

Module Name Polar Meteorology						
Type of Module ○ Advanced Module				Module Code MN-GM-METPOL		
Identification Number MN-GM-METPOL	Workload 180 Hours	Credit Points 6 CP	Term 1st - 3rd semester	Offered Every WiSe	Winter Term Only	Duration 1 Semester
1	Course Types a) Lecture b) Project work c) Seminar		Contact Time 45 h 15 h 15 h	Private Study 45 h 45 h 15 h		Planned Group Size 15 Students
2	Module Objectives and Skills to be Acquired <ul style="list-style-type: none"> - Understanding of the Arctic climate system and its complex processes within - Understanding of the particular role of the Arctic for the whole Earth-atmosphere system - Gaining insights into the challenges in observing and modeling the Arctic climate system - Ability to analyse and critically interpret measurements and model simulations regarding current Arctic research questions - Programming experience, presentation skills, team work in hands-on-training 					
3	Module Content <ul style="list-style-type: none"> - Overview of the Arctic climate system - Historical explorations in the Arctic - Atmospheric energy budget and energy exchanges at the surface in the Arctic - Atmospheric circulation in the Arctic - Arctic boundary layer and turbulence - Arctic water cycle - Arctic amplification and feedback mechanisms - Modeling of the Arctic climate system - Observed and projected changes in the Arctic climate system - Differences between Antarctic and Arctic - Insights into Arctic campaign activities - Hands-on training with measurements and model simulations in the Arctic 					
4	Teaching Methods Lectures and project work including measurements (in-situ/remote sensing) and model simulations in the Arctic: measurement principles, model set-up, interpretation and presentation of measurements and model results, statistical analysis of data. The results of the project work will be presented in the seminar.					
5	Prerequisites (for the Module) - Formal: None.					

	- With regards to content: Basics of mathematics, physics, experience in programming (mandatory)
6	Type of Examination Oral Examination (graded)
7	Credits Awarded Successful participation in the seminar (ungraded) and passing the oral examination (graded) are prerequisites for the allocation of credits. At the end of the semester or the beginning of the following semester a possibility to repeat the examination is offered. A failed examination may be repeated twice. Additional possibilities to repeat an examination exist according to the examination regulations (§ 20 section 1).
8	Compatibility with other Curricula Suitable as an elective course for mathematics, physics and geoscience students.
9	Proportion of Final Grade 6/120
10	Module Coordinator K. Ebell
11	Further Information Teaching language: English Additional literature: Serreze, M. C. and Barry, R. G., The Arctic Climate System, Cambridge University Press, 2014.