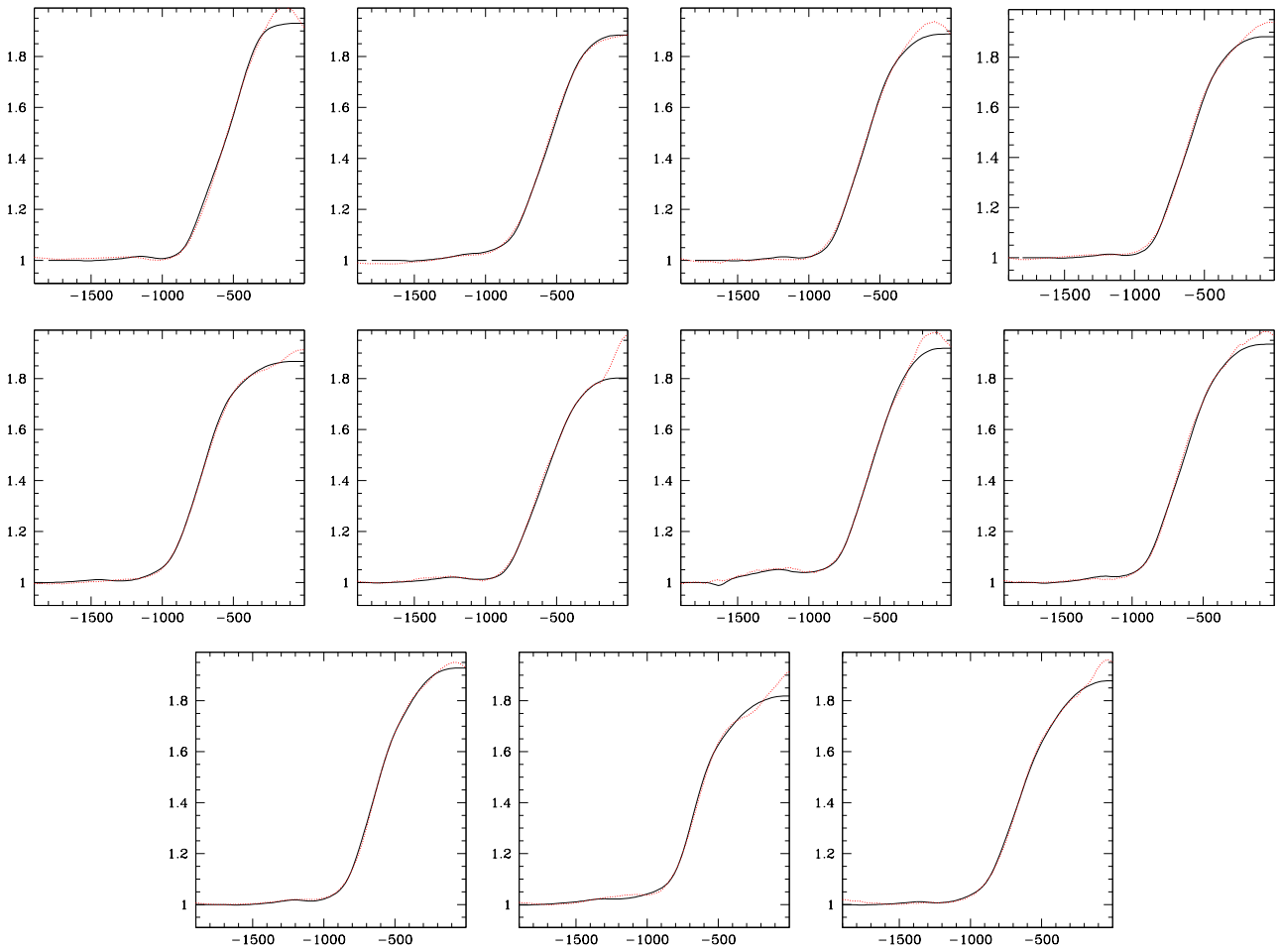

Fig. 5. Same as previous figure for the *weak* profiles. From left to right and top to bottom: e, h, i, l, b2, n20, n24, n25, d02, d05, d06. The color figure can be viewed online.

levels. The results are illustrated in Figures 4, 5, 6, where we grouped the profiles according to whether the P Cygni absorption is strong, weak or absent, respectively. In all cases, the fit to the blue wing, including the P Cyg absorption is excellent. We did not attempt to fit the centrally-located emission because it has contributions from the neighboring N V 4620, and it would be necessary to model the line transfer in the doublet. Thus, the model does not generally fit the observations around the emission maximum[7].

We examined the uncertainty in the model fits by determining the change in the input parameters needed to produce a difference of 3% in the profile with respect to the best fit model. In Figure 7 we plot the best-fit model for spectrum *n22* and the results obtained by changing the $V_{\rm max}$, X_i and R_i input parameters one at a time. The range in these parameters is $V^0_{\rm max} \pm 1.2$, $X^0_i \pm 10$, and $R^0_i \pm 0.05$, where the 0-superindex indicates the best-fit values.

The optical depth along any ray depends on both the projected velocity gradient and the opacity at each particular line-of-sight velocity component. Hence, it is *a priori* difficult to determine the effects of modifying each of the free parameters of the calculation. Within the parameter space listed in Table 4, only a a few guiding rules were found during the line-fitting process. For example, the slope of the line profile within the velocity range -800 to -200 km s^{-1} is strongly influenced by the choice of R_2. The location and strength of the P Cygni absorption component is determined to a large extent by the values of $V_{\rm max}$, X_3 and R_3. Increasing the

[7]It is interesting to note, however, that the model generally under-predicts the emission intensity, consistent with the fact that the contribution from the N V 4620 emission will add on to the λ4604 emission and approach the value of the observed intensity.