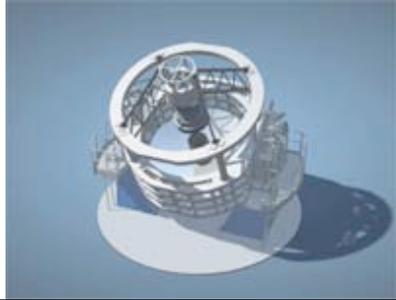


<p><b>ESOcast 12 – VISTA: A Pioneering new Survey Telescope Starts Work</b> EMBARGOED UNTIL 18 November 2009, 10:00 CET</p>	
<p><b>00:00</b> [Visuals start]</p> <p>[Narrator] 00:02</p> <p>1. A new telescope for mapping the sky is starting work at ESO's Paranal Observatory in Chile and has just released its first images. It's called VISTA, or the Visible and Infrared Survey Telescope for Astronomy, and it's the largest and most powerful infrared survey telescope ever built.</p>	
<p><b>00:25</b> [ESOcast intro]</p> <p>2. This is the ESOcast! Cutting-edge science and life behind the scenes of ESO, the European Southern Observatory. Exploring the universe's ultimate frontier with our host Dr J, aka Dr Joe Liske.</p>	
<p><b>00:42</b> [Dr J]</p> <p>3. Hello and welcome to another episode of the ESOcast. Now even for an observatory like ESO, it's a special occasion when a new telescope starts operations. VISTA is the first survey telescope at ESO's Paranal observatory and is dedicated to mapping the sky at infrared wavelengths. It will chart the southern sky to much greater depth and with much greater sharpness than has ever been done before.</p> <p>The first images have just been released and they clearly show that VISTA is working extremely well.</p>	

<p><b>01:15</b> <b>[Narrator]</b></p> <p>4. Interesting things found by VISTA will form targets for detailed study both by the neighbouring ESO telescopes — such as the four eight-metre VLT unit telescopes — and by other observatories on Earth and in space. VISTA will find the rare needles in the cosmic haystack and then the VLT can study these needles in great detail so astronomers can try to understand what they are and what’s going on in the Universe.</p>	
<p><b>01:43</b> <b>[Emerson]</b></p> <p>5. <i>“VISTA was conceived in the UK about ten years ago. A consortium got together to get it built and it has now become an ESO telescope as part of the UK’s contribution on joining ESO.”</i></p>	
<p><b>01:54</b> <b>[Dr J]</b></p> <p>6. VISTA has a main mirror that is 4.1 metres across, which makes it the largest telescope in the world that is entirely dedicated to surveying the sky. The mirror is also the most highly curved of its size and quality ever made, and its construction was a major challenge.</p> <p>The telescope is housed in a dome near ESO’s VLT on Cerro Paranal, which means that it shares the top-quality observing conditions of that site.</p>	
<p><b>02:21</b> <b>[Narrator]</b></p> <p>7. At the heart of VISTA is a 3-tonne camera containing 16 special detectors sensitive to infrared light with a combined total of 67 megapixels. This huge instrument provides the widest sky coverage of any astronomical near-infrared camera.</p>	
<p><b>02:39</b> <b>[Emerson]</b></p> <p>8. <i>“VISTA is a telescope with an infrared camera and this allows us to look at the sky in a way that we can’t see with an optical camera. Specifically, infrared cameras see preferentially cool objects, objects at a higher redshift, or indeed objects that are hidden behind dust clouds.”</i></p>	

**02:57**  
**[Narrator]**

9. VISTA is performing a total of six huge surveys over the next five years. Some focus on small patches of sky for long periods to detect extremely faint and distant objects, and others image the entire southern sky. The surveys study the distribution of galaxies and galaxy clusters, help unravel the mysterious nature of dark matter and dark energy, and look for rare objects — all the way from tiny but dangerous near-Earth asteroids out to the most remote quasars in the early Universe. Our own Milky Way galaxy and its neighbours, the Magellanic Clouds, also receive their own surveys.



**03:38**  
**[Dr J]**

10. VISTA generates several hundred gigabytes worth of data every night of observing. That's about as much as all of the VLT instruments put together! These data flow into ESO's archive system at its headquarters in Germany and they are then sent on to the UK for further processing.



The first images show the power of the telescope to image large areas of sky quickly and deeply.

**04:06**  
**[Narrator]**

11A. One of the first VISTA images released shows the Flame Nebula, a spectacular region of gas and dust where stars are being formed. VISTA's infrared eyes can see through the dust and reveal the cluster of hot young stars in the heart of the cloud. At the bottom of the wide VISTA field of view the ghostly form of the Horsehead nebula is faintly visible.



11B. VISTA has also created a dramatic view in the direction of the centre of our Milky Way galaxy. The wide field of view of the telescope and the highly sensitive infrared detectors of its camera allow over one million stars to be seen, many normally hidden behind dust.



11C. The Fornax cluster of galaxies is one of the nearest rich collections of galaxies. VISTA's large field allows many of the cluster's galaxies to be imaged at once — including the elegant classical barred spiral galaxy NGC 1365 at the lower right. This unique image shows several of VISTA's impressive capabilities.



<p><b>05:28</b> <b>[Emerson]</b></p> <p>12. <i>"VISTA's users will be not only the European astronomers who set up and specified these surveys in the first place, but, because they're public surveys, and the results will be available worldwide, astronomers over the whole world will be using them to extract exciting results. And, in many ways, history shows that the most exciting results that come out of things like this are often what you least expect – obviously I don't know what that is!"</i></p>	
<p><b>05:53</b> <b>[Outro – Dr J]</b></p> <p>13. VISTA will give astronomers an entirely new view of the southern sky and we're all eagerly awaiting results from this powerful new addition to ESO's observational toolkit.</p> <p>This is Dr J signing off for the ESOcast. Join us again next time for another cosmic adventure.</p>	
<p><b>06:10</b> <b>Outro</b></p>	<p>Text slate:</p> <p><i>ESO, the European Southern Observatory, is the pre-eminent intergovernmental science and technology organisation in astronomy designing, constructing and operating the world's most advanced ground-based telescopes.</i></p> <p>Thanks to Prof. Jim Emerson, QMUL, UK.</p>