Task Team 4 breakout summary
Near term priorities

1) Impact of the AMOC on the ITCZ and the hydrological cycle
   • Modeling experiments seem to clearly suggest an impact between imposed changes in the AMOC and shifts in the ITCZ.
   • However, ITCZ shifts in coupled models appear to be damped in contrast to slab models.
   • The impact of internal variability of the AMOC is more uncertain, but there are interesting recent results.
     • High predictability of shifts in the ITCZ position (Martin and Thorncroft, 2015)
     • Seems to be related to changes in the AMOC in the subpolar North Atlantic.
     • Need model to be able to capture variability of the AMOC and teleconnections.
   • What is the impact of model biases?
   • Interaction between the AMOC, AMV, and changes in different types of clouds
Near term priorities

2) What are the relationships between the AMOC and global and regional sea level?
   • The use of sea level as a proxy for the AMOC.
   • The potential impact of the AMOC and resulting ocean heat transport on regional sea level.

3) Impact of the AMOC on the cryosphere.
   • What are the mechanisms for warming along the ice shelf in Greenland? Related to the AMOC? Local winds?
   • Ocean melt in Greenland project.

4) What is the relationship between the AMOC and climate extremes?
   • Impact on hurricanes
   • Impact on droughts
   • CMIP6 decadal MIP
Near term priorities

5) Impact of the AMOC on the carbon cycle and marine ecosystems
   • North Atlantic is not a region of carbon uptake, but it is a region of carbon sinking and storage.
   • Impact of the AMOC/AMV on fisheries. Special issue in Journal of Marine systems in 2014 on connections between the AMO and fisheries.
Long term priorities

The long-term goal of Task Team 4 is to understand how AMOC variability affects other components of the Earth system – its climate, hydrologic cycle, atmospheric circulation, coupled phenomena (e.g., ENSO, monsoons), other ocean basins (e.g., Southern Ocean), cryosphere, sea level, marine and terrestrial ecosystems, biogeochemical cycles, and carbon budgets – both locally and remotely.

In particular we would like to engage the paleoclimate community in order to understand the impacts of the AMOC on centennial and longer timescales.
Review papers

1) Rong has volunteered to lead a review paper on the relationship between the AMOC and the AMV and associated climate impacts including modern and paleo-observations. Rowan Sutton from RAPID could be a co-lead. Young-Oh, Steve, and Gokhan join effort.

2) Relationships between the AMOC and sea-level, Chris Little and others.

3) Anand Gnanadesikan lead a paper on the impact of the AMOC on tracers. Tracers as a method of diagnosing the AMOC. A physical oceanographers guide to ocean tracers.

4) Are the recent temperature changes off Greenland related to the AMOC? Idea for a new science paper with some review material to be linked to special collection.