

Controls on Sea-Air CO₂ Flux in EBUS

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Abstract

Working to understand what controls historical variability in Sea-Air CO₂ Flux in Eastern Boundary Upwelling Systems. I use FG_CO2 output from the CESM Large Ensemble and correlate it to various climate indices derived from model output.

1 California Current

1.1 Study Site

For simplicity, I am using the latitudinal bounds set up by Chavez and Messié [2009]. This equates to 34N - 44N for the CCS. In terms of longitude, I want to approach it similarly to Turi et al. [2014], generating a 100km band (0-100km), a near-offshore band (100km-400km), and a far-offshore band (400km-800km). I can use the lon_bounds that comes with the model output (since longitude varies with latitude). This can help to standardize the sections we're looking at and differentiate between coastal and curl-driven upwelling areas.

References

- Francisco P Chavez and Monique Messié. A comparison of eastern boundary upwelling ecosystems. *Progress in Oceanography*, 83(1):80–96, 2009.
- G. Turi, Z. Lachkar, and N. Gruber. Spatiotemporal variability and drivers of pco₂ and air-sea co₂ fluxes in the california current system: an eddy-resolving modeling study. *Biogeosciences*, 11(3):671–690, 2014. doi: 10.5194/bg-11-671-2014. URL <http://www.biogeosciences.net/11/671/2014/>.