Curriculum vitae

Computational geophysicist and data science software engineer. My research recovers ocean tides and other time-variable gravity signals from GRACE satellite accelerations — Arctic tides in my dissertation, Antarctic tides as a postdoctoral scholar at the Jet Propulsion Laboratory, where I now engineer production data-science software.

Research experience

2019 - present: Data science software engineer at the Jet Propulsion Laboratory, contracting through Raytheon.

2011 - 2014: Postdoctoral scholar at the Jet Propulsion Laboratory. Advisor: Victor Zlotnicki

2006 - 2011: Research assistant at the Cooperative Institute for Research In Environmental Sciences, University of Colorado, Boulder, CO. Advisor: John Wahr

2003 - 2004: Research assistant at the University of Oregon, Eugene, OR. Advisor: Michael G. Raymer

Education

Ph.D. Physics, University of Colorado, 2011. Dissertation: "Arctic Ocean Tides from GRACE Satellite Accelerations." Advisor: John Wahr

M.S. Physics, University of Colorado, 2007.

B.S. Physics, University of Oregon, 2004.

Research interests

I'm primarily interested in computational geophysics and aerospace engineering. Most of my research has involved analysis of time-variable gravity data. For instance, my last postdoc project at JPL was applying the Hughes and Williams 2010 methodology to GRACE and GLDAS data, which can display the entire global spectrum of GRACE or GLDAS data in a single map, rather than only displaying (e.g.) the RMS or annual amplitude at each location.

From 2014 to 2019 I tutored math and physics students while keeping my programming skills sharp by trying to improve on a propellantless system for achieving trans-Earth injection from Deimos, which was originally published in Jokic and Longuski 2004.

Publications

Wiese, David N., **Emmy Killett**, Michael M. Watkins, and Dah-Ning Yuan. "Antarctic tides from GRACE satellite accelerations." Journal of Geophysical Research: Oceans 121, no. 5 (2016): 2874-2886, doi:10.1002/2015JC011488.

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Arctic Ocean tides from GRACE satellite accelerations." Journal of Geophysical Research: Oceans 116, no. C11 (2011), doi:10.1029/2011JC007111.

Smith, Brian J., **Emmy Killett**, Michael G. Raymer, Ian A. Walmsley, and Konrad Banaszek. "Measurement of the transverse spatial quantum state of light at the single-photon level." Optics letters 30, no. 24 (2005): 3365-3367, doi:10.1364/OL.30.003365.

Presentations

Killett, Emmy, Shailen D. Desai, Dah-Ning Yuan, Michael M. Watkins, David N. Wiese, and Victor Zlotnicki. "Antarctic Ocean tides from GRACE satellite accelerations." AGU Fall Meeting, San Francisco, CA (2012).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Arctic Ocean tides from GRACE satellite accelerations." Western Pacific Geophysics Meeting, Taipei, Taiwan (2010).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Using GRACE acceleration data to recover Arctic Ocean tides." AGU Fall Meeting, San Francisco, CA (2008).

Killett, Emmy, Shailen D. Desai, Dah-Ning Yuan, Michael M. Watkins, and John Wahr. "Preliminary analysis of Arctic Ocean tides using GRACE spacecraft acceleration data." Earth Tides Symposium, Jena, Germany (2008).

Killett, Emmy, Brian J. Smith, and Michael G. Raymer. "Interferometric measurement of spatial Wigner functions of light." Symposium on Undergraduate Research, Tucson, AZ (2003).

Posters

Killett, Emmy, Victor Zlotnicki, David N. Wiese, and Michael M. Watkins. "Time variability of GRACE data using JPL mascons." AGU Fall Meeting, San Francisco, CA (2013).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Global ocean tides from GRACE satellite accelerations." Ocean Sciences Meeting, Salt Lake City, UT (2012).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, Michael M. Watkins, Cecilia Peralta-Ferriz, and James Morison. "Global ocean tides from GRACE satellite accelerations." AGU Fall Meeting, San Francisco, CA (2011).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Arctic Ocean tides from GRACE satellite accelerations." AGU Fall Meeting, San Francisco, CA (2010).

Killett, Emmy, John Wahr, Shailen D. Desai, Dah-Ning Yuan, and Michael M. Watkins. "Arctic Ocean tides from GRACE satellite accelerations." AGU Fall Meeting, San Francisco, CA (2009).

Killett, Emmy, Shailen D. Desai, Dah-Ning Yuan, Michael M. Watkins, and John Wahr, "Preliminary analysis of Arctic Ocean tides using GRACE spacecraft acceleration data." AGU Fall Meeting, San Francisco, CA (2007).

Killett, Emmy, Sean Swenson, John Wahr, and Matthew Rodell. "Global comparisons of GRACE with water storage products." AGU Fall Meeting, San Francisco, CA (2006).

Programming skills

C++ (example), **Python** (example, PDF, output A, output B, output C, output D), **R** (example 1, example 2, output 2, example 3, output 3A, output 3B, output 3C, output 3D), **GMT** (example), **shell scripting** (example).

Teaching experience

2018 - 2019: Math and science tutor at Huntington Learning Center, Gonzales, LA.

2014 - 2019: Freelance math and physics tutor at Baton Rouge Community College, LA.

2004 - 2006: Physics teaching assistant at the University of Colorado, Boulder, CO.

2002 - 2003: Physics teaching assistant at the University of Oregon, Eugene, OR.

2001 - 2002: Math and science tutor at Portland Community College, Portland, OR.

Outreach

2026: "Earth data science at JPL", a talk for the Discovery Cube's summer robotics and programming program for kids.

2013: Appearance in Secrets of the Earth: Gravity.

2012: Earth Science Week.

2012: Op-ed: "Jumpstart a clean energy economy".

2012: Online interview about climate change and GRACE.

2012: JPL open house.

2009: Video conference with a fifth grade class about moons, tides, and GRACE.