ABSTRACTS

22.02 First Results of Imaging of Supergiant Envelopes with the Differential Speckle Interferometer. J. E. Beckers, M. DC (1992), and P. Burnette, H. D. Weig, H. F. Murphy, and P. Burnette, H. D.

We use simultaneous speckle images obtained through a narrow band filter (0.45 Å bandwidth) in the Hα line and in the nearby continuum to construct images of the Hα corona around α Ori and other supergiants using a technique called "speckle holography." Observations were made with the University of Arizona 2.3 meter telescope which does not resolve the continuum image but which does resolve the images of the Hα envelope. Images of the Hα corona with 0.1 arc second angular resolution will be presented as seen at different wavelengths in the Hα line and in different directions of linear polarization. On the basis of these, information will be derived on the structure, doppler shifts, and magnetic fields in the α Ori corona.

22.10 Castle Frederick Observatory: One of the Earliest, Optically-Equipped Observatories in North America. R. L. Bishop, Aminia U. In 1765 an observatory was erected in Nova Scotia at Castle Frederick, J.P.W. DesBarres' estate near Windsor. Although ostensibly an adjunct to DesBarres' survey of the coasts of Nova Scotia, its longevity (eight years), location (not in the survey area), and equipment (equal to some of the best at the Royal Greenwich Observatory and criticized by the British Admiralty for its cost) distinguish it from the several temporary observatories or surveying stations used for land and coastal surveys in that century. A small painting, attributed to DesBarres, shows what is his observatory. If so, it is the oldest, optically-equipped observatory or surveying station in the Western Hemisphere for which a picture survives.

Session 22: Stellar Atmospheres 0930-1700 (Stanbro Hall)

(Display Presentation)

22.01 Radio Observations of the Inner and Outer Regions of Red Supergiant Winds. R.M. Nyland and R.T. Hewett, National Radio Astronomy Observatory, Socorro, NM - VLA radio observations of α Ori (Betelgeuse) and α Sco (Antares) at 1.4, 4.89, 15, and 22 GHz show radio spectra of 0.24 \(\nu, \text{GHz}^{-1} \) and 0.47 \(\nu, \text{GHz}^{-1} \) mJy, respectively. These spectra are produced by optically thick, thermal radio emission from layers ranging from 1 to 4 stellar radii as \(\nu\) changes from 90 to 1.4 GHz.

The α Sco system has a second radio source in the form of a roughly 5° nebulosity surrounding the B2.5V star 2.9° west of the M1.5ab star (Antares). The map of the 4.89 GHz emission from α Sco is shown below, with the point source on the left corresponding to the position of Antares and the location of the companion B star indicated by a large X. The 1.4 and 4.89 GHz maps are consistent with an optically thin radio source produced by the B2.5V star ionizing part of the outer structures of the stellar wind from Antares. However, the expected emission at 15 GHz was not found, indicating that it is not entirely an HII region, or that atmospheric effects seriously deteriorated these data.

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