Exploring **S**ensitivity **P**atterns and **RES**ponses in the **S**outhern **O**cean (**ESPRESSO**)

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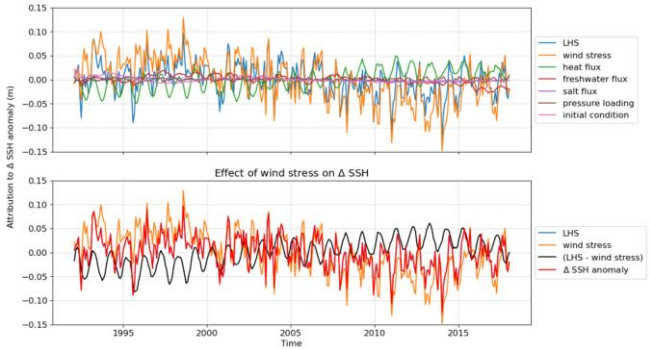
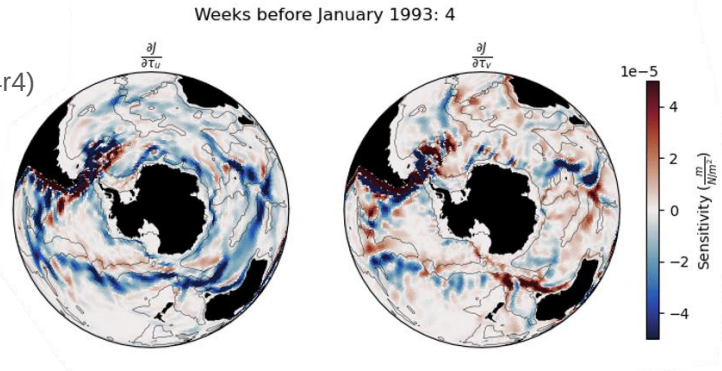
APPROACH

- Define *QoI J = (SSH @ Southern tip of Chile) - (SSH @ West Antarctic Peninsula)*: Represents geostrophic transport through Drake Passage (r = 0.78 wrt total transport in v4r4)
- Run adjoint targeting J(January 1993) with weekly lags back to January 1992

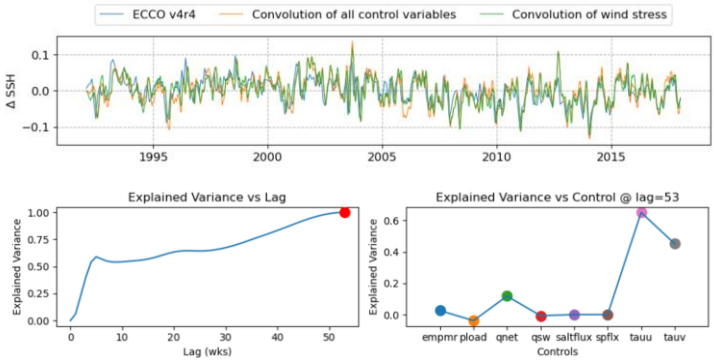
Attribution



Adjoint



Convolution



CONCLUSIONS

- EMU tools recover similar large scale features of sensitivity to wind stress forcing compared to those from a high resolution adjoint (Mazloff 2012)
- Identified bugs in EMU (running transport masks)
- Open questions: Why does EV increase at lags up to 52 weeks? Why is sensitivity to zonal wind negative?