

spectra from 1988 with those taken in 1977 and 1978, we noticed decreases in the Si IV, CIV, and Al III BAL troughs. The 1988 spectral observations were coincident with an increase in the continuum level of  $\sim 0.8$  magnitudes, which is unusually high for optically selected QSOs (see chapter 8 and references therein). Unfortunately, this was prior to our own intensive broadband monitoring program,<sup>†</sup> and the spectrophotometry flux calibration was only accurate to  $\sim 0.05$  magnitudes. However, collecting old images of the UM 232 field from other sources (D. Turnshek and V. Junkkarinen, private communications), we determined that the flux increase was an isolated event.

The conclusion reached in BJB that the BAL changes were responding in a simple manner to an increase in the ionizing flux which was proportional to the observed continuum, was rejected several months later when the QSO became fainter once again but the BALs were still weak. A thirteen year history of this object is shown on the first page of figure 13-1. The BAL decrease from 1979 to late 1988 is evident, as well as the isolated flare in late 1988. In the Si IV time curve, two question-mark symbols are crude estimates of the Si IV REWs taken from survey spectra published in the literature. (The 1983 point is from Hartig and Baldwin 1986, and the 1987 point is from Foltz *et al.* 1989.) Since it appears that the BALs may have already been weak prior to the 1988 flare, this flare could not have been directly responsible for the BAL changes. Two major problems remain: (1) There is no strong change in continuum level from 1979 to 1988, so what caused the BAL changes? (2) Why did the flare not induce some short term BAL variations?

The answer to (1) may be that either that the ionizing source is not correlated with the observed continuum, or that the BALR is undergoing dynamical changes. The lack of velocity variations and the consistency of the BAL changes with photoionization changes (see BJB) favors the former. The answer to (2) could be that the flare occurred only at wavelengths redward of the ionization edge of Si IV, or that the BALR is not able to

---

<sup>†</sup> The UM 232 BAL variability discovery was the impetus for the continuum monitoring program and this thesis project.