

## 1.0: A Muon Anomaly

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Created about 15000 meters above the Earth's surface when cosmic rays strike the upper atmosphere and lasting a mere microsecond or two, muons shouldn't be able to reach the ground. At least not according to classical mechanics. But particle detectors show that muons strike every inch of the Earth's surface, passing through almost everything in their paths. In fact, according to the DOE, muons may reach a mile or more beneath the Earth's surface.

How can we explain this?

Because of time dilation postulated by Special Relativity, the muon's speed (very close to speed of light) causes the muon to survive for longer than we would expect from classical mechanics, allowing the muon to travel a much farther distance than we might have expected.

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