AOGS 2005

Run-up heights of the Indian Ocean Tsunami of the Great Sumatra earthquake of M 9.0 on December 26, 2004 on the east coast of India

R K. CHADHA[1*], G.LATHA[2], HARRY YEH[3] AND CURT PETERSON[4]

1 National Geophysical Research Institute, Hyderabad-500 007
2 National Institute of Ocean Technology, Chennai – 601302, India
3 Dept. of Civil Engineering, Oregon State University, Corvallis, Oregon, USA
4 College of Liberal Arts and Science, Portland State University, Portland, Oregon, USA

The Indian ocean tsunami was the most devastating event in the recent memory, caused due to an earthquake of magnitude 9.0 off the coast of Sumatra on December 26, 2004 at 00:58:50 (UTC) or 06:28:50 AM (IST). The epicenter of the earthquake was located at 3.29° N and 95.94° E. The focal depth of the earthquake was 30 km (USGS). This earthquake generated huge tsunami which devastated Andaman and Nicobar Islands, east coast of India, south Kerala in India and several other countries like Srilanka, Indonesia, Thailand and Somalia in the Indian Ocean. The tsunami claimed more than 250,000 human lives in these countries. The aftershocks of this earthquake numbering more than 250 in the magnitude range $5 \leq M < 7.3$ were located for a length of 1300 km from Sumatra in the south to Andaman and Nicobar islands in the north, till January 30, 2005. The aftershock pattern indicates that the fault rupture spanned more than 1300km-long off the India-plate subduction beneath the overriding Burmese plate. A tsunami run-up survey was conducted immediately after the event to study tsunami damages, inundation areas and to obtain estimates of tsunami heights from perishable evidences like watermarks on houses and ocean debris carried inland. Our results show that the tsunami run-up heights varied between 2.5 m to 5.2 m along the coast of Tamil Nadu from Pulicat in the north to Vedaranniyam in the south.