On a potential relationship between climate change and seismic activity of Earth, explained by a general model

Author's thought:
Science has also been given to man, in order that he understands the magnitude of disaster he has caused to his home planet, too…

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Methodology (1): Part of the analysis performed on the last decades seismic data, in this paper

Table 3. Cumulated or aggregated magnitude of earthquakes per each decade	
Decade	**Cumulated or aggregated magnitude of earthquakes per each decade**
1951/1960	69.80
1961/1970	70.90
1971/1980	72.90
1981/1990	73.10
1991/2000	70.60
2001/2010	81.15
2011/2020	73.20

Methodology (2): The general basic model of icecap melting to explain the increased seismic activity

Assumptions:

1. Almost uniform and symmetric distribution of the icecap around the Earth's poles
2. Approximate amounts of the yearly decrease of the icecap in tons
3. Approximate amounts of yearly decrease of the icecap in square kilometers
4. Actual position of the tectonic plates is not taken into consideration
5. The redistribution of weights due to the transformation of the ice from the icecap in ocean water is not to be considered
6. The centrifugal force of due to Earth rotation is not taken into consideration
7. Additional forces and other influences (such as activity of the magma or Earth core, etc.) are also not considered in this general model

Pressure on earth's crust exerted at two different moments in time 1 & 2 below: p1=G1/S1 & p2=G2/S2

On the surface previously occupied with ice which was freed by the ice melted, the pressure exerted on the earth's crust is now zero, whereas, on the surface which is still occupied with ice, the pressure exerted on the earth's crust has also diminished (p2 < p1), due to the decrease of the thickness of ice from h1 to h2 and hence due to the decrease of the weight exerted on square km, as well

Figure 1

Figure 2

Results&Discussion

1) Although there is no clear ascending trend in the seismic data recorded in the last decades, still this data indicates that there is highly likely that the actual pattern of the recorded seismic data may actually prove both, the model and the main hypothesis of this paper, namely that there is a relationship between the climate change and the seismic activity of Earth

2) The movement of tectonic plates corresponding to the model presented in this paper could also represent an explanation for the occurrence of earthquakes in areas where seismic activity has not been long time recorded before, such as the area of Oltenia in Romania, where recently significant seismic activity has been recorded

3) Two different hypotheses related to the model presented in this paper are possible. The first one is assuming that the seismic activity will continue as presented before and corresponding to data recorded so far, that is to say, there will be permanent periodical oscillations in the seismic activity caused by the redistribution of forces and the readjustment of the tectonic plates. Still, according to this first hypothesis, the average or aggregated magnitudes will permanently slightly increase in time, meaning that the balance point of the seismic activity will take place at increasingly higher magnitudes, that is to say at greater seismic activity levels. The second hypothesis regards a much gloomier and more pessimistic scenario and is assuming that there will be a tipping point in future, due to the redistribution of gravity pressing forces on the earth's crust because of the great amount of ice melted, and assumes that after this tipping point, the seismic activity will exponentially increase, thus causing disastrous cataclysmic seismic events

Conclusions

- According to the research and findings in this paper, it is very likely that there is a potential relationship between climate change and an increased seismic activity of Earth.
- Hence the conclusion is that the model used in this paper to describe and explain how the reduction of pressure due to the melting of polar icecap causes additional forces due to the redistribution of pressing gravity forces, thus moving the tectonic plates and causing increased seismic activity may be a valid one.
- However, at this moment, the model presented in this paper can neither be definitely approved nor categorically disproved by the seismic data recorded so far. Unfortunately enough, this model may only be proven using the remaining data until 2040. In 2040, when according to actual predictions it is supposed that almost all polar icecap will melt, if the theory in this paper will be confirmed, perhaps it may be too late for actions with regard to both, the consequences of the climate change and the outcomes predicted by this paper, corresponding to either of the two main effect hypotheses of this model.