



## **Measurements of UV irradiance within the area of one satellite pixel**

**Philipp Weihs**(1), Mario Blumthaler(2), Harald Rieder(1,3,\*), Axel Kreuter(2), Stana Simic(1), Wolfgang Laube(1), Alois Schmalwieser(5), Jochen Wagner(1) and Aapo Tanskanen(4)

[[1] {Institute for Meteorology, Department Water - Atmosphere - Environment, University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria}[2] { Division for Biomedical Physics, Innsbruck Medical University, Innsbruck, Austria}[3] {Institute for Geography and Regional Research, University of Vienna, Vienna, Austria}[4] {Finish Meteorological Institute, Helsinki, Finland}[5] {Division for Medical Physics and Biostatistics, Veterinary University Vienna, Vienna, Austria}

A measurement campaign was performed in the region of Vienna and its surroundings from May to July 2007. Within the scope of this campaign erythemal UV was measured at six ground stations within a radius of 30 km. First, the homogeneity of the UV levels within the area of one satellite pixel was studied. Second, the ground UV was compared to ground UV retrieved by the ozone monitoring instrument (OMI) onboard the NASA EOS Aura Spacecraft. During clear sky conditions the difference in erythemal UV measured by the different stations was within the measurement uncertainty of 8%. For partly cloudy conditions and total overcast conditions the discrepancy of momently values between the stations is up to 200% or even higher. If averages of the UV index over longer time periods are compared the difference between the stations decreases strongly. The agreement is better than 20% within a distance of 10 km between the stations for 3 hour averages. The comparison with OMI UV showed for clear sky conditions higher satellite retrieved UV values by on the average approximately 15%. The OMI retrieved to ground measured UV ratio shows a strong positive dependence on aerosol optical depth. During partly cloudy and totally overcast conditions most of the OMI values are substantially higher than ground measured UV.