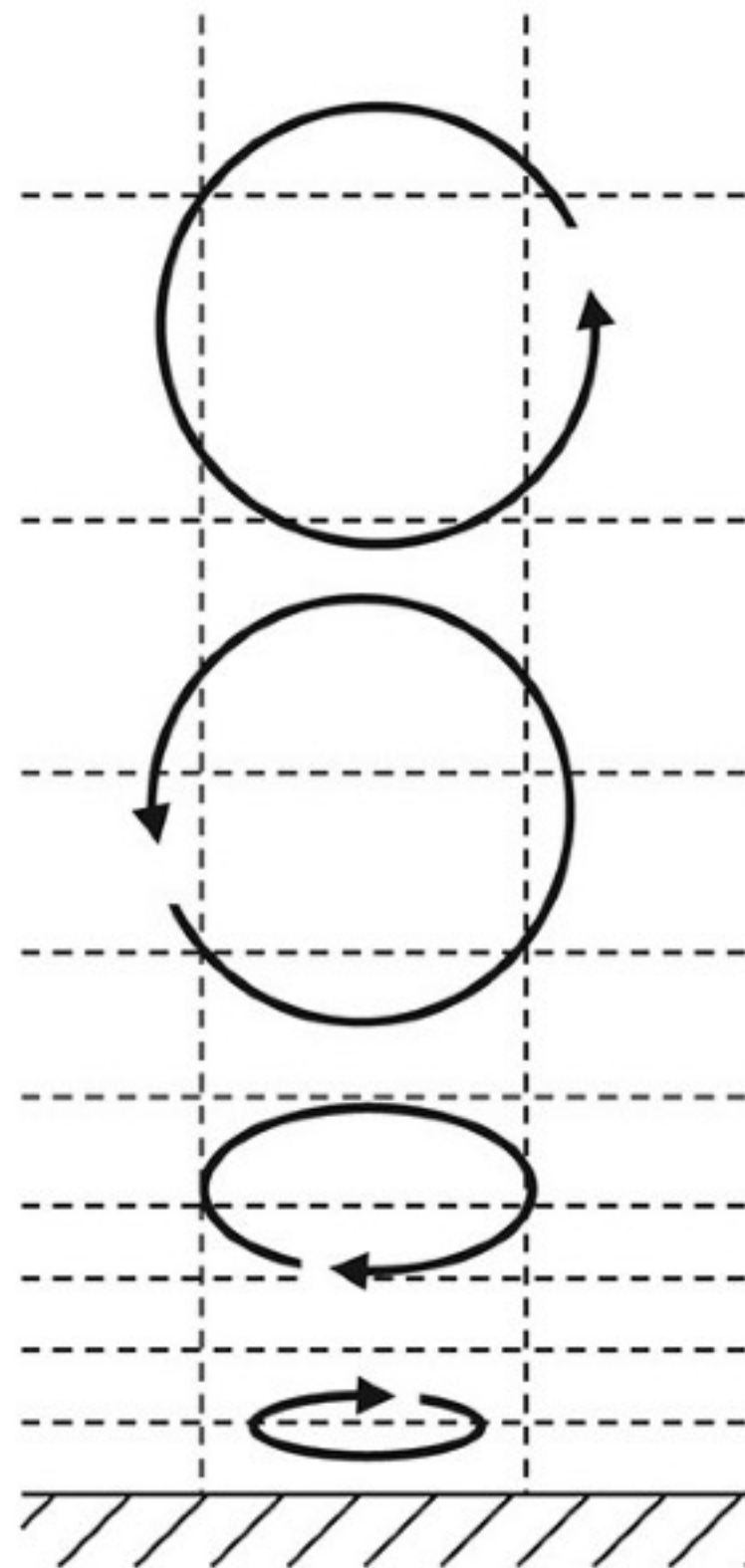# The Case of Sub-Grid Scale Modeling
Turbulence Kinetic Energy scheme

- In Turbulent regime, eddies in high scale tend to be unstable, and break down into smaller eddies. **Energy transfers from high scale to small scale**, until the viscosity is such that it dissipates the reminder energy

- Small eddies smaller than the grid resolution are **modeled with a viscosity term** (sub-grid scale model)

- Sub-grid scale models are fairly simple. Physics deserves a better replacement

SBS Modeling
The Approach
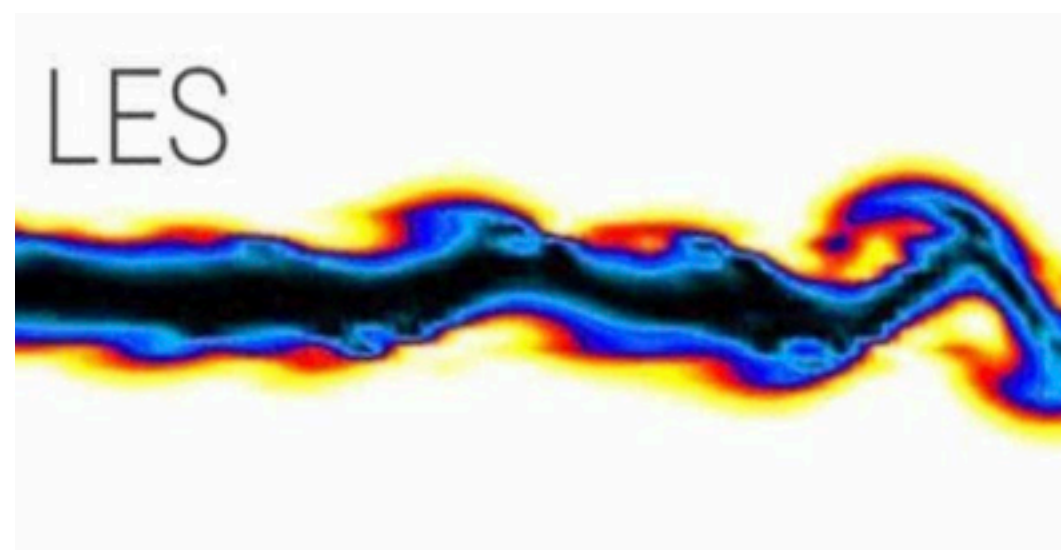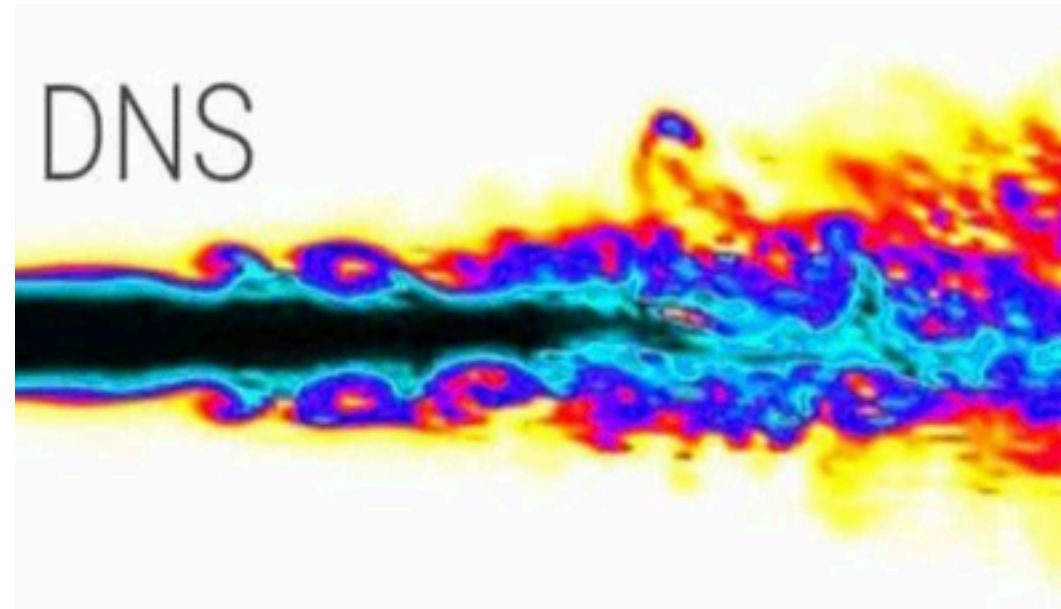
Instead of learning from SBS models, we learn from data degradation from a fully resolved DNS to an LES simulation.

The model needs to learn to produce a bias correction term by capturing the underlying Physics