

The Dusty Disc of NGC 247

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This image of NGC 247, taken by the Wide Field Imager on the MPG/ESO 2.2-metre telescope at ESO’s La Silla Observatory in Chile, reveals the fine details of this highly inclined spiral galaxy and its rich backdrop. Astronomers say this highly tilted orientation, when viewed from Earth, explains why the distance to this prominent galaxy was previously overestimated.

The spiral galaxy NGC 247 is one of the closest spiral galaxies of the southern sky. In this new view from the Wide Field Imager on the MPG/ESO 2.2-metre telescope in Chile large numbers of the galaxy’s component stars are clearly resolved and many glowing pink clouds of hydrogen, marking regions of active star formation, can be made out in the loose and ragged spiral arms.

NGC 247 is part of the Sculptor Group, a collection of galaxies associated with the Sculptor Galaxy (NGC 253, also shown in [eso0902\(/public/news/eso0902/\)](#) and [eso1025\(/public/news/eso1025/\)](#)). This is the nearest group of galaxies to our Local Group, which includes the Milky Way, but putting a precise value on such celestial distances is inherently difficult.

To measure the distance from the Earth to a nearby galaxy, astronomers have to rely on a type of variable star called a Cepheid to act as a distance marker. Cepheids are very luminous stars, whose brightness varies at regular intervals. The time taken for the star to brighten and fade can be plugged into a simple mathematical relation that gives its intrinsic brightness. When compared with the measured brightness this gives the distance. However, this method isn’t foolproof, as astronomers think this period–luminosity relationship depends on the composition of the Cepheid.

Another problem arises from the fact that some of the light from a Cepheid may be absorbed by dust en route to Earth, making it appear fainter, and therefore further away than it really is. This is a particular problem for NGC 247 with its highly inclined orientation, as the line of sight to the Cepheids passes through the galaxy’s dusty disc.

However, a team of astronomers is currently looking into the factors that influence these celestial distance markers in a study called the Araucaria Project [1]. The team has already reported that NGC 247 is more than a million light-years closer to the Milky Way than was previously thought, bringing its distance down to just over 11 million light-years.

Apart from the main galaxy itself, this view also reveals numerous galaxies shining far beyond NGC 247. In the upper right of the picture three prominent spirals form a line and still further out, far behind them, many more galaxies can be seen, some shining right through the disc of NGC 247.

This colour image was created from a large number of monochrome exposures taken through blue, yellow/green and red filters taken over many years. In addition exposures through a filter that isolates the glow from hydrogen gas have also been included and coloured red. The total exposure times per filter were 20 hours, 19 hours, 25 minutes and 35 minutes, respectively.

Notes

[1] The Araucaria Project is a collaboration between astronomers from institutions in Chile, the United States and Europe. ESO’s Very Large Telescope provided data for the project.

More information

ESO, the European Southern Observatory, is the foremost intergovernmental astronomy organisation in Europe and the world’s most productive astronomical observatory. It is supported by 15 countries: Austria, Belgium, Brazil, the Czech Republic, Denmark, France, Finland, Germany, Italy, the Netherlands, Portugal, Spain, Sweden, Switzerland and the United Kingdom. ESO carries out an ambitious programme focused on the design, construction and operation of powerful ground-based observing facilities enabling astronomers to make important scientific discoveries. ESO also plays a leading role in promoting and organising cooperation in astronomical research. ESO operates three unique world-class observing sites in Chile: La Silla, Paranal and Chajnantor. At Paranal, ESO operates the Very Large Telescope, the world’s most advanced visible-light astronomical observatory and VISTA, the world’s largest survey telescope. ESO is the European partner of a revolutionary astronomical telescope ALMA, the largest astronomical project in existence. ESO is currently planning a 42-metre European Extremely Large optical/near-infrared Telescope, the E-ELT, which will become “the world’s biggest eye on the sky”.

Links

- Araucaria Project(<https://sites.google.com/site/araucariaproject/>)
- Research paper(<http://adsabs.harvard.edu/abs/2009ApJ...700.1141G>)

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About the Release

Release No.:	eso1107
Name:	NGC 247(https://simbad.u-strasbg.fr/simbad/sim-id?Ident=NGC+247)
Type:	Local Universe : Galaxy : Type : Spiral
Facility:	MPG/ESO 2.2-metre telescope(http://www.eso.org/public/teles-instr/lasilla/mpg22/)
Instruments:	WFI(http://www.eso.org/public/teles-instr/lasilla/mpg22/wfi/)
Science data:	2009ApJ...700.1141G(https://telbib.eso.org/detail.php?bibcode=2009ApJ...700.1141G)

Images



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PR Image eso1107a(/public/images/eso1107a/)
Wide Field Imager view of the spiral galaxy NGC 247