

## AEROSOL RESEARCH NETWORK POLAND-AOD

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### ABSTRACT

The main goal of the Poland-AOD research network (<http://polandaod.pl/>), which was established on 26 October 2011, is to conduct ongoing measurements and studies of aerosol physical and optical properties with an emphasis on radiative balance.

The network consists of the following stations:

- Radiative Transfer Laboratory at the Institute of Geophysics, Physics Department of the University of Warsaw (central Poland),
- Research Station at the Institute of Oceanology Polish Academy of Sciences in Sopot (Baltic coast),
- SolarAOT Research Station for the studies of Radiative Transfer in Strzyzow (south of Poland),
- Meteorology and Climatology Observatory at Nicolaus Copernicus University in Torun,
- EcoForecast Foundation.

The Poland-AOD network research goals include:

- Experimental studies and modeling of direct aerosol effect (at ground and top of the atmosphere) in/over Poland,
- Description of climatology of aerosol optical properties over Poland,
- Studies of transformation of aerosol optical properties from observations and transport models (NAAPS, GEM-AQ),
- Validation of reverse methods to determine aerosol optical depth and single scattering albedo using satellite data from the MSG-9 and ground-truth measurements,
- Instrument calibration.

The data collected within the framework of the Poland-AOD network are available at three levels (1.0, 1.5 and 2.0). Level 1.0 includes raw data from the instruments without calibration. In general these data are available in the ASCII format. The lidar data are in the binary format and those from a ceilometer in the NetCDF. Level 1.5 includes data with initial calibration applied and without values obtained during measurements made in cloudy conditions. The data are available in the mat file format (MATLAB). Level 2.0 includes data with the final calibration values applied to the data set. The data are available in the mat file format (MATLAB).

Types of data available in the database:

- total shortwave radiation fluxes,
- spectral fluxes of total and scattered direct radiation at: 415, 500, 610, 675, 870 and 940 nm,
- AOD at: 415, 500, 610, 675, 870 nm,
- Angstroem exponent,
- total columnar vapor content,
- aerosol extinction profiles,
- single scattering albedo.