Geophysical Research Abstracts, Vol. 8, 02352, 2006
SRef-ID: 1607-7962/gra/EGU06-A-02352

Seasonal variation of carbonaceous aerosols in the Austral Ocean

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We report here, for the first time, seasonal variations of Black Carbon (BC) and Organic Carbon (OC) in the marine boundary layer of the Austral Ocean. These measurements will address the question of natural organic aerosol sources over ocean, as well as, the contribution of continental sources to the levels of carbonaceous aerosols in remote marine locations.

These measurements were obtained from a 3-year continuous filter sampling at Amsterdam Isl. (37.52˚S, 77.32˚E) and Crozet Archipelago (46.30˚S, 51.00˚E) located both in the Southern Indian Ocean. Carbonaceous measurements (BC + OC) were derived from weekly bulk aerosol sampling on Quartz (QMA) pre-fired filters; Carbon analysis being performed on a commercially available carbon analyzer (Sunset Lab., OCEC lab instrument) configured with a "DRI" temperature program used within the IMPROVE network. Optical measurements of BC were also performed on the QMA filters of Amsterdam Isl. and compared with other real-time measurements performed on-site (BC, Radon 222, CO, CO2)

Seasonal variations of bulk aerosol concentrations of BC and OC and light organic acids are presented here and were compared to the seasonal variations of natural aerosol sources of the Austral Ocean (sea salt and biogenic sulphate aerosols derived from the oxidation of DMS), and continental aerosol sources originating from long-range transport.