

Mountains influence the impact of earthquakes

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According to the research of Professor Mark van der Meijde, mountains influence the impact of earthquakes. It was already known that the topography of an area has an influence on earthquakes, but the major influence at the local level is new. Mountains can reduce the power of quakes, but also direct them to certain places, making them more powerful than expected.

Earthquake in Kathmandu

The research started after the earthquake in Kathmandu (Nepal) in 2015. More than 100,000 people were expected to die, but in the end around 1,700 people in Kathmandu and 11,000 throughout Nepal died as a result of the earthquake. A lot of research was done, but so far, researchers had not determined why there were so few victims.

Van der Meijde developed a model that focuses on the role of mountains in the area. It showed that the two ridges between the earthquake and Kathmandu had a very large influence. "The topography in the area 'captured' the energy and ensured that Kathmandu was located exactly in the area with the lowest energy," says van der Meijde.

Lucky Kathmandu

Thanks to this research, it's clear that the effect at a local level can vary widely. For example, according to van der Meijde, Kathmandu was very lucky: "If the earthquake had occurred 20 kilometers more to the west, the mountains would have focused the energy to the Kathmandu valley." Then the [death toll](#) would have been higher than expected.

More information: Mark van der Meijde et al. The Influence of Surface Topography on the Weak Ground Shaking in Kathmandu Valley during the 2015 Gorkha Earthquake, Nepal, *Sensors* (2020). [DOI: 10.3390/s20030678](https://doi.org/10.3390/s20030678)

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