

Comparison of the optical depth of total ozone and atmospheric aerosols for Poprad-Gánovce, Slovakia

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Atmospheric ozone along with aerosols significantly affect the amount of ultraviolet solar radiation that reaches the earth's surface. This work has focused on the comparison of the optical depth of total ozone and atmospheric aerosols in Poprad-Gánovce location, which is situated at altitude of 706 meters above sea level, close to the highest peak of the Carpathian Mountains. Measurements of direct sun ultraviolet radiation are carried out continuously since 1994 by Brewer ozone spectrophotometer type MK IV. These measurements are used to calculate the total amount of ozone and consequently the optical depth. Measurements can also be used to determine the optical depth of atmospheric aerosols by Langley plot method. In the study is depicted the comparison of those two factors, which result in significant attenuation of the flow of direct sun ultraviolet radiation on the earth's surface. The present work is showing results of measurements over 22 years, since 1994 to 2015. The values of optical depth are determined for wavelengths 306.3nm, 310.1 nm, 313.5 nm, 316.8 nm and 320.1 nm.