

SUpport to SAfety ANalysis of Hydrogen and Fuel Cell Technologies

Verification type	Numerical Solution
Database reference	NUM-7
Topic / Application	Boundary layer flows, shear.
	Turbulence model implementation
	Structured grids
	Unstructured grids
Physics	Turbulence modelling
Summary	NASA verification of turbulence models including Spalart-Allmaras, Shear Stress Transport, and others
Description	This is one case in an online database for verification, primarily aimed at turbulence model implementation. This case examines boundary layer flow on a flat plate. The purpose is to provide a large sequence of nested grids of the same family, along with results from existing CFD codes that employ specific forms of particular turbulence models, in order to help programmers verify their implementations of these same models.
Case Title	2D Zero Pressure Gradient Flat Plate Verification Case - Intro Page
Authors	Curator: Christopher Rumsey, Langley Research Center
Year	2015 (updated)
Online reference	http://turbmodels.larc.nasa.gov/flatplate.html
Case image	Flat Plate Boundary Conditions, W=0.2, Re_ = 5 million (L=1), T _{ref} = 540 R farfield Riemann BC Pt/P _{ref} =1.02828, Tt/T _{ref} = 1.008, 1 quantity from interior other quantities from interior symmetry adiabatic solid wall start of plate at x=0 -0.5 0 0.5 X 1 1.5 2
Governing equations	For summary of SA turbulence implementation:

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	http://turbmodels.larc.nasa.gov/spalart.html#sa
	For summary of SA turbulence implementation:
	http://turbmodels.larc.nasa.gov/sst.html#sst
Results	N/A