



Lidar observations of tropical stratospheric aerosol transfer over the Western Siberia

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Lidar observations of stratospheric aerosol stratification were carried out in Tomsk in 2008-2013 by stratospheric lidar station of the V.E. Zuev Institute of Atmospheric Optics, Siberian Branch, Russian Academy of Sciences. A diffuse peaks of back scattering ratio were regularly observed in spring and autumn seasons at altitudes of 13-25 km, with maximum at altitudes of 16-18 km. The maximum value usually didn't exceed 1.2, with measurement error of 0.05.

To analyze the aerosol transfer we calculated the isotropic air masses trajectories by the method described in the work (Cheremisin et al., 2011).

Back trajectories calculations have shown that at the diffuse aerosol peak altitudes of 16-18 km the air masses trajectories reached Tomsk in 14-18 days from tropical latitudes from altitudes of 18-20 km. According to stratospheric aerosol climatology described by Hitchman et al., 1994, for these altitudes over Tomsk the aerosol can be transferred from tropical stratospheric reservoir, whose aerosol content maximum is located on the equatorial zone at altitudes of 20-21km.

Therefore according to conducted analysis, increased aerosol content at altitudes of 16-18 km in summer over Tomsk may be related to air masses transfer from Hitchman tropic aerosol reservoir.

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