
Curriculum vitae

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Employment

Swedish Meteorological and Hydrological Institute, Norrköping, Sweden 2010 –

Scientific employee in the oceanography group at the SMHI. Analysis and modeling of present and future estimates of extreme sea levels along the Swedish coast for a [governmental mandate](#). Model development, validation and analysis of the SMHI coupled atmosphere-ice-ocean model RCA4-NEMO for several Swedish and European [projects](#). Realization of an ensemble of RCP scenarios for the North Sea - Baltic Sea region for the [KLIWAS program](#). Model development, production runs and analysis with RCO-SCOBI for transient SRES scenarios for the [BONUS program](#).

The University of Chicago, Chicago, USA 2003 – 2008

Research assistant in an Information Technology Research program of the NFS. Model development on a global ocean model as part of the coupled atmosphere-ocean model [FOAM](#). Design and development of an object oriented, portable ocean model in Python/C for interactive yet effective climate modeling as part of a [NFS ITR](#) project.

Alfred Wegener Institute, Bremerhaven, Germany 1997 – 2003

Research assistant responsible for the development of a parallel, eddy-permitting, regional model with open boundaries for the South Atlantic frontal systems including a pelagic ecosystem model to investigate the impact of physical variability on ecosystem dynamics. This model is part of the model hierarchy [FLAME](#).

Institute for Marine Research, Kiel, Germany 1995 – 1997

Research assistant in the European MAST-project [DYNAMO](#). Adaptation of an assimilation algorithm to one of the [DYNAMO](#) models. Conduction and analysis of model experiments with assimilation of altimeter data and mean sea surface height.

Education

Master in physical oceanography (Diplom) 1994

Institute for Marine Research, Kiel, Germany
Thesis: Analysis and prediction of Rossby waves through the application of the Kalman filter (Analyse und Vorhersage von Rossbywellen mit Hilfe des Kalmanfilters)
Advisor: Prof. Dr. Rolf Käse

Publications

- Meier, H. E. M., M. Edman, K. Eilola, M. Placke, T. Neumann, H. C. Andersson, S.-E. Brunnabend, C. Dieterich, C. Frauen, R. Friedland, M. Grger, B. G. Gustafsson, E. Gustafsson, A. Isaev, M. Kniebusch, I. Kuznetsov, B. Mller-Karulis, A. Naumann, A. Omstedt, V. Ryabchenko, S. Saraiva, and O. P. Savchuk, 2019: Assessment of Uncertainties in Scenario Simulations of Biogeochemical Cycles in the Baltic Sea. *Frontiers in Marine Science*, **6**, 46, doi:10.3389/fmars.2019.00046.
- Saraiva, S., H. E. M. Meier, H. Andersson, A. Hglund, C. Dieterich, M. Grger, R. Hordoir, and K. Eilola, 2019: Uncertainties in Projections of the Baltic Sea Ecosystem Driven by an Ensemble of Global Climate Models. *Frontiers in Earth Science*, **6**, 244, doi:10.3389/feart.2018.00244.
- Hordoir, R., L. Axell, A. Höglund, C. Dieterich, F. Fransner, M. Gröger, Y. Liu, P. Pemberton, S. Schimanke, H. Andersson, P. Ljungemyr, P. Nygren, S. Falahat, A. Nord, A. Jönsson, I. Lake, K. Döös, M. Hieronymus, H. Dietze, U. Löptien, I. Kuznetsov, A. Westerlund, L. Tuomi, and J. Haapala, 2019: Nemo-Nordic 1.0: a NEMO-based ocean model for the Baltic and North seas – research and operational applications. *Geoscientific Model Development*, **12**(1), 363–386, doi:10.5194/gmd-12-363-2019.
- Hieronymus, M., C. Dieterich, H. Andersson, and R. Hordoir, 2018: The effects of mean sea level rise and strengthened winds on extreme sea levels in the Baltic Sea. *Theoretical and Applied Mechanics Letters*, **8**, doi:10.1016/j.taml.2018.06.008.
- Meier, H. E. M., M. K. Edman, K. J. Eilola, M. Placke, T. Neumann, H. C. Andersson, S.-E. Brunnabend, C. Dieterich, C. Frauen, R. Friedland, M. Grger, B. G. Gustafsson, E. Gustafsson, A. Isaev, M. Kniebusch, I. Kuznetsov, B. Mller-Karulis, A. Omstedt, V. Ryabchenko, S. Saraiva, and O. P. Savchuk, 2018: Assessment of Eutrophication Abatement Scenarios for the Baltic Sea by Multi-Model Ensemble Simulations. *Frontiers in Marine Science*, **5**, 440, doi:10.3389/fmars.2018.00440.
- Saraiva, S., H. E. Markus Meier, H. Andersson, A. Höglund, C. Dieterich, M. Gröger, R. Hordoir, and K. Eilola, 2018: Baltic Sea ecosystem response to various nutrient load scenarios in present and future climates. *Climate Dynamics*, doi:10.1007/s00382-018-4330-0.
- Pätsch, J., H. Burchard, C. Dieterich, U. Gräwe, M. Gröger, M. Mathis, H. Kapitza, M. Bersch, A. Moll, T. Pohlmann, J. Su, H. T. Ho-Hagemann, A. Schulz, A. Elizalde, and C. Eden, 2017: An evaluation of the North Sea circulation in global and regional models relevant for ecosystem simulations. *Ocean Modelling*, **111**, 70–95, doi:10.1016/j.ocemod.2017.06.005.
- Jeworrek, J., L. Wu, C. Dieterich, A. Rutgersson, 2017: Characteristics of convective snow bands along the Swedish east coast, *Earth Syst. Dynam.*, **8**, 163–175, doi:10.5194/esd-8-163-2017.
- Bartolino, V., H. Tian, U. Bergström, P. Jounela, E. Aro, C. Dieterich, H. E. M. Meier, M. Cardinale, B. Bland, M. Casini, 2017: Spatio-temporal dynamics of a fish predator: Density-dependent and hydrographic effects on Baltic Sea cod population, *PLOS ONE*, **12**, 1–17, doi:10.1371/journal.pone.0172004.
- Wählström, I., C. Dieterich, P. Pemberton, H. E. M. Meier, 2016: Impact of increasing inflow of warm Atlantic water on the sea-air exchange of carbon dioxide and methane in the Laptev Sea, *J. Geophys. Res. Biogeosciences*, **121**, 1867–1883, doi:10.1002/2015JG003307.
- Gröger, M., C. Dieterich, H. E. M. Meier, S. Schimanke, 2015: Thermal air-sea coupling in hindcast simulations for the North Sea and Baltic Sea on the NW European shelf, *Tellus*, **67**, doi:10.3402/tellusa.v67.26911.
- Wang, S., C. Dieterich, R. Döscher, A. Höglund, R. Hordoir, H. E. M. Meier, P. Samuelsson, S. Schimanke, 2015: Development and evaluation of a new regional coupled atmosphere-ocean model in the North Sea and Baltic Sea, *Tellus*, **67**, doi:10.3402/tellusa.v67.24284.

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- Schimanke, S., C. Dieterich, H. E. M. Meier, 2014: An algorithm based on sea-level pressure fluctuations to identify major Baltic inflow events, *Tellus*, **67**, doi:10.3402/tellusa.v66.23452.
- Van Pham, T., J. Brauch, C. Dieterich, B. Frueh and B. Ahrens, 2014: New coupled atmosphere-ocean-ice system COSMO-CLM/NEMO: assessing air temperature sensitivity over the North and Baltic Seas, *Oceanologia*, **56(2)**, 167–189, doi:10.5697/oc.56-2.167.
- Hordoir, R., C. Dieterich, C. Basu, H. Dietze, H. E. M., Meier, 2013: Freshwater outflow of the Baltic Sea and transport in the Norwegian current: A statistical correlation analysis based on a numerical experiment, *Cont Shelf Res*, **64**, 1–9, doi:10.1016/j.csr.2013.05.006.
- Meier, H. E. M., R. Hordoir, H. C. Andersson, C. Dieterich, K. Eilola, B. G. Gustafsson, A. Höglund, S. Schimanke, 2012: Modeling the combined impact of changing climate and changing nutrient loads on the Baltic Sea environment in an ensemble of transient simulations for 19612099, *Clim Dyn*, **39**, 2421, doi:10.1007/s00382-012-1339-7.
- Eilola, K., E. Almroth-Rosell, C. Dieterich, F. Fransner, A. Höglund, H. E. M. Meier, 2012: Modeling Nutrient Transports and Exchanges of Nutrients Between Shallow Regions and the Open Baltic Sea in Present and Future Climate, *Ambio*, **41**, 586–599, doi:10.1007/s13280-012-0322-1.
- Meier, H. E. M., B. Müller-Karulis, H. C. Andersson, C. Dieterich, K. Eilola, B. G. Gustafsson, A. Höglund, R. Hordoir, I. Kuznetsov, T. Neumann, Z. Ranjbar, O. P. Savchuk, S. Schimanke, 2012: Impact of Climate Change on Ecological Quality Indicators and Biogeochemical Fluxes in the Baltic Sea: A Multi-Model Ensemble Study, *Ambio*, **41**, 558–573, doi:10.1007/s13280-012-0320-3.
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- Stammer, D., C. Böning, and C. Dieterich, 2001: The role of variable wind forcing in generating eddy energy in the North Atlantic. *Progr. Oceanogr.*, **48**, 289–311.
- Willebrand, J., B. Barnier, C. Böning, C. Dieterich, P. D. Killworth, C. Le Provost, Y. Jia, J.-M. Molines, and A. L. New, 2001: Circulation characteristics in three eddy-permitting models of the North Atlantic. *Progr. Oceanogr.*, **48**, 123–161.
- Stammer, D. and C. Dieterich, 1999: Space-borne measurements of the time-dependent geostrophic ocean flow field. *J. Atmos. Oceanic Technol.*, **16**, 1198–1207.