Civil and Environmental Engineering

C.C. MEI DISTINGUISHED SPEAKER SERIES 2016-2017

Prof. Costas Synolakis

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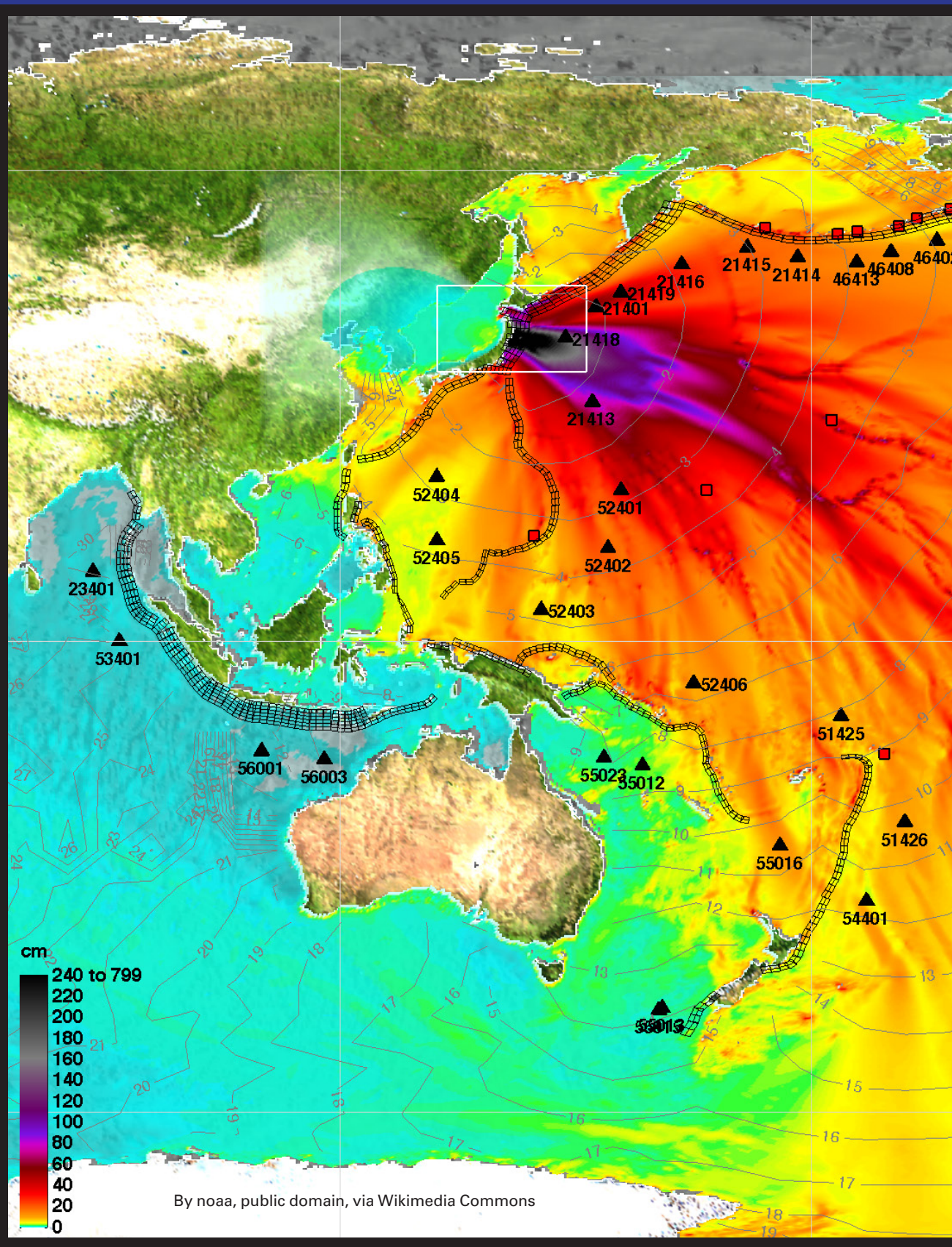
THE FRONTIERS OF TSUNAMI HYDRODYNAMICS



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ABSTRACT

In this lecture I will discuss the state of the art in tsunami hydrodynamics, referencing specific field events. Six years after the Fukushima Dai-ichi nuclear power plant accident, we now understand the unfortunate design and regulatory decisions - from the coastal engineering perspective - which doomed the plant. The onland field measurements and the data from deep-ocean transducers from Japan have triggered several basic questions such as the development of tsunami hydrographs, understanding the sequencing of tsunami waves (why the first wave arrival is not always the largest) and the generation of large scale turbulent coherent structures close tsunami inflow and outflow in inlets and breakwaters. I will end by assessing how much (or little) applied tsunami hazard mitigation has changed in the past decade, despite sometimes spectacular advances in numerical modeling.

FEBRUARY 27, 2017

Pre-lecture Reception: 4:30pm
Lecture: 5-6pm
Building 1-190

Faculty Host:
Lydia Bourouiba

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BIOGRAPHY

Prof. Costas Synolakis's research focuses on the impact of natural hazards, and particularly tsunamis and extreme flooding events on beaches. He has participated or led 30 scientific expeditions in 21 countries, all of the world's oceans and seas. With his group, Prof. Synolakis developed the computational suite of codes MOST (Method Of Splitting Tsunami model), which are in operational use by the warning centers of the National Weather Service of the US. Professor Synolakis is member of the Academy of Athens. In 2014, he was awarded the Sergey Solovjev Medal by the European Geosciences Union "for his superb research contributions to tsunami mitigation, combining theory, laboratory experiments, field surveys and the development of widely used numerical codes to improve tsunami mitigation. He received numerous other awards, such as the Moffat and Nichol Award of the American Society of Civil Engineers.