Adam G G Smith

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Research Interests

I am fascinated by the interaction between Earth's climate and tectonics. My research focuses on numerical modelling of large topographic data sets, combined with field data and lab work, to understand Earth's dynamic surface.

Education

UCL/Birkbeck, University of London

Sep 2020 – Sep 2024 (Expected graduation date)

PhD in Tectonic Geomorphology
Title - 'Surface processes and tectonics imaged with topographic inverse methods'
Supervisors - Prof. Andrew Carter and Dr Matthew Fox

Imperial College London

Oct 2016 – Jul 2020

MSci in Geology, first class honours
Master's thesis title – 'Origin and Significance of Volatile Saturation Features in the San Francisco Batholith, Rio Blanco-Los Bronces Porphyry District, Chile'
Supervisor – Prof. Jamie Wilkinson

Publications

Smith, A.G.G., Fox, M., Schwanghart, W., Carter, A., 2022. Comparing methods for calculating channel steepness index. *Earth-Science Reviews*. 227 103970.

Fox, M., Hoseason, T., Bernard, T., Sinclair, H**., Smith, A.G.G.**, 2023. Bedload-Bedrock Contrasts Form Enigmatic Low-Relief Surfaces of the Pyrenees. *Geophysical Research Letters*. 50 (6).

Fox, M., Clinger, A., **Smith, A.G.G.**, Cuffey, K., Shuster, D., Herman, F., *In Press*. Antarctic Peninsula glaciation patterns set by landscape evolution and dynamic topography. *Nature Geoscience.*

Smith, A.G.G., Fox, M., Moore, J.R., Miller, S.R., Goren, L., Morriss, M.C., Carter, A., *In Review*. One million years of climate driven rock uplift on the Wasatch Fault revealed by fluvial topography.

Smith, A.G.G., Fox, M., Miller, S.R., Anderson, L., *In Review*. Discovery of lithospheric drip explains active surface uplift in the Uinta Mountains.

Fox, M., **Smith, A.G.G.**, Vermeesch, P., Gallagher, K., Carter, A., *In Review*. Origin of the Great Unconformity obscured by thermochronometric uncertainty.

Hanze, F., Kereszturi, G., Cheng, Q., Wang, R., **Smith, A.G.G.**, *In Review*. Deciphering Differential Exhumation in the Gangdese Orogen Using Exposed Porphyry Alteration Systems and Geomorphic Analysis.

Communications

Invited talks

China University of Geosciences (December 2022) – Tectonics from Fluvial Topography; a review and applications

University of Utah (September 2022) – Past climate change responsible for rock uplift variation on the Wasatch Fault

Society of Economic Geologists, Students into Mining Conference (March 2021) – Why choose a PhD?

Oral presentations

British Society of Geomorphologists Annual Meeting (September 2023) - One million years of climate driven rock uplift on the Wasatch Fault revealed by fluvial topography

Geological Society of America Connects (October 2022) - Past climate change responsible for rock uplift variation on the Wasatch Fault

Natural Networks and Connectivity Joint DTP conference (September 2021) – 'Incorporating entire stream networks into river profile analysis.'

Poster presentations

Geological Society of America Connects (October 2022) – Reconstructing palaeotopography from river networks with application to the southern Sierra Nevada

Mineral Deposits Studies Group Annual Meeting (January 2020) - Origin and significance of volatile saturation features in the San Francisco batholith, Rio Blanco-Los Bronces porphyry district, Chile

SciComm Videos

London Street Geology (March 2021) DTP Fieldtrip, Youtube

Awards and Grants

UCL-Yale doctoral exchange (£6000)
Funding for 3 month exchange at Yale University with Prof. Mark Brandon

E.Ambrosiodou Prize (£1000)
Awarded for best 3rd year mapping project (dissertation)

Earth Science and Engineering Medal
Awarded to the best student in mining

3rd Year Dean's List
Awarded to top 10% of the year at Imperial College London

Teaching and Supervision

Lectures

Introduction to tectonic geomorphology (Term 1 2023, UCL)

Postgraduate Teaching Assistant

Maps Images and Structures Scotland fieldtrip (Term 1 2023, UCL)

Global Tectonics Oman fieldtrip (Term 2, 2023, Yale University)
Sedimentology and Stratigraphy Pyrenees fieldtrip (Term 2, 2023, UCL)
Tectonic Geomorphology (Term 1, 2022, UCL)
Sedimentology and Stratigraphy Wales fieldtrip (Term 2, 2022, UCL)
Matlab for Earth Sciences (Term 1, 2022)
Surface Processes (Term 2, 2021, UCL)

Supervision
I have helped supervise several masters students; Alex Walton-Keefe (2021), Chris Schverin (2022) and Anastasiia Kazakova (2023)

Technical Skills

Fieldwork
Western US (2022)
: Sampling for bedrock and detrital thermochronology, bedload and channel width measurements, Schmidt hammer measurements, sampling for point load testing

Sardinia (2019)
: Collecting structure from motion photogrammetry data sets

SE France (2018)
: Geological mapping, sample collection, geological data collection e.g. structural data, paleocurrent directions etc

Laboratory Experience
London Geochronology Centre
: Physical rock crushing, heavy mineral separation (Zircon and Apatite), Apatite picking, single-crystal helium extraction, LA-ICP-MS

Natural History Museum
: Thin section analysis, quartz cathodoluminescence spectroscopy, Scanning electron microscopy, fluid inclusion microthermometry, LA-ICP-MS

Numerical Modelling
: Inverse and forward modelling of river networks, landscape evolution modelling (FastScape), thermochronology modelling (QTQt), palaeotopographic reconstructions, isostatic adjustment modelling

Computing
: Microsoft Office (Word, Powerpoint, Excel etc), LaTeX, Matlab, GMT, QGIS, ESRI ArcGIS, Google Earth Engine, Inkscape, GIMP

Professional Service

Served as a reviewer for several journals, including; PNAS, Nature Comms, Earth and Planetary Science Letters, Earth Surface Processes and Landforms, Geophysical Research Letters, Global and Planetary Change

Research Experience Placement Mentor to Wasim Mustafa (July-August 2021)

UCL Earth Sciences PhD student representative (2021-2022)

Professional Memberships

Member of the British Society of Geomorphologists, American Geophysical Union and European Geosciences Union