

<p>Hubblecast Episode 27: What has Hubble taught us about the planets?</p> <p>FOR IMMEDIATE RELEASE</p>	
<p>00:00 [Visual starts]</p> <p>00:00 [Narrator] Regarded by many as the most valuable astronomical tool, the Hubble Space Telescope is approaching its 19th anniversary in space. Hubble sees into the far reaches of the Universe but its powerful instruments have also surveyed our planetary neighbours. In this episode, we'll see what Hubble has revealed to us in our own solar backyard.</p> <p>00:20 [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, Dr. J. a.k.a. Dr. Joe Liske.</p> <p>00:49 [Dr. J] Hello and welcome to another episode of the Hubblecast.</p> <p>Even those who, for some strange reason, aren't astronomy enthusiasts are likely to recognise some of Hubble's most famous images, like the "Pillars of Creation" in the Eagle Nebula or the Hubble Deep, and Ultra Deep, Fields which have shown us some of the most distant galaxies ever observed. The Hubble Space Telescope has really fundamentally changed our understanding of the Universe at large, but with its high resolution images of planets and moons in our own Solar System, it has also taught us a lot about our own cosmic neighbourhood.</p> <p>01:22</p>	<p>Fly through animation of the Solar System</p> <p>The Eagle Nebula</p>  <p>Panning on the Hubble Ultra Deep Field</p> 

[Narrator]

Hubble cannot observe our Sun, or the closest planet, Mercury, because its instruments are light-sensitive and would be damaged. However, the telescope has examined every other planet in the solar system, including dwarf planets Pluto, Ceres and Eris. But, of course, Hubble does not just produce pretty pictures, it provides planetary scientists with vital information about our neighbours that may help us better understand our own home planet, Earth.

01:53

[Dr. J]

The innermost planet in our Solar System that Hubble has studied is Venus. In a sense Hubble has acted as some kind of interplanetary weather satellite to study Venus' climate. Now the observations have shown that the atmosphere of Venus is continuing to recover from an intense bout of sulphuric "acid rain," which was probably triggered by the suspected eruption of a volcano in the late 1970s.

02:17

[Narrator]

On Mars, the red planet, Hubble has been useful in tracking dust storms, a common Martian phenomenon that can envelop the entire planet. Since Mars is a hub of spacecraft activity including both orbiters and rovers – it is vital to monitor weather patterns there.

02:40

[Dr. J]

After the terrestrial planets come the gas giants, beginning with Jupiter – the largest planet in our Solar System. From spectacular light shows at the poles, to a comet's impact, Hubble has captured it all.

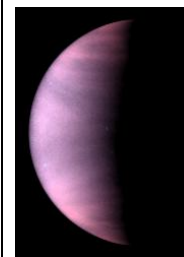
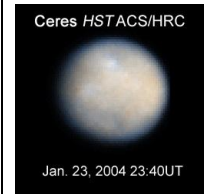
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[Narrator]

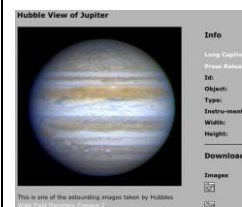
Have you ever seen Earth's magnificent Northern or Southern Lights? All of the planets are subjected to solar wind – charged particles ejected from the Sun's atmosphere. When this wind collides with particles within the planet's magnetic field, they give off light, creating the familiar polar

Animation of Sun's surface.

Images of Pluto, Ceres and Eris.



Zoom from Earth to Mars. Followed by animation of surface view



View of Earth's Northern lights.

Jupiter Aurora



phenomenon. Using Hubble, astronomers have been able to capture the same spectacle on Jupiter.

Hubble caught the evidence of comet Shoemaker-Levy's collision with Jupiter in the early 1990s. Seeing the aftermath of the impact with such detail offered a unique opportunity to witness the cosmic event without the danger of experiencing it on Earth.

03:35

[Dr.J]

Continuing its neighbourhood watch, Hubble has also taken some breathtaking images of that wonderous ringed planet, Saturn. Again, with its sharp eyes, it's been able to observe weather patterns on Saturn and see some of its moons.

03:50

[Narrator]

Saturn's ring system is the largest one known in the Solar System. Astronomers have long debated the origin of these rings. Hubble data have helped astronomers study the gas giant when the rings were at maximum tilt toward the Earth. Saturn experiences seasonal tilts away from and toward the Sun, much the same way Earth does.

04:15

[Dr.J]

Of Saturn's 60 known moons, Titan is probably the most intriguing, that's because it's so similar to the Earth during one of its early phases of evolution and because it's got an ice volcano.

04:25

[Narrator]

In 1995 scientists from Arizona captured the first images of the surface of Saturn's giant, haze-shrouded moon, Titan. Hubble's groundbreaking observations helped set the stage for NASA/ESA's Cassini mission which sent the Huygens probe to the surface of Titan, giving us up-close images of this icy world.

04:50

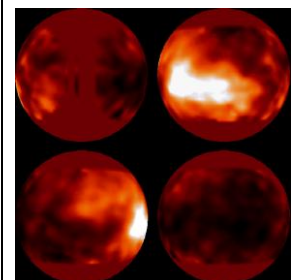
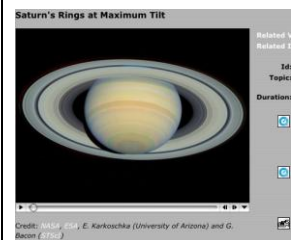
[Dr.J]

Saturn isn't the only planet with a ring system. In fact, all of the giant planets have one. Hubble has produced one of the first images that revealed the angle of the tilt of Uranus' rings.

05:00

[Narrator]

Hubble scientists were – for the first time with visible light – able to detect clouds and wind speeds in the northern

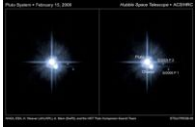


Animation of Titan's surface.

Animation of Uranus' rings

Northern Hemispheric Clouds On Uranus

Neptune images

<p>hemisphere of Uranus. And Hubble data from Neptune have shown the planet's powerful equatorial jet stream, immense storms, and dark spot in its northern hemisphere.</p> <p>05:20 [Dr.J] In a way our solar neighbourhood changed in 2006, when one of our planetary neighbours, Pluto, was downgraded from a planet to a dwarf planet. When it's closest to Earth, Pluto is still a whopping 4.28 billion kilometres away! To give you an idea of how far that is, NASA's New Horizon's spacecraft is currently on its way to Pluto and it should arrive there in just about 9 years.</p> <p>05:50 [Narrator] Using its Advanced Camera for Surveys, Hubble gave us the clearest view yet of the distant dwarf planet Pluto and its moon, Charon. In 2006, using the same camera, Hubble confirmed two additional dwarf planets: Ceres and Eris.</p> <p>06:11 [Dr.J] Well, it's good to know your neighbours! You never know, what happens to them could happen to us too!</p> <p>This is Dr. J signing off for the Hubblecast.</p> <p>Once again nature has surprised us beyond our wildest imagination ...</p> <p>06:24 [Outro]</p> <p>END 06:44</p>		<p>Animation of the surface of Pluto</p> <p>Hubble Confirms New Moons of Pluto opo0609a</p>  <p>Animation showing Ceres and Eris</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>