

Subproject: Field campaign at Villum Research Station to look into the cloud forming potential of atmospheric particles

Actual field dates: 15. April – 7. May and 11. August – 1. September 2016
Field site: Villum Research Station, Station Nord
Number of man-days in the field: 43

Summary:

In this field season Robert Lange (PHD student) at AU was two times visiting Villum Research Station in North Greenland for a period of about three weeks. He carried out measurements investigating the hygroscopicity and cloud condensation nuclei (CCN) activity of Arctic aerosols. This was done during the polluted (Arctic haze) and the clean (summer period characterized by natural aerosols) season. The data is of high importance with respect to the formation of clouds in the high Arctic as clouds can have strong climate effects. Robert is currently working on the data evaluation and will have the mid-term evaluation of his PHD project in spring 2017. In addition, Robert took atmospheric filter samples during both field studies which are under investigation by Assistant Professor Tina Santl Temkiv at AU. Based on these samples the question if and which kind of bacteria are present in the Arctic atmosphere will be enlightened. A key question will be if such bacteria are active as ice nuclei (IN). Tina is presently working on the analysis of the collected samples.

Photos:

Photo 1: Credit: Robert Lange

Caption: Night time at Station Nord military base. Around midnight 3. Maj during calm conditions, fog came in from the north.

Photo 2: Credit: Robert Lange

Caption: Instruments in the VRS air measurement hut recording data. Laptop in upper part is displaying total atmospheric particle numbers, as measured with condensational particle counter. Bottom instrument is a Cloud Condensation Nuclei Counter, measuring the ability of atmospheric particle to form cloud droplets.

Photo 3: Credit: Robert Lange
Caption: The VRS air measurement hut as seen from the south-west, looking in north-east direction. Foreground: drinking water lake, where Station Nord personnel extract daily drinking water from. A number of air in- and outtakes are seen extending from the roof of the measurement hut. Right of the hut, the southern part of Princess Dagmar island is seen. The southern tip is seen just left of the hut.



Photo 1



Photo 2

Participants:

AU: Robert Lange (PHD student)

Acknowledgements:

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Photo 3