

Ian G. Fenty

CONTACT INFORMATION	Jet Propulsion Laboratory, California Institute of Technology 4800 Oak Grove Dr, M/S 300-323 Pasadena, CA 91109-8099	Office: (818) 393-1506 Ian.Fenty@jpl.nasa.gov
RESEARCH INTERESTS	Climate dynamics: coupled ice-ocean variability, high-latitude climate variability. Numerical modeling: coupled sea ice-ocean general circulation models. Model-data synthesis: state estimation, adjoint optimization, model/data error estimation.	
PROFESSIONAL PREPARATION	NASA Jet Propulsion Laboratory/Caltech <i>NASA Postdoctoral Program Fellow</i>	Pasadena, CA 2010–2013
	Massachusetts Institute of Technology <i>Ph.D. in Climate Physics and Chemistry</i>	Cambridge, MA 2003–2010
	Worcester Polytechnic Institute <i>Bachelor of Science in System Dynamics, awarded with high honors</i>	Worcester, MA 1996–2001
APPOINTMENTS	NASA Jet Propulsion Laboratory/Caltech <i>Scientist</i>	Pasadena, CA 2013–Present
MENTOR AND ADVISING EXPERIENCE	Postdoctoral Scholars <i>C. van der Boog (2021-present), M. H. Wood (2019-present)</i>	
	JPL Interns <i>D. Bark (CU Boulder), M. Gonzalzo (Caltech), F. Graham (Caltech), V. Hoang (CalPolyPomona), G. Kohli (UCLA), K. Marlis (CSLA), N. Melbourne (UH at Manoa), A. Shin (Glendale College, UC Berkeley)</i>	
	Graduate Students Mentoring/Advising/Co-Advising <i>Marie Zhan (University of Washington, 2021-present), Shumon Koga (UCSD, 2017)</i>	
PUBLICATIONS	Carroll, D., and D. Menemenlis, S. Dutkiewicz, J. M. Lauderdale, J. F. Adkins, K. W. Bowman, H. Brix, I Fenty, and-co-authors, 2022, Attribution of space-time variability in global-ocean dissolved inorganic carbon . <i>Global Biogeochem Cy.</i> , https://doi.org/10.1029/2021gb007162 .	
	Chandanpurkar, H., T. Lee, X. Wang, H. Zhang, S. Fournier, I. Fenty, I. Fukumori, D. Menemenlis, C. Piecuch, J.T. Reager, O. Wang, J. Worden, 2021, Influence of Nonseasonal River Discharge on Sea Surface Salinity and Height , <i>Journal of Advances in Modeling Earth Systems</i> , 10.1029/2021MS002715	
	Nakayama, Y., D. Menemenlis, O. Wang, H. Zhang, I. Fenty, and A. Nguyen, 2021, Development of adjoint-based ocean state estimation for the Amundsen and Bellingshausen seas and ice shelf cavities using MITgcm–ECCO (66j) . <i>Geosci Model Dev</i> , 14, 4909–4924, 10.5194/gmd-14-4909-2021.	
	Wood, M., E. Rignot, I. Fenty, L. An, A. Bjørk, M. van den Broeke, et al., 2021, Ocean forcing drives glacier retreat in Greenland , <i>Science Advances</i> , doi:10.1126/sciadv.aba7282	
	Wood, M., E. Rignot, A. Bjork, M. van en Broeke, I. Fenty, et al, 2020, Greenland Marine-Terminating Glacier Retreat Data , <i>Dryad</i> , doi:10.7280/D1667W	
	ECCO Consortium, I. Fukumori, O. Wang, I. Fenty, G. Forget, P. Heimbach, R. Ponte, 2021. Synopsis of the ECCO Central Production Global Ocean and Sea-Ice State Estimate (Version 4 Release 4) . Zenodo. doi:10.5281/zenodo.3765928	
	Fenty, I., M. Wood, B. Bachman, M. Gonzalzo, F. Graham, L. Yunling, D. Moller, R. Mullerschoen, J. Willis, Y. Zhang, 2020, OMG Glacial Elevations from GLISTIN-A Ver.1. , <i>NASA Phys. Ocean. Distr. Active Archive Center</i> , Pasadena, CA, doi:10.5067/OMGEV-GLNA1	
	Carroll, D., D. Menemenlis, J. Adkins, K. Bowman, H. Brix, S. Dutkiewicz, I. Fenty, et al., 2020. The ECCO-Darwin Data-assimilative Global Ocean Biogeochemistry Model: Estimates of Seasonal to Multi-decadal Surface Ocean pCO₂ and Air-sea CO₂ Flux . <i>Journal of Advances in Modeling Earth Systems</i> . doi:10.1029/2019MS001888	

- Heimbach, P., I. Fukumori, C. Hill, R. Ponte, D. Stammer, C. Wunsch, J-M Campin J-M, B. Cornuelle, I. Fenty, 2019, **Putting It All Together: Adding Value to the Global Ocean and Climate Observing Systems With Complete Self-Consistent Ocean State and Parameter Estimates**. *Frontiers in Marine Science*, 6, doi:10.3389/fmars.2019.00055
- Khazendar, A., I. Fenty, D. Carroll, et al., 2018, **Interruption of two decades of Jakobshavn Isbrae acceleration and thinning as regional ocean cools**, *Nature Geosci.*, doi:10.1038/s41561-019-0329-3
- Wood, M., Rignot, E., Fenty, I., Menemenlis, D., Millan, R., Morlighem, M., et al. 2018. **Ocean-Induced Melt Triggers Glacier Retreat in Northwest Greenland**. *Geophysical Research Letters*. doi:10.1029/2018GL078024
- Willis, J., Carroll, D., Fenty, I., Kohli, G., Khazendar, A., Rutherford, M., et al. (2018). **Ocean-Ice Interactions in Inglefield Gulf: Early Results from NASA's Oceans Melting Greenland Mission**. *Oceanography*, 31(2). doi:10.5670/oceanog.2018.211
- Fenty, I., D. Menemenlis, H. Zhang, 2017, **Global Coupled Sea Ice-Ocean State Estimation**, *Climate Dynamics*, 49(3), doi:10.1007/s00382-015-2796-6
- Morlighem, M, C. Williams. ... I. Fenty, et al., 2017, **BedMachine v3: Complete Bed Topography and Ocean Bathymetry Mapping of Greenland From Multibeam Echo Sounding Combined With Mass Conservation**, *Geophys. Res. Lett.* 44(21), doi:10.1002/2017GL074954
- Williams, C. N., Cornford, S. L., Jordan, T. M., Dowdeswell, J. A., Siegert, M. J., Clark, C. D., Swift, D.A., Sole, A., Fenty, I., Bamber, J. L. 2017, **Generating synthetic fjord bathymetry for coastal Greenland**, *The Cryosphere*, 11(1), doi:10.5194/tc-11-363-2017
- Fenty, I., J. Willis, A. Khazendar, et al., 2016, **Oceans Melting Greenland: Early Results from NASA's Ocean-Ice Mission in Greenland**, *Oceanography*, 29(4), doi:10.5670/oceanog.2016.100
- Rignot, E., Xu, Y., Menemenlis, D., Mouginot, J., Scheuchl, B., Li, X., Fenty, I., ... Fleurian, B. de. 2016. **Modeling of ocean-induced ice melt rates of five west Greenland glaciers over the past two decades**. *Geophys. Res. Lett.*, 43(12), doi.org/10.1002/2016GL068784
- Rignot, E., I. Fenty, Y. Xu, C. Cai, I. Velicogna, C. O. Cofaigh, J. A. Dowdeswell, W. Weinrebe, G. Catania, D. Duncan, 2016, **Bathymetry data reveal glaciers vulnerable to ice-ocean interaction in Uummannaq and Vaigat glacial fjords, west Greenland**, *Geophys. Res. Lett.*, 43, doi:10.1002/2016GL067832
- Mouginot, J., E. Rignot, A. Buzzi, I. Fenty, A. Khazendar, M. Morlighem, B. Scheuchl, J. Paden, 2015, **Fast retreat of Zacharia Isstrom, northeast Greenland**, *Science*, doi:10.1126/science.aac7111
- Rignot, E., I. Fenty, X. Yun X, C. Cai., C. Kemp, 2015, **Undercutting of Greenland marine-terminating glaciers**, *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL064236
- Fukumori, I., O. Wang, W. Llovel, I. Fenty, G. Forget, 2015, **A Near-Uniform Fluctuation of Ocean Bottom Pressure and Sea Level across the Deep Ocean Basins of the Arctic Ocean and the Nordic Seas**, *Progress in Oceanography*, 134, doi:10.1016/j.pocean.2015.01.013

Xu, Y., E. Rignot, I. Fenty, D. Menemenlis, M. Mar Flexas, 2013, **Subaqueous melting of Store Glacier, West Greenland from three-dimensional, high-resolution numerical modeling and ocean observations**, *Geophys. Res. Lett.*, 40(17), doi:10.1002/grl.50825

Khazendar, A., M. Schodlok, I. Fenty, 2013, **Thickness changes and ice-ocean interactions of the Totten and Moscow University Glaciers, East Antarctica**, *Nature Communications*, doi:10.1038/ncomms3857

Rignot, E., I. Fenty, D., Menemenlis, Y. Xu, 2012, **Spreading of warm ocean waters around Greenland as a possible cause for glacier acceleration**, *Annals of Glaciology*, 53(60), doi:10.3189/2012AoG60A136

Fenty, I. and P. Heimbach, 2012, **Coupled Sea Ice-Ocean State Estimation in the Labrador Sea and Baffin Bay**, *J. Phys. Oceanogr.*, 43(5), doi:10.1175/JPO-D-12-065.1

Fenty, I. and P. Heimbach, 2012, **Hydrographic Preconditioning for Seasonal Sea Ice Anomalies in the Labrador Sea**, *J. Phys. Oceanogr.*, 43(5), doi:10.1175/JPO-D-12-064.1

AWARDS

2022: NASA Agency Team Award: ECCO and PO.DAAC

2020: JPL Team Award: Oceans Melting Greenland

2019: NASA Early Career Public Achievement Medal

2019: JPL Group Achievement Award: Oceans Melting Greenland team

2018: JPL Charles Elachi Award for Outstanding Early Career Achievement

2017: NASA Honor Award: Oceans Melting Greenland Team

2017: NASA Honor Award: Climate Sciences School Group Projects Design Team

2015: JPL Team Award: Earth Science Senior Review Proposal Support

2015: JPL Discovery Award

PROFESSIONAL SOCIETIES AND AFFILIATIONS

NASA Ocean Surface Topography Science Team

NASA Sea Level Change Team

American Geophysical Union

Interagency Arctic Research Policy Committee

The Oceanography Society

SYNERGISTIC ACTIVITIES

Estimating the Circulation and Climate of the Oceans [ECCO] consortium

Session chair: Glacier Front Dynamics and the Fate of Icebergs

Session chair: High-Resolution Ocean Modeling for Ocean-Ice Interaction Around the Greenland and Antarctic Ice Sheets—

American Geophysical Union, 2018 Fall Meeting

Washington DC

Session chair: Ocean Modelling around Greenland and Antarctica

Session chair: Ice-Ocean Interactions on Greenland and Antarctica

American Geophysical Union, 2018 Oceans Sciences Meeting

Portland, OR

Session co-chair: On the Impact of Land Ice-Ocean Interactions on Greenland and Antarctica Ice Mass Balance II

American Geophysical Union, 2014 Fall Meeting

San Francisco, CA