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SOME MYSTERIOUS CATASTROPHES OF THE LAST HUNDRED YEARS FROM THE POINT OF VIEW OF NON-LOCAL PHYSICS

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Quantum solitons are discovered with the help of generalized quantum hydrodynamics. The solitons have the character of the stable quantum objects in the self consistent electric field. The theory leads to solitons as typical formations in the generalized quantum hydrodynamics. The self-consistent theory of plasmoids cannot be constructed in the frame of local physics. Particularly these effects can be considered as explanation of the existence of the stable plasmoids, lightning balls and atoms with the separated electronic shell and the positive kernel. Three well known catastrophes (Tunguska explosion, Gagarin catastrophe, accident with Malaysia Airlines flight MH370) have the same physical origin – plasmoid appearance in the Earth atmosphere.

***Keywords**: quantum hydrodynamics, theory of plasmoids, Tunguska explosion, Gagarin catastrophe, accident with Malaysia Airlines flight MH370.*

Introduction

A ball lightning phenomenon has attracted the attention of researchers for more than two hundred years. Ball lightning is an atmospheric electrical phenomenon. The properties of a "typical" ball lightning are associated with:

1. Thunderstorms, but lasts considerably longer than the split-second flash of a lightning bolt.

2. Shapes that vary between spheres, ovals, tear-drops, rods, or disks.

3. Its capability to change form, split into fragments and penetrate through chinks.

4. Peculiar character of its movement (absence of convection, movement against the wind, floating along conductors).

5. The lifetime of each event is from 1 second to over a minute with the brightness remaining fairly constant during that time.

6. Quiet dying or destruction with explosion.

4. Absence of heat emission, and burns at close contact.

5. Its ability to penetrate through obstacles (glasses, nets) with or without damaging them.

6. The presence or absence of noise and odour, accompanying its appearance.

Ball lightning is often erroneously identified as St. Elmo's fire. St. Elmo's fire is named after St. Erasmus, the patron saint of sailors. The phenomenon sometimes appeared on ships at sea during thunderstorms. St. Elmo's light is a weather phenomenon in which luminous plasma is created by a coronal discharge from a sharp or pointed object in a strong electric field in the atmosphere.

The wide range of physical conditions exists under which events have been reported in nature (including unidentified flying objects like foo-fighters). Over the last century, there have been numerous attempts to produce an atmospheric ball lightning. The first reproducible experimental production of ball-lightning-like phenomena is attributed to Nicola Tesla during his infamous year at the Colorado Springs laboratory in 1899−1900, [1]. In January 1900, Tesla noted that "the phenomenon of the "fireball" is produced by the sudden heating, to high incandescence, of a mass of air or other gas as the case may be, by the passage of a powerful discharge."

Presence of electric discharges at heights from 30 to 150 km gives grounds to consider that possible unidentified flying objects (UFO) are giant ball lightning, which are formed in such discharges during the break-down. Large UFOs in diameter from 3 to 10 meters was observed also under a surface of water in the sea [2]. In this case the appearance of UFO can be connected with moving of tectonic plates.

As you see "the ball lightning" is not aptly called. More preferable name is plasmoid. The word plasmoid was coined in 1956 by Winston H. Bostick to mean a "plasma-magnetic entity". Hereafter we intend to use "plasmoid" in the extended sense for an object with the separated positive and negative charges – it does not matter whether the magnetic field is existing or not.

Moreover, the creation of the plasmoid theory means also the creation the theory of the atom structure with the simultaneous description of the electronic shell and the positive nucleus.

Tremendous number of papers is published in this area including review articles. I indicate only well-known monographs [3–6]. Many efforts have been made for theoretical explanation generation, structure and long lifetime of ball lightning. A number of models for the ball lightning have been developed. But all theoretical models have the same character features – they are developed in the frame of the local physics. Moreover, it was shown (see for example, [7, 8]) that local models have no chance for success.

Important conclusions follow from non-local quantum hydrodynamics:

1. Plasmoid (Ball lightning) is the non-equilibrium product of the matter self-organization,

placed in the finite domain of space. This non-equilibrium object has the excess charge (in comparison with the equilibrium state) of one sign along the radial direction and a deficit of the charge of another sign. The stability of the plasma object has been reached as the result of the equilibrium of forces of the electrostatic origin and kinetic pressure of the non-local origin.

2. Mathematical modeling realized in the frame of non-local physics leads to existence of the stable objects even in the absence of magnetic fields.

3. In the developed non-local theory no needs to use the external boundary conditions. The radial dimensionless size of plasmoid is a result of the self-consistent Cauchy solution of non-local equations and corresponds to the area of the solution existence.

4. The theory does not contain restrictions for the charge scales or the object sizes. No needs to introduce the convoying magnetic field. It is no surprise – the Schrödinger – Madelung atom theory is the theory of plasmoid with the separated charges (as postulate) without the magnetic confinement of the physical system.

5. As follows from calculations, two kinds of plasmoids (as minimum) can exist – namely, plasmoids, as product of plasma polarization, and plasmoids with atomic structures. Obviously the theory of the second type plasmoids describes (in the frame generalized quantum hydrodynamics) the atom structure with the coincident description of nucleus and the electron shell.

6. The controlled discharge should serve for the plasmoid production; this charge should follow the solution of the non-stationary non-local equations which leads to the stationary charge separation.

Remark again – the plasmoid theory can not be constructed in the frame of local physics.

2. Tunguska event

The Tunguska event was an enormously powerful explosion that occurred near the Podkamennaya Tunguska River in what is now Krasnoyarsk Krai, Russia, at about 07:14 (Krasnoyarsk local time, 00:14 Universal time) on June 30, 1908. The explosion had the epicenter 60°55′N 101°57′E. Tunguska explosion caused the felling of 80 million trees over area of over 2.000 square kilometers.

The explosion registered at seismic stations across Eurasia. The resulting shock wave was equivalent to an earthquake measuring 5.0 on the Richter scale. It also produced fluctuations in atmospheric pressure strong enough to be detected in Great Britain. Over the next few days, night skies in Asia and Europe were aglow. An explosion of this magnitude is capable of destroying a large metropolitan area; a tremendous sound wave traveled twice around the globe. Since then, dozens of research expeditions have visited the area, hundreds of scientific papers (mainly in Russian) have been written and several hundred hypotheses put forward about the causes of the event. Not one of them, however, has been able to explain fully the complex phenomena that preceded and accompanied the Tunguska explosion. Many scientists have participated in Tunguska studies; the best known are Leonid Kulik, Yevgeny Krinov, Kirill Florensky, N. V. Vasiliev. The results of their investigations are well known and have the free access in Internet.

From the first glance the simple explanation can be used for the Tunguska event (TE) – impact of the celestial bodies. The chief difficulty in the celestial impact hypothesis is that a stony object should have produced a large crater where it struck the ground, but no such crater has been found. Many people believe that the crater lies under the water of Lake Checko in Western Siberia. Yet, the scientists have found no object or material from this cosmic body itself.

Maybe we have with the probable airburst of small asteroid or comet? But a body composed of cometary material, travelling through the atmosphere along such a shallow trajectory, ought to have disintegrated, whereas the Tunguska object (TO) apparently remained intact into the lower atmosphere. The leading scientific explanation for the explosion is the air burst of an asteroid 6–10 kilometers above Earth's surface.

Practically all energy estimations are based on the asteroid version. Meteoroids enter Earth's atmosphere from outer space every day, travelling at a speed of at least 11 kilometers per second. In literature we have tremendous differences in estimations of size and mass of the object. Different studies have yielded widely varying estimates of the object's size, on the order of 60 m to 190 m.

If we have the stone spherical object which diameter are roughly 30 meters and the mass of about 10^8 kg moving with the velocity of 15 km/s, the kinetic energy of the object as large as $\sim 10^{16}$ joules. Obviously it is only the rough estimation biased to the concrete (maybe wrong) model. The “megaton of TNT” is a unit of energy equal to 4.184 petajoules. The Hiroshima bomb represented only $8 \cdot 10^{13}$ joules of energy. Thus, our estimate is that the Tunguska had an explosive energy on order of 2 MT of TNT. It was closer in effect to a very large H-bomb. Most likely estimates are between 10–15 megatons of TNT (42–63 PJ).

By the way the Tsar Bomba (the nickname for the AN602 hydrogen bomb) developed by the Soviet Union, the bomb had the yield of 50 to 58 megatons of TNT (210 to 240 PJ). Only one bomb of this type was ever officially built and it was tested on October 30, 1961, in the Novaya Zemlya archipelago, at Sukhoy Nos.

Many unusual effects convoyed this event; these effects cannot be explained from positions of the celestial impact. Really,

1. Many meteorological factors point towards the possibility of a meteorological event occurring. There was evidence of strong cyclones near Siberia that summer. Significant increases in air pressure were associated with the area at that time. Increased thunderstorm activity and intensity inundated Siberia. Witness accounts detail hearing thunder and seeing lightning as the event occurred. Perhaps there is some credit to the theory that the Tunguska event transpired as a meteorological occurrence.

2. It was established that the zone of leveled forest occupied an area of some 2.150 square kilometers with the shape resembling a gigantic spread-eagled butterfly with a "wingspan" of 70 kilometers and a "body length" of 55 kilometers. Upon closer examination it was found that several explosions took place. Siberian Life newspaper (July 27, 1908) reported about some kind of artillery barrage, that repeated in intervals of 15 minutes at least 10 times.

3. In the 10 days before the explosion, in many countries of Europe as well as western Siberia, the darkness of night was replaced by an unusual illumination as if those areas were experiencing the "white nights" phenomenon of high-latitude summers. Everywhere there appeared, shining brightly in the twilight of dawn and dusk, silvery clouds stretching east to west that formed like along "the lines of force". Professor Weber about a powerful geo-magnetic disturbance observed in a laboratory at Kiel University in Germany for three days before the intrusion of the Tunguska object, and which ended at the very hour after the explosion in the Central Siberian Plateau. There was a sense of the approach of some unusual natural phenomenon.

4. Some climatologists and scientists concur that the Tunguska event caused major damage to the air layer of the mesosphere. These atmospheric changes resulted in an ozone depletion lasting up to four years after the event. A cooling trend in the years following the 1908 event was recorded in weather records around the Earth.

5. The TO followed a trajectory from southeast to northwest. It was the discrepancies in the accounts of eyewitnesses – who at one and the same time observed objects above areas of Siberia far remote from one another, moving on different courses but towards a single point – that confused researchers, prompting the hypothesis that it was probably a spaceship that had been maneuvering above the Siberian taiga. Meteorites and comets do not fly like that!

6. The reports contain information about objects moving slowly, parallel to the Earth's surface, sometimes stopping, changing course and speed. Thousands of observers could not have mistaken what they saw, as the sky was cloudless that morning. People living within a radius of over 800 km from the place where the cosmic intruder fell observed the unusual flight of enormous fiery bodies giving off sparks and leaving rainbow trails behind them. As result, one of hypothesis sounds that they did not all see one and the same object, but several different bodies.

One other possible cause of the Tunguska event which can explain all main character features of the TE, is plasmoid (ball lightning). It can move horizontally, hover or in a zigzag motion. It is not a new idea, but until now, ball lightning was a phenomenon not consensually understood in the scientific world. The non-local theory of plasmoids gives grounds to solve the TO problem.

Energy content of plasmoids has no restrictions in comparison with the chemical models. The energy density is defined by the initial conditions of the plasmoid creation and calls for the application of the non-stationary models. It has been known about the very large plasmoids with diameter up to 260 m.

As it follows from the calculations, the separated charges in plasmoid can correspond to the model of the spherical capacitor. The maximum energy that can be stored in a capacitor is limited by the breakdown voltage. But the breakdown process can have rather lengthy character realized in the several stages. This fact can explain the anomalies in the forest felling.

The spherical capacitor energy W is written as:

$$W = 2\pi\varepsilon_0\varepsilon\frac{R_1R_2}{R_2 - R_1}(\Delta\psi)^2, \qquad (1)$$

where $\Delta\psi = \psi_1 - \psi_2$, is the potential difference between the conductors for a given charge q on each. The voltage between the spheres can be found by integrating the electric field along a radial line:

$$\Delta\psi = \psi_1 - \psi_2 = \frac{q}{4\pi\varepsilon_0\varepsilon}\int_{R_1}^{R_2}\frac{dr}{r^2} = \frac{q}{4\pi\varepsilon_0\varepsilon}\left(\frac{1}{R_1} - \frac{1}{R_2}\right), \qquad (2)$$

If radius $R_2 >> R_1$, then

$$W = 2\pi\varepsilon_0\varepsilon R_1(\Delta\psi)^2. \qquad (3)$$

The force $\mathbf{F} = -\frac{dW_p}{dr}\frac{\mathbf{r}}{r}$, acting on the internal conductor:

$$F_{\text{in}} = -\frac{\partial W_p}{\partial R_1} \cong 2\pi\varepsilon_0\varepsilon(\Delta\psi)^2, \qquad (4)$$

does not depend in the first approximation on the radius of the internal sphere. For the external sphere, the force acts in the opposite direction:

$$F_{\text{ex}} = -\frac{\partial W_p}{\partial R_2} = -2\pi\varepsilon_0\varepsilon_1(\Delta\psi)^2\frac{R_1^2}{(R_2 - R_1)^2}. \qquad (5)$$

If $R_2 >> R_1$, then

$$F_{\text{ex}} = -\frac{\partial W_p}{\partial R_2} = -2\pi\varepsilon_0\varepsilon_1(\Delta\psi)^2\left(\frac{R_1}{R_2}\right)^2, \qquad (6)$$

If for the TO $W = 10^{16}$ J, radius of the internal sphere is 100 m, $\varepsilon = 1$, then $\Delta\psi = 1.34 \cdot 10^{12}$ V.

Electrostatic generator (which uses a moving belt to accumulate very high amounts of electrical potential on a hollow metal globe on the top of the stand) was invented by American physicist Robert J. Van de Graaff in 1929. The potential difference achieved in Van de Graaff generators reaches $7 \cdot 10^6$ volts in the 30th of the last century.

A Marx generator (Arkadyev – Marks generator in the Russian scientific literature) generates a high-voltage pulse. The circuit generates a high-voltage pulse by charging a number of capacitors in parallel, then suddenly connecting them in series. Marx generators are used in high energy physics experiments, as well as to simulate the effects of lightning on power line gear and aviation equipment. The high-voltage pulse can reach up to 10^7 V. The mega-joule estimates are known for the ball lightings.

It is stated that the ball lighting explosion damages the plane navigation equipment, but it is the theme of the next section.

3. About a version of the Yuri Gagarin air crash

In 1960, after much searching and a selection process, Yuri Gagarin was chosen with many other pilots for the Soviet space program. A Soviet Air Force doctor evaluated his personality as follows:

"Modest; embarrasses when his humor gets a little too racy; high degree of intellectual development evident in Yuri; fantastic memory; distinguishes himself from his colleagues by his sharp and far-ranging sense of attention to his surroundings; a well-developed imagination; quick reactions; persevering, prepares himself pain-stakingly for his activities and training exercises, handles celestial mechanics and mathematical formulae with ease as well as excels in higher mathematics; does not feel constrained when he has to defend his point of view if he considers himself right; appears that he understands life better than a lot of his friends."

Gagarin was also a favored candidate by his peers. When the 20 candidates were asked to anonymously vote for which other candidate they would like to see as the first to fly, all but three chose Gagarin. On 12 April 1961, aboard the Vostok 1, Gagarin became both the first human to travel into space, and the first to orbit the earth.

On 27 March 1968, while on a routine training flight from Chkalovsky Air Base, he and flight instructor Vladimir Seryogin died in a MiG-15UTI crash near the town of Kirzhach. The bodies of Gagarin and Seryogin were cremated and the ashes were buried in the walls of the Kremlin on Red Square. It was the tragedy of the national scale, (read more for example: [9–16]). The cause of the crash that killed Gagarin is not entirely certain, and has been subject to speculation about conspiracy theories over the ensuing decades.

In April 2011, documents from a 1968 commission set up by the Central Committee of the Communist Party to investigate the accident were declassified. Those documents revealed that the commission's original conclusion was that Gagarin or Seryogin had maneuvered sharply either to avoid a weather balloon, leading the jet into a "super-critical flight regime and to its stalling in complex meteorological conditions," or to avoid "entry into the upper limit of the first layer of cloud cover".

Soviet documents declassified in March 2003 showed that the KGB had conducted their own investigation of the accident, in addition to one government and two military investigations. The KGB's report dismissed various conspiracy theories.

In the years and decades that followed, rumors swirled about Gagarin's death. No reason to discuss fantastic hypotheses on the level of the provocation like "Had Gagarin been drinking?" or "Was he distracted, taking pictures of birds from the air when he should have been paying attention to his aircraft?"

About the aim of the Gagarin air plane flight, pilot-cosmonaut Vladimir Aksenov wrote in his book "The Roads of Tests":

"Gagarin and Yevgeny Khrunov were supposed to be the first to go through check flights. According to flight rules, check flights, prior to independent flights, could be conducted by the heads of flight departments, rather than instructor pilots. They could be squadron commanders, deputy commanders and commanders of regiments. So it was Vladimir Seryogin, the regiment commander, who joined Yuri Gagarin in the check flight. Another important peculiarity of that check flight was as follows: it was a flight in the area for the execution of complex aerobatics stunts. In classical training programs, the check flight and the first solo flight are performed on the so-called "box" that is, takeoff, height gain, flying around the airfield, landing approach and landing. Prior to solo flights in the area to perform aerobatic maneuvers, another check flight should be made." It should be added that V. Seryogin was the leading test-pilot for the plane MiG-15UTI.

The KGB report states that an air traffic controller provided Gagarin with outdated weather information, and that by the time of his flight, conditions had deteriorated significantly. Vladimir Aksenov writes: "On that day clouds were unusual. The lower edge of almost continuous clouds was

about 600 meters above the ground. Then, 4,000 meters above, there were only dense clouds. The upper edge was flat, and there were no clouds above that - there was a clear sky and very good visibility." The last message from the MiG-15UTI contains information (without unusual emotions in the voice), that the check-flight is finished and they return to landing. Further on the height less than 4,000 meters the plane entered in the clouds.

Here is an extract from the book of distinguished test pilot of the USSR Stepan Mikoyan "We Are Children of War. Memoirs of a Military Test Pilot":

"The time determined by imprints of the hands of the remains of aircraft clock and Gagarin's watch differed by about 15 seconds. That moment occurred only in 45-60 seconds after the last broadcast from Gagarin that was recorded on the magnetic tape." The investigation concluded that Gagarin's aircraft executes the maneuver trying to avoid the collision with unknown object. The hypotheses about possible objects like balloons or flocks of birds should be ruled out – too high for birds and no traces of the balloon on the place of the crash.

The investigation concluded that:

1. The maneuver led to the aircraft going into a tailspin and crashing, killing both men.

2. Gagarin and Seryogin have the control until the end.

3. The crew believed their altitude to be higher than it actually was, and could not react properly to bring the MiG-15 out of its spin. It was discovered that altitude sensor was out of order but the crew believed – their altitude to be higher than it actually was.

4. The plane was not destroyed in the air. It means that the plane with outboard tanks had the overloads less than 8 which were not unusual for the crew.

5. The reading of the pressure sensor scale displayed that the glass cockpit was destroyed. *Only* 2/3 of the glass splits were discovered on the crash place, *for other parts* ~96%. It means that cockpit was destroyed in air.

Hypotheses that a cabin air vent was accidentally left open by the crew or the previous pilot, leading to oxygen deprivation and leaving the crew incapable of controlling the aircraft, cannot be true. The height of about or even less than 4,000 meters is usual for alpinists. For example, the "Shelter of 11" (4.130 m) was a hotel near Elbrus. Large groups of climbers would usually leave this base camp at 2-3am to challenge the summit.

In his 2004 book Two Sides of the Moon, Alexey Leonov, who was part of a State Commission established to investigate the death in 1968, recounts that he was flying a helicopter in the same area that day when he heard "two loud booms in the distance". Corroborating other theories, his conclusion is that a Sukhoi jet (which he identifies as a Su-15) was flying below its minimum allowed altitude, and "without realizing it because of the terrible weather conditions, he passed within 10 or 20 meters of Yuri and Seregin's plane while breaking the sound barrier". The resulting turbulence would have sent the MiG into an uncontrolled spin. Leonov believes the first boom he heard was that of the jet breaking the sound barrier, and the second was Gagarin's plane crashing. In a June 2013 interview with Russian television network RT, Leonov said that a declassified report on the incident revealed the presence of a second, "unauthorized" Su-15 flying in the area. Leonov states that "the aircraft reduced its echelon at a distance of 10–15 meters in the clouds, passing close to Gagarin, turning his plane and thus sending it into a tailspin – a deep spiral, to be precise – at a speed of 750 kilometers per hour".

It is the very significant evidence which was checked by cosmonaut Tolboyev. He said (for example during the television interview on January, 7 (2013)) that the special experiments were organized; during the Su-15 flight two MiG-15 UTI entered in the turbulent wake of Su-15. In all cases both MiG-15 UTI were pushed out from the stream without going into a tailspin.

Interesting information from cosmonaut Tolboyev during this interview – he retailed about the aviation accident in the Russian Ahtuba aviation division. The pilot broadcasted about the UFO (unknown flying object). He was commanded to return immediately for landing, but the pilot tried to close to this object. The result – he was landing with the tremendous difficulties without cabin electronics.

I believe that the cause of the Gagarin accident consists in the impact of the MiG 15 UTI with plasmoid.

4. Accident with Malaysia Airlines flight MH370

Let us consider other mystery accidents from this point of view. For example, the Malaysia Airlines flight MH370 with 239 people onboard. It "lost all contact" with Subang Air Traffic Control at 2:40 a.m., two hours into the flight. The plane was expected to land in Beijing at 6:30 a.m. Saturday (on March 8, 2014). Known facts:

1. Around the time the plane vanished, the weather was fine and the plane was already at cruising altitude, making its disappearance all the more mysterious. Just 9 percent of fatal accidents happen when a plane is at cruising altitude, according to a statistical summary of commercial jet accidents done by Boeing.

2. Military radar indicated that the plane may have turned from its flight route before losing contact. Aviation sources in China report that radar data suggest a steep and sudden descent of the aircraft, during which the track of the aircraft changed from 024 degrees to 333 degrees.

3. A Malaysia Airlines plane sent signals to a satellite for four hours after the aircraft went missing, an indication that it was still flying for hundreds of miles or more. Boeing offers a satellite service that can receive a stream of data during flight on how the aircraft is functioning and relay the information to the plane's home base. Malaysia Airlines not a subscriber to Boeing service but still automatically sent pings to satellite. If the plane had disintegrated during flight or had suffered some other catastrophic failure, all signals — the pings to the satellite, the data messages and the transponder – would be expected to stop at the same time.

4. There was no distress signal. The lack of a radio call suggests something very sudden and very violent happened.

5. The plane had enough fuel for four more hours of flight. The plane lost all contact and radar signal one minute before it entered Vietnam's air traffic control.

6. Officials said two men, later identified as Iranians, boarded the plane with stolen passports. It was later reported that they were unlikely to be linked to terrorist groups.

7. The plane was last inspected 10 days before the accident and found to be in proper condition.

Investigators have not ruled out any possible cause for the plane's disappearance. As result, experts say one possibility that could explain why the transponders were not working is that the pilot, or a passenger, likely one with some technical knowledge, switched off the transponders in the hope of flying undetected.

It is known that the appearance of the ball lightning in the airplane is dangerous, because it can cause a short circuit and hence lead to crash of the airplane. Plasmoids were really observed on board the air-plane [17]. Taking into account the plasmoid theory created by me, we can make the preliminary conclusions:

a) The accident has very sudden and very violent character. The aircraft was partly disintegrated, as result – the loss of pressure and practically of all electronic equipment.

b) The loss of pressure was so severe that it knocked passengers and crew out.

c) In this case, the pilots should have been able to react quickly and connect to oxygen masks, but didn't. The plane transformed into, so to speak, "flying Dutchman". The aircraft flew for the rest hours until it ran out of fuel and crashed. Really, the aircraft has fuel for ~ four hours for flight, and plane sent signals to a satellite for four hours after the aircraft went missing. This fact indicates the possible area of the crash. But this area has no site for landing. In its turn it excludes the version of hijacking.

d) It should be added that the area of the plane crash contains the boundary between two tectonic plates, the Burma plate and the Sunda Plate. The boundary between two major tectonic plates results in high seismic activity, anomalous atmospheric and ocean events in the region. Numerous earthquakes have been recorded, and at least six, in 1797, 1833, 1861, 2004, 2005 and 2007, had the magnitude of 8.4 or higher. On December 26, 2004, a large portion of the boundary between the Burma Plate and the Indo-Australian Plate slipped, causing the 2004 Indian Ocean earthquake. This earthquake had a magnitude of 9.3. Between 1300 and 1600 kilometers of the boundary underwent thrust faulting and shifted by about 20 meters, with the sea floor being uplifted several meters. This rise in the sea floor generated a massive tsunami with an estimated height of 28 meters that killed approximately 280.000 people along the coast of the Indian Ocean.

Now the final reasonable conclusions could be done from the position of the previous theory:

1. Malaysia Airlines flight MH370 met the atmospheric plasmoid.

2. This isn't the only time a plane has disappeared without a trace or sparks an investigation surrounded by confusion. It is reasonable to look back at other baffling aviation disasters (this quantity may as much as 14%) from the formulated point of view.

3. The special programme should be developed for avoiding this class of accidents.

Conclusion

From the point of view of non-local physics the Tunguska explosion, Gagarin catastrophe and accident with Malaysia Airlines flight MH370 can have the same physical origin – plasmoid appearance in the Earth atmosphere.

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НЕКОТОРЫЕ ТАИНСТВЕННЫЕ КАТАСТРОФЫ ПОСЛЕДНИХ СТА ЛЕТ С ПОЗИЦИИ НЕЛОКАЛЬНОЙ ФИЗИКИ

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Обобщенная квантовая гидродинамика приводит к существованию квантовых солитонов. Солитоны образуют стабильные квантовые объекты в самосогласованном электрическом поле. Теория позиционирует солитоны как типичные образования в обобщенной квантовой гидродинамике. Самосогласованная теория плазмоидов в принципе не может быть построена в рамках локальной физики. Упомянутые эффекты могут рассматриваться как объяснение существования стабильных плазмоидов, шаровых молний и атомов с раздельными электронной оболочкой и ядром. Три известных катастрофы (взрыв Тунгусского объекта, гибель Гагарина и Серегина и исчезновение Боинга 777 рейса MH370) имеют однотипное физическое происхождение – появление плазмоида в атмосфере Земли.

Ключевые слова: *квантовая гидродинамика, теория плазмоидов, взрыв Тунгусского объекта, гибель Гагарина, исчезновение Боинга 777 рейса MH370.*