KENNETH HUGHES

School of Earth and Ocean Sciences | University of Victoria | kghughes.com | hugke729@uvic.ca

PROFILE

A PhD student with an interest in environmental applications of physics, specifically combining observations with numerical modelling to best understand smaller-scale ocean processes. Sound academic background with strengths in mathematics and scientific computing.

EDUCATION

PhD student in Physical Oceanography	University of Victoria, Canada	September 2014–present
MSc in Physics (with Distinction)	University of Otago, New Zealand	2013
BSc in Physics (Honours – 1st class)	University of Otago, New Zealand	2011

PEER-REVIEWED PUBLICATIONS

Water mass modification and mixing rates in a 1/12° simulation of the Canadian Arctic Archipelago
Hughes, K. G., J. M. Klymak, X. Hu and P. G. Myers (2017)
J. Geophys. Res. 122, 803–820, doi:10.1002/2016JC012235

Extension of an Ice Shelf Water plume model beneath sea ice with application in McMurdo Sound, Antarctica
Hughes, K. G., P. J. Langhorne, G. H. Leonard and C. L. Stevens (2014)
J. Geophys. Res. 119, 8662–8687, doi:10.1002/2013JC009411

Estimates of the refreezing rate in an ice-shelf borehole
Hughes, K. G., P. J. Langhorne and M. J. M. Williams (2013)
J. Glaciol. 59, 938–948, doi:10.3189/2013JoG12J117

Observed platelet ice distributions in Antarctic sea ice: an index for ocean–ice shelf heat flux
Langhorne, P. J., **K. G. Hughes**, A. J. Gough and 10 others (2015)
Geophys. Res. Lett. 42, 5442–5451, doi:10.1002/2015GL064508

Brine convection, temperature fluctuations and permeability in winter Antarctic land-fast sea ice
Wongpan. P, **K. G. Hughes**, P. J. Langhorne and I. J. Smith
J. Geophys. Res., 123, doi:10.1002/2017JC012999

Towards a process model for predicting potential anchor ice formation sites in coastal Antarctic waters
Leonard, G. H., S. M. Mager, A. G. Pauling, **K. G. Hughes** and I. J. Smith (2014)
J. Spat. Sci. 59, 297–312, doi:10.1080/14498596.2014.913271

Measurements of Ice Shelf Water beneath the front of the Ross Ice Shelf using gliders
Nelson, M. J. S., B. Y. Queste, I. J. Smith, G. H. Leonard, B. G. M. Webber and **K. G. Hughes** (2017)
Ann. Glaciol. (accepted)

CONFERENCE PROCEEDINGS

Crystal orientation in ice frozen from fresh and brackish water.
Grothe, S., **K.G. Hughes**, and P. J. Langhorne (2014)
In *Proceedings of the 22nd IAHR International Symposium on Ice,* 743–750, doi:10.13140/RG.2.1.4390.3206

IN PREPARATION/UNDER REVIEW

Tidally modulated internal hydraulic flow and energetics in the central Canadian Arctic Archipelago
Hughes, K.G., J. M. Klymak, W. J. Williams and H. Melling (*Submitted to J. Geophys. Res.*)

Tidal conversion at steep topography in a channel poleward of the critical latitude
Hughes, K.G. and J. M. Klymak (In prep.)

THESES

Propagation of an Ice Shelf Water Plume beneath Sea Ice in McMurdo Sound, Antarctica
Master's Thesis: http://hdl.handle.net/10523/4325 (awarded A+)

On the Rate of Refreezing in a Bore Hole in an Ice Shelf
Honours Dissertation: (awarded A+)

CONFERENCE PRESENTATIONS

Twelve presentations (ten oral and two poster) at conferences in New Zealand, USA, and Canada

EMPLOYMENT HISTORY

Teaching assistant — University of Victoria — 2014, 2016, 2017
Independently lead weekly first-year labs and mark lab tests and exams

Substitute lecturer — Universities of Otago and Victoria — 2014, 2016, 2017
Lecture second-, third-, and fourth-year physical oceanography, time series analysis, and environmental physics courses

Research assistant — University of Otago — August 2013–May 2014
Collect and reduce data and prepare figures and reports

Laboratory demonstrator — University of Otago — 2012, 2014
Demonstrate practical science methods and explain various software for second-year physics course

Study coach — Big Picture Learning, Dunedin — 2009–2012
Tutor science and study skills for high school students and help develop an interactive, online learning tool

SOFTWARE EXPERIENCE

Extensive experience: Python, Matlab, Linux, Numerical ocean modelling (MITgcm), LaTeX, Inkscape

Other: Mathematica, Bash, Git, NetCDF tools

Observational Datasets: Brooke Ocean Moving Vessel Profiler, Seabird CTD Profiler, Teledyne ADCP, Simrad Echosounder

FIELD WORK EXPERIENCE

Haro Strait, British Columbia — October 2016
One day deploying microstructure profilers (part of week-long microstructure workshop)

Canadian Arctic Archipelago — September 2015
Two weeks as a scientist aboard a Canadian Coastguard ship

McMurdo Sound, Antarctica — November 2011
Drilling sea ice and deploying CTD profiler while working in approximately −10°C conditions

OTHER INTERESTS AND OUTREACH

Four presentations to 8–10 year olds at University of Victoria's Science Venture about oceanography — 2016

Blog about presenting science: brushingupscience.wordpress.com — 2015–present

Secretary and Instructor for University of Victoria Kayak Club — 2015-present

Lead organiser of Blissfest 2013: whitewater kayaking competition in Dunedin, New Zealand — 2013

President of Otago University Canoe Club — 2010–2012