LMM Library v.1.0

“LMM Library v.1.0" (Amicarelli) is a Fortran 77 library, which may be useful for a generic stochastic Lagrangian Micro-Mixing (LMM) numerical model for pollutant/scalar dispersion.

LMM Library v.1.0 collects the main numerical developments reported in the following studies:

1. LMM reaction scheme based on the Conserved Scalar Theory, under non-homogeneous conditions (in progress; Amicarelli et al., EFMC, submitted; Amicarelli et al., 2014, HARMO).
   Amicarelli A., G. Leuzzi, P. Monti, N. Pepe, G. Pirovano; major revision; Lagrangian micromixing modelling of reactive scalar statistics: scalar mixing layer in decaying grid turbulence; International Journal of Environment and Pollution.
2. LMM scheme for the mixing time (in progress; Amicarelli et al., IJEP, major revision; Amicarelli et al., 2014, HARMO).
   Amicarelli A., G. Leuzzi, P. Monti, S. Alessandrini, E. Ferrero; submitted; A stochastic Lagrangian micromixing model for the dispersion of reactive scalars in turbulent flows: role of concentration fluctuations and improvements to the conserved scalar theory under non-homogeneous conditions; Environmental Fluid Mechanics.

LMM Library v.1.0 was also integrated to LAGFLUM (Sapienza University of Rome, Leuzzi et al.) and used to carry out the following validation studies on LMM modelling:

a) Amicarelli A., P. Salizzoni, G. Leuzzi, P.Monti, L. Soulhac, F.X. Cierco, F. Leboeuf; 2012; Sensitivity analysis of a concentration fluctuation model to dissipation rate estimates; International Journal of Environment and Pollution, 48 n.1/2/3/4, 164-173; DOI: 10.1504/IJEP.2012.049663
b) Amicarelli A., Leuzzi G., Monti P., Thomson D.J.; 2011; LAGFLUM, a stationary 3D Lagrangian stochastic numerical micromixing model for concentration fluctuations: validation in canopy turbulence, on the MUST wind tunnel experiment; International Journal of Environment and Pollution, 47, n.1/2/3/4, 317-325.

LMM Library v.1.0 is released on GitHub.com
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