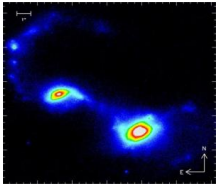


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By: Lucian Dorneanu, Science Editor



The Ultra Luminous Merger IRAS 06035-7102 was formed as two spiral galaxies swung past each other on their first close encounter, throwing off huge streamers of gas and stars. Image courtesy of European Southern Observatory

[Laser Guide Star System Provides Assistance for Telescopes](#)

ESO's Very Large Telescope and new ways of getting sharper images

No telescope can form a perfect image. Even if a reflecting telescope could have a perfect mirror, or a refracting telescope could have a perfect lens, the effects of aperture diffraction could still not be escaped. The blurring effect from the atmosphere is among the most important distortions that affect telescopes. ESO's Very Large Telescope (VLT) is one of the world's most advanced large ground-based telescopes which has overcome this problem by using an artificial, laser-fed star, part of an adaptive optics technique designed to counteract the blurring effect of Earth's atmosphere. The laser system creates an artificial star, where and when astronomers need it, providing assistance for the adaptive optics instruments on the VLT and thus allowing the observers to get sharper images, that compensate for the blurring effect of the atmosphere, regardless of the brightness and the location on the sky of the observed target. "These unique results underline the advantage of using a Laser Guide Star with Adaptive Optics instruments, since they could not be obtained with Natural Guide Stars," says Norbert Hubin, head of the Adaptive Optics group at ESO. "This is also a crucial milestone towards the multi-laser systems ESO is designing for the VLT and the future E-ELT". Called the Laser Guide Star System, it has recently become operational and has already delivered the first scientific results, thus giving the astronomers access to various new targets that were previously inaccessible. "To test the laser guide star adaptive optics system to its limits, and even beyond, we observed a number of galaxies, ranging from a close neighbour to one that is seen when the universe was very young," explains Markus Kasper, the NACO Instrument Scientist at ESO. Among the first images of deep space obtained with the new laser system are those portraying interacting galaxies, captured with extreme details and a resolution comparable to that of the Hubble Space Telescope, not affected by the atmospheric blur effect.