Super-detailed image of giant stellar nursery

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An international team of astronomers have collaborated to create the most detailed image ever produced of the Rosette Nebula (NGC 2237), a giant stellar nursery.

The new image was assembled using data from INT Photometric H-Alpha Survey of the Northern Galactic Plane (IPHAS) and covers four square degrees of sky, equivalent in size to about twenty times the size of the full moon. Robert Greimel from the University of Graz, Austria, will present results from the survey in a talk on Wednesday 18 April at the Royal Astronomical Society National Astronomy Meeting in Preston.

The Rosette nebula is a vast cloud of dust and gas spanning 100 light years and lying about 4500 light-years away, in the direction of the constellation of Monoceros. Inside the nebula lies a cluster of bright, massive, young stars (NGC 2244), whose strong stellar winds and radiation have cleared a hole in the nebula's centre. Ultraviolet light from these hot stars excites the surrounding nebula, causing it to glow.

Star formation is still active around the nebula, as proven by the presence of a very young infrared star (AFGL 961) still in its final stages of formation. It is thought that the young massive stars in the nebula will one day blow all the gas and dust away. The centre of the Rosette Nebula is about 1.8 degrees below the Galactic Plane, the glow from which can be seen at the top left (northeastern) corner of this image.

Due to the large size of the nebula on the sky, most large telescopes are unable to capture the entire nebula in one exposure and therefore the

highest resolution images have been limited to small areas of the nebula. The IPHAS team is in the process of imaging the entire plane of our Galaxy and members of the survey team were able to combine almost 200 individual images to make this large and detailed H-alpha image.

Nick Wright from University College, London, commented, “"The superb quality of this image reflects the high quality and large amounts of data produced by the IPHAS survey. Using images like this one, many members of our collaboration are working hard to make important discoveries about the structure and content of our Galaxy."

Even more detailed images of the central parts of the Rosette Nebula have also been prepared by the IPHAS team, including one of dense dust lanes in the nebula where star formation may still be ongoing.

IPHAS is a survey of the entire Northern Galactic Plane at three different wavelengths, using the Wide Field Camera on the 2.5m Isaac Newton Telescope sited on La Palma in the Canary Islands. When complete, it will cover an area of 1800 square degrees. The survey is now almost finished and the first release of the catalogue is expected by June 2007. IPHAS will soon be followed by VPHAS+, a complementary Southern Galactic Plane survey using the ESO 2.5m VLT Survey Telescope (VST) in Chile.

Source: Royal Astronomical Society