

The Relationship Between Wind Stress and Surface Carbonate Chemistry in the Southern Ocean

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Understanding change and variability in the global carbon cycle requires accurate representation of ocean carbonate chemistry. The Southern Ocean, whose mid-latitude mode and intermediate waters sequester nearly 40% of global anthropogenic CO₂ emissions annually, is of particular interest. Here, we examine interannual variability in Southern Ocean carbonate chemistry using output from a hindcast (1957-2007) simulation of the Community Earth System Model. Below 44 degrees South, we find a significant negative correlation between windspeed and surface carbonate ion concentration. This suggests that wind driven variation in ocean circulation has a significant impact on Southern Ocean carbonate chemistry.