

POSTER PRESENTATION

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P-05. Allan Christensen: A locally mass conserving semi-Lagrangian transport scheme using partition of unity

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A locally mass conserving semi-Lagrangian scheme is presented on a poster. The scheme, which has been developed by Eigil Kaas, is equivalent to the cell-integrated semi-Lagrangian (CISL) transport schemes. The scheme consists of using an interpolation method to find the mass giving off by each Eulerian cell surrounding the departure point. This is done for every departure point. Thereby it is possible to find how much mass each Eulerian cell is giving off to the surrounding departure points. This depends on the order of interpolation method used, where I use cubic interpolation. In traditional semi-Lagrangian scheme the mass is conserved globally, but not locally, this means that the mass giving off by an Eulerian cell at time level n can exceed or be less than the amount of mass by that particular grid point, and thereby add or remove mass locally. This scheme maintains the mass by using the grid cell average instead of the grid point values. It is not strictly mass conserving, but it is equivalent to any other CISL-schemes.