SODA: Progress, Problems and Plans

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Progress: New system!

Ocean

Numerics: MOMv5.1
Resolution: ~1/4°, 10m nearsurface (1440x1070x50)
Mixing: KPP, Smag., tidal mixing
Passages: resolved & parameterized
Surface forcing: ERA-Interim
Large suite of diagnostics

Assimilation: SODA deterministic, hybrid (see Penny), Bias correction

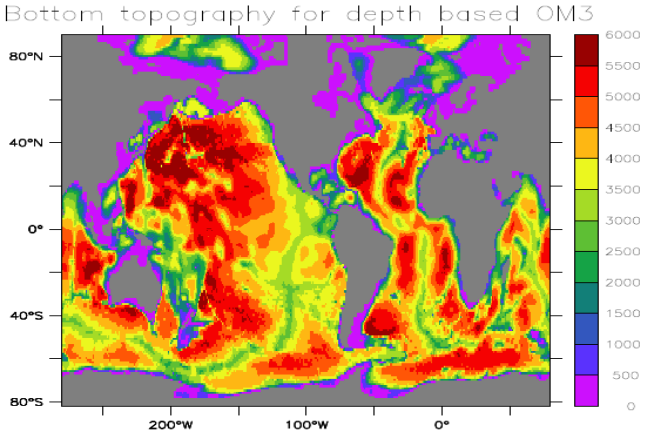
Data: AVHRR SST, ICOADS, moored and profile Temp, Salt, sea level

test interval: '79 – pres

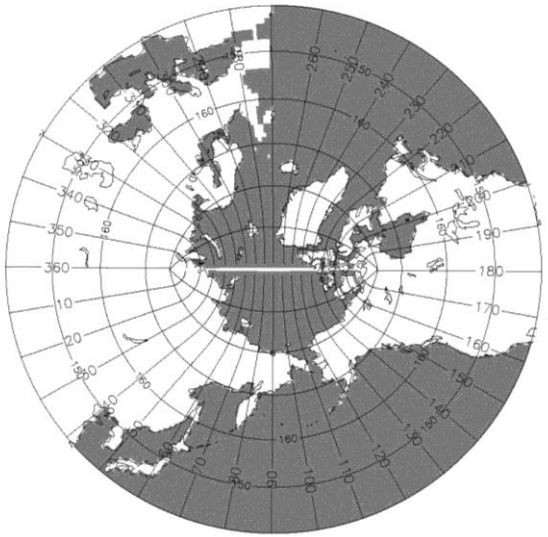
Sea ice

SIS (5 sea ice classes)
Data: Microwave emissivity, freeboard

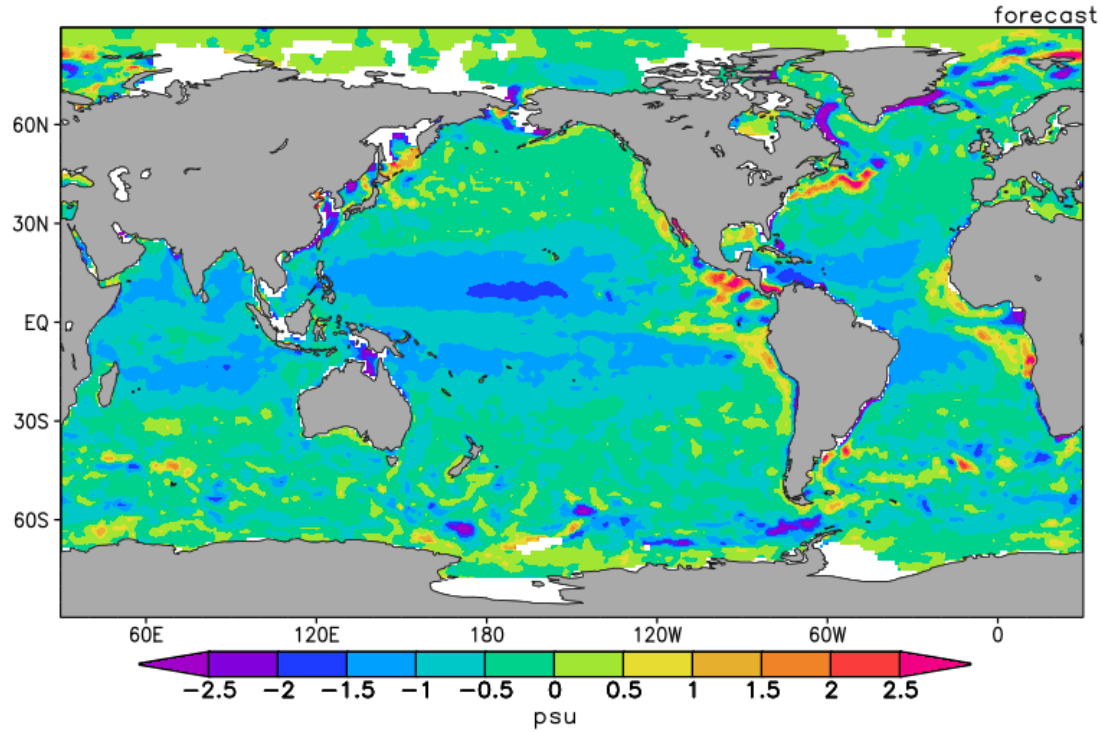
Bottom Topog



Grid at high latitude

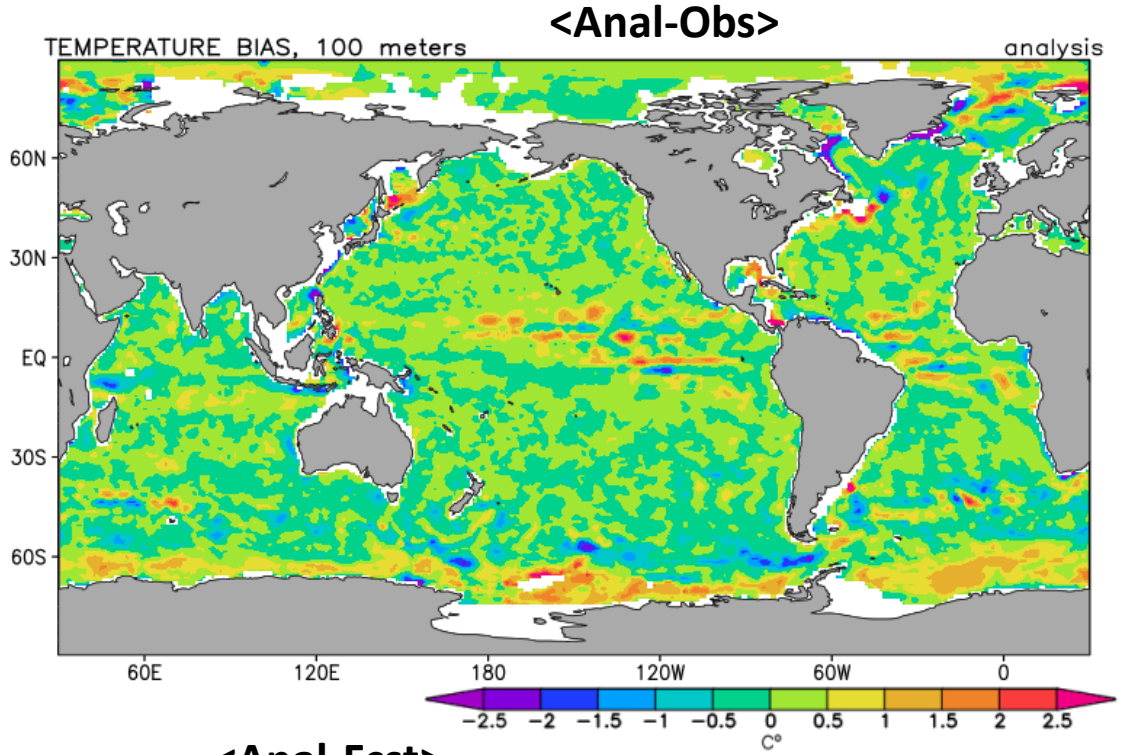


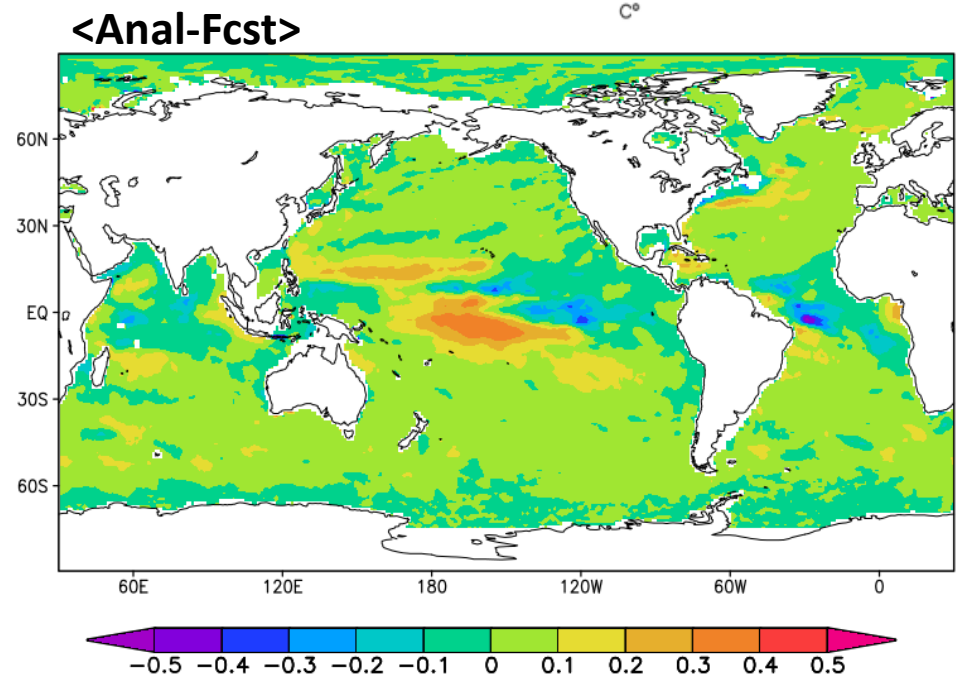
50m Analysis and Forecast temperature bias



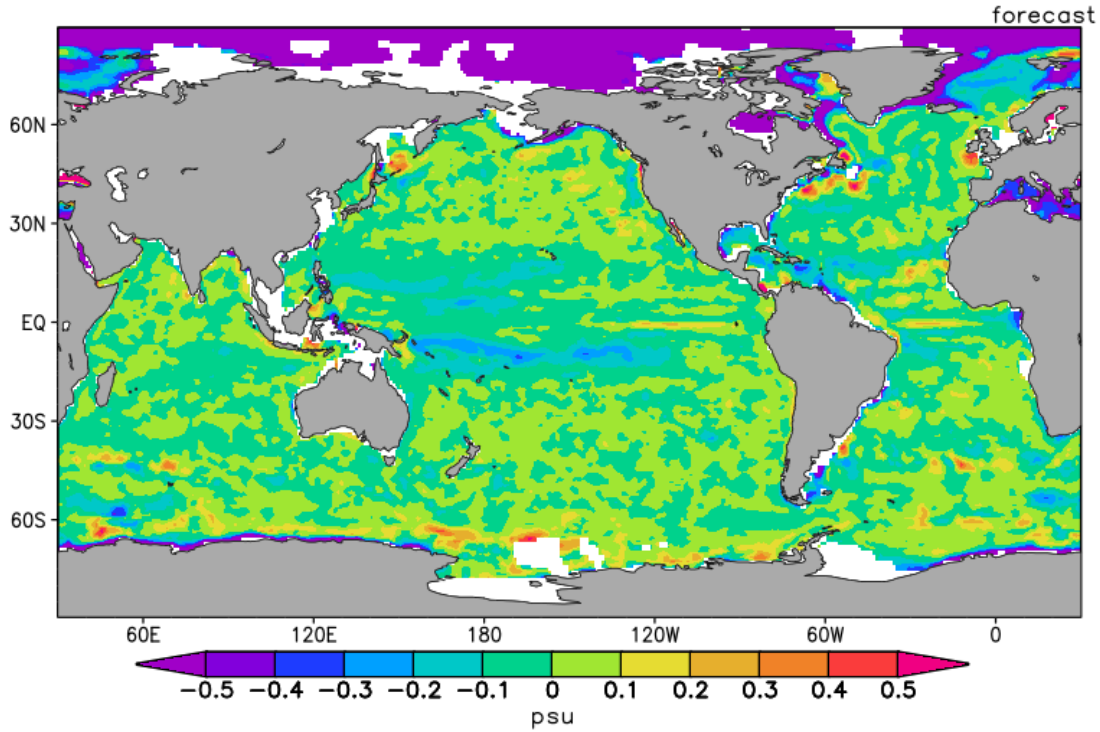
Note: Everything I show is from two experiments: a simulation and an assimilation

100m Temperature bias

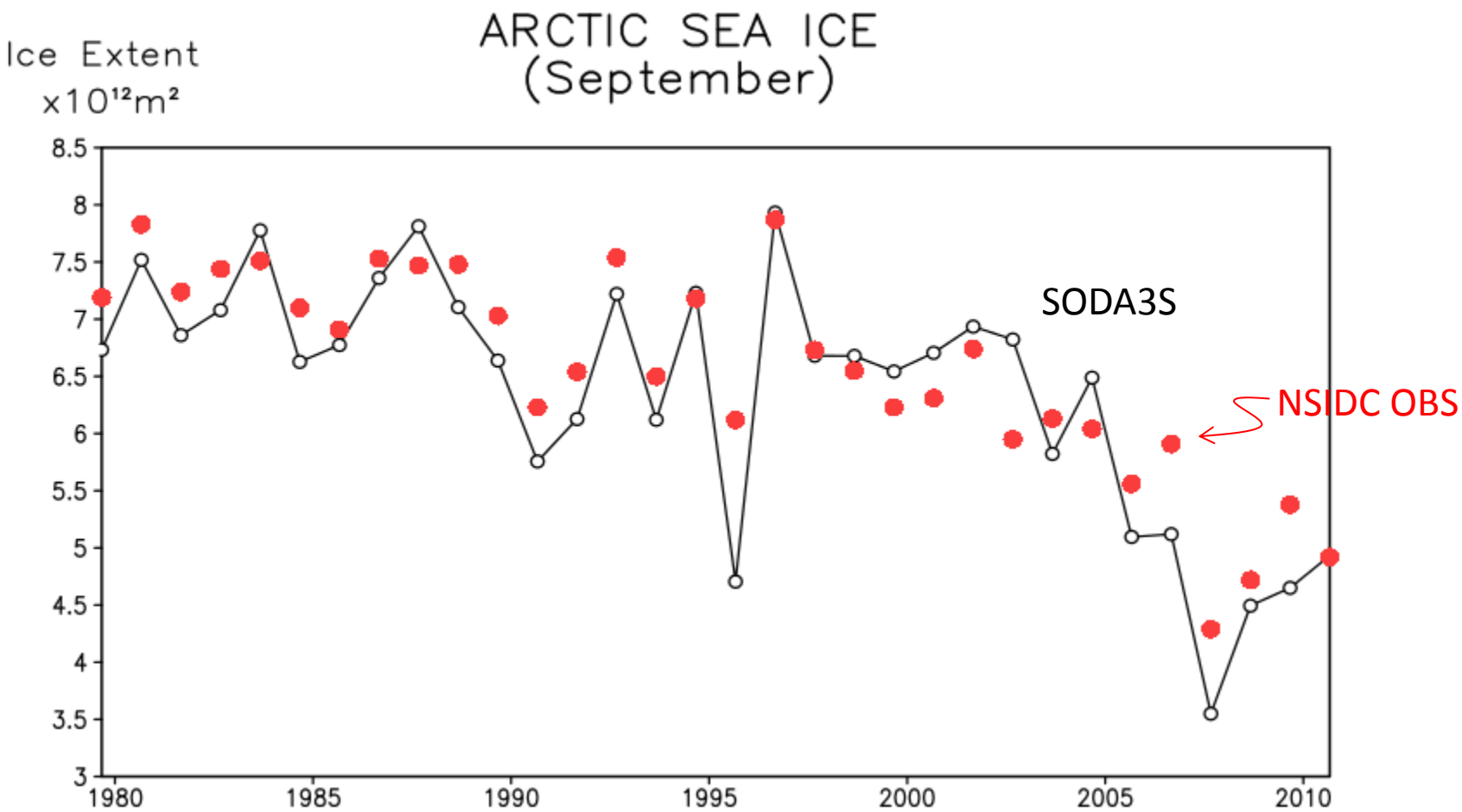




100m Analysis and Forecast salinity bias

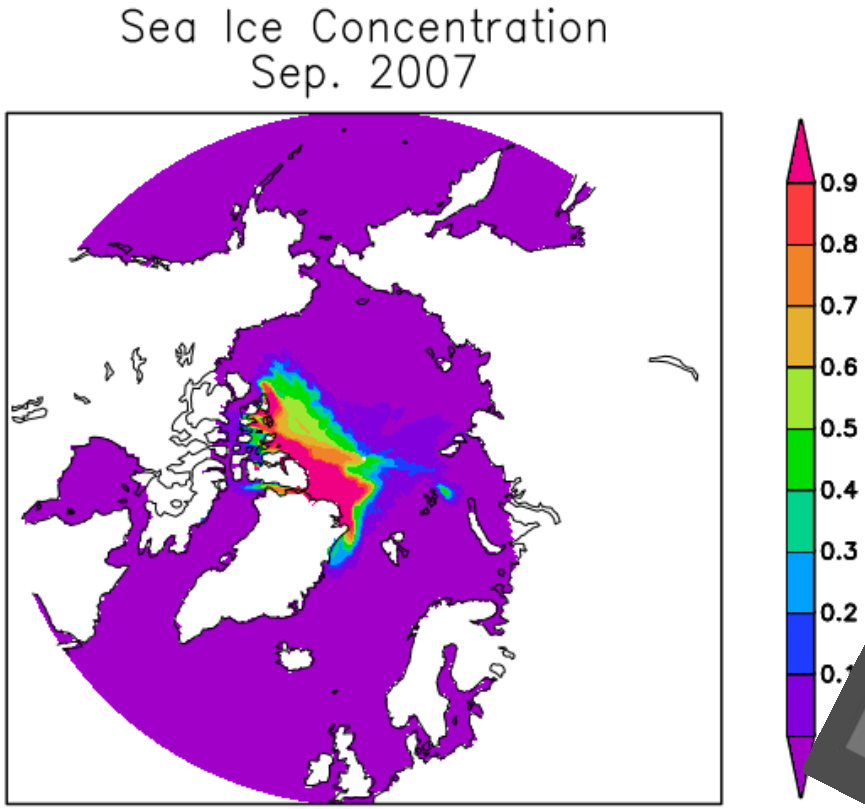


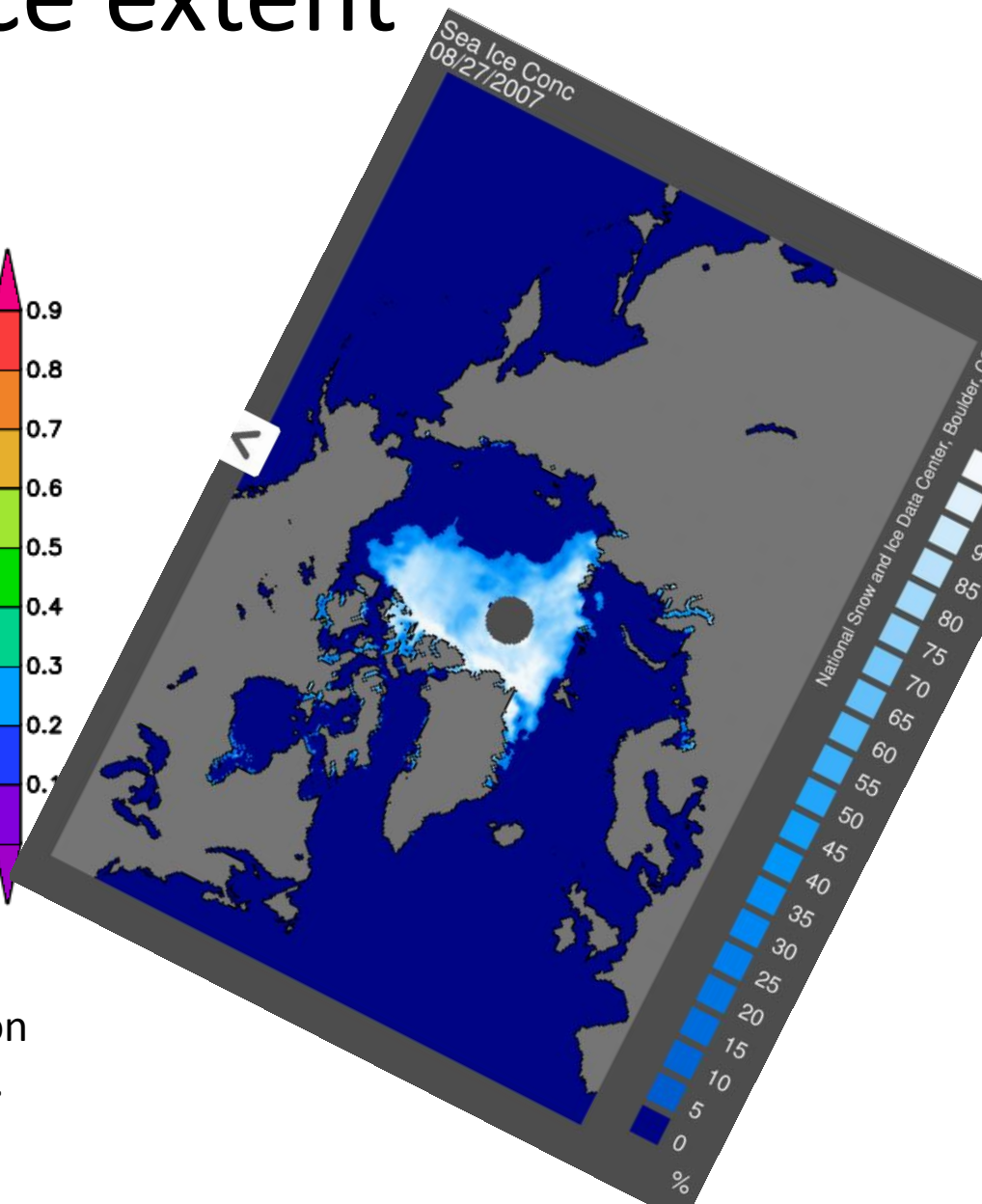
Sea Ice extent



Sea Ice extent

SODA3S





Pattern reasonably good, but concentration too low! Note: SST in Arctic 0.5C too high.

Problems (some of them)

Need to …

- Improve the sea ice analysis, Arctic salinity
- Improve interannual continental discharge
- Deal with bias
- Improve the diagnostics package
- Deal with sea level

Plans

- Fix glaring problems within current framework
- Add additional data sets
- Move towards coupled analysis
- Introduce Penny hybrid filter
  - Leverage developments at NOAA and NASA and limit duplication