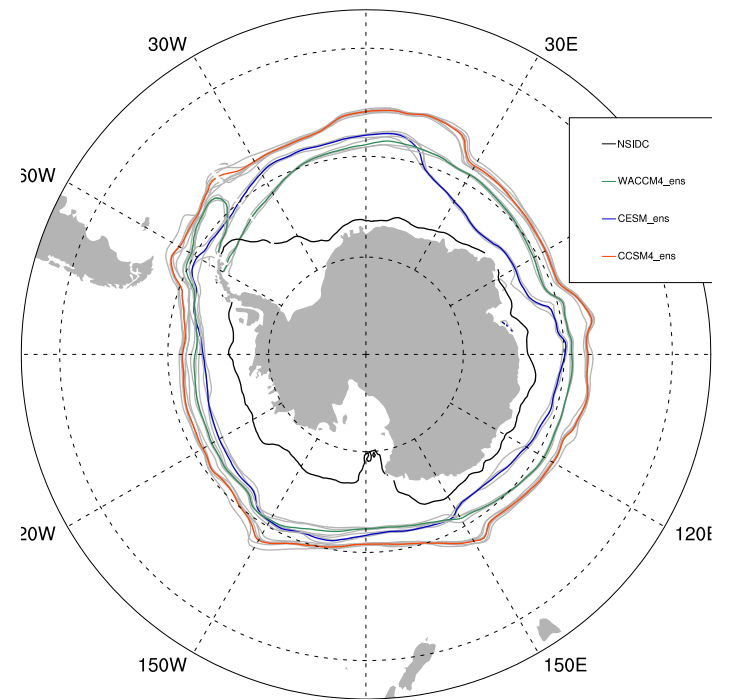
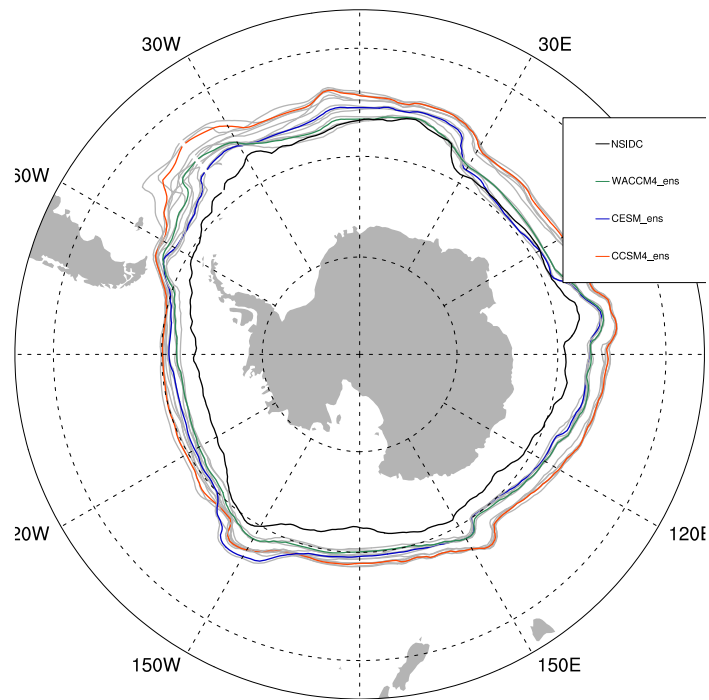


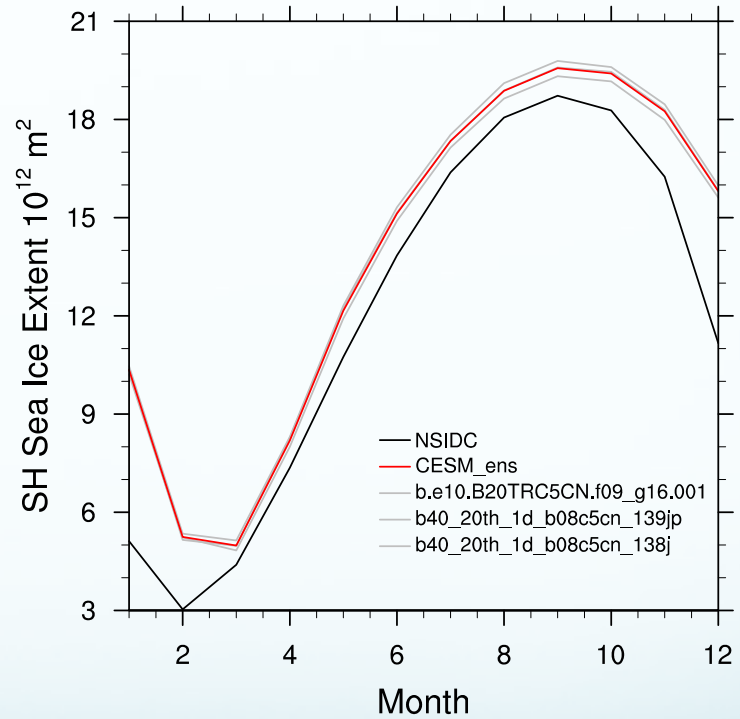
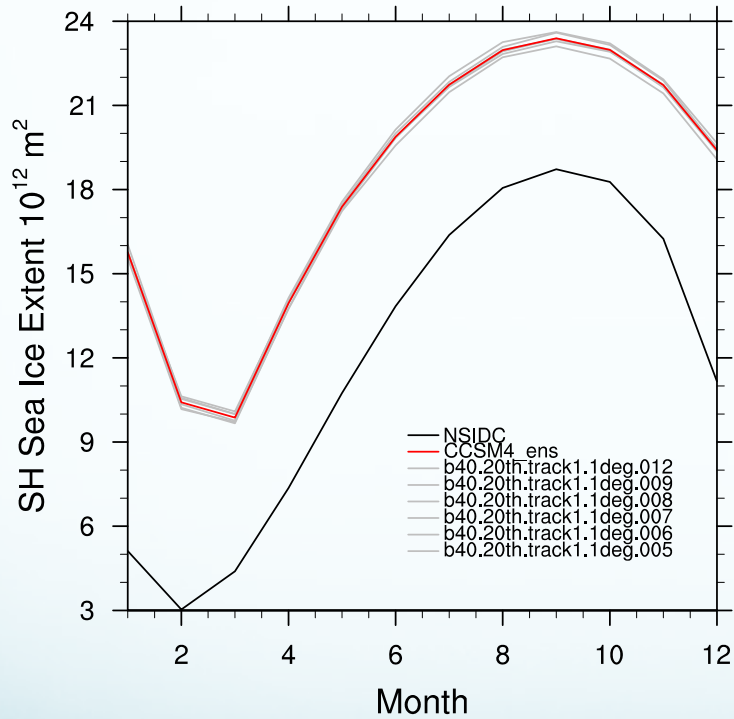
What sets the Southern Hemisphere Sea Ice Extent?

David Bailey, Laura Landrum, Jennifer Kay,
and Marika Holland
NCAR Earth System Laboratory

Southern Hemisphere Sea Ice Extent



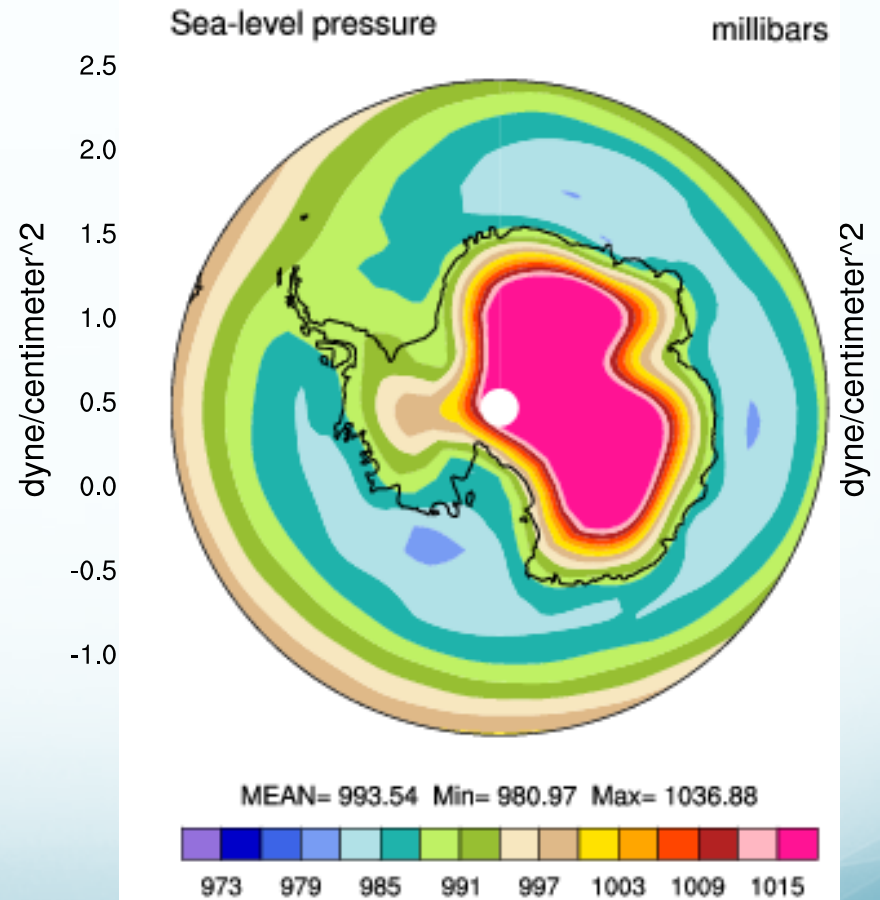
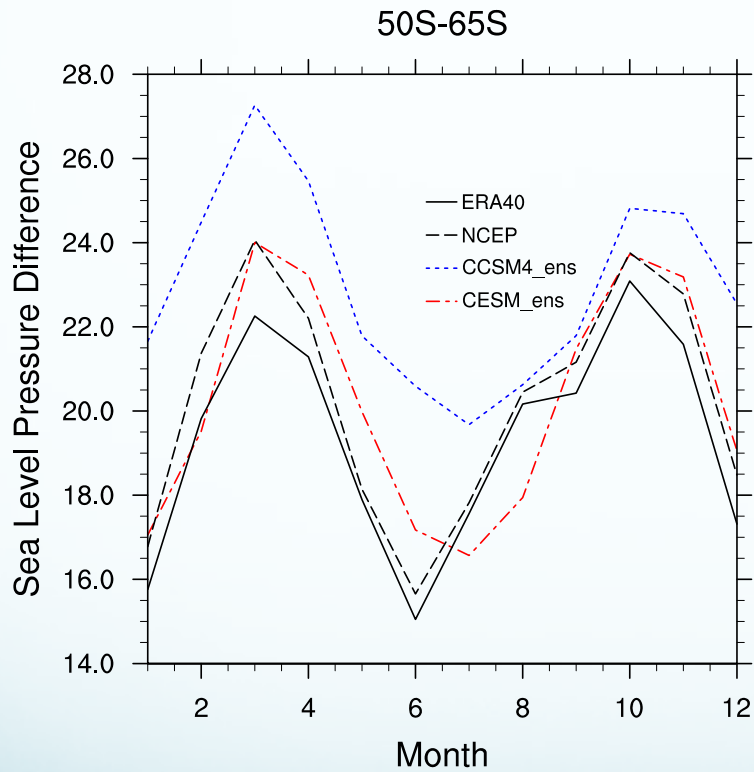
Climatological Seasonal Cycle



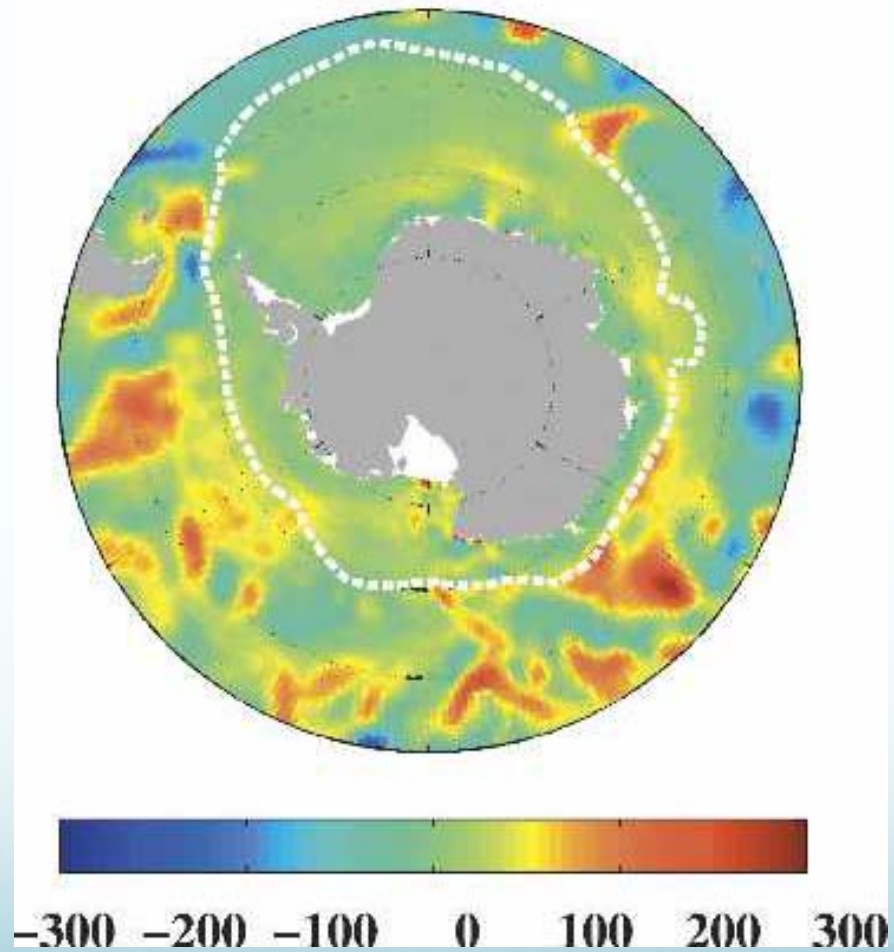
Atmospheric Setting

- Semiannual Oscillation (SAO): The North-South movement of the Circumpolar Trough. (Stammerjohn et al. 2008; Raphael and Holland 2006; Enomoto and Ohmura 1990)
- Strongest and most poleward in March and October during the advance and retreat of the sea ice
- Weaker and more equatorward in January and June.

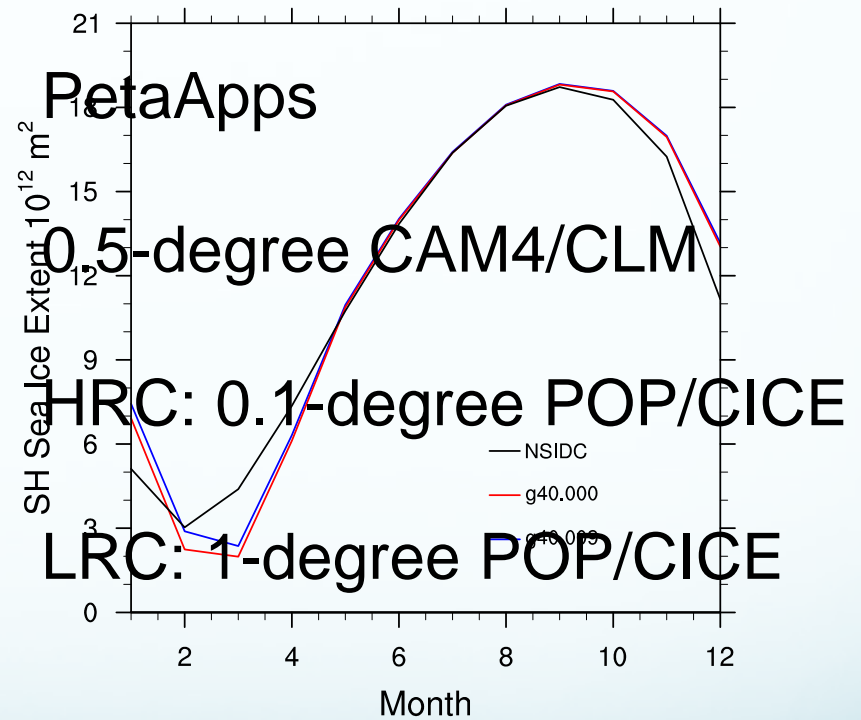
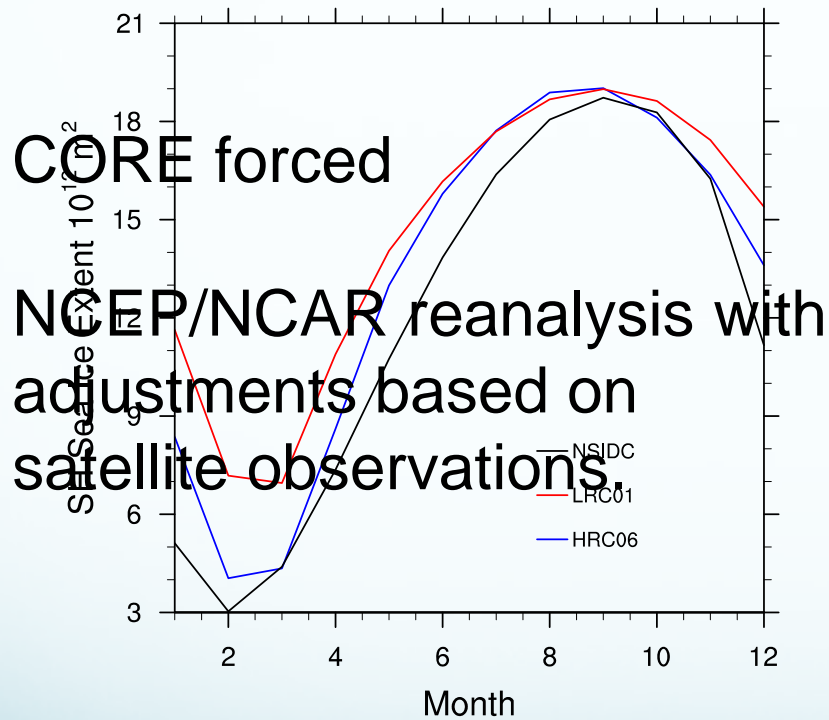
Semiannual Oscillation



Ocean Setting



High resolution and ice-ocean coupled.



Summary

- SH sea ice extent advance and retreat is set by SAO in the winds and ocean heat flux convergence.
- SAO is generally well-simulated in all versions of the fully-coupled model. However, too strong, particularly in March during advance.
- Biases in ocean heat content can mitigate or exacerbate sea ice extent biases.
- Why SAO bias? Interannual variability? Longitudinal variations? Continental winds?