Joel Fiddes

Geoscientist & consultancy

jfiddes@gmail.com | Website | Linkedin | Google Scholar | Github

Currently

I am a geoscientist with over 10 years of experience working with international organistations, multilateral donors and UN bodies as a consultant. My main interest is on high mountain processes related to natural hazards and water resources. I use and develop geoscientific models and other datascience tools in combination with field campaigns to understand these processes.

Education

2009-13 **University of Zurich** PhD Geoscience. 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

2017-2018 **University of Oslo** Swiss National Science Foundation research scholar. Developing data assimilation and uncertainty framework for large area simulations in mountain regions.

2017-2018 **World Meteorological Organistaion** Consultant for the WMO programme Global Cryosphere Watch. Developing a global solution for interoperability of Cryonet monitoring stations and GCW dataportal.

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.

2016 **Himalaya Permafrost ETH SEED** Scientist Establishment of high altitude permafrost monitoring sites Langtang, Nepal. International permafrost and data tools workshop with participants from Afghanistan, India and Nepal.

2014 **University of Zurich** PostDoc. Managing PERMOS network of ground and rock temperature measurements at Jungfraujoch, Schilthorn, Piz Corvatsch. Including extensive fieldwork and rope-access work. Processing GST, meteorological 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 deployement of temperature sensors.

2007-2017 **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 **Formative 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	Large data processing	Linux
Geospatial analysis	SQL / Postgres	Python
Numerical models	Database management	AWK
Remote sensing / image processing	Server admin	Bash
Statistical analysis	Cluster/HPC computing	LaTeX

Publications

Peer reviewed

2016 Allen, SK., 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. Journal of environmental management, 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, Geoscientific Model Development, 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, The Cryosphere, 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. The Cryosphere, 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 Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems (SenSys '10). ACM, New York, NY, USA, 401-402. 10.1145/1869983.1870043

Non-peer reviewed

2014 Fiddes, J. T. (2014). Subgrid Simulation of Land Surface Variables in Heterogeneous and Remote Environments: Application to Mountain Permafrost (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 Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems (pp. 401-402). ACM.

Fiddes, J. (2010). Climbs and expeditions: Asia, Afghanistan, Hindu Kush, Koh-i-Beefy. American Alpine Journal. 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 Scienmce Foundation Post-doc mobility (120K CHF)

Data and monitoring tools for improved water resource management in Afghanistan. SEED Grant (10K CHF)

2001 Prince of Wales Student Scholarship (Tuition fees)

Professional memberships

International Association of Cryospheric Sciences

European Geosciences Union

Reviewer for

The Cryosphere
Geoscientific Model Development
Remote Sensing
Journal of Climatology
Geograhpica Helvetica
Environmental Earth Sciences
Annals of Glaciology
Journal of Geophysical Research

Languages

English (Mother tongue)
German (Intermediate)
Romansh (Basic)
Dari (Basic)

References

Available on request.
Short CV