



## **Spectral measurement of UV irradiance in polar regions**

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Since 1997, spectral UVB irradiance (280-320 nm) is being monitored at the NDSC primary site at Ny-Alesund, Spitsbergen (78.9° N, 11.9° E) and at the German Antarctic Neumayer Station (70.65° S, 8.25° W, complementary NSDC site) by the Alfred Wegener Institute for Polar and Marine Research (AWI). The UVB-spectroradiometer is based on a Bentham DTM150 double monochromator and a Microchannel Photomultiplier Plate with 32 channels. An additional instrument was installed at Ny Alesund in 2000 and at Neumayer in 2001 to cover also the UVA range (320-400 nm) of the solar spectrum. This instrument contains a single monochromator as the dynamic range is low in the UVA compared to the UVB. The detector is a photodiode array with 256 detection channels. Single spectra can be sampled every second. In routine operation they are stored as 5-minute averages.

In addition to the AWI instruments, the Institute for Meteorology and Climatology of the University of Hannover, has deployed a newly developed spectroradiometric system at Neumayer during the austral summer 2003/04. Aim of this campaign was to characterize the solar radiation conditions in an Antarctic environment. These are different from other areas of the Earth due to extremely high reflection of the ground (albedo). Relatively low cloud optical depths and ozone depletion further contribute to rather different radiation conditions compared to mid-latitudes. Especially in combination with the AWI time series, the investigation of these conditions will improve the

understanding of the impact of climate change and ozone depletion in polar regions.