Geography Department Speaker Series

Marilyn Raphael

UCLA

Antarctic Sea Ice Variability, Change and Linkages with the Atmospheric Circulation

Antarctic sea ice variability is strongly regional - five distinct regions of variability have been defined. While exhibiting similar annual cycles, these regions vary in their times of advance and retreat as well as in overall sea ice extent. They also have different spectral signatures with interannual frequencies of varying strengths. Antarctic sea ice trends are also strongly regional with positive trends occurring, for example, in the Ross Sea and negative trends in the Bellingshausen-Amundsen Seas. Some of the intrinsic spatial variability in the sea ice is probably due to the effect of the geography of Antarctica and the influence of the ocean. Some is due to the influence of the largescale atmospheric circulation – the Southern Hemisphere Annular modes, Zonal Wave Three and the Amundsen Sea Low. In this presentation, I discuss how these components of the atmospheric circulation exert their influence on different regions of sea ice and how the sea ice might be expected to change as the atmospheric circulation changes. I also discuss the role that these atmospheric circulation mechanisms played in initiating and supporting the recent anomalous decrease in Antarctic sea ice.

Friday, October 16
3pm

ZOOM

Link provided in Email Announcement

Dr. Marilyn Raphael is Professor of Geography at UCLA. She is the Interim Director of the Institute of Environment and Sustainability at UCLA and served as Chair of the Department of Geography from 2010-2013. Her primary research focus is Southern Hemisphere (SH) atmospheric dynamics and climate change and her major scientific goals are to characterize Antarctic sea ice variability and to define and understand the interaction between Antarctic sea ice and the large-scale Southern Hemisphere circulation, focusing on interaction at the seasonal, interannual and decadal time scales. Her work includes global climate modeling with an emphasis on improving the simulation of sea ice and the atmosphere in the Southern Hemisphere. She is currently Chair of the Scientific Committee on Antarctic Research's expert group, Antarctic Sea ice Processes and Climate (ASPeCt) and Co-Chair of the World Climate Research Programme's (WCRP) Polar Climate Predictability Initiative (PCPI).

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