

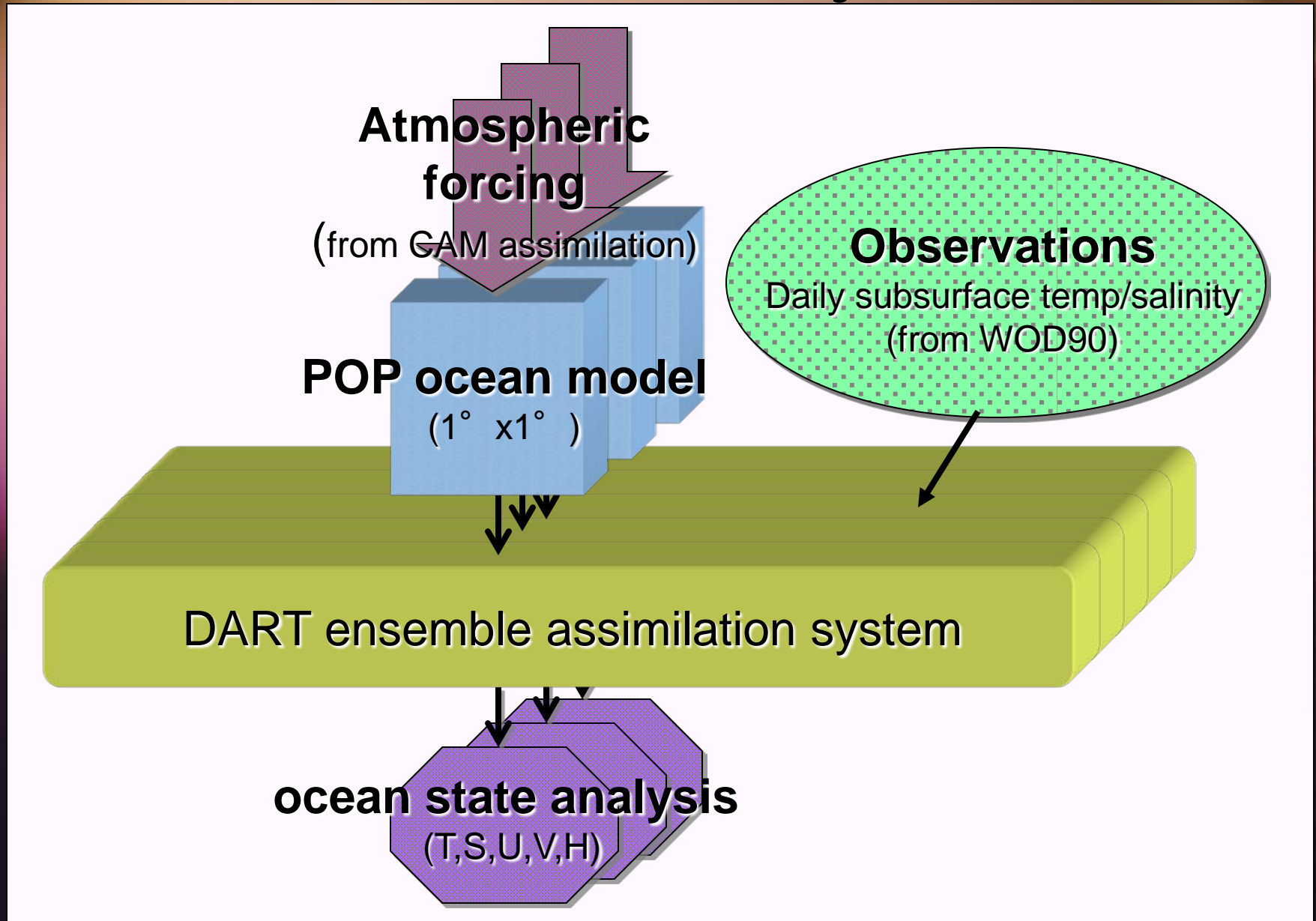
Ocean data assimilation capability for CESM

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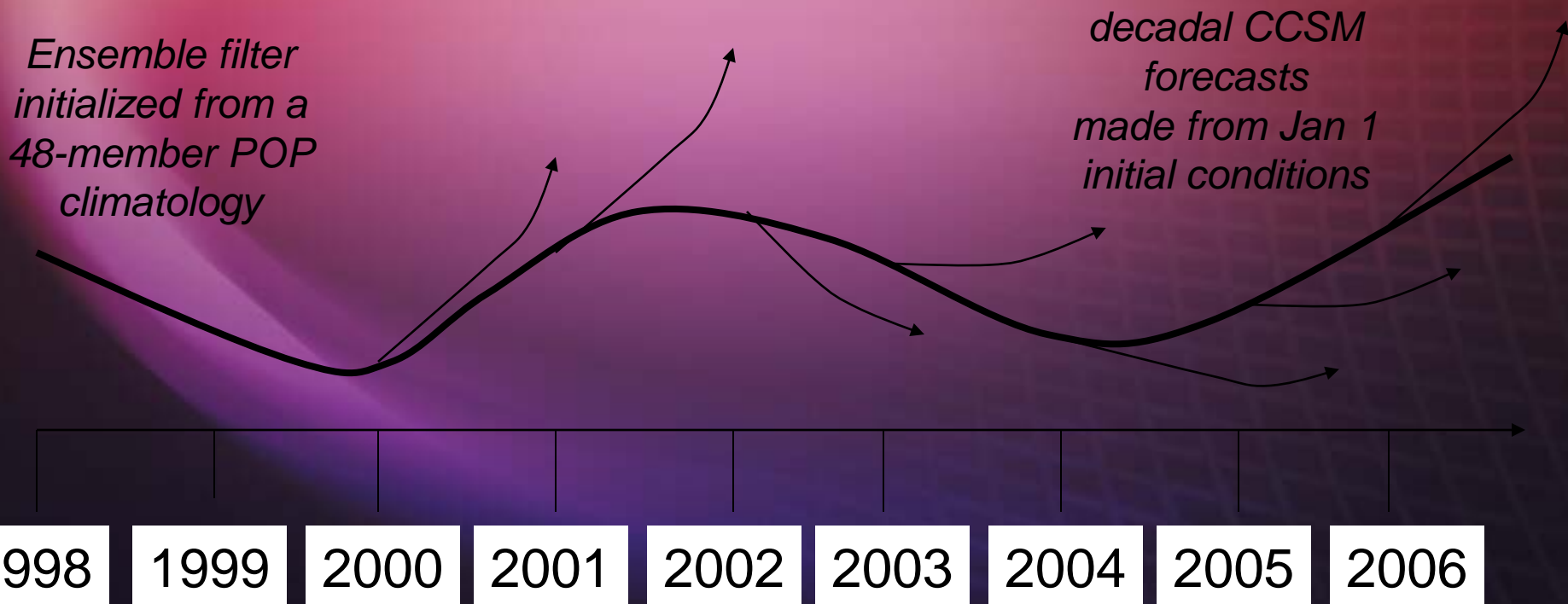
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(IMAGE)

Schematic POP/DART ocean assimilation system

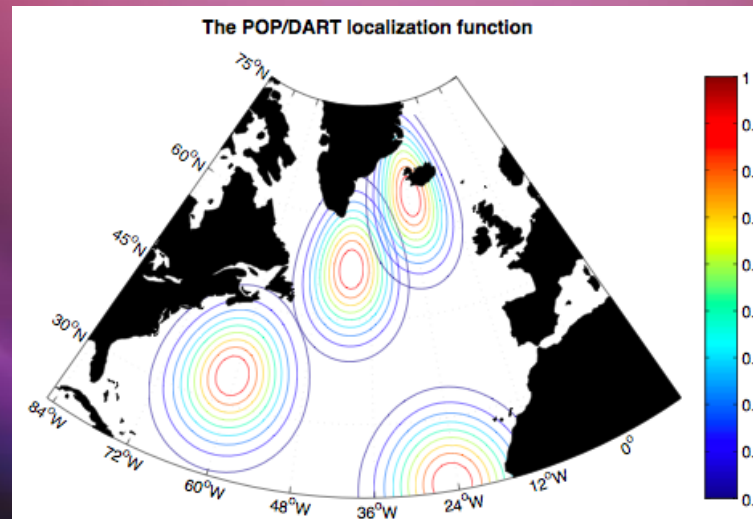


- 48 member ensemble adjustment Kalman filter
- Observations assimilated daily
- Ensemble spread maintained largely by the variance imparted by the ensemble of atmospheric states.
- Ocean state estimates



Overview of the ocean assimilation system

- 48 member ensemble adjustment Kalman filter
- Observations assimilated daily
- No inflation*...ensemble spread maintained largely by the variance imparted by the ensemble of atmospheric states.
- Makes use of localization to deal with the small ensemble-size problem, but no localization in vertical*



Localization function: isotropic (~10 degree)

Ocean Observations

Temperature:

Floats (ARGO), drifters, mooring, XBT ~ 90%
obs error : $\sigma = 0.5$ °C (all platforms, all depths*)

Salinity:

Floats and CTD ~ 90%
obs error : $\sigma = 0.5$ g/kg (all platforms, all depths*)

Below 1000m, nearly all ARGO floats for both

