



## On the ionosphere response to earthquake in the ULF frequency range

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Possible connection between a certain type of the ionosphere disturbances and the seismic events has been noted repeatedly in the literature. First reports on this topic by Birfeld appeared back in the middle of last century. He described effects of the powerful volcanic eruptions on the ionosphere. As an agent transferring the energy of volcano to the upper atmosphere the infrasound waves were suggested. Amplitude of these waves increases in inverse proportion to the medium density as the wave propagates upward from the Earth's surface. In more recent times, the ionosphere disturbances initiated by earthquakes have been observed time and again by methods of radio sounding and by direct satellite measurements of electron density variations.

Ionospheric Alfvén resonances are known to be very sensitive to the state of the ionospheric layers. They are only observed for magnetically quiet conditions. So an impact from earthquake can easily destroy the resonance structure of waves. Starting from this consideration we searched for seismic effects in the behaviour of ionospheric Alfvén resonances using data from two mid-latitude observational points. First a comparative analysis of the ionospheric Alfvén resonance observations at these stations separated by 70 degrees in longitude has been made. Band frequencies, their temporal variation, qualitative characteristics of intensity were compared, and the resonator fundamental frequencies at two points were estimated. Our study revealed various examples of the ionosphere response to seismic impacts. We have found many events when IAR structure changed in answer to earthquake, both disappearing and enhancing its manifestation in the observations. The work was supported by RFBR grants 03-05-64361 and 04-05-64265.