

## **A Wide-Angle H $\alpha$ Image of the LMC**

John E. Gaustad

*Department of Physics and Astronomy, Swarthmore College,  
Swarthmore, PA 19081, USA*

Wayne Rosing

*Las Cumbres Obs., 18716 Favre Ridge Road, Los Gatos, CA 95033, USA*

Peter R. McCullough

*Astronomy Department, University of Illinois, Urbana, IL 61801, USA*

Dave Van Buren

*IPAC, California Institute of Technology, Pasadena, CA 91125, USA*

### **1. The Survey**

We are conducting a wide-angle H $\alpha$  survey of the southern sky at CTIO using a robotic CCD camera. The survey consists of 283 fields covering the sky from  $\delta = -90^\circ$  to  $\delta = +10^\circ$ , with the same centers as those in the IRAS Sky Survey Atlas. As of July 1, 1998, it was about 45% complete. When all the images are obtained and fully processed, the survey will be made available to the scientific community on the web and on CD-ROM.

### **2. The Robotic Camera**

Our CCD camera, from SpectraSource, Inc., contains a 1024 $\times$ 1024 TI chip with 12- $\mu$ m pixels. The sky is imaged onto the chip with a 50-mm f.l. Canon lens operated at f/1.6, yielding a field of view of 12.6 $^\circ$  $\times$ 12.6 $^\circ$  and a scale of 45'' pixel $^{-1}$ . A filter wheel mounted in front of the lens contains an H $\alpha$  filter of 3-nm bandwidth and a dual-band notch filter which excludes H $\alpha$  but transmits two 6-nm bands of continuum radiation on either side of H $\alpha$ . The camera sits in a 10-ft dome (from Technical Innovations, Inc.) on a concrete pad near the 1-m telescope building. Because of its small size compared to the other telescopes at CTIO, our instrument has earned the nickname of El Enano (The Dwarf).

We can inquire of the status of the robot via email, and make changes in the program or observing schedule via ftp. But we do not operate the camera in real time—it is a true robot. The robot has its own weather station and will not attempt observations if humidity or wind conditions exceed safe limits, but as an extra precaution it also asks permission (via email) of the 4-m telescope operator before opening the dome. The operator can also close the dome via email command. The only other human intervention, during normal operations, is for weekly tape-changing and preventive maintenance.

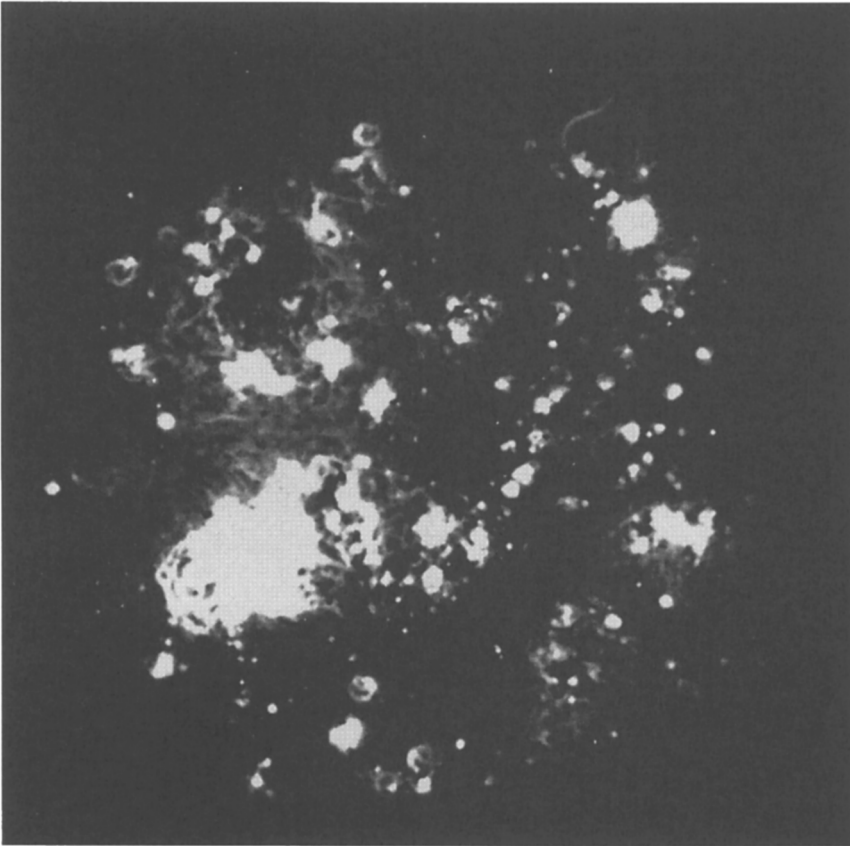


Figure 1. An  $H\alpha$  image of the LMC.

### 3. An Image of the LMC

An  $H\alpha$  image of the LMC is shown in Figure 1. It was made by combining ten 20-minute exposures taken through the  $H\alpha$  filter (total exposure time 200 minutes) and then subtracting twelve 5-minute exposures taken through the dual-band continuum filter. The size of the field is about  $10^\circ \times 10^\circ$ .

Copies of this and other images of the LMC in FITS-format can be obtained via anonymous ftp from the site [puck.swarthmore.edu](http://puck.swarthmore.edu) in the directory `/pub/LMCImages`.

Further information about the survey, including the current stage of completion, is available at [www.astronomy.swarthmore.edu](http://www.astronomy.swarthmore.edu) or by writing the project director at [jgaustal@swarthmore.edu](mailto:jgaustal@swarthmore.edu)

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