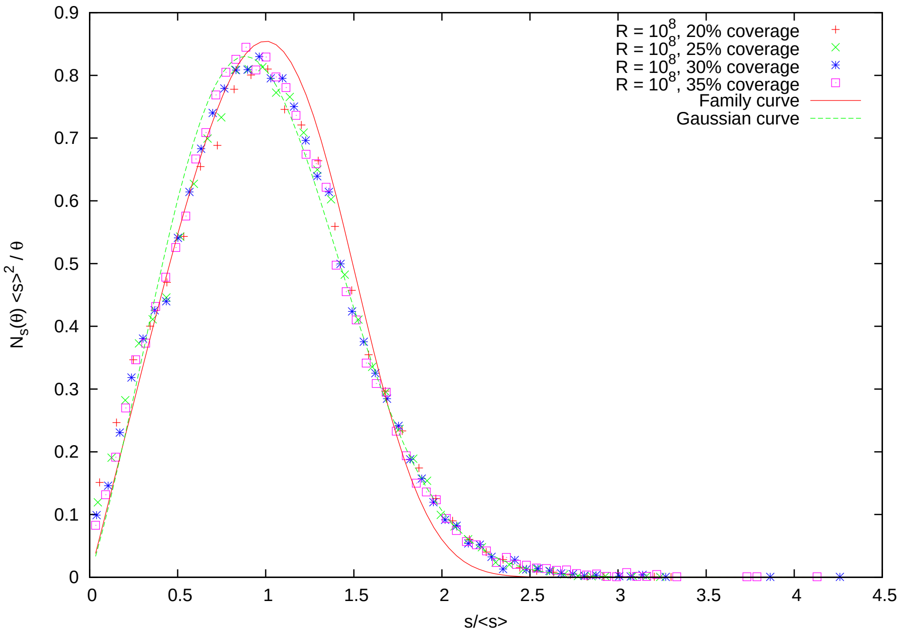

Figure 1: Critical island size $i = 1$ scaling distributions for $R = 10^8$.

We start off by running the model for $i = 1$ critical island size to compare to previous results. Amar and Family did some scaling analysis for the high $R = D/F$ regime, so we focus our model runs on this regime. In their papar, Amar and Family presented results for $R = 8$ and $R = 9$ for critical island size $i = 1$. We managed to get a lot of model output for $R = 8$, but it took quite a bit of computing time to get it all. Unfortunately, it seems the model I wrote is horribly inefficient for some reason, and I have just not produced enough $R = 9$ output to really smooth out the results.

Next, we set out to reproduce the results of Amar and Family for critical island size $i = 3$. This corresponds to an extra activation energy for monomers with between one and two neighbors to break away from their neighbors and diffuse. Our definition of the activation energy E_1 is similar to that discussed in the Family paper. E_1 is the activation energy for diffusion of monomers with 1 neighbor, which corresponding relative diffusion rate $\tau_1 = D_1/D = e^{(E_0 - E_1)/kT}$, where E_0 is the activation energy for free monomers, which is taken to be zero in this implementation.

We have ran the model for $R = 10^9$ and $R = 10^{10}$ with $E_1 = 0.30$, however there is not nearly enough model output to even make a readable plot for $R = 10^{10}$. These

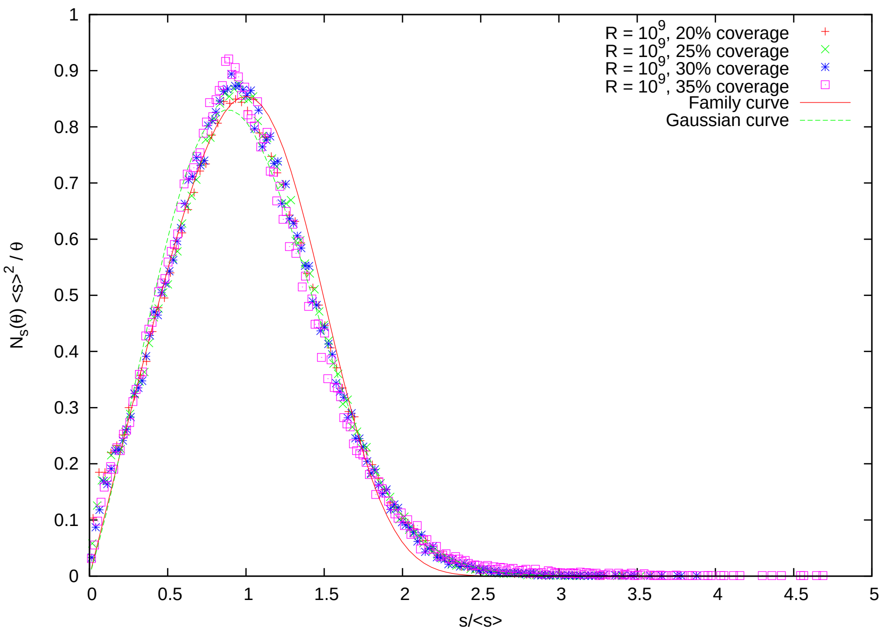

Figure 2: Critical island size $i = 1$ scaling distributions for $R = 10^9$.

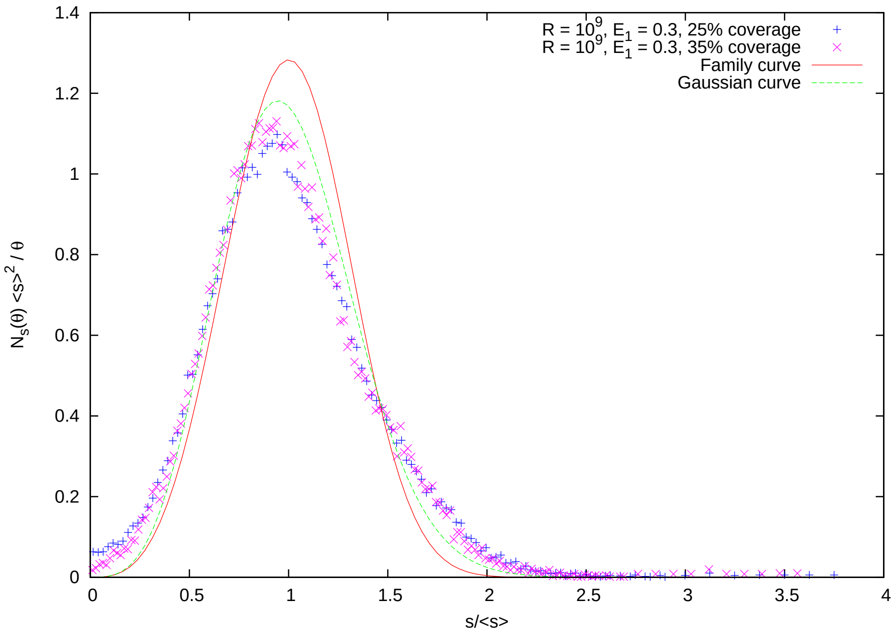

Figure 3: Critical island size $i = 3$ scaling distributions for $R = 10^9$, with activation energy for single neighbor monomers $E_1 = 0.3$.

runs take entirely too much time. I think any effort to look at diffusion this high is going to take a substantial rewrite of the code, probably by someone more intelligent than I am as I could not see any way to drastically speed it up.

What we have for the high-ish R regime may be enough to say something about the gaussian versus the Family scale functions. For $i = 1$ the gaussian certainly seems to fit the output better, for the clear case of $R = 10^8$ anyways. The $i = 3$ gaussian also seems to be a better fit than the $i = 3$ Family curve, although neither of them seem to fit all that well. We may really benefit from higher R, but with the current code it could just not happen on reasonable time scales.