

Magnus Hieronymus

hieronymus.magnus@gmail.com
(+46) 703-005570

EDUCATION

Doctor of Philosophy, Atmospheric sciences and Oceanography
Stockholm University, 2014
Thesis advisor: Jonas Nycander, Kristofer Döös and Laurent Brodeau
Thesis title: *An investigation into ocean thermodynamics and water-mass transformation*

Master of Science, Physical Oceanography
University of Gothenburg, 2010
Thesis advisor: Lars Arneborg
Thesis title: *Modelling the transverse structure and entrainment in rotating bottom gravity currents*

Bachelor of Science, Physical Oceanography
University of Gothenburg, 2010
Thesis advisor: Lars Arneborg
Thesis title: *A new entrainment parametrization for rotating bottom gravity currents*

EXPERIENCE

Researcher- permanent position May 2018 - present
SMHI

- Sea level expert for the research department

Postdoc May 2017 - May 2018
Department of Meteorology, Stockholm University (MISU)

- Planetary energy transport

Postdoc May 2016 - May 2017
SMHI

- Sea level studies: dynamics and statistics

Postdoc Sep 2014 - May 2016
Helmholtz Zentrum Geesthacht

- Double diffusive convection: energetics and dynamics

PhD student Sep 2010 - June 2014
Department of Meteorology, Stockholm University (MISU)

PEER REVIEWED PUBLICATIONS

Hieronymus, M., & Dieterich, C. & Andersson H. & R. Hordoir (2018).
The effects of mean sea level rise and strengthened winds on extreme sea levels in the Baltic Sea. Theo. Appli. Mech. Lett., doi: DOI: 10.1016/j.taml.2018.06.008

Hieronymus, M., & Nycander, J. & Nilsson J. & K. Döös & R. Hallberg (2018). *Oceanic overturning and heat transport: The role of background diffusivity.*

J. Climate, doi: <https://doi.org/10.1175/JCLI-D-18-0438.1>

Hordoir et al. (2018) Nemo-Nordic 1.0: A NEMO based ocean model for Baltic & North Seas, research and operational applications. *Geosci. mod. dev.*
<https://doi.org/10.5194/gmd-2018-2>

Hieronimus, J., Eiola, K., Hieronimus, M., Saraiva, S., Meier, M (2018) Causes of simulated long-term changes in phytoplankton biomass in the Baltic proper: a wavelet analysis. *Biogeosci.* <https://doi.org/10.5194/bg-15-5113-2018>

Hieronimus, M., Hieronimus, J., Arneborg, L. (2017) Sea Level modelling in the Baltic and the North Sea: The respective role of different parts of the forcing. *Oce. Mod.* <https://doi.org/10.1016/j.ocemod.2017.08.007>

Hieronimus, M., & Carpenter, J. (2016). *Energy and variance budgets of a diffusive staircase with implications for heat flux scaling.* JPO,
DOI: <http://dx.doi.org/10.1175/JPO-D-15-0155.1>

Hieronimus, M., & Nycander, J. (2015). *Finding the minimum potential energy state by adiabatic parcel rearrangement with a nonlinear equation of state: An exact solution in polynomial time.* JPO, doi: <http://dx.doi.org/10.1175/JPO-D-14-0174.1>

Nycander, J, Hieronimus, M., & Roquet, F. (2015). *The nonlinear equation of state of sea-water and the global watermass distribution.* GRL,
doi: 10.1002/2015GL065525

Pemberton, P., Nilsson, J., Hieronimus, M., & Meyer, H. E. M. (2015). *Arctic Ocean Water Mass Transformation in S-T Coordinates.* JPO,
doi: <http://dx.doi.org/10.1175/JPO-D-14-0197.1>

Hieronimus, M. (2014). *A Note on the Influence of Spatially Varying Diffusivities on the Evolution of Buoyancy with a Nonlinear Equation of State.* JPO, doi: <http://dx.doi.org/10.1175/JPO-D-13-0262.1>

Hieronimus, M., Nilsson, J., & Nycander., J. (2014). *Water Mass Transformation in Salinity-Temperature Space.* JPO, doi: <http://dx.doi.org/10.1175/JPO-D-13-0257.1>

Hieronimus, M., & Nycander., J. (2013). *The Buoyancy Budget with a Nonlinear Equation of State.* JPO, doi: <http://dx.doi.org/10.1175/JPO-D-12-063.1>

Hieronymus, M., & Nycander., J. (2013). *The budgets of heat and salinity in NEMO.* Ocean Modelling, doi:10.1016/j.ocemod.2013.03.006

**SELECTED
ORAL PRESEN-
TATIONS**

Marine Challenges-Blue solutions
Gothenburg – 2018
Risks and rising seas (keynote presentation)

Nordic Conference on Climate Change Adaptation
Norrköping – 2018
*What we know about regional sea level rise and
how we are affected by variations from the global mean? (invited presentation)*

OSM 16,
New Orleans – 2016
*Energy and variance budgets of a diffusive staircase with implications
for heat flux scaling*

PACES II,
Geesthacht – 2015
Double-diffusion: A small scale process with large scale consequences

IAPSO,
Gothenburg – 2013
The budgets of heat, salt and buoyancy in NEMO

**TEACHING
SKILLS**

Lectured at: Stockholm University and SMHI
Studied: University pedagogics at Stockholm University

**COMPUTER
SKILLS**

Advanced knowledge: MATLAB, FORTRAN, BASH, L^AT_EX
Basic knowledge: PYTHON, C
Operating systems: LINUX, WINDOWS

**ACADEMIC
REFEREES**

Prof. Jonas Nycander
Phone: +46 8164336
email: jonas@misu.su.se

Dr. Jeff Carpenter
Phone: +49 4152 871525
email: jeff.carpenter@hzg.de

Prof. Johan Nilsson
Phone: 46-8161736
nilsson@misu.su.se