

NASA'S Cassini-Huygens spacecraft represents a unique face of science that is based on possibility, excitement and visual beguilement. Saturn's largest moon, Titan, is a phenomenon that represents these qualities. One aspect of Saturn that makes it such an interesting planet is its moons and there is no doubt that Titan is the most magnificent of them all. It is the only moon in the Solar System to have a beautiful, purple-blue haze that coats it like fluorescent paint, giving it a unique and mystical appearance. The other possible targets for the Cassini mission, however, have already been researched and the sense of possibility and excitement is not as powerful. It is for this reason that I believe that the Cassini mission should point its cameras at Titan to discover a new and awe-inspiring world.

Titan is a phenomenon that, surprisingly, shares many characteristics with Earth. It has a cloudy, mysterious atmosphere that is strikingly similar to the Earth's early atmosphere and this could lead to vital research about how the Earth evolved to be able to support complex life. Titan's atmosphere is also primarily made up of nitrogen, as is the Earth's. Although Titan's cloudy, mysterious atmosphere is fascinating, it has previously prevented spacecraft from penetrating its haze. For example, in 1994, NASA's Hubble Space Telescope recorded pictures of Titan that showed variations in gradient, implying that a huge, bright "continent" exists on the hemisphere facing forwards in its orbit. However, this evidence is very weak and does not prove that Titan has liquid "seas"; only that it has varying dark and light areas on its surface. With the new cloud-penetrating radar of the Cassini spacecraft, we could understand more about Titan's surface and discover the answers to many scientific and philosophical questions. These include topics about how the Earth has come to support complex life and the formation of the planets.

Surprisingly, it rains on Titan, due to the accumulation of smog chemicals, such as methane and ethane that precipitate a "gasoline-like" substance. A third of Titan's surface appears to reveal mountain ranges, dunes, lakes, rivers and volcanoes. Its rivers and lakes do not flow with water, but methane and ethane. Although Titan is in a state of deep freeze, its chemical composition is very similar to Earth's primordial state. The organic nature of many of these chemicals could indicate that it may be able to support a form of life in the future! This is one of the key reasons why Titan is, in many ways, a "mini" Earth, and although it differs in certain characteristics; perhaps it will evolve to become very similar to Earth as it is now. However, we cannot predict this unless we obtain further evidence to explain its mysterious state.

Overall, I believe that Titan is an enchanting phenomenon which, unlike the other possible targets including Saturn itself, Tethys and its rings, evokes a wonderful sense of the unknown, possibility and anticipation, which is precisely what astronomy is all about.

Mary Reader
Ardingly College