

Abstract Submitted
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A wall model for large eddy simulation with complex geometries

JULIEN BODART, JOHAN LARSON, Center for Turbulence Research - Stanford University — Large eddy simulation of wall bounded flows is currently limited by the number of grid points required to resolve the inner part of the boundary layer at high Reynolds numbers. One possible solution is to compute approximate wall shear stresses through a separate-but-coupled RANS solver on a separate near-wall grid. This technique is implemented in an unstructured compressible solver. A fully structured grid is derived from the wall geometry to solve the RANS equations. The height of the RANS layer in relation to the boundary layer thickness is a critical parameter of the model and will be discussed. The capability of the model is assessed by computing several problems of both attached and separated flow at high Reynolds numbers, well beyond what is accessible to traditional LES.

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