



## **Potential Earth weather controlling agent in the solar-terrestrial physics**

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Microwave radiation of the Earth ionosphere during solar flares and geomagnetic storms as well as microwave bursts from the Sun are supposed to control the condensation processes in the low atmosphere and thus influence the weather. This hypothesis is based on taking into account the excitation of Rydberg states of atoms and molecules in generation of the ionospheric microwave radiation and in realization of the three body dissociative recombination of cluster ions in low atmosphere. The main basis for this study is the following positions: - during the weather observations was found that some weather characteristics correlate with the bursts of solar microwave radiation; - investigations of low atmosphere transparency and of water vapor concentration has shown that microwave radiation has an influence on clusterisation of the water vapor during the condensation process; - sporadic increase of the intensity of the ionospheric microwave radiation in SHF and UHF ranges during solar flares and magnetic storms was registered. Coefficients of the rates of the water cluster dissociation depend strongly on the orbital quantum moment of Rydberg electron excited at the initial stage of the three body collisional dissociative recombination. Probability of the dissociation of the cluster ions decreases for the high values of the orbital quantum number. Therefore in the periods of bursts of microwave radiation of the Sun as well as sporadic microwave radiation of the ionosphere the induced population of the high orbital quantum numbers would be going on and as a result the rate of dissociation of the cluster ions in the low atmosphere would decrease. All these phenomena would change the atmosphere transparency and thus the weather characteristics (temperature, relative humidity and atmospheric pressure).