

PERTEMUAN PERSATUAN (Meeting of the Society)

Ceramah Teknik (Technical Talk)

THE ASIAN TSUNAMI OF 2004: OBSERVATIONS & NUMERICAL SIMULATION

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(in collaboration with the Dept of Geology, University of Malaya)

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Report

Dr. Satake was in Malaysia, attending a Fluid Dynamics conference in Kuala Lumpur, so we arranged for him to give a talk at the Department. The talk was very well attended, including a number of visitors from the Malaysian Department of Meteorology, who are charged with designing and implementing the Malaysian Tsunami Early Warning System.

Dr Nur Iskandar Taib

Summary

The seabed off Japan is highly active, seismically, and the Japanese coastline is at risk from frequent locally-generated tsunami. While it is comparatively easy, with the technology available to us today, to detect and warn populations of tsunami generated in distant waters across ocean basins, it is much more difficult to issue effective, accurate warnings for tsunami generated in nearby waters, since the time between earthquake and landfall may only be a few minutes. The Japanese Meteorological Agency runs the most advanced tsunami early warning system in the world, capable of issuing accurate warnings to coastal residents within minutes of the occurrence of a local, tsunamigenic earthquake. Part of their arsenal is a huge database, filled with data generated partly using numerical models, which allows them to quickly look up the characteristics of tsunami generated by earthquakes in a given location and of a given magnitude.

The main topic of Dr. Satake's talk was the modeling of tsunami using numerical methods, but he also talked about the JMA tsunami warning system, its successes (and failures – mainly because the tsunami hit minutes before warnings could have been issued), civil defense considerations; and some earlier work he did in tracing the earthquake (which occurred in the Northwest of North America) that generated a tsunami which inundated the eastern coastline of Japan in the year 1700. This work was published by the USGS and the University of Washington Press in the book "The Orphan Tsunami of 1700", a copy of which Dr. Satake presented to the GSM.