SPATIAL STRUCTURE OF THE IONOSPHERE MODIFIED BY POWERFUL HF RADIO WAVES

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To study spatial structure of the ionosphere disturbed volume over the Sura heating facility, we performed satellite radio tomography measurements of plasma density perturbations and in situ plasma density and temperature measurements by instruments aboard satellite DEMETER. We observed: 1) generation of artificial large-scale plasma density and electron temperature irregularities occupying a region of ~ 300- 400 km in the N-S direction, as well as existence of a solitary depletion with a negative plasma density variation; 2) formation of a duct at altitude of ~ 700 km with increased plasma density of ~ 20-30 % relatively to a background density.