Update for the Week of January 26, 2015

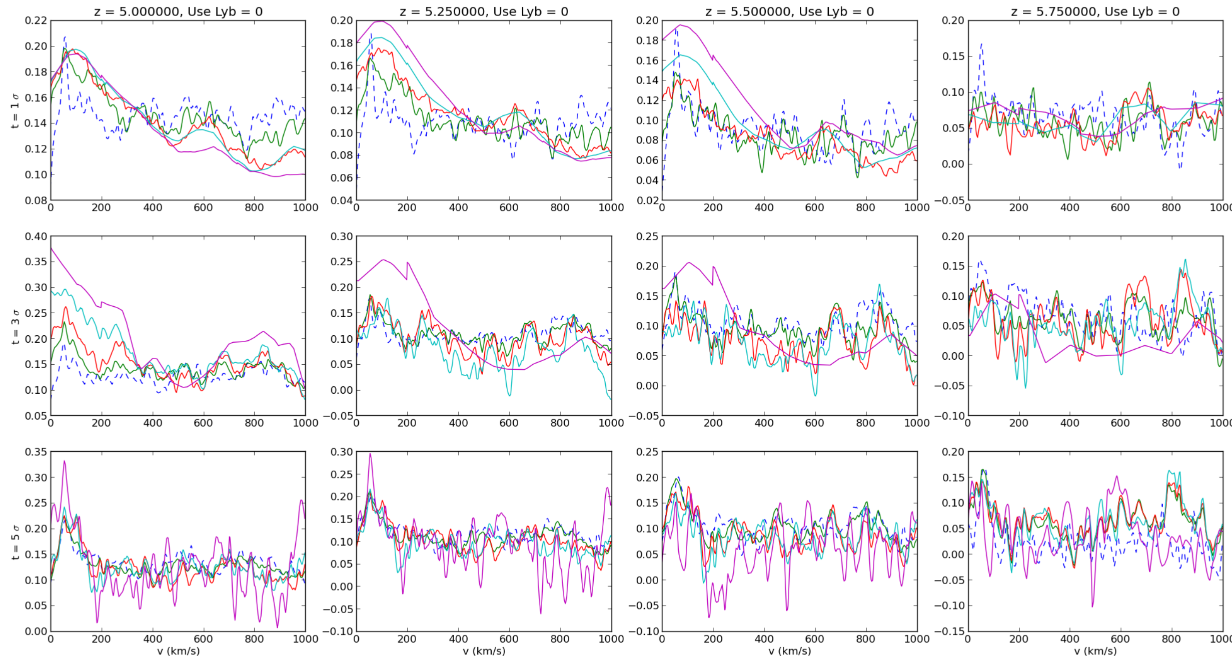

Figure 1: After adjusting precisely how we weight stacking contributions from different spectra, we show the results of stacking with different thresholds for what constitutes saturated absorption ($\tilde{\sigma}_{\rm N}$ (top row), $3\tilde{\sigma}_{\rm N}$ (middle), and $5\tilde{\sigma}_{\rm N}$ (bottom row)). We also vary the minimum redshift of a pixel for a corresponding dark gap to be included between the different columns. We consider dark gaps with $L_{\rm gap} < 300$ km/s (dashed), $L_{\rm gap} > 100$ km/s, 300 km/s, 500 km/s, 1000 km/s.

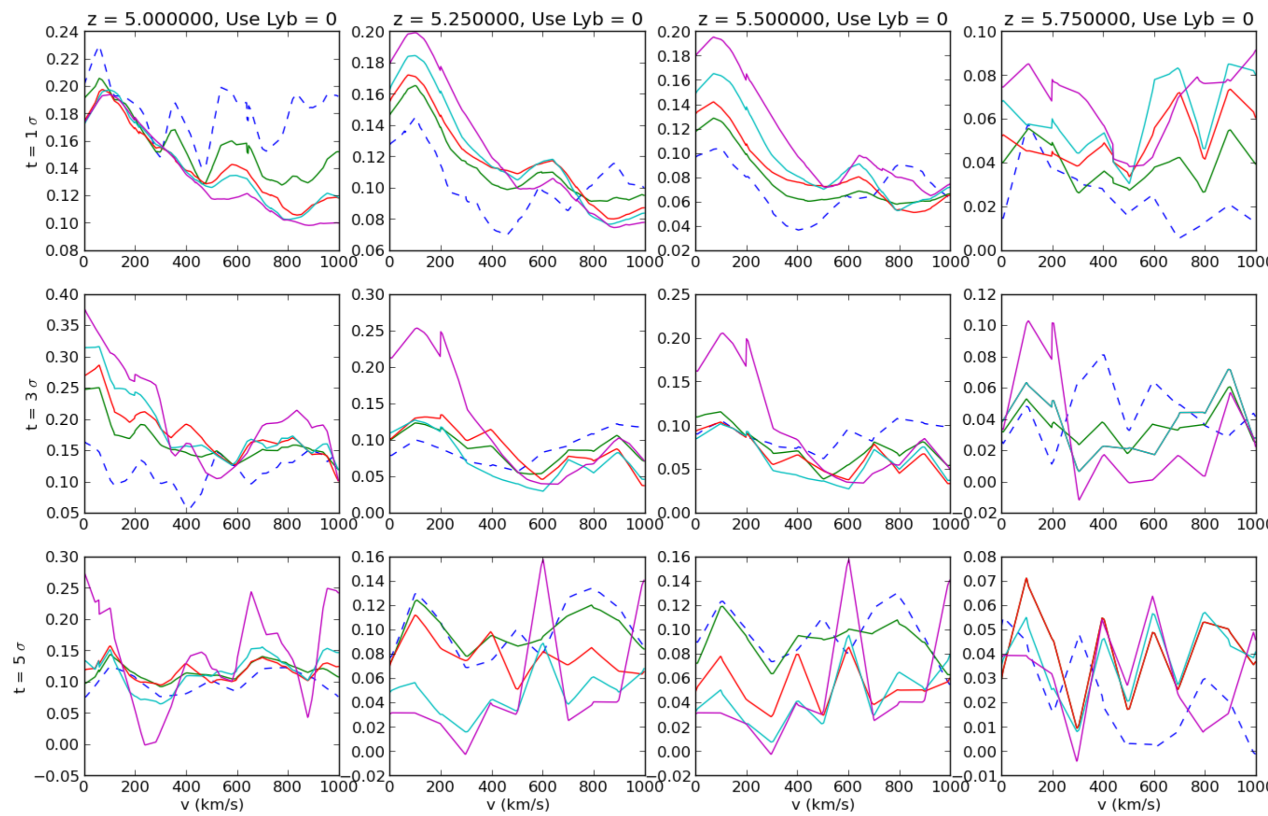

Figure 2: This figure is the same as Figure 1 except that we have excluded one spectrum that was contributing significantly more stacks than the others.

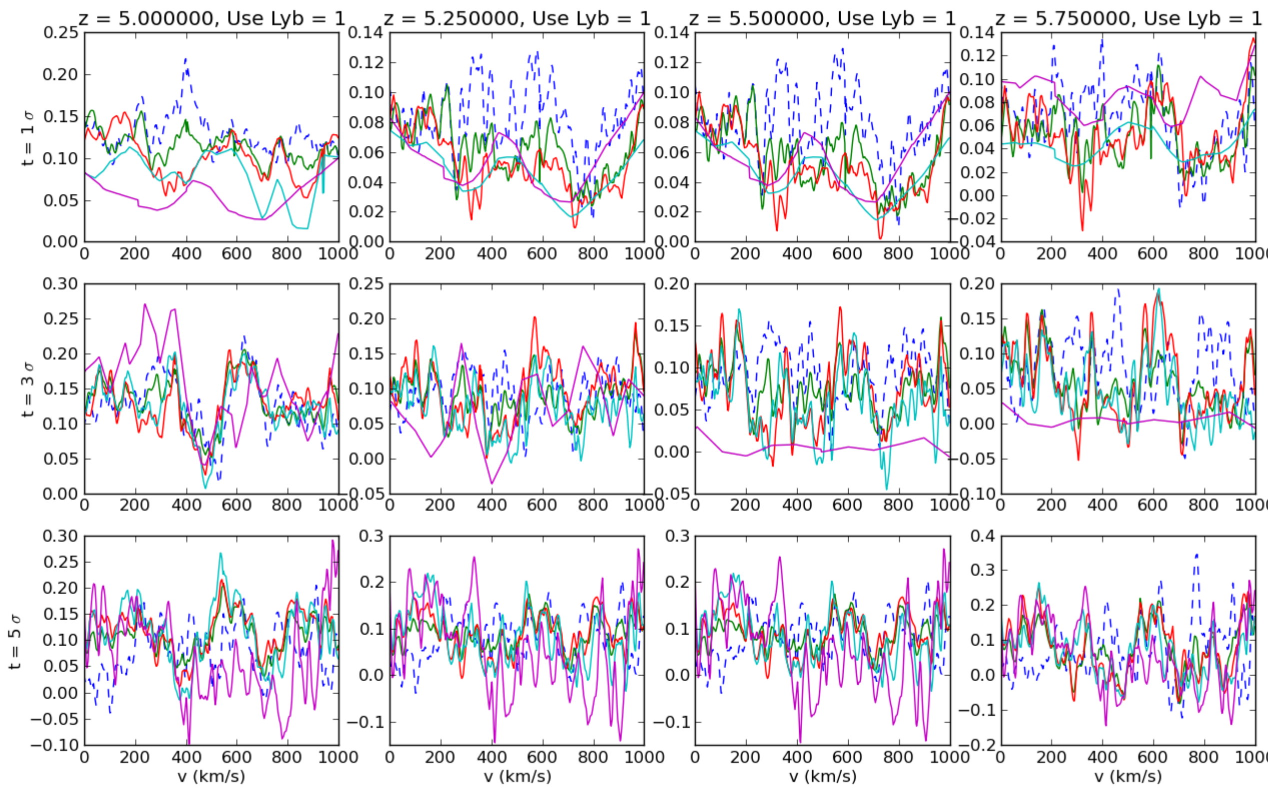

Figure 3: This figure is the same as Figure 1 except that we have stacked Lyα transmission based on dark gaps in Lyβ.

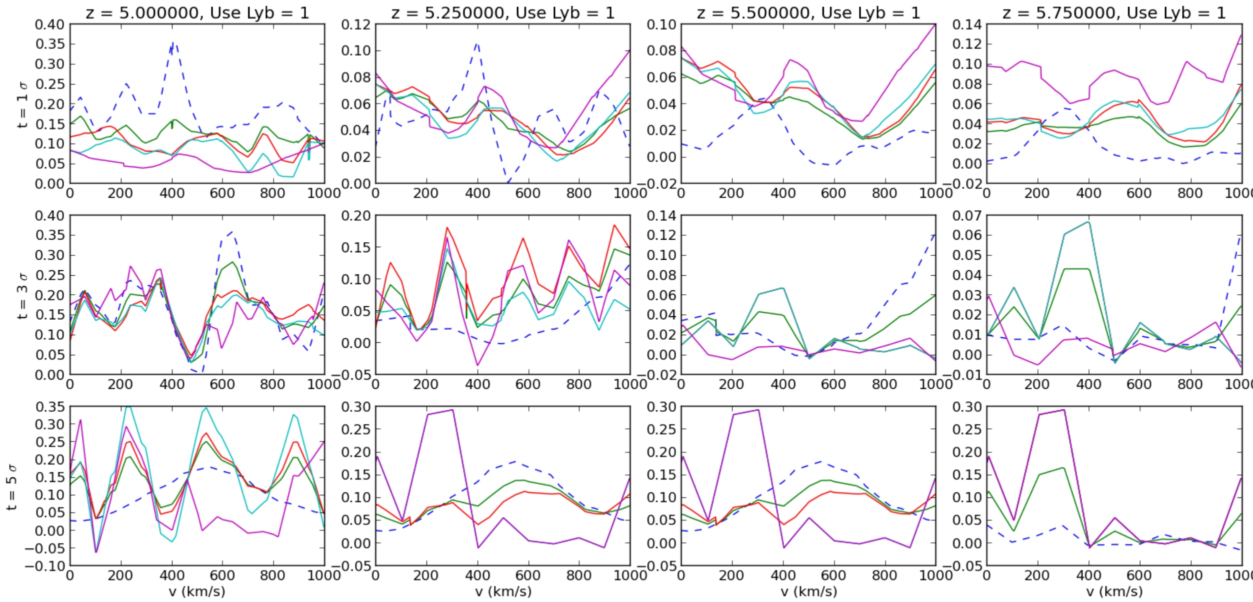

Figure 4: This figure is the same as Figure 1 except that we have stacked Lyα transmission based on dark gaps in Lyβ and excluded one spectrum that was contributing significantly more stacks than the others.

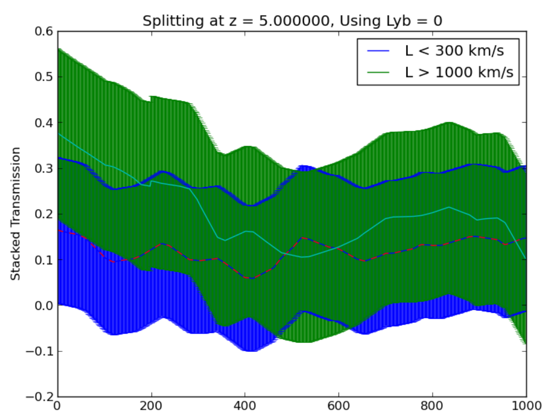

Figure 5: The above figure shows a stack of the transmission outside of small dark gaps (dashed red) and large dark gaps (solid) with error bars corresponding to $\frac{1}{\sigma_\mu^2} = \sum_i \frac{1}{\bar{\alpha}\sigma^2_{\rm N,red} + \sigma^2_{\rm F}}$.

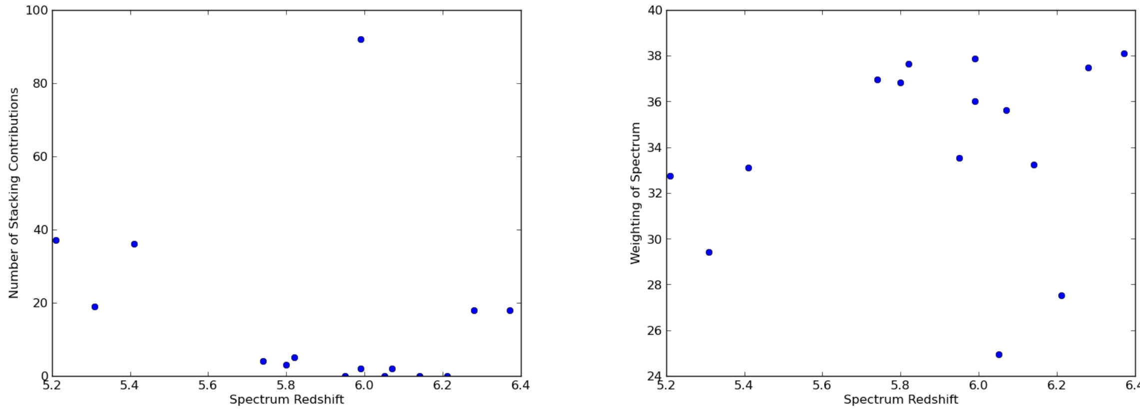

Figure 6: The left-hand figure shows the distribution of weightings for the individual contributions to the stacks. The right-hand figure shows the number of stacks contributed to the overall average from each spectrum as a function of the spectrum's redshift. This suggests that a spectrum near $z \approx 6$ may be dominating the stack. We re-generate Figure 1 after excluding this spectrum to obtain Figure 4.

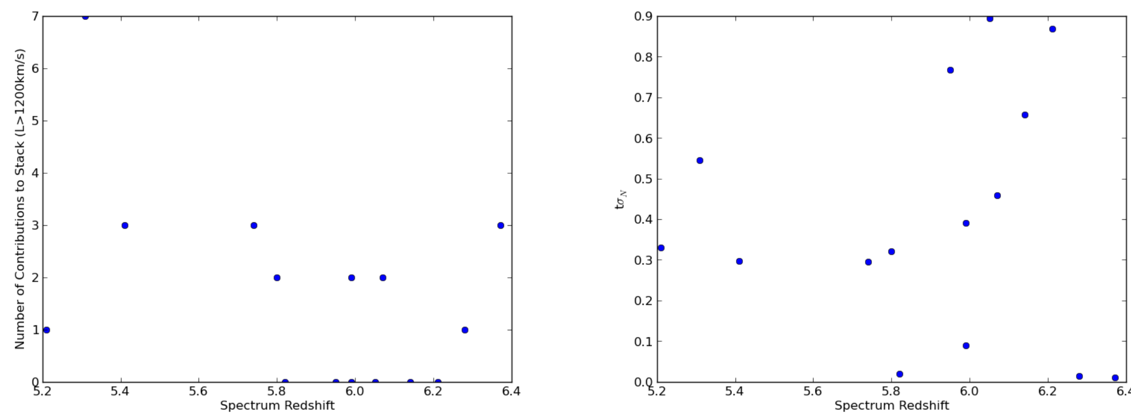

Figure 7: The left-hand figure shows the number of stacks that each spectra contributed as a function of the redshift of the spectrum. This is done only for $L_{\rm dark} > 1200$ km/s. The right-hand figure shows the threshold for which a pixel in smoothed spectrum is consistent with saturated absorption, let's call it $f_{\rm thresh} \equiv t\tilde{\sigma}_N$, where we have been using $t = 3$. Together, these *could be* consistent with the idea that large initial stacked transmission is due to large threshold transmissions for a pixel to no longer be consistent with saturated absorption. If this was the case, we would expect the initial stacked transmission to be $\bar{f}_{\rm initial} \approx \dfrac{1}{\sum N_i w_i} \sum_i N_{\rm contributions,i} w_i f_{{\rm thresh},i}$. We evaluate this weighted average for $L_{\rm min} = 1000$ km/s and find $\bar{f}_{\rm initial,guess} = 0.26$. This should be compared to the largest-L curve in the middle-left panel of Figure 1. Repeating estimates with other $L_{\rm min}$, we find $f_{\rm initial,guess} \approx 0.21$, and 0.16 for $L_{\rm min} = 500$ km/s and 300 km/s, respectively. The same number for $z_{\rm min} = 5.5$ are $f_{\rm initial,guess} \approx .1$, .07, and .07.

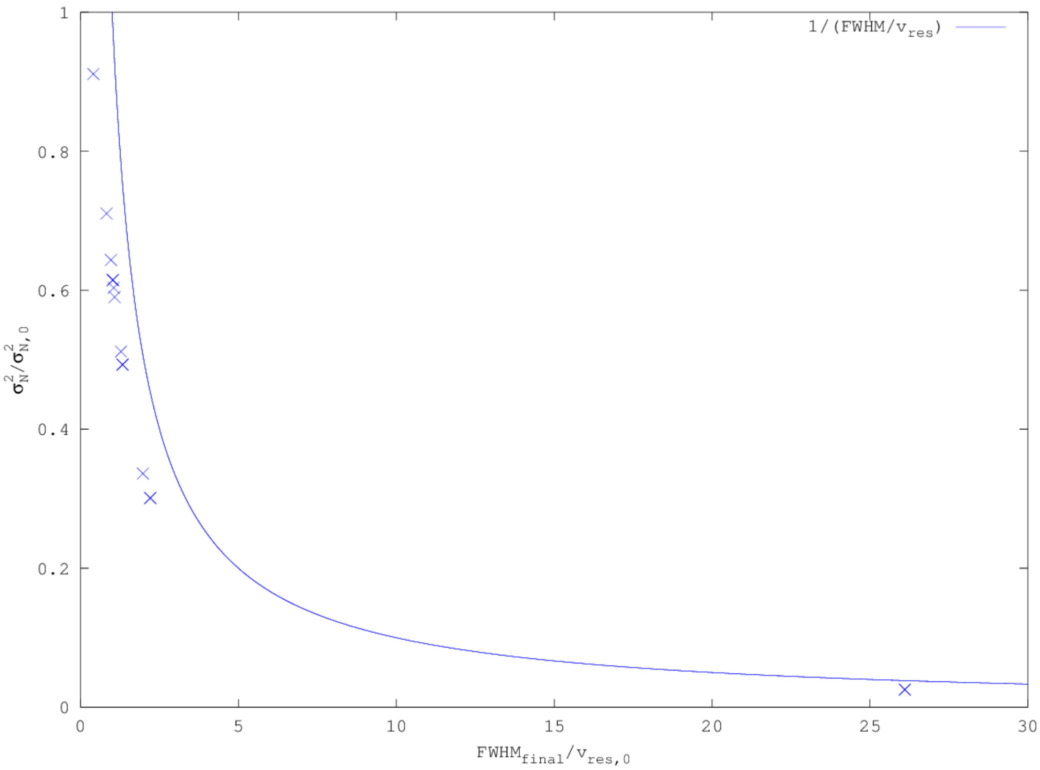

Figure 8: The above figure shows the ratio of the smoothed noise variance to the unsmoothed noise variance as a function of the ratio of the original bin width to the FWHM of the Gaussian that we smoothed by. For comparison, we also snow 1/FWHM, since the shape of this curve should be similar.

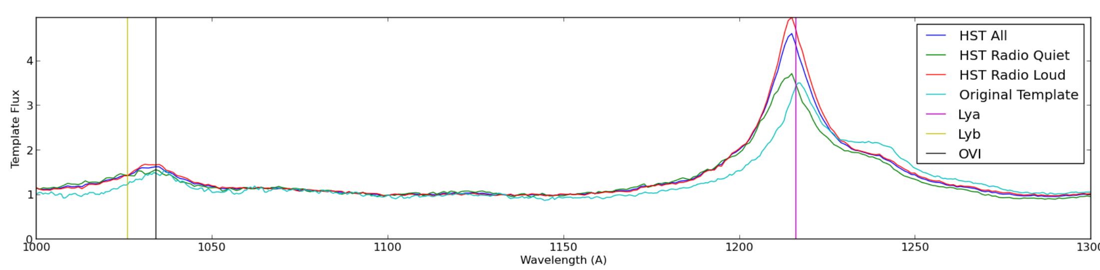

Figure 9: The above figure shows several different quasar continuum composite templates. We have indicated the wavelengths of the Lyβ line (left), OVI line (middle), and Lyα line (right). It seems that all templates show emission corresponding to the OVI line.