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The “Alexa” Snow Storm in the Middle East and Earthquakes

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At the end of the first – beginning of the second decade of December 2013 the Middle East was collapsed by an unprecedented snow storm. Entire regions in Turkey, Syria, Lebanon, Jordan, Israel turned out to be blocked up with snow. For the first time in the course of 112 years of regular observations there was a fall of snow in Cairo. Such weather anomaly was caused by global climate changes and sharp increase of seismic activity in the region. Combination of rare weather conditions with regional seismic activation in the Middle East predetermined appearance and further advance and penetration of the "Alexa" snow storm deep into the territory

Keywords: earthquakes, global warming, climate changes

Снежная буря "Алекса" на Ближнем Востоке и землетрясения

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В конце 1-ой и начале 2-ой декады декабря 2013 года на Ближний Восток обрушилась небывалая снежная буря. В снежном плену оказались целые районы Турции, Сирии, Ливана, Иордании, Израиля. Впервые за 112 лет наблюдений выпал снег в Каире. Такая погодная аномалия вызвана глобальным изменением климата и резким возрастанием сейсмической активности в регионе. Сочетание редких погодных-климатических условий и активизация сейсмичности в регионе Ближнего Востока обусловили зарождение и продвижение снежного шторма "Алекса" вглубь территории.

Ключевые слова: землетрясения, глобальное потепление, изменение климата

For the first time the fundamental principles of interconnection between weather anomalies and earthquakes, as well as meteorological presages of earthquakes, were mentioned in 1990 (1,2,3,4). Large-scale natural disasters of the last decades (hurricane Sandy in 2012, an unprecedented flood in the Russian Littoral zone in summer 2012, the earthquake and tsunami in March 2011 in Japan, the anomalous summer heat and drought in Central Russia in 2010 (5,6,7,8,9) and in Central Europe in 2003, the disastrous Sichuān earthquake in May 2012 in China, the earthquake and tsunami in December 2004 in Indonesia, the destructive hurricanes

“Catherine” and “Rita” in 2005 in the USA, the distractive earthquake in 1999 in Turkey and many others) concur with global climate heating and seismic activation of our planet. These two phenomena are interconnected (10,11,12). As a rule, the natural cataclysms, such as hurricanes, typhoons, floods, droughts, precede earthquakes and attend them.

The storm with a delicate name “Alexa” which collapsed the Middle East, though being less destructive as compared with those mentioned hereinabove, can be referred to as an anomaly of nature. On December 10 a strong snow-fall collapsed Turkey. The European League game between the football teams “Juventus” and “Galatasaray” held in Istanbul was suspended because of the heavy snow-fall. About 100 air-routes were cancelled, a transport collapse happened. On the Turkish Mediterranean seashore tens of fishermen were missing. In Israel the snow storm began between December 11 and 12, which was preceded by weather with heavy precipitation. Jerusalem and the northern town Safed became taken captive by snow. The schools were closed, thousands of trees were knocked down, the transport was paralyzed, the Jerusalem-Tel-Aviv highway was blocked because of snow-drift, above 2000 cars became stuck there, 60 thousand families remained without electric power supply. In the course of two days there was a fall snow in Jerusalem reaching above half meter. The municipal authorities happened to be helpless and unready to cope with the snow storm in the course of 4-5 days. Snow-falls and heavy showers brought about a flood in Gaza where 40 thousand people left their houses. Cold weather (1 degree below zero was registered in Jerusalem) caused death of human beings, hundreds were hospitalized. In Israel material damages caused by the snow storm reached 1 billion and two hundred and fifty million shekels. Agriculture was also damaged very much.

The cold came to the Middle East from the Eastern Europe where the hurricane winds penetrated from Germany and Poland. Combination of rare weather conditions with regional seismic activation in the Middle East predetermined appearance and further advance and penetration of the “Alexa” snow storm deep into the territory. As shown in the diagram (Fig.1) presenting data related to changes of the maximum daily air temperature in Jerusalem and seismic activity in the region, considerable growth of air temperature and sharp increase of seismic activity were registered in the entire Middle East region from November 21 to December 3, 2013 (13). The Etna volcano eruption three times within one month also witnesses high tectonic activity of the region. The data provided in the table as related to the earthquakes magnitude ($M \geq 4$) prove the statement above. Strong earthquakes with magnitude reaching 5.6 happened in the South Iran and on the Iran-Iraq border, magnitude up to M-4.5 was registered in the Eastern Turkey and up to M-4.9 in the Western Turkey, in the region of Cyprus it reached M-4.4, in the Hormuz Strait up to M-4.7, in the region of Crete up to M-4.4. Advance of the storm in the Eastern direction was

accompanied by a series of feeble earthquakes in the Dead Sea region. Three earthquakes took place there with magnitudes 2.6; 3.5; 3.5 (Fig.1).

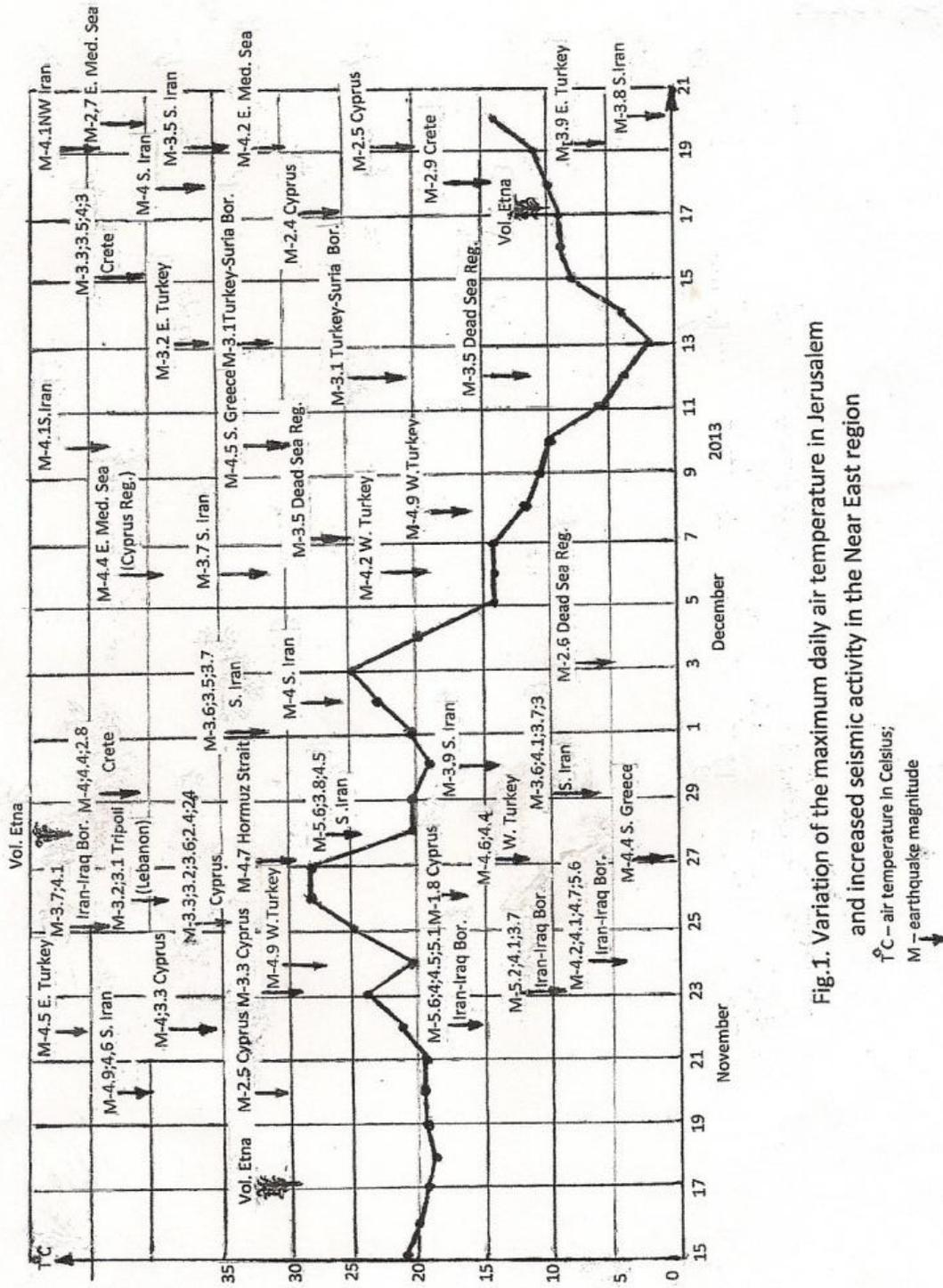


Fig.1. Variation of the maximum daily air temperature in Jerusalem and increased seismic activity in the Near East region

t°C – air temperature in Celsius;
M – earthquake magnitude

Date	Magnitude	Depth, km	Epicenter of the earthquake
2013-11-20	4.9; 4.6	10	South Iran
2013-11-22	4.5	5	Eastern Turkey
2013-11-22	4.0	6.2	Cyprus Region
2013-11-22	5.6;4;4.5;5.1	48-10	Iran-Iraq Border
2013-11-23	5.2;4.1	10	Iran-Iraq Border
2013-11-24	4.9	27	Western Turkey
2013-11-24	4.2;4.1;4.7;5.6	10	Iran-Iraq Border
2013-11-25	4.1	12	Iran-Iraq Border
2013-11-27	4.7	10	Hormuz Strait
2013-11-27	4.6;4.4	10	Western Turkey
2013-11-27	4.4	11	South Greece
2013-11-28	5.6;4.5	33;18	Southern Iran
2013-11-29	4.1	8	Southern Iran
2013-11-29	4.4;4.0	52	Crete, Greece
2013-12-02	4.1	13	Southern Iran
2013-12-06	4.2;4.2	60	Western Turkey
2013-12-06	4.4	40	Cyprus Region
2013-12-08	4.9	90	Western Turkey
2013-12-10	4.1	10	Southern Iran
2013-12-10	4.5	10	South Greece
2013-12-15	4.3	2	Crete, Greece
2013-12-18	4.0	11	Southern Iran
2013-12-19	4.1	10	N-W Iran

Table. Seismic activity in the Middle East during the weather anomaly

It must be noted that advance of the “Sandy” hurricane along the US Eastern coast in 2012 was also accompanied by a series of underground shocks and earth tremor (9). As to the snow storm which collapsed the North-East and the major part of the USA at the first decade of January 2014, when the frost in several regions in Canada and in US reached 45-50C below zero and the Niagara waterfall was frozen, it was also connected with seismic activity in the Central American region. On December 30, 2013 there happened a powerful volcano eruption in Salvador, on January 4, 5, 11, 2014 earthquakes shook Nicaragua, Columbia and Guatemala with magnitudes reaching 4.2, 5.3, 5.5 correspondingly, and on January 13 there happened a series of powerful earthquakes in Puerto-Rico, the strongest reaching magnitude 6.5 (13).

At the beginning of January 2010 similarly anomalous low temperatures in the USA were registered in the North-East, in central regions, as well as in Florida, preceding the catastrophic earthquake with magnitude 7.0, which happened in Haiti at night on January 11-12 (14). The number of victims exceeded 200 thousand people.

Thus, the Middle East "Alexa" snow storm and the above examples are of the same nature. Their appearance is connected with oncoming earthquakes. As a result, there happens unblocking of warm air promotion by cold flows oncoming from the North. Merging of cold and warm air masses causes heavy precipitation, snow in this case, and promotes sharp cold snap.

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