

Ben Knight

PhD Candidate

School of Earth, Atmosphere and Environment,
Monash University, Clayton, 3800, Vic, Australia
ben.knight @ monash.edu/ben.s.knight.1 @ gmail.com

Education

PhD Geodynamics, Monash University, 2017 - Present

Thesis Title: *Insights into the evolution of orogenic wedges*

MESci Exploration and Resource Geology, Cardiff University, 2012 - 2016

Concentrations: Geodynamics, Geology, Geophysics

MESci Dissertation: *A critical depth for self-sustaining subduction: Insights from thermomechanical modelling*

Dissertation Advisor: Prof. J. Huw Davies, Cardiff University

Publications

- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (*in preparation*), "Convergence history controls on the formation of the Tibetan Plateau and Himalayan Fold-and-Thrust belt".
- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (*in preparation*), "The evolution of orogenic wedges: From Coulomb plastic to viscous".
- Knight, B.S., Davies, J.H., Capitanio, F.A. (*in review*), "Timescales of successful and failed subduction; insights from energy dissipation." *Geophysical Journal International*.

Conference presentations

- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (2020). "Convergent rate controls on the evolution of Himalaya-Tibet", GeoUtrecht 2020, online.
- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (2020). "[The influence of viscoplastic rheology on strain localization in the crust](#)". CIG Tectonics Community Science Workshop, online.
- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (2020). "[Reconciling plate convergence and orogeny: The influence of convergence rate on the formation of the Himalayas](#)". EGU 2020, online.
- Knight, B.S., Capitanio, F.A., Weingberg, R.F., (2020). "The influence of convergence velocity on orogenic fold-and-thrust belts: Insights from thermomechanical modelling". 36th IGC, New Delhi, India.
- Knight, B.S., Davies, J.H., Capitanio, F.A. (2018). "Incipient subduction dynamics: Insight from energy partitioning.". 31st VUEESC 2018, Melbourne, Australia.

Conference Organization

- Convener - 31st Victorian universities Earth and environmental sciences conference (VUEESC), 2018.

Grants and scholarships

- Faculty of Science Dean's Postgraduate Research Scholarship (Monash University, 2017)
- Faculty of Science Dean's International Postgraduate Research Scholarship (Monash University, 2017)
- 36th IGC travel grant

Numerical modelling experience

- 1 year of running numerical models with Fluidity on various HPCWales & Quartz (based at Cardiff)
- 3 years of running 2D numerical models and 1 year running 3D models with Underworld on various HPCs (Monarch, Raijin, Gadi, M3)

Relevant skills

- Have helped set up various geological margins using Underworld, including collisional margins, subduction zones, continental rifting and mantle plume models using a Cartesian mesh.
- Highly skilled in Underworld feature development through the Python3 API. I have implemented a range of features, including material changes based on material properties, velocity and diffusion surface processes functions in 2D, variations in imposed velocity conditions in space and time.
- Strong understanding of python3 for data manipulation and analysis.

Professional skills training

- Attended various Underworld workshops and meetings.
- Attended an ASPECT coding course for geodynamic modelling.
- 60 hours of excellence in research & training completed. Includes various writing courses and computer coding classes.
- 60 hours of professionalism, career & innovation training completed. Includes training on networking and career development.

Teaching experience

- **Teaching Assistant, Monash University, 2018 -**
- Courses: Physics of the Solid Earth (3rd year), Environmental problem solving and visualization (2nd year), Earth, atmosphere and environment 1 and 2 (1st year). Including both online (via zoom) and in person teaching.

Memberships

- Geological Society of Australia (GSA)
- American Geophysical Union (AGU)
- European Geoscience Union (EGU)