Southern Ocean Carbon and Climate Observations and Modeling

SOCCOM Publications

Peer-reviewed publications

SOCCOM authors should acknowledge NSF support - sample text for acknowledging SOCCOM funding and data sources.

2023

1. Recent trends and variability in the oceanic storage of dissolved inorganic carbon
   Keppler, L., P. Landschützer, S.K. Lauvset, & N. Gruber (2023). Recent trends and variability in the oceanic storage of dissolved inorganic carbon. Global Biogeochemical Cycles, 37, e2022GB007677. DOI:10.1029/2022GB007677

2. Transiting consolidated ice strongly influenced polynya area during a shrink event in Terra Nova Bay in 2013
   Lin, Y., Q. Yang, M. Mazloff. et al., *Commun Earth Environ* 4, 54 (2023). DOI:10.1038/s43247-023-00712-w

3. A balanced atmospheric ensemble forcing for sea ice modeling in Southern Ocean
   Luo, H., Q. Yang, M. Mazloff & D. Chen (2023). A balanced atmospheric ensemble forcing for sea ice modeling in Southern Ocean. *Geophysical Research Letters*, 50, e2022GL101139. DOI:10.1029/2022GL101139

4. Modification of North Atlantic Deep Water by Pacific/Upper Circumpolar Deep Water in the Argentine Basin
   Brand, S.V.S., C.J. Prend, L.D. Talley, L.D. (2023). Modification of North Atlantic Deep Water by Pacific/Upper Circumpolar Deep Water in the Argentine Basin. *Geophysical Research Letters*, 50, e2022GL099419. DOI:10.1029/2022GL099419.

5. Acoustic float tracking with the Kalman smoother
   Chamberlain, P., B. Cornuelle, L. D. Talley, K. Speer, C. Hancock, and S. Riser (2023). Acoustic float tracking with the Kalman smoother. *J. Atm. Oceanic Tech.*, 40, 15-35. DOI:10.1175/JTECH-D-21-0063.1

2022

1. Real-time quality control of optical backscattering data from Biogeochemical-Argo floats
   Dall'Olmo G., T.V.S. U Bhaskar, H.Bittig et al. (2022). Real-time quality control of optical backscattering data from Biogeochemical-Argo floats. Open Res Europe, 2:118. DOI:10.12688/openreseurope.15047.1

2. Indo-Pacific sector dominates Southern Ocean carbon outgassing
   Prend, C.J., A.R. Gray, L.D. Talley, S.T. Gille, F.A. Haumann, K.S. Johnson, S.C.Riser, I. Rosso, J. Sauve, and J.L. Sarmiento (2022). Indo-Pacific sector dominates Southern Ocean carbon outgassing. *Global Biogeochemical Cycles*, 36, e2021GB007226. DOI:10.1029/2021GB007226

3. Carbon to nitrogen uptake ratios observed across the Southern Ocean by the SOCCOM profiling float array
   Johnson, K. S., M.R. Mazloff, M.B. Bif, Y. Takeshita, H.W. Jannasch, T.L. Maurer, T. L., et al. (2022). Carbon to nitrogen uptake ratios observed across the Southern Ocean by the SOCCOM profiling float array. Journal of Geophysical Research: Oceans, 127, e2022JC018859. DOI:10.1029/2022JC018859

4. Vertical structure in phytoplankton growth and productivity inferred from Biogeochemical-Argo floats and the Carbon-based Productivity Model
   Arteaga, L. A., M.J. Behrenfeld, E. Boss, & T.K. Westberry (2022). Vertical structure in phytoplankton growth and productivity inferred from Biogeochemical-Argo floats and the Carbon-based Productivity Model. *Global Biogeochemical Cycles*, 36, e2022GB007389. DOI:10.1029/2022GB007389

5. Impact of downward longwave radiative deficits on Antarctic sea-ice extent predictability during the sea ice growth period
   Cerovečki, I., R. Sun, D.H. Bromwich, X. Zou, M.R. Mazloff & S.H. Wang (2022). Impact of downward longwave radiative deficits on Antarctic sea-ice extent predictability during the sea ice growth period. *Environ. Res. Lett.,* 17, 084008. DOI:10.1088/1748-9326/ac7d66

6. The deep ocean's carbon exhaust
   Chen, H., F.A. Haumann, L.D. Talley, K.S. Johnson, J. Sarmiento (2022). The deep ocean's carbon exhaust. *Global Biogeochemical Cycles*, 36. DOI:10.1029/2021GB007156

7. Sub-seasonal forcing drives year-to-year variations of Southern Ocean primary productivity
   Prend, C.J., M.G. Keerthi, M. LÃ©vy, O. Aumont, S.T. Gille and L.D. Talley (2022). Sub-seasonal forcing drives year-to-year variations of Southern Ocean primary productivity. *Global Biogeochemical Cycles*. 36 (7). DOI:10.1029/2022GB007329

8. Importance of the Antarctic Slope Current in the Southern Ocean response to ice sheet melt and wind stress change
   Beadling, R. L., J.P. Krasting, S.M. Griffies, W.J. Hurlin, B. Bronselaer, J.L. Russell et al. (2022). Importance of the Antarctic Slope Current in the Southern Ocean response to ice sheet melt and wind stress change. *Journal of Geophysical Research: Oceans*, 127, e2021JC017608. DOI:10.1029/2021JC017608

9. Trophic level decoupling drives future changes in phytoplankton bloom phenology
   Yamaguchi, R., K.B. Rodgers, A. Timmermann et al. (2022). Trophic level decoupling drives future changes in phytoplankton bloom phenology. *Nat. Clim. Chang.* 12, 469-476. DOI:10.1038/s41558-022-01353-1

10. Attribution of space-time variability in global-ocean dissolved inorganic carbon
Carroll, D., D. Menemenlis, S. Dutkiewicz, J.M. Lauderdale, J.F. Adkins, K.W. Bowman et al. (2022). Attribution of space-time variability in global-ocean dissolved inorganic carbon. *Global Biogeochemical Cycles*, 36, e2021GB007162. DOI: 10.1029/2021GB007162

11. Subtropical contribution to Sub-Antarctic Mode Waters
Castro, B. F., M. Mazloff, R.G. Williams & A.C. Naveira Garabato (2022). Subtropical contribution to Sub-Antarctic Mode Waters. *Geophysical Research Letters*, 49, e2021GL097560. DOI: 10.1029/2021GL097560

12. Tracer and observationally derived constraints on diapycnal diffusivities in an ocean state estimate
Trossman, D. S., C.B. Whalen, T.W.N. Haine, A.F. Waterhouse, A.T. Nguyen, A.Bigdeli, M. Mazloff and P. Heimbach (2022). Tracer and observationally derived constraints on diapycnal diffusivities in an ocean state estimate. *Ocean Sci*., 18, 729-759. DOI: 10.5194/os-18-729-2022

13. Controls on the boundary between thermally and non-thermally driven pCO2 regimes in the South Pacific
Prend, C.J., J.M. Hunt, M.R. Mazloff, S.T. Gille, and L.D. Talley (2022). Controls on the boundary between thermally and non-thermally driven pCO2 regimes in the South Pacific. *Geophys. Res. Lett.*, DOI: 10.1029/2021GL095797

14. Freshwater input and vertical mixing in the Canada Basin's seasonal halocline: 1975 versus 2006-2012
Rosenblum, E., J. Stroeve, S.T. Gille, L B. Tremblay, C. Lique, R. Fajber, R. Galley, D.G. Barber, T. Loureiro, and J.V. Lukovich (2022). Freshwater input and vertical mixing in the Canada Basin's seasonal halocline: 1975 versus 2006-2012. *J. Phys. Oceanogr*., DOI:10.1175/JPO-D-21-0116.1

2021

1. Surface salinity under transitioning ice cover in the Canada Basin: Climate model biases linked to vertical distribution of fresh water
Rosenblum, E., R. Fajber, J.C. Stroeve, S.T Gille, L.B. Tremblay & E.C. Carmack (2021). Surface salinity under transitioning ice cover in the Canada Basin: Climate model biases linked to vertical distribution of fresh water. Geophysical Research Letters, 48, e2021GL094739. DOI:10.1029/2021GL094739

2. The Role of Continental Topography in the Present-Day Ocean's Mean Climate
Stouffer, R.J., J.L. Russell, R.L. Beadling, A.J. Broccoli, J.P. Krasting, S. Malyshev and Z. Naiman (2021). The Role of Continental Topography in the Present-Day Ocean's Mean Climate. *J. Climate.* DOI:10.1175/JCLI-D-20-0690.1

3. Ocean warming and accelerating Southern Ocean zonal flow
Shi, JR., L.D.Talley, S.P. Xie, Q. Peng and W. Liu (2021). Ocean warming and accelerating Southern Ocean zonal flow. *Nat. Clim. Chang*. DOI:10.1038/s41558-021-01212-5

4. Seasonal Modulation of Dissolved Oxygen in the Equatorial Pacific by Tropical Instability Vortices
Eddebbar, Y. A., A.C. Subramanian, D.B, Whitt, M.C. Long, A. Verdy, M.R. Mazloff & M.A. Merrifield (2021). Seasonal Modulation of Dissolved Oxygen in the Equatorial Pacific by Tropical Instability Vortices. *Journal of Geophysical Research: Oceans, 126, e2021JC017567.* DOI: 10.1029/2021JC017567

5. Southern Ocean [in "State of the Climate in 2020"]
Tamsitt, V., S. Bushinsky, Z. Li, M. du Plessis, A. Foppert, S. Gille, S. Rintoul, E. Shadwick, A. Silvano, A. Sutton, S. Swart, B. Tilbrook, and N. L. Williams, 2021. Southern Ocean [in "State of the Climate in 2020"]. *Bull. Amer. Meteor. Soc.*, 102 (8), S341-S345, DOI:10.1175/BAMS-D-21-0081.1

6. Investigating predictability of DIC and SST in the Argentine Basin through wind stress perturbation experiments
Swierczek, S., M.R. Mazloff & J.L. Russell (2021). Investigating predictability of DIC and SST in the Argentine Basin through wind stress perturbation experiments. *Geophysical Research Letters,* 48, e2021GL095504. DOI:10.1029/2021GL095504

7. Constraint on net primary productivity of the global ocean by Argo oxygen measurements
Johnson, K.S. and M.B. Bif (2021). Constraint on net primary productivity of the global ocean by Argo oxygen measurements. *Nature Geoscience.* DOI:10.1038/s41561-021-00807-z

8. Demons in the North Atlantic: Variability of deep ocean ventilation
MacGilchrist, G. A., H.L. Johnson, C. Lique, C & D.P. Marshall (2021). Demons in the North Atlantic: Variability of deep ocean ventilation. *Geophysical Research Letters*, 48, e2020GL092340. DOI:10.1029/2020GL092340

9. Untangling local and remote influences in two major petrel habitats in the oligotrophic Southern Ocean
Jones, D. C., F.R. Ceia, E. Murphy, K. Delord, R.W. Furness, A. Verdy, M. Mazloff, R.A. Phillips, P.M. Sagar, J.-B. SallÃ©e, B. Schreiber,D.R. Thompson, L.G. Torres, P.J. Underwood, H. Weimerskirch, and J.C. Xavier (2021). Untangling local and remote influences in two major petrel habitats in the oligotrophic Southern Ocean. *Global Change Biology*, 27, 5773- 5785. DOI:10.1111/gcb.15839

10. Delayed-Mode Quality Control of Oxygen, Nitrate, and pH Data on SOCCOM Biogeochemical Profiling Floats
Maurer, T.L., J.N. Plant and K.S. Johnson (2021). Delayed-Mode Quality Control of Oxygen, Nitrate, and pH Data on SOCCOM Biogeochemical Profiling Floats. *Front. Mar. Sci*. 8:683207. DOI: 10.3389/fmars.2021.683207

11. The impact of Southern Ocean Ekman pumping, heat and freshwater flux variability on intermediate and mode water export in CMIP models: Present and future scenarios
Almeida, L., M.R. Mazloff and M.M. Mata (2021). The impact of Southern Ocean Ekman pumping, heat and freshwater flux variability on intermediate and mode water export in CMIP models: Present and future scenarios. *Journal of Geophysical Research: Oceans*, 126, e2021JC017173. DOI:10.1029/2021JC017173

12. The effect of resolution on vertical heat and carbon transports in a regional ocean circulation model of the Argentine Basin
Swierczek, S., M.R. Mazloff, M. Morzfeld, M., and J.L. Russell (2021). The effect of resolution on vertical heat and carbon transports in a regional ocean circulation model of the Argentine Basin. *Journal of Geophysical Research: Oceans*, 126, e2021JC017235. DOI:10.1029/2021JC017235

13. Seasonal Prediction and Predictability of Regional Antarctic Sea Ice
Bushuk, M., M. Winton, F.A. Haumann, T. Delworth, F. Lu, Y. Zhang, L. Jia, L. Zhang, W. Cooke, M. Harrison, B. Hurlin, N.C. Johnson, S.B. Kapnick, C, McHugh, H. Murakami, A. Rosati, K.Tseng, A.T. Wittenberg, X.Yang, & F. Zeng (2021). Seasonal Prediction and Predictability of Regional Antarctic Sea Ice. *J. Climate*, 34(15), 6207-6233, DOI:10.1175/JCLI-D-20-

0965.1

14. Quantifying errors in observationally-based estimates of ocean carbon sink variability
Gloege, L., G.A. McKinley, P. Landschützer, A.R, Fay, T.L. Frölicher, J.C., Fyfe, T. Ilyina, T., S. Jones, N.S. Lovenduski, K.B. Rodgers, S. Schlunegger and Y. Takano (2021). Quantifying errors in observationally-based estimates of ocean carbon sink variability. Global Biogeochemical Cycles, 35, e2020GB006788. DOI:10.1029/2020GB006788

15. Time-varying empirical probability densities of Southern Ocean surface winds: Linking the Leading mode to SAM, and Quantifying Wind Product Differences
Hell, M. C., B. D. Cornuelle, S. T. Gille, and N. J. Lutsko, (2021). Time-varying empirical probability densities of Southern Ocean surface winds: Linking the Leading mode to SAM, and Quantifying Wind Product Differences. *J. Climate*, 34(13), 5497-5522 DOI: 10.1175/JCLI-D-20-0629.1

16. On the role of the Antarctic Slope Front on the occurrence of the Weddell Sea polynya under climate change
Lockwood, J. W., C. O. Dufour, S. M. Griffies, and M. Winton (2021). On the role of the Antarctic Slope Front on the occurrence of the Weddell Sea polynya under climate change. *J. Climate*, 1-56, DOI:10.1175/JCLI-D-20-0069.1

17. Evaluation of sea-ice thickness from four reanalyses in the Antarctic Weddell Sea
Shi, Q., Q. Yang, L. Mu, J. Wang, F. Massonnet and M.R. Mazloff (2021). Evaluation of sea-ice thickness from four reanalyses in the Antarctic Weddell Sea. *The Cryosphere*, 15, 31-47, DOI:10.5194/tc-15-31-2021

18. Mixing in the Southern Ocean
Gille, S. T, K. L. Sheen, S. Swart, and A. F. Thompson (2021). Mixing in the Southern Ocean. In M. Meredith and A. Naveira Garabato (eds.) *Ocean Mixing: Drivers, Mechanisms and Impacts*, Elsevier.

2020

1. Resolving and Parameterising the Ocean Mesoscale in Earth System Models
Hewitt, H.T., M. Roberts,P. Mathiot, et al. (2020). Resolving and Parameterising the Ocean Mesoscale in Earth System Models. *Curr Clim Change Rep* 6, 137-152. DOI:10.1007/s40641-020-00164-w

2. ESMValTool (v2.0) - Part 2: an extended set of large-scale diagnostics for quasi-operational and comprehensive evaluation of Earth system models in CMIP6
Eyring, V., L. Bock, A. Lauer, M. Righi, M. Schlund, B. Andela, E. Arnone, ... J.L. Russell, ... and K. Zimmermann (2020). SMValTool (v2.0) - Part 2: an extended set of large-scale diagnostics for quasi-operational and comprehensive evaluation of Earth system models in CMIP6. *Geoscientific Model Development*, 13, 3383-3438. DOI:10.5194/gmd-2019-291

3. Variability of the Oceans
Yu, J.-Y., E. Campos, Y. Du, T. Eldevik, S. T. Gille, T. Losada, M. J. McPhaden, and L. H. Semdsrud, (2020). Variability of the Oceans. In C. R. Mechoso (ed.) *Interacting Climates of Ocean Basins*, Cambridge University Press. ISBN:9781108492706

4. The large-scale vorticity balance of the Antarctic continental margin in a fine-resolution global simulation
PalÃ³czy, A., J. L. McClean, S. T. Gille, and H. Wang, (2020). The large-scale vorticity balance of

the Antarctic continental margin in a fine-resolution global simulation. *J. Phys. Oceanogr.*, 50, 2173-2188, DOI:10.1175/JPO-D-19-0307.1

5. Optimizing mooring placement to constrain Southern Ocean air-sea fluxes
Wei, Y., S. T. Gille, M. R. Mazloff, V. Tamsitt, S. Swart, D. Chen, and L. Newman, (2020). Optimizing mooring placement to constrain Southern Ocean air-sea fluxes. *J. Atmos. Ocean. Tech.*, 37, 1365-1385, DOI:10.1175/JTECH-D-19-0203.1

6. Mooring Observations of Air-Sea Heat Fluxes in Two Subantarctic Mode Water Formation Regions
Tamsitt, V., I. ečki, S. A. Josey, S. T. Gille, and E. Schulz, (2020). Mooring Observations of Air-Sea Heat Fluxes in Two Subantarctic Mode Water Formation Regions. *J. Climate*, 33, 2757-2777, DOI:10.1175/JCLI-D-19-0653.1

7. Estimating Southern Ocean storm positions with seismic observations
Hell, M. C., S. T. Gille, B. D. Cornuelle, A. J. Miller, P. D. Bromirski, and A. D. Crawford, (2020). Estimating Southern Ocean storm positions with seismic observations. *J. Geophys. Res - Oceans.*, 125, e2019JC015898, DOI:10.1029/2019JC015898

8. FluxSat: Measuring the ocean-atmosphere turbulent exchange of heat and moisture from space
Gentemann, C., C. A. Clayson, S. Brown, T. Lee, R. Parfitt, J. T. Farrar, M. Bourassa, P. J. Minnett, H. Seo, S. T. Gille, and V. Zlotnicki, (2020). FluxSat: Measuring the ocean-atmosphere turbulent exchange of heat and moisture from space. *Remote Sensing*, 12, 1796, DOI:10.3390/rs12111796

9. Self-shading and meltwater spreading control the transition from light to iron limitation in an Antarctic coastal polynya
Twelves, A. G., D.N. Goldberg, S.F. Henley, M.R. Mazloff & D.C. Jones (2020). Self-shading and meltwater spreading control the transition from light to iron limitation in an Antarctic coastal polynya. *Journal of Geophysical Research: Oceans*, 125, e2020JC016636. DOI:10.1029/2020JC016636

10. Recent recovery of Antarctic Bottom Water formation in the Ross Sea driven by climate anomalies
Silvano, A., A. Foppert, S.R. Rintoul et al. (2020). Recent recovery of Antarctic Bottom Water formation in the Ross Sea driven by climate anomalies . *Nat. Geosci.* DOI: 10.1038/s41561-020-00655-3

11. Seasonal modulation of phytoplankton biomass in the Southern Ocean
Arteaga, L.A., E. Boss, M.J. Behrenfeld et al. (2020). Seasonal modulation of phytoplankton biomass in the Southern Ocean. *Nat Commun* 11, 5364. DOI: 10.1038/s41467-020-19157-2

12. Eddy-induced acceleration of Argo floats
Wang, T., S.T. Gille, M.R. Mazloff, N.V. Zilberman, & Y. Du (2020). Eddy-induced acceleration of Argo floats. *Journal of Geophysical Research: Oceans*, 125, e2019JC016042. DOI: 10.1029/2019JC016042

13. Supercooled Southern Ocean Water
Haumann, F.A., R. Moorman, S. Riser, L. H. Smedsrud, T. Maksym, A. P. S. Wong, E. A. Wilson, R. Drucker. L. D. Talley, K. S. Johnson, R. M. Key, J. L. Sarmiento (2020). Supercooled Southern Ocean Water. *Geophysical Research Letters*, 47, e2020GL090242. DOI:10.1029/2020GL090242

14. Time of Emergence and Large Ensemble Intercomparison for Ocean Biogeochemical Trends
Schlunegger, S., K.B. Rodgers, J.L. Sarmiento, T. Ilyina, J.P. Dunne, Y. Takano, J.R. Christian, M.C. Long, T.L. Frölicher, R. Slater and F. Lehner (2020). Time of Emergence and Large Ensemble Intercomparison for Ocean Biogeochemical Trends. *Global Biogeochem. Cycles*, 34:

e2019GB006453. DOI:10.1029/2019GB006453

15. Detecting mesopelagic organisms using biogeochemical-Argo floats
Haëntjens, N., A. Della Penna, N. Briggs, L. Karp-Boss, P. Gaube, H. Claustre & E. Boss (2020). Detecting mesopelagic organisms using biogeochemical-Argo floats. *Geophysical Research Letters*, 47, e2019GL086088. DOI:10.1029/2019GL086088

16. Southern Ocean carbon export efficiency in relation to temperature and primary productivity
Fan, G., Z. Han, W. Ma, S. Chen, F. Chai, M.R. Mazloff, J. Pan, and H. Zhang (2020). Southern Ocean carbon export efficiency in relation to temperature and primary productivity. *Sci Rep* 10, 13494. DOI: 10.1038/s41598-020-70417-z

17. Biogeochemical Argo [in "State of the Climate in 2019"]
Johnson, K.S., M.B. Bif, S.M. Bushinsky, A.J. Fassbender, and Y. Takeshita (2020). Biogeochemical Argo [in "State of the Climate in 2019"]. *Bull. Amer. Meteor. Soc.*, 101 (8), S167-S169. DOI:10.1175/BAMS-D-20-0105.1

18. Southern Ocean [in "State of the Climate in 2019"]
Queste, B. Y., E. P. Abrahamsen, M. D. du Plessis, S. T. Gille, L. Gregor, M. R. Mazloff, A. Narayanan, F. Roquet, and S. Swart (2020). Southern Ocean [in "State of the Climate in 2019"]. *Bull. Amer. Meteor. Soc.*, 101 (8), S307-S309. DOI: 10.1175/BAMS-D-20-0090.1

19. Effects of Buoyancy and Wind Forcing on Southern Ocean Climate Change
Shi, J.-R, L.D. Talley, S.-P. Xie, W. Liu, S.T. Gille (2020). Effects of Buoyancy and Wind Forcing on Southern Ocean Climate Change. *J. Climate*, 33(23), 10003-10020. DOI:10.1175/JCLI-D-19-0877.1

20. Monitoring ocean biogeochemistry with autonomous platforms
Chai, F., K.S. Johnson, H. Claustre et al. (2020). Monitoring ocean biogeochemistry with autonomous platforms. *Nat Rev Earth Environ.* DOI: 10.1038/s43017-020-0053-y

21. Representation of Southern Ocean properties across Coupled Model Intercomparison Project generations: CMIP3 to CMIP6
Beadling, R.L., J.L. Russell, R.J. Stouffer, M. Mazloff, L.D. Talley, P.J. Goodman, J.B. Sallèe, H.T. Hewitt, P. Hyder, and A. Pandde (2020). Representation of Southern Ocean properties across Coupled Model Intercomparison Project generations: CMIP3 to CMIP6. *J. Climate*, 33(15), 6555-6581. DOI: 10.1175/JCLI-D-19-0970.1

22. Impacts of ice-shelf melting on water mass transformation in the Southern Ocean from E3SM simulations
Jeong, H., X.S. Asay-Davis, A.K. Turner, D.S. Comeau, S.F. Price, R.P. Abernathey, M. Veneziani, M.R. Petersen, M.J. Hoffman, M.R. Mazloff, and T.D. Ringler (2020). Impacts of ice-shelf melting on water mass transformation in the Southern Ocean from E3SM simulations. *J. Climate*, 33(13), 5787-5807.. DOI:10.1175/JCLI-D-19-0683.1

23. Weddell Sea phytoplankton blooms modulated by sea ice variability and polynya formation
von Berg, L., C. J. Prend, E. C. Campbell, M. R. Mazloff, L. D. Talley, and S. T. Gille (2020). Weddell Sea phytoplankton blooms modulated by sea ice variability and polynya formation. *Geophysical Research Letters*, 47, e2020GL087954. DOI:10.1029/2020GL087954

24. Sea-ice induced Southern Ocean subsurface warming and surface cooling in a warming climate
Haumann, F. A., N. Gruber, & M. Münnich (2020). Sea-ice induced Southern Ocean subsurface warming and surface cooling in a warming climate. *AGU Advances*, 1, e2019AV000132. DOI:10.1029/2019AV000132

25. Water mass and biogeochemical variability in the Kerguelen sector of the Southern Ocean: A machine learning approach for a mixing hot spot
Rosso, I., M. R. Mazloff, L.D. Talley, S.G. Purkey, N.M. Freeman & G. Maze (2020). Water mass and biogeochemical variability in the Kerguelen sector of the Southern Ocean: A machine learning approach for a mixing hot spot. *Journal of Geophysical Research: Oceans*, 125, e2019JC015877. DOI:10.1029/2019JC015877

26. Using a regional ocean model to understand the structure and variability of acoustic arrivals in Fram Strait
Geyer, F., H. Sagen, B. Cornuelle, M.R. Mazloff, and H.J. Vazquez (2020). Using a regional ocean model to understand the structure and variability of acoustic arrivals in Fram Strait. *The Journal of the Acoustical Society of America* 147, 1042. DOI: 10.1121/10.0000513

27. The Importance of Remote Forcing for Regional Modeling of Internal Waves
Mazloff, M. R., B. Cornuelle, S.T. Gille & J. Wang (2020). The Importance of Remote Forcing for Regional Modeling of Internal Waves. *Journal of Geophysical Research: Oceans*, 125. DOI:10.1029/2019JC015623

28. Observing the Global Ocean with Biogeochemical-Argo
Claustre, H., K.S. Johnson, Y. Takeshita (2020). Observing the Global Ocean with Biogeochemical-Argo. *Annual Review of Marine Science* 12:1, 23-48. DOI:10.1146/annurev-marine-010419-010956

29. Importance of wind and meltwater for observed chemical and physical changes in the Southern Ocean
Bronselaer, B., Russell, J.L., Winton, M. et al. (2020). Importance of wind and meltwater for observed chemical and physical changes in the Southern Ocean. *Nat. Geosci.* 13, 35-42. DOI: 10.1038/s41561-019-0502-8

2019

1. Taking climate model evaluation to the next level
Eyring, V., P. Cox, G. Flato, P. Gleckler, G. Abramowitz, P. Caldwell, W. Collins, B. Gier, A. Hall, F. Hoffman, G. Hurtt, A. Jahn, C. Jones, S. Klein, J. Krasting, L. Kwiatkowski, R. Lorenz, E. Maloney, G. Meehl, A. Pendergrass, R. Pincus, A. Ruane, J.L. Russell, B. Sanderson, B. Santer, S. Sherwood, I. Simpson, R. Stouffer and M. Williamson (2019). Taking climate model evaluation to the next level. *Nature Climate Change*, 9, 102-110. DOI: 10.1038/s41558-018-0355-y

2. Assessing the quality of Southern Ocean circulation in CMIP5 AOGCM and Earth System Model simulations
Beadling, R.L., J.L. Russell, R.J. Stouffer, P.J. Goodman and M. Mazloff (2019). Assessing the quality of Southern Ocean circulation in CMIP5 AOGCM and Earth System Model simulations. *J. Climate*, 32, 5915-5940. DOI:10.1175/JCLI-D-19-0263.1

3. Current Systems in the Southern Ocean
Gille, S. T., and A. L. Gordon (2019). Current Systems in the Southern Ocean. In J. K. Cochran, J. H. Bokuniewicz, and L. P. Yager (eds.) *Encyclopedia of Ocean Sciences*, 3rd Edition, vol.[3], pp. 228-235. Oxford: Elsevier.

4. Reassessing Southern Ocean air-sea CO2 flux estimates with the addition of biogeochemical float observations
Bushinsky, S. M., P. Landschützer, C. Rödenbeck, A.R. Gray, D. Baker, M.R. Mazloff et al. (2019). Reassessing Southern Ocean air-sea CO2 flux estimates with the addition of biogeochemical float observations. *Global Biogeochemical Cycles*, 33, 1370- 1388. DOI:10.1029/2019GB006176

5. Temporal and Spatial Scales of Correlation in Marine Phytoplankton Communities
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