

Name of research institute or organization:

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**School of Earth, Atmospheric and Environmental Sciences,  
University of Manchester**

Title of project:

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CLoud Aerosol Characterisation Experiment 3 (CLACE 3)

Project leader and team

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Dr Keith Bower

Project description:

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This experiment took place in March 2004 and aimed to physically and chemically characterise ice nuclei by applying a range of state of the art in situ and offline techniques. These measurements were coupled to direct measurements crystal number and morphology and cloud microphysics to estimate the proportion of ice crystals formed by primary ice nucleation processes and those formed from secondary ice multiplication mechanisms over a range of temperatures. The consequences of ice formation on cloud droplets (Bergeron-Findeisen process) were also be studied. The microphysics shows that the cloud particles change their phase over very short timescales. Rapid glaciation takes place on the timescale of a minute or less. The aerosol composition shows significant nitrate and organic concentrations in ascending air masses but sulphate dominates and becomes acidic in nature in descending anti-cyclonic air. Currently data analysis is still underway.

Key words:

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Aerosol cloud interactions, ice nuclei

Address:

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