

Abstract

The aim of this thesis is to analyze and evaluate temporal and spatial patterns of concentrations of ambient ozone in the CHKO Jizerské hory. The Jizerské hory Mts. are an area where one of the highest concentrations of ambient ozone are measured every year and, therefore, our attention was focused on this area.

The measurements were carried out between 2006 and 2010 at 13 sites (714–1000 m n. m.) in the CHKO Jizerské hory. From the input data, which were fortnightly average nitrate concentrations created on the filters of Ogawa passive samplers, fortnightly average concentrations of ambient ozone were computed using the empirical flow.

Ambient ozone concentrations ranged from 13,8 ppb (year 2007) to 72,1 ppb (year 2006). From the five-year period under study defy the year 2006, when the highest concentrations of ambient ozone were measured. The lowest concentrations occurred in 2009.

In all years, the concentrations of ambient ozone increased with increasing elevation and this gradient ranged from 2,7 to 4,6 ppb on 100 meters altitude. The accuracy and precision of measurement was very good (accuracy: $R^2 = 82 \%$; precision: $R^2 = 98 \%$).

By multiple linear regression it was found, that ambient ozone concentration are influenced, in addition to the altitude, by ozone concentrations from previous investigations, as well as by nitrogen monoxide and nitrogen dioxide concentrations, relative humidity and wind speed. Solar intensity played an important role just between 2006 and 2010. Despite the expectations the model showed, that temperature, wind direction, sulphur dioxide concentration and concentration of suspended particles do not play a major role with respect to ambient ozone generation.