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Total ozone observations at Antarctic with the NILU-UV radiometer: comparison with satellite and ground-based measurements

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Three NILU-UV multichannel radiometers have been installed in 1999 at the Argentinean sites of Ushuaia (54S), Marambio (64S) and Belgrano II (77S) in order to continuously monitor total ozone, UV radiation, and photosynthetically active radiation. The measurements were established by INM, Spain in collaboration with FMI, Finland, DNA-IAA, Argentina and CADIC, Argentina to observe and characterize the spatial and temporal evolution of ozone and ultraviolet radiation in the Antarctic region. Special attention has been given to the quality control and quality assurance of the measurements under harsh climatological conditions. The ozone and UV time series of 2000-2007 were calibrated using a polynomial fit for lamp measurements performed every second week all year round. All data are accessible through ww.polarvortex.org in near real time including the erythemally-weighted UV, UVB and UVA radiation, photosynthetically active radiation (PAR), total ozone (O3) and a cloud parameter (CLT). Total ozone series obtained (2000-2007) are compared against independent measurements derived from OMI (Ozone Monitoring Instrument) on the EOS-AURA and ENVISAT-SCIAMACHY satellites and ground based instruments: Dobson instruments of National Meteorological Service of Argentina (SMNA) at Ushuaia and Marambio and Brewer instrument at Belgrano II.