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# Subgrid-scale stresses and fluxes in the synthetic fields generated by multi-turn-over Lagrangian map

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Synthetic models for turbulent fields have long been used to parameterize the subgrid-scale motions in large eddy simulations (LES). A recent model, based on the Multi-scale Turnover Lagrangian Map (MTLM), has been shown to be able to capture a wide range of small scale statistics, including the anomalous scaling and the statistical geometrical statistics. In this model, an initial random field is transformed into a synthetic turbulent field by a series of simple mappings, with small computational cost. Given its promising results, it is of great interests to look into the behaviours of the subgrid-scale stress tensor and fluxes in the synthetic fields, which have not been reported before. In this presentation we will first introduce the basic ideas of the MTLM method, then present the results calculated from synthetic MTLM fields. We focus on the SGS energy dissipation and the geometry of the SGS stress, as well as corresponding statistics in the scalar fields. The results show that, in addition to the results having been reported previously, the synthetic fields can also reproduce the SGS statistics realistically. We will aim to use the developed SGS model in the atmospheric boundary layer flows.