

Fig. 1.— CfA spectra of SN Ic 1994I. The flux units are in f_λ ($\text{erg s}^{-1} \text{cm}^{-1} \text{\AA}^{-1}$) that have been normalized with additive offsets for clarity. The observation dates are indicated with respect to the V -band maximum light, $t_{V\text{max}}$ (see Table 2 in Modjaz et al. 2014 for measured date of maximum and corresponding references). The spectra are in the rest frame of the supernova’s host galaxy, as listed in Table 2 and described in the text.

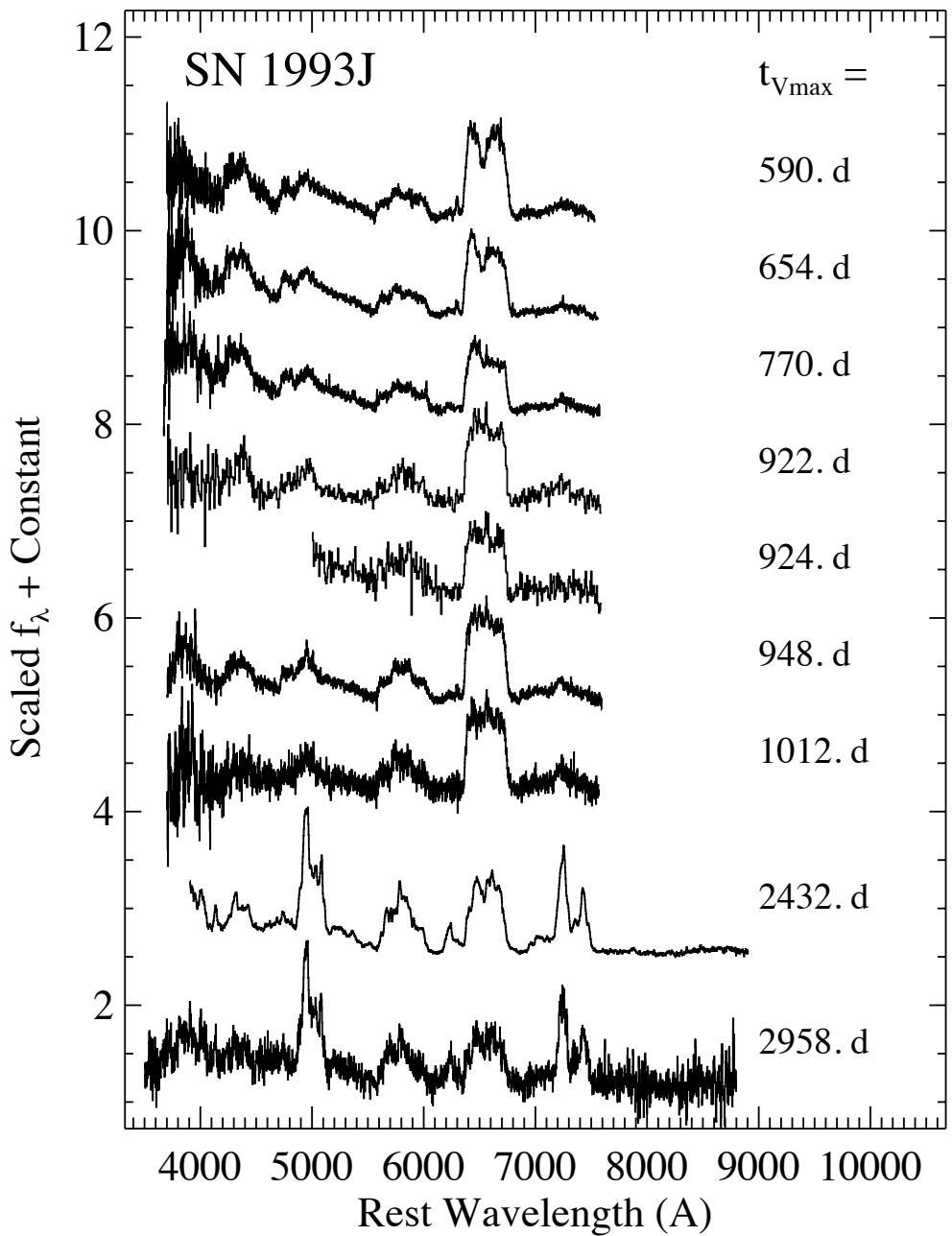


Fig. 2.— Very late-time spectra of SN IIb 1993J, as in Fig. 1, some of which have been rebinned for clarity.

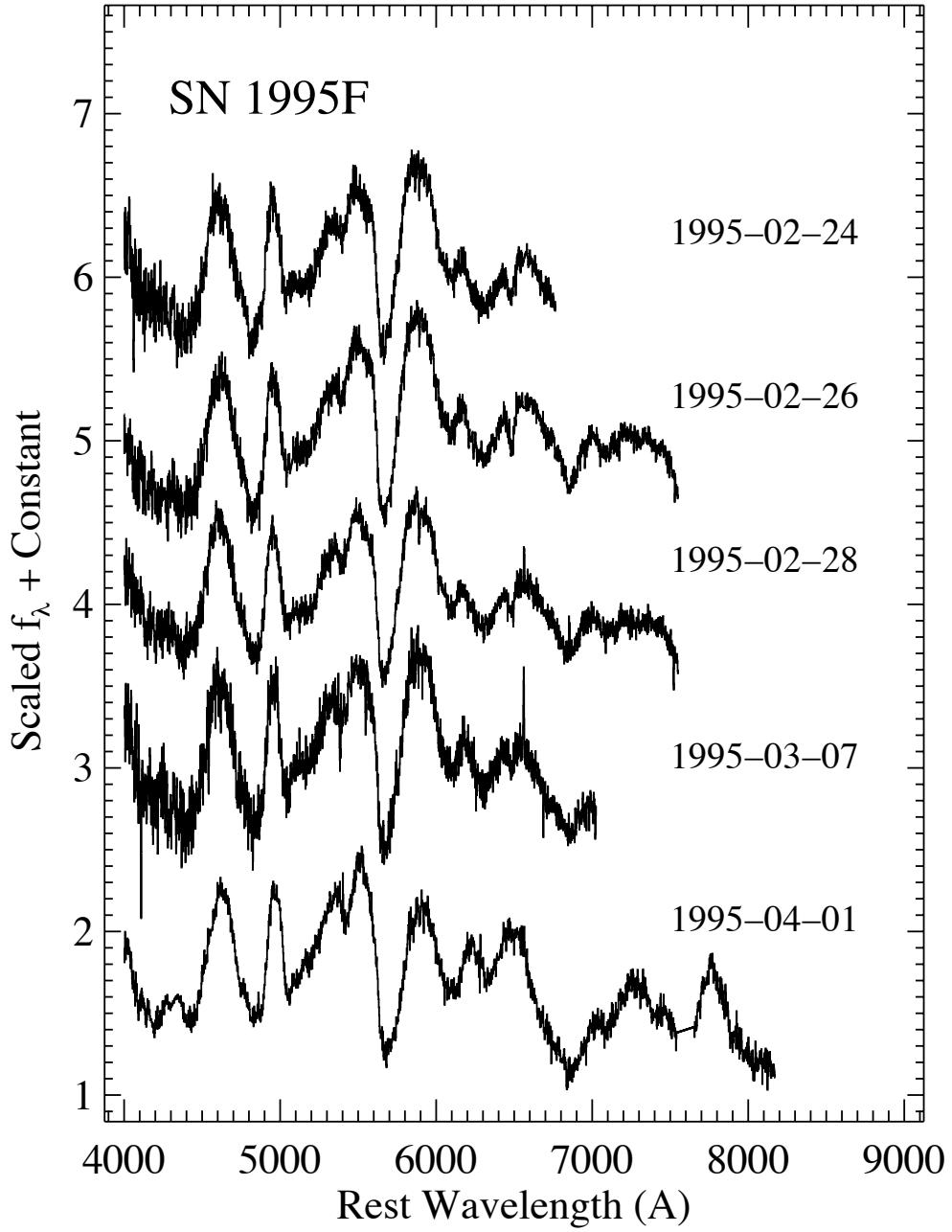


Fig. 3.— CfA spectra of SN Ib 1995F, for which we do not know the date of maximum, and thus list the UT dates of observations instead of phases. The spectra are in the rest frame of the supernova’s host galaxy, as listed in Table 2 in Modjaz et al. (2014) and described in the text.

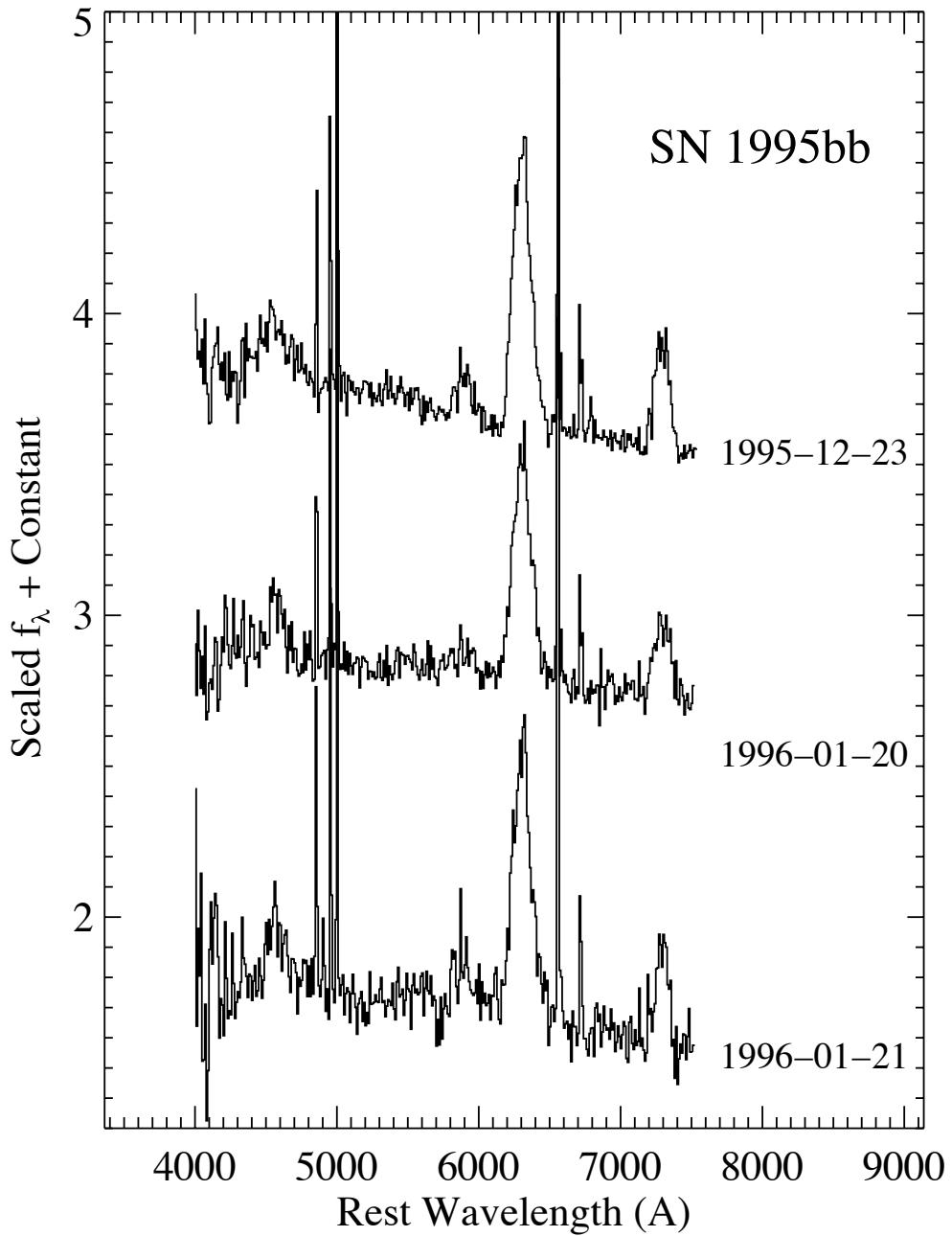


Fig. 4.— Same as in Fig. 3, but for spectra of SN Ib/c 1995bb, some of which have been rebinned for clarity. Since we only have nebular spectra (since it was discovered spectroscopically during its nebular phase and serendipitously as part of a galaxy survey), we cannot conclusively determine its SN subtype.

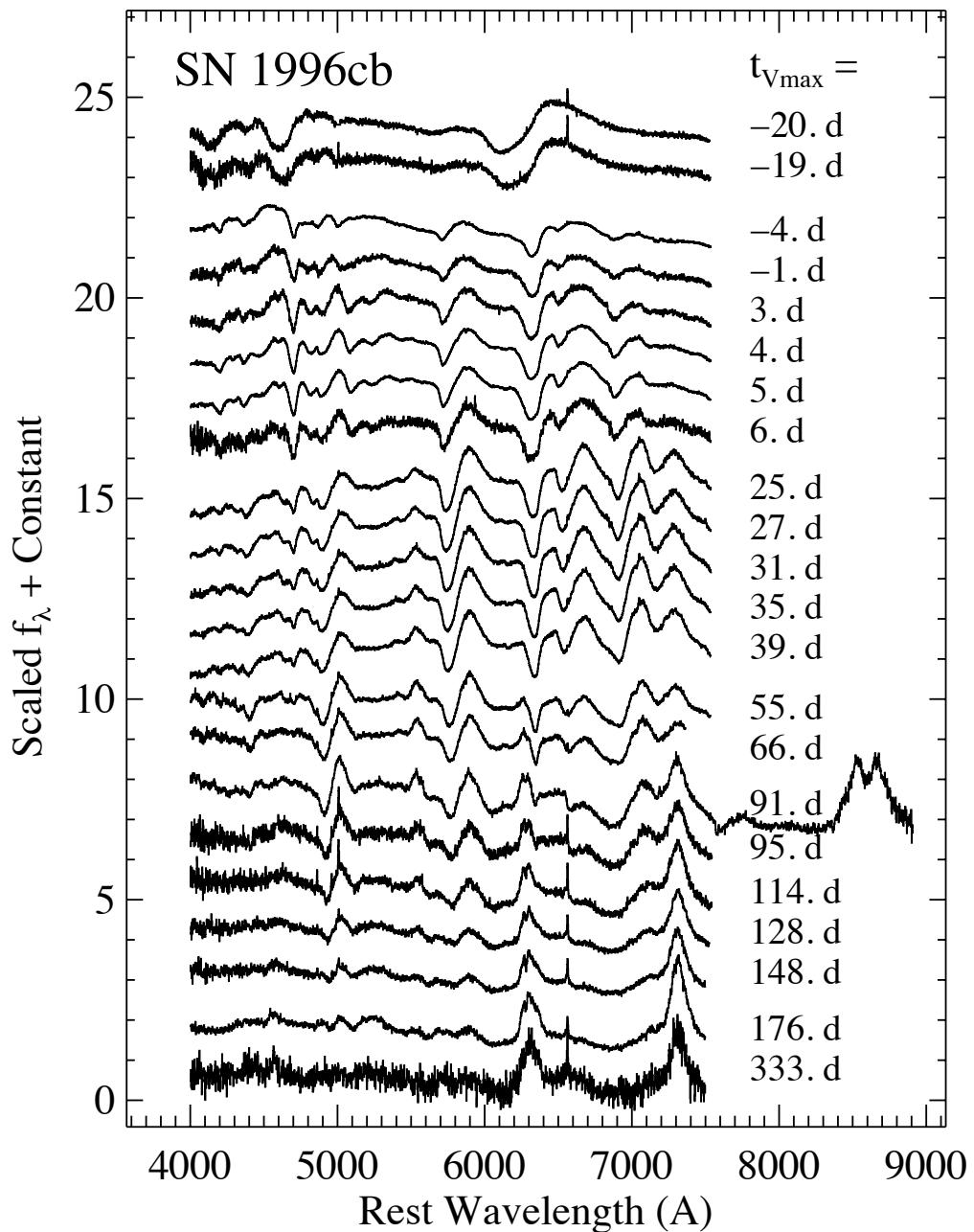


Fig. 5.— Same as in Fig. 1, but for spectra of SN Iib 1996cb.

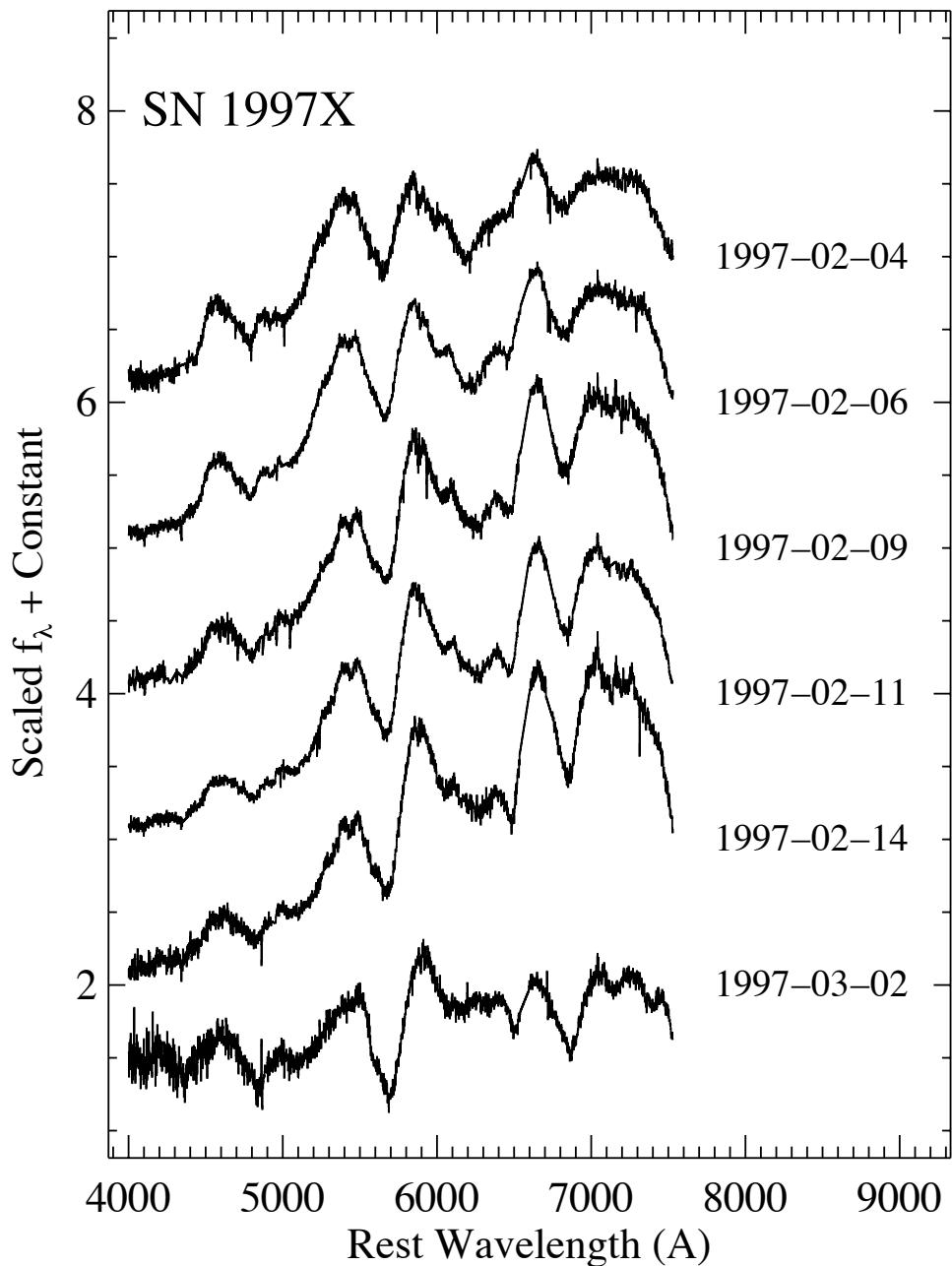


Fig. 6.— Same as in Fig. 3, but for spectra of SN Ib 1997X.

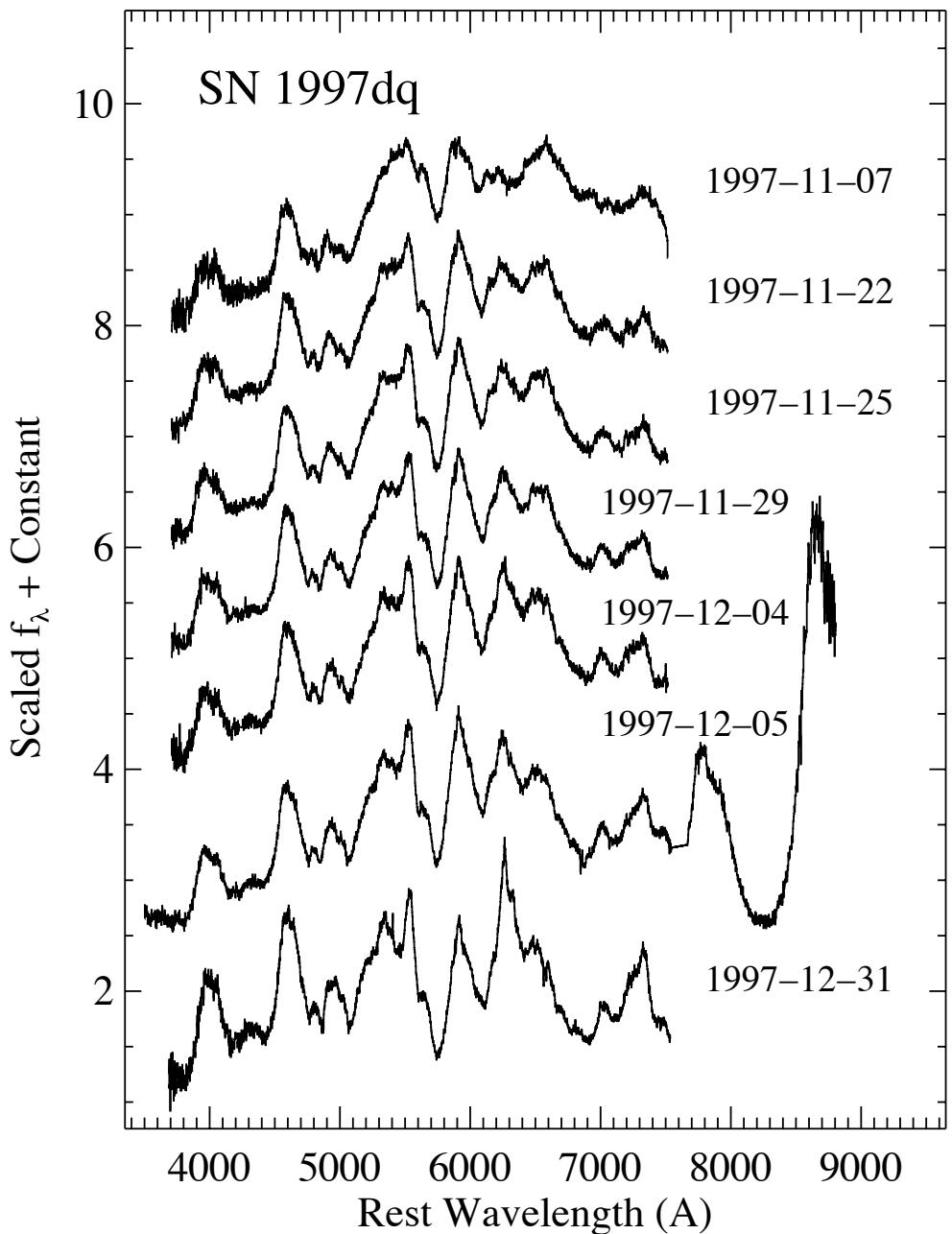


Fig. 7.— Same as in Fig. 3, but for spectra of SN Ic 1997dq.

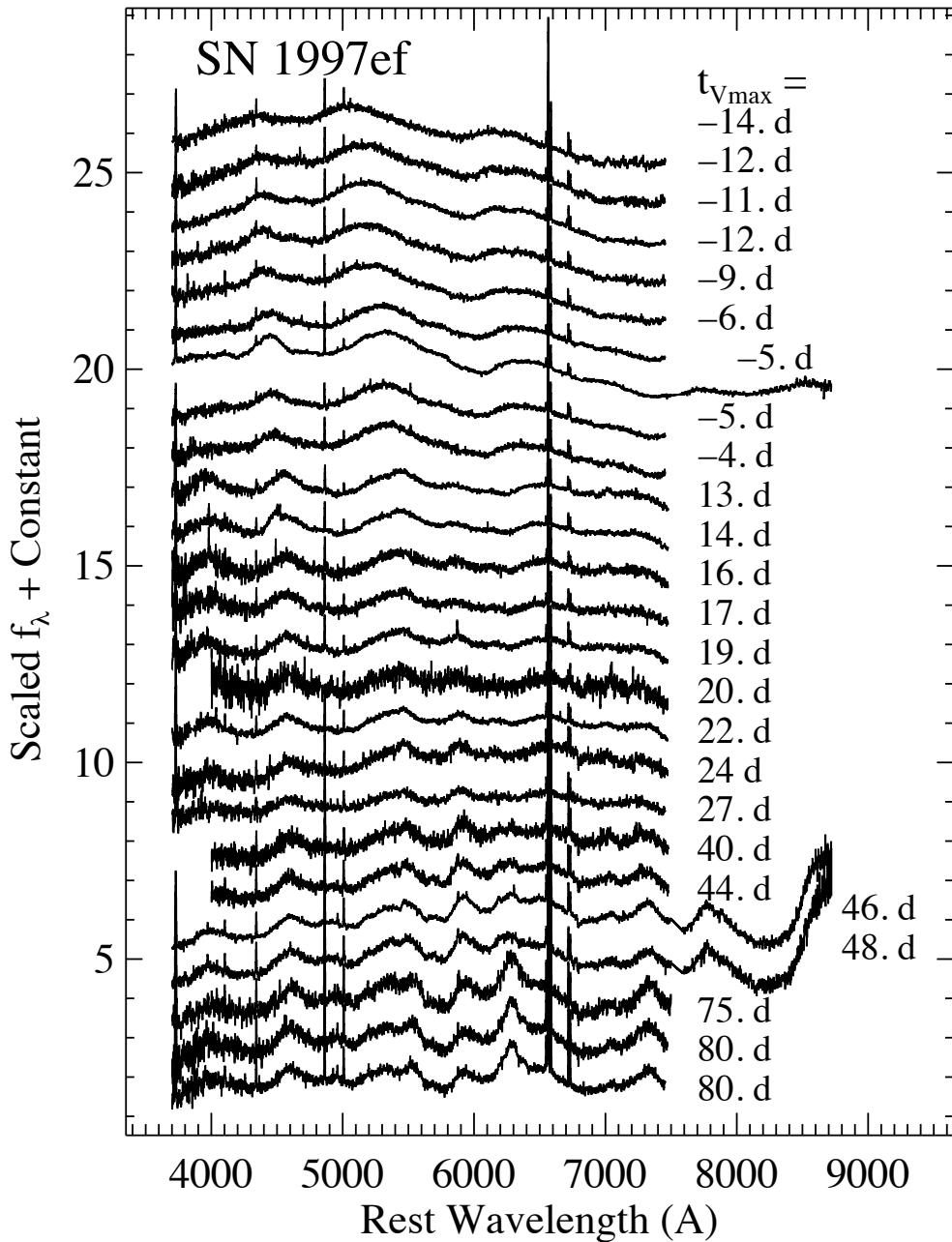


Fig. 8.— Same as in Fig. 1, but for spectra of SN Ic-bl 1997ef. A number of these spectra were presented in Iwamoto et al. (2000). The superimposed narrow lines are from HII regions at the SN position in the slit.

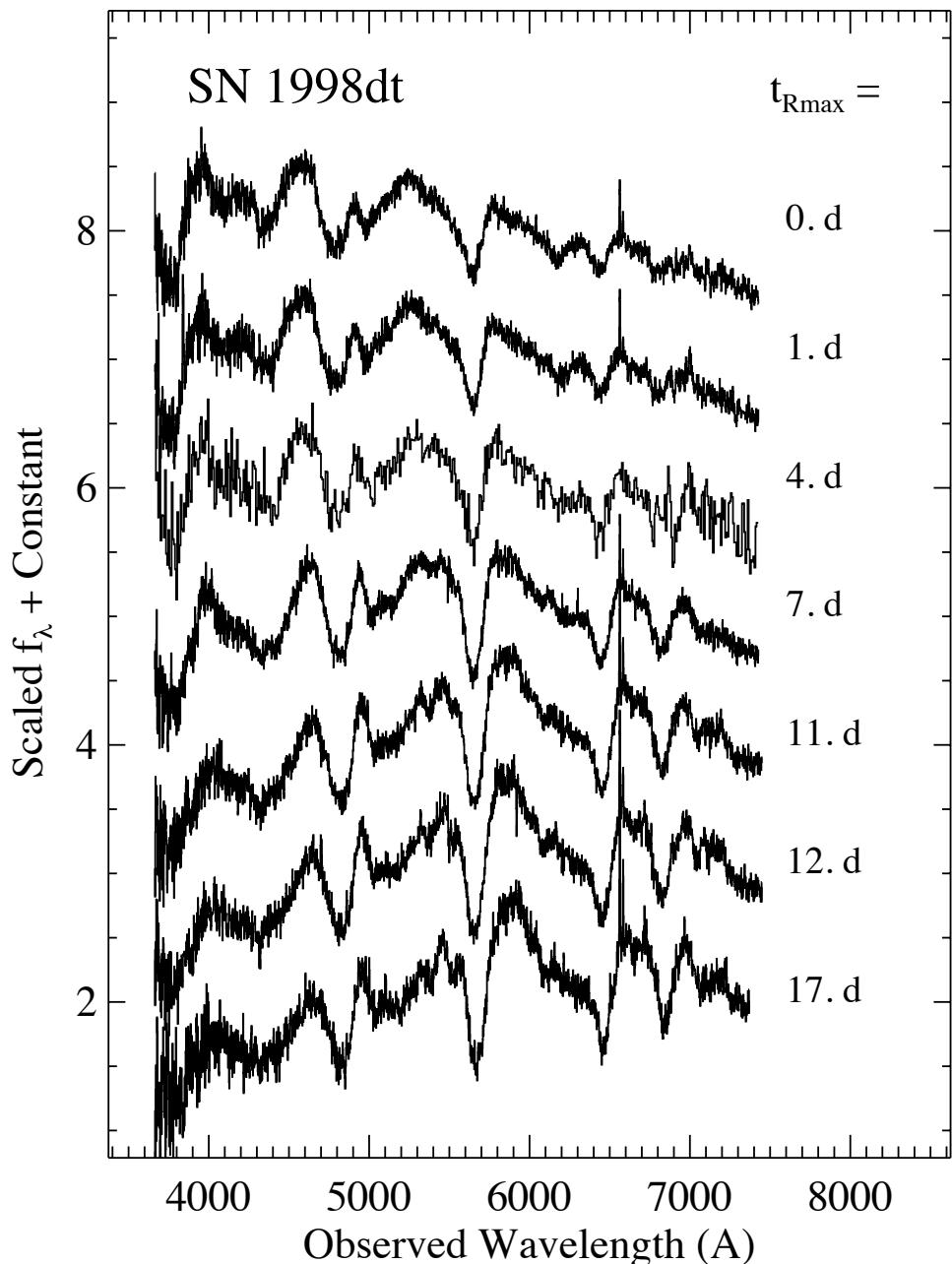


Fig. 9.— Same as in Fig. 1, but for spectra of SN Ib 1998dt, one of which has been rebinned for clarity. Note that spectra here are with respect to R -max, not V -max.

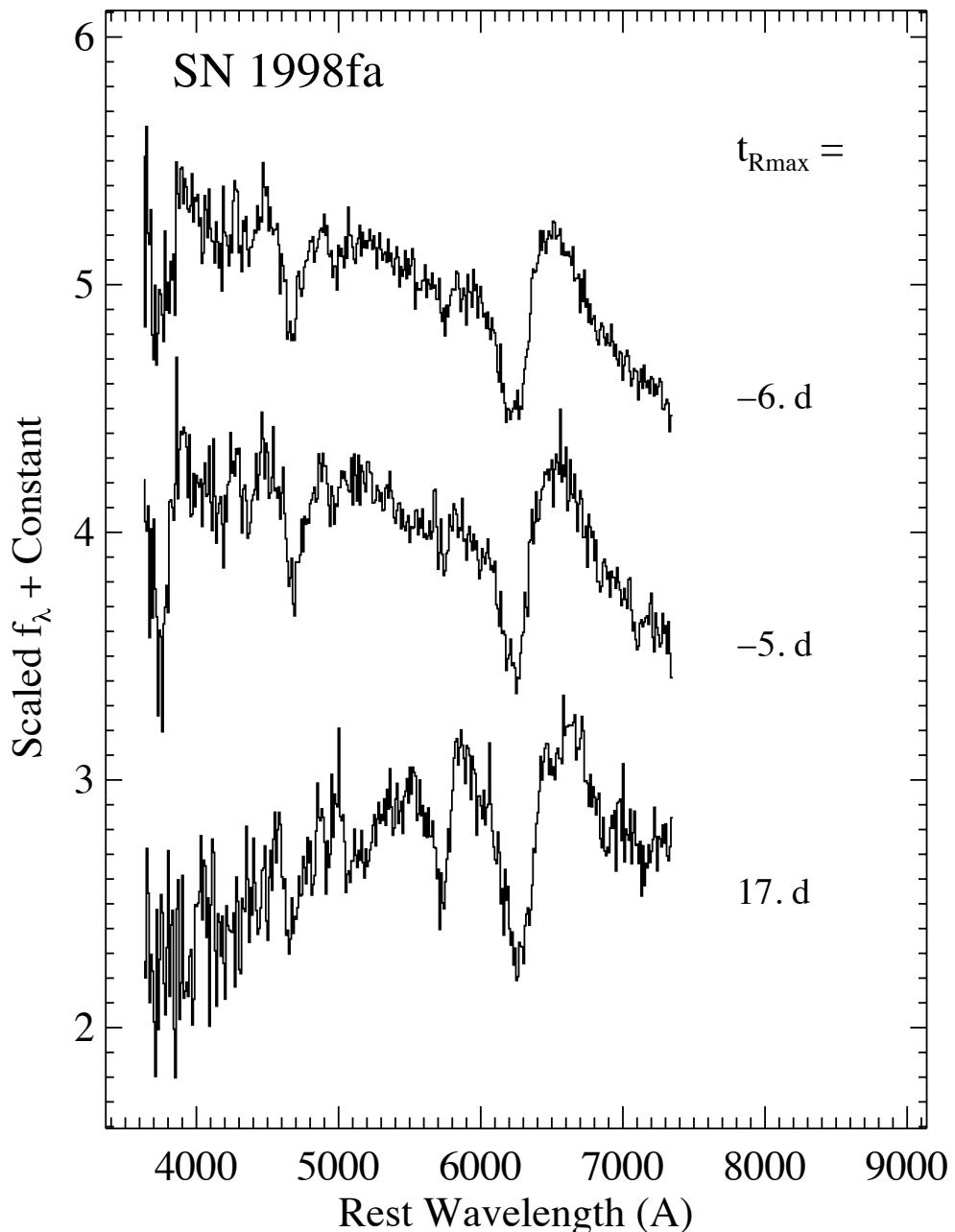


Fig. 10.— Same as in Fig. 1, but for spectra of SN IIb 1998fa, which have been rebinned for clarity.

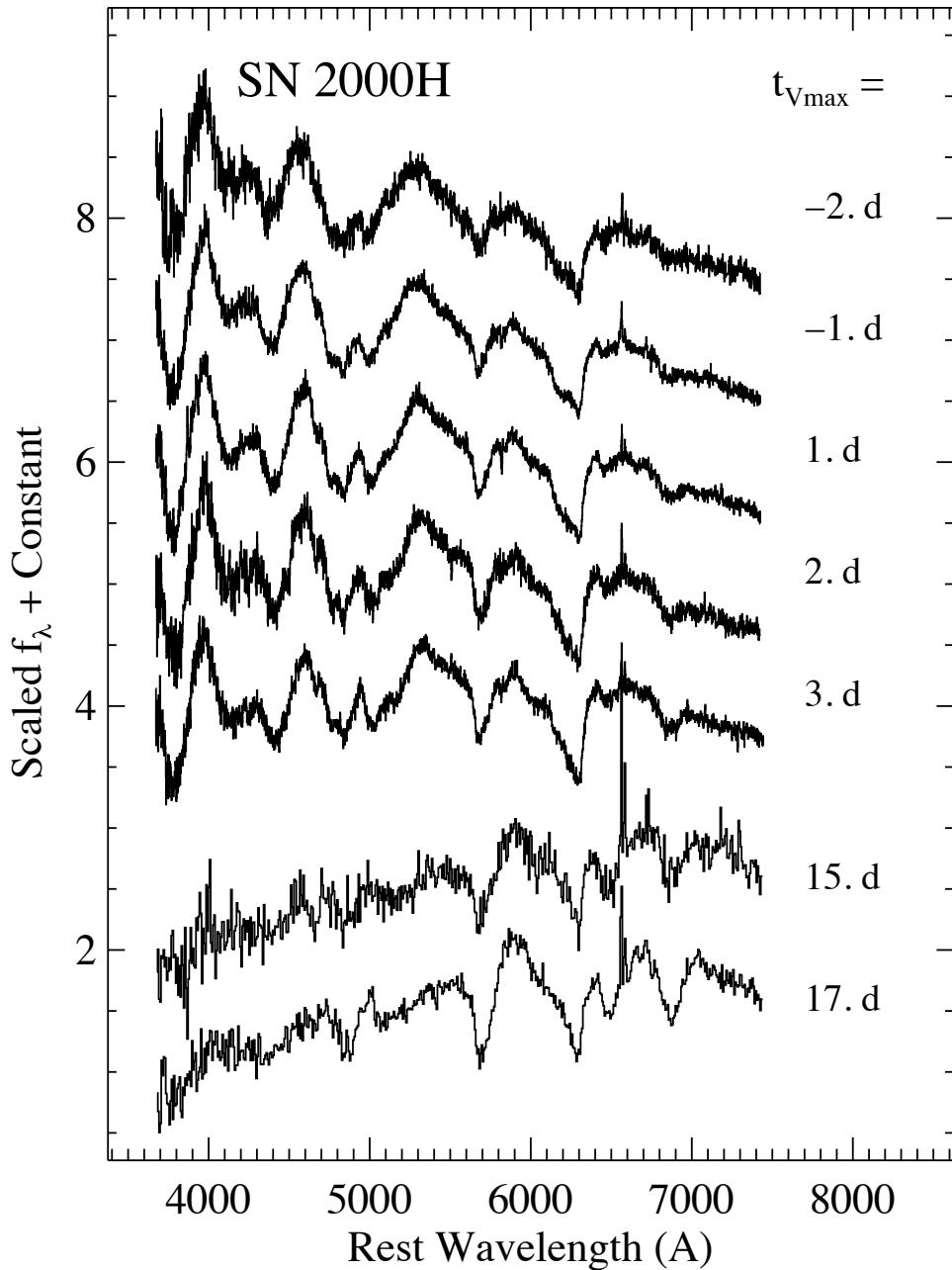


Fig. 11.— Same as in Fig. 1, but for spectra of SN IIb 2000H, some of which have been rebinned for clarity. Note that the date of max is somewhat debated: while Branch et al. 2002 favor 2000 February 11 as the date of V -band max from unpublished ESO photometry, the Asiago Catalogue lists 2000 February 02 as the date of max. Here we adopt the later date (ie 2000 Feb 11), since otherwise the spectral evolution of SN 2000H would be very different from that of the rest of SN IIb, as shown in our companion paper (M. Modjaz et al. in prep).

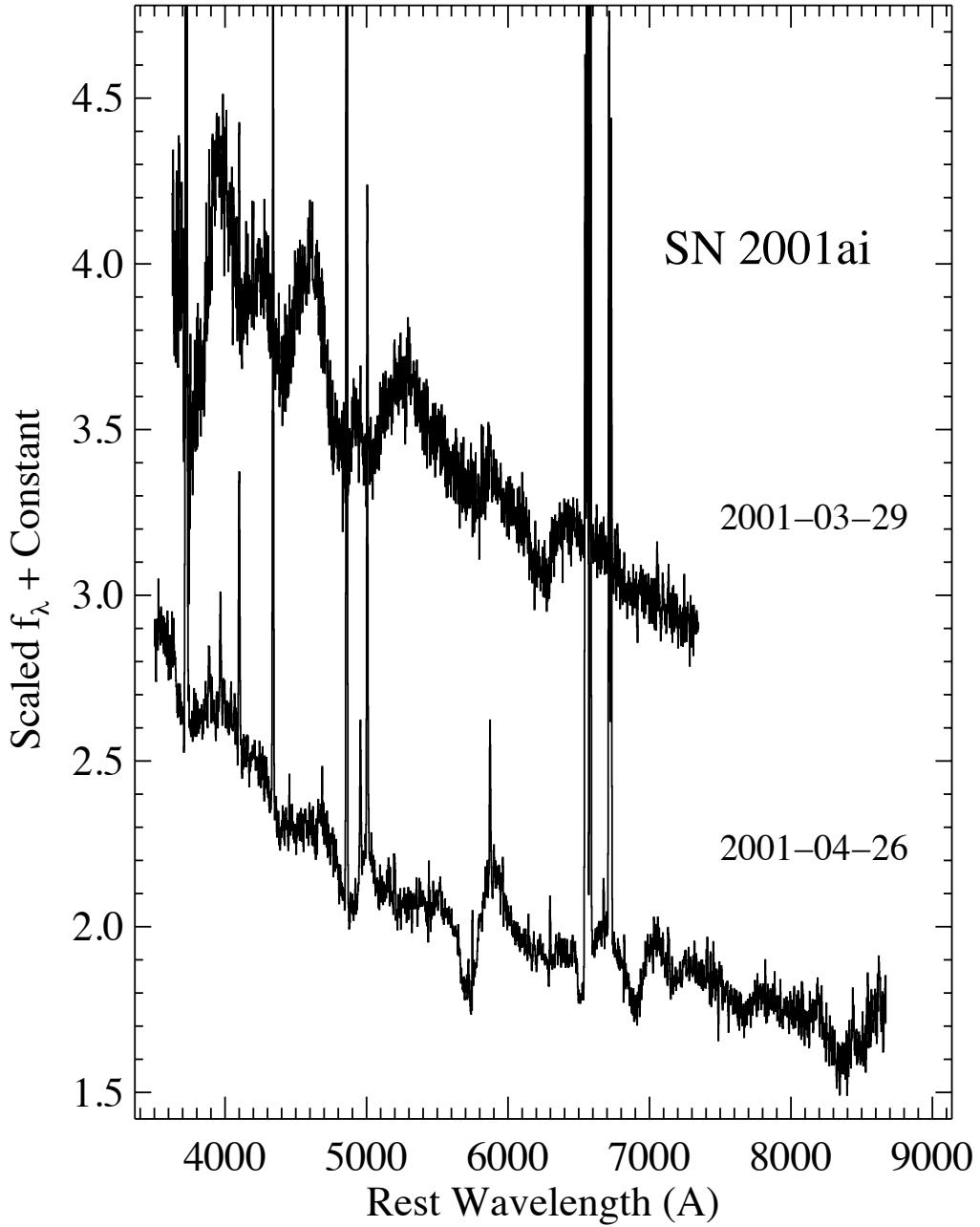


Fig. 12.— Same as in Fig. 3, but for spectra of SN Ib 2001ai. Note that the spectra are contaminated by the blue continuum of the host galaxy, as well as by strong HII region emission lines.

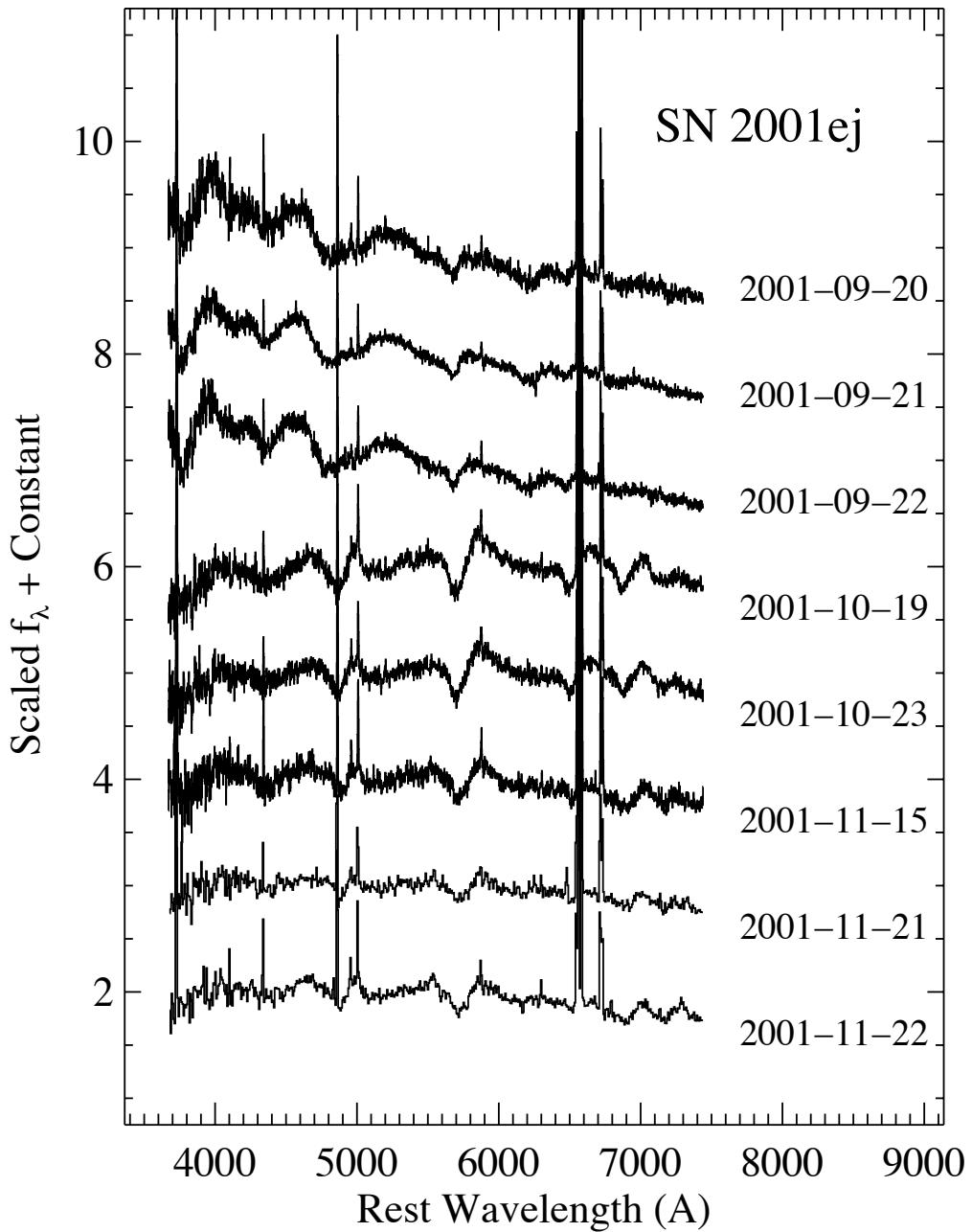


Fig. 13.— Same as in Fig. 3, but for spectra of SN Ib 2001ej, some of which are rebinned for clarity.

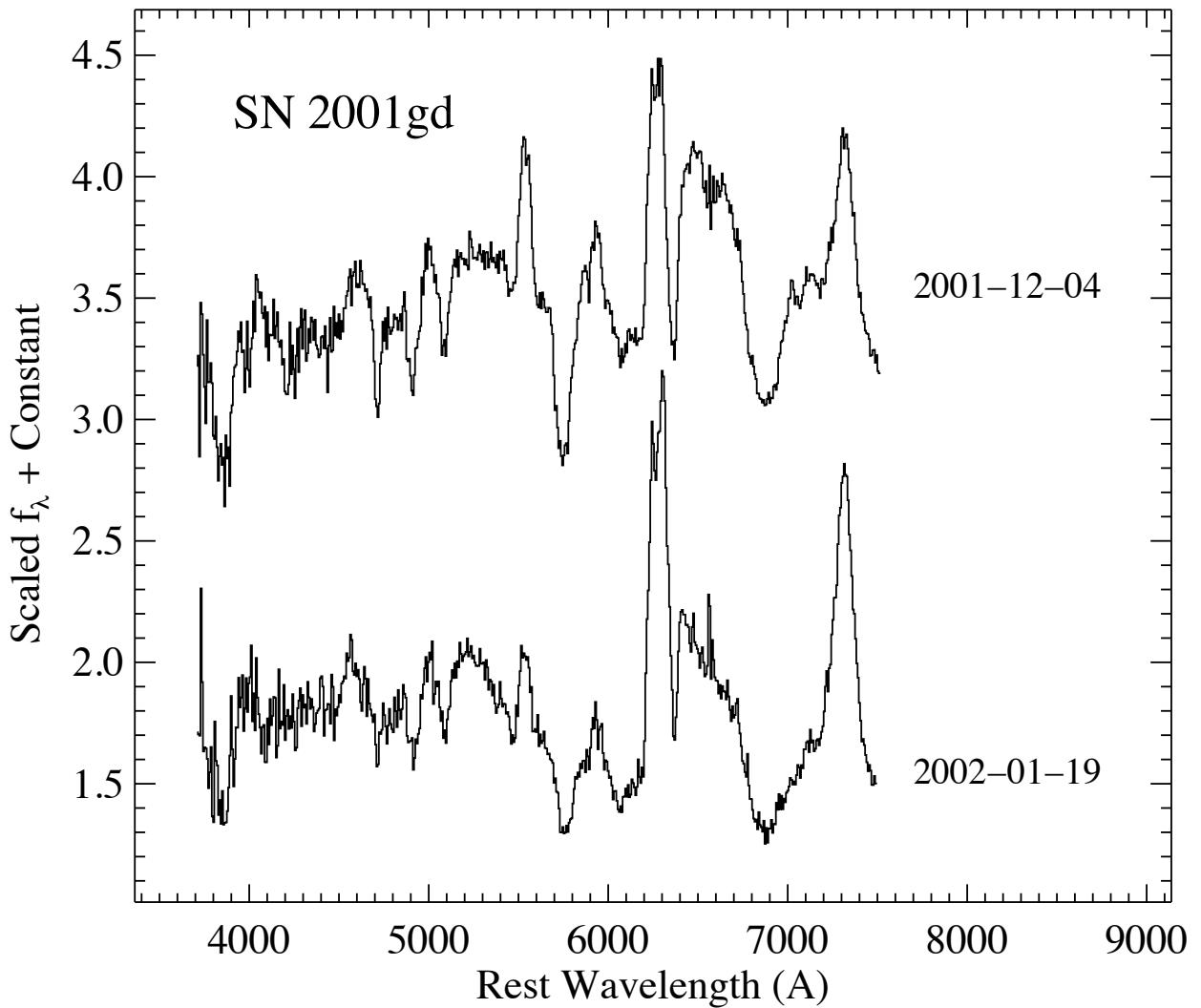


Fig. 14.— Same as in Fig. 3, but for spectra of SN I Ib 2001gd, which are rebinned for clarity.

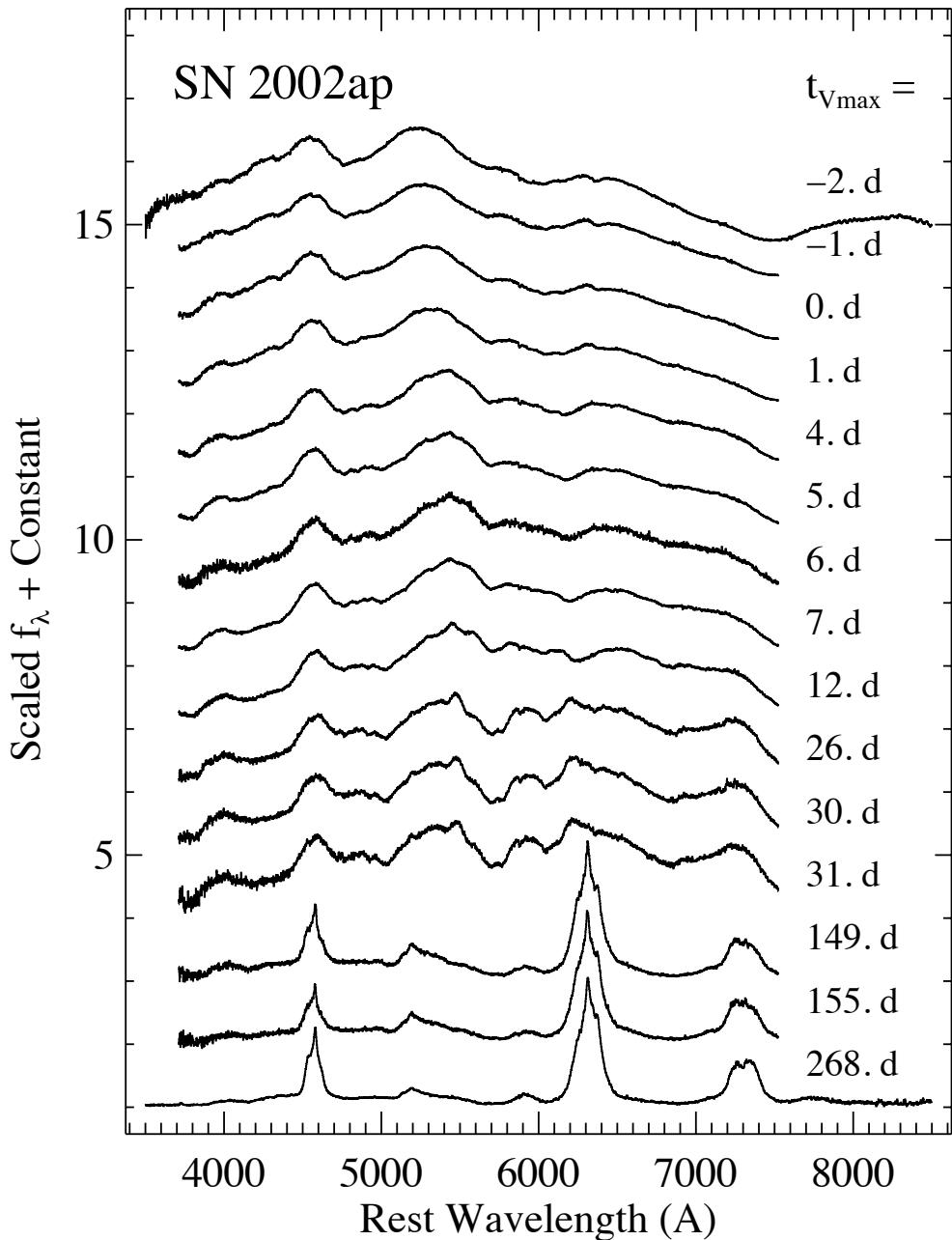


Fig. 15.— Same as in Fig. 1, but for spectra of SN Ic-bl 2002ap.

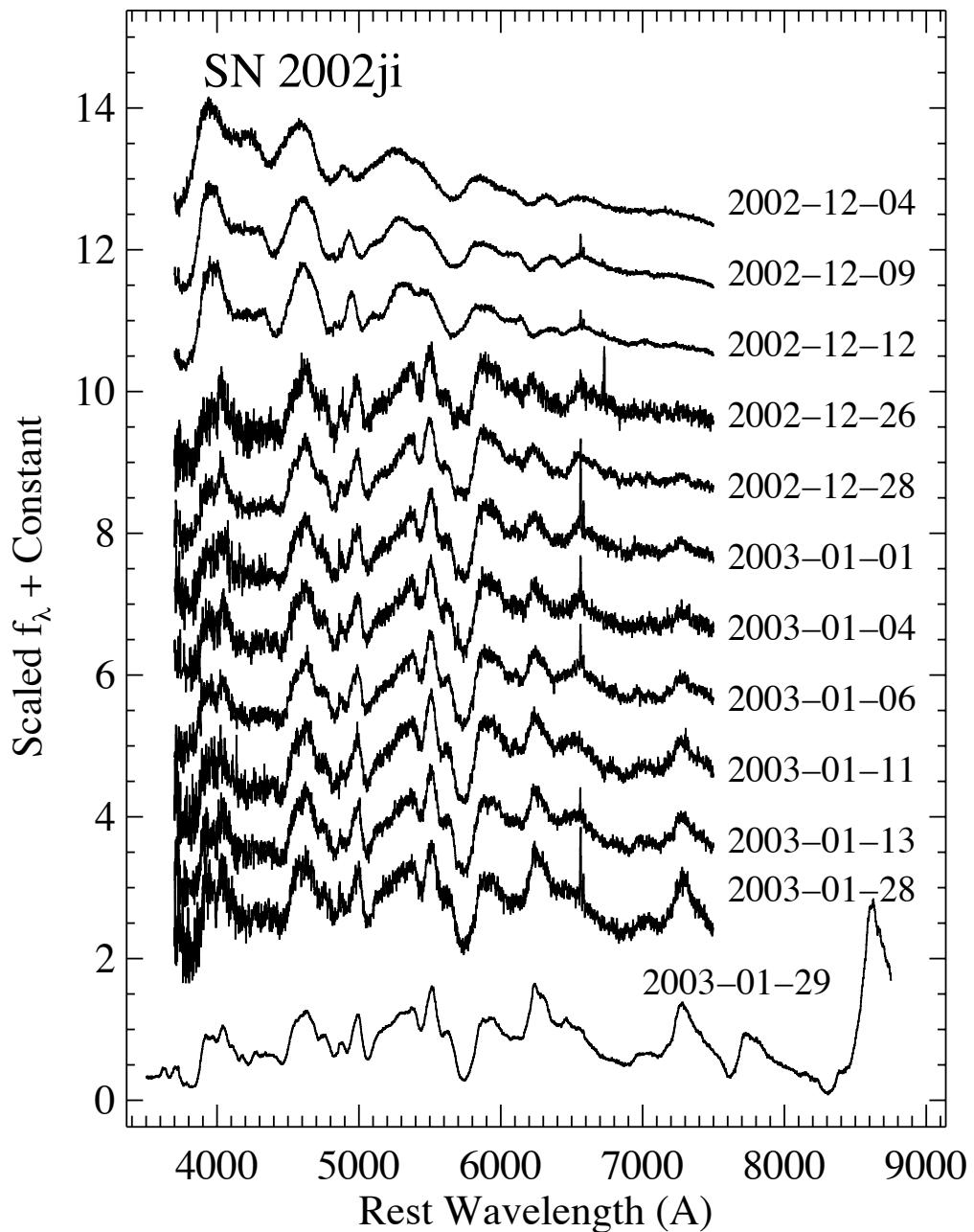


Fig. 16.— Same as in Fig. 3, but for spectra of SN Ib 2002ji.

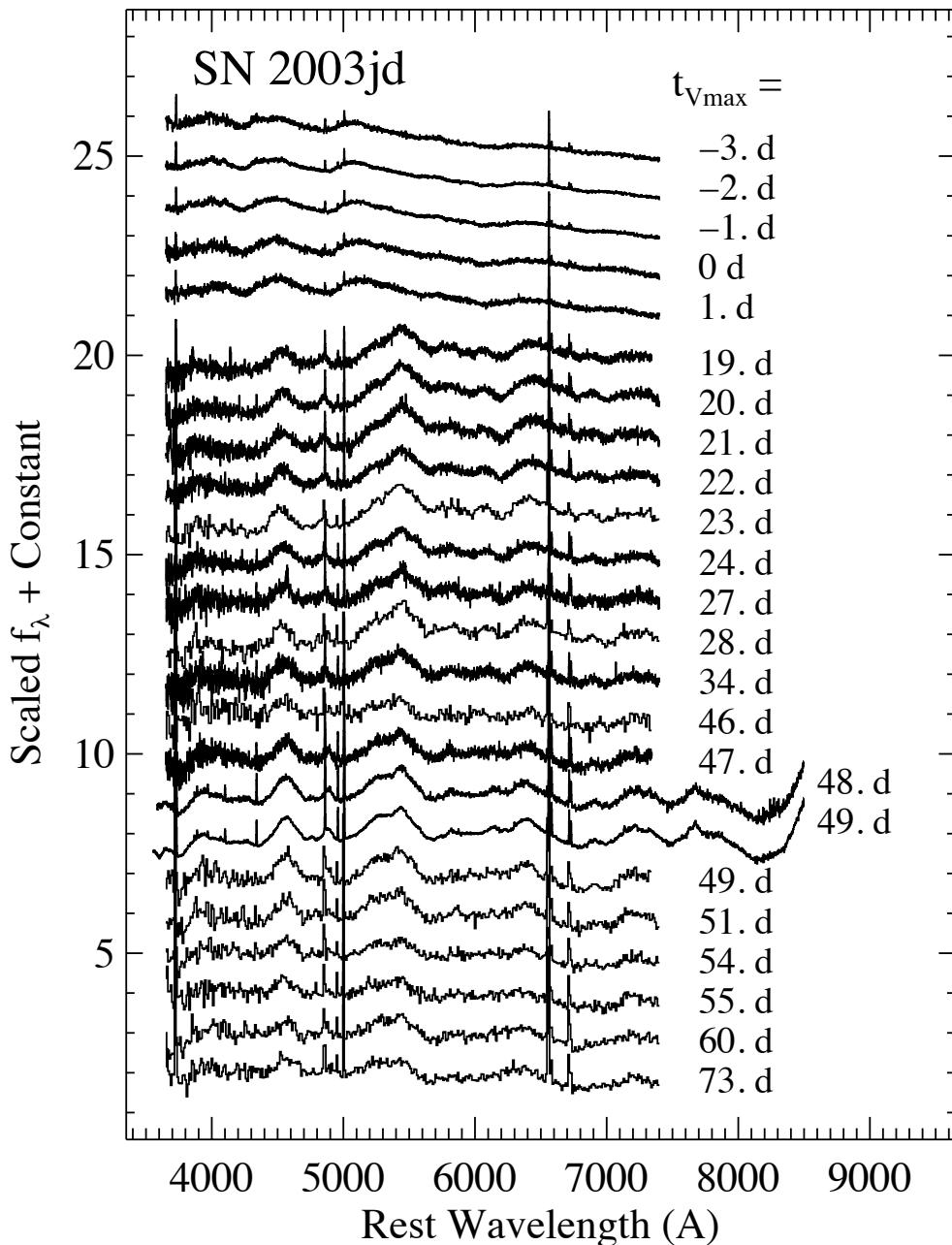


Fig. 17.— Same as in Fig. 1, but for spectra of SN Ic-bl 2003jd, some of which have been rebinned for clarity. A number of these spectra were presented in Valenti et al. (2008).

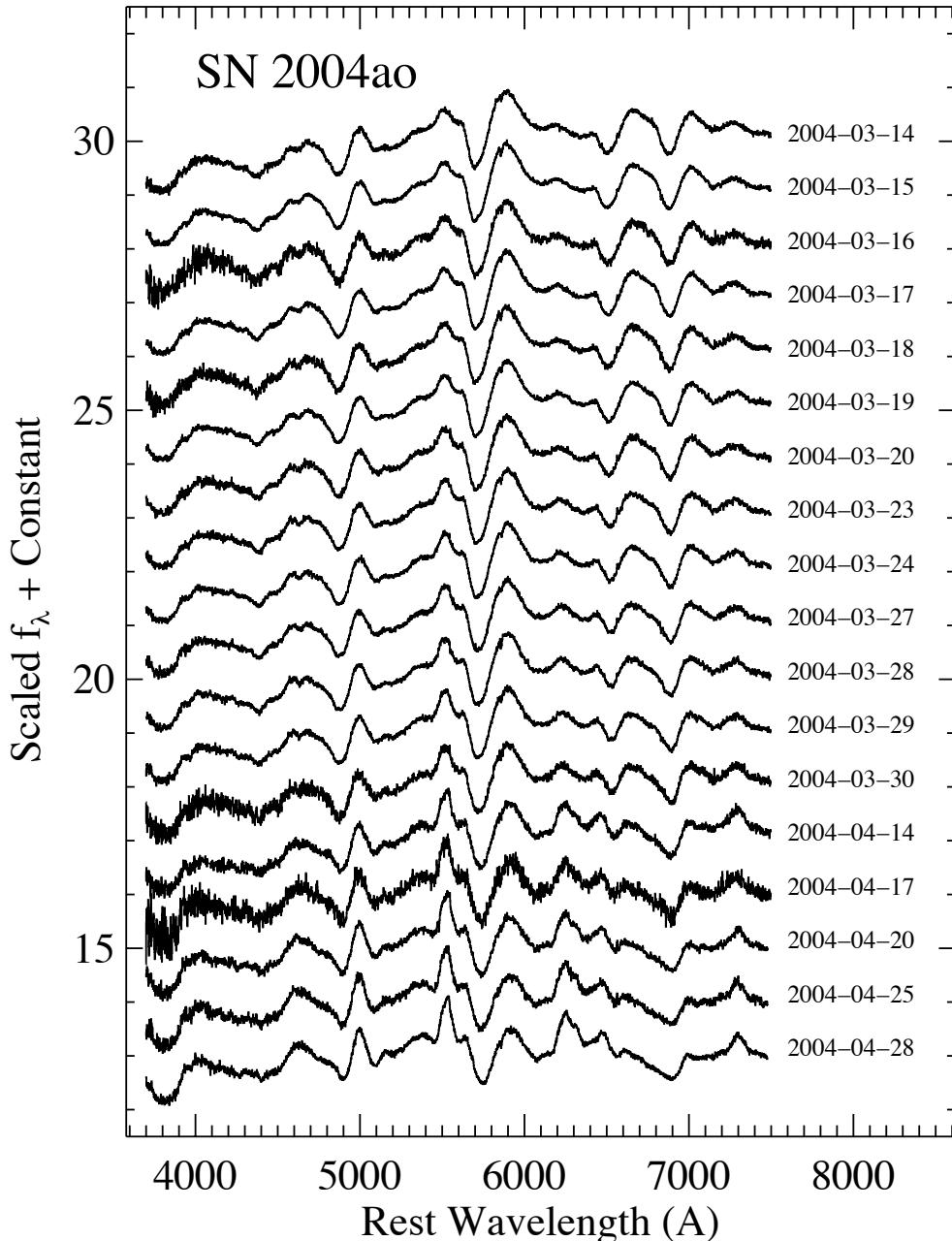


Fig. 18.— Same as in Fig. 3, but for early-time spectra of SN Ib 2004ao.

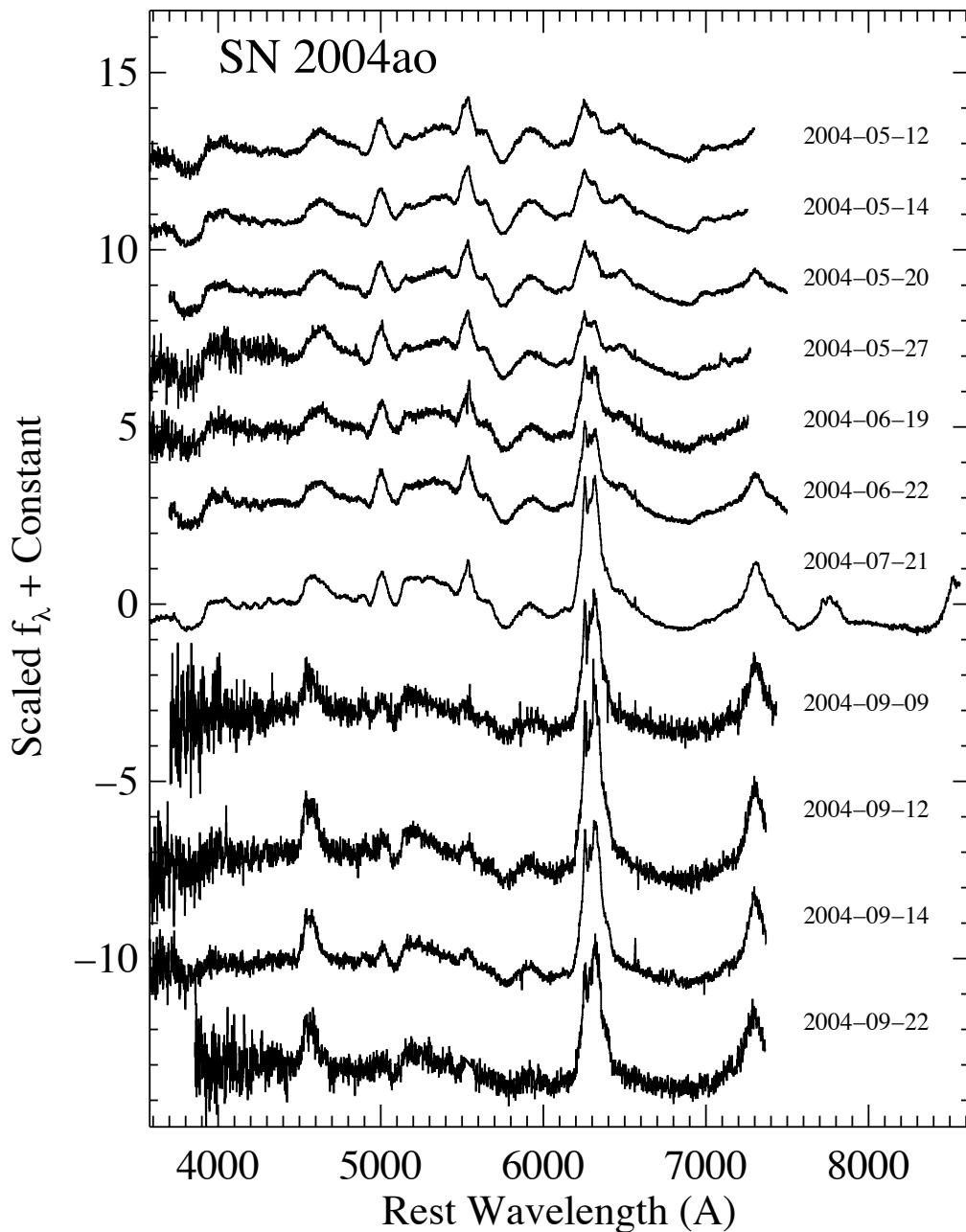


Fig. 19.— Same as in Fig. 3, but for late-time spectra of SN Ib 2004ao.

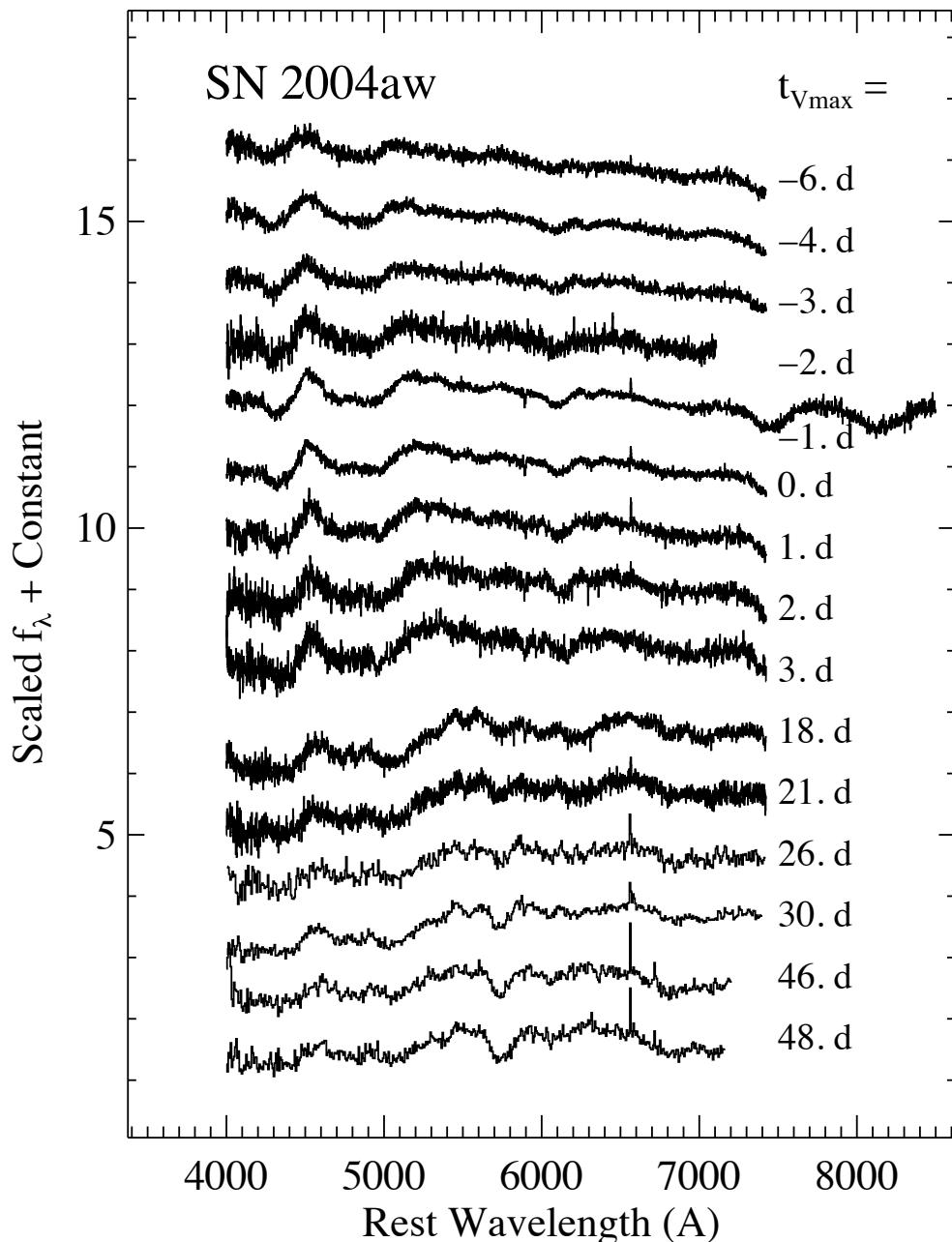


Fig. 20.— Same as in Figure 1, but for spectra of SN Ic 2004aw, some of which have been rebinned for clarity.

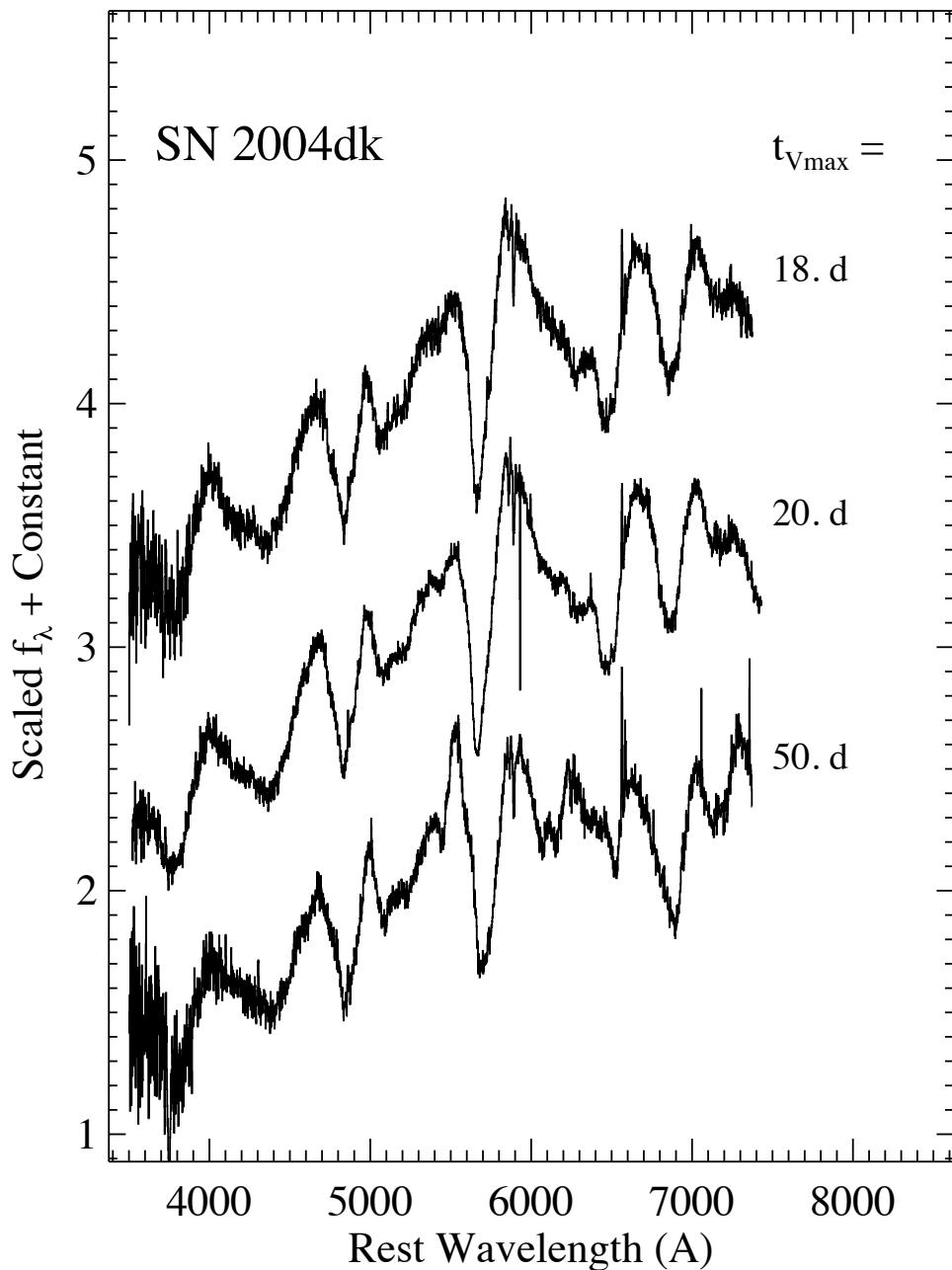


Fig. 21.— Same as in Fig. 1, but for spectra of SN Ib 2004dk.

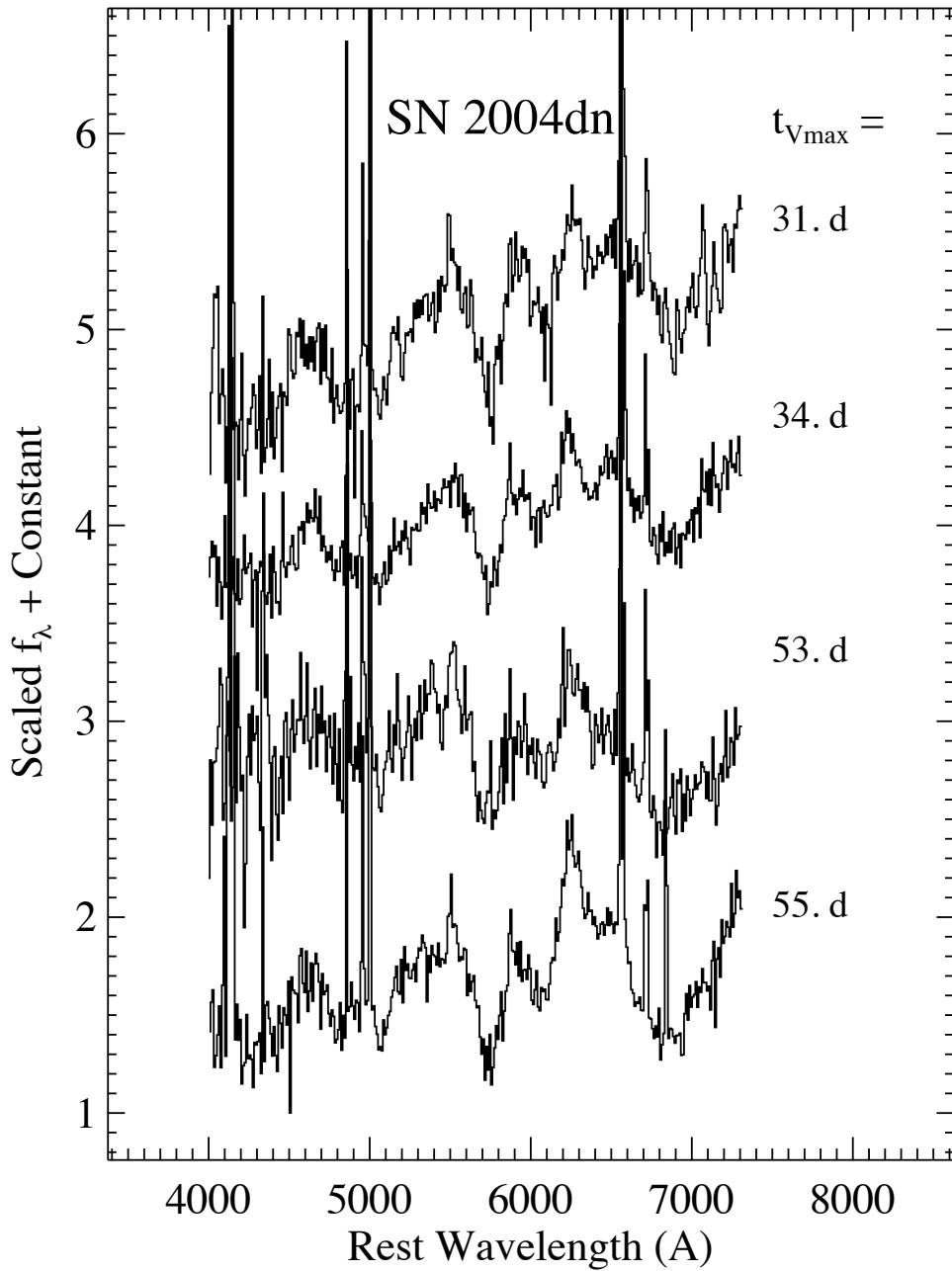


Fig. 22.— Same as in Fig. 1, but for spectra of SN Ic/Ic-bl 2004dn, which have been rebinned for clarity. The strong superimposed narrow emission lines are from the underlying host galaxy.

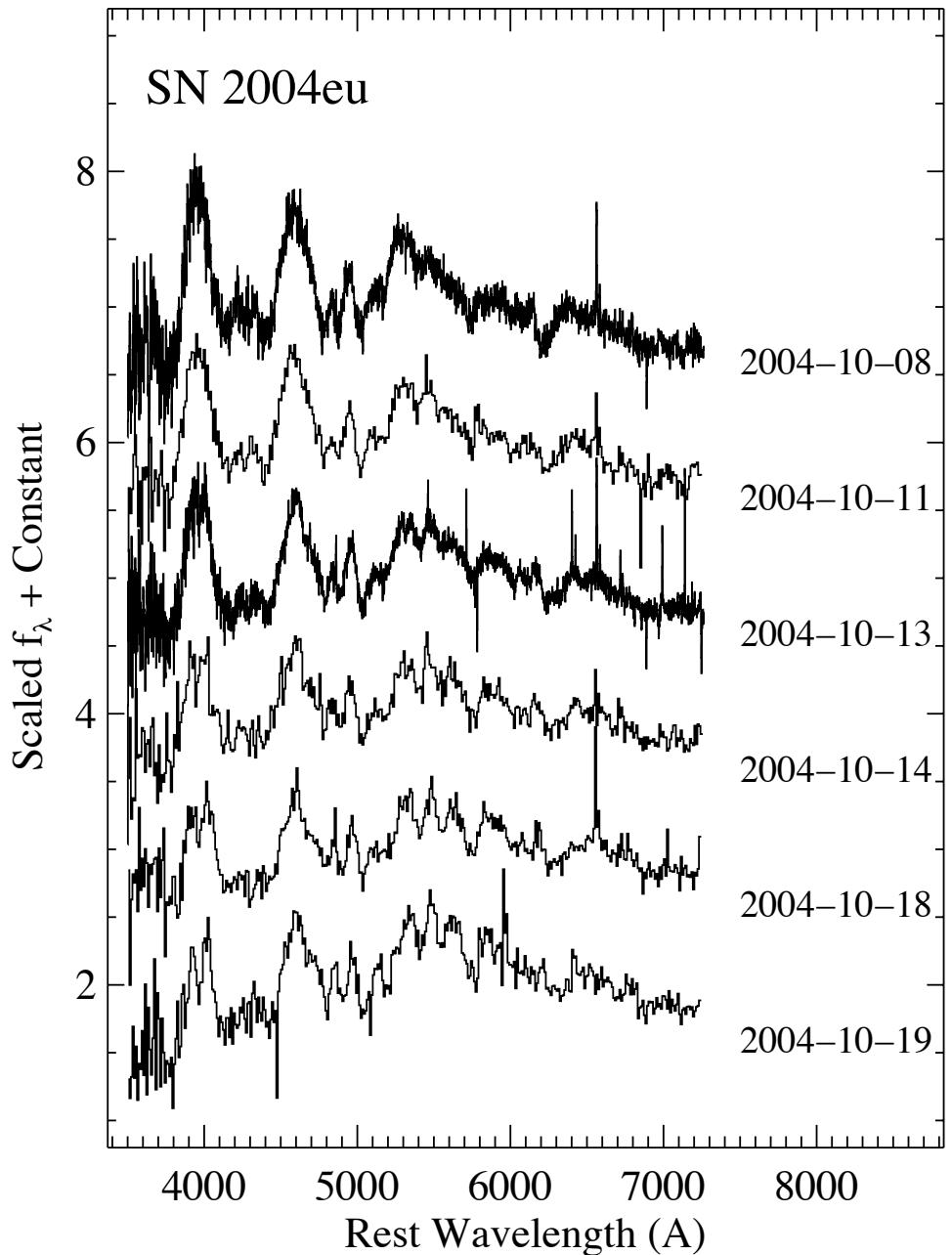


Fig. 23.— Same as in Fig. 3, but for spectra of SN Ic 2004eu, some of which have been rebinned for clarity.

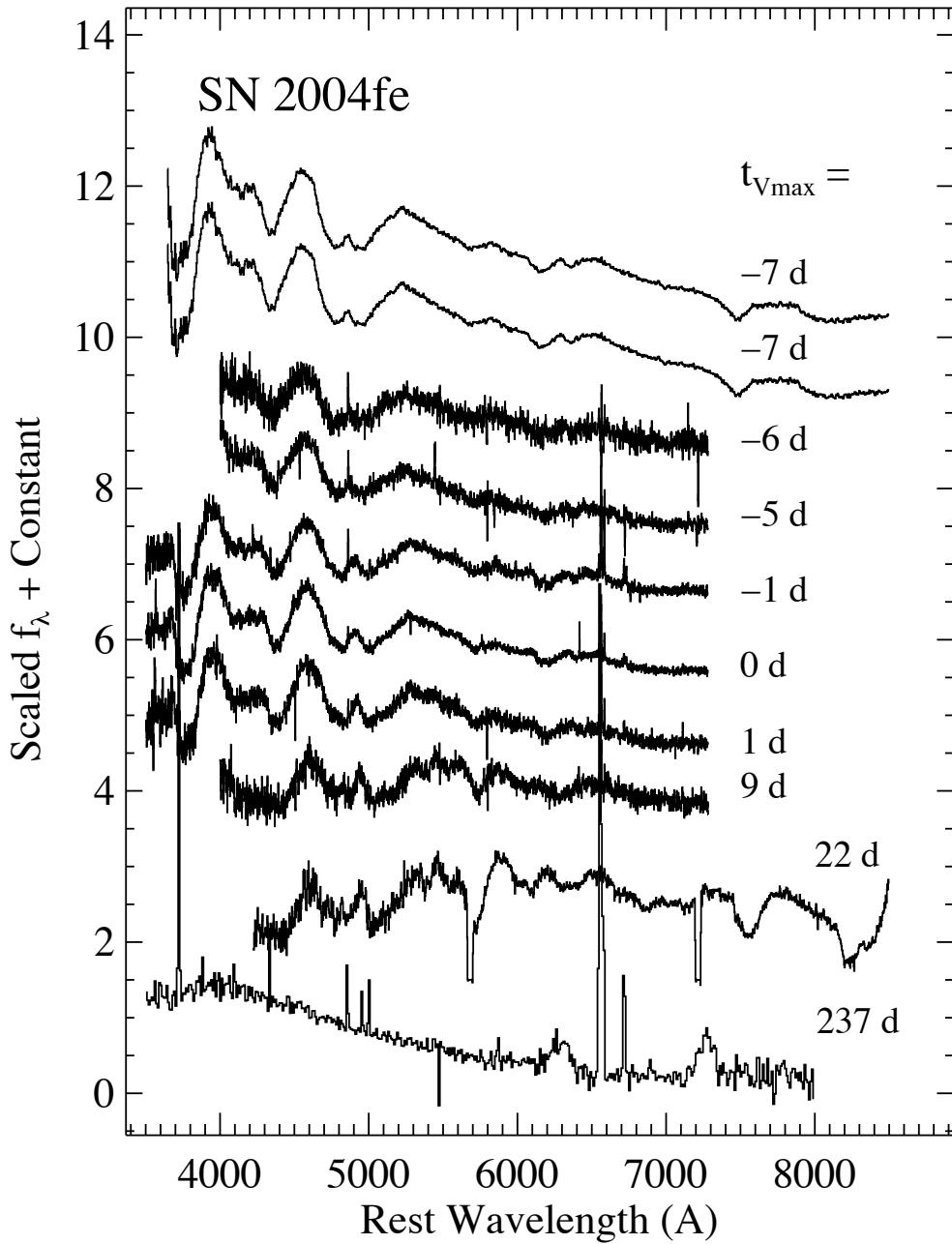


Fig. 24.— Same as in Fig. 1, but for spectra of SN Ic 2004fe. Note that the gaps in the spectrum of $t_{V\max}=24$ days are due to chip gaps in the GMOS-N detector. The last spectrum has been rebinned for clarity and is heavily contaminated by the blue continuum light from the host galaxy, as well as strong HII region lines.

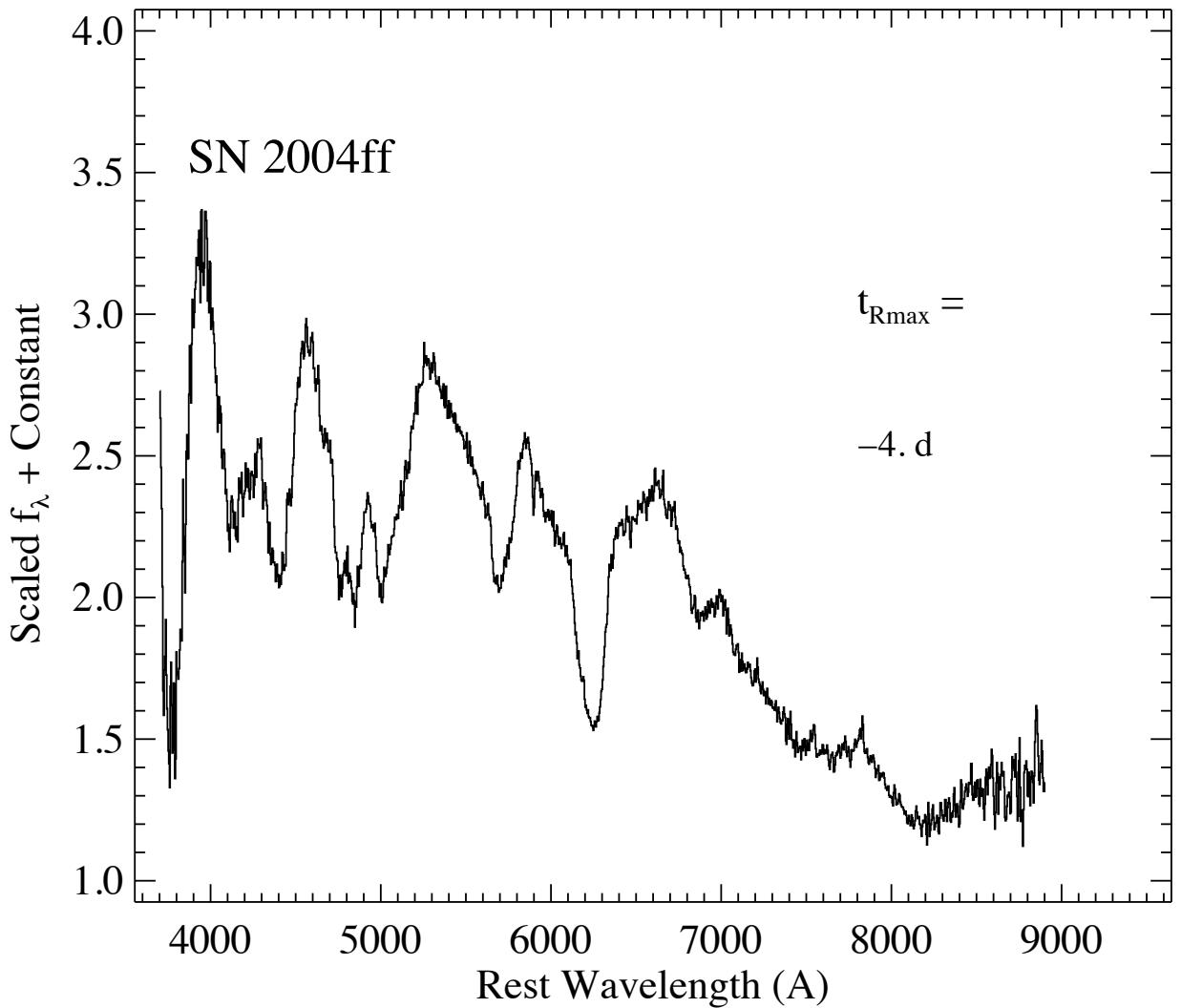


Fig. 25.— Same as in Fig. 1, but for the spectrum of SN IIb 2004ff. Note that spectra here are shown with respect to R -max, not V -max.

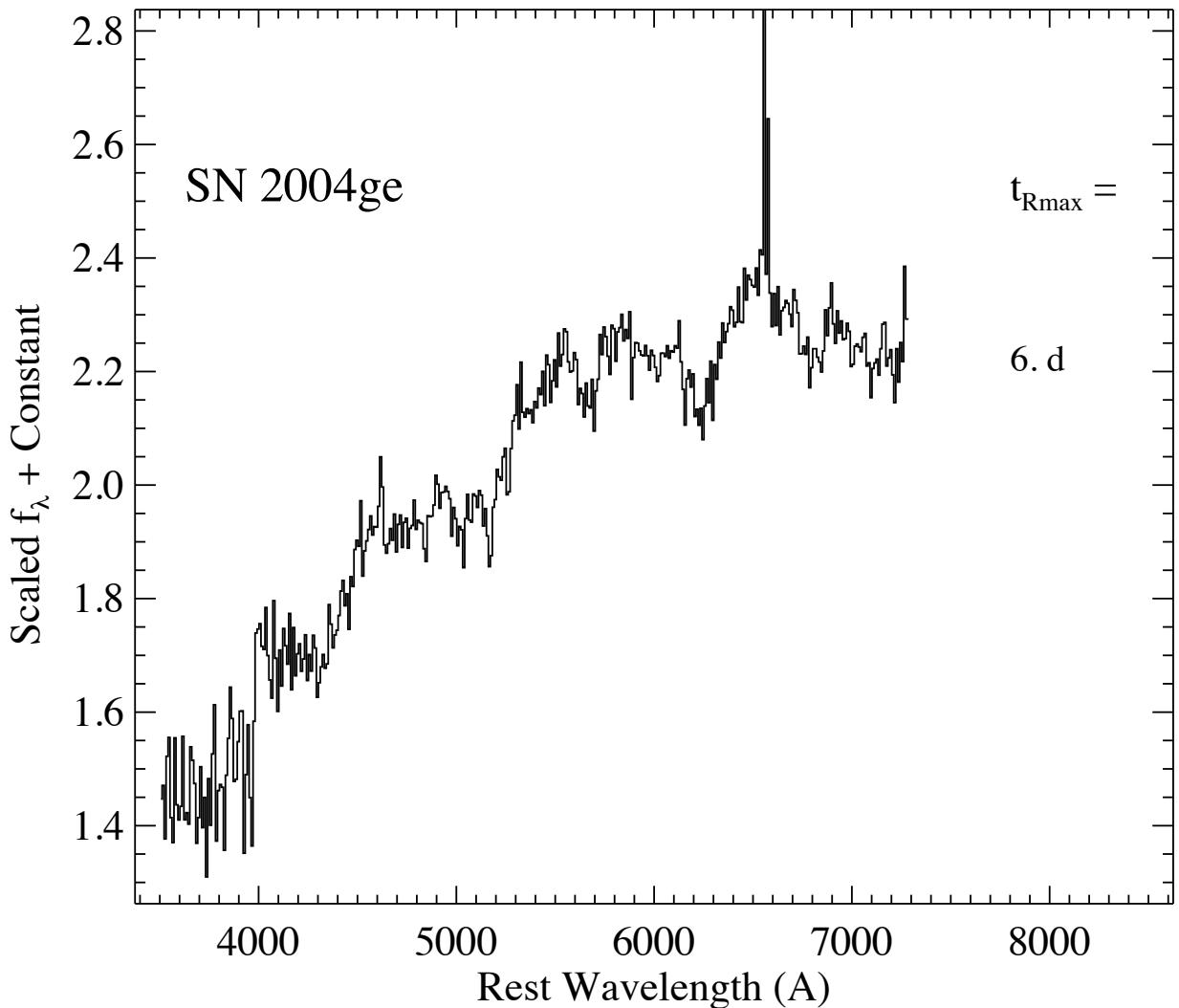


Fig. 26.— Same as in Fig. 1, but for spectra of SN Ic 2004ge. Note that spectra here are with respect to R -max, not V -max.

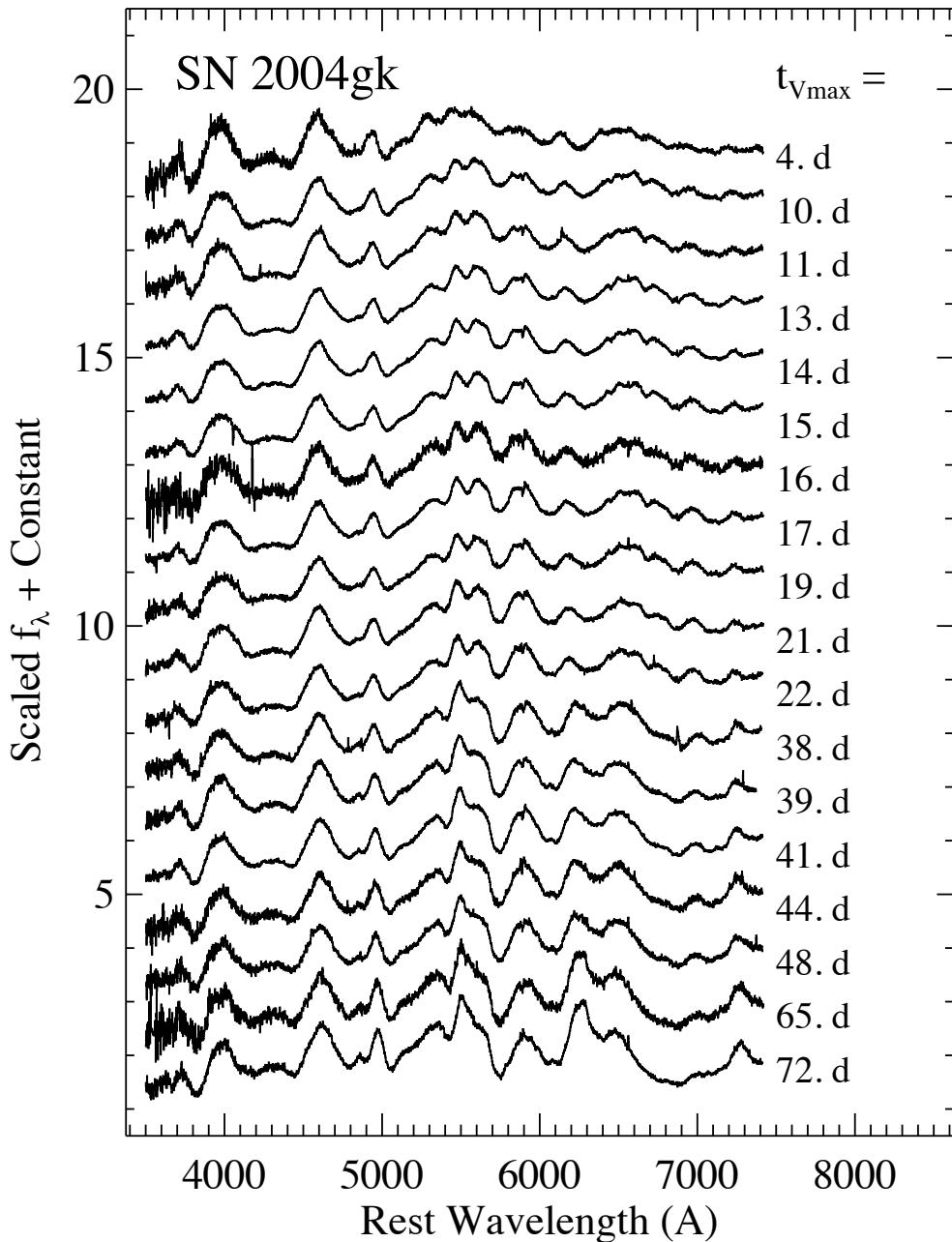


Fig. 27.— Same as in Figure 1, but for early-time spectra of SN Ic 2004gk.

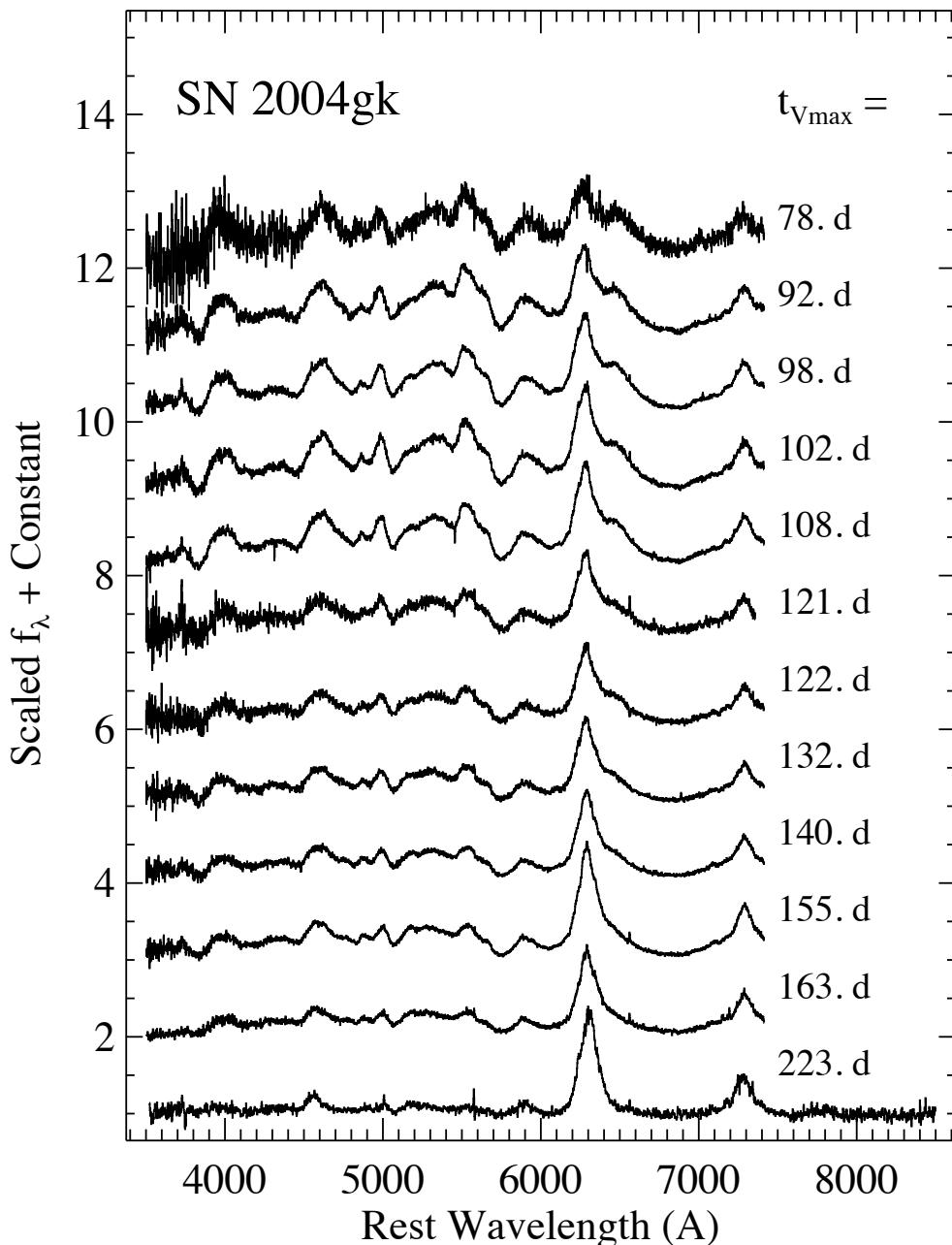


Fig. 28.— Same as in Figure 1, but for late-time spectra of SN Ic 2004gk.

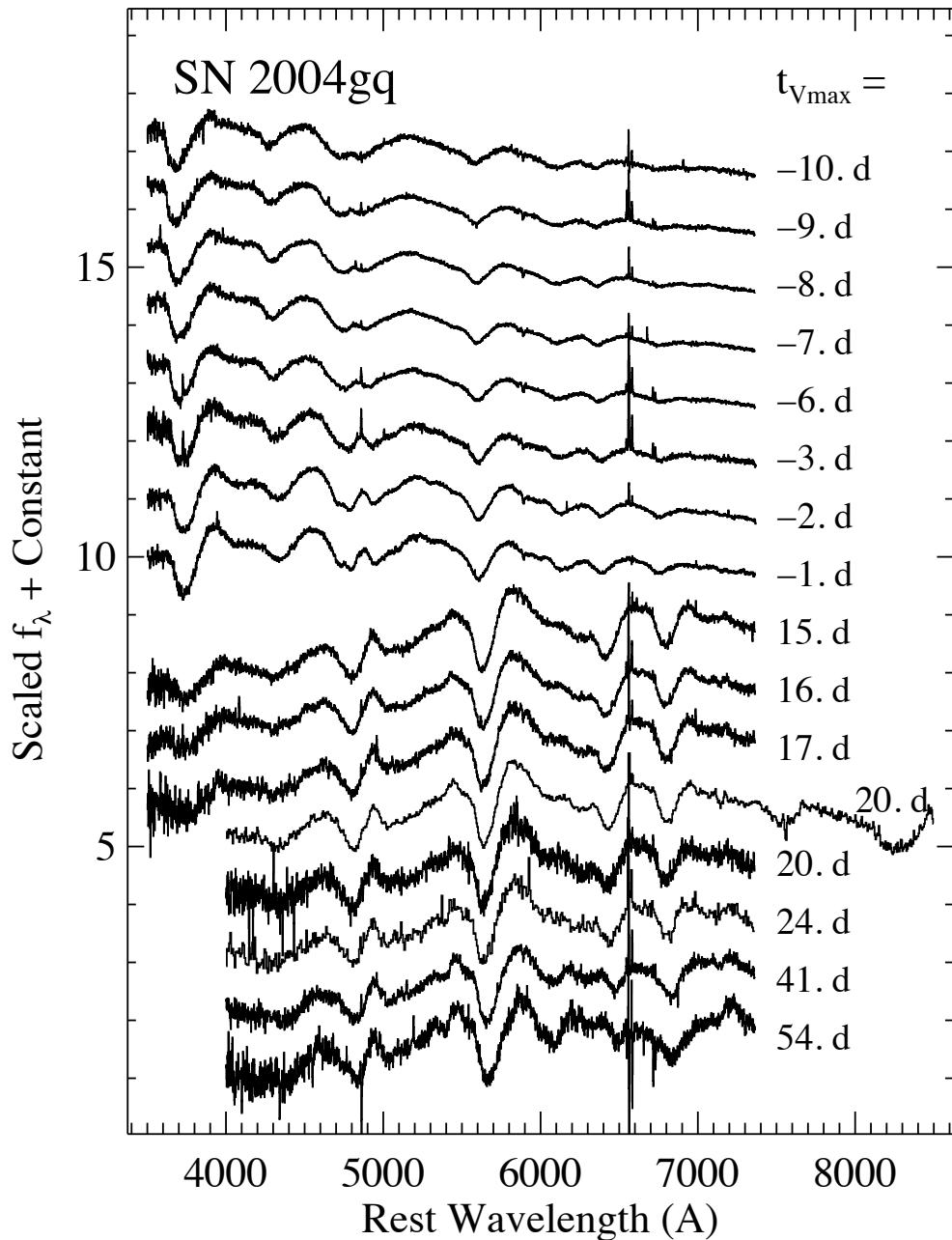


Fig. 29.— Same as in Figure 1, but for early-time spectra of SN Ib 2004gq.

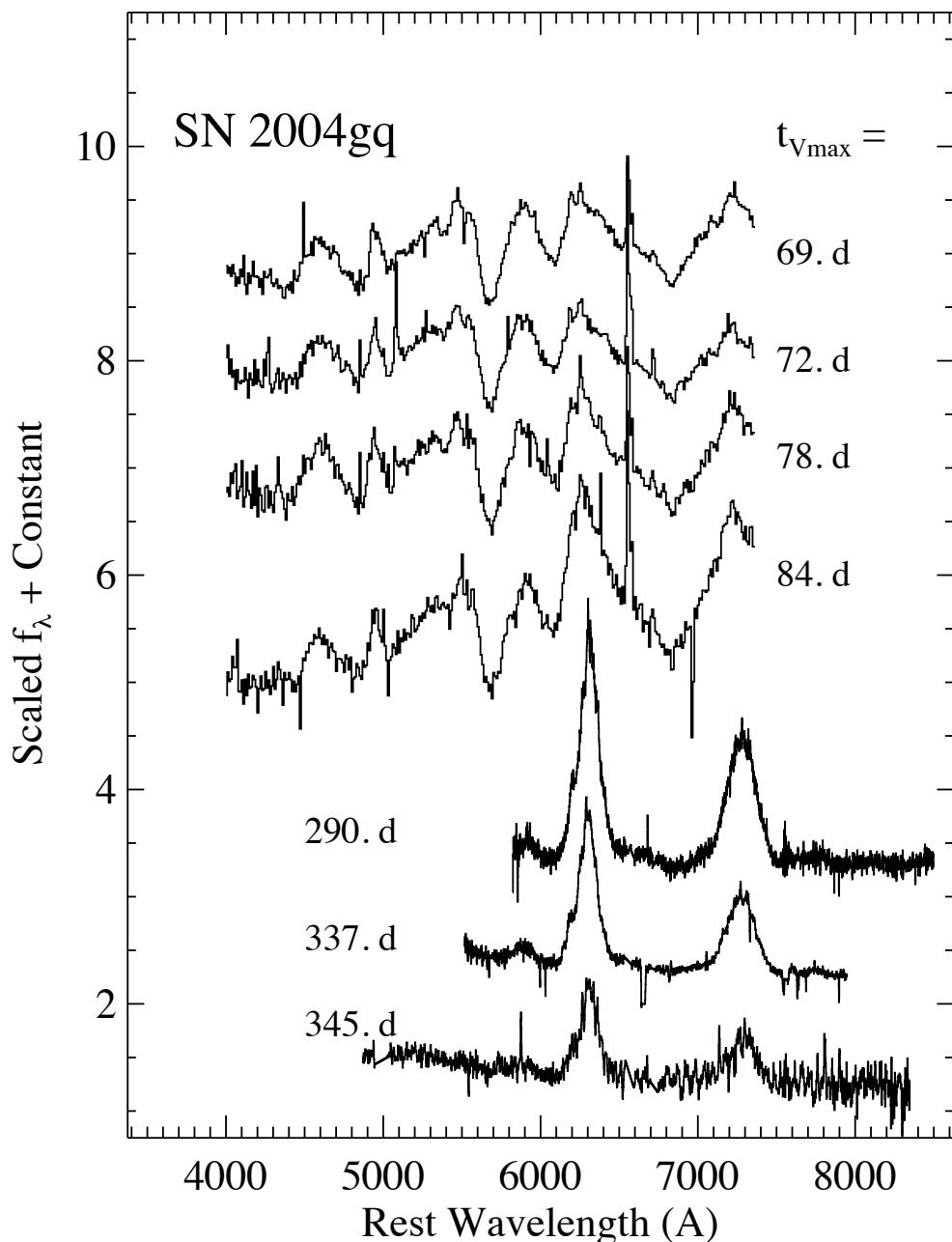


Fig. 30.— Same as in Figure 1, but for late-time spectra of SN Ib 2004gq, some of which have been rebinned for clarity.

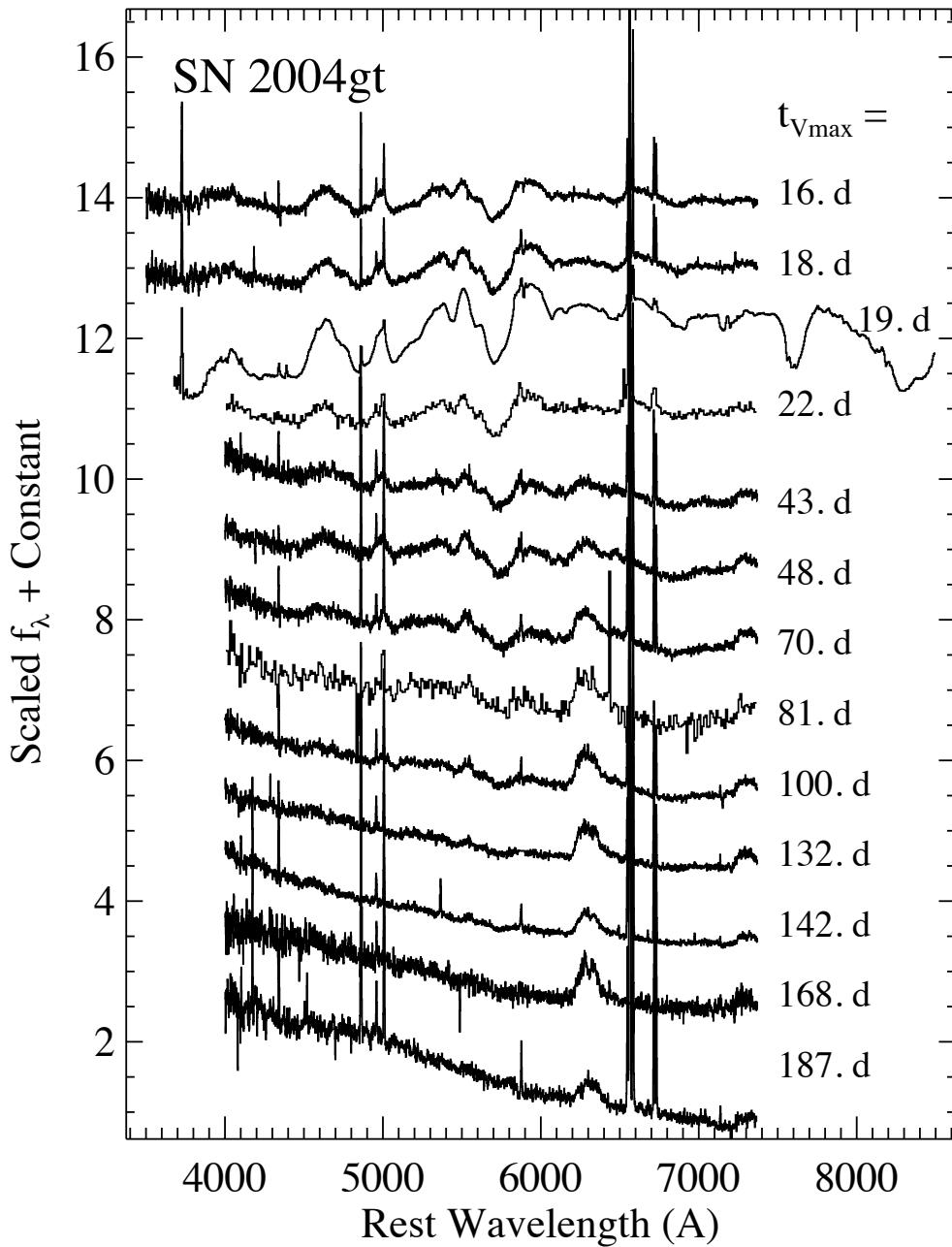


Fig. 31.— Same as in Figure 1, but for spectra of SN Ic 2004gt, some of which have been rebinned for clarity. Note that the nebular spectra ($t_{V\max} \sim 100-187$ days) are contaminated by the blue continuum of the host galaxy (specifically the massive stellar cluster less than 1'' from SN 2004gt, ?), as well as by the strong HII region emission lines.

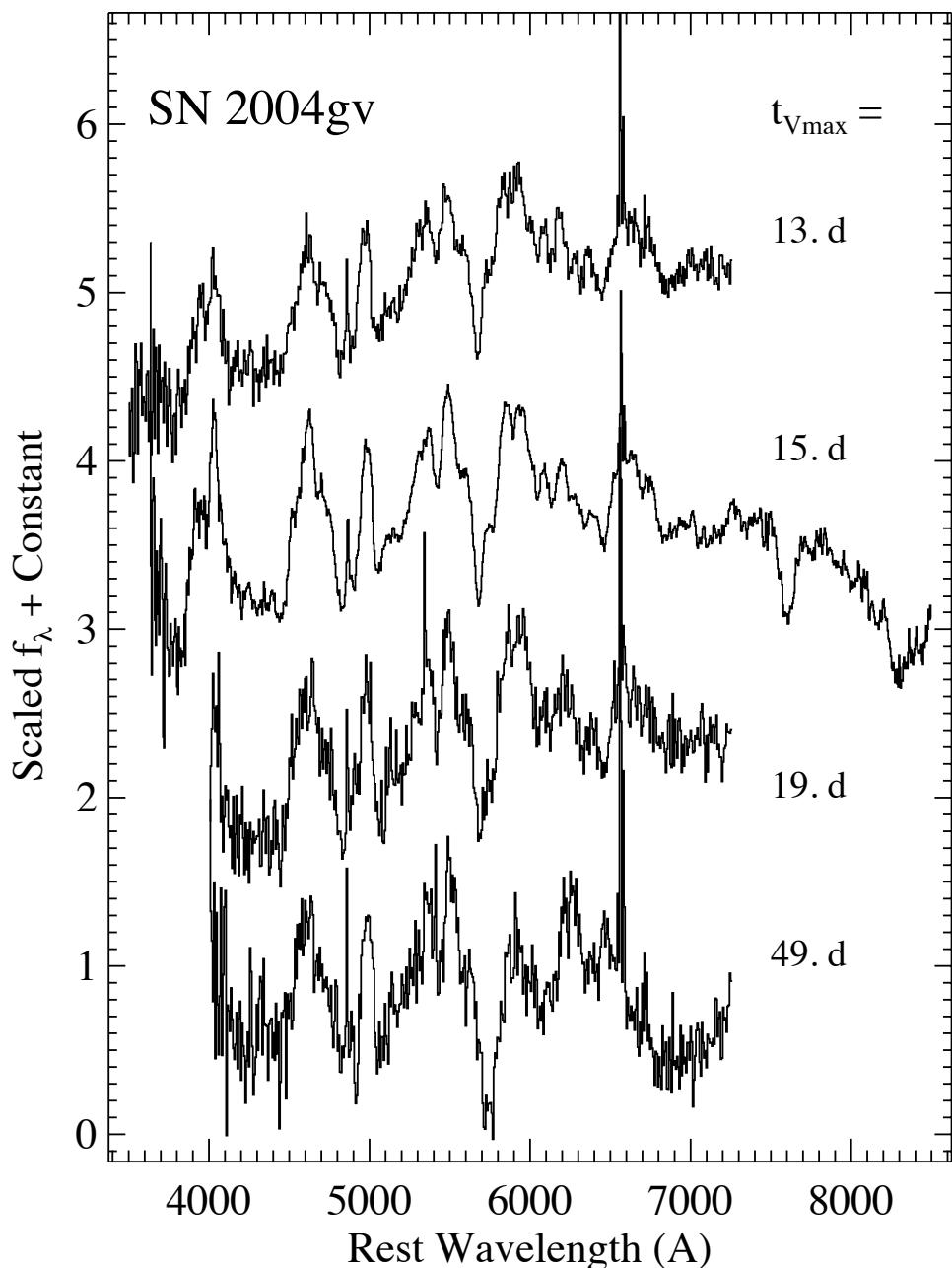


Fig. 32.— Same as in Figure 1, but for spectra of SN Ib 2004gv, which have been rebinned for clarity.

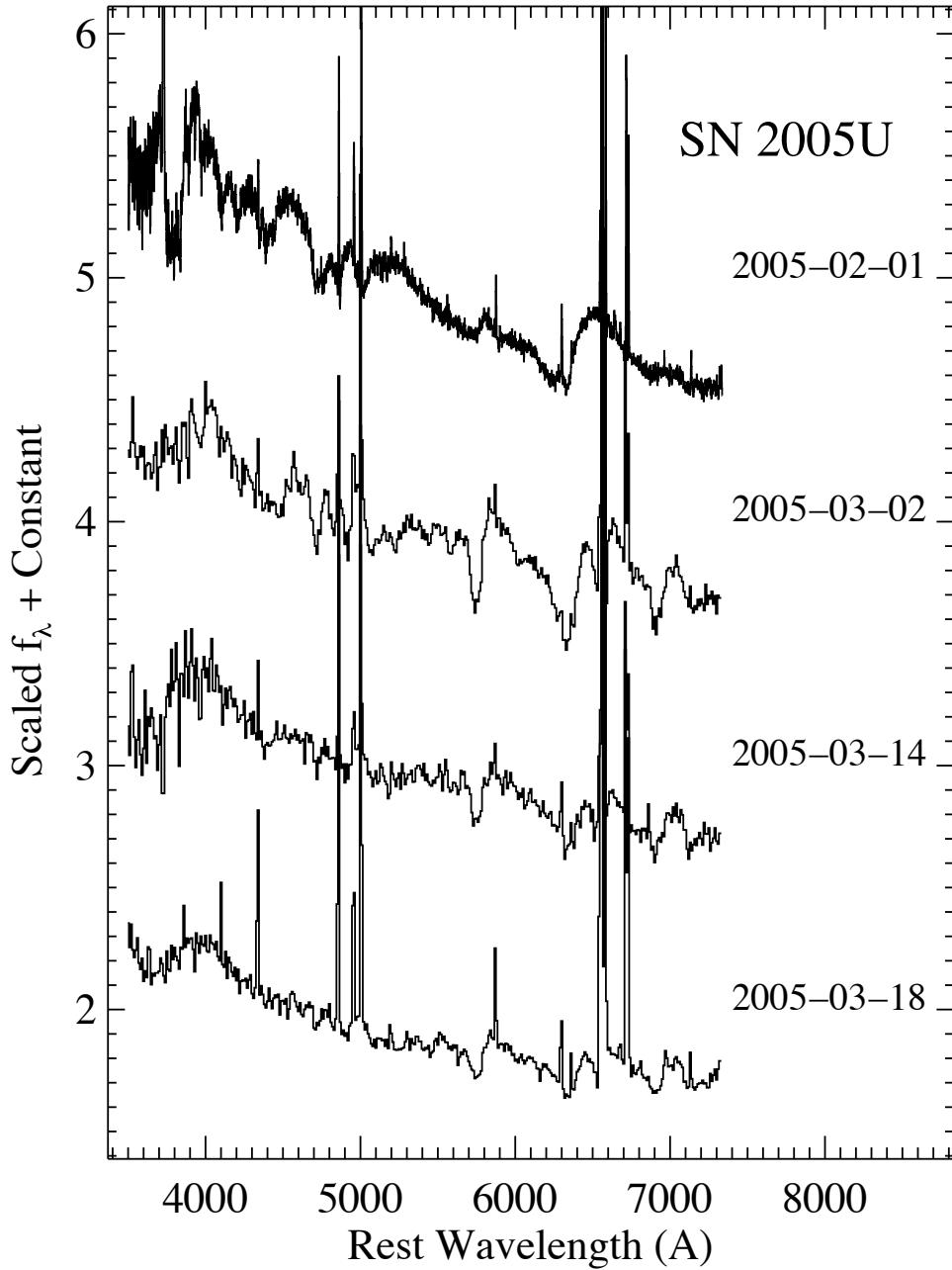


Fig. 33.— Same as in Figure 3, but for spectra of SN IIb 2005U, some of which have been rebinned for clarity. Note that the spectra are contaminated by the blue continuum of the host galaxy, as well as by strong HII region emission lines.

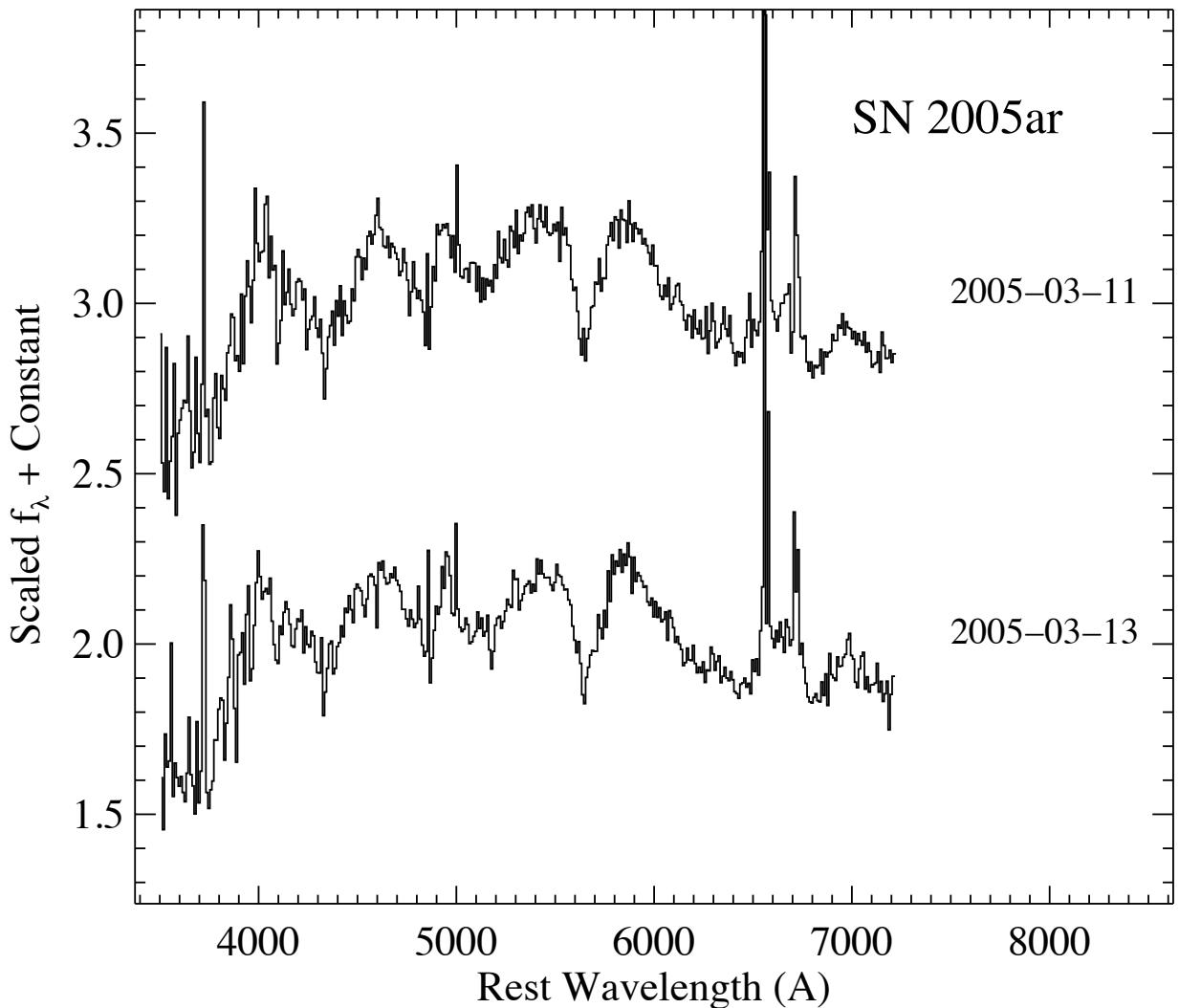


Fig. 34.— Same as in Figure 3, but for spectra of SN Ib 2005ar, which have been rebinned for clarity.

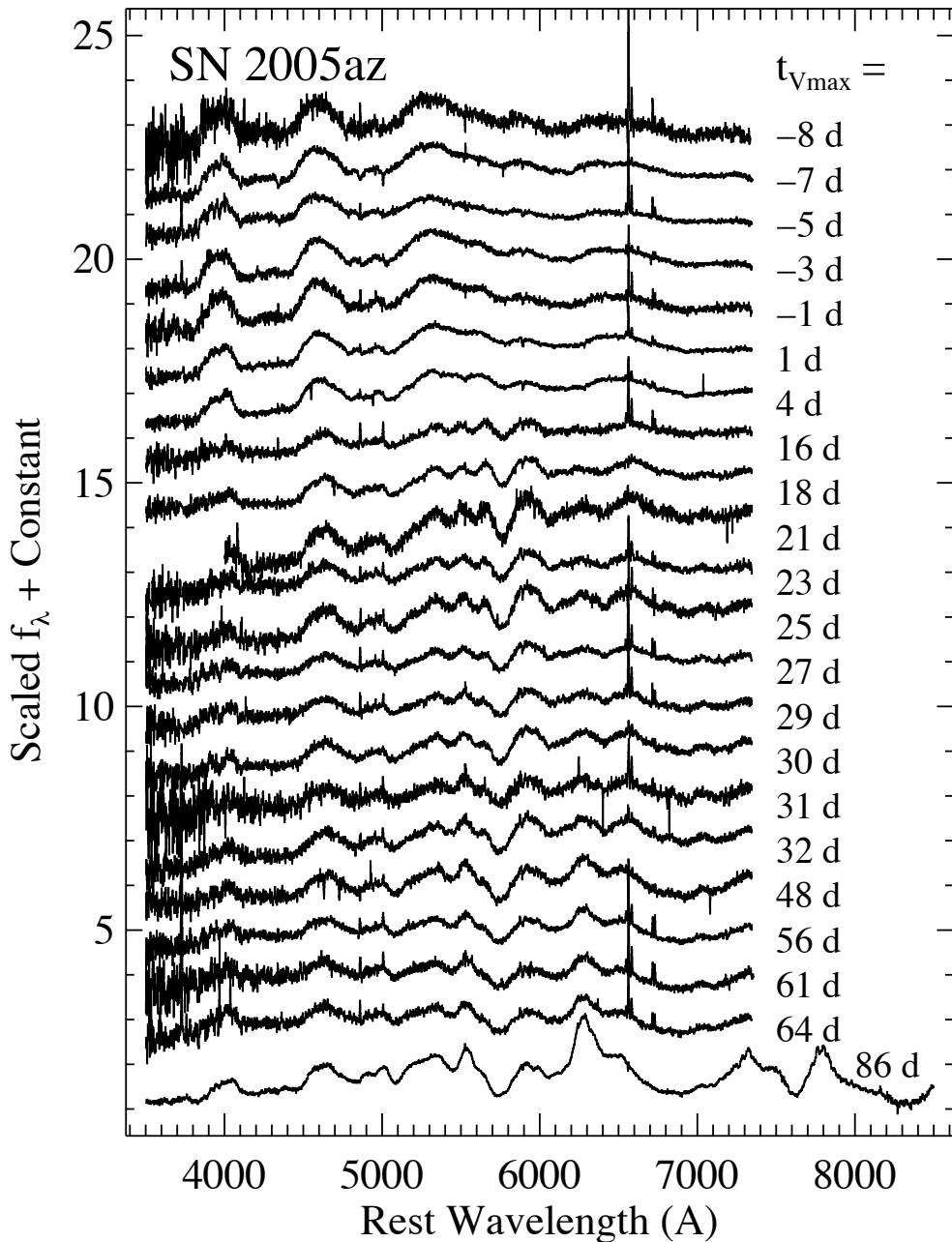


Fig. 35.— Same as in Figure 1, but for spectra of SN Ic 2005az.

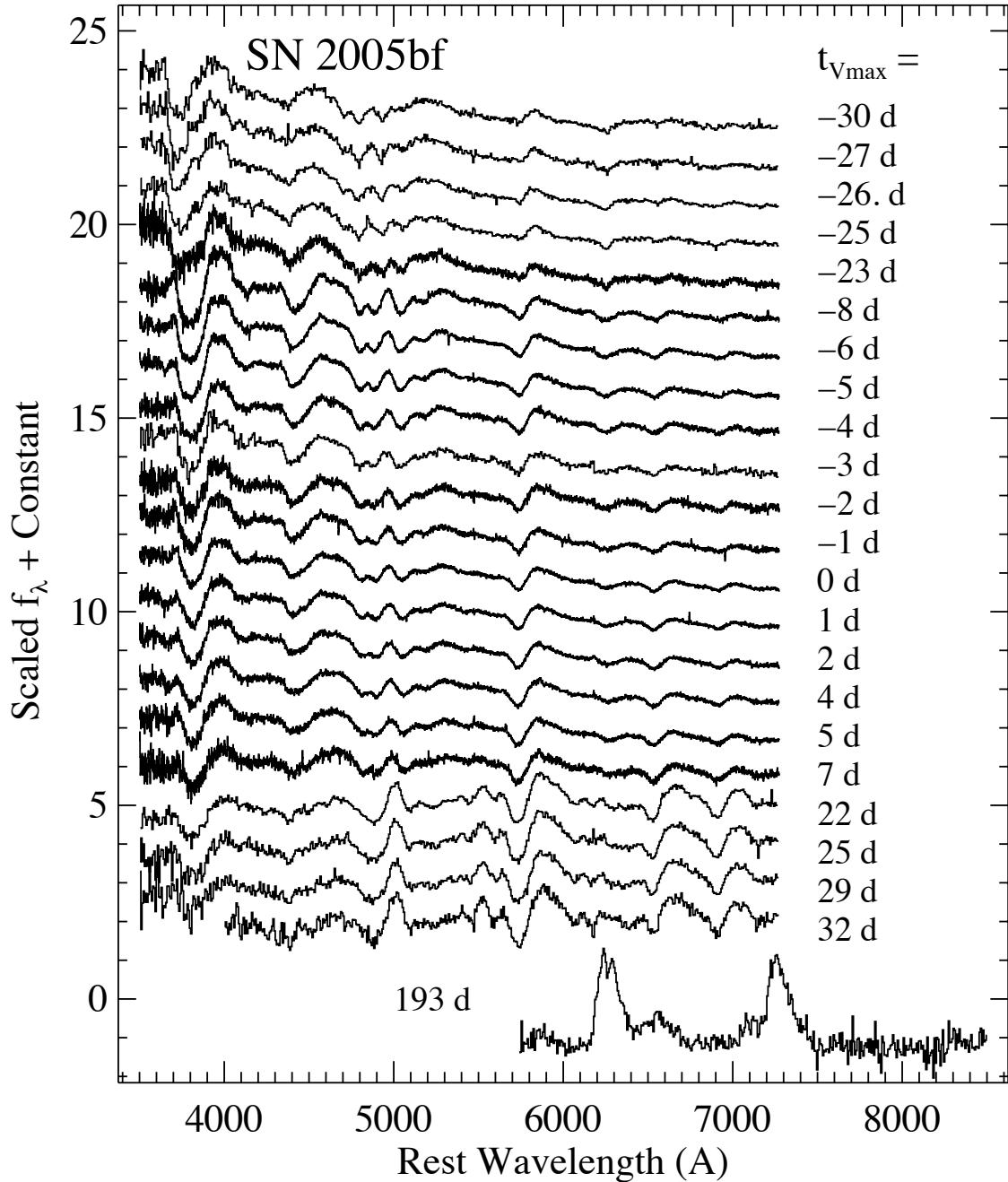


Fig. 36.— Same as in Figure 1, but for spectra of the peculiar SN Ib 2005bf, some of which have been rebinned for clarity. A number of these spectra were presented in Tominaga et al (2005), and they are shown here with respect to the first *V*-band maximum (JD 2453476.45).

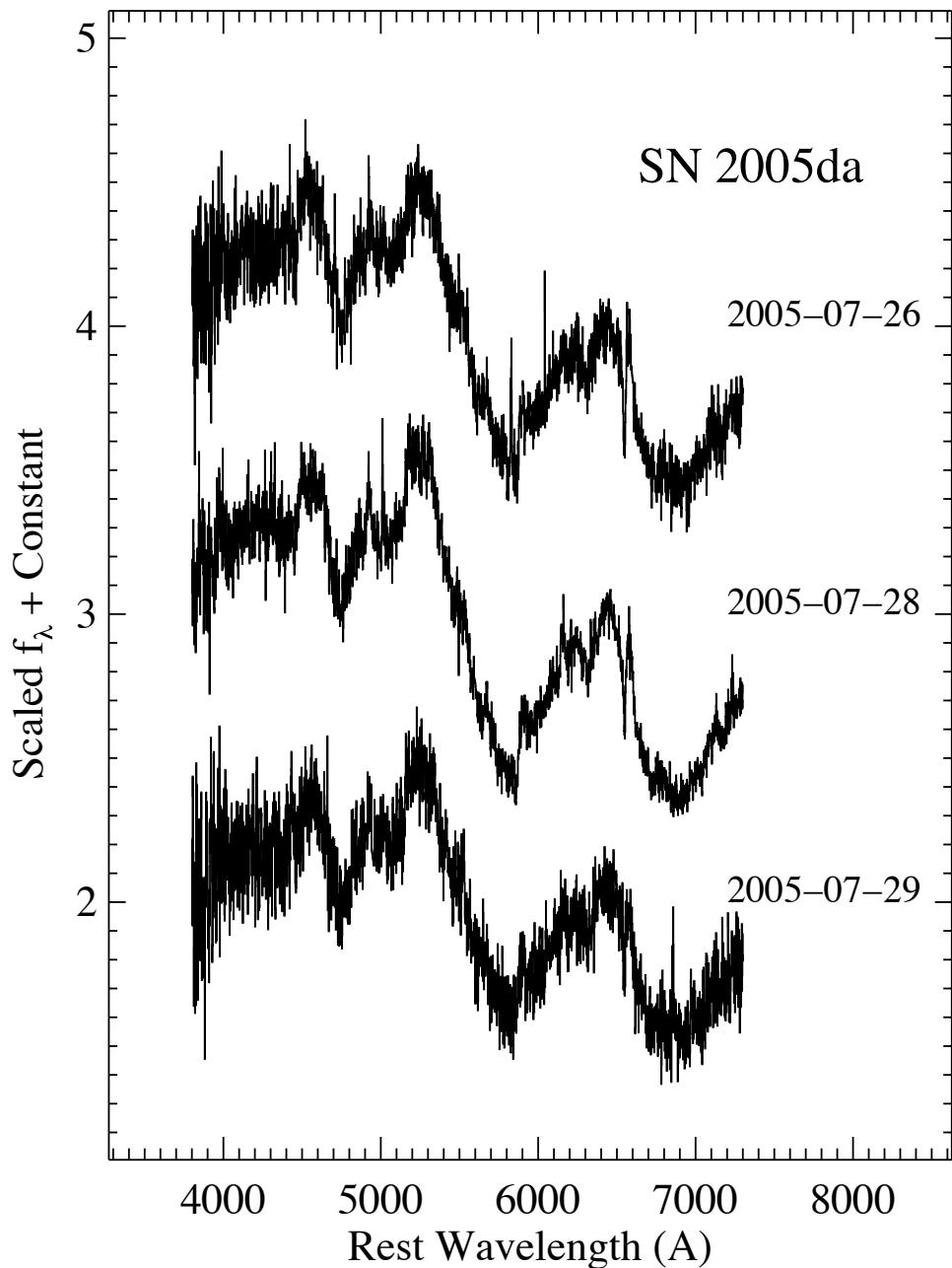


Fig. 37.— Same as in Figure 3, but for spectra of SN Ic-bl 2005da.

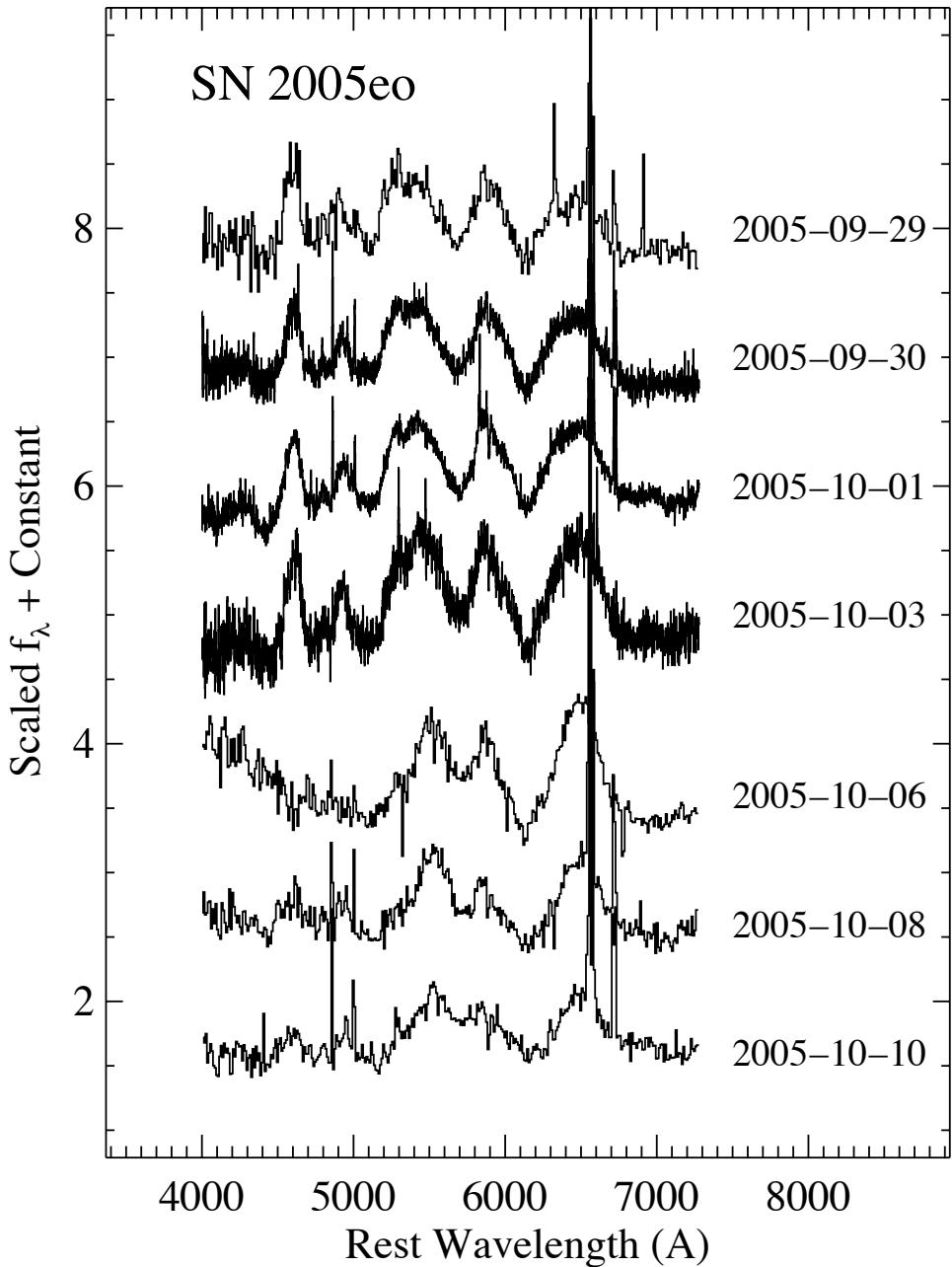


Fig. 38.— Same as in Figure 1, but for spectra of **SN Ia** 2005eo, some of which have been rebinned for clarity. Note that the spectral phases are with respect to *R*-band maximum. While this SN was initially classified as a SN Ic, however, as mentioned in the body of the paper, we find that SNID yields many very good matches with normal SN Ia at 2-3 weeks after maximum, and a few, but worse, matches with young SN Ic (around maximum). Thus, we reclassify this SN from a SN Ic to a SN Ia, but nevertheless show the spectra here.

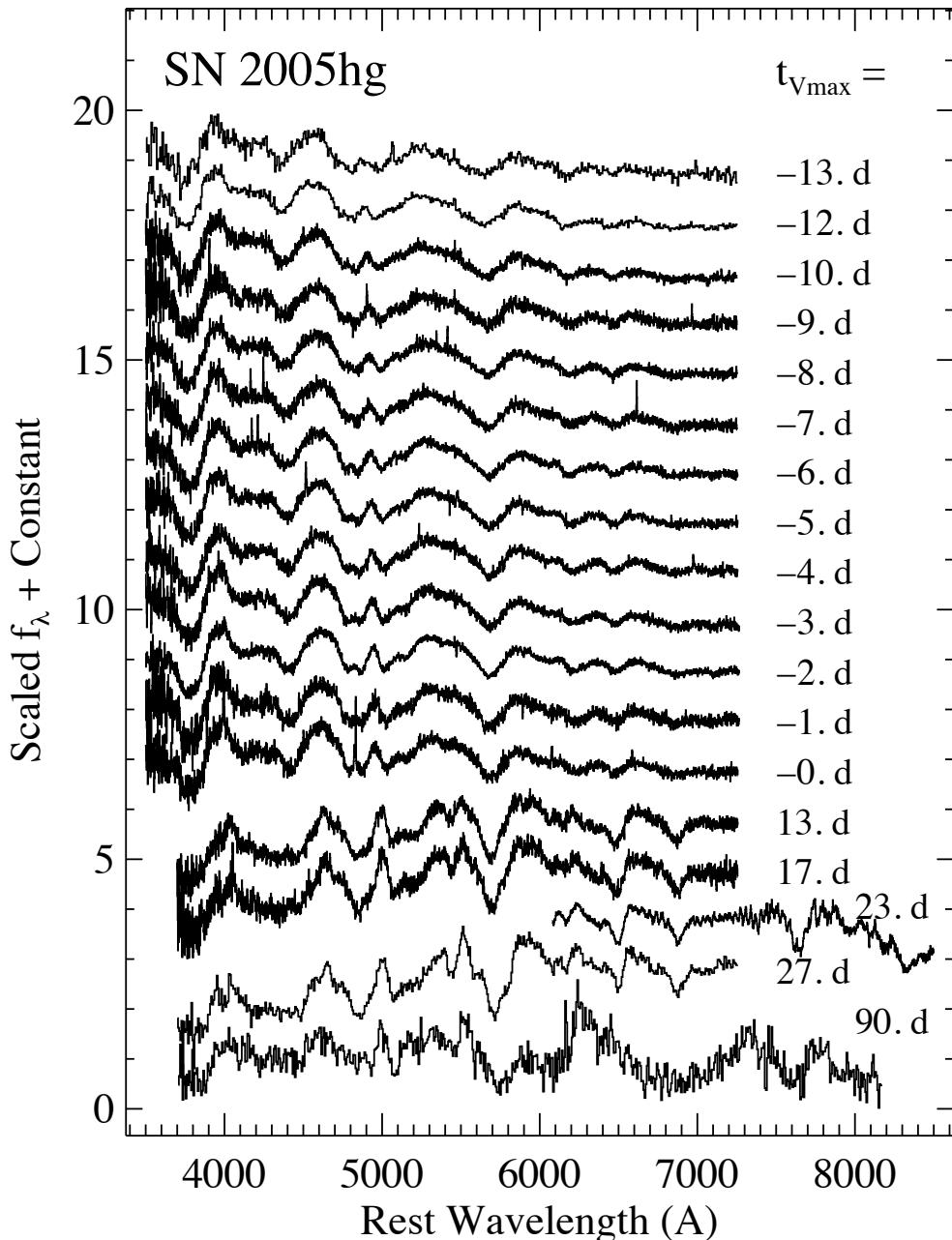


Fig. 39.— Same as in Figure 1, but for spectra of SN Ib 2005hg, some of which have been rebinned for clarity.

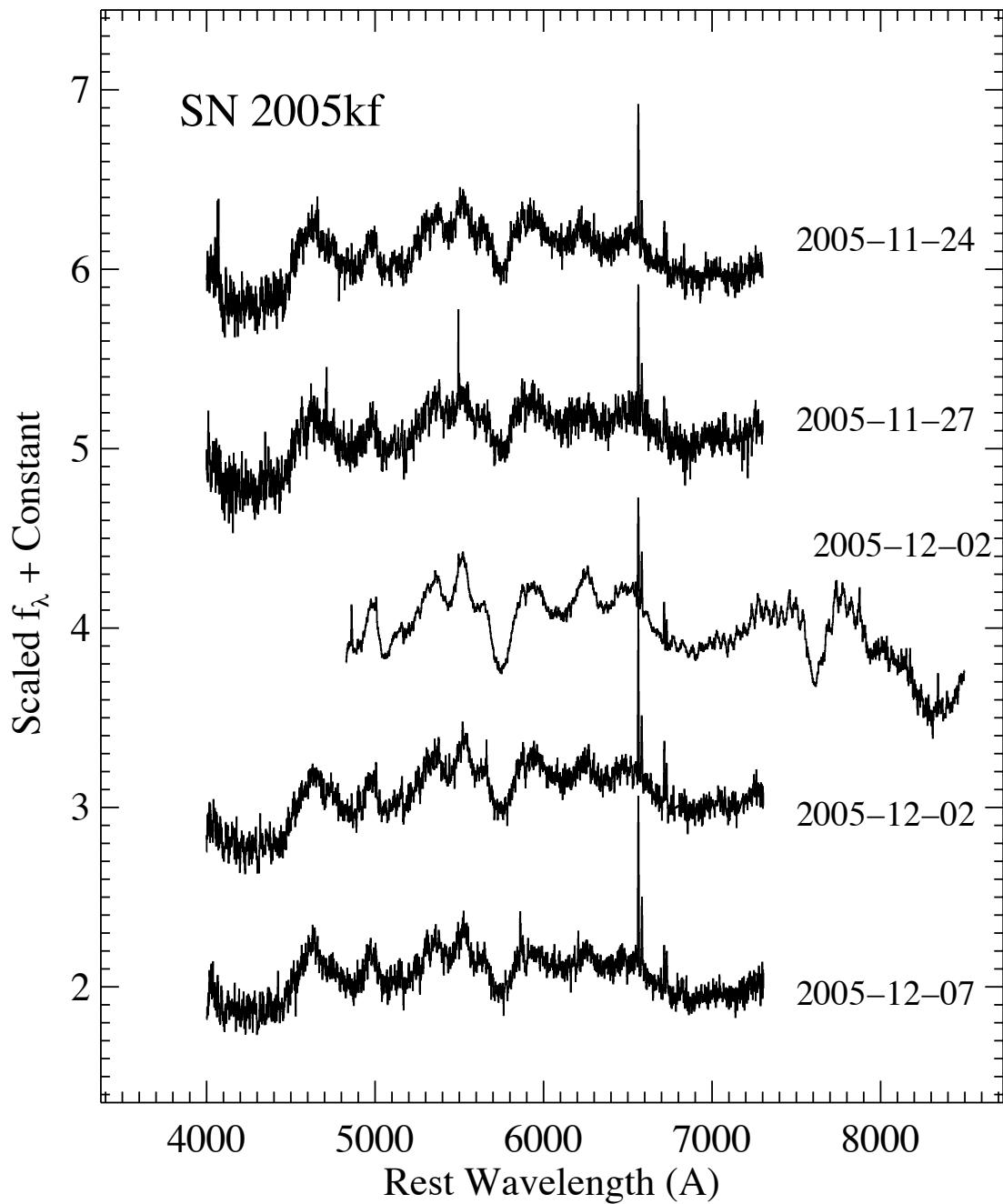


Fig. 40.— Same as in Figure 1, but for spectra of SN Ic 2005kf.

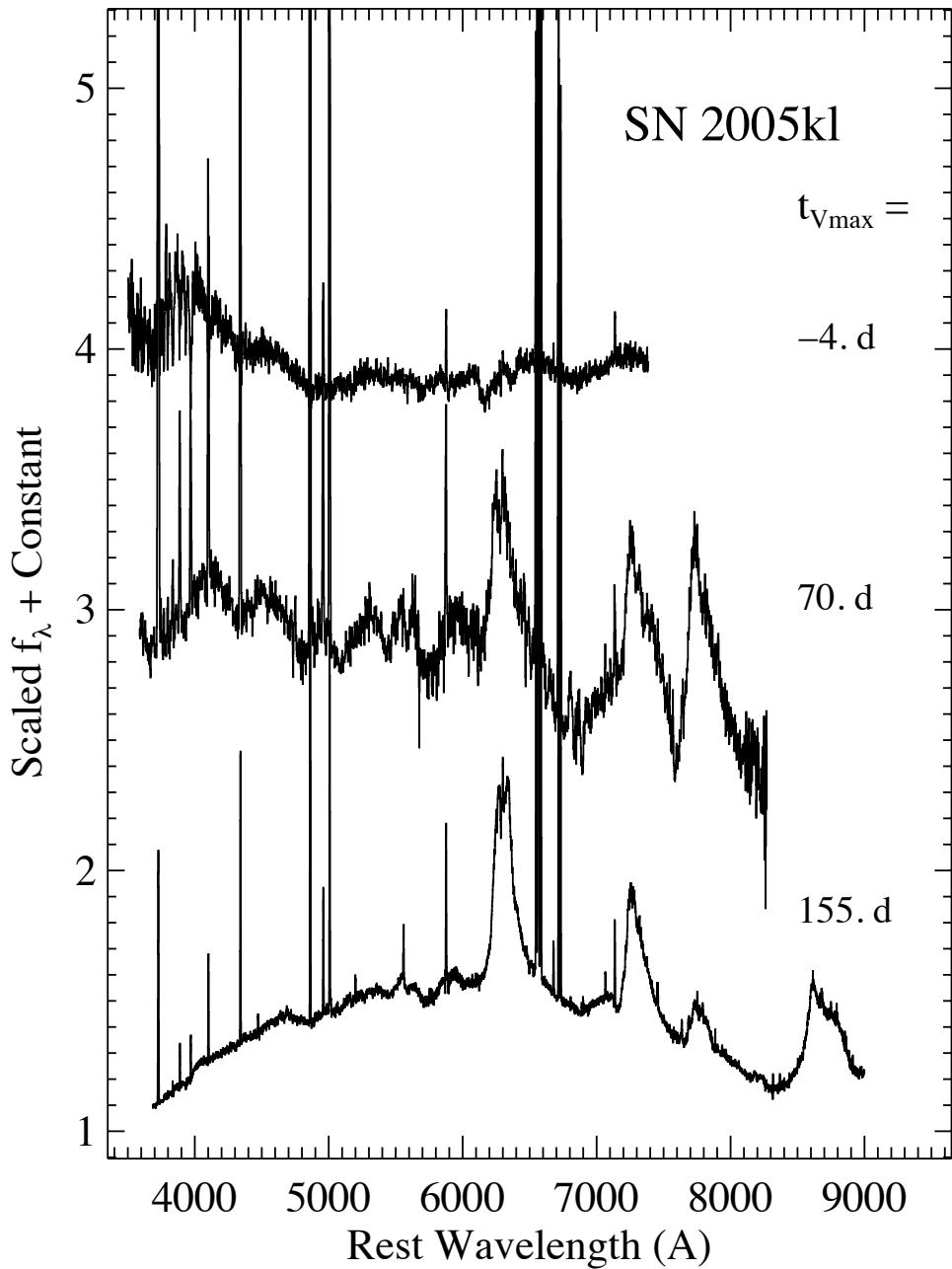


Fig. 41.— Same as in Figure 1, but for spectra of SN Ic 2005kl, which is severely affected by host galaxy contamination.

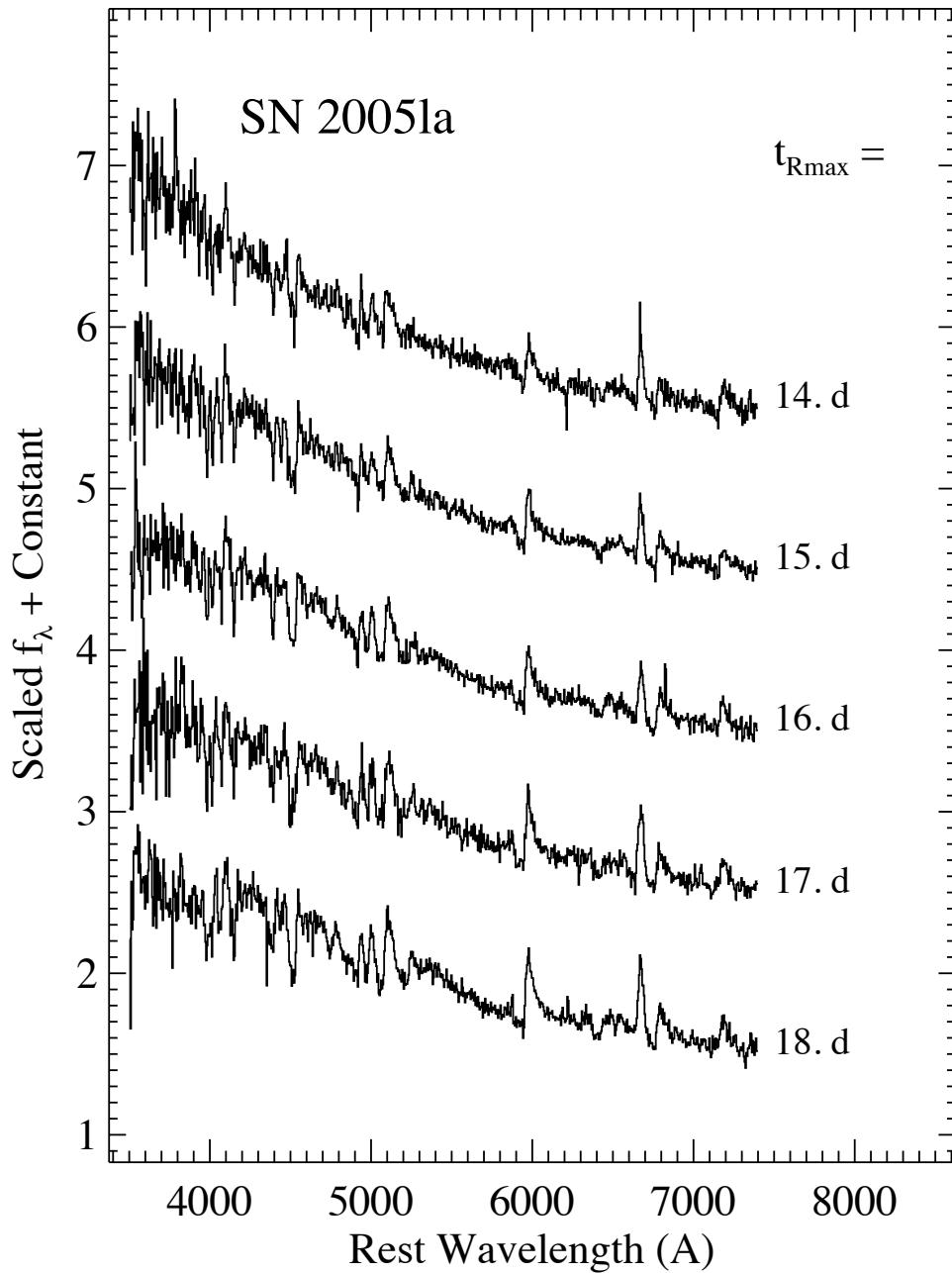


Fig. 42.— Same as in Figure 1, but for spectra of the peculiar SN IIn/Ib-n 2005la, which have been binned for clarity.

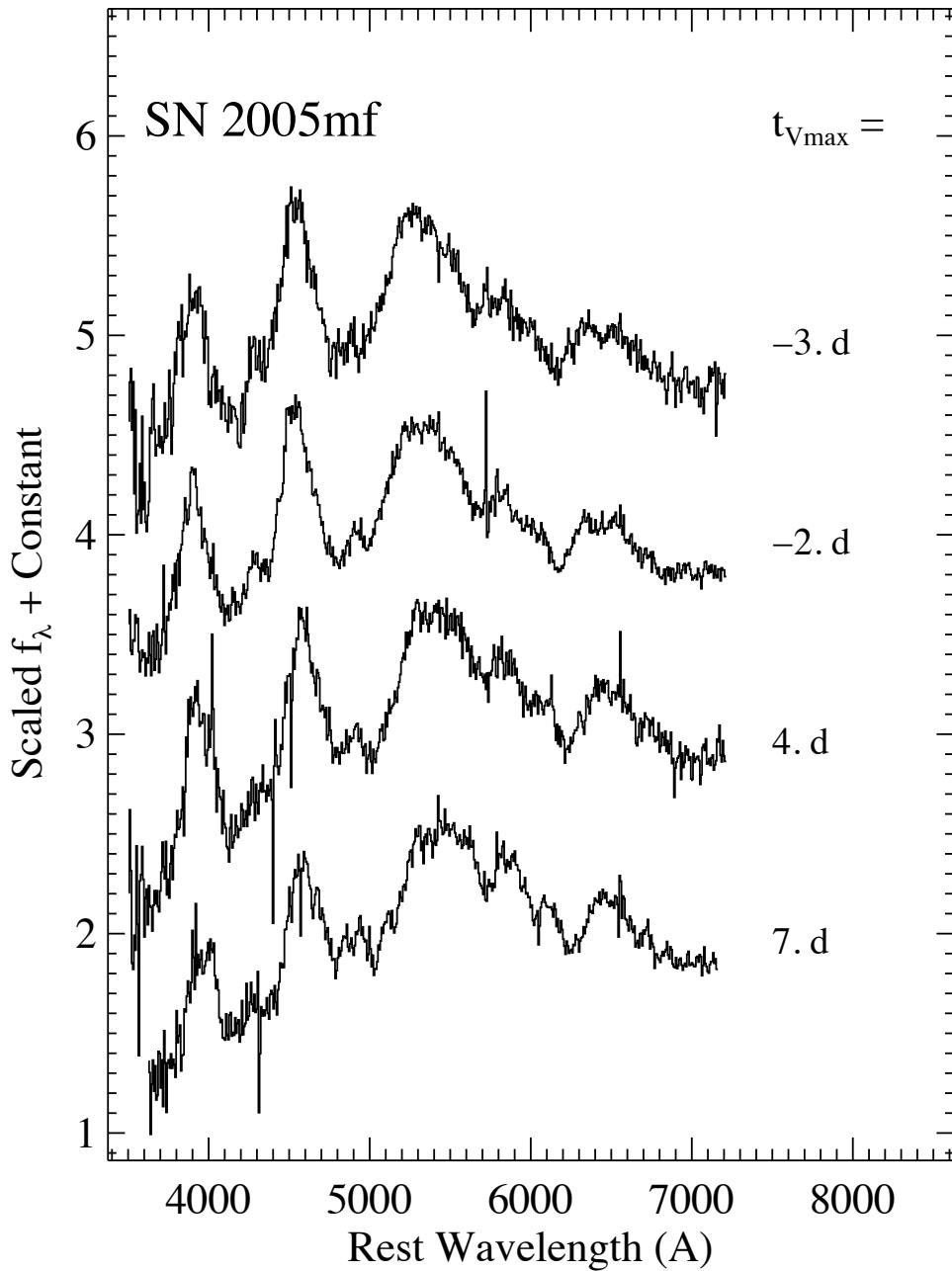


Fig. 43.— Same as in Figure 1, but for spectra of SN Ic 2005mf, which have been rebinned for clarity.

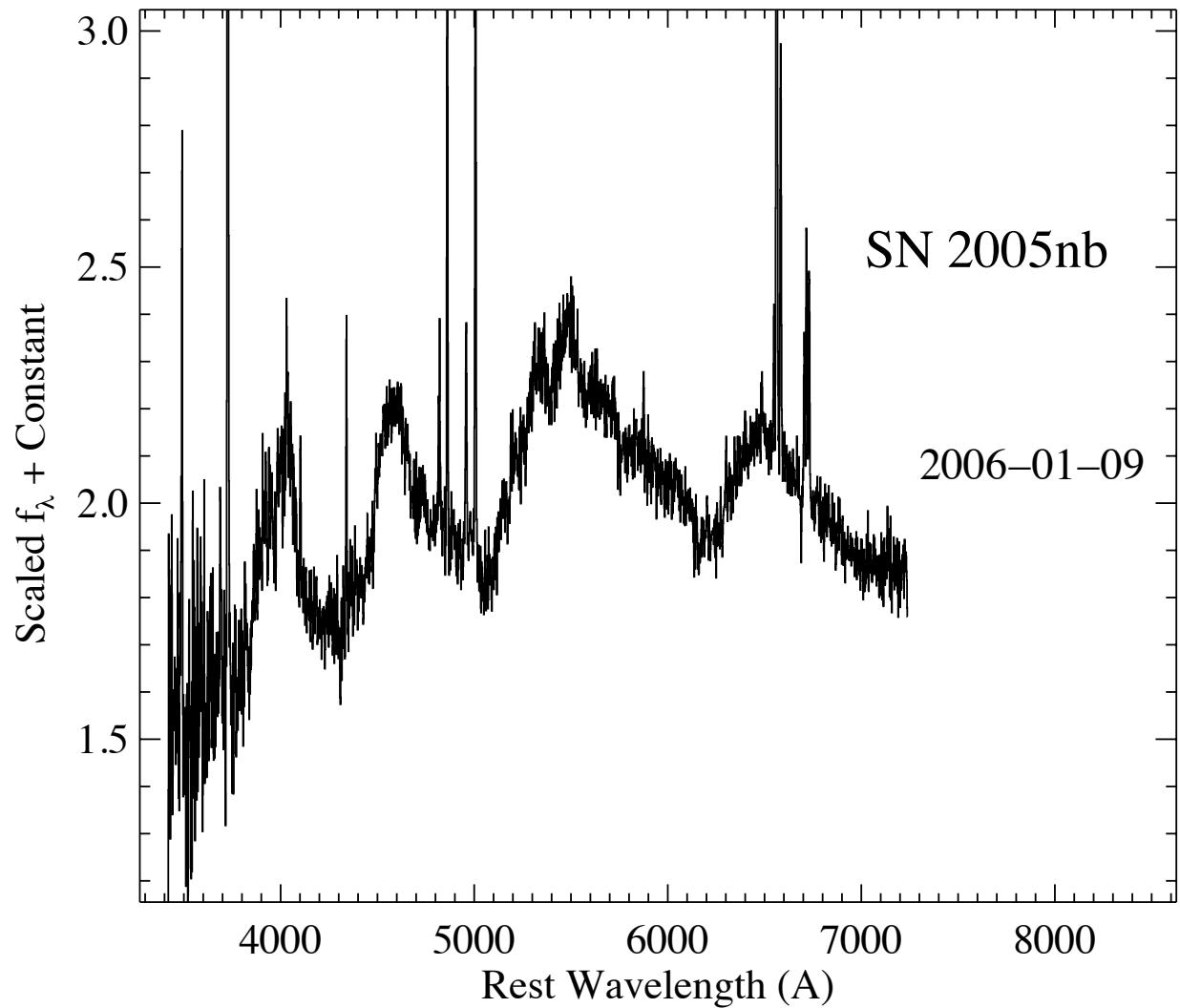


Fig. 44.— Same as in Figure 3, but for spectra of SN Ic-bl 2005nb.

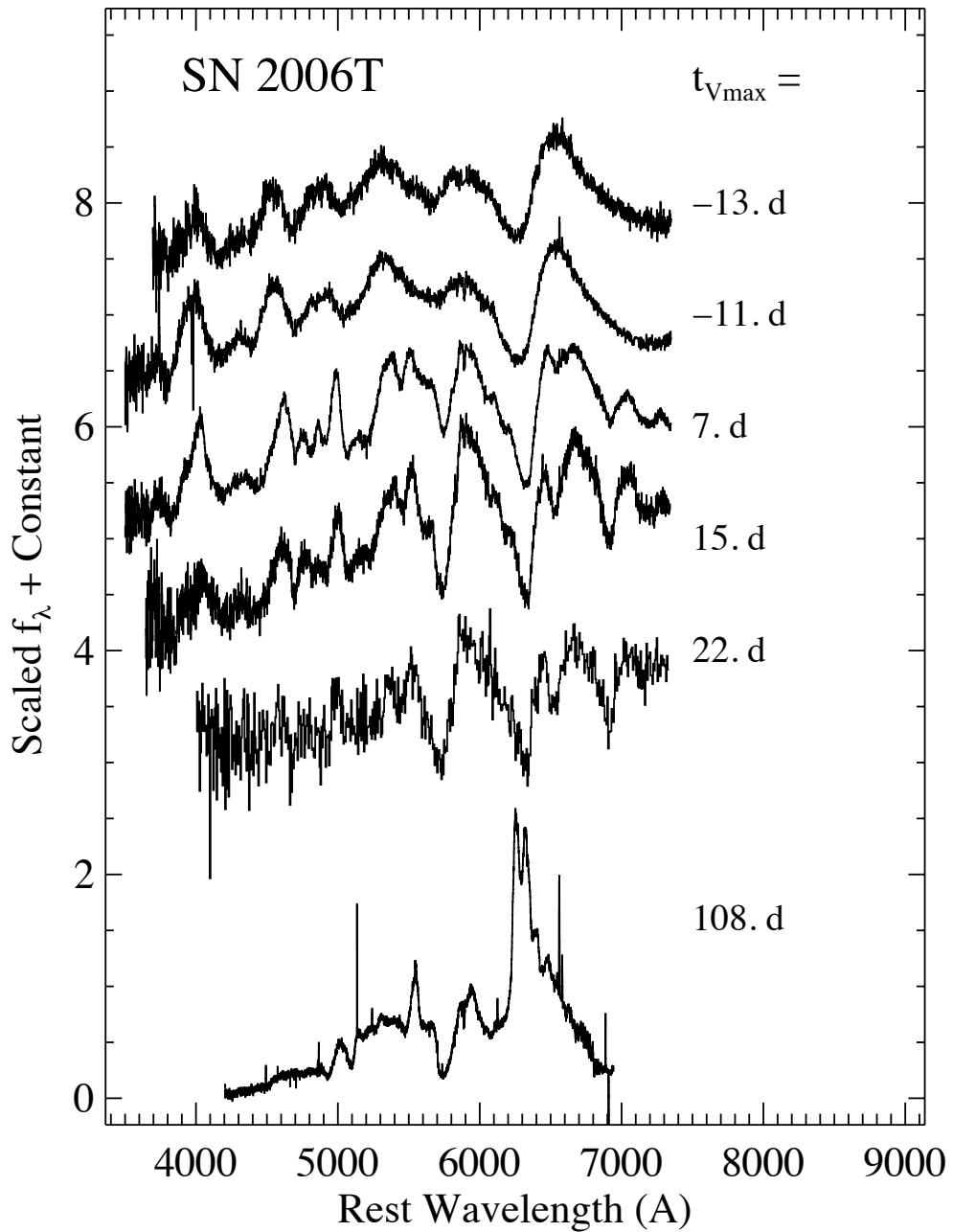


Fig. 45.— Same as in Figure 1, but for spectra of SN IIb 2006T, some of which have been binned for clarity.

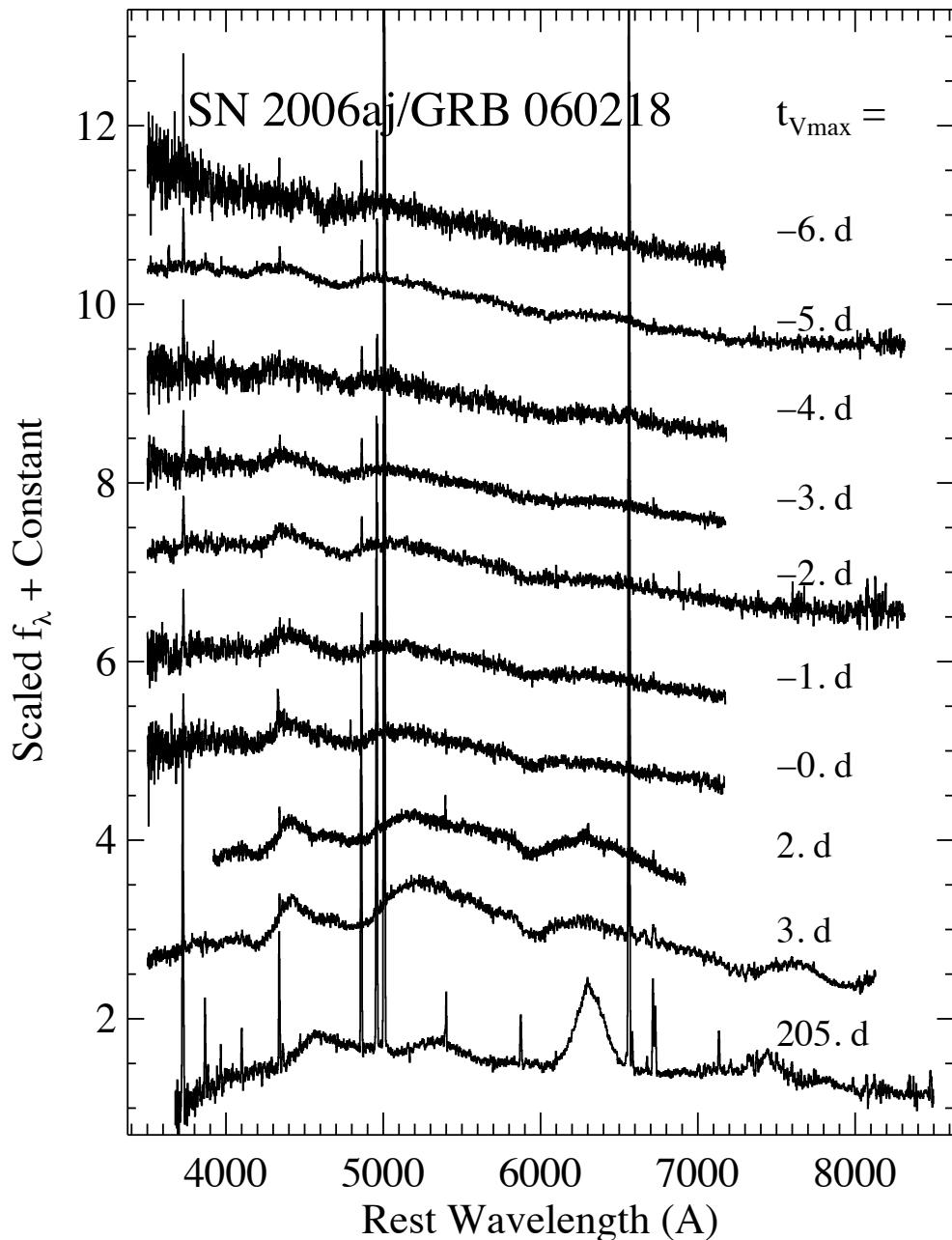


Fig. 46.— Same as in Figure 1, but for broad-lined SN Ic 2006aj connected with GRB 060218 (the early-time data are from Modjaz et al. (2006)).

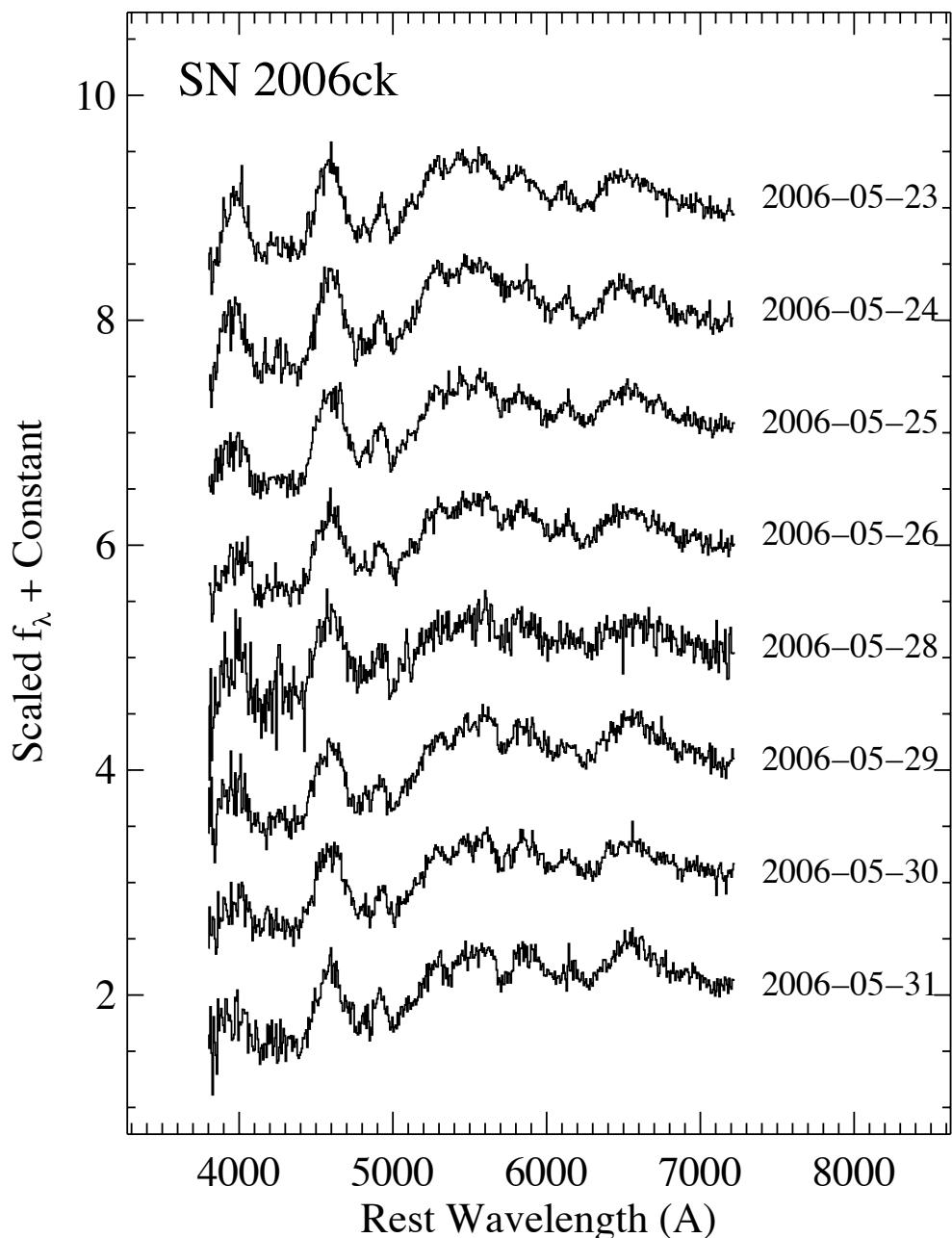


Fig. 47.— Same as in Figure 3, but for spectra of SN Ic 2006ck, which have been rebinned for clarity.

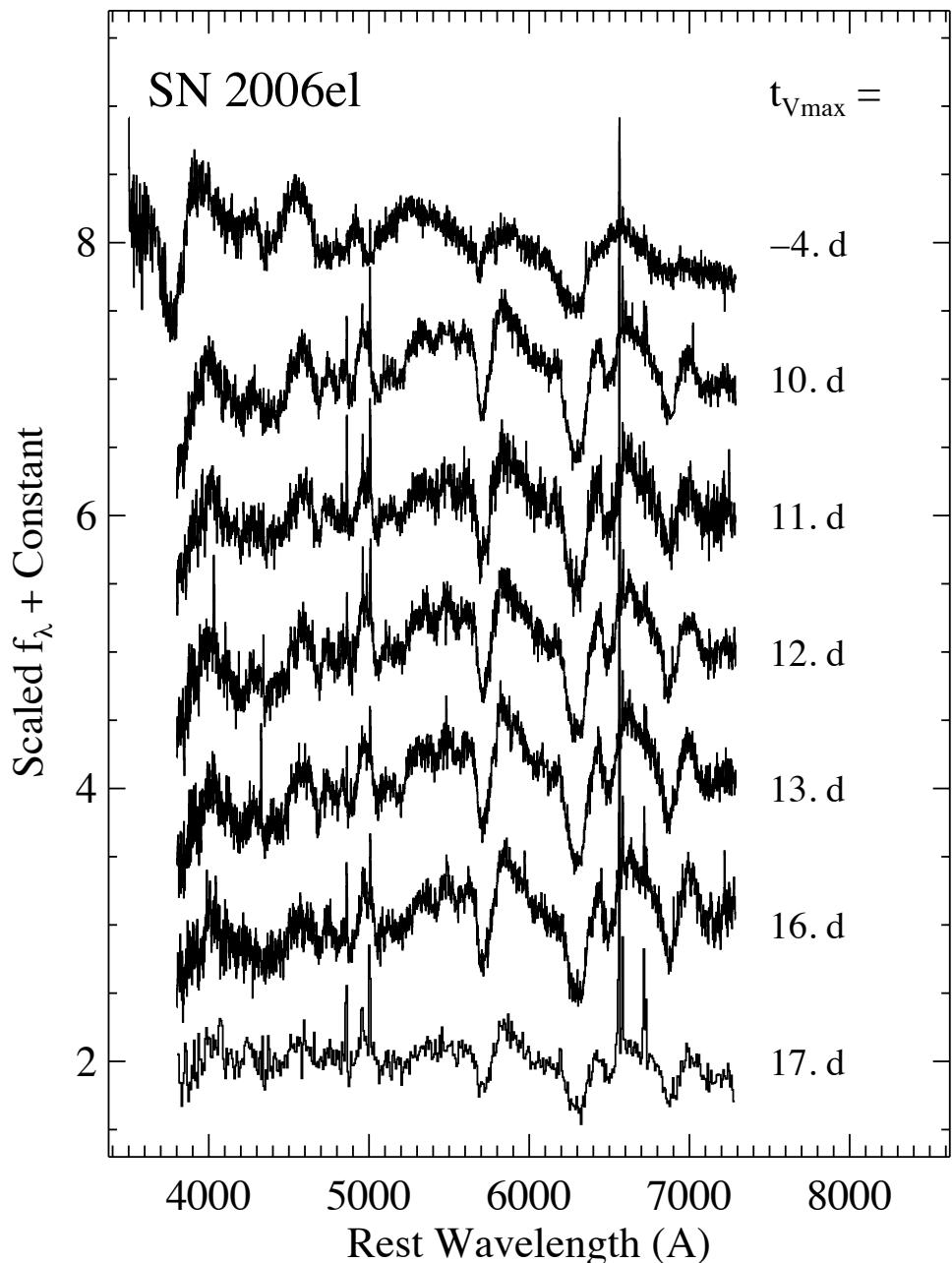


Fig. 48.— Same as in Figure 1, but for spectra of SN IIb 2006el, one of which has been rebinned for clarity.

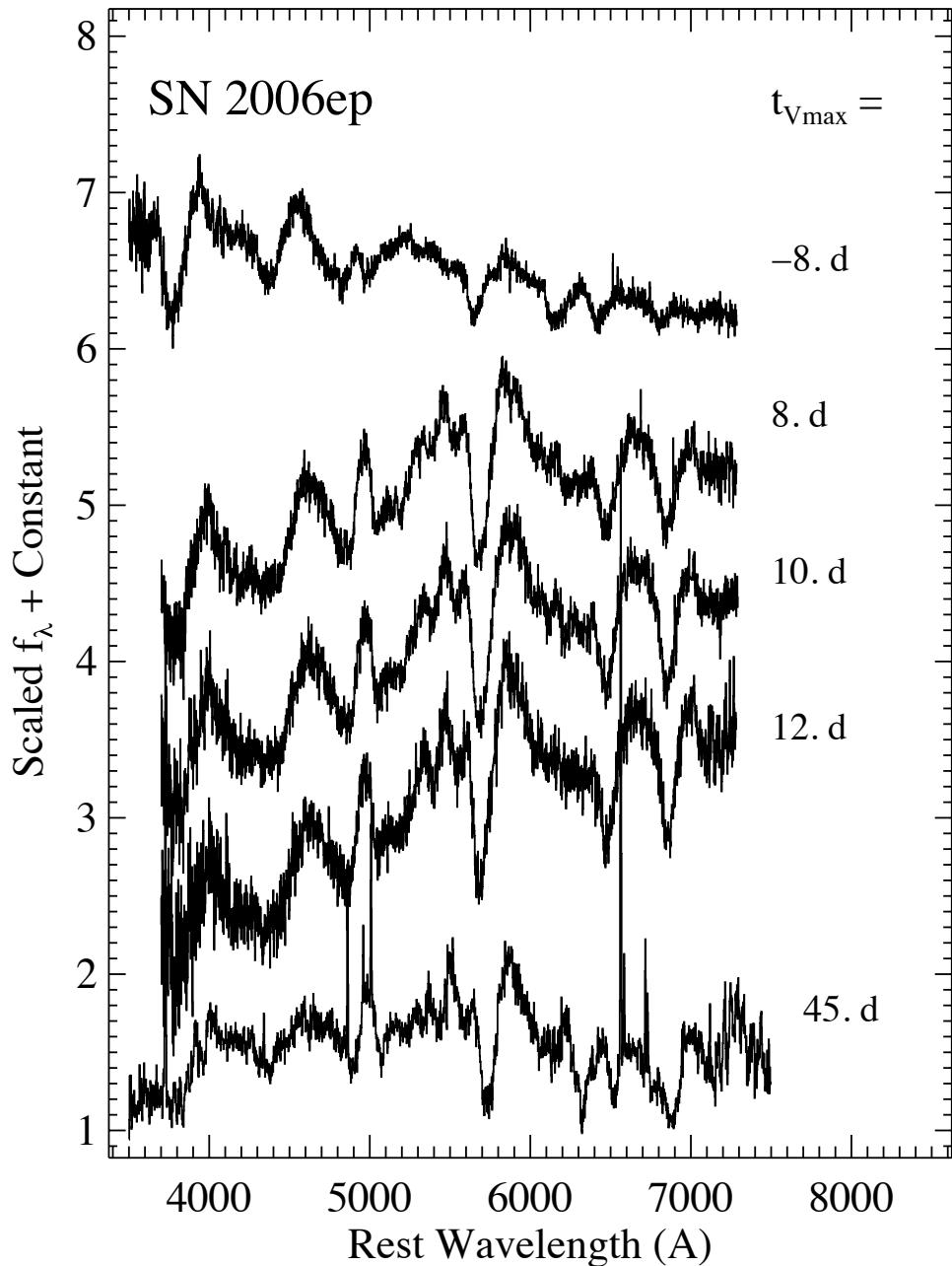


Fig. 49.— Same as in Figure 1, but for SN Ib 2006ep.

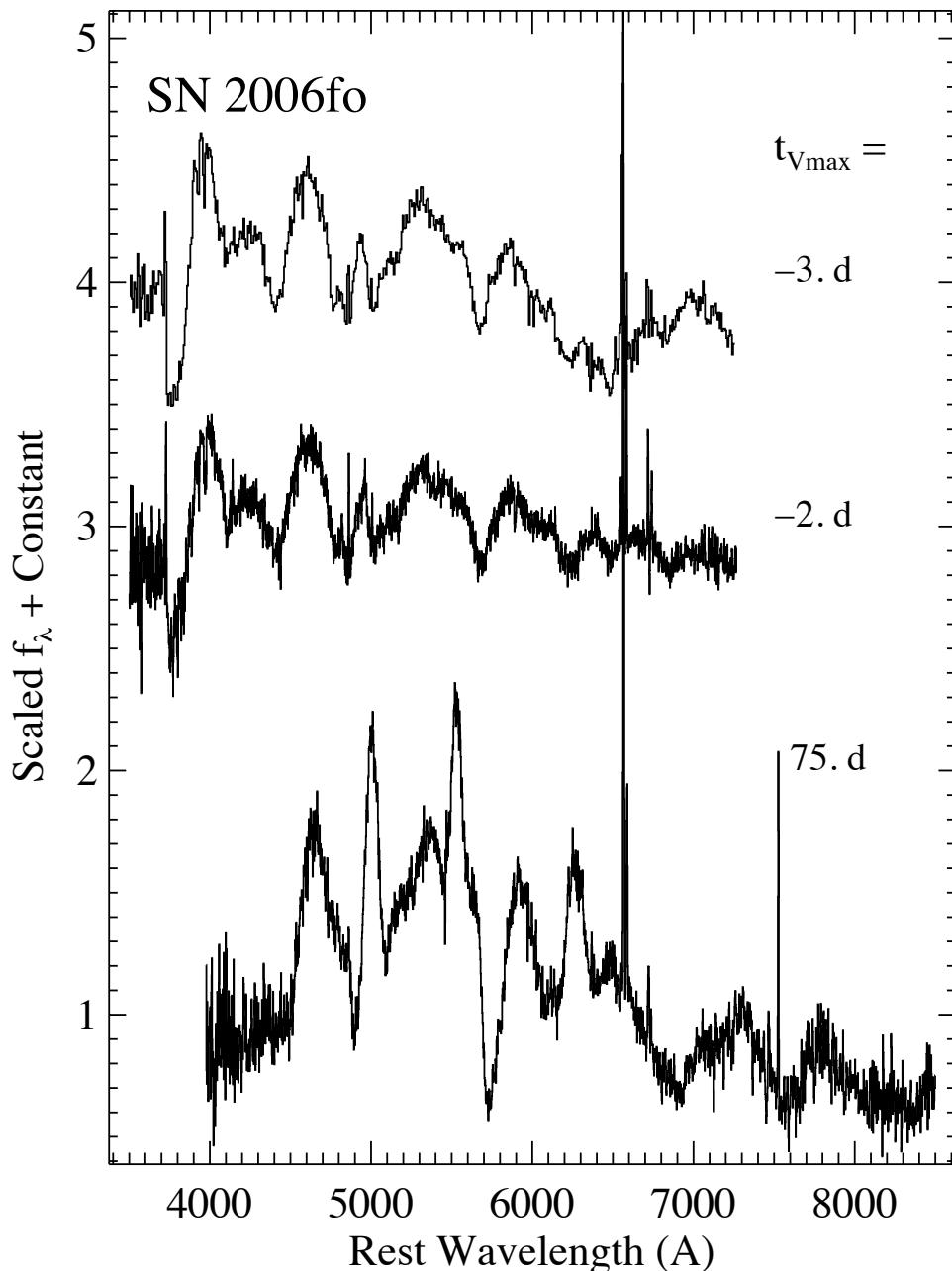


Fig. 50.— Same as in Figure 1, but for spectra of SN Ib 2006fo, one of which has been rebinned for clarity.

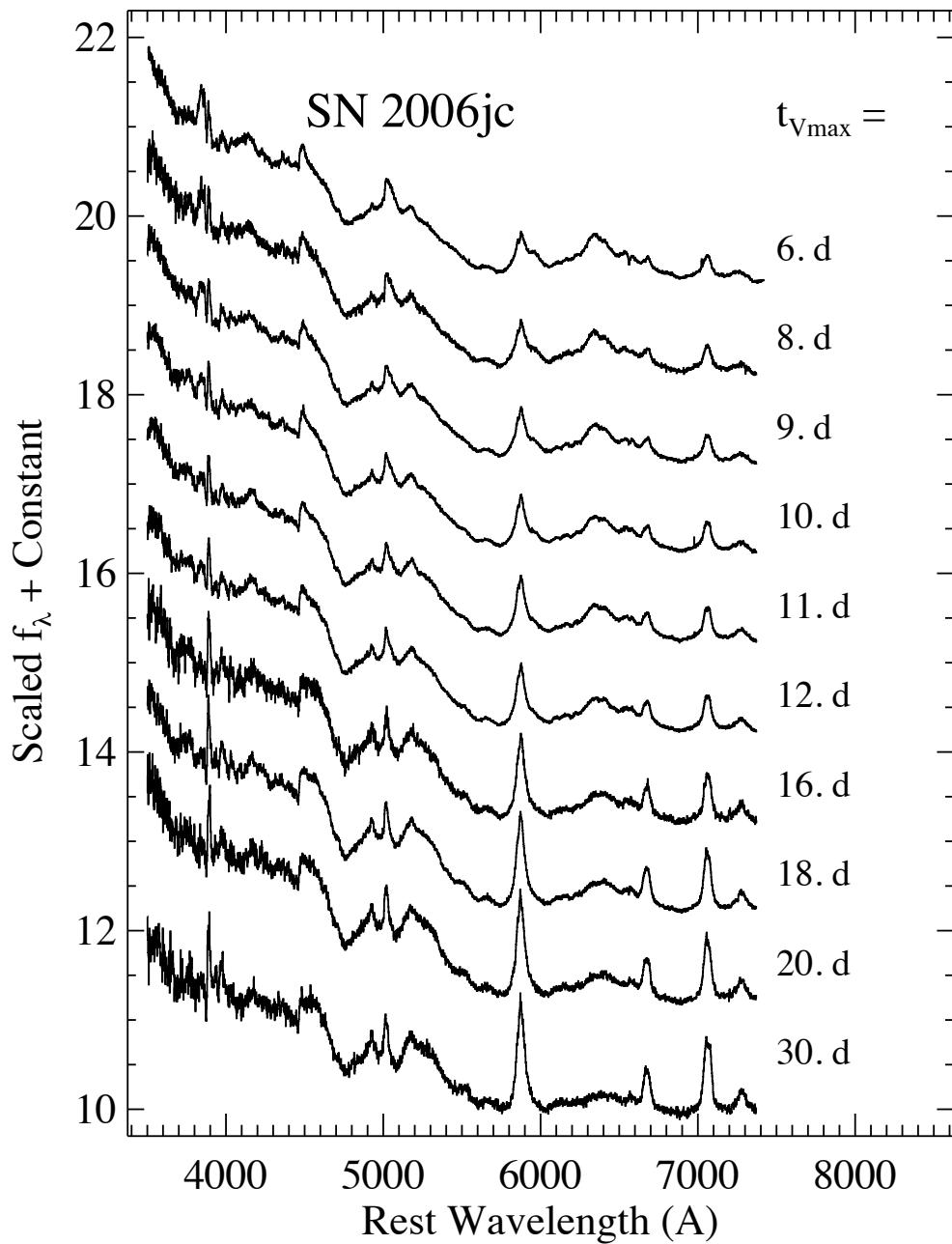


Fig. 51.— Same as in Figure 1, but for the early-time spectra of the SN Ib-n 2006jc.

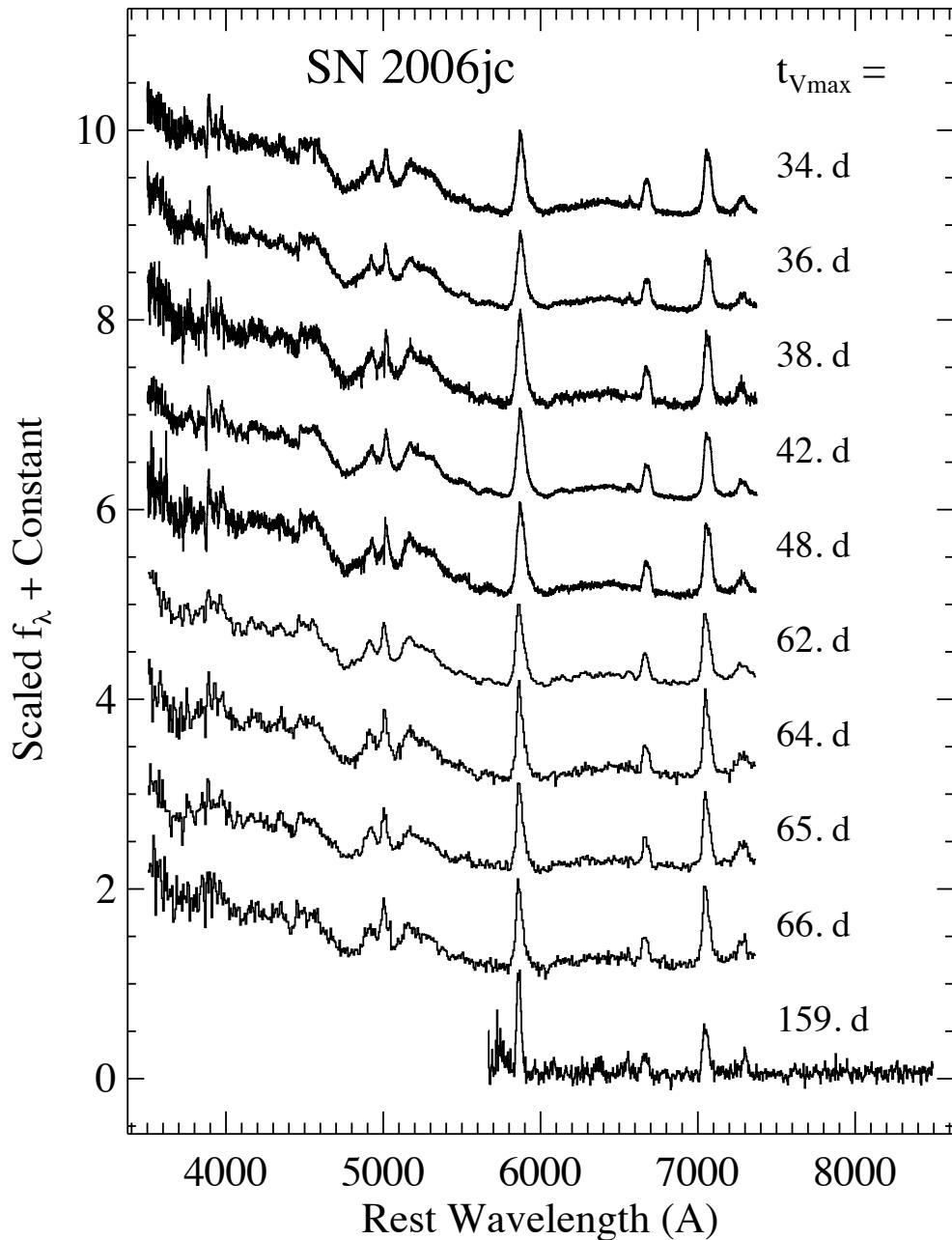


Fig. 52.— Same as in Figure 1, but for later-time spectra of the peculiar SN Ib-n 2006jc, some of which have been rebinned for clarity.

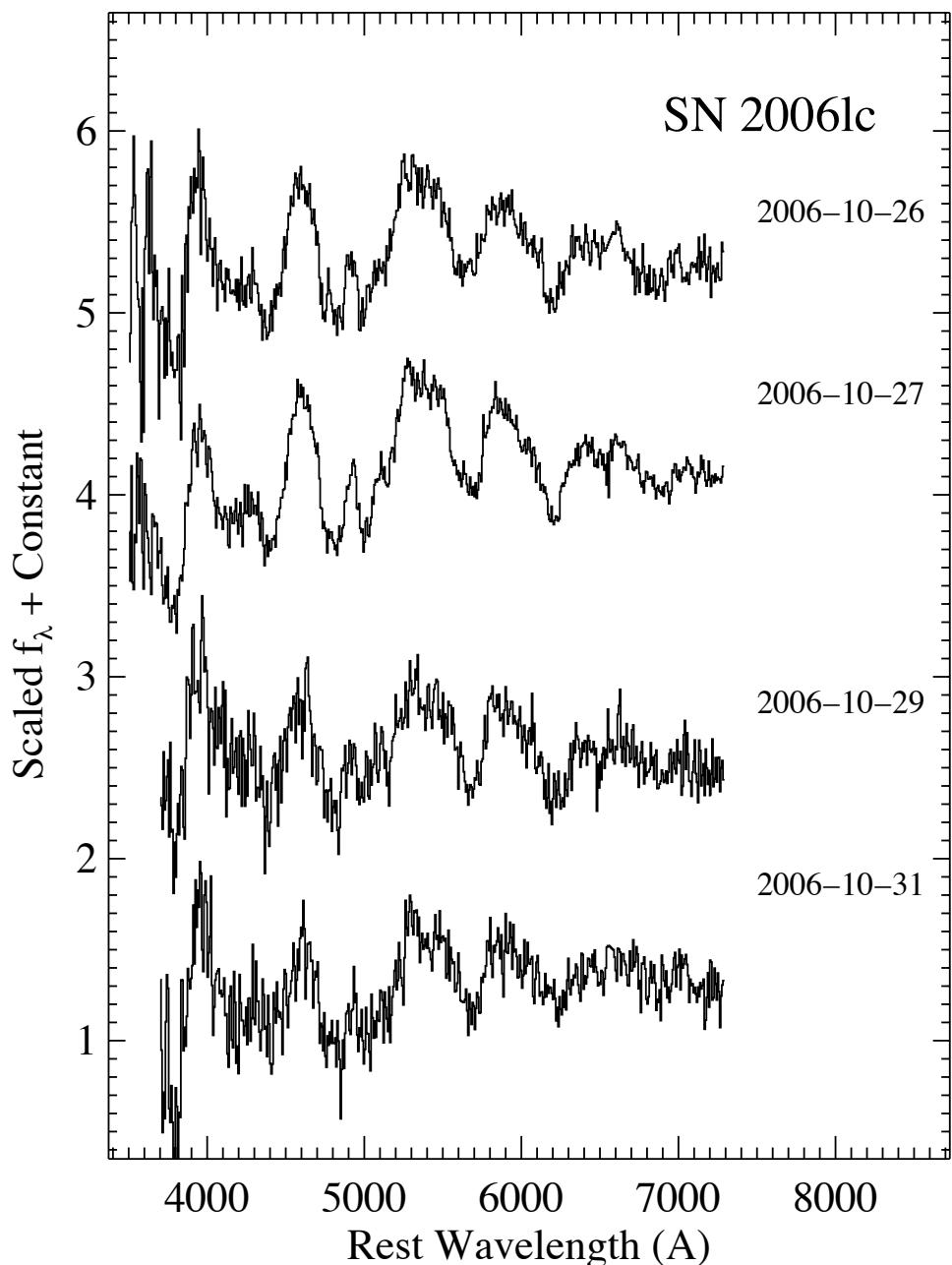


Fig. 53.— Same as in Figure 3, but for SN Ib 2006lc, whose spectra have been binned for clarity.

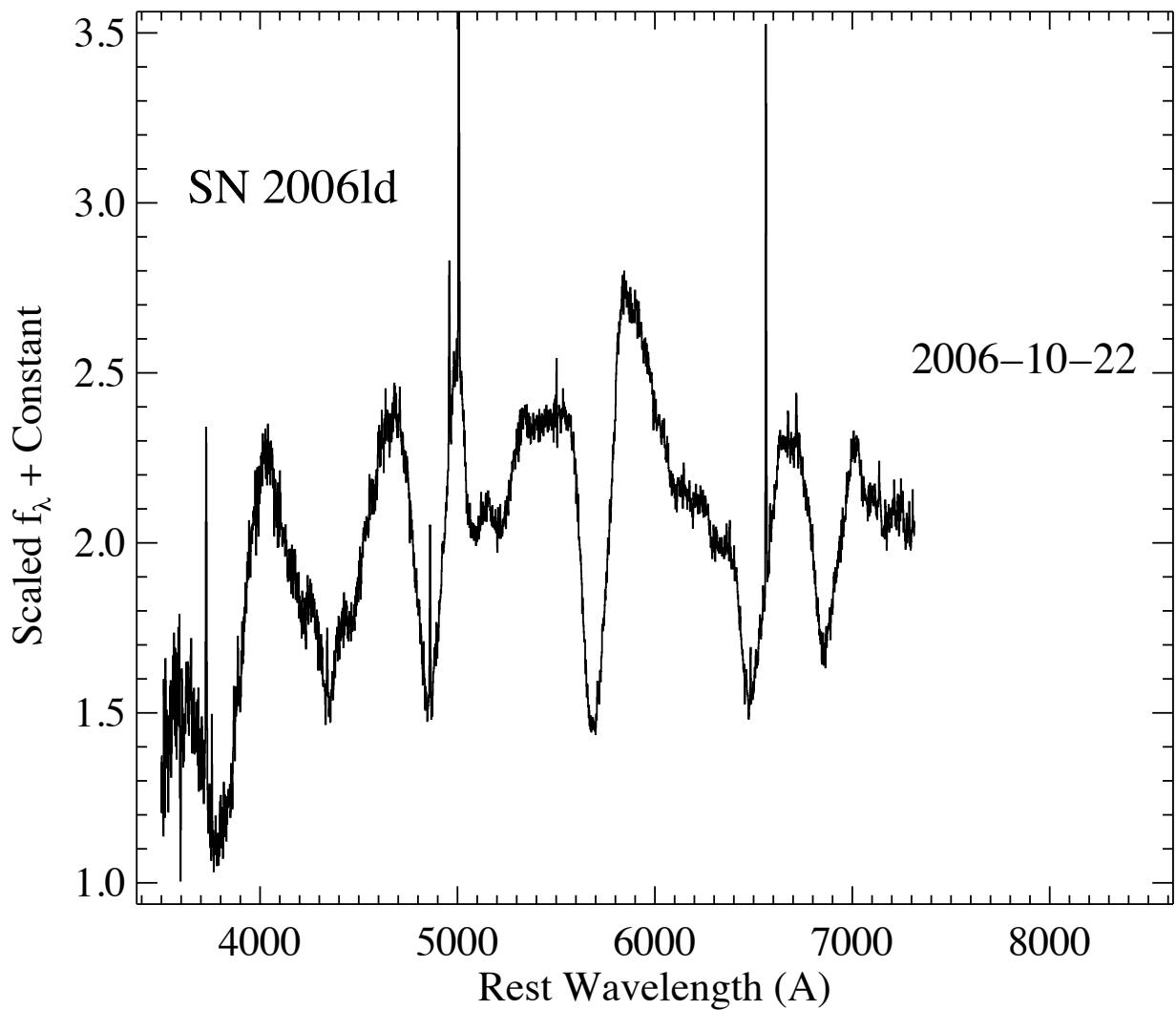


Fig. 54.— Same as in Figure 3, but for SN Ib 2006ld.

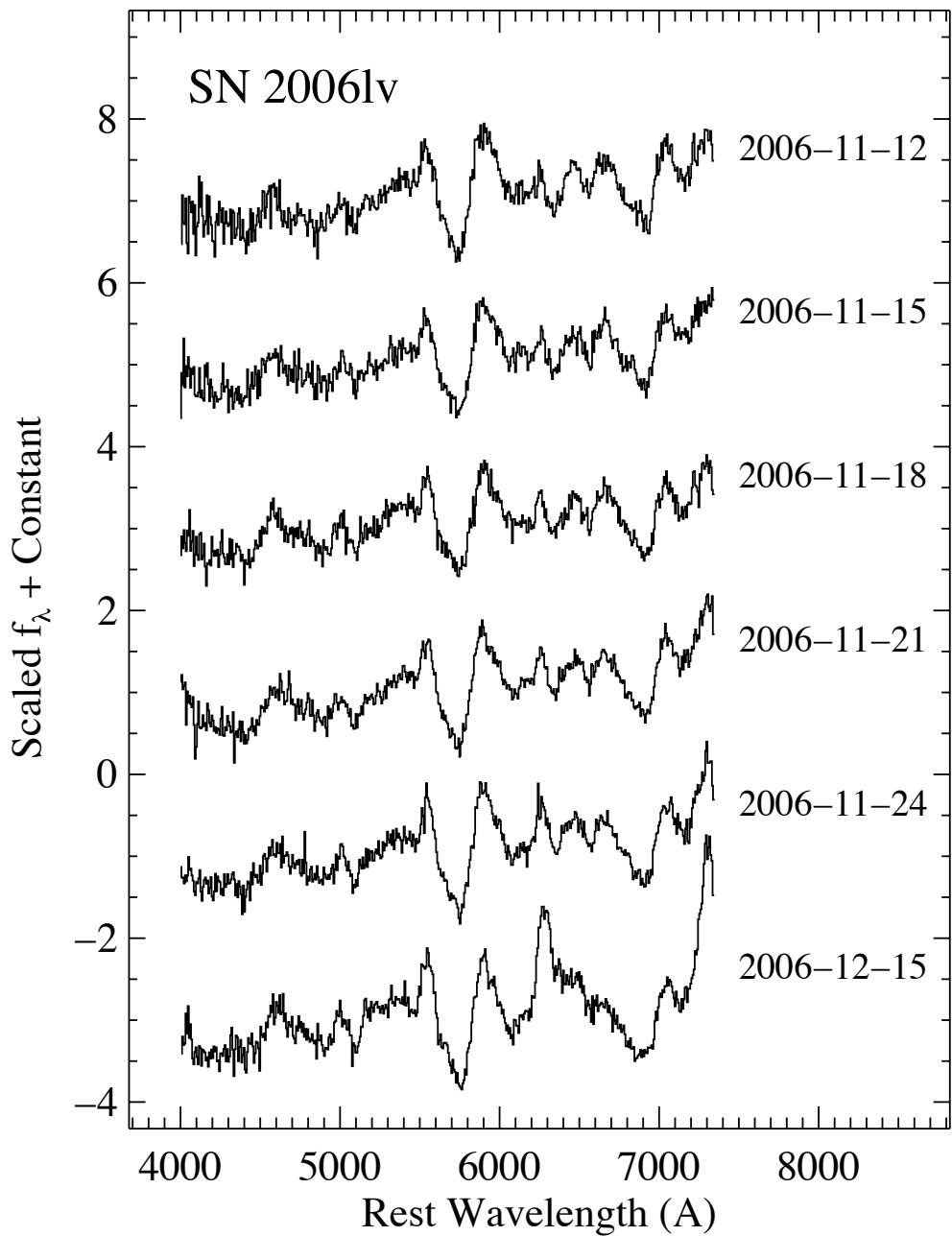


Fig. 55.— Same as in Figure 3, but for SN Ib 2006lv, whose spectra have been rebinned for clarity.

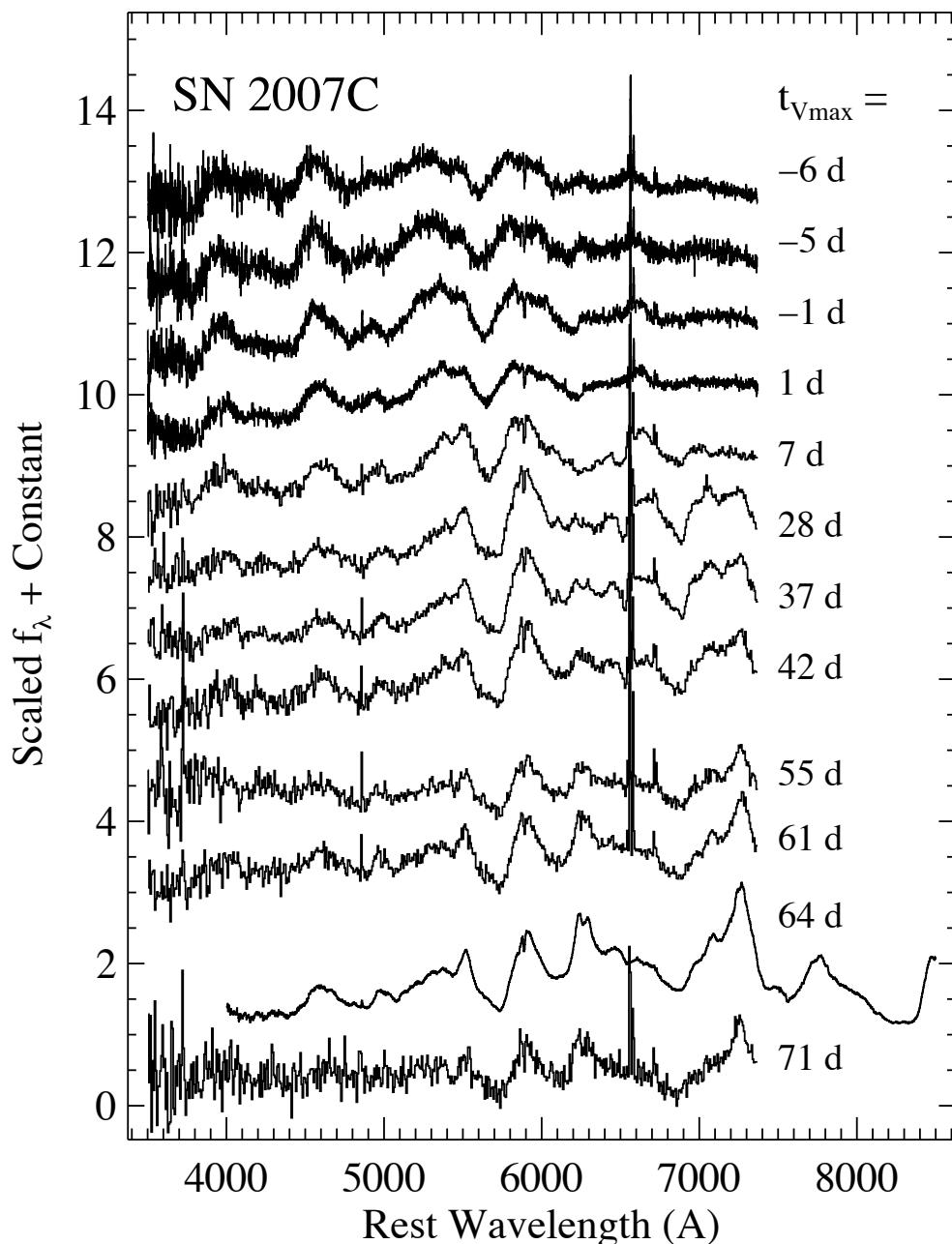


Fig. 56.— Same as in Figure 1, but for spectra of SN Ib 2007C, some of which have been rebinned for clarity.

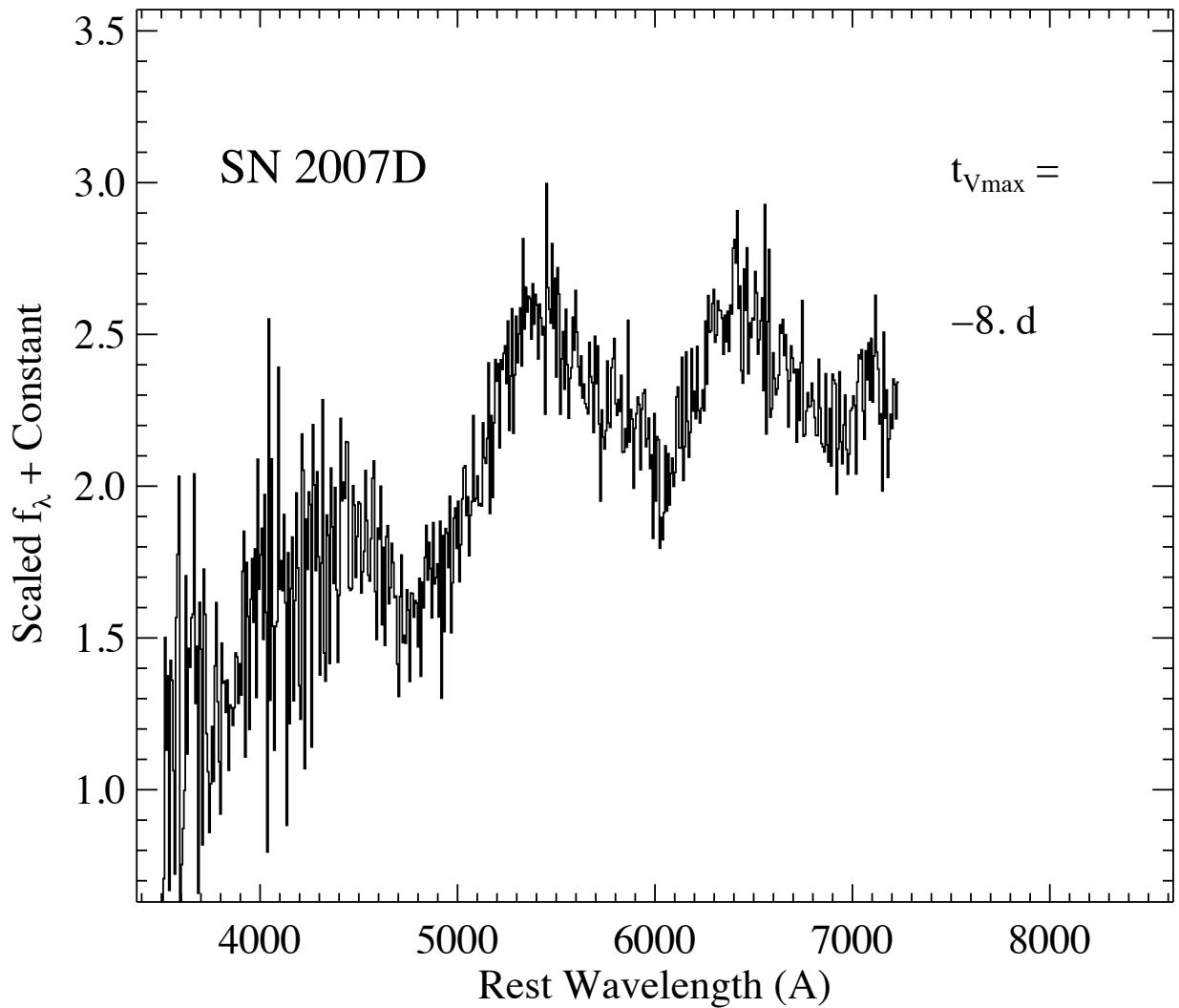


Fig. 57.— Same as in Figure 1, but for the spectrum of SN Ic-bl 2007D, which has been rebinned for clarity.

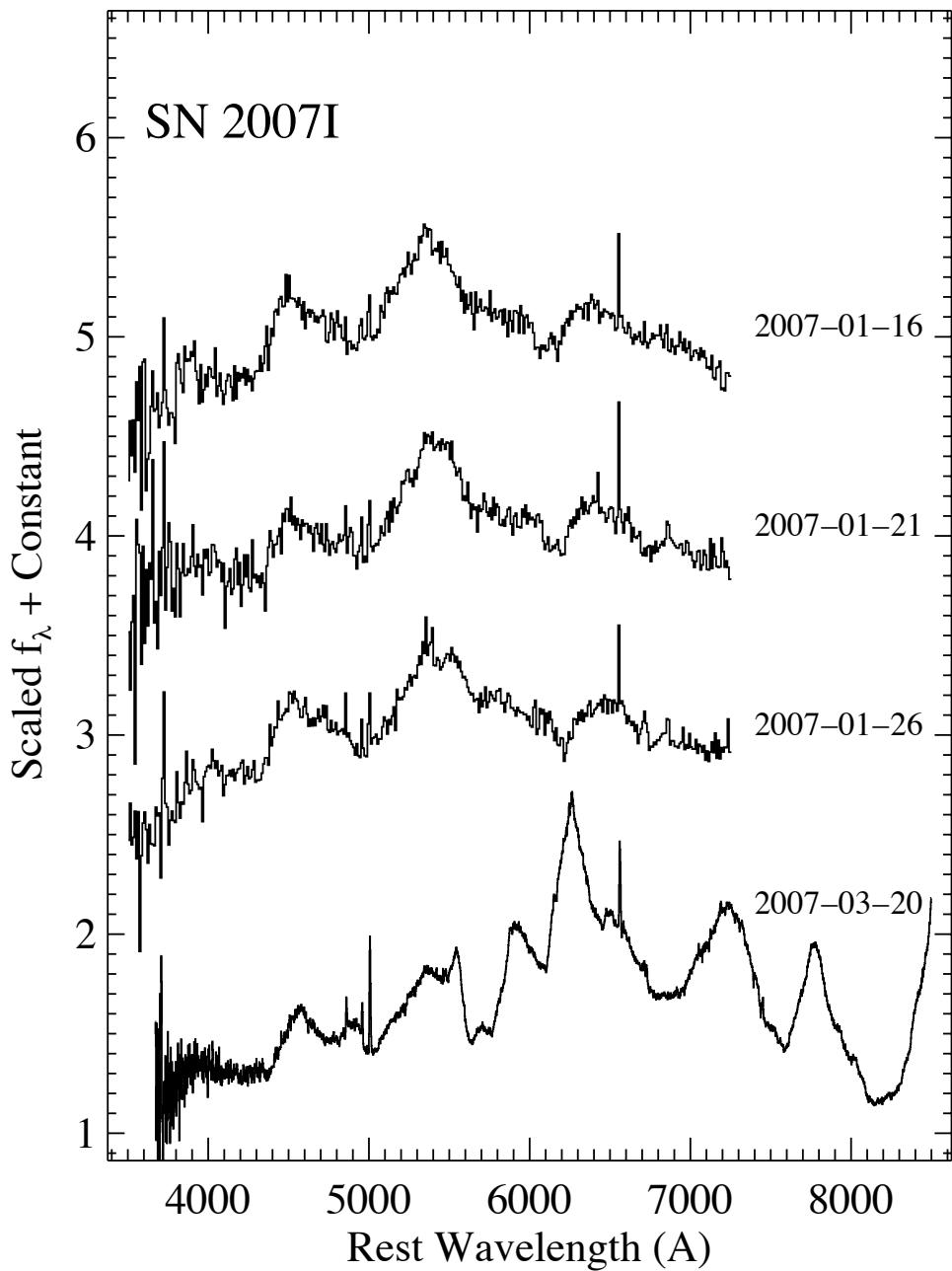


Fig. 58.— Same as in Figure 3, but for spectra of SN Ic-bl 2007I, some of which have been rebinned for clarity.

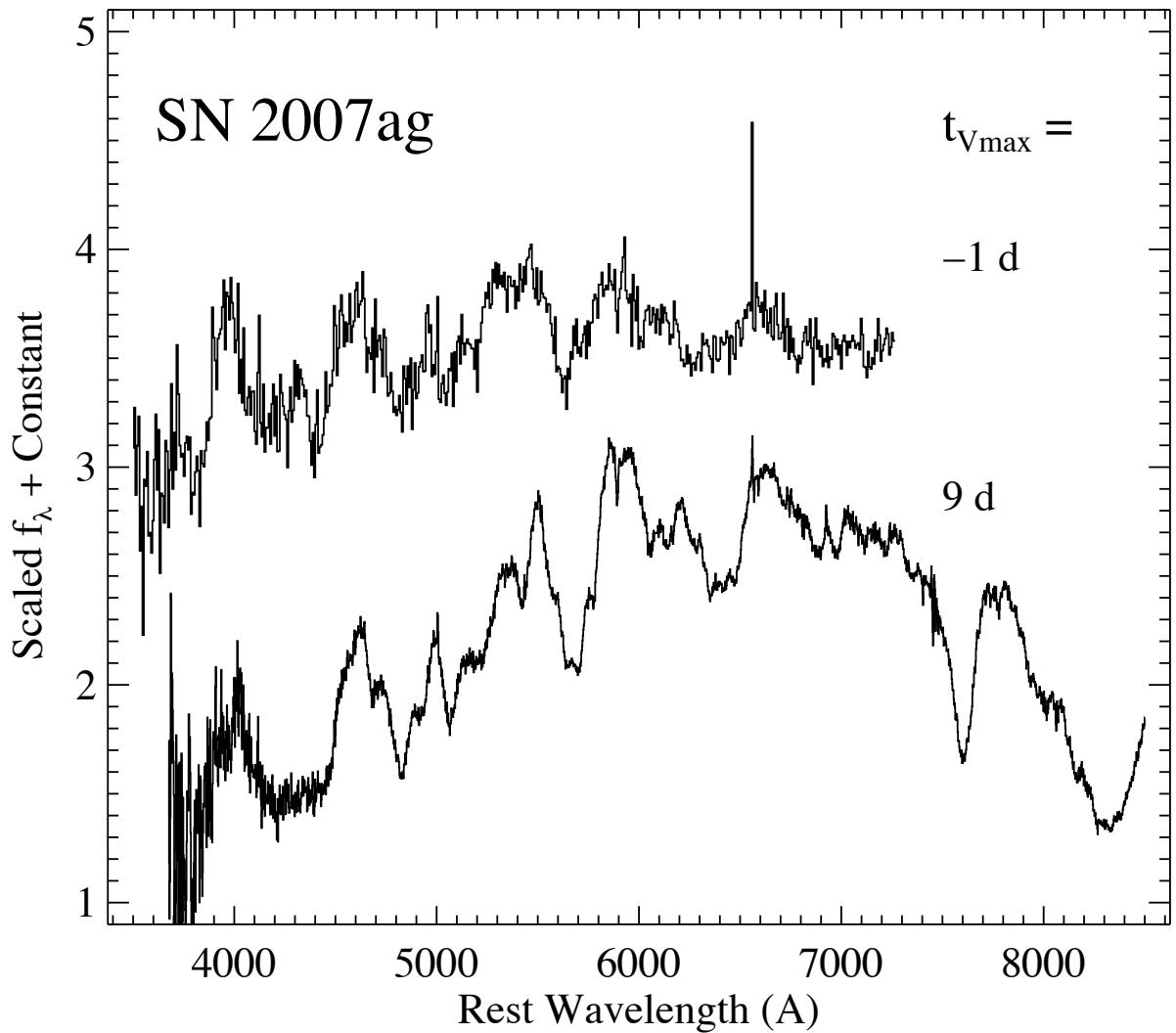


Fig. 59.— Same as in Figure 3, but for spectra of SN Ib 2007ag, one of which has been rebinned for clarity.

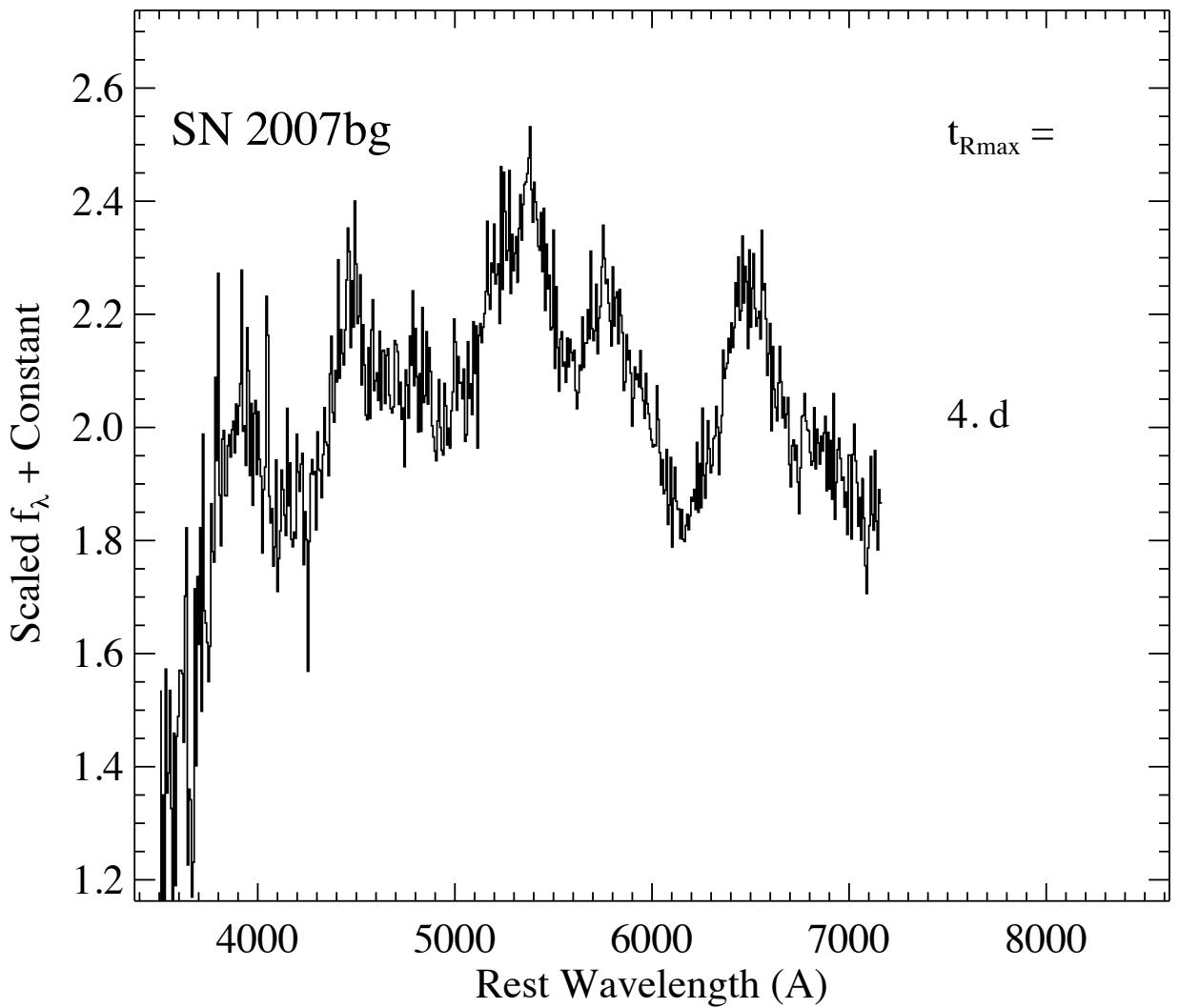


Fig. 60.— Same as in Figure 1, but for the spectrum of SN Ic-bl 2007bg, which have been rebinned for clarity. Note that the spectra are with respect to date of maximum in the *R*-band.

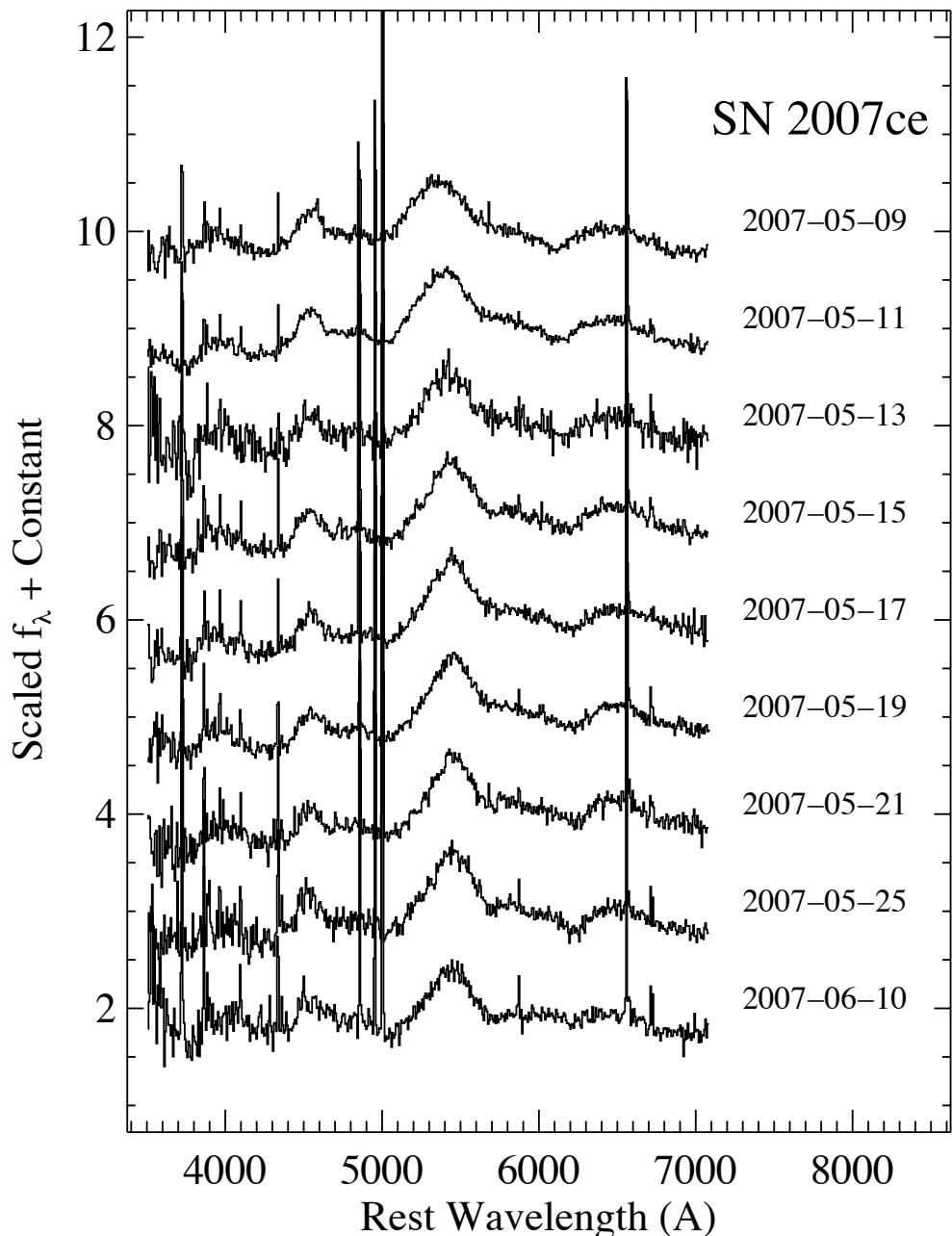


Fig. 61.— Same as in Figure 3, but for the spectrum of SN Ic-bl 2007ce, some of which have been rebinned for clarity.

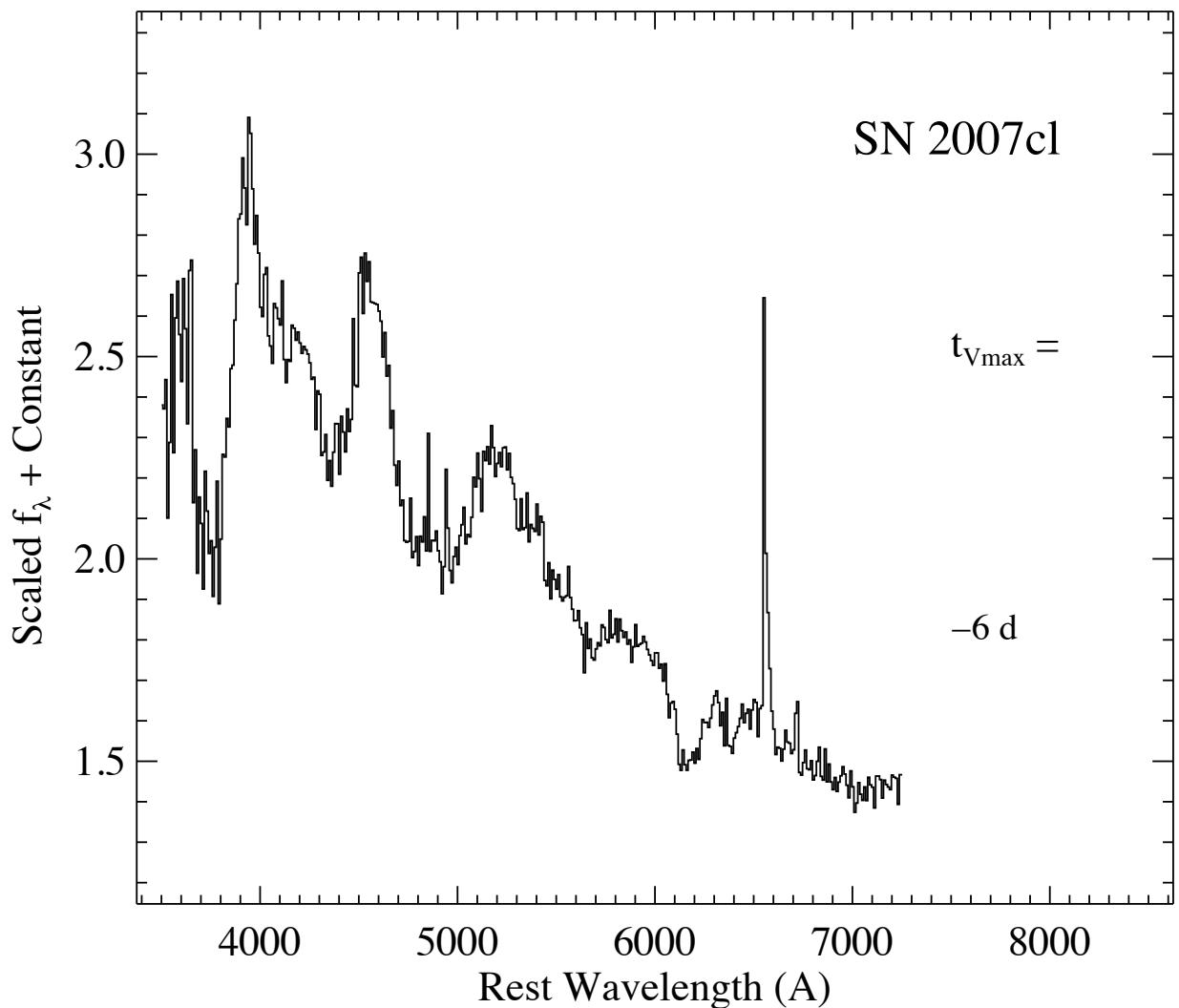


Fig. 62.— Same as in Figure 1, but for the spectrum of SN Ic 2007cl, which has been rebinned for clarity.

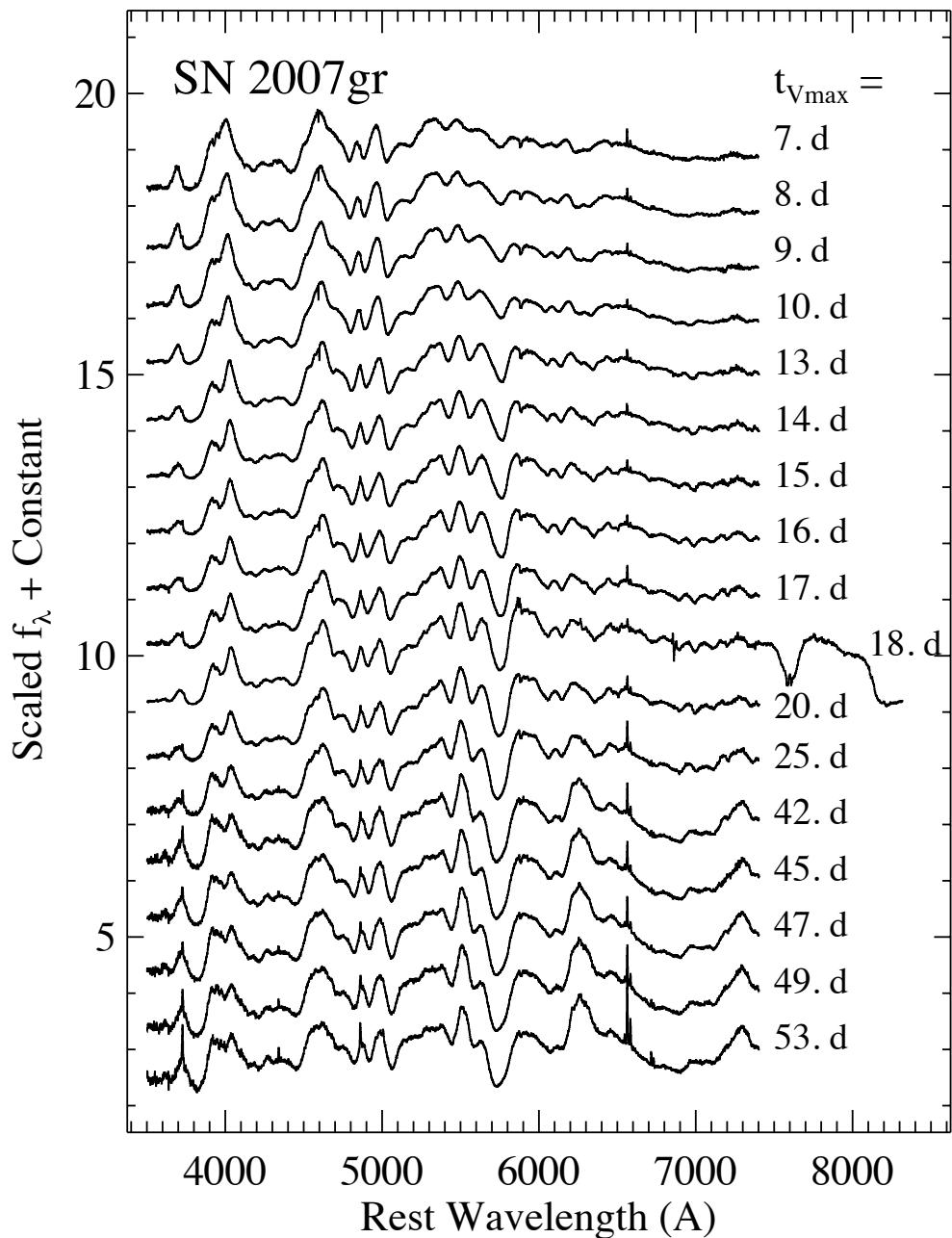


Fig. 63.— Same as in Figure 1, but for SN Ic 2007gr.

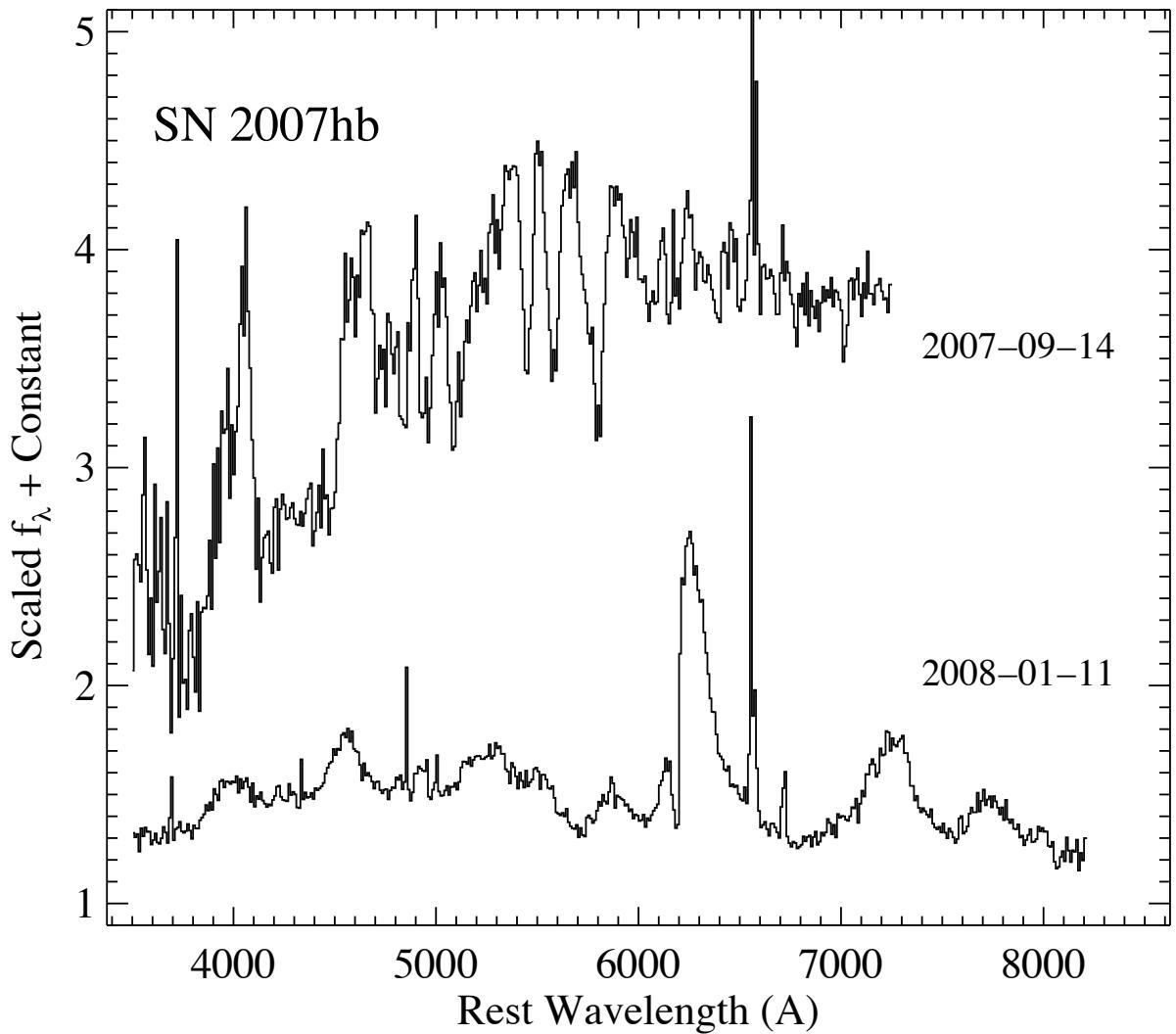


Fig. 64.— Same as in Figure 3, but for SN Ic 2007hb, which exhibits narrow lines, similar to SN 2007gr.

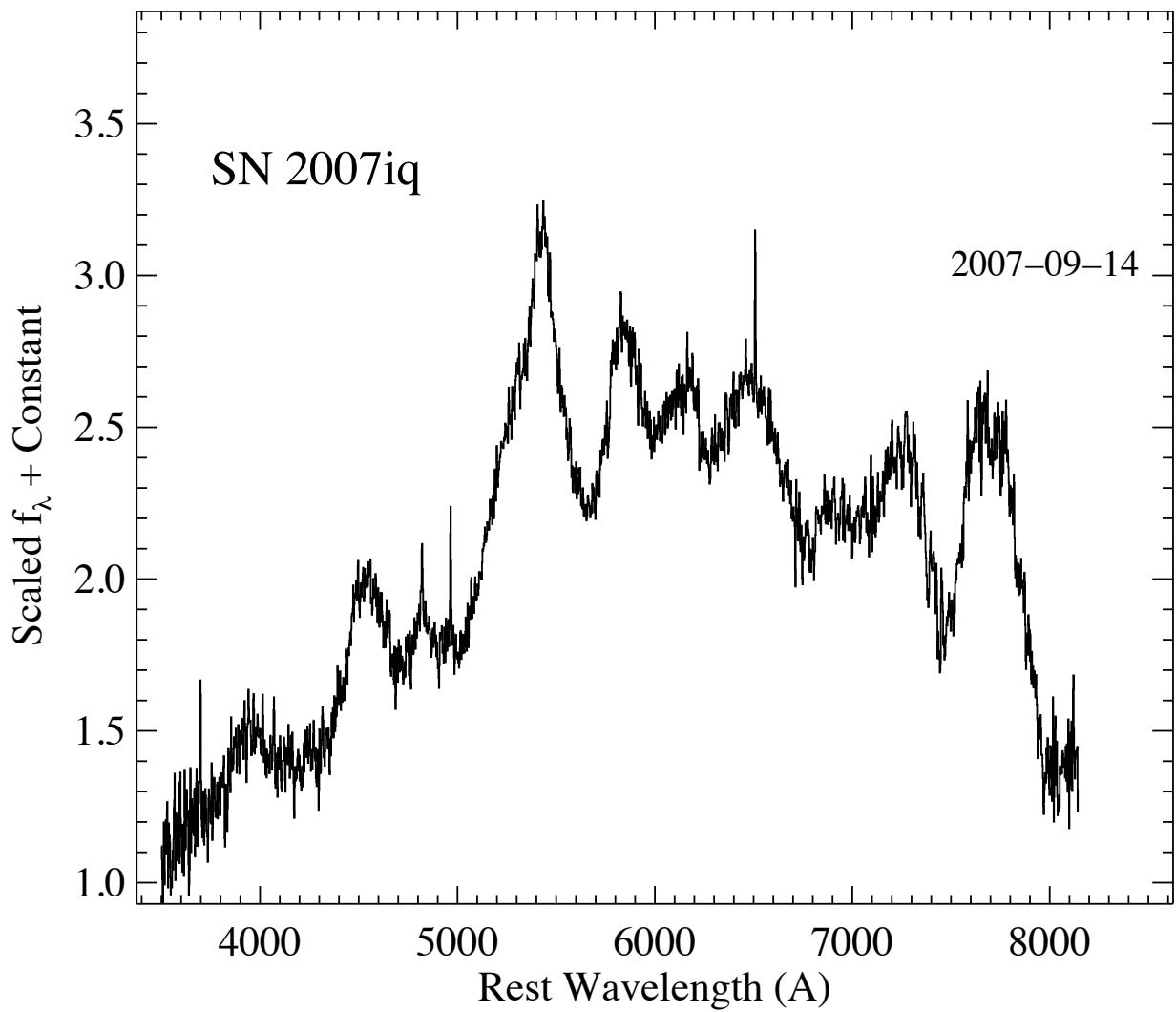


Fig. 65.— Same as in Figure 3, but for SN Ic/Ic-bl 2007iq.

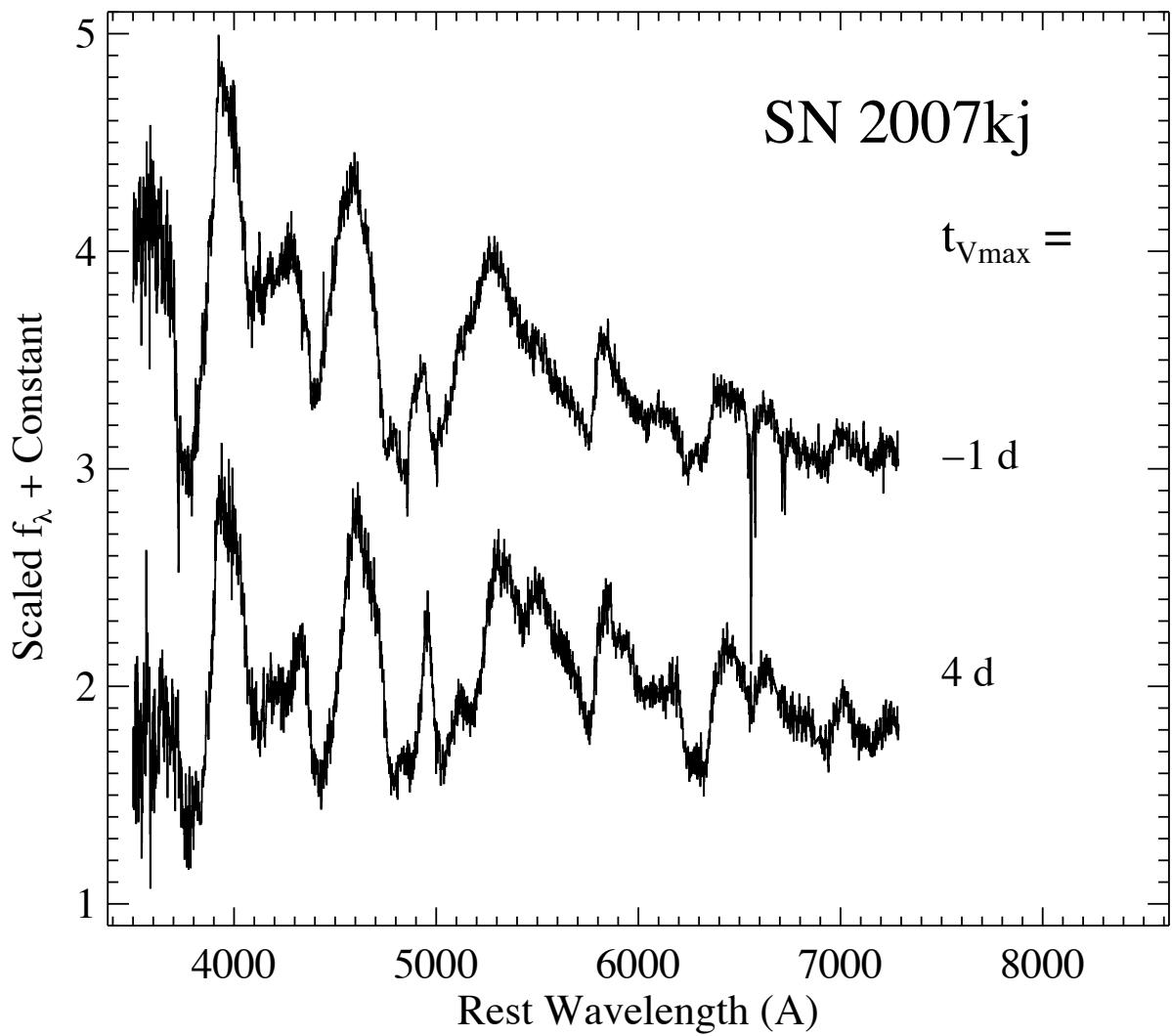


Fig. 66.— Same as in Figure 1, but for SN Ib 2007kj.

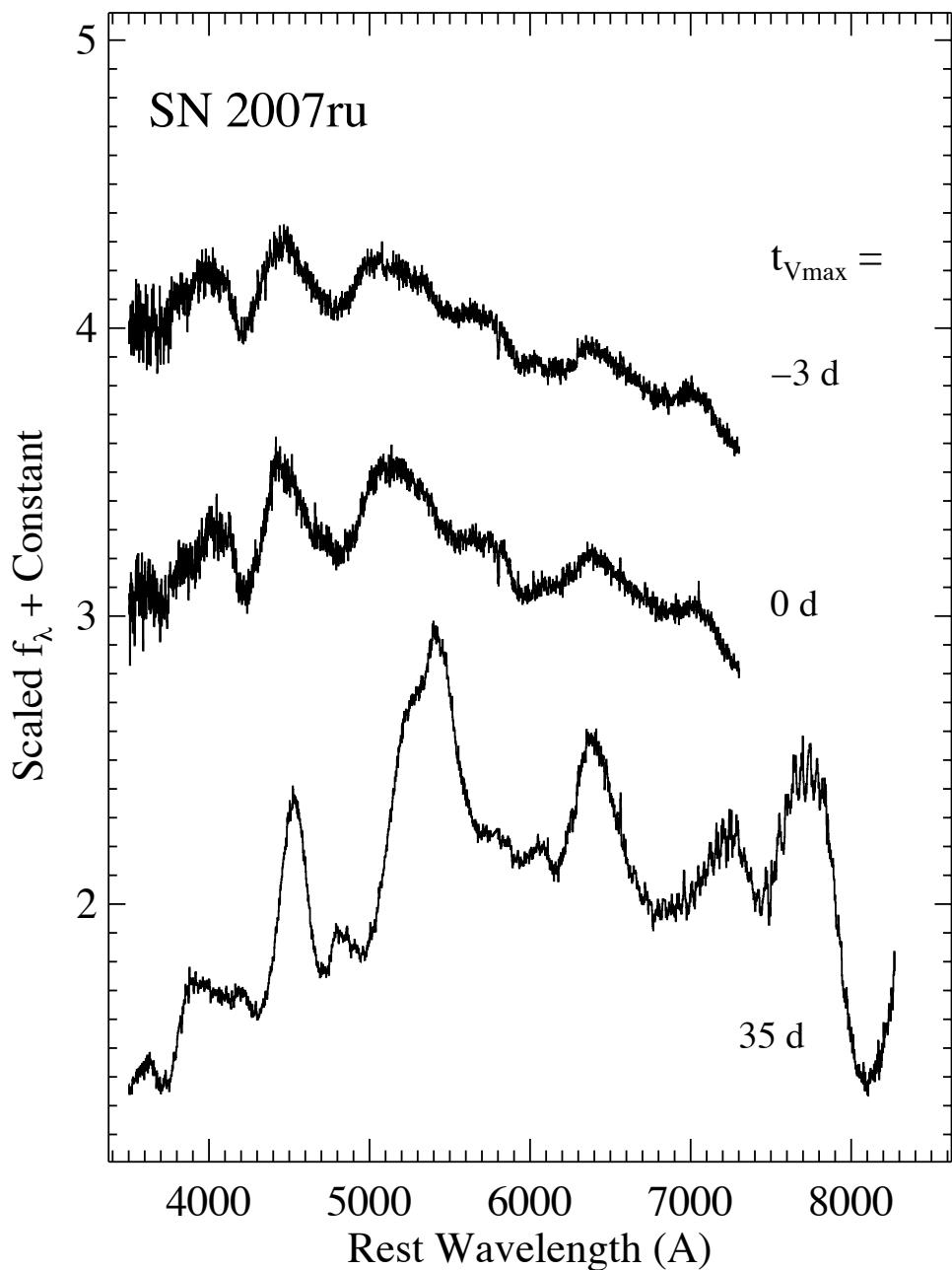


Fig. 67.— Same as in Figure 1, but for SN Ic-bl 2007ru.

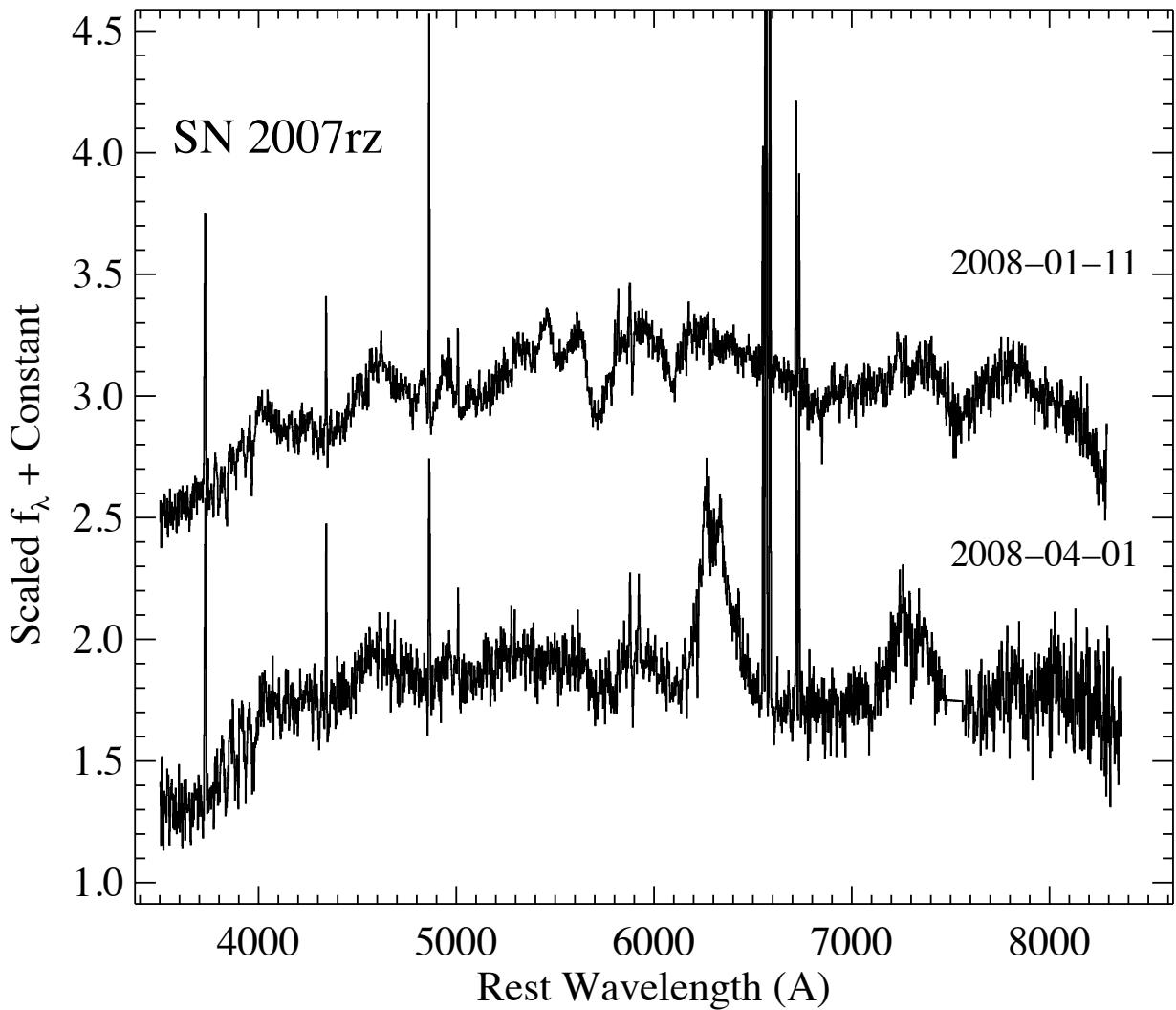


Fig. 68.— Same as in Figure 3, but for SN Ic 2007rz.

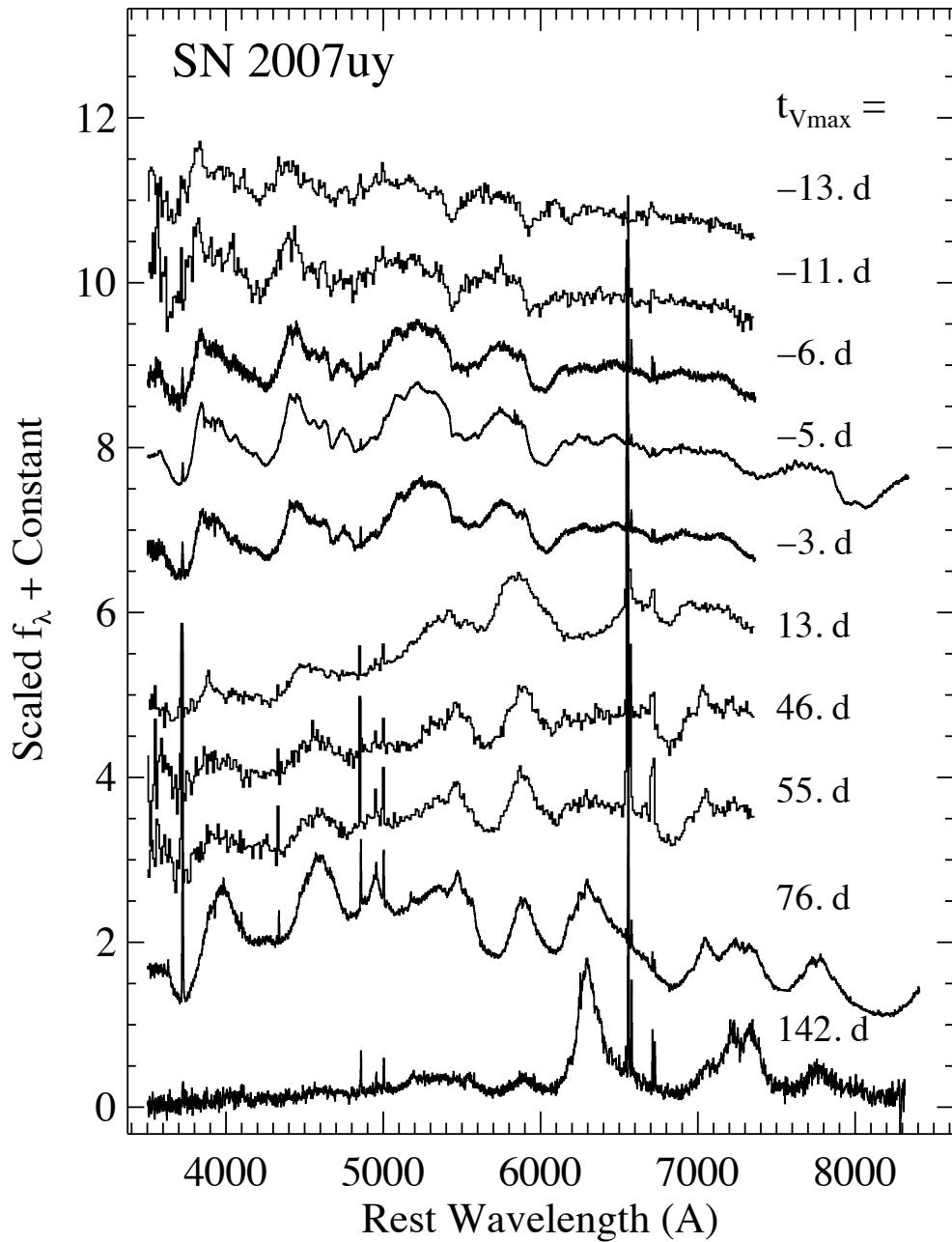


Fig. 69.— Same as in Figure 1, but for spectra of SN Ib-pec 2007uy, some of which have been rebinned for clarity.

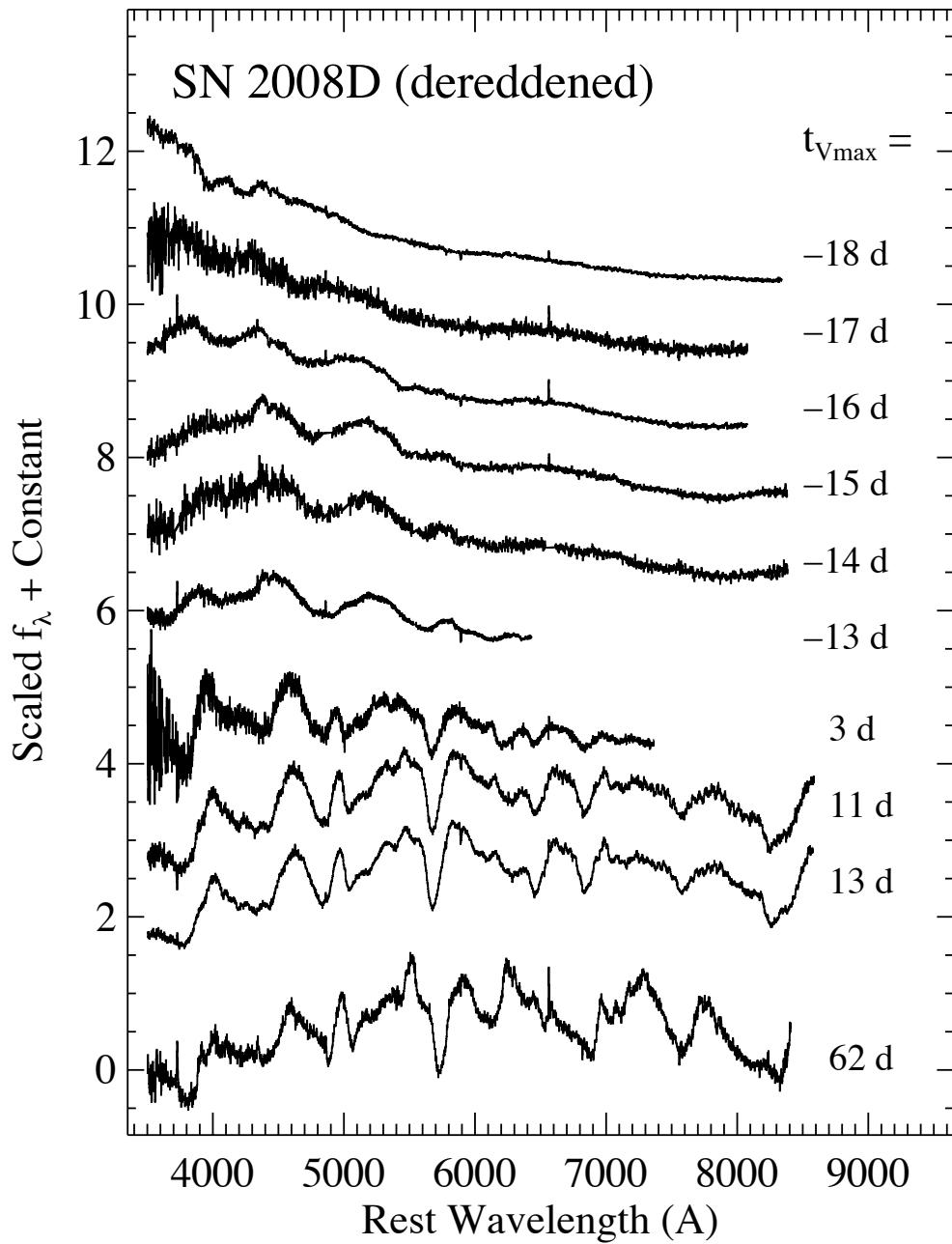


Fig. 70.— Same as in Figure 1, but for SN Ib 2008D with spectra dereddened by $E(B-V) = 0.6$ mag. All, except the last, spectra were presented in Modjaz et al. (2009).

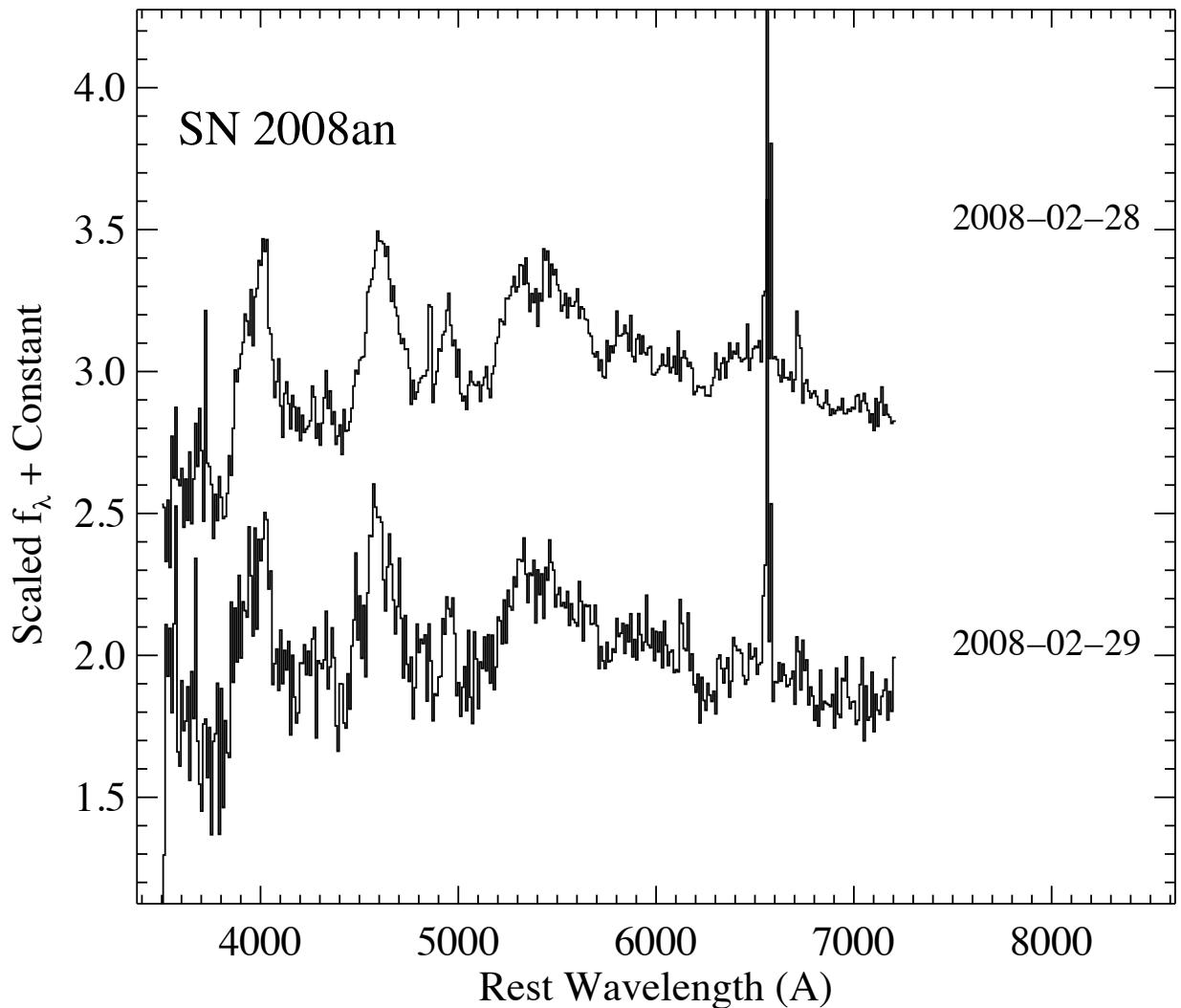


Fig. 71.— Same as in Figure 3, but for spectra of SN Ic 2008an, which have been rebinned for clarity.

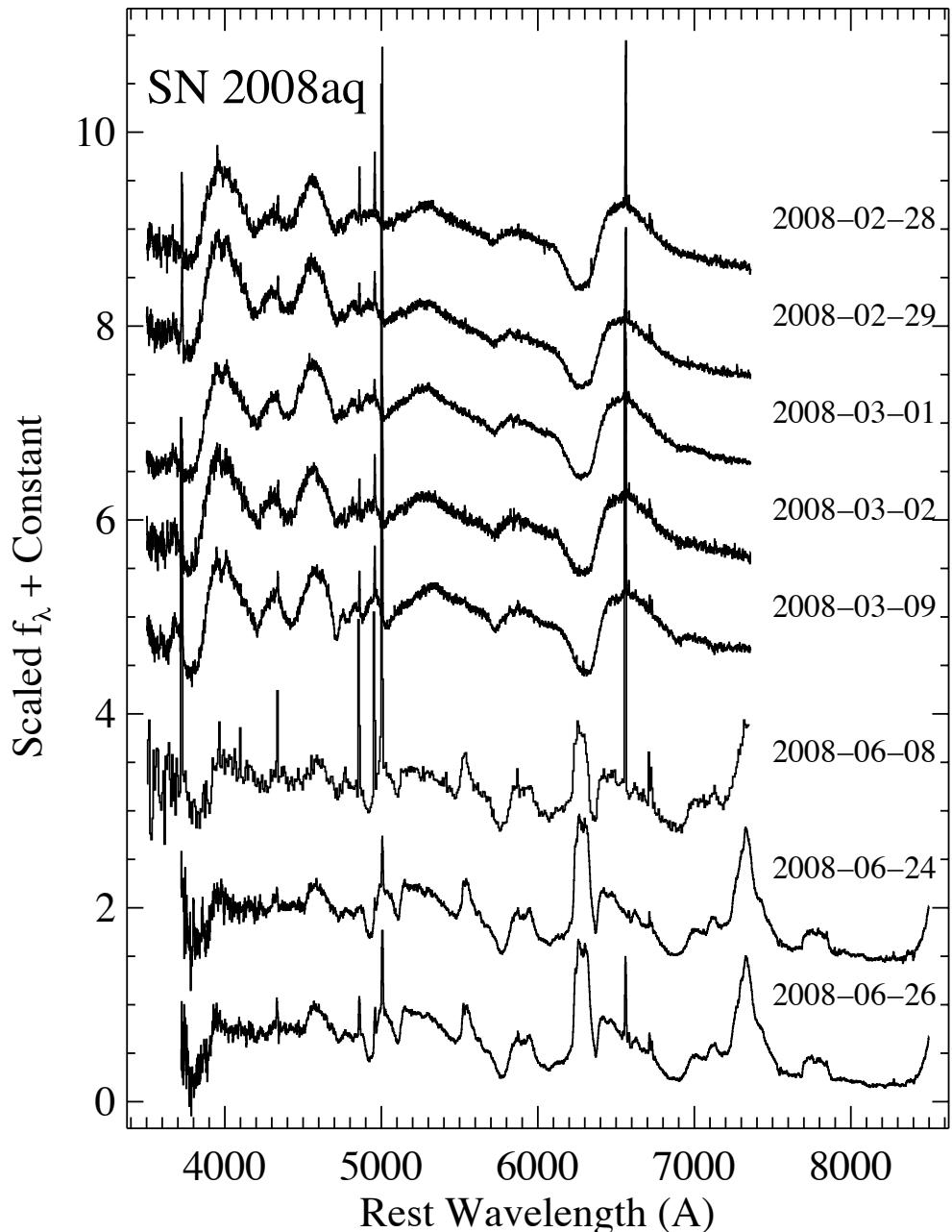


Fig. 72.— Same as in Figure 3, but for spectra of SN IIb 2008aq, some of which have been rebinned for clarity.

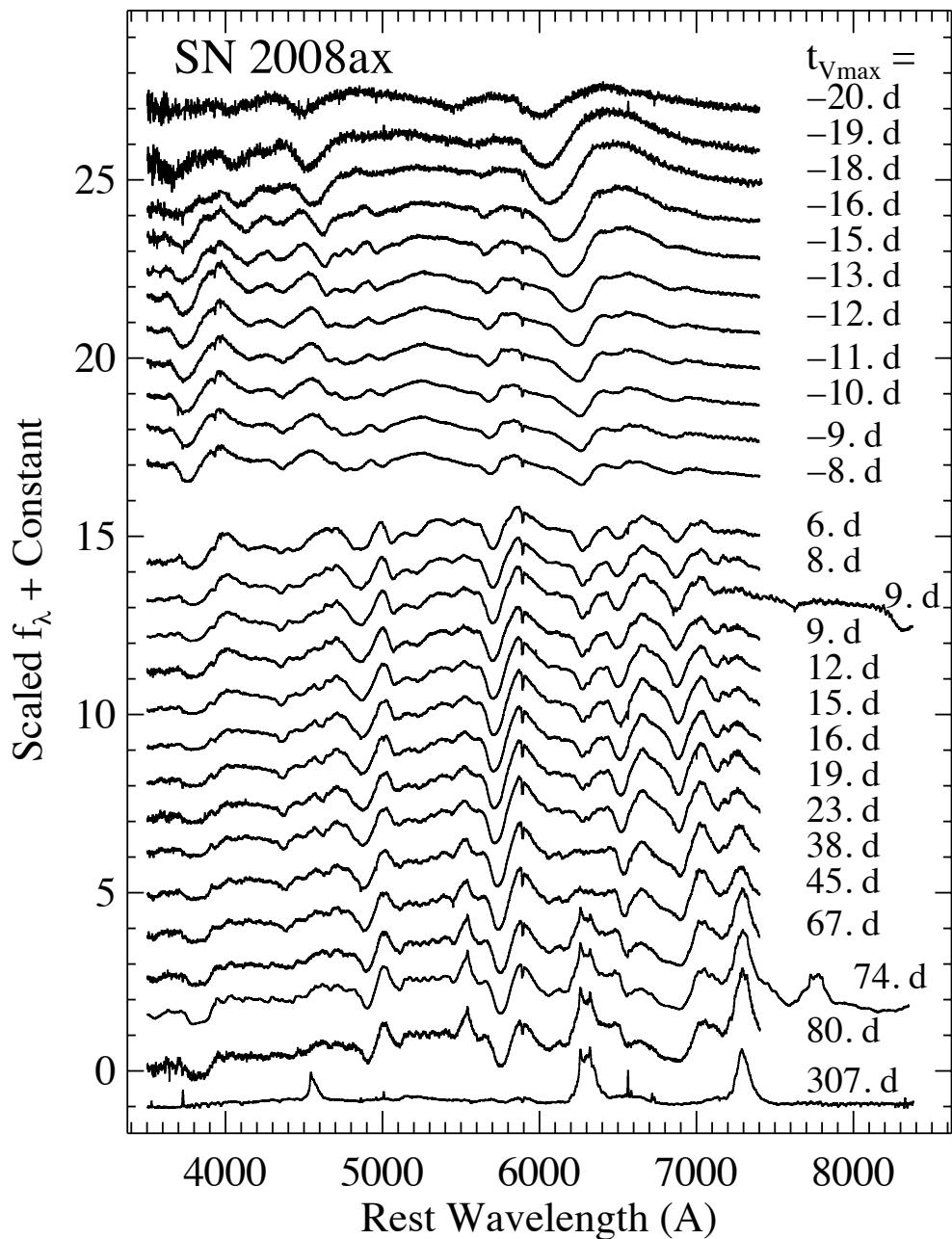


Fig. 73.— Same as in Figure 1, but for SN IIb 2008ax.

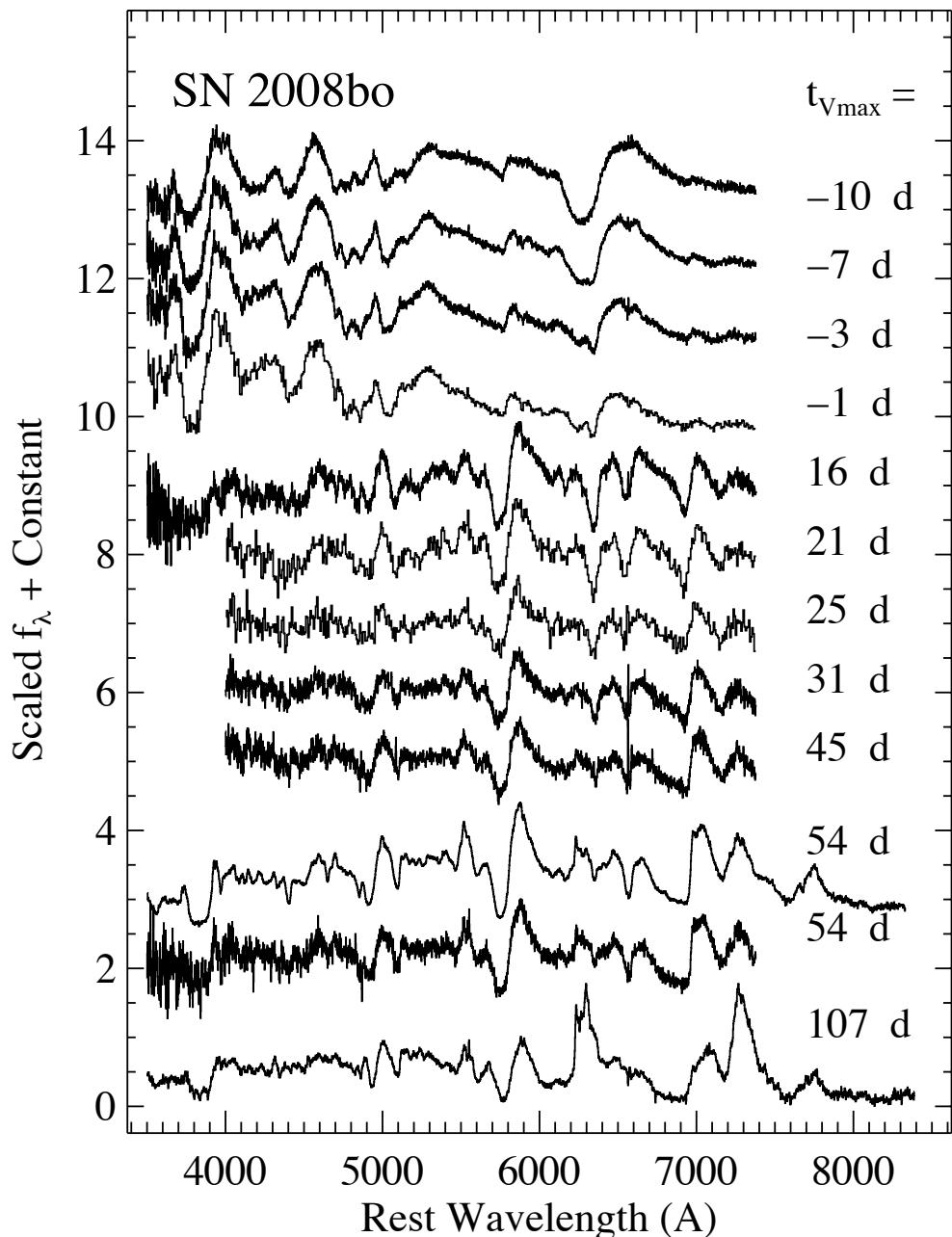


Fig. 74.— Same as in Figure 1, but for spectra of SN IIb 2008bo, some of which have been rebinned for clarity.

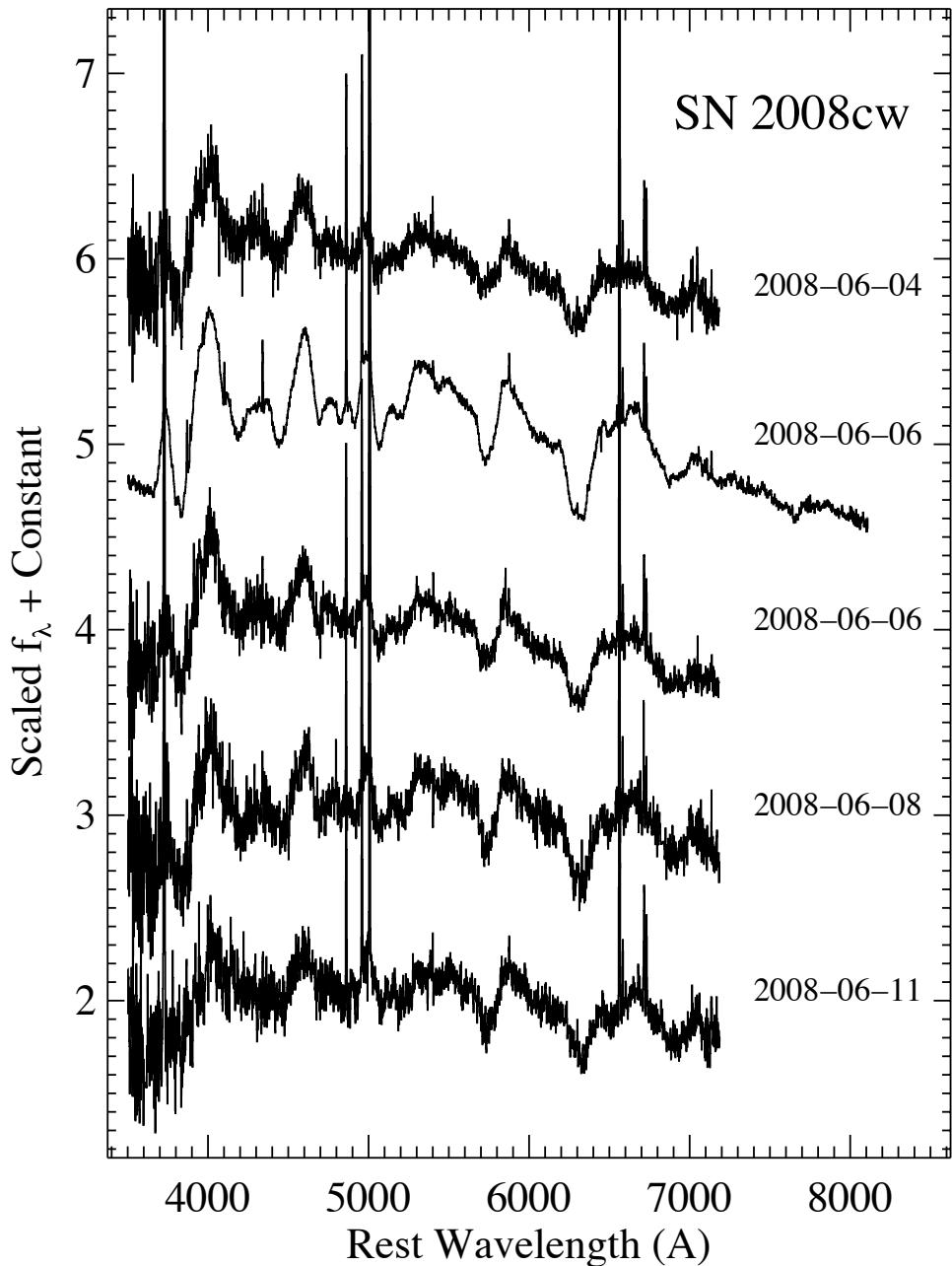


Fig. 75.— Same as in Figure 3, but for SN IIb 2008cw.

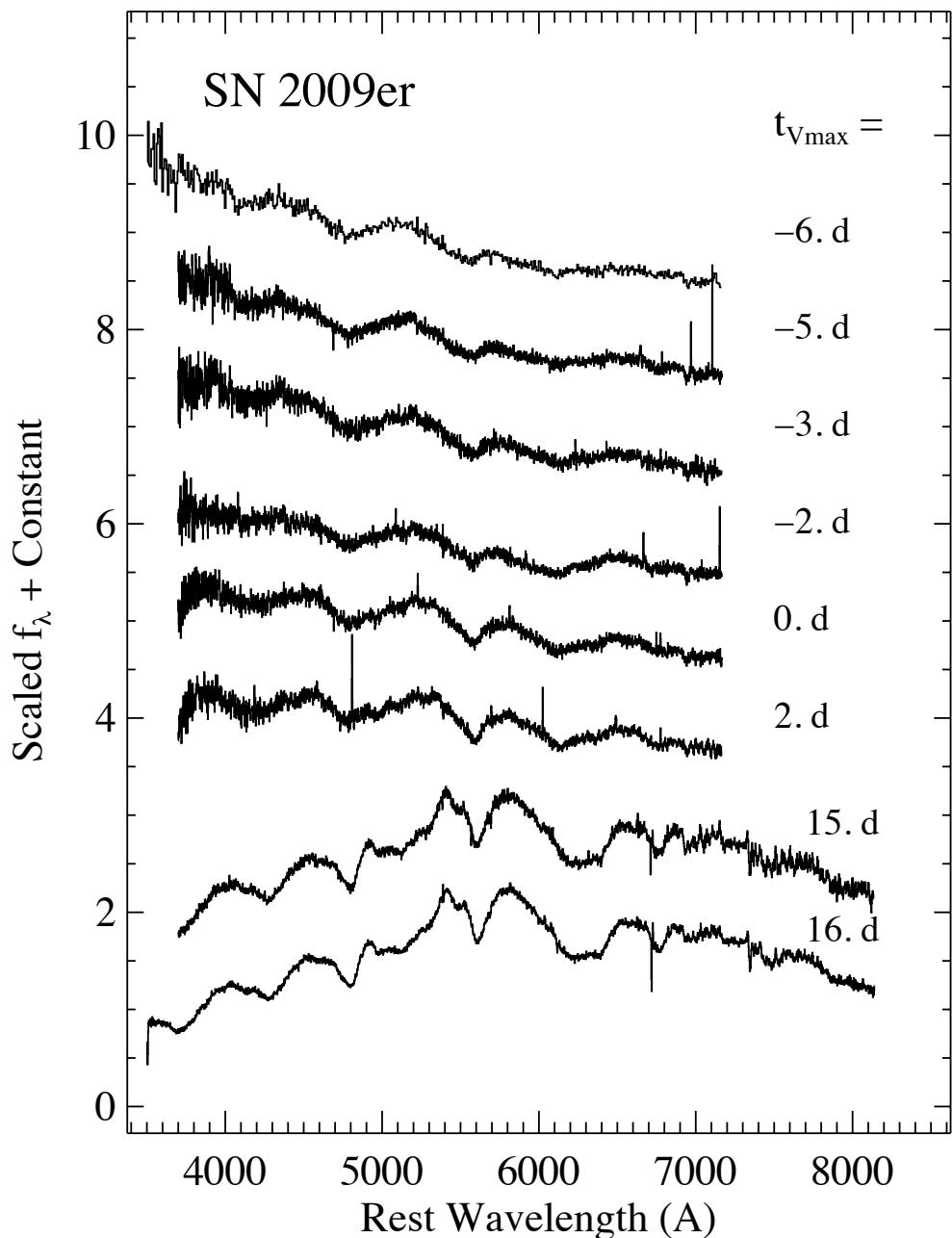


Fig. 76.— Same as in Figure 1, but for spectra of SN Ib-pec 2009er. Note the early spectra with the unusually broad lines for a SN Ib (see text).

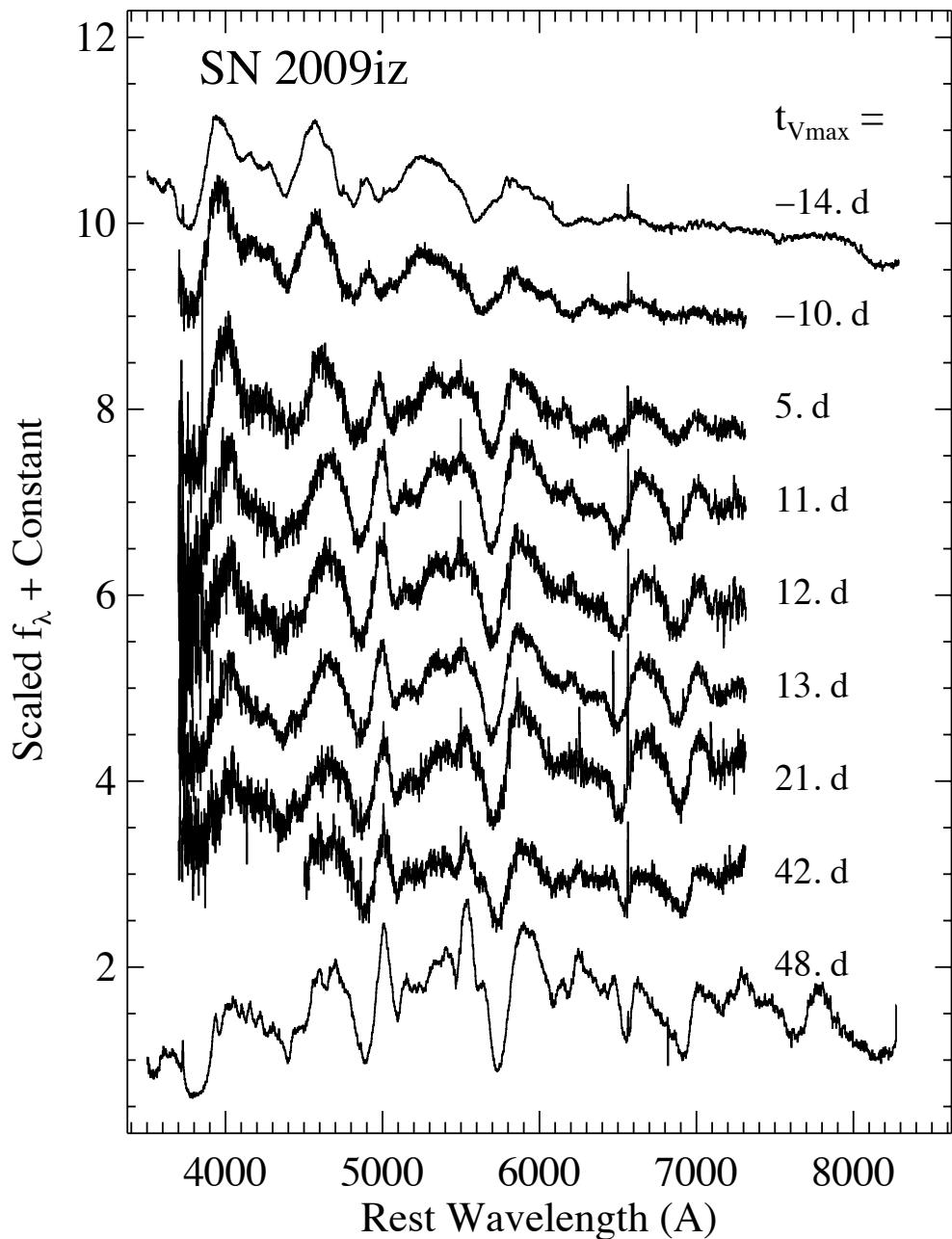


Fig. 77.— Same as in Figure 1, but for spectra SN Ib 2009iz.

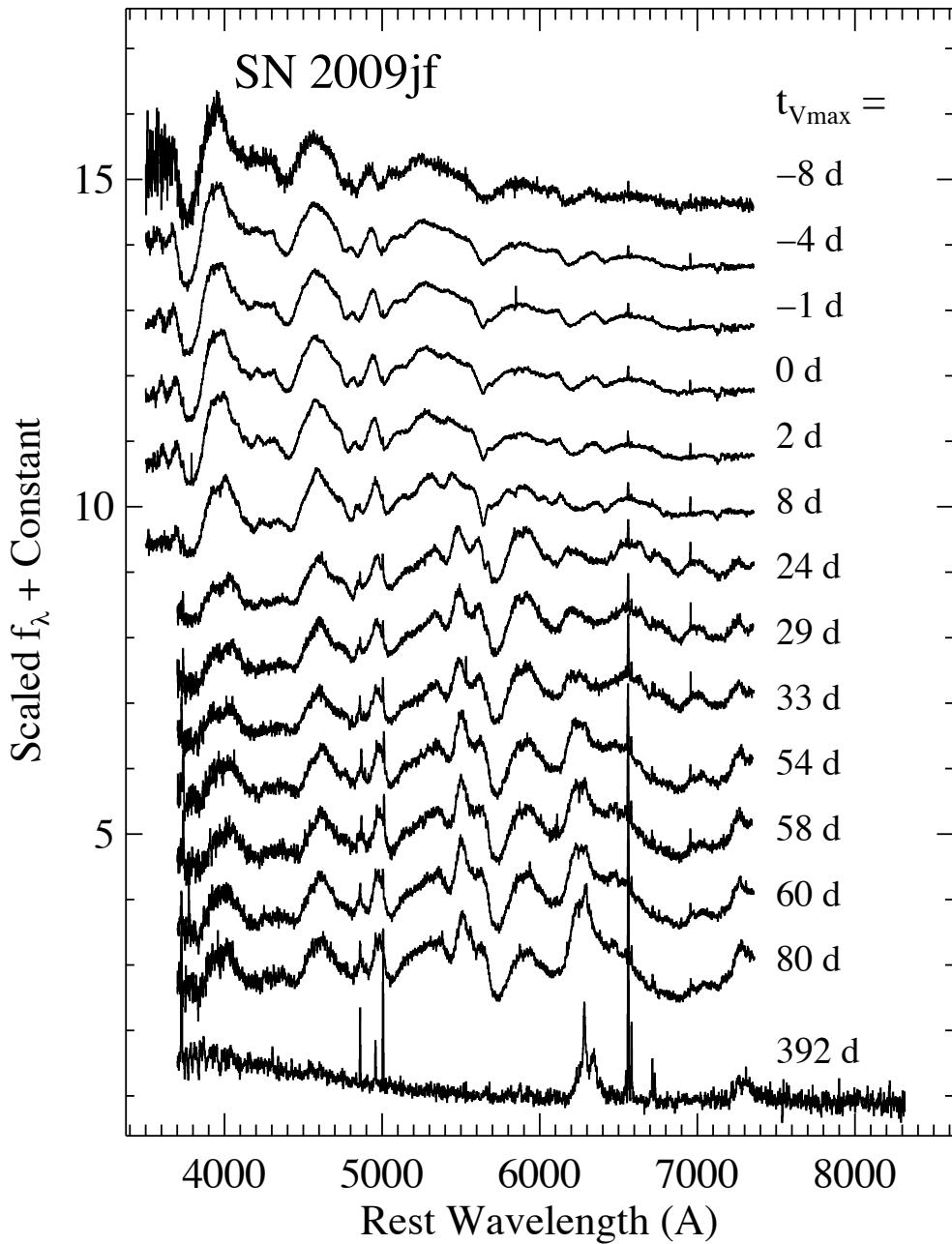


Fig. 78.— Same as in Figure 1, but for SN Ib 2009jf. Note that the last spectrum is contaminated by the blue continuum of the host galaxy.