

CURRICULUM VITAE: TINA DURA

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EDUCATION

2010-2014: PhD in Earth Science (Sea-level Research), University of Pennsylvania, USA
2008-2010: MA in Geology, Central Washington University, USA
2000-2004: BA Honors in Geology, Occidental College, USA

EMPLOYMENT HISTORY

2019-current: Assistant Professor, Virginia Tech Department of Geosciences
2017-2018: NSF Postdoctoral Fellow, Department of Geology, Humboldt State University
2015 –2017: Postdoctoral research associate, Department of Marine and Coastal Science, Rutgers University
2009: Cabot Oil and Gas summer internship, Houston, Texas (June-September)
2007-2008: Full time high-school teacher, Earth Science, Covina Unified School District, California
2005-2006: Tooke Rockies Wellsite Geology, Dickinson, North Dakota

HONORS AND AWARDS

- NSF Earth Sciences Postdoctoral Fellowship (2017-2019)
- Benjamin Franklin Fellowship, University of Pennsylvania (2010-2014)
- Outstanding Student Paper Award, American Geophysical Union Fall Meeting (2013)
- Susan and Greg Walker Endowment Award, University of Pennsylvania (2011, 2012)
- NSF East Asia Pacific Institute Fellowship (2011)

MAJOR RESEARCH GRANTS

Projects led as Principal Investigator (responsible for writing research proposal, planning and leading fieldwork, planning and conducting laboratory analyses, and presentation and manuscript preparation)

Current

- NSF Earth Sciences Postdoctoral Fellowship: Spatial and temporal variability of coseismic subsidence along the Cascadia subduction zone; \$174,000 (2017-2019)
- NSF Earth Sciences collaborative research: Quantifying megathrust earthquake ruptures with coastal stratigraphy and tsunami simulations, south-central Chile; \$250,955.00 (2016-2019)

Past

- NSF RAPID: Illapel earthquake and tsunami - environmental impacts on the north central Chile coast; \$17,799 (2015-2016)
- NSF East Asia Pacific Institute (EAPSI) Fellowship: Reconstructing paleohurricane histories in DaNang, Vietnam; PI; \$5,000 (2011)

COLLABORATIVE PROJECTS

Participated in fieldwork, conducted grain size and diatom analyses, and contributed to manuscript preparation

- NSF salt-marsh reclamation investigation, Bandon Marsh, Oregon (2015-present)
- USGS paleoseismic investigation on Sitkalidak Island, Alaska (2015-present)
- USGS/NEHRP paleoseismic investigation on Sanak Island, Alaska (2014-present)

- NSF EAGER paleoseismic investigation, Chiba Prefecture, Japan (2013-present)
- USGS paleoseismic investigation on Sitkinak Island, Alaska (2012-2014)
- NSF/Universidad de Valparaiso diatom-based paleoseismic investigation in central Chile (2011-2015)
- USGS paleoseismic investigation on Chirikof Island, Alaska (2010-2014)
- NSF investigation of Holocene earthquakes, Padang, West Sumatra (2008-2010)
- NSF investigation of Cenozoic faulting and magmatism, Knight Inlet, Vancouver Island, BC (2003-2004)

GEOSCIENCE SKILLSET

Field stratigraphy and mapping

- Mapping and technical descriptions (e.g., sedimentology, mineral composition) of cores and outcrops
- Sediment sampling using gouge, Vibracore, piston, and gravity cores
- Surveying using total station, optical, and RTK equipment
- Computer literate in ArcGIS, MATLAB, Adobe Illustrator, Microsoft Excel, Microsoft Word, PowerPoint

Sedimentological analysis

- Particle size analysis using Coulter and Malvern laser diffraction particle size analyzers and settling tubes
- Preparation of samples for stable carbon isotope geochemistry
- Organic matter measurements using loss on ignition (LOI)

Microfossil and statistical analysis

- Diatom identification to species level through light and scanning electron microscopy (trained at the Academy of Natural Sciences, Philadelphia)
- Qualitative and quantitative (transfer function) analyses of micropalaeontological proxies including diatoms and foraminifera using specialist software (e.g. C2, R and Canoco)
- Additional statistical analyses such as regression analysis, cluster analysis, principal components analysis, factor analysis, canonical correlation analysis, and (canonical) correspondence analysis used to examine the relationship of diatom data to environmental parameters of interest

Dating Techniques

- Selection and preparation of samples for radiocarbon, OSL, and short-lived radionuclide (^{210}Pb , ^{137}Cs) dating
- Construction of age-depth models (e.g. OxCal and Bchron)

Seismic-reflection data interpretation

- Interpretation of subsurface features such as faults and folds and identification of potentially productive oil and gas wells using terrestrial seismic-reflection data (part of a summer internship with an oil and gas company in Houston, TX)
- Proficient using mapping, cross-section, seismic interpretation, log plot, and 3D visualization tools in *Petra: Geological Interpretation Software*

ACADEMIC SERVICE

- Manuscript reviewer: *Bulletin of the Seismological Society of America*, *GSA Bulletin*, *Geomorphology*, *Geophysical Research Letters*, *Journal of Marine Science and Engineering*, *Marine Geology*
- Member of the following societies: American Geophysical Union, Geological Society of America, Micropaleontological Society, and Sigma Gamma Epsilon Geology Honor Society

STUDENTS SUPERVISED

- *Rutgers University*: Isabel Hong (PhD, current); Kelsey Logan (BSc, current); Tiffany Otai (BSc)
- *University of Rhode Island*: Nicole Brennan (BSc, current); Greta Janigian (MA, current)

CONVENED SESSIONS AND INVITED LECTURES

- *Convened sessions*: Sedimentary archives of subduction zone earthquakes and tsunamis from coastlines of the Pacific Ocean, XIX INQUA Congress, Nagoya, Japan, 27 July – 2 August 2015; Sea-level changes from minutes to millennia (Session T30), Geological Society of America Annual Meeting, Vancouver, Canada, 19-22 October 2014.
- *Invited lectures*: NSF East Asia Pacific Summer Institute reception (guest speaker; 2012), Universidad Catolica de Valparaiso, Chile (2011, 2012, 2013), AGU meeting (2014); IGCP meeting (2016); Rutgers University (2016); SSA meeting (2017); Virginia Tech (2017), Humboldt State University (2017), USGS Santa Cruz (2018).

COLLABORATORS AND OTHER AFFILIATIONS

Graduate advisors

MA: Dr. Charles M. Rubin (Central Washington University), Dr. Lisa L. Ely (Central Washington University)

PhD: Dr. Benjamin P. Horton (University of Pennsylvania), Dr. Doug E. Jerolmack (University of Pennsylvania), Jane K. Willenbring (University of Pennsylvania), Alan R. Nelson (USGS Earthquake Hazards Program)

Collaborators

Humboldt State University (*Kelsey, Hemphill-Haley*), Earth Observatory of Singapore (*Rubin, Switzer, Gouramanis*), West Chester University (*Nikitina*), Geological Survey of Japan (*Sawai*), British Geological Survey (*Vane*), Durham University, UK (*Garrett, Shennan*), U.S. Geological Survey (*Briggs, Gelfenbaum, Nelson, Wesson, Witter*), Universidad de Valparaiso, Chile (*Cisternas*), University of Rhode Island (*Engelhart*), University of North Carolina, Wilmington (*Hawkes*), University College of Dublin (*Parnell, Cahill*), Georgia Tech (*Fritz*)

LANGUAGES

- **English**: native language; **Spanish**: fluent (speaking, reading, writing)

PUBLICATIONS

Published

1. **Dura, T.**, Horton, B.P., Cisternas, M., Hong, I., Ely, L.L., Nelson, A.R., Wesson, R.L., Pilarczyk, J., Parnell, A.C., Nikitina, D., 2017. Subduction zone slip variability during the last millennium, south-central Chile. *Quaternary Science Reviews*, 175, 112-137.
2. **Dura, T.**, Hemphill-Haley, E., Sawai, Y., and Horton, B.P., 2016a. The application of diatom ecology and biostratigraphy to earthquake and tsunami studies. *Earth Science Reviews*, 152, 181-197.
3. **Dura, T.**, Horton, B. P., Engelhart, Vacchi, M, 2016b. The role of Holocene relative sea-level change in preserving records of subduction-zone earthquakes. *Current Climate Change Reports*, 2(3), 86-100.
4. **Dura, T.**, Cisternas, M., Horton, B. P., Ely, L. L., Nelson, A. R., Wesson, R. L., and Pilarczyk, J. E., 2015. Coastal evidence for Holocene subduction-zone earthquakes and tsunamis in central Chile. *Quaternary Science Reviews*, 113, 93-111.
5. **Dura, T.**, Rubin, C. M., Kelsey, H. M., Horton, B. P., Hawkes, A., Vane, C. H., Daryono, M., Grand Pre, C., Ladinsky, T., and Bradley, S., 2011. Stratigraphic record of holocene coseismic subsidence, Padang, West Sumatra. *Journal of Geophysical Research: Solid Earth (1978–2012)*, 116(B11).
6. Horton, B.P., Milker, Y., **Dura, T.**, Wang, K., Bridgeland, W.T., Brophy, L., Ewald, M., Khan, N.S., Engelhart, S.E., Nelson, A.R., Witter, R.C., 2017. Microfossil measures of rapid sea-level rise: Timing of response of two microfossil groups to a sudden tidal-flooding experiment in Cascadia. *Geology*, 45(6), 535-538.
7. Cisternas, M., Garrett, E., Wesson, R., **Dura, T.**, and Ely, L.L, 2017. Unusual geologic evidence of coeval seismic shaking and tsunamis shows variability in earthquake size and recurrence in the area of the giant 1960 Chile earthquake. *Marine Geology*, 385, 101-113.

8. Hong, I., **Dura, T.**, Ely, L.L., Horton, B.P., Nelson, A.R., Cisternas, M., Nikitina, D., and Wesson, R.L., 2017. A 600-year long stratigraphic record of tsunamis in south-central Chile. *The Holocene*, 27(1), 39-51.
9. Nelson, A. R., Briggs, R. W., **Dura, T.**, Engelhart, S. E., Gelfenbaum, G., Bradley, L. A., Forman, S.L., Vane, C.H., and Kelley, K. A., 2015. Tsunami recurrence in the eastern Alaska-Aleutian arc: A Holocene stratigraphic record from Chirikof Island, Alaska. *Geosphere*, 11(4), 1172-1203.
10. Pilarczyk, J.E., **Dura, T.**, Horton, B.P., Engelhart, S.E., Kemp, A.C., Sawai, Y., 2014. Microfossils from coastal environments as indicators of paleo-earthquakes, tsunamis, and storms. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 413, 144-157.
11. Ely, L., Cisternas, M., Wesson, R., **Dura, T.**, 2014. Five centuries of tsunamis and land-level changes at the overlap between the rupture areas of the 1960 and 2010 Chilean earthquakes, *Geology* 42(11)995-998.
12. Briggs, R. W., Engelhart, S. E., Nelson, A. R., **Dura, T.**, Kemp, A. C., Haeussler, P. J., Corbett, D. R., Angster, S. J., and L. Bradley, 2014. Uplift and subsidence reveal a non-persistent megathrust rupture boundary (Sitkinak Island, Alaska), *Geophysical Research Letters*, 41(7), 2289-2296.

In prep

13. **Dura, T.**, Horton, B.P., Breany, M., Brennan, N., Fritz, H., Ely, L.L., Cisternas, M., Wesson, R.L., Pilarczyk, J., Briggs, R., *in prep*. Sedimentary and diatom evidence of the 2015 tsunami on the north-central coast of Chile in the absence of significant coastal deformation. To be submitted to *Marine Geology*.

RECENT CONFERENCE ABSTRACTS (FIRST AUTHOR ONLY)

1. **Dura, T.**, Garner, A., Weiss, R., Kopp, R., Horton, B., 2018. Predicting the impact of tsunamis in California under rising sea level, Abstract NH32A-05 presented at 2018 Fall Meeting, AGU, Washington DC, 10-14 Dec. **(ORAL)**.
2. **Dura, T.**, Garner, A., Weiss, R., Kopp, R., Horton, B., 2017. Predicting the impact of tsunamis in California under rising sea level, Abstract NH23A-0250 presented at 2017 Fall Meeting, AGU, New Orleans, LA 11-15 Dec. **(POSTER)**.
3. **Dura, T.**, Horton, B., MacInnes, B., Brennan, N., Fritz, H., Ely, L., Cisternas, M., Wesson, R., Pilarczyk, J., Briggs, R., 2016. Sedimentary and diatom evidence of the 2015 tsunami on the north-central coast of Chile in the absence of significant coastal deformation, Abstract NH51D-01 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec. **(ORAL)**.
4. **Dura, T.**, Engelhart, S., Vacchi, M., Horton, B., Kopp, R., Peltier, R., Bradley, S., 2016. The role of Holocene relative sea-level change in preserving records of subduction zone earthquakes, IGCP Project 639 Meeting: Sea-level Change from Minutes to Millennia **(INVITED ORAL)**.
5. **Dura, T.**, Horton, B.P., Hong, I., Cisternas, M., Ely, L.L., Nelson, A.R., Nikitina, D., Pilarczyk, J., Wesson, R.L., 2015. 2000-year record of eight tsunamis and associated seismic land-level change, south-central Chile, Geological Society of America *Abstracts with Programs*. Vol. 47, No. 7, p.358. **(POSTER)**.
6. **Dura T.**, Horton, B.P., Kelsey, H.M., Cisternas, M., Ely, L.L., Nelson, A.R., Rubin, C.M., 2015. Preservation of paleoseismic archives of multiple great earthquakes: lessons from the subduction zones of Sumatra and Chile, 2015 Amtrak Soil to Sea Meeting, Lehigh University **(ORAL)**.
7. **Dura, T.**, Horton, B.P., Briggs, R.W., Cisternas, M., Ely, L.L., Kelsey, H.M., Nelson, A.R., and Rubin, C.M., 2014. Paleoseismic Records of multiple great earthquakes from the subduction zones of Sumatra, Chile, and Alaska, Abstract S44C-03 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec. **(INVITED ORAL)**.