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The impact of topography on seismic amplification during the 2005 Kashmir earthquake

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This study demonstrates the impact of topography on seismic response during the 2005 Kashmir earthquake. Earth's topography scatters and reflects seismic waves, causing spatial variation in seismic response. A 3D simulation with spectral element method has been performed for the 2005 Kashmir earthquake in Muzaffarabad. The moment tensor solution of the 2005 Kashmir earthquake is used as the seismic source. Our outcomes show amplification of seismic response on ridges and de-amplification in valleys. It also shows that slopes facing away from the source receive an amplified seismic response, and that 98% of the highly damaged areas are located in topographically amplified seismic response zone.

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