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# Kevin Sieck

## Work Experience

since 2015 **Science officer**, *Climate Service Center Germany (GERICS)*, Hamburg.
maintaining and developing the GERICS digital infrastructure and the regional climate model REMO

2013 - 2015 **Visiting scientist**, *Climate Service Center Germany (GERICS)*, Hamburg.
maintaining and developing the regional climate model REMO

2011 - 2015 **Science officer in the REDCLIP project**, *Max Planck Institute for Meteorology*, Hamburg.
running and analysing decadal predictions for Europe

2011 **Researcher position in the ACQWA project**, *Max Planck Institute for Meteorology*, Hamburg.
analysing the impacts of climate change on glaciers in the European Alps

2009 - 2011 **Researcher position in the KLIWAS project**, *Max Planck Institute for Meteorology*, Hamburg.
providing information on climate change and running climate change scenarios; running and analysing seasonal predictions

2006 - 2009 **Researcher position in the ANKE project**, *Max Planck Institute for Meteorology*, Hamburg.
processing and providing climate change data; running and analysing seasonal predictions

2004 - 2006 **Assistant to Dr. med. Wernecke**, *Krankenhaus Bethanien*, Diakonie Klinikum Hamburg.
statistical analysis for the medical research project Gemidas-QM

2003 - 2004 **Student Assistant**, *University of Hamburg*, Meteorological Institute.
development of low-order climate models in the department for Theoretical Meteorology at the University of Hamburg

## Scientific Interests

convection-permitting ensemble projections with regional climate models

inter-member variability in regional climate models

## Education

2006 - 2013 **PhD student in Meteorology**, *Max Planck Institute for Meteorology and University of Hamburg*.

1998 - 2005 **Diploma student in Meteorology**, *Meteorological Institute*, University of Hamburg.

July 1998 **German Abitur**, *Helene-Lange-Gymnasium*, Hamburg.

## PhD Thesis

title *Internal Variability in the Regional Climate Model REMO*

supervisors Prof. Dr. Martin Claussen and Dr. Daniela Jacob

## Diploma Thesis

title *Variabilität in einem Zweischichtenmodell der Atmosphäre mit und ohne Topographie*

supervisors Prof. Dr. Klaus Fraedrich and Dr. Frank Lunkeit

## Languages

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|---|---|
| German | Native |
| English | Very good *First foreign language in school with the bilingual subjects Physics, Geography and History* |

## Computer Skills

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|---|---|---|---|
| OS | Linux, Unix, Windows | programming | Fortran, Java |
| scripting | Shell, Python | analysis | cdo |
| visualization | matplotlib, PyNGL | writing | LibreOffice, LaTeX |

## Research projects and initiatives involved

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|---|---|
| since 2020 | NUKLEUS - Coordinator of the BMBF funded NUKLEUS project. NUKLEUS aims at providing robust climate information on convection-permitting scales for Germany |
| since 2019 | PilotLab EESM - Helmholtz Association funded project on exascale computing with climate models |
| since 2019 | HI-CAM - Helmholtz Association funded project on climate change adaptation in in Germany |
| since 2018 | WINTER - Project on Winter Climate in Hamburg within HICSS |
| since 2018 | EUCP - European Climate Prediction System |
| since 2017 | FPS on Convective Phenomena |
| since 2017 | CORDEX-CORE – Core experiments for the next generation regional climate simulations within CORDEX |
| since 2017 | ESM – Advanced Earth System Modelling Capacity. The ESM project's overarching goal is to develop, evaluate and apply a world-leading infrastructure to provide solutions to grand challenges faced by the Earth and environmental sciences. |
| since 2011 | CORDEX (EURO-CORDEX) – Coordinated Regional Downscaling Experiment. Especially involved in EURO-CORDEX. |
| 2017 - 2018 | HAPPI-DE – Within HAPPI-DE the German contribution to the international HAPPI (Half a degree Additional warming, Prognosis and Projected Impacts) project will be conducted. |
| 2011 - 2015 | REDCLIP – Regional Decadal Climate Prediction. BMBF (German research ministry) funded project on downscaled decadal predictions for Europe as part of the MiKlip program |
| 2011 - 2013 | ACQWA – Assessing Climate impacts on the Quantity and quality of Water. EU/FP7 funded project on the influence of climate change on major river discharge and their impact on society and economy. Contribution: Simulations with REMO and assessing the impacts of climate change on glaciers in the European Alps. |
| 2009 - 2011 | CC-TAME – Climate Change: Terrestrial Adaptation and Mitigation in Europe. EU/FP7 project on assessing the impacts of agricultural, climate, energy, forestry and other associated land-use policies considering the resulting feedbacks on the climate system in the European Union. Contribution: Land-use-change simulations with REMO and assessing the impacts of potential afforestation on the European climate. |
| 2009 - 2011 | KLIWAS – Auswirkungen des Klimawandels auf die Wasserstraßen und Handlungsoptionen für Wirtschaft und Binnenschifffahrt. BMVBS (German ministry of transport) funded project on climate change impacts on inland waterways. Contribution: Assessment of the predictive skill of river run-off in seasonal forecasts for Germany. |
| 2006 - 2009 | ENSEMBLES climate change project. EU/FP6 funded project to help inform researchers, decision makers, businesses and the public by providing them with climate information obtained through the use of the latest climate modelling and analysis tools. Contribution: Analysis of downscaled seasonal forecasts. |
| 2006 - 2009 | ANKE – Assessing possible impacts of climate change on the energy sector in Germany. Contribution: Analysis of important climate indices for the energy sector. Development of a diagnostic to investigate atmospheric icing on overhead power lines from regional climate model data. Assessing the added value of downscaled seasonal forecasts in Germany. |

## Selected conference contributions

March 2018 **CitiesIPCC 2018**, *Edmonton.*
oral presentation with the title *There is more to adaption than creating a strategy*

May 2016 **ICRC CORDEX 2016**, *Stockholm.*
poster presentation with the title *The non-hydrostatic REMO*

Apr 2016 **EGU General Assembly 2016**, *Vienna.*
poster presentation with the title *A new generation of the regional climate model REMO: REMO non-hydrostatic*

May 2014 **3rd Lund Regional-scale Climate Modelling Workshop**, *Lund.*
poster presentation with the title *Using a Circulation Type Classification to Investigate the Internal Variability in Regional Climate Model Simulations over Europe*

Apr 2011 **EGU General Assembly 2011**, *Vienna.*
oral presentation with the title *Influence of a stochastic parametrization on regional climate model results*

Sep 2010 **10th Annual Meeting of the EMS / 9th ECAC**, *Zürich.*
poster presentation with the title *A stochastic physics parameterization in regional-scale climate simulations*

Apr 2010 **EGU General Assembly 2010**, *Vienna.*
poster presentation with the title *A stochastic physics parameterization in regional-scale climate simulations based on Markov random fields*

May 2009 **2nd Lund Regional-scale Climate Modelling Workshop**, *Lund.*
poster presentation with the title *Effects of the domain position on regional climate model results*

Oct 2008 **8th Annual Meeting of the EMS / 7th ECAC**, *Amsterdam.*
oral presentation with the title *Variability in ensemble simulations due to domain shifts in the regional climate model REMO*

Apr 2008 **EGU General Assembly 2008**, *Vienna.*
oral presentation with the title *Ensemble simulations with the regional climate model REMO*

## Publications


Valentin Aich, Ulrike Strauch, Kevin Sieck, Dirk Leyens, Daniela Jacob, and Heiko Paeth. Development of wet-bulb-temperatures in germany with special regard to conventional thermal power plants using wet cooling towers. *Meteorologische Zeitschrift*, 20(6):601–614, December 2011. doi: 10.1127/0941-2948/2011/0259.

Steffen Bender, Jörg Cortekar, Markus Groth, and Kevin Sieck. *Why There Is More to Adaptation Than Creating a Strategy*, pages 67–83. Springer International Publishing, Cham, 2020. ISBN 978-3-030-36875-3. doi: 10.1007/978-3-030-36875-3_5. URL https://doi.org/10.1007/978-3-030-36875-3_5.

William Cabos, Dmitry V. Sein, Ana Durán-Quesada, Giovanni Liguori, Nikolay V. Koldunov, Benjamín Martínez-López, Francisco Alvarez, Kevin Sieck, Natalia Limareva, and Joaquim G. Pinto. Dynamical downscaling of historical climate over cordex central america domain with a regionally coupled atmosphere–ocean model. *Climate Dynamics*, Aug 2018. ISSN 1432-0894. doi: 10.1007/s00382-018-4381-2. URL https://doi.org/10.1007/s00382-018-4381-2.

William Cabos, Alba de la Vara, Francisco J. Álvarez García, Enrique Sánchez, Kevin Sieck, Juan-Ignacio Pérez-Sanz, Natalia Limareva, and Dmitry V. Sein. Impact of ocean-atmosphere coupling on regional climate: the iberian peninsula case. *Climate Dynamics*, 54(9):4441–4467, May 2020. ISSN 1432-0894. URL https://doi.org/10.1007/s00382-020-05238-x.

Ruth Cerezo-Mota, Tereza Cavazos, Raymond Arritt, Abraham Torres-Alavez, Kevin Sieck, Grigory Nikulin, Wilfram Moufouma-Okia, and Jose Antonio Salinas-Prieto. Cordex-na: factors inducing dry/wet years on the north american monsoon region. *Int. J. Climatol.*, 36(2):824–836, 2016. ISSN 1097-0088. URL http://dx.doi.org/10.1002/joc.4385.

Erika Coppola, Stefan Sobolowski, E. Pichelli, F. Raffaele, B. Ahrens, I. Anders, N. Ban, S. Bastin, M. Belda, D. Belusic, A. Caldas-Alvarez, R. M. Cardoso, S. Davolio, A. Dobler, J. Fernandez, L. Fita, Q. Fumiere, F. Giorgi, K. Goergen, I. Güttler, T. Halenka, D. Heinzeller, Ø. Hodnebrog, D. Jacob, S. Kartsios, E. Katragkou, E. Kendon, S. Khodayar, H. Kunstmann, S. Knist, A. Lavín-Gullón, P. Lind, T. Lorenz, D. Maraun,

L. Marelle, E. van Meijgaard, J. Milovac, G. Myhre, H.-J. Panitz, M. Piazza, M. Raffa, T. Raub, B. Rockel, C. Schär, K. Sieck, P. M. M. Soares, S. Somot, L. Srnec, P. Stocchi, M. H. Tölle, H. Truhetz, R. Vautard, H. de Vries, and K. Warrach-Sagi. A first-of-its-kind multi-model convection permitting ensemble for investigating convective phenomena over europe and the mediterranean. *Climate Dynamics*, Nov 2018. ISSN 1432-0894. doi: 10.1007/s00382-018-4521-8. URL https://doi.org/10.1007/s00382-018-4521-8.

Borbala Galos, Stefan Hagemann, Andreas Hansler, Georg Kindermann, Diana Rechid, Kevin Sieck, Claas Teichmann, and Daniela Jacob. Case study for the assessment of the biogeophysical effects of a potential afforestation in europe. *Carbon balance and management*, 8(1):3–3, February 2013. doi: 10.1186/1750-0680-8-3.

D. Jacob, H. Göttel, S. Kotlarski, P. Lorenz, and K. Sieck. *Klimaauswirkungen und Anpassung in Deutschland – Phase 1: Erstellung regionaler Klimaszenarien für Deutschland*. Umweltbundesamt, Dessau, 2008.

Daniela Jacob, Alberto Elizalde, Andreas Haensler, Stefan Hagemann, Pankaj Kumar, Ralf Podzun, Diana Rechid, Armelle Reca Remedio, Fahad Saeed, Kevin Sieck, Claas Teichmann, and Christof Wilhelm. Assessing the transferability of the regional climate model remo to different coordinated regional climate downscaling experiment (cordex) regions. *Atmosphere*, 3(1):181–199, March 2012. doi: 10.3390/atmos3010181.

Daniela Jacob, Claas Teichmann, Stefan Sobolowski, Eleni Katragkou, Ivonne Anders, Michal Belda, Rasmus Benestad, Fredrik Boberg, Erasmo Buonomo, Rita M. Cardoso, Ana Casanueva, Ole B. Christensen, Jens Hesselbjerg Christensen, Erika Coppola, Lesley De Cruz, Edouard L. Davin, Andreas Dobler, Marta Domínguez, Rowan Fealy, Jesus Fernandez, Miguel Angel Gaertner, Markel García-Díez, Filippo Giorgi, Andreas Gobiet, Klaus Goergen, Juan José Gómez-Navarro, Juan Jesús González Alemán, Claudia Gutiérrez, José M. Gutiérrez, Ivan Güttler, Andreas Haensler, Tomáš Halenka, Sonia Jerez, Pedro Jiménez-Guerrero, Richard G. Jones, Klaus Keuler, Erik Kjellström, Sebastian Knist, Sven Kotlarski, Douglas Maraun, Erik van Meijgaard, Paola Mercogliano, Juan Pedro Montávez, Antonio Navarra, Grigory Nikulin, Nathalie de Noblet-Ducoudré, Hans-Juergen Panitz, Susanne Pfeifer, Marie Piazza, Emanuela Pichelli, Joni-Pekka Pietikäinen, Andreas F. Prein, Swantje Preuschmann, Diana Rechid, Burkhardt Rockel, Raquel Romera, Enrique Sánchez, Kevin Sieck, Pedro M. M. Soares, Samuel Somot, Lidija Srnec, Silje Lund Sørland, Piet Termonia, Heimo Truhetz, Robert Vautard, Kirsten Warrach-Sagi, and Volker Wulfmeyer. Regional climate downscaling over europe: perspectives from the euro-cordex community. *Regional Environmental Change*, 20 (2):51, April 2020. ISSN 1436-378X. URL https://doi.org/10.1007/s10113-020-01606-9.

Pankaj Kumar, Sven Kotlarski, Christopher Moseley, Kevin Sieck, Holger Frey, Markus Stoffel, and Daniela Jacob. Response of karakoram-himalayan glaciers to climate variability and climatic change: A regional climate model assessment. *Geophys. Res. Lett.*, 42(6):1818–1825, 2015. ISSN 1944-8007. URL http://dx.doi.org/10.1002/2015GL063392.

J.-P. Pietikäinen, T. Markkanen, K. Sieck, D. Jacob, J. Korhonen, P. Räisänen, Y. Gao, J. Ahola, H. Korhonen, A. Laaksonen, and J. Kaurola. The regional climate model remo (v2015) coupled with the 1-d freshwater lake model flake (v1): Fenno-scandinavian climate and lakes. *Geoscientific Model Development*, 11(4):1321–1342, 2018. doi: 10.5194/gmd-11-1321-2018. URL https://www.geosci-model-dev.net/11/1321/2018/.

Armelle Reca Remedio, Claas Teichmann, Lars Buntemeyer, Kevin Sieck, Torsten Weber, Diana Rechid, Peter Hoffmann, Christine Nam, Lola Kotova, and Daniela Jacob. Evaluation of new cordex simulations using an updated köppen–trewartha climate classification. *Atmosphere*, 10(11), 2019. ISSN 2073-4433. doi: 10.3390/atmos10110726. URL https://www.mdpi.com/2073-4433/10/11/726.

K. Sieck, C. Nam, L. M. Bouwer, D. Rechid, and D. Jacob. Weather extremes over europe under 1.5 °c and 2.0 °c global warming from happi regional climate ensemble simulations. *Earth System Dynamics Discussions*, 2020:1–17, 2020. doi: 10.5194/esd-2020-4. URL https://esd.copernicus.org/preprints/esd-2020-4/.

Kevin Sieck and Daniela Jacob. Influence of the boundary forcing on the internal variability of a regional climate model. *American Journal of Climate Change*, 5(3):373–382, 2016. URL http://dx.doi.org/10.4236/ajcc.2016.53028.

Claas Teichmann, Bastian Eggert, Alberto Elizalde, Andreas Haensler, Daniela Jacob, Pankaj Kumar, Christopher Moseley, Susanne Pfeifer, Diana Rechid, Armelle Reca Remedio, Hinnerk Ries, Juliane Petersen, Swantje Preuschmann, Thomas Raub, Fahad Saeed, Kevin Sieck, and Torsten Weber. 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*, 4(2):214–236, June 2013. doi: 10.3390/atmos4020214.

Claas Teichmann, Katharina Bülow, Juliane Otto, Susanne Pfeifer, Diana Rechid, Kevin Sieck, and Daniela Jacob. Avoiding extremes: Benefits of staying below +1.5 °c compared to +2.0 °c and +3.0 °c global warming. *Atmosphere*, 9(4), 2018. ISSN 2073-4433.