The Origins of Plate Tectonics

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The first in a two-part EARTH series explores the timeline of a planetary process that is literally earth-shattering.

Plate tectonics has been a centerpiece of earth science for decades, but Earth didn't always have tectonic plates. As the planet coalesced from cosmic dust approximately 4.6 billion years ago, it had a single, unbroken lithosphere. So how and when did the plates break apart and begin their seemingly never-ending round of musical chairs?

Recent advances in several areas of geoscience are helping us tackle those questions. New technologies and improved theoretical understanding have paved the way for models that can simulate the cycling of key elements through Earth's churning interior. Today, we're getting a better picture than ever before of convection deep inside Earth, which provides hints to the history of Earth's shifting surface.

Read the full story, now online at https://www.earthmagazine.org/article/when-and-how-did-plate-tectonics-begin-earth. And stay tuned next month for part two in this series.

The June issue of EARTH is now available online. Read how sailors used fish oil to calm the seas in a daring 1883 rescue and how that effort is changing our understanding of ocean wave dynamics. Or read about the geology in everyday objects and why it's crucial for homeowners to know the difference between marble and quartzite. For these stories and more, subscribe to EARTH Magazine.

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Keep up to date with the latest happenings in Earth, energy and environment news with EARTH Magazine online at www.earthmagazine.org. Published by the American Geosciences Institute, EARTH is your source for the science behind the headlines. Now available on Kindle.

About the American Geosciences Institute

The American Geosciences Institute is a nonprofit federation of geoscientific and professional associations that represents more than 250,000 geologists, geophysicists and other earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice of shared interests in the profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resiliency to natural hazards, and interaction with the environment.

AGI represents and serves the geoscience community by providing collaborative leadership and information to connect Earth, science, and people.

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