

The influence of magnetic activity on the formation of the aerosol layers in the stratosphere.

V. V. Bychkov (1), V. N. Marichev (2), **B. M. Shevtsov** (1), I.V. Zhivetiev (1)

(1) Institute of Cosmophysical Researches and Radio Wave Propagation, (2) Institute of Atmospheric Optics, Russia (bshev@ikir.kamchatka.ru)

On the results of lidar observations carried out at night over the Tomsk region in March 1988 1989 and 1998 years aerosol layers with increased scattering properties at the height of about 45 km, which appeared during magnetic storms, were detected. Correlation function of geomagnetic disturbance with aerosol density variations was determined and the relationship between these processes was shown. As the characteristic feature of dynamics of aerosol formations in the upper stratosphere was marked their lowering down to 10 km altitude with the speed of about 5 km per day.

Possible mechanisms of the additional ionization are discussed, such as energetic particle precipitation from the Earth radiation belt and the formation of aerosol layers in the upper stratosphere. Features of aerosol layers dynamics are discussed with account of the atmosphere structure influence.