

Curriculum Vitae

Dr. Kerstin Schepanski

Contact	Institute Address	School of Earth & Environment Institute for Climate and Atmospheric Science University of Leeds Leeds, LS2 9JT United Kingdom email: k.schepanski@leeds.ac.uk
Education	2006/06 – 2009/01	Doctoral degree in Meteorology, University of Kiel, Germany Leibniz Institute for Tropospheric Research, IfT, Leipzig, Germany, in collaboration with the Leibniz Institute of Marine Sciences, IFM-GEOMAR, Kiel, Germany Thesis title: "Characterising Saharan Dust Sources and Export using Remote Sensing and Regional Modelling" Final degree: Doctoral degree
	2001/10 – 2006/05	Study of Meteorology, Oceanography and Geophysics, University of Kiel, Germany Thesis title: "Natural Variability of Clouds in a Climate Model" Final degree: Diploma in Meteorology
Research Experience	since 2009/10	Postdoctoral Research Fellow at School of Earth & Environment, University of Leeds, Leeds, UK Identification and Tracking of Sudano-Saharan Depressions using reanalysis data, satellite data, and weather observations
	2009/02 – 2009/09	Postdoctoral Research Fellow at Leibniz Institute for Tropospheric Research, Leipzig, Germany Interannual variability of local dust storm occurrence over North Africa and North America
	2006/06 – 2009/01	PhD student in research project TRACES (Ocean–Atmosphere–Land Impacts on TRopical Atlantic EcoSystem) A new map of Saharan dust sources has been derived from 15-minute IR MSG-SEVIRI dust imagery allowing a spatio-temporal characterization of dust source activity. Additionally, analysis of regional and global model fields have been performed to identify meteorological features frequently forcing dust mobilization. Supervisors: Dr. I. Tegen and Prof. Dr. A. Macke

	2005/09 – 2006/05	Diploma student Simulations of a coupled global atmosphere–ocean climate model have been used to investigate the interannual variability of cloud types and cloud cover. Relations to the North Atlantic Oscillation and ENSO have been considered. Furthermore, modeling results have been compared statistically to long-term satellite observations. Supervisors: Prof. Dr. A. Macke and Prof. Dr. M. Latif
Participation in Research Projects	Since 2010 2008 – 2009 2007 – 2009 2006 – 2008	FENNEC (Experiment on Saharan Climate System) Characterising the thermodynamic, dynamic and compositional structure of the Saharan atmosphere SAMUM (Saharan Mineral dUst experiMent) Estimation of radiative effects of African dust and bio-mass burning aerosol SOPRAN (Surface Ocean PRocesses in the ANthropocene) Characterization of ocean-atmosphere biogeochemical interactions TRACES (Ocean–Atmosphere–Land Impacts on TRopical Atlantic EcoSystem) Characterization of transport of soil lithogenic matter towards the tropical Atlantic
Teaching Experience	2005/07 2004/10 – 2005/07 2002 – 2005	Supervising tutor for undergraduate students practical training on measuring meteorological parameters Leibniz Institute of Marine Sciences, IFM-GEOMAR, Kiel, Germany Supervising tutor for undergraduate students seminar “Weather Analysis” Leibniz Institute of Marine Sciences, IFM-GEOMAR, Kiel, Germany Meteorological education for various sailing licenses
Further Experiences	2005/05 – 2006/03	Meteorological services, customer support WetterWelt GmbH in Kiel, Germany, weather service provider
Computer Skills		IDL, NCL, GMT, Grads, Matlab, CDO, Fortran, R, Shell-programming Linux, Unix, Windows, MS Office, L ^A T _E X

Publications

Journal Articles

K. Schepanski, I. Tegen, B. Laurent, B. Heinold, A. Macke (2007), *A new Saharan dust source activation frequency map derived from MSG-SEVIRI IR-channels*, Geophys. Res. Lett., 34, L18803, doi: 10.1029/2007GL030168.

W. Birmili, **K. Schepanski**, A. Ansmann, G. Spindler, I. Tegen, B. Wehner, A. Novak, E. Reimer, I. Mattis, K. Müller, E. Brüggemann, T. Gnauk, H. Herrmann, A. Wiedensohler, D. Althausen, A. Schladitz, T. Tuch, G. Lschau (2008), *A case of extreme particulate matter concentrations over Central Europe caused by dust emitted over the southern Ukraine*, Atmos. Chem. Phys., 8, 997-1016.

B. Heinold, I. Tegen, **K. Schepanski**, O. Hellmuth (2008), *Dust Radiative Feedback on Saharan Boundary Layer Dynamics and Dust Mobilization*, Geophys. Res. Lett., 35, L20817, doi:10.1029/2008GL035319.

B. Heinold, I. Tegen, M. Esselborn, K. Kandler, P. Knippertz, D. Müller, A. Schladitz, M. Tesche, B. Weinzierl, A. Ansmann, D. Althausen, B. Laurent, A. Massling, T. Müller, **K. Schepanski**, A. Wiedensohler (2009), *Regional Saharan Dust Modeling during the SAMUM 2006 Campaign*, Tellus, 61B(1), 307324, doi:10.1111/j.1600-0889.2008.00387.x.

P. Knippertz, A. Ansmann, D. Althausen, D. Müller, M. Tesche, E. Bierwirth, T. Dinter, T. Müller, W. von Hoyningen-Huene, **K. Schepanski**, M. Wendisch, B. Heinold, K. Kandler, A. Petzold, L. Schütz, I. Tegen (2009), *Dust Mobilization and Transport in the Northern Sahara during SAMUM 2006 – A Meteorological Overview*, Tellus 61B(1), 1231, doi:10.1111/j.1600-0889.2008.00380.x.

K. Schepanski, I. Tegen, A. Macke (2009), *Saharan dust transport and deposition towards the tropical northern Atlantic*, Atmos. Chem. Phys., 9, 1173-1189.

F. Reinfried, I. Tegen, B. Heinold, O. Hellmuth, **K. Schepanski**, U. Cubasch, H. Huebener, P. Knippertz (2009), *Simulations of convectively-driven density currents in the Atlas region using a regional model: Impacts on dust emission and sensitivity to horizontal resolution and convection schemes*, J. Geophys. Res., 114, D08127, doi:10.1029/2008JD010844.

K. Schepanski, I. Tegen, M. C. Todd, B. Heinold, G. Bnisch, B. Laurent, A. Macke (2008), *Meteorological processes forcing Saharan dust emission inferred from MSG-SEVIRI observations of sub-daily dust source activation and numerical models*, J. Geophys. Res., 114, D10201, doi:10.1029/2008JD010325.

C. Cavazos, M. C. Todd, **K. Schepanski** (2009), *Numerical model simulation of the Saharan dust event of 6-11 March 2006 using the Regional Climate Model version 3(RegCM3)*, J. Geophys. Res., 114, D12109, doi:10.1029/2008JD011078.

L. Klüser and **K. Schepanski** (2009), *Remote sensing of mineral dust over land with MSG inferred channels: A new Bitemporal Mineral Dust Index*, Remote Sens. Environ., 113, 9, doi:10.1016/j.rse.2009.04.012.

R. Washington, C. Bouet, G. Cautenet, E. Mackenzie, I. Ashpole, S. Engelstaedter, G. Lizcano, G. Henderson, **K. Schepanski**, I. Tegen (2009), *Dust as a Tipping Element: The Bodele Depression, Chad*, PNAS, 106(49), doi:10.1073/pnas.0711850106.

Journal Articles accepted for publication

B. Laurent, I. Tegen, B. Heinold, **K. Schepanski**, B. Weinzierl, A model study of Saharan dust emission and distribution during SAMUM-1 campaign, J. Geophys. Res., in press.

Other Publications

W. Birmili, **K. Schepanski**, C. Plass-Dlümer (2008), *Massiver Feinstaubeintrag aus der Ukraine im März 2007*, Letters of Global-Atmosphere-Watch, German Weather Service (Deutscher Wetterdienst), Meteorological Observatory Hohenpeienberg, Number 41.

I. Tegen, D. Althausen, B. Heinold, B. Laurent, D. Müller, **K. Schepanski**, M. Tesche (2008), *The Saharan Mineral Dust Experiment SAMUM-1: Regional dust modeling*, Biannual Report of IfT 2006/2007, pp. 29-38.

C. Weller, H. Herrmann, Y. Iinuma, N. Kaaden, S. Lehmann, C. Müller, T. Müller, **K. Schepanski**, A. Tilgner, A. Wiedensohler (2008), *Atmosphere - Ocean interactions*, Biannual Report of IfT 2006/2007, pp. 39-50.

Conference Papers

B. Laurent, B. Marticorena, G. Bergametti, I. Tegen, **K. Schepanski**, B. Heinold (2009), *Modelling mineral dust emission*, WMO Monograph, IOP Conference Series: Earth and Environment Science, in press.

I. Tegen and **K. Schepanski** (2009), *The Global Distribution of Mineral Dust*, WMO Monograph, IOP Conference Series: Earth and Environment Science, in press.

L. Klüser, **K. Schepanski**, T. Holzer-Popp (2009), *Bitemporal Mineral Dust Detection from MSG-SEVIRI Observations*, Proceedings to Meteorological Satellite Conference (EUMET-SAT), Darmstadt (Germany), September 8-12 2008.

Oral Conference Presentations

K. Schepanski, I. Tegen, B. Laurent, B. Heinold, A. Macke, *A new Map of Saharan Dust Emission based on MSG-IR Dust Index Retrievals with high spatio-temporal Resolution*, IUGG-IAMAS, Perugia, Italy, July 2-13 2007, Session: MS004 Mineral Dust Cycle and its Impact on Clouds and Radiation (ICCP).

K. Schepanski, I. Tegen and A. Macke, *A MSG SEVIRI derived Saharan dust emission map based on MSG-IR dust index retrievals with high spatio-temporal resolution*, GlobAerosol User Workshop at ESRIN, Frascati, Italy, Nov. 29 2007.

K. Schepanski, I. Tegen, B. Heinold, G. Bnisch, B. Laurent, A. Macke, *Meteorological processes forcing Saharan dust emission inferred from MSG-SEVIRI observations of sub-daily dust source activations*, EGU General Assembly, Vienna, Austria, April 13-18 2008, Session: Aeolian Dust: initiator, player, and recorder of environmental change.

K. Schepanski, *Characterization of dust source activation from satellite remote sensing*, 3rd International Workshop on Mineral Dust, Leipzig, September 15-17 2008 (solicited).

K. Schepanski, I. Tegen, *Spatio-temporal distribution of Saharan dust source activations inferred from 15-minute MSG-SEVIRI observations and its links to meteorological processes*, AGU Fall Meeting, San Francisco, CA, USA, December 2009, Session: Aeolian Dust: Transport Processes, Anthropogenic Forces, and Biogeochemical Cycling (invited).

K. Schepanski, I. Tegen, A. Macke, *Satellite-based Dust Source Identification over North Africa: Diurnal Cycle, Meteorological Controls, and Interannual Variability*, EGU General Assembly, Vienna, Austria, May 02-06 2010, Session: Aeolian Dust: initiator, player, and recorder of environmental change.

K. Schepanski, P. Knippertz, H. Wernli, *Identification and Tracking of Soudano-Sahelian Depressions: Case Studies and Climatology*, EGU General Assembly, Vienna, May 02-06 2010, Session: African Monsoon Multidisciplinary Analysis (AMMA).

Co-Author at Oral Conferences Presentations

B. Laurent, B. Marticorena, G. Bergametti, I. Tegen, **K. Schepanski**, B. Heinold, *Dust Source and Emission Modelling*, WMO/GEO Expert Meeting on an International Sand and Dust Storm Warning System, Barcelona, Spain, November 07 2007.

I. Tegen, B. Heinold, **K. Schepanski**, B. Laurent, F. Reinfried, *Regional Modeling of Saharan Dust Aerosol in the Framework of the German SAMUM project*, EGU General Assembly, Vienna, Austria, April 13-18 2008, Session: Aeolian Dust: initiator, player, and recorder of environmental change.

I. Tegen, B. Heinold, **K. Schepanski**, F. Reinfried, *Regional modeling of Saharan Dust: forcing and feedback*, 1st International Conference: From Deserts to Monsoon, Crete, Greece, June 01-06 2008.

L. Klüser, **K. Schepanski**, T. Holzer-Popp, *Bitemporal Dust Detection from MSG-SEVIRI Observations*, EUMETSAT-Conference: Meteorological Satellite Conference, Darmstadt, Germany, September 08-12 2008.

Poster Presentations

K. Schepanski, N. Keenlyside, A. Macke, W. Park, *Variability of cloud cover in observations and coupled ocean/atmosphere GCM*, EGU General Assembly, Vienna, Austria, April 02-07 2006.

K. Schepanski, I. Tegen, A. Macke, *A New Dust Source Area Map Derived from High Spatio-Temporal MSG SEVIRI IR Difference Images*, ACCENT Aerosol Workshop, Bremen, Germany, June 21-22 2007.

K. Schepanski, I. Tegen, B. Heinold, G. Bnisch, A. Macke, *Meteorological Processes forcing Saharan Dust Source Activations inferred from MSG Observations of sub-daily Dust Mobilization*, 1st International Conference: From Deserts to Monsoon, Crete, Greece, June 01-06 2008.

K. Schepanski, P. Knippertz, H. Wernli, *Soudano-Saharan Depressions and their relation to dust storms over northern Africa*, ICAR-VII, International Conference on Aeolian Research, Santa Rosa, La Pampa, Argentina, July 05-09.

Co-Author at Poster Presentations

B. Heinold, I. Tegen, **K. Schepanski**, B. Laurent, *Regional modeling of Saharan dust as part of the SAMUM project: Characterization of dust events in May 2006 using the model LM-MUSCAT*, IUGG-IAMAS, Perugia, Italy, July 02-13 2007, Session: MS004 Mineral Dust Cycle and its Impact on Clouds and Radiation (ICCP).

B. Heinold, I. Tegen, B. Laurent, **K. Schepanski**, *Regional Modeling of Saharan Dust: Dust radiative Effects and Feedbacks on Boundary Layer Dynamics*, EGU General Assembly, Vienna, Austria, April 13-18 2008, Session: Aeolian Dust: initiator, player, and recorder of environmental change.

B. Heinold, I. Tegen, B. Laurent, **K. Schepanski**, *Radiative Effects and Feedbacks of Mineral Dust on Boundary Layer Dynamics in the Saharan Desert - Results from a Regional Modeling Study*, 3rd International Workshop on Mineral Dust, Leipzig, Germany, September 15-17 2008.

B. Laurent, I. Tegen, B. Heinold, **K. Schepanski**, B. Weinzierl, A. Petzold, *Simulation of the Saharan dust cycle with the LM-MUSCAT-DES - regional modeling during SAMUM 2006*, IGAC 10th International Conference, Annecy, France, September 07-12 2008.

L. Külser, **K. Schepanski**, T. Holzer-Popp, A. Hartmann, *Remote Sensing of Mineral Dust with MSG Infrared Channels*, 3rd International Workshop on Mineral Dust, Leipzig, Germany, September 15-17 2008.

P. Knippertz, A. Ansmann, D. Atlhause, D. Müller, M. Tesche, E. Bierwirth, T. Dinter, T. Müller, W. von Hoyningen-Huene, **K. Schepanski**, M. Wendisch, B. Heinold, K. Kandler, A. Petzold, L. Schütz, I. Tegen, *Dust Mobilization and Transport in the Northern Sahara during SAMUM 2006*, EGU General Assembly, Vienna, Austria, April 13-18 2008, Session: Aeolian Dust: initiator, player, and recorder of environmental change.

P. Knippertz, A. Ansmann, D. Müller, M. Tesche, E. Bierwirth, T. Dinter, T. Müller, W. von Hoyningen-Huene, **K. Schepanski**, M. Wendisch, B. Heinold, K. Kandler, A. Petzold, L. Schtz, I. Tegen, *Dust Mobilization and Transport in the Northern Sahara during SAMUM 2006*, 3rd International Workshop on Mineral Dust, Leipzig, Germany, September 15-17 2008.

B. Laurent, I. Tegen, B. Heinold, **K. Schepanski**, *Regional investigations on Saharan dust events using the LM-MUSCAT-DES model*, 3rd International Workshop on Mineral Dust, Leipzig, Germany, September 15-17 2008.

J. McQuaid, S. Engelstaedter, J. Marsham, D. Parker, R. Washington, M. Todd, E. Highwood, H. Brindley, P. Knippertz, K. Schepanski, I. Ashpole, D. Walters, *The Fennec Dry Run: Bringing together Models and Observations for the Saharan Climate System*, NCAS Science Conference 2010, July 05-07 2010, Manchester, UK.

Review Activity

Reviewer for the journals *Atmospheric Environment*, *Journal of Geophysical Research - Atmosphere*, *Journal of Geophysical Research - Biogeoscience*, *Atmospheric Chemistry and Physics*, and *Aeolian Research*.