



## **Impact of aerosol particle concentrations on UV index prediction**

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Since 1984, the Brewer spectrophotometer #016 has measured the ozone column at Uccle near Brussels in Belgium (50°48'N, 4°21'E, 100m) from the direct sun observations at five wavelengths in the UV-B: 306.3nm, 310.1nm, 313.5nm, 316.7nm and 320.1nm. Previous studies developed [*Cheymol and De Backer, 2003*] and validated at Uccle [*Cheymol et al., 2006*] a method to retrieve the aerosol optical depth (AOD) from these observations in the UV-B. Now this method can be used to retrieve the AOD for any existing Brewer data set and in particular for the time series at Uccle since 1984. A seasonal variation of the AOD is clearly observed with a maximum and a minimum in winter and in summer, respectively. Brewer instrument #016 also measures the UV-B radiation on a horizontal surface in the region 290-325 nm several times per day. As the UV dome was installed on the Brewer instrument #016 in 1989, this study covers the period 1989 until now. It was pointed out in recent years that aerosols play an important role in climate forcing [*Wenny et al., 1998*]. To quantify the aerosol impact on UV-B at Uccle, the relation between AOD and UV quantity measured at the surface will be investigated. A careful selection of clear sky conditions will be made. The AOD inferred from this method will be used as input in the UV index forecast model used at the RMIB based on the Madronich scheme. It is expected that more realistic aerosol parameters will improve the quality of the UV predictions [*De Backer, 2001*]. The errors associated with the lack of knowledge of aerosol concentrations will be estimated. Quantification of these errors is important for the estimation of the accuracy of reconstructions of UV time series from proxies as is aimed for example by COST726.