

**FOR RELEASE 10:00a.m. MDT, June 5 2002**

## ASTRONOMERS RECORD FIRST FAR-ULTRAVIOLET IMAGE OF BETELGEUSE

Astronomers are announcing today that they have recorded the first far-ultraviolet (FUV) image of the star Betelgeuse. The report is being presented by Dr. J. Gethyn Timothy of the Catholic University of America, Washington, D.C. and Nightsen, Inc, Warwick, RI, Dr. Elliott P. Horch of the Center for Imaging Science, Rochester Institute of Technology, and Dr. Jeffrey A. Valenti of the Space Telescope Science Institute, Baltimore, MD.

The result is significant as this is the first FUV image of any star other than the Sun, and shows an atmosphere significantly more extended than previously observed.

Betelgeuse is the bright red supergiant star, about 400 light years from Earth, marking one of the horns of the vivid constellation of Orion (the Hunter), clearly visible in the winter sky in the Northern Hemisphere (see photo (a)). The FUV image, recorded with the Space Telescope Imaging Spectrograph (STIS) on the *Hubble* Space Telescope (HST), reveals an atmosphere that is more than a factor of three larger than the diameter of Betelgeuse observed at visible wavelengths (see photo (b)).

The size and structure of the atmosphere observed at FUV wavelengths is also significantly larger and more structured than that observed to date at near ultraviolet (NUV) and radio wavelengths. If Betelgeuse were located at the center of the Sun its atmosphere would extend beyond the orbit of Saturn, as shown in the false color image (c). As large as the atmosphere of Betelgeuse appears to be, recording this image pressed the capabilities of HST and STIS to the limit. The angular resolution obtained was equivalent to observing a dime at a distance of 60 miles.

The presence of two very large and bright "hot spots" in the FUV image and the apparently different structures observed at FUV, NUV, visible, and radio wavelengths clearly shows that we still have much to learn about the physics of stellar atmospheres. We can expect significant new information as telescopes with higher resolution than HST become available in the next decade.

This work was supported in part by NASA.

For more information contact Dr. Gethyn Timothy at 401-952-7671 or by e-mail at [nightsen@earthlink.net](mailto:nightsen@earthlink.net).

Photo captions:

- a. The location of Betelgeuse in the constellation of Orion.
- b. The false color far-ultraviolet image of the atmosphere of Betelgeuse. The white circle shows the size of Betelgeuse as observed in visible light.
- c. The false color far-ultraviolet image of the atmosphere of Betelgeuse overlaid on a diagram of our Solar system.

These images can be obtained over the Internet via the website <http://www.cis.rit.edu/people/faculty/horch/aori/index.html>.