

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 13: Gargantuan galaxy NGC 1132 – A “cosmic fossil”</p> <p>EMBARGOED UNTIL 15:00 (CET)/09:00 AM EST 05 February, 2008</p>		
<p>00:00 [Visual starts]</p> <p>[Narrator] 00:02 The NASA/ESA Hubble Space Telescope has captured a new image of the galaxy NGC 1132 which is most likely to be a “cosmic fossil” – the aftermath of an enormous multi-galactic pile-up, where the carnage of collision after collision has built up a brilliant but fuzzy giant elliptical galaxy far outshining typical galaxies.</p> <p>00:42 [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>00:53 [Dr. J] Welcome to the Hubblecast. In this episode we will take a closer look on the latest image from Hubble Space Telescope. It shows the giant elliptical galaxy NGC 1132. Now you may ask: “what is so special about this fuzzy, seemingly bland object?”</p> <p>Well, the interesting thing about it is not so much what it looks like today, but rather what happened in its past. Let’s try to trace its history by taking a very close look at its present features.</p>		<p>Close on NGC1132</p> <p>Image explosion</p> <p>Hubblecast Logo + web site</p> <p>Presented by ESA and NASA</p> <p>TITLE Slide: Episode 13: Gargantuan galaxy NGC 1132 – A “cosmic fossil”</p> <p>Nametag</p> <p>Virtual studio: Dr J on camera</p> <p>Graphics of NGC1132 behind Dr J</p>

01:25

[Narrator]

NGC 1132 is located about 320 million light-years away from Earth, in the constellation of Eridanus, the River.

At first glance NGC 1132 looks like any other ordinary elliptical galaxy – it is smooth, featureless and contains hundreds of millions of stars whose yellowish colour is a telltale sign of their great age. But closer up, we see that NGC 1132 is rather special. It is humongous! Many times larger than the average elliptical galaxy. It belongs to a category of galaxies called giant ellipticals.

Seen in visible light, NGC 1132 appears as a single, almost isolated, giant galaxy. But this is only the tip of the iceberg. Scientists have found that NGC 1132 resides in an enormous halo of dark matter, comparable to the amount usually found in an entire group of tens to hundreds of galaxies.

It also has a strong X-ray glow from an abundance of hot gas – an amount normally only found in galaxy groups. In fact its X-ray glow extends over a region of space ten times larger than the 120,000 light-years radius seen in visible light. This is a glow equal in size to that of an entire group of galaxies.

02:49

[Dr. J]

So there's enough dark matter and hot gas for an entire group of galaxies and yet we see only a single, although gargantuan galaxy. Well, actually, not quite. If we look closely at the image, we can see that NGC 1132 is associated with a whole bunch of small dwarf galaxies – which look a little bit as a huge wads of cotton - but there are definitely no medium-sized galaxies.

So what's going on? The most likely explanation is that NGC 1132 is the result of galactic cannibalism. It is probably a so-called "fossil group". In other words what we are looking at here, are the remains of an entire group of galaxies that have all merged together into a single galaxy at some point in its past.

If we examine the image closely we can also see that NGC 1132 is surrounded by thousands of ancient globular clusters, swarming around the galaxy like bees around the hive. These globular clusters are most likely survivors of the disruption of their parent galaxies that have been swallowed by NGC 1132. And because of that, they can tell us a lot about the merging history of the whole group.

There is a stunning tapestry of numerous galaxies that are much further away and have nothing to do with the fossil group in the foreground.

Zoom on Eridanus and NGC 1132.

Ending with deep bass.

Chandra-Hubble composite image.

Virtual studio: Dr J on camera

Various pans on NGC 1132 running on screens.

Close-up on dwarf galaxies

Close-up on globular clusters

Close-up on background galaxies

<p>04:15 [Narrator] The formation of “fossil groups” remains a puzzle that astronomers are still trying to solve. The most likely explanation is that it they are the end-product of a cosmic feeding frenzy in which a large galaxy devours all its neighbours. An alternative but less favoured view is that they may be very rare objects that formed in a region of space or period of time where the growth of medium-sized galaxies was somehow suppressed, and only one large galaxy formed.</p> <p>04:45 [Dr. J] Many galaxies, including our own Milky Way, reside in groups that are gravitationally bound together. There is plenty of evidence that the Milky Way is also a cannibal and has snacked on numerous smaller galaxies throughout its lifetime, inheriting their stars in the process.</p> <p>What will happen to the Milky Way and its neighbours over the next few billions of years? Well, this is precisely one of the questions that astronomers are trying to answer when they study the structure and the evolution of other galaxies such as NGC 1132. By analysing their properties, it is possible to trace back the history and to better understand what will happen in our own neighbourhood in the future.</p> <p>This is Dr. J signing off for the Hubblecast.</p> <p>Once again nature has surprised us beyond our wildest imagination ...</p> <p>05:36 [Outro] Hubblecast is produced by ESA/Hubble at ESO in Germany. The Hubble mission is a project of international cooperation between NASA and the European Space Agency.</p> <p>05:53 END</p>	<p>Simulation of a merging event</p> <p>Virtual studio: Dr J on camera</p>
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