Possible ideas to take forward

- Intercomparison of existing weakly coupled DA
    - Is the impact of coupling the same in all modelling systems?
    - Could Include using innovations and increments from these systems to understand model error (possibly with machine learning).

- TIPOS2020 – new observing system in the Tropical Pacific. There seemed to be a lot of interest in this and we focus initial effort here. Processes with strong coupling could be interesting (e.g. TIWs & MJO) if there are enough obs for this. Workshop in May on TIPOS observational needs. Initialisation of ocean mixed layer – common across timescales.

- Initial condition experiments (similar to DIMOSIC) but currently it's difficult to initialise an ocean model from an analysis produced from a different system - would need to develop a protocol/methodology to do this e.g.:
    - Possibility of using transport matrix (see Baylor's talk).
    - Nudging

  How can we do this for longer timescale forecasts without rerunning a hindcast?

- Something with "poor man's DA"
  e.g. nudge model to existing reanalyses and use these as increments for intercomparison.
  Extending to several years could be used for initialising decadal or seasonal forecasts.

- Other groups to consider including on this effort:
    - OceanPredict DA-TT on this as well – have done single observation experiments.
    - CLIVAR-GSOP panel – working on Ocean DA for climate simulations

- Using initial conditions from repeat cycles of OMIP protocol for DA systems.

- Climate model runs could give potential for Observing system experiments.

- Do low/high res. models have same spin-up errors? Can we accelerate spin-up?

- Stable simulations for tracers – important point for WGNE.

- Looking at coupled variability – ocean driving atmosphere vs atmosphere driving ocean. Real challenge for coupled DA.

The following was sent by Nils Wedi as a possible protocol following the meeting:

- DAOS - to produce analysis increments (monthly statistics?) from ocean DA, either regional focus (Tropical Pacific, Atlantic, matching field campaign or TIPOS) or just global
- OMDP - nudging approach with ERA5 to produce nudged minus not-nudged model tendencies from coupled or ERA5 forced ocean simulations
- WGNE - To produce the intercomparison diagnostics from all the tendencies and also produce initial model tendencies (see e.g. Mark Rodwell paper) from the ocean as part of coupled, initialised ocean-atmosphere simulations.

All this to understand systematic model errors in the ocean models, and under the assumption that some model errors at initial time are also relevant at longer time-scales.