



The Southern Ocean Carbon and Climate Observations and Modeling Program (SOCCOM)

Joellen Russell

United States (jrussell@email.arizona.edu)

SOCCOM is a 6-year observational and modeling research program focused on the role of the Southern Ocean in the anthropogenic carbon budget, ocean biogeochemistry, and climate change. The operational goal of SOCCOM is to deploy nearly 200 Argo-compatible biogeochemically-sensored (BGC) profiling floats equipped with pH, oxygen, nitrate and bio-optical sensors throughout the Southern Ocean waters south of 30°S. These climate-ready BGC-floats are calibrated at the time of deployment by high accuracy biogeochemical measurements, and they operate year around, including in ice-covered waters. The data from the BGC-floats is being assimilated by a Southern Ocean State Estimate (SOSE) model that incorporates biogeochemical processes, and this gridded SOSE output is used to constrain high-resolution coupled atmosphere-ocean model simulations designed to both increase our understanding of Southern Ocean processes and to reduce the uncertainty of projections of the future trajectory of the Earth's carbon, climate and biogeochemistry. We will present an overview of the organization and recent results of SOCCOM as well as the exciting next steps being developed.