David,

Ok, I just analyzed the case with porosity length increasing linearly with radius, H = r*H', where H' is the "porosity slope", a dimensionless constant giving the slope of the proportionality between H and r.

The effective optical depth (analogous to eqn. A5) is then given by

$$\tau_{eff}(r) = \frac{\log(1 + H' R_1/r)}{H'}.$$

The radius of optical depth unity then solves to

$$\frac{R_{b1}}{R_1} = \frac{H'}{e^{H'} - 1}.$$

A 50% reduction in this radius then requires H'=1.26, implying again that the porosity length must be on the order of the local radius, i.e. very large.

Note also that

$$\frac{\tau_{eff}(R_*)}{\tau_*} = \frac{\log(1+x)}{x}$$

where now$x = H'\tau_*$. I attach a plot of this below, but the upshot is that x of order unity gives again about a 20% decrease in the effective τ_*. This implies now that such a modest reduction requires a porosity slope of only $H' \approx 1/\tau_*$.

So this is an interesting case, but the general conclusions are similar. Namely, you need a big porosity slope to get a transparent wind, but even a modest porosity slope will give some modest reduction in very big τ_*.

Stan