



## **Atmospheric aerosol properties over Ukraine from sunphotometer and satellite measurements during 2008 - 2011**

G. Milinevsky (1), V. Danylevsky (1), A. Bovchaliuk (1), V. Bovchaliuk (1), M. Sosonkin (2), Ph. Goloub (3), and O. Dubovik (3)

(1) Kyiv National Taras Shevchenko University, Space Physics Laboratory, Physics Department, Kyiv, Ukraine (genmilinevsky@gmail.com, +38 044 5264507), (2) Main Astronomical Observatory of National Academy of Sciences of Ukraine, Kyiv, Ukraine, (3) Universite de Lille, Lille, France

Regular aerosol optical properties measurements by sunphotometers CE318 according AERONET program have been started in Ukraine since 2007 in Sevastopol. In April 2008 the permanent AERONET/PHOTONS site has been established in Kyiv. The mobile site with sunphotometers 318N and Microtops II for measurements in other Ukraine regions provided aerosol observations in East Ukraine in temporary AERONET site Lugansk in November 2011 – February 2012. Aerosol data development from 318 and 318N sunphotometers is provided automatically by AERONET algorithm. The aerosol parameters – spectral aerosol optical thickness (AOT) and Angstrom exponent – are retrieved from direct solar irradiation measurements. Using sky radiation observations by scanning along the almucantar we obtain aerosol particles columnar properties – single-scattering albedo, complex refractive index, aerosol particles size distribution. Microtops II data give information about AOT and Angstrom exponent. The satellite POLDER/PARASOL data were used to analyse aerosol atmosphere pollution over Ukraine together with our AERONET measurements. Groundbased sunphotometers observations we use for validation of the satellite data. The set of aerosol particles parameters on the base of sunphotometer CE318 measurements mainly over Kyiv site during four years and results of aerosol behavior and properties over other Ukraine regions including satellite data are discussed. The comparison of aerosol properties over Kyiv site and other AERONET sites in Europe and World is given. The analysis shows that the atmosphere aerosol pollution over Kyiv site is similar to other urban sites in Europe with dominance of fine mode aerosol particles. The results are used for aerosol radiative forcing evaluation and for study the impact of aerosol pollution on regional climate variations.

This publication is based on work supported by Award No. UKG2-2969-KV-09 of the U.S. Civilian Research & Development Foundation (CRDF).