IMAGES TO ORDER

Using a big research telescope in Hawaii is a dream for most amateur sky watchers. That dream recently came true for two Canadian amateur astronomy groups. On May 15 their stunning images were unveiled during a special ceremony at the Canadian Astronomical Society annual meeting held at the Université de Montréal (Montréal, QC) from May 15 to 17.

The two images both show stars in early stages of their life. The 8-m diameter Gemini North telescope was used to image RY Tau, a star emerging from its stellar cocoon (Figure 1), at the request of the Club d'astronomie de Dorval, Quebec. The Big Sky Astronomical Society of Vulcan, Alberta requested an image of the Pleiades (figure 2), to be taken with the 3.6-m diameter Canada-France-Hawaii Telescope.

The groups won the opportunity to request these images after a Canada-wide contest. The contest, which began in 2004, solicited proposals from more than a hundred amateur astronomy clubs throughout Canada as a way to thank them for the work they do to support and excite the public about astronomy. The winning proposals were selected by a process similar to that used by professional astronomers, where selection criteria include scientific merit and an assessment of the uniqueness of the observation.

Gilbert St-Onge is a member of the Quebec group that requested the image of RY Tau. "Our group knew that this object was unique and hadn't been observed in detail with a big telescope like Gemini," he says. "I feel like we've not only made a pretty picture, but probably provided some new and valuable data for the pros!"

Gemini Astronomer Tracy Beck, who studies these stellar incubators, agrees. "This object is a classic, and one of the first-known examples of the remains of a stellar nursery," she said. "I believe this is by far the deepest and most detailed image ever taken of this object and scientists will no doubt use this data for important research in the future." The Gemini image was taken with a camera known as GMOS (Gemini Multi-Object Spectrograph), which was partially built in Canada.

The image of the Pleiades requested by the Alberta group will also have its uses. "I firmly believe that a beautiful image of the Pleiades will inspire many students across the country to develop a life-long interest in the science of astronomy," James Durbano wrote in his winning proposal. "It could even influence a young mind somewhere in our great country to pursue astronomy as a career."

The selection committee agreed, and also said that such an image has never been taken at high resolution by such a large telescope before. They also felt the group's request was an excellent use of MegaCam, the new giant camera on CFHT. This camera can capture in one pose a surface of more than one square degree, which is four times the surface on the sky covered by the Sun or the full Moon. The Pleiades star cluster covers a relatively large area on the sky, and other modern telescopes would not be able to photograph the entire thing.

The contest to request the images was organized by a team of scientists who coordinate Gemini observations for Canada (through the Canadian Gemini Office) at the National Research Council of Canada's Herzberg Institute of Astrophysics in Victoria (BC). The contest will probably be run again in the future.

The two winning proposals can be viewed at: `www.hia-iha.nrc-cnrc.gc.ca/cgo/contest_e.html`. In addition, the CFHT image of the Pleiades and the Gemini image of RY Taurus can be downloaded at: `www.gemini.edu/pr2005-4/images`.

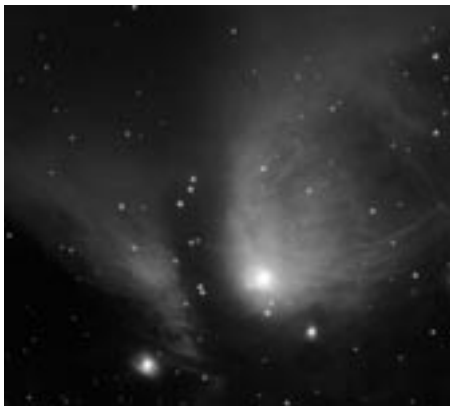

Figure 1 – Image of stellar nursery RY Taurus obtained by the Gemini Multi-Object Spectrograph as part of a Canadian contest for amateur astronomers. The image reveals tremendous detail in the wispy remains of the gas cloud that formed the bright star at bottom/centre. This system is approximately 140 parsecs (450 light years) away, and spans about 2/3 of a light year across. The central object is a variable star that ranges in visual magnitude from about 9 to 11 with an irregular period.

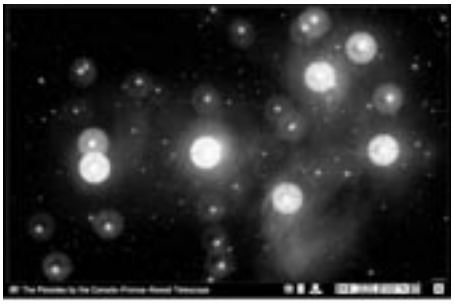

Figure 2 – The Pleiades (M45) taken with the new MegaCam on the 3.6-m diameter Canada-France-Hawaii Telescope.