respond fast enough to such a short-term change in the ionizing source, or that the BALR is not photoionized by the continuum source.

Suggestions to which conclusions are correct come from the more recent observations. After 1989, we begun an intensive monitoring program of UM 232, the broadband and spectral measurements light curve is shown on the second page of figure 13-1. The flare is shown with a star and an upward arrow. A correlation between small changes in the BALs and the continuum source is evident. Since there is no possible cause of systematic errors which would cause a correlation in time between the spectral and broadband observations (different telescopes, detectors, and reduction and analysis techniques), unless this result is coincidental, we must conclude that at least some component of the continuum level is strongly correlated with the mechanism causing these small BAL changes. Assuming, that photoionization changes are the cause, we conclude that the ionization parameter is beyond $U_p(\mathrm{N}^{+4})$, since decreases in all three of the measured BALs occurred during increases in the continuum level.

Using our simple optically thin CLOUDY calculations we estimate that $U \gtrsim -1.3$ (see figure 3–4). If this is case, it is remarkable that an Al III BAL was detectable (at least in the earlier data, see BJB). The fractional abundance of Al^{+2} is a factor of $\sim$30 smaller than the fractional abundance of C^{+3} at $U_p(\mathrm{N}^{+4})$. From figure 3–4, the column density of C^{+3} was 30 times greater than Al^{+3} (see BJB). This implies that the aluminum to carbon ratio is enhanced relative to solar by a factor of $\sim$140. Of course, the C^{+3} column density may be greatly under-estimated if scattered light is filling in the troughs and the C IV BAL is optically thick. However, the variations in the C IV BAL imply that the trough is only "optically moderate". The same method applied to Si^{+3}, yields a silicon to carbon ratio enhanced by a factor of $\sim$8 relative to solar.

We caution the reader that these results are very model dependent– a different input ionizing spectrum to CLOUDY may change the fractional abundance curves significantly. However, we also note that we have only estimated only a *lower limit* on U, and higher values of U will tend to increase the aluminum-carbon ratio.