## Moons

*Ice and Ganymede*

**LOUISE PROCKTER:**

As you get to Jupiter and beyond, you get to something that scientists call the frost line, where bodies start to become much more icier than rocky. And so the moons of Jupiter and the moons further out tend to have more ice on their surfaces, and some of them have a lot of ice in their interiors. And so the mechanics of ice, looking at how things fracture on an icy world is very different from how it fractures on silicate bodies, on terrestrial moons. And so they're extremely fascinating from that point of view.

Ganymede is the largest moon in the Solar System. It's actually the third moon out from Jupiter. And its surface is almost caught halfway between the surface of Europa and the surface of Callisto. One is very young, and one is very old. And Ganymede has part of its surface that are very old and parts that appear very young. And no one really knows why it started to change and get this very young looking surface and then stopped, maybe three billion years ago. The reason Ganymede is so compelling is that it has its own magnetic field. We think it's generated possibly even by a liquid core inside the moon. And only two other bodies in the Solar System have that kind of magnetosphere. One is the Earth, and one is Mercury. So for an icy moon to have one is still a bit of a puzzle.