Stretching function for non-uniform grids

The stretching function used was

$$y = h \frac{(\beta + 2\alpha)\left[\frac{\beta + 1}{\beta - 1}\right]^{(\bar{y}-\alpha)/(1-\alpha)} - \beta + 2\alpha}{(2\alpha + 1)\left\{1 + \left[\frac{\beta + 1}{\beta - 1}\right]^{\frac{\bar{y}-\alpha}{1-\alpha}}\right\}}$$

Or

$$y = h \frac{(\beta + 2\alpha)\gamma^{(\bar{y}-\alpha)/(1-\alpha)} - \beta + 2\alpha}{(2\alpha + 1)\left\{1 + \gamma^{\frac{\bar{y}-\alpha}{1-\alpha}}\right\}}$$

$$\gamma = \left[\frac{\beta + 1}{\beta - 1}\right]$$

Where h is the thickness of the boundary layer, and

$\alpha = 0 \rightarrow$ mesh will be refined near $y = h$ only

$\alpha = \frac{1}{2} \rightarrow$ mesh will be refined near $y = 0$ and $y = h$

$$\beta = \left(1 - \frac{\delta}{h}\right)^{-1/2}$$

$$0 < \frac{\delta}{h} < 1$$

and $\bar{y}$ is the uniformly spaced grid.

References
1. Computational Fluid Mechanics and Heat Transfer, 2nd edition, Tannehill, J., Anderson, D. and Pletcher, R.