



Calibration of micro-particle analysers for ice core studies

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Micro-particles have been analysed for various ice cores. Temporal variations of size distribution and flux have provided valuable information on the past climatic and environmental changes. Comparison of the results obtained with different types of micro-particle analysers needs caution. First, careful calibration of each analyser is essential. Using polystyrene latex standard particles with different sizes, we have carried out extensive calibration experiments on three types of micro-particle analysers: Coulter Multisizer 4 (which measures volume of each particle and the total counts of particles in a given sample volume), Klotz Abakus (which detects shading of laser light caused by each particle), and Met One Model 211 (a laser scattering type particle analyser). The former two are most widely used analysers in the ice core community. We could obtain calibration curves much better than the ones provided by the manufactures of the three analysers. Second, we investigated how the three particle analysers define particle size. Here we report the results of the calibration experiments and compare the three analysers.