



## THE ORION NEBULA

This beautiful three-colour infrared image of the Orion Nebula and Trapezium Cluster was obtained on December 20-21, 1999, with the ISAAC near-infrared camera/spectrometer at the Nasmyth focus of the 8.2-m VLT telescope at the ESO Paranal Observatory.

Orion the Hunter is perhaps the best known constellation in the sky. It contains one of the nearest and most active stellar nurseries in the Milky Way, where tens of thousands of new stars have formed within just the past ten million years or so.

Just below Orion's belt, the hilt of his sword holds a great jewel, the Orion Nebula. Within the space of just a few light-years, there are about one thousand very young stars, only a million years old, the so-called Trapezium Cluster. It is very

hard to observe in visible light due to the bright nebula, the obscuring effects of dust, and the intrinsic redness of the young stars. At near-infrared wavelengths however, these problems are mostly eliminated, allowing us a clear view.

In addition to stars and brown dwarfs in the cluster, powerful explosions and winds from the most massive stars are evident, as well as the contours of gas sculpted by these stars, and more finely focused jets of gas flowing from the smaller stars.

Images like these and the follow-up studies will help to solve some of the fascinating and perplexing questions about the birth and early lives of stars and their planetary systems.

### Technical information

The image is a nine-position mosaic (3 x 3 grid) of ISAAC pointings. At each pointing, three images were taken through each of the J<sub>1</sub> (1.24 microns), H (1.65 microns), and K<sub>1</sub> (2.16 microns) filters, with a total exposure time of 270 seconds in each filter. The seeing was between 0.25 and 0.50 arcsec during the observations. In total, 81 individual ISAAC images were merged to form the mosaic. The final field of view spans approximately 7 x 7 arcmin, covering roughly 3 x 3 light-years (0.9 x 0.9 pc) at the distance of the nebula (about 1500 light-years, or 450 pc). North is at the top and East to the left. The data were obtained by Mark McCaughrean of the Astrophysikalisches Institut Potsdam and collaborators as part of a detailed study of the young stars in the region.

More information about ESO can be found at URL: <http://www.eso.org>