1050-00-114 **Young-Oh Kwon*** (yokwon@whoi.edu), Woods Hole Oceanographic Institution, Physical Oceanography Department, MS #21, Woods Hole, MA 02543, and **Claude Frankignoul**, LOCEAN, Université Pierre et Marie Curie, Paris, France. *Multi-decadal Variability of Atlantic Meridional Overturning Circulation in the Community Climate System Model Version 3.* Preliminary report.

Multi-decadal variability of Atlantic meridional overturning circulation (AMOC) is examined from a 700-year present-day control integration of the Community Climate System Model version 3 (CCSM3). AMOC variability in CCSM3 exhibit two distinct regimes, i.e. periods with very regular and strong decadal (20-years) variability versus irregular and weak multi-decadal (50-years) variability. The focus of the presentation is the mechanism of the weak multi-decadal AMOC variability during the last 250 years of the integration. AMOC variability in this regime is primarily driven by the stochastic atmospheric buoyancy and wind stress curl forcing associated with NAO. During the NAO positive phase, most of the upper ocean in the subpolar North Atlantic becomes anomalously denser due to the surface heat flux as well as fresh water flux. Deepest mixed layer of 1000 1200m is found in the interior of the Labrador Sea. On the other hand, the cyclonic subpolar gyre circulation becomes stronger in response to NAO wind stress curl forcing. Advection of anomalous density by the cyclonic circulation acts as a positive feedback to render the multi-decadal persistence to the circulation. (Received March 02, 2009)