

Tobias Sauter

Contact Information

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Main Areas of Research

Exchange processes at the glacier-atmosphere interface, snow cover dynamics, orographic precipitation, wind systems over mountainous terrain, stable atmospheric boundary layers

Academic Career

- since 2015 **Postdoctoral Research Fellow**, *Institute of Geography*, University of Erlangen, Research Unit: Climate System Research (Group leader: Prof. Dr. Thomas Mölg).
- 2013–2015 **Postdoctoral Research Fellow**, *Institute of Meteorology and Geophysics*, University of Innsbruck, Research Unit: Atmospheric Dynamics (Group leader: Prof. Dr. Mathias Rotach).
- 2011–2013 **Postdoctoral Research Fellow**, *Institute of Geography*, RWTH Aachen University, Research Unit: Climatology (Group leader: Prof. Dr. Christoph Schneider).
- 2007–2011 **Dr. rer. nat.**, *RWTH Aachen University, Department of Geography and Climatology*, Aachen, PhD thesis (*summa cum laude*).

Awards and Honors

- 2012 **“VGDH Dissertation Price”**, *Award for best Ph.D. thesis in Physical Geography in 2012 received from the Verband der Geographen an Deutschen Hochschulen (VGDH)*.
- 2012 **“Borchersplakette”**, *Award from the RWTH Aachen University for excellent Ph.D. thesis*.

Professional Activities

- since 2013 **COST Action "VALUE"**, *Short-term scientific mission (STSM) manager*, Organization and funding of inter-laboratory exchange visits for young researcher in the early stage of their career.
- since 2011 **COST Action "VALUE"**, *Member of the "VALUE" Cost Action management committee*, Validating and Integrating Downscaling Methods for Climate Change Research.
- 2009-2015 **Convener at the Annual General Assembly of the European Geoscience Union**, *Geophysical downscaling session within the Climate Division*.
- since 2008 **Reviewer**, *Reviewer of research articles in a number of journals (>15)*.

Professional Affiliations and Memberships

- since 2015 Member and reviewer for Climate Feedback (www.climatefeedback.org).
- since 2013 American Geosciences Union membership.
- since 2005 European Geosciences Union membership.
- since 2003 Arbeitskreis Klima (Working Group Climate) membership.

Granted Grants (Principal Applicant)

- 2015 **Research Grant**, *Deutsche Forschungsgemeinschaft (approximately 270.000 Euro)*, MANAU - The impact of the dynamic and thermodynamic flow conditions on the spatio-temporal distribution of precipitation in southern Patagonia.
- 2013 **TiP Summer School**, *Grant for the Sino-German Summer School on Glaciology in the European Alps in 2013 (approximately 50.000 Euro)*.

Interantional Cooperation Partners

Universidad de Chile, CHILE (R. Garreaud); Universidad Austral de Chile, CHILE (M. Schaefer); Geostudios Ltda, CHILE (G. Casassa); Technical University Berlin, GER (D. Scherer); University of Otago, NZ (N. Cullen); Rheinische-Friedrich-Wilhelms University Bonn, GER (V. Venema); Graz University, AUS (D. Maraun); University Trier, GER (R. Kilian); Humboldt University Berlin, GER (C. Schneider).

Past Projects

DynRG-TIP (contributor), *Dynamic Response of glaciers on the Tibetan Plateau to climate change*, German Research Foundation (DFG) Priority Programme 1372: "Tibetean Plateau: Formation-Climate-Ecosystem".

Gis Klischee (co-investigator), *Adaptation of winter sports tourism to climate change and weather variability in German Low Mountain Ranges*, Federal Ministry of Education and Research (BMBF) project "klimazwei".

Gran Campo Nevado (co-investigator), *Climate variability and the dynamic response of the Gran Campo Nevado Ice Cap, southern Patagonia*, Funded by the German Research Foundation (DFG).

IPY Kinnvika and Svalglac ERS-Project (contributor), *Dynamic response of surface energy and mass balance of Vest- and Austfonna on climate change, Svalbard*, Funded by the German Research Foundation (DFG).

TR32 (contributor), *Transregional collaborative research center 32: Scale consistent two-way coupling of land-surface and atmospheric models*, Funded by the German Research Foundation (DFG).

WET (contributor), *Variability and trends of hydrological components in benchmark watersheds on the Tibetan Plateau*, Federal Ministry of Education and Research (BMBF) project: "Tibet and Central Asia: Monsoon dynamic and ecosystems".

VATSS (co-investigator), *Virtual Air Traffic Simulation System: Auralisation and optimization of flight path in the vicinity of airports*, Boost Fund Project of the RWTH University.

Further Education

- 2011 **Parallel Programming**, *Intensive course on MPI, OpenMP and HPF programming (1 week)*, Forschungszentrum Jülich, Germany.
- 2010 **Introduction to Computational fluid dynamics**, *Navier-Stokes equation, finite differences, finite volumes, finite elements, turbulence modelling, parallelization (1 week)*, RWTH Aachen University, Germany.
- 2008 **Inverse modelling in Earth and Environmental Sciences**, *Local search inverse modelling algorithms, parameter uncertainty estimation, global search algorithms, parameter estimation, multi-objective optimisation, coupling of inverse and forward simulation models (1 week)*, University of Leuven, Belgium.

Teaching

- Lectures Atmospheric boundary layer (2012, 2013)
Climatology (2012)
Glaciology (TiP Summer School for graduate students, Nepal, 2011)
Global and climate change (2011)
- Advanced seminar Natural resources and global change in Central and South Asia (2012)
- Courses Glacier dynamics (2014, 2015)
Introduction to atmospheric physics (2009)
Introduction to climate modelling (2008)
Data analysis in Geoscience and Geography with Matlab (2008)
Introduction to Geography (2011)
- Field courses Glaciological and meteorological field course, Norway (2010, 2011, 2013)
Glaciological and meteorological field course, Italy (2014, 2015)
Excursion to Southern Germany and Tyrol (2008)
Excursion to Nepal for graduate students of the TiP Project (2011)

Professional Expeditions

- 2017 **Antarctica**, Expedition to Antarctic Peninsula in December 2017.
- 2017 **Africa**, Expedition to Kilimanjaro in August 2017.
- since 2002 **Patagonia**, *GCN Project / MANAU*, Expedition to the Gran Campo Nevado ice cap and the Patagonian Ice Fields.
- 2011, 2010 **Tibetan Plateau**, *DynRG-TiP Project*, Expedition to the Zhadang glacier and the Kailash region.
- 2009 **Svalbard**, *IPY Kinnvika Project*, Expedition to Vest- and Austfonna (Nordaustlandet).

Scholarly Publications in the last 5 years

Sauter T. and S.P. Galos (2016): Effects of local advection on the spatial sensible heat flux variation on a mountain glacier, *The Cryosphere*, 10, 2887-2905, doi:10.5194/tc-10-2887-2016.

Sauter T. and F. Obleitner (2015): Assessing the uncertainty of glacier mass balance simulations in the European Arctic based on variance decomposition, *Geosci. Model Dev. Discuss.*, 8, 2807-2845.

Huintjes, E., **T. Sauter**, B. Schröter, F. Maussion, W. Yang, J. Kropacek, M. Buchroithner, D. Scherer, S. Kang and C. Schneider (2015): Evaluation of a coupled snow and energy balance model for Zhadang glacier, Tibetan Plateau, using glaciological measurements and time-lapse photography. - *Arctic, Antarctic, and Alpine Research*, 47 (3), 573-590.

Sauter T., M. Möller, R. Finkelnburg, M. Grabiec, D. Scherer and C. Schneider (2013): Modelling snowdrift for the Vestfonna Ice Cap, north-eastern Svalbard. *The Cryosphere*, 7, 1287-1301, doi:10.5194/tc-7-1287-2013.

Reinartz S., **T. Sauter** and C. Schneider (2013): Impact of precipitation downscaling schemes on mass balance modeling of the Gran Campo Nevado Ice Cap, Patagonia. *Journal of Glaciology*, 59 (218), 11067-1116.

Sauter T. and C. Schneider (2013): Klimawandel und Folgen für die Vergletscherung im südlichen Südamerika. *Geographische Rundschau*, 12, 38-43.

Sauter T. and V. Venema (2011): Natural three-dimensional predictor domains for statistical downscaling. *Journal of Climate*, 24, 6132-6145, doi:10.1175/2011JCLI4155.1.

Brands, S., Taboada, J.J., Cofiño, A.S., **Sauter, T.**, Schneider, C. (2011): Statistical downscaling of daily temperatures in the northwestern Iberian Peninsula from global climate models: validation and future scenarios. - *Climate Research*, 48, 163-176, doi:10.3354/cr00906.