

CHRISTOPH RENKL

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EDUCATION

Dalhousie University

Ph.D., Oceanography

ADVISOR: Keith R. Thompson

THESIS TITLE: Ocean Model Validation and Downscaling for Subseasonal-to-Seasonal Prediction

Halifax NS, Canada

Sep 2014–Nov 2020

Rheinische Friedrich-Willhelms-Universität

M.Sc., Physics of Earth and Atmosphere (Specialization in Meteorology)

ADVISOR: Petra Friedrichs

THESIS TITLE: The Vertical Structure of the Atmosphere in COSMO-DE-EPS: Multivariate Ensemble Postprocessing in the Space of Vertical Normal Modes

Bonn, Germany

Oct 2011–Oct 2013

Universitetet i Bergen

ERASMUS Exchange Programme

Courses in meteorology, oceanography, computer science, and Norwegian language

Bergen, Norway

Aug 2009–Jun 2010

Freie Universität Berlin

B.Sc., Meteorology

ADVISORS: Uwe Ulbrich and Philip Lorenz

THESIS TITLE: Untersuchung der Vorhersagbarkeit europäischer Winterstürme in den Ensemblevorhersagen des EZMW in Abhängigkeit von der Vorlaufzeit [Analysis of the predictability of European winter storms in the ECMWF's ensemble predictions as a function of lead time]

Berlin, Germany

Oct 2007–Sep 2011

AWARDS AND SCHOLARSHIPS

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| 2018 | World Meteorological Organization Travel Grant to attend the International Conferences of Subseasonal to Decadal Prediction in Boulder CO, USA. |
| 2017 | MEOPAR Travel Grant to attend the Annual Scientific and Training Meetings in Montreal QC, Canada. |
| 2016 | Outstanding Student Poster and PICO (OSPP) Award at the European Geosciences Union (EGU) General Assembly 2016 in Vienna, Austria, which is the largest geosciences conference in Europe. |
| 2014–2017 | Nova Scotia Scholarship, International Award |
| 2012 | IAESTE Scholarship for summer internship at the University fo Leicester |

RESEARCH EXPERIENCE

Nansen Environmental and Remote Sensing Center

Research Assistant

Validated the ocean component of the TOPAZ 20-year reanalysis within the MyOcean2 project. Wrote and applied shell scripts and MATLAB routines to compare model output and observations using defined metrics. Summarized results in technical report.

ADVISORS: Laurent Bertino and François Counillon

Bergen, Norway

Jan 2014–Jul 2014

Department of Oceanography, Dalhousie University*Visiting Researcher*

Set up a validation environment for the Atlantic Canada Model. Wrote and applied MATLAB routines to compare model output and observations. Wrote shell scripts to create a forcing dataset for the model applying Climate Data Operators (CDO) to atmospheric reanalysis data.

ADVISOR: Katja Fennel

Halifax NS, Canada*Oct 2013–Dec 2013***Department of Physics and Astronomy, University of Leicester***IAESTE/SURE Summer Intern*

Studied magnetic reconnections at the subsolar magnetopause. Wrote and applied a series of IDL routines to statistically evaluate time series of satellite data of Earth's magnetic field.

ADVISOR: Robert Fear

Leicester, UK*Jul 2012–Aug 2012***Leibniz-Institute of Atmospheric Physics e.V.***Summer Intern*

Evaluated the representation of sudden stratospheric warmings (SSW) in the Kühlungsborn Mechanistic General Circulation Model (KMCM). Wrote and applied a set of GrADS routines to compare modeled frequency and intensity of SSWs with observations.

ADVISOR: Christoph Zülicke

Kühlungsborn, Germany*Jul 2010–Aug 2010***TEACHING EXPERIENCE**

Introduction to Programming with R and Python*Instructor*

Co-organized informal lecture series to introduce basic concepts of programming in R and Python languages to senior undergraduate and early graduate students. Designed curriculum and delivered weekly tutorials on programming with Python.

Halifax NS, Canada*Fall 2018***The Blue Planet (OCEA 2001/2002)***Teaching Assistant*

Prepared and delivered short presentations which linked the class materials to recent research and events which appeared in newspaper articles. Assisted in exam preparation as well as provided one-on-one assistance for students registered in course. Occasionally substituted for the instructor to deliver the lecture.

Halifax, NS, Canada*Fall 2016,2017 and Winter 2017,2018***Synoptic Meteorology***Teaching Assistant*

Prepared and conducted weekly tutorials for a class of 30 students. Prepared as well as marked weekly assignments and exams.

Berlin, Germany*Fall 2010***PUBLICATIONS**

1. Christoph Renkl and Keith R. Thompson. "Using Overtides to Evaluate Ocean Model Predictions of Mean Dynamic Topography in Shallow, Tidally-Dominated Regions". In prep. for submission to *Journal of Geophysical Research: Oceans*.
2. Christoph Renkl and Keith R. Thompson. "The Alongshore Tilt of Mean Dynamic Topography and Implications for Nearshore Circulation and Regional Vorticity Balance". In prep. for submission to *Journal of Geophysical Research: Oceans*.
3. Christoph Renkl and Keith R. Thompson. "The Madden-Julian Oscillation as a Source of Predictability of North Atlantic Sea Surface Temperature". In prep. for submission to *Journal of Climate*.

Reports.....

1. Christoph Renkl and Fatemeh Chegini. *A Procedure for Processing In-Situ Bathymetric Observations for Modeling Canadian Shelf Seas*. Tech. rep. Dartmouth NS, Canada: Department of Fisheries and Oceans (DFO), Bedford Institute of Oceanography, in prep.
2. Christoph Renkl, Francois Counillon, and Laurent Bertino. *Validation of the 20-year TOPAZ Reanalysis*. Tech. rep. Bergen, Norway: Nansen Environmental and Remote Sensing Center, 2014, p. 67.

PRESENTATIONS

Invited Talks.....

1. **Renkl, C.** and Thompson, K.R. *Tilt, Tides, and Turbulence: Real-Life Struggles of an Ocean Modeller*. Amec Foster Wheeler Environment & Infrastructure, Dartmouth NS, Canada, April 19, 2017.
2. **Renkl, C.** and Thompson, K.R. *The Alongshore Tilt of Mean Dynamic Topography and Implications for Nearshore Circulation*. Bedford Institute of Oceanography, Dartmouth NS, Canada, October 14, 2016.

Conference Presentations.....

1. **Renkl, C.** and Thompson, K.R. *The Madden-Julian Oscillation as a Source of S2S Predictability of North Atlantic Sea Surface Temperature*. Oral presentation at the Conference of Dalhousie Oceanography Graduate Students (CDOGS), Halifax NS, Canada, March 22, 2019.
2. **Renkl, C.**, Thompson, K.R., and Lin, H. *Downscaling Subseasonal Predictions of Ocean Extremes*. Poster presentation at the International Conference on Subseasonal to Seasonal (S2S) Prediction, Boulder CO, USA, September 17–21, 2018.
3. **Renkl, C.** and Thompson, K.R. *Using Overtides to Evaluate Ocean Model Predictions of Mean Dynamic Topography in Shallow, Tidally-Dominated Regions*. Oral presentation at the CMOS Congress 2018, Halifax NS, Canada, June 10–14, 2018.
4. **Renkl, C.** and Thompson, K.R. *A First Step Toward Downscaling Subseasonal Predictions of Ocean Extremes*. Oral presentation at the Conference of Dalhousie Oceanography Graduate Students (CDOGS), Halifax NS, Canada, March 23, 2018.
5. **Renkl, C.** and Thompson, K.R. *Using Overtides to Evaluate Ocean Model Predictions of Mean Dynamic Topography in Shallow, Tidally-Dominated Regions*. Poster presentation at the 2018 Ocean Sciences Meeting (OSM), Portland OR, USA, February 11–16, 2018.
6. **Renkl, C.** and Thompson, K.R. *The Mean Tilt of Coastal Sea Level in Shallow, Tidally-Dominated Regions*. Oral presentation at the CMOS Congress 2017, Toronto ON, Canada, June 4–8, 2017.
7. **Renkl, C.** and Thompson, K.R. *Tilt, Tides, and Turbulence: Real-Life Struggles of an Ocean Modeller*. Oral presentation at the Conference of Dalhousie Oceanography Graduate Students (CDOGS), Halifax NS, Canada, March 24, 2017.
8. **Renkl, C.** and Thompson, K.R. *The Alongshore Tilt of Mean Dynamic Topography and Implications for Nearshore Circulation and Regional Vorticity Balance*. Oral presentation at the CMOS Congress 2016, Fredericton NB, Canada, May 29–June 2, 2016.
9. **Renkl, C.** and Thompson, K.R. *The Alongshore Tilt of Mean Dynamic Topography and Implications for Nearshore Circulation and Regional Vorticity Balance*. Poster presentation at the EGU General Assembly 2016, Vienna, Austria, April 17–22, 2016.

10. **Renkl, C.** and Thompson, K.R. *The Alongshore Tilt of Mean Dynamic Topography and Implications for Nearshore Circulation*. Oral presentation at the Conference of Dalhousie Oceanography Graduate Students (CDOGS), Halifax NS, Canada, March 18, 2016.
11. **Renkl, C.**, Friederichs, P. and Hense, A. *Ensemble Postprocessing and Verification of the Vertical Structure of the Atmosphere*. Poster presentation at the Workshop "Evaluating Probabilistic Forecasts of Multivariate Quantities", Heidelberg, Germany, October 30, 2013.
12. **Renkl, C.** and Friederichs, P. *Ensemble Postprocessing and Verification of the Vertical Structure of the Atmosphere*. Oral presentation at the EGU General Assembly 2013, Vienna, Austria, April 7–12, 2013.
13. **Renkl, C.** and Friederichs, P. *Ensemble Postprocessing and Verification of the Vertical Structure of the Atmosphere*. Poster presentation at the COSMO User Seminar, Offenbach, Germany, March 5–7, 2013.
14. **Renkl, C.** and Friederichs, P. *Ensemble Postprocessing and Verification of the Vertical Structure of the Atmosphere*. Poster presentation at the Symposium "Extreme Events: Modeling, Analysis and Prediction", Hanover, Germany, February 13–15, 2013.

SEA TIME

Sep–Oct 2015 (30 days) **R/V Maria S. Merian - MSM47:** Seismic mapping and coring transects to identify the sedimentary record of the 1929 Grand Banks landslide along the Canadian Atlantic continental margin.

ACADEMIC SERVICE

2018	Co-organizer of a Scientific Retreat for graduate students in ocean-related disciplines at Brigadoon Village, Aylesford NS, Canada.
2016–2018	President of the Dalhousie Oceanography Students Association (DOSA) at Dalhousie University, Halifax NS, Canada.
2016–Present	Co-organizer and occasional presenter of Methods in Ten Minutes (MTM) seminar series, Dalhousie University, Halifax NS, Canada.
2012–2013	Member of the executive of the student society at the Meteorological Institute, University of Bonn, Germany.
2011–2013	Student representative at the internal assembly and master studies examination board at the Meteorological Institute, University of Bonn, Germany.
2011	Member of the steering committee of "Studentische Meteorologentagung", the annual meeting of meteorology students from Germany, Austria and Switzerland at Freie Universität Berlin, Germany.
2008–2011	Member of the executive of the student society at the Institute of Meteorology, Freie Universität Berlin, Germany.