

# TYLER C. SUTTERLEY

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<b>EDUCATION</b>	<b>Doctor of Philosophy in Earth System Science</b> 2016 <i>Remote Sensing Observations of Modern-Day Regional Ice Sheet Change</i> PhD Advisor: Isabella Velicogna University of California, Irvine
	International Summer School in Glaciology 2014 University of Alaska, Fairbanks
	<b>Master of Science in Earth System Science</b> 2012 University of California, Irvine
	<b>Bachelor of Science in Mechanical Engineering</b> 2008 University of California, San Diego
<b>PROFESSIONAL EXPERIENCE</b>	<b>Senior Research Scientist</b> , University of Washington 2021– <b>Research Associate</b> , University of Washington 2019 – 2021 <b>NASA Postdoctoral Program Fellow</b> , Goddard Space Flight Center 2017 – 2019 <b>Postdoctoral Scholar</b> , University of California, Irvine 2016 – 2017 <b>Graduate Student Researcher</b> , University of California, Irvine 2010 – 2016
<b>PEER-REVIEWED PUBLICATIONS</b>	<ol style="list-style-type: none"><li>1. K. E. Alley, C. T. Wild, A. Luckman, T. A. Scambos, M. Truffer, E. C. Pettit, A. Muto, B. Wallin, M. Klinger, T. Sutterley, S. F. Child, C. Hulen, J. T. M. Lenaerts, M. Maclennan, E. Keenan, and D. Dunmire. Two decades of dynamic change and progressive destabilization on the Thwaites Eastern Ice Shelf. <i>The Cryosphere</i>, 15(11):5187–5203, 2021. doi:<a href="https://doi.org/10.5194/tc-15-5187-2021">10.5194/tc-15-5187-2021</a></li><li>2. Y. Mohajerani, D. Shean, A. Arendt, and T. C. Sutterley. Automated Dynamic Mascon Generation for GRACE and GRACE-FO Harmonic Processing. <i>Remote Sensing</i>, 13(3134), 2021. doi:<a href="https://doi.org/10.3390/rs13163134">10.3390/rs13163134</a></li><li>3. K. M. Brunt, B. E. Smith, T. C. Sutterley, N. T. Kurtz, and T. A. Neumann. Comparisons of Satellite and Airborne Altimetry With Ground-Based Data From the Interior of the Antarctic Ice Sheet. <i>Geophysical Research Letters</i>, 48(2), 2021. doi:<a href="https://doi.org/10.1029/2020GL090572">10.1029/2020GL090572</a></li><li>4. R. L. Hawley, T. A. Neumann, C. M. Stevens, K. M. Brunt, and T. C. Sutterley. Greenland Ice Sheet Elevation Change: Direct Observation of Process and Attribution at Summit. <i>Geophysical Research Letters</i>, 47(22), 2020. doi:<a href="https://doi.org/10.1029/2020GL088864">10.1029/2020GL088864</a></li><li>5. 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. <i>Geophysical Research Letters</i>, 47(8), 2020. doi:<a href="https://doi.org/10.1029/2020GL087291">10.1029/2020GL087291</a></li></ol>

6. 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](https://doi.org/10.1029/2019EA000860)
7. 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. Ootosaka, 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](https://doi.org/10.1038/s41586-019-1855-2)
8. 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](https://doi.org/10.3390/rs11182108)
9. 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](https://doi.org/10.5194/tc-13-1801-2019)
10. E. Ciraci, 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](https://doi.org/10.3390/rs10111817)
11. 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](https://doi.org/10.1029/2018GL078645)
12. 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. Ootosaka, 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](https://doi.org/10.1038/s41586-018-0179-y)
13. P. Kishore, I. Velicogna, T. C. Sutterley, Y. Mohajerani, E. Ciraci, 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](https://doi.org/10.5194/angeo-36-925-2018)
  14. P. Kishore, J. Jayalakshmi, P.-L. Lin, I. Velicogna, T. C. Sutterley, E. Ciraci, 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](https://doi.org/10.1016/j.jastp.2017.07.025)
  15. 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](https://doi.org/10.1038/ncomms13243)
  16. 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](https://doi.org/10.1016/j.rse.2016.07.008)
  17. 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](https://doi.org/10.1007/s00382-015-2597-y)
  18. 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](https://doi.org/10.1016/j.rse.2015.03.024)
  19. 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](https://doi.org/10.1002/2014GL061940)
  20. 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](https://doi.org/10.1002/2014GL061052)
  21. 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](https://doi.org/10.1088/1748-9326/9/1/014004)
1. [Time-Variable Gravity for Glacier and Ice Sheet Mass Balance](#), *International Summer School in Glaciology*, McCarthy, AK, August 2014.

## CONFERENCE PRESENTATIONS

1. T. C. Sutterley, I. Velicogna, G. A. and C.-C. Liang. Uncertainties in geocenter determination from GRACE and GRACE-FO time-variable gravity data. *American Geophysical Union Fall Meeting*, [G12A-01](#), 2021
2. T. C. Sutterley, B. E. Smith, K. Brunt, L. Padman, S. Howard, M. Siegfried, A. Gardner, F. H. A, S. Adusumilli, and H. N. Estimating Antarctic Grounding Zone Ice Flexure with ICESat-2 Data. *American Geophysical Union Fall Meeting*, [C55A-0563](#), 2021
3. T. C. Sutterley, B. E. Smith, K. Brunt, and M. Siegfried. Evaluating Southern Ocean Tides Using ICESat-2 data over Ice Shelves. *American Geophysical Union Fall Meeting*, [CO28-0012](#), 2020
4. 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
5. 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
6. 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
7. 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
8. 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
9. 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
10. 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
11. 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
12. 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
13. 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

14. 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
15. 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
16. 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
17. 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
18. 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
19. T. C. Sutterley and I. Velicogna. Regional ice sheet mass balance from GRACE time-variable gravity. *Graduate Climate Conference*, 2014
20. 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
21. 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
22. 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
23. 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
24. 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
25. 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

26. 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

<b>MENTORSHIP</b>	<b>Committee Member</b> Chia-Chun Liang, PhD student, University of California, Irvine	2019 –
<b>ACADEMIC SERVICE</b>	<b>Session Co-convener</b> , American Geophysical Union Fall Meeting <b>Graduate Student Representative</b> , University of California, Irvine	2021 2011 – 2012