



A NOTE ON GROUND MOTION RECORDED DURING THE M_w 9.2 GREAT SUMATRA-ANDAMAN EARTHQUAKE IN MYANMAR, MALAYSIA, AND THAILAND ON 26 DECEMBER 2004

Teraphan ORNTHAMMARTH¹ and Pennung WARNITCHAI² and Mandeep POKHREL³

This study aims to investigate previous unpublished ground motion records produced by M_w 9.2 Northern Sumatra earthquake on 26 December 2004 in Malaysia, Thailand, and Myanmar. The epicentre of this event initiated off the northwest coast of Sumatra, and it ruptured northward between the Indo-Australian plate and the Eurasian plate boundary along north-western Sumatra, the Nicobar Islands, and the Andaman Islands. Twelve digital broad-band seismometers and accelerometers are located over a rupture distance range from 600 to 1600 km. The preliminary results show large spatial variation in the ground shaking, with the strongest ground motions observed along stations located within fault rupture direction process. Several different ground motion prediction equations (GMPEs) for interface subduction earthquakes captures well the distance scaling and dispersion of the data, but some of them under-predicts the overall ground motion level for stations located in India and Myanmar. The 2004 great Sumatra earthquake generated long period response spectra (2-3s) for station located in Pyay, Myanmar, Fig.1. The ground motion recorded from long distance and large earthquake demonstrated the substantial spatial variation of the long-period shaking observed within this region and its implication toward site-specific prediction of long period structures. Some unique features of observed ground motion include very long duration, short-period spectral content, and effects due to spatial variability as well as direction of rupture/wave propagation have been presented and summarized.

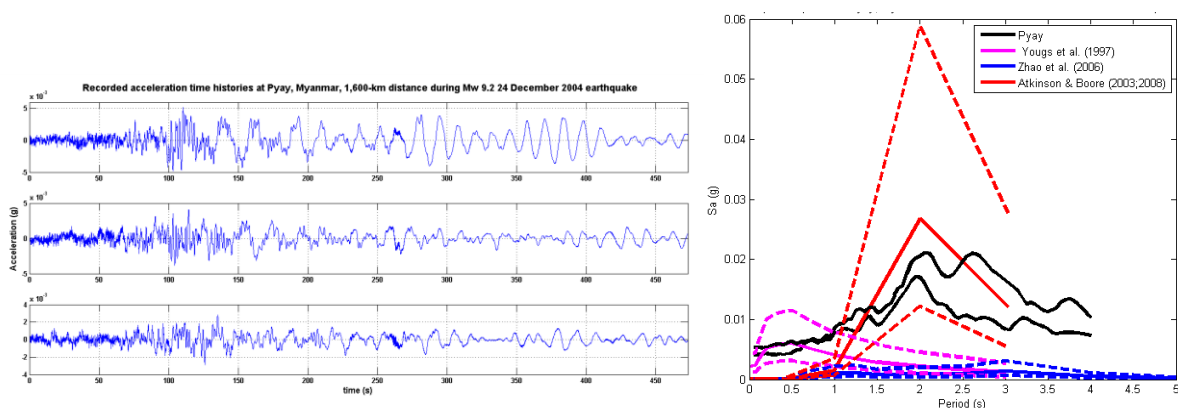


Figure 1. Acceleration time history of Pyay station, Myanmar, recorded during 2004 great Sumatra earthquake, and respective acceleration response spectra

¹ Lecturer, Department of Civil Engineering, Faculty of Engineering, Mahidol University, Nakornpathom, THAILAND, teraphan@gmail.com

² Assoc. Prof., Asian Institute of Technology, Pathumthani, THAILAND, pennung@ait.ac.th

³ Research Engineer, Asian Institute of Technology, Pathumthani, THAILAND, pokhrel.mandeep@gmail.com