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Full and new moons linked to timing of largest, deadliest quakes

By **Bob Holmes**

FULL and new moons seem to make the largest, most devastating earthquakes more likely.

Although the effect is too small to make much difference in preparing for earthquakes in the short term, the discovery could one day provide insights into the ways that they develop and grow.

During full and new moons, the sun, moon and Earth align, so gravity tugs more strongly on the planet's crustal plates. The resulting "Earth tides" and increased tidal movements in the oceans can add to the stresses on earthquake faults.

Satoshi Ide and his colleagues at the University of Tokyo, Japan, analysed the size of tidal stresses in the two weeks before earthquakes with a magnitude of 5.5 or greater over the past two decades.

The team found that of the 12 largest recorded quakes – those with a magnitude of 8.2 or more – nine occurred on days near new or full moons, when the tidal pull caused high stress across the fault. Smaller quakes showed no tendency to cluster at these times (Nature Geoscience, doi.org/bqjk).

This may be because the increased stress gives an extra boost to slipping faults, allowing a small slip to spread into a larger rupture, the researchers suggest.

Other seismologists are cautiously excited about the results. "It's a very interesting and intriguing observation," says Emily Brodsky, an earthquake physicist at the University of California, Santa Cruz. "If it's right, it's a very big deal."

The finding may help seismologists understand how small ruptures progress into larger earthquakes, she says — which could eventually pay off in terms of better predictions.

However, Brodsky notes that the sample size of just a dozen earthquakes is tiny. We may have to wait for more great quakes to see whether the pattern holds, she says.

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