

Joshua T. Kelly

Department of Geological Sciences, San Diego State University
Scripps Institution of Oceanography, University of California at San Diego
5500 Campanile Drive, San Diego, CA 92182
jtkelly@sdsu.edu | 978-604-1679

Education

- Exp. 2020 **San Diego State University/Scripps Institution of Oceanography**, PhD
Candidate in Geophysics. Advisor: Dr. Allen M. Gontz. Dissertation: *Climate-driven shoreline dynamics along southeast Queensland, Australia*
- 2017 **University of Massachusetts at Boston**, MSc in Environmental Science. Advisor: Dr. Robyn Hannigan.
- 2013 **University of Rhode Island**, MSc in Oceanography. Advisor: Dr. Steven Carey.
- 2011 **University of Rhode Island**, BSc in Geosciences.

Employment

- 2017-2020 **Graduate Research and Teaching Assistant**, Department of Geological Sciences, *San Diego State University*
- Fall 2018 **Lecturer**, Department of Geological Sciences, *San Diego State University*
- 2016-2017 **Graduate Teaching Assistant**, School for the Environment, *University of Massachusetts at Boston*
- 2014-2015 **Staff Geoscientist**, *Fugro USA Marine, Inc.*
- 2013-2014 **Geoscience Programmer Fellow**, *NASA DEVELOP National Program*
- 2011-2013 **Graduate Research Assistant**, Graduate School of Oceanography, *University of Rhode Island*
- 2010-2011 **Undergraduate Research Assistant**, Department of Geosciences, *University of Rhode Island*

Grants and Awards (total \$26,304)

- 2019 **Geological Society of America Cordilleran Section Travel Grant** (\$200)
- 2019 **Achievement Rewards for College Scientists (ARCS) Scholarship** (\$7,500)
- 2019 **USNC/INQUA Congress Fellowship** (\$700)
- 2018 **SDSU Instructionally Related Activities Fund** (\$329)
- 2018 **Geological Society of America Graduate Student Research Grant** (\$1,650)
- 2018 **Achievement Rewards for College Scientists (ARCS) Scholarship** (\$7,500)
- 2018 **Geological Society of America Cordilleran Section Travel Grant** (\$150)

- 2018 **AAPG Raymond D. Woods Memorial Grant** (\$2,000)
- 2017 **UMass Boston Professional Development Grant** (\$400)
- 2016 **Geological Society of America Graduate Student Research Grant** (\$1,375)
- 2016 **UMass Boston Seed Funding for International Research** (\$1,500)
- 2012 **Robert D. Ballard Endowed Fellowship Award** (\$2,000)
- 2012 **URI Graduate School of Oceanography Alumni Fellowship** (\$1,000)

Publications

- 2019 **Kelly, J. T.** and Gontz, A. Rapid assessment of shoreline changes induced by Tropical Cyclone Oma using CubeSat imagery in southeast Queensland, Australia. *Journal of Coastal Research*. DOI: 10.2112/JCOASTRES-D-19-00055.1
- 2019 **Kelly, J. T.**, McSweeney, S., Shulmeister, J., Gontz, A. Bimodal climate control of shoreline change influenced by Interdecadal Pacific Oscillation variability along the Cooloola Sand Mass, Queensland, Australia. *Marine Geology*. v. 415C. <https://doi.org/10.1016/j.margeo.2019.105971>
- 2018 **Kelly, J. T.** and Gontz, A. Using GPS-surveyed intertidal zones to determine the validity of shorelines automatically mapped by Landsat water indices. *International Journal of Applied Earth Observation and Geoinformation*. v. 65C, p. 92-104. <https://doi.org/10.1016/j.jag.2017.10.007>
- 2015 Haneberg, W. C., **Kelly, J. T.**, Graves, H. L., and Dan, G. A GIS-based decision-support approach to deepwater drilling-hazard maps. *The Leading Edge*. v. 34(4), p. 398-404. <https://doi.org/10.1190/tle34040398.1>
- 2014 **Kelly, J. T.**, Carey, S., Croff-Bell, K. L., Roman, C., Rosi, M., Marani, M., and Pistolesi, M. Exploration of the 1891 Foerstner submarine vent site (Pantelleria, Italy): insights into the formation of basaltic balloons. *Bulletin of Volcanology*. v. 76, p. 844-862. <https://doi.org/10.1007/s00445-014-0844-4>
- 2012 Carey, S., Croff-Bell, K. L., Rosi, M., Marani, M., Nomiku, E., Walker, S., Faure, K., and **Kelly, J. T.** New Frontiers in Ocean Exploration: The E/V Nautilus 2011 Field Season, Hydrothermal activity at submarine volcanoes of the Aeolian Arc, Tyrrhenian Sea. *Oceanography*, supplement edition volume 25(1), p. 32-33. <https://doi.org/10.5670/oceanog.2011.supplement.01>
- 2012 Carey, S., Croff-Bell, K. L., Marani, M., Rosi, M., Baker, E., Roman, C., Pistolesi, M., and **Kelly, J. T.** The E/V Nautilus 2011 Field Season, Submarine volcanism in the Straits of Sicily. *Oceanography*, supplement edition volume 25(1), p. 34-35. <https://doi.org/10.5670/oceanog.2011.supplement.01>

In Preparation

- 2020 **Kelly, J. T.**, Gontz, A. M., Tibby, J, Barr, C. Multi-temporal geomorphic evolution and the influence of climate on a perched dune lake on North Stradbroke Island, Queensland, Australia. Target journal: *Marine and Freshwater Research*

- 2020 Gontz, A.M., Shulmeister, J., Ellerton, D., **Kelly, J.T.**, Patton, N. Radar facies of the southeast Queensland sand islands: Modern analogues and subsurface architecture. Target journal: *Geomorphology*
- 2020 Gontz, A.M., **Kelly, J.T.**, Mazzone, S., Tibby, J., Barr, C. Marshall, J. Using large lakes as evidence for wetter climates on North Stradbroke Island. Queensland, Australia. Target journal: *Climates of the Past*

Conference Presentations

* Graduate student advisee

ψ Undergraduate student advisee

Oral Presentations

- 2019 **Kelly, J. T.** and Gontz, A. Using revolutionary CubeSat imagery to perform rapid assessments of shoreline change in the aftermath of major storms. *Geological Society of America Annual Meeting, Phoenix, Arizona.*
- 2019 **Kelly, J. T.**, McSweeney, S., Shulmeister, J., Gontz, A. Detecting primary climate drivers of shoreline change along Southeast Queensland, Australia using historical Landsat imagery. *20th Congress of the International Union for Quaternary Research, Dublin, Ireland.*
- 2019 Mazzone, S.ψ, Gontz, A., **Kelly, J. T.**, Tibby, J., Barr, C., Marshall, J. Stratigraphic signatures of lake-level changes at Swallow Lagoon, North Stradbroke Island, Australia. *Geological Society of America Cordilleran Section Meeting, Portland, Oregon.*
- 2018 **Kelly, J. T.**, McSweeney, S., Shulmeister, J., Gontz, A. The impact of climate change on shoreline dynamics along southeast Queensland, Australia. *Geological Society of America Annual Meeting, Indianapolis, Indiana.*
- 2017 **Kelly, J. T.** and Gontz, A. Comparing the ability of Landsat water indices to accurately map the shoreline boundary and an applied case study for Sergipe, Brazil. *American Association of Geographers Annual Meeting, Boston, Massachusetts.*
- 2015 **Kelly, J. T.** and Haneberg, W. C. Improved geohazards analysis for drilling favorability maps. *ESRI Petroleum GIS conference, Houston, Texas.*
- 2014 Carey, S., **Kelly, J. T.**, Rosi, M., Pistoletti, M., Marani, M., Roman, C., and Croff-Bell, K. L. New insights into basaltic balloon formation during submarine eruptions. Fall Meeting. *American Geophysical Union Fall Meeting, San Francisco, California.*

Poster Presentations

- 2019 Levenson, M.*, Gontz, A., Baldauf, P., Baker, G., Burkhart, P., **Kelly, J. T.**, Forrest, A., Ramey, D. Using an integrated surficial and subsurface approach to understand periods of activity in the dunes of Southern Bouquet Table, White River Badlands, South Dakota, USA. *Geological Society of America Annual Meeting, Phoenix, Arizona.*
- 2019 **Kelly, J. T.**, Gontz, A., Mazzone, S.^ψ, Tibby, J., Barr, C., Marshall, J., Moss, P. Multi-temporal geomorphic evolution and the influence of climate on a perched dune lake on North Stradbroke Island, Queensland, Australia. *Geological Society of America Cordilleran Section Meeting, Portland, Oregon.*
- 2019 Mazzone, S.^ψ, Gontz, A., Moss, P., **Kelly, J. T.** Into the Next Dimension – Coupling GPR and Pollen to Understand Lacustrine Climate Records at Little Swallow Lagoon, Queensland, Australia. *20th Congress of the International Union for Quaternary Research, Dublin, Ireland.*
- 2018 Blanton, C. M.*, Rockwell, T. K., Gontz, A., **Kelly, J. T.** Analysis of Offset Stream Channels – Deconstructing Creep and Coseismic Slip Components Using Very High Resolution SfM Imagery, Southern San Andreas Fault, Coachella Valley, California. *Southern California Earthquake Center Annual Meeting, Palm Springs, California.*
- 2018 Gontz, A., Blanton, C. M.*, Rockwell, T. K., **Kelly, J. T.** Looking Ahead by Looking Down – Potential Applications of Very High Resolution Drone-Based Imagery for Tectonic Geomorphology. *Southern California Earthquake Center Annual Meeting, Palm Springs, California.*
- 2018 Murphy, D.*, Gontz, A., **Kelly, J. T.** Applications of remote sensing for determining dune migration rates, Algodones Dune Field, CA. *Geological Society of America Annual Meeting, Indianapolis, Indiana.*
- 2018 Blanton, C. M.*, Rockwell, T. K., Gontz, A., **Kelly, J.T.** Earthquake slip, hurricanes, and rill formation – drone-based DEMs and orthomosaics from very-high resolution SfM imagery along the southern San Andreas Fault, Coachella Valley, California. *Geological Society of America Annual Meeting, Indianapolis, Indiana.*
- 2017 Gontz, A., Ellerton, D., Shulmeister, J., **Kelly, J.T.**, McCallum, A., Hesp, P., Miot da Silva, G., Santini, T., Welsh, K., and Rittenour, T. Stratigraphic architecture of the Fraser Island dune complex, Southeast Queensland, Australia using high-resolution Ground Penetrating Radar. *Geological Society of America Annual Meeting, Seattle, Washington.*
- 2017 Shulmeister, J., Ellerton, D., Welsh, K., Santini, T., Moss, P., Bowyer, H., Macalalad, J., Hesp, P. A., Miot da Silva, G., Rittenour, T., Gontz, A., **Kelly, J.T.**, and McCallum, A. The Sands of Time: Mapping Fraser Island; One of the oldest coastal dunefields in the world. *Geological Society of America Annual Meeting, Seattle, Washington.*
- 2013 **Kelly, J. T.**, Bender, M., Kelly, M., and Walters, C. Predicting the movement of pumice rafts for enhanced navigational warnings. *American Geophysical Union Fall Meeting, San Francisco, California.*

2012 **Kelly, J. T.**, Carey, S., Croff Bell, K. L., Rosi, M., Marani, M., Roman, C., Pistolesi, M., Baker, E. T. 1891 Submarine eruption of Foerstner volcano (Pantelleria, Sicily): insights into the vent structure of basaltic balloon eruptions. *American Geophysical Union Fall Meeting, San Francisco, California.*

Field Work

Fall 2018 **North Stradbroke Island, Australia** – Investigating perched dune lake changes, conducted UAV and ground penetrating radar surveys.

Fall 2017 **Fraser Island, Australia** – Developing chronostratigraphy of Fraser Island dune complexes, collected sediment cores for OSL dating.

Summer 2016 **Sergipe, Brazil** – Investigating the development of a prograding coastline, conducted ground penetrating radar surveys.

Summer 2015 **Bering Sea, Alaska** – Data Processor for Fugro Pelagos, collected multibeam bathymetry and backscatter to characterize seafloor ice gouges

Winter 2015 **Caribbean Sea, Colombia** – Client Representative and Geologist for Anadarko Petroleum Company, conducted geotechnical coring and heat probe measurements to detect hydrocarbon seeps

Summer 2014 **Caribbean Sea, Colombia** – Client Representative and Geologist for Anadarko Petroleum Company, collected multibeam bathymetry and backscatter data to detect hydrocarbon seeps

Fall 2011 **Tyrrhenian Sea and Strait of Sicily** – Data Logger for Ocean Exploration Trust, collected multibeam bathymetry, backscatter, and ROV grab samples of submarine volcanoes

Teaching

San Diego State University, Department of Geological Sciences, San Diego, CA

Fall 2018 Lecturer, GEOL 600, Environmental Applications of Remote Sensing

Spring 2018 Teaching Assistant, OCEAN 100, Ocean Planet

University of Massachusetts at Boston, School for the Environment, Boston, MA

Spring 2017 Teaching Assistant, ENVSCI 203, Field Trips in Environmental Science (Massachusetts, Azores, Portugal)

Summer 2016 Teaching Assistant, ENVSCI 480, Comparative Coastal Systems of Brazil (3 week field course)

Mentoring

2018-19 One BSc student in the San Diego State University Geological Sciences Department, presented two posters in 2019 (Geological Society of America, INQUA)

2017-18 Two MSc students in the San Diego State University Geological Sciences Department, presented posters at 2018 Geological Society of America Annual Meeting

Service

- 2019-2020 Editor, Graduate student editing services for early-to-mid level faculty, *San Diego State University*
- 2019 Graduate Student Member, Geological Sciences Faculty Search Committee, *San Diego State University*
- 2019 Co-Convener, *Landscape Changes at Various Temporal and Spatial Scales*, Geological Society of America Cordilleran Section Meeting, Portland, Oregon.
- 2017-18 Representative, Graduate Student Association, UCSD Scripps Institution of Oceanography
- 2017-present Journal Referee
- *Journal of Coastal Research*
 - *International Journal of Applied Earth Observation and Geoinformation*
 - *Remote Sensing of Environment*
 - *IEEE Access*

Public Talks

- 2018 Evidence for PDO-controlled shoreline change along the Cooloola Sand Mass, Queensland, Australia. San Diego State University, Geological Sciences Department Seminar.
- 2017 Validating the use of Landsat Imagery to Automatically Map Shorelines and an Applied Case Study for Sergipe, Brazil. San Diego State University, Geological Sciences Department Seminar.
- 2013 Using NASA Earth Observations to mitigate the impacts of Chilean drought, Embassy of Chile to the United States, Washington, D.C.
- 2013 Predicting the movement of pumice rafts for enhanced navigational warnings, Annual Earth Science Applications Showcase at NASA Headquarters, Washington, D. C.
- 2013 Using NASA Earth Observations to mitigate the impacts of Chilean drought, NASA Showcase, American Geophysical Union Fall Meeting, San Francisco, California

Skills and Memberships

Computers: ArcGIS Pro and Map (expert), Google Earth Engine, Pix4DMapper (advanced), GPR-SLICE, ENVI, MATLAB, Python, Adobe Illustrator (basic)

Member: Geological Society of America, American Association of Geographers, American Association of Petroleum Geologists, American Quaternary Association