

NASA's Juno Mission to Jupiter: What's Inside the Giant Planet?

Underneath its dense cloud cover, Jupiter safeguards secrets to the fundamental processes and conditions that governed our solar system during its formation. With its suite of science instruments, Juno investigates the existence of a solid planetary core, maps Jupiter's intense magnetic field, measures the amount of water and ammonia in the deep atmosphere. JUNO is also the first spacecraft to fly over Jupiter's aurora and measures both the energetic particles raining down on the planet and the bright "northern & southern lights" they excite. NASA's JUNO mission was launched in August 2011 and put into orbit over Jupiter's poles on 4th July 2016. As our primary example of a giant planet, Jupiter can also provide critical knowledge for understanding the planetary systems being discovered around other stars.

Fran Bagenal

Dr Fran Bagenal was born and grew up in England. She studied Physics and Geophysics at the University of Lancaster. In 1976, inspired by NASA's missions to Mars and the prospect of the Voyager mission, she moved to the US for graduate study at MIT. Her 1981 PhD thesis involved analysis of data from the Voyager Plasma Science experiment in Jupiter's giant magnetosphere. She spent 1982-1987 as a post-doctoral researcher in space physics at Imperial College, London. Voyager flybys of Uranus and Neptune brought her back to the US and she joined the faculty at the University of Colorado, Boulder in 1989. She is professor of Astrophysical and Planetary Sciences and Research Scientist at the Laboratory of Atmospheric and Space Physics.

In addition to the Voyager mission, Dr Bagenal has been on the science teams of the Galileo mission to Jupiter and the Deep Space 1 mission to Comet Borrelly. She edited *Jupiter: Planet, Satellites and Magnetosphere* (Cambridge University Press, 2004). She heads the plasma teams on the first two New Frontiers missions: the New Horizons mission that - after a 9.5-year flight - flew past Pluto on July 14, 2015 and Juno that went into orbit over the poles of Jupiter in 2016.

