Project: **1037**
Project title: **AC3 - ACLOUD**
Project lead: **Johannes Quaas**
Report period: **1.1.2017 - 31.12.2017**

The aim of this project was to accompany the ACLOUD measurement campaign within the Arctic Amplification ((AC)³) Collaborative Research Centre (http://ac3-tr.de). Details about the ACLOUD campaign, that also was well-covered by public-outreach media (www.ac3-tr.de/outreach/), can be found at acloud2017.blogspot.de.

The high-resolved (1 km resolution) ICON model in NWP mode consistent with the NARVAL-II -simulations for the Tropical Atlantic Ocean were successfully set up. The high-resolution forecasts initialized from the current ECMWF analyses (IFS) were made available in real time to the ACLOUD campaign team and helped steer the research flights.

An example is shown in Fig. 1: The ICON model has proven very well able to capture imporant details of the observed clouds.

The modelling results were presented at a model-data interfacing workshop, and will be used to interpret the observational data and to put these into context. For the next year, additional sensitivity studies are planned that help deepen the understanding and interpretation of the measurements.

References

*Wendisch, Manfred, Marlen Brückner, John Burrows, Susanne Crewell, Klaus Dethloff, Kerstin Ebell, Christof Lüpkes, Andreas Macke, Justus Notholt, **J. Quaas**, Annette Rinke, and Ina Tegen, The Arctic Amplifier - Novel Science Planned in a New German Research Initiative, EOS, 98, doi:10.1029/2017EO064803, 2017.*

Figures

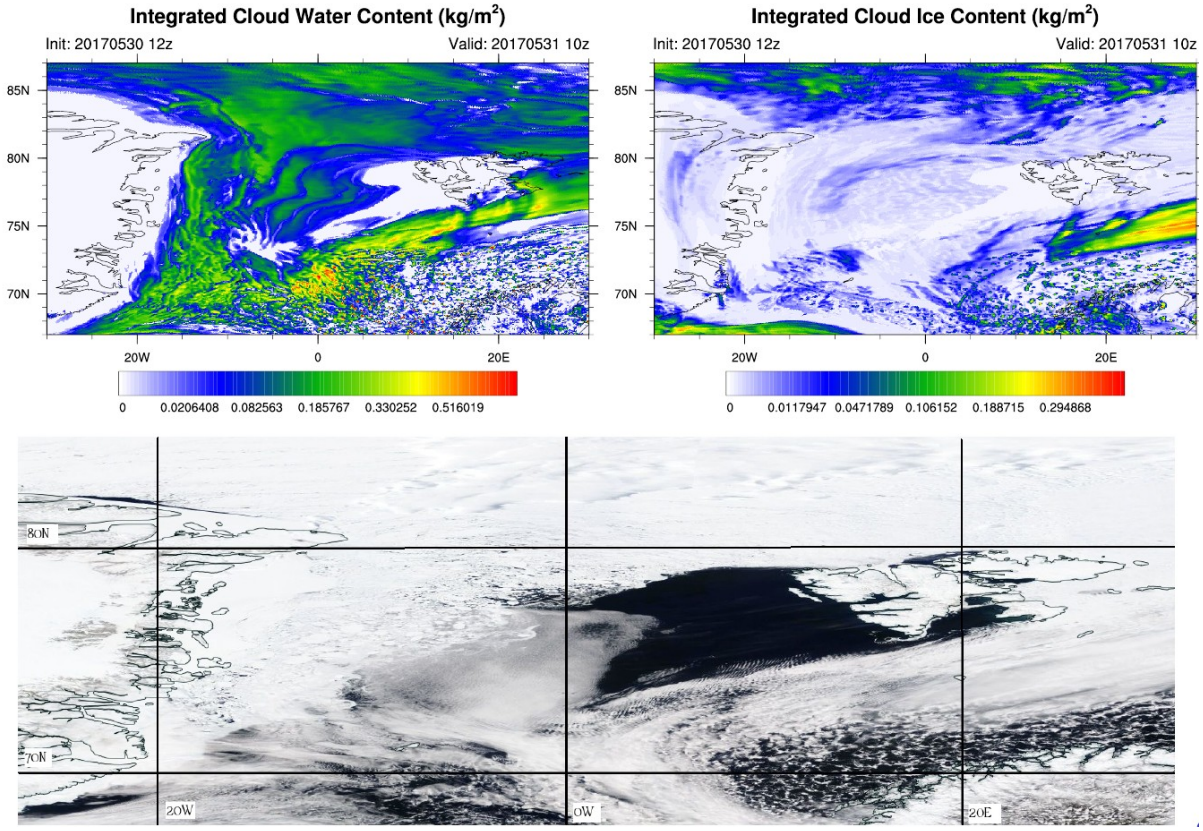

Fig. 1: Simulation result from the 2-km resolution numerical weather prediction with the ICON-NWP model during the ACLOUD campaign. The case of 31 May 2017 is chosen. Top left: cloud liquid water path. Top right: Cloud ice path. Bottom: MODIS visible image.