



<p><b>ESOCast Episode 16: A home for the E-ELT</b></p>	
<p><b>00:00</b> <b>[Visuals start]</b></p> <p><b>[Narrator]</b> 1. ESO has just announced the site for its next large project, the European Extremely Large Telescope. This announcement comes after more than five years of detailed studies of many different sites. Site selection experts make use of the most advanced technology and travel to remote, extreme places to find the ideal site for studying stars and galaxies. The right location is crucial when deciding where to put the best telescopes in the world.</p>	<p>Images: Armazones footage E-ELT</p>
<p><b>00:36</b> <b>ESOCast intro</b></p> <p>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, aka Dr Joe Liske.</p>	<p>ESOCast introduction</p>
<p><b>00:53</b> <b>[Dr J]</b> 2. Hello and welcome to the ESOCast. This week, ESO's governing body, the Council, has selected Cerro Armazones in Chile as the site for the world's future biggest eye on the sky, the new and revolutionary -metre European Extremely Large Telescope. But how do we find the locations for the best telescopes in the world? ESO has a long history in this field. It all began in the late 1950's, when ESO was scouting for sites around the world to find a location for its very first observatory. Eventually the choice was La Silla, on the edge of the Atacama Desert in Chile. Later, in the early 1980's, the hunt was on to find the perfect site for the Very Large Telescope. This became what was then the most elaborate search ever undertaken to find a location for an observatory.</p>	<p>Dr J in virtual studio Slate: Episode 16: A Home for the E-ELT</p> <p>Background images: Armazones E-ELT Historical site selection images Paranal aerial, "untouched" mountain</p>

<p><b>01:45</b>  <b>[Narrator]</b>  3. Top-notch observations require crystal-clear skies with extremely low humidity, so ESO again looked to Chile's remote Atacama Desert. ESO selected several candidate mountains and deployed a team to Mount Paranal in 1983 to begin detailed site testing.</p> <p>In the early days, Paranal was relatively inaccessible and the test equipment had to be carried up into the mountains on foot.</p> <p>In the barren Atacama Desert, the team kept detailed hourly logs of temperature, humidity, air pressure, and wind speed and direction. In addition, they measured the sharpness of stellar images.</p> <p>By better understanding the atmosphere, the scientists were able to choose the best site in order to get the best possible science from the telescope.</p>	<p>Atacama desert  Historical SD footage of Paranal site testing</p>
<p><b>02:38</b>  <b>Statement Marc Sarazin:</b>  4. <i>"During the early years of the survey we truly experienced the remoteness and isolation of the site. People observed in teams of two and fresh food and water were brought at two-week intervals, there was no contact with the outside world and we really felt like the most isolated human beings on the planet."</i></p>	<p>Marc Sarazin at Garching</p>
<p><b>02:57</b>  <b>[Dr J]</b>  5. Modern telescopes make use of advanced technologies such as adaptive optics and interferometry, and this requires a much better understanding of the atmosphere than what was needed before. After eight years of constant vigilance, the site survey on Paranal was finally completed. The team learned that Paranal offered clear skies for more than 300 nights per year, with little atmospheric turbulence or water vapour that could affect astronomical observations. A fantastic site for ESO's Very Large Telescope had finally been found! ESO's next optical and infrared telescope is the European Extremely Large Telescope, or the E-ELT, for short. Since the end of 2005, ESO and its user community have been working together to define this giant new telescope.</p>	<p>Dr J in virtual studio.  Background images:  Historical Paranal footage.</p> <p>E-ELT</p>
<p><b>03:46</b>  <b>[Narrator]</b>  6. The E-ELT will be a revolutionary and powerful telescope, which calls for a location with exceptional atmospheric conditions. Search teams must also consider many other issues. Where will the more than 150 staff live? Is water and electricity readily available? Can a flat surface equivalent to</p>	<p>E-ELT.</p>

<p>several football fields be found? Does it have the necessary infrastructure to allow for the transport of a thousand shipping containers?</p> <p>Over several years, the E-ELT site selection team, with the help of the community, has been investigating different sites in several countries, worldwide. After narrowing the field during the last couple of years, the site selection committee drew up a short list, comprising four sites in Chile's Region II, as well as El Roque de los Muchachos on La Palma in Spain.</p>	<p>Footage/still images of various sites</p>
<p><b>04:47</b> <b>[Dr J]</b></p> <p>7. As for the VLT, site testing for the E-ELT is a Herculean task it really demands the utmost dedication from all of the scientists and engineers involved. After work at high altitudes in bone-dry conditions, under the blazing daytime sun and in the darkness of night, in order to collect the data that is so vital for the success of the next generation of telescopes. Now since the time of the VLT site testing, there's been tremendous progress in remote sensing techniques, using satellites and automated equipment on site. This provides the scientists with an enormous amount of data and also significantly reduces the amount of time needed for fieldwork.</p>	<p>Dr J in virtual studio.</p> <p>Background images: Site testing footage Satellite images</p>
<p><b>05:28</b> <b>[Narrator]</b></p> <p>8. The technical report concludes that of all the sites shortlisted, Cerro Armazones, near Paranal, stands out as the clearly preferred site, because it has the best balance of sky quality across all aspects and it can be operated in an integrated fashion with the existing ESO Paranal Observatory.</p> <p>Armazones is an isolated peak, with an altitude slightly above 3000 metres. It is located roughly 20 km away from Cerro Paranal, home of the Very Large Telescope, and another exceptional site for astronomical observations.</p>	<p>Armazones footage...</p> <p>VLT at Paranal</p>
<p><b>06:06</b> <b>[Dr J]</b></p> <p>9. Finding the best site for an astronomical telescope is an exciting and demanding task. Thanks to the enduring efforts of all the staff involved, and with the help of the latest high tech equipment, a truly outstanding site has been found for the world's future biggest eye on the sky.</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 virtual studio. Background images: Armazones footage E-ELT</p>
<p><b>06:30</b> <b>[Outro]</b></p>	<p>ESOcast is produced by ESO, the European Southern Observatory.</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>
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