# Ben Knight

PhD Candidate

School of Earth, Atmosphere and Environment,
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## 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 thermomechnical 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", GeoUtrect 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". 36$^{th}$ IGC, New Delhi, India.
- Knight, B.S., Davies, J.H., Capitanio, F.A. (*2018*). "Incipient subduction dynamics: Insight from energy partitioning.". 31$^{st}$ VUEESC 2018, Melbourne, Australia.

## Conference Organization

- Convener - 31$^{st}$ 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 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**

- Set up various geological margins for myself and others using Underworld, including collisional margins, subduction zones, continental rifting and mantle plume models within 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)