

Schumann resonance changes during solar proton event of 14 July, 2000

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The variations of the first and second Schumann resonance frequencies in Lovozero, Lekhta, and Karimshino have been studied for the proton event of July 14, 2000. It is found that during the peaks of the high energy proton penetration between 1100 and 1700 UT the frequencies decrease by 0.3 Hz. An increase of the first frequency was observed during the very intense solar X-ray burst at 1020 UT. The bandwidth of the first resonance mode is found to increase from usual 2 Hz to 3 Hz in the X-ray and proton precipitation interval.

The frequency variations can be explained by changes of dielectric permeability in the Earth-ionosphere cavity, the changes being especially significant in the layers where the main fraction of the wave energy is localized.