

CURRICULUM VITAE

KEITH J. ROBERTS

INFORMATION

University of São Paulo, São Paulo, Brazil.
Research Center for Gas Innovation
Email: krober AT usp.edu, keithrbt0 AT gmail.com
Date of Birth: 06.10.1990
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INTERESTS

Coastal ocean modeling (e.g., storm surge modeling and coastal flooding); unstructured mesh generation for geophysical problems; parallel computing and programming; finite elements.

TECHNICAL SKILLS

- Coastal ocean hydrodynamics, atmospheric dynamics, weather forecasting.
- High performance computing, parallel computer programming: C/C++; FORTRAN; MATLAB, Python.
- Computational geometry (e.g., mesh generation algorithms).
- Finite elements.

EDUCATION

- Bachelors in Atmospheric and Oceanic Sciences: **08.08-05.12**
Stony Brook University
- Masters in Atmospheric Science: **08.12-05.15**
Stony Brook University
Thesis: **An Application of Regression for Storm Surge Prediction along the New York/New Jersey Coast in Climate Models**
Advisor: Dr. Brian A. Colle
- Ph.D. in Civil Engineering: **08.15-05.19**
University of Notre Dame
Thesis: **Unstructured Mesh Generation and Dynamic Load Balancing for Hydrodynamic Simulations of the Coastal Ocean**
Advisor: Dr. Joannes Westerink

POSITIONS HELD

- 2019-current Postdoctoral researcher University of São Paulo, Brasil.
- 2018-2019 Contracting scientist, Argonne National Laboratory
- 2015-2019 Graduate Research Assistant, Univ. of Notre Dame
- 2012-2015 Graduate Research Assistant, Stony Brook Univ.
- 2011-2012 Undergrad. Research Assistant, Stony Brook Univ.
- 2010-2011 National Weather Service Intern (KOKX)

PUBLICATIONS

1. Pringle, W.J., D. Wirasaet, **Roberts, K.J.**, J.J. Westerink.. Global Storm Tide Modeling with ADCIRC v55: Unstructured Mesh Design and Performance, *Geosci. Model Dev.*, 14, 1125–1145, <https://doi.org/10.5194/gmd-14-1125-2021>, 202
2. **Roberts, K.J.**, J.C. Dietrich, D. Wirasaet, W.J. Pringle, J.J. Westerink. “Dynamic load balancing for predictions of storm surge and coastal flooding.” *Environmental Modelling Software*, DOI: 10.1016/j.envsoft.2021.105045.
3. **Roberts K.J.**, Gioria, R., Pringle, W.J . SeismicMesh: Triangular meshing for seismology. *Journal of Open Source Software*, 6(57), 2687, <https://doi.org/10.21105/joss.02687>
4. Pringle, W.J. , Wang J., **K.J. Roberts**, Veerabhadra R. Kotamarthi. Projected Changes to 21st Century Cool-Season Cyclones and Storm Tides along the Northeastern United States Coast. Submitted to *Earth’s Future*. In minor revision.
5. **Roberts, Keith J.**, Pringle, W.J., Westerink, J.J., Contreras, M.T., Wirasaet, D. (2019). On the automatic and a priori design of unstructured mesh resolution for coastal ocean circulation models. *Ocean Modelling*. 144. 101509. 10.1016/j.ocemod.2019.101509.
6. **Roberts, K. J.**, Pringle, W. J., and Westerink, J. J., 2018. OceanMesh2D 1.0: MATLAB-based software for two-dimensional unstructured mesh generation in coastal ocean modeling, *Geoscientific Model Development.*, 10.5194/gmd-12-1847-2019.
7. **Roberts, K.J.**, B.A. Colle, and N. Korfe, 2017: Impact of Simulated Twenty-First-Century Changes in Extratropical Cyclones on Coastal Flooding at the Battery, New York City. *J. Appl. Meteor. Climatol.*, 56, 415–432, <https://doi.org/10.1175/JAMC-D-16-0088.1>
8. **Roberts, Keith J.**; Colle, Brian A.; Georgas, Nickitas; Munch, Steve: “A Regression-based Approach for Cool-Season Storm Surge Predictions along the New York/New Jersey Coast”. *J. Applied Met.* 2015,
9. Colle, B.A.; Bowman, M.J.; **Roberts, K.J.**; Bowman, M.H.; Flagg, C.N.; Kuang, J.; Weng, Y.; Munsell, E.B.; Zhang, F. Exploring Water Level Sensitivity for Metropolitan New York during Sandy (2012) Using Ensemble Storm Surge Simulations. *J. Mar. Sci. Eng.* 2015, 3, 428-443.