

Receding Moon

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Our closest celestial neighbor dominates the sky tonight. It's the Moon, which rises about an hour and a half after sunset, and soars high across the south during the night.

On average, the Moon is about a quarter-million miles from Earth. But the distance is growing -- by an inch and a half a year. Since the first astronauts walked on the Moon, the average distance has increased by about four feet.

Apollo astronauts helped scientists measure the distance to the Moon, and the rate at which it's moving away. They set up special reflectors on the lunar surface. Scientists beamed lasers at these devices, and measured how long it took the light to bounce back to Earth -- a measurement that pinpointed the Moon's distance to within a few inches. Much of this work was done at McDonald Observatory, where laser-ranging research continues today.

The Moon's drift away from Earth supported an early theory of its creation. The theory was proposed by George Darwin, the son of Charles Darwin. It said that the young, molten Earth was spinning so rapidly that it flung off a dense lump of material -- a lump that became the Moon. Early on, the theory suggested that the Pacific basin was the scar of this planetary split.

Today, the leading theory says the Moon formed when a large body hit Earth, blasting debris from both objects into orbit. This material coalesced to form the Moon -- our closest neighbor in the universe.

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