

*Department of Ocean and Resources Engineering
Seminar*

Energy flux as a tool in locating tsunami sources

By

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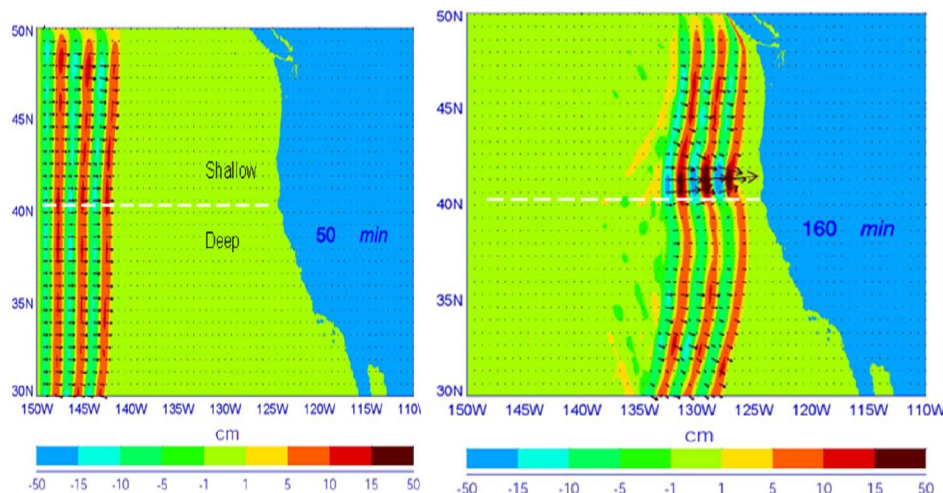
3:00-3:30 pm Coffee Hour

3:30-4:30 pm Seminar

Please join us for the coffee hour near the seminar venue a half hour before the seminar,
3:00 – 3:30 pm

Abstract

In November 2006 tsunami from the Kurile Islands made its way into the Crescent City harbor, destroying several docks and damaging at least 10 boats. The first surge caused no damage and it was hardly noticed by local witnesses. Unexpectedly, the destructive wave surge arrived 2 hours later. To understand physics of tsunami wave enhancement we used energy flux. With this tool we were able not only to understand better tsunami physics but also pinpoint the bathymetric features responsible for the second (damaging) wave..... it was Koko Guyot, a sea mount located several thousand km from Crescent City. Numerical experiments using GTM (Global Tsunami Model, resolution 1 arcminute, 100 mln grid points) identified that the signal from Koko Guyot was scattered towards Crescent City via Mendocino Escarpment. This escarpment seems to be very efficient in focusing and transferring enhanced tsunami energy if the signal travels from the west along the escarpment.



Tsunami wave propagation via Mendocino Escarpment towards Crescent City (CC). Colors denote wave amplitude. Vectors describe energy flux. Wave arriving to CC shows amplification due to refraction.