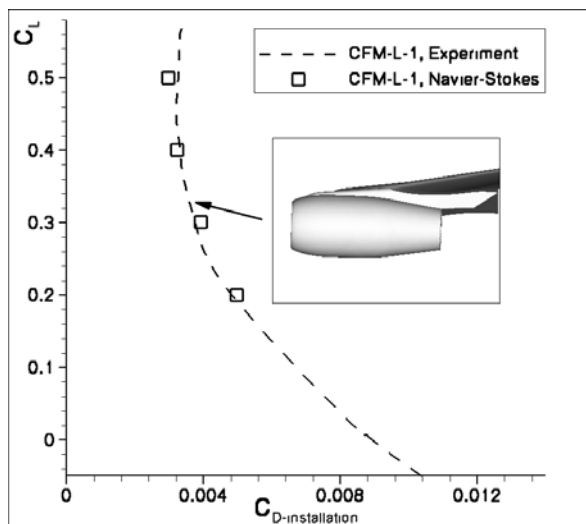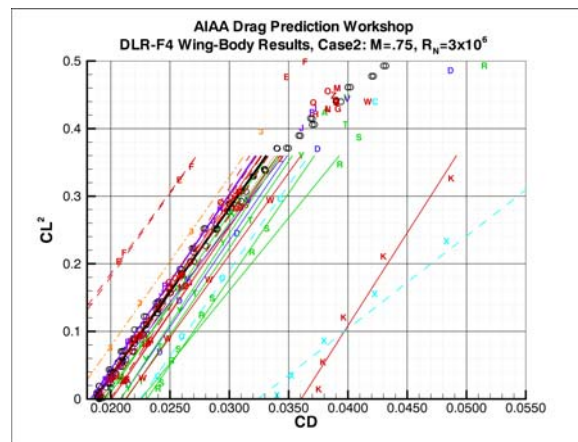## CFD Drag Prediction Workshop

Objectives

- To build on the results of the first AIAA Drag Prediction Workshop by investigating incremental drag as well as total drag.

- To assess the state-of-the-art computational methods as practical aerodynamic tools for aircraft force and moment prediction of increasingly complex geometries.

- To provide an impartial forum for evaluating the effectiveness of existing computer codes and modeling techniques using Navier-Stokes solvers.

- To identify areas needing additional research and development.

CFD Drag Prediction Workshop

General Information

- This workshop is open to participants worldwide. Efforts will be made to ensure representation from all areas of industry, academia and government labs.

- The trip locations from the wind tunnel tests will be provided to better match the wind tunnel drag data. Computations may be fully turbulent if necessary.

- An open forum will be included in the workshop to discuss the solutions and modeling techniques.

- The results will be made available after the workshop in a report and on the web page.

- A nominal registration fee will be required for attendance.

CFD Drag Prediction Workshop

Test Cases

Required Cases

1. Single Point Grid Sensitivity Study
   Mach = 0.75
   $C_L = 0.500 \pm 0.001$

2. Drag Polar
   Mach = 0.75
   α (Deg) = -3°, -2°, -1.5, -1°, 0°, 1°, 1.5°

Optional Cases

3. Single Points
   Mach = 0.75
   $C_L = 0.400 \pm 0.001$
   $C_L = 0.600 \pm 0.001$

4. Constant C_L Mach Sweep
   M = .50, .60, .70, .72, .74, .75, .76, .77
   $C_L = 0.500 \pm 0.001$

Test cases must be run for both configurations. Upon acceptance of the entry request, files will be provided for Point-Matched Structured-Grid, Over-Set Structured-Grid and Unstructured Grids for case (1).

All participants are encouraged to build their own grids. Grids submitted for consideration as baseline grids must include two additional grids for the Grid Sensitivity Analysis. The DPW Organizing committee will coordinate the distribution of the provided grids. An IGES model and CATIA model will be provided for building grids. As many grids as possible will be made available.

The geometry and additional information about the workshop will be available on the web site as it becomes available.

http://aaac.larc.nasa.gov/tsab/cfdlarc/aiaa-dpw/
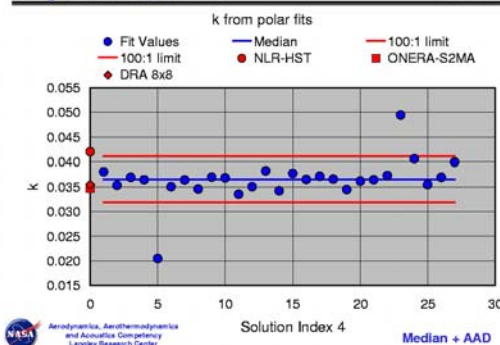
CFD Drag Prediction Workshop

Focus

The focus of this workshop will be on drag prediction accuracy and component drag increments. The DLR-F6 model has been chosen to compare a transport configuration with nacelles on and off. The interference drag as well as the prediction of the drag polar and drag rise will be particularly emphasized.

A statistical framework will be used to assess the results.
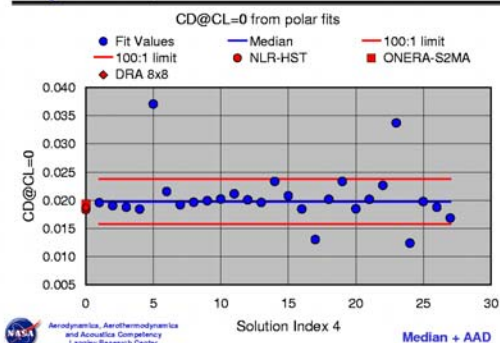
CFD Drag Prediction Workshop

Workshop Committee

John Vassberg
Ed Tinoco
The Boeing Company

Mark Rakowitz
Olaf Brodersen
Jean-Luc Godard
DLR, ONERA

Rich Wahls
Joe Morrison
NASA Langley Research Center

Tom Zickuhr
Kelly Laflin
Cessna Aircraft Company

Steve Klausmeyer
Raytheon Aircraft Company

Dates

Geometry Available	Oct 18, 2002
Entry Requests	Nov 8, 2002
Grid Submissions	Nov 25, 2002
Grids Available	Dec 6, 2002
Abstracts Due	Jan 31, 2003
Notification	Feb 28, 2003
Registration	Apr 11, 2003
Data Submittal	May 16, 2003
Workshop	June 21-22, 2003

The Workshop presentations will not be official AIAA papers, however, several participants will be invited to support a special session on drag prediction to be held during the AIAA Aerospace Sciences Meeting, January 2004.

2nd AIAA
CFD Drag Prediction Workshop

Sponsored by the Applied Aerodynamics TC

2-Day Workshop Preceding 21ST APA Conference Orlando, FL June 21-22, 2003
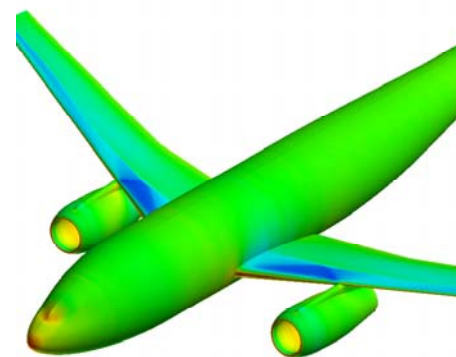
For more information and results from the first workshop:

http://aaac.larc.nasa.gov/tsab/cfdlarc/aiaa-dpw/

E-mail: dpw@cessna.textron.com