**Climate States, Freshwater, & Heat Content**

*Summary of Posters*

1. Sea ice retreat  Ocean freshwater change
2. Ocean heat and stratification changes  Sea ice retreat
3. External forcings (*rivers*, *atmospheric* fluxes)  Sea ice and ocean freshwater & heat content



**Some questions:**

* The Arctic Ocean is changing! OK, but ***how large*** are these T, S, u changes, ***relative to historical (pre-ice retreat) variability***?
	+ Observations: E.G., compare model output not just with PHC mean, but with *EWG variance*
* Pan-Arctic flux study:
	+ Sheldon Bacon discusses his idea for the 4 straits study heat & FW fluxes, for pan-Arctic. Then: (i) tease out diff’s in terms, and (ii) regional balances (hmmm… there’ll be problems with no obs on “internal” straits.) Wielsaw suggests we include the coupled models…. This addresses a common FAMOS reviewer complaint! (ie lack of feedback to coupled community)
* Google hangout: flux discussion group…
* Where does water in outflows ***originate*** and how does this vary interannually? IE linking the “fluxes in straits” group with the “ocean circulation” group
	+ Observations: Can compare with ocean *chemistry* observations
* What is the role of sexy new (or newly recognized) processes?
	+ ***Submesoscale*** processes in the mixed layer
	+ Deeper ***mixing*** by IGWs, tides, etc
	+ ***Surface waves***
		- interaction with *sea ice*
		- coastal *erosion*

-- Who is including these in large-scale models? What will it take to do so?

* Fluxes through straits:
	+ ***Local*** vs. ***remote*** forcing?
	+ Use of ***simple models*** for understanding (a la Mike Spall’s poster)
* Momentum fluxes:
	+ We suggest an ***observational process study*** to do the air/ice/ocean transfer eg on a floe… hmmm maybe AOFBs?
* Studies of properties (T, S, v) and fluxes at individual straits: ***model vs. obs*** study a la Bering St. chapter:
	+ model subsampling at mooring locations
	+ allow model vs. obs diff’s in position of features by comparing via water mass features
* We are interested in ***paleo*** (with varying levels of enthusiasm).