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Explanation of Lithosphere-Atmosphere-Ionosphere Coupling System Anomalous Geophysical Phenomena on the Basis of the Model of Generation of Electromagnetic Emissions Detected Before Earthquake

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At the present time there are rather diverse and interesting papers, published in the scientific world on the basis of ground-based and satellite data of earth VLF/LF and ULF electromagnetic (EM) emissions observed in earthquake preparation period. These phenomena are detectable both at laboratory and geological scale. Besides, Laboratory as well as field experiments showed that electromagnetic emissions is connected with the appearance of faults formations in the earthquake focus.
Based on the model of generation of electromagnetic emissions detected before earthquake and classical electrodynamics, the present item considers possible physical mechanisms of the geophysical phenomena which may accompany earthquake preparation process and expose themselves several months, weeks or days prior to earthquakes (changing of intensity of electro-telluric current in focal area, perturbations of geomagnetic field in forms of irregular pulsations or regular short-period pulsations, perturbations of atmospheric electric field, irregular changing of characteristic parameters of the lower ionosphere: plasma frequency, electron concentration, height of D layer, etc., irregular perturbations reaching the upper ionosphere, namely F2-layer, for 2-3 days before the earthquake, increased intensity of electromagnetic emissions in upper ionosphere in several hours or tenths of minutes before earthquake, lighting before earthquake, infrared radiation, total Electron Content (TEC) anomalies).
The authors of the present work consider that VLF/LF electromagnetic emissions fixed before earthquake, which, apparently offers us relatively thorough information enabling us to make prognostic conclusions, should be considered as a “main precursor” of the earthquake, or simply, as a “precursor”, while the above listed phenomena which are fixed in the process of earthquake preparation, having direct connection with processes in the focal area, but don’t enable us to make diagnostic conclusions, can be considered as “earthquake indicators”.