



REIS

RENEWABLE ENERGY & ISLAND SUSTAINABILITY

College of
ENGINEERING
UNIVERSITY OF HAWAII AT MĀNOA



CEE691/EE699/ME691 Seminars in Renewable Energy and Island Sustainability (REIS)

Engineering for Sea Level Rise and Storm Surge



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Location: Holmes Hall 247, Date: Thursday, October 13, 2016, Time: 4:30 pm-5:30 pm

About the speaker:

Dr. Oceana Francis is an assistant professor of Civil and Environmental Engineering with a joint appointment in Sea Grant. She is also cooperating faculty for the National Disaster Preparedness Training Center and Ocean and Resources Engineering at the University of Hawaii. She received her PhD from University of Alaska Fairbanks and is a registered professional civil engineer in Hawaii and Alaska. Her research interest is in the area of coastal and hydraulics engineering, particularly climate change impacts on wind-generated waves and currents which affect onshore/offshore infrastructure and ship operations, and surface water flow affecting rivers and estuaries.

Abstract

Rising sea levels and storm surges cause erosion of coastal road bases and bridge supports, and encroachment of saltwater which leads to accelerated degradation of infrastructure. The most intense storm surges in Hawaii are generated by tropical cyclones (i.e. hurricanes). This reduces the structure's life expectancy and increases maintenance costs. In my talk, I discuss how we must consider an expected future scenario of sea level rise and storm surge, and discuss engineered adaptation methods which can absorb the probable impacts of these climate stressors (i.e. sea-level rise, increased storms). These engineered adaptation methods include offshore barriers, coastal armoring, elevated development, floating development, floodable development, living shorelines, and managed retreat. I will also discuss the mitigation of seawater intrusion (time permitting).