

## Comet Halley Wide Field CCD Camera

Thanks to the generous support by the former director general of ESO, Prof. L. Woltjer, it was possible in late 1985 to erect a wide-field camera at La Silla, with the intent of imaging Comet Halley. The camera used an RCA 640 by 1024 pixel CCD chip, the largest one available at that time. The imaging was done using short focal length lenses, mostly of 100 mm, corresponding to a pixel size of 31 arcseconds and a field of about 5.5 by 9 degrees. In front of the lens was an optical filter, which selected the photometric band-pass. About 2000 images were obtained, many through narrow-band filters. A large sub-set has been composed into a video-film which shows the dramatic development of the Comet's ion-tail during the weeks following perihelion passage.

During periods when the Comet was not observable, the system was used for experimental imaging of other objects, e.g. the LMC and the Coma Cluster. In the latter field, we noted the big diameters of elliptical galaxies, about twice as large as they can be measured on photographic Schmidt exposures. Other extended, low surface-brightness objects were detected in Hydrogen alpha.

The last set of images was taken during the period of the  $\eta$  Aquarid meteor shower (which incidentally is associated with Comet Halley). The pictures show many streaks from meteors associated with that shower. Also this application of a wide-field CCD camera was novel. The operation of the camera ended in May 1986, when demand rose for the detector's installation at the (much) larger telescope, for which it had originally been acquired.

The operation of the Comet Halley camera gave a foretaste of what can be achieved with a permanent set-up. The high sensitivity and immediate computability of the images are perhaps the most striking advantages, but also the constancy of performance is very important. With the CCD, and contrary to the photographic process, there is no problem of uniformity of response, from exposure to exposure. Also, some of the distinction between Sky Surveys and Sky Patrols will disappear, since any exposure can be added to previous ones of the same field. Hence, what starts as a Sky Patrol of rather poor detection limit, may end as a very deep Sky Survey. In the process, anything which varies in magnitude, or moves, will be detected; numerous discoveries are certain to be made.

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