

Date: April 27th

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Dr. James Kirby
University of Delaware

Title: "The 2004 Indian Ocean Tsunami: Source determination and impacts in Thailand"

Abstract

The December 26, 2004 tsunami event in the Indian Ocean ranks as one of the most destructive natural events in human history. Understanding this event, its impact on natural and engineered systems, and its possibility for recurrence in other settings is one of the great challenges facing tsunami scientists. This talk discusses a study performed over the last year by a group of US, French and Thai participants aimed at understanding the potential, or limitations, for making accurate run-up estimates in coastal areas facing tsunami risk. The study is divided into two parts. In the first part, available tide gage and satellite altimeter data from around the Indian Ocean is used to develop a parameterization of the hydrodynamic source for the event. The resulting source description involves several factors which are at odds with previous seismic inversions but which are in agreement with independent estimates based on hydrographic information. Then, in the second part, this source is used to generate waves on a high resolution grid developed for the west coast of Thailand. Wave propagation characteristics and run-up values are examined for the mainland coastal areas and for Phi Phi Island, and are compared to measured run-up estimates from the field. The impact of having an inadequate degree of bathymetric data (as would be the case for grids generated on the fly based solely on publicly available data sets) is examined.