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Department of Marine Sciences
Presents a Seminar by

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Modeling the impacts of climate variability in the ecosystem, ocean chemistry and sea ice of the West Antarctic Peninsula

Over the past several decades, the West Antarctic Peninsula (WAP) has undergone physical end ecological changes at a rapid pace. During the second half of the 20th century, the winter air temperatures in the WAP warmed up to 4.8 times the global average rate, the surface ocean layer presented warming on the order of 1˚C, there was a consistent trend of shortening of the sea ice season and changes in the ecosystem were reported up to higher trophic levels. Since the beginning of the century, the atmospheric temperature trend has reversed, although no changes in the ocean trends have been observed. The mechanisms behind these drastic changes, as well as their impact on the ocean chemistry, ecosystem and the carbon cycle in the region, are not fully understood and have been investigated by the Palmer-LTER (Long Term Ecological Research) over the past two and a half decades. Numerical modeling is a powerful tool in this context, given the constraints on data acquisition in this area. An ocean circulation model coupled to sea ice and biogeochemistry modules was implemented in the WAP to simulate the decadal trends and seasonal cycles of sea ice, mixed-layer depth and bloom formations as marked by chlorophyll and other biogeochemical tracers. General patterns and gradients in the phytoplankton and carbonate cycle components are well represented in the model, as is the variability of sea ice. Although sensitivity analysis in the model parameters is still required, preliminary results indicate that the carbonate cycle is strongly influenced by phytoplankton blooms in the WAP shelf, influencing the air-sea CO_2 exchanges and the total carbon budget of the region.

Host: Michelle Fogarty
Time & Date: 11:00 am, Friday, October 20, 2017
Place: Marine Sciences Building, Seminar Room 103

For cancelations and additional seminar information, please see http://marinesciences.uconn.edu/seminar/seminar1178/, email marinesciencesseminars@uconn.edu, or call 860-405-9152 or 860-405-9151