

## Teaching

- 1986-1989: Exercises for undergraduate students at Kiel University (Theoretical Physics, 1170 working hours)
- 1997: Exercises for undergraduate students at Kiel University (Theoretical Oceanography, 48 lecture hours)
- Jan 2005: Lectures for graduate students at Stockholm University (Physical oceanography of the Baltic Sea and seas around Sweden, 4 lecture hours)
- Nov 2005: Invited guest lecture for graduate students at Gdansk University (Physical Oceanography of the Baltic Sea, 2 lecture hours)
- Nov/Dec 2006: Lectures for undergraduate students at Stockholm University (Dynamical Meteorology I, 28 lecture hours corresponding to 120 working hours)
- Dec 2008/Jan 2009: Lectures for graduate students at Stockholm University (Large scale oceanic circulation and physical oceanography of the Baltic Sea, 10 lecture hours corresponding to 40 working hours)
- Nov/Dec 2008: Lectures for undergraduate students at Stockholm University (Dynamical Meteorology I, 30 lecture hours corresponding to 120 working hours)
- Apr 2009: Invited guest lecture for graduate students at Lund University within the course "The Baltic Sea: Yesterday, Today and Tomorrow" (Physical processes and predicted changes with climate, 2 lecture hours)
- Jul 2009: Invited lectures for graduate students at the International BALTEX summer school on "Threats and challenges for the Baltic Sea environment under climate change", Nexø, Bornholm, Denmark, 27 July - 5 August, 2009 (Regional climate simulations and uncertainties of scenario simulation, 8 lecture hours)
- Sep 2009: Invited guest lecture for undergraduate students at Södertörn University, Huddinge, Sweden, within the course "The Baltic Sea's Ecosystem and Natural Resources" (in total 15 ECTS credits) (2 lecture hours)
- Nov/Dec 2009: Lectures for undergraduate students at Stockholm University (Dynamical Meteorology I, 36 lecture hours corresponding to 144 working hours, 12 ECTS credits)
- Oct 2010: Invited guest lecture for undergraduate students at Södertörn University, Huddinge, Sweden, "Impact of changing climate on the Baltic Sea" (2 lecture hours)
- Oct 2010: Lecture for graduate students within the "Climate Modelling School" organized by the BONUS+ project AMBER, Norrköping, Sweden, "Baltic Sea Climate Modelling" (1 lecture hour)
- Nov/Dec 2010: Lectures for undergraduate students at Stockholm University (Dynamical Meteorology I, 36 lecture hours corresponding to 144 working hours, 12 ECTS credits)
- Mar 2013: Invited lecture for graduate students at the Baltic Ecosystem Adaptive Management (BEAM) modeling course "Modeling as a tool to study the Baltic Sea ecosystem - Possibilities and challenges", Askö Laboratory, Sweden, 18-24 March 2013, "Biogeochemical modeling in the Baltic Sea (RCO-SCOBI, future climate projections)"

May 2013: Keynote lecture at the Baltic Ecosystem Adaptive Management (BEAM) modeling seminar Stockholm University, Sweden, 18-24 March 2013, "Oceanography"

June 2013: Lectures for undergraduate (master) students at Stockholm University (Physical Oceanography, my part comprises 4 lecture hours corresponding to 16 working hours, 7.5 ECTS credits in total)

September 2014: Lecture for graduate students within the NorMER (The Nordic Centre for Research on Marine Ecosystems and Resources under Climate Change) Climate Change workshop on "Climate modelling: the global and regional perspective", 29 September, Copenhagen, Denmark.

December 2014 - January 2015: Lectures for undergraduate (master) students at Stockholm University (Physical Oceanography, my part comprises the course coordination and 4 lecture hours corresponding to 16 working hours, 7.5 ECTS credits in total)

August 2015: International advanced PhD course on "Impact of climate change on the marine environment with special focus on the role of changing extremes, Askö Laboratory, Trosa, Sweden, 24 - 30 August 2015 (50 lecture hours, tutorials and exercises, 4 ECTS credits in total)

August 2016: International master course on "Climate of the Baltic Sea Region", Askö Laboratory, Trosa, Sweden, 29 August - 5 September 2016 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

Winter term 2016/2017 (October 2016 - January 2017): International master course on "Climate of the Ocean", Rostock University (lectures, tutorials and exercises, 3 ECTS credits in total, 2.5 lecture hours per week)

April 2017: Teaching on the RADO workshop for science journalists (in German), Strahlsund, Germany (10 lecture hours in total)

August 2017: International master course on "Climate of the Baltic Sea Region", Askö Laboratory, Trosa, Sweden, 28 August - 4 September 2017 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

Winter term 2017/2018 (October 2017 - January 2018): International master course on "Climate of the Ocean", Rostock University (lectures, tutorials and exercises, 3 ECTS credits in total, 2.5 lecture hours per week)

August 2018: International master course on "Climate of the Baltic Sea Region", Askö Laboratory, Trosa, Sweden, 20-27 August 2018 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

September 2018: Summer school "Coastal dynamics - consequences for coastal protection and ecology", 18 - 29 September 2018, Hiddensee Island, Germany (my part comprises 4 lecture hours), <https://deutsche-kuestenforschung.de/coastal-summer-school-2018.html>

Winter term 2018/2019 (October 2018 - January 2019): International master course on "Climate of the Ocean", Rostock University (lectures, tutorials and exercises, 3 ECTS credits in total, 2.5 lecture hours per week)

March 2019: International master course on "Analysis of Climate Variability", Leibniz Institute of Baltic Sea Research Warnemünde, 22-29 March 2019 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

August 2019: International master course on “Climate of the Baltic Sea Region”, Askö Laboratory, Trosa, Sweden, 26 August -2 September 2019 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

Winter term 2019/2020 (October 2019 - January 2020): International master course on “Climate of the Ocean”, Rostock University (lectures, tutorials and exercises, 3 ECTS credits in total, 2.5 lecture hours per week)

March 2020: International master course on “Analysis of Climate Variability”, cancelled due to COVID-19

August 2020: International master course on “Climate of the Baltic Sea Region”, online course, 26 August -2 September 2020 (50 lecture hours, tutorials, and exercises, 3 ECTS credits in total)

## **Supervising**

Guest scientists at SMHI supervised:

- Dr. Frank Kauker (AWI, Bremerhaven, 2001, 2002)
- Dr. Jari Haapala (FIMR, Helsinki, 2003)
- PhD student Robert Osinski (IOPAS, Sopot, 2005)
- Dr. Jan Jedrasik (Gdansk University, Gdynia, 2005)
- PhD student Germo Väli (Marine Systems Institute at Tallinn University of Technology, Tallinn, 2011)
- PhD student Maciej Janecki (IOPAS, Sopot, 2014)

Guest scientists at IOW supervised:

- Dr. Germo Väli (Marine Systems Institute at Tallinn University of Technology, MSI, Tallinn, 2015, 2016, 2017, 2018, October to December 2019)
- Christian Dieterich (Swedish Meteorological and Hydrological Institute, SMHI, Norrköping, February to March 2020)

Honours/master thesis students supervised:

- Ulf Ekström (Linköping University, 2002): Setup of the Rossby Centre Ocean model applied to the Arctic Ocean. (practical course as part of the master degree, 4 months)
- Tobias Strömberg (Royal Institute of Technology (KTH), Stockholm, 2005): Implementation of a flux corrected transport scheme in the Rossby Centre Ocean model. (20 point honours research project, master degree)
- Mattias Franzén (Göteborg University, 2007): Analysis of sea level trends in the North Sea and Kattegat area simulated with the CCSM3 global climate model during 1870-2100. (10 point honours research project, bachelor degree)
- David Olofsson (Department of Meteorology, Stockholm University, 2007): Developing analysis tools to investigate results of the Rossby Centre Ocean model. (student summer employment, 2 months)

- Johannes Behling (upper-secondary school pupil from Kiel, Germany, 2008): Introduction into ocean modelling. (practical course, 2 weeks)
- Malin Anteros (Department of Meteorology, Stockholm University, 2008): Analysing the Baltic Sea conveyor belt using results of a three-dimensional ocean circulation model. (20 point honours research project, master degree)
- David Lindstedt (Department of Meteorology, Stockholm University, 2008): Impact of mixing on the Baltic Sea deep water renewal - a model study. (20 point honours research project, master degree)
- Elin Jansson (Department of Meteorology, Stockholm University, 2009): Impact of river regulation on the Baltic Sea salinity. (30 point honours research project, master degree)
- Céline Gießé (Department of Physical Oceanography and Instrumentation, Leibniz Institute for Baltic Sea Research Warnemünde, 2017/2018): Numerical Sensitivity Study on Haline Convection due to Sea Ice Brine Rejection in the Northern Baltic Sea. (one year honours research project, master degree)
- Maja Illig (Department of Physical Oceanography and Instrumentation, Leibniz Institute for Baltic Sea Research Warnemünde, Aug-Sep 2019): Analysis of historical sea level records (Master student in physics from University Dresden, practical course (Hilfswissenschaftlerin), 2 months)
- Annika Jaitner (Department of Physical Oceanography and Instrumentation, Leibniz Institute for Baltic Sea Research Warnemünde, Aug 2020): Hypoxia in coastal seas, Bachelor of Science in mathematical biometry, University Ulm, practical course (Hilfswissenschaftlerin), 1 month)
- Karina Krapf (Department of Physical Oceanography and Instrumentation, Leibniz Institute for Baltic Sea Research Warnemünde, July 2020 - December 2020): Spatio-temporal patterns of hypoxia in the Baltic Sea (half year honours research project, master degree, University Bayreuth)

PhD thesis students supervised:

- Hannes Rennau (Baltic Sea Research Institute Warnemünde at the University of Rostock, since 2011): Natural, numerical and structure-induced mixing in dense gravity currents: idealized and realistic model studies (PhD committee member, main supervisor: Prof. Hans Burchard)
- Lisa Bengtsson (Department of Meteorology, Stockholm University, 2006-2012): Cloud parameterizations in general circulation models. (PhD committee member, main supervisor: Prof. Erland Källén)
- Sebastian Mårtensson (Department of Meteorology, Stockholm University, 2007-2013): Modeling climate variability of the Arctic Ocean in past and future climates with special focus on changing sea-ice. (Primary supervisor)
- Christian Porsche (Baltic Sea Research Institute Warnemünde at the University of Rostock, since 2009): Einfluss von Klimaveränderung auf das Ökosystem der Ostsee - Vergleich von Variationen in den letzten 2000 Jahren mit erwarteten Veränderungen in den nächsten 100 Jahren (Co-supervisor, main supervisor: Dr. Thomas Neumann)

- Léon Chafik (Department of Meteorology, Stockholm University, 2009-2014): (PhD committee member, main supervisor: Prof. Peter Lundberg)
- Per Pemberton (Department of Meteorology, Stockholm University, 2010-2014): Freshwater processes and water mass transformation in the Arctic Ocean. (Primary supervisor)
- Ulrika Willen (Department of Meteorology, Stockholm University, since 2010): (PhD committee member, main supervisor: Prof. Mikael Tjernström)
- Filippa Fransner (Department of Meteorology, Stockholm University, since September 2012): On the fate of terrestrial dissolved organic carbon in the ocean. PhD within the Baltic Ecosystem Adaptive Management (BEAM) program. (Primary supervisor until August 2015)
- Madline Kniebusch (Leibniz Institute of Baltic Sea Research Warnemuende, May 2016 – July 2019): Detection and attribution studies of climate related changes in the Baltic Sea since 1850 (Primary supervisor)
- Florian Börgel (Leibniz Institute of Baltic Sea Research Warnemuende, since September 2017): Low-frequency variability in the Baltic Sea region (Primary supervisor)
- Jan Moritz Kaiser (Leibniz Institute of Baltic Sea Research Warnemuende, since June 2019): Reconstruction of paleo-climate variability in the Baltic Sea (Primary supervisor)
- Lev Naumov (Leibniz Institute of Baltic Sea Research Warnemuende, since September 2020): Understanding climate variability in the Baltic Sea and other coastal seas (Primary supervisor)

University / Research Institute committees:

- Opponent at licentiat thesis presentation at Uppsala University (Björn Carlsson, 2007).
- Committee member of licentiat thesis defense at Stockholm University (Linus Magnusson, 2007).
- Committee member of PhD thesis defense at Göteborg University (Christian Nohr, May 2009).
- Member of the evaluation committee of 6 master thesis defenses at Stockholm University (Emma Grönkvist, Per Axelsson, Marcus Johansson, Anders Söderberg, Alexander Håkansson, Charlotte Boström, June 2009).
- Board member of the 'ECOCHANGE' programme, the joint Strategic Marine Environmental Research Programme on the Baltic Sea of Umeå and Linnaeus universities (2010-2017)
- Member of the Scientific Advisory Board of the Leibniz Institute for Baltic Research Warnemünde, Rostock, Germany. (2012-2015)
- Committee member of the PhD thesis defense at Stockholm University (Marie-Luise Kapsch, October 2015).
- Referee and committee member of the PhD thesis defense at Johann Wolfgang Goethe-University in Frankfurt am Main, Germany (Trang Van Pham, The

consideration of North and Baltic Seas in regional climate modeling with the coupled atmosphere-ocean-ice model COSMO-CLM/NEMO, 22 May 2019)

- Referee (pre-examination) and opponent of the PhD thesis at Aalto University School of Engineering, Finland (Dr. Petra Roiha, Advancements of the operational oceanography in the Baltic Sea, 20 December 2019)