

Hubblecast Episode 48: Deep Observations of the Andromeda Galaxy	
00:00 [Narrator] You're looking at the night sky in another galaxy. Hubble's observations of Messier 31, the Andromeda Galaxy, show unprecedented detail. Most of the stars in this image are outside the Milky Way and lie over two million light-years away. It's one of the deepest, most detailed images ever made of a galaxy outside our own.	
00:25	
00:53 [Dr J] Hello and welcome to another episode of the Hubblecast. Now, astronomers have observed millions and millions of galaxies across the night sky, but only a tiny fraction of them, only a few tens, are actually close enough to us that we can distinguish the individual stars that they are made of. And that's what makes this small group of galaxies kind of special for us astronomers.	
01:16 [Narrator] The Andromeda Galaxy is one of this group. It is nearer to Earth than any other spiral galaxy, which means that we have a particularly good view of it. In fact, the Andromeda Galaxy is the one of the largest objects in the night sky – several times bigger than the full Moon, although of course it's much fainter. The relative proximity of the galaxy and the unparalleled quality of Hubble's images, thanks to its position above the atmosphere, combine to give astronomers a unique view right into another galaxy.	

<p>01:56 [Dr J] Far from being a dense, opaque object, Hubble's observations of the Andromeda Galaxy remind us that one of the dominant features of a galaxy is actually the huge distances <i>between</i> its stars.</p> <p>And in these huge gaps we can see right through the Andromeda Galaxy to the far more distant galaxies in the background.</p>		
<p>02:22 [Narrator] This observation was made in the Andromeda Galaxy's halo, the huge and sparse sphere of stars and invisible dark matter that surrounds the galaxy.</p> <p>Although Hubble is able to spot many thousands of stars here, this part of the galaxy is in fact very sparsely populated and so many background galaxies are visible.</p>		
<p>02:45 [Dr J] This giant stellar stream, is noticeably denser than the rest of the halo. This swathe of stars was left behind by a dwarf galaxy that was swallowed by Andromeda.</p>		
<p>03:14 [Dr J] But the most crowded of these observations is in the galaxy's disc — that's the part that includes the distinctive spiral arms, as well as the dimmer and less numerous stars in the gaps between them.</p>		
<p>03:30 [Narrator] Busy as these images look, we're only in the outskirts of the Andromeda galaxy here. That's because these observations were made in order to study a particular type of variable star that is common in the outer reaches of galaxies.</p>		
<p>03:47 [Dr J] To the naked eye, the Andromeda Galaxy just is just a huge, grey, faint patch in the sky.</p> <p>But the Hubble's observations reveal an entirely different perspective, where the ethereal shape of the galaxy is resolved into individual stars.</p> <p>This is Dr J signing off for the Hubblecast. Once again, nature has surprised us beyond our wildest imagination.</p>		
		<p>Hubblecast is produced by ESA/Hubble at the European Southern Observatory in Germany.</p> <p>The Hubble mission is a project of international cooperation between NASA and the European Space Agency.</p>

Ends 05:04