

## Earth's hum predicts quake danger spots

\* 15 July 2008

THE faint sound of crashing waves can travel across continents through Earth's rocks. Now it seems this ambient hum can be harnessed to help predict how destructive an earthquake will be.

Estimating the degree to which the ground will shake during a quake of a given magnitude is tricky because seismic waves can be muffled or amplified by geological structures en route from the epicentre, such as sedimentary basins.

According to Gregory Beroza and Germán Prieto of Stanford University in California, you can predict these effects using measurements of the ambient hum. They were able to see how the underlying geology affected waves travelling through the Earth's crust when they correlated measurements of the hum, taken near the town of Big Bear on the San Andreas fault, with corresponding readings at four seismic stations across Los Angeles.

Their analysis shows that seismic waves are trapped and amplified on this route, probably by a bowl of sedimentary rock under Los Angeles. That is borne out by a 2001 earthquake close to Big Bear with a magnitude of 4.6, which shook LA more intensely and for longer than it should have for its magnitude (Geophysical Research Letters, DOI: 10.1029/2008GL034428).

