Numerical Simulation of High Lift Trap Wing using STAR-CCM+

Results from numerical simulations of the NASA trapezoidal wing geometry using the unstructured finite-volume-based solver STAR-CCM+ are presented. General polyhedral meshes are generated using automated techniques that are amenable to rapid grid generation for industrial use. A steady-state RANS approach is employed using the SST k-? turbulence model coupled with a predictive laminar-to-turbulent transition model. Results are compared to experimental measurements provided as part of the 1st AIAA High-Lift Prediction Workshop (HiLiftPW-1), both with and without slat/flap support brackets.

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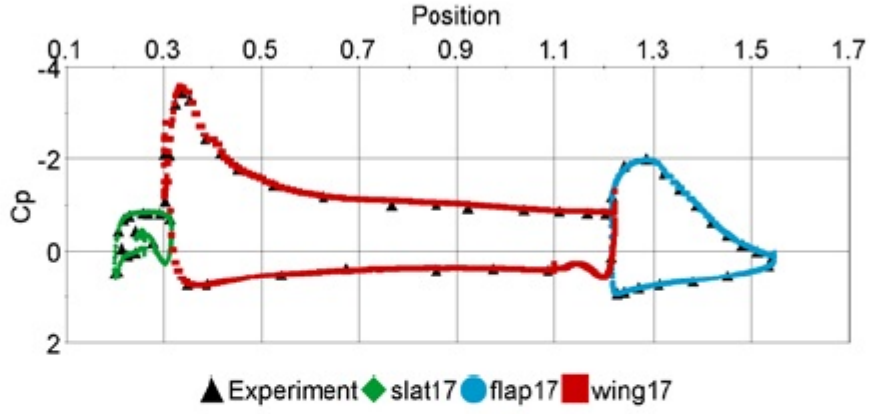
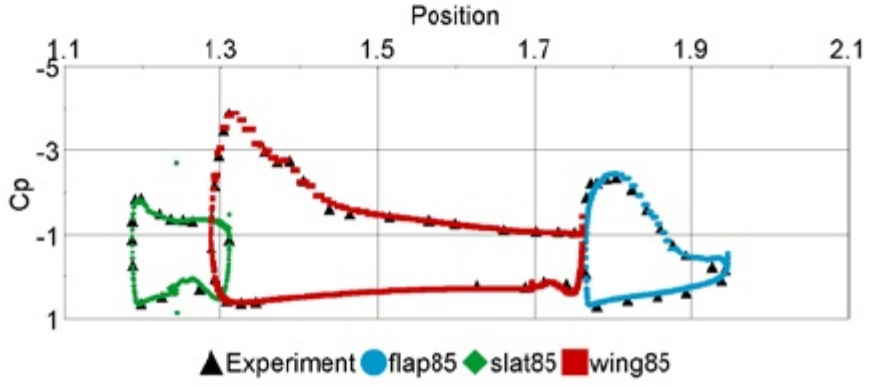
CD-adapco
Industries:
Aerospace & Defense [1]
Products:
STAR-CCM+® [2]
Conference Location:
New Orleans, Louisiana,USA
Conference Proceeding PDF:
AIAA-2012-2920.pdf[3]

Pages:
14
Conference Date:
Monday, June 25, 2012
Paper Reference:
AIAA 2012-2920
Conference Name:
30th AIAA Applied Aerodynamics Conference
Image:



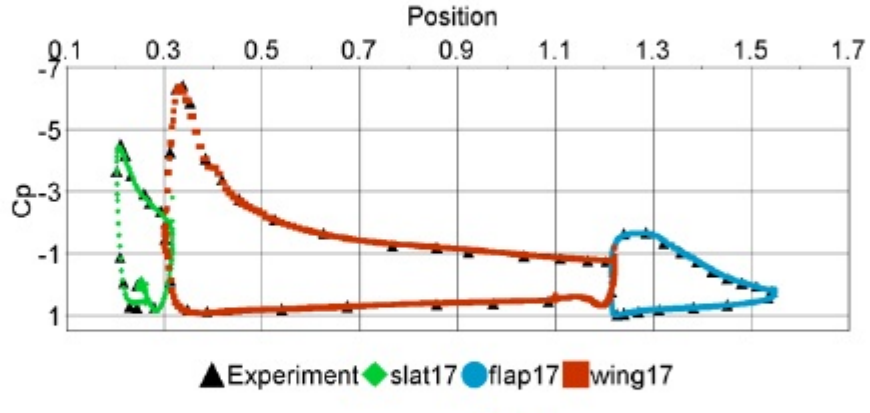
(a)



(c)

Figure 10. Cp distributions for 13 degrees AoA at four span wise locat

(d) η = 98%



(a)