Heic0303 Video News Release, v.5

European astronomers observe first evaporating planet

[Earth animations, 0:00-0:15]
The Earth - the planet on which we live.
It orbits around our star, the Sun, at a safe distance of 150 million kilometres. But not all planets are so fortunate…

[Dramatic close-up, extrasolar planet orbiting star, 0:15-0:45]
In the latest issue of the magazine NATURE astronomers report the first observation of an evaporating extrasolar planet, its atmosphere boiling off into space. Much of the planet may eventually disappear, leaving only a dense core. This observation sheds new light on the fate of gas giant planets that spiral in close to their parent stars, drawn to them like moths to a flame.

[Hubble Space Telescope animations, 0:45-1:07]
A team of astronomers used the Earth-orbiting NASA/ESA Hubble Space Telescope to observe the planet as it crossed the face of its parent star. The observations were made in ultraviolet light. Hubble's position above the atmosphere makes it the only telescope that can perform this type of observations.

[Hubble Space Telescope observing sky, zoom on star, Extrasolar transiting star in 1999, 1:07-1:28]
The parent star, HD 209458 is similar to our Sun and lies 150 light-years from Earth in the constellation of Pegasus. In 1999 this star suddenly entered the astronomical "Hall of Fame" when the extrasolar planet was seen passing in front of the star and partly eclipsing it.

[Extrasolar planet orbiting parent star, overview and close-up 1:28-1:55]
The scorched planet orbits at a distance of only 7 million kilometres from its yellow Sun-like star. Its atmosphere is heated so much that hydrogen escapes the gravitational pull of the planet and fans out in a giant comet-like tail.

Although the planet is too close to the star for Hubble to photograph, it blocks light from a small part of the star during the transits, as in a partial eclipse, thereby dimming it slightly.

[Zooming on the 100 orbits of all known extrasolar planets showing the 'empty hole' near the star, 1:56-2:22]
This new discovery may help to explain why extrasolar planets seem to pile-up in orbits a few million kilometres from their parent stars, but are not found much closer than HD 209458b's distance of 7 million kilometres. The planets orbiting closer may simply evaporate away so quickly, that they are unlikely to be discovered.

Shotlist

TIMECODE	DESCRIPTION
	A-ROLL
10:00:40	Sunset over Earth
10:00:47	Earth rotating, Brazil covered in clouds
10:00:58	Dramatic close-up, extrasolar planet passing by in its deadly 7 million kilometre orbit over the hot parent star
10:01:11	Zooming on parent star, scorching hot gas streams up
10:01:22	Hubble Space Telescope (HST) animations
10:01:37	HST observes the constellation Pegasus, 2.5 degree field from the ground-based Digitized Sky Survey 2 zooms up, centred on parent star HD 209458.
10:01:50	Crossfade to animation of parent star, zooming in
10:01:58	Extrasolar transit from 1999
10:02:06	Planet orbiting star, comet-like gas tail
10:02:17	Following planet behind star
10:02:27	Planet + tail passing in front of star
10:02:35	Zooming on orbits of 100 known extrasolar planets, showing the central 7 million kilometre 'zone of avoidance'.
10:03:02	**END A-ROLL**
	B-ROLL
10:03:12	A-roll animations: • Dramatic extrasolar planet close-up • Zooming on parent star • HST observing, zoom on parent star HD 209458 • Crossfade to animation of parent star • Extrasolar transit from 1999 • Planet w. tail orbiting star • Following planet behind star • Planet + tail passing in front of star • Zooming on orbits of 100 known extrasolar planets
10:05:09	HST receives light from space, instruments and mirror inside of HST visible
10:05:31	HST transmits observations to the ground
10:05:51	Miscellaneous HST animations
10:08:41	Miscellaneous Earth animation
10:09:35	**END B-ROLL**