

c/o ST-ECF
 ESO, Karl-Schwarzschild-Str.2
 D-85748 Garching bei München,
 Germany
 Telephone: +49 (0)89 3200 6306
 Cellular : +49 (0)173 38 72 621
 Telefax: +49 (0)89 3200 6480
 hubble@eso.org

www.spacetelescope.org

<p>Video Podcast Episode 1: The Comet Galaxy</p> <p>FOR IMMEDIATE RELEASE 15:00 (CET)/9:00 AM EST 2 March, 2007</p>	
<p>00:00 [Visual starts]</p> <p>00:02 [Narrator] <i>Do not start a VNR with an enigma. A video is not a newspaper where you can scan forward and backward but a linear medium. Go straight to the point, and link the main result with everyday facts, saying that you will explain details in the following.</i></p> <p>3.2 billion light-years from Earth a group of astronomers has captured a snap shot of a galaxy transforming itself from the baby state into a mature object. It's very much like taking a film of an adolescence lasting a few hundred million years!</p> <p>00:10</p> <p>00:20 [Woman] This is the Hubblecast!</p> <p>News and Images from the NASA/ESA Hubble Space Telescope.</p> <p>Travelling through time and space with our host Doctor J a.k.a. Dr. Joe Liske.</p> <p>00:36 [Dr. J] <i>Not too many facts at a time ...</i> There are (how many) galaxies of different shapes and sizes in the Universe. Roughly half are of elliptical shape, and the other half are spiral. Elliptical-shaped galaxies have little new star formation activity, whereas the spiral and irregular galaxies have a high star formation activity. Observations have shown that the gas-poor elliptical galaxies are most often found near the centre of crowded clusters of similar galaxies, whereas the gas-rich spirals spend most of their lifetime in solitude.</p>	<p>Galaxy disruption</p> <p>Image explosion</p> <p>Hubblecast Logo + web site</p> <p>Presented by ESA and NASA</p> <p>TITLE Slide: Episode 1: The Comet Galaxy</p> <p>Virtual studio. Dr J on camera</p> <p>Nametag</p> <p>Nearby galaxies (many ellipticals)</p> <p>HUDF pictures, 2D (many spirals)</p>

<p>Spiral galaxies, where many new stars are born, are younger than elliptical ones, as deep observations of the Universe have shown. when the Universe was half its present age of 15 billion years, only one in ten galaxies was a elliptical. So, how did all of today's elliptical galaxies get their shape from? And what happens when a galaxy turns from spiral into elliptical, from a unrestly young to a quite mature state? Apparently some kind of transforming process must have taken place, but because galaxy evolution takes billions of years, scientists have, so far, been unable to see the transformation process in action.</p> <p>01:41 [Narrator - VO]</p> <p>New observations with Hubble by an international team led by Luca Cortese of Cardiff University, United Kingdom, provide one of the best visualisations to date of this metamorphosis.</p> <p>01:55 [Dr. Cortese – in a MySpace browser]</p> <p><i>"While looking at the galaxy cluster Abell 2667, astronomers found an odd-looking spiral galaxy that ploughs through a galaxy cluster at a speed of more thsn 3.5 million km/h, to which it was accelerated by the cluster's huge gravitational field."</i></p> <p>02:08 [Narrator - VO]</p> <p>Abell 2667's enormous gravitational field is generated by the combined contribution of the cluster's dark matter, hot gas and hundreds of galaxies.</p> <p>02:20 [Dr. J]</p> <p>As the galaxy plunges through the cluster its gas and stars are stripped away by the hot gas plasma in the cluster reaching temperatures between 10 and 100 million degrees – a thousand times hotter than the surface of the Sun.</p> <p>02:38 <i>Do not extend to secondary effects: understanding one is difficult enough</i></p> <p>02:47 [Narrator - VO]</p> <p>The aptly named "ram pressure stripping" resembles that affecting comets in our Solar System. For this reason, scientists have nicknamed this peculiar spiral with its tail the "Comet Galaxy".</p> <p>03:04 [Dr. Kneib – in a MySpace browser]</p> <p><i>"This unique galaxy has an extended stream of bright blue knots and diffuse wisps of young stars driven away by the tidal forces and the pressure of the hot gas in the cluster."</i></p> <p>03:32 [Narrator – VO]</p>		<p>ZOOM</p> <p>Pans on HST image (cluster)</p> <p>CHANDRA IMAGE IN RED, X-FADE TO HST IMAGE</p> <p>TIDAL ani</p> <p>COMET ani</p> <p>KNEIB on camera</p> <p>Pan</p> <p>DESTRUCTION ANI INTO THE FUTURE</p>
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<p>Furthermore millions of now homeless stars have been snatched away from their mother galaxy, which will lead the it to age prematurely.</p> <p>Even though its mass is slightly larger than that of the Milky Way, the spiral will inevitably lose all its gas and dust, and hence its chance of generating new stars later, so it will probably become a gas-poor galaxy left with an old population of red stars.</p> <p>03:57 [Dr. J] However, in the midst of all this destruction, the cluster's strong tidal forces have triggered a baby-boom of star formation.</p> <p>04:05 [Narrator – VO] Hubble's sharp eyes have caught other spectacular effects of Abell 2667's immense mass. The giant bluish arc seen just off-centre is the magnified and distorted image of a distant background galaxy seen through the gravitational lens formed by the tremendous mass concentration of the cluster.</p> <p>04:24 At the cluster's centre another rare feature can be seen: the vivid blue light from millions of stars created in a so-called cooling flow. Some of the hot cluster gas is cooling in a filamentary structure as it falls into the cluster's core, setting off the birth of lots of bright blue stars outshining their environment. This may be the clearest picture of this phenomenon yet.</p> <p>04:50 [Dr. J] By combining the visible, infrared and x-ray views from Hubble, Spitzer, Chandra, VLT and Keck, we see that the discovery adds new brush-strokes to a painting where galaxies are being slowly sculpted by the violent interactions with the cluster environment. Although there are still discoveries to come, the emerging elements are shedding some light on this painting's mysterious nature and revealing some of its hidden wonders.</p> <p>05:23 This is Dr. J signing off for the Hubblecast.</p> <p>Once again nature has surprised us beyond our wildest imagination ...</p> <p>05:31 [Outro] Hubblecast is produced by ESA/Hubble e at the European Southern Observatory in Germany. The Hubble mission is a project of international cooperation between NASA and the European Space Agency.</p> <p>05:49 END</p>		<p>Virtual studio. Dr J on camera</p> <p>ZOOM ON GIANT ARC</p> <p>ZOOM ON COOLING FLOW</p> <p>Virtual studio. Dr J on camera</p> <p>Combination of images from various telescopes</p> <p>PAN</p> <p>Virtual studio. Dr J on camera</p>
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