

CGD Seminar Series

Revisiting trends in southern hemisphere westerlies and their impact on the oceans

Darryn Waugh

Johns Hopkins University

Date: Tuesday 6 October, 2020

Time: 11am – 12pm

For Zoom information, please contact

Tracy Baker tbaker@ucar.edu

For live stream information, visit the

CGD Seminar Webpage

ABSTRACT

It is widely understood that there has been a trend towards a more positive phase of the southern annular mode (SAM), with an associated strengthening and poleward shift of southern near-surface westerlies, over the last few decades. However, as will be shown in this talk, there has been a recent pause in some of these trends together with substantial longitudinal variations in the wind trends. Specifically, there has been a large strengthening and a statistically insignificant equatorward shift of peak annual-mean near-surface winds over the Pacific, in contrast to a weaker strengthening and significant poleward shift over the Atlantic and Indian Ocean sectors. Analysis of ensembles of climate model simulations indicate that while the summer trends and pause are a forced response, the differential movement of the peak westerlies is a manifestation of internal variability. Implications of these asymmetries in wind trends for the ocean response will also be discussed, with a focus on the inter-basin differences in the ventilation of mode and intermediate waters, and possible impact on ocean uptake of carbon and heat.

For more information, contact Tracy Baker | tbaker@ucar.edu | x1366

