

Ion composition of precipitation samples collected in an high alpine environment (Sonnblick Observatory, 3106 m a.s.l.)

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Triggered by the phenomenon of acid rain wet deposition sampling was initiated at the Sonnblick Observatory (main alpine ridge, 3106 m a.s.l.) in 1987. Despite the low concentrations observed at the site the high precipitation amounts led to a significant input of sulfur and nitrogen in the high alpine region. Sampling of rain water and snow was and is performed with a Wet and Dry Only Sampler (WADOS) on a daily basis. Chemical analysis of rain water and snow samples comprises anions (chloride, nitrate, sulfate) and cations (sodium, ammonium, potassium, calcium and magnesium) as well as pH and electrical conductivity. Organic acids were determined during a limited time period only. To check the quality of analyses as well as the completeness of the analytical approach ion balances as well as conductivity balances were performed routinely.

Besides a general outline of average concentration values and deposition amounts this presentation has the focus on the main deviations observed for the quality checks mentioned above (ion balance and conductivity balance) and relates them to the possible or actually observed input of mineral dust, most likely reflecting the influence of long range transport of desert dust, to the high alpine site. Furthermore the contribution of organic acids is discussed. As the Austrian network of wet deposition sampling comprises stations at low altitudes as well the data obtained for samples collected at Sonnblick Observatory is compared to results obtained at low elevation sites.