Update for the Week of December 12, 2014

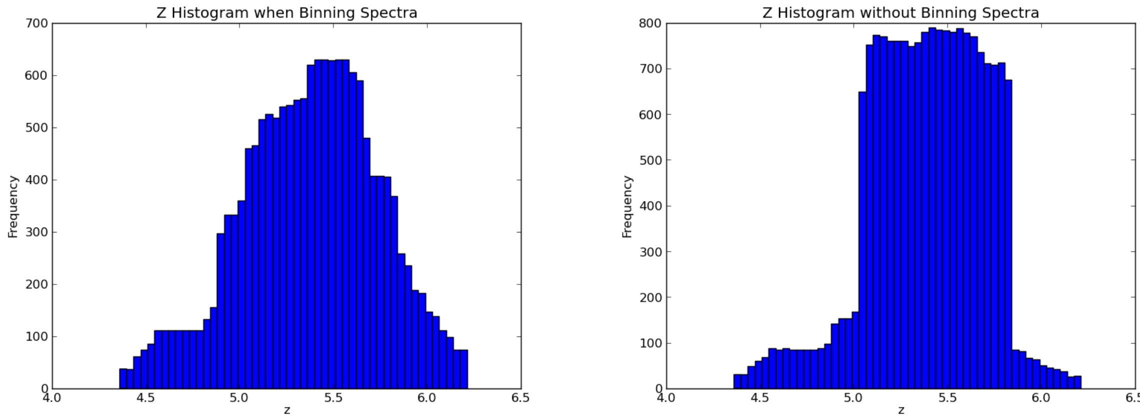

Figure 1: The above figure shows the distribution of z values that the pixels in our spectra take. The left-hand plot show the results when all spectra are binned to a common resolution, such that high-resolution spectra don't dominate the histogram, and the right-hand plot does not perform such a binning.

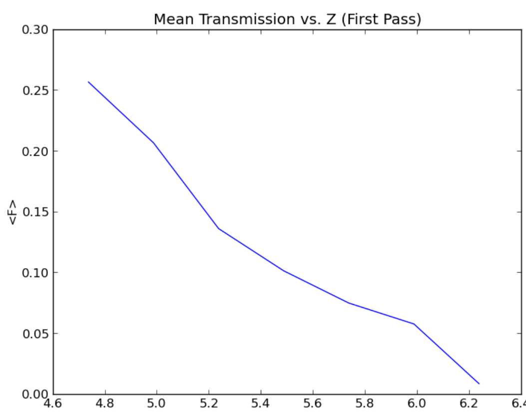

Figure 2: Mean transmission in Lyα as a function of redshift for the spectra. Here we have bins in redshift of width $\Delta z = 0.25$ centered at z.

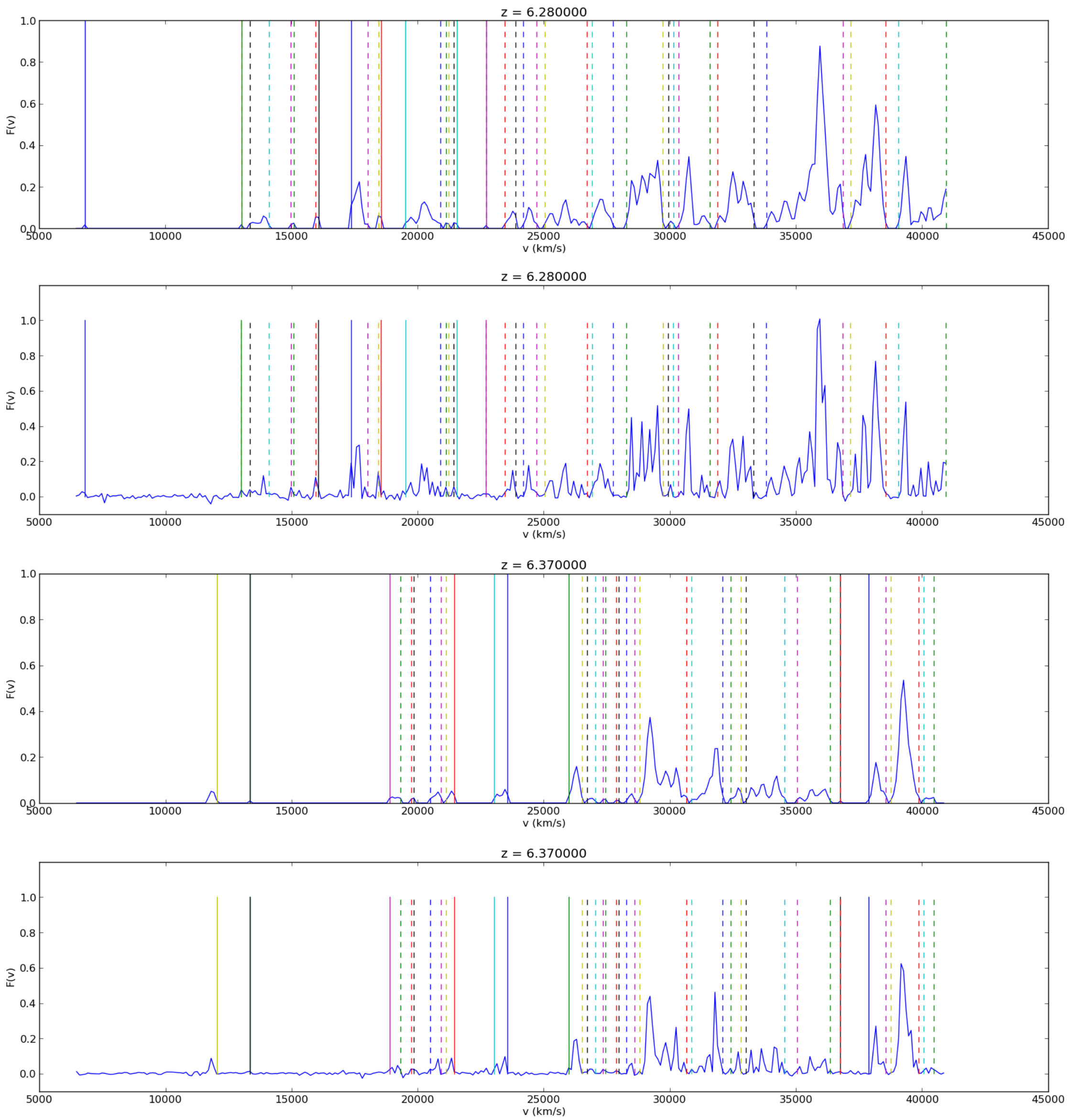

Figure 3: The above figures show the stacking locations overplotted on the smoothed (first and third) and unsmoothed (second and fourth) spectra. These are shown for $L_{\rm small} < 700$ km/s and $L_{\rm large} > 700$ km/s. Solid lines indicate the edges of the large dark gaps used while the dashed lines indicate the edges of the small dark gaps used.

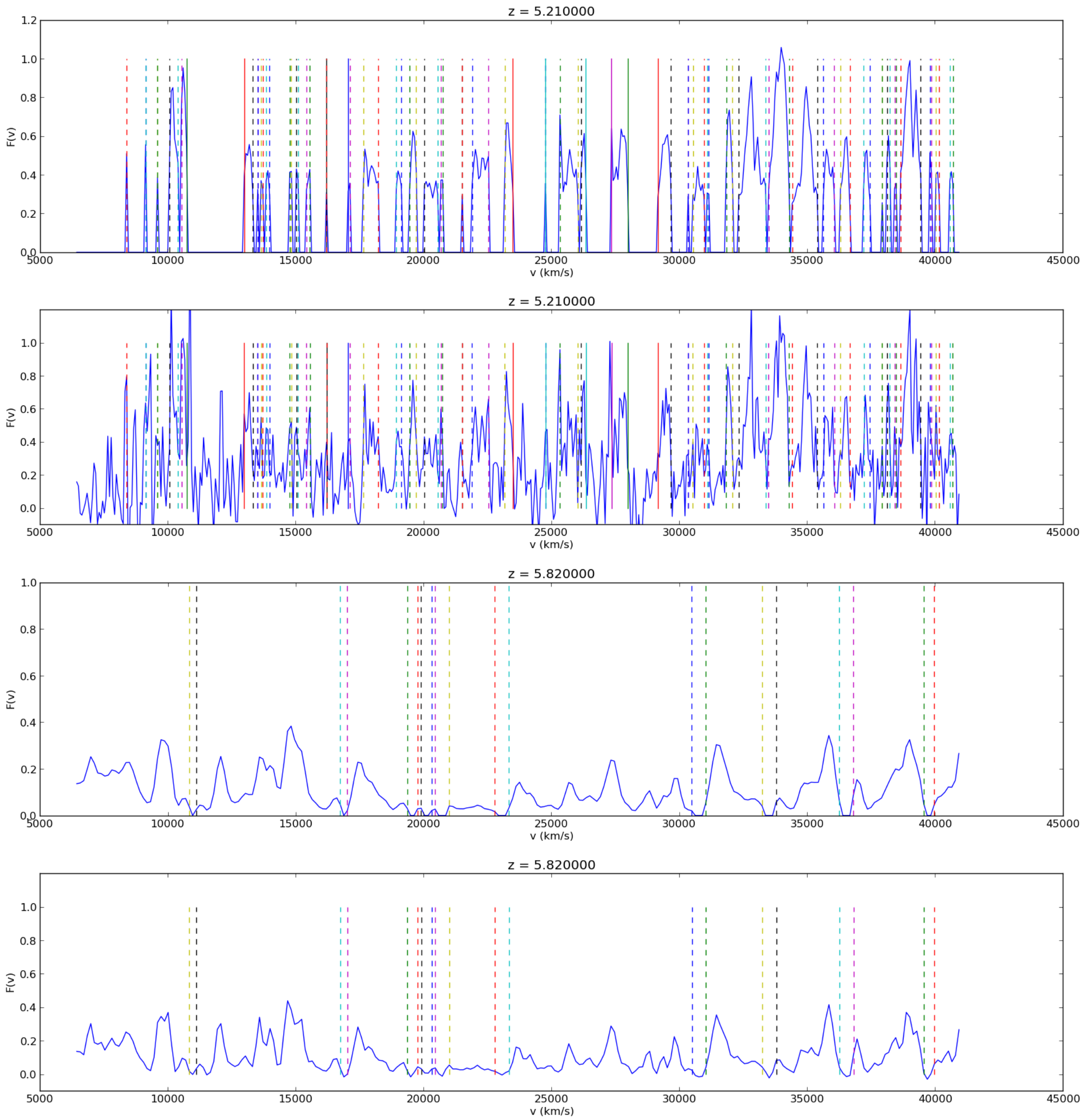

Figure 4: todo

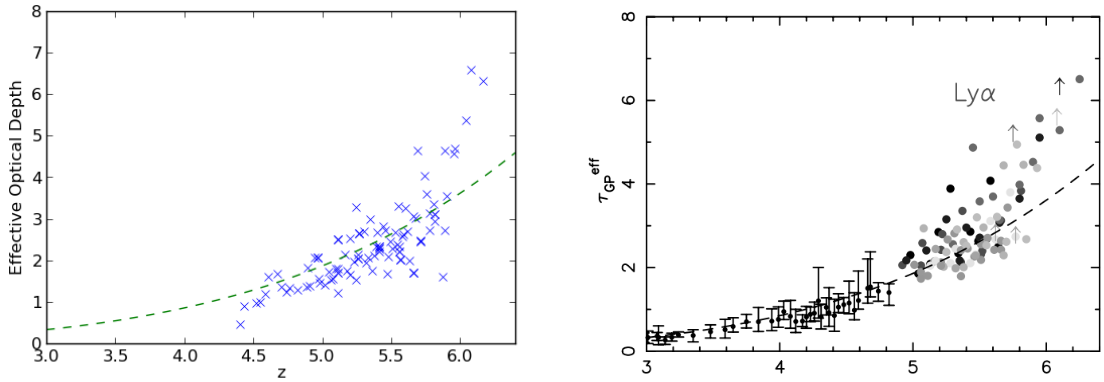

Figure 5: The above plot compares the τ_{eff} values that I recover from the provided spectra (left) to those in Fan et al. (2006) (right). The dashed line in each plot corresponds to the power law best fit for $z < 5.5$. In each case, τ_{eff} is calculated from an average of the flux performed over a redshift interval $\Delta z = 0.15$.

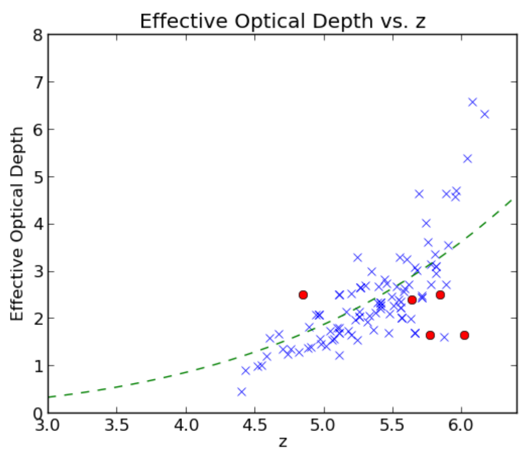

Figure 6: The above figure is the same as Fig. 7 except that, following Fan et al. (2006), we have replaced regions with $\langle F \rangle < 2\sigma_{\rm N}$ with $\langle F \rangle = 2\sigma_{\rm N}$ in order to get a lower bound on the corresponding τ_{eff}. These points are likely all to have come from spectra without corresponding noise files, where we have estimated the signal-to-noise values based on transmission redward of Lyα. We have yet to check that this signal-to-noise values are reasonable and remove possible duplicate spectra.

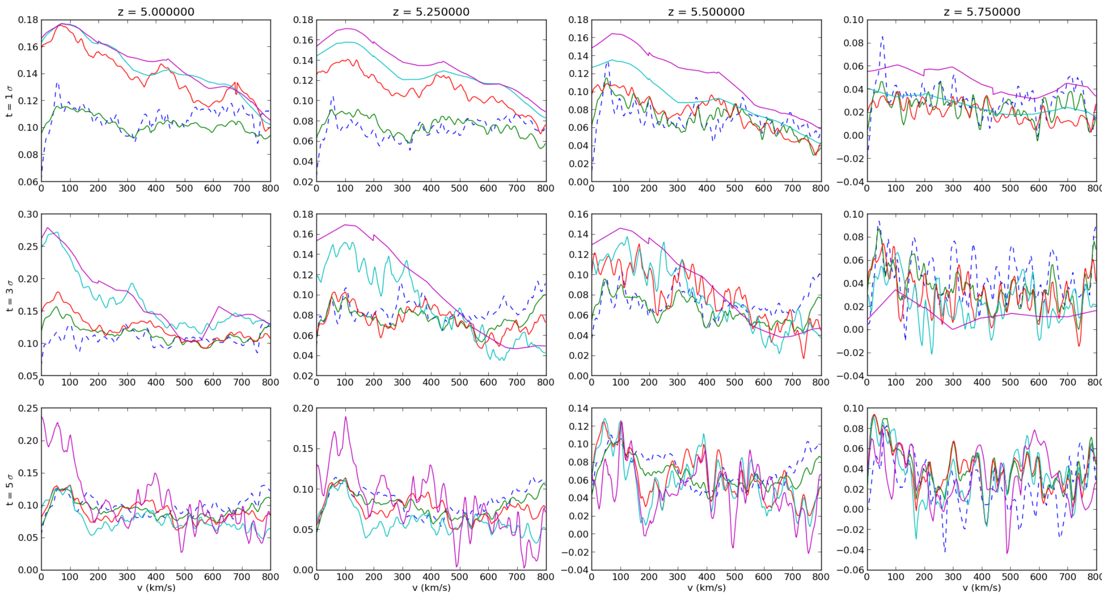

Figure 7: The above figure shows the results of varying the minimum redshift for the dark gaps in our stack (fixed for each column) and the threshold for calling a pixel dark. The σ here refers to the smoothed σ_N.

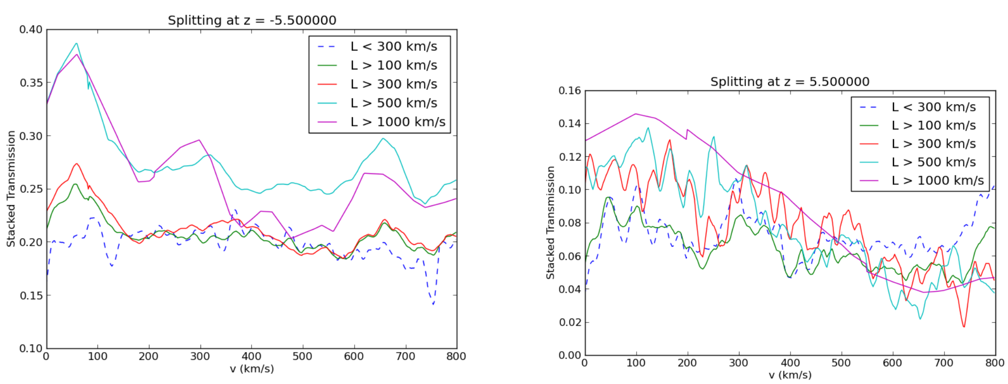

Figure 8: The above plots show the results of stacking outside of dark gaps located at $z \leq 5.5$ (left) and $z \geq 5.5$ (right). The first thing we notice is that the $z \geq 5.5$ plot is noisier but does not show a hint of a damping-wing feature. Additionally, we see that $\langle F \rangle_{z \leq 5.5} \approx 0.2$, while $\langle F \rangle_{z \geq 5.5} \approx 0.07$, somewhat consistent with what we'd expect.

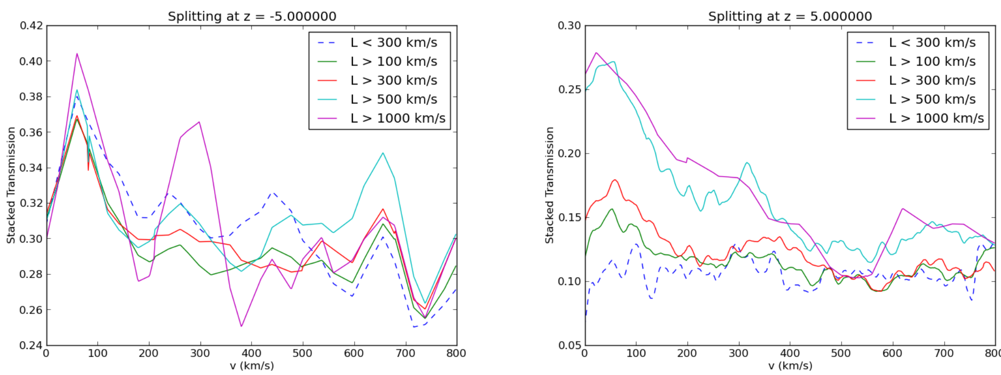

Figure 9: This figure is identical to Fig. 1 except that we split the stacking at $z_{\rm cut} = 5$ instead of $z_{\rm cut} = 5.5$. By doing so, we see that we get $\langle F \rangle_{z>5} \approx 0.1$, somewhat matching what we would expect. It seems the curiously high mean transmission in the left-hand plot of Fig 1 may be due to spectra at $z < 5$.