Grid - non-uniform

The non-uniform grid was made using a Roberts stretching function, which was documented in MOONS as well.

# Robert's stretching function

The Robert's stretching function is

Where

stretching at only

stretching at and

# Scaled Robert's stretching function

In a slightly different notation, for a scaled grid, not starting at zero, we may write

Where

stretching at only

stretching at and

# Matching 's

We would like to ensure that the first fictitious cell is the same size as the first interior cell in order to be able to linearly extrapolate from the interior cells to the exterior cell.

To do this, we must choose a such that

Where

Note that this is dimensional. Plugging this in, we have:

Now, here comes the tricky part.

Note that is normalized:

And the is also normalized:

We may write this term as

Where is the number of cells in the wall.