

**SPATIAL BEHAVIOR OF D-REGION PLASMA PARAMETERS  
DURING THE DOMINANT INFLUENCE OF Ly $\alpha$  LINE  
AFTER A SOLAR X-RAY FLARE**

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Ly $\alpha$  photons emitted by solar hydrogen dominate in ionization within the upper ionospheric D-region during quiet, unperturbed, conditions when plasma parameters are in a quasi-equilibrium state. Occurrence of sudden events induces specific time and space dependent perturbations of plasma characteristics which is the subject of our paper. In this sense, we study variations of plasma parameters and their gradients lasting after occurrence of a solar X-ray flare when the major ionization source at the D-region altitudes above 70 km are Ly $\alpha$  photons. In particular, we analyze behavior of the electron density, effective recombination coefficient, and photo-ionization and recombination rates.