

## THE DAY THE EARTH SMILED

Three years ago, on July 19, 2013, humanity acquired its third-ever image of Earth from the outer solar system. NASA's Cassini spacecraft had been orbiting Saturn and weaving in and among its moons since 2004, but on that day, the spacecraft was aligned in such a way that Saturn eclipsed the sun as seen from its vantage point. With the sun's light blocked, space scientists captured the third-ever picture of Earth from the outer solar system, and Earth's moon, from hundreds of millions of miles away. The Cassini spacecraft imaging team – led by **Carolyn Porco** – later dubbed this image **The Day the Earth Smiled**.

The previous two images were the Pale Blue Orb by Cassini in 2006, and the Pale Blue Dot by Voyager in 1990

As Cassini slipped into Saturn's shadow that day, it was also able capture images of the planets Venus and Mars, Saturn's backlit rings, and several of Saturn's moons, all at once.

The occasion defined the first time that people had advance notice they would be photographed from another world. **NASA invited everyone on Earth to turn skyward and to wave as their image was taken from hundreds of millions of miles away.** As the day approached, Carolyn Porco, Cassini imaging team lead at the Space Science Institute in Boulder, Colorado, said people should:

*... look up, think about our cosmic place, think about our planet, how unusual it is, how lush and life-giving it is, think about your own existence, think about the magnitude of the accomplishment that this picture-taking session entails.*

Cassini was about 1.44 billion kilometres away from Earth at the time. That distance is nearly 10 times the distance from the Sun to Earth. Not since NASA's Voyager 1 spacecraft saw our home as a pale blue dot from beyond the orbit of Neptune has Earth been imaged in colour from the outer solar system.

The Pale Blue Dot is on the right side of that photo, about halfway down. The spacecraft's distance from Earth at the time was 6 billion kilometres. By then Voyager 1 had reached the edge of the solar system, 12 years after its launch and had completed its primary mission. At the request of astronomer **Carl Sagan**, the spacecraft was commanded by NASA to turn around, look back and photograph the planets of the solar system. The solar system mosaic was interesting, but this image – the image of our tiny world in space, surrounded by emptiness – was heart-rending. Carl Sagan later famously said:

*Look again at that dot. That's home. That's us.*

*On it everyone you love, everyone you know, everyone you ever heard of, every human*

*being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every superstar, every supreme leader, every saint and sinner in the history of our species lived there-on a mote of dust suspended in a sunbeam.*

AK, with EarthSky and Wikipedia Notes



Pale Blue Dot. The first image ever taken of Earth from the outer solar system – and the most distant image, still – was acquired by NASA's Voyager 1 spacecraft on February 14, 1990.

