1123-86-125 **Amanda K O'Rourke*** (orourkea@umich.edu), **Brian Arbic** and **Stephen Griffies**.
Energetics of the Ocean Surface at Low Frequencies in GFDL's CM2-O Model Hierarchy. Preliminary report.

Low frequency variability within the ocean surface can be excited by both external forcing, such as atmospheric exchanges of heat and momentum, as well as the nonlinear transfer of energy between ocean eddies. Recent studies have shown that nonlinear eddy interactions at short timescales can excite an energy transfer from high to low frequencies similar to the transfer of energy between spatial scales in two dimensional turbulence. As this energy exchange is sensitive to the existence of oceanic eddies, the process of energy exchange across frequencies may be sensitive to ocean resolution. We use GFDL's CM2-O hierarchy of fully coupled ocean-atmosphere models to address the transfer of surface kinetic energy and temperature variance between synoptic and decadal timescales utilizing a cross-spectrum diagnostic. One question related to this research is whether low frequency modes are primarily driven from internal mechanisms, such as nonlinearity, or external forces from the atmosphere. Diagnostics of energy flux and transfer within the frequency domain will be compared between three models at 1, 1/4th, and 1/10th degree ocean resolution to address the importance of eddy resolution in the driving of energy to low frequencies. (Received August 22, 2016)