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Geoscientific Model Development Discussions

Interactive comment on "A Nested Multi-Scale System Implemented in the Large-Eddy Simulation Model PALM model system 6.0" *by* Antti Hellsten et al.

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In your text you write

"Our approach is to use Eq. (3) for the boundary normal velocity component u_N and all scalar variables, [...]."

For the boundary-normal component it's clear but for the scalars you still do an average/interpolation ("phase 1 average", see the attached Figure). I thought equation (3) mean that the left parent grid cell value for scalars is directly taken to set the boundary values for the child grid boxes as it is done more or less for u. This is what equation (3)

suggest or am i wrong? Can it be that the phase 1 interpolation is not mentioned at all in the manuscript?

Additionally, i fear that further figures are necessary that show the interpolation scheme for one direction/child boundary (as in the attachement) and also the connection to the flux degradation (which points are actually used for calculating the fluxes) should be illustrated not only by words.

Kind regards, Sebastian Giersch

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AH 2.9.2020
Left nested boundary, GSR=2
Parent grid
Child grid
West boundary
Average (phase I)
Average (phase II)
Copy (phase II)
For scalars:
For u:
For v or w:
Scalar node
u node
v or w node
- Filled blue symbols (●,■,◆) denote intermediate values on the boundary plane (flux plane).
- Filled red symbols (●,■,◆) denote the final boundary-condition values for the child left boundary.

Fig. 1.