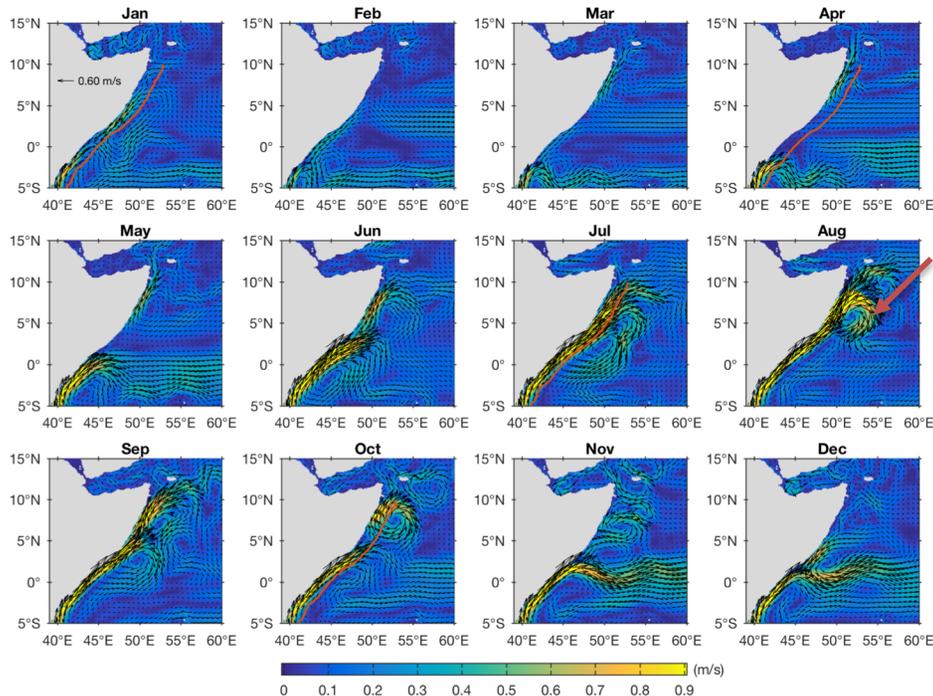


Seasonal Cycle and Annual Reversal of the Somali Current in an Eddy-Resolving Global Ocean Model

Objective

Improve understanding of the dynamical drivers of the seasonal cycle of the Somali Current (SC), an atypical western boundary current that reverses seasonally off northeast Africa.



Forced global 0.1° Parallel Ocean Program (POP): monthly climatological (2005-2009) circulation (top 100m). Red line: delineates region used for momentum budgets.

Approach

- Obtain metrics of seasonal cycle of simulated upper ocean circulation in the SC.
- Calculate full monthly climatological momentum balances along the SC using global 0.1° Parallel Ocean Program (POP) forced with atmospheric reanalysis fluxes.

Impact

- SC is important for regional climate & ecology & potentially impacts Indian Monsoon precipitation.
- Annual cycle and timing of the SC reversal differ depending on location along the coast: (1) 2°-5°N – directly follows monsoon wind reversal, (2) 5° -10°N – remotely-generated annual Rossby wave and life cycle of Great Whirl extend duration of northward flow before & after occurrence of southwesterly monsoon winds, (3) South of 2°N – reversal affected by northward flowing East African Coastal Current.

Wang, H., J.L. McClean, L.D. Talley, S. Yeager (2018), Seasonal cycle and annual reversal of the Somali Current in an eddy-resolving global ocean model, *J. Geophys. Res. Oceans*, 123, 6562-6580, doi:10.1029/2018JC013975.