TYLER C. SUTTERLEY

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EDUCATION

Doctor of Philosophy in Earth System Science 2016
Remote Sensing Observations of Modern-Day Regional Ice Sheet Change
PhD Advisor: Isabella Velicogna
University of California, Irvine

International Summer School in Glaciology 2014
University of Alaska, Fairbanks

Master of Science in Earth System Science 2012
University of California, Irvine

Bachelor of Science in Mechanical Engineering 2008
University of California, San Diego

PROFESSIONAL EXPERIENCE

Research Associate, University of Washington, Applied Physics Laboratory 2019 –
NASA Postdoctoral Program Fellow, Goddard Space Flight Center 2017 – 2019
Postdoctoral Scholar, University of California, Irvine 2016 – 2017
Graduate Student Representative, University of California, Irvine 2011 – 2012
Graduate Student Researcher, University of California, Irvine 2010 – 2016
Mechanical Engineer of Research & Development, Asymtek 2008 – 2009

REFEREED PUBLICATIONS

1. I. Velicogna, Y. Mohajerani, G. A, F. Landerer, J. Mouginot, B. Noël, E. Rignot, T. Sutterley, M. van den Broeke, M. van Wessem, and D. Wiese. Continuity of Ice Sheet Mass Loss in Greenland and Antarctica From the GRACE and GRACE Follow-On Missions. *Geophysical Research Letters*, 47(8), 2020. doi:10.1029/2020GL087291
2. T. C. Sutterley, I. Velicogna, and C.-W. Hsu. Self-Consistent Ice Mass Balance and Regional Sea Level From Time-Variable Gravity. *Earth and Space Science*, 7(3), 2020. doi:10.1029/2019EA000860
3. A. Shepherd, E. Ivins, E. Rignot, B. Smith, M. van den Broeke, I. Velicogna, P. Whitehouse, K. Briggs, I. Joughin, G. Krinner, S. Nowicki, T. Payne, T. Scambos, N. Schlegel, G. A, C. Agosta, A. Ahlstrøm, G. Babonis, V. R. Barletta, A. A. Bjørk, A. Blazquez, J. Bonin, W. Colgan, B. Csatho, R. Cullather, M. E. Engdahl, D. Felikson, X. Fettweis, R. Forsberg, A. E. Hogg, H. Gallee, A. Gardner, L. Gilbert, N. Gourmelen, A. Groh, B. Gunter, E. Hanna, C. Harig, V. Helm, A. Horvath, M. Horwath, S. Khan, K. K. Kjeldsen, H. Konrad, P. L. Langen, B. Lecavalier, B. Loomis, S. Luthcke, M. McMillan, D. Melini, S. Mernild, Y. Mohajerani, P. Moore, R. Mottram, J. Mouginot, G. Moyano, A. Muir, T. Nagler, G. Nield, J. Nilsson, B. Noël, I. Otosaka, M. E. Pattle, W. R. Peltier, N. Pie, R. Rietbroek, H. Rott, L. S. Sørensen, I. Sasgen, H. Save, B. Scheuchl, E. Schrama, L. Schröder, K.-W. Seo, S. B. Simonsen, T. Slater, G. Spada, T. Sutterley, M. Talpe, L. Tarasov, W. Jan van de Berg, W. van der Wal, M. van Wessem, B. D. Vishwakarma,

D. Wiese, D. Wilton, T. Wagner, B. Wouters, J. Wuite, and The IMBIE Team. Mass balance of the Greenland Ice Sheet from 1992 to 2018. *Nature*, 579:233–239, 2020. doi:10.1038/s41586-019-1855-2

4. T. C. Sutterley and I. Velicogna. Improved Estimates of Geocenter Variability from Time-Variable Gravity and Ocean Model Outputs. *Remote Sensing*, 11(2108), 2019. doi:10.3390/rs11182108

5. T. C. Sutterley, T. Markus, T. A. Neumann, M. van den Broeke, J. M. van Wessem, and S. R. M. Ligtenberg. Antarctic ice shelf thickness change from multimission lidar mapping. *The Cryosphere*, 13(7):1801–1817, 2019. doi:10.5194/tc-13-1801-2019

6. E. Ciracì, I. Velicogna, and T. C. Sutterley. Mass Balance of Novaya Zemlya Archipelago, Russian High Arctic, Using Time-Variable Gravity from GRACE and Altimetry Data from ICESat and CryoSat-2. *Remote Sensing*, 10(1817), 2018. doi:10.3390/rs10111817

7. T. C. Sutterley, I. Velicogna, X. Fettweis, E. Rignot, B. Noël, and M. van den Broeke. Evaluation of Reconstructions of Snow/Ice Melt in Greenland by Regional Atmospheric Climate Models Using Laser Altimetry Data. *Geophysical Research Letters*, 45(16):8324–8333, 2018. doi:10.1029/2018GL078645

8. A. Shepherd, E. Ivins, E. Rignot, B. Smith, M. van den Broeke, I. Velicogna, P. Whitehouse, K. Briggs, I. Joughin, G. Krinner, S. Nowicki, T. Payne, T. Scambos, N. Schlegel, G. A, C. Agosta, A. Ahlstrøm, G. Babonis, V. Barletta, A. Blazquez, J. Bonin, B. Csatho, R. Cullather, D. Felikson, X. Fettweis, R. Forsberg, H. Gallee, A. Gardner, L. Gilbert, A. Groh, B. Gunter, E. Hanna, C. Harig, V. Helm, A. Horvath, M. Horwath, S. Khan, K. Kjeldsen, H. Konrad, P. Langen, B. Lecavalier, B. Loomis, S. Luthcke, M. McMillan, D. Melini, S. Mernild, Y. Mohajerani, P. Moore, J. Mouginot, G. Moyano, A. Muir, T. Nagler, G. Nield, J. Nilsson, B. Noël, I. Otosaka, M. E. Pattle, W. R. Peltier, N. Pie, R. Rietbroek, H. Rott, L. Sandberg-Sørensen, I. Sasgen, H. Save, B. Scheuchl, E. Schrama, L. Schröder, K.-W. Seo, S. Simonsen, T. Slater, G. Spada, T. Sutterley, M. Talpe, L. Tarasov, W. J. van de Berg, W. van der Wal, M. van Wessem, B. D. Vishwakarma, D. Wiese, and B. Wouters. Mass balance of the Antarctic Ice Sheet from 1992 to 2017. *Nature*, 558(7709):219–222, 2018. doi:10.1038/s41586-018-0179-y

9. P. Kishore, I. Velicogna, T. C. Sutterley, Y. Mohajerani, E. Ciracì, and G. N. Madhavi. A case study of mesospheric planetary waves observed over a three-radar. *Annales Geophysicae*, 36(3):925–936, 2018. doi:10.5194/angeo-36-925-2018

10. P. Kishore, J. Jayalakshmi, P.-L. Lin, I. Velicogna, T. C. Sutterley, E. Ciracì, Y. Mohajerani, and S. Kumar. Investigation of Kelvin wave periods during Hai-Tang typhoon using Empirical Mode Decomposition. *Journal of Atmospheric and Solar-Terrestrial Physics*, 164:192–202, 2017. doi:10.1016/j.jastp.2017.07.025

11. A. Khazendar, E. J. Rignot, D. M. Schroeder, H. Seroussi, M. P. Schodlok, B. Scheuchl, J. Mouginot, T. C. Sutterley, and I. Velicogna. Rapid submarine ice melting in the grounding zones of ice shelves in West Antarctica. *Nature Communications*, 7(13243), 2016. doi:10.1038/ncomms13243

12. P. Kishore, I. Velicogna, M. Ratnam, G. Basha, M. J. Ouarda, S. P. Namboothiri, J. H. Jiang, T. C. Sutterley, G. N. Madhavi, and S. V. Rao. Sudden stratospheric warmings observed in the last decade by satellite measurements. *Remote Sensing of Environment*, 184:263–275, 2016. doi:10.1016/j.rse.2016.07.008
13. P. Kishore, S. Jyothi, G. Basha, S. V. B. Rao, M. Rajeevan, I. Velicogna, and T. C. Sutterley. Precipitation climatology over India: validation with observations and reanalysis datasets and spatial trends. *Climate Dynamics*, 46(1-2):541–556, 2016. doi:10.1007/s00382-015-2597-y
14. G. Basha, P. Kishore, M. Venkat Ratnam, M. J. Ouarda, I. Velicogna, and T. Sutterley. Vertical and latitudinal variation of the intertropical convergence zone derived using GPS radio occultation measurements. *Remote Sensing of Environment*, 163:262–269, 2015. doi:10.1016/j.rse.2015.03.024
15. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, T. Flament, M. R. van den Broeke, J. M. van Wessem, and C. H. Reijmer. Mass loss of the Amundsen Sea Embayment of West Antarctica from four independent techniques. *Geophysical Research Letters*, 41(23):8421–8428, 2014. 2014GL061940. doi:10.1002/2014GL061940
16. I. Velicogna, T. C. Sutterley, and M. R. van den Broeke. Regional acceleration in ice mass loss from Greenland and Antarctica using GRACE time-variable gravity data. *Geophysical Research Letters*, 41(22):8130–8137, 2014. 2014GL061052. doi:10.1002/2014GL061052
17. T. C. Sutterley, I. Velicogna, B. Csatho, M. R. van den Broeke, S. Rezvanbehbahani, and G. Babonis. Evaluating Greenland glacial isostatic adjustment corrections using GRACE, altimetry and surface mass balance data. *Environmental Research Letters*, 9(1):014004, 2014. doi:10.1088/1748-9326/9/1/014004

INVITED LECTURES

International Summer School in Glaciology — **McCarthy, AK**
Time-Variable Gravity for Glacier and Ice Sheet Mass Balance — August 2014

CONFERENCE TALKS

1. T. C. Sutterley, B. Smith, M. van den Broeke, B. Noël, M. Tedesco, P. M. Alexander, and X. Fettweis. Seasonal evaluation of surface mass balance and firn model outputs from satellite and airborne lidar mapping. *American Geophysical Union Fall Meeting*, C41A-03, 2019
2. T. C. Sutterley, I. Velicogna, and C.-W. Hsu. Uncertainties in ice sheet mass balance in Greenland and Antarctica from GRACE time-variable gravity. *GRACE Science Team Meeting*, 2018
3. T. C. Sutterley, I. Velicogna, X. Fettweis, M. van den Broeke, E. Rignot, T. Markus, and T. Neumann. Evaluation of regional atmospheric climate model outputs from satellite and airborne lidar mapping. *Operation IceBridge Science Team Meeting*, 2018
4. T. C. Sutterley, I. Velicogna, X. Fettweis, and M. van den Broeke. Surface mass balance model evaluation from satellite and airborne lidar mapping. *American Geophysical Union Fall Meeting*, C12B-05, 2016

5. T. C. Sutterley, I. Velicogna, X. Fettweis, and M. van den Broeke. Assessment of Surface Mass Balance models using Operation IceBridge altimetry. *Operation IceBridge Science Team Meeting*, 2016
6. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, T. Flament, M. van den Broeke, J. M. van Wessem, and C. Reijmer. Uncertainties in sheet mass balance in Greenland and Antarctica from GRACE and comparison with other methods. *GRACE Science Team Meeting*, 2015
7. T. C. Sutterley and I. Velicogna. Regional ice sheet mass balance from GRACE time-variable gravity. *Graduate Climate Conference*, 2014
8. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, T. Flament, M. van den Broeke, J. M. van Wessem, and C. Reijmer. Recent Changes in Ice Mass Balance of the Amundsen Sea Embayment. *WAIS Workshop*, 2014
9. T. C. Sutterley, I. Velicogna, M. van den Broeke, and B. Csatho. Evaluating glacial isostatic adjustment corrections using GRACE, altimetry, and regional atmospheric climate model outputs. *GRACE Science Team Meeting*, 2013
10. T. C. Sutterley, I. Velicogna, E. Rignot, M. van den Broeke, B. Csatho, J. Wahr, E. Ivins, X. Wu, and J. Mouginot. Assessing the accuracy of glacial isostatic adjustment models using GRACE, InSAR, altimetry, and regional atmospheric climate model outputs. *GRACE Science Team Meeting*, 2012

CONFERENCE POSTERS

1. T. C. Sutterley, I. Velicogna, and C.-W. Hsu. Self-Consistent Ice Mass Balance and Regional Sea Level from Time-Variable Gravity. *The National Academies of Science Space Science Week*, 2019
2. T. C. Sutterley, T. Markus, T. Neumann, M. van den Broeke, J. M. van Wessem, and S. Ligtenberg. Antarctic Ice Shelf Thickness Change from Multi-Mission Lidar Mapping. *American Geophysical Union Fall Meeting*, C13B-1145, 2018
3. T. C. Sutterley, I. Velicogna, and C.-W. Hsu. Self-Consistent Ice Mass Balance and Regional Sea Level from GRACE. *Program for Arctic Regional Climate Assessment (PARCA)*, NASA Goddard Space Flight Center, 2018
4. T. C. Sutterley, I. Velicogna, T. Markus, and T. Neumann. Antarctic surface elevation and slope from multi-mission lidar mapping. *American Geophysical Union Fall Meeting*, C51A-0960, 2017
5. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, T. Neumann, and T. Markus. West Antarctic surface elevation change from CryoSat-2 radar altimetry and multi-mission lidar mapping. *International Glaciological Society Symposium: Polar Ice, Polar Climate, Polar Change*, 2017
6. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, X. Fettweis, and M. van den Broeke. Greenland surface elevation change from CryoSat-2 radar altimetry and multi-mission lidar mapping. *Program for Arctic Regional Climate Assessment (PARCA)*, NASA Goddard Space Flight Center, 2017
7. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, X. Fettweis, and M. van den Broeke. Recent Greenland Thinning from Operation IceBridge ATM and LVIS Data. *Program for Arctic Regional Climate Assessment (PARCA)*, NASA Goddard Space Flight Center, 2016

8. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, X. Fettweis, and M. van den Broeke. Recent Greenland Thinning from Operation IceBridge ATM and LVIS Data. *American Geophysical Union Fall Meeting*, C53C-0797, 2015
9. T. C. Sutterley, I. Velicogna, E. Rignot, J. Mouginot, T. Flament, M. van den Broeke, J. M. van Wessem, and C. Reijmer. Recent Changes in Ice Mass Balance of the Amundsen Sea Sector. *American Geophysical Union Fall Meeting*, C21B-0315, 2014
10. T. C. Sutterley, I. Velicogna, B. Csatho, M. R. van den Broeke, S. Rezvanbehbahani, and G. Babonis. Using GRACE measurements of time variable gravity, elevation changes from ICESat and OIB and surface mass balance outputs from RACMO to improve ice mass balance estimates. *Program for Arctic Regional Climate Assessment (PARCA)*, NASA Goddard Space Flight Center, 2014
11. T. C. Sutterley, I. Velicogna, M. R. van den Broeke, B. Csatho, S. Rezvanbehbahani, and G. Babonis. Using GRACE measurements of time variable gravity, elevation changes from ICESat and OIB and surface mass balance outputs from RACMO to improve ice mass balance estimates. *American Geophysical Union Fall Meeting*, C51A-0515, 2013
12. T. C. Sutterley, I. Velicogna, M. R. van den Broeke, B. Csatho, J. Wahr, and E. Ivins. Improving accuracy of glacial isostatic adjustment models and ice mass balance using GRACE, InSAR, altimetry, and regional atmospheric climate model outputs. *American Geophysical Union Fall Meeting*, G21A-0879, 2012
13. T. C. Sutterley, I. Velicogna, E. Ivins, E. Rignot, and M. R. van den Broeke. Evaluation of postglacial rebound models combining GRACE, InSAR, regional atmospheric climate modeling and radar altimetry data. *American Geophysical Union Fall Meeting*, G21A-0798, 2011