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00:00:03,490 --> 00:00:08,730

You've probably heard about the asteroid impact that led to the extinction of the dinosaurs.

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00:00:08,730 --> 00:00:13,540

But that's by no means the only impact that Earth has experienced.

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00:00:13,540 --> 00:00:19,280

In fact, scientists have found almost two-hundred impact craters all over the world.

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00:00:19,280 --> 00:00:23,030

An important question, then, is how often do these impacts occur?

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00:00:23,030 --> 00:00:27,449

Is the rate steady, or has it changed over time?

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00:00:27,449 --> 00:00:32,599

If we play back the impacts that have occurred over the last 650 million years, we find that

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00:00:32,599 --> 00:00:37,280

the impact rate seems to speed up at around 290 million years ago.

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00:00:37,280 --> 00:00:41,330

But that might only be because older craters are harder to find.

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00:00:41,330 --> 00:00:47,660

They may have been erased by weathering, vegetation, and geological processes.

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00:00:47,660 --> 00:00:52,910

To test this, scientists have now looked to our nearest neighbor in space, the Moon.

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00:00:52,910 --> 00:00:57,530
The Moon and the Earth are close enough that they should share the same impact history,

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00:00:57,530 --> 00:01:03,050
but the Moon isn't subject to the forces that might erase impact craters on Earth.

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00:01:03,050 --> 00:01:07,509
Using rock abundance data from the Diviner instrument on Lunar Reconnaissance Orbiter,

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00:01:07,509 --> 00:01:12,160
scientists were able to catalog and date the large, relatively young lunar craters, the

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00:01:12,160 --> 00:01:15,909
ones that formed in just the last billion years.

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00:01:15,909 --> 00:01:22,500
And when they plot those over time, they see the same speed-up at around 290 million years

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00:01:22,500 --> 00:01:27,299
ago.

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00:01:27,299 --> 00:01:30,959
The change in the cratering rate isn't just an artifact of the crater record on Earth

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00:01:30,959 --> 00:01:34,469
- it's real.

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00:01:34,469 --> 00:01:39,530
The Moon is like a time capsule, preserving the geological history of the Earth-Moon system.