



<p>ESOCast Episode 9: Celestial Tango Makes for a Gorgeous Nebula</p>	
<p>00:00 [Visual starts]</p> <p>[Narrator] 1. ESO has just released a stunning new image of a field of stars towards the constellation of Carina. This striking view is ablaze with a flurry of stars of all colours and brightness, some of which glow against a backdrop of gas and dust clouds.</p> <p>A complex nebula created by previous, violent ejections surrounds an unusual star in the middle of this field. Astronomers have discovered that this star has a companion. Interactions in this double star system, surrounded by a dusty disc, may be the engine fuelling the star's remarkable nebula.</p>	
<p>00:42 ESOCast intro</p> <p>This is the ESOCast! Cutting-edge science and life behind the scenes of ESO, the European Southern Observatory. Exploring the far reaches of the Universe with our host Dr. J, a.k.a. Dr. Joe Liske.</p>	<p>ESOCast intro</p>
<p>00:59 [Narrator]</p> <p>2. Hello and welcome to this episode of the ESOCast. My name is Gaittee Hussain. I'm standing in this time for Dr. J, who is on vacation Today we will explore a new, beautiful ESO image that shows a rich field of stars centred on a star called HD 87643. A study using a new set of observations has provided astronomers with the best ever views of this exotic type of star.</p>	<p>Slate: HOST: Gaittee Hussain EPISODE 9: Celestial Tango Makes for a Gorgeous Nebula</p>
<p>01:25 [Narrator]</p> <p>3. The image, taken in the direction of the constellation of Carina, shows a dense starscape towards the Carina arm of the Milky Way Galaxy.</p> <p>As we come closer, we see the star HD 87643, a so-called B[e] star at a distance of 4,900 light-years.</p>	<p>Zooming sequence</p>

<p>The image beautifully shows the extended nebula of gas and dust that reflects the light from the star. The central star's wind appears to have shaped the nebula, leaving bright, ragged tendrils of gas and dust. A careful investigation of these features seems to indicate that there are regular ejections of matter from the star every 15 to 50 years.</p>	
<p>02:06 [Narrator]</p> <p>4. The comprehensive new study uses three different instruments in ESO's arsenal of telescopes. First, for the big overview, astronomers turned to the Wide Field Imager on the Max Planck Gesellschaft-slash(/)-ESO 2.2-metre telescope at the 2400-metre-high La Silla Observatory in Chile.</p>	<p>MPG/ESO 2.2-metre telescope</p>
<p>02:26 [Narrator]</p> <p>5. Secondly, the team used ESO's Very Large Telescope, or the VLT, at Paranal. Here, the NACO adaptive optics instrument allowed astronomers to obtain an image of the star free from the blurring effects of the atmosphere.</p> <p>To probe the object even further, the team then obtained an image with the Very Large Telescope Interferometer, or the VLTI for short.</p>	<p>VLT</p> <p>Adaptive optics</p> <p>VLTI</p>
<p>02:52 [Narrator]</p> <p>6. The sheer range of this set of observations, from the panoramic Wide Field Imager shot to the fine details of the VLTI observations, corresponds to a zoom-in factor of 60 000 between the two extremes. With this data, the astronomers found out that HD 87643 has a companion star located at about 50 times the Earth–Sun distance, and is embedded in a compact dust shell. The two stars probably orbit each other in a period between 20 and 50 years.</p>	<p>NACO image last part of the zoom, then pan</p>
<p>03:26 [Narrator]</p> <p>7. The presence of this companion could provide an explanation for the regular ejection of matter from HD 87643 that forms its amazing nebula. As the companion star moves in a highly elliptical, or oval-shaped, orbit, it regularly comes very close to HD 87643, and triggers an ejection of stellar material. This celestial tango may be what generates the gorgeous nebula</p>	<p>Pan on WFI image</p>

<p>03:53 [Narrator]</p> <p>8. Once again, science has helped us explore and explain the beauty of the Universe. This is Gaiete Hussain signing off for the ESOcast. Join us again next time for another cosmic adventure.</p>	<p>VLT</p>
<p>04:08 [Outro]</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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