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The Confirmed Validity of the Explanatory Aspect of the Thermohydrogravidynamic Theory Concerning the Evaluated Maximal Magnitude of the Strongest Earthquake of the Earth near the Predicted Date 2021.1 AD during the Range from October 27, 2020 to May 17, 2021 AD

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Abstract

We present the explanation (in the frame of the established thermohydrogravidynamic technology) of the maximal magnitude M = 8.1 (according to the U.S. Geological Survey) of the strongest earthquake of the Earth occurred in Kermadec Islands, New Zealand on March 4, 2021 AD (during the considered range from October 27, 2020 to May 17, 2021 AD). This strongest earthquake occurred near the calculated date 2021.1 AD corresponding (in the frame of the thermohydrogravidynamic theory) to the local maximal combined planetary and solar integral energy gravitational influence on the internal rigid core of the Earth. To obtain this explanation, we have analyzed the strongest earthquakes of the Earth (according to the U.S. Geological Survey) occurred near the dates of the local maximal combined planetary and solar integral energy gravitational influences on the internal rigid core of the Earth.

Keywords

Thermohydrogravidynamic Theory, Non-Stationary Cosmic Gravitation, Generalized First Law of Thermodynamics, Cosmic Geology, Cosmic Geophysics, Cosmic Seismology, Global Seismotectonic Processes, Global

Prediction Thermohydrogravidynamic Principles,
Thermohydrogravidynamic Technology

1. Introduction

The problem of the long-term predictions of the strong earthquakes (Richter, 1958) is the significant problem of the modern geophysics (Simonenko, 2012). It was stated (Simonenko, 2016) that the deterministic prediction of the devastating earthquakes of the Earth is the urgent problem of the modern geophysics before the founded (Simonenko, 2012, 2014) increased intensifications of the global natural (seismotectonic, volcanic, climatic and magnetic) processes of the Earth during the established ranges 2020 ÷ 2026, 2037.38 ÷ 2043.38 and 2055 ÷ 2064 (Simonenko, 2012, 2014). The explanation of the maximal magnitudes of the strongest earthquakes is the first step to solve the problem of the long-term deterministic predictions of the strongest earthquakes.

We have announced (on October 6, 2020 (Simonenko, 2020) as the main conclusion of the presentation on the 10th International Conference on Geology and Geophysics) that the calculated (Simonenko, 2019) date 2021.1 AD (corresponding to February 7, 2021 AD) is related with the calculated local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth. We see now (on May 30, 2022 AD) that the strongest (during the considered range from October 27, 2020 AD to May 17, 2021 AD related with the calculated (Simonenko, 2019) date 2021.1 AD) earthquake of the Earth (characterized by the magnitude M = 8.1 according to the U.S. Geological Survey) occurred on March 4, 2021 AD in Kermadec Islands, New Zealand 25 days after the calculated (Simonenko, 2019) date 2021.1 AD of the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core of the Earth.

To evaluate the magnitude of the strongest (during the considered range from October 27, 2020 AD to May 17, 2021 AD) earthquake (occurred on March 4, 2021 AD), in Section 2 we present the fundamentals of the developed thermohydrogravidynamic theory (Simonenko, 2007a, 2007b, 2012, 2013, 2014, 2019). In Section 2.1 we present the established (Simonenko, 2007a, 2007b, 2012, 2013, 2014, 2019) general generalized differential formulation (1) of the first law of thermodynamics. In Section 2.2 we present the established (Simonenko, 2012, 2014) global prediction thermohydrogravidynamic principles (3) and (4) determining the maximal temporal intensifications of the global seismotectonic, volcanic, climatic and magnetic processes of the Earth near the corresponding time moments $t^{*}(\tau_{c,r}, i)$ and $t_{*}(\tau_{c,r}, i)$.

In Section 3.1 we present the application of the thermohydrogravidynamic technology (Simonenko, 2021a, 2021b) for evaluation of the maximal magnitude M = 8.1 of the most strongest earthquake (during the considered range from October 27, 2020 to May 17, 2021) of the Earth) occurred on March 4, 2021 AD

near the calculated (Simonenko, 2019) date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD.

In Section 3.2 we present the confirmation of the previously established (Simonenko, 2018) cosmic energy gravitational genesis of the strongest Chinese, Japanese and Greek earthquakes. In Section 3.3 we present the explanation (based on the thermohydrogravidynamic technology (Simonenko, 2021a, 2021b)) of the magnitude 7.7 of the strongest continental Chinese earthquakes occurred on May 22, 1927 AD in Gansu-Qinghai border region, China.

In Section 4 we present conclusions.

2. Fundamentals of the Thermohydrogravidynamic Theory

2.1. The Generalized Differential Formulation of the First Law of Thermodynamics

The thermohydrogravidynamic technology (Simonenko, 2021a, 2021b) of evaluation of the maximal magnitudes of the strongest earthquakes (occurred on March 4, 2021 AD and on May 22, 1927 AD in Gansu-Qinghai border region, China) is based on the established (Simonenko, 2006, 2007a, 2007b) generalized differential formulation of the first law of thermodynamics (for an individual finite continuum region τ subjected to the non-stationary combined (cosmic and terrestrial) Newtonian gravitational field and non-potential terrestrial stress forces):

$$dU_\tau + dK_\tau + d\pi_\tau = \delta Q + \delta A_{np,\partial\tau} + dG, \tag{1}$$

where U_τ is the classical (Gibbs, 1873; De Groot and Mazur, 1962) internal thermal energy of the continuum region τ, K_τ is the established (Simonenko, 2006, 2007a, 2007b) macroscopic kinetic energy of the continuum region τ, π_τ is the established (Simonenko, 2006, 2007a, 2007b) macroscopic potential gravitational energy (of the continuum region τ) related with the non-stationary potential ψ of the gravitational field, δQ is the classical (Gibbs, 1873; Groot and Mazur, 1962) differential total heat flux to (or from) the continuum region τ, $\delta A_{np,\partial\tau}$ is the established (Simonenko, 2006, 2007a, 2007b) generalized differential work done by non-potential stress forces acting on the boundary surface $\partial\tau$ of the continuum region τ,

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

is the established (Simonenko, 2007a, 2007b, 2012, 2013, 2014, 2016) differential (during the differential time interval dt) energy gravitational influence (as the result of the Newtonian non-stationary gravitation) on the continuum region τ characterized by the local density ρ of mass distribution.

2.2. The Global Prediction Thermohydrogravidynamic Principles

The global prediction thermohydrogravidynamic principles are formulated (for the internal rigid core $\tau_{c,r}$ of the Earth) based on the term (2) of the generalized differential Formulation (1) of the first law of thermodynamics as follows

(Simonenko, 2012, 2014):

$$\Delta G(\tau_{c,r}, t^*(\tau_{c,r}, i)) = \max_t \int_{t_0}^{t} dt' \iiint_{\tau_{c,r}} \frac{\partial \psi_{comb}}{\partial t'} \rho_{c,r} dV - \text{local maximum for time } t^*(\tau_{c,r}, i), \quad (3)$$

and

$$\Delta G(\tau_{c,r}, t_*(\tau_{c,r}, i)) = \min_t \int_{t_0}^{t} dt' \iiint_{\tau_{c,r}} \frac{\partial \psi_{comb}}{\partial t'} \rho_{c,r} dV - \text{local minimum for time } t_*(\tau_{c,r}, i), \quad (4)$$

where $\rho_{c,r}$ is the mass density of the internal rigid core $\tau_{c,r}$, $\psi_{comb} \equiv \psi_{comb}(\tau_{c,r}, t)$ is the combined planetary and solar gravitational potential (Simonenko, 2012, 2013, 2019) in the internal rigid core $\tau_{c,r}$ of the Earth.

3. Results and Discussions

3.1. The Application of the Thermohydrogravidynamic Technology for Explanation of the Magnitude M = 8.1 of the Strongest Earthquake Occurred on March 4, 2021 AD near the Predicted Date 2021.1 AD

To evaluate (in the frame of the thermohydrogravidynamic technology (Simonenko, 2021a, 2021b)) the magnitude of the strongest earthquake (of the Earth) occurred on March 4, 2021 AD (near the date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD (Simonenko, 2019) of the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth), we consider **Table 1** (Simonenko, 2021a) and **Table 2** (Simonenko, 2021b) of the strongest earthquakes occurred near the dates $t^*(\tau_{c,r}, i)$ of the local maximal values (3) of the calculated combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth. We also take into account the strongest earthquake occurred on January 28, 2020 AD near the date $t^*(\tau_{c,r}, 2020)$ (Simonenko, 2020, 2021a).

We consider (based on **Table 1** (Simonenko, 2021a) and **Table 2** (Simonenko, 2021b)) the strongest earthquakes (occurred near the dates $t^*(\tau_{c,r}, i)$ of the local maximal combined planetary and solar integral energy gravitational influences (3)) on the two-dimensional plane $(M_{up}(i, \text{loc. max.}), \Delta_{g,S,P}(i)\sin\varphi(i))$ (Simonenko, 2021a, 2021b). We obtain for March 4, 2021 AD the following numerical values (calculated under the first approximation of the circular orbits of the planets and disregarding the lunar integral energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth)

$$\Delta_{g,S,P}(2021) = 5273.4914, \sin\varphi(\text{March 4, 2021 AD}) = 0.86347466, \quad (5)$$

$$\Delta_{g,S,P}(2021)\sin\varphi(\text{March 4, 2021 AD}) = 4553.5262. \quad (6)$$

We have established that the dimensionless ranges (containing the value (6))

$$4300 \le \Delta_{g,S,P}(i)\sin\varphi(i) \le 4600, \quad (7)$$

Table 1. The analysis of the previous strongest continental Chinese (j = 3), Greek (j = 2) and Japanese (j = 1) earthquakes (according to the U.S. Geological Survey) occurred near the calculated (Simonenko, 2019) date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD corresponding to February 7, 2021 AD.

Number j	Date $t_e(2021, j)$ of the strongest earthquake	Magnitude $M_{up}(2021, j, \text{loc. max.})$ of the strongest earthquake	Region of the strongest earthquake	$\Delta(j) = \left\|t_e(2021, j) - t^*(\tau_{c,r}, 2021)\right\|$, in days
1	2021-02-13 = February 13, 2021 AD	7.1	73 km ENE of Namie, Japan	5 days after the date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD
2	2021-03-03 = March 3, 2021 AD	6.3	9 km W of Týrnavos, Greece	24 days after the date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD
3	2021-03-19 = March 19, 2021 AD	5.7	95 km ENE of Nagqu, China	40 days after the date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD

Table 2. The final result of the numerical analysis of the previous strongest continental Chinese earthquakes occurred from 1900 AD to 1927 AD near the dates $t^*(\tau_{c,r}, i)$ (i = 1900, 1901, …, 1927) corresponding to the maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth. $\Delta_{g,S,P}(i)\sin\varphi(i)$

Year i	Date $t_e(i, \text{loc. max.})$ of the strongest Chinese earthquake, in yr	Magnitude $M_{up}(i, \text{loc. max.})$ of the strongest Chinese earthquake	Region of the strongest continental Chinese earthquake	$t^*(\tau_{c,r}, i)$, in yr	$\Delta(i)$, in days	$\varphi(i)$, $\sin\varphi(i)$	$\Delta_{g,S,P}(i)$	$\Delta_{g,S,P}(i)\times\sin\varphi(i)$
1927 AD	1927-05-22 = 1927.38877481	7.7	Gansu-Qinghai border region, China	$t^*(\tau_{c,r}, 1927)$ = 1927.1333333 AD	93.3 days after the date $t^*(\tau_{c,r}, 1927)$	64.67°, 0.9038709	4232.316	3825.4679
1924 AD	1924-10-08 = 1924.77207392	6.5	western Xizang	$t^*(\tau_{c,r}, 1924)$ = 1924.9666666 AD	71.07 days before the date $t^*(\tau_{c,r}, 1924)$	35.39°, 0.5791401	4831.5685	2798.155
1908 AD	1908-08-20 = 1908.63791923	6.9	western Xizang	$t^*(\tau_{c,r}, 1908)$ = 1908.5833333 AD	19.93 days after the date $t^*(\tau_{c,r}, 1908)$	55.60°, 0.825117	3875.951	3198.1133

$$8.0 \le M_{up}(i, \text{loc. max.}) \le 8.2 \quad (8)$$

include only one strongest earthquake occurred (according to the U.S. Geological Survey) on the date (related with the corresponding magnitude and the region):

$$1986\text{-}05\text{-}07\ (M_{up}(1986, \text{loc. max.}) = 8.0),$$
$$\text{Andreanof and Aleutian Islands, Alaska.} \quad (9)$$

We have obtained the second previous strongest earthquake occurred on the date (related with the corresponding magnitude and the region)

$$1980\text{-}07\text{-}17\ (M_{up}(1980, \text{loc. max.}) = 7.9),\ \text{Santa Cruz Islands.} \quad (10)$$

Based on the first combination of the strongest earthquakes occurred on the dates (9) and (10) characterized by the corresponding calculated (under the first approximation) numerical values:

$$\Delta_{g,S,P}(1986)\sin\varphi(\text{1986-05-07}) = 4302.5576, \tag{11}$$

$$\Delta_{g,S,P}(1980)\sin\varphi(\text{1980-07-17}) = 3900.5249, \tag{12}$$

we have calculated (based on the linear extrapolation) the first magnitude

$$\begin{aligned} &M_{up}(\text{March 4, 2021 AD, loc. max.,1}) = M_{up}(1980, \text{loc. max.}) \\ &+\frac{\left(M_{up}(1986, \text{loc. max.}) - M_{up}(1980, \text{loc. max.})\right)}{\left(\Delta_{g,S,P}(1986)\sin\varphi(\text{1986-05-07}) - \Delta_{g,S,P}(1980)\sin\varphi(\text{1980-07-17})\right)} \\ &\times\left(\Delta_{g,S,P}(2021)\sin\varphi(\text{March 4, 2021 AD}) - \Delta_{g,S,P}(1980)\sin\varphi(\text{1980-07-17})\right) \\ &= 8.0624 \end{aligned} \tag{13}$$

of the possible strong earthquake of the Earth for the corresponding value (6).

We considered (in **Table 2** (Simonenko, 2021b)) the nearest (to the date (9)) previous strongest earthquake occurred on the date (related with the magnitude and the region)

$$\text{1988-03-06}\ \left(M_{up}(1988, \text{loc. max.}) = 7.8\right),\ \text{Gulf of Alaska.} \tag{14}$$

We have taken (from the analyzed strongest earthquakes of the Earth) the second nearest previous strongest earthquake occurred on the date (related with the corresponding magnitude and the region)

$$\text{1982-12-19}\ \left(M_{up}(1982, \text{loc. max.}) = 7.2\right),\ \text{south of Tonga.} \tag{15}$$

Based on the second combination of the strongest earthquakes occurred on the dates (14) and (15) characterized by the corresponding calculated (under the first approximation) numerical values:

$$\Delta_{g,S,P}(1988)\sin\varphi(\text{1988-03-06}) = 3540.5336, \tag{16}$$

$$\Delta_{g,S,P}(1982)\sin\varphi(\text{1982-12-19}) = 1500.6039, \tag{17}$$

we have calculated (based on the linear extrapolation) the second magnitude

$$\begin{aligned} &M_{up}(\text{March 4, 2021 AD, loc. max., 2}) = M_{up}(1982, \text{loc. max.}) \\ &+\frac{\left(M_{up}(1988, \text{loc. max.}) - M_{up}(1982, \text{loc. max.})\right)}{\left(\Delta_{g,S,P}(1988)\sin\varphi(\text{1988-03-06}) - \Delta_{g,S,P}(1982)\sin\varphi(\text{1982-12-19})\right)} \\ &\times\left(\Delta_{g,S,P}(2021)\sin\varphi(\text{March 4, 2021 AD}) - \Delta_{g,S,P}(1982)\sin\varphi(\text{1982-12-19})\right) \\ &= 8.09795, \end{aligned} \tag{18}$$

of the possible strong earthquake of the Earth for the corresponding value (6).

We have taken (from the analyzed strongest earthquakes) the more nearest (to the date (9)) previous strongest earthquake occurred on the date (related with the corresponding magnitude and the region)

$$\text{1985-03-03}\ \left(M_{up}(1985, \text{loc. max.}) = 8.0\right),\ \text{offshore Valparaiso, Chile.} \tag{19}$$

To obtain the binary combination with (19), we have taken (from the analyzed strongest earthquakes in **Table 2** (Simonenko, 2021b)) the second nearest pre-

vious strongest earthquake occurred on the date (related with the corresponding magnitude and the region)

$$1991\text{-}06\text{-}20\ \left(M_{up}(1991, \text{loc. max.}) = 7.5\right),\ \text{Minahasa, Sulawesi, Indonesia.} \tag{20}$$

Based on the third combination of strongest earthquakes occurred on the dates (19) and (20) and using the following corresponding calculated (under the first approximation) numerical values

$$\Delta_{g,S,P}(1985)\sin\varphi(1985\text{-}03\text{-}03) = 3821.5981, \tag{21}$$

$$\Delta_{g,S,P}(1991)\sin\varphi(1991\text{-}06\text{-}20) = 1189.9564, \tag{22}$$

we have calculated the third magnitude (of the possible strong earthquake of the Earth, which can occur on March 4, 2021 AD for the corresponding value (6)):

$$\begin{aligned} &M_{up}(\text{March 4, 2021 AD, loc. max., 3}) = M_{up}(1991, \text{loc. max.}) \\ &+\frac{\left(M_{up}(1985, \text{loc. max.}) - M_{up}(1991, \text{loc. max.})\right)}{\left(\Delta_{g,S,P}(1985)\sin\varphi(1985\text{-}03\text{-}03) - \Delta_{g,S,P}(1991)\sin\varphi(1991\text{-}06\text{-}20)\right)} \\ &\times\left(\Delta_{g,S,P}(2021)\sin\varphi(\text{March 4, 2021 AD}) - \Delta_{g,S,P}(1991)\sin\varphi(1991\text{-}06\text{-}20)\right) \\ &= 8.13906. \end{aligned} \tag{23}$$

The mean magnitude (of the calculated first, second and third variants (13), (18) and (23) of magnitude)

$$M_{up}(\text{March 4, 2021 AD, loc. max.}) = 8.0998, \tag{24}$$

is very close to the real maximal magnitude M = 8.1 (according to the U.S. Geological Survey) of the strongest (during the considered range from October 27, 2020 to May 17, 2021 AD) earthquake of the Earth occurred on March 4, 2021 AD.

3.2. The Confirmed Cosmic Energy Gravitational Genesis of the Strongest Continental Chinese, Japanese and Greek Earthquakes

Taking into account that the calculated (in advance) date (Simonenko, 2019) $t^*(\tau_{c,r}, 2021) = 2021.1$ AD is related with the local maximal combined planetary and solar integral energy gravitational influence (3), we have mentioned (on October 6, 2020 (Simonenko, 2020)) the established (Simonenko, 2018) cosmic energy gravitational genesis of the strongest Japanese, Italian, Greek, Chinese and Chilean earthquakes.

We have evaluated and presented (as the main result No. 2) the validity of the established (Simonenko, 2018) genesis on the 12th International Conference on Geology and Geophysics for China, Japan and Greece. **Table 1** presents the analysis of the previous strongest continental Chinese (j = 3), Greek (j = 2) and Japanese (j = 1) earthquakes occurred on the dates $t_e(2021, j)$ during the range from October 27, 2020 AD to May 17, 2021 AD near the calculated (Simonenko, 2019) date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD of the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth.

We see that the considered strongest continental Chinese (j = 3), Greek (j = 2) and Japanese (j = 1) earthquakes occurred near the calculated (Simonenko, 2019) date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD (of the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth).

3.3. The Explanation of the Magnitude 7.7 of the Strongest Continental Chinese Earthquake Occurred on May 22, 1927 AD in Gansu-Qinghai Border Region, China

We have considered (in report made on the 12th International Conference on Geology and Geophysics) the possibility to explain (based on the thermohydrogravidynamic technology (Simonenko, 2021a, 2021b)) the magnitude 7.7 (according to the U.S. Geological Survey) of the strongest continental Chinese earthquake occurred on May 22, 1927 AD in Gansu-Qinghai border region, China. To explain the magnitude 7.7 of the strongest continental Chinese earthquake occurred on May 22, 1927 AD in Gansu-Qinghai border region, China, we have analyzed the strongest continental Chinese earthquakes occurred from 1900 AD to 1927 AD on the two-dimensional plane $(M_{up}(i, \text{loc. max.}), \Delta_{g,S,P}(i)\sin\varphi(i))$ (Simonenko, 2021a, 2021b).

We calculated the following numerical value corresponding to the strongest continental Chinese (and world) earthquake (realized near the date $t^*(\tau_{c,r}, 1927) = 1927.13333333$ AD corresponding to the local maximal combined planetary and solar integral energy gravitational influence (3)) occurred on May 22, 1927 AD in Gansu-Qinghai border region:

$$\Delta_{g,S,P}(1927)\sin\varphi(1927\text{-}05\text{-}22) = 3825.4679. \quad (25)$$

We have made the vast numerical analysis of the previous strongest continental Chinese earthquakes occurred from 1900 AD to 1927 AD near the dates $t^*(\tau_{c,r}, i)$ (i = 1900, 1901, …, 1927) corresponding to the local maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth. **Table 2** presents the final result for the narrow numerical range $\Delta_{g,S,P}(i)\times\sin\varphi(i) = 2798.155 \div 3825.4679$ containing the numerical value (25). We see that the final result (presented in **Table 2**) includes only the strongest continental Chinese earthquakes occurred on 1908 AD, 1924 AD and 1927 AD during the numerical range $\Delta_{g,S,P}(i)\times\sin\varphi(i) = 2798.155 \div 3825.4679$.

Based on the binary combination of the strongest continental Chinese earthquakes occurred on the following dates (taken from **Table 2**)

$$1908\text{-}08\text{-}20\ \ (M_{up}(1908, \text{loc. max.}) = 6.9),\ \text{western Xizang}, \quad (26)$$

$$1924\text{-}10\text{-}08\ \ (M_{up}(1924, \text{loc. max.}) = 6.5),\ \text{western Xizang}, \quad (27)$$

characterized by the following corresponding calculated numerical values:

$$\Delta_{g,S,P}(1908)\sin\varphi(1908\text{-}08\text{-}20) = 3198.1133, \quad (28)$$

$$\Delta_{g,S,P}(1924)\sin\varphi(1924\text{-}10\text{-}08) = 2798.155, \quad (29)$$

we have evaluated the magnitude $M_{up}^{Ch}(\text{May } 22,1927,\text{loc. max.})$ (based on the linear extrapolation) of the possible strong continental Chinese earthquake, which can occur on the date 1927-05-22 (May 22, 1927) corresponding to the numerical value (25):

$$\begin{aligned} M_{up}^{Ch}(\text{May } 22,1927,\text{loc. max.}) &= M_{up}^{Ch}(1924,\text{loc. max.}) \\ &+ \frac{\left(M_{up}^{Ch}(1908,\text{loc. max.}) - M_{up}^{Ch}(1924,\text{loc. max.})\right)}{\left(\Delta_{g,S,P}(1908)\sin\varphi(\text{1908-08-20}) - \Delta_{g,S,P}(1924)\sin\varphi(\text{1924-10-08})\right)} \\ &\times\left(\Delta_{g,S,P}(1927)\sin\varphi(\text{1927-05-22}) - \Delta_{g,S,P}(1924)\sin\varphi(\text{1924-10-08})\right) \\ &= 7.5274, \end{aligned} \tag{30}$$

which is near to the real maximal magnitude M = 7.7 (according to the U.S. Geological Survey) of the strongest continental Chinese earthquake occurred on 1927-05-22 (May 22, 1927). It is a fairly good agreement if we take into account that the numerical magnitude (30) is calculated based on the first approximation of the circular orbits of the planets around the Sun and disregarding the lunar integral energy gravitational influence on the internal rigid core $\tau_{c,r}$ of the Earth. We have presented this fairly good agreement as the main result No. 3 on the 12th International Conference on Geology and Geophysics.

4. Conclusion

We have established the good agreement between the real maximal magnitude M = 8.1 (according to the U.S. Geological Survey) of the strongest (during the considered range from October 27, 2020 to May 17, 2021 AD) earthquake (occurred on March 4, 2021 AD) and the evaluated (based on the thermohydrogravidynamic technology (Simonenko, 2021a, 2021b)) mean magnitude $M_{up}(\text{March 4, 2021 AD,loc. max.}) = 8.0998$ of the possible strong earthquake of the Earth, which can occur on March 4, 2021 AD. The good agreement between the evaluated narrow range of the possible magnitudes 8.0624 ÷ 8.13906 characterized by the mean magnitude 8.0998 of the possible strong earthquake of the Earth (which can occur on March 4, 2021 AD) and the real maximal magnitude M = 8.1 of the strongest earthquake of the Earth occurred on March 4, 2021 AD (near the calculated (Simonenko, 2019) date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD means that the magnitudes of the strongest earthquakes of the Earth (occurred near the local maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth) are theoretically explainable. We have concluded (as the conclusion made on the 12th International Conference on Geology and Geophysics) that the maximal magnitudes of the strongest earthquakes of the Earth (occurred near the calculated (in advance) dates $t^*(\tau_{c,r}, i)$ of the local maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth) can be predicted (in advance) based on the established (Simonenko, 2021a, 2021b) thermohydrogravidynamic technology.

We have evaluated and presented (as the main result No. 2 on the 12th Inter-

national Conference on Geology and Geophysics) the validity of the previous mention (made on October 6, 2020 AD (Simonenko, 2020)) concerning the established (Simonenko, 2018) cosmic energy gravitational genesis of the strongest Chinese, Japanese and Greek earthquakes occurred near the calculated date $t^*(\tau_{c,r}, 2021) = 2021.1$ AD (Simonenko, 2019) of the local maximal combined planetary and solar integral energy gravitational influence (3).

We have evaluated and presented (as the main result No. 3 on the 12th International Conference on Geology and Geophysics) the maximal magnitude $M_{up}^{Ch}(\text{May } 22, 1927, \text{loc. max.}) = 7.5274$ of the possible strong continental Chinese earthquake, which can occur on May 22, 1927 AD. The fairly good agreement between the evaluated magnitude $M_{up}^{Ch}(\text{May } 22, 1927, \text{loc. max.}) = 7.5274$ and the real maximal magnitude M = 7.7 (according to the U.S. Geological Survey) of the strongest continental Chinese (and simultaneously the world) earthquake occurred on May 22, 1927 AD means that the magnitudes of the strongest continental Chinese earthquakes (occurred near the dates $t^*(\tau_{c,r}, i)$ of the local maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth) are theoretically explainable. We have concluded (as the conclusion No. 2 on the 12th International Conference on Geology and Geophysics) that the magnitudes of the strongest continental Chinese earthquakes (occurred near the dates $t^*(\tau_{c,r}, i)$ of the calculated local maximal combined planetary and solar integral energy gravitational influences (3) on the internal rigid core $\tau_{c,r}$ of the Earth) can be predicted (in advance) based on the established thermohydrogravidynamic technology (Simonenko, 2021a, 2021b).

We have calculated the forthcoming date $t_*(\tau_{c,r}, 2022) = 2022.716666666$ AD (corresponding to the local minimal combined planetary and solar integral energy gravitational influence (4) on the internal rigid core $\tau_{c,r}$ of the Earth) and the next forthcoming date $t^*(\tau_{c,r}, 2023) = 2023.26666666$ AD (corresponding to the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth). The developed thermohydrogravidynamic technology (Simonenko, 2021a, 2021b) can be used for evaluation of the maximal magnitude of the strongest earthquake of the Earth near the calculated forthcoming date $t^*(\tau_{c,r}, 2023) = 2023.26666666$ AD related with the local maximal combined planetary and solar integral energy gravitational influence (3) on the internal rigid core $\tau_{c,r}$ of the Earth. The developed thermohydrogravidynamic technology can be used for evaluation of the maximal magnitudes of the strongest Japanese, Greek and continental Chinese earthquakes near the calculated forthcoming date $t^*(\tau_{c,r}, 2023) = 2023.26666666$ AD for Japan, Greece and China, for which we have confirmed the established previously (Simonenko, 2018) cosmic energy gravitational genesis of the strongest earthquakes.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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