

**“USECoS: SEASONAL AND INTERANNUAL VARIABILITY  
OF NITROGEN FLUXES ALONG THE MID-ATLANTIC BIGHT”**

**EILEEN HOFMANN**  
CCPO

**Monday, February 15, 2016**  
3:30 PM

***Conference Center, Innovation Research Park Building II***  
***4211 Monarch Way, Norfolk, VA 23508***

Abstract

Our understanding of nitrogen cycling on continental shelves, a critical component of global nutrient cycling, is often hampered by limited observations compared to the strong variability apparent on relatively small time and space scales. Numerical models are able to partially alleviate this issue by filling temporal and spatial data gaps and hence resolving annual area-integrated nutrient fluxes. As part of a NASA-funded Interdisciplinary Science project, a land-ocean-biogeochemical modeling system was implemented to simulate the nitrogen budget during 2004-2007 on the Mid-Atlantic Bight (MAB) shelf. Quantitative model skill assessment was conducted via extensive comparisons to satellite observations, and *in situ* data where available. Model simulations demonstrate that denitrification and burial fluxes have pronounced seasonal variation but change little from year to year. In contrast, annual net community production (NCP) varies significantly between years, but overall is positive indicating a net autotrophic system. Whereas the advective influx of nitrogen from the bays and rivers on the western boundary of the MAB changes only slightly among the four years examined, the advective fluxes across the eastern and northern boundaries change dramatically. These changes are associated with changes in the positions of the relatively high-nutrient Labrador Sea waters advecting into the MAB from the north and the relatively low-nutrient Gulf Stream waters advecting into the MAB from the southeast.

Biography

Eileen Hofmann received a B.S. degree in Biology and M.S. and Ph.D. degrees in marine science and engineering. Current research interests include marine food webs of Antarctic coastal environments, transmission of marine diseases, and carbon cycling in continental shelf systems. Much of her research has involved working with interdisciplinary science teams to implement coupled physical-biological models to understand processes controlling marine ecosystems. This seminar is one such example from the USECoS (Eastern US Continental Shelf Carbon Budget) team.

*Reception before seminar at 3:00 PM*