

Fig. 1.1. The optical spectrum of the Seyfert 1 galaxy NGC 5548. The prominent broad and narrow emission lines are labeled, as are strong absorption features of the host galaxy spectrum. The vertical scale is expanded in the lower panel to show the weaker features. The full width at half maximum (FWHM) of the broad components is about  $5900 \text{ km s}^{-1}$ , and the width of the narrow components is about  $400 \text{ km s}^{-1}$ . The strong rise shortward of  $4000 \text{ \AA}$  is the long-wavelength end of the 'small blue bump' feature which is a blend of Balmer continuum and Fe II line emission. This spectrum is the mean of several observations made during 1993 with the 3-m Shane Telescope and Kast spectrograph at the Lick Observatory. Data courtesy of A. V. Filippenko.

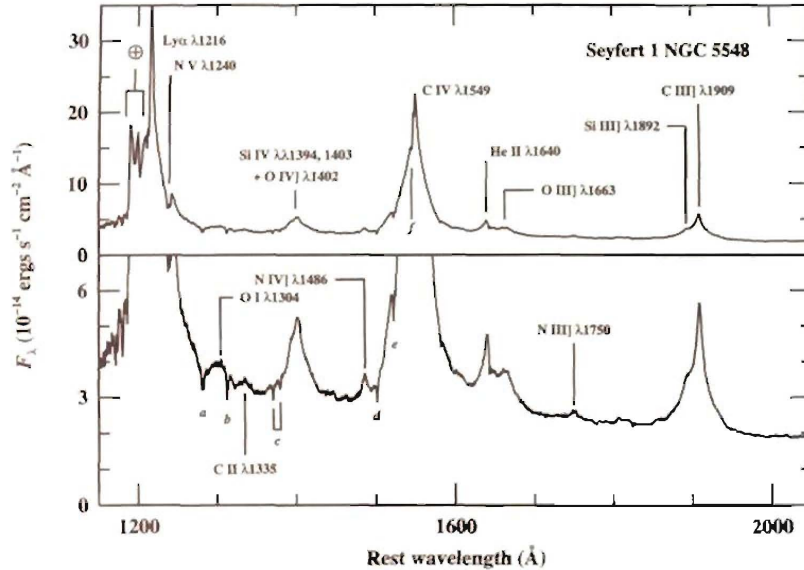


Fig. 1.2. The ultraviolet spectrum of the Seyfert 1 galaxy NGC 5548. The prominent broad emission lines are labeled. The emission labeled with the Earth symbol ('⊕') arises in the extended upper atmosphere of the Earth and is known as 'geocoronal' emission. Most of the labeled absorption features arise in our own Galaxy and thus appear blueshifted from their rest wavelengths since the spectrum has been corrected for the redshift of NGC 5548 ( $z = 0.017$ ). The labeled absorption features are O I  $\lambda$ 1302 (a), C II  $\lambda$ 1335 (b), Si IV  $\lambda\lambda$ 1394, 1403 (c), Si II  $\lambda$ 1527 (d), and C IV  $\lambda\lambda$ 1548, 1551 (e). Another weak C IV  $\lambda\lambda$ 1548, 1551 doublet (f) is only slightly displaced shortward of line center and presumably arises in NGC 5548 itself. This spectrum is the mean of several observations obtained with the Faint Object Spectrograph on the *Hubble Space Telescope* in 1993. Data courtesy of K. T. Korista.