

COORDINATED IUE AND GROUND-BASED OBSERVATIONS OF
STELLAR FLARES: YZ CMi, PROXIMA CEN AND AD LEO¹

B.H. Foing², M. Rodono³, G. Cutispoto³, S. Catalano³, J.L. Linsky⁴,
D.M. Gibson⁴, A. Brown⁴, B.M. Haisch⁵, C.J. Butler⁶, P.B. Byrne⁶,
A.D. Andrews⁶, J.G. Doyle⁶, D.E. Gary⁷, G.W. Henry⁸, G. Russo⁹,
A. Vittone⁹, and F. Scaltriti¹⁰

ABSTRACT . Coordinated observations of stellar flares were obtained with IUE and several ground-based facilities in March 1984. The simultaneous observations allowed it to cover a wide range of wavelengths from 115nm to 6cm. We intend to study the effect of the observed flares at different atmospheric heights in order to estimate the energy budget, the time scales and the cooling processes. Our observations include time-resolved IUE spectroscopy at SWP (115-195nm) and LWP (190-320nm), optical spectroscopy at the ESO 3.6m+IDS (355-440nm), high resolution spectroscopy at the ESO 1.4m CAT+CES (653-659nm), narrow band H alpha and wide band optical photometry, infrared photometry at 2.2 microns and microwave observations at 2, 6 and 20 cm. We present for some flare events, among the results, the first detection of infrared flux decrease -or "negative flare"- in coincidence with the flux increase at the other wavelengths; the broadening and changes of the Balmer H lines, He and high excitation lines; the appearance of higher members of the Balmer series; the enhancements of Mg II doublet and Fe II blend (260nm); and the flare detection at 2cm and 6cm .

1. Based on observations partly obtained at the European Southern Observatory, La Silla Chile, and with the International Ultraviolet Explorer.
2. European Southern Observatory ESO, La Silla, Casilla 19001 Santiago 19, Chile.
3. Catania, Italy.
4. JILA Boulder, CO, USA.
5. Lockheed Palo Alto, CA, USA.
6. Armagh Observatory, Ireland U.K.
7. Pasadena, CA, USA.
8. McDonald Observatory, TX, USA.
9. Napoli, Italy.
10. Torino, Italy.