

JASMINE SIENA SARLING HANSEN

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EDUCATION

Ph.D. in Geology

University of Colorado Boulder, USA (**Current GPA 3.78**)

Fall 2017 - Present

Advisor: Dr Michael J. Willis

B.Sc. (Honors) Geology – 1st Class Honors (US GPA 3.8)

University of St Andrews, United Kingdom

Thesis: ‘Anisotropy of Magnetic Susceptibility of Trawenagh Bay Granites’

Fall 2013 – Summer 2017

Advisor: Dr William McCarthy

POSITIONS

Graduate Research Assistant

Cooperative Institute for Research in Environmental Science (CIRES)

Fall 2017 - Present

RESEARCH INTERESTS AND TECHNICAL SKILLS

I am currently a Ph.D. student at the University of Colorado Boulder and graduate research assistant at the Cooperative Institute for Research in Environmental Sciences focusing on using remote sensing and geodesy to answer problems about the interaction between land ice changes and the solid earth. I currently work in both Antarctica and the Arctic and integrate remote sensing datasets with GPS data networks and am involved in the development of coding packages to manipulate optical digital elevation model data.

Optical remote sensing processing

Supercomputer DEM Generation

Lidar processing

Bash Shell Scripting

Glaciology

GIS

UAV Pilot

Structure from Motion

Geological Mapping

Structural Geology

Matlab

Python

HONORS AND AWARDS

CIRES Graduate Student Research Award (Fall 19 - Summer 20) – *University of Colorado Boulder*

NSF SCAR Open Science Conference 2018 Travel Grant – *University of Colorado Boulder*

Irvine Prize – Best field-based research project in Earth and Env. Sciences – *University of St Andrews*

Irving Prize – Excellence in fieldwork in Earth Sciences – *University of St Andrews*

Dean’s List 2016 – 2017

ABSTRACTS & PRESENTATIONS

Recent Ice Surface Changes Near Toney Mountain – Amundsen Sea Embayment, West Antarctica

(Jasmine S. S. Hansen, Michael J. Willis, Ryan Cassotto) - POLAR2018 Conference June 2018

Contemporary Ice Surface Changes around GPS Sites - Amundsen Sea Embayment, West Antarctica

(Jasmine S. S. Hansen, Michael J. Willis) - AGU Fall Meeting December 2018

Instantaneous glacier loss through catastrophic collapse at Flat Creek glacier: disentangling the roles of climate, geology and glacier dynamics in Wrangell-St. Elias National Park and Preserve, Alaska

(Mylène F. Jacquemart, Michael Loso, Jasmine S. S. Hansen, John Sykes, Kristy F. Tiampo) - AGU Fall Meeting December 2018

Observations of Subsurface Meltwater Lake Collapse on an East Antarctic Ice Shelf

(Devon Dunmire, Stef Lhermitte, Reinhard Drews, Jan Lenaerts, Adam R Mangel, Alison Banwell, Jasmine S. S. Hansen & Others) – AGU Fall Meeting December 2018

PRESS AND OUTREACH

CU Boulder's geoscientists, ranked world's best, showcase rock-it science – Feb 5th 2019

<https://www.colorado.edu/asmagazine/2019/02/05/cu-boulders-geoscientists-ranked-worlds-best-showcase-rock-it-science>

RESEARCH EXPERIENCE

Graduate Research Assistant

Cooperative Institute for Research in Environmental Sciences (CIRES), Boulder CO

Summer 2017 – Present

- Processing of optical remote sensing & lidar data for the creation of digital elevation models and time series modelling over West Antarctica. This research was part of an ongoing project with POLENET to identify the relationship between ice mass unloading and crustal uplift in the Amundsen Sea Embayment.
- UAV research on changing land surfaces of the Slumgullion earthflow in Southwest Colorado. This work surveyed the flow to establish the patterns of motion and was combined with calibrated GPS measurements.
- Production of surface difference maps using optical stereo imagery for research on a subsurface lake collapse in East Antarctica as part of a collaborative project assessing lake formation and draining mechanisms.

Fieldwork Experience

Undertaken as part of Ph.D. at the University of Colorado Boulder

> 4 months total

- Fieldwork in Wrangell St. Elias National Park and Preserve, Alaska at the site of the Flat Creek landslide. We conducted sediment surveys, geological mapping and used UAVs to map valley morphology to facilitate the development of a landslide model.
- UAV Surveys of Slumgullion Landslide in SW Colorado and Boulder Creek.
- Snow pit surveying at the University of Colorado Mountain Research Station focusing on snow stratigraphy and snow water equivalent measurements for water resources.

Undertaken as part of B.Sc. (Hons) Geology at the University of St Andrews

- One month of independent fieldwork in Co. Donegal, Ireland, mapping an area of 10 km² and undertaking systematic block sampling for Anisotropy of Magnetic Susceptibility analysis to be used for granite emplacement mechanism studies.
- Fieldwork in Italian and Swiss Alps focusing on the identification of metamorphic minerals and the palaeoenvironmental reconstruction of marine and terrestrial sedimentary sequences.
- Geophysical mapping using ground conductivity meters (EM31 & EM38) resistivity and dGPS to identify archaeological burial sites.
- Geological field mapping in Ullapool, Mull and Central Spain.
- Geochemical analysis and mine remediation at Rio Tinto, Spain

Undergraduate Research Assistant

School of Earth and Environmental Sciences, University of St Andrews

Summer 2015

- Work for the St Andrews Isotope Geochemistry Lab (StAIG) supervised by Drs James Rae and Andrea Burke. Washing and processing of ocean sediment cores. Identification and picking of foraminifera for subsequent analysis (Mg/Ca $\delta^{11}\text{B}$) using a multi collector ICP-MS.