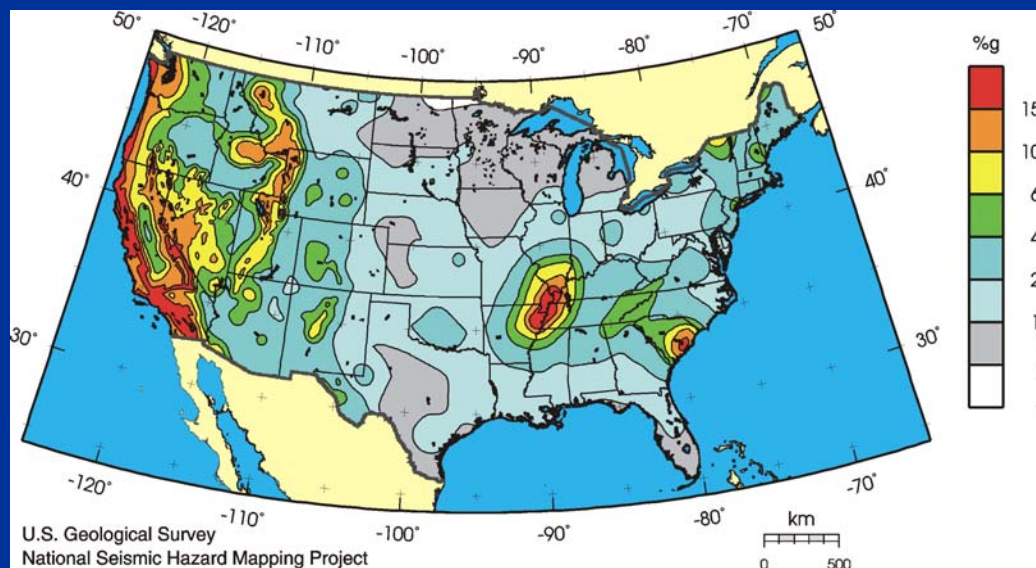


Development of Thailand National Seismic Hazard Maps

Mark D. Petersen, Steve Harmsen, Kathy Haller,
Nicolas Luco, Charles Mueller (URS)

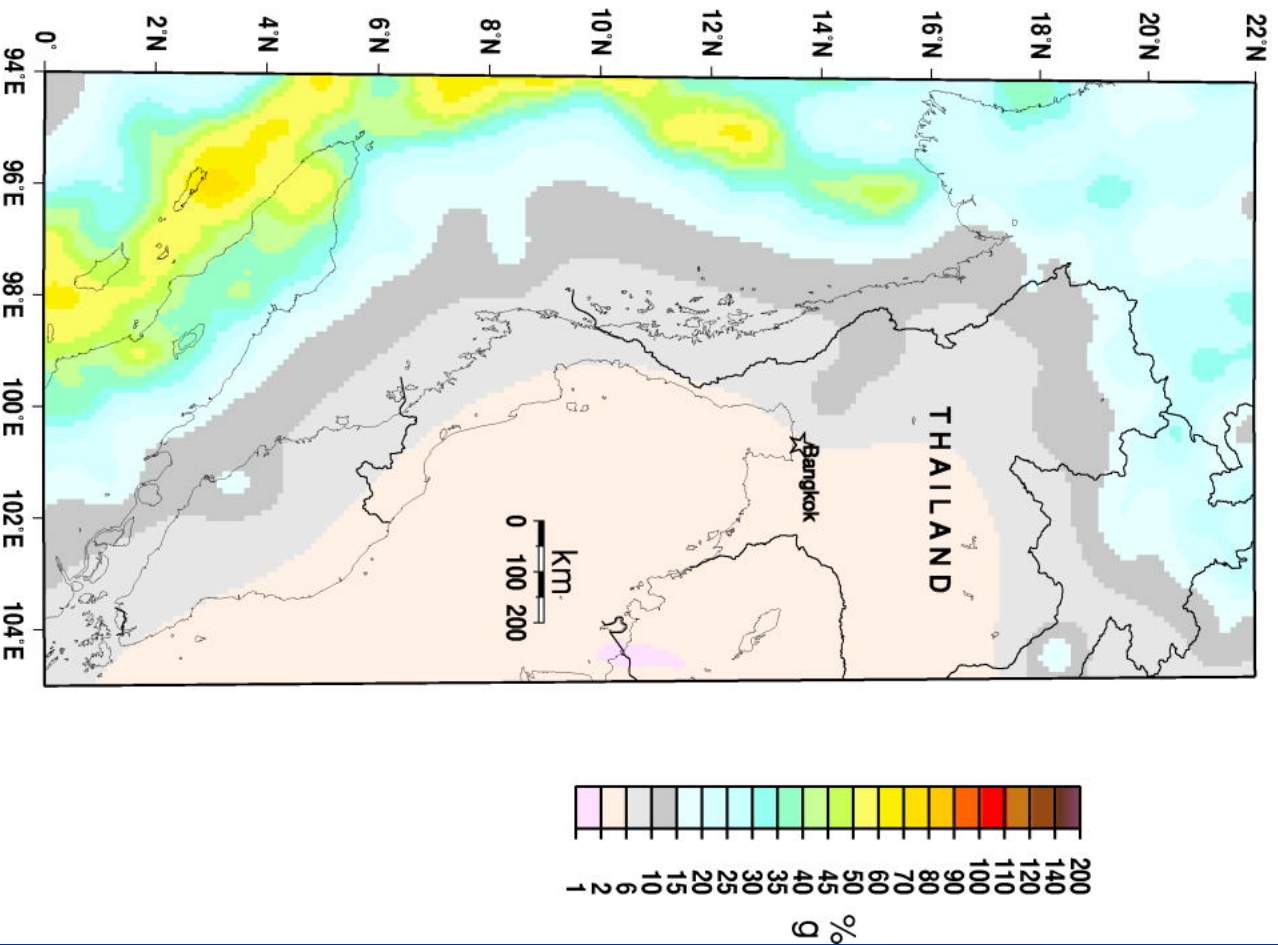


Maps for Thailand

- 2% probability of exceedance in 50 years
- 760 m/s V_s -30 (firm rock site conditions)
- Strawman inputs (e.g., Need better rates on subduction zone, faults, etc.)
- Sources considered (shallow seismicity, deep seismicity, Sumatra fault, faults near Thailand, subduction zone)

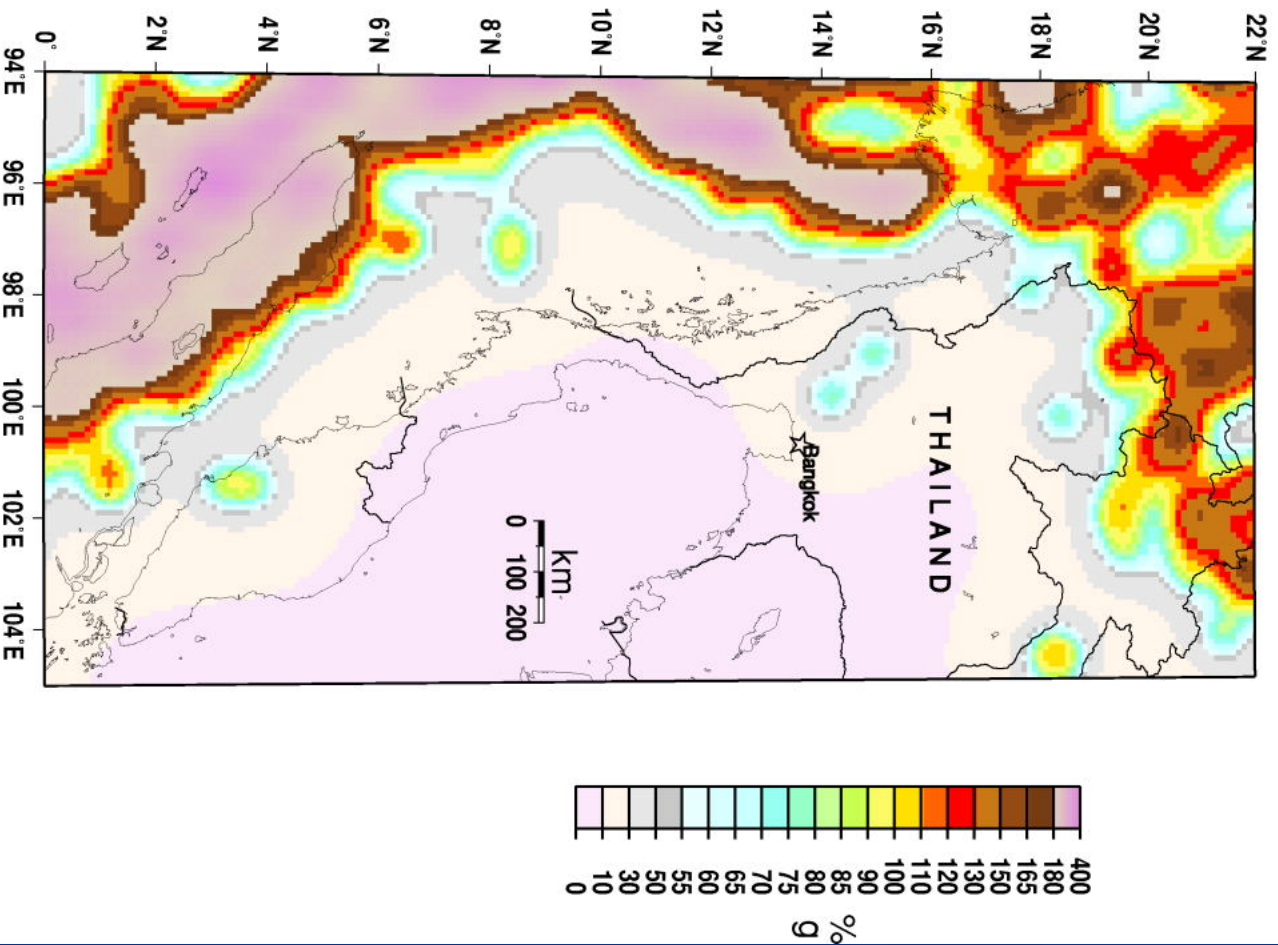
Shallow gridded seismicity

PSHA 1hz Crustal background source. PE= 2% 50 yr



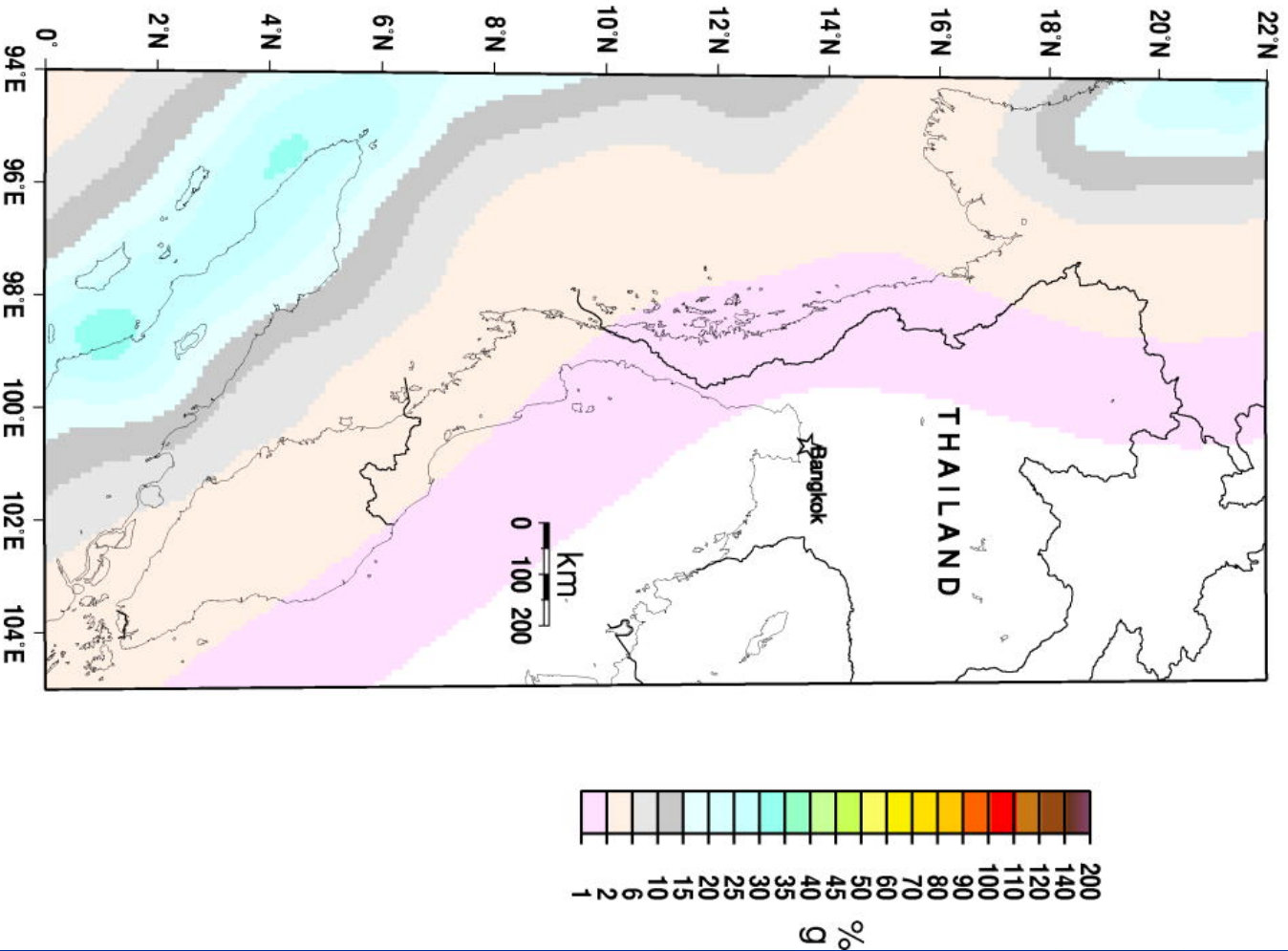
Shallow Gridded Seismicity

PSHA 5hz Crustal background source. PE= 2% 50 yr



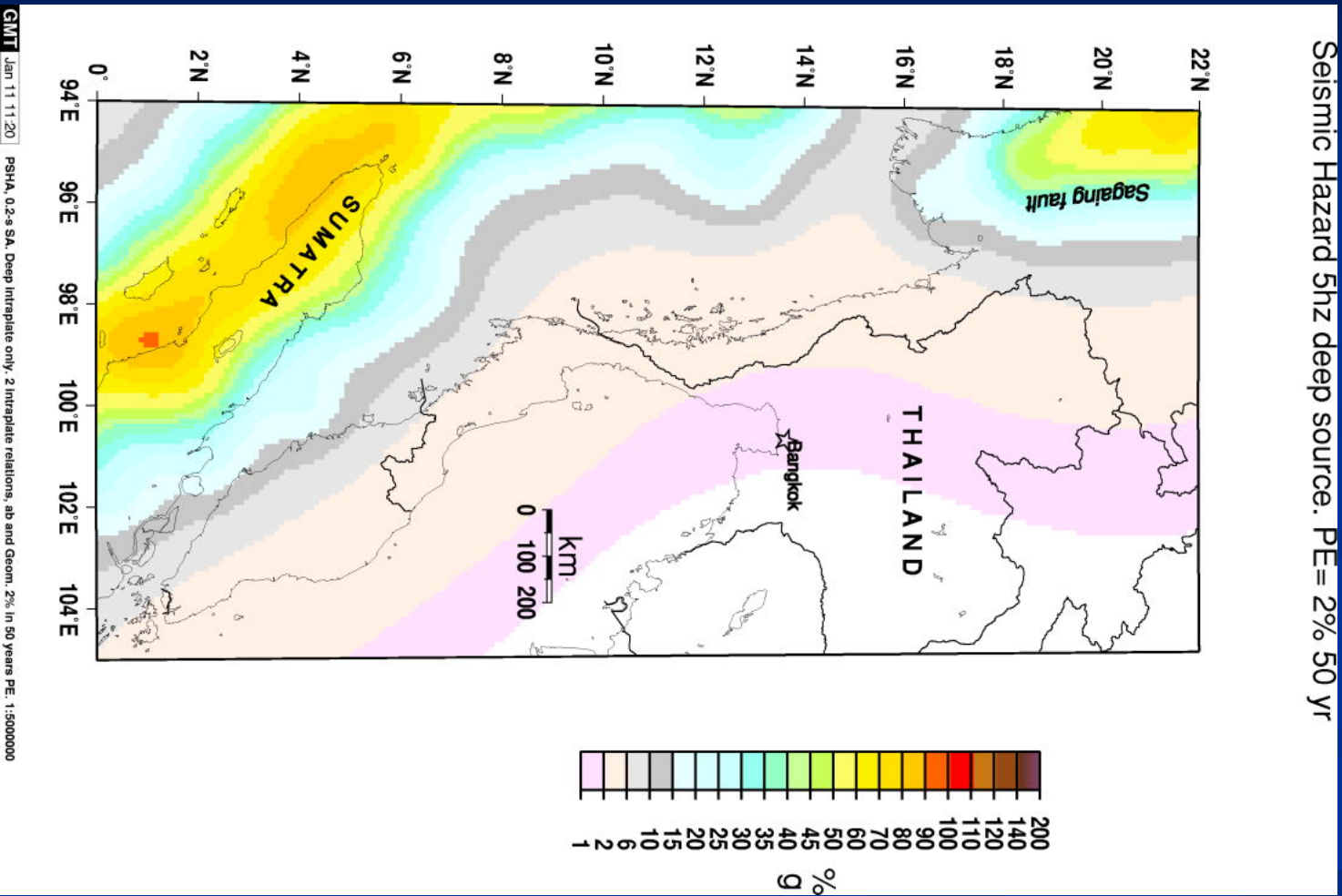
Deep Gridded Seismicity

Seismic Hazard 1hz deep source. PE = 2% 50 yr



Deep Gridded Seismicity

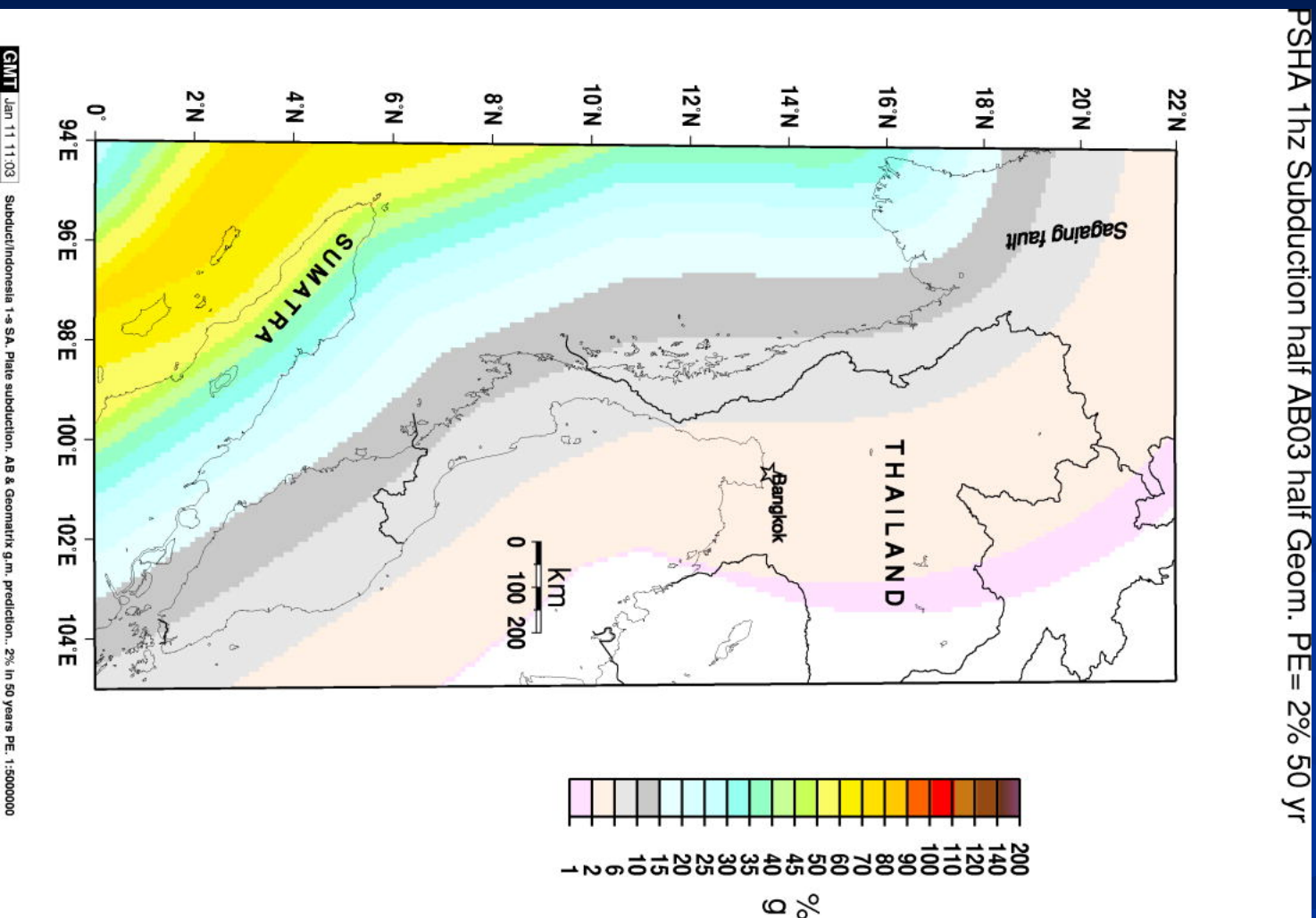
Seismic Hazard 5hz deep source. PE = 2% 50 yr



GMT Jan 11 11:20 PSHA, 0.2-s SA, Deep Intraplate only, 2 Intraplate relations, ab and Geom, 2% In 50 years PE: 1:5000000

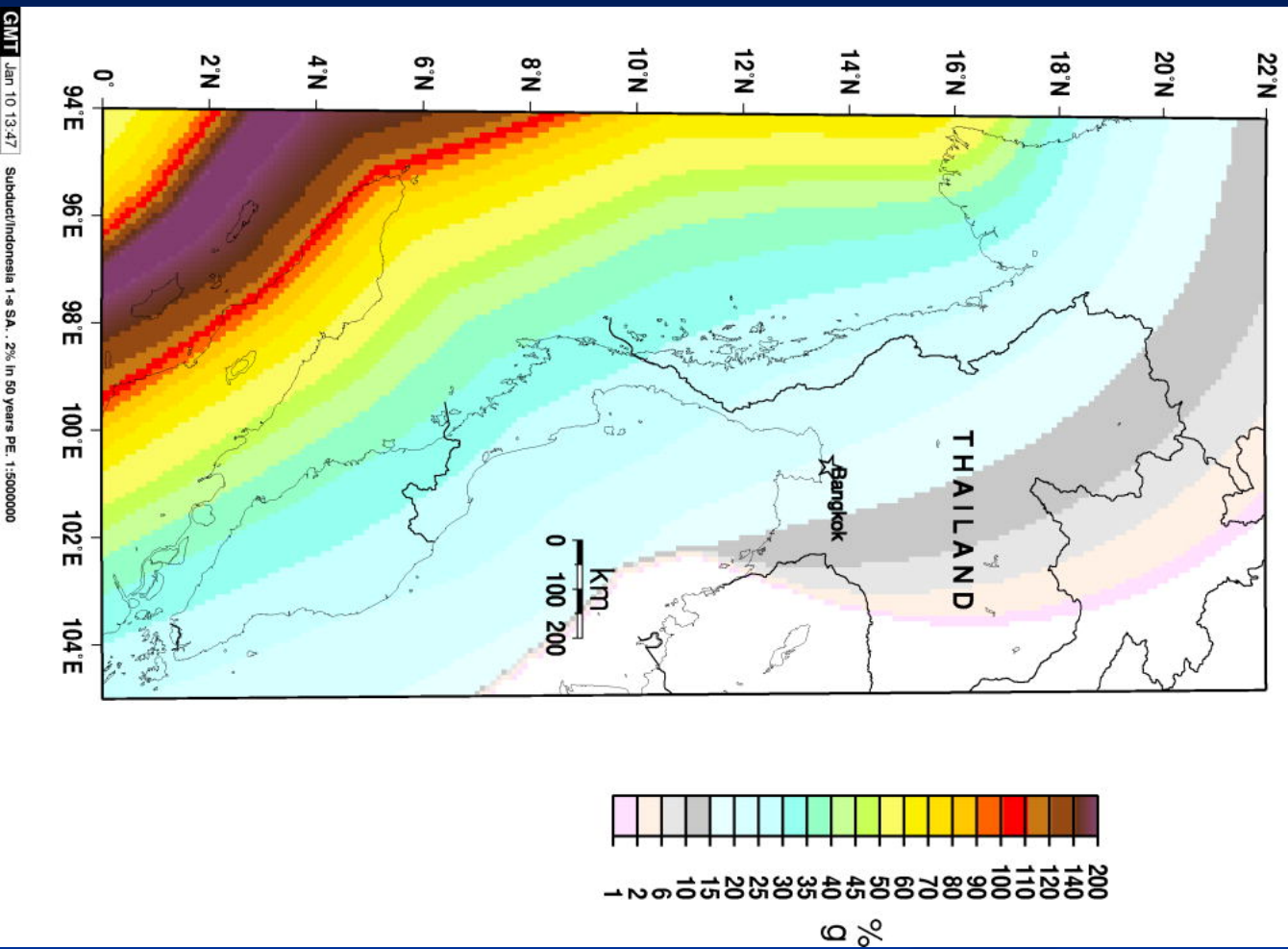
Subduction zone

PSHA 1hz Subduction half AB03 half Geom. PE = 2% 50 yr



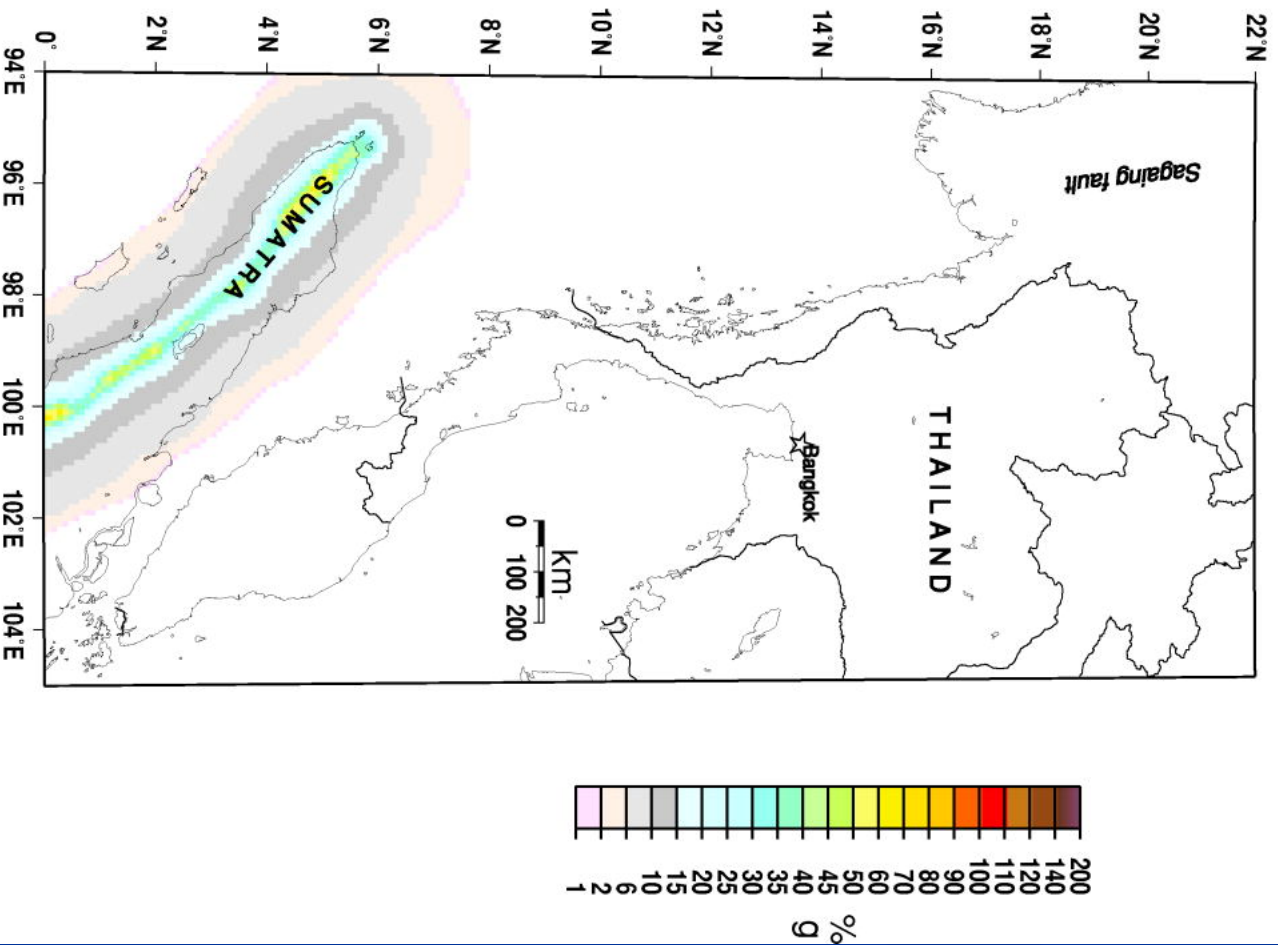
Subduction zone (with Gregor)

PSHA 1hz Subd. 1/3 Gregor 2/3 Others. PE = 2%/50



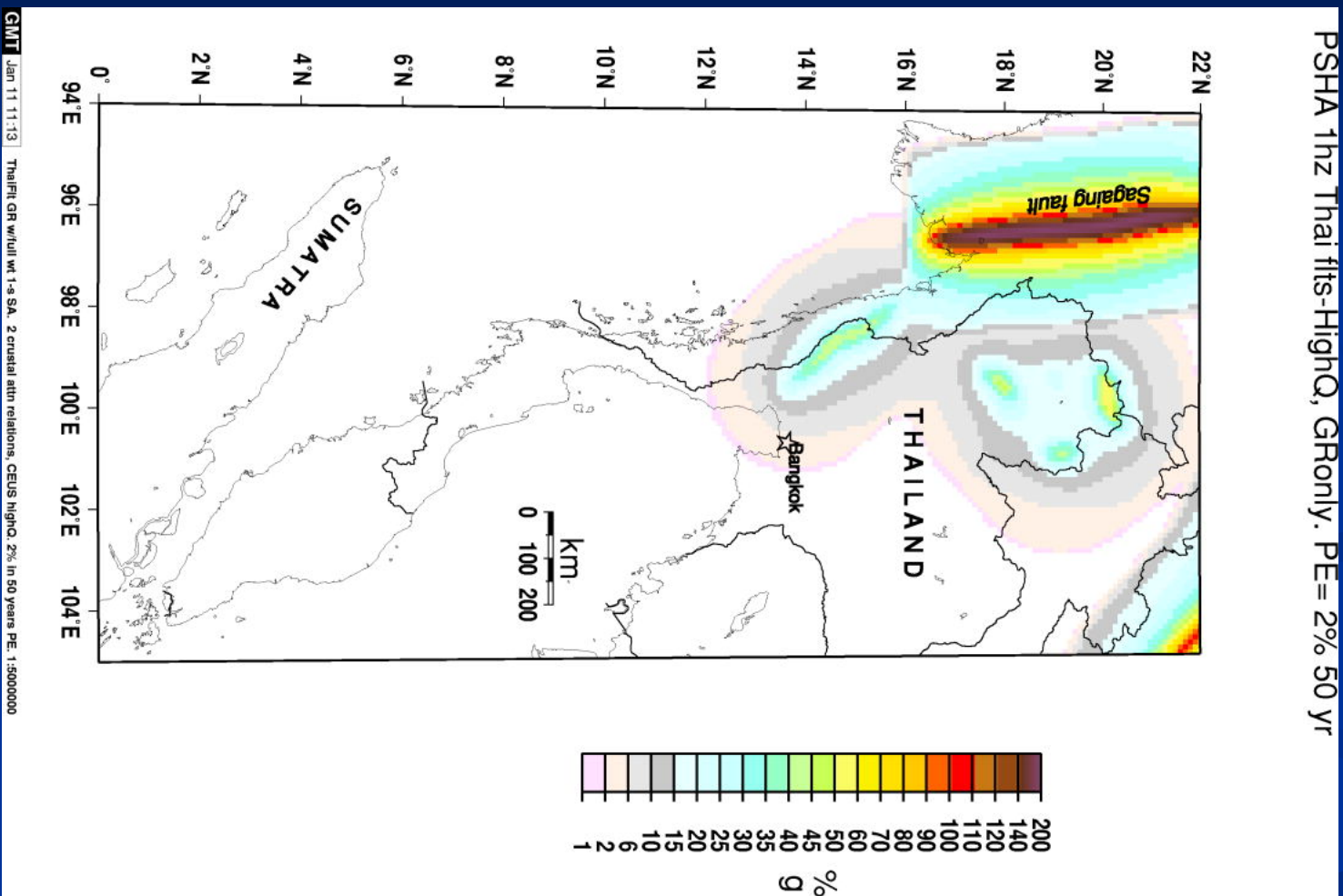
Sumatra Fault

PSHA 1hz Sumatra fit lowQ. PE= 2% 50 yr



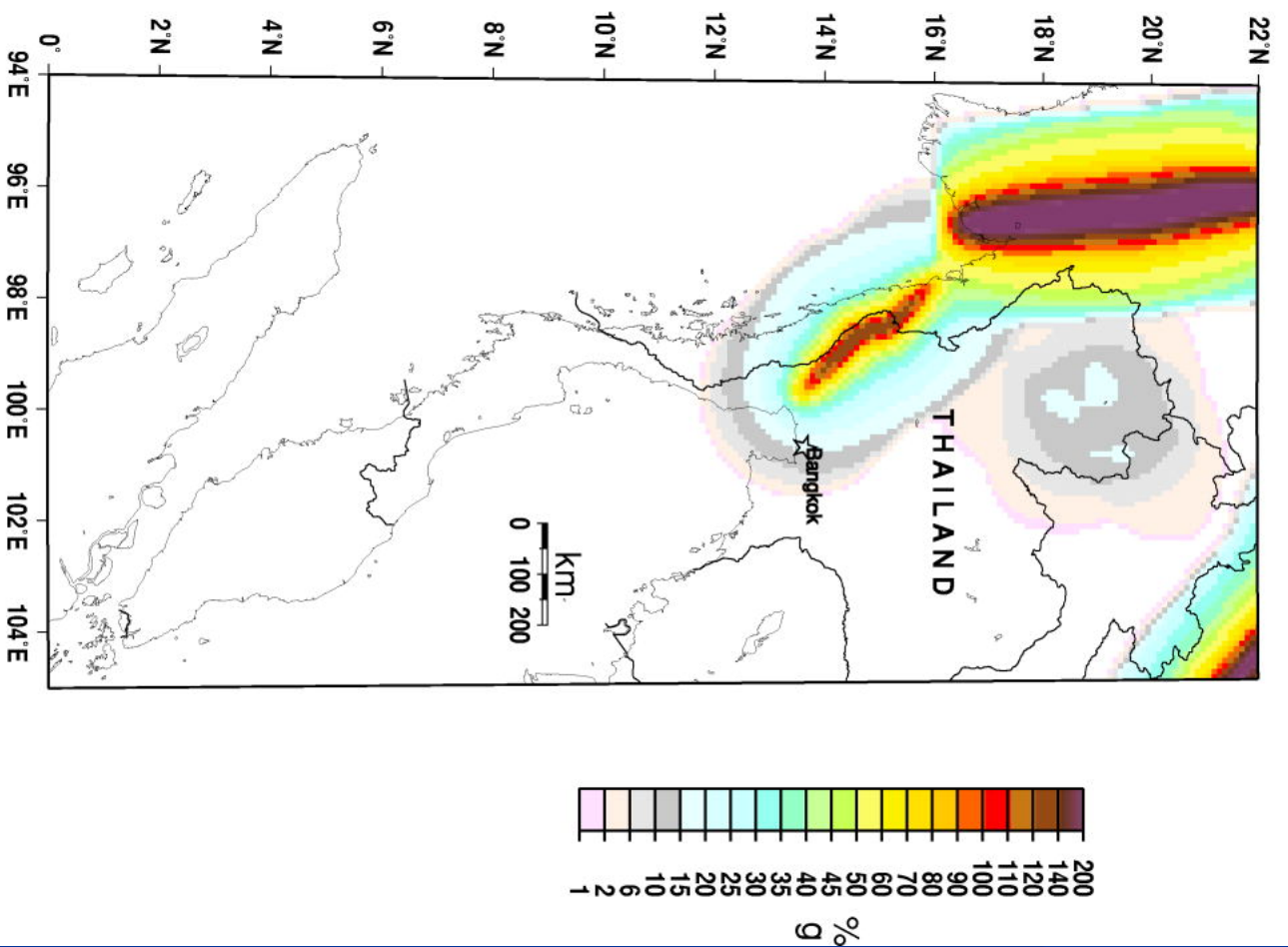
Faults near Thailand (High Q)

PSHA 1hz Thai fits-HighQ, GRonly. PE= 2% 50 yr



Thailand faults (High Q)

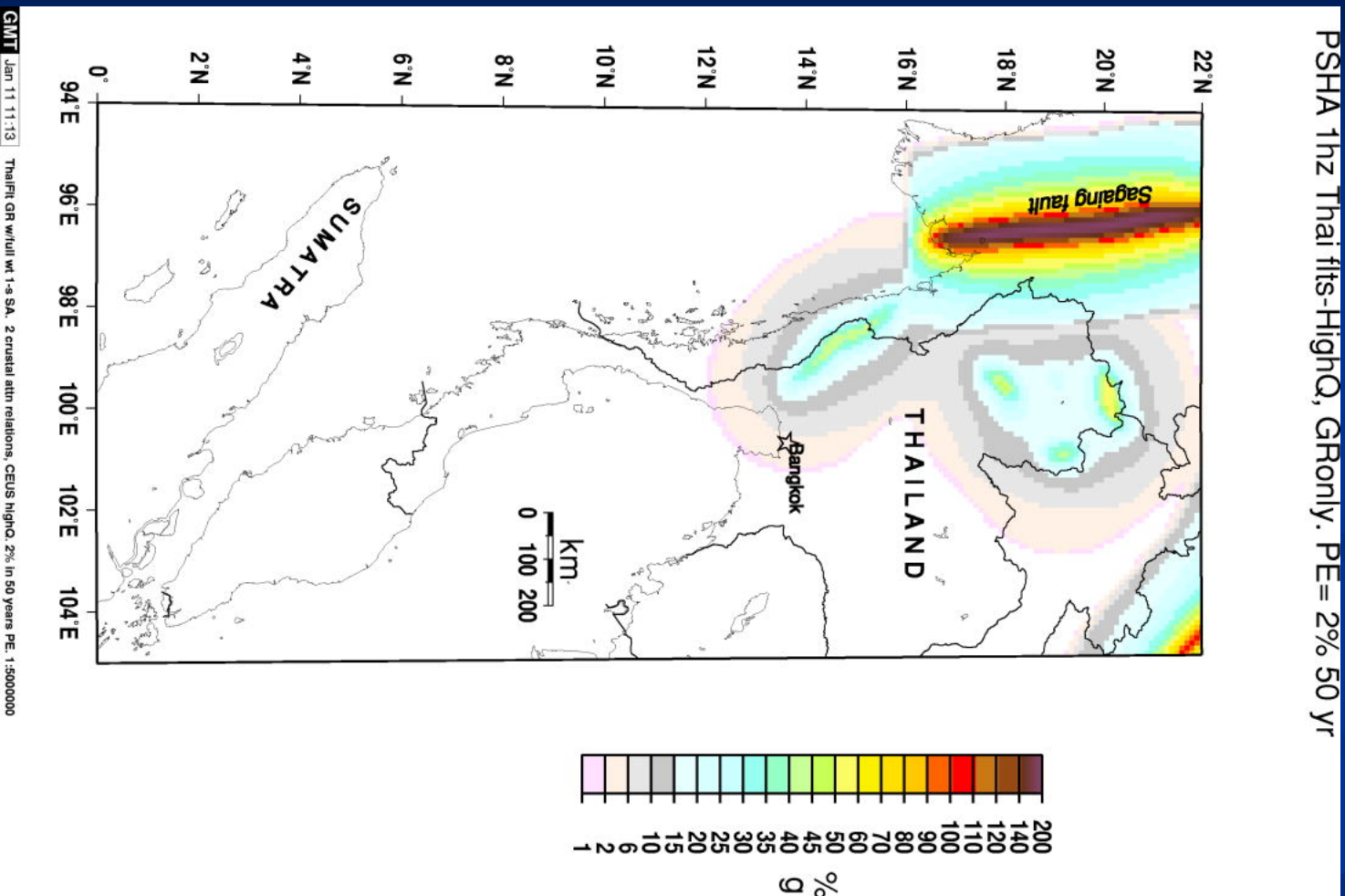
PSHA 1hz Thai fits-HighQversion. PE= 2% 50 yr



GMT Jan 10 15:30 ThaiFitSun/Indonesia 1-s-SA, sun version, fits.char, 2 crustal altm relations, CEUS HighQ, 2% In 50 years PE, 1:5000000

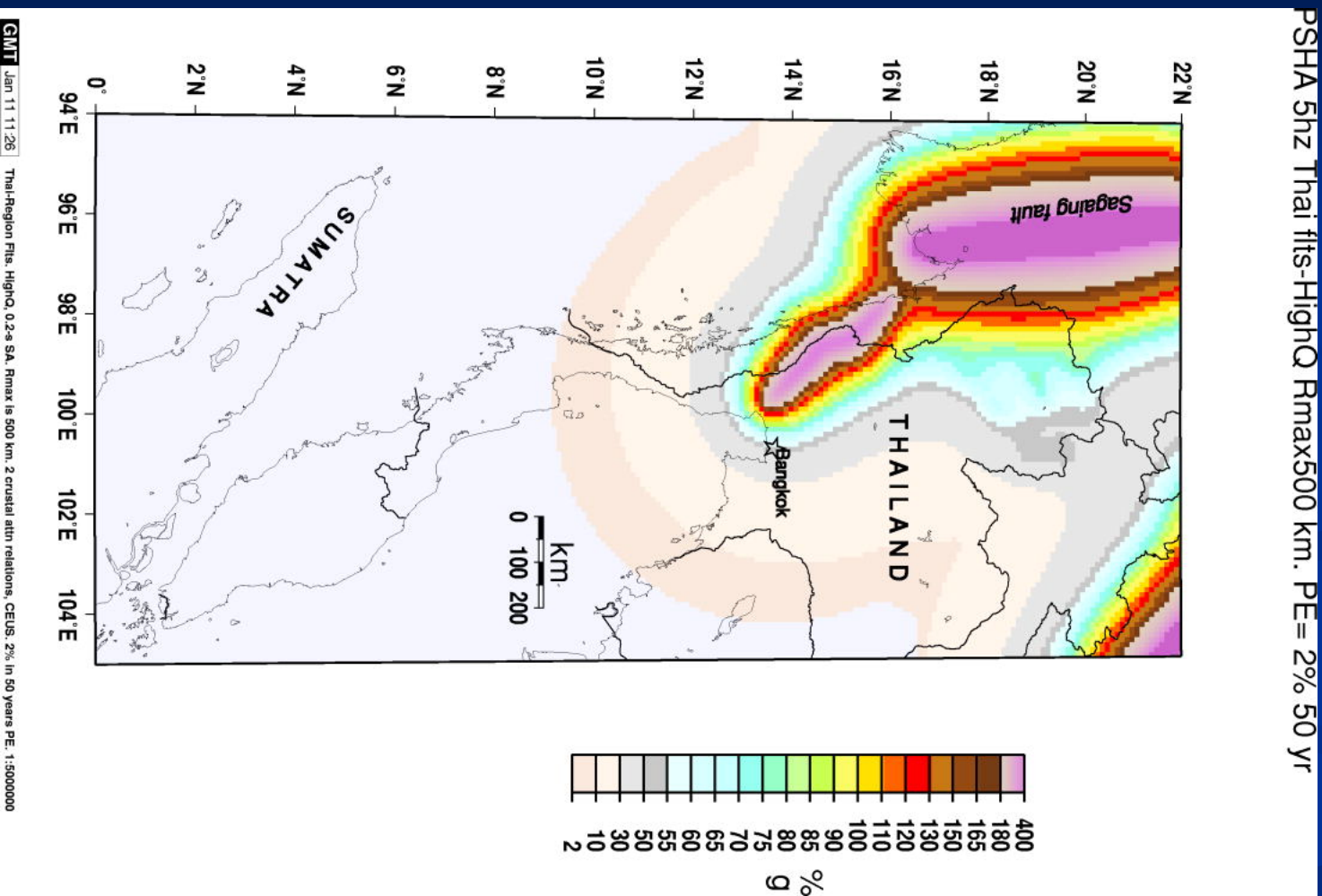
Thailand Faults (High Q- GR)

PSHA 1hz Thai fits-HighQ, GRonly. PE= 2% 50 yr



Thailand Faults (High Q-500 km distance cutoff)

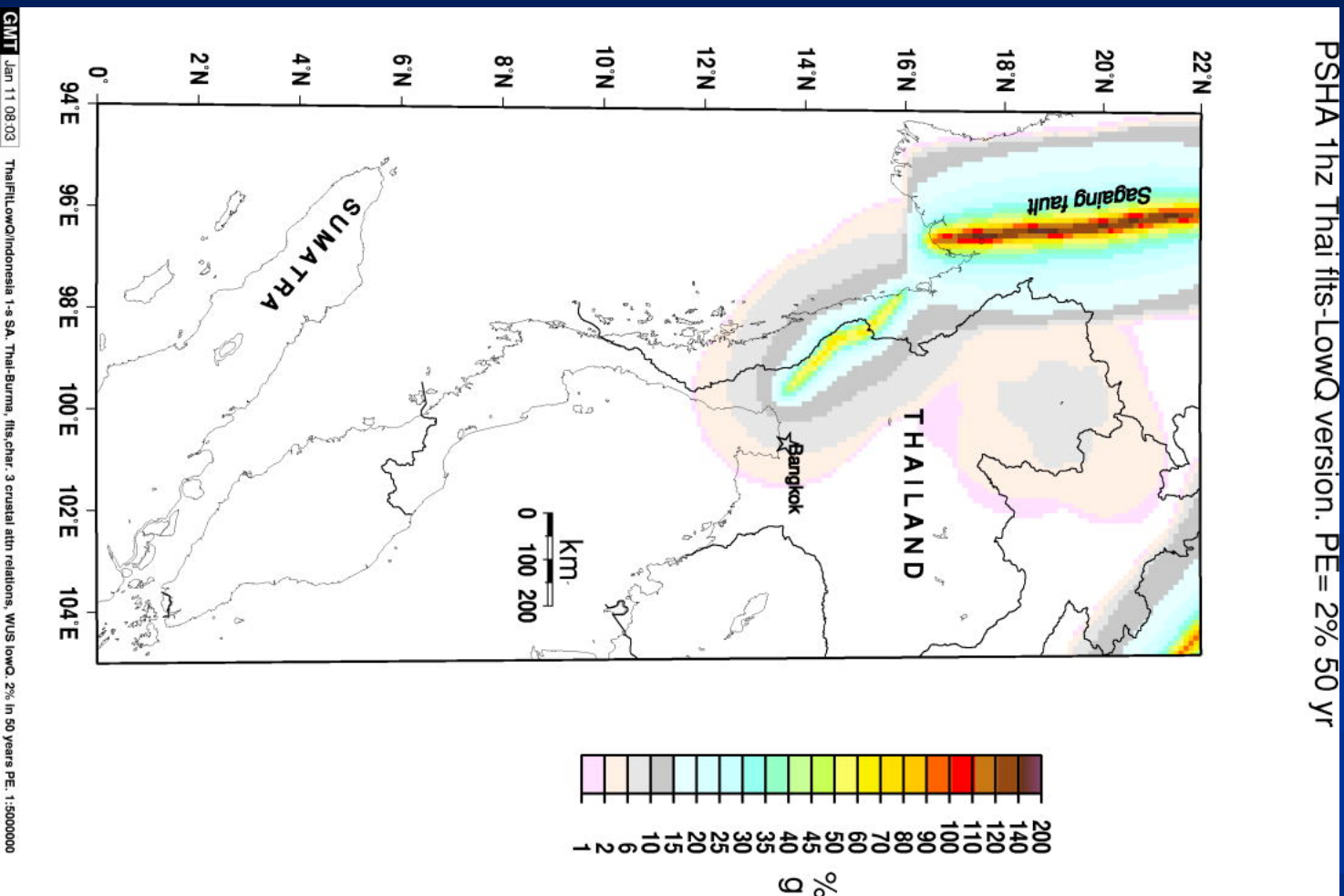
PSHA 5hz Thai fits-HighQ Rmax500 km. PE = 2% 50 yr



GMT Jan 11 11:26 Thai-Region Fits: HighQ, 0.2-s SA, Rmax is 500 km, 2 crustal athn relations, CEUS, 2% in 50 years PE, 1:5000000

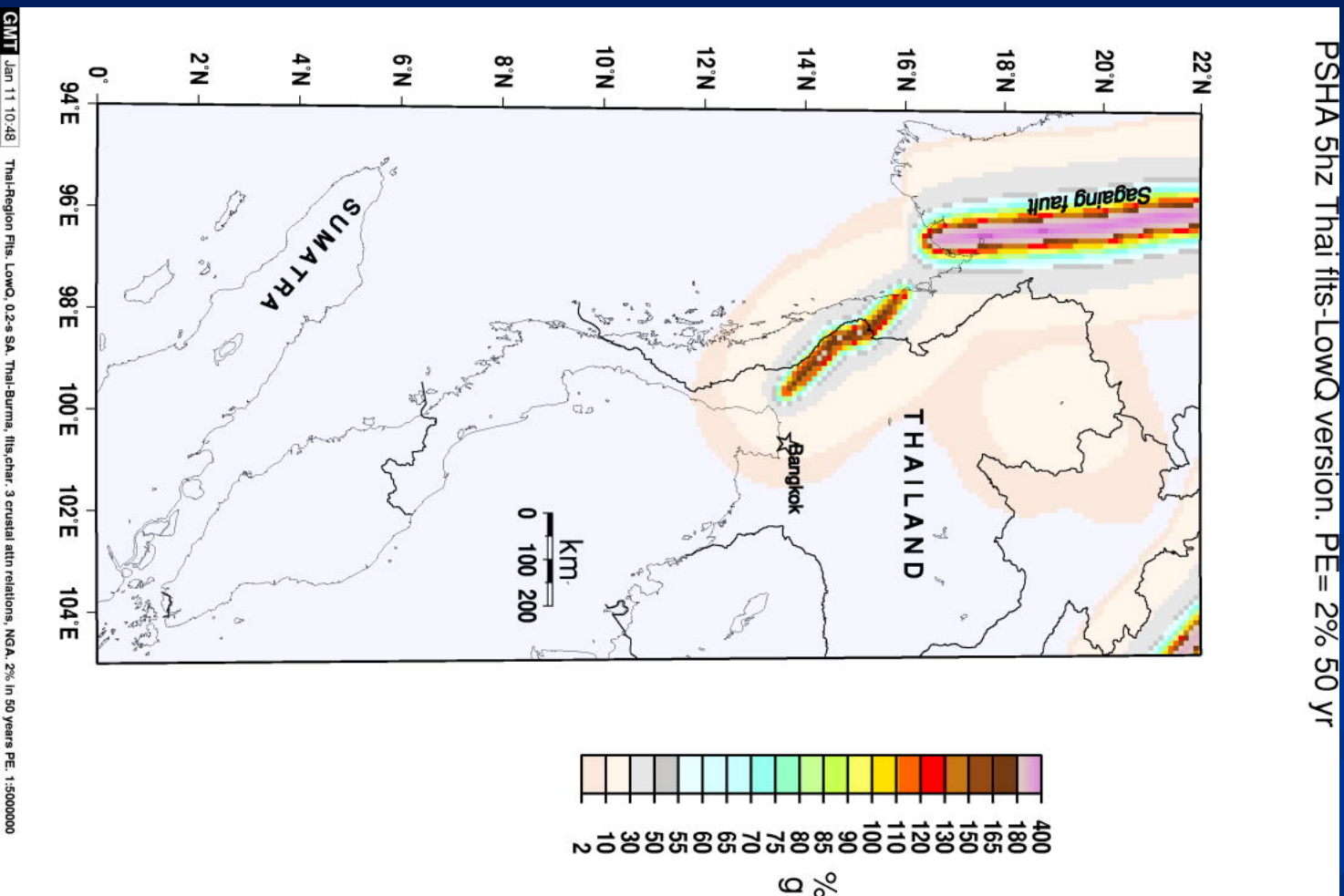
Thailand Faults (Low Q)

PSHA 1hz Thai fits-LowQ version. PE= 2% 50 yr



Thailand Faults (Low Q)

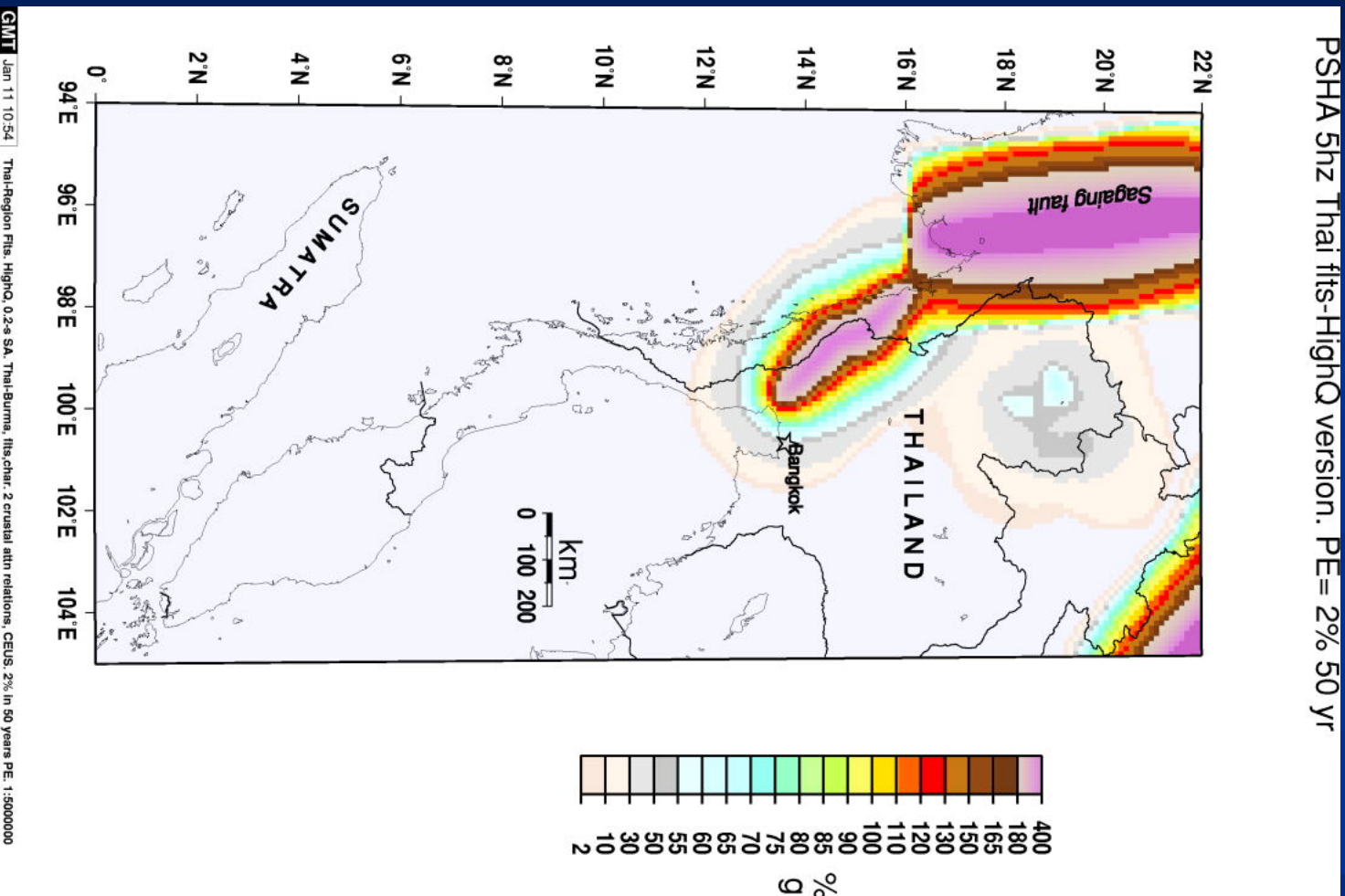
PSHA 5hz Thai fits-LowQ version. PE= 2% 50 yr



GMT Jan 11 10:48 Thai-Region Fils. LowQ, 0.2-s-SA, Thai-Burma, fts.char, 3 crustal attr relations, NGA, 2% in 50 years PE: 1.5000000

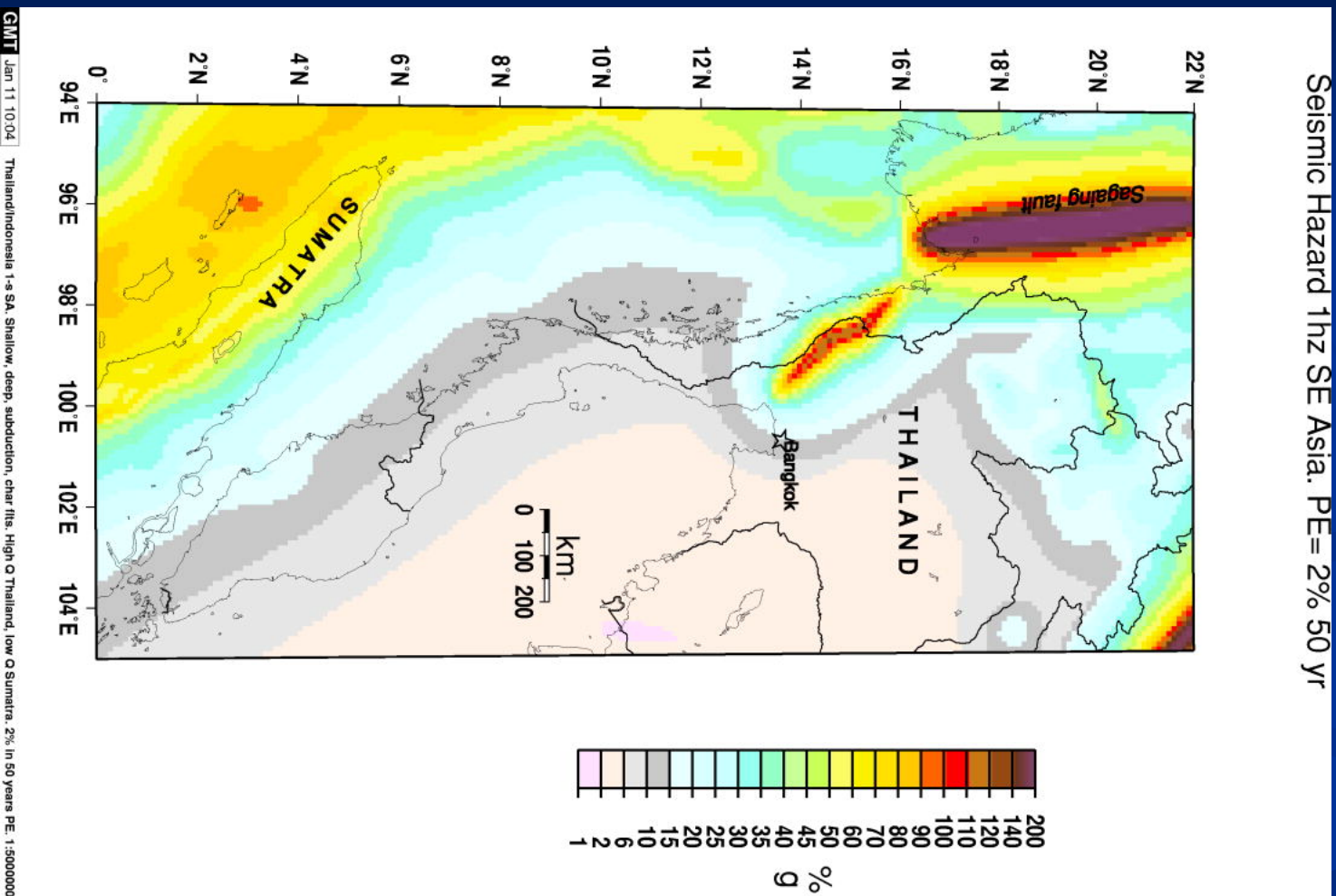
Thailand Faults (High Q)

PSHA 5hz Thai fits-HighQ version. PE= 2% 50 yr



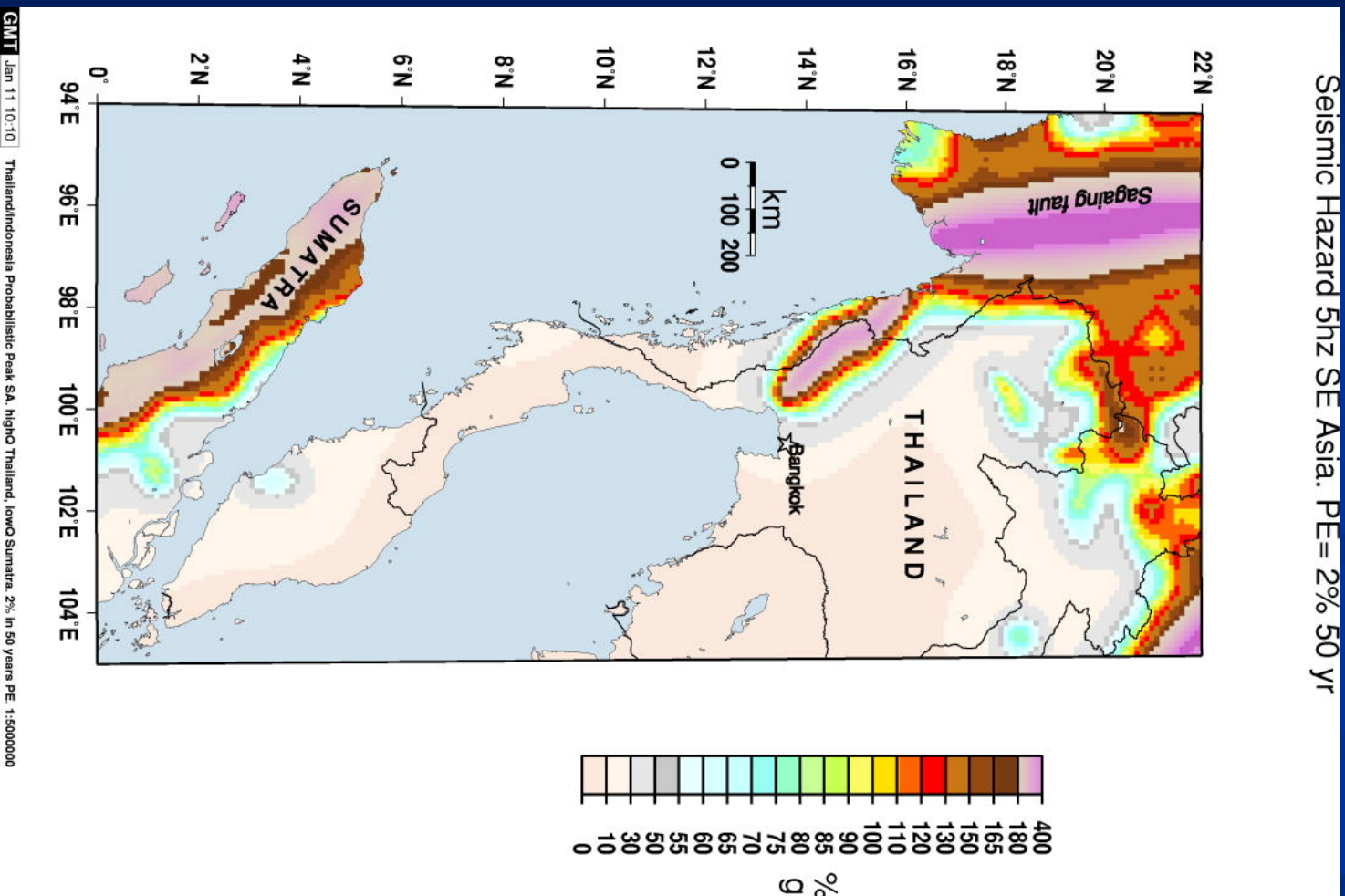
Hazard Map (all sources)

Seismic Hazard 1hz SE Asia. PE = 2% 50 yr



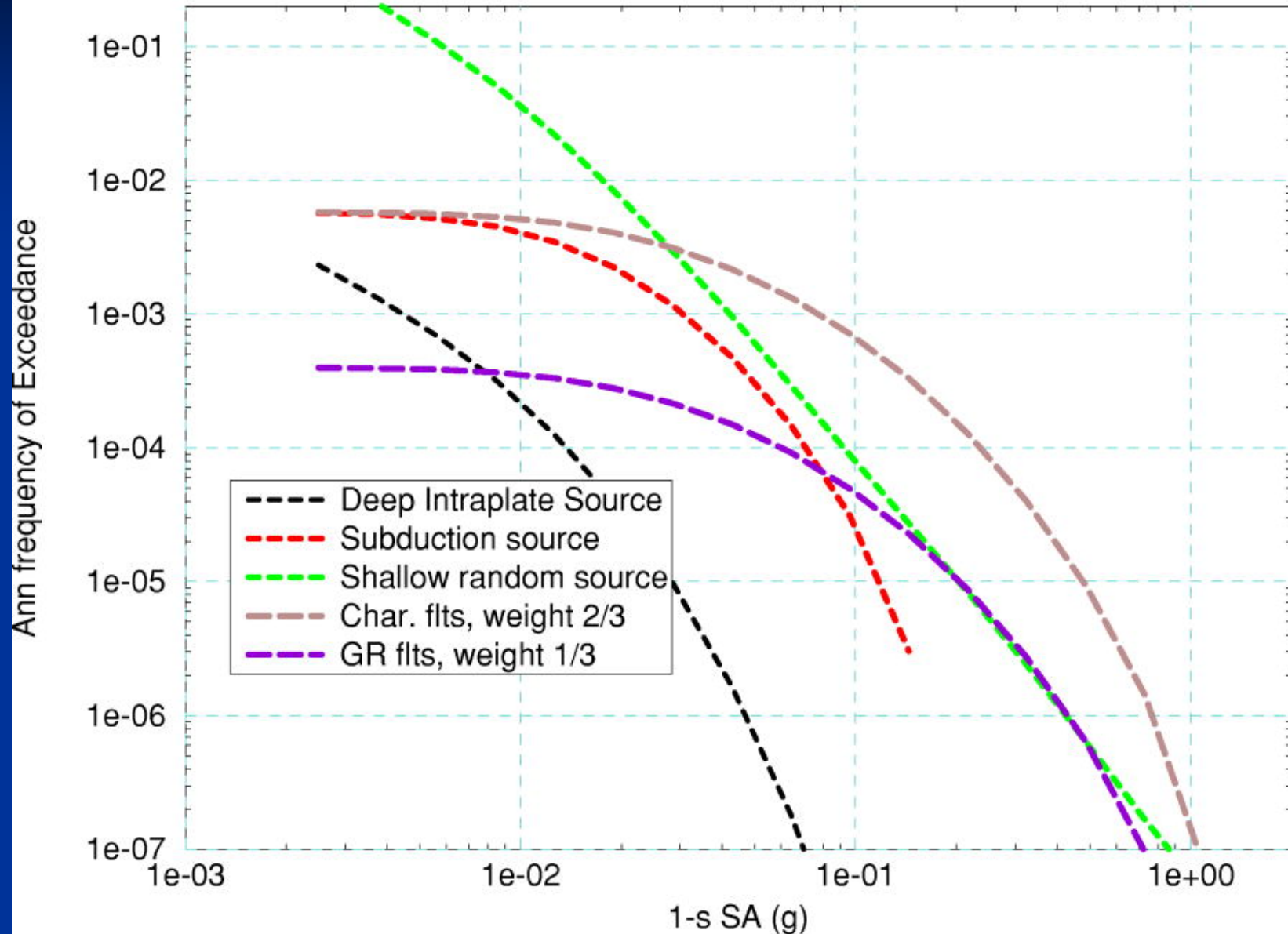
Hazard Map (All sources)

Seismic Hazard 5hz SE Asia. PE = 2% 50 yr



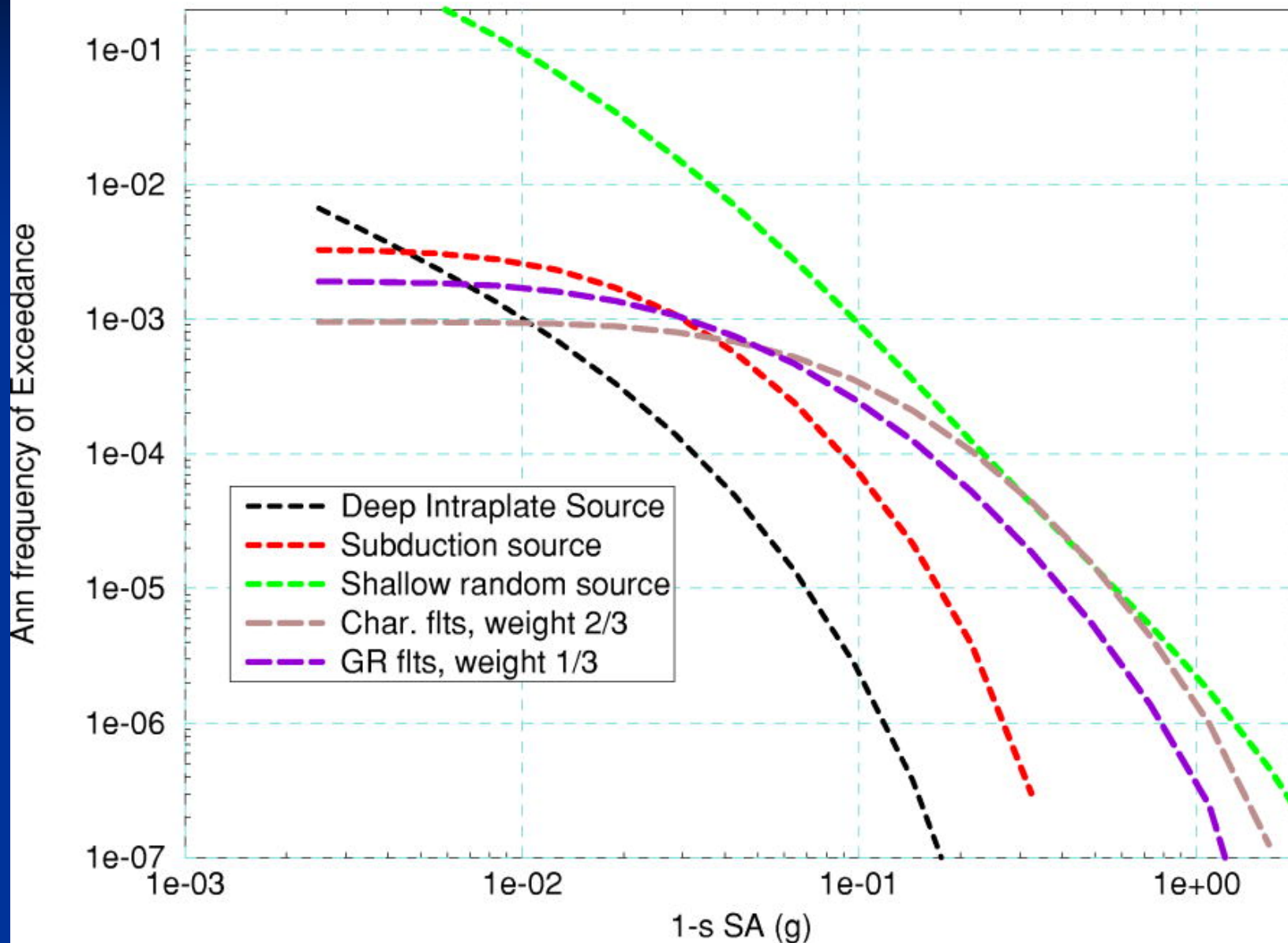
Components of Hazard at Bangkok

Preliminary Seismic Hazard Model January 2007. Rock site vs30 760 m/s



Components of Hazard at Chiang Mai

Preliminary Seismic Hazard Model January 2007. Rock site vs30 760 m/s



Conclusions

- Three Pagoda fault important for central Thailand
- Shallow seismicity and faults important for northern Thailand
- Significant Difference between attenuation relations (Need to know Q , stress drop, etc.)