

Kelly Kochanski

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EDUCATION

CU-BOULDER
GEOLOGICAL SCIENCES
PH.D. STUDENT
 Boulder, CO
 2020

MIT
B.Sc. EARTH, ATMOSPHERIC
& PLANETARY SCIENCES
B.Sc. PHYSICS
 Cambridge, MA
 GPA: 4.8/5.0
 2015

FELLOWSHIPS

NATIONAL AWARDS
 DOE CSGF (2016–2018)
 NSF GRFP (2016, declined)
 NDSEG (2016, declined)

SKILLS

PROGRAMMING

Over 10,000 lines:

Matlab • \LaTeX

Over 1,000 lines:

C# • Python

Short projects:

ArcGIS • IDL

LANGUAGES

Native English

Proficient French

Have taught in Spanish

COURSEWORK

NUMERICAL ANALYSIS

Numerical Methods for Civ. Eng.

Comp. Modelling for Earth Sci.

MATH/PHYSICS

Theoretical Env. Analysis

Statistical Mechanics II

Classical Mechanics III

GEOSCIENCE

Field Geology III

Geodynamics

RESEARCH EXPERIENCE

UNIVERSITY OF COLORADO DEPT. GEOLOGICAL SCIENCES

GRADUATE RESEARCHER SEPT 2015–PRESENT

Prof. Gregory Tucker and Prof. Robert Anderson Boulder, CO

- Researching the re-distribution of snow by wind.
- Monitoring the flux of snow on Niwot Ridge, CO.

ENVIRONMENTAL CONSULTING

JAN–AUG 2016

Prof. Gregory Tucker Boulder, CO

- Forecast the growth rates of gullies in West Valley, NY.
- Tested the effect of grid resolution on a landscape evolution model.

MIT DEPT. EARTH, ATMOSPHERIC AND PLANETARY SCIENCES

UNDERGRADUATE THESIS FEB–JUNE 2013

Prof. Thomas Herring Cambridge, MA

- Found 11 GPS stations in Alaska which appear to jump each winter.
- Discovered that these stations accumulated ice in winter.
- Modeled the effect of rime ice on a GPS station.
- Presented the results to UNAVCO engineers.

SHELL COMPUTATIONAL CENTRE OF EXPERTISE

COMPUTATIONAL FLUID DYNAMICS INTERN JUNE–AUG 2014

Upstream Computational Challenges Team Bangalore, India

- Extended a smoothed particle hydrodynamics (SPH) simulator in C#.
- Simulated the impact of ocean waves on floating platforms.

MIT DEPT. EARTH, ATMOSPHERIC AND PLANETARY SCIENCES

FIELD CAMP JAN–MAY 2014

Prof. Oliver Jagoutz & Prof. Clark Burchfiel Mojave, CA

- Created the first detailed geologic map of the Piute Mountains, CA.
- Worked with five students to interpret the underlying structure.

FIELD ASSISTANT

AUG 2013

Prof. Ben Weiss & Prof. Oliver Jagoutz Ladakh, India

- Surveyed a 20km sq. area with a graduate student partner.
- Identified and sampled two key sections for a paleomagnetic study.

UNDERGRADUATE RESEARCHER

FEB–JUNE 2013

Prof. Leigh Royden Cambridge, MA

- Produced a finite-element model of ductile flow in Earth's crust.
- Modeled the deformation of the crust under the Tibetan Plateau.

MIT KAVLI INSTITUTE FOR ASTROPHYSICS

UNDERGRADUATE RESEARCHER FEB–JUNE 2013

Dr. Herman Marshall Cambridge, MA

- Calibrated a prototype X-ray polarimeter.
- Tripled system throughput.

AWARDS

HONORS

- 2015** University of Colorado Chancellor's Fellowship. Two years' tuition and stipend.
MIT Suzanne Berger Award for Future Global Leaders. For one graduating senior.
- 2014** MIT Burchard Scholar for distinguished students in the humanities, and MIT Arts Scholar.
- 2011** International Baccalaureate, 45/45 points, awarded to 0.2% of candidates worldwide.

GRANTS

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|---|--|
| 2016 CU-Boulder Geology Patterson Award | \$2,000 for field equipment |
| American Alpine Club Research Grant | \$1,000 for field equipment |
| Colorado Scientific Society Memorial Fund Award | \$900 for fieldwork in Colorado |
| 2015 MIT Physics Outreach Grant | \$3,750 to develop a Physics course |
| 2013 MIT-India Travel Grant. | \$5,000 for fieldwork in Ladakh, India |
| 2012 Hertog Program Summer Fellowship. | \$1,000 to study political science |

TEACHING EXPERIENCE

CHILEAN YOUNG PHYSICISTS' TOURNAMENT

JUNE–AUG 2015

CURRICULUM DESIGNER AND TEACHER — EXPERIMENTAL PHYSICS

Santiago de Chile

- Mentored high-school students as they designed and conducted short research projects.
- Designed and gave lectures such as 'What's your hypothesis?' and 'How to Give a Science Talk'.
- Collaborated with local teachers to secure lab space and equipment during a school strike.

MIT CONCOURSE PROGRAM

SEPT 2012–DEC 2014

TEACHING ASSISTANT — INTRO TO ANCIENT GREEK PHILOSOPHY

Cambridge, MA

- Led two discussion sections for three semesters. Designed short writing workshops.

MIT OUTING CLUB

SEPT 2013–JUNE 2015

4-SEASON HIKING LEADER

Cambridge, MA

- Planned and led monthly hiking trips for 4–10 people in summer and winter.

PUBLICATIONS

CONFERENCE PAPERS

(1) IJzermans, R.H.A., K. Pan, **K.A. Kochanski**, B.D. Jones, A. Thyagarajan, V. Ramohalli Gopala, B.W.H. van Beest, J.R. Williams, J.M.V.A. Koelman (2015). 'Simulating the impact of extreme sea waves on offshore structures with SPH'. *SPHERIC*, 10(8–1).

TECHNICAL REPORTS AND THESES

(3) **Kochanski, K.** (March 2016). 'Process-based and statistical models of gully erosion: a review of existing models and their applications to landscape evolution models of West Valley, NY'. Report for EnviroCompliance.

(2) **Kochanski, K.** (May 2015). 'Ice accumulation and the apparent seasonal variation of GPS stations in Alaska'. B.Sc. thesis, Massachusetts Institute of Technology.

(1) **Kochanski, K.**, J. Pershken, K. Brent (May 2014). 'Deformation in the Paleozoic Stratigraphy of the Piute Mountains in the Mojave Desert Region, CA'. Internal report, Massachusetts Institute of Technology.

CONFERENCE ABSTRACTS

(4) **Kochanski, K.**, D. Hopley, G. Tucker (Aug. 2016). 'The effect of grid resolution on a landscape evolution model'. Poster, National Center for Earth-surface Dynamics Summer Institute, Minneapolis, MN.

(3) **Kochanski, K.**, T. Herring (Dec. 2015). 'Ice accumulation and the apparent seasonal variation of GPS stations in Alaska'. Poster, AGU Fall Meeting, San Francisco, CA.

(2) **Kochanski, K.**, A. Klishin (Dec. 2015). 'IYPT problems teach high school students about teamwork and the scientific method'. Poster, AGU Fall Meeting, San Francisco, CA.

(1) Marshall, H.L., N.S. Schulz, R. Heilmann **K. Kochanski**, (June 2012). 'Progress in soft x-ray polarimetry'. American Astronomical Society Meeting, Anchorage, AK.