

As a local modulator of ground motion Kathmandu basin

The 2015 Mw 7.5 Gorkha earthquake

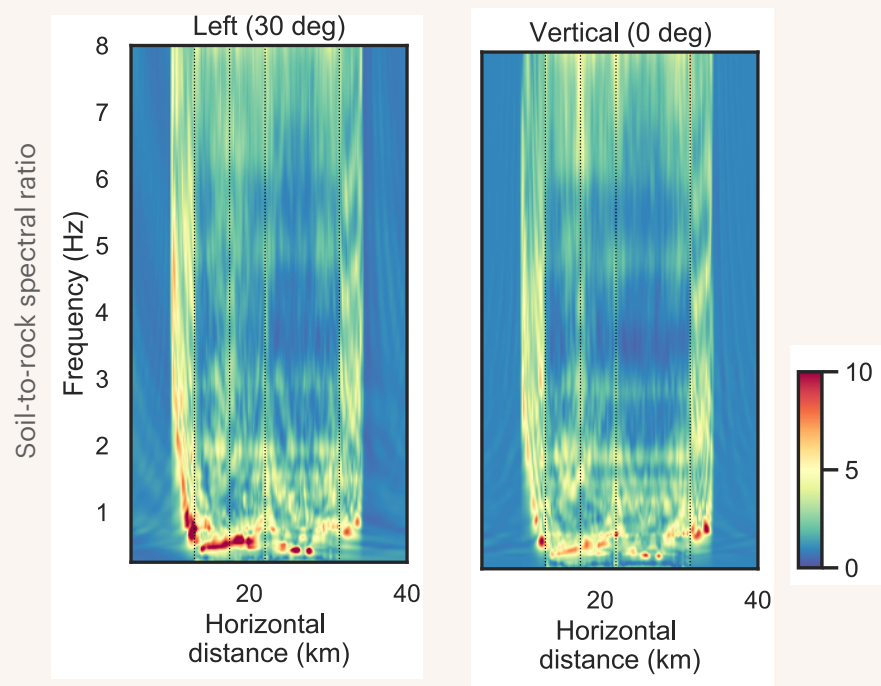
Observation #1: Surprisingly strong low-frequency (LF) ground motion (< 2 Hz)

Observation #2: Surprisingly weak high-frequency (HF) ground motion (> 2 Hz)

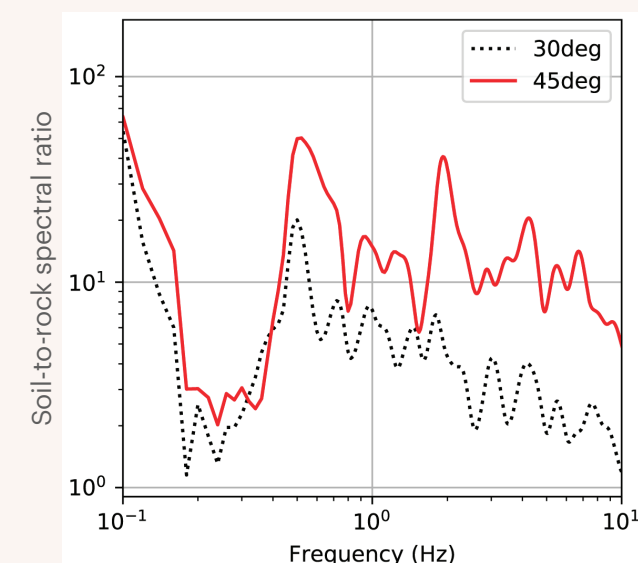
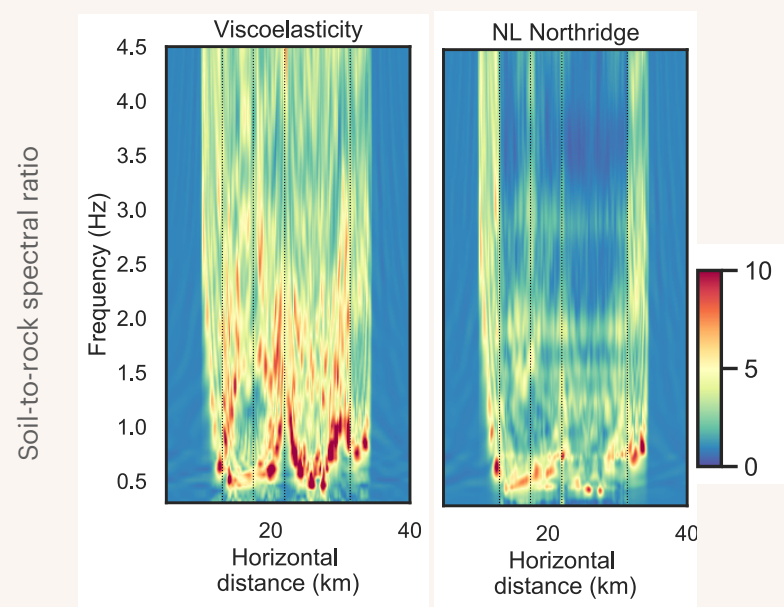
By modeling combined site & soil nonlinearity effects

We found:

#1) Kathmandu basin indeed amplifies LF ground motion for elastic/nonlinear soil & for vertical/oblique wave incidence



#2) Soil nonlinearity contributes HF damping BUT does not explain the observed lack of HF motion



Further question:
Why the 1934 event was much more destructive than the 2015 event?

Critical angle can be the answer?

synergistic work with
P. Ayoubi, J.P. Ampuero, D. Asimaki & L.F. Bonilla