

CR-199872

FINAL REPORT  
NASA CONTRACT NAS5-32616  
P.I. - R. DEMPSEY

8/6/

"RS CVn Binaries - Testing the Solar-Stellar Dynamo Connection"

All the data were obtained for this project by May 30, 1995. These data included EUVE spectra of Sigma2 CrB, II Peg and VY Ari. As planned, the spectra were fully processed and calibrated. Supporting observations from IUE have also been fully analyzed. We have been quite pleased with the results. In the original proposal we hoped to obtain a good "mean" spectrum of each program star in order to determine global atmospheric properties. However, we were fortunate to observe several flares on one of the systems. This has provided an excellent opportunity to probe, in unprecedented detail, the structure of flaring plasmas. Furthermore, this system was observed to undergo numerous flares observed by other satellites (IUE and ROSAT) during the same observing season. Since the system has been well studied over many years this data has provided vital, unique new information on the variability of RS CVn systems. In short the results have allowed us to meet or exceeded all of the intended goals.

Dr. Jeffrey Linsky (Joint Institute for Laboratory Astrophysics, Colorado) and Dr. Alex Brown of (Center for Astrophysics and Space Astronomy, Colorado) have completed the data modeling and interpretation. Preliminary results were presented at the 9th Cambridge Workshop of Cool Stars, Stellar Systems, and the Sun held in Florence, Italy in October of 1995. Dr. Brown is responsible for writing the final journal publication, which has already been started. He has made other arrangements for the funding of this publication. We anticipate submitting these results for publication in the Astrophysical Journal sometime in the next few months.

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13. ABSTRACT (Maximum 200 words)  We have used the Extreme Ultraviolet Explorer satellite to study the coronal emission from the EUV-bright RS CVn binaries Sigma2 CrB, observed 1994 Feb 10-21, and II Peg, observed 1993 Oct 1-5. We present time-resolved and integrated EUV short-, medium-, and long-wavelength spectra for these binaries. Sigma2 CrB shows significant first-order emission features in the long-wavelength region. The coronal emission distributions and electron densities are estimated for these active coronae dominated by high temperature plasma.				
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