

Civil and Environmental Engineering Department Seminar

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Room 225 Kaufman Hall

Why Climate Change May Cause an Uneven Sea Level Rise Along the US East Coast

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Abstract

Recent studies show that the mid-Atlantic coast is a “hotspot” of accelerated sea level rise (SLR); sea level in this region is rising 2-3 times faster than global rates and the pace is increasing. As a result, in recent years communities in the Hampton Roads area have seen a significant increase in the frequency and duration of flooding and coasts have seen more erosion and larger destruction from storms such as Sandy. We employed an analysis method based on Empirical Mode Decomposition (EMD) to characterize long-term changes in SLR trends and their spatial distribution along the U.S. East coast. The analysis found surprisingly high correlations between the SLR acceleration north of Cape Hatteras, NC, and a recent slowdown in the Gulf Stream. This change in the Gulf Stream is consistent with ocean dynamics theory and with predictions of climate models, which simulated potential weakening in ocean circulation under future warmer climate. However, our results suggest that these climatic changes in ocean circulation may have started already, and that these changes may contribute to an uneven sea level rise along the coast, which must be taken into account in future SLR projections.

Biography

Tal Ezer is a Professor of Ocean Earth and Atmospheric Sciences at Old Dominion University. He was a Research Scholar at Princeton University for 18 years before joining ODU in 2007. He has B.Sc. degree in Physics and Mathematics, M.Sc. degree in Atmospheric Sciences and Ph.D. in Physical Oceanography. His research interests include numerical ocean circulation modeling, climate change and physical-biological interactions.

For more information see: <http://www.ccpo.odu.edu/Facstaff/faculty/tezer/ezer.html>