



Spatial and seasonal features of the distribution of the aerosol optical thickness of the ground-based and satellite measurements over European part of Russian Federation.

Konstantin Verichev

A.M.Obukhov Institute of Atmospheric Physics Russian Academy of Sciences, Moscow, Russian Federation
(rockford66@mail.ru)

The spatial distribution of mean monthly values of the aerosol optical thickness at 550 nm (AOT 550) over Russia with a spatial resolution $1 \times 1^\circ$ was created using satellite data MODIS (Terra/Aqua, collection 5.1) for the period 2000 to 2013. MODIS retrieval algorithm AOT550 not recovers data over the territories with a high surface albedo. For such situations, we have developed a special retrieval algorithm AOT 550, which uses ground-based data. Used data from the Russian actinometric network stations and an international network of AERONET. Ground-based data were averaged over homogeneous climatic regions, because in Russia is not a large network of ground-based stations. In result was created composite maps of the distribution of monthly averages AOT550 over European part of Russia, which combine ground-based and satellite measurements. In conjunction with climate maps of the IRI / LDEO Climate Data Library (maps of average monthly precipitations and the general direction of the wind at 925 hPa for the period 1961-1990) identified the main features of the spatial distribution of AOT 550. In homogeneous climatic regions have been identified particularly intra-annual variability of monthly averages of AOT 550.