



On the possible influence of radon and aerosol injection into the atmosphere and ionosphere before earthquakes

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One of the main consequences of the injection of radioactive radon gas into the atmosphere before earthquakes is its additional ionisation. The enhancement of the density of the ions and charged aerosols, further, causes increasing numbers of condensation centers of the water vapour above the earthquake fracture regions. Besides, specific types of clouds are formed, which are to be found on photographs taken by space experiments and can be used for earthquake prediction. Moreover, the radon injection into an atmosphere with aerosols of sufficiently high density is connected with pulses of atmospheric infrared emissions, which can also be registered. As shown by Frenkel (1949), atmospheric clouds of water vapour may be electrogravitational generators. But, as observed e.g. by the experiment MASSA, also clouds of atmospheric solid aerosols may play the role of such generators. In the present work, the possible non-stationary generation and destruction of a local vertical electric field above an earthquake fracture region is analysed, which is caused by the injection of radon in an atmosphere with aerosols. It is suggested that the aerosol consists of two chemical components with diameters of $1 \mu\text{m}$ and $10 \mu\text{m}$. Under such conditions, the large particles are positively charged, and the small particles possess a negative charge. The velocity of the small particles is much smaller than the velocity of the charge separation and the generation of the local non-stationary electric field. In the model, an aerosol cloud of rather small dimension is suddenly injected into the near-earth atmosphere which is locally heated. The cloud gets into an upward propagating air flux. As

a result, pulses of atmospheric electric fields as well as atmospheric disturbances with characteristic time scales of 30 minutes occur.