
Personalialia

Name	Dingeman (Dim) Coumou	Phone	+49-331-288 2442
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Research Interests

Atmosphere Dynamics, Extreme Weather, Complex Earth Systems, Climate Impacts
Numerical Methods, Network Analysis, Statistical Analysis, Parallel Computing, C++, R

Academic Degrees

- 2008 **PhD in Natural Sciences**, Eidgenössische Technische Hochschule (ETH) Zürich, Switzerland, distinguished with *ETH-medal* for outstanding thesis (top 5% only).
- 2001 **MSc in Geophysics**, University of Utrecht, Utrecht, The Netherlands.

Work Experience - Academics

Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany.

- 2014 - present *Research Group Leader* of BMBF "Nachwuchsgruppe" of 8 scientists. Studying links between climate change, atmosphere dynamics and extreme weather using a variety of methods
- 2013 - 2014 *Senior Scientist*. Project leader on DFG-funded project. Studying links between climate change, atmosphere dynamics and extreme weather using numerical and statistical methods.
- 2008 - 2012 *Post-doc*. Development (C++, MPI) of a new atmosphere model, *Aeolus*, part of the Potsdam Earth System Model (*POEM*), to study extreme weather and atmospheric circulation.
- 2003 - 2008 **Eidgenössische Technische Hochschule (ETH)**, Zürich, Switzerland.
PhD candidate. Development of multi-phase fluid-flow modeling software (C++) to study sub seafloor hydrothermal systems and geothermal reservoirs.

Work Experience - Industry

- 2001 - 2003 **Dutch Onshore Offshore Recruitment BV (DOOR)**, Voorschoten, The Netherlands.
Marine Geophysicist. Assigned to offshore companies (e.g. Royal Boskalis-Westminster and Thales GeoSolutions), working world wide, responsible for processing and interpretation of geophysical data
- 2000 - 2001 **Shell International Exploration and Production**, Rijswijk, The Netherlands.
Trainee in fulfillment of MSc degree. Studying energy-optimization of full life-cycle of geothermal reservoirs of the European Deep Geothermal Energy Program
- 1995 - 2001 **Geo-Resources BV**, Rotterdam, The Netherlands.
Geophysicist (part-time). Geophysical data processing, interpretation and writing reports

Work Experience - Other

- 1997 - 2000 **Belgian Restaurant Dennemonde**, Utrecht, The Netherlands, *Assistant cook*.
- 1995 - 1997 **Argentine Restaurant Gauchos**, Utrecht, The Netherlands, *Assistant cook*.

Research Grants

- 2016 **Belmont-JPI Climate**, PI on international proposal including Oxford University and Indian Institute for Tropical Meteorology to call "Climate Predictability and Inter-regional Linkages", granted EUR 413k (out of a total project budget of 2.7M), start: July 2016
- 2015 **German Research Foundation (DFG)**, PI on proposal "Jetstream dynamics in reanalysis and climate models", requested EUR ~160k (in review)
- 2013 **German Federal Ministry of Education and Research (BMBF)**, Group leader ("Nachwuchsgruppe") proposal "Model- and observation-based analysis of the drivers behind variability in large-scale atmospheric circulation patterns and their influence on extreme weather events", granted EUR 817k
- 2012 **German Research Foundation (DFG)**, PI on proposal "Stability of atmospheric circulation patterns and its relation to extreme events", granted EUR 162k
- 2011 **Climate-KIC**, Use of 'Greenhouse' office space (6 months) for science public outreach project on Extreme Weather and Climate Change (www.aufgeheizt.org) + EUR 10k
Volkswagen Foundation, co-PI on science outreach proposal "From a Dialogue on Extremes, to Extreme Dialogues", granted EUR 75k

Most Important Publications

Authored **40 ISI-publications** with 7 in top journals (*Science*, *PNAS*, *Nature Climate Change/Geoscience*), the **IPCC 5th Assessment Report**, **3 World Bank reports** and several book chapters (Full publication list attached). 5 Most Important papers:

- [1] Coumou et al., The Weakening Summer Circulation in the Northern Hemisphere Mid-latitudes, *Science*, 348 (6232), p.324-327, 2015
- [2] Coumou et al., Quasi-resonant circulation regimes and hemispheric synchronization of extreme weather in boreal summer, *Proc. Nat. Ac. Sci.*, 111(34), p.12331-12336, 2014
- [3] Coumou and Rahmstorf, A Decade of Weather Extremes, *Nature Clim. Ch.*, 2, p.491-496, 2012 (ranked 2nd in Altmetric score of NCC 2012 papers)
- [4] Rahmstorf and Coumou, Increase of extreme events in a warming world, *Proc. Nat. Ac. Sci.*, 108(44), p.17905-17909, 2011
- [5] Coumou et al., The Structure and Dynamics of Mid-Ocean Ridge Hydrothermal Systems, *Science*, 321, p.1825-1828, 2008

Awards & Prices

- 2015 **Geofluids**, Weis et al (2014) ranked as *best paper* of 2014
- 2014 **Environmental Research Letters**, Coumou et al (2013) among 25 *best articles* of 2013
- 2009 **Volkswagen Foundation**, Our Common Future Fellowship
European Science Foundation, participation in "New Methodologies and Interdisciplinary Approaches in Global Change Research"
- 2008 **Eidgenössische Technische Hochschule (ETH-Zurich)**, *ETH-medal* for outstanding PhD thesis (top 5%), price money: CHF 1.5k

Model Development, Coding & IT skills

Main developer of MPI/C++ based **atmosphere model** *Aeolus* consisting of a dynamical core, radiative transfer and cloud modules (~40k codelines). Parallelization of *CSMP++*.

Broad experience	C++, MPI, R, Ferret, Totalview, Visual C++, Unix/Linux, <i>POEM</i>	Moderate experience	FORTRAN90, Terramodel, ProMAX, QINSy, Delph Elics	Matlab,
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Teaching Activities

- 2015 Lecture at Colloquium of Institute for Atmospheric and Climate Science, ETH Zürich
- Lecture at Potsdam Summer School "Facing Natural Hazards"
- Lecture at World Bank – Climate Services Workshop, Frascati
- Lecture at Earth System Science PhD Conference, Mainz
- 2014 - 2015 Extreme Weather Seminar Series - From Physical Understanding to Impacts
- 2014 Lecture at World Bank – Climate Change Capacity Building Workshop
- 2013 Lecture at Meteorologisches Kolloquium, Free University of Berlin
- 2009 - 2012 Earth System Analysis Young Scientist Seminar Series
- 2010 Lecture at International Summer school "International Futures VII", German Foreign Office
- Lecture at DGAP International Summer School, German Council on Foreign Relations
- 2005 Ore-deposit fieldwork for undergraduate students to Peru, ETH Zürich
- 2004 - 2007 Fluid and Ore Deposit Seminar Series, ETH Zürich

Student Supervision

List of supervised students with project title and obtained degree:

- 2015 - present G. di Capua (PhD), Causal Drivers of Jetstream Variability in Observations and Models
- 2015 - present P. Pfeiderer (MSc), Is Weather becoming more Persistent?
- 2014 - present S. Molnos (PhD), Model and Data Analysis of Large-scale Dynamics linked to Extremes
- 2014 - present M. Kretschmer (PhD), Complex Networks applied to Atmosphere Dynamics
- 2014 - present K. Kornhuber (PhD), Planetary wave-resonance and weather extremes
- 2011 - 2016 J. Lehmann (PhD), Precipitation Extremes associated with Storm Track Changes
- 2013 - 2015 L. Caesar (MSc), POEM Coupled Climate Model Validation
- 2013 - 2014 E. Peukert (MSc), Sensitivity Experiments using the Aeolus' Dynamical Core
- 2013 - 2014 G. di Capua (MSc), Statistical Rossby Wave Analysis: Amplitude and Meandering Indices
- 2013 - 2014 L. Stadtherr (BSc), Factors Contributing to the Balkan Flooding in May 2014
- 2013 - 2014 M. Knaus (BSc), Physical Drivers behind the long-term Mediterranean Drought
- 2012 - 2013 L. Caesar (BSc), A Statistical Analysis of the July 2010 Heat Record in Western Russia
- 2012 - 2012 S. Beuchel, Data Analysis of Atmospheric Aerosols during Russian Heat Wave of 2010
- 2011 - 2012 O. Eggert, Parallelization of *Aeolus* using Grid Partitioning
- 2010 - 2011 S. Chrisgau, Parallelization of *Aeolus* using Functional Decomposition

Consultancy & Review

Contributed to several reports on climate impacts commissioned by World Bank, African Development Bank, UNEP, Climate Analytics (see publication list)

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| Consultancy | The World Bank, Germanwatch e.V., Climate Analytics, African Development Bank, MCII, ICCCAD | Review | Science, Nature, Nature Climate Change, JGR, J Clim, GRL, G-cubed, EPSL, IPCC, NSF, DFG, SNF, BMBF |
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Additional Management Tasks

- 2012-2016 Mediator (Ombudsman) for ensuring good scientific practice at PIK
- 2011-2013 Head of the Modelers Council (PIK)

Languages

Dutch	Fluent	<i>Mother tongue</i>
English	Fluent	<i>Reading, writing, conversation</i>
German	Good	<i>Reading, writing, conversation</i>
French	Moderate	<i>Reading, conversation</i>

Memberships

US CLIVAR Working Group "Arctic Change and Possible Influence on Mid-latitude Weather"
American Geophysical Union (AGU)
Society of Economic Geologists (SEG), Secretary from 2004 to 2006 of SEG-Zürich

Selected Additional Courses

- 2013 PIK Press & PR Office, Media Training for Senior Scientists
- 2011 Goethe Institut Berlin, Intensive German Course (C1-level)
- 2010 European Research Course on Atmospheres, Grenoble, France
- 2006 Project Management at Business Tools AG (Zürich, CH)
- 2004-2005 Several Intensive German Courses at Sprachenzentrum ETH (Zürich, CH)
- 2001-2002 Several courses in Geophysical Exploration and Hydrologic Surveys (UK and NL)
- 1998 PADI Open water & Advanced Open water dive courses (Utila, Honduras)

Selected Marine Geophysical Surveys & Geologic Fieldworks

- 2005 Society of Economic Geologists (SEG) ore-deposit fieldwork to Peru
- 2003 Offshore rock dumping (Van Oord-ACZ), North Sea. Multibeam data processing
Port of Göteborg dredging and rock blasting project (Royal Boskalis Westminster NV)
- 2002 Offshore Nigeria deep seismic oil exploration (Gardline Surveys Ltd.) Data processing
Red Sea pipeline survey offshore Ras Gharib (Thales GeoSolutions), Egypt. Chief geoscientist on board, responsible for survey data from sonar equipment and magnetometer
- 2001 Two pipeline route surveys in Gulf of Arabia (ADNOC). Chief geoscientist on board, responsible for survey data using side scan sonar and sub bottom profiler.
Baltic pipeline route survey 2001 onboard M/V Geograph. Shallow seismic employing surface-tow sparker and Delph Elics processing software.

References

The following people are acquainted with my skills and experience and may be contacted for reference:

- [1] Prof. Dr. Stefan Rahmstorf, Head of Earth System Analysis at PIK (Post-doc supervisor):
rahmstorf@pik-potsdam.de, tel: +49 331 288 2624. (A written reference is attached)
- [2] PD Dr. Thomas Driesner, Senior Lecturer at ETH-Zurich (1st PhD advisor):
driesner@erdw.ethz.ch, tel: +41 44 632 68 03. (A written reference is attached)
- [3] Prof. Dr. Christoph A. Heinrich, Professor at ETH-Zurich (2nd PhD advisor):
heinrich@erdw.ethz.ch, tel: +41 44 632 68 51
- [4] Kanta K. Rigaud, Lead of Climate Change Group at the World Bank (several joint projects):
kkumari@worldbank.org, tel: +01 202-473-4269