Geophysical Research Abstracts, Vol. 9, 06868, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06868


# UV (ultraviolet) exposure as a function of weather, occupation and 3-D environment in Vienna and environment

E. Claudia (1), **P. Weihs (1)**, A. Schmalwieser (2)

1. Institute of Meteorology, University of Applied Life Sciences and Natural Ressources (BOKU), Vienna, Austria
2. Institute of Medical Physics and biostatistics. University of Veterinary Medicine, Vienna, Austria

Well known effects of Ultraviolet (UV) radiation on human health are among others the premature aging of skin, development of skin cancer, development of eye cataracts, weakening of the immune system. There are also some positive effect of UV on human health such as the production of vitamin D. The UV dose is usually quantified using the erythemal UV irradiance as well as the UV index. Using these quantities it is possible to quantify the stress due to UV radiation.

Within the scope of the present study we investigate the UV exposure as a function of weather, occupation and 3-D environment in Greater Vienna.

These investigations were performed using Gigahertz personal dosimeters.

The first step of our studies consisted of a test of the calibration of the UV dosimeters.

Second, measurements of the exposure were performed during two months (from May to July) every day during solar noon time and for lower solar elevations (at defined solar zenith angles intervals).

These measurements were performed for different weather conditions, in different environments and in different occupations (shopping, cycling, walking, taking a sun bath). We first present absolute levels of UV exposure to assess the risks to the Viennese population during this time period.
We second analyse the influence of the surroundings and of occupation on the received

UV doses by looking at the ratio of the measured UV levels to reference UV measurements performed at the same time on a flat horizontal surface without obstruction of the horizon.

Using this technique it is possible to quantify the effect of occupation and of 3-D surrounding on received UV doses.