<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>00:00</td>
<td>[Visuals start]</td>
</tr>
<tr>
<td>00:19</td>
<td>[Dr J] Hello and welcome to this special episode of the ESOcast. Leading up to ESO's 50th anniversary in October 2012 we will showcase eight special features portraying ESO's first 50 years of exploring the southern sky.</td>
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<tr>
<td>00:46</td>
<td>[Narrator] 1. 167,000 years ago, a star exploded in a small galaxy orbiting the Milky Way.</td>
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<td>00:56</td>
<td>2. At the time of the distant explosion, <em>Homo sapiens</em> just started to roam the African savannah. But no one could have noticed the cosmic fireworks, as the blast of light had only just embarked on its long journey towards Earth.</td>
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<td>01:15</td>
<td>3. By the time light from the supernova had completed 98 percent of its journey, Greek philosophers had just started to think about the nature of the cosmos.</td>
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<td>01:27</td>
<td>4. Just before the light reached Earth, Galileo Galilei trained his first primitive telescopes on the heavens.</td>
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<td>01:38</td>
<td>5. And on 24 February 1987, when photons from the</td>
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explosion finally rained down on our planet, astronomers were ready to observe the supernova in great detail.

01:52

But by this time, ESO had built its first big telescopes in Chile, providing astronomers with a front-row seat to this cosmic spectacle.

02:11
8. The telescope is of course the central tool that allows us to unravel the secrets of the Universe.

02:19
9. Telescopes collect far more light than the unaided human eye, so they reveal fainter stars and let us peer deeper into space.

02:30
10. Like magnifying glasses, they also show finer detail.

02:36
11. And, when equipped with sensitive cameras and spectrographs, they provide us with a wealth of information about planets, stars and galaxies.

02:52
12. Dr J ESO’s first telescopes at La Silla were a mixed bunch.

02:56
13. Dr J They ranged from small national instruments to large astrographs and wide-field cameras.

03:13
14. Dr J The 2.2-metre telescope – now almost 30 years old – is still producing some of the most dramatic views of the cosmos.

[PAUSE]

04:01
15a. Dr J
At the highest point of Cerro La Silla lies the biggest achievement of ESO’s early years - the 3.6-metre telescope.

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<tbody>
<tr>
<td>04:09</td>
<td>Inside view of 3.6-m (Dr J not in view)</td>
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<tr>
<td>15b. Dr J</td>
<td>Aged 35, it now leads a second life as a planet hunter.</td>
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<td>04:16</td>
<td>Dr J’s face reflected upside down in dish of SEST; then zoom-out to reveal him standing in front of dish</td>
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<tr>
<td>16.</td>
<td>Dr J Also, Swedish astronomers built a shiny dish fifteen metres across to study microwaves from cool cosmic clouds.</td>
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<td>04:26</td>
<td>Pan across La Silla observatory; crossfade into night scene</td>
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<tr>
<td>17. Dr J</td>
<td>Together, these telescopes have helped to unveil the Universe in which we live.</td>
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<tr>
<td>04:45</td>
<td>Zoom out from Chile to reveal Earth as a planet</td>
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<tr>
<td>18.</td>
<td>Earth is just one of eight planets in the Solar System.</td>
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<td>04:55</td>
<td>Journey across the Solar System, with views of Mercury, Mars, Saturn and Jupiter; then focus on Sun</td>
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<tr>
<td>19.</td>
<td>From tiny Mercury to giant Jupiter, these rocky spheres and gaseous balls are the leftovers from the formation of the Sun.</td>
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<tr>
<td>05:09</td>
<td>Sun as a fiery sphere; quick zoom out, so it becomes just one of countless stars;</td>
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<td>20.</td>
<td>The Sun, in turn, is a middle-of-the-road star in the Milky Way galaxy.</td>
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<td>One pinprick of light amidst hundreds of billions of similar stars — as well as bloated red giants, imploded white dwarfs, and rapidly spinning neutron stars.</td>
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<td>05:30</td>
<td>Further zoom out. Spiral arms appear, with nebulae, star clusters</td>
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<td>21.</td>
<td>The spiral arms of the Milky Way are sprinkled with glowing nebulae, spawning bright clusters of newborn stars, while old globular clusters slowly swarm about the galaxy.</td>
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<td>05:47</td>
<td>Fly-out of Milky Way galaxy, revealing its structure; zoom out to reveal Deep Field-like view of Universe</td>
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<td>22.</td>
<td>And the Milky Way is just one of countless galaxies in a vast Universe, which has been expanding ever since the Big Bang, almost fourteen billion years ago.</td>
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| 06:05 | 23. Dr J  
Over the past fifty years, ESO has helped to uncover our place in the Universe. |
|-------|---------------------------------------------------------------|
| 06:10 | 24. Dr J  
And by looking up, we have also discovered our own origins. We are part of the big cosmic story. Without stars, we wouldn’t be here. |
| 06:24 | 25.  
The Universe started out with hydrogen and helium, the two lightest elements.  
But stars are nuclear ovens, turning light elements into heavier ones.  
And supernovae like 1987A seed the Universe with the products of this stellar alchemy. |
| 06:47 | 26.  
When the Solar System formed, some 4.6 billion years ago, it contained trace amounts of these heavier elements.  
Metals and silicates, but also carbon and oxygen. |
| 07:00 | 27. Dr J  
The carbon in our muscles, the iron in our blood, and the calcium in our bones, were all forged in an earlier generation of stars. |
| 07:10 | 27+28. Dr J  
You and I are literally made in heaven. |
| 07:14 | 29.  
But answers always lead to new questions. The more we learn, the deeper the mysteries become. |
| 07:23 | 30.  
What is the origin and ultimate fate of galaxies?  
Are there other solar systems out there, and could there be life on alien worlds?  
And what lurks in the dark heart of our Milky Way galaxy? |
| 08:00 | 31. Dr J  
Astronomers were clearly in need of more powerful |
telescopes.

And ESO provided them with revolutionary new tools.

08:16
Dr J
This is Dr J, signing off from this special episode of the ESOcast.

Join me again next time for another cosmic adventure.

08:25

[Outro]

09:28
End