Key words: Survey Telescopes, VISTA, VST, Survey

ESOcast Episode 74: Mapping the Southern Skies	
00:00 **[Visuals start]** 1. Survey telescopes are designed to scan large areas of the sky quickly and deeply, looking for the rarest and most interesting astronomical objects. They use the latest technology on their scouting missions and produce huge amounts of data. ESO's two dedicated survey telescopes are at work every clear night, carefully mapping the southern skies piece by piece.	**00:00** **[Visuals start]** VST/VISTA footage/timelapses
00:32 **ESOcast intro** 2. This is the ESOcast! Cutting-edge science and life behind the scenes at ESO, the European Southern Observatory.	**00:00** ESOcast introduction
00:54 **[Narrator]** 3. VISTA and the VST — two powerful survey telescopes: VISTA, the Visible and Infrared Survey Telescope for Astronomy, and the VST, the VLT Survey Telescope.	VST/VISTA footage
01:12 **[Narrator]** 4. Both telescopes are located at ESO's Paranal Observatory in Chile and they are arguably the most powerful dedicated imaging survey telescopes in the world.	Paranal Observatory

01:27 **[Narrator]** 5. Survey telescopes look for needles in haystacks: rare astronomical objects, such as potentially dangerous near-Earth asteroids, hidden clusters, exploding stars and remote quasars. Unlike larger telescopes, which concentrate on tiny parts of the sky in extreme detail, VISTA and the VST study broad areas of the sky.	VST/VISTA footage VISTA field, zoom in/zoom out
02:00 **[Narrator]** 6. The resulting surveys produce huge archives of scientific data and pick up many interesting objects. These can then be studied in greater detail by much larger telescopes such as the neighbouring VLT.	Night sky with surveys
02:19 **[Narrator]** 7. VISTA has a main mirror 4.1 metres across, making it by far the largest telescope in the world dedicated to surveying the sky at near-infrared wavelengths. Moreover, it is equipped with a state-of-the-art 67-megapixel camera with the widest coverage of any astronomical near-infrared camera.	VISTA footage
02:46 **[Narrator]** 8. VISTA began operations in 2010 and it can observe the sky with a sensitivity that is 40 times greater than that achieved with earlier survey telescopes. By observing in infrared light, VISTA can study objects that may be impossible to see in visible light because they are cool, obscured by dust clouds or because their light has been stretched or redshifted away from the visible spectrum.	VISTA footage Crossfade videos showing hidden VISTA discoveries
03:23	

[Narrator] 9**.** The VST is a state-of-the-art 2.6-metre telescope equipped with a monster 268-megapixel CCD camera with a field of view four times the area of the full Moon. The VST surveys the visible-light night sky and complements VISTA's near-infrared sight.	VST footage/images of the telescope
03:51 **[Narrator]** 10. VISTA and the VST produce immense quantities of survey data and hugely increase the scientific discovery potential of the Paranal Observatory. The data is stored in vast archives of images and catalogues of objects that can be picked over by astronomers for decades to come.	Survey telescopes, astronomers at work
04:14 **[Narrator]** The survey telescopes will play a vital role in preparing the way for future facilities. Some of their discoveries will be targets for much more detailed study using the future European Extremely Large Telescope. ESO's survey telescopes will continue to map the sky in the finest detail. What they find will help to tackle some of the most exciting problems in astrophysics today — including the structure of the Milky Way and the nature of the mysterious dark matter and dark energy.	Survey telescopes E-ELT computer animation Survey Telescopes Celestial image
04:54 **[Outro]**	ESOcast is produced by ESO, the European Southern Observatory. *ESO builds and operates a suite of the world's most advanced ground-based astronomical telescopes.*