth):

$$t_*(\tau_{c,r}, 2017) = 2017.3\ , \qquad (10)$$

which corresponds approximately to 20 April, 2017. Based on the global prediction thermohydrogravidynamic principle (9) used for the range (2004 $\div$ 2016), we calculated the dates $t_*(\tau_{c,r}, (2004+m))$ (m = 0, 1, …, 12) corresponding to the different local minimal values (9) of the combined planetary and solar integral energy gravitational influences on the internal rigid core $\tau_{c,r}$ of the Earth (for the real planetary configurations during the range (2004 $\div$ 2016)).

Considering (on 10 April, 2017) the range (2004 $\div$ 2016) and analyzing the previous strongest (according to the U.S. Geological Survey) earthquakes (occurred near the calculated dates $t_*(\tau_{c,r}, (2004+m))$, m = 0, 1, …, 12), we calculated (on 10 April, 2017) the probability [26]

$$\Pr\left\{t_{e,min,2017} \in (16\text{ April } \div 24\text{ April, } 2017)\right\} = 0.153 \qquad (11)$$

of the forthcoming (for 10 April, 2017) strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes near the calculated numerical time moment $t_*(\tau_{c,r}, 2017) = 2017.3$ corresponding approximately to 20 April, 2017) during the forthcoming (for 10 April, 2017) range [26]:

$$(16\text{ April } \div 24\text{ April, } 2017). \qquad (12)$$

We concluded (on 10 April, 2017) that the dates $t_{e,min,2017}$ of the forthcoming (for 10 April, 2017) strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes of the Earth determined by the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth near 20 April, 2017) will occur during the range (12) characterized by the probability (11).

Considering the range (2004 $\div$ 2016) and analyzing the previous strongest (according to the U.S. Geological Survey) earthquakes (occurred near the calculated dates $t_*(\tau_{c,r}, (2004+m))$, m = 0, 1, …, 12), we calculated (on 10 April, 2017) the probability [26]

$$\Pr\left\{t_{e,min,2017} \in (11\text{ April } \div 29\text{ April, } 2017)\right\} = 0.23 \qquad (13)$$

of the forthcoming (for 10 April, 2017) strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes near the calculated numerical time moment $t_*(\tau_{c,r}, 2017) = 2017.3$ corresponding approximately to 20 April, 2017) during the forthcoming (for 10 April, 2017) range [26]:

$$(11\text{ April } \div 29\text{ April, } 2017). \qquad (14)$$

We concluded (on 10 April, 2017) that the dates $t_{e,min,2017}$ of the forthcoming (for 10 April, 2017) strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes of the Earth determined by the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth near 20 April,

2017) will occur during the range (14) characterized by the probability (13).

Considering the range (2004 ÷ 2016) and analyzing the previous strongest (according to the U.S. Geological Survey) earthquakes (occurred near the calculated dates $t_*(\tau_{c,r}, (2004+m))$, m = 0, 1, …, 12), we calculated (on 10 April, 2017) the following probabilities [26]

$$\Pr\left\{t_{e,min,2017} \in (2\ \text{April} \div 8\ \text{May},\ 2017)\right\} = 0.307, \quad (15)$$

$$\Pr\left\{t_{e,min,2017} \in (13\ \text{March} \div 28\ \text{May},\ 2017)\right\} = 0.46, \quad (16)$$

$$\Pr\left\{t_{e,min,2017} \in (3\ \text{March} \div 7\ \text{June},\ 2017)\right\} = 0.538, \quad (17)$$

$$\Pr\left\{t_{e,min,2017} \in (1\ \text{March} \div 9\ \text{June},\ 2017)\right\} = 0.615, \quad (18)$$

$$\Pr\left\{t_{e,min,2017} \in (24\ \text{February} \div 14\ \text{June},\ 2017)\right\} = 0.769, \quad (19)$$

$$\Pr\left\{t_{e,min,2017} \in (19\ \text{February} \div 19\ \text{June},\ 2017)\right\} = 0.846, \quad (20)$$

$$\Pr\left\{t_{e,min,2017} \in (23\ \text{January} \div 16\ \text{July},\ 2017)\right\} = 0.923 \quad (21)$$

of the strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes of the Earth determined by the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth near the numerical time moment $t_*(\tau_{c,r}, 2017) = 2017.3$ corresponding approximately to 20 April, 2017) during the calculated (on 10 April, 2017) following ranges [26]:

$$(2\ \text{April} \div 8\ \text{May},\ 2017), \quad (22)$$

$$(13\ \text{March} \div 28\ \text{May},\ 2017), \quad (23)$$

$$(3\ \text{March} \div 7\ \text{June},\ 2017), \quad (24)$$

$$(1\ \text{March} \div 9\ \text{June},\ 2017), \quad (25)$$

$$(24\ \text{February} \div 14\ \text{June},\ 2017), \quad (26)$$

$$(19\ \text{February} \div 19\ \text{June},\ 2017), \quad (27)$$

$$(23\ \text{January} \div 16\ \text{July},\ 2017). \quad (28)$$

We concluded (on 10 April, 2017) that the dates $t_{e,min,2017}$ of the strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes of the Earth determined by the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth near 20 April, 2017) will occur during the ranges (12), (14), (22), (23), (24), (25), (26), (27) and (28) characterized by the probabilities (11), (13), (15), (16), (17), (18), (19), (20) and (21), correspondingly.

These ranges (12), (14), (22) - (28) and the corresponding probabilities (11), (13), (15) - (21) were founded (on 10 April, 2017) exceptionally (by eliminating the analysis of the strongest global climatic activity of the Earth during the range (2004 ÷2016)) based on the combined analysis of the dates of the previous strongest (according to the U.S. Geological Survey) earthquakes occurred during the range (2004÷2016) near the calculated dates $t_*(\tau_{c,r}, (2004+m))$ (m = 0, 1, …, 12) corresponding to the different local minimal values (9) of the combined planetary and solar integral energy gravitational influences (related with the real planetary configurations during the range (2004 ÷2017)) on the internal rigid core $\tau_{c,r}$ of the Earth and on the Earth as a whole.

Analyzing the previous strongest (according to the U.S. Geological Survey) earthquakes (occurred near the calculated dates $t_*(\tau_{c,r}, (2004+m))$, m = 0, 1, …, 12) during the range (2004 ÷ 2016), we calculated (on 16 July, 2017 [28]) the probability

$$\Pr\left\{t_{e,min,2017} \in (2\ \text{January} \div 6\ \text{August},\ 2017)\right\} = 0.99 \quad (29)$$

of the strongest (in 2017) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017) volcanic, climatic and magnetic processes) near the calculated numerical time moment (10) during the calculated (on 16 July, 2017 [28]) first subrange (of the strongest (in 2017) intensifications of the global natural processes of the Earth):

$$(2\ \text{January} \div 6\ \text{August},\ 2017). \quad (30)$$

3.2. The Validity of the Predicted Strongest Intensifications of the Earth Since 10 April and Before 6 August, 2017

It is possible in this final corrected and confirmed article (submitted on 10 September, 2017 for publication to the American Journal of Earth Sciences) to confirm the validity of the established predictions ((11), (13), (15), (16), (17), (18), (19), (20) and (21) made on 10 April, 2017 [26] and (29) made on 16 July, 2017 [28], correspondingly) concerning the first subrange of the strongest (in 2017) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 [26] and before 6 August, 2017 [28]. We present below the list of the strongest (in 2017 since 10 April, 2017 and before 6 August, 2017) intensifications (of the global natural processes of the Earth) confirming the validity of the global prediction thermohydrogravidynamic principle (9) [15, 16, 21, 22] (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) concerning the predicted (on 10 April, 2017) strongest (in 2017) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 [26] and before 6 August, 2017 [28].

Based on the analysis (made on 28 May, 2017 [27]) of the significant earthquakes (according to the U.S. Geological Survey) in 2017 since 23 January, 2017 and before 24 April, 2017, we confirmed [27] that the strongest 6.9-magnitude (according to the U.S. Geological Survey) earthquake (which struck Chile on 24 April, 2017) belongs to the predicted (on 10 April, 2017) range (12) characterized by the probability (11) of the strongest intensifications of the global and regional natural processes of the Earth.

Based on the analysis (made on 28 May, 2017 [27]) of the significant earthquakes (according to the U.S. Geological Survey) in 2017 since 23 January, 2017 and before 29 April, 2017, we established [27] that the strongest two 6.9-magnitude (according to the U.S. Geological Survey) earthquakes (which struck Chile on 24 April, 2017 and Philippines on 28 April, 2017) belong to the predicted (on 10 April, 2017) range (14) characterized by the probability (13) of the strongest intensifications of the global and regional natural processes of the Earth.

We established [27] that the date (May 4, 2017) of the publication [38] (about the “devastating flooding in central US”) belongs to the predicted (on 10 April, 2017) range (22) characterized by the probability (15) of the strongest intensifications of the global and regional natural processes of the Earth.

We established [27] that the date (May 16, 2017) of the publication [39] (about the approaching of the Phlegraean Fields deadly supervolcano to a critical stage) belongs to the predicted (on 10 April, 2017) range (23) characterized by the probability (16) of the strongest intensifications of the global and regional natural processes of the Earth.

Considering (on June 3, 2017 [27]) the publication [40] about “a huge ice crack in Antarctica” [40] (“which is 1,500 feet wide in places, grew by 11 miles between May 25 and May 31” [40] and which “will produce one of the largest icebergs ever recorded” [40]), we established [27] that the beginning (May 25, 2017) of the huge ice crack formation in Antarctica [40] belongs to the predicted (on 10 April, 2017) range (23) characterized by the probability (16) of the strongest intensifications of the global and regional natural processes of the Earth. The mean date (May 28, 2017) of the huge ice crack formation in Antarctica [40] is in perfect agreement with the upper boundary of the predicted range (23). This unquestionable fact confirms the validity of the global prediction thermohydrogravidynamic principle (9) [15, 16, 21, 22] (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) concerning the strongest (in 2017) intensifications of the global and regional natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 during the range (23) characterized by the probability (16) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that the period of the catastrophic landslide formation in California (according to “aerial photo taken Monday, May 22, 2017 provided by John Madonna showing a massive landslide along California’s coastal Highway” [41]) belongs to the predicted (on 10 April, 2017) range (23) characterized by the probability (16) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “the Bogoslof volcano in the Aleutian Islands in Alaska erupted on 28 May” [42] during the predicted (on 10 April, 2017) range (23) characterized by the probability (16) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “March 2017 was the second-warmest March” (“in 137 years” [43]) “on record, behind March of last year” [43] during the predicted (on 10 April, 2017]) range (24) characterized by the probability (17) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “large ice sheet 'very close' to breaking away from Antarctica” [44] on June 1, 2017 during the predicted (on 10 April, 2017) range (24) characterized by the probability (17) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that the strongest (in 2017 before 14 June, 2017) 6.9-magnitude (according to the U.S. Geological Survey) earthquakes (which struck Chile on 24 April, 2017, Philippines on 28 April, 2017 and Guatemala on 14 June, 2017) belong to the predicted (on 10 April, 2017) range (26) characterized by the probability (19) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “Antarctic rainfall and a melt area bigger than Texas” [45] occurred during the predicted (on 10 April, 2017) range (26) characterized by the probability (19) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “Yellowstone supervolcano hit by a swarm of more than 230 earthquakes in one week” [46] during the period of the intensification (since June 12 and before June 20, 2017), which belongs to the predicted (on 10 April, 2017) ranges (26) and (27) characterized by the probabilities (19) and (20) (correspondingly) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that “the supervolcano at Yellowstone National Park has been hit with more than 400 earthquakes since June 12” [47] during the period of the intensification (since June 12 and before June 22, 2017), which belongs to the predicted (on 10 April, 2017) ranges (26), (27) and (28) characterized by the probabilities (19), (20) and (21) (correspondingly) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that the 5.8-magnitude (strongest in western Montana during nearly 60 years, according to the U.S. Geological Survey [48]) earthquake (which struck western Montana on 6 July, 2017 near the Yellowstone supervolcano “raising supervolcano concerns” [49]) belongs to the predicted (on 10 April,

2017) range (28) characterized by the probability (21) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact that the period "between July 10 and July 12" [50] (when "a 1.1-trillion-ton iceberg has broken off Antarctica" [50]) belongs to the predicted (on 10 April, 2017) range (28) characterized by the probability (21) of the strongest intensifications of the global and regional natural processes of the Earth.

It was stated [51] (on July 13, 2017) also that "a trillion-ton iceberg, one of the biggest ever recorded, splintered off western Antarctica and is now floating at sea" during the predicted (on 10 April, 2017) range (28) characterized by the probability (21) of the strongest intensifications of the global and regional natural processes of the Earth.

Considering (on 28 July during the date of the second submission of the corrected article to the American Journal of Earth Sciences) the significant earthquakes (according to the U.S. Geological Survey) in 2017 since 16 July, 2017 and before 27 July, 2017, we have the unquestionable fact that the strong 7.8-magnitude (strongest in 2017 before 28 July, 2017 according to the U.S. Geological Survey) earthquake (which struck the Russia's Kamchatka Peninsula on 17 July, 2017) belongs to the predicted (on 16 July, 2017 [28]) first subrange (30) (characterized by the probability (29)) of the strongest (in 2017) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 [26] and before 6 August, 2017 [28].

We have the unquestionable fact [52] (published on July 20, 2017) that "on Wednesday, the University of Utah Seismograph Stations (UUSS) had recorded 1,284 events, the largest being magnitude 4.4", i.e. the period of the Yellowstone supervolcano intensification (on Wednesday, July 19, 2017) belongs to the predicted (on 16 July, 2017 [28]) first subrange (30) (characterized by the probability (29)) of the strongest (in 2017) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 10 April, 2017 [26] and before 6 August, 2017 [28].

4. The Validity of the Predicted Strongest Intensifications of the Earth Since 18 July, 2017

We predicted (on 10 April, 2017 in the article submitted on 11 April, 2017 to the American Journal of Earth Sciences) the second (in 2017) subrange of the strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth (since 18 July, 2017 and before 26 February, 2018) determined by the maximal (in 2017) combined planetary and solar integral energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth near 7 November, 2017. To predict (on 10 April, 2017) the forthcoming ranges of the active forthcoming intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth in 2017 since 18 July, 2017 and before 26 February, 2018, we used the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principle (8) determining the maximal temporal intensification of the thermohydrogravidynamic processes [15, 16, 21, 22] (in the internal rigid core $\tau_{c,r}$ and in the boundary region τ_{rf} between the internal rigid core $\tau_{c,r}$ and the fluid core $\tau_{c,f}$ of the Earth) near the time moment $t = t^*(\tau_{c,r})$. Considering the real planetary configurations of the Earth and the planets of the Solar System for 2017, we used the principle (8) to obtain the numerical time moment $t^*(\tau_{c,r}, 2017)$ corresponding to the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth. Considering the real planetary configurations of the Earth and the planets (the Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune) of the Solar System for 2017, we obtained (on 10 April, 2017 based on the global prediction thermohydrogravidynamic principle (8)) the numerical time moment (related with the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth):

$$t^*(\tau_{c,r}, 2017) = 2017.85, \tag{31}$$

which corresponds approximately to 7 November, 2017. Considering the real planetary configurations of the Earth and the planets (the Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune) of the Solar System for the range (2004 ÷ 2016), we calculated [21, 22] (based on the global prediction thermohydrogravidynamic principle (8)) the dates $t^*(\tau_{c,r}, (2004+m))$ (m = 0, 1, …, 12) corresponding to the different local maxima (8) of the combined planetary and solar integral energy gravitational influences (for the real planetary configurations during the range (2004 ÷ 2016)) on the internal rigid core $\tau_{c,r}$ of the Earth.

Analyzing the previous strongest (according to the U.S. Geological Survey) earthquakes (occurred during the range (2004 ÷ 2016) near the calculated dates $t^*(\tau_{c,r}, (2004+m))$, m= 0, 1, …, 12), we calculated (on 10 April, 2017) the following probabilities

$$\Pr\left\{t_{e,\max,2017} \in (5 \text{ November} \div 9 \text{ November, } 2017)\right\} = 0.077, \tag{32}$$

$$\Pr\left\{t_{e,\max,2017} \in (4\ \text{November} \div 10\ \text{November},\ 2017)\right\} = 0.154, \tag{33}$$

$$\Pr\left\{t_{e,\max,2017} \in (3\ \text{November} \div 11\ \text{November},\ 2017)\right\} = 0.23, \tag{34}$$

$$\Pr\left\{t_{e,\max,2017} \in (29\ \text{October} \div 17\ \text{November},\ 2017)\right\} = 0.307, \tag{35}$$

$$\Pr\left\{t_{e,\max,2017} \in (22\ \text{October} \div 23\ \text{November},\ 2017)\right\} = 0.384, \tag{36}$$

$$\Pr\left\{t_{e,\max,2017} \in (13\ \text{October} \div 1\ \text{December},\ 2017)\right\} = 0.461, \tag{37}$$

$$\Pr\left\{t_{e,\max,2017} \in (12\ \text{October} \div 2\ \text{December},\ 2017)\right\} = 0.538, \tag{38}$$

$$\Pr\left\{t_{e,\max,2017} \in (6\ \text{October} \div 8\ \text{December},\ 2017)\right\} = 0.692, \tag{39}$$

$$\Pr\left\{t_{e,\max,2017\text{-}2018} \in (12\ \text{September},\ 2017 \div 1\ \text{January},\ 2018)\right\} = 0.769, \tag{40}$$

$$\Pr\left\{t_{e,\max,2017\text{-}2018} \in (1\ \text{August},\ 2017 \div 12\ \text{February},\ 2018)\right\} = 0.846, \tag{41}$$

$$\Pr\left\{t_{e,\max,2017\text{-}2018} \in (22\ \text{July},\ 2017 \div 22\ \text{February},\ 2018)\right\} = 0.923, \tag{42}$$

$$\Pr\left\{t_{e,\max,2017\text{-}2018} \in (18\ \text{July},\ 2017 \div 26\ \text{February},\ 2018)\right\} = 0.99 \tag{43}$$

of the forthcoming strongest (in 2017 and 2018) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017 and 2018) volcanic, climatic and magnetic processes since 18 July, 2017 and before 26 February, 2018) near the numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017) during the calculated (on 10 April, 2017) following ranges:

$$(5\ \text{November} \div 9\ \text{November},\ 2017), \tag{44}$$

$$(4\ \text{November} \div 10\ \text{November},\ 2017), \tag{45}$$

$$(3\ \text{November} \div 11\ \text{November},\ 2017), \tag{46}$$

$$(29\ \text{October} \div 17\ \text{November},\ 2017), \tag{47}$$

$$(22\ \text{October} \div 23\ \text{November},\ 2017), \tag{48}$$

$$(13\ \text{October} \div 1\ \text{December},\ 2017), \tag{49}$$

$$(12\ \text{October} \div 2\ \text{December},\ 2017), \tag{50}$$

$$(6\ \text{October} \div 8\ \text{December},\ 2017), \tag{51}$$

$$(12\ \text{September},\ 2017 \div 1\ \text{January},\ 2018), \tag{52}$$

$$(1\ \text{August},\ 2017 \div 12\ \text{February},\ 2018), \tag{53}$$

$$(22\ \text{July},\ 2017 \div 22\ \text{February},\ 2018), \tag{54}$$

$$(18\ \text{July},\ 2017 \div 26\ \text{February},\ 2018). \tag{55}$$

We concluded (on 10 April, 2017) that the dates $t_{e,\max,2017}$ and $t_{e,\max,2017\text{-}2018}$ of the forthcoming strongest (in 2017 and 2018) seismotectonic events (and related [4, 7, 13-17, 30, 36, 37] strongest (in 2017 and 2018) volcanic, climatic and magnetic processes of the Earth determined by the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth near the numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017) will occur during the ranges (44), (45), (46), (47), (48), (49), (50), (51), (52), (53), (54) and (55) characterized by the probabilities (32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (42) and (43), correspondingly.

These ranges (44) - (55) and the corresponding probabilities (32) - (43) were founded (on 10 April, 2017) exceptionally (by eliminating the analysis of the strongest global climatic activity of the Earth during the range (2004 ÷2016)) based on the combined analysis of the dates of the previous strongest (according to the U.S. Geological Survey) earthquakes occurred during the range (2004÷2016) near the calculated dates $t^*(\tau_{c,r}, (2004+m))$ (m = 0, 1, …, 12) corresponding to the different local maxima (8) of the combined planetary and solar integral energy gravitational influences (related with the real planetary configurations during the range (2004 ÷2017)) on the internal rigid core $\tau_{c,r}$ of the Earth τ_3 and on the Earth τ_3 as a whole.

It was impossible in the corrected article (submitted on 28 July, 2017 to the American Journal of Earth Sciences) to consider the validity of the above predictions ((32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (42) and (43)) concerning the second subrange of the strongest (in 2017 and 2018) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth.

It is possible in this final corrected and confirmed article (submitted on 11 September, 2017 for publication to the American Journal of Earth Sciences) to confirm the validity of the established predictions ((43), (42) and (41) made on 10 April, 2017) concerning the predicted second subrange of the strongest (in 2017 and 2018) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 18 July, 2017 and before 26 February, 2018. Considering (on 31 August, 2017 [53]) the significant earthquakes (according to the U.S. Geological Survey) in 2017 before 31 August, 2017, we established the unquestionable fact that the date (17 July, 2017, 23:34:13 UTC) of the strong 7.8-magnitude (strongest in 2017 before 31 August, 2017 according to the U.S. Geological Survey) earthquake (which struck the Russia’s Kamchatka Peninsula 198 km ESE of Nikol'skoye according to the U.S. Geological Survey) belongs practically (with the error of 26 minutes) to the predicted (on 10 April, 2017) range (55) characterized by the probability (43). We considered (on 31 August, 2017 [53]) the unquestionable fact ([52] published on July 20, 2017) that “on Wednesday, the University of Utah Seismograph Stations (UUSS) had recorded 1,284 events, the largest being magnitude 4.4” confirming that the period of the Yellowstone supervolcano intensification (on Wednesday, July 19, 2017) belongs to the predicted (on 10 April, 2017) range (55) characterized by the probability (43). We considered (on 31 August, 2017 [53]) the unquestionable fact ([54] published on July 31, 2017) that “the flooding has paralysed Gujarat” confirming that the period of the Indian severe monsoon floods (especially in Gujarat) belongs to the predicted (on 10 April, 2017) range (54) characterized by the probability (42) of the strongest intensifications of the global and regional natural processes of the Earth.

We considered (on 31 August, 2017 [53]) the unquestionable fact ([55] published on August 8, 2017) that “typhoon Noru dumped heavy rain on Japan Tuesday as it moved back out to sea, causing flooding and property damage while the number of injured reportedly rose to 51” confirming that the period of the typhoon Noru belongs to the predicted (on 10 April, 2017) range (53) characterized by the probability (41) of the strongest intensifications of the global and regional natural processes of the Earth.

We considered (on 31 August, 2017 [53]) the unquestionable fact ([56] published on August 22, 2017) that “more than 800 people have been killed and 24 million affected following widespread floods across south Asia” confirming that the period of the widespread floods across south Asia belongs to the predicted (on 10 April, 2017) range (53) characterized by the probability (41) of the strongest intensifications of the global and regional natural processes of the Earth.

We considered (on 31 August, 2017 [53]) the unquestionable fact ([57] published on August 27, 2017) that “damaging hurricane Harvey settles in over southeast Texas” confirming that the period of the damaging hurricane Harvey belongs to the predicted (on 10 April, 2017) range (53) characterized by the probability (41) of the strongest intensifications of the global and regional natural processes of the Earth.

We have the unquestionable fact ([58] published on 6 September, 2017) that “hurricane Irma grew into a dangerous Category 5 storm, the most powerful seen in the Atlantic in over a decade, and roared toward islands in the northeast Caribbean Tuesday on a path that could eventually take it to the United States” confirming that the period of the hurricane Irma intensification into a dangerous Category 5 storm belongs to the predicted (on 10 April, 2017) range (53) characterized by the probability (41) of the strongest intensifications of the global and regional natural processes of the Earth. It was published [59] (on 6 September, 2017) also that “hurricane Irma strengthens to Category 5 as 2nd storm forms behind it” [59] confirming additionally that the period of the hurricane Irma intensification into a dangerous Category 5 storm belongs to the predicted (on 10 April, 2017) range (53) characterized by the probability (41) of the strongest intensifications of the global and regional natural processes of the Earth. The formation of the second storm [59] behind the increased hurricane Irma confirms that the hurricane Irma was (on 6 September, 2017) under the stage of the obvious intensification. We assumed on 8 September, 2017 (based on the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) that the global seismotectonic and hurricane activity of the Earth will grow up to the calculated (on 10 April, 2017) numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ (corresponding approximately to 7 November, 2017) related with the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth. This assumption is based on the established [21] unquestionable fact that the date of 6 October, 2016 (when “Hurricane Matthew has gained new muscle over the Bahamas” [23]) is in the perfect agreement with the calculated (in advance [22], on 31 August, 2016) numerical time moment $t^*(\tau_{c,r}, 2016) = 2016.7666$ (corresponding approximately to 6 October, 2016) of the maximal (in 2016) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth. This assumption is based also on the fact (demonstrating the practical applicability of the global prediction thermohydrogravidynamic principle (8) for the reasonable explanation of the devastating seismotectonic activity of Japan for 2011) that the strongest (in 2011 and in the modern history of Japan) 9.0-magnitude devastating Tohoku earthquake (occurred on March 11, 2011 near the east coast of Honshu) corresponds to the small difference $\Delta = \left| t_e - t^*(\tau_{c,r}, 2011) \right| =$ 25.5 days (between the date t_e = March 11, 2011 of the strongest (in 2011) Japanese earthquake and the calculated date $t^*(\tau_{c,r}, 2011) = 2011.2666$ of the local maximum (8) for 2011.

Considering (on 9 September, 2017 before the submission on 11 September, 2017 of the final corrected and confirmed article for publication to the American Journal of Earth Sciences) the significant earthquakes (according to the U.S. Geological Survey) in 2017 since 18 July, 2017 and before 9 September, 2017, we have the unquestionable fact that the strongest 8.1-magnitude (strongest in 2017 before 9 September, 2017 according to the U.S. Geological Survey) earthquake (which struck the Mexico on 8 September, 2017) belongs to the predicted (on 10 April, 2017) range (53) (characterized by the probability (41)), that confirms additionally the validity of the global prediction thermohydrogravidynamic principle (8) [15, 16, 21, 22] (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) concerning the second (in 2017) subrange of the strongest (in 2017 and 2018) intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth since 18 July, 2017 and before 26 February, 2018 near the numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017. Taking into account this confirmation and the presented above fact demonstrating the practical applicability of the global prediction thermohydrogravidynamic principle (8) for the reasonable explanation of the devastating seismotectonic activity of Japan for 2011, we present in the next Section 5 the prediction (made on 9 August, 2017 based on the global prediction thermohydrogravidynamic principle (8) of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) concerning the strongest intensifications of the seismotectonic, volcanic and climatic processes of Japan and the Kuril Islands since 24 July, 2017 and before 16 March, 2018.

5. The Prediction of the Strongest Natural Processes for Japan and Kuril Islands Since 24 July, 2017

We present in this section the prediction (made on 9 August, 2017 in relation with the considered above typhoon Noru [55]) of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24] concerning the strongest intensifications of the seismotectonic, volcanic and climatic processes in Japan and Kuril Islands since 24 July, 2017 and before 16 March, 2018. Considering the range (2004 ÷ 2016) and analyzing the previous significant (according to the U.S. Geological Survey) and strongest (in each year) earthquakes occurred in Japan and Kuril Islands (near the calculated [21, 22] dates $t^*(\tau_{c,r}, (2004+m))$, m= 0, 1, …, 12 for the considered real planetary configurations of the Earth and the planets (the Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune) for the range (2004 ÷ 2016)), we calculated (on 9 August, 2017) the following probabilities

$$\Pr\{t_{e,max,2017} \in (5\ \text{November} \div 7\ \text{November, 2017})\} = = 0.0769, \quad (56)$$

$$\Pr\{t_{e,max,2017} \in (3\ \text{November} \div 7\ \text{November, 2017})\} = = 0.1538, \quad (57)$$

$$\Pr\{t_{e,max,2017} \in (2\ \text{November} \div 7\ \text{November, 2017})\} = = 0.2307, \quad (58)$$

$$\Pr\{t_{e,max,2017} \in (24\ \text{October} \div 7\ \text{November, 2017})\} = = 0.3076, \quad (59)$$

$$\Pr\{t_{e,max,2017} \in (12\ \text{October} \div 7\ \text{November, 2017})\} = = 0.3846, \quad (60)$$

$$\Pr\{t_{e,max,2017} \in (9\ \text{October} \div 7\ \text{November, 2017})\} = = 0.4615, \quad (61)$$

$$\Pr\{t_{e,max,2017} \in (17\ \text{September} \div 7\ \text{November, 2017})\} = = 0.5384, \quad (62)$$

$$\Pr\{t_{e,max,2017} \in (9\ \text{September} \div 7\ \text{November, 2017})\} = = 0.6153, \quad (63)$$

$$\Pr\{t_{e,max,2017} \in (24\ \text{July} \div 7\ \text{November, 2017})\} = = 0.6923, \quad (64)$$

$$\Pr\{t_{e,max,2017} \in (24\ \text{July} \div 10\ \text{November, 2017})\} = = 0.7692, \quad (65)$$

$$\Pr\{t_{e,max,2017} \in (24\ \text{July} \div 23\ \text{December, 2017})\} = = 0.8461, \quad (66)$$

$$\Pr\{t_{e,max,2017-2018} \in (24\ \text{July, 2017} \div 8\ \text{January, 2018})\} = = 0.923, \quad (67)$$

$$\Pr\{t_{e,max,2017-2018} \in (24\ \text{July, 2017} \div 16\ \text{March, 2018})\} = = 0.99 \quad (68)$$

of the forthcoming strongest (in 2017 and 2018 for Japan and Kuril Islands) seismotectonic events (and related [4, 7-13, 17, 22-25] strongest (in 2017 and 2018) volcanic and climatic processes since 24 July, 2017 and before 16 March, 2018) near the calculated (on 10 April, 2017) numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017) during the calculated (on 9 August, 2017) following ranges:

$$(5\ \text{November} \div 7\ \text{November, 2017}), \quad (69)$$

$$(3\ \text{November} \div 7\ \text{November, 2017}), \quad (70)$$

$$(2\ \text{November} \div 7\ \text{November, 2017}), \quad (71)$$

$$(24\ \text{October} \div 7\ \text{November, 2017}), \quad (72)$$

$$(12\text{ October} \div 7\text{ November, } 2017), \tag{73}$$

$$(9\text{ October} \div 7\text{ November, } 2017), \tag{74}$$

$$(17\text{ September} \div 7\text{ November, } 2017), \tag{75}$$

$$(9\text{ September} \div 7\text{ November, } 2017), \tag{76}$$

$$(24\text{ July} \div 7\text{ November, } 2017), \tag{77}$$

$$(24\text{ July} \div 10\text{ November, } 2017), \tag{78}$$

$$(24\text{ July} \div 23\text{ December, } 2017), \tag{79}$$

$$(24\text{ July, } 2017 \div 8\text{ January, } 2018), \tag{80}$$

$$(24\text{ July, } 2017 \div 16\text{ March, } 2018). \tag{81}$$

We can state that the dates $t_{e,max,2017}$ and $t_{e,max,2017-2018}$ of the forthcoming strongest (in 2017 and 2018 for Japan and Kuril Islands) seismotectonic events (and related [4, 7-13, 17, 22-25] strongest (in 2017 and 2018 for Japan and Kuril Islands) volcanic and climatic processes determined by the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth near the numerical time moment $t^*(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017) will occur during the ranges (69), (70), (71), (72), (73), (74), (75), (76), (77), (78), (79), (80) and (81) characterized by the probabilities (56), (57), (58), (59), (60), (60), (61), (62), (63), (64), (65), (66), (67) and (68), correspondingly.

These ranges (69) - (81) and the corresponding probabilities (56) - (68) were founded exceptionally (by eliminating the analysis of the strongest volcanic and climatic processes in Japan and Kuril Islands during the range (2004 ÷2016)) based on the combined analysis of the dates of the previous strongest earthquakes (according to the U.S. Geological Survey) occurred in Japan and Kuril Islands during the range (2004÷2016) near the calculated [21, 22] dates $t^*(\tau_{c,r}, (2004+m))$ (m = 0, 1, …, 12) corresponding to the different local maxima (8) of the combined planetary and solar integral energy gravitational influences (related with the real planetary configurations during the range (2004 ÷2016)) on the internal rigid core $\tau_{c,r}$ of the Earth.

6. The Main Results and Conclusions

We have presented in Section 2 the established [2-4, 7, 13-17, 21, 22, 24, 30, 35-37] generalized formulations (1) and (5) of the first law of thermodynamics and the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principles (8) and (9) (of the cosmic seismology [15, 16, 21, 22]) determining the maximal temporal intensifications of the global (and regional) natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth. We have presented in Section 2.1 the generalization (1) of the first law of thermodynamics [2-4, 7, 13-17, 21, 22, 24, 30, 35-37] for the individual finite continuum region τ (considered in the Galilean frame of reference) subjected to the cosmic and terrestrial non-stationary Newtonian gravitational field and non-potential terrestrial stress forces characterized by the symmetric stress tensor $\mathbf{T}$ [25]. We have presented also in Section 2.1 the expanded [13, 17] generalized formulation (5) (expanding the generalized formulation (1)) of the first law of thermodynamics for the individual finite continuum region τ (considered in the Galilean frame of reference) subjected to the cosmic and terrestrial non-stationary Newtonian gravitational field, non-potential terrestrial stress forces and non-stationary electromagnetic field. In Section 2.2 we have presented the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principles (8) and (9) determining (in the frame of the cosmic seismology [15, 16, 21, 22]) the maximal temporal intensifications of the global (and regional) natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth related with the maximal and minimal combined cosmic (planetary, solar and lunar) integral energy gravitational influences ((8) and (9), respectively, for the time moments $t = t^*(\tau_{c,r})$ and $t = t_*(\tau_{c,r})$) of the Solar System on the considered internal rigid core $\tau_{c,r}$ of the Earth.

We have presented in Section 3 the prognostication deductions (derived on 10 April, 2017) based on the global prediction thermohydrogravidynamic principle (9) concerning the strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth determined by the minimal (for the time moment $t_*(\tau_{c,r}, 2017) = 2017.3$, which corresponds approximately to 20 April, 2017) combined planetary and solar integral energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth. We have presented in Section 3.1 the obtained (on 10 April, 2017) numerical time moment $t_*(\tau_{c,r}, 2017) = 2017.3$ (corresponding approximately 20 April, 2017) based on the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principle (9) used for the real planetary configurations of the Earth and the planets of the Solar System. The founded (on 10 April, 2017) numerical time moment $t_*(\tau_{c,r}, 2017) = 2017.3$ is related with the minimal (for 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth and on the Earth as a whole. We have presented in Section 3.1 the founded (on 10 April, 2017) ranges (which can be considered really since 10 April, 2017 owing to the absence of the strong earthquakes (characterized by the magnitudes $M \geq 7.0$) in the range from 31 January, 2017 to 10 April, 2017) (12), (14), (22), (23), (24), (25), (26), (27) and (28) of the dates $t_{e,min,2017}$ of the forthcoming strongest earthquakes (and related [4, 7, 13-17, 30, 36, 37] strongest volcanic, climatic and magnetic processes of the Earth determined by the minimal (in 2017) combined planetary and solar integral energy gravitational influence (9) on the internal rigid core $\tau_{c,r}$ of the Earth near the numerical time moment $t_{*}(\tau_{c,r}, 2017) = 2017.3$ corresponding approximately to 20 April, 2017) characterized by the probabilities (11), (13), (15), (16), (17), (18), (19), (20) and (21), correspondingly. We have presented also in Section 3.1 the founded (on 16 July, 2017 [28]) expanded first subrange (30) (characterized by the probability (29)) of the strongest (in 2017) intensifications of the global natural processes of the Earth since 10 April, 2017 and before 6 August, 2017. Considering the strongest intensifications [38-52] of the natural (seismotectonic, volcanic and climatic) processes of the Earth (since 10 April, 2017 and before 27 July, 2017), we have presented in Section 3.2 the confirmed validity of the global prediction thermohydrogravidynamic principle (9) [15, 16, 21, 22] (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) concerning the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth (since 10 April [27] and before 6 August, 2017 [28]) determined by the minimal (near 20 April, 2017) combined integral energy gravitational influence on the internal rigid core of the Earth (and on the Earth as a whole) of the planets (the Mercury, Venus, Mars and Jupiter) and the Sun due to the gravitational interactions of the Sun with the Jupiter Saturn, Uranus and Neptune.

We have presented in Section 4 the obtained (on 10 April, 2017) numerical time moment $t^{*}(\tau_{c,r}, 2017) = 2017.85$ (corresponding approximately to 7 November, 2017) based on the established [15, 16, 21, 22] global prediction thermohydrogravidynamic principle (8) (of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24]) used for the real planetary configurations of the Earth and the planets of the Solar System. The founded (on 10 April, 2017) numerical time moment $t^{*}(\tau_{c,r}, 2017) = 2017.85$ is related with the maximal (for 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth τ_3 and on the Earth τ_3 as a whole. We have presented in Section 4 the founded (on 10 April, 2017) ranges (44), (45), (46), (47), (48), (49), (50), (51), (52), (53), (54) and (55) of the dates $t_{e,max,2017}$ and $t_{e,max,2017-2018}$ of the forthcoming (for 10 April, 2017) strongest earthquakes (and related [4, 7, 13-17, 30, 36, 37] strongest volcanic, climatic and magnetic processes of the Earth determined by the maximal (in 2017) combined planetary and solar integral energy gravitational influence (8) on the internal rigid core $\tau_{c,r}$ of the Earth near the numerical time moment $t^{*}(\tau_{c,r}, 2017) = 2017.85$ corresponding approximately to 7 November, 2017) characterized by the probabilities (32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (42) and (43), correspondingly.

The considered in Section 4 facts ([52, 54-59] including the strongest (in 2017 before 8 September, 2017) 7.8-magnitude (according to the U.S. Geological Survey) earthquake (which struck the Russia's Kamchatka Peninsula on 17 July, 2017, 23:34:13 UTC, i.e., practically on 18 July, 2017 with the error of 26 minutes) and the strongest (in 2017 before 9 September, 2017) 8.1-magnitude (according to the U.S. Geological Survey) earthquake, which struck the Mexico on 8 September, 2017) confirm the validity of the global prediction thermohydrogravidynamic principle (8) concerning the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic and climatic) processes of the Earth since 18 July, 2017.

It is impossible in this final corrected and confirmed article (submitted on 11 September, 2017 for publication to the American Journal of Earth Sciences) to consider the validity of the predictions ((32), (33), (34), (35), (36), (37), (38), (39) and (40) of the strongest intensifications (since 12 September, 2017) of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth.

Taking into account the established (in Section 4) confirmations (of the validity of the global prediction thermohydrogravidynamic principle (8) concerning the predicted (on 10 April, 2017) strongest intensifications of the global natural (seismotectonic, volcanic and climatic) processes of the Earth since 18 July, 2017) and the established (in Section 4) fact (demonstrating the practical applicability of the global prediction thermohydrogravidynamic principle (8) for the reasonable explanation of the devastating seismotectonic activity of Japan for 2011), we have presented in Section 5 the prediction (made on 9 August, 2017 based on the global prediction thermohydrogravidynamic principle (8)) of the thermohydrogravidynamic theory [2-4, 7, 13-17, 21, 22, 24] concerning the strongest intensifications of the seismotectonic, volcanic and climatic processes of Japan and the Kuril Islands since 24 July, 2017 and before 16 March, 2018.

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