

Selected Publications

- Santana-Falcon, Y. et al. (submitted): Irreversible loss in marine ecosystem habitability after a temperature overshoot. *Nature Climate Change*.
- Drenkard, E. et al. (submitted): Impact of Dynamic Dust Deposition on Pacific Ocean Biogeochemistry. *Geophys. Res. Lett.*
- Rutherford, K. et al. (in prep): Uncertainty in the evolution of northwest North Atlantic circulation leads to diverging biogeochemical projections. *Nature Climate Change*.
- Pendergrass, D. et al. (in prep): Modeling the impact of strong regulation of near-term climate forcers in China on mid-21st century air quality and climate using a coupled Earth system model.
- Keller, D. P. et al. (in prep): Is Anthropogenic Climate Change Reversible? The Earth system response to a massive CO₂ increase then decrease (emissions followed by negative emissions). *Earth Syst. Dynam.*
- Shevliakova, E., et al. (in review): The land component LM4.1 of the GFDL Earth System Model ESM4.1: biophysical and biogeochemical processes and interactions with climate. *Journal of Advances in Modeling Earth Systems*.
- Martinez Cano, I. et al. (2022): Abrupt loss and uncertain recovery from fires of Amazon forests under low climate mitigation scenarios. *PNAS*, 119(52):e2203200119, <https://doi.org/10.1073/pnas.2203200119>.
- Busecke, J. J. M., L. Resplandy, S. J. Ditkovsky, and J. G. John (2022): Diverging fates of the Pacific Ocean oxygen minimum zone and its core in a warming world. *AGU Advances*, 3, e2021AV000470. <https://doi.org/10.1029/2021AV000470>.
- Xue, T. et al.: Mixed layer depth promotes trophic amplification on a seasonal scale. *Geophys. Res. Lett.*, 49, e2022GL098720. <https://doi.org/10.1029/2022GL098720>.
- Krasting, J. P., et al.: Regional sensitivity patterns of Arctic Ocean acidification revealed with machine learning. *Commun Earth Environ* 3, 91 (2022). <https://doi.org/10.1038/s43247-022-00419-4>.
- Cael, B. B., et al.: Marine ecosystem change points spread under ocean warming in an Earth System Model. *Journal of Geophysical Research: Biogeosciences*, 127, e2021JG006571. <https://doi.org/10.1029/2021JG006571>.
- Lim, H-G., et al.: Oceanic and atmospheric drivers of post-El-Niño chlorophyll rebound in the equatorial Pacific. *Geophys. Res. Lett.* <https://doi.org/10.1029/2021GL096113>.
- Tittensor, D.P. et al.: Next-generation ensemble projections reveal higher climate risks for marine ecosystems. *Nat. Clim. Chang.* 11, 973–981 (2021). <https://doi.org/10.1038/s41558-021-01173-9>.
- Morgan, E. J., et al.: An atmospheric constraint on the seasonal air–sea exchange of oxygen and heat in the extratropics, *JGR Oceans*, <https://doi.org/10.1029/2021JC017510>, 2021.
- Allen, R. et al: Significant climate benefits from near-term climate forcer mitigation in spite of aerosol reductions. *Environ. Res. Lett.*, 16, no. 3, 034010, doi:10.1088/1748-9326/abe06b, 2021.
- Tebaldi. C. et al.: Climate model projections from the Scenario Model Intercomparison Project (ScenarioMIP) of CMIP6. *Earth Syst. Dynam.*, 12, 253–293, <https://doi.org/10.5194/esd-12-253-2021>, 2021.
- Yu, Y., et al.: Increased risk of the 2019 Alaskan July fires due to anthropogenic activity. *BAMS Special Issue on Explaining Extreme Events of 2019 from a Climate Perspective*, <https://doi.org/10.1175/BAMS-D-20-0154.1>, 2021.
- Gillett, N. P., et al.: Constraining human contributions to observed warming since the pre-industrial period. *Nat. Clim. Chang.* (2021). <https://doi.org/10.1038/s41558-020-00965-9>.
- Turnock, S. T., et al.: Historical and future changes in air pollutants from CMIP6 models. *Atmos. Chem. Phys.*, 20, 14547–14579, 2020. <https://doi.org/10.5194/acp-20-14547-2020>.
- Burger, F. A., J. G. John, and T. F. Frölicher: Increase in ocean acidity variability and extremes under increasing atmospheric CO₂. *Biogeosciences*, 17, 4633–4662, <https://doi.org/10.5194/bg-17-4633-2020>, 2020.

- Stock, C., et al.: Ocean Biogeochemistry in GFDL's Earth System Model 4.1 and its Response to Increasing Atmospheric CO₂. *Journal of Advances in Modeling Earth Systems*, <https://doi.org/10.1029/2019MS002043>, 2020.
- Horowitz, L., et al.: The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics. *Journal of Advances in Modeling Earth Systems*, <https://doi.org/10.1029/2019MS002032>, 2020.
- Paulot, F., et al.: Ocean ammonia outgassing: modulation by CO₂ and anthropogenic nitrogen deposition. *Journal of Advances in Modeling Earth Systems*, <https://doi.org/10.1029/2019MS002026>, 2020.
- Dunne, J. P., et al.: The GFDL Earth System Model version 4.1 (GFDL-ESM4.1): Overall coupled model description and simulation characteristics. *Journal of Advances in Modeling Earth Systems*, <https://doi.org/10.1029/2019MS002015>, 2020.
- Dunne, J. P., et al.: The GFDL Simplified Global Ocean Biogeochemistry with Light, Iron, Nutrients and Gas version 2 (BLINGv2): Model description and simulation characteristics in GFDL's CM4.0. *Journal of Advances in Modeling Earth Systems*, <https://doi.org/10.1029/2019MS002008>, 2020.
- Allen, R., et al.: Climate and air quality impacts due to mitigation of non-methane near-term climate forcers. *Atmos. Chem. Phys.*, 20, 9641–9663, <https://doi.org/10.5194/acp-20-9641-2020>, 2020.
- S  ferian, R., et al.: Tracking improvement in simulated marine biogeochemistry between CMIP5 and CMIP6. *Current Climate Change Reports*, <https://doi.org/10.1007/s40641-020-00160-0>, 2020.
- Kwiatkowski, L., et al.: Twenty-first century ocean warming, acidification, deoxygenation, and upper ocean nutrient decline from CMIP6 model projections. *Biogeosciences*, 17, 3439–3470, <https://doi.org/10.5194/bg-17-3439-2020>, 2020.
- Adcroft, A., et al.: The GFDL Global Ocean and Sea Ice Model OM4.0: Model Description and Simulation Features. *Journal of Advances in Modeling Earth Systems*, DOI:10.1029/2019MS001726, 2019.
- Held, I., et al.: Structure and Performance of GFDL's CM4.0 Climate Model. *Journal of Advances in Modeling Earth Systems*, DOI:10.1029/2019MS001829, 2019.
- Laufk  tter, C., et al.: Glacial iron stimulates the Southern Ocean carbon cycle. *Geophys. Res. Lett.*, 45(24), DOI:10.1029/2018GL079797, 2018.
- Taboada, F., et al.: Surface winds from atmospheric reanalysis lead to contrasting ocean forcing and coastal upwelling patterns. *Ocean Modelling*, 133, DOI:10.1016/j.ocemod.2018.11.003, 2018.
- Taboada, F., et al.: Seasonal to interannual predictability of oceanic net primary production inferred from satellite observations. *Progress in Oceanography*, 170, DOI:10.1016/j.pocean.2018.10.010, 2018.
- Palter, J., et al.: Climate, ocean circulation, and sea level changes under stabilization and overshoot pathways to 1.5K warming. *Earth Syst. Dynam.*, 9, 817-828, 2018, <https://doi.org/10.5194/esd-9-817-2018>, 2018.
- Park, J-Y., et al.: Modeling Global Ocean Biogeochemistry With Physical Data Assimilation: A Pragmatic Solution to the Equatorial Instability. *Journal of Advances in Modeling Earth Systems*, 10(3), doi:10.1002/2017MS001223, 2018.
- Turi, G., et al.: Response of O₂ and pH to ENSO in the California Current System in a high resolution global climate model. *Ocean Science*, 14(1), doi:10.5194/os-14-69-2018, 2018.
- Laufk  tter, C., et al.: Temperature and oxygen dependence of the remineralization of organic matter. *Global Biogeochemical Cycles*, 31(7), doi:10.1002/2017GB005643, 2017.
- Stock, C. A., et al.: Reconciling fisheries catch and ocean productivity. *Proc. Nat. Acad. Sci.*, E1441–E1449, doi: 10.1073/pnas.1610238114, 2017.
- Henson, S., et al.: Rapid emergence of climate change in environmental drivers of marine ecosystem stress. *Nature Communications*, 8, 14682 doi:10.1038/ncomms14682, 2017.
- Orr, J.C., et al.: Biogeochemical protocols and diagnostics for the CMIP6 Ocean Model Intercomparison Project (OMIP). *Geosci. Model Dev.*, <https://doi.org/10.5194/gmd-10-2169-2017>, 2017.
- Lee, Y., et al.: Net primary productivity estimates and environmental variables in the Arctic Ocean: An assessment of coupled physical-biogeochemical models. *Journal of Geophysical Research, Oceans*, doi:10.1002/2016JCO11993, 2016.

- Jones, C. D., et al.: C4MIP – The Coupled Climate-Carbon Cycle Model Intercomparison Project: experimental protocol for CMIP6, *Geosci. Model Dev.*, doi:10.5194/gmd-9-2853-2016, 2016.
- Laufkötter, C., et al.: Projected decreases in future marine export production: the role of the carbon flux through the upper ocean ecosystem, *Biogeosciences*, 13(13), doi:10.5194/bg-13-4023-2016, 2016.
- John, J. G., C. A. Stock and J. P. Dunne: A more productive, but different, ocean after mitigation, *Geophys. Res. Lett.*, 42, doi: 10.1002/2015GL066160, 2015.
- Hauck, J., et al.: On the Southern Ocean CO₂ uptake and the role of the biological carbon pump in the 21st century, *Global Biogeochemical Cycles*, doi: 10.1002/2015GB005140, 2015.
- Dunne, J. P., C. A. Stock, and J. G. John.: Representation of the eastern boundary currents in GFDL's Earth System Models, *CalCOFI Rep.*, Vol. 56, 72-72, 2015.
- Laufkötter, C., et al.: Drivers and uncertainties of future global marine primary production in marine ecosystem models, *Biogeosciences*, 12(23), doi:10.5194/bg-12-6955-2015, 2015.
- Stock, C. A., J. P. Dunne and J. G. John: Drivers of trophic amplification of ocean productivity trends in a changing climate, *Biogeosciences*, 11(24), 7125-7135, doi:10.5194/bg-11-7125-2014, 2014.
- Stock, C. A., J. P. Dunne and J. G. John: Global scale carbon and energy flows through the planktonic food web: an analysis with a coupled physical-biological model, *Progress in Oceanography*, doi:10.1016/j.pocean.2013.07.001. 2014.
- IPCC, 2013: Annex II: Climate System Scenario Tables [Prather, M., G. Flato, P. Friedlingstein, C. Jones, J.-F. Lamarque, H. Liao and P. Rasch (eds.)]. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. (Contributing Author).
- Kirtman, B., S.B. Power, J.A. Adedoyin, G.J. Boer, R. Bojariu, I. Camilloni, F.J. Doblas-Reyes, A.M. Fiore, M. Kimoto, G.A. Meehl, M. Prather, A. Sarr, C. Schär, R. Sutton, G.J. van Oldenborgh, G. Vecchi and H.J. Wang, 2013: Near-term Climate Change: Projections and Predictability. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. (Contributing Author).
- Dunne, J. P., R. J. Stouffer and J. G. John: Reductions in labour capacity from heat stress under climate warming, *Nature Climate Change*, 3(6), doi:10.1038/nclimate1827, 2013.
- John, J. G., A. M. Fiore, V. Naik, L. W. Horowitz, and J. P. Dunne: Climate versus emission drivers of methane lifetime from 1860-2100, *Atmos. Chem. Phys.*, 12, 12021-12036, doi:10.5194/acp-12-12021-2012, 2012.
- Dunne, J. P., J. G. John, E. N. Shevliakova, R. J. Stouffer, et al.: GFDL's ESM2 global coupled climate-carbon Earth System Models Part II: Carbon System formulation and baseline simulation characteristics, *J. Climate*, 26(7), doi:10.1175/JCLI-D-12-00150.1, 2012.
- Dunne, J. P., J. G. John, A. J. Adcroft, S. M. Griffies, R. W. Hallberg, E. N. Shevliakova, R. J. Stouffer, et al.: GFDL's ESM2 global coupled climate-carbon Earth System Models Part I: Physical formulation and baseline simulation characteristics, *J. Climate*, 25(19), doi:10.1175/JCLI-D-11-00560.1, 2012.
- Gnanadesikan, A., J. P. Dunne and J. John: Understanding why the volume of suboxic waters does not increase over centuries of global warming in an Earth System Model, *Biogeosciences*, 9, 1159-1172, doi:10.5194/bg-9-1159-2012, 2012.
- Gnanadesikan, A., J. P. Dunne, and J. John: What ocean biogeochemical models can tell us about bottom-up control of ecosystem variability, *ICES Journal of Marine Science*, 68, 1030-1044, 2011.
- Henson, S. A., J. L. Sarmiento, J. P. Dunne, L. Bopp, I. Lima, S. C. Doney, J. John, and C. Beaulieu: Detection of anthropogenic climate change in satellite records of ocean chlorophyll and productivity, *Biogeosciences*, 7, 621-640, doi:10.5194/bg-7-621-2010, 2010.
- Hoffman, F., I. Fung, J. Randerson, P. Thornton, J. Foley, C. Covey, J. John, et al.: Terrestrial biogeochemistry in the community climate system model (CCSM), *Journal of Physics: Conference*

- Series*, 46, 363-369, 2006.
- Patra, P. K., et al.: Sensitivity of inverse estimation of annual mean CO₂ sources and sinks to ocean-only sites versus all-sites observational networks, *Geophys. Res. Lett.*, 31, L05814, 2006.
- Friedlingstein, P., et al.: Climate–Carbon Cycle Feedback Analysis: Results from the C4MIP Model Intercomparison, *J. Climate*, 19, 3337–3353, doi: 10.1175/JCLI3800.1, 2006.
- Doney, S. C., K. Lindsay, I. Fung and J. John: Natural Variability in a Stable, 1000-Year Global Coupled Climate- Carbon Cycle Simulation, *J. Climate*, 19, 3033-3054, 2006.
- Baker, D. F., et al.: TransCom3 inversion intercomparison: Impact of transport model errors on the interannual variability of regional CO₂ fluxes, 1988-2003, *Global Biogeochem. Cycles*, 20, GB1002, doi: 10.1029/2004GB002439, 2006.
- Fung, I., S. Doney, K. Lindsay and J. John: Evolution of carbon sinks in a changing climate, *Proc. Nat. Acad. Sci.*, 102, 32, 11201-11206, 2005.
- Bonfils, C., I. Fung, S. Doney and J. John: On the detection of summertime terrestrial photosynthetic variability from its atmospheric signature, *Geophys. Res. Lett.*, 31, L09207, doi:10.1029/2004GL019453, 2004.
- Gurney, K. R., R. M. Law and TransCom3 modellers: Transcom3 inversion intercomparison: Model mean results for the estimation of seasonal carbon sources and sinks, *Global Biogeochem. Cycles*, 18, GB1010, doi:10.1029/2003GB002111, 2004.
- Maksyutov, S., and Transcom-3 Modelers: Effect of recent observations on Asian CO₂ flux estimates by transport model inversions, *Tellus*, 55B, 522-529, 2003.
- Law, R. M., Y.-H. Chen, K. R. Gurney and Transcom 3 Modellers: TransCom3 CO₂ inversion intercomparison: 2. Sensitivity of annual mean results to data choices, *Tellus B*, 55: 580-595. doi: 10.1034/j.1600- 0889.2003.00053.x, 2003.
- Gurney, K. R., et al.: TransCom3 CO₂ inversion intercomparison: 1. Annual mean control results and sensitivity to transport and prior flux information, *Tellus Series B*, 55(2), 555-579, 2003.
- Gurney, K. R., R. M. Law and TransCom3 modellers: Towards robust regional estimates of CO₂ sources and sinks using atmospheric transport models, *Nature*, 415, 626-630, 2002.
- Fung, I., S. K. Meyn, I. Tegen, S. C. Doney, J. G. John, and J. K. B. Bishop: Iron supply and demand in the upper ocean, *Global Biogeochem. Cycles*, 14, 281-295, 2000. Correction in *GBC*, 14, 697-700.
- Gajewski, K. R., et al.: The climate of North America and adjacent ocean waters ca 6 ka, *Canadian J. Earth Sci.*, 37, 661-681, 2000.
- Fung, I., C. B. Field, J. A. Berry, M. V. Thompson, J. T. Randerson, C. M. Malmstrom, P. M. Vitousek, G. J. Collatz, P. J. Sellers, D. A. Randall, A. S. Denning, F. Badeck and J. John: Carbon 13 exchanges between the atmosphere and biosphere, *Global Biogeochem. Cycles*, 11, 507-533, 1997.
- Friedlingstein, P., I. Fung, E. Holland, J. John, G. Brasseur, D. Erickson and D. Schimel: On the contribution of CO₂ fertilization to the missing biospheric sink, *Global Biogeochem. Cycles*, 9, 541-556, 1995.
- Friedlingstein, P., K. C. Prentice, I. Y. Fung, J. G. John and G. P. Brasseur: Carbon biosphere-climate interactions in the last glacial maximum climate, *J. Geophys. Res.*, 100, 7203-7221, 1993.
- Bouwman, A. F., I. Fung, E. Matthews and J. John: Global analysis of the potential for N₂O production in natural soils, *Global Biogeochem. Cycles*, 7, 557-597, 1993.
- Matthews, E., J. John and I. Fung: Rice Cultivation and Methane Emission, Documentation of Distributed Geographic Data Sets, *NASA Technical Memorandum* 104595, 1993.
- Fung, I., J. John, J. Lerner, E. Matthews, M. Prather, L. P. Steele and P. J. Fraser: Three-dimensional model synthesis of the global methane cycle, *J. Geophys. Res.*, 96, 13033-13065, 1991.
- Fung, I. and J. John: Interannual and longer-term changes of the terrestrial biosphere and their relationships to atmospheric CO₂ variations. In: *Proceedings of Third International Conference on Analysis and Evaluation of Atmospheric CO₂ Data Present and Past, Environmental Pollution Monitoring and Research Programme No. 59*, World Meteorological Organization, 1989.