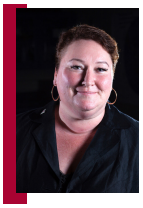
SLAC COLLOQUIUM SERIES

Changing Climate, Winds and Ocean Carbon Uptake



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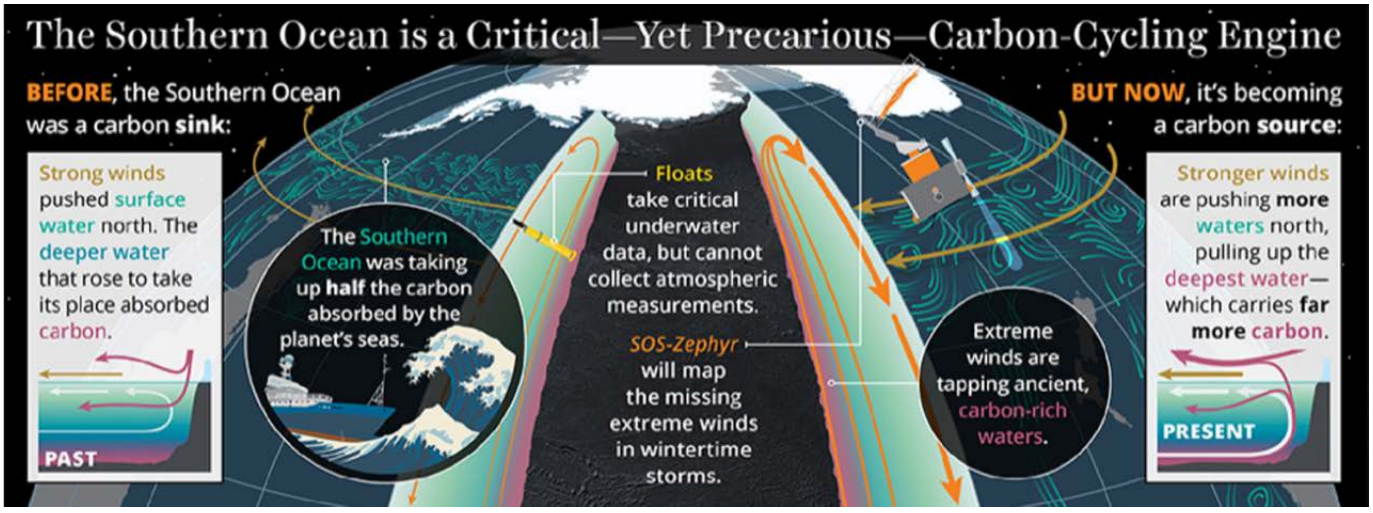
Abstract:

Strong winds in Southern Ocean storms drive air-sea carbon and heat fluxes and these fluxes are integral to the global climate system. Evidence from a range of sources indicates that the wind speeds that drive these fluxes are increasing. We present results from an experiment using the Biogeochemical Southern Ocean State Estimate to explore the effects of a 20% increase in wind speed on the air-sea carbon fluxes over the Southern Ocean. We find that increased winds lead to significantly increased outgassing during the winter, consistent with recent biogeochemical float observations. Unfortunately, the current scatterometer constellation that remotely senses vector winds undersamples these storms and the higher winds within them, temporally as well as spatially, leading to potentially large biases in Southern Ocean wind reanalyses and the carbon and heat fluxes that derive from them.



March 7, 2022 | Zoom | 3:30 pm - 4:30 pm