

Publications

1. **Sergienko O.** Treatment of the ice-shelf backpressure and buttressing in two horizontal dimensions. *Journal of Glaciology* **71**, e7. doi:10.1017/jog.2024.83 (2025).
2. MacGregor, J. A., Colgan, W. T., Paxman, G. J. G., Tinto, K. J., Csathó, B., Darbyshire, F. A., Fahnestock, M. A., Kokfelt, T. F., MacKie, E. J., Morlighem, M. & **Sergienko, O. V.** Geologic Provinces Beneath the Greenland Ice Sheet Constrained by Geophysical Data Synthesis. *Geophysical Research Letters* **51**. doi:10.1029/2023GL107357 (2024).
3. **Sergienko O.** & Wingham, D. Diverse behaviors of marine ice sheets in response to temporal variability of the atmospheric and basal conditions. *Journal of Glaciology* **70**, e52. doi:10.1017/jog.2024.43 (2024).
4. Huth[†], A., Duddu, R., Smith, B. & **Sergienko O.** Simulating the processes controlling ice-shelf rift paths using damage mechanics. *Journal of Glaciology*, 1–14. doi:10.1017/jog.2023.71 (2023).
5. **Sergienko, O.** & Haseloff, M. ‘Stable’ and ‘unstable’ are not useful descriptions of marine ice sheets in the Earth’s climate system. *Journal of Glaciology* **69**, 1483–1499. doi:10.1017/jog.2023.40 (2023).
6. Coffey[†], N. B., MacAyeal, D. R., Copland, L., Mueller, D. R., **Sergienko, O. V.**, Banwell, A. F. & Lai, C.-Y. Enigmatic surface rolls of the Ellesmere Ice Shelf. *Journal of Glaciology*, 1–12. doi:10.1017/jog.2022.3 (2022).
7. Harrison, M., Adcroft, A., Hallberg, R. & **Sergienko O.** Improved Surface Mass Balance Closure in Ocean Hindcast Simulations. *Journal of Advances in Modeling Earth Systems* **14**, e2021MS002888. doi:10.1029/2021MS002888 (2022).
8. Haseloff, M. & **Sergienko, O. V.** Effects of calving and submarine melting on steady states and stability of buttressed marine ice sheets. *Journal of Glaciology*, 1–18. doi:10.1017/jog.2022.29 (2022).
9. Huth[†], A., Adcroft, A. & **Sergienko, O.** Parameterizing Tabular-Iceberg Decay in an Ocean Model. *Journal of Advances in Modeling Earth Systems* **14**, e2021MS002869. doi:10.1029/2021MS002869 (2022).
10. Huth[†], A., Adcroft, A., **Sergienko O.** & Khan[†], N. Ocean currents break up a tabular iceberg. *Science Advances* **8**, 1–5. doi:10.1126/sciadv.abq6974 (2022).
11. **Sergienko, O. V.** Marine outlet glacier dynamics, steady states and steady-state stability. *Journal of Glaciology* **68**, 946–960. doi:10.1017/jog.2022.13 (2022).
12. **Sergienko, O. V.** No general stability conditions for marine ice-sheet grounding lines in the presence of feedbacks. *Nature Communications* **13**, 2265. doi:10.1038/s41467-022-29892-3 (2022).
13. **Sergienko, O. V.** & Wingham, D. J. Bed topography and marine ice-sheet stability. *Journal of Glaciology* **68**, 124–138. doi:10.1017/jog.2021.79 (2022).
14. Damsgaard[†], A., **Sergienko, O.** & Adcroft, A. The Effects of Ice Floe-Floe Interactions on Pressure Ridging in Sea Ice. *Journal of Advances in Modeling Earth Systems* **13**, e2020MS002336. doi:10.1029/2020MS002336 (2021).
15. MacAyeal, D. R., **Sergienko, O. V.**, Banwell, A. F., Macdonald, G. J., Willis, I. C. & Stevens, L. A. Treatment of ice-shelf evolution combining flow and flexure. *Journal of Glaciology*, 1–18. doi:10.1017/jog.2021.39 (2021).
16. **Sergienko O. V.** & Wingham, D. J. Grounding line stability in a regime of low driving and basal stresses. *Journal of Glaciology* **65**, 833–849. doi:10.1017/jog.2019.53 (2019).
17. Stern[†], A. A., Adcroft, A. & **Sergienko, O.** Modeling Ice Shelf Cavities and Tabular Icebergs Using Lagrangian Elements. *Journal of Geophysical Research: Oceans* **124**, 3378–3392. doi:10.1029/2018JC014876. eprint: <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2018JC014876> (2019).

18. Bronselaer, B., Winton, M., Griffies, S. M., Hurlin, W. J., Rodgers, K. B., **Sergienko, O. V.**, Stouffer, R. J. & Russell, J. L. Change in future climate due to Antarctic meltwater. *Nature* **564**, 53–58. doi:10.1038/s41586-018-0712-z (2018).
19. Damsgaard[†], A., Adcroft, A. & **Sergienko, O.** Application of Discrete Element Methods to Approximate Sea Ice Dynamics. *Journal of Advances in Modeling Earth Systems* **10**, 2228–2244. doi:10.1029/2018MS001299. eprint: <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2018MS001299> (2018).
20. Fyke, J., **Sergienko O.**, Löfveström, M., Price, S. & Lenaerts, J. T. M. An Overview of Interactions and Feedbacks Between Ice Sheets and the Earth System. *Reviews of Geophysics* **56**, 361–408. doi:10.1029/2018RG000600 (2018).
21. Haseloff[†], M. & **O. V. Sergienko.** The effect of buttressing on grounding line dynamics. *Journal of Glaciology* **64**, 417–431. doi:10.1017/jog.2018.30 (2018).
22. Liu[†], Y., Hallberg, R., **Sergienko, O.**, Samuels, B. L., Harrison, M. & Oppenheimer, M. Climate response to the meltwater runoff from Greenland ice sheet: evolving sensitivity to discharging locations. *Climate Dynamics* **51**, 1733–1751. doi:10.1007/s00382-017-3980-7 (2018).
23. **Sergienko, O. V.** Behavior of flexural gravity waves on ice shelves: Application to the Ross Ice Shelf. *Journal of Geophysical Research: Oceans* **122**, 6147–6164. doi:10.1002/2017JC012947 (2017).
24. Stern[†], A. A., Adcroft, A., **Sergienko, O.** & Marques, G. Modeling tabular icebergs submerged in the ocean. *Journal of Advances in Modeling Earth Systems* **9**, 1948–1972. doi:10.1002/2017MS001002 (2017).
25. Hiester[†], J., **Sergienko, O. V.** & Hulbe, C. L. Topographically mediated ice stream subglacial drainage networks. *Journal of Geophysical Research: Earth Surface* **121**. 2015JF003660, 497–510. doi:10.1002/2015JF003660 (2016).
26. Stern[†], A. A., Adcroft, A. & **Sergienko, O.** The effects of Antarctic iceberg calving-size distribution in a global climate model. *Journal of Geophysical Research: Oceans* **121**, 5773–5788. doi:10.1002/2016JC011835 (2016).
27. MacAyeal, D. R., **Sergienko, O. V.** & Banwell, A. F. A model of viscoelastic ice-shelf flexure. *Journal of Glaciology* **61**, 635–645. doi:10.3189/2015JoG14J169 (2015).
28. **Sergienko, O. V.** Order in Antarctic ice streams. *Nature Geoscience* **8**, 822–822. doi:10.1038/ngeo2536 (2015).
29. Goldberg[†], D. N., Schoof, C. & **Sergienko, O. V.** Stick-slip motion of an Antarctic Ice Stream: The effects of viscoelasticity. *Journal of Geophysical Research: Earth Surface* **119**, 1564–1580. doi:10.1002/2014JF003132 (2014).
30. **Sergienko O. V.** A vertically integrated treatment of ice stream and ice shelf thermodynamics. *Journal of Geophysical Research* **119**, 745–757. doi:10.1002/2013JF002908 (2014).
31. **Sergienko O. V.**, Creyts, T. T. & Hindmarsh, R. C. A. Similarity of organized patterns in driving and basal stresses of Antarctic and Greenland ice sheets beneath extensive areas of basal sliding. *Geophysical Research Letters* **41**, 3925–3932. doi:10.1002/2014GL059976. eprint: <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2014GL059976> (2014).
32. Banwell, A. F., MacAyeal, D. R. & **Sergienko, O. V.** Breakup of the Larsen B Ice Shelf triggered by chain reaction drainage of supraglacial lakes. *Geophysical Research Letters* **40**. 2013GL057694, 5872–5876. doi:10.1002/2013GL057694 (2013).
33. MacAyeal, D. R. & **O. V. Sergienko.** The flexural dynamics of melting ice shelves. *Annals of Glaciology* **54**, 1–10. doi:10.3189/2013AoG63A256 (2013).
34. **Sergienko O. V.** Basal channels on ice shelves. *Journal of Geophysical Research* **118**, 1342–1355. doi:10.1002/jgrf.20105 (2013).

35. **Sergienko O. V.** Glaciological twins: basally controlled subglacial and supraglacial lakes. *Journal of Glaciology* **59**. doi:10.3189/2013JoG12J040 (2013).
36. **Sergienko O. V.** Normal modes of a coupled ice-shelf/sub-ice-shelf cavity system. *Journal of Glaciology* **59**, 76–80. doi:10.3189/2013JoG12J096 (2013).
37. **Sergienko O. V.**, Goldberg[†], D. N. & Little[†], C. M. Alternative ice-shelf equilibriums determined by ocean environment. *Journal of Geophysical Research* **118**, 970–981. doi:10.1002/jgrf.20054 (2013).
38. **Sergienko O. V.** & Hindmarsh, R. C. A. Regular Patterns in Frictional Resistance of Ice-Stream Beds Seen by Surface Data Inversion. *Science* **342**, 1086–1089. doi:10.1126/science.1243903 (2013).
39. Straneo, F., Heimbach, P., **Sergienko, O.**, Hamilton, G., Catania, G., Griffies, S., Hallberg, R., Jenkins, A., Joughin, I., Motyka, R., Pfeffer, W. T., Price, S., Rignot, E., Scambos, T., Truffer, M. & Vieli, A. Challenges to Understanding the Dynamic Response of Greenland’s Marine Terminating Glaciers to Oceanic and Atmospheric Forcing. *Bulletin of the American Meteorological Society* **94**, 5773–5788. doi:10.1175/BAMS-D-12-00100.1 (2013).
40. Goldberg[†], D. N., Little[†], C. M., **O. V. Sergienko**, Gnanadesikan, A., Hallberg, R. & Oppenheimer, M. Investigation of land ice-ocean interaction with a fully coupled ice-ocean model, Part 1: Model description and behavior. *Journal of Geophysical Research* **117**. doi:10.1029/2011JF002246 (2012).
41. Goldberg[†], D. N., Little[†], C. M., **O. V. Sergienko**, Gnanadesikan, A., Hallberg, R. & Oppenheimer, M. Investigation of land ice-ocean interaction with a fully coupled ice-ocean model, Part 2: Sensitivity to external forcings. *Journal of Geophysical Research* **117**. doi:10.1029/2011JF002247 (2012).
42. **Sergienko O. V.** The effects of transverse bed topography variations in ice-flow models. *Journal of Geophysical Research* **117**. doi:10.1029/2011JF002203 (2012).
43. Goldberg[†], D. N. & **O. V. Sergienko**. Data assimilation using a hybrid ice flow model. *The Cryosphere* **5**, 315–327. doi:10.5194/tc-5-315-2011 (2011).
44. MacAyeal, D. R., Abbot, D. S. & **Sergienko, O. V.** Iceberg-capsize tsunamigenesis. *Annals of Glaciology* **52**, 51–56. doi:10.3189/172756411797252103 (2011).
45. **Sergienko O. V.** & Hulbe, C. L. “Sticky spots” and subglacial lakes under ice streams of the Siple Coast, Antarctica. *Annals of Glaciology* **52**, 18–22. doi:10.3189/172756411797252176 (2011).
46. Bromirski, P., **O. V. Sergienko** & MacAyeal, D. R. Transoceanic infragravity waves impacting Antarctic ice-shelves. *Geophysical Research Letters*. doi:10.1029/2009GL041488 (2010).
47. **Sergienko O. V.** Elastic response of floating glacier ice to impact of long-period ocean waves. *Journal of Geophysical Research* **115**. doi:10.1029/2010JF001721 (2010).
48. **Sergienko O.**, MacAyeal, D. & Bindschadler., R. Stick—slip behavior of ice streams: modeling investigations. *Annals of Glaciology* **50**, 87–94. doi:10.3189/172756409789624274 (2009).
49. **Sergienko O. V.**, Bindschadler, R. A., Vornberger, P. L. & MacAyeal, D. R. Ice stream basal conditions from block-wise surface data inversion and simple regression models of ice stream flow: Application to Bindschadler Ice Stream. *Journal of Geophysical Research* **113**. doi:10.1029/2008JF001004 (2008).
50. **Sergienko, O. V.**, MacAyeal, D. R. & Thom, J. E. Reconstruction of snow/firn thermal diffusivities from observed temperature variation: application to iceberg C16, Ross Sea, Antarctica, 2004–07. *Annals of Glaciology* **49**, 91–95. doi:10.3189/172756408787814906 (2008).
51. **Sergienko O. V.**, MacAyeal, D. R. & Bindschadler, R. A. Causes of sudden, short-term changes in ice-stream surface elevation. *Geophysical Research Letters* **34**. doi:10.1029/2007GL031775 (2007).
52. Brunt, K. M., **O. Sergienko** & MacAyeal, D. R. Observations of unusual fast-ice conditions in the southwest Ross Sea, Antarctica: preliminary analysis of iceberg and storminess effects. *Annals of Glaciology* **44**, 183–187. doi:10.3189/172756406781811754 (2006).

53. MacAyeal, D. R., Okal, E. A., Aster, R. C., Bassis, J. N., Brunt, K. M., Cathles, L. M., Drucker, R., Fricker, H. A., Kim, Y. J., Martin, S., Okal, M. H., **O. V. Sergienko**, Spoinser, M. P. & Thom., J. E. Transoceanic wave propagation links iceberg calving margins of Antarctica with storms in tropics and Northern Hemisphere. *Geophysical Research Letters* **33**. doi:10.1029/2006GL027235 (2006).
54. Scambos, T., **Sergienko, O.**, Sargent, A., MacAyeal, D. & Fastook, J. ICESat profiles of tabular iceberg margins and iceberg breakup at low latitudes. *Geophysical Research Letters* **32**. doi:10.1029/2005GL023802 (2005).
55. **Sergienko O.** & MacAyeal, D. R. Surface melting on Larsen Ice Shelf, Antarctica. *Annals of Glaciology* **40**, 215–218. doi:10.3189/172756405781813474 (2005).
56. Nagornov, O. V. & **Sergienko, O. V.** The response of the ice-shelf base to the ocean temperature change. *Mathematical Modeling* **14**. (in Russian), 43–50 (2002).
57. Nagornov, O. V. & **Sergienko, O. V.** The effect of ocean temperature variations on the position of the lower boundary of an ice shelf. *Izvestiya Atmospheric and Oceanic Physics* **37**, 671–676 (2001).
58. Nagornov, O. V. & **Sergienko, O. V.** The influence of the ocean temperature change on response of an ice shelf base. *News of Russian Academy of Sciences. Atmospheric and Oceanic Physics* **37**, 723–729 (2001).
59. Nagornov, O. V. & **Sergienko, O. V.** Special features of the processes of heat and mass transfer under a shelf glacier. *Journal of Engineering Physics and Thermophysics* **72**, 524–533. doi:10.1007/BF02699220 (1999).
60. Nagornov, O. V. & **Sergienko, O. V.** Temperature field of an ice shelf in the vicinity of a hot water-drilled well. *Journal of Engineering Physics and Thermophysics* **71**, 154–160. doi:10.1007/BF02682510 (1998).
61. Nagornov, O. & **O. V. Sergienko.** in *Development and Application of Computer Techniques to Environmental Studies* (eds Pepper, D., Brebbia, C. & Zannetti, P.) 281–295 (Wessex Inst Tech, Univ Nevada, 1998). ISBN: 1-85312-606-3.

†Advisees