

Abstract

This master thesis analyses light scattering on atmospheric aerosols, which has been measured at Košetice observatory in Pelhřimov region since 2012. In the thesis, data are processed for period from 1. 1. 2014 to 31. 12. 2015 which provide representative values of scattering and backscattering light measurement. Angstroem exponent was calculated based on which data corrections were performed. Data were processed using hour steps and compared with meteorological and emissions concentrations data. Correlations were calculated and regressions models estimated in order to verify correctness of measurement and to explore impact of meteorological conditions and emissions concentrations $PM_{2,5}$ and PM_{10} on scattering coefficients.

Performed analyses imply, that light scattering is higher for higher concentrations of $PM_{2,5}$ and PM_{10} and for higher relative air humidity and lower for higher outdoor temperature, total precipitations, and wind speed. In addition, it was showed that light scattering is influenced by wind direction, which determines compositions of aerosols in the sample.

Key words: atmospheric aerosol, light scattering, time series evaluation