

HIGH RESOLUTION OBSERVATIONS OF CHROMOSPHERIC LINES IN LATE-TYPE DWARFS¹

B.H. Foing², J. Beckman³, L. Crivellari⁴, D. Galleguillos

ABSTRACT. We obtained at the Coudé Echelle Spectrometer (CES) attached to the 1.4m CAT telescope of the European Southern Observatory ,high resolution ($R=100000$),high signal to noise ($S/N=30-200$) spectra of the Ca II H and K,H alpha and Ca II infrared triplet lines on a sample of southern late-type dwarfs also observed with IUE for the Mg II h and k lines .These profiles are compared for progressive spectral types from F8V to K5V,and for pairs of active-low active stars of the same type , and we show the variety of the core emissions and asymmetries.

The differential emission in the cores of these lines is discussed in terms of chromospheric heating and of coverage of these stars with active regions.The spectral characteristics of the activity signature are compared with observations and modelling of the profiles for solar "plages" and active components.Some activity indicators obtained from the Ca infrared triplet and H alpha lines are plotted versus the spectral type,showing a lower envelope in the activity corresponding to the quiescent stars,and the range of variation of the activity at a given spectral type. These high resolution profiles are used as a constraint on multi-component models of the stellar chromospheres,which are being developed to estimate the temperature structure,the radiative losses and the heating processes in these late-type dwarfs.

1. Based on observations 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. Queen Mary College, England.
4. Trieste Observatory, Italy.
5. Universidad de La Serena, Chile.