

Study: Asteroids show signs of aging

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U.S. space scientists say they've determined asteroids show varying signs of aging -- a vital clue to the origin of meteorites.

Takahiro Hiroi and colleagues at Brown University discovered an asteroid has patchy surfaces in different stages of aging. Since meteorites come from asteroids, the finding suggests the aging process may be the reason why most meteorites look different from most asteroids.

The discrepancy between meteorites found on Earth and the composition of asteroids, as judged from their surface appearance, has been interpreted as a possible indication asteroid surfaces become altered over time -- a process called space weathering. It is thought that process makes asteroids gradually darker and redder.

The team was able to test that idea thanks to the close observation of the 1,800-foot-wide asteroid 25143 Itokawa by the Japanese Hayabusa spacecraft at the end of last year.

The researchers attribute the differences in appearance to varying amounts of very small particles of iron that are changed by space weathering since the meteorites were chipped off the asteroids long ago.

The research is described in the journal *Nature*.

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