

Why the Giant Planets?

Why were the giant planets made larger than the terrestrial planets?

- Their gravity allowed more gas to collect
- They are further out, so their cool atmospheres didn't boil off
- Their moons spew gases out which keep the planets there
- Their rings prevent the planet from disappearing
- Kepler's first law

Temperature Profiles

Jupiter's core has a pressure about 100 million times that of our atmosphere, and is over 20,000 C. What makes it *so* hot?

- Differentiation: rocks & metals falling to the core
- Fusion like the Sun: $\text{H} + \text{H} \rightarrow \text{He}$
- Heat from the Sun
- Impacts from asteroids & comets
- Its fast rotation rate (10 hours)