

# Dax K. Matthews

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## **Assistant Researcher**

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## Education

- 2008: *Ph.D. Aerospace Engineering*  
University of Colorado, Boulder  
thesis: Examining the wind-forced velocity structure of the  
California Current System using observations derived from  
satellite remote sensing
- 2003: *M.S. Aerospace Engineering*  
University of Colorado, Boulder  
focus: Atmospheric and Oceanic Sciences
- 2002: *B.S. Aerospace Engineering*  
University of Colorado, Boulder

## Professional Experience

- 2014-Present: *Assistant Researcher*  
HNEI / University of Hawaii at Manoa  
focus: developing solar power resource monitoring and  
forecasting systems
- 2012-2013: *Postdoctoral Fellow*  
HNEI / University of Hawaii at Manoa  
focus: characterizing solar irradiance using statistical techniques
- 2009-2011: *Postdoctoral Scholar*  
Oceanography Department / University of Hawaii at Manoa  
focus: applying spatiotemporal statistics, numerical models, and  
data assimilation techniques to study and forecast ocean  
dynamics around the Hawaiian Islands
- 2008: *Research Associate*  
Colorado Center for Astrodynamics Research (CCAR)  
University of Colorado, Boulder  
focus: investigating the viability of estimating near-coast ocean  
currents from synthetic aperture radar and high frequency  
altimetry
- 2004-2005: *Graduate Instructor*  
Aerospace Engineering Dept. / University of Colorado, Boulder  
ASEN 3113 - Thermodynamics and Heat Transfer

- 2002-2008: *Graduate Research Assistant*  
CCAR / University of Colorado, Boulder  
focus: developed methods to generate ocean current velocity observations from satellite imagery and altimetry
- 2001-2002: *Undergraduate Research Assistant*  
CCAR / University of Colorado, Boulder  
focus: developed geolocation and cloud filtering algorithms for AVHRR imagery

### Affiliations

- Member: American Geophysical Union
- Reviewer: Journal of Geophysical Research - Oceans  
Ocean Dynamics  
Marine Geodesy  
Remote Sensing  
Sustainability

### Selected Publications

- Janekovic, I., B. Powell, D. Matthews, M. McManus, and J. Sevadjan. 2013. 4D-Var data assimilation in a nested, coastal ocean model: A Hawaiian case study. *Journal of Geophysical Research*. Volume 118, Issue 10, pages 5022-5035. DOI:10.1002.
- Matthews, D.K., B. S. Powell, and I. Janeković. 2012: Analysis of four-dimensional variational state estimation of the Hawaiian waters. *Journal of Geophysical Research*. Volume 117, C03013, doi:10.1029/2011JC007575.
- Matthews, D.K., B. Powell, and R. Milliff. 2011. Dominant spatial variability scales from observations around the Hawaiian Islands. *Deep Sea Research Part I: Oceanographic Research Papers*. Volume 58, Issue 10, October 2011, Pages 979-987, ISSN 0967-0637, 10.1016/j.dsr.2011.07.004.
- Matthews, D. K., and W. J. Emery. 2009. Velocity observations of the California Current derived from satellite imagery. *Journal Geophysical Research*. Volume 114, C08001, doi: 10.1029/2008JC005029.
- Crocker, R.I., D.K. Matthews, W.J. Emery, and D. Baldwin, 2007. Computing coastal ocean currents from infrared and ocean color satellite imagery. *IEEE Transactions on Geoscience and Remote Sensing*, 45, 2, 435-447.
- Emery, W.J. D.K. Matthews, and D. Baldwin. 2005. Mapping Surface coastal currents with satellite imagery and altimetry. *Environmental engineering and management*.

Emery, W.J., D.K. Matthews, R. Crocker, and D. Baldwin. 2004. Surface Current Mapping off California with Radiometry and Altimetry. *Gayana (Concept.) Supplemental Proceedings*: 174-179.

Klaus, D., Chluda, H., Ellis, T., Fering, J., Howard, H., Jairala, J., Lloyd, T., Matthews, D., Morris, K., Rowley, K., Saures, C., and T. Stevens. 2004. Systems Engineering Evaluation of a Mars Habitat Design. 34th International Conference on Environmental Systems (ICES), SAE Technical Paper 2004-01-2372.

Emery, W.J., D.G. Baldwin, and D.K. Matthews. 2003. Sampling the Mesoscale Ocean Surface Currents with Various Satellite Altimeter Configurations. *IEEE Transactions on Geoscience and Remote Sensing*, 42, 795-803.

Emery, W.J., D. G. Baldwin, and D. K. Matthews. 2002. Maximum Cross Correlation Automatic Satellite Image Navigation and Attitude Corrections for Open Ocean Image Navigation. *IEEE Transactions on Geoscience and Remote Sensing*, 41, 33-42.