Stefan Sobolowski, Ph.D.

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RESEARCH INTERESTS

Dynamics of past, present and future climate, climate variability and change from global to regional scales ◆ Physical mechanisms that drive impacts, including meteorological and hydrological responses, to both internal and external forcings ◆ Collaboration with diverse user communities to distill basic research into robust and reliable climate information products and services

EDUCATION

2010	Ph.D., Earth and Environmental Engineering, Columbia University, NYC, USA
2005	Masters, Physical Geography, Hunter College, CUNY, NYC, USA

CURRENT & PREVIOUS POSITIONS AND AFFILIATIONS

2018-present	Affiliate researcher, Centre for Energy and Climate Transformations (CET), University of Bergen
2018-present	Research Theme co-leader: Climate Impacts on Nature and Society, Uni Research Climate
2017-present	Research Professor (Forsker I): Uni Research Climate & the Bjerknes Centre for Climate Research, Bergen, Norway
2011-2017	Senior Research Scientist (Forsker II): Uni Research Climate and the Bjerknes Centre for Climate Research, Bergen, Norway
2013-2015	Research Leader – Regional Climate & Climate Services: Uni Research Climate, Bergen, Norway
2010-2011	Postdoctoral fellow, Dept. of Geosciences, University of North Carolina-Chapel Hill, USA
2009-2010	Teaching Assistant, Columbia University, NYC, USA
2005-2010	Graduate Research Assistant, Columbia University, NYC, USA

RESEARCH PROJECTS, PROFESSIONAL ACTIVTIES & COLLABORATIONS

2018(Jan.)-present	**Centre for Early Sapiens Behaviour (SapienCE)**, co-investigator: leader of climate modeling activities.
2018(Jan.)-present	**Enhancing Mechanistic Understanding of mid-latitude LArge-scale circulaTion Errors (EMULATE)**, Principal Investigator, work package 2 leader.
2017(May)-present	**HiddenCosts** co-investigator work package 1 lead.
2016(Oct.)-present	**Dynamics of Arctic–Midlatitude teleconnections: mechanisms, robustness and tropical modulation (DynAMiTe),** Co-Principal Investigator.
2016(Aug.)-2017	**Investigating the future evolution of Norwegian glaciers and hydrological impacts: an integrated modeling approach (EVOGLAC),** Coordinator and work package 4 leader.
2016(May)-present	**CORDEX-FLAGSHIP PILOT STUDY on Convective Processes over Europe and the Mediterranean,** Co-Principal Investigator.
2016(April)-2017	**Relevant, reliable and robust local scale climate projections for**

Norway (R3), Principal Investigator.

2015-present **EURO-CORDEX,** Co-coordinator (http://www.euro-cordex.net/).

2015-2017 **ExPrecFlood,** Lead for task 4.2: Climate services, co-development of climate information products.

2015-2017 **SKD-WaCyEx,** Work package 2 leader: Observed variability, trends and patterns of precipitation extremes and their hydrological responses over western Norway.

2015-2017 **SKD-MARGINS,** Work package 2 leader: Explore the local and remote controls on precipitation, temperature and runoff over the southeast margins of the Greenland ice sheet.

2015-2017 **SKD-PARADIGM,** Co-Principal Investigator/Work package leader: Atmospheric and coupled A-O Downscaling of CMIP5 simulations and regional process studies focused on European and Arctic regions.

2013-2014 **Norwegian Centre for Climate Services**: Member, leader group.

2011-2014 **Enabling Climate Information Services for Europe (ECLISE)** EU project no. 265240. WP3 Coasts: Investigations of the Atlantic Storm Track in a Warming Climate. WP2 Models: contribute to a multi-model ensemble of non-hydrostatic, convection resolving (~2km) simulations of present and future extreme precipitation events over Crete to evaluate hydrometeorological responses to climate change.

2011-2014 **Quantifying Projected Impacts Under +2C Warming (IMPACT2C)** EU project no. 282746. WP2 Providing Climate Scenarios for Europe: identifying robust climate change signals over Europe in a +2C world.

RECENT GRANT AWARDS (total grant/amount to home institute)

2017 **EMULATE** SKD-internal project, *Principal Investigator* **(~8/1.6 million NOK)**

2017 **Early Sapiens Behaviour (SapienCE):** Research Council of Norway centre of excellence, *Co-Investigator* **(~136/20 million NOK)**

2016 **Hidden Costs:** Research Council of Norway grant nr. 268243, *Co-Investigator* **(~11/3million NOK)**

2015 **R3**: Research Council of Norway grant nr. 255397, *Principal Investigator* **(~10/6million NOK)**

2015 **DYNAMITE**: Research Council of Norway grant nr. 255027, *Co-Principal Investigator* **(~10/2.7million NOK)**

2015 **EVOGLAC**: Research Council of Norway grant nr. 255049, *Co-Investigator* **(~10/3.5million NOK)**

2014 **ExPrecFlood**: Research Council of Norway grant nr. 244175/E10, *Co-Investigator* **(~10/1.5million NOK)**

PEER REVIEWED PUBLICATIONS

1. Jacob, D., Kotova, L., Teichmann, C., Sobolowski, S. P., Vautard, R., Donnelly, C., … H, M. T. (2018). Climate Impacts in Europe Under +1.5°C Global Warming. *Earth's Future*. https://doi.org/10.1002/2017EF000710
2. Akperov, M., Rinke, A., Mokhov, I. I., Matthes, H., Semenov, V. A., Adakudlu, M., … Zhang, W. (2018). Cyclone Activity in the Arctic From an Ensemble of Regional Climate Models (Arctic CORDEX). *Journal of Geophysical Research: Atmospheres*. https://doi.org/10.1002/2017JD027703
3. King, M. P., Herceg-Bulić, I., Bladé, I., García-Serrano, J., Keenlyside, N., Kucharski, F., … Sobolowski, S. (2018). Importance of late fall ENSO

teleconnection in the Euro-Atlantic sector. *Bulletin of the American Meteorological Society*. https://doi.org/10.1175/BAMS-D-17-0020.1
4. Yu, E., King, M. P., Sobolowski, S., Otterå, O. H., & Gao, Y. (2017). Asian droughts in the last millennium: a search for robust impacts of Pacific Ocean surface temperature variabilities. *Climate Dynamics*, 1–19. https://doi.org/10.1007/s00382-017-3897-1
5. Li, L., Gochis, D. J., Sobolowksi, S., & Mesquita, M. d. S. (2017). Evaluating the present annual water budget of a Himalayan headwater river basin using a high-resolution atmosphere-hydrology model: Evaluate water budget in Himalayan basin. *Journal of Geophysical Research: Atmospheres*. https://doi.org/10.1002/2016JD026279
6. Colocousis, C. R., Rebellon, C. J., Smith, N., & Sobolowski, S. (2017). How long can we keep doing this? Sustainability as a strictly temporal concept. *Journal of Environmental Studies and Sciences*, *7*(2), 274–287. https://doi.org/10.1007/s13412-015-0355-4
7. Knist, S., Goergen, K., Buonomo, E., Christensen, O. B., Colette, A., Cardoso, R. M., … Simmer, C. (2017). Land-atmosphere coupling in EURO-CORDEX evaluation experiments. *Journal of Geophysical Research: Atmospheres*, *122*(1), 2016JD025476. https://doi.org/10.1002/2016JD025476
8. Lacressonnière, G., Watson, L., Gauss, M., Engardt, M., Andersson, C., Beekmann, M., … Vautard, R. (2017). Particulate matter air pollution in Europe in a +2 °C warming world. *Atmospheric Environment*, *154*, 129–140. https://doi.org/10.1016/j.atmosenv.2017.01.037
9. Kolstad, E. W., Barnes, E. A., & Sobolowski, S. P. (2017a). Quantifying the role of land–atmosphere feedbacks in mediating near-surface temperature persistence. *Quarterly Journal of the Royal Meteorological Society*, *143*(704), 1620–1631. https://doi.org/10.1002/qj.3033
10. Kolstad, E. W., Barnes, E. A., & Sobolowski, S. P. (2017b). Quantifying the Role of Land–Atmosphere Feedbacks in Mediating Near-Surface Temperature Persistence. *Quarterly Journal of the Royal Meteorological Society*, n/a-n/a. https://doi.org/10.1002/qj.3033
11. Lacressonnière, G., Watson, L., Engardt, M., Gauss, M., Andersson, C., Beekmann, M., … Vautard, R. (2016). European Air Quality Simulations in the Context of IMPACT2C, Focus on Aerosol Concentrations. In *Air Pollution Modeling and its Application XXIV* (pp. 213–217). Springer, Cham. https://doi.org/10.1007/978-3-319-24478-5_35
12. Watson, L., Lacressonnière, G., Gauss, M., Engardt, M., Andersson, C., Josse, B., … Vautard, R. (2016). Impact of emissions and +2 °C climate change upon future ozone and nitrogen dioxide over Europe. *Atmospheric Environment*, *142*, 271–285. https://doi.org/10.1016/j.atmosenv.2016.07.051
13. Sellevold, R., Sobolowski, S., & Li, C. (2016). Investigating Possible Arctic–Midlatitude Teleconnections in a Linear Framework. *Journal of Climate*, *29*(20), 7329–7343. https://doi.org/10.1175/JCLI-D-15-0902.1
14. Bhatt, B. C., Sobolowski, S., & Higuchi, A. (2016). Simulation of Diurnal Rainfall Variability over the Maritime Continent with a High-Resolution Regional Climate Model. *Journal of the Meteorological Society of Japan. Ser. II*, *94*, 89–103. https://doi.org/10.2151/jmsj.2015-052
15. Mayer, S., Maule, C. F., Sobolowski, S., Christensen, O. B., Danielsen Sørup, H. J., Sunyer, M. A., … Barstad, I. (2015). Identifying added value in high-resolution

climate simulations over Scandinavia. *Tellus A*, *67*(0). https://doi.org/10.3402/tellusa.v67.24941
16. Kolstad, E. W., Sobolowski, S. P., & Scaife, A. A. (2015). Intraseasonal Persistence of European Surface Temperatures. *Journal of Climate*, *28*(13), 5365–5374. https://doi.org/10.1175/JCLI-D-15-0053.1
17. Katragkou, E., García-Díez, M., Vautard, R., Sobolowski, S., Zanis, P., Alexandri, G., … Jacob, D. (2015). Regional climate hindcast simulations within EURO-CORDEX: evaluation of a WRF multi-physics ensemble. *Geosci. Model Dev.*, *8*(3), 603–618. https://doi.org/10.5194/gmd-8-603-2015
18. Bhatt, B. C., Sobolowski, S., & King, M. P. (2014). Assessment of downscaled current and future projections of diurnal rainfall patterns for the Himalaya. *Journal of Geophysical Research: Atmospheres*, *119*(22), 2014JD022134. https://doi.org/10.1002/2014JD022134
19. Vautard, R., Gobiet, A., Sobolowski, S., Kjellström, E., Stegehuis, A., Paul Watkiss, … Jacob, D. (2014). The European climate under a 2 °C global warming. *Environmental Research Letters*, *9*(3), 34006. https://doi.org/10.1088/1748-9326/9/3/034006
20. Vautard, R., Gobiet, A., Jacob, D., Belda, M., Colette, A., Déqué, M., … Yiou, P. (2013). The simulation of European heat waves from an ensemble of regional climate models within the EURO-CORDEX project. *Climate Dynamics*, *41*(9–10), 2555–2575. https://doi.org/10.1007/s00382-013-1714-z
21. Pavelsky, T. M., Sobolowski, S., Kapnick, S. B., & Barnes, J. B. (2012). Changes in orographic precipitation patterns caused by a shift from snow to rain. *Geophysical Research Letters*, *39*(18), L18706. https://doi.org/10.1029/2012GL052741
22. Sobolowski, S., & Pavelsky, T. (2012). Evaluation of present and future North American Regional Climate Change Assessment Program (NARCCAP) regional climate simulations over the southeast United States: NARCCAP PERFORMANCE. *Journal of Geophysical Research: Atmospheres*, *117*(D1), n/a-n/a. https://doi.org/10.1029/2011JD016430
23. Sobolowski, S., Gong, G., & Ting, M. (2011). Investigating the Linear and Nonlinear Stationary Wave Response to Anomalous North American Snow Cover. *Journal of the Atmospheric Sciences*, *68*(4), 904–917. https://doi.org/10.1175/2010JAS3581.1
24. Sobolowski, S., Gong, G., & Ting, M. (2010). Modeled Climate State and Dynamic Responses to Anomalous North American Snow Cover. *Journal of Climate*, *23*(3), 785–799. https://doi.org/10.1175/2009JCLI3219.1
25. Siegfried, T., Sobolowski, S., Raj, P., Fishman, R., Vasquez, V., Narula, K., … Modi, V. (2010). Modeling Irrigated Area to Increase Water, Energy, and Food Security in Semiarid India. *Weather, Climate, and Society*, *2*(4), 255–270. https://doi.org/10.1175/2010WCAS1048.1
26. Sobolowski, S., & Frei, A. (2007). Lagged relationships between North American snow mass and atmospheric teleconnection indices. *International Journal of Climatology*, *27*(2), 221–231. https://doi.org/10.1002/joc.1395
27. Sobolowski, S., Gong, G., & Ting, M. (2007). Northern Hemisphere winter climate variability: Response to North American snow cover anomalies and orography. *Geophysical Research Letters*, *34*(16). https://doi.org/10.1029/2007GL030573

TEACHING

CHESS: Land surface modeling course, GFI Bergen, Norway

- *October 2-6, 2017* Lecturer: Hydrology

Bergen Summer Research School, Bergen, Norway

- *June 15-16, 2017* Lecturer: Climate Services.

Bergen Summer Research School, Bergen, Norway

- *June 20, 2016* Lecturer: European water resources in an uncertain future.

ResClim-IMPACT2C Summer School, Rosendal, Norway

- *June 29-July 4, 2014* Lecturer and person responsible for course design and content, logistics and organization.

University of North Carolina, Chapel Hill, NC

- *Fall 2010* Guest Lecturer, GEOL 109 The Science of Climate Change.

Columbia University, New York, NY

- *Summer 2009* Teaching Assistant, ENVP 6115 Climatology.
- *Summer 2009* Teaching Assistant, ENVP 6116 Hydrology.
- *Spring 2009, 2010* Teaching Assistant, CIEE E3250 Hydrosystems Engineering.

AWARDS AND FELLOWSHIPS

- NASA Earth System Science Fellowship, 2006-2009: $86,000
- NSF GK-12 Fellowship 2006-2007: $30,000
- Schuster Award for outstanding Master's thesis, Hunter College, New York, NY, 2005
- NOAA-CREST Center Scholarship, City College, City University of New York, New York, NY, 2005 ($18,000)
- Einhorn Scholarship, Hunter College, New York, NY, 2005 ($2,500)

SELECTED TALKS

2018 **Sobolowski, S**., Coppola, E., et al. (invited) A first-of-its-kind multi-model convection permitting ensemble for investigating convective phenomena over Europe and the Mediterranean. *European Geophysical Union annual meeting,* April 2018.

2017 **Sobolowski, S.** (invited) Developing Climate Services in Norway: experiences, successes and challenges. *Rossby Center 20yr Anniversary*. 13-14 Sept. SMHI, Norrköping, Sweden

2016 **Sobolowski, S et al.**, (invited) Coordinated high resolution modeling of convective phenomena over Europe and the Mediterranean. *GEWEX Workshop on Convection Permitting Modeling*. 6-8, September 2016, Boulder, CO USA.

2016 **Sobolowski, S et al.**, Precipitation seasonality, variability and associated dynamical processes over eastern Africa. *International Conference on Regional Climate – CORDEX 2016*, May 17-20, Stockholm, Sweden.

2015 **Sobolowski, S et al.,** European Climate at the +2C threshold: cause for concern? *European Conference on Climate Adaptation*, May 11-14, Copenhagen, Denmark.

2014 **Sobolowski, S** (invited), Why the +2C target matters. Tekna 2 Grader Magasin launch seminar, Nov. 20, 2014, NTNU, Trondheim, Norway.

2014 **Sobolowski, S** (invited), Climate Services session. Bergen Research Summer School, June 23-July 4, http://www.uib.no/rs/bsrs.

2012 **Sobolowski, S**, and T Pavelsky (invited), Evaluation of present and future North American Regional Climate Change Assessment Program (NARCCAP) regional climate simulations over the southeast United States. *American Geophysical Union Fall 2012 Meeting*, December 3-7, 2012, San Francisco, CA.

PROFESSIONAL AFFILIATIONS AND SERVICE

Mentorship/Service

2018(spring)	Supervisor: Lilan Chen (visiting PhD student Nanjin University)
2017 (fall)	Co-supervisor: Xinshu Fu (visiting PhD student Nanjin University)
2017-present	Co-supervisor: Siew Yu "Peter" Feng (Ph.D. candidate, University of Bergen)
2017 -present	Co-supervisor: Dr. Clio Michel (postdoc, University of Bergen)
2016 -17	Co-supervisor: Helene Asbjørnsen (M.S. University of Bergen)
2015-16	Co-supervisor: Raymond Sellevold (M.S. University of Bergen)
2012-17	Thesis examiner for 10+ M.S. candidates (University of Bergen)

Member

2012-present	European Geophysical Union
2005-present	American Geophysical Union
2005-present	American Meteorological Society

Reviewer

Journal of Climate, Geophysical Research Letters, *International Journal of Climatology, Bulletin of the American Meteorological Society (BAMS), Climate Services, JGR-Atmospheres, Earth and Planetary Science Letters, Climate Dynamics, Atmospheric Chemistry and Physics, Tellus-A, Austrian Climate Research Program (ACRP), National Science Foundation (USA), Belmont Forum expert reviewer*