

Noah's Flood as a Possible Result of Collision of a Big Asteroid with the Sun. Does Milankovitch Theory Gives the Real Variation of the Solar Radiation Driving Glaciations?- Only 50% of it.

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Secondary cave calcite forms speleothems (stalactites, stalagmites, etc.) in caves. Speleothem growth rate variations represent mainly rainfall variations. Speleothem luminescence visualizes annual micro- banding under UV irradiation. It was used for relative and absolute dating of speleothems by Autocalibration dating. We used it also to derive quantitative proxy records of the annual precipitation at the cave site http://karst.planetresources.net/Stara_Zagora/speleothem_records.htm. So speleothems can be considered as natural climatic stations. This work will be presented at the Pavilion from 1:30- 4:30 and 6- 8 PM, on Monday, July 28, 2003, **paper No. 55-12**. Such records are very useful for agricultural meteorological prognosis.

Even more interesting applications of speleothem luminescence will be presented in **lecture No. 85-7** at 10:50- 11:10 AM in Carson 3&4 on Wednesday, July 30, 2003. We measured variations of the growth rate of a speleothem from the Black Sea basin, Bulgaria representing past precipitation. It demonstrates that around 7500 B.P. the speleothem growth rate (averaged for 120 years) exceeds 50 times its recent value <http://karst.planetresources.net/deluge.htm>. Presuming that the excess precipitation had fallen only within 1 year, this means a never seen rainfall (flood). Such event is described in the Bible, Greek mythology and the Sumerian epic Gilgamesh (compiled during III millennium B.C. on the base of more ancient legends). So probably it is the Noah's Flood. Calibrated AMS 14-C age of this event is the same as the beginning of the Bible chronology (Creation of the World), i. e. 5500 years B.C and also as the beginning of the Byzantine and Bulgarian calendars. Such immemorial precipitation probably would lead to some rising of the Black Sea level. Such rising at 5500- 5600 B.C. was recently suggested by an international team of scientists, lead by Dr. William Rayn and Walter Pittman from Columbia University, Palisades, New York and confirmed by two expeditions of the National Geographic led by professor R. Ballard. They demonstrated that the Black sea level arose with about 100 meters in one year, flooding 160000 square kilometers. Before this event Black Sea was isolated fresh water lake. The Black Sea level rising itself cannot be related to the Flood, but combined with the never seen (during the human civilization) precipitation at that time definitely lead to the thought, that this phenomenon is namely the Bible Deluge.

Even before Rayn and Pittman we suggested a hypothesis for one possible mechanism of the Flood (Shopov et al., 1996, <http://www.karst.edu.cn/igcp/igcp379/1997/part3-4-3.htm>), consisting of the following: - Ocean level raised from 10000 years B.P. to the time of the Flood as a result of the glaciers melting. Black Sea had been isolated from the Ocean and its level had been much lower. In one moment the narrow band of land between the Mediterranean and Black Sea had broken down like a dam wall. This had resulted in flowing of giant masses of seawaters into the Black Sea basin. When it reached the opposite cost a giant wave had been formed (which probably was incomparably bigger than the biggest tsunami known so far). Any known Earth force is not able to produce such precipitation as the one measured by us and described in the historical sources. It requires enormous rapid increasing in evaporation of the water, but there are no evidences of such rapid warming during the Flood. So the only possible reason for such evaporation is increasing of the solar luminosity with several %. Water absorbs strongly the infrared solar radiation, which cause melting of the glaciers and evaporation of the water. But evaporation cause cooling of the system (refrigerator effect). Solar luminosity usually remains rather steady. Such higher solar radiation can be produced only by explosion of a comet or an asteroid in the solar atmosphere. Such explosion (like Tungussian meteorite or the collision of parts of the Schumaker- Levy comet with Jupiter) can cause a major mixing of parts of the upper shells (layers) of the Sun and appearance of much warmer solar matter from the depth to the solar surface. Solar luminosity increases with the forth degree of the temperature of the solar surface, so it should increase significantly immediately after the collision.

Such rapid melting of the ice sheets and rising of the sea level should cause unusually rapid change of the rotation speed of the Earth and should produce major earthquakes. Probably one of them broke the narrow band of land separating Black Sea from the Mediterranean Sea and caused the flooding of the Black Sea basin.

Humanity even now is not prepared to face such catastrophic disaster so it is important to know its mechanism in order to help to predict it and to make proper actions to reduce the damage cause by it.

Glaciations were attributed to variations of the Earth's orbit (Milankovitch cycles). But the best ever dated paleoclimatic record (from a speleothem from Devils Hole, Nevada) demonstrated that the end of the last glacial period (termination II) happened 10 000 years before the one suggested by the orbital variations, i.e. the result appeared before the reason. This fact suggests that there are something wrong in the theory.

The Orbital theory has 2 presumptions:

1. That the solar luminosity is constant during geological periods of time.
2. That the Earth behaves as an absolute solid body independently of the orbital variations.

Recent studies demonstrate that both these presumptions are not precise. Direct satellite measurements of the solar constant demonstrated that it varies as much as 0.4% during the observation time span but there are experimental data suggesting that it varied much greater during geological periods. Longer solar cycles are more than one order of magnitude stronger, than the 11-yr solar cycles covered by the direct measurements.

Theoretical Milankovitch curves explain only about 1/2 of the signal in the existing proxy paleotemperature records. A significant part of it is not due to the components of the orbital variations in such proportions as in the theoretical solar insolation curves. Increasing of the ice volume and related sea level change during glaciations produces changes in the inertial moment of the Earth and resulting changes in the speed of Earth's rotation. These changes must affect in some degree the amplitude and may be even the period of the orbital variations. The orbital theory does not consider these influences. Orbital variations cause also some deformation of the solid Earth and redistribution of the Ocean masses. In result theoretical curves can be used only for qualitative reference but not for quantitative correlations.

Intensity of luminescence of speleothems depends exponentially upon soil temperatures that are determined primarily by the solar radiation (insolation). So microzonality of luminescence of speleothems is used as an indirect Solar Insolation proxy index. We measured luminescent solar insolation proxy records in speleothems from Jewel Cave, South Dakota and from Duhlata cave, Bulgaria 10 000 km apart which will be presented at the Pavilion from 1:30- 4:30 and 6- 8 PM, on Monday, July 28, 2003, **paper No. 56-13**. These records exhibit very rapid increasing of the solar insolation at 139 kyrs BP responsible for the Termination II (the end of the last glaciation). They demonstrate that solar luminosity variations contribute to Earth's heating almost as much as the orbital variations of the Earth's orbit (Milankovitch cycles) and can produce climatic variations with intensity comparable to that of the orbital variations. The most powerful cycle of the solar luminosity (11500 yrs) is responsible for almost 1/2 of the variations in solar insolation experimental records. This solar cycle must be also taken into account for a proper explanation of the timing of the last deglaciation. It produced the increasing of the solar insolation preceding the one suggested by the Orbital theory with about 10 kyrs http://www.ngdc.noaa.gov/paleo/chapconf/shopov2_abs.html.

It demonstrates that for quantitative correlations of solar insolation an climatic records is necessary to use well- dated experimental records of solar insolation (speleothem luminescence records) because they contain also variations of the solar luminosity and number of other parameters not estimated by the Orbital theory http://karst.planetresources.net/Stara_Zagora/astrophysical_applications.htm instead of the theoretical curves of Milankovitch orbital variations These records do not disapprove the orbital theory, but they suggest that the solar luminosity contribution to the solar insolation curves has been severely underestimated so far.

Glaciations and deglaciations drive changes of the sea level. They are extremely important for human life in the coastal regions, because rise of the sea level with few meters will cause flooding of very large regions of land <http://karst.wku.edu/2003/abstracts/shopov2.htm> and will reduce significantly arable land of several countries. We need to know the detailed mechanisms of the deglaciations in order to develop proper sustainable management policy and actions to secure sustainable development of these regions.

Shopov Y.Y. et al.(1996) Speleothem Luminescence proxy Records of Annual Rainfall in the Past. Evidences for "The Deluge" in Speleothems."- In book "Climatic Change- the Karst Record", Ed. by S.E. Lauritzen. Karst Water Research Institute. p. 155-156.