





6th International Summer School on

**“Climate of the Baltic Sea Region”**

24 – 31 August 2020

co-organized by

Leibniz Institute for Baltic Sea Research Warnemünde (IOW), University of Rostock and

International Baltic Earth Secretariat at Helmholtz-Zentrum Geesthacht

under the umbrella of Baltic Earth (baltic.earth)

**Draft Agenda**

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| **Day** | **Mon 24/8** | **Tue 25/8** | **Wed 26/8** | **Thu 27/8** | **Fri 28/8** | **Sat 29/8** | **Sun 30/8** | **Mon 31/8** |
| General topic | Course introduction; Basics of climate | Physical oceanography of the Baltic Sea; Student presentations | Physical oceanography of the Baltic Sea; Wave dynamics; Air-sea interaction | Climate variability of coastal seas; Eutrophication | Remote sensing; Hypoxia; Science communication | Climate modeling; Baltic Earth activities | Carbon cycle ; History of the Baltic Sea | Biological oceanography |
| Speaker/title  Morning session  09:00-10:30  (2 x 45 min) | Markus Meier: Course introduction and basics of climate dynamics | Short student presentations of their thesis work (3 min, each) | Markus Meier: Physical Oceanography of the Baltic Sea and other regional seas, part III | Markus Meier: Past and future climate variability of the Baltic Sea and other regional sea | Susanne Kratzer: Optical properties of Baltic Sea | Markus Meier: Climate Modeling – The global and regional perspective, part I | Karol Kulinski: Carbon cycle I | Marcus Reckermann: Biological Oceanography of the Baltic Sea |
| Break 10:30-11:00 | | | | | | | | |
| 11:00-12:30  (2 x 45 min) | Markus Meier: Climate state and global circulation patterns in the atmosphere | Markus Meier: Physical Oceanography of the Baltic Sea and other regional seas, part I | Laura Tuomi: Ocean surface waves | Christoph Humborg: Processes in the Baltic Sea catchment area I | Susanne Kratzer: Ocean Color Remote Sensing | Markus Meier: Climate Modeling – The global and regional perspective, part II | Karol Kulinski: Carbon cycle II | Examination  (45 minutes) |
| Lunch break 12:30-14:00 | | | | | | | | |
| Speaker/title  Afternoon session:  14:00-15:30  (2 x 45 min) | Introduction in Jupyter notebooks (Jan) and R (Manja)  (Jan Kaiser, Manja Placke, Hagen Radtke, and Markus Meier) | Time series analysis I (Hagen)  (Hagen Radtke, Jan Kaiser, Manja Placke and Markus Meier) | Working with NetCDF data (Manja)  Exercises physical ozeanography (Markus)  (Hagen Radtke, Jan Kaiser, Manja Placke and Markus Meier) | Calculating air-sea exchange and sensitivity analysis (Jan)  “Montagsmaler” (Jan)  (Hagen Radtke, Jan Kaiser, Manja Placke and Markus Meier) | Daniel Conley: Hypoxia | Time series analysis II (Hagen)  Climate exercises (Markus)  (Hagen Radtke and Markus Meier) | Exercises waves and ARGO float data (Laura)  Repetition (Markus)  (Laura Tuomi and Markus Meier) | Students’ group presentations |
| Break 15:30-16:00 | | | | | | | | |
| 16:00-17:30  (2 x 45 min) | Markus Meier: Analysis of climate data | Markus Meier: Physical Oceanography of the Baltic Sea and part II | Laura Tuomi: Ocean surface layer dynamics | Christoph Humborg: Processes in the Baltic Sea catchment area II | Daniel Conley: Science communication | Marcus Reckermann: Baltic Earth –regional Earth system science and How to give a bad presentation | Markus Meier: History of the Baltic Sea | Students’ group presentations; resumé of the school |

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| **Lectures** | | **Hours** | **Contents** |
| Prof. Markus Meier | | 22 | Physical Oceanography and Meteorology |
| Prof. Christoph Humborg | 4 | Terrestrial biogeochemistry |
| Dr. Karol Kulinski | 4 | Carbon cycle |
| Prof. Daniel Conley | 4 | Marine biogeochemistry and eutrophication |
| Dr. Laura Tuomi | 4 | Physical Oceanography |
| Prof. Susanne Kratzer | 4 | Remote sensing |
| Dr. Marcus Reckermann | 4 | Earth system science |
| **Total** | | **46** |  |

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| **Seminar** | **Hours** | **Contents** |
| Prof. Markus Meier | 6 | Students’ presentations supervised by Markus Meier and Marcus Reckermann and NN |

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| **Exercises and tutorials** | **Hours** | **Contents** |
| Prof. Markus Meier | 12 | Exercises, tutorials, and students group work supervised by Markus Meier, Jan Kaiser, Manja Placke, Hagen Radtke and LauraTuomi |