



FALL 2013 SEMINAR SERIES

DEPARTMENT OF OCEAN, EARTH, AND ATMOSPHERIC SCIENCES
3PM – ROOM 200 IN THE OCEANOGRAPHY/PHYSICS BUILDING
THURSDAY SEPTEMBER 12th, 2013

“HOW CLIMATIC CHANGES IN ATLANTIC OCEAN CURRENTS AFFECT LOCAL SEA LEVEL RISE AND INCREASE FLOODING”

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ABSTRACT

Recent studies show that the mid-Atlantic coast is a “hotspot of accelerated sea level rise”, since sea level in this region is rising 2-3 times faster than global rates and the pace is increasing (i.e., SLR is accelerating). As a result, cities like Norfolk see a significant increase in flooding in recent years. It is not a trivial problem to accurately calculate sea level rise acceleration from noisy tide gauge data and to separate between global SLR, local land subsidence and other ocean dynamics impacts. Therefore, we employed a new analysis method that can do that and help us identify long-term changes in SLR trends. The analysis found surprisingly high correlations between the SLR acceleration north of Cape Hatteras and a recent slowdown in the Gulf Stream (GS). While climate models predicted a slowdown in Atlantic Ocean currents under future warmer climate, our analysis may have found one of the first signals that the slowdown may have started already. The analysis can also be used to improve SLR projections and help in planning for mitigation and adaptation strategies for flood-prone regions such as the Hampton Roads area. This study is part of ODU’s Climate Change and Sea Level Rise Initiative (CCSLRI).

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