3rd AIAA CFD Drag Prediction Workshop

Opening Remarks

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24th Applied Aerodynamic Conference
San Francisco, CA
3-4 June, 2006
3rd AIAA CFD Drag Prediction Workshop

Organizing Committee

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The Boeing Company
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**DPW-III Objectives**

- Provide Impartial Forum To Evaluate RANS Solvers
- Identify Areas Needing Research & Development
- Conduct Blind Test of State-of-the-Art CFD Methods
  - Follow-Up Wind-Tunnel Test After Workshop
- Study DPW-II Grid-Convergence Issues
  - Test Hypothesis that Issues are Related to Separation
- Document Results
  - Available on DPW-III Website After Workshop
  - AIAA Papers for Reno 2007
- Representation: Industry, Academia & Government Labs
Participation Demographics

• Total Participants: 15 (WB) / 10 (W)
• USA: 67%, Europe: 21%, Asia: 13%
• Industry: 54%, Gov’t Labs: 33%, Academia: 13%
• Structured: 46%, Mixed-Element: 50%, Tetrahedra: 13%
  ▪ Some Participants Submitted Multiple Grid Types
• Returning From DPW-II: 54%, New To DPW-III: 46%
Case 1:  WB Geometry w/ & w/o FX2B Fairing

Single Point Grid Sensitivity Study on Three Grids
- Mach = 0.75 , Cl = 0.5 , Re = 5M

Drag Polar on Medium Grid
- Mach = 0.75 , Re = 5M
- Alpha = -3, -2, -1, -0.5, 0, 0.5, 1, 1.5 (deg)
Case 2: DPW Wing-Only

Case 2: DPW-W1 & DPW-W2 Geometries

Single Point Grid Sensitivity Study on Four Grids
  • Mach = 0.76, Alpha = 0.5 deg, Re = 5M

Drag Polar on Medium Grid
  • Mach = 0.76, Re = 5M
  • Alpha = -1, 0, 0.5, 1, 1.5, 2, 2.5, 3 (deg)
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Agenda

Saturday, 3 June, 2006 (7:00-4:45)
• Overviews: Geometry, Grid, Test Status
• Participant Presentations (Sessions 2-5)
• Summary of CFD Results & Statistics
• Open Discussion

Sunday, 4 June, 2006 (7:45-3:45)
• Participant Presentations (Sessions 7-8)
• Summary of CFD Results & Statistics
• Open Discussion & Next Steps: Reno ’07