

The possible influence of solar activity on mud volcanism and seismicity

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On the geodynamic changes of the earth's surface along with endogenous processes, also influence exogenous processes. In my speech, I would like to tell you about one of these phenomena, that is about the possible effects of solar activity on volcanism and seismicity.

In general, the most active of all space objects that affect our planet is the Sun. An indication of increasing solar activity is the appearance of sunspots on the surface. The spots have a magnetic field. As the results of studies show the length of the drift of sunspots toward the equator is about 11 years. At the end of each 11-year cycle the meridional field near the poles changes its polarity. Thus, the magnetic cycle of the Sun is 22 years.

The comparison of the graph of mud volcanic activity with the numbers that characterize the 11-year cycle of solar activity showed that 9-12 year periods of mud volcanic activity, mainly coincided with the 11 - year cycle of solar activity.

Thus the increase in solar activity corresponds to the increased activity of mud volcanoes.

Volcanoes are divided into geodinamichnye types and each type of volcanic activity reflects different processes: the volcanoes of the type C characterize the processes of compression of the Earth (subduction) Volcanoes of the R characterize the extensional processes of the Earth (spreading).

To determine the most objective picture of magmatic eruptions activities, there were drawn separate graphics for each volcanic types C and R.

The study of magmatic activity of volcanoes of C-type made it possible to reveal a periodicity in their eruptions. 9-15-year cycles of increased activity of magmatic eruptions were most clearly differentiated.

The periods of increased volcanic activity of type C are generally the same as 11 - year period of increased solar activity. At the same time, the comparison of the graphic of the active volcanoes of P-type with the solar activity graphs has brought to opposite conclusions. With the increase in solar activity the activity of volcanoes of type R decreases. The results of investigations make it possible to suggest that periods of compression of the Earth (subduction) are followed by periods of expansion (spreading).

Establishing the statistical relationship between the time of volcanic activity and solar activity, make us possible to think about the existence of such a connection between solar activity and seismicity of the Earth.

On the basis of research about 2000 earthquakes in different regions of the Earth for a period of one cycle of solar activity from 1962 to 1973, a lot of scientists concluded that the number of surface earthquakes increase with increase of solar activity, and the number of deep-decreasing decrease in the era of maximum solar activity.

The identification of cyclicity in seismic and volcanic activities and their correlation with solar activity and other space processes is important for understanding of the interaction of various space and geodynamic factors and building a single conceptual system of cosmo-terrestrial interactions.