



<p>ESOCast 30 – First Images from the VLT Survey Telescope EMBARGOED UNTIL 8 June 2011, 12:00 CEST</p>	
<p>00:00 [Visuals start]</p> <p>[Narrator]</p> <p>1. A new telescope for mapping the skies is about to start work at ESO's Paranal Observatory in Chile. The VLT Survey Telescope, or VST, with the 268 megapixel OmegaCAM camera at its heart, is the latest addition to the observatory. It is the largest telescope in the world designed to survey the sky in visible light.</p>	<p>Possibly dome opening sequence</p> <p>VST first images</p>
<p>00:35 [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 ultimate frontier with our host Dr J, a.k.a. Dr Joe Liske.</p>	
<p>00:51 [Dr J]</p> <p>3. Hello and welcome to the ESOCast. The new telescope is called the VLT Survey Telescope, or VST for short, and the special thing about it is that it has a very wide field of view— about twice as broad as the full Moon. It's dedicated to mapping the skies both very quickly and with very high image quality. The VST is housed in an enclosure right next to the VLT Unit Telescopes on the summit of Cerro Paranal under the pristine skies of one of the best observing sites on the planet.</p> <p>Now, over the next few years the VST and its huge camera OmegaCAM will be busy making some very detailed maps of the southern skies and in this episode you'll get to see the very first released images from this brand new telescope.</p>	<p>Dr J in studio</p> <p>On screen images:</p> <p>General VST footage</p> <p>VST timelapse.</p>

<p>01:41 [Narrator] 4. The VST is a visible light telescope that perfectly complements the VISTA infrared survey telescope. The unique combination of the VST and VISTA will allow many interesting objects to be identified that can then be studied in detail with the powerful telescopes of the VLT.</p>	<p>VST/VISTA images – and some IR/visible comparisons.</p>
<p>02:06 [Dr J] 5. The VST is a state-of-the-art 2.6-metre telescope equipped with an active optics system that keeps the two mirrors of the telescope perfectly aligned at all times in order to ensure the highest possible image quality. Now, at its core, behind huge lenses, lies the OmegaCAM camera which was built around no less than 32 CCD detectors which, together, create a whopping 268 megapixel image.</p> <p>Now, the camera also contains some extra CCDs that help with the telescope guiding and the active optics system, as well as some absolutely enormous colour filters. Both the telescope and the camera were designed to take full advantage of the excellent observing conditions on Paranal.</p> <p>The VST is a joint venture between INAF, the Italian National Institute for Astrophysics, and ESO. INAF, and in particular its Capodimonte Observatory in Naples, designed and built the telescope, while ESO was responsible for the civil engineering works at the site. OmegaCAM was built and designed by a consortium of astronomers working in the Netherlands, Germany, Italy, and at ESO.</p>	<p>Dr J in studio</p> <p>On screen images:</p> <p>OmegaCAM — the chips, the filters and general view.</p> <p>More timelapse?</p>
<p>03:21 [Narrator] 6. The VST will make three public surveys over the next five years.</p> <p>One survey, called KIDS, will image several regions of the sky away from the Milky Way. It will help astronomers understand more about dark matter, dark energy and galaxy evolution, and find many new galaxy clusters and high-redshift quasars.</p> <p>The VST ATLAS survey will cover a larger area of sky and will focus on determining the properties of dark energy. Like KIDS, it will also hunt for far-away galaxies and quasars.</p> <p>The third survey, VPHAS+, will image the central plane of the Milky Way to map the structure of the Galactic disc and its star-formation history. It will yield a catalogue of around 500 million objects and will discover many new examples of unusual stars at all stages of their evolution.</p>	<p>Pan across Brunier image with the surveys being drawn up</p> <p>Deep fields, Milky Way fields etc etc.</p>

<p>04:20 [Dr J] 7. The data volume produced by OmegaCAM is going to be pretty large with about 30 Terabytes of raw data produced every year. Now, these data are going to flow back into data centres in Europe for processing. The huge lists of objects found in the images, as well as the images themselves, will then be made public so astronomers all over the world can use the VST data to help them figure out the answers to a vast range of different astronomical questions</p>	<p>Dr J in studio</p> <p>On screen images</p> <p>Astronomers working at the telescope</p>
<p>04:52 [Narrator] The VST has just made its first release of images.</p> <p>The spectacular Omega Nebula, also known as Swan Nebula, is a region of gas, dust and hot young stars that lies in the heart of the Milky Way. The VST field of view is so large that the entire nebula, including its fainter outer parts, is captured — and retains its superb sharpness across the entire field.</p> <p>Omega Centauri is the largest globular cluster in the sky. But the VST, with its very wide field of view, has no problem in capturing the whole object in a single image, including its very faint outer regions. This image contains about 300 000 stars and it highlights the impressive sharpness of the VST's images.</p>	<p>Test images:</p> <p>I-A — Omega Nebula - pan</p> <p>I-B — Omega Centauri - pan</p>
<p>05:54 [Outro – Dr J]</p> <p>9. The combination of large field of view, excellent image quality, and the very efficient operations scheme of the VST will produce an enormous wealth of information that will advance a number of different fields of astrophysics. Many astronomers — including myself, actually — are really looking forward to the first results from the VST surveys.</p> <p>This is Dr J signing off for the ESOcast. Join me again next time for another cosmic adventure.</p>	<p>Dr. J in studio</p> <p>On screen images:</p> <p>VST sky images</p>
<p>06:20 Outro</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>Credits...</p>

