

Joel Fiddes

Geo & Data science

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Currently

I'm currently working as a data scientist at WSL Institute for Snow and Avalanche Research, based in Davos, Switzerland. Here I develop and manage a data infrastructure for large volumes of real-time data from meteorological stations. I aim to combine field measurements, climate datasets and modelling tools to solve real-world problems related to climate change and its impact in mountain and other remote regions. I have experience in academic and applied sectors.

Education

- 2009-13 **University of Zurich** PhD Glaciology. Thesis: Subgrid Simulation of Land Surface Variables in Heterogeneous and Remote Environments: Application to Mountain Permafrost. ETH library.
- 2006-07 **University of Edinburgh** MSc Environment & development. Thesis: Impact of climate change on snow-based water resources in Afghanistan.
- 2001-04 **University of Aberdeen** BSc Environmental science.

Employment & Projects

- 2014-2017 **WSL Institute for Snow and Avalanche Research SLF** Data scientist. Developing and managing data systems for the SwissEx/ OSPEr project a large interdisciplinary environmental data acquisition and management project with multiple ETH domain partners.
- 2014 **University of Zurich** PostDoc. Managing PERMOS network of ground and rock temperature measurements at Jungfrauoch, Schilthorn, Piz Corvatsch. Including extensive fieldwork and rope-access work. Processing GST, Meteo station and borehole data (www.permos.ch)
- 2014 **University of Zurich** Scientist. Developing baseline maps for key land surface variables in the Indian Himalaya using modelling scheme developed in PhD (see below), within a SDC/DEZA funded climate change adaptation programme (www.ihcap.in).
- 2010-2011 **Landell Mills Ltd.** Consultant. As part of Panj-Amu River Basin Programme (P-ARBP) in north-east Afghanistan developed a strategy together with a range of tools to improve water resource management. Training the first government team in snow sampling techniques (training course Wakhan Corridor). Establishment of high altitude field sites.
- 2009-2013 **University of Zurich** Scientific researcher/ PhD Candidate. National science foundation funded research undertaken to develop and test tools that enable efficient application of numerical models driven by climate datasets in complex terrain. Work resulted in three first author publications. Oral and poster presentations at several international conferences. Supervision of Msc and BSc. students. Fieldwork in high mountain environments. Large-scale deployment of temperature sensors.
- 2007-2014 **Independent Consultant** Projects mainly in field of water resources include: Environmental change analysis, capacity building, surveying / mapping, technical training. Clients include: multinational/ national donors, development consultancies, NGOs, e.g. European Commission, Landell Mills Ltd. Agha Khan Foundation, GIZ, Concern Worldwide.}
- 2007 **Mercy Corps** Researcher. Author of a policy document for global humanitarian agency Mercy Corps. Construction and analysis of a 30 year satellite data record to assess possible changes in snowcover area (SCA) over this period and implications for water resources of Northern Afghanistan.
- 1999-2004 **Research expeditions** Gulf apex predator prey project ([University Alaska Fairbanks, Alaska, 2004](#)). Subsistence hunting study ([University of Aberdeen/ Royal Geographical Society, Peruvian Amazon, 2003](#)), Coral reef biodiversity monitoring ([Greenforce/ University of Malaysia, Borneo, 2001](#)), Tian Shan biodiversity study ([BSES/CEH, Kyrgyzstan, 1999](#)).

Core competences

- Technical Land-surface modelling and model development with focus on mountain environments.
Environmental analysis using climate data and other large datasets.
Remote sensing services, analysis of environmental change, snow cover, drought conditions, cropping patterns etc.
Proposal writing and Project management.
- Field Establishment of field monitoring tools, deployment of sensors.
Impact of climate change in mountain regions and implications for development activities/ communities.
- Training Development of project specific modelling tools.
Workshops and lectures.
Field training in glacio-hydrological methods.

Technical skills

R	SQL	UNIX
Geospatial analysis	Database management	Python / Pandas
Numerical models	Server admin	AWK
Statistics	Cluster computing	Bash
Large data processing	Git	LaTeX

Publications

- Peer reviewed 2016 Fiddes J., Linsbauer, A., Randhawa, S.S., Salzmann, N. 2016: Indo-Swiss partnership initiates first local permafrost studies in the Indian Himalaya. Current Science, 11, 3, 550-553, Researchgate
- 2015 Fiddes, J., Endrizzi, S., and Gruber, S.: Large-area land surface simulations in heterogeneous terrain driven by global data sets: application to mountain permafrost, The Cryosphere, 9, 411-426, doi:10.5194/tc-9-411-2015, 2015. 10.5194/tc-9-411-2015
- 2014 Fiddes, J. & Gruber, S. 2014: TopoSCALE v.1.0: downscaling gridded climate data in complex terrain, Geoscientific Model Development, 7, 387-405, 10.5194/gmd-7-387-2014

	2013	Habib, H., Anceno, A. J., Fiddes, J., Beekma, J., Ilyuschenko, M., Nitivattananon, V., & Shipin, O. V. (2013). Jumpstarting post-conflict strategic water resources protection from a changing global perspective: Gaps and prospects in Afghanistan. <i>Journal of environmental management</i> , 129, 244-259. Researchgate
	2012	Fiddes, J. & Gruber, S. 2012: TopoSUB: a tool for efficient large area numerical modelling in complex topography at sub-grid scales, <i>Geoscientific Model Development</i> , 5, 1245–1257,10.5194/gmd-5-1245-2012 Schmid, M.-O., Gubler, S., Fiddes, J. & Gruber, S. 2012: Inferring snow pack ripening and melt out from distributed ground surface temperature measurements, <i>The Cryosphere</i> , 6, 1127–1139,10.5194/tc-6-1127-2012
	2011	Gubler, S., Fiddes, J., Keller, M., & Gruber, S. 2011. Scale-dependent measurement and analysis of ground surface temperature variability in alpine terrain. <i>The Cryosphere</i> , 5(2), 431-443, 10.5194/tc-5-431-2011
	2010	Matthias Keller, Guido Hungerbuehler, Oliver Knecht, Suhel Sheikh, Jan Beutel, Stefanie Gubler, Joel Fiddes, and Stephan Gruber. 2010. iAssist: rapid deployment and maintenance of tiny sensing systems. In <i>Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems (SenSys '10)</i> . ACM, New York, NY, USA, 401-402. 10.1145/1869983.1870043
Non-peer reviewed	2014	Fiddes, J. T. (2014). <i>Subgrid Simulation of Land Surface Variables in Heterogeneous and Remote Environments: Application to Mountain Permafrost</i> (Doctoral dissertation). ETH library.
	2011	Beekma, J. and Fiddes, J. 2011. Floods and droughts: The Afghan water paradox. Centre for Policy and Human Development, Afghanistan Human Development Report 2011. online version
	2010	Keller, M., Hungerbuehler, G., Knecht, O., Sheikh, S., Beutel, J., Gubler, S., Fiddes, J. and Gruber, S. (2010). iAssist: rapid deployment and maintenance of tiny sensing systems. In <i>Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems</i> (pp. 401-402). ACM. Fiddes, J. (2010). Climbs and expeditions: Asia, Afghanistan, Hindu Kush, Koh-i-Beefy. <i>American Alpine Journal</i> . 52, 84, pp.255. online version BBC article
	2007	Fiddes, J. (2007). Afghanistan: Implications Of Climate Change For Water Resources In The Kunduz River Basin in Climate Challenges: Bridging the Knowledge Gap.Mercy Corps Climate change unit. online version
Technical contributions	2013	Thomas, V., Azizi, M. A., & Ghafoori, I. (2013). Water Rights and Conflict Resolution Processes in Afghanistan: The Case of the Sar-i-Pul Sub-basin.
	2012	Thomas, V., Mumtaz, W., & Azizi, M. A. (2012). Mind the Gap?: Local Practices and Institutional Reform for Water Allocation in Afghanistan's Panj-Amu River Basin. Afghanistan Research and Evaluation Unit.
Grants & Awards	2015	TopoSAT: High resolution surface modelling of the Himalayan cryosphere with satellite data assimilation. Swiss National Science Foundation Post-doc mobility (120K CHF)
	2001	Data and monitoring tools for improved water resource management in Afghanistan. SEED Grant (10K CHF) Prince of Wales Student Scholarship (Tuition fees)
Reviewer for		<div>The Cryosphere</div> <div>Geoscientific Model Development</div> <div>Remote Sensing</div> <div>Journal of Climatology</div> <div>Geographica Helvetica</div> <div>Environmental Earth Sciences</div> <div>Annals of Glaciology</div>
Languages		<div>English (Mother tongue)</div> <div>German (Intermediate)</div> <div>Romansh (Basic)</div> <div>Dari (Basic)</div>
References		<div>Available on request.</div> <div>Short CV</div>