

# Modeling of Arctic mixed-phase clouds

## Overview of current work & Introduction

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COSMO user workshop

Zurich, 20.01.17

# About me

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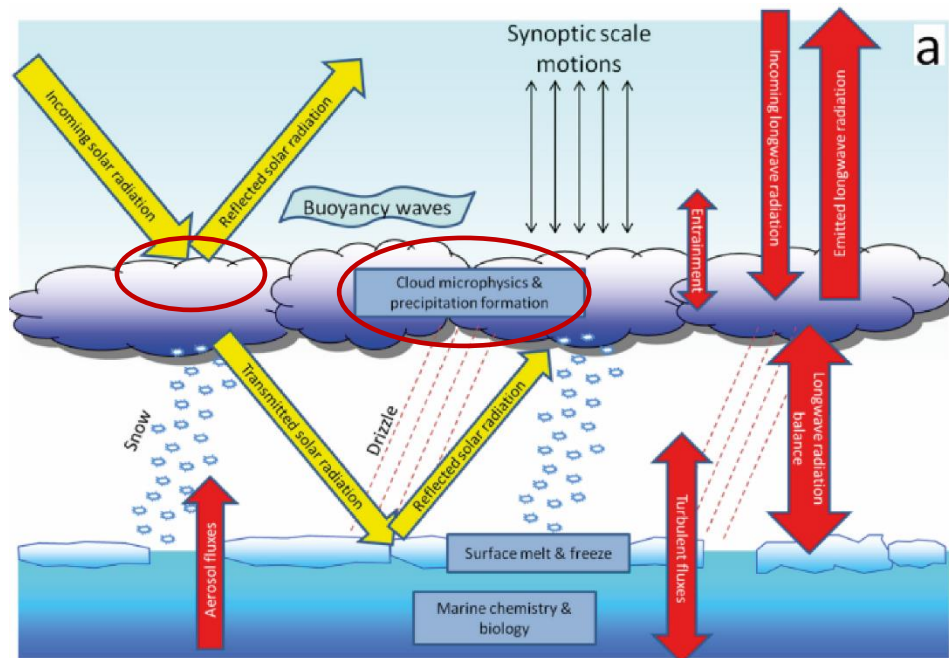
- BSc, MSc in Climate Physics at GEOMAR, Kiel
- PhD in atmospheric physics group since August 2016, supervisor Ulrike Lohmann
- Current research focus: regional modeling of Arctic mixed-phase clouds



<https://prd-wret.s3-us-west-2.amazonaws.com>

# Need to understand Arctic clouds

- Boundary clouds: common in the Arctic and characterized by a coexistence of supercooled cloud droplets and ice crystals
- key component for radiative balance
- Radiative impact depends on microphysical composition of clouds → coupled to aerosol concentration



Processes in Arctic mixed-phase clouds. Reprinted from Tjernström et al., 2014

# Outlook

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- Finish work on ASCOS model intercomparison project
  - COSMO on a 1 km resolution in region of ASCOS cruise ship track
- Start COSMO-LES simulations, compare with M-PACE observations
  - Use of varying aerosol concentrations and different disturbances in model to reproduce observations
  - Eventually test influence of boundary fluxes