Deterministic seismic hazard analysis in thailand using active fault data

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Abstrak

To
develop seismic design criteria for buildings, seismic hazard analysis is required to estimate the ground motion
intensity with criteria such as peak ground
acceleration (PGA). The seismic hazard can be analyzed by using two approaches: deterministic seismic hazard analysis (DSHA) and
probabilistic seismic hazard analysis (PSHA). In these two approaches, the
seismic hazard is evaluated from past earthquake events and active faults data. In Thailand, seismic hazard is classified in the low lying regions; however, in recently years,
earthquakes have occurred frequently in the North of Thailand. To
prevent and reduce damage due to earthquakes in the future, determination
of seismic hazard is needed. This
research proposes a deterministic seismic hazard
map evaluated from nineteen
active faults affecting
Thailand. Two types of active faults are considered: first, an active fault in a subduction zone and second, a crustal fault. The seismic hazard is evaluated by using a ground
motion prediction equation (GMPEs). Four GMPEs are weighted equally for
seismic crustal fault, and two GMPEs are weighted equally for
a seismic subduction zone. The hypocentral distance is
used to evaluate the seismic hazard for all ground motion prediction equations.
The Northern part and the Western part of Thailand are high seismic hazard
regions, because there are active faults with the large possibility of earthquakes of a maximum magnitude. The seismic
hazards in the North, West and Northeast of Thailand are about 0.60 g.
The seismic hazard in Bangkok is about 0.25 g due to the Three Pagoda fault and Sri Sawat fault. The seismic hazard in the South of Thailand is about 0.40 g.