



Concentrations of dicarboxylic acids in freshly precipitated snow samples at the high altitude research station Jungfraujoch during CLACE 5

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Samples of freshly precipitated snow were collected at the high alpine research station Jungfraujoch (Switzerland, 3580 m asl) in February and March 2006 during CLACE 5 (CLOUD and Aerosol Characterization Experiment) in order to determine the content of water-soluble organic compounds. The melted snow samples were extracted by solid phase extraction and analysed for organic acids by HPLC-MS-TOF using negative electrospray ionization. A series of linear dicarboxylic acids was identified and quantified, ranging from 5 to 13 carbon atoms as well as the aromatic acid phthalic acid. The median concentration of the most abundant acid adipic acid was $0.74 \mu\text{g/L}$, followed by glutaric and azelaic acid with $0.48 \mu\text{g/L}$ and $0.36 \mu\text{g/L}$, respectively. The aromatic acid phthalic acid showed a median concentration of $0.35 \mu\text{g/L}$. The concentrations in the samples from various snowfall events varied significantly, depending on the back trajectory of the air mass arriving at the Jungfraujoch and the number of clear days before snow fall. Air masses of marine origin showed the lowest concentrations, whereas the highest concentrations were measured when the air mass circulated over Switzerland for several days.