



## **Using stochastic and statistical dynamical approaches to subgrid scale parameterization to develop novel data assimilation strategies.**

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In this presentation I will present work on the development of methods for dynamical subgrid-scale parameterizations (SSPs) for the interaction of subgrid-scale transient eddies with retained scale topography and the mean flow, including numerical results for SSPs of the eddy–topographic force, stochastic backscatter, eddy viscosity and eddy–mean field interaction using an inhomogeneous statistical turbulence model based on a quasi-diagonal direct interaction approximation (QDIA) with specific application to general ocean circulation models. I will also describe how SSP's may be used to develop new approaches to data assimilation using ensemble methods.