

## Crater Pattern on the Moon and Origin of the Moon

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**Abstract :** The crater pattern on the Moon indicates the Moon was captured by Earth in the more recent years, disproves the theory that the Moon was born as a satellite to the Earth. The Moon was tidal locked since it became the satellite of the Earth. Moon's near side is shielded by Earth from asteroid/comet collisions, with the center of the near side most protected. Yet the crater pattern on the Moon is fairly random, with no distinguishable empty spot/strip, no distinguishable difference near side vs. far side. Were the Moon born as Earth's satellite, there would be a clear crater free spot, or strip should the tidal lock shifts over time, on the near side; and far more craters on the far side. The nonexistence of even a vague crater free spot on the near side of the Moon indicates the capture was a more recent event. Given Earth's much larger mass and sphere size over the Moon, Earth should have collided with asteroids and comets in much higher frequency, resulting in significant mass gain over the lifespan. Earth's larger mass and magnetic field are better at retaining water and gas from solar wind's stripping effect, thus accelerating the mass gain. A dwarf planet Moon can be pulled closer and closer to the Earth over time as Earth's gravity grows stronger, eventually being captured as a satellite. Given enough time, it is possible Earth's mass would be large enough to cause the Moon to collide with Earth.

**Keywords :** moon, origin, crater, pattern

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