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Interactive comment on "Speeding up a Lagrangian ice microphysics code" *by* S. Unterstrasser and I. Sölch

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About section 4.2:

It seems that the center of mass of the SIPs is not conserved when joining particles as the position of the new SIP is chosen at random. How large localized effects does this have in the simulation? Only global parameters were shown as proof e.g. in figure 5, how would those parameters differ in grid cells (boxes) where the particles are actually joined? For example all grid cells where particles were not joined during the entire simulation could be excluded from the results of figure 5 to show the effect of joining more realistically.

When gathering statistics from SIPs, are their attributes interpolated to the grid cells,

for example in order to obtain the total mass in each cell? If this is the case does the SIP splitting and joining procedure conserve the interpolated quantities? For example Lapenta & Brackbill 1996 (http://dx.doi.org/10.1006/jcph.1994.1188) present a method for achieving this, how relevant would preserving also the interpolated quantities be for this work?

Interactive comment on Geosci. Model Dev. Discuss., 6, 3787, 2013.