1 Problem 4

I implemented the PARK wake model. The velocity deficit imparted on a flow field by a wind turbine is described as

$$U_{def} = \frac{U_0 2a}{(1 + \frac{2k\Delta x}{D})^2} \tag{1}$$

where U_0 is the velocity incoming to the turbine, k is the wake expansion coefficeint, ΔX is the distance downstream of the turbine, and this deficit is applied where $y_0 - \frac{D}{2} - kx < y < y_0 + \frac{D}{2} + kx$, where y_0 is the location of the turbine in the cross-flow direction.