

ABSTRACT

This thesis is concerned with the regime of ground-level ozone and influence of selected meteorological elements on its concentration. Due to short time of persistence in the tropospheric air ground-level ozone has temporally and spatially variable concentration. Therefore we especially in the warm seasons observe high-level concentrations having a negative impact on human health and ecosystems. The aim of this thesis is to recover a possible links of the selected meteorological elements and pollutants concentrations to the ground-level ozone concentration.

We discovered that annual regime is managed by sun declination. At comparison of winter minimum and summer maximum the effect of sun declination was express in numbers in order 75 % as far as 80 % for all three stations. But when we focus on short time episodes, e. g. daily changes, the influence of sun declination is almost negligible.

The extinction of solar radiation in atmosphere and concentrations of ozone precursors are factors which decisive of ground-level ozone concentration during this short time episodes. When occur a conditions for increased penetration of solar radiation to the earths surface, especially low cloudiness, low absolute humidity and low column of total ozone, photochemical activity becomes more intensive and concentration of ground-level ozone raises. The stronger correlation between radiation factors and ground-level ozone concentration was detected at the stations in countryside or elevated environment.

At the stations situated in urban environment this relation is not so strong. On the contrary at this stations we prove negative strong correlation between ground-level ozone and its precursors concentrations. So if we take a profil from urban environment to countryside and mountains, rate of dependence will step by step escalate for factors biasing solar radiation and step by step sink for ozone precursors. Of course we can also consider shift of main cause of high concentrations of ground-level ozone.