The unique experiment of Nature

by Peter Jakubowski

(*Duesseldorf, 21th November 2017*)

1. Introduction

For 3.5 billion years Nature has run an uninterrupted experiment involving the continuous evolution of higher developed life forms. This is Nature's first and final experiment. Humans are its most recent manifestation. And at the rate we're going, perhaps its last. Unlike any other creature on this planet we are not only subjects of that experiment but also independent objects, able to change the outcome of the experiment because of our ability to consciously choose. Yet despite our relative *consciousness* about this role we don't exercise much *conscientiousness* about it. Is it possible we actually don't care about the outcome?

Today, our world has reached an apotheosis in which we are actually capable of ultimately destroying this unique experiment. But even if we're not that stupid to act so drastically, we might nevertheless be intervening in this experimental process by virtue of our (as yet) insufficient knowledge about what we're doing. For example, we are misusing the natural variability of the global climate to establish new profitable branches of industry, to instigate fear among the poorly educated peoples, and to funnel their financial resources into a few select pockets. And it is this very same poor education that has ill equipped us to comprehend a vital point; *that the experiment of Nature is running on a much broader stage than that of our blue planet.*

Unified Physics has demonstrably shown that we cannot understand the enormous risks of the experiment of Nature as long as we constrict our perspective to our terrestrial horizon. Fortunately for our children and the next generations, the climate poker is over now. But there are two other hazards connected with Nature's experiment. And according to those two challenges we are still completely inept at reacting appropriately.

2. Enhanced frequency of the strongest earthquakes

The first of those hazards is the startlingly increased at the beginning of 20th century probability of the strongest earthquakes, as shown in Figure 1. The first necessary step to act against the still lasting danger of such earthquakes is our deeper understanding what and why is going on. Since 1897, the frequency of the earthquakes with the magnitude 7 or higher is jerky increased, from 2.4 to 9.5 per year. Nobody even asks, and of course nobody thus knows, why. According to the new paradigm of the Unified Physics, the reason is the same as in the case of the global climate variability. Our Earth is not an isolated object in Universe. It belongs to the huge Cosmic Hierarchy of the Solar System. The three lowest levels of the hierarchy can be schematically imagined as shown in Figure 2 below.

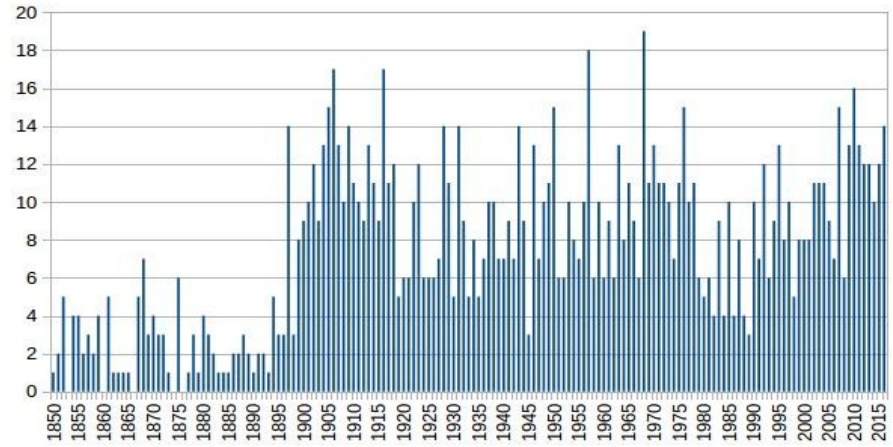

Fig. 1. Worldwide annual frequency of the earthquakes with magnitude 7 or higher.

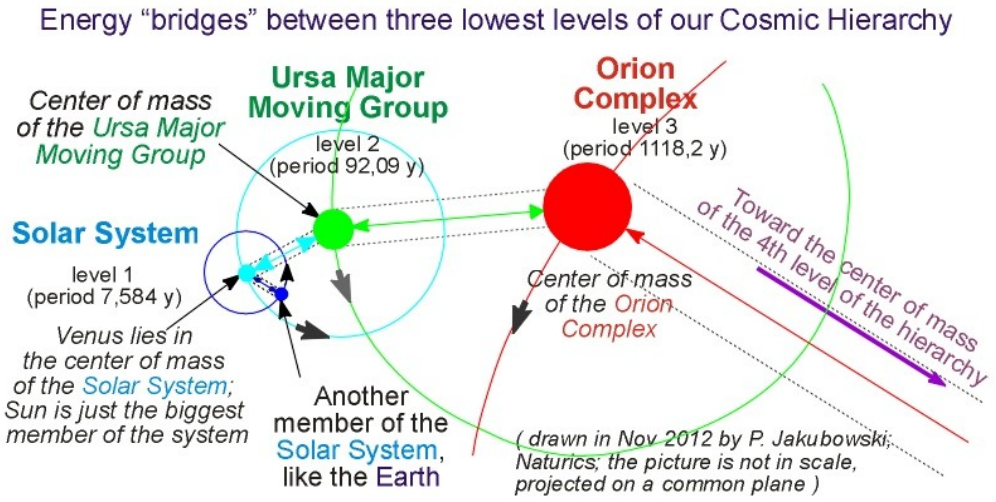

Fig. 2. Three lowest levels of our Cosmic Hierarchy of the Solar System.

The energy absorbed - mostly during cosmic impacts - by an individual object of the hierarchy reaches its maximum when this object crosses the corresponding energy "bridge" between the object own level and the center of mass of the higher hierarchy member. The crossing of such an energy bridge rises the transferred energy hundredfold in comparison with the long period outside the bridge. Therefore we call such a bridge crossing as a cosmic quantum jump, as shown in Figure 3 for an arbitrary level n. There are always 12.1428 sub-intervals of level n-1 between any two jumps of level n.

As we see in Figure 3, the last but one (the eleventh) sub-jump marks (in red) an enhanced interaction between the satellite of the level n-1 and the center of mass of level n (*compare Figure 2*). What does it mean practically for our Earth being one of the smallest satellites in this hierarchical motion inside of the huge Cosmic Hierarchy? Every 92.09 years, we are crossing (together with the entire Solar System) the energy bridge between Ursa Major Moving Group and the center of mass of the Orion Complex. And every 1118.2 years, we are crossing the energy bridge between Orion Complex and the center of mass of the Omega Centauri Cluster (level 4). Let us include into Figure 1 the corresponding quantum jumps during the period between 1850 and now. The result is shown in Figure 4.

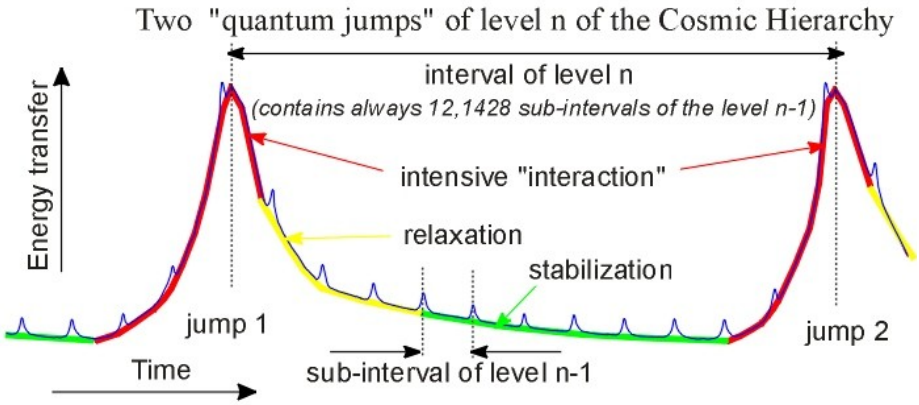

Fig. 3. Two adjacent quantum jumps of level n of the Cosmic Hierarchy

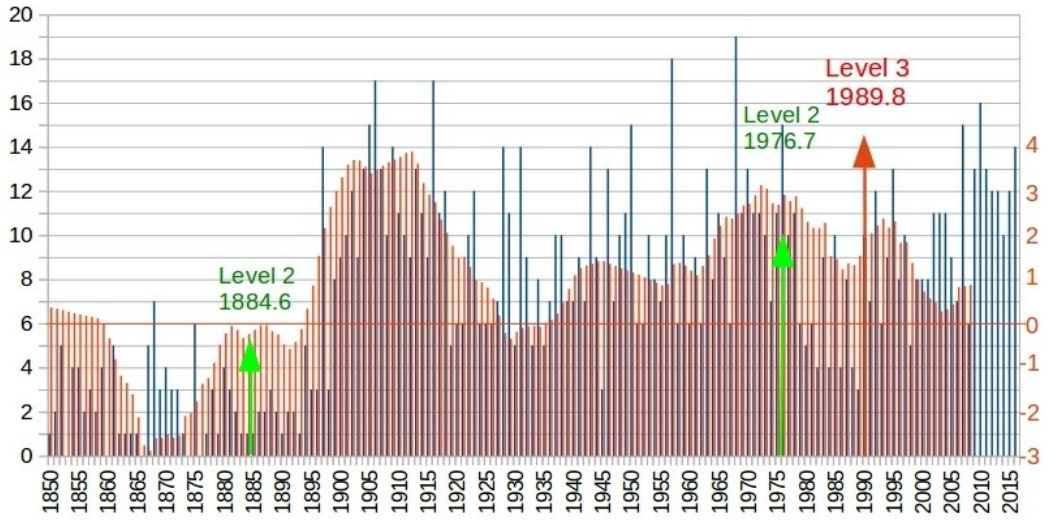

Fig. 4. A comparison of the earthquakes frequency with the length-of-day variations (or Earth's rotation changes) since 1850 till 2016.

The blue lines in Figure 4 (*like in Figure 1*) give on the left scale the annual number of the earthquakes with magnitude 7 or higher. The orange lines give on the right scale the change of the day length in ms in relation to the standard length of 86400 second. The positive change means a slower Earth's rotation, the negative numbers - a quicker rotation. The red arrow marks the recent cosmic quantum jump of level 3 (the beginning of our present *First Global* civilization), the green arrows show two recent jumps of level 2 of the previous (*Medieval*) civilization.

There are three new discoveries resulting from the data of Figure 4. Firstly, we see that the earthquakes are clearly correlated with the changes in the Earth's rotation. The correlation is not static but dynamic. It means, the highest earthquakes frequencies accompany the larger variations in the Earth's rotation. Secondly, the jerky rise in the earthquakes frequency around the end of the 19th century seems to be connected with the ending phase of the previous period of level 3 of our Cosmic Hierarchy. And thirdly, the long period of the enhanced earthquakes frequency still continues up to now. How long yet? Can we give any reasonable forecast? Yes, we can. We have collected enough knowledge in order to imagine for ourselves, what is going on on the cosmic scale of our Cosmic Hierarchy. Let us consider it in more details now.

When flying with an airplane, we sometimes hear the airplane captain advising the passengers to tighten theirs seat-belts, because the airplane is entering a space with strong turbulences. Figures 2

and 3 suggest that our Earth enters exactly such a turbulent region of the cosmic space each time if we cross the corresponding energy bridge. The red section (of intensive "interaction") in Figure 3 shows that we enter the turbulences as early as around one sub-level period before we reach the top of the cosmic quantum jump. In the case of the recent jump of level 3 (with its top in November 1989), Earth has entered the cosmic turbulences shortly after the last but one sub-period of level 2 (in summer 1884), as demonstrated in Figure 5. As mentioned above, the annual frequency of the strongest earthquakes jumped from 2.4 to 9.5 during the single year 1897. Earth's rotation slowed down about 4 ms during the single decade around this year. And what is also very exciting, we see that already two decades before (around the year 1865) the cosmic space was less "adhesive" than its average state; the Earth was then able to rotate quicker. It can be understood in similarity to the tsunami effect, forcing the sea water to flow away from the coast, before the tsunami wave hit it with the enhanced impetus.

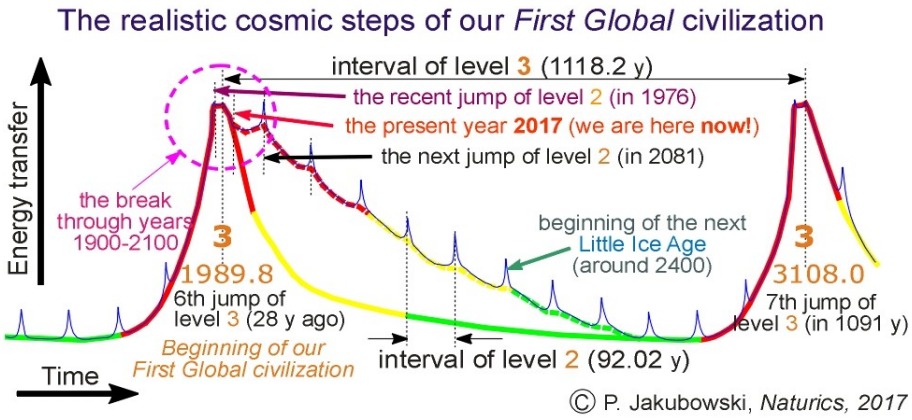

Fig. 5. Schematic (past and future) chronology of the recent cosmic quantum jump of level 3 of our Cosmic Hierarchy. (*The double course of the diagram between the two jumps will be explained in text below.*)

Since 1897, Earth is crossing the energy bridge connecting the Orion Complex with the center of mass of the Omega Centauri Cluster. We have passed the main band of this bridge in year 1989. However, we should not assume that this energetic quantum jump will be symmetric with regard to this maximum, as would be suggested by the lower theoretical course in Figure 5 (*compare also Figure 3*). In that point we touch the second hazardous effect we are going to explain in this article.

3. Enhanced frequency of cosmic impacts

Following the traditional astrophysics, we are used to think, our life on Earth is generally quiet, with no serious danger threatening us from the cosmic space. It was seemingly the fact during the recent few millennia. But it will be our reality decreasingly only in the coming centuries. In order to understand the important necessary change in our perception of our cosmic environment let us note the red arrow in Figure 6 below. It shows that we are today very close to the next cosmic jump of level 9, the highest level of the Cosmic Hierarchy we are able to observe with our temporary technique. The previous such quantum jump (which happened 3.5 milliard years ago) has originated the present form of our Solar System, endowing us with our big Moon, and giving the starting shot to our own evolution.

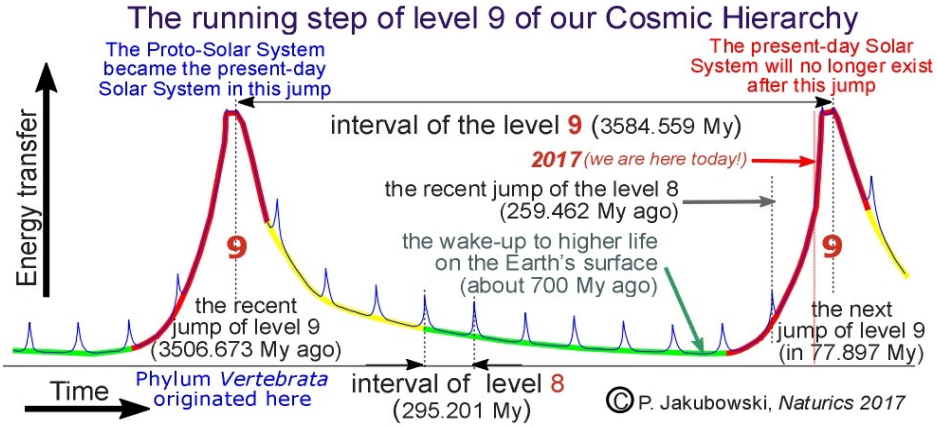

Fig. 6. The running soon to the end step of level 9 of our Cosmic Hierarchy. (*Note the red arrow showing where we are in year 2017*.)

Due to the proximity to the next cosmic quantum jump of level 9, we have to consider all jumps of the lower levels as characterized with asymmetric energy-transfer curve, like that one showed in Figure 7, which is a modified version of Figure 3. The measurements of the ice-core temperatures in Greenland has confirmed the reality of this modified form of the diagram very impressively.

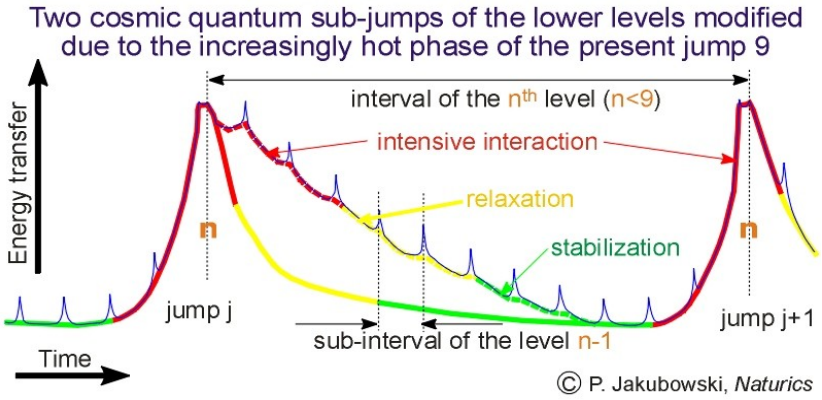

Fig. 7. The modified version of Figure 3 taking into account the close proximity of our present cosmic position to the cosmic energy bridge of level 9 (*as shown in Figure 6*).

If I am right with my interpretation, the point of time when we will leave the present energy bridge of level 3, and return to the more quiet Earth of the period prior to 1897, with lower frequency of the strongest earthquakes, can become shifted to some further, and maybe even very far future.

As we can conclude from Figure 6, our whole remaining lifetime on Earth will become increasingly unpleasant, because we have already entered, that time not only together with our Solar System, but with our whole Cosmic Hierarchy, the mightiest energy bridge we have ever discovered (in year 2013) on the sky. In reality, we are already pretty deep in this bridge. The increased rate of the formation of young stars in many regions of our cosmic environment is one of the strongest confirmation of this assumption. The previous such period has been correlated with times around 3.5 milliard years ago (*compare Figure 6 once more*). Thus, we consequently have to assume that the number of the cosmic impacts upon all members of our Solar System will rise from decade to decade. Most of the past such impacts was not caused by asteroids (the internal members of the Solar System) but by extrasolar cosmic bodies appearing as comets.

Under the Wikipedia topic "Great comet", we read:

> "The vast majority of comets are never bright enough to be seen by the naked eye, and generally pass through the inner Solar System unseen by anyone except astronomers. However, occasionally a comet may brighten to naked eye visibility, and even more rarely it may become as bright as or brighter than the brightest stars. The requirements for this to occur are: a large and active nucleus, a close approach to the Sun, and a close approach to the Earth. A comet fulfilling all three of these criteria will certainly be spectacular. Sometimes, a comet failing on one criterion will still be extremely impressive."

This gives us a good opportunity to compare the frequency of the historical comets "visiting" our Solar System with that observed with naked eye in 19th and 20th century. Remarkably enough, we obtain a similar result of such a comparison to the previous one concerning the frequency of the strongest earthquakes (*compare Figure 4*). In Figure 8, I have collected all "great comets" observed with naked eye since 1600 (as listed in the quoted Wikipedia article). I have also included Shoemaker-Levy-9 comet, which has not reached the inner Solar System, because it has bin captured by Jupiter before. However, with its estimated original size of 5 km, it was large enough to become a "great comet" somewhere between 1990 and 1994.

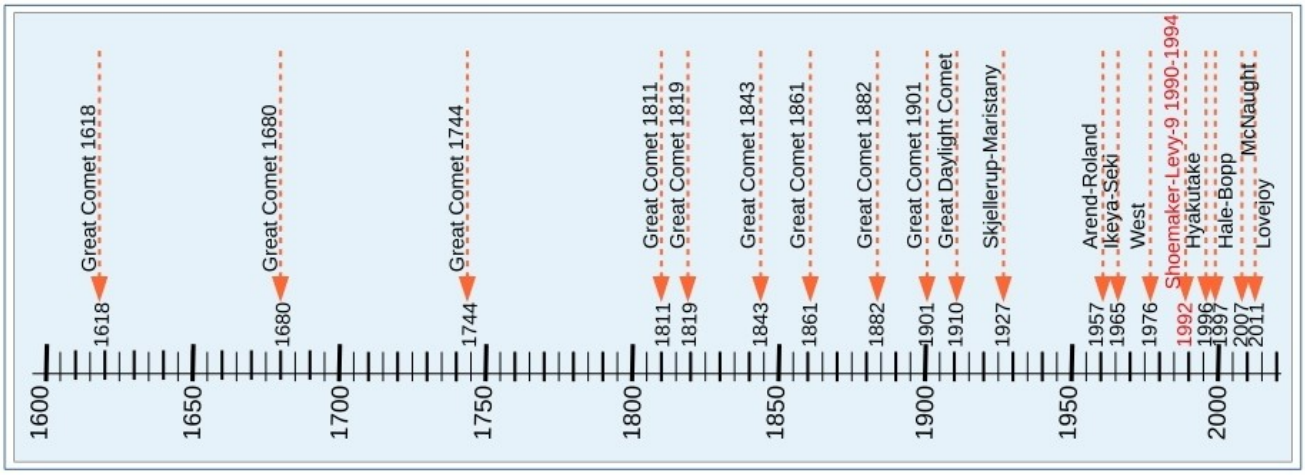

Fig. 8. The naked-eye visible comets since 1600 till today.
(*Note that some of them were visible only from the southern hemisphere.*)

We see in Figure 8 the same increase of the frequency of the "visiting" great comets as that for the strongest earthquakes in 19th and 20th centuries, it means since we (the Earth) have entered the energy bridge of level 3. All those comets have to be considered as the members of this energetic bridge. It should be clear to us at the latest now that no energetic interaction between the higher levels of the Cosmic Hierarchy can be realized by means of any of the traditionally assumed "soft carriers" of energy (like the hypothetical massless photons). The realistic cosmic interaction has to involve such mighty quanta of energy like comets and similar cosmic bodies.

It is very interesting to read[1] about the observed properties of different comets. For example, Comet Hale–Bopp had an exceptionally large and active nucleus, but did not approach the Sun very closely at all, yet it still became an extremely famous and well observed (over 18 months long) comet. Equally, Comet Hyakutake was a rather small comet, but appeared bright and with an extremely long tail because it passed relatively close to the Earth. However, we have to read it carefully,

1 for example, by Gary Seronik.

because the available information is mostly interpreted on the basis of the traditional physics. In Wikipedia, we read for example, to Shoemaker-Levy 9 Comet what follows:

> "Comet Shoemaker–Levy 9 (...) was a comet that broke apart in July 1992 and collided with Jupiter in July 1994, providing the first direct observation of an extraterrestrial *collision of Solar System objects*. (...) The collision provided new information about Jupiter and highlighted its role *in reducing space debris in the inner Solar System*. (...) It was the first comet observed to be orbiting a planet, and *had probably been captured by Jupiter around 20–30 years earlier*. Calculations showed that its unusual fragmented form was due to a previous closer approach to Jupiter in July 1992. (...) The comet was later observed as a series of fragments ranging up to 2 km (1.2 mi) in diameter. These fragments collided with Jupiter's southern hemisphere between July 16 and July 22, 1994 at a speed of approximately 60 km/s (37 mi/s) or 216,000 km/h (134,000 mph). The prominent scars from the impacts were more easily visible than the Great Red Spot and persisted for many months. (...) The original comet body was estimated by about 5 km across."

In that quotation, I have emphasized (with *italics*) three statements that are not correct from the Unified-Physics point of view. Firstly, Shoemaker-Levy-9 Comet **was not a Solar System object**. It was almost surely a part of the energy bridge of level 3 of our Cosmic Hierarchy. Secondly, Jupiter has done its main work in reducing space debris in the inner Solar System a long time ago (around 3.5 Milliard years ago; *compare Figure 6*). Now is it reducing the periodically increasing risk that some cosmic objects belonging to **all higher than 1 levels of the Cosmic Hierarchy** could reach the inner regions of the Solar System and become dangerous for the life on Earth. And thirdly, this comet could not be captured by Jupiter much earlier than around the peak of the **level-3 jump in year 1989**. At its speed of 216 thousand km/h (or 2 milliard km/year), the comet needed for the distance of 50 AU across the outer Solar System not more than 4 years.

Comet Hyakutake, which passed close to the Earth in March 1996, was of a similar size to that of the Shoemaker-Levy 9 Comet. Its passage near the Earth was one of the closest cometary approaches of the previous 200 years. Only four comets in 20th century had passed closer. We read in Wikipedia about the observed composition of the Hyakutake Comet:

> "Terrestrial observers found ethane and methane in the comet, the first time either of these gases had been detected in a comet. Chemical analysis showed that the abundances of ethane and methane were roughly equal, which may imply that **its ices formed in interstellar space, away from the Sun**, which would have evaporated these volatile molecules. Hyakutake's ices must have formed at temperatures of 20 K or less, indicating that **it probably formed in a denser-than-average interstellar cloud**."

This observation strengthens our idea that this comet, as well as the most (if not all) of comets visiting Solar System around 1989, has to originated in a cosmic energy bridge of our Cosmic Hierarchy, very probably of the level 3, as discussed above. The next deadline for the cosmic quantum jump of level 3 is the year 3108. But what about the lover levels 2 and 1? How dangerous could they be for us in the near future?

Tunguska impactor, which exploded in summer 1908 in the Earth's atmosphere above the Siberian taiga, was long time thought of as an exotic exception in our relatively quiet life on Earth. However, an explosion of this magnitude would be capable of destroying a large metropolitan area. It is classified as an impact event, even though no impact crater has been found. Its explosive power was estimated at 300 to 1000 Hiroshima bombs. Its diameter was probably below 100 meter. The

Tunguska event was the largest impact event on Earth in recorded history. Today we know why. We have to join it with the last but one level-2 cosmic quantum jump from the year1884, when the Earth was just entering the cosmic energy bridge of level 3 of our Cosmic Hierarchy. We have to consider that the way of this relatively small cosmic object across the Solar System had surely taken several years. Such an impact (or impacts) somewhere on the Earth's surface should be expected every 92 years (the period of level 2 of the Cosmic Hierarchy). The next deadline is 2081 (*compare Figure 5*).

But what about the lower level 1? How dangerous could it be for us in the coming decades? On 15 February 2013, an approximately 20-meter asteroid entered Earth's atmosphere over Russia, near the city Chelyabinsk, with a speed of 19.2 km/s. The light from the meteor was brighter than the Sun, visible up to 100 km away. It exploded at a height of around 30 km, with an intensity of 25-30 Hiroshima bombs. With an estimated initial mass of about 12000 tons (heavier than the Eiffel Tower) it was the largest known natural object to have entered Earth's atmosphere since the Tunguska event. The explosion generated a bright flash, small fragmentary meteorites, as well as a large shock wave. Some eyewitnesses felt intense heat from the fireball. Its explosion created panic. About 1500 people were indirectly injured, mainly from broken glass from windows that were blown in when the shock wave arrived, minutes after the flash. Some 7200 buildings in six cities across the region were damaged by the explosion's shock wave.

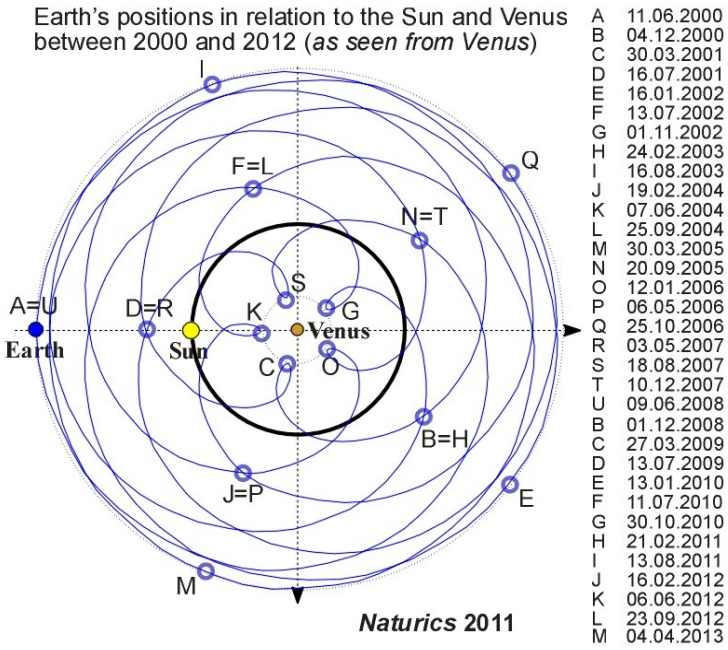

Fig. 9. The real orbit of Earth around the Sun and Venus (the true center of mass of the Solar System) simultaneously.

What is important for our discussion here, the object was undetected before its atmospheric entry. There was no advance warning. It means, any theoretical forecasting, as non-precise as it could at the moment still be should be taken seriously as the starting point for the future investigations. The cosmic quantum jumps of level 1 occur every 7 years and 7 months (or 7.58 years). Such a jump means that a "wave of an enhanced energy density" (an energy bridge of level 1) is crossing the Solar System. This wave is able to shift some of the asteroids from the asteroid belt toward the center of mass of the Solar System (in Venus). The smaller of them are still unknown, and can become a "bad surprise" for the people on Earth. This conclusion has been strengthened by the observation that only 16 hours after the Chelyabinsk event another asteroid (367943 Duende), that

time larger (about 30 m in diameter) and previously observed has also reached close approach to Earth. Basing on the Universal Timescale of our Cosmic Hierarchy, we can suppose that those two cosmic bodies has been send towards Venus as a result of the recent cosmic quantum jump of level 1 which culminated on 3rd August 2012. The next such event will occur on 3rd March 2020. We have to observe the space around the Earth especially carefully in the months after that point of time.

The reality of the discussed here cosmic influence upon the global energetic events on Earth can be also studied by observing the correlation of the enhanced frequency of the strongest earthquakes with the turning points of the true Earth's orbit in the Solar System. Namely, the orbit is a rosette shown in Figure 9. Let us note the turning points C, G, K, O, and S, where Earth maximally approaches Venus, and the points A, E, I, M, and Q, where the Earth reaches its maximal distance to Venus.

After we include those turning points into the diagram from Figure 4, we observe an evident correlation of the Earth's seismic energy with those points of the Earth orbit, where the Earth become stopped in her motion toward or outward in relation to Venus[2]. Any time the center of mass (in Venus) "apply the brakes", the Earth will additionally tremble.

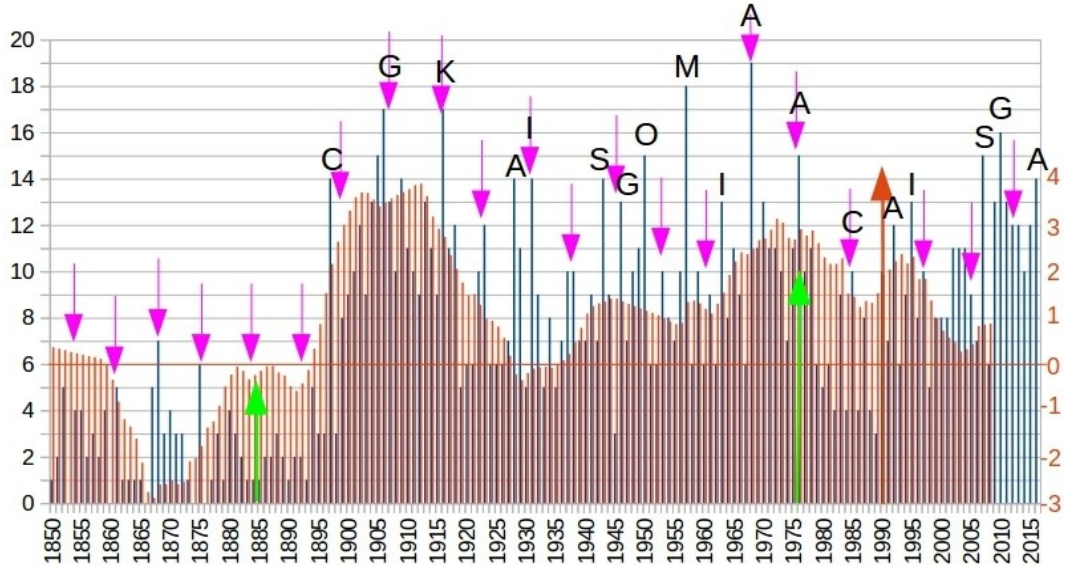

Fig. 10. Diagram from Figure 4 supplied with the points (arrows) of the cosmic quantum jumps of levels 3 (orange), 2 (green), and 1 (purple), as well as with the turning points of the true Earth's orbit in our Solar System (*compare Figure 9*).

We see indeed that the coincidence of the Earth's orbital turning points with the quantum jumps of level 1 results always in enhanced frequency of the strongest earthquakes. The next **point G** of the Earth's orbit will be reached on **28th October 2018**, and **point K** - on **5th July 2020**, just a few weeks after the next cosmic jump of level 1 on **3rd March 2020**. If I would live in a seismic active region, I would be very careful on all full-moon and new-moon dates around those three dates. And after 3rd March 2020 I will scan the sky above my head after the next "Eiffel Tower" falling down.

2 Venus has been formed in the center of mass of the primordial accretion cloud of the Proto-Solar System, and will remain in that point for all time of the Solar-System existence.

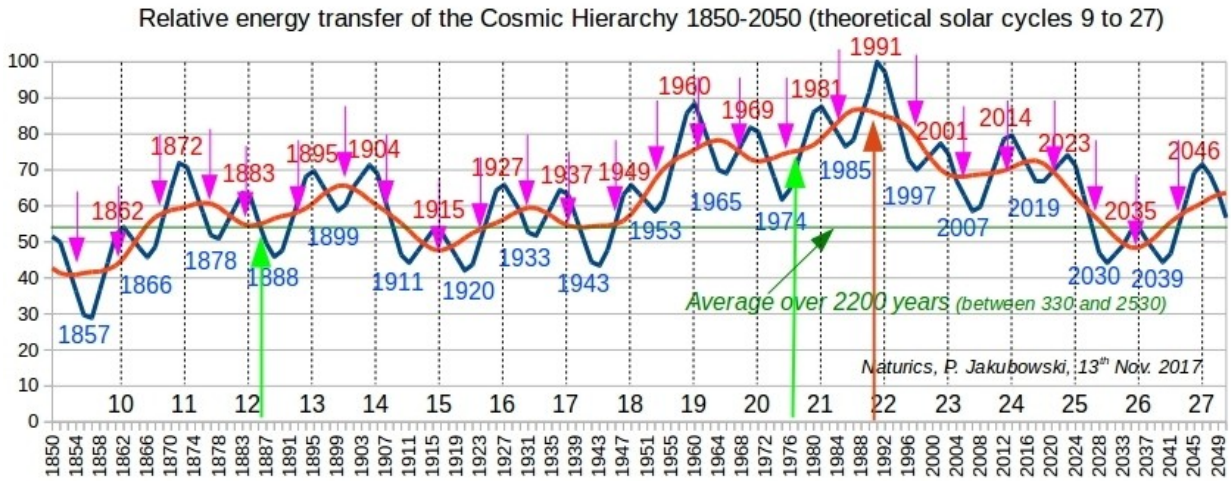

Fig. 11. Energy transfer in our Cosmic Hierarchy, dominating the relative variations of the global temperature on Earth; shown is the period between 1850 and 2050.

At the beginning of this article I have quoted my recent article, the climate poker is over now. There we have discussed the Unified-Physics argumentation regarding the global climate reconstruction and its theoretical forecasting based on the new-paradigm physics. Now we are prepared enough to understand the following extension of the diagram presented previously. In Figure 11, we see the relative energy transfer in our Cosmic Hierarchy, which has dominated the relative variations of the global temperature on Earth since 1850, and surely will dominate also its further development up to 2050. The blue curve of this diagram is relevant for the actual (global and local) temperature changes (downs and ups, meaning cold winters or hot summers respectively), which the elder of us can well remember from our own lives. But the global climate changes are more readily represented by the orange curve, which is an average of the blue values over a single sunspot cycle (with its theoretical length of 10.86 years). As we see, even the shortest cosmic periods of level 1 (with the length of 7.58 years) are changing the inclination of the averaged curve each time they occur. It is very encouraging, because the level 1 has not been included into the calculations of the diagram in Figure 11. Its influence appears as a natural result of the Cosmic-Hierarchy definition alone.

4. Summary

We have to prepare our societies and our industries for the coming colder period in our history and to develop some better methods to minimize the risks of the unrecognized strongest earthquakes and smaller and larger cosmic impacts in coming decades and centuries. The first step to become able to solve the tasks is to study the present level of the *Unified Physics* and to try to apply it to all remaining, otherwise unsolved problems of sciences and technologies.