

<p>Hubblecast Episode 22: Hubble directly observes planet orbiting Fomalhaut</p> <p>EMBARGOED UNTIL 20:30 (CET)/02:30 pm EST 13 Nov, 2008</p>	
<p>00:00 [Visual starts]</p> <p>00:00 [Narrator] The NASA/ESA Hubble Space Telescope has discovered an extrasolar planet, for the first time using direct visible-light imaging. The strange world is far-flung from its parent star, is surrounded by a colossal belt of gas and dust, and may even have rings more impressive than Saturn's.</p> <p>00:19 [Intro]</p> <p>00:35 [Woman]</p> <p>This is the Hubblecast!</p> <p>News and images from the NASA/ESA Hubble Space Telescope.</p> <p>Travelling through time and space with our host Doctor J, a.k.a. Dr. Joe Liske.</p> <p>00:47 [Dr. J] Hello, and welcome to another episode of the Hubblecast. Our favourite orbiting observatory has been busy helping astronomers to study extrasolar planets — those enigmatic worlds orbiting stars other than our Sun. And, what do you know, Hubble has done it again. It has delivered yet another stunning breakthrough when it turned its gaze on the star Fomalhaut.</p>	<p>Zoom into image of Fomalhaut</p> <p>Animated artist's impression of the planet, and gas / dust</p> <p>Introductory graphics</p> <p>EPISODE 22: Hubble Directly Observes Planet Orbiting Fomalhaut</p> <p>Dr. J in virtual studio, background Hubble Fomalhaut system images</p> <p>Name: Dr. J Episode: Hubble Directly Observes Planet Orbiting Fomalhaut Topic: Extrasolar Planets Vodcast No.: 2008/10</p>

<p>01:12 [Narrator] Fomalhaut is visible from the southern hemisphere, and is one of the brightest stars in our night sky. Lying around 25 light-years distant, it's also relatively close.</p> <p>Fomalhaut is much hotter than our Sun, and 15 times as bright. It's blazing through hydrogen at such a furious rate that it will burn out in only one billion years, 10% the lifespan of our star.</p> <p>But perhaps its most interesting feature is the large disk of gas that surrounds it, looking like a life belt. It's this ring which first sparked the attention of astronomers. It isn't centred on Fomalhaut quite as predicted, hinting that the gravity of another body — perhaps a planet — is pulling it out of shape.</p> <p>02:01 [Dr. J] And so Hubble was called upon to solve the mystery of the misshapen disk. And, lo and behold, the image produced by Hubble actually does show a planet. It orbits Fomalhaut at an enormous distance, about 10 times the distance between Saturn and the Sun.</p> <p>In honour of its parent star, astronomers have given this planet the <i>extremely</i> catchy and <i>very</i> imaginative name, Fomalhaut... b.</p> <p>02:29 [Narrator] Planets around other stars have been detected before, but usually indirectly by looking for clues, like the wobbling motion of a star as a planet orbits it, or a star getting dimmer as a planet passes in front of it.</p> <p>This time, Hubble has given us a rare direct image of an extrasolar planet, and what's more, the first in visible light — the type our eyes naturally see.</p> <p>02:55 [Dr. J] Amazingly, Hubble has managed to take a snapshot of this planet not just once, but twice, with almost two years in between. Being able to actually see the same dot of light moving around the central star is a very clear sign that this object really is in orbit, and that it's not just something that happens to lie along the line of sight. Now astronomers have calculated that it takes this planet about 872 Earth-years to complete one orbit.</p> <p>Now taking an image of an extrasolar planet is a very tricky business. Fomalhaut is one of the brightest stars in the night sky. By comparison, the planet is just a very tiny dot of light. Now being able to see that light was only made possible once most of the light from the star was blocked, using an instrument called a coronagraph.</p>	<p>Panning image of night sky, circling / labelling Fomalhaut</p> <p>Long zoom into image of Fomalhaut</p> <p>Hubble image of Fomalhaut ring</p> <p>Illustration of simple planetary system influencing the shape of a ring</p> <p>Dr. J in virtual studio</p> <p>Background Hubble image of Fomalhaut ring</p> <p>Zoomed image of Fomalhaut b</p> <p>Animation of planet transiting star</p> <p>Illustration of Fomalhaut system Hubble image, with Fomalhaut b highlighted</p> <p>Animated graphic of how the planet has moved over time</p> <p>Dr. J in virtual studio, background image of Fomalhaut</p> <p>Dr. J in virtual studio, alternative angle</p> <p>Star appears from left, Dr. J shields his eyes</p>
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<p>03:44 [Narrator] So Hubble managed to peer through the glare and view the planet directly. Then clues were gathered to paint a picture of this exotic world. The shape of the disk hints that the planet is at most three times the mass of Jupiter.</p> <p>And the observations show that Fomalhaut b is much brighter than expected for an object of its size. It could have an enormous ring system, much larger than Saturn's, reflecting starlight in all directions. One day the material in these rings may even coalesce to form moons.</p> <p>04:19 [Dr. J] Unfortunately, we won't be visiting this planet any time soon.</p> <p>Although it's actually pretty close to us in a cosmic sense, a spaceship would still take thousands of years to get there.</p> <p>So it's lucky that we've got Hubble to give us the next best thing — breathtaking images and incredible science.</p> <p>This is Dr. J, signing off for the Hubblecast. Once again, nature has surprised us beyond our wildest imagination.</p> <p>04:44 [Outro]</p> <p>05:01 END</p>	<p>Coronagraph appears, and blocks the star's light</p> <p>Zoom into Fomalhaut ring</p> <p>Animated artist's impression of the planet, and gas / dust</p> <p>CG extrasolar planet ring</p> <p>CG animation, flying over a moon</p> <p>Dr. J in virtual studio</p> <p>Background image of artist's impression</p> <p>Hubblecast is produced by ESA/Hubble at the European Southern Observatory in Germany.</p> <p>The Hubble mission is a project of international cooperation between NASA and the European Space Agency.</p> <p>Credits</p>
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