

Curriculum Vitae of Christoph Heinze



[Photo: Lene Løtvedt]

Contact information:

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Basic data:

Date of birth:	5 April 1958
Place of birth:	Köln, Germany
Citizenship:	German
Civil status:	Unmarried
School education:	Hans-Sachs-Gymnasium, Nürnberg (new language branch), 1968-1977, final exam: Abitur, general ability to attend a university (grade 2,4)
Alternative civilian service:	Conscientious objector; civil service at a municipal community centre particularly for old and young persons ("Gemeinschaftshaus Langwasser") in Nürnberg, 1/1978-4/1979
Language skills (active/passive):	German (mother tongue), English (fluently/fluently), Norwegian (very good – grade B/fluently), French (fair/good), Danish (good/very good), Latin
Outside interests:	<i>Irish traditional music, photography, travel</i>

Research interests:

- Three-dimensional modelling of marine biogeochemical cycles „end-to-end“
- Feedback processes between climate and biogeochemical cycles
- Understanding, interpretation, and simulation of the marine sedimentary paleo-climate archive
- Marine Biogeochemistry and ocean circulation
- Earth system modelling
- Quantification of the global carbon cycle

Academic degrees and exams:

	<i>Thema</i>	<i>Ort</i>	<i>Jahr</i>
Habilitation:	Das marine Sediment als Klimazeuge und Komponente des Klimasystems – eine Modellstudie [Translation of title to English: The marine sediment as a climate record and component of the climate system - a model study]	University of Hamburg	1999
Doktorgrad:	Zur Erniedrigung des atmosphärischen Kohlendioxidgehalts durch den Weltozean während der letzten Eiszeit [Title translated to English: On the reduction of the atmospheric carbon dioxide concentration by the world ocean during the last glaciation]	University of Hamburg and Max Planck Institute for Meteorology	1990
Diploma (physical oceanography):	Diskussion der Tiefenwassererneuerung im Europäischen Nordmeer und im Eurasischen Becken unter Zuhilfenahme anthropogener Spurenstoffe [Title translated to English: Discussion of the deep water renewal in the Nordic Seas and the Eurasian Basin by use of anthropogenic tracers]	University of Hamburg	1987

Present position:

Professor in chemical oceanography (full professorship)	University of Bergen, Geophysical Institute
Leader of BCCR SFF Research Group 4 "Biogeochemical Cycles"	Bjerknes Centre for Climate Research, Bergen (UNI-RESEARCH AS)

Work experience/positions held:

	<i>Location</i>	<i>Time</i>
Group leader "Modelle und Daten" ("Model and Data")	Max Planck Institute for Meteorology, Hamburg	2003
Senior scientist	National Environmental Research Institute (Department of Marine Ecology), Roskilde, Denmark	2001 – 2002
Senior scientist	Max Planck Institute for Meteorology, Hamburg, in 2000: coordinator of the interdisciplinary working group on paleo-climate	4/1993-2000
Visiting research scientist	Lamont-Doherty Earth Observatory of Columbia University, Palisades, New York, USA	11/1994-4/1995
Post-doctoral researcher	University of Hamburg (Institute of Oceanography)	1991-2/1993
PhD student	Max Planck Institut for Meteorology and University of Hamburg, including summer course: Ocean circulation: Physics and biogeochemical cycling (P. Rhines & J. Sarmiento), 23. Juli – 25. August 1990, Friday Harbor Laboratories, University of Washington, WA, USA.	1987-1990
Assistant student worker	German Hydrographic Office (DHI), Hamburg: Data processing and calibration, compilation of matter fluxes into the North Sea	1982-1985
Student (physical oceanography)	University of Hamburg; physical oceanography; optional subjects and voluntary courses: Meteorology, geology, mechanics and thermodynamics of fluids, chemistry and aquatic biology	1979-1987

Teaching:*Courses at the University of Bergen Norway:*

<i>Title</i>	<i>Type</i>	<i>Collaboration</i>	<i>Hours per week</i>	<i>Place</i>	<i>Time t (summer/winter term)</i>
Chemical Oceanography (Nr. GEOF336, and GEOF236)	Lectures and exercises	with Prof. T. Johannessen	4	Geophysical Institute	s 2004 s 2006 s 2007 s 2008 w 2008 s 2009 s 2010
Contents:	Introduction to chemical oceanography and biogeochemistry, climate relevant processes, global environmental changes, inorganic and organic carbon cycles, silicon cycle, nutrients, gas exchange atmosphere-ocean, control of atmospheric greenhouse gases, residence times, tracer transport, paleoclimatic reconstructions based on marine sediment core data, modelling tools and computational methods				
Polar Oceanography (chemical part) (Nr. GEOF335)	Lectures and exercises	mit Prof. T. Gammelsrød, Dr. E. Falck, and Dr. E. Darelus	5	Geophysical Institute	w 2004 w 2007 w 2008 s 2010
Contents:	Circulation and dynamics of the polar seas, comparison of Arctic and Antarctica in view of climate relevant issues, specific processes and problems associated with sea water of low temperature, models of deep water production and climate variation, chemistry of sea water at polar latitudes, oceanic tracers for marine high latitude processes, paleoclimatic changes in polar regions, pre-formed nutrients, high latitude ecosystems, ocean acidification, early diagenesis at high latitudes				
Natural history of the Nordic Seas (Nr. MAR318)	Lectures, interdisciplinary course	with co-ordinator T. Brattegård and a teacher team	2	Institute for Biology	w 2004 w 2005
Contents:	(a) "Ventilation of the Nordic Seas" and (b) "Marine chemistry of the North Sea and the Baltic"				
Matematikk og naturvitenskap (Mathematics and natural sciences) (Nr. MNF140)	Interdisciplinary course	Upon invitation of the course leader	1 lecture per semester	Institute for mathematics	w 2009 w 2010
Contents:	"Inorganisk karbon i havet", "Karbonsyklus som en del av klimasystemet"				

Course at the Max Planck Institute for Meteorology, IMPRS, Hamburg:

<i>Titel</i>	<i>Place</i>	<i>Time</i>
Paleo-climatology	International Max Planck Research School on "Earth System Modelling"	24–28 February 2003
Contents:	<u>Lectures:</u> 1 Paleoclimatology and variability in the Earth system 2 Introduction to the glacial pCO ₂ reduction 3 Earth system history 4 Marine biogeochemistry 5 Forcings, processes, and feedbacks 6 Paleoclimate records and dating 7 Reconstructions of periods and events 8 Models and paleoclimate 9 Combining observations and modelling 10 Paleoclimate and future climate	<u>Exercises:</u> 1 Introduction to the HAMOCC2 model 2 Examining the various carbon pumps 3 Starting a longer scenario 4 Creating paleoclimate records with models 5 Inverse modelling

Courses taught at the University of Hamburg:

<i>Title</i>	<i>Type</i>	<i>h per week</i>	<i>Location</i>	<i>Time</i>
Modellierung mariner biogeochemischer Kreisläufe (Nr. 15.466) [Modelling of marine biogeochemical cycles]	Lectures	2	Institute for Biogeochemistry and Marine Chemistry	winter term 2000/2001
Contents:	1 The purpose of modelling 2 Gas exchange between ocean and atmosphere 3 Transport of dissolved substances I – theory and dynamics 4 Transport of dissolved substances II – numerical modelling 5 Biological production 6 Particle flux through the water column 7 The marine carbon cycle 8 The marine CaCO ₃ and silicon cycles 9 Sedimentation and early diagenesis 10 Synthesis – biogeochemical ocean general circulation models (Written hand-out: Heinze, C., “Modelling of marine biogeochemical cycles“, course at the University of Hamburg, Institute of Biogeochemistry and Marine Chemistry, WS2000/2001, 139 p.)			
Mariner Kohlenstoffkreislauf und Klima (Nr. 15.744) [Marine carbon cycle and climate]	Lectures	2	Institute for Oceanography	summer term 1998
Contents:	Atmospheric trace gases, anthropogenic climate change, glacial-interglacial climate changes, physical, chemical, and biological carbon pumps, ¹³ C and ¹⁴ C, modelling of the marine carbon cycle and coupled biogeochemical cycles			

Teacher at „Summer Schools“ etc.:

<i>School</i>	<i>Involvement</i>	<i>Location</i>	<i>Time</i>
CARBOOCEAN summer school “Modelling of the marine carbon cycle from small to global scale” (EU FP6 Integrated Project)	Organisation (overall responsible) and lecture “Biogeochemical ocean modelling” with exercises at the computer	University of Bergen and Bjerknes Centre for Climate Research	19-23 June 2006
Autumn school “Polar atmosphere chemistry – trace gases and aerosols in the Arctic” (Course Nr. AGF-340)	Lectures on “Global carbon cycling” (a. Biogeochemical cycles, b. Processes, c. Earth system)	UNIS – The University Centre in Svalbard, Longyearbyen, Spitsbergen/Svalbard	31 Oct. – 1 Nov. 2005
NMA summer course “Modelling marine populations from physics to evolution”	Lecture on “Biogeochemical models”	Espegrend, biological station, Bergen, Norway, Nordic Marine Academy	10-16 October 2005
Summer school 2004 of EU FP5 Research and Training Network Si-WEBS	Lecture “The art of global modelling”	Tværminne, Finland	19-25 June 2004
NORFA summer school on “Concepts and models of the pelagic food web”	Lecture and exercise in the computer laboratory on “Global Biogeochemical Cycles”	Nordic Academy for Advanced Study, Bergen, Norway	19-27 June 2002

Supervision of students, PhD students, post-doctoral researchers, and project co-workers:

Master-Student:	Peter Landschützer (finished December 2010, degree from Univ. Graz).
PhD students:	Supervision of Christophe Bernard (2006-2009, post-doc since 2010). Co-supervision of Svetlana Milutinovich (since 2006). Support in supervising (including attraction of funding for the PhD position) of Arne Winguth (1994-1997). Co-referee/committee member/opponent: Gisle Nondal (Bergen, 2010), Adi Nugraha (Brest, 2010), Thomas Frölicher (Bern, 2009), Sara Jutterström (Gothenburg, 2006), André Wischmeier (Bremen, 2002), Steffen Olsen (Copenhagen, 2002), Henning Wehde (Hamburg, 2001)
Post-doctoral researchers:	Jörg Schwinger (since 2010), Caroline Roelandt (since 2009), Karen Assmann (2005-2010), Christophe Sturm (2006-2008), Jerry Tjiputra (since 2007) (Bergen), Jørgen Bendtsen (Roskilde, 2001-2003), Axel Hupe (Hamburg, 2000)
CARBOOCEAN project office:	Scientific project manager Andrea Volbers (2005-2009). Administrative project manager Hege Høiland (2005-2010). Scientific data manager Benjamin Pfeil (since 2005).

Acquisition of external funding:

Co-ordination of international research projects:	
CARBOCHANGE	"Changes in carbon uptake and emissions by oceans in a changing climate", EU FP7 large-scale integrating project, 28 contractors from Europ, Africa, and North America, total budget 7 million EUR, 2011-2015, 1 March 2011 – 28 February 2015
CARBOOCEAN	"Marine carbon sources and sinks assessment", EU FP6 <i>Integrated Project</i> , 1 January 2005 – 31 December 2009, 35 contractors (50 groups from Europe, USA, Canada, and Morocco), total budget 14.5 million EUR, http://www.carboocean.org/
ORFOIS	"Origin and fate of biogenic particle fluxes in the ocean and their interaction with the atmospheric CO ₂ concentration as well as the marine sediment", EU FP5 <i>RTD Project</i> , 1 December 2001 – 30 November 2004, 8 partners (Europe), total budget 2.1 million EUR, http://orfois.pangaea.de/
SINOPS	"Silicon cycling in the world ocean: the controls for opal preservation in the sediment as derived from observations and modelling", EU <i>MAST-III</i> research project, 2 partners (France, Germany), 1 May 1998 – 30 September 2001, total budget 680 000 ECU ("co-ordinator in charge")
Further projects:	
GEOCARBON (under final contract negotiations)	"Operational Global Carbon Observing System", EU FP7 collaborative project, coordinator: Riccardo Valentini, expected budget for UiB/GFI: 25 person months (post-doctoral researcher, data management) plus overhead and travel support.
EarthClim	"An Integrated Earth System Approach to Explore Natural Variability and Climate Sensitivity" NORKLIMA project of the Research Council of Norway, project under contract negotiations (29 post-doc, person months for Uni-Research AS; coordinator: H. Drange UiB/Uni-Research), 1. January 2011 – 31 December 2013.
MONARCH-A	"Monitoring and assessing regional climate change in high latitudes and the Arctic, EU FP7, <i>collaborative project</i> (coordinator: J. Johannessen, <i>NERSC</i>), 400 000 EUR for the University of Bergen, <i>work package co-leader</i> ('Changes in marine carbon cycle'), duration: 1 March 2010 – 28 February 2013
COMBINE	"Comprehensive Modelling of the Earth System for Better Climate Prediction and Projection", EU FP7 collaborative project - large-scale integrating project, co-ordinator: M. Giorgetta, 404 000 EUR for University of Bergen, <i>work package co-leader</i> ('Climate projections and feedback'), SSC member, duration: 1 May 2009 –

	30 April 2013
COST Action ES0801	"The ocean chemistry of bioactive trace elements and paleoclimate proxies" (chair: G. Henderson), financial support for meetings and networking, Norwegian delegate for the Management Committee, duration: 21. August 2008 – 13. November 2012
COST Action ES0805	"Terrabites" - The Terrestrial Biosphere in the Earth System (chair: presumably C. Reick), financial support for meetings and networking, Norwegian delegate for the Management Committee, duration: 6. February 2009 – 11. December 2013.
EPOCA	"European project on ocean acidification", <i>large collaborative project</i> , co-ordinator: J.-P. Gattuso, 407 000 EUR for University of Bergen, member of the <i>Scientific Steering Committee</i> , duration: 1 May 2008 – 30 April 2012
COCOS	"COordination action Carbon Observation System", EU FP7, project focusing on the transfer of European carbon cycle data sets into GEOSS and on data syntheses, co-ordinator: H. Dolman, 150 000 EUR for University of Bergen, work package leader, duration: 1 May 2008 – 31 October 2011
CARBOSEASON	Calibration of marine and terrestrial carbon cycle models through the seasonal cycle signal, Research Council of Norway, NORKLIMA Programme, co-ordination: C. Heinze, budget for University of Bergen: 3.1 million NOK (ca. 387 000 EUR), duration: 1 June 2008 – 31 May 2012
PERMASOM	Process studies on organic carbon cycling in permafrost areas, Research Council of Norway, NORKLIMA programme, co-ordination: D. Rasse, budget for University of Bergen: 390 000 NOK (ca. 48 000 EUR), duration: 3 years (work of University of Bergen in year 2010), 1 January 2008 – 31 December 2011
CarboSchools+	<i>European network of regional projects for school partnerships on climate change research</i> , EU FP7 Science-and-Society Project, educational outreach project for secondary schools, European Commission, budget for University of Bergen: 80000 EUR, duration: 1 January 2008 – 31 Dec 2010
NorClim	"Climate of Norway and the Arctic in the 21 st Century", Research Council of Norway, NORKLIMA programme, co-ordination: H. Drange, budget for own research group: 1.2 million NOK (ca. 150 000 EUR), duration: 1 January 2007 – 31 March 2011
Eur-Oceans	"European network of excellence for ocean ecosystems analysis", EU FP6 <i>Network of Excellence</i> , financial support for networking (travel, workshops, summer schools), co-ordination: P. Tréguer and L. Legendre, duration: 1 January 2005 – 31 December 2008
Bjerknes SFF internal projects	Several smaller internal projects and 1 PhD student position for 18 months, <i>natl. research centre of excellence</i> , Bjerknes Centre for Climate Research, NFR Research Council of Norway
Si-WEBS	"Natural and anthropogenic modifications of the Si cycle along the land-ocean continuum: Worldwide Ecological, Biogeochemical and Socio-economical consequences", co-ordinator: O. Ragueneau, EU FP5 <i>Research and Training Network</i> , duration: 1 October 2002 – 30 September 2006, 1 PhD student position for 18 months
DFG-Project	"Globale ozeanische Simulation von Strömungsfeld und Kohlenstoffkreislauf im jüngeren Paläozoikum", 1 post-doctoral researcher position for 2 years, "Deutsche Forschungsgemeinschaft", Schwerpunktprojekt 'Evolution des Systems Erde während des jüngeren Paläozoikums im Spiegel der Sediment-Geochemie' (co-ordinator Prof. Dr. W. Buggisch), 1 September 1998 – 31 August 2004
DFG-Project	"Assimilation von Paläoklimadaten in das Hamburger Ozeanmodell zur Rekonstruktion des Ozeanzustands während des letzten glazialen Maximums", IGBP-PAGES-Projekt, 1 post-doctoral researcher position and 1 PhD student position for 2 years, "Deutsche Forschungsgemeinschaft", 1993-1995

Organisation of international Conferences and Meetings:

<i>Title</i>	<i>Function</i>	<i>Location</i>	<i>Time</i>
ESA-SOLAS-EGU Conference on Earth Observation for Ocean- Atmos-phere Interactions Science	Member of International Scientific Committee	Frascati (Rome), Italy	To be held 29 November – 2 December 2011
COCOS GEO Carbon Conference	Member of Scientific Group	Rome (FAO), Italy	To be held 24-26 October 2011
3 rd GEOTRACES Data-Model Synergy Workshop	Member of Planning Group	Barcelona, Spain	To be held in autumn 14-17 November 2011
NOTUR2011 - The 10th Annual Meeting on High Performance Computing and Infrastructure in Norway	Member of Programme Committee	Oslo, Norway	23-27 May 2011
ESSAS (Ecosystem Studies of Sub-Arctic Seas) second Open Science Meeting	Co-convenor of combined session 4&9 "Nutrients, biogeochemistry and acidification in a changing climate"	Seattle, WA, USA	22-26 May 2011
"CARBOCHANGE kick-off meeting", EU FP7 large-scale integrating project CARBOCHANGE, 70 participants	Coordinator (lead, overall responsible for contents and organization, local host)	Bergen, Norway	8-10 March 2010
3 rd Bi-annual Symposium "Future Ocean "	Member of scientific steering committee	Christian-Albrechts-Universität zu Kiel, Germany	13.-16 September 2010
Workshop (EU coord. Action COCOS) "Combining water column data with sediment trap and satellite observations for improved marine carbon export estimates" (40 participants)	Co-convenor and Local Host	Bergen, Norway	23.-26 June 2010
EGU General Assembly 2008, session BG3.1 "Reducing uncertainties in the quantification of the oceanic sink for anthropogenic carbon (CARBOOCEAN)"	Initiator und Co-convenor (chair)	Vienna, Austria	16 April 2008
"Polar Dynamics: Monitoring, Understanding, and Prediction", Open Science Conference	Member of local committee	Bergen, Norway	29-31 August 2007
"The GHG Cycle in the Northern Hemisphere", Open Science Conference	Member of scientific committee	Sissi-Lassithi, Crete, Greece	14-17 November 2006
"37 th International Liège Colloquium on Ocean Dynamics", 'Gas transfer at water surfaces'	Member of international scientific committee	Liège, Belgium	2-6 May 2005
"CARBOOCEAN final meeting", EU FP6 Integrated Project CARBOOCEAN, 95 participants	Coordinator (lead, overall responsible for contents and organization, local host)	Solstrand/Os, Norway	5-9 October 2009
"CARBOOCEAN annual meeting 2008", EU FP6 Integrated Project CARBOOCEAN, 100 participants	Coordinator (lead, overall responsible for contents and organisation)	Dourdan, France	8-12 December 2008
"CARBOOCEAN annual meeting 2007", EU FP6 Integrated Project CARBOOCEAN, 109 participants	Coordinator (lead, overall responsible for contents and organisation)	Bremen, Germany	4-7 December 2007
"CARBOOCEAN annual meeting 2006", EU FP6 Integrated Project CARBOOCEAN, 110 participants	Coordinator (lead, overall responsible for contents and organisation)	Maspalomas, Gran Canaria, Spain	4-8 December 2006
"CARBOOCEAN annual meeting 2005", EU FP6 Integrated Project CARBOOCEAN, 100 participants	Coordinator (lead, overall responsible for contents and organisation)	Amsterdam, Netherlands	22-24 November 2005
"CARBOOCEAN kick-off meeting", EU FP6 Integrated Project CARBOOCEAN, 101 participants	Coordinator (lead, overall responsible for contents and organization, local host)	Bergen, Norway	2-4 February 2005

International Award:

Lead author of IPCC Assessment Report no. 4, Working Group I, chapter 7: Denman, K.L., G. Brasseur, A. Chidthaisong, P. Ciais, P.M. Cox, R.E. Dickinson, D. Hauglustaine, C. Heinze, E. Holland, D. Jacob, U. Lohmann, S. Ramachandran, P.L. da Silva Dias, S.C. Wofsy and X. Zhang, 2007, Couplings Between Changes in the Climate System and Biogeochemistry. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor und H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

The *Intergovernmental Panel on Climate Change* was awarded with the Nobel Peace Prize in 2007.

Invited talks on international Conferences, Workshops, and Seminars

- “Global Carbon Cycle Overview”**, Blue Carbon Scientific Working Group 1st Meeting, UNESCO, Paris, France, 15-17 February, 2011.
- “Report of Break Out Group II-1: Learning from the past and present to predict the future”**, plenary presentation (100 participants), IPCC WGII/WGI Workshop on Impacts of Ocean Acidification on Marine Biology and Ecosystems, Okinawa, Japan, 17-19 January 2011.
- “The ocean carbon cycle and climate - what we may learn from the paleorecord and how to prepare for entering unknown territory in the future” (keynote)**, 3rd Bi-Annual Symposium Future Ocean, Christian-Albrechts-Universität zu Kiel, Kiel, Germany, 13-16 September 2010.
- “How much CO₂ does the ocean take up?”** EU press event ‘Oceans of Tomorrow: the Tara Oceans Expedition and Star Projects in EU Marine Research’, Institut de les Ciències del Mar, Barcelona, Spain, 1-3 October 2009.
- “CARBOOCEAN - results and research perspectives on marine carbon sources and sinks”**, 5th Japan-EU Workshop on Climate Change Research, Tokyo, Japan, 6-7 July 2009.
- “Perspectives for biogeochemical climate research with the Norwegian ESM”**, Seminar “How to succeed in Earth System Modelling”, CIENS, Forum, Oslo, 1. September 2008.
- “The oceanic carbon sink – processes, time scales, and impacts”**, GIFT-Workshop (Geophysical Information For Teachers) during EGU General Assembly 2008, Vienna, Austria, 13-15 April 2008.
- “The changing oceanic carbon sink in a warming high CO₂ world”**, ‘EU International Symposium on IPCC and EC Research Future climate, impact, and responses – The IPCC 4th Assessment Report & EC Integrated Climate Research’, 19-20 November 2007, Brussels, Belgium.
- “Carbon cycling at high latitudes – an early warning system for changes in oceanic CO₂ uptake and carbonate saturation” (keynote)**, open science conference “Polar Dynamics: Monitoring, Understanding, and Prediction”, 29-31 August 2007, Bergen, Norway.
- “Ocean biogeochemical feedbacks to climate change and rising atmospheric CO₂ concentrations”**, Seminar for Worldwide Universities Networks (WUN), Bergen, 19 March 2007, Video-Seminar, broadcast live to 16 universities in Europe and North America including discussion after the presentation with all online-partners.
- “CARBOOCEAN – the European contribution to a global marine sources and sinks assessment”**, ‘4th EU-Japan Workshop on Climate Change Research’, European Commission, 12-13 March 2007, Brussels, Belgium.
- “Carbon cycling at high latitudes – bottleneck for anthropogenic CO₂ and precursor for ocean acidification”**, International Symposium “Polar Environment and Climate: The Challenges”, European Research in the context of the International Polar Year, European Commission, 5-6 March 2007, Brussels, Belgium.
- “Was there a higher glacial rain ratio CaCO₃:POC than today?”** Workshop “Modelling the response of marine ecosystems to increasing levels of CO₂”, AMEMR (Advances in Marine Ecosystem Modelling Research), supported by UK Natural Environment Research Council, organised by unterstütztes, Plymouth Marine Laboratory, 12-14 February 2007, Plymouth, UK.
- “Towards Earth system modelling in Bergen – status and vision”**, Workshop “Climate impacts on carbon cycling and greenhouse gas balance in arctic terrestrial ecosystems”, organised by BioForsk (Ås, Norway), 27-29 November 2006, Svanhovd, Norway/Finnmark.
- “Marine biological carbon cycle climate feedbacks - do they matter or not?” (keynote)**, ASLO Summer Meeting 2005, American Society of Limnology and Oceanography, 19-24 June 2005, Santiago De Compostela, Spain.
- “Marine carbon cycle climate feedbacks - magnitude and timescales”**, Mini-Conference on “Vulnerabilities of the Carbon-Climate-Human System” (IGBP Global Carbon Project, ESSP), 15

June 2005, Paris, France.

“Towards the reconstruction of past biogeochemical cycles: Simulation of the sediment core record in the world ocean with a biogeochemical ocean general circulation model”, 8th International Conference on Paleoceanography, 5-10 September 2004, Biarritz, France.

“Predicting anthropogenic CO₂ uptake by the high latitude oceans - the Bjerknes 1904 paper revisited”, Bjerknes Centenary 2004, Open Science Conference on Climate Change in High Latitudes, 1-3 September 2004, Bergen, Norway.

“The effect of diatoms and Si on the carbon cycle - studies with a large scale biogeochemical ocean model”, Chapman Conference “The Role of Diatom Production and Si Flux and Burial in the Regulation of Global Cycles”, American Geophysical Union, 22-26 September 2003, Paroikia, Paros, Greece.

“The Arctic in the climate system”, Nordic Arctic Research Programme, Meeting on ‘The bioproduction and energy transfer in the Nordic Seas (the role of key zooplankters in a system with rapid climate change)’, 31 July – 4 August 2002, Sandgerdi, Iceland.

“Simulating the sedimentary response to closure of the central American isthmus”, AGU Fall Meeting, American Geophysical Union, 8-12 December 1997, San Francisco, USA.

“Development of a global 3-D model of Th and Pa in the present and past ocean” (keynote), AGU Fall Meeting, American Geophysical Union, 15-19 December 1996, San Francisco, USA.

„An OGCM study on marine sediment, weathering, and atmospheric CO₂”, XVI. General Assembly of the European Geophysical Society (EGS), 6-10 May 1996, Den Haag, Netherlands.

„Southern Ocean close-off - implications for glacial ocean tracer distributions”, AGU Fall Meeting, American Geophysical Union, 5-10 December 1993, San Francisco, USA.

„An OGCM study on marine sediment, weathering, and atmospheric CO₂”, XVI. General Assembly of the European Geophysical Society (EGS), 6.-10. Mai 1996, Den Haag, Netherlands.

„Southern Ocean close-off - implications for glacial ocean tracer distributions”, AGU Fall Meeting, American Geophysical Union, 5-10 December 1993, San Francisco, USA.

Participation in research cruises:

Research Cruise Nr. 7 of FS „Gauss“, Baltic Sea (until 16°E), 2-12 September 1980, oceanographic work, quantitative marine chemical analyses, use of the measurements for environmental monitoring under national and international frameworks, chief scientist G. Weichart, Deutsches Hydrographisches Institut and University of Hamburg.

Research Cruise Nr. 22B of FS „Gauss“, German Bight and Baltic Sea, 27 August - 12 September 1981, oceanographic work, quantitative marine chemical analyses, use of the measurements for environmental monitoring under national and international frameworks, chief scientist G. Weichart, Deutsches Hydrographisches Institut and University of Hamburg.

Research Cruise Nr. 61 of FS „Meteor“, Greenland Sea/North Polar Sea, 19 May – 7 July 1982, physical oceanographic measurements (CTD, Thermosalinograph, *Delphin*), chemical analyses, salinometry, chief scientist K.-P. Koltermann, Deutsches Hydrographisches Institut and University of Hamburg.

Research Cruise Nr. 36A-C of FS „Gauss“, western Baltic Sea and German Bight, 11 August – 1 September 1982, physical and chemical oceanographic measurements for environmental monitoring under national and international frameworks, chief scientist D. Körner, Deutsches Hydrographisches Institut, Hamburg.

General activities for the advancement of science:

Review editor for IPCC Assessment Report 5, WGI, chapter 6: Carbon and Other Biogeochemical Cycles.

Member of the Scientific Steering Committee of IGBP core project SOLAS (surface ocean lower atmosphere study), since 1 January 2010.

Member of the Scientific Advisory Committee of EU FP7 project MyOCEAN for the implementation of GMES marine core services, since 2009.

Member of the Scientific Advisory Board of EU FP7 infrastructure project “InfraStructure for the European Network for Earth System Modelling” (IS-ENES), since 2009.

Member of working group 1 “Klimasystemet, naturlige varasjoner” of “Klima21”, strategic forum for climate research implemented by the Norwegian government, 2009.

Associate Editor of the scientific EGU journal *Biogeosciences* (since 2004).

Associate Editor of the scientific EGU journal *Earth System Dynamics* (since 2010).

Member of the Numerical Experimentation Group of the *World Ocean Circulation Experiments* (“WOCE-NEG”), 1990-1993.

Scientific Advisor for project “Developing a Trial Monitoring Strategy for pH in UK Marine Waters” (ME2109), funding agency DEFRA (Department for Environment, Food and Rural Affairs, UK) (2006-2007).

Member of the Advisory Board for project PEACE (“Role of pelagic calcification and export of carbonate production in climate change”), co-ordinator L. Chou, Brussels, Belgium, funding agency: Belgian Science Policy Office (2005-2009).

Referee for project proposals (a.o. chair for evaluation of project SOPRAN – German contribution to IGBP/SOLAS, BMBF; National Science Foundation – USA; National Institute for Air Research – Norway)

Referee for scientific journals (a.o. for *Journal of Geophysical Research*, *Nature*, *Deep-Sea Research and Biogeosciences*).

Member of the American Geophysical Union and of the *Deutsche Gesellschaft für Meeresforschung*.

List of publications

Peer reviewed literature:

Tschumi, T., F. Joos, M. Gehlen, and C. Heinze, Deep ocean ventilation, carbon isotopes, marine sedimentation and the deglacial CO₂ rise, accepted for publication in *Climate of the Past*.

Palastanga, V., C. P. Slomp, and C. Heinze, Long-term controls on ocean phosphorus and oxygen in a biogeochemical ocean model, accepted for publication in *Global Biogeochemical Cycles*.

Roy, T., L. Bopp, M. Gehlen, B. Schneider, P. Cadule, T. Frölicher, J. Segschneider, J. Tjiputra, C. Heinze, and F. Joos, 2011, Regional Impacts of Climate Change and Atmospheric CO₂ on Future Ocean Carbon Uptake: A Multimodel Linear Feedback Analysis. *J. Climate*, 24(9), 2300-2318

Bernard, C., H. Dürr, C. Heinze, J. Segschneider und E. Maier-Reimer, 2011, Contribution of riverine nutrients to the silicon biogeochemistry of the global ocean – a model study. *Biogeosciences*, 8, 551-564.

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