HELMHOLTZ
RESEARCH FOR GRAND CHALLENGES

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

Coastal Research and Climate Services 2013-2017

Status Report – Volume 2

HELMHOLTZ-ZENTRUM GEESTHACHT - CENTRE FOR MATERIALS AND COASTAL RESEARCH

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

Research Field Earth and Environment

Status Report

Coastal Research and Climate Services

at

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

2013–2017

Volume II

Helmholtz Association

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Contents

1 SCIENTIFIC STAFF

1.1 RESEARCH UNIT 1: SYSTEM ANALYSIS AND MODELLING

Prof. Dr. Corinna Schrum

Research Unit 1

* 1962

Principal Investigator, Head of System Analysis and Modelling

CV	**Current position:** since 2015 Director Helmholtz Centre Geesthacht, Institute for Coastal Research, Germany; Professor Universität Hamburg, Center for Earth System Research since 2016 Professor II at the University of Bergen, Norway (20% adjunct position) **Previous positions:** 2006-2015 Professor, Geophysical Institute, University of Bergen, Norway 2012-2015 Professor II NERSC, Norway (20% adjunct position) 2008-2010 Researcher 1 (principle) NIVA, Norway (20% adjunct position) 2004-2006 Senior Scientist, Danish Institute of Fisheries Research, Denmark 1997-2004 Assistant Professor level, Institute of Oceanography, Universität Hamburg, Germany 1990-1997 Scientist, Institute of Oceanography, Universität Hamburg, Germany 1989-1990 Research Associate, Bundesamt für Seeschifffahrt und Hydrographie, Germany 1985, 1988, 1991, 2000, 2002: parental leaves **Scientific degree:** Professor competence, Norwegian equivalent to German Habilitation (2006) PhD in Geoscience / Department of Geoscience, Universität Hamburg, Germany (1994)
Selected Activities, Memberships and Awards	since 11/2016 CLISAP Cluster of Excellence, Scientific Steering Committee since 2016 KlimaCampus Hamburg, Roundtable Coordination Group since 2016 National Coastal Ocean Modelling Working Group, Co-Chair since 2016 SAC-Science advisory committee NIOZ since 2017 Review panel member: Soil, Air and water processes, Swed. Res. Council since 2017 PAG for the NERC Changing Arctic Ocean Research Programme, member since 03/2016 Baltic Earth Science Steering Group since 06/2017 Baltic Earth Working Group Regional Seas, Chair Associate Editor Frontiers in Marine Science, Specialty: Global Change and the Future Ocean Associate Editor Frontiers in Marine Science, Specialty: Coastal Ocean 2011-2015 FORMAS Climate Change Panel (Panel Chair 2012-2015) 2009-2015 Scientific Advisory Board, KLIWAS-Climate Change and Water Ways Program of the German Department of Transportation 2010-2015 Study board coordinator Joint Nordic Master Program ICES Working groups: WGPBI, WGOOFE, WGINOSE (chair invited member and national delegate nomination, co-chairing ICES workshops) Evaluation of research projects for organizations in Europe (EU, ERC, Sweden, Germany, Netherlands, United Kingdom) and North America (US, Canada) Evaluation of educational and research programs (Sweden, Germany)
Recent Research topics	• Regional system modelling, regional seas, regional climate and ecosystem modelling, modelling of pollutants
Publication record	H-Index (06.11.2017): 19 (Scopus), 19 (Web of Science), 26 (Google Scholar) Link: https://www.researchgate.net/profile/Corinna_Schrum
Publications (5 most important) (from newest to oldest)	• Daewel, U. and Schrum, C. (2017) Low frequency variability in North Sea and Baltic Sea identified through simulations with the 3-d coupled physical-biogeochemical model ECOSMO. Earth Syst. Dynam https://doi.org/10.5194/esd-8-801-2017. • Schrum, C, Lowe, J, Meier, M., Iris Grabeman, Jason Holt, Moritz Mathis, Thomas Pohlmann, Morten Skogen, Andreas Sterl, Sarah Wakelin. Projected Change - North Sea and interface regions. Chapter 6, NOSCCA- North Sea Climate Change Assessment, Ed. M. Quante & F. Colijn, 175-217, Springer http://link.springer.com/chapter/10.1007/978-3-319-39745-0_6. • Schrum C., Hübner, U., Jacob, D., Podzun, R.(2003) A coupled atmosphere/ice/ocean model for the North Sea and the Baltic Sea. Climate Dynamics, DOI 10.1007/s00382-003-0322-8 • Siegismund, F. and Schrum, C. (2001) Decadal variability of the wind field in the North Sea. Climate Research, 18, 39-45. • Janssen, F., J. O. Backhaus, C. Schrum (1999) A climatological dataset for Temperature and Salinity in the North Sea and the Baltic Sea. Deutsche Hydrogr. Zeitung, Supplement 9.

Dr. Frauke Feser

Research Unit 1

*1974

Principal Investigator

CV	**Current position:** since 2012 Theme coordinator for storms (including tropical and extratropical storms as well as polar lows and medicanes) at the institute of coastal research, Helmholtz-Zentrum Geesthacht, Germany **Previous positions:** 2005-2012 Research associate at the institute for coastal research, GKSS Forschungszentrum Geesthacht / Helmholtz-Zentrum Geesthacht, Germany 2001-2005 Ph.D. student at the institute for coastal research, GKSS Forschungszentrum Geesthacht, Germany 1999-2001 Researcher at the Institute of Hydrophysics, GKSS Forschungszentrum, Geesthacht, Germany 1998-1999 Max-Planck-Institute for Meteorology, Hamburg, Germany 1997-1998 Diploma thesis at the Universtität Hamburg and the Max-Planck-Institute for Meteorology in Hamburg, Germany **Scientific degree:** PhD in meteorology / Universität Hamburg, Germany (2005)
Selected Activities, Memberships and Awards	• Member of the Scientific Steering committee of the German Climate Computing Centre (DKRZ) • Principal Investigator of the Cluster of Excellence "Integrated Climate System Analysis and Prediction" CliSAP • Nominated as expert of the permanent representation of Germany at the UN for the UN Division of Ocean Affairs and Law of the Sea (DOALOS) • Associate Editor for the journal Asia-Pacific Journal of Atmospheric Sciences • Editor for the journal ISRN Atmospheric Sciences
Recent Research topics	• Storms and extreme events • regional climate modelling and its added value • methods to improve regional model results like spectral nudging or spatial filtering • Lead transport in the atmosphere • regional climate modelling • spatial scale separation
Publication record	H-Index (06.11.2017): 17 (Scopus), 16 (Web of Science), 21 (Google Scholar) 37 peer-reviewed articles Researcher ID C-1605-2014
Publications (5 most important) (from newest to oldest)	• F. Feser, M. Barcikowska, O. Krueger, F. Schenk, R. Weisse, L. Xia (2015) Storminess over the North Atlantic and Northwestern Europe - A Review. Q. J. R. Meteorol. Soc., 141, 350-382, January 2015 B DOI:10.1002/qj.2364. • F. Feser and M. Barcikowska (2012) The Influence of Spectral Nudging on Typhoon Formation in Regional Climate Models, Environ. Res. Lett., 7, 014024, doi:10.1088/1748-9326/7/1/014024. • F. Feser, B. Rockel, H. von Storch, J. Winterfeldt, and M. Zahn (2011) Regional Climate Models add Value to Global Model Data: A Review and selected Examples, Bull. Amer. Meteor. Soc., doi: 10.1175/2011BAMS3061.1., 92 (9), pp. 1181–1192. • F. Feser (2006) Enhanced detectability of added value in limited area model results separated into different spatial scales. Mon. Wea. Rev., 134 (8), 2180–2190. • H. von Storch, H. Langenberg, and F. Feser, 2000: A Spectral Nudging Technique for Dynamical Downscaling Purposes, Mon. Wea. Rev., 128 (10) 3664-3673.

Dr. Birgit Hünicke

Research Unit 1

*1977
Principal Investigator

CV	**Current position:** since 2011 Head of Coastal Impacts and Paleoclimate Group, Division System Analysis and Modelling, Institute for Coastal Research at Helmholtz-Zentrum Geesthacht, Germany **Previous positions:** 2003-2011 Research Scientist at the Department Paleoclimate and Department Coastal Climate, System Analysis and Modelling, Institute for Coastal Research, HZG, Germany 2002-2003 Research Scientist at the Institute for Landscape Management and Landscape Ecology, Rostock University, Germany 2000 Visiting Scholar at the Department of Biological and Agricultural Engineering and Department of Civil, Construction and Environmental Engineering at North Carolina State University (NCSU), Raleigh, USA 2012, 2016 Parental leave **Scientific degree:** PhD in Geosciences / Universität Hamburg and International Max-Planck Research School for Earth System Modelling (IMPRS-ESM), Hamburg, Germany Diploma in Environmental Engineering / University of Rostock, Germany (2002)
Selected Activities, Memberships and Awards	2013-2018 Co-Chair of Baltic Earth Working Group Grand Challenge 'Understanding sea level dynamics since 2011 Member of the Cluster of Excellence 'Integrated Climate System Analysis and Prediction' (CliSAP) of Hamburg University, Germany 2011-2017 Advisory Board Member School of Integrated Climate System Sciences (SICSS), Hamburg, Germany Supervision of 5 PhD Theses (one awarded for the Partner City price Hamburg, 5000 €) 2010-2014 Lead Author of the 2nd BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC2) Report. Chapter 'Sea level and wind waves' since 2012 active Member of the collaborative Program on Regional Aspects of Sea Level Change developed by the European Climate Research Alliance (ECRA) since 2008 Reviewer for more than 35 international journals and funding agencies
Recent Research topics	• climate influence on recent and future regional sea level variability and dynamics and its impact on the coast • coastline changes • coastal upwelling (with a recent regional focus on Africa, South-East Asia, Baltic)
Publication record	H-Index (06.11.2017): 6 (Scopus), 5 (Web of Science) 25 peer-reviewed publications, including 7 book chapters Link: http://www.hzg.de/huenicke Researcher ID 0000-0002-5829-6444
Publications (5 most important) (from newest to oldest)	• Hünicke, B. and Zorita, E. (2016) Analysis of the acceleration of mean sea-level rise in the Baltic Sea, 1900-2012. Front. Mar. Sci. 3:125. • Hünicke, B., Zorita, E., Soomere, T., Madsen, K.S., Johansson, M. and Suursaar, Ü. (2015) Recent change—sea level and wind waves. In Second Assessment of Climate Change for the Baltic Sea Basin (pp. 155–185). Springer International Publishing. • Reckermann, M., Langner, J., Omstedt, A., von Storch, H, Keevallik, S., Schneider, B., Arheimer, B., Meier, M.H.E. and Hünicke, B. (2011) BALTEX –An interdisciplinary research network for the Baltic Sea Region. Environ Res Lett 6, 045205 (11p), doi:10.1088/1748-9326/6/4/045205. • Hünicke, B., Luterbacher, J., Pauling, A. and Zorita, E. (2008) Regional differences in winter sea level variations in the Baltic Sea for the past 200 yr. Tellus A, 60(2), pp.384-393. • Hünicke, B. and Zorita, E. (2006) Influence of temperature and precipitation on decadal Baltic Sea level variations in the 20th century. Tellus A, 58(1), pp.141–153.

Dr. Insa Meinke

Research Unit 1

* 1972

Pricipal Investigator / Science stakeholder dialogue

CV	**Current position:** since 2007 Head of division northern German Coastal- Climate Office, Institute of Coastal Research, Helmholtz-Zentrum Geesthacht, Germany **Previous positions:** 2006-2007 Research Scientist at the Research Institute for Water and Environment, University of Siegen, Germany 2004-2006 Research Scientist at Scripps Institution for Oceanography, UCSD, USA 2002-2004 PostDoc at GKSS Forschungszentrum Geesthacht, Germany **Scientific degree:** PhD in Meteorology / Universität Hamburg (2002)
Selected Activities, Memberships and Awards	**Involvement in projects/scientific competence (selection):** • PI or work package leader in various national and EU-funded projects related to regional climate services in coastal regions **Board memberships (selection):** • AGU, DMG, AMK, Supervisory board of the Helmholtz-Zentrum Geesthacht (since 2008) • Editor of Advances in Science and Research (ASR), Special Issue Subject: Evaluation and quality assurance of climate services – Methods, criteria and pitfalls. Development of various information products for non-scientific-stakeholders.
Recent Research topics	• Experimental research on science-stakeholder dialogues in Northern Germany • Regional coastal and climate change in Northern Germany
Publication record	H-Index (06.11.2017): 5 (Web of Science) Author or co-author of more than 50 publications in leading journals. Editor and lead author of the Hamburg regional climate assessment report (2017) Link: https://www.researchgate.net/profile/Insa_Meinke
Publications (5 most important) (from newest to oldest)	• Meinke, I.: Stakeholder-based evaluation categories for regional climate services – a case study at the German Baltic Sea coast, Adv. Sci. Res., 14, 279-291, https://doi.org/10.5194/asr-14-279-2017, 2017. • von Storch, H., Meinke, I., Claussen (Eds.), 2017: Hamburger Klimabericht – Wissen über Klima, Klimawandel und Auswirkungen in Hamburg und Norddeutschland. 350 pp. Heidelberg. • Meinke, I., 2017: On the comparability of knowledge transfer activities–a case study at the German Baltic Sea Coast focusing regional climate services. Advances in Science and Research 14, 145. • Weisse, R., Bisling, P., Gaslikova, L., Geyer, B., Groll, N., Hortamani, M., Matthias V., Maneke, M., Meinke, I., Meyer, E., Schwichtenberg, F., Stempinski F., Wiese, F., Wöckner-Kluwe, K., 2015: Climate services for marine applications in Europe. Earth Perspectives, 2, 1-14. • von Storch, H., I. Meinke, N. Stehr, B. Ratter, W. Krauss, R.A. Pielke jr., R. Grundmann, M. Reckermann and R. Weisse, 2011: Regional Climate Services illustrated with experiences from Northern Europe. Journal for Environmental Law and Policy 1/2011, 1-15.

Prof. Dr. Beate M.W. Ratter

Research Unit 1

*1962
Principal Investigator

CV	**Current position:** since 2007 Univ. Professor, Institute of Geography, Universität Hamburg jointly with Head of Department Human Dimensions in Coastal Areas, Institute of Coastal Research, Helmholtz-Zentrum Geesthacht (HZG), Germany **Previous positions:** 2002-2007 Univ. Professor, Geographical Institute Johannes Gutenberg-Universität Mainz, Germany 2001-2002 Visiting Professor, Universidad Nacional Sede San Andrés, Colombia 2000-2001 Project Coordinator, trinational project „Ecoregion Conservation Wadden Sea“, WWF-International, Northeast Atlantic Programme, Bremen, Germany 1999-2000 Interim Professorship, Institute of Geography and Applied Geoinformatics, Paris Lodron University Salzburg, Austria 1992-1999 Postdoc Researcher, Institute of Geography (Section Economic Geography), Universität Hamburg, Germany **Scientific degree:** Habilitation in geography / Universität Hamburg, Germany (1999) PhD in geography / Universität Hamburg, Germany (1991)
Selected Activities, Memberships and Awards	since 2017 IPCC Lead Author Special Report on Ocean and Cryosphere since 2014 Scientific Member Germany trilateral Wadden Sea Forum
Recent Research topics	• human dimensions in coastal areas, societal adaptation to climate change, risk management, place attachment, sustainable regional development
Publication record	H-Index (10.11.2017): 5 (Web of Science), 15 (Google Scholar) Link: https://www.researchgate.net/profile/Beate_Ratter
Publications (5 most important) (from newest to oldest)	• Petzold, Jan; Beate M.W. Ratter and Arnd Holdschlag (2017): Competing knowledge systems and adaptability to sea level rise in the Bahamas. In: Area 49, DOI: 10.1111/area.12355. • Döring, Martin and Beate Ratter (2017): The regional framing of climate change. Towards a place-based perspective on regional climate change perception in north Frisia. In: J Coast Conserv 16 (Part A), DOI: 10.1007/s11852-016-0478-0. • González-Riancho, Pino; Birgit Gerkensmeier and Beate M.W. Ratter (2017): Storm surge resilience and the Sendai Framework. Risk perception, intention to prepare and enhanced collaboration along the German North Sea coast. In: Ocean & Coastal Management 141, pp. 118-131, DOI: 10.1016/j.ocecoaman.2017.03.006. • Gerkensmeier, Birgit and Beate M.W. Ratter (2016): Multi-risk, multi-scale and multi-stakeholder – the contribution of a bow-tie analysis for risk management in the trilateral Wadden Sea Region. In: J Coast Conserv 66 (5), DOI: 10.1007/s11852-016-0454-8. • Ratter, Beate M.W.; Philipp, Katharina and Hans von Storch (2012): Between hype and decline: recent trends in public perception of climate change. In: Environmental Science and Policy 15 (1), pp. 3-8, DOI:10.1016/j.envsci.2011.12.007.

Dr. Burkhardt Rockel

Research Unit 1

* 1957

Principal Investigator

CV	**Current position:** since 2001 Research Fellow, Group leader „Regional Atmospheric Modelling“ at Helmholtz-Zentrum Geesthacht (HZG), Germany **Previous positions:** 1990-2000 Research Fellow, Helmholtz-Zentrum Geesthacht (HZG), Germany 1983-1989 Research Fellow, University Cologne, Germany **Scientific degree:** PhD in Natural Science / University Cologne (1988)
Selected Activities, Memberships and Awards	since 2016 Member of the advisory board for the Nordic Center of Excellence "Arctic Climate Predictions: Pathways to Resilient Sustainable Societies (ARCPATH)" 2014-2016 Chair of the scientific advisory board of the CLM-Community 2015 Coordination and guest editor of the special issue on regional climate modelling in the journal „Meteorologische Zeitschrift“ 2009-2014 Coordination of the 2nd and 3rd International conference on regional climate modelling 2008 Coordination and guest editor of the special issue on COSMO-CLM in the journal „Meteorologische Zeitschrift“ 2005 Co-founder of the Climate Limited area Modelling Community (CLM-Community)
Recent Research topics	• Regional atmospheric modelling
Publication record	H-Index (06.11.2017): 21 (Scopus), 27 (Web of Science), 30 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Rockel B (2015) The Regional Downscaling Approach: a Brief History and Recent Advances, Current Climate Change Reports, 1–8. • Rockel B, Castro CL, Pielke Sr R, von Storch H and Leoncini G (2008) Dynamical downscaling: Assessment of model system dependent retained and added variability for two different regional climate models, Journal of Geophysical Research, 113, D21107. • Déqué M, Rowell DP, Luthi D, Giorgi F, Christensen JH, Rockel B, Jacob D, Kjellström E, Castro M and Hurk B (2007) An intercomparison of regional climate simulations for Europe: assessing uncertainties in model projections, Climatic Change, 81(S1), 53–70. • Rockel B and Woth K (2007) Extremes of near-surface wind speed over Europe and their future changes as estimated from an ensemble of RCM simulations, Climatic Change, 81(S1), 267–280. • Rockel B, Raschke E, Weyres B (1991) A Parameterization of Broad Band Radiative Transfer Properties of Water, Ice, and Mixed Clouds. Beiträge zur Physik der Atmosphäre 64, (Heft 1), S. 1–13.

Prof. Dr. Emil Stanev

Research Unit 1

*1950
Principal Investigator

CV	**Current position:** since 2007 Professor for Coastal Oceanography, University of Oldenburg, Germany Head of Department Data Analysis and Data Assimilationat Helmholtz-Zentrum Geesthacht (HZG), Germany **Previous positions:** 1996-2007 Professor for Physical Oceanography, University of Sofia, Bulgaria 1987-1996 Associate Professor for Physical Oceanography, University of Sofia, Bulgaria 1977-1987 Research assistant, University of Sofia, Bulgaria **Scientific degree:** PhD in Ocean Science / University of Sofia, Bulgaria (1977)
Selected Activities, Memberships and Awards	Editor: Continental Shelf Research (Elsevier), Ocean Dynamics (Springer), Ocean Modeling (Elsevier) Member of: EuroGOOS Coastal Ocean and Shelf Seas Modelling Working- Group Copernicus Marine Environment Monitoring Service (CMEMS) Science and Technology Advisory Committee GODAE Ocean view COSS-TT Euroargo (Management Board) Honors: 2004 ONRIFO scholarship in NRL-Stennis Space Centre 2000 University of Washington scholarship 1994 ONRIFO scholarship in NRL-Stennis Space Centre, NCAR/University of Boulder, Woods Hole, University of Harvard 1986-1988 Alexander von Humboldt-Fellow
Recent Research topics	• physical oceanography • numerical modelling • hydrodynamics and sediment dynamics of shelf and semi-enclosed seas • air-sea exchange and atmospheric studies • data assimilation in regional/coastal oceanography.
Publication record	H-Index (07.11.2017): 33 (Google scholar) Researcher ID 6850
Publications (5 most important (out of 160), according to the number of citations, from 173 to 108 times)	• Stanev, E. V. (1990) On the mechanisms of the Black Sea circulation. Earth-Science Rev., 28, 285–319. • Stanev, E. V., and E. L. Peneva (2002) Regional sea level response to global climatic change: Black Sea examples. Global and Planetary Change, 32, 33–47. • Stanev EV, F Ziemer, J Schulz-Stellenfleth J Seemann, J Staneva and KW Gurgel (2015) Blending surface currents from HF radar observations and numerical modelling: Tidal hindcasts and forecasts. *Journal of Atmospheric and Oceanic Technology*, Vol. 32, 256-281. • Zhang Y.J., F. Ye, E. V. Stanev, and S. Grashorn (2016) Seamless cross-scale modelling with SCHISM. Ocean Modelling 102, 64–81. • Stanev, E. V., Schulz-Stellenfleth, J., Staneva, J., Grayek, S., Grashorn, S., Behrens, A., Koch, W., and Pein, J.: Ocean forecasting for the German Bight: from regional to coastal scales, Ocean Sci., 12, 1105-1136, doi:10.5194/os-12-1105-2016, 2016.

Dr. Joanna Staneva

Research Unit 1

* 1970

Principal Investigator

CV	**Current position:** since 11/2017 Group Leader: Hydrodynamics and Data Assimilation, Institute for Coastal Research, Helmholtz Centre Geesthacht (HZG), Germany **Previous positions:** 2007-2017 Senior scientist, Topic Coordinator Wave Modelling, Institute for Coastal Research, Helmholtz Centre Geesthacht (HZG), Germany 2003-2007 PostDoc Climate System Division, Alfred-Wegener Institute for Polar and Marine Research, Germany, University of Oldenburg, Germany 1999-2000 Scientist National Institute of Meteorology and Hydrology, Bulgaria 1998-1999 PostDoc-Écologie des Systèmes Aquatiques, Universite Libre de Bruxelles, Belgium 1994-1998 Scientists-University of Sofia, Bulgaria **Scientific degree:** PhD in Physical Oceanography, University of Sofia, Bulgaria (1998)
Selected Activities, Memberships and Awards	• Member of different editorial and scientific boards and reviewer of scientific programmers, projects (H2020, DFG, FP7) and journals • Coordinator of the CMEMS Service Evolution Project Wave2NAMO and • Principle Investigator (PI) in many international (e.g. H2020, CMEMS, FP7, FP4-6) and national (BMBF, DFG) funded projects
Recent Research topics	• circulation and wave modelling • coastal ocean predictions • coupled model systems • modelling of marine environment • wave dynamics • coastal and regional oceanography
Publication record	H-Index (06.11.2017): 18 (Web of science – not full), 24 (Google Scholar) Link: https://www.researchgate.net/profile/Joanna_Staneva
Publications (5 most important) (from newest to oldest)	• Alari V, Staneva J, Breivik O, Bidlot JR, Mogensen K and Janssen PAEM (2016). Response of water temperature to surface wave effects in the Baltic Sea: simulations with the coupled NEMO-WAM model. Ocean Dynamics, DOI 10.1007/s10236-016-0963-x. • Staneva J, Wahle K, Koch W, Behrens A, Fenoglio-Marc L., and Stanev E. (2016) Coastal flooding: impact of waves on storm surge during extremes – a case study for the German Bight, Nat. Hazards Earth Syst. Sci., 16, 2373–2389, doi: 10.5194/nhess-16-2373-2016. • Staneva J., Alari V., Breivik O, Bidlot J.-R. and Mogensen K. (2016) Effects of wave-induced forcing on a circulation model of the North Sea. Ocean Dynamics, DOI 10.1007/s10236-016-1009-0. • Staneva J., Wahle K. Günther H. and Stanev E. (2016) Coupling of wave and circulation models in coastal-ocean predicting systems: A case study for the German Bight, MS No.: OS-2015-86, Special Issue: Operational oceanography in Europe 2014 in support of blue and green growth, 12, 3169–3197. • Kourafalou V., P. De Mey, J. Staneva, N. Ayoub, A. Barth, Y. Chao, M. Cirano, J. Fiechter, M. Herzfeld, A. Kurapov, A.M. Moore, P. Oddo, J. Pullen, A. van der Westhuysen, and R.H. Weisberg (2015) Coastal Ocean Forecasting: science foundation and user benefits, Journal of Operational Oceanography Vol. 8 Iss. sup1, 2015, Pages s147–s167, doi:10.1080/1755876X.2015.10223488, 147.

Dr. Ralf Weisse

Research Unit 1

*1966
Principal Investigator

CV	**Current position:** since 2001 Head of Department, Coastal Climate, Institute of Coastal Research at Helmholtz-Zentrum Geesthacht (HZG), Germany **Previous positions:** 2000-2001 Research Associate, GKSS Forschungszentrum Geesthacht, Germany 1994-1999 Research Associate and PostDoc, Max-Planck-Institute for Meteorology, Hamburg, Germany **Scientific degree:** PhD in Geosciences (1994, Universität Hamburg, Max-Planck-Institut für Meteorologie, Hamburg, Germany) Diploma in Meteorology (1990, Humboldt Universität zu Berlin, Germany)
Selected Activities, Memberships and Awards	since 2016 Member of the Baltic Earth Science Steering Group (BESSG)
Recent Research topics	• Marine climate and climate change; Wind, waves, storm surges, regional mean and extreme sea level
Publication record	H-Index (06.11.2017): 22 (Scopus), 21 (Web of Science), 29 (Google Scholar) Link: https://www.researchgate.net/profile/Ralf_Weisse Researcher ID E-7550-2013
Publications (5 most important) (from newest to oldest)	• Weisse, Ralf; Bisling, Peter; Gaslikova, Lidia; Geyer, Beate; Groll, Nikolaus; Hortamani, Mahboubeh et al. (2015): Climate services for marine applications in Europe. In: Earth Perspectives 2 (1), S. 3887. DOI: 10.1186/s40322-015-0029-0. • Weisse, Ralf; Bellafiore, Debora; Menéndez, Melisa; Méndez, Fernando; Nicholls, Robert J.; Umgiesser, Georg; Willems, Patrick (2014): Changing extreme sea levels along European coasts. In: Coastal Engineering 87, S. 4–14. DOI: 10.1016/j.coastaleng.2013.10.017. • Krueger, Oliver; Schenk, Frederik; Feser, Frauke; Weisse, Ralf (2013): Inconsistencies between Long-Term Trends in Storminess Derived from the 20CR Reanalysis and Observations. In: J. Climate 26 (3), S. 868–874. DOI: 10.1175/JCLI-D-12-00309.1. • Wahl, T.; Haigh, I. D.; Woodworth, P. L.; Albrecht, F.; Dillingh, D.; Jensen, J. et al. (2013): Observed mean sea level changes around the North Sea coastline from 1800 to present. In: Earth-Science Reviews 124, S. 51–67. DOI: 10.1016/j.earscirev.2013.05.003. • Weisse, Ralf; Storch, Hans von; Niemeyer, Hanz Dieter; Knaack, Heiko (2012): Changing North Sea storm surge climate. An increasing hazard? In: Ocean & Coastal Management 68, S. 58–68. DOI: 10.1016/j.ocecoaman.2011.09.005.

Prof. Dr. rer. nat. Kai W. Wirtz

Research Unit 1

* 1967

Principal Investigator

CV	**Current position:** since 2004 Department Head, Ecosystem Modeling at Institute of Coastal Research at Helmholtz-Zentrum Geesthacht (HZG), Germany since 2004 Professorship at Christians-Albrechts-University Kiel, Germany (C3) **Previous positions:** 2003-2004 Head of Junior Research Group IMPULSE at the ICBM Oldenburg, Germany 1999-2002 Postdoc at the Institute for Marine Chemistry and Biology (ICBM), Oldenburg, Germany 1998-1999 Postdoc at the Terramare Wilhelmshaven, Germany 1997 Paternity leave 1994-1996 Research Assistant at Centre for Environmental Research at the University of Kassel, Germany **Scientific degree:** Accredited manager degree of the Helmholtz-Akademie (2009) Habilitation University of Oldenburg, Germany (2005) PhD University of Kassel, Germany (1998)
Selected Activities, Memberships and Awards	since 2013 Member of KüNO coordination board for coastal research 2009-2015 Member of the executive board of the coastal observatory COSYNA since 2008 Member of the Kiel Excellence Cluster Future Ocean
Recent Research topics	• Marine ecosystems; Trait-based modeling; Modular coupling
Publication record	H-Index(06.11.2017): 19 (Scopus), 18 (Web of Science), 24 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Zhang, W and Wirtz K.W. (2017) Mutual Dependence Between Sedimentary Organic Carbon and Infaunal Macrobenthos Resolved by Mechanistic Modeling. Journal of Geophysical Research: Biogeosciences. DOI: 10.1002/2017JG00390. • Wirtz, K.W. and Kerimoglu, O. (2016) Autotrophic Stoichiometry Emerging from Optimality and Variable Co-limitation. Frontiers in Ecology and Evolution 4:131. doi: 10.3389/fevo.2016.00131 • Wirtz K.W. (2012) Who is eating whom? Morphology and feeding type determine the size relation between predators and their ideal prey. Marine Ecology Progress Series 445:1–12. • Tirok, K, B. Bauer, K. Wirtz & U. Gaedke (2011) Community dynamics driven by feedbacks between functionally diverse trophic levels. PLoS One 6, e27357. doi:10.1371/journal.pone.0027357 • Smith, S.L., Pahlow, M., Merico, A. & Wirtz, KW (2011) Optimality as a unifying concept for planktonic organisms and their ecology. Limnology & Oceanography 56, 2080–2094.

Dr. Eduardo Zorita

Research Unit 1

*1961
Principal Investigator

CV	**Current position:** since 2007 Senior Scientist, Institute of Coastal Research at Helmholtz-Zentrum Geesthacht, Germany **Previous positions:** 2000-2006 Head of the Department Paleoclimate, System Analysis and Modelling, Institute for Coastal Research, HZG, Germany 1996-1999 Research scientist, Institute of Hydrophysics, GKSS Research Centre, Geesthacht,Germany 1994-1995 Marie-Curie postdoc Researcher, University Pierre & Marie Curie, Paris, France 1989-1993 Postdoc researcher Max-Planck-Institute for Meteorology, Hamburg, Germany **Scientific degree:** PhD in Physics / University of Zaragoza, Spain (1988) Diploma in Physics, University of Zaragoza, Spain (1984)
Selected Activities, Memberships and Awards	• Editorial Boards of Climate of the Past, Climate Research, Wiley Environmental Reviews Climate Change • Lead Author of the 2nd BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC2) Report • Supervision of 6 PhD Theses
Recent Research topics	• Analysis and modelling of Holocene climate variability, with focus on past centuries • Mean sea-level variability and change, with foscus on Baltic Sea
Publication record	H-Index (06.11.2017): 40 (Scopus), 36 (Web of Science), 50 (Google Scholar). ~145 peer-reviewed publications Link: http://eduardozorita.blogspot.de Researcher ID 0000-0002-7264-5743
Publications (5 most important) (from newest to oldest)	• Gagen M., Zorita E., McCarroll D., Zahn M., Young G., Robertson I. (2016) North Atlantic summer storm tracks over Europe dominated by internal variability over the past millennium. Nature Geosciences 9, 630–637. doi:10.1038/ngeo2752. • Ljungqvist F.C., Krusic P.J., Sundqvist H.S., Zorita E., Brattström G. and Frank D. (2016) Northern Hemisphere hydroclimate variability over the past twelve centuries. Nature 532, 94–98 doi:10.1038/nature17418. • Pages 2K Consortium (2013) Continental-scale temperature variability over the Common Era. Nature Geosciences 6, 339–346, doi:0.1038/ngeo1797. • J. Esper, D. C. Frank, M. Timonen, E. Zorita, R. J. S. Wilson, J. Luterbacher, S. Holzkämper, N. Fischer, S. Wagner, D. Nievergelt, A. Verstege, U. Büntgen (2012) Orbital forcing of tree-ring data. Nature Climate Change 2, 862–866, doi:10.1038/nclimate1589. • Storch, H. von, E. Zorita, J. M. Jones, Y. Dmitriev. F. González and S. F. B. Tett (2004) Reconstructing past climate from noisy data. Science 306, 679–682.

1.2 RESEARCH UNIT 2: BIOGEOCHEMISTRY IN COASTAL SEAS

Prof. Dr. Kay-Christian Emeis

Research Unit 2

*1955

Principal Investigator, Head of Biogeochemistry in Coastal Seas

CV	**Current position:** since 2011 Director Institute of Coastal Research, Dept. Biogeochemistry in Coastal Seas since 2003 Professor for Biogeochemistry, Institute for Geology, Universität Hamburg **Previous positions:** 1994-2003 Deputy head of Marine Geology Department at the Institute for Baltic Sea Research, Warnemuende, Professor at the Institute of Geological Sciences, University of Greifswald 1989-1994 Assistant Professor, Geologisch-Paläontologisches Institut University of Kiel 1988-1989 Guest Investigator, Chemistry Department, Woods Hole Oceanographic Institution 1985-1989 Staff Scientist at the Ocean Drilling Program and Adjunct Assistant Professor in the Department of Oceanography of Texas A&M University, College Station, Texas **Scientific degrees:** Habilitation, University of Kiel, Germany, Doctorate (Dr. rer. nat.), Universität Hamburg, Germany Diploma in Geology and Paleontology, Universität Hamburg, Germany
Selected Activities, Memberships and Awards	2017-present Speaker, research consortium "Coastal Research in the North- and Baltic Seas" 2016-present Member, EU-ERC Starting Grant evaluation Committee 2015-present Member, "Baltic Earth"external Scientific Advisory Board 2015-present Deputy chairman, Universität Hamburg's Cluster of Excellence CliSAP (Climate System Analyses and Prediction) 2010-present Continental Shelf Research Editorial Board 2009-present Member Science Steering Committee, CliSAP Cluster of Excellence, Universität Hamburg 2007-present Member, Steuergruppe „Mittelgroße Forschungsgruppe" 2003-present Marine Geology Editorial Board 2011-2016 Consortium of German Marine Research (former Board Member and Spokesman) 2010-2016 Senatsausschuss Wettbewerb, Leibniz-Gemeinschaft 2010-2016 Member of the LOICZ-IMBER Continental Margins Working Group 2011-2013 Ex officio member of the Scientific Steering Committee of LOICZ 2001-2007 Member, Senatskommission für Ozeanographie der DFG **Memberships:** Member of Geophysical Union, Member of Deutsche Geologische Gesellschaft, Member of European Union of Geoscientists, Member of Geologische Vereinigung
Recent Research Topics	• Broad range of topics revolving around geochemistry and isotope geochemistry in ancient and modern environments, and specifically in oxygen-deficient environments; biogeochemical fluxes in shelf seas
Publication record	H-Index (November 2017): 38 (Web of Science), 40 (Scopus), 47 (Google Scholar) Google Scholar: https://scholar.google.it/citations?user=eJMdEPMAAAAJ&hl=en ResearchGate: https://www.researchgate.net/profile/Kay-Emeis URL: https://www.hzg.de/ms/emeis/
Publications (5 most important) (from newest to oldest)	• Emeis, K.-C., van Beusekom, J., Callies, U., Ebinghaus, R., Kannen, A., Kraus, G., Kröncke, I., Lenhart, H., Lorkowski, I., Matthias, V., Möllmann, C., Pätsch, J., Scharfe, M., Thomas, H., Weisse, R., Zorita, E., 2015. The North Sea — A shelf sea in the Anthropocene. J.Mar. 141, 18-33. • Emeis, K.C., Mara, P., Schlarbaum, T., Mobius, J., Dahnke, K., Struck, U., Mihalopoulos, N., Krom, M., 2010. External N inputs and internal N cycling traced by isotope ratios of nitrate, dissolved reduced nitrogen, and particulate nitrogen in the eastern Mediterranean Sea. J.Geoph. Res. Biogeosciences 115, 1-16. • Emeis, K.-C., Sakamoto, T., Wehausen, R., Brumsack, H.-J., 2000. The sapropel record of the Eastern Mediterranean Sea - Results of Ocean Drilling Program Leg 160. Palaeogeogr., Palaeoclimatol., Palaeoecol. 158, 259-280. • Emeis, K.-C., Anderson, D.M., Doose, H., Schulz-Bull, D., 1995. Sea-surface temperatures and the history of monsoon upwelling in the Northwest Arabian Sea during the last 500,000 years. Quaternary Research 43, 355-361. • Emeis, K.-C., Richnow, H.-H., Kempe, S., 1987. Travertine Formation in Plitvice National Park/Yugoslavia: Chemical versus biological control. Sediment 34, 595-609.

Dr. Ulrich Callies

Research Unit 2

* 1955

Principal Investigator

CV	**Current position:** Head of the Department for Modelling for the Assessment of Coastal Systems, Helmholtz-Zentrum Geesthacht **Previous positions:** 1981-1984 PhD position at Meteorological Institute, University of Frankfurt/Main 1984-1988 Assistant at Institute for Theoretical Meteorology, Freie Universität Berlin, Germany **Scientific degree:** Doctorate in Radiation thermodynamics at the University of Frankfurt/Main, Germany Diploma in Meteorology, University of Bonn, Germany
Selected Activities, Memberships and Awards	since 2012 Member of the ICES Working Group on Integrated Assessments of the North Sea (WGINOSE) 2013 Associate Researcher at Sir Alister Hardy Foundation for Ocean Science (SAHFOS) since 2013 Member of the „Unabhängige Umweltexpertengruppe 'Folgen von Schadstoffunfällen' (UEG)“, an independent advisory group for the Central Command for Maritime Emergencies (Havariekommando)
Recent Research Topics	• Problem oriented analyses based on already existing long-term re-analyses of hydrodynamic conditions (e.g. coastDat); • Ensemble simulations, drift climatologies (PELETS); • Risk assessments related to oil pollution: chronic pollution, use of chemical dispersants; • Supporting the interpretation of monitoring data (e.g. AWI station Helgoland Roads); • Probabilistic representations of interrelationships between multivariate data (Graphical modelling, Bayesian networks).
Publication record	H-Index (November 2017): 11 (Web of Science), 11 (Scopus) ResearchGate: https://www.researchgate.net/profile/Ulrich_Callies URL:https://www.hzg.de/ms/callies/
Publications (5 most important) (from newest to oldest)	• U. Callies, N. Groll, J. Horstmann, H. Kapitza, H. Klein, S. Maßmann, F. Schwichtenberg: Surface drifters in the German Bight: model validation considering windage and Stokes drift. Ocean Sci. 13 (2017), https://doi.org/10.5194/os-13-1-2017. • U. Callies, L. Gaslikova, H. Kapitza, M. Scharfe: German Bight residual current variability on a daily basis: principal components of multi-decadal barotropic simulations. Geo-Mar Lett 37 (2017), 151-162, https://doi.org/10.1007/s00367-016-0466-2. • J.R. Carpenter, L. Merckelbach, U. Callies, S. Clark, L. Gaslikova, B. Baschek: Potential impacts of offshore wind farms on North Sea stratification. PLoS ONE 11 (2016). https://doi.org/10.1371/journal.pone.0160830. • U. Callies, M. Scharfe: Mean spring conditions at Helgoland Roads, North Sea: Graphical modeling of the influence of hydro-climatic forcing and Elbe River discharge. J. Sea Res. 101 (2015), 1-11. https://doi.org/10.1016/j.seares.2014.06.008. • D. Neumann, U. Callies, M. Matthies: Marine litter ensemble transport simulations in the southern North Sea. Mar. Pollut. Bull. 86 (2014), 219-228. https://doi.org/10.1016/j.marpolbul.2014.07.016.

Dr. Kirstin Dähnke

Research Unit 2

* 1978

Principal Investigator

CV	**Current position:** Deputy Head of the Department for Aquatic Nutrient Cycles, Helmholtz-Zentrum Geesthacht (since 2016) Leader of the Helmholtz-Young Investigators Group "Sources, sinks and internal cycling of nitrogen in coastal waters – Identification of key processes using stable N isotopes ", Helmholtz-Zentrum Geesthacht (since 2011) **Previous positions:** 2009-2011 Guest Researcher at NordCEE, Institute of Biology, University of Southern Denmark 2003-2011 Researcher at the Netherlands Institute for Ecology (NIOO-KNAW), Department of Ecosystem Studies, Yerseke, Netherlands **Scientific degree:** Doctorate (Dr. rer. nat.) in Aquatic Nutrient Cycles, Helmholtz-Zentrum Geesthacht, Germany
Recent Research Topics	Nutrient filter in the coastal zone, especially on N transformations in estuaries and marine and coastal sediments.
Publication record	H-Index (August 2017): 10 (Web of Science), 8 (Scopus) ResearchGate: https://www.researchgate.net/profile/Kirstin_Daehnke URL: https://www.hzg.de/ms/daehnke/
Publications (5 most important) (from newest to oldest)	• Sanders, T., Schöl, A., Dähnke, K. (2017): Hot Spots of Nitrification in the Elbe Estuary and Their Impact on Nitrate Regeneration. Estuaries and Coasts 1-11, doi: 10.1007/s12237-017-0264-8. • Dähnke, K., Thamdrup, B. (2016): Isotope fractionation and isotope decoupling during anammox and denitrification in marine sediments. Limnology and Oceanography 61: 610-624, doi: 10.1002/lno.10237. • Möbius, J., Dähnke, K. (2015): Nitrate drawdown and its unexpected isotope effect in the Danube estuarine transition zone. Limnology and Oceanography, 60: 1008 - 1019. • Gaye, B., Nagel, B., Dähnke, K., Rixen, T., Lahajnar, N., Emeis, K.-C. (2013) Amino acid composition and ¬15N of suspended matter in the Arabian Sea: implications for organic matter sources and degradation, Biogeosciences 10: 7689–7702. • Dähnke, K., Thamdrup, B. (2013) Nitrogen isotope dynamics and fractionation during sedimentary denitrification in Boknis Eck, Baltic Sea, Biogeosciences 10: 3079-3088.

Prof. Dr. Ralf Ebinghaus

Research Unit 2

* 1962

Principal Investigator

CV	**Current position:** Head of the Department for Environmental Chemistry, Helmholtz-Zentrum Geesthacht (since 1997) **Previous positions:** 1995-1996 Temporary Head of Department for Organic Trace Analysis, Helmholtz-Zentrum Geesthacht 1992-1994 Deputy Head of Department for Analytical Methodology, Helmholtz-Zentrum Geesthacht 1992 Temporary Head of Department for Analytical Methodology, Helmholtz-Zentrum Geesthacht 1991 Postdoctoral researcher of Atmospheric Physics, Helmholtz-Zentrum Geesthacht **Scientific degree:** Professor (h.c.) in Faculty for Environmental Science, University of Lüneburg, Germany Habilitation in Environmental Chemistry, Leuphana University of Lüneburg, Germany Doctorate in Chemistry, Universität Hamburg, Germany Diploma in Chemistry, Universität Hamburg, Germany
Selected Activities, Memberships and Awards	since 2014 Associate Editor Chemosphere since 2010 Editor Environmental Chemistry (SCIRO journal) since 2007 Co-editor Atmospheric Chemistry and Physics (EGU Open Access Journal) 2017 and 2018 Member of the Pool of Experts for United Nations World Ocean Assessment (2nd round) 2017 Coordinator of the Evaluation Panel of research proposals in the field of "Environmental Sciences" for the Portuguese Science and Technology Foundation (FCT) 2014 and 2015 Visiting Professor for Senior International Scientists awarded by the Chinese Academy of Sciences (Awarded 2014) 2013 and 2014 Member of the Pool of Experts for the United Nations World Ocean Assessment (1st round)
Recent Research Topics	• Transport; deposition and air/sea-gas exchange of atmospheric trace constituents, such as mercury and persistent organic pollutants (POPs) with special emphasis on substances of emerging concern for the coastal, marine, and polar environment.
Publication record	H-Index (November 2017): 47 (Web of Science), 49 (Scopus), 59 (Google Scholar) Google Scholar: https://scholar.google.it/citations?user=rysVlUQAAAAJ&hl=de ResearchGate: https://www.researchgate.net/profile/Ralf_Ebinghaus URL: https://www.hzg.de/ms/ebinghaus/
Publications (5 most important) (from newest to oldest)	• Slemr, F.; Brenninkmeijer, C.A.; Rauthe-Schöch, A.; Weigelt, A.; Ebinghaus, R.; Brunke, E.-G.; Martin, L.; Spain, T.G.; O´Doherty, S. (2016): El Niño–Southern Oscillation influence on tropospheric mercury concentrations. Geophysical Research Letters 43, 1766–1771, doi:10.1002/2016GL067949. • Heydebreck, F.; Tang, J.; Xie, Z.; Ebinghaus, R. (2015): Alternative and Legacy Perfluoroalkyl Substances: Differences between European and Chinese River/Estuary Systems. Environmental Science & Technology 49, 8386-8395, doi: 10.1021/acs.est.5b01648. • Lai, S.; Xie, Z.; Song, T.; Tang, J.; Zhang, Y.; Mi, W.; Peng, J.; Zhao, Y.; Zou, S.; Ebinghaus, R. (2015): Occurrence and dry deposition of organophosphate esters in atmospheric particles over the northern South China Sea, Chemosphere 127, 195-200, doi: 10.1016/j.chemosphere.2015.02.015. • Ma, Y., Xie, Z., Halsall, C., Moller, A., Yang, H., Zhong, G., Cai, M., Ebinghaus, R. (2015): The spatial distribution of organochlorine pesticides and halogenated flame retardants in the surface sediments of an Arctic fjord: The influence of ocean currents vs. glacial runoff. Chemosphere, 119, 953-960, doi:10.1016/j.chemosphere.2014.09.012. • Xie, Z.; Wang, Z.; Mi, W.; Möller, A.; Wolschke, H.; Ebinghaus, R. (2015): Neutral Poly-/perfluoroalkyl Substances in Air and Snow from the Arctic. Scientific Reports 5:8912, doi:10.1038/srep08912.

Dr. Jana Friedrich

Research Unit 2

* 1967

Principal Investigator

CV	**Current position:** Head of the Department for Aquatic Nutrient Cycles, Helmholtz-Zentrum Geesthacht (since 2016) **Previous positions:** 2011-2016 Senior scientist in the Department of "Biogeochemistry in Coastal Seas", Helmholtz-Zentrum Geesthacht 2003-2011 Group leader "Radiochemistry" and Deputy Head in the Department of Marine Geochemistry at Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven, Germany 2009 Visiting scientist at the Scottish Marine Institute (SAMS) in Oban, UK 2007 Visiting scientist at the Marine Institute, University of Plymouth, UK 2000-2003 Project manager of "German Research Network Natural Disasters" at Helmholtz Centre Potsdam, German Research Centre for Geosciences, Germany 1997-2000 Post-doctoral researcher in the Department of Surface Waters at Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Kastanienbaum, Switzerland 1996-1997 Post-doctoral researcher in the Radiochemistry Group, Division of Geosciences at Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven, Germany 1992-1996 PhD student in the Radiochemistry Group, Division of Geosciences, Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven, Germany **Scientific degree:** Doctorate (Dr. rer. nat.) in Radiochemistry , University of Bremen / Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven, Germany Diploma in Mineralogy and Geochemistry,Technical University Bergakademie Freiberg, Germany
Selected Activities, Memberships and Awards	since 1993 Member of the AGU since 2003 Member of the EGU since 2003 Member of The Oceanography Society since 2014 Member of the Consortium for the Danube International Center for Advanced Studies of Rivers - Deltas – Sea
Recent Research Topics	• Biogeochemical processes at the sediment-water interface; pelagic-benthic coupling; sediments as environmental archives; natural radionuclides as tracers for particle dynamics.
Publication record	H-Index (November 2017): 12 (Web of Science) ResearchGate: https://www.researchgate.net/profile/Jana_Friedrich3 URL: https://www.hzg.de/ms/friedrich/
Publications (5 most important) (from newest to oldest)	• Neumann, A., Möbius, J., Hass, Ch., Puls, W. and J. Friedrich (2017) Empirical model to estimate permeability of surface sediments in the German Bight (North Sea), Journal of Sea Research. http://dx.doi.org/10.1016/j.seares.2016.12.002. • Ahmerkamp S, Winter C, Krämer K, Beer Dd, Janssen F, Friedrich J, Kuypers MMM, Holtappels M (2017) Regulation of benthic oxygen fluxes in permeable sediments of the coastal ocean. Limnology and Oceanography:doi:10.1002/lno.10544. • Friedrich, J., F. Janssen, D. Aleynik, H. W. Bange, N. Boltacheva, M. N. Çagatay, A. W. Dale, G. Etiope, Z. Erdem, M. Geraga, A. Gilli, M. T. Gomoiu, P. O. J. Hall, D. Hansson, Y. He, M. Holtappels, M. K. Kirf, M. Kononets, S. Konovalov, A. Lichtschlag, D. M. Livingstone, G. Marinaro, S. Mazlumyan, S. Naeher, R. P. North, G. Papatheodorou, O. Pfannkuche, R. Prien, G. Rehder, C. J. Schubert, T. Soltwedel, S. Sommer, H. Stahl, E. V. Stanev, A. Teaca, A. Tengberg, C. Waldmann, B. Wehrli and F. Wenzhöfer (2014). "Investigating hypoxia in aquatic environments: diverse approaches to addressing a complex phenomenon." Biogeosciences 11(4): 1215-1259. • Renaud, F.G., Syvitski, J.P.M., Sebesvari, Z., Werners, S.E., Kremer, H.H., Kuenzer, C., Ramesh, R. Jeuken, A., and Friedrich, J. (2013) Tipping from the Holocene to the Anthropocene: how threatened are major world deltas? Current Opinion in Environmental Sustainability, http://dx.doi.org/10.1016/j.cosust.2013.11.007. • Church, T., Rigaud, S., Baskaran, M., Kumar, A., Friedrich, J., , G., Masque, P., Puigcorbé, V., Kim, G., Radakovitch, O., Hong, G., Choi, G. and Stewart, G. (2012) Intercalibration studies of 210Po and 210Pb in dissolved and particulate seawater samples. Limnology and Oceanography: Methods, 10, 776-789.

Dr. Volker Matthias

Research Unit 2

* 1966

Principal Investigator

CV	**Current position:** since 2013 Head of the Department for Chemistry Transport Modelling, Helmholtz-Zentrum Geesthacht **Previous positions:** 2010-present Work package leader in several European research projects, among them the INTERREG IVB project Clean North Sea Shipping (CNSS), the FP7 project Global Mercury Observation System (GMOS), the BONUS project Sustainable Shipping and Environment of the Baltic Sea region (SHEBA) and the ERA Planet project Smart Urban Solutions for air quality, disasters and city growth (SMURBS) 2003-present Scientist at the Institute of Coastal Research at the Helmholtz-Zentrum Geesthacht. Work with three-dimensional Eulerian model systems, meteorological and chemistry transport models. Studies about the representation of aerosols in CTMs and about emission modelling 2000-2003 Scientist at the Max-Planck-Institute for Meteorology in the field of atmospheric aerosols in the EU FP 6 project Earlinet (European Aerosol Research Lidar Network) and CREATE (Construction, use and delivery of a European aerosol database). Participation in several national and international field experiments 1994-2000 PhD student at the Max-Planck Institute for Meteorology in the field of laser remote sensing (lidar). Parental leave for 18 months in 1995/1996. Work about the influence of atmospheric aerosol on the determination of ozone concentrations with a differential absorption lidar. First statistics of vertical aerosol profiles taken with a Raman lidar system **Scientific degree:** Doctorate in Meteorology at the Universität Hamburg, Germany Diploma in Physics at the Universität Hamburg, Germany
Selected Activities, Memberships and Awards	since 2003 Lecturer at University of Hamburg since 2010 Lecturer at Leuphana University Lüneburg since 2016 Member of the Steering Committee of the ITM Conference 2017 Convener at the Conference Shipping & the Environment
Recent Research Topics	• Formation and transport of aerosol particles in the atmosphere, particularly in the planetary boundary layer including the vertical distribution of aerosols and other pollutants in the troposphere. • Special emphasis on the impacts of shipping emissions and the long-term effects of persistent organic pollutants, polyaromatic hydrocarbons and heavy metals.
Publication record	H-Index (November 2017): 21 (Web of Science), 21 (Scopus) ResearchGate: https://www.researchgate.net/profile/Volker_Matthias URL: https://www.hzg.de/ms/matthias/
Publications (5 most important) (from newest to oldest)	• Aulinger, A.; Matthias, V.; Zeretzke, M.; Geyer, B.; Bieser, J. and Quante, M., 2016. The impact of shipping emissions on air pollution in the Greater North Sea region. Part I: Current emissions and concentrations, Atmos. Chem. Phys. 16, 739-758. • Matthias, V.; Aulinger, A.; Backes, A.; Bieser, J.; Geyer, B.; Quante, M. and Zeretzke, M., 2016. The impact of shipping emissions on air pollution in the Greater North Sea region. Part II: Scenarios for 2030, Atmos. Chem. Phys. 16, 759-776. • Backes, A.; Aulinger, A.; Bieser, J.; Matthias, V. and Quante, M., 2016, Ammonia emissions in Europe, Part 2: How ammonia emission abatement strategies affect secondary aerosols, Atmospheric Environment 126, 153-161. • Bieser, J.; De Simone, F.; Gencarelli, C.; Geyer, B.; Hedgecock, I.; Matthias, V.; Travnikov, O. & Weigelt, A. (2014): A diagnostic evaluation of modeled mercury wet depositions in Europe using atmospheric speciated high-resolution observations. Environmental Science and Pollution Research International 21(16), 9995—10012 (DOI: 10.1007/s11356-014-2863-2). • Solazzo, E.; Bianconi, R.; Pirovano, G.; Moran, M. D.; Vautard, R.; Hogrefe, C.; Appel, K. W.; Matthias, V.; Grossi, P.; Bessagnet, B.; Brandt, J.; Chemel, C.; Christensen, J. H.; Forkel, R.; Francis, X. V.; Hansen, A. B.; McKeen, S.; Nopmongcol, U.; Prank, M.; Sartelet, K. N.; Segers, A.; Silver, J. D.; Yarwood, G.; Werhahn, J.; Zhang, J.; Rao, S. T. & Galmarini, S. (2013), 'Evaluating the capability of regional-scale air quality models to capture the vertical distribution of pollutants', Geoscientific Model Development 6(3), 791-818.

Dr. Daniel Proefrock

Research Unit 2

* 1974

Principal Investigator

CV	**Current position:** since 2015 Head of Department Marine Bioanalytical Chemistry, Helmholtz-Zentrum Geesthacht **Previous positions:** 2014-2015 Scientist at the Helmholtz-Zentrum Geesthacht, Deputy Head of the Department Marine Bioanalytical Chemistry 2010-2014 Scientist Helmholtz-Zentrum Geesthacht, Departm. Marine Bioanalytical Chemistry 2007-2010 Scientist at the GKSS Forschungszentrum Geesthacht, Department Marine Bioanalytical Chemistry 2005-2006 Post Doc at the GKSS Forschungszentrum Geesthacht, Department Marine Bioanalytical Chemistry 2001-2004 Doctoral Student at the GKSS Forschungszentrum Geesthacht, Department Element and Elemental Speciation Analysis **Scientific degree:** Doctorate in Environmental/Analytical Chemistry (Helmholtz-Zentrum Geesthacht, in cooperation with the Leuphana University of Lüneburg), Germany Diploma in Environmental Science, Helmholtz-Zentrum Geesthacht, in cooperation with the Leuphana University of Lüneburg, Germany
Selected Activities, Memberships and Awards	since 2001 Member of GDCh (Expert group Analytical Chemistry) since 2001 Member of DAAS (Deutscher Arbeitskreis Anaalytische Spectroskopie) since 2011 Member of ICES Working Groups WGBEC (Working Group on Biological Effects of Contaminants) since 2013 Member of ICES WKPSPD (Expert Group on Passive Sampling and Passive Dosing) 2010-2016 Member of the Advisory Board for Metallomics 2011 Bunsen-Kirchhoff Prize for Analytic Spectroscopy since 2008 Teaching at University of Hamburg (Analytical Chemistry
Recent Research Topics	• Determination of elements and element species in environmental samples Element- and molecule specific analysis of metalloproteins; development of new tools for the quantification of selected biochemical indicators (markerproteins) as well as new contaminants of concern; development and application of new analytical tools: CE/ICP-MS, HPLC/ICP-MS, GC/ICP-MS, (Quadrupol, Collision Cell, MS-MS, MC ICP-MS), nano/capillary HPLC/ESI-MS-MS (Triple Quad, QTRAP), MALDI-TOF-TOF; development and application of non traditional stable isotopes for environmental analysis
Publication record	H-Index (November 2017): 15 (Web of Science), 25 (Scopus), 13 (Google Scholar) Author or co-author of more than 40 peer review publications in leading journals and 3 book chapters. Google Scholar: https://scholar.google.de/citations?user=0iETcsEAAAAJ&hl=de ResearchGate: https://www.researchgate.net/profile/Daniel_Proefrock URL: https://www.hzg.de/ms/proefrock/
Publications (5 most important) (from newest to oldest)	• A González-Gago, D Pröfrock, A Prange: Optimizing GC-ICP-MS for ultra-trace quantification of PBDEs in natural water samples using species-specific isotope dilution. Journal of Analytical Atomic Spectrometry (2015) 30 (1), 180-190. • D Pröfrock, A Prange: Inductively Coupled Plasma–Mass Spectrometry (ICP-MS) for quantitative analysis in environmental and life sciences: a review of challenges, solutions, and trends. Applied spectroscopy (2012) 66 (8), 843-868. • D Pröfrock, A Prange: Compensation of gradient related effects when using capillary liquid chromatography and inductively coupled plasma mass spectrometry for the absolute quantification of phosphorylated peptides. Journal of Chromatography A (2009) 1216 (39), 6706-6715. • A Prange, D Pröfrock: Chemical labels and natural element tags for the quantitative analysis of bio-molecules. Journal of Analytical Atomic Spectrometry (2008) 23 (4), 432-459 Krywka, H. Neubauer, M. Priebe, T. Salditt, J. Keckes, A. Buffet, S. V. Roth, R. Döhrmann, M. Müller: A two-dimensional waveguide beam for X-ray nanodiffraction. J. Appl. Cryst. 45 (2012) 85-92. • D Pröfrock, P Leonhard, W Ruck, A Prange: Development and characterisation of a new interface for coupling capillary LC with collision-cell ICP–MS and its application for phosphorylation profiling of tryptic protein digests. Analytical and bioanalytical chemistry (2005) 381 (1), 194-204 Pröfrock, P Leonhard, W Ruck, A Prange: Development and characterisation of a new interface for coupling capillary LC with collision-cell ICP–MS and its application for phosphorylation profiling of tryptic protein digests. Analytical and bioanalytical chemistry (2005) 381 (1), 194-204.

Prof. Dr. Markus Quante

Research Unit 2

* 1957

Principal Investigator

CV	**Current position:** Deputy Head of the Department for Chemistry, Transport and Modelling, Helmholtz-Zentrum Geesthacht **Previous positions:** 2002-2010 Senior Research Scientist, Institute for Coastal Research, GKSS Research Centre now called Helmholtz-Zentrum Geesthacht 1996-2001 Research Scientist, Institute for Atmospheric Physics, GKSS Research Centre (2001 to 2003 head of Atmospheric Measurements Department) 1990-1996 Research Scientist, Institute for Physics, GKSS Research Centre, Geesthacht/Germany 1989-1990 Research Scientist, Institute for Geophysics and Meteorology, University of Cologne/Germany 1994-1989 Graduate Assistant, Institute for Geophysics and Meteorology, University of Cologne/Germany 1982-1983 Industrial Trainee, British Gas Corporation, Wind Tunnel Lab., Watson House Research Center, London/UK **Scientific degree:** Doctorate (Dr. rer. nat.), Universität Hamburg Diploma in Meteorology, University of Cologne Diploma in Environmental Technology, University of Applied Science, Münster
Selected Activities, Memberships and Awards	since 1996 Consulting / Expert Report for: UK-Natural Environment Research Council (NERC), Dutch Climate Research Programme, University of Electro-Communications Tokyo (UEC), US-Department of Energy (DOE) since 1998 Science Team member of the CloudSat-Mission, NASA Jet Propulsion Laboratory, Pasadena since 2006 Member of the joint NASA CALIPSO/CloudSat-Mission Science Team since 2005 Member of the Advisory Committee "European Research Course on Atmospheres" University Joseph Fourier, Grenoble 2009-2011 Member of the Steering Group on Climate Change, International Council for the Exploration of the Sea, ICES, 2009 to 2011 since 2010 Scientific Coordinator of the North Sea Region Climate Change Assessment (NOSCCA) since 2008 User Group Selection Panel of European Fleet for Airborne Research (EUFAR) since 1989 Member of the German Meteorological Society (DMG)
Recent Research Topics	• Environmental technology and meteorology with emphasis on atmospheric chemistry; airborne turbulence measurements and cloud remote sensing
Publication record	H-Index (November 2017): 13 (Web of Science), 18 (Scopus) ResearchGate: https://www.researchgate.net/profile/Markus_Quante URL: https://www.hzg.de/ms/quante/
Publications (5 most important) (from newest to oldest)	• Quante, M., F. Colijn (eds.), 2016: North Sea Region Climate Change Assessment. Springer International Publishing, Cham; Switzerland, 528pp. • Aulinger, A., V. Matthias, M. Zeretzke, J. Bieser, M. Quante, and A. Backes, 2016: The impact of shipping emissions on air pollution in the Greater North Sea region. Part I: Current emissions and Concentrations. Atmos. Chem. Phys., 16, 739-758. • Matthias, V., A. Aulinger, A. Backes, J. Bieser, B. Geyer, M. Quante, and M. Zeretzke, 2016: The impact of shipping emissions on air pollution in the Greater North Sea region. Part II: Scenarios for 2030. Atmos. Chem. Phys., 16, 759-776. • Backes, A., A. Aulinger; J. Bieser; V. Matthias; M. Quante, 2016: Ammonia emissions in Europe, Part I: Development of a dynamical ammonia emission inventory. Atmos. Env.; 131, 55–66. • Quante, M., R. Ebinghaus, and G. Flöser (eds.), 2011: Persistent Pollution - Past, Present, Future. Springer Verlag, Berlin, 417pp.

Dr. Justus van Beusekom

Research Unit 2

* 1956

Principal Investigator

CV	**Current position:** Since 2011 Senior Scientist of the Department for Aquatic Nutrient Cycles, Helmholtz-Zentrum Geesthacht **Previous positions:** 2011-2016 Vertretungsprofessur at the Institute of Hydrobiology and Fishery Science, Universität Hamburg, Germany 1999-2011 Senior Scientist, Wadden Sea Station Sylt of the Alfred-Wegener-Institute, List/Sylt, Germany 1997-1999 Research Scientist, International Wadden Sea Secretariat, Wilhelmshaven, Germany 1994-1997 Post-Doc and Research Scientist, Biologische Anstalt Helgoland, Hamburg, Germany 1993 Post-Doc and Research Scientist, NIOZ, The Netherlands 1990-1993 Post-Doc at the Institute for General Botany, University of Hamburg in the UBA-Project Influence of aluminium on the development of diatoms in the North Sea 1984-1990 PhD student and Research Scientist, Universität Hamburg **Scientific degree:** Doctorate (Dr. rer. nat.), Universität Hamburg, Germany Doktoraal (equiv. M. Sc.) in Biology and Marine Biology, Rijksuniversiteit Groningen, The Netherlands
Selected Activities, Memberships and Awards	2017 NIOZ Evaluation Board 2016 NWO Evaluation Committee of the Dutch coastal research programm Co-chair of the German working group on eutrophication, nutrients and plankton (active in the German marine monitoring programme)
Recent Research Topics	• Long-Term Ecological Change in the Wadden Sea and North Sea; changes in riverine nutrient loads and climate and their effect on the dynamics of nutrients, suspended matter and phytoplankton in the Wadden Sea involving understanding of the interactions between the North Sea as a major driver of the organic matter and suspended matter dynamics in the Wadden Sea.
Publication record	H-Index (November 2017): 25 (Web of Science), 26 (Scopus) URL: https://www.hzg.de/ms/van_beusekom/
Publications (5 most important) (from newest to oldest)	• Krämer K, Holler P, Herbst G, Bratek A, Ahmerkamp S, Neumann A, Bartholomä A, van Beusekom JEE, Holtappels M, Winter C (2017) Abrupt emergence of a large pockmark field in the German Bight, southeastern North Sea. Scientific Reports 7. • Floeter, J., van Beusekom, J.E.E., Auch, D., Callies, U., Carpenter, J., Dudeck, T., Eberle, S., Eckhardt, A., Gloe, D., Hänselmann, K., Hufnagl, M., Janßen, S., Lenhart, H., Möller, K.O., North, R.P., Pohlmann, T., Riethmueller, R., Schulz, S., Spreizenbarth, S., Temming, A., Walter, B., Zielinski, O., Möllmann, C. (2017) Pelagic effects of offshore wind farm foundations in the stratified North Sea. Progress in Oceanography. 156:154-173. • Neumann A, van Beusekom JEE, Holtappels M, Emeis K-C (2017) Nitrate consumption in sediments of the German Bight (North Sea). J Sea Res 127:26-35. • Cox, T. J. S., van Beusekom, J. E. E., Soetaert, K. (2017). Tune in on 11.57 µHz and listen to primary production. Biogeosciences, 14(22), 5271-5280. • Van Beusekom, J. E. E. and V. N. de Jonge. 2012. Dissolved organic phosphorus: An indicator of organic matter turnover? Estuarine, Coastal and Shelf Science 108:29-36.

1.3 RESEARCH UNIT 3: OPERATIONAL SYSTEMS

Prof. Dr. Burkard Baschek

Research Unit 3

*1971

Principal Investigator, Head of Operational Systems

CV	**Current position:** Director, Institute of Coastal Research -Operational Systems -, Helmholtz-Zentrum Geesthacht, Germany Professor for Coastal Research and Instrumentation, University of Kiel, Germany **Previous positions:** 2010-2012 co-Chair, Coastal Center, Institute of the Environment and Sustainability, UCLA, USA 2007-2012 Assistant Professor, University of California at Los Angeles (UCLA), USA 2005-2006 Postdoctoral Investigator, Woods Hole Oceanographic Institution, USA 2003- 2005 Postdoctoral Fellow, Woods Hole Oceanographic Institution, USA **Scientific degree:** PhD, Earth and Ocean Sciences, University of Victoria, Canada, 2003, Advisor: Prof. David Farmer and Prof. Chris Garrett
Selected Activities, Memberships and Awards	2016 Best of Science Visualization Award for „Clockwork Ocean“, Fulldome Festival Jena, Germany 2003 Postdoctoral Fellowship, Woods Hole Oceanographic Institution, USA 2003 Conference/PODY Award, Physical Oceanography Dissertation Symposium 2003 (PODSII), Waikaloa, Hawaii, USA 2003 Nomination by School of Earth and Ocean Sciences for PhD award of Univ. of Victoria, Canada
Recent Research Topics	• Submesoscale Fronts, Eddies, and Filaments • Air-sea gas exchange in the coastal and open ocean • Biological-physical interaction in tidal fronts • Rouge waves
Publication record	H-Index: 9 (Web of Science), 13 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Baschek, B., Schroeder, F., Brix, H., Riethmüller, R., Badewien, T. H., Breitbach, G., Brügge, B., Colijn, F., Doerffer, R., Eschenbach, C., Friedrich, J., Fischer, P., Garthe, S., Horstmann, J., Krasemann, H., Metfies, K., Ohle, N., Petersen, W., Pröfrock, D., Röttgers, R., Schlüter, M., Schulz, J., Schulz-Stellenfleth, J., Stanev, E., Winter, C., Wirtz, K., Wollschläger, J., Zielinski, O., and Ziemer, F., 2017: The Coastal Observing System for Northern and Arctic Seas (COSYNA), Ocean Sci., 13, 379-410. doi:10.5194/os-13-379-2017. • Ohlmann, J. C., M. J. Molemaker, B. Baschek, B. Holt, G. Marmorino, and G. Smith, 2017: • Drifter observations of submesoscale flow kinematics in the coastal ocean, Geophys. Res. Lett., 44, 330–337. doi:10.1002/2016GL071537. • Carpenter, J.R., Merckelbach, L., Callies, U., Clark, S., Gaslikova, L., Baschek, B., 2016: • Potential Impacts of Offshore Wind Farms on North Sea Stratification. PLoS ONE 11(8): e0160830. doi: 10.1371/journal.pone.0160830. • Baschek, B., and J. Imai, 2011: Rogue Wave Observations off the U.S. West Coast. Oceanography, 24, 2, p. 158-165. doi: 10.5670/oceanog.2011.35. • Baschek, B., D.M. Farmer, and C. Garrett, 2006: Tidal fronts and their role in air-sea gas exchange. J. Marine Res., Vol. 64, No. 4, pp. 483-515. doi:10.1357/002224006778715766.

Dr. Holger Brix

Research Unit 3

* 1964

Principal Investigator

CV	**Current position:** since 2014 Head of the New Technologies department at the Institute of Coastal Research, Helmholtz-Zentrum Geesthacht Since 2014 Project Manager COSYNA (Coastal Observing System for Northern and Artic Seas **Previous positions:** 2006- 2013 Assistant Researcher and Adjunct Asst. Professor, University of California, Los Angeles, CA, USA 2001- 2006 PostDoc at University of California, Los Angeles, CA, USA **Scientific degree:** Dr. in Physics (Physical Oceanography), University of Bremen, 2001
Selected Activities, Memberships and Awards	since 2016 Helmholtz Association Digital Earth coordination group, 2016—present since 2016 Helmholtz Association MOSES steering group and event coordination group "Hydrological Extremes" since 2014 HZG-AWI Joint Underwater Node Task Force 2012- 2013 NASA Carbon Monitoring System Science Team 2009- 2011 NASA Sea Surface Temperature Science Team
Recent Research Topics	• Coastal observing systems and their use in data assimilation models. • The role of coastal and shelf sea systems for global processes. • Typology of coastal systems. • Study of natural versus anthropogenic variability of global biogeochemical cycles using observational data and numerical models of varying complexity and spatial extent.
Publication record	H-Index: 9 (Web of Science), 10 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Baschek, B., F. Schroeder, H. Brix, R. Riethmüller, T. H. Badewien, G. Breitbach, B. Brügge, F. Colijn, R. Doerffer, C. Eschenbach, J. Friedrich, P. Fischer, S. Garthe, J. Horstmann, H. Krasemann, K. Metfies, N. Ohle, W. Petersen, D. Pröfrock, R. Röttgers, M. Schlüter, J. Schulz, J. Schulz-Stellenfleth, E. Stanev, C. Winter, K. Wirtz, J. Wollschläger, O. Zielinski and F. Ziemer, The Coastal Observing System for Northern and Arctic Seas (COSYNA), Ocean Sci., 13, 379-410, doi: 10.5194/os-13-379-2017, 2017. • Voynova, Y.G., H. Brix, W. Petersen, S. Weigelt-Krenz and M. Scharfe, Extreme Flood Impact on Estuarine and Coastal Biogeochemistry: the 2013 Elbe Flood, Biogeosciences, 14, 541-557, doi:10.5194/bg-14-541-2017, 2017. • Brix, H., D. Menemenlis, C. Hill, S. Dutkiewicz, D. Wang, O. Jahn, K. Bowman, and H. Zhang, Using Green's Functions to Initialize and Adjust a Global, Eddying Ocean Biogeochemistry General Circulation Model, Ocean Modelling, 95, 1-14, doi: 10.1016/j.ocemod.2015.07.008, 2015. • Brix, H., K.I. Currie, and S.E. Mikaloff Fletcher, Trends and seasonal variability in Subantarctic Surface Water in the South West Pacific, Global Biogeochemical Cycles, 27(1), doi: 10.1002/gbc.20023, pp. 200-211, 2013. • Deutsch, C., H. Brix, T. Ito, H. Frenzel, and L. Thompson, Climate Forced Variability of Ocean Hypoxia, Science, doi: 10.1126/science.1202422, 333(6040), pp. 336-339, 2011.

Dr. Jeffrey R. Carpenter

Research Unit 3

*1979

Principal Investigator

CV	**Current position:** since 2013 Head of the Small-scale Physics and Turbulence department at the Institute of Coastal Research, Helmholtz-Zentrum Geesthacht **Previous positions:** 2013 Postdoc at Yale University, New Haven, CT, USA-2013 2009-2011 Postdoc at EAWAG (Swiss Federal Institute of Aquatic Science and Technology) **Scientific degree:** Ph.D in Civil Engineering, (2009, University of British Columbia)
Selected Activities, Memberships and Awards	2016 Session coordinator, Ocean Sciences Conference 2016 Session chair, International Symposium for Stratified Flows 2007- 2009 Alexander Graham Bell Canada Graduate scholarship
Recent Research Topics	• Environmental and geophysical fluid dynamcis, turbulent mixing in density stratified flows • hydrodynamic stability • double-diffusive convection • mesoscale eddies • ocean impacts of sustainable energy
Publication record	H-Index: 11 (Web of Science), 13 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Schultze, L.K.P., L.M. Merckelbach, J.R. Carpenter (2017): Turbulence and mixing in a shallow stratified shelf sea from underwater gliders. J. Geophys. Res. Oceans, in press. • Carpenter, J.R., L.M. Merckelbach, U. Callies, S. Clark, L. Gaslikova, B. Baschek (2016): Potential impacts of offshore wind farms on North Sea stratification. PLoS ONE, 11(8), e0160830. • Sommer, T., J.R. Carpenter, A. Wüest (2014): Double-diffusive interfaces in Lake Kivu reproduced by direct numerical simulation. Geophys. Res. Lett., 41, doi: 10.1002/2014GL060716. • Carpenter, J.R., E.W. Tedford, E. Heifetz, G.A. Lawrence (2012): Instability in stratified shear flows: review of a physical interpretation based on interacting waves. Appl. Mech. Rev., 64(6), 060801. • Carpenter, J.R., M.-L. Timmermans (2012): Deep mesoscale eddies in the Canada Basin, Arctic Ocean. Geophys. Res. Lett., 39, doi: 10.1029/2012GL053025.

Dr. Jochen Horstmann

Research Unit 3

* 1965

Principal Investigator

CV	**Current position:** since 2013 Head of the Radar Hydrography department at the Institute of Coastal Research, Helmholtz-Zentrum Geesthacht **Previous positions:** 2008-2013 Senior Remote Sensing Scientist with NATO Undersea Research Center, in La Spezia, Italy 2004-2005 Visiting Scientist with the Center for Southeastern Tropical Advanced Remote Sensing of the University of Miami, FL 2002-2002 Visiting Scientist with the Applied Physics Laboratory of the John Hopkins University, Laurel, MD, and with the National Environmental Satellite, Data, and Information Service from NOAA, Washington, DC 2002-2008 Research Scientist with GKSS Research Center, Geesthacht, Germany 1997-2002 Diploma and Doctoral Student with GKSS Research Center, Geesthacht, Germany **Scientific degree:** Dr. in Earth Sciences (2002 Universität Hamburg, Germany)
Selected Activities, Memberships and Awards	2017 1. Price KOMPASS 2017 with M. Stresser and R. Carrasco since 2016 International Science Team for SEASTAR, ESAs Earth Mission Call since 2016 EuroGOOS HFR Task Team 2013 International Science Team for Wavemill, ESAs Earth Mission Cal since 2007 Adjunct Professor at the Rosenstiel School of Marine and Atmospheric Science, University of Miami, USA since 2007 International Science Team TerraSAR-X, DLR, Speaker Coastal Zone 2007-2008 International Science Team for ESAs Envisat ASAR
Recent Research Topics	• Radar remote sensing of ocean wind, waves, and currents • Development of applications for radar-and video based systems with particular focus on ocean surface and subsurface processes
Publication record	H-Index: 18 (Web of Science), 24 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• R. Carrasco, J. Horstmann, and J. Seemann, Significant Wave Height Measured by Coherent X-Band Radar, IEEE Trans. Geosci. Remote Sensing, accepted 2017. • J. Horstmann, S. Falchetti, C. Wackerman, S. Maresca, M. Caruso, and H.C. Graber, Tropical Cyclone Winds Retrieved from C-band Cross Polarized Synthetic Aperture Radar, IEEE Trans. Geosci. Remote Sensing, Vol. 53(5), p. 2887-2898, doi: 10.1109/TGRS.2014.2366433, 2015. • S. Maresca, P. Braca, J. Horstmann and R. Grasso, Maritime Surveillance Using Multiple High-Frequency Surface-Wave Radars, IEEE Trans. Geosci. Remote Sensing, Vol. 52(8), p. 5056-5071, doi 10.1109/TGRS.2013.2286741, 2014. • J. Horstmann, W. Koch, S. Lehner, and R. Tonboe, Wind Retrieval over the Ocean using Synthetic Aperture Radar with C-band HH Polarization, IEEE Trans. Geosci. Remote Sensing, Vol. 38(5), p. 100-107, doi 10.1109/36.868871, 2000. • S. Lehner, J. Horstmann, W. Koch, and W. Rosenthal, Mesoscale Wind Measurements using Recalibrated ERS SAR Images, J. Geophys. Res., Vol. 103, p. 7847-7856, doi 10.1029/97JC02726, 1998.

Dr. Wilhelm Petersen

Research Unit 3

*1954

Principal Investigator

CV	**Current position:** since 2010 Head of the department In-situ Measurement Systems department at the Institute of Coastal Research, Helmholtz-Zentrum Geesthacht **Previous positions:** since 1986 Senior scientist Helmholtz-Zentrum Geesthacht 1983 – -1986 Postdoc Universität Hamburg, Institute of Chemistry and HASYLAB, DESY **Scientific degree:** 1983 Ph.D. in Natural Sciences, Analytical Chemistry, Universität Hamburg
Selected Activities, Memberships and Awards	• Participation in several EU projects. Recently partner in the EU projects NEXOS, EnviGuard and JERICO-NEXT • member of the steering committee and • leader of WP2 in the infrastructure project JERICO-NEXT • Co-chair of the EuroGOOS TaskTeam FerryBox
Recent Research Topics	• All FerryBox activities within the coastal observatory COSYNA in the North Sea • development of FerryBox systems and new biogeochemical instruments • investigation of the behaviour of phytoplankton in the coastal marine environment • studies of biogeochemical processes with focus on the carbon cycle
Publication record	H-Index: 11 (Web of Science), 15 (Google Scholar)
Publications (5 most important) (from newest to oldest	• Petersen, W.; Colijn, F. (eds) 2017: FerryBox White Paper. EuroGOOS Publication. • Petersen, W. 2014: FerryBox Systems: State-of-the-Art in Europe and Future Development, Journal of Marine Systems 140, 4-12, doi: 10.1016/j.jmarsys.2014.07.003. • Haller, M., Janssen, F., Siddorn, J., Petersen, W., and Dick, S. (2015): Evaluation of numerical models by FerryBox and fixed platform in situ data in the southern North Sea. Ocean Sci., 11, 879-896, www.ocean-sci.net/11/879/2015/. • Petersen W.; Schroeder, F.; Bockelmann F.-D. 2011: FerryBox - Application of continuous water quality observations along transects in the North Sea. Ocean Dynamics 61:1541–1554. • Petersen, W.; Wehde, H.; Krasemann, H.; Colijn, F.; Schroeder, F. 2008: FerryBox and MERIS-Assessment of Coastal and Shelf Sea Ecosystems by Combining In-situ and Remote Sensed Data. Estuarine Coastal and Shelf Science 77, 296-307.

Dr. Rüdiger Röttgers

Research Unit 3

* 1967

Principal Investigator

CV	**Current position:** since 2012 Head of "Remote Sensing department at the Institute of Coastal Research, Helmholtz-Zentrum Geesthacht" **Previous positions:** 2005- 2012 Research Scientist at Helmholtz-Zentrum Geesthacht 2001-2004 PostDoc at Helmholtz-Zentrum Geesthacht 2000-2001 PostDoc at the Interuniversity Institute at Eilat, Israel, (University of Jerusalem) 1999- 2000 PostDoc at the Alfred-Wegener-Institute for Poallar and Marine Research **Scientific degree:** PhD in Natural Science (Dr. rer.nat)
Recent Research Topics	• optical remote sensing of coastal waters • hyperspectral measurements of optical properties in coastal and oceanic waters • development of optical instrumentation • specific optical properties of phytoplankton • minerogenic and dissolved material • variation of optical properties and phytoplankton in sub-mesoscale structures
Publication record	H-Index: 18 (Web of Science), 19 (Google Scholar)
Publications (5 most important) (from newest to oldest)	• Rüdiger Röttgers, David McKee, and Christian Utschig (2014): Temperature and salinity correction coefficients for light absorption by water in the visible to infrared spectral region. Optics Express, Vol. 22, Issue 21, pp. 25093-25108. • Röttgers R., McKee D., Wozniak S.B (2013): Evaluation of scatter corrections for ac-9 absorption measurements in coastal waters. Methods in Oceanography, Volume 7, September 2013, Pages 21-39 (doi:10.1016/j.mio.2013.11.001). • Röttgers R. and Gehnke S. (2012): Measurement of light absorption by aquatic particles: improvement of the quantitative filter technique by use of an integrating sphere approach. Appl. Opt. 51, 1336-1351 (doi: 10.1364/AO.51.001336) . • Röttgers R. and Koch B.P (2012): Spectroscopic detection of a ubiquitous dissolved pigment degradation product in subsurface waters of the global ocean. Biogeosciences, 9, 2585–2596 (doi:10.5194/bg-9-2585-2012). • Röttgers, R., Häse, C., and Doerffer, R., Determination of the particulate absorption of microalgae using a point-source integrating-cavity absorption meter: verification with a photometric technique, improvements for pigment bleaching and correction for chlorophyll fluorescence, 2007, Limnol. Oceanogr. Methods. 5: 1-12.

1.4 RESEARCH UNIT 4: CLIMATE SERVICE CENTER GERMANY (GERICS)

Prof. Dr. Daniela Jacob

Research Unit 4

* 1961

Principal Investigator, Head of Climate Service Center Germany (GERICS)

CV	**Current positions:** Director of Climate Service Center Germany, Helmholtz-Zentrum Geesthacht, Hamburg Visiting professor at Leuphana University, Faculty of Sustainability, Lüneburg **Previous positions:** 2010 - 2015 Department Head, Deputy Director, Acting Director; Climate Service Center Germany, Hamburg 2009 - 2013 Adjunct Professor for Regional Climate Change, University of Bergen, Norway (Professor II, Secondary employment) 1993 - 2015 Leading Scientist, Max-Planck-Institute for Meteorology, Hamburg 1992 Visiting scientist, NCAR, Boulder, USA 1991 - 1992 Post-Doc position, GKSS Research Center, Geesthacht **Scientific degree:** PhD. in Meteorology (1991, Universität of Hamburg)
Selected Activities, Memberships and Awards	Member of Deutsches Komitee für Nachhaltigkeitsforschung Coordinating Lead Author, IPCC SR1.5, Chapter 3 Member of the Met Office Hadley Centre Science Review Group Ex-officio member of the Earth League Member of the Peer Review Board of the Neumann Institute for Computing (NIC) Member of the Scientific Advisory Panel of the Euro-Mediterranean Center on Climate Change Member of CORDEX Scientific Advisory Board Member of the Expert Group on Climate Services, European Commission
Recent Research Topics	• Regional Climate Change • Water Cycle • Extremes • Climate Service • Impact Assessment
Publication record	H-Index (14.11.2017): 38 (Scopus) H-Index (14.11.2017): 36 (Web of Science) Researcher ID R-4527-2017 Founding Editor in Chief for the Climate Services Journal since 2014 Author or co-author of more than 215 publications in leading journals. Link: https://www.researchgate.net/profile/Daniela_Jacob
Publications (5 most important) (from newest to oldest	• J. Otto, C. Brown, C. Buontempo, F. Doblas-Reyes, D. Jacob et al: Uncertainty: Lessons Learned for Climate Services. B Am Meterol Soc 97 (2017) 265 – 269. • T. Púčik, P. Groenemeijer, A.T. Rädler, L. Tijssen, G. Nikulin, A.F. Prein, E. Meijgaard, R. Fealy, D. Jacob, C. Teichmann: Future changes in European severe convection environments in a regional climate model ensemble. J Climate 30 (2017) 6771-6794. • K. Sieck, D. Jacob: Influence of the Boundary Forcing on the Internal Variability of a Regional Climate Model. AJCC 5 (2016) 373-382. • D. Jacob et al. EURO-CORDEX: New high-resolution climate change projections for European impact research. Reg Environ Change 14 (2014) 563-578. • D. Jacob et al.: Assessing the Transferability of the Regional Climate Model REMO to Different Coordinated Regional Climate Downscaling Experiment (CORDEX) Regions. Atmosphere 3 (2012)181-199.

Apl. Prof. Dr. Steffen Bender

Research Unit 4

*1966

Principal Investigator

CV	**Current position:** since 2015 Head of Department Climate Impacts and Economics, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht since 2017 Apl.-Professor (Applied Geology) at Ruhr University Bochum **Previous positions:** 2011-2015 Research Assistant "Management of Natural Resources", CSC and CS2.0, Helmholtz-Zentrum Geesthacht 2010 Senior Hydrogeologist St.B.-HydroRequest 2008-2009 Hydrogeologist, Schmidt und Partner 2002-2008 Postdoc at IGMG, Applied Geology, Ruhr-University Bochum 2000-2002 Postdoc at AG Hydrogeology, LMU Munich, Habilitation with Venia Legendi in "Applied Geology", 2006, Ruhr Universität, Bochum **Scientific degree:** Dr. in Geology (2000, LMU Munich)
Selected Activities, Memberships and Awards	since 2013 Deputy speaker of the DWA-working group "Hochwasserpass" (flooding pass) since 2000 Member of the FH-DGGV (formerly FH-DGG) since 1998 Member of the International Association of Hydrogeologists
Recent Research Topics	• Climate impacts and adaptation in cities (adaptation toolkit for cities), • urban flooding, • climate impact on terrestrial water systems, • groundwater flooding, • climate resilient critical infrastructure
Publication record	H-Index: 5 (Google scholar) Author and Co-author of 15 publications in leading journals
Publications (5 most important) (from newest to oldest	• BENDER, S., BUTTS, M., HAGEMANN, S., SMITH, M., VEREECKEN, H. & WENDLAND, F. (2017): Der Einfluss des Klimawandels auf die terrestrischen Wassersysteme in Deutschland. Eine Analyse ausgesuchter Studien der Jahre 2009 bis 2013. - Report 29, Climate Service Center Germany, 77 S. • BENDER, S., BRUNE, M., CORTEKAR, J. & GROTH, M. (2017): Klimaanpassung im Stadtsystem – der GERICS-Stadtbaukasten als Brücke zwischen Wissenschaft und Praxis. – In: IWARU: Wasser in Deine Stadt von morgen, Tagungsband Wassertage Münster 2017, 21-26. • CORTEKAR, J., BENDER, S., BRUNE, M. & GROTH, M, (2016): Why climate change adaptation in cities needs customised and flexible climate services. – Climate Services, 4 (2016), 42-51. • BENDER, S. & JACOB, D. (2016): Die Aussagekraft von Klimaprojektionen für zukünftige Herausforderungen der Trinkwasserversorgung in Deutschland. – gwf-Wasser/Abwasser, 04/2016, 362-368. • BOWYER, P., SCHALLER, M., BENDER, S. & JACOB, D. (2015): Adaptation as Climate Risk Management: Methods and Approaches - In LEAL, W. [ed.]: Handbook of Climate Change Adaptation, DOI 10.1007/978-3-642-40455-9_28-1.

Dr. Paul Bowyer

Research Unit 4

*1974

Principal Investigator

CV	**Current position:** 2010 –present Senior Scientist, Climate Service Center **Previous positions:** 2008 - 2010 Science officer, Environmental Change Institute, University of Oxford, UK 2007 - 2008 Remote sensing scientist, NERC British Antarctic Survey, Cambridge, UK 2005 - 2006 Post-doctoral research fellow, Department of Geography, University College London, UK 2002 - 2005 Research assistant, Department of Geography, University of Salford, Manchester, UK **Scientific degree:** Ph.D. Remote sensing (2005, University of Salford, UK)
Selected Activities, Memberships and Awards	2017 Contribution to the European Environment Agency report, 'Climate change, impacts and vulnerability in Europe 2016', on cross-sectoral climate impacts in a two degree warmer world 2017 Inclusion of GERICS Adaptation Guidebook in the UNDG Sustainable Development Goals Acceleration Toolkit 2016 - 2017 Co-PI on the EU Copernicus Climate Change Service Project SEC TEUR 2015 Author of Climate Focus Paper on 'Regional Sea Level Rise: South Asia' 2014 Main author GERICS Adaptation Guidebook 'Adapting to Climate Change: Methods and Tools for Climate Risk Management'
Recent Research Topics	• Adaptive capacity jn the European agriculture and forestry sector • Cross-sectoral climate impacts in Europe under +2 degrees global warming • User requirements for climate information • Climate risk analysis
Publication record	H-index: 6 (Web of Science and Google Scholar)
Publications (5 most important) (from newest to oldest	• K. Williges, R. Mechler, P. Bowyer, and J. Balkovich, 2016, Towards an assessment of adaptive capacity of the European agricultural sector to droughts, Climate Services, https://doi.org/10.1016/j.cliser.2016.10.003. • Bowyer, P., G.P. Brasseur, and Jacob, D, 2015, The role of climate services in adapting to climate variability and change, pp. 533-550, In Handbook of Climate Change Adaptation (ed. W.LeaFilho), Springer Berlin Heidelberg, DOI: 10.1007/978-3-642-38670-1_29. • R. Street, A. Steynor, P. Bowyer, K. Humphrey, 2009, Delivering and using the UK climate projections 2009, Weather, 64, 9, 227-231. • Grace, J., C. Nichol, M. Disney, P. Lewis, T. Quaife, P. Bowyer, 2007, Can we measure terrestrial photosynthesis from space directly, using spectral reflectance and fluorescence? Global Change Biology, 13, 7, 1484-1497. • P. Bowyer, and F.M. Danson, 2004, Sensitivity of spectral reflectance to variation in live fuel moisture content at leaf and canopy level, Remote Sensing of Environment, 92, 3, 332-344.

Dr. Jörg Cortekar

Research Unit 4

*1976

Principal Investigator

CV	**Current position:** Scientist at Climate Service Center Germany, Helmholtz-Zentrum Geesthacht (since 2013) **Previous positions:** 2009-2013 Scientific Assistant, Georg-August-University of Göttingen 2009-2011 Scientific Assistant, Leibniz University of Hannover 2008-2009 Consultant Hildebrandt GesundheitsConsult GmbH 2007-2008 Associate Researcher, Georg-August-University of Göttingen 2004-2007 PhD studies, Georg-August-University of Göttingen **Scientific degree:** Dr. in agricultural sciences (2007, Georg-August-University of Göttingen)
Selected Activities, Memberships and Awards	since 2017 Invited Expert to the JPI Climate Action Group 'Mobilising the Social Sciences and Humanities for Climate Change Research' 2014-2016 Steering Committee HGF Stadtforschungs-Initiative
Recent Research Topics	• Decision support for cities to adapt to climate change, assessment of the market for climate services, barriers to climate change adaptation
Publication record	Author or co-author of more than 30 scientific and service related publications in journals and book. The whole list of publications can be found in the complete CV at http://www.gerics.de/about/team/062435/index.php.de
Publications (5 most important) (from newest to oldest	• Scherer, D./Antretter, F./ Bender, S./Cortekar, J./Emeis, S./ Fehrenbach, U./Groß, G./Halbig, G./Hasse, J./Maronga, B./Raaasch, S./Scherber, K. (2017): Urban Climate Under Change [UC]² - A German research programme for developing and testing a building resolving atmospheric model for entire city regions, in: Meteorologische Zeitschrift, Vol. (in preparation). • Schuck-Zöller, S./Cortekar, J./Jacob, D. (2017): Evaluating Co-Creation of Knowledge – From Quality Criteria and Indicators to Methods, in: Advances in Science and Research, Vol. 14, Special Issue EMS 2016, pp. 305-312, https://doi.org/10.5194/asr-14-305-2017. • Cortekar, J./Bender, S./Brune, M./Groth, M. (2016): Why climate change adaptation in cities needs customised and flexible climate services, in: Climate Services, pp. 42-51, http://dx.doi.org/10.1016/j.cliser.2016.11.002. • Cortekar, J./Groth, M. (2015): Adapting Energy Infrastructure to Climate Change – Is there a Need for Government Interventions and Legal Obligations within the German "Energiewende"?, in: Energy Procedia, Vol. 73, pp. 12-17, doi: 10.1016/j.egypro.2015.07.552. • Manez, M./Zölch, T./Cortekar, J. (2014): Mapping of Climate Service Providers – Theoretical Foundation and Empirical Results: A German Case Study, CSC Report 15, Geesthacht.

Dr. Irene Fischer-Bruns

Research Unit 4

* 1956

Principal Investigator

CV	**Current position:** Administrative deputy of GERICS Director Prof. Dr. Daniela Jacob (since 06/2014) **Previous positions:** 2009-2014 Scientific Assistant to the former Director of the Climate Service Center, Prof. Dr. Guy Brasseur 2001-2009 Post-Doc at Max Planck Institute for Meteorology (MPI-M), Hamburg 1999-2001 IPCC Assistant at MPI-M, Hamburg 1999 Self-employed (Sales of meteorological software, webdesign) 1994-1998 Editorial Assistant for Dr. Mojib Latif at MPI-M, Hamburg 1988-1993 Maternity leave **Scientific degree:** PhD in Meteorology (1986, Hamburg University)
Selected Activities, Memberships and Awards	since 1980 Member of German Meteorological Society (DMG)
Recent Research Topics	Former research topics (2001-2010): • Impact of aerosols on climate change; Historical and future North Atlantic storm climate; • Northern hemispheric teleconnection patterns; Climate of the Late Maunder Minimum
Publication record	H-Index: 7 (Web of Science); 10 (Google scholar) Full CV: http://www.gerics.de/about/team/062480/index.php.en
Publications (5 most important) (from newest to oldest	• Fischer-Bruns I, J Feichter; S Kloster, A Schneidereit, 2010: How present aerosol pollution from North America impacts North Atlantic climate. In: Tellus A. Vol. 62 (2010) 4, 15699, doi: 10.1111/j.1600-0870.2010.00446.x) • Kloster S, F Dentener, J Feichter, F Raes, U Lohmann, E Roeckner, and I Fischer-Bruns, 2009: A GCM study of future climate response to air pollution reductions.Clim.Dyn., doi:10.1007/s00382-009-0573-0 • Fischer-Bruns, I, DF Banse, and J Feichter, 2009: Future Impact of anthropogenic sulfate aerosol on North Atlantic Climate, Clim. Dyn., 32 (4): 511-524, doi: 10.1007/ s00382-008-0458-7 • Roeckner E, P Stier, J Feichter, S Kloster, M Esch, and I Fischer-Bruns, 2006: Impact of carbonaceous aerosol emissions on regional climate change. Clim.Dyn., 27, 6, 553-571, doi:10.1007/s00382-006-0147-3 • Fischer-Bruns I, H von Storch, JF Gonzales-Rouco, and E Zorita, 2005: Modelling the variability of midlatitude storm activity on decadal to century time scales. Clim. Dyn., 25, 5,461-476, doi:10.1007/s00382-005-0036-1

Dr. Markus Groth

Research Unit 4

* 1976

Principal Investigator

CV	**Current position:** since 2010 Scientist, Climate Impacts and Economics Department, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht **Previous positions:** 2007–2010 Post-Doc researcher, Faculty of Sustainability, Sustainability Economics, Leuphana University of Lüneburg 2003–2006 PhD-student, Department of Agricultural Economics and Rural Development, Georg-August-Universität of Göttingen **Scientific degree:** Dr. rer. agr. in Agricultural Sciences, (2006, Georg-August-Universität of Göttingen)
Selected Activities, Memberships and Awards	2014–2017 Visiting professor and lecturer, Faculty of Sustainability, Sustainability Economics, Leuphana University of Lüneburg 2010-2012 Visiting professor, Department of Economics, University of Hamburg since 2008 Co-founder and honorary second chairman, Förderverein Nachhaltigkeitsökonomie e.V.
Recent Research Topics	• Impacts of climate change on the energy sector and other "critical" infrastructures, • the political framework of the German energy transition ("Energiewende") regarding climate change impacts, • identification and classification of climate change related opportunities and risks for companies, • development of climate services for companies to integrate climate change into business strategies, • development of climate services for cities/municipalities.
Publication record	H-Index (2012-2017): 1 (Web of Science); 7 (Google scholar)
Publications (5 most important) (from newest to oldest	• Groth, M. und Rose, J. (2017): Infrastrukturen (Energie- und Wasserversorgung), in: Meinke, I., von Storch, H. und Claußen, M. (Hrsg.): 2. Hamburger Klimabericht – Wissen über Klima, Klimawandel und Auswirkungen in Hamburg und Norddeutschland“: 193-208. • Groth, M. und Seipold, P. (2017): Prototypische Entwicklung eines Sensibilisierungs- und Analyseansatzes zur unternehmerischen Anpassung an die Folgen des Klimawandels. In: uwf UmweltWirtschaftsForum / Sustainability Management Forum. uwf (2017) 25: 203-211. • Groth, M. and Brunsmeier, A. (2016): A cross-sectoral analysis of climate change risk drivers based on companies’ responses to the CDP’s climate change information request, University of Lüneburg Working Paper Series in Economics, Working Paper No. 364, June 2016. • Cortekar, J. Bender, S., Brune and Groth, M. (2016): Why climate change adaptation in cities needs customised and flexible climate services. In: Climate Services (4), December 2016: 42-51. • Cortekar, J. and Groth, M. (2015): Adapting energy infrastructure to climate change – Is there a need for government interventions and legal obligations within the German “Energiewende”? Energy Procedia 73 (2015): 12-17.

M.Sc. Tania Guillén Bolaños

Research Unit 4

*1984

Principal Investigator

CV	**Current position:** since April 2017 Scientist at Climate Service Center – Germany (GERICS) **Previous positions:** 2016-2016 Alexander von Humboldt Fellow researcher at GERICS 2014-2015 Climate change officer at Humboldt Center, Nicaragua 2011-2013 M.Sc. student at TH-Köln, Germany 2007-2010 Environmental specialist at AMICTLAN, Nicaragua **Scientific degree:** M.Sc. in Technology and Resources Management in the Tropics and Subtropics. (2013, Köln University of Applied Sciences) Bachelor of Science in Environmental Engineering (2007, Central American University – UCA-, Nicaragua)
Selected Activities, Memberships and Awards	2016-2017 Fellow of the International Climate Protection Program of the Alexander von Humboldt Foundation 2011-2013 Scholarship holder of the German Academic Exchange Service (DAAD) 2016 to date Co-coordinator of adaptation topic in the technical team of the Latin American and Caribbean Group on Climate Finance (GFLAC) 2015 Coordinator of the Latin American Climate Action Network (CANLA) 2014-2015 Regional Facilitator for Latin America of the Southern Voices on Adaptation Network
Recent Research Topics	• Climate adaptation, • climate policies, • climate finance, • ecosystem-based disaster risk reduction
Publication record	Link to full CV: http://www.climate-service-center.de/imperia/md/content/csc/cv_ma/cv_tania_guillen_bolanos_1217.pdf
Publications (5 most important) (from newest to oldest	• S. Guzmán, A. Moncada, N. Canales, M. Castillo, and T. Guillén. Toward Climate Finance Reporting Systems in Latin America (2017) in Toward Implementation: The 2017 AdaptationWatch Report. Eds. K. Adams and D. Falzon. White Paper. AdaptationWatch. • E. Viktor, S. Ehlert, A. Haensler, T. Guillén Bolaños, T. Blome, and M. Máñez Costa (2017) 'The 5th International Conference on Climate Services (ICCS5) – "Innovation in Climate Services and Capacity Building"', Climate Services, 5, pp. 4–5. doi: 10.1016/j.cliser.2017.04.002I. • T. Guillén Bolaños, M. Máñez Costa, U. Nehren, (2016): Development of a prioritization tool for climate change adaptation measures in the forestry sector – A Nicaraguan case study. Report 28. Climate Service Center Germany, Hamburg. • Nehren, U., K. Sudmeier-Rieux, S. Sandholz, M. Estrella, M. Lomarda, and T. Guillén, 2014: The ecosystem-based disaster risk reduction case study and exercise book. CNRD und UNEP, ISBN 978-3-00-045844-6.

Dr. Andreas Hänsler

Research Unit 4

*1980

Principal Investigator

CV	**Current position:** since 2014 Head of the Climate System Department at the Climate Service Center Germany **Previous positions:** 2011-2014 Science Officer at the Climate Service Centre Germany 2007–2010 Research associate at the Max Planck Institute for Meteorology (MPI-M) in Hamburg **Scientific degree:** Dr. rer. nat., (2011, Hamburg University)
Selected Activities, Memberships and Awards	since 2016 Point of contact for the EURO-CORDEX distillation activities
Recent Research Topics	Thematic foci: • Impact of climate change on the hydrological cycle (current and future water availability and potential impacts on the water quality) at different spatial and temporal scales • Down/Upscaling of climate and climate impact data • Assessment of robustness/uncertainty of projected climatic and hydrological changes at different spatial and temporal scales • Ensemble modeling studies for climate and climate impact assessments Regional foci: • Europe and developing countries (mainly in Africa)
Publication record	H-Index (2011-2017): 9 (Web of Science); 11 (Google scholar)
Publications (5 most important) (from newest to oldest	• Vondou, D. A., & Haensler, A. (2017). Evaluation of simulations with the regional climate model REMO over Central Africa and the effect of increased spatial resolution. International Journal of Climatology, DOI: 10.1002/joc.5035. • Déqué, M., Calmanti, S., Christensen, O. B., Aquila, A. D., Maule, C. F., Haensler, A., Nikulin, G. & Teichmann, C. (2017). A multi-model climate response over tropical Africa at+ 2 C. Climate Services, 7, 87-95, DOI: 10.1016/j.cliser.2016.06.002. • Pfeifer, S., K. Bülow, A. Gobiet, A. Hänsler,·M. Mudelsee, J. Otto, D. Rechid, C. Teichmann and Daniela Jacob (2015): Robustness of Ensemble Climate Projections Analyzed with Climate Signal Maps: Seasonal and Extreme Precipitation for Germany. Atmosphere 05/2015; 6(5-5):677-698. DOI:10.3390/atmos6050677. • Haensler, A., F. Saeed and D. Jacob (2013): Assessing the robustness of projected precipitation changes over central Africa on the basis of a multitude of global and regional climate projections. Climatic Change, 121:349–363. DOI:10.1007/s10584-013-0863-8. • Nikulin, G., C. Jones, F. Giorgi, G. Asrar, M. Büchner, R. Cerezo-Mota, O. B. Christensen, M. Déqué, J. Fernandez, A. Haensler, E, van Meijgaard, P. Samuelsson, M. Sylla, L. Sushama (2012): Precipitation climatology in an ensemble of CORDEX-Africa regional climate simulations, Journal of Climate.

Dr. Elke Keup-Thiel

Research Unit 4

*1961

Principal Investigator

CV	**Current position:** since 2014 Climate System Department (representative head) since 2010 Climate Service Center Germany Helmholtz-Zentrum Geesthacht **Previous positions:** 2005-2009 Science Officer at the Max-Planck-Institute for Meteorology (MPI-M), Project Service Group Adaptation (SGA) 2004-2005 Science Officer at the at the Max-Planck-Institute for Meteorology (MPI-M), EU-Project BALANCE: Global change vulnerabilities in the Barents Sea Region 1998-2003 Post-Doc at the Meteorological Institute of the University of Hamburg, Cyclones and the North Atlantic Climate System. 1996-1997 PhD-student/science officer at the MPI-M, EU-Project SINDICATE II, Study of the INdirect and Direct Influences on Climate of Anthropogenic Trace Gas Emissions 1991-1995 PhD-student/science officer in the BMBF project Aerosols - Global Aerosol Data Set (GADS); Globale natürliche Aerosolteilchenfelder interaktiv berechnet mit dem Aerosolteilchenmodul APMO im Klimamodell ECHAM 1990-1990 Science officer at the University of Hamburg, SFB 318, Climate relevant processes in the system ocean –atmosphere –cyrosphere **Scientific degree:** Dr. in Natural Sciences (1997, Hamburg University)
Selected Activities, Memberships and Awards	since 2016 Member of DIN Standards Committee NA 172-00-13 AA: 'Anpassung an die Folgen des Klimawandels' since 2015 Member of DIN (DIN - Deutsches Institut für Normung) Research Group KU-AK4: 'Anpassung an den Klimawandel'
Recent Research Topics	• Quality Management and Evaluation of Climate Services, Advice for adaptation projects and clients towards the use and interpretation of global and regional climate model projections, Assessment of robustness of projected climate change, Topic 'uncertainty' assessment
Publications (5 most important) (from newest to oldest	• Otto, J., C. Brown, C. Buontempo, F. Doblas-Reyes, D. Jacob, M. Juckes, E. Keup-Thiel, B. Kurnik, J. Schulz, A. Taylor, T. Verhoelst, and P. Walton: Uncertainty: Lessons Learned for Climate Services. Bull. Amer. Meteor. Soc.,97, ES265 –ES269 (2016), doi: 10.1175/BAMS-D-16-0173.1. • Bender, S., Keup-Thiel, E. und Schaller, M.: Klimaprojektionen und ihre Berücksichtigung bei der hydrologischen Modellierung – Welchen Sinn hat ein Ensemble-Ansatz?-In Bolle, F.-W. & Krebs, P. [Hrsg.](2015); Siedlungswasserwirtschaft klimarobust gestalten, KLIMZUG – Klimawandel in Regionen zukunftsfähig gestalten, Band 9, 19-27 • Keup-Thiel, E., Bender, S., Groth, M. Hennemuth, B. und Schuck- Zöller, S.: Service für Anpassungs-Projekte. In Biebeler, H., Bardt, H., Chrischilles,E., Mahammazadeh, M. & Striebeck, J.(2014): Wege zur Anpassung an den Klimawandel–Regionale Netzwerke, Strategien und Maßnahmen, 29-41 • Groth, M., Bowyer, P., Hennemuth, B., Kehlenbeck, U., Keup-Thiel, E.und Schuck-Zöller, S.: Informationsbedarf von Unternehmen – eine sektorspezifische Auswertung des CSC – Anfragenservice; Mahammadzadeh, M., Chrischilles, E., Striebeck, J., Biebeler, H., Bardt, H. (Hrsg.) (2014): Unternehmensstrategien zur Anpassung an den Klimawandel–Theoretische Zugänge und empirische Befunde. Oekom-Verlag, München • Hennemuth, B., Bender, S., Bülow, K., Dreier, N., Hoffmann, P., Mudersbach, C., Keup-Thiel, E., Krüger, O., Radermacher, C. and Schoetter, R.: Statistical methods for the analysis of simulated and observed climate data, applied in projects and institutions dealing with climate change impact and adaptation. Climate Service Center - Report 13 (English and German), (2013), 135 p, ISSN 2192-4058.

Research Unit 4

Prof. Dr. María Máñez Costa

* 1967

Principal Investigator

CV	**Current position:** Senior Researcher at the Climate Impacts and Economics Department since 2013 Visiting Professor (Water Management) at Polytechnic University of Valencia - Spain **Previous positions:** 2012-2014 Head of Department "Economics and Policy", Climate Service Center – CSC - Helmholtz-Zentrum Geesthacht 2010-2012 Senior Researcher at Department "Economics and Policy", Climate Service Center – CSC - Helmholtz-Zentrum Geesthacht 2009-2010 Researcher at Universidad de Vigo - Spain 2008-2009 Senior Researcher at CEMAGREF - France 2005-2008 Senior Researcher at Institute of System Research – University of Osnabrück 2004-2005 PHRD – Research for the World Bank in Mexico 2004 Lecturer at Leeds University **Scientific degree:** Dr. in Agricultural Economics (2003, Georg-August- University Göttingen)
Selected Activities, Memberships and Awards	since 2016 Member of the System Dynamics Society since 2014 Executive Director of the Earth League since 2014 Member of the Scientific Kuratorium of BAUM AG 2013-2016 Member of IMPADAPT Scientific Steering Committee
Recent Research Topics	• System dynamics modelling for the economic assessment of climate change impacts and adaptation efforts; • Participatory modelling design; • climate services co-design and evaluation; • Nature based solutions
Publication record	H-Index (2012-2017): 7 (Web of Science); 6 (Google scholar) Researcher ID P-1225-2017, Orcid ID orcid.org/0000-0001-5415-0811 https://www.researchgate.net/profile/Maria_Manez_Costa https://orcid.org/0000-0001-5415-0811
Publications (5 most important) (from newest to oldest	• Máñez Costa, M., Shreve, C., & Carmona, M. (2017). How to Shape Climate Risk Policies After the Paris Agreement? The Importance of Perceptions as a Driver for Climate Risk Management, Earth's Future, 5, 1027–1033, https://doi.org/10.1002/2017EF000597 • Carmona, M., Máñez Costa, M., Andreu, J., Pulido-Velazquez, M., Haro-Monteagudo, D., Lopez-Nicolas, A. and Cremades, R. (2017), Assessing the effectiveness of Multi-Sector Partnerships to manage droughts: The case of the Jucar river basin. Earth's Future, 5: 750–770. doi:10.1002/2017EF000545 • Rockstroem, J.; Brasseur, G.; Hoskins, B.; Lucht, W.; Schellnhuber, J.; Kabat, P.; Nakicenovic, N.; Gong, P.; Schlosser, P.; Máñez Costa , M.; et al.: Climate change: The necessary, the possible and the desirable Earth League climate statement on the implications for climate policy from the 5th IPCC Assessment. In: Earth's Future [Online Ressource]. Vol. 2 (2014) 12, 606 - 611 • Máñez Costa, M, Moors, E. and E. Fraser (2012): Socio-economic settings and climate change: Which is driving vulnerability in southern Portugal?. In Ecology and Society • Manez Costa, M.: A participatory framework for conservation payments. In: Land Use Policy. Vol. 28 (2011) 2, 423 - 433

Dr. Juliane Otto

Research Unit 4

*1980

Principal Investigator

CV	**Current position:** since 2014 Senior Scientist, Climate Service Center Germany, Helmholtz-Zentrum Geesthacht **Previous positions:** 2010-2014 Post-Doc at Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Gif-sur-Yvette, France 2010-2010 Post-Doc at Max Planck Institute for Meteorology (MPI-M) in Hamburg, Germany 2007-2010 PhD Student at Max Planck Institute for Meteorology (MPI-M) in Hamburg, Germany **Scientific degree:** Dr. in Climate Modelling (2010, Hamburg University)
Recent Research Topics	• climate services, • ecosystems, • climate change, • climate modelling, • forest management, • uncertainty
Publication record	H-Index (2009-2017): 11 (Google scholar) Researcher ID O-2294-2017
Publications (5 most important) (from newest to oldest	• Otto, J., C. Brown, C. Buontempo, F. Doblas - Reyes, D. Jacob, M. Juckes, E. Keup - Thiel, B. Kurnik, J. Schulz, A. Taylor, T. Verhoelst, and P. Walton, 2016: Uncertainty: Lessons Learned for Climate Services. Bull. Amer. Meteor. Soc., 97, ES265 – ES269, doi: 10.1175/BAMS - D - 16 - 0173.1. • Naudts, K., Y. Chen, M. J. McGrath, J. Ryder, A. Valade, J. Otto, and S. Luyssaert, 2016: Europe's forest management did not mitigate climate warming. Science, 351,597 – 600, doi:10.1126/science.aad7270. http://science.sciencemag.org/content/351/6273/597. • Otto, J., Berveiller, D., Bréon, F. - M., Delpie rre, N., Geppert, G., Granier, A., Jans, W., Knohl, A., Kuusk, A., Longdoz, B., Moors, E., Mund, M., Pinty, B., Schelhaas, M. - J., and Luyssaert, S., 2014: Forest summer albedo is sensitive to species and thinning: how should we account for this in Earth system models?, 2014, Biogeosciences, 11, 2411 - 2427, doi:10.5194/bg - 11 – 2411-2014. • Luyssaert, S., Jammet, M., Stoy, P.C., Estel, S., Pongratz, J., Ceschia, E., Churkina, G., Don, A., Erb, KH. Ferlicoq, M., Gielen, B., Grünwald, T., Houghton, R.A., Klumpp, K., Knohl, A., Kolb, T., Kuemmerle, T., Laurila, T., Lohila, A., Loustau, D., Meyfroidt, P., Moors, E.J., Novick, K., Otto, J. , Pilegaard, K., Pio, C.A., Rambal, S., Rebmann, C., Ryder, J., Suyker, A. E., Varlagin, A., Wattenbach, M., and Dolman, A.J. (2014): Land management and land - cover change have impacts of similar magnitude on surface temperature. Nature Climate Change, 4, 389 – 393, doi:10.1038/nclimate2196. • Otto, J., T. Raddatz, M. Claussen, V. Brovkin, and V. Gayler, 2009: Separation of atmosphere ocean vegetation feedbacks and synergies for mid - Holocene climate, Geophys. Res. Lett., 36, L09701, doi:10.1029/2009GL03748.

Juliane Petersen

Research Unit 4

*1982

Principal Investigator

CV	**Current position:** since 2017 Scientist in the project "Bridging the Gap", Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht, Hamburg **Previous positions:** 2014-2016 Scientist for the development of the prototype process, GERICS, Helmholtz-Zentrum Geesthacht, Hamburg 2011-2014 Scientist in the project KLIMZUG-NORD, Max Planck Institute of Meteorology, Hamburg **Scientific degree:** Diploma in Geography (2012, Humboldt Universität zu Berlin)
Selected Activities, Memberships and Awards	2012 Advancement Award in urban ecology, IASP, Berlin
Recent Research Topics	• Identifying barriers of the operationalisation of prototype products and developing possible solutions; • development of climate service prototype process; • analysing land use feedback on the simulated climate of the metropolitan region of Hamburg
Publications (5 most important) (from newest to oldest	• Petersen, J., Seipold, P.: Prototypische Entwicklung von Produkten am Climate Service Center Germany (GERICS), Internal Report, in German (2017) • D. Jacob, J. Petersen, B. Eggert, A. Alias, O.B. Christensen, L.M. Bouwer, et al: EURO-CORDEX: new high-resolution climate change projections for European impact research. Reg. Environ. Chang. 14 (2014) 563-578 • D. Jacob, K. Bülow, L. Kotova, C. Moseley, J. Petersen, D. Rechid: Regionale Klimaprojektionen für Europa und Deutschland: Ensemble Simulationen für die Klimafolgenforschung. CSC-Report 6 (2012) • J. Petersen: Rückwirkungen von Landnutzung und Bewässerung auf das simulierte lokale und regionale Klima der Metropolregion Hamburg. CSC-Report 7 (2012) • J. Alexeew, L. Bergset, K. Meyer, J. Petersen, L. Schneider, C. Unger: An analysis of the relationship between the additionality of CDM projects and their contribution to sustainable development. Int. Environ. Agreem. Polit. Law Econ. 10 (2010) 233-248

Dr. Diana Rechid

Research Unit 4

*1974

Principal Investigator

CV	**Current position:** since 2017 Acting head of Climate System Department, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht **Previous positions:** since 2014 Senior scientist at GERICS 2000-2014 Research scientist at Max-Planck-Istitute for Meteorology in Hamburg **Scientific degree:** Dr.-rer.nat. in Meteorology, (2008, Max-Planck-Institute for Meteorology and Meteorological Institute Hamburg at University of Hamburg)
Selected Activities, Memberships and Awards	since 2016 Principal Investigator of WCRP CORDEX Flagship Pilot Study LUCAS - "Land Use and Climate Across Scales" since 2015 Coordinator of GERICS activities in the field of Capacity Building since 2014 GERICS point of contact for "Earth System Knowledge Platform ESKP" of HGF research field Earth & Environment since 2013 Guest lecturer at Leuphana University in Lüneburg
Recent Research Topics	• Land-atmosphere interactions at regional scales, • Feedbacks of land use and land cover changes on climate, • Land parameterisation schemes in regional climate models, • Regional climate change in Europe and Germany, • Tailoring climate information to climate impact and adaptation research, • Integration of climate knowledge into practise
Publication record	H-Index: 10 (Web of Science) 11 (Google scholar)
Publications (5 most important) (from newest to oldest	• Rechid D, Davin E, de Noblet-Ducoudré N, Katragkou E, and the LUCAS Team, CORDEX Flagship Pilot Study "LUCAS - Land Use & Climate Across Scales" - a new initiative on coordinated regional land use change and climate experiments for Europe. Solicited presentation. Geophysical Research Abstracts, Vol. 19, EGU2017-13172, 2017, EGU General Assembly 2017 • Pfeifer S, Bülow K, Gobiet A, Hänsler A, Mudelsee M, Otto J, Rechid D, Teichmann C, Jacob D (2015) Robustness of Ensemble Climate Projections Analyzed with Climate Signal Maps: Seasonal and Extreme Precipitation for Germany. Atmosphere, 6, 677-698. • Wilhelm C, Rechid D, Jacob D (2014) Dynamic coupling of regional atmosphere with biosphere in the new generation regional climate system model REMO-iMOVE. Geosci. Model Dev., 7, 1093–1114, doi:10.5194/gmd-7-1093-2014 • Rechid D, Raddatz TJ, Jacob D (2009) Parameterization of snow-free land surface albedo as a function of vegetation phenology based on MODIS data and applied in climate modelling. Theor. Appl. Climatol., 95, 245–255 • Rechid D, Hagemann S, Jacob D (2009) Sensitivity of climate models to seasonal variability of snow-free land surface albedo.Theor Appl Climatol, 95, 197-221.

Susanne Schuck-Zöller (M.A.) Research Unit 4

*1959
Principal Investigator

CV	**Current position:** since 2010 Senior Scientist at the Climate Service Center Germany **Previous positions:** 2000-2010 Head of Communications, spokesperson (Kiel University) 1998-2000 Press Officer (HGB Leipzig/Academy of Fine Arts) 1997-1998 Press Officer (Festival Hall Baden-Baden) 1993-1997 Press Officer (ZKM Karlsruhe, Center for Art and Media) 1990-1992 Press Officer (Wolfgang-Mann-Verlag, Berlin) 1988-1990 Verlag der Volks-/Raiffeisenbanken (Berlin) 1978-1980 Deutscher Ärzte-Verlag, Köln **Scientific degree:** Magister Artium (1988, Freie Universität Berlin)
Selected Activities, Memberships and Awards	since 2016 AESIS: Network for Advancing & Evaluating the Societal Impact of Science since 2015 Informal Working Group: Evaluation and Impact Analysis of TDR (Working Group Initiator and Coordinator) 2009 Wissenschaft interaktiv (3. Preis) 2006 Landmark in the Land of Ideas 1998-2010 Initiative Qualität von Hochschulkommunikation
Recent Research Topics	• Methods and quality of transdisciplinary research, • evaluation of science, • impact of science
Publication record	Editor of the national climate assessment for Germany (2017): "Klimawandel in Deutschland"
Publications (5 most important) (from newest to oldest	• Schuck-Zöller, S., Brinkmann, C., and Rödder, S.: Integrating Research and Practice –What climate services can learn from other fields, in: Communicating climate change information for decision-making, Serrao-Neumann, S., Coudrain, A., Coulter, L. (eds), Springer, Heidelberg/New York (in print) (2018) • Schuck-Zöller, S., Cortekar J., Jacob D.: EVALUATING CO-CREATION OF KNOWLEDGE - From Quality Criteria and Indicators to Methods. Advances in Science and Research (2017) • Brasseur, G., Jacob, D., Schuck-Zöller, S. (eds): Klimawandel in Deutschland, Springer, Heidelberg/New York (2017) • Brinkmann C, Bergmann M, Huang-Lachmann JT, Rödder S, Schuck-Zöller S: Zur Integration von Wissenschaft und Praxis als Forschungsmodus - Ein Literaturüberblick. Report 23, Climate Service Center. Hamburg (2015) • Schuck-Zöller S, Bowyer P, Jacob D, Brasseur G: Inter- und transdisziplinäres Arbeiten im Klimaservice. Beese K, Fekkak M, Katz C, Körner C, Molitor H (eds) Anpassung an regionale Klimafolgen kommunizieren. oekom München (2014)

Research Unit 4

Dr. Peer Seipold

*1968

Principal Investigator

CV	**Current position:** since 2015 Head of Department "Networking and Marketing", Climate Service Center Germany (GERICS) **Previous positions:** 2012–2014 Senior Researcher, Institute for Transport Planning and Logistics, Hamburg University of Technology 2006–2011 Project manager and Researcher, Institute for Transport Planning and Logistics, Hamburg University of Technology 2005–2009 Management consultant for sustainable development, freelancer, Hamburg 2000–2005 Environmental and sustainability consultant, Otto (GmbH & Co.KG), Hamburg 2000–2004 Sustainability consultant, Systain Consulting GmbH, Hamburg **Scientific degree:** Dr. rer. nat. in Organizational Biomimetics / TU Hamburg-Harburg, Germany (2012) Commercial graduate / Fachhochschule für Wirtschaft (FHW), Germany (2000)
Selected Activities, Memberships and Awards	since 2016 Member of KU-AK 4 „Anpassung an den Klimawandel", DIN Deutsches Institut für Normung e.V., Germany since 2016 Member of „AK Nachhaltigkeit", Logistik-Initiative Hamburg e.V., Freie und Hansestadt Hamburg
Recent Research Topics	• At GERICS Peer Seipold operates at the interface between science and the private sector. A special focus of his activities is on bringing together state of the art scientific information about climate change with decision makers' requirements and needs of the private sector, enabling them to derive appropriate action for adaptation.
Publication record	H-Index (1997-2017): 1 (Web of Science); 3 (Google scholar) Author or co-author of more than 10 publications. Link:http://www.climate-service-center.de/ imperia/md/content/csc/cv_ma/cv_peer_seipold_1115.pdf
Publications (most important)	• Groth, M., Seipold, P. "Prototypische Entwicklung eines Sensibilisierungs- und Analyseansatzes zur unternehmerischen Anpassung an die Folgen des Klimawandels", uwf UmweltWirtschaftsForum, (2017), DOI 10.1007/s00550-017-0462-7

Research Unit 4

Dr. Kevin Sieck

*1978

Principal Investigator

CV	**Current position:** since 2015 Science Officer at Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht **Previous positions:** 2013-2015 PostDoc at Max-Planck Institute for Meteorology **Scientific degree:** PhD in Meteorology (2013, University of Hamburg)
Selected Activities, Memberships and Awards	since 2005 Member of German Meteorological Society (DMG)
Recent Research Topics	• Regional climate modelling • Decadal climate prediction • Regional climate change impacts
Publication record	H-Index (2012-2017): 3 (Web of science); 6 (Google scholar) (Researcher ID N-7953-2017)
Publications (5 most important) (from newest to oldest	• SIECK, K. & JACOB, D.: Influence of the Boundary Forcing on the Internal Variability of a Regional Climate Model. In: American Journal of Climate Change Vol 5 (2016), 3, 373-382 • CEREZO-MOTA, R.; CAVAZOS, T.; ARRITT, R.; TORRES-ALAVEZ, A.; SIECK, K.; NIKULIN, G.; MOUFOUMA-OKIA, W. & SALINAS-PRIETO, J. A.: CORDEX-NA: factors inducing dry/wet years on the North American Monsoon region. In: Int. J. Climatol. Vol. 36 (2016), 2, 824-836 • KUMAR, P.; KOTLARSKI, S.; MOSELEY, C.; SIECK, K.; FREY, H.; STOFFEL, M. & JACOB, D.: Response of Karakoram-Himalayan glaciers to climate variability and climatic change: A regional climate model assessment. In: Geophys. Res. Lett. Vol. 42 (2015), 6, 1818-1825 • GALOS, B.; HAGEMANN, S.; HANSLER, A.; KINDERMANN, G.; RECHID, D.; SIECK, K.; TEICHMANN, C. & JACOB, D.: Case study for the assessment of the biogeophysical effects of a potential afforestation in Europe. In: Carbon balance and management Vol. 8 (2013), 1, 3 • JACOB, D.; ELIZALDE, A.; HAENSLER, A.; HAGEMANN, S.; KUMAR, P.; PODZUN, R.; RECHID, D.; REMEDIO, A. R.; SAEED, F.; SIECK, K.; TEICHMANN, C. & WILHELM, C.: Assessing the Transferability of the Regional Climate Model REMO to Different COordinated Regional Climate Downscaling EXperiment (CORDEX) Regions. In: Atmosphere Vol. 3 (2012), 1, 181-199

M.Sc. Marius Stankoweit

Research Unit 4

*1987

Principal Investigator

CV	**Current position:** since 2015 PhD Candidate, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht **Previous positions:** 2014-2015 Sustainability Analyst, Oekom Research AG, Munich 2011 Teaching Assistant, Electrodynamics, Georg-August-University of Göttingen **Scientific degree:** BSc. Physics (2011, Georg-August-Universität Göttingen) MSc. Integrated Climate System Sciences (2014, Universität Hamburg)
Selected Activities, Memberships and Awards	2015 Climate KIC Summer School, Topic: climate innovation and business plan writing, Coventry, Copenhagen, Munich 2012-2013 Master Student Representative, School of Integrated Climate System Sciences, Universität Hamburg
Recent Research Topics	• Climate change induced risks on the energy system infrastructure • Estimating the economic value of electricity grid infrastructures
Publications (5 most important) (from newest to oldest	• Stankoweit, M. et al.: Regional Differences in the Economic Value of Electricity Distribution Networks, Energy Journal (submitted 09/17). • Stankoweit, M. et al.: On the Heterogeneity of the Economic Value of Electricity Distribution Networks: an Application to Germany, Working Paper Series of Economics of the University of Lüneburg, 2017. • Stankoweit, M.: Contributions to an Integrated Assessment of Solar Radiation Management with MIND, Universität Hamburg, School of Integrated Climate System Sciences (SICCS), Hamburg, 2011.

M.Sc. Bettina Steuri

Research Unit 4

*1986

Principal Investigator

CV	**Current position:** since September 2016: Scientist at Climate Service Center Germany (GERICS) Hamburg (Germany) **Previous positions:** 2016 Project Architect // blauraum, Hamburg (Germany) 2012-2015 Assistant and Junior Lecturer //Bern University of Applied Sciences, Bern (Switzerland) 2008-2011 Trainee and Freelancer in Archtictural Design // various architectural offices, Switzerland and Costa Rica 2007-2008 Social exchange Year// Costa Rica **Scientific degree:** M.Sc. Resource Efficiency in Architecture and Planning (2015) // HafenCity Universität, Hamburg(Germany)

Selected Activities, Memberships and Awards	2015-2016 Holder of a Deutschlandstipendium (scholarship) // HafenCity Universität, Hamburg (Germany)
	Innovative Policies for Cities' Regeneration: Competition and Sustainability (summer school) // HafenCity University, Hamburg (Germany)
	HafenCity University, Hamburg (Germany)
	2012 Award for Sustainability // Bern University of Applied Sciences, Bern
	Bern University of Applied Sciences, Bern (Switzerland)
	2010 1st Rank // architectural competition (students´ studios), Bern (Switzerland)
	2010 2nd Rank // architectural competition (tree house), Bern (Switzerland)

Recent Research Topics	• living lab approach, • user engagement, • co-development, • practicality of a new urban climate model, user requirements on a practice-oriented urban climate model
Publication record	Contributions to various national and international conferences Link to full CV: http://www.gerics.de/about/team/063995/index.php.de
Publications (5 most important) (from newest to oldest	• Halbig, G., Steuri, B., Büter, B., Heese, I., Schultze, J., Stecking, M., …, Winkler, M. (2017). Urban Climate Under Change - Module C of the Research Programme: User Requirements and Case Studies to Evaluate the Practicability and Usability of the Urban Climate Model PALM-4U. Meteorol. Z., X (X), submitted. • Steuri, B. & Vignola, G. (2016, March). Green Roof Integrated Photovoltaics: Technology and Applica¬tion on a high-rise settlement in Hamburg, Germany. Paper presented at the International Conference on Sustainable Built Environment (SBE16), Hamburg. DOI: 10.5445/IR/1000051699 • Vignola, G. & Steuri, B. (2016, March). Effects of a building-integrated photovoltaic system on a high-rise estate in Hamburg, Germany. Poster presented at the International Conference on Sustainable Built Environment (SBE16), Hamburg. DOI: 10.5445/IR/1000051699

Dr. Claas Teichmann

Research Unit 4

*1977

Principal Investigator

CV	**Current position:** since 2015 Scientist at the Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht **Previous positions:** 2009-2014 PostDoc at the Max Planck Institute for Meteorology, Hamburg, Germany 2005-2009 PhD stundent in the International Max Planck Research School on Earth System Modelling at the Max Planck Institute for Meteorology, Hamburg, Germany 2001-2005 Physics-student at the University of Bremen, Germany 2000-2001 Physics-student at the University Claude Bernard, Lyon 1, France 1998-2000 Physics-student at the University of Göttingen **Scientific degree:** Dr. in natural sciences (2009, University of Hamburg) Physics Diploma (2005, University of Bremen)
Selected Activities, Memberships and Awards	since 2015 Co-chair of the CMIP6-endorsed Vulnerability, Impacts, Adaptation and Climate Services Advisory Board (VIACS AB) 2005 OHB-Award (best Physics diploma) 2001-2009 E-fellow.net-stipend
Recent Research Topics	• Regional climate modelling, ensemble analysis, extreme events and extreme value theory, model chain and the related uncertainty extending from the climate change signal to the regional and local impact, • analysis and understanding of meteorological and chemical process in the atmosphere and their interaction with focus on the hydrological cycle in Europe
Publication record	H-Index (2004 - 2017): 10 (Web of Science), 12 (Google scholar) https://orcid.org/0000-0003-2478-7074
Publications (5 most important) (from newest to oldest	• Prein, A.; Gobiet, A.; Truhetz, H.; Keuler, K.; Goergen, K.; Teichmann, C.; Fox Maule, C.; van Meijgaard, E.; Déqué, M.; Nikulin, G.; Vautard, R.; Colette, A.; Kjellström, E. & Jacob, D. Precipitation in the EURO-CORDEX 0.11° and 0.44° simulations: high resolution, high benefits? Climate Dynamics, Springer Berlin Heidelberg, 2016, 46, 383-412 • Ruane, A. C.; Teichmann, C.; Arnell, N. W.; Carter, T. R.; Ebi, K. L.; Frieler, K.; Goodess, C. M.; Hewitson, B.; Horton, R.; Kovats, R. S.; Lotze, H. K.; Mearns, L. O.; Navarra, A.; Ojima, D. S.; Riahi, K.; Rosenzweig, C.; Themessl, M. & Vincent, K. The Vulnerability, Impacts, Adaptation and Climate Services Advisory Board (VIACS AB v1.0) contribution to CMIP6 Geoscientific Model Development, 2016, 9, 3493-3515 • Jacob, D. et al. EURO-CORDEX: new high-resolution climate change projections for European impact research Regional Environmental Change, Springer Berlin Heidelberg, 2014, 14, 563-578 • Kotlarski, S.; Keuler, K.; Christensen, O. B.; Colette, A.; Déqué, M.; Gobiet, A.; Goergen, K.; Jacob, D.; Lüthi, D.; van Meijgaard, E.; Nikulin, G.; Schär, C.; Teichmann, C.; Vautard, R.; Warrach-Sagi, K. & Wulfmeyer, V. Regional climate modeling on European scales: a joint standard evaluation of the EURO-CORDEX RCM ensemble Geoscientific Model Development, 2014, 7, 1297-1333 • Teichmann, C.; Eggert, B.; Elizalde, A.; Haensler, A.; Jacob, D.; Kumar, P.; Moseley, C.; Pfeifer, S.; Rechid, D.; Remedio, A. R.; Ries, H.; Petersen, J.; Preuschmann, S.; Raub, T.; Saeed, F.; Sieck, K. & Weber, T. How Does a Regional Climate Model Modify the Projected Climate Change Signal of the Driving GCM: A Study over Different CORDEX Regions Using REMO Atmosphere, 2013, 4, 214-236

M.Sc. Elisabeth Viktor

Research Unit 4

*1988

Principal Investigator

CV	**Current position:** Scientist at Climate Service Center Germany - Helmholtz-Zentrum Geesthacht (since 2016) **Previous positions:** 2011-2016 Atmospheric Perils Specialist, Swiss Re, Zurich, Switzerland **Scientific degree:** Master of Science in Atmospheric Science (2011, McGill University, Montreal, Canada) Bachelor of Science in Meteorology (2009, University of Hamburg, Germany)
Selected Activities, Memberships and Awards	**Selected Activities:** 2011-2016 Probabilistic loss model development for atmospheric perils (tropical cyclones, severe convective storms, winter storms), insurance client interactions, parametric solutions/cat bonds, developing and leading training activities on the application of loss models, change management for newly developed loss models, post-event activities, renewal support etc. 2010 NCAR Advanced Study Program summer colloquium "Forecast Verification in Atmospheric Science and Beyond", Boulder, Colorado, USA **Memberships and Awards:** 2007-now Member of the German Meteorological Society 2009-2011 Member of the Studienstiftung des deutschen Volkes 2009-2010 Holder of a DAAD Scholarship
Recent Research Topics	• Understanding the requirements of business, government and administration regarding climate change related information. Improving the dialogue between climate research and the users of climate information. • Current and future impacts of climate change on the European energy industry: connecting current application practices of climate and weather information in energy companies with climate research results in this field, making climate services more beneficial for the energy industry.
Publication record	Contribution to several conferences. Link to full CV: http://www.gerics.de/imperia/md/content/csc/cv_ma/cv_elisabeth_viktor_1116.pdf
Publications (5 most important) (from newest to oldest	• E. Viktor, C. Teichmann, R. Vautard, G. Collin, A. Vajda, C. Acton, N. Fournier, L. Dubus, D. Cabezon, M. Sundby, V. Dordonnat, H. Pajuoja, P. Niemi (2017) 'Focus paper on Climate Change in the Energy sector: Benefitting from climate change information in the energy sector.', available at: http://clim4energy.climate.copernicus.eu/focus-paper-climate-change-energy-sector-and-progress-report-fact-sheets-and-user-guidance • E. Viktor, S. Ehlert, A. Haensler, T. Guillén Bolaños, T. Blome, and M. Máñez Costa (2017) 'The 5th International Conference on Climate Services (ICCS5) – "Innovation in Climate Services and Capacity Building"', Climate Services, 5, pp. 4–5. doi: 10.1016/j.cliser.2017.04.002I.

2 INDICATORS AND RESOURCES[1]

2.1 INDICATORS AND RESOURCES BY RESEARCH UNITS

2.1.1 QUANTITATIVE INDICATORS: RESEARCH UNIT 1 – SYSTEM ANALYSIS AND MODELLING

Quantitative Indicators: RU 1 - System Analysis and Modelling					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	46	45	58[2]	64[3]
books and book chapters	no.	33[4]	28	9	16
third-party funding	T€	1.617	1.275	1.186	1.373
thereof from public agencies	T€	1.573	1.257	1.181	1.356
thereof from EU	T€	564	525	538	455
thereof from industry	T€	43	18	5	17
thereof other sources	T€	0	0	0	0
finished dissertation	no.	14	2	5	9
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	0	0	0	0
Selected coordinated national and international third-party funded research programs	no.	1	1	0	3
scientific cooperations agreed upon	no.	14	19	18	20
industry cooperations agreed upon	no.	6	6	3	4
priority establishing patent applications	no.	0	0	0	0
professorship calls	no.	0	0	1	0
guest scientists	no.	2	8	4	5
core-funded scientists (without Ph.D. students)	FTE	24	29	27	29
third-party funded scientists (without Ph.D. students)	FTE	11	12	9	9
scientists in total	FTE	35	41	36	38
core-financed costs *(if possible)*	T€				

The complete publication list of RU 1 can be found at www.hzg.de/publications-ru-1.

1 As a result of a close cooperation between the individual research units, publications, books, dissertations and collaborations listed include also those, which have been developed jointly with other research units.

2 Includes joint publications with other RU's, which are also counted there:in 2015: 1 publication with RU3

3 Includes joint publications with other RU's, which are also counted there:in 2016: 4 publications with RU2 and/or RU3

4 Includes joint books / bookchapter with other RU's, which are also counted there:in 2013:1 book with RU 2 and RU3

2.1.2 QUANTITATIVE INDICATORS: RESEARCH UNIT 2 – BIOGEOCHEMISTRY IN COASTAL SEAS

Quantitative Indicators: RU 2 - Biogeochemistry in Coastal Seas					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	37	39[5]	46	62[6]
books and book chapters	no.	6[7]	8	2[8]	12
third-party funding	T€	1.419	1.085	1.427	884
thereof from public agencies	T€	852	620	527	352
thereof from EU	T€	380	306	97	111
thereof from industry	T€	566	465	900	533
thereof other sources	T€	0	0	0	0
finished dissertation	no.	6	4	7	2
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	1	1	1	0
Selected coordinated national and international third-party funded research programs	no.	2	2	2	2
scientific cooperations agreed upon	no.	8	11	10	14
industry cooperations agreed upon	no.	3	5	4	2
priority establishing patent applications	no.	0	1	0	0
professorship calls	no.	0	0	0	0
guest scientists	no.	3	8	2	0
core-funded scientists (without Ph.D. students)	FTE	19	19	25	23
third-party funded scientists (without Ph.D. students)	FTE	6	6	3	2
scientists in total	FTE	25	25	28	25
core-financed costs *(if possible)*	T€				

The complete publication list of RU 2 can be found at www.hzg.de/publications-ru-2.

5 Includes joint publications with other RU's, which are also counted there:in2014: 1 publication with RU3

6 Includes joint publications with other RU's, which are also counted there:in 2016: 2 publications with RU1 and/or RU3

7 Includes joint books with other RU's, which are also counted there:in 2013: 1 book with RU1 and RU3

8 Includes joint books with other RU's, which are also counted there:in 2013: 1 book with RU3

2.1.3 QUANTITATIVE INDICATORS: RESEARCH UNIT 3 – OPERATIONAL SYSTEMS

Quantitative Indicators: RU 3 - Operational Systems					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	19	30[9]	39[10]	39[11]
books and book chapters	no.	4[12]	5	9[13]	4
third-party funding	T€	623	775	722	498
thereof from public agencies	T€	566	633	620	400
thereof from EU	T€	141	175	137	205
thereof from industry	T€	56	142	102	98
thereof other sources	T€	0	0	0	0
finished dissertation	no.	2	0	0	0
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	0	0	0	0
Selected coordinated national and international third-party funded research programs	no.	0	0	0	0
scientific cooperations agreed upon	no.	17	19	16	17
industry cooperations agreed upon	no.	6	7	10	8
priority establishing patent applications	no.	0	0	0	0
professorship calls	no.	0	0	0	0
guest scientists	no.	2	7	5	6
core-funded scientists (without Ph.D. students)	FTE	13	17	17	16
third-party funded scientists (without Ph.D. students)	FTE	6	8	7	3
scientists in total	FTE	19	25	24	19
core-financed costs *(if possible)*	T€				

The complete publication list of RU 3 can be found at www.hzg.de/publications-ru-3.

9 Includes joint publications with other RU's, which are also counted there:in 2014: 1 publication with RU2

10 Includes joint publications with other RU's, which are also counted there:in 2015: 1 publication with RU1

11 Includes joint publications with other RU's, which are also counted there:in 2 publications with RU1 and/or RU2

12 Includes joint books with other RU's, which are also counted there:in 2013: 1 book with RU1 and RU2

13 Includes joint books with other RU's, which are also counted there:in 2015: 1 book with RU 2

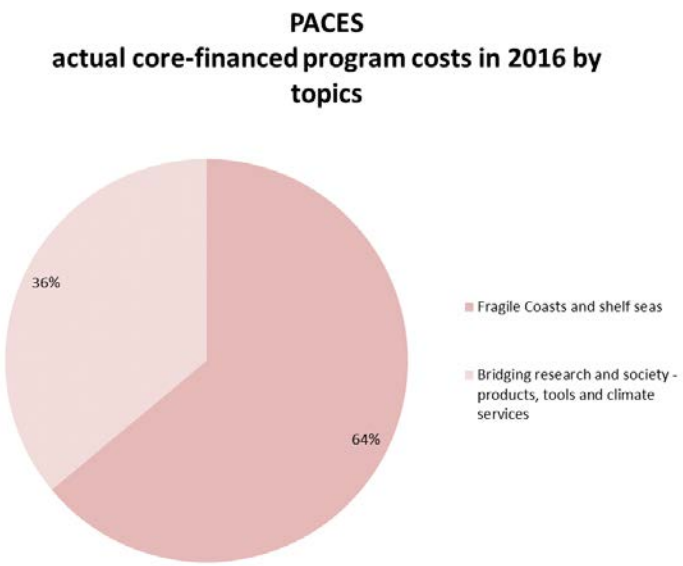
2.1.4 QUANTITATIVE INDICATORS: RESEARCH UNIT 4 – CLIMATE SERVICE CENTER GERMANY (GERICS)

Quantitative Indicators: RU 4 - Climate Service Center Germany (GERICS)					
		2013*	2014	2015	2016
ISI or SCOPUS cited publications	no.		7	22	22
books and book chapters	no.		25	1	13
third-party funding	T€		774	1.023	1.206
thereof from public agencies	T€		701	955	1.184
thereof from EU	T€		434	353	622
thereof from industry	T€		73	68	22
thereof other sources	T€		0	0	0
finished dissertation	no.		1	0	2
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.		0	0	0
Selected coordinated national and international third-party funded research programs	no.		1	1	1
scientific cooperations agreed upon	no.		15	16	27
industry cooperations agreed upon	no.		7	11	9
priority establishing patent applications	no.		0	0	0
professorship calls	no.		0	0	1
guest scientists	no.		2	3	3
core-funded scientists (without Ph.D. students)	FTE		20	19	23
third-party funded scientists (without Ph.D. students)	FTE		11	9	8
scientists in total	FTE		31	28	31
core-financed costs *(if possible)*	T€				

*Entry to HGF-program PACES II on 1st June 2014.

The complete publication list of RU 3 can be found at www.hzg.de/publications-ru-4.

2.2 INDICATORS AND RESOURCES BY PROGRAM AND TOPICS



Program PACES II: quantitative indicators					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	102	120	164	182
books and book chapters	no.	41	66	20	45
third-party funding	T€	3.658	3.948	4.359	3.961
thereof from public agencies	T€	2.992	3.251	3.283	3.292
thereof from EU	T€	1.085	1.439	1.125	1.393
thereof from industry	T€	666	698	1.076	670
thereof other sources	T€	0	0	0	0
finished dissertation	no.	22	7	11	13
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	1	1	1	0
Selected coordinated national and international third-party funded research programs	no.	3	4	3	6
scientific cooperations agreed upon*	no.	43	68	65	81
industry cooperations agreed upon	no.	15	25	28	23
priority establishing patent applications	no.	0	1	0	0
professorship calls	no.	0	0	1	1
guest scientists	no.	7	25	14	14
core-funded scientists (without Ph.D. students)	FTE	56	84	88	89
third-party funded scientists (without Ph.D. students)	FTE	23	36	28	23
scientists in total	FTE	79	120	116	112
core-financed costs *(if possible)*	T€	19.191	24.739	25.538	26.638

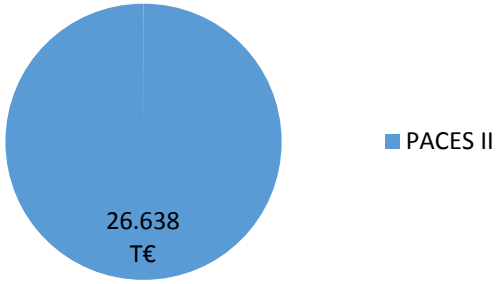
*Contains some cooperations which are not related to RU's and Topics.

Program PACES II, Topic Fragile Coasts and Shelf Seas					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	87	90	106	133
books and book chapters	no.	21	36	18	22
third-party funding	T€	2.674	2.481	2.674	2.302
thereof from public agencies	T€	2.031	1.893	1.743	1.658
thereof from EU	T€	520	624	454	575
thereof from industry	T€	643	588	931	643
thereof other sources	T€	0	0	0	0
finished dissertation	no.	18	6	11	9
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	1	1	1	0
Selected coordinated national and international third-party funded research programs	no.	3	3	2	5
scientific cooperations agreed upon	no.	31	39	30	42
industry cooperations agreed upon	no.	11	12	8	8
priority establishing patent applications	no.	0	1	0	0
professorship calls	no.	0	0	1	0
guest scientists	no.	5	20	7	10
core-funded scientists (without Ph.D. students)	FTE	47	47	52	50
third-party funded scientists (without Ph.D. students)	FTE	18	16	9	6
scientists in total	FTE	65	63	61	56
core-financed costs	T€	16.806	19.251	16.385	17.039

Program PACES II, Topic Bridging research and society – products, tools and climate services					
		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	15	30	58	49
books and book chapters	no.	20	30	2	23
third-party funding	T€	984	1.467	1.686	1.660
thereof from public agencies	T€	960	1.358	1.540	1.633
thereof from EU	T€	564	815	671	818
thereof from industry	T€	24	109	145	26
thereof other sources	T€	0	0	0	0
finished dissertation	no.	4	1	0	4
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	0	0	0	0
Selected coordinated national and international third-party funded research programs	no.	0	1	1	1
scientific cooperations agreed upon	no.	8	25	30	36
industry cooperations agreed upon	no.	0	13	20	15
priority establishing patent applications	no.	0	0	0	0
professorship calls	no.	0	0	0	1
guest scientists	no.	2	5	7	4
core-funded scientists (without Ph.D. students)	FTE	9	37	36	39
ird-party funded scientists (without Ph.D. students)	FTE	5	20	19	17
scientists in total	FTE	14	57	55	56
core-financed costs	T€	2.385	5.488	9.153	9.599

2.3 INDICATORS FOR THE CENTER

actual core-financed center costs in 2016 by programs and allied LK II within the research field Earth and Environment



	2013	2014	2015	2016
Fragile Coasts and shelf seas	16.806 T€	19.251 T€	16.385 T€	17.039 T€
Bridging research and society - products, tools and climate services	2.385 T€	5.488 T€	9.153 T€	9.599 T€
PACES II	**19.191 T€**	**24.739 T€**	**25.538 T€**	**26.638 T€**
center costs	**19.191 T€**	**24.739 T€**	**25.538 T€**	**26.638 T€**

center overview (PACES II): quantitative indicators

		2013	2014	2015	2016
ISI or SCOPUS cited publications	no.	102	120	164	182
books and book chapters	no.	41	66	20	45
third-party funding	T€	3.658	3.948	4.359	3.961
thereof from public agencies	T€	2.992	3.251	3.283	3.292
thereof from EU	T€	1.085	1.439	1.125	1.393
thereof from industry	T€	666	698	1.076	670
thereof other sources	T€	0	0	0	0
finished dissertation	no.	22	7	11	13
Junior research group leaders (ERC, Emmy Noether, Helmholtz, …)	no.	1	1	1	0
Selected coordinated national and international third-party funded research programs	no.	3	4	3	6
scientific cooperations agreed upon*	no.	43	68	65	81
industry cooperations agreed upon	no.	15	25	28	23
priority establishing patent applications	no.	0	1	0	0
professorship calls	no.	0	0	1	1
guest scientists	no.	7	25	14	14
core-funded scientists (without Ph.D. students)	FTE	56	84	88	89
third-party funded scientists (without Ph.D. students)	FTE	23	36	28	23
scientists in total	FTE	79	120	116	112
core-financed costs *(if possible)*	T€	19.191	24.739	25.538	26.638

*Contains some cooperations which are not related to RU's and Topics.

Equal Opportunity / PACES II		2013	2014	2015	2016
Scientific staff	no.	232	245	239	231
thereof women	no.	102	107	109	103
Proportion of women	%	44	43	45	45
New W2 appointments	no.	0	0	0	0
thereof women	no.	0	0	0	0
Proportion of women	%	0	0	0	0
New W3 appointments	no.	0	0	1	1
thereof women	no.	0	0	1	1
Proportion of women	%	0	0	100	100

Promotion of junior researchers / PACES II		2013	2014	2015	2016
Junior research group leaders (ERC, Marie Curie, Emmy Noether, Helmholtz, …)	no.	1	1	1	0
thereof women	no.	1	1	1	0
Proportion of women	%	100	100	100	0
Number of funded graduate and research schools	no.	1	2	1	3
Number of supervised doctoral candidates	no.	52	46	46	45

Technology Transfer / PACES II		2013	2014	2015	2016
Research spin-offs	no.	0	0	0	0
Income from licences and options	T€	16	1	1	2
Number of collaborations with industry (R&D collaborations, R&D commissions, use of infrastructure)	no.	15	12	25	19
Income from collaborations with industry (R&D collaborations, R&D commissions, use of infrastructure)	T€	56	291	236	210

Cooperation with universities / PACES II		2013	2014	2015	2016
joint appointments	no.	8	7	8	8
Helmholtz Institutes	no.	0	0	0	1
Helmholtz Alliances	no.	0	0	0	0
Helmholtz Virtual Institutes	no.	0	0	0	0

3 DEFINITION OF INDICATORS

Indicator	Unit	Definition
ISI or SCOPUS cited publications	no.	Sum of peer-reviewed publications or reviews that are published in journals in Thomson Reuter's ISI Master Journal List or in "SCOPUS List of Titles" (Elsevier) within the reporting period. They are assigned to a research unit/program topic if at least one author is assigned to this research unit/program topic and the content fits the research aims of the program/program topic. Every publication may only be counted once by a Helmholtz Center/program and is assigned to the research unit/program topic that makes the biggest contribution.
third-party funding	T€	Third-party funds (as broken down in the profit and loss account). Funding sources are broken down into (i) public bodies (e.g. federal ministries, DFG, EU), (ii) industry, and (iii) other sources. If third party funds are acquired that are accounted at partner universities (e.g. in case of double affiliations), these funds are reported in an additional footnote.
finished dissertations	no.	Sum of dissertations finished within the reporting year, where at least one supervisor works at the Helmholtz Center. Dissertations are assigned to a research unit/program topic if at least one supervisor is assigned to this research unit/program topic and the content fits the research aims of the program/program topic. Each dissertation may only be counted once by a Helmholtz Center/program and is assigned to the research unit/program topic where it makes the biggest contribution.
Junior research groups	no.	Sum of junior research groups that are acquired through a competitive (third-party funded) basis, where the group leader works at the Helmholtz Center (e.g. ERC, Emmy Noether/DFG or Helmholtz).
selected coordinated national and international third-party funded research programs	no.	Sum of coordinated, national and international third-party funded research programs, where a scientist from the Helmholtz Center is involved and funds are transferred to the Helmholtz Center within the reporting period. A third-party funded program is accounted to a research unit/program if it is topically related. Third-party funded research programs include: coordinated DFG programs (i.e. Collaborative Research Centers/Sonderforschungsbereiche/SFB, Research Training Groups/Graduiertenkollegs, Priority Programs/Schwerpunktprogramme/SPP, Research Centers/Forschungszentren), funding measures of federal ministries led by the Helmholtz Center (network programs with more than two partners), funding measures of the European Union (e.g. ERC Advanced Grants).
scientific cooperations agreed upon	no.	Sum of all contractually stipulated cooperation projects excluding contracts that only cover material transfer agreements.
industry cooperations agreed upon	no.	Sum of all contractually stipulated cooperation projects excluding contracts that only cover material transfer agreements.
priority patent applications	no.	Sum of all first-time applications for property rights for inventions (patents, utility models and applications for utility models, semiconductor property rights, plant breeders rights, trademarks). Every application is counted only once, independent of how often the application is filed in different countries.
Core funded scientists (without doctoral stud	FTE	See definition of personnel below.
third-party funded scientists (without doctor	FTE	See definition of personnel below.
core-finance costs	T€	Sum of personel costs, material costs, capital consumption and indirect costs
new W2 appointments	no.	An appointment is counted for a specific year if the call has been accepted that year
new W3 appointments	no.	An appointment is counted for a specific year if the call has been accepted that year
Funded graduate and research schools		Graduate and research schools offer structural doctoral training and supervision. They run for at least several years and are based on a university cooperation (e.g. Helmholtz reseach and graduate schools, participation in Max Planck Research Schools, DGF graduate schools and research training groups, institutional graduate schools)
supervised doctoral students	no.	Cumulative for the reporting period
research spin-offs	no.	A research spin-off is a newly established, market- and profit-oriented company, which could not exist without scientific of technical know-how developed within the Helmholtz Center. The company and the Helmholtz Center issue a formal agreement (holding, license, use of infrastructure).
income from licenses and options	T€	Income from industry agreements for all types of collaboration with industry (R&D cooperation, contract research, use of infrastructure)
collaborations with industry	no.	Sum of all contractually stipulated cooperation projects excluding contracts that only cover
income from collaborations with industry	T€	Sum of direct income from all R&D collaborations, R&D commissions and use of infrastructure
joint appointments	no.	Number of joint W- or C-professorships (thus excluding "außerplanmäßige"), reference date: 31 Dec of the respective year
Helmholtz Institutes	no.	Number of institutions funded as "Helmholtz Institutes" (www.helmholtz.de/en/about_us/networks_and_cooperation/helmholtz_institutes)
Helmholtz Alliances	no.	Number of grants within the competitive funding framework "Helmholtz Alliances" of the Helmholtz Innovation and Networking Fund (latest call issued September 2011, www.helmholtz.de/en/about_us/networks_and_cooperation/helmholtz_alliances)
Helmholtz Virtual institutes	no.	Number of grants within the competitive funding framework "Helmholtz Alliances" of the Helmholtz Innovation and Networking Fund (latest call issued September 2011, ww.helmholtz.de/en/about_us/networks_and_cooperation/helmholtz_virtual_institutes)
Information and consultancy personnel	FTE	Staff dedicated to information dissemination and consultancy
Qualification personnel	FTE	Staff dedicated to qualification of pupils, teachers, politicians and other non-scientists

Personnel		Definition
scientist		Scientists work at a Helmholtz Center and are paid at least tarif BAT II A, or TVöD E13, hold a university degree, have a PhD (or doctoral degree) or do not envisage a PhD (doctoral degree), are assigned to a scientific or technical organizational unit, participate actively in science
doctoral student		Doctoral students are currently obtaining their doctoral degree. The doctoral student or his/her supervisor has to be a member of a Helmholtz Center.
Scientific/ technical support personnel		All other personnel (such as technical assistants) that is directly assigned to a program (LK I) or a user facility (LK II)
Scientific personnel		Sum of scientists, doctoral students and support personnel

4 LIST OF ABBREVIATIONS USED IN VOLUMES 1 AND 2

ACROSS	**A**dvanc**e**d **R**em**o**te **S**en**s**ing - Ground-Truth Demo and Test Facilities
ADCP	**A**coustic **D**oppler **C**urrent **P**rofiler
AEM	Helmholtz Research Program ***A**dvanced **E**ngineering **M**aterials*
aFR	**a**lternative **F**lame **R**etardant
AUTOFIM	**Auto**mated **Fi**ltration System
AWI	**A**lfred-**W**egener-**I**nsitut Helmholtz-Zentrum für Polar- und Meeresforschung
BACC II	Second Assessment of Climate Change for the Baltic Sea Basin
BALTEX	**Balt**ic Sea **Ex**periment
BAW	**B**undes**a**nstalt für **W**asserbau - Federal Waterways Engineering and Research Institute, Germany
BfG	**B**undes**a**nstalt für **G**ewässerkunde - German Federal Institute of Hydrology
BIFTM	Helmholtz Research Program ***Biointerfaces in Technology and Medicine***
BMBF	**B**undes**m**inisterium für **B**ildung und **F**orschung - Federal Ministry of Education and Research, Germany
BMUB	**B**undes**m**inisterium für **U**mwelt, Naturschutz, **B**au und Reaktorsicherheit - Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BN	**B**ayesian **N**etwork
BSH	**B**undesamt für **S**eeschifffahrt und **H**ydrographie - Federal Maritime Agency, Germany
CAS	**C**hinese **A**cademy of **S**ciences
CARIBIC	**C**ivil **a**ircraft for the **r**egular **i**nvestigation of the atmosphere **b**ased on an **i**nstrumented **c**ontainer
CCME	**C**entral **C**ommand for **M**aritime **E**mergencies Cuxhaven, Germany
CEN	**C**entrum für **E**rdsystemforschung und **N**achhaltigkeit - The Center for Earth System Research and Sustainability of Universität Hamburg
CERA	**C**limate and **E**nvironmental **R**etrieval and **A**rchive
CFP	GERICS **C**limate-**F**ocus-**P**apers
CIAAW	**C**ommission on **I**sotopic **A**bundances and **A**tomic **W**eight
CliSAP	Universität Hamburg's Cluster of Excellence *Integrated **Cli**mate **S**ystem **A**nalysis and **P**rediction*
CLM	**C**limate **L**imited Area **M**odelling Community (International Network)
CMAQ	The **C**ommunity **M**ultiscale **A**ir **Q**uality Modeling System
CMEMS	**C**opernicus **M**arine **E**nvironment **M**onitoring **S**ervice
CMRE	**C**entre for **M**aritime **R**esearch and **E**xperimentation
CLiCCS	Excellence Strategy proposal **Cli**mate, **C**limatic **C**hange, and **S**ociety
COPERNICUS	Copernicus, previously known as GMES (Global Monitoring for Environment and Security)European Programme for the establishment of a European capacity for Earth Observation
CORDEX	**Co**ordinated **R**egional **D**ownscaling **Ex**periment
COSS	**C**oastal **O**ceans and **S**helf **S**eas Task Team
COSYNA	**C**oastal **O**bserving **Sy**stem for **N**orthern and **A**rctic Seas
CSAG	**C**limate **S**ystem **A**nalysis **G**roup
CSC	**C**hina **S**cholarship **C**ouncil
CSIR	**C**ouncil of **S**cientific and **I**ndustrial **R**esearch
C3S	Copernicus Climate Change Service
DANUBIUS-RI	International Center for Advanced Studies on River-Sea Systems
DESY	**D**eutsches **E**lektronen-**Sy**nchrotron
DFG	**D**eutsche **F**orschungs**g**emeinschaft - German Research Foundation
DIC	**D**issolved **I**norganic **C**arbon

DKRZ	**D**eutsches **K**lima**r**echen**z**entrum - German Climate Computing Center
DLR	**D**eutsches Zentrum für **L**uft- und **R**aumfahrt - German Aerospace Center
DMG	**D**eutsche **M**eteorologische **G**esellschaft- German Meteorological Society
DNS	**D**irect **N**umerical **S**imulations
DOI	**D**igital **O**bject **I**dentifier
DWD	**D**eutscher **W**etter**d**ienst - German National Weather Service
ECA	**E**mission **C**ontrol **A**rea
ECRA	**E**uropean **C**limate **R**esearch **A**lliance
ECSP	**E**uropean **C**limate **S**ervice **P**artnership
EDA	**E**arth System **D**yn**a**mics
EEA	**E**uropean **E**nvironment **A**gency
EEZ	**E**xclusive **E**conomic **Z**one
EFQM	**E**uropean **F**oundation for **Q**uality **M**anagement
EGU	**E**uropean **G**eosciences **U**nion
ENMAP	**En**vironmental **Map**ping and Analysis Program
ENVISAT	**Envi**ronmental **Sat**ellite
ERC	**E**uropean **R**esearch **C**ouncil
ERCA	**E**uropean **R**esearch **C**ourse on **A**tmosphere
ESA	**E**uropean **S**pace **A**gency
ESFRI	**E**uropean **S**trategy **F**orum on **R**esearch **I**nfrastructures
ESKP	**E**arth **S**ystem **K**nowledge **P**latform
ESM	**E**arth **S**ystem **M**odeling
EWCPS	**E**uropean **W**inter **C**onference on **P**lasma **S**pectrochemistry
FCT	**F**undação para a **C**iência e **T**ecnologia - Portuguese Science Foundation
FLUXSO	**Flux**es on **S**ands **O**bservatory chamber lander
FMI	**F**innish **M**eteorological **I**nstitute
FPS	**F**lagship **P**ilot **S**tudies
FRAM	**Fr**ontiers in **A**rctic marine **M**onitoring
FRM	**F**orschungs-Neutronenquelle Heinz **M**aier-Leibnitz
FTE	**F**ull **T**ime **E**quivalent
FZJ	**F**orschungs**z**entrum **J**ülich
GCOAST	**G**eesthacht Coupled **Coast**al model SysTem
GDP	**G**ross **D**omestic **P**roduct
GES	**G**ood **E**nvironmental **S**tatus
GFZ	Deutsches **Geo**forschungs**z**entrum - German Research Centre for Geosciences, Potsdam
GHG	**G**reen**h**ouse **G**as
GIS	**Geo**information **S**ystem
GIZ	Deutsche **G**esellschaft für **I**nternationale **Z**usammenarbeit
GMOS	**G**lobal **M**ercury **O**bservation **S**ystem
HGF	**H**elmholtz **G**emeinschaft Deutscher **F**orschungszentren - Helmholtz Association
HALO	**H**igh **A**ltitude and **Lo**ng Range Research Aircraft
HICSS	Helmholtz-Institut Climate Service Science
HMGU	**H**elmholtz-Zentrum **M**ünchen, Deutsches Forschungszentrum für **G**esundheit und **U**mwelt - German Centre for Environmental Health, Munich
HZG	**H**elmholtz-**Z**entrum **G**eesthacht Centre for Materials and Coastal Research
ICAM	**I**ntegrating-**C**avity Absorption **M**eter (Bio-optical model)
ICES	**I**nternational **C**ouncil for the **E**xploration of the **S**ea
ICTP	**I**nternational **C**entre for **T**heoretical **P**hysics

IfK	**I**nstitute of **C**oastal **R**esearch of HZG
IGBP	**I**nternational **G**eosphere-**B**iosphere **P**rogramme
IGU	**I**nternational **G**eographical **U**nion
IIAMA	**I**nstituto Universitario de **I**nvestigación de Ingeniería del **A**gua y **M**edio **A**mbiente - Institute of Environmental and Water Management
INTERREG	European Territorial Cooperation
IOCAS	**I**nstitute of **O**ceanography of the **C**hinese **A**cademy of **S**cience
IOW	Leibniz-**I**nstitut für **O**stseeforschung **W**arnemünde- Leibniz-Institute for Baltic Sea Research
IPCC	**I**ntergovernmental **P**anel on **C**limate **C**hange
IPSL	**I**nstitute **P**ierre-**S**imon **L**aplace
ISMAR	**Is**titute of **Mar**ine Sciences, Italy
ISOS	**I**ntegrated **S**chool of **O**cean **S**cience
ITM	**I**nternational **T**extile **M**achinery Exhibition
IUPAC	**I**nternational **U**nion of **P**ure and **A**pplied **C**hemistry
IUTAM	**I**nternational **U**nion of **T**heoretical and **A**pplied **M**echanics
JERICO-NEXT	**J**oint **E**uropean **R**esearch **I**nfrastructure Network for **C**oastal **O**bservatory
JPI Climate	**J**oint **P**rogramming **I**nitiative *Connecting Climate Knowledge for Europe*
KDM	**K**onsortium **D**eutsche **M**eeresforschung
KIT	**K**arlsruhe **I**nstitute of **T**echnology, Karlsruhe
KLIWAS	**K**lima, **W**asser, **S**chifffahrt – Climate, Water, Shipping
KüNO	BMBF Konsortium **Kü**stenforschung **N**ordsee-**O**stsee - BMBF consortium for Coastal Research in the North Sea and Baltic Sea
LES	**L**arge **E**ddy **S**imulations
LIF	**L**aser-**I**nduced **F**luorescence
MCA	**M**ulti-**C**riteria **A**nalysis
MINT	**M**athematics, **I**nformation Technology, **N**atural Science, **T**echnology
MLZ	Heinz **M**aier-**L**eibnitz **Z**entrum
MML	Helmholtz Research Program *From **M**atter to **M**aterials and **L**ife*
MODIS-Aqua	**Mod**erate Resolution **I**maging **S**pectroradiometer
MOSES	Helmholtz Project ***M**odular **O**bservation **S**olutions for **E**arth **S**ystems*
MOSSCO	**Mo**dular **S**ystem for **S**helves and **Co**asts
MPI-M	**M**ax-**P**lanck **I**nstitute of Meteorology
MSAT	**M**arine **S**ciences and **A**dvance **T**echnology
MSFD	**M**arine **S**trategy **F**ramework **D**irective
MSP	**M**arine **S**patial **P**lanning
NEBA	**N**et **E**nvironmental **B**enefit **A**nalysis
NEMO	**N**ucleus for **E**uropean **M**odelling in the **O**cean
NERC	**N**atural **E**nvironment **R**esearch **C**ouncil, UK
NERSC	**N**ansen **E**nvironmental and **R**emote **S**ensing **C**entre, Norway
NEBA	**N**et **E**nvironmental **B**enefit **A**nalysis
NIOZ	Koninklijk **N**ederlands **I**nstituut voor **O**nderzoek der **Z**ee- Royal Netherlands Institute for Sea Research
NLWKN	**N**iedersächsischer **L**andesbetrieb für **W**asserwirtschlaft, **K**üsten- und **N**aturschutz
NOAH	**N**orth Sea **O**bservation and **A**ssessment of **H**abitats
NOSCCA	**No**rth **S**ea Region **C**limate **C**hange **A**ssessment
NRC	National **R**esearch **C**ouncil, USA
OLCI	**O**cean **L**and **C**olour **I**nstrument
OPFR	**O**rgano**p**hosphorus **F**lame **R**etardant

OSTIA	**O**perational **S**ea Surface **T**emperature and Sea **I**ce **A**nalysis
OWF	**O**ffshore **w**ind **f**arm
PACES II	Helmholtz Research Program ***P**olar Regions and Coasts in **a** **C**hanging **E**arth **S**ystem II*
PBDE	**P**oly**b**rominated **D**iphenyl **E**ther
PBT	**P**ersistent, **B**ioaccumulative, and **T**oxic substance
PFAS	**P**oly- and **Perf**luorinated **A**lkyl **S**ubstance
PFOA	**Perf**luoro**o**ctanoic **A**cid
PIV	**P**article **I**mage **V**elocimetry
POF	**P**rogram-**o**riented **f**unding (Helmholtz Association)
PSICAM	**P**oint-**S**ource **I**ntegrating-**C**avity **A**bsorption **M**eter (FT-PSICAM: **F**low **T**rough -PSICAM)
QFT	**Q**uantitative **F**ilter **T**echnique Integrating-Cavity Absorption Meter (QFT-ICAM)
REA	**R**esearch **E**xecutive **A**gency
REKLIM	Helmholtz-Verbund **Re**gionale **Klim**aänderungen -Helmholtz Climate Initiative Regional Climate Change
RISE	EU **R**esearch and **I**nnovation **S**taff **E**xchange Program
ROMS	**R**egional **O**cean **M**odeling **S**ystem
SAHFOS	**S**ir **A**lister **H**ardy **F**oundation for **O**cean **S**cience
SAR	**S**ynthetic **A**perture **R**adar
SCHISM	**S**emi-implicit **C**ross-scale **H**ydroscience **I**ntegrated **S**ystem **M**odel
SFMR	**S**tepped **F**requency **M**icrowave **R**adiometer
SHOU	**Sh**anghai **O**cean **U**niversity
SIAM	**S**ubcommittee on **I**sotope **A**bundance **M**easurements
SICSS	**S**chool of **I**ntegrated **C**limate **S**ystem **S**ciences
SPM	**S**uspended **P**articulate **M**atter
STAC	**S**cientific and **T**echnical **A**dvisory **C**ommittee (European Commission)
STOI	**S**patio-**T**emporal **O**ptimal **I**nterpolation
SubEx	**Sub**mesoscale **Ex**periment
SuFMoS	**Su**rface **F**eature **Mo**nitoring **S**ystem
TIC	**T**owed **I**nstrument **C**hain
TOC	**T**otal **O**rganic **C**arbon
TRL	**T**echnology **R**eadiness **L**evel
UBA	**U**mwelt**b**undes**a**mt
UFZ	Helmholtz-**Z**entrum für **U**mwelt**f**orschung- Helmholtz - Centre for Environmental Research, Leipzig
UGA	**U**niversité **G**renoble **A**lps
UHH	**U**niversität **H**ansestadt **H**amburg
UNEP	**Un**ited **N**ations **E**nvironment **P**rogramme
UNISDR	**Uni**ted Nation**s** Office for **D**isaster **R**isk Reduction
VIIRS	**V**isible **I**nfrared **I**maging **R**adiometer **S**uite
VSFM	**V**olume **S**cattering **F**unction **M**eter (I-VSFM: **I**maging VSFM)
WAM	**Wa**ve **M**odel
WCRP	**W**orld **C**limate **R**esearch **P**rogram
WFD	**W**ater **F**ramework **D**irective
WSF	**W**adden **S**ea **F**orum
YIC	**Y**antai **I**nstitute of **C**oastal Zone Research

FOR PEOPLE AND THEIR
FUTURE ENVIRONMENT

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Geesthacht
Centre for Materials and Coastal Research

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