

Curriculum Vitae, January 2012

Prof. Dr. Kai-Uwe Hinrichs

Dean, Department of Geosciences
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Education

1994 Diploma (equiv. to M.Sc.), Chemistry, thesis in Organic Geochemistry, Institute for Chemistry and Biology of the Marine Environment (ICBM), U Oldenburg, Germany.

1997 Ph.D., ICBM, U Oldenburg, Germany, thesis in Organic Geochemistry.

Professional Experience

2004-present Full Professor (W3 with tenure), Dept. of Geosciences, U Bremen
2002-2004 Professor (C3, tenured), Dept. of Geosciences, U Bremen
2004-2010 Adjunct Scientist, Dept. of Geology & Geophysics, WHOI
2000-2002 Assistant Scientist, tenure-track, Dept. of Geology & Geophysics, WHOI
1997-2000 Postdoctoral Investigator/Fellow, Dept. of Geology & Geophysics, WHOI
1994-1997 Research Assistant, ICBM, University of Oldenburg

Graduate and Post-Graduate Advisors: Jürgen Rullkötter, John M. Hayes

Professional Activities, Selection

Editorships: *Science* - Board of Reviewing Editors (BoRE, 5/2011 -); *Organic Geochemistry*, Associate Editor (2006 -); *Geology*, Editorial board (2004-2006)

Member, IODP, Science Steering and Evaluation Panel (2007-2010), Deep Life Directorate Science Steering Committee, Deep Carbon Observatory (2011-2013)

Conference chair, 24th International Meeting on Organic Geochemistry, Bremen, 09/2009

Dean, Department of Geosciences, U Bremen, (10/2011-now), before Vice-Dean (6/2010 – 09/2011)

Principal Investigator: ERC Advanced Grant DARCLIFE, 2010 – 2015; MARUM Cluster of Excellence & DFG Research Center: Research Area Geosphere-Biosphere Interactions (2009 – now)

Leadership, MARUM Board of Directors (2004 -)

Chair, U Bremen, Department of Geosciences, Doctoral Graduation Board (2004 – 2010)

Initiator and Head, MARUM Summer Student Fellowship Program (2004 – 2008)

Awards

Gottfried-Wilhelm Leibniz Award 2011 by the Deutsche Forschungsgemeinschaft

ERC Advanced Grant 2009 Recipient

ECORD Distinguished Lecturer, 2011-2012

Fellow, Hanse Institute of Advanced Studies, 2000 (4 months), 2002 (1 month)

Research Statement

My research group studies the interactions between microbial life and the carbon cycle on a range of spatial, temporal and molecular scales. We are interested in *how* and *which* microbes shape element cycles and *what* the related environmental consequences are. To this end, we study the information encoded in distributions and isotopic compositions of organic molecules in sediments and water, ranging in size from 1 to ~100 C-atoms. In research projects, we seek to combine environmental observations with experimental approaches. (Paleo)environments and materials currently under investigation include the deep sub-seafloor biosphere, cold seeps and hydrothermal environments, microbial mats, suspended particulate matter in the ocean, sedimentary pore fluids and gases, and geologic episodes associated with major perturbations of the C-cycle.

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15 Selected Publications (senior/principal author/PI contributions only, out of currently 77 peer-reviewed; total citations to papers indexed in Web of Science = 3040; h-index = 24; as of Jan 8, 2012)

- Lin, Y.S., Heuer, V.B., Goldhammer, T., Kellermann, M.Y., Zabel, M., **Hinrichs, K.-U.** (2012) Towards constraining H₂ concentration in subseafloor sediment: a proposal for combined analysis by two distinct approaches, *Geochimica et Cosmochimica Acta*, 77, 186-201.
- Schubotz, F., Lipp, J.S., Elvert, M., **Hinrichs, K.-U.** (2011) Stable carbon isotopic compositions of intact polar lipids reveal complex carbon flow patterns among hydrocarbon degrading microbial communities at the Chapopote asphalt volcano, *Geochimica et Cosmochimica Acta*, 75, 4399-4415.
- Schmidt, F., Koch, B., Elvert, M., Schmidt, G., Witt, M., **Hinrichs, K.-U.** (2011) Diagenetic transformation of dissolved organic nitrogen compounds under contrasting sedimentary redox conditions in the Black Sea, *Environmental Science and Technology*, 45, 5223-5229.
- Liu, X.L., Lipp, J.S., **Hinrichs, K.-U.** (2011) Distribution of intact and core GDGTs in marine sediments, *Organic Geochemistry*, 42, 368-375.
- Rossel, P.E., Elvert, M., Ramette, A., Boetius, A., **Hinrichs, K.-U.** (2011) Factors controlling the distribution of anaerobic methanotrophic communities in marine environments: evidence from intact polar membrane lipids, *Geochimica et Cosmochimica Acta*, 75, 164-184.
- Ertefai, T.F., Heuer, V.B., Prieto Mollar, X., Vogt, C., Sylva, S.P., Seewald, J., **Hinrichs, K.-U.** (2010) The biogeochemistry of sorbed methane in marine sediments, *Geochimica et Cosmochimica Acta*, 74, 6033-6048.
- Heuer, V.B., Pohlman, J.W., Torres, M.E., Elvert, M., **Hinrichs, K.-U.** (2009) The stable carbon isotope biogeochemistry of acetate and other dissolved carbon species in deep sub-seafloor sediments at the northern Cascadia Margin. *Geochimica et Cosmochimica Acta*, 73, 3323-3336.
- Schubotz, F., Wakeham, S.G., Lipp, J.S., Fredricks, H.F., **Hinrichs, K.-U.** (2009) Detection of microbial biomass by intact membrane lipid analysis in the water column and surface sediments of the Black Sea, *Environmental Microbiology*, 11, 2720-2734.
- Sepúlveda, J.C., Wendler, J., Summons, R.E., **Hinrichs, K.-U.** (2009) Rapid resurgence of marine productivity at the Cretaceous-Paleogene mass extinction event, *Science*, 326, 129-132.
- Lipp, J.S., Morono, Y., Inagaki, F., **Hinrichs, K.-U.** (2008). Significant contribution of Archaea to extant biomass in marine subsurface sediments. *Nature*, 454, 991-994.
- Hinrichs, K.-U.**, Hayes, J.M., Bach, W., Spivack, A., Hmelo, L.R., Holm, N., Johnson, C.G., Sylva, S.P. (2006) Biological formation of ethane and propane in the deep marine subsurface. *PNAS*, 103, 14684-14689.
- Biddle, J.F., Lipp, J.S., Lever, M., Lloyd, K., Sørensen, K., Anderson, R., Fredricks, H.F., Elvert, M., Kelly, T.J., Schrag, D.P., Sogin, M.L., Brenchley, J.E., Teske, A., House, C.H., **Hinrichs, K.-U.** (2006) Heterotrophic Archaea dominate sedimentary subsurface ecosystems off Peru. *PNAS*, 103, 3846-3851.
- Sturt, H.F., Summons, R.E., Smith, K.J., Elvert, M., and **Hinrichs, K.-U.** (2004) Intact polar membrane lipids in prokaryotes and sediments deciphered by ESI-HPLC-MSⁿ – new biomarkers for biogeochemistry and microbial ecology. *Rapid Communications in Mass Spectrometry*, 18, 617-628.
- Hinrichs K.-U.**, Hmelo L.R., and Sylva, S.P. (2003) Molecular fossil record of elevated methane levels in late Pleistocene coastal waters, *Science*, 299, 1214-1217.
- Hinrichs, K.-U.**, Hayes, J.M., Sylva, S.P., Brewer, P.G., and DeLong, E.F. (1999) Methane-consuming archaeobacteria in marine sediments. *Nature*, 398, 802-805.

Graduate Advisees: MSc - Previous: Marlene Bausch, Kevin Becker, Jan Blees, Nadine Buchs, Tobias Ertefai, Corinna Harms, Matthias Kellermann, Arne Leider, Miriam Sollich Florence Schubotz, Monika Trümper, Stefanie Tille, Klaus Wohlfart; Current: Stefan Braun, Christopher Dibke, Felix Elling

PhD - Previous: Tobias Ertefai, Yu-Shih Lin, Julius Lipp, Xiaolei Liu, Pamela Rossel, Frauke Schmidt, Florence Schubotz, Julio Sepulveda; Current: Kevin Becker, Matthias Kellermann, Arne Leider, Jan Schröder, Sitan Xie, Rong Zhu, Guangchao Zhuang

Post-Graduate Advisees: Previous: Solveig Bühring; Helen Fredricks; Rainer Lohmann; Florence Schubotz; current: Marshall Bowles, Verena Heuer; Julius Lipp; Xiaolei Liu; Yu-Shih Lin; Travis Meador; Frauke Schmidt; Eoghan Reeves; Lars Wörmer; Marcos Yoshinaga; Chun Zhu.