Forecast Ecosystem Conditions in Gulf of Mexico OCS Habitats
Using Coupled Modeling and Climate Scenarios

Quarterly Report (Y4Q2 – Jan 1-Mar 31, 2020)
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This quarterly report is filed per requirements of BOEM-NRL IAA # M16PG00027 with respect to our research project focused on climate-scale ocean model simulations for the Gulf of Mexico. The focus of this study is to forecast, through year 2050, marine ecosystem conditions in the Gulf of Mexico (GoM) using RCP climate scenarios prescribed by the NCAR CESM Large Ensemble (LE) atmospheric forcing.

1. WORK ACCOMPLISHED

The ERA5 model simulation has run through 2012 and continues to run without drift or any problems. It is expected that this simulation will finish next quarter and full analysis will commence then. Preliminary analysis of the ERA5 results show expected climate mediated trends (i.e. warming oceans) but with the Gulf of Mexico exhibiting a larger energy retention than the rest of the global ocean. Further analysis will be conducted when the run completes, but a manuscript is being composed based on these results.

2. PROBLEMS

3. PLANNED ACTIONS FOR NEXT QUARTER

Commence comparisons and analysis of results from NAVEM and ERA5.
Process LE and ME atmospheric fields into model-ready forcing products.

4. BUDGET

$280K has been received (Y1:$80K, Y2:$80K, Y3:$120K).
Expenditures to date: ~$156K.
Y4 funds expected this year.