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HURRICANE SANDY AND EARTHQUAKES

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Submit for consideration the connection between formation of a hurricane Sandy and earthquakes. As a rule, weather anomalies precede and accompany earthquakes. The hurricane Sandy emerged 2 days prior to
strong earthquakes that occurred in the area. And the trajectory of the hurricane Sandy matched the epicenter of the earthquakes. Possibility of
early prediction of natural disasters will minimize the moral and material damage.

Keywords: hurricane Sandy, earthquake, global warming

In late October 2012, hurricane Sandy was formed and was among the biggest natural disasters of recent decades - the earthquake in March 2011 and the tsunami in Japan, the unprecedented summer heat and droughts in 2010 and 2003 in Central and Western Europe, Russia respectively, the hurricane "Katrina" in August 2005 in the U.S., the earthquake and tsunami in December 2004 in Indonesia, the earthquake in Turkey in 1999 and many others

The significant increase in extreme weather events recently observed on Earth coincides with the global warming and the intensification seismicity. These phenomena are interrelated (1,2, 3,4,5). As a rule, weather anomalies - hurricanes, typhoons, floods, droughts, precede and accompany earthquakes

The hurricane season in the Atlantic and Central America usually occurs in September and October, when the sea temperature is the highest and above its warm waters is there a front of storm clouds (6). The manifestation of
seismic-tectonic activity in this area, particularly during the coming earthquake, sharply increases in the inflow of additional energy from its hearth, and raises the temperature of water and air. An intensive evaporation from the surface of the water basin takes place and a region of low atmospheric pressure is formed. This leads to significant changes in circulation patterns in the atmosphere and to the emergence of a hurricane in the area. If there are many focuses preparation of earthquakes in this area, there is the emergence of the nascent hurricanes and a super storm is formed. It should be noted that
the origin of hurricane "Katrina" of the fifth danger category has also been associated with an increased seismic activity in the region of Central America. The hurricane was preceded by a series of aftershocks of varying magnitudes and by a powerful volcano eruption in El Salvador, on August 31, 2005, which awoke after a silence of 83 years (4). Hurricane "Rita" emerged in the same area and was preceded by a powerful earthquake with a magnitude 7.5, which occurred on September 26 in the north of Peru, and by seismic activity in the area which wag due to ongoing volcanic eruption in El Salvador

Hurricane Sandy was formed in the central part of the Caribbean on October 22, 2012 and hit Jamaica, Cuba, Bahamas, Haiti, Florida coast, Northeast U.S., partly Eastern Canada,

and decaying, came to the Great Lakes, Chicago, western Canada, Alaska, Chukotski peninsula and 5 November
2012 came to Yakutia (Russia) (7). Figure 1 shows the trajectory of the movement of hurricane Sandy (8), and the Table shows the seismic activity for October 2012 (According to the U.S. Geological Survey).

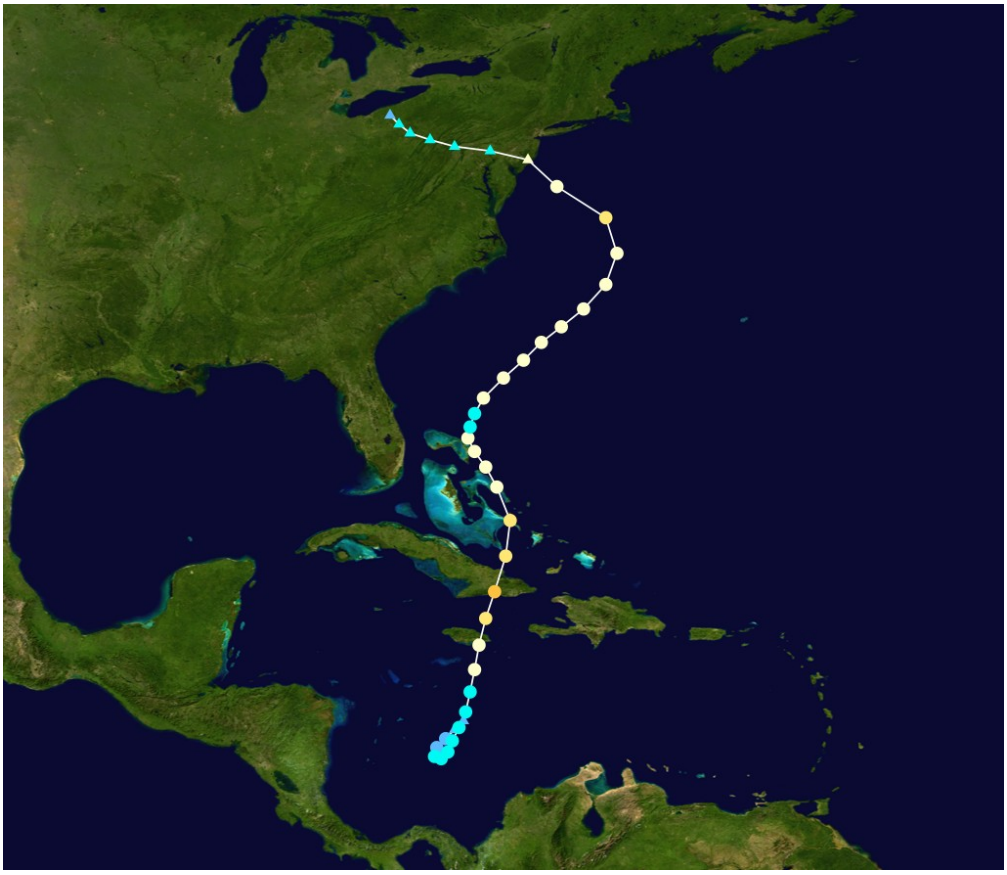

Fig.1.The trajectory of the hurricane Sandy (Wikipedia)

Seismic activity in the area of origin and development of the hurricane Sandy

Date	Magnitude	Depth, км	Epicenter of earthquake
2012/10/10	5.3	35.6	Costa Rica
2012/10/12	5.0	45.3	Costa Rica
2012/10/12	4.9	12.3	Gulf of Paria, Venezuela
2012/10/15	5.5	76.5	Guatemala
2012/10/17	4.7	12.7	Dominican republic

2012/10/20	4.8	10.0	South of Panama
2012/10/20	4.5	165.2	Northern Colombia
2012/10/21	5.5; 5.0	65.6;92.1	Offshore Salvador
2012/10/24	6.5	20.1	Costa Rica
2012/10/24	4.5	11.1	Costa Rica
2012/10/24	5.4	32.7	Center Caribbean Sea
2012/10/26	2.5	5.0	New-York
2012/10/28	7.7;5.8;5.0;5.1	10-11	West Canada
2012/10/28	6.3;5.4;4.9;5.1	10-11	West Canada
2012/10/30	6.2;5.4; 5.1;5.0	10-11	West Canada

These Tables show the high seismic activity in the formation area and propagation of the hurricane Sandy. The hurricane emerged 2 days prior to strong earthquakes that occurred on October 24, 2012 in Costa Rica with a magnitude of 6.5 and 4.5 and on the Cayman island in the central Caribbean with a magnitude of 5.4. Next, the trajectory of the hurricane Sandy matched the epicenter of the devastating earthquake of 12 January 2010 in Haiti with a magnitude of 7.2, with aftershocks which periodically occur to this day. Moving along the U.S. East Coast hurricane Sandy from 29 to 30 October turned to the land and with all the force attached New York, where on October 26, 2012 an earthquake occurred with a magnitude of 2.5 (see the Table). Thus, the hurricane Sandy became super storm and reached the west coast of Canada, where on Queen Charlotte Island on 28 and 30 October 2012, a series of powerful earthquakes occurred, the strongest of which reached magnitude 7.7.

Hurricane Sandy, which became the most dangerous natural disaster in recent years, caused a huge damage. The most serious damage was caused the north-eastern United States, particular in the financial center of the world-

New York, New Jersey and Connecticut. The economic loss of $ 50.billion reached. The number of victims of Hurricane Sandy in the U.S. reached 113 people, and in the Caribbean and the Bahamas it reached 72 people, a total of 185 people (Wikipedia). On October 29, U.S. President Barack Obama warned the American citizens to seriously prepare for the threat of a hurricane Sandy (8), and this brought about a significant reduction in the number of victims of the hurricane.

Convincing evidence was obtained of an interconnection between earthquakes and meteorological processes indicates that the nature is indivisible and seismic-tectonic processes influence the atmospheric processes. The result is a transformation of seismic energy to changes in atmospheric circulation, leading to weather disasters. The development of a method for short-term earthquake prediction, based on the discovery of geochemical (radon) and meteorological precursors (9,10), allows the early prediction of not only earthquakes, but also of hurricanes such as Sandy, which will minimize the moral and material damage.

Reference

1, Mavashev B., 1992. "Meteorological precursors of earthquakes. Earthquakes, Weather and Ecology", 2nd International Conference on Asian Marine Geology, Tokyo, Japan.
2. Mavashev B., 2008. "Global Warming and Earthquakes", ECOST 11th Annual Ecological Immigrant Sci. Conference, Jerusalem, 36.
3. Mavashev B., 1996. "About Interrelation between Meteorological and Seismic-Tectonics Processes and Earthquakes Prediction", 13 Annual Meeting, Israel Mineral Science and Engineering Association, Zichron Yaacov, 154-167, and on the Book, Jerusalem, 3-103.
4. Mavashev B., 2003, 2005. "Weather Anomalies and Earthquakes", Annual Meeting of Repatriate, Science Academy of Israel, Jerusalem, Poster Papers, Engineering Center Immigrants Sharon, Ideas, Projects and Technologies, Hadera 3880, Israel, 4, 74-79.
5. Mavashev B., 2011. "Global Changes of the Climate and Causes", the 39th Conference of the Israel Society of Ecology and Environmental Sciences, Megido, Israel.
6. Как происходят ураганы, Википедия
7. Ураган Сэнди, Википедия
8. Hurricane Sandy 2012, Wikipedia
9. Mavashev B., 2004, 2007. "Method for Earthquakes Prediction", Patent Application No 16790/2, Israel and ECOST, 10th Annual Ecological Immigrant Scientists Conference, Jerusalem, 75-79
10. Мавашев Б., 2012. "Землетрясения и экология. Прогнозы". Дом ученых и специалистов Реховота, Реховот, 5, Доклад на Международной конференции КООПЕРАТИВНЫЕ ЭКО-БИО-АГРО-ИННОВАЦИИ : РСССИЯ-ИЗРАИЛЬ-2012