

Focus

The focus of the workshop will be on assessing the accuracy of CFD in obtaining multi-stream air breathing jet performance and flow structure to include:

- Surface static pressure predictions,
- Inlet recovery and distortion,
- Nozzle force, vector and moment; nozzle thrust (Cv), and discharge (Cd) coefficients, and
- Flowfield surveys (total pressure and total temperature decay in jet wakes).

Experimental data is expected to be available for each test case; but the CFD studies will be performed as a blind trial and compared with the available experimental data during the workshop. Where experimental data is not available, a statistical framework will be used to assess the CFD results.

Component models will be provided for multiple cases featuring isolated inlets, isolated nozzles, and nozzles with a ground plane.

Example grids will be provided (coarse, medium, fine) for unstructured and structured solvers. However, geometry will also be provided for those interested in developing their own meshes. Participants may run one or more cases, on one or more grids.

The workshop provides an impartial forum that will be utilized to present the findings, discuss the results, exchange ideas, and evaluate the effectiveness of existing computer codes and modeling techniques.

Participating Organizations (organizing committee)

The Boeing Company
Bombardier Aerospace
GE Aviation
Lockheed Martin Aeronautics Company
NASA-Langley
Onera
Raytheon Missile Systems
Rolls-Royce LibertyWorks
Syngenes Corporation
United Technologies Research Center
University of Virginia
Wright-Patterson AFB

Tentative Dates

Finalized test cases/geometries	3Q 2011
Sample grids & Case conditions available	Jan. 2012
Study participant registration opens	Jan. 2012
Scholarship application ends	April 30 2012
Abstracts & Application due	1Q 2012
Final Data & Presentation submittal	June 2012
Workshop & last minute registration	July 29 2012
Post workshop data submittal	Aug. 2012

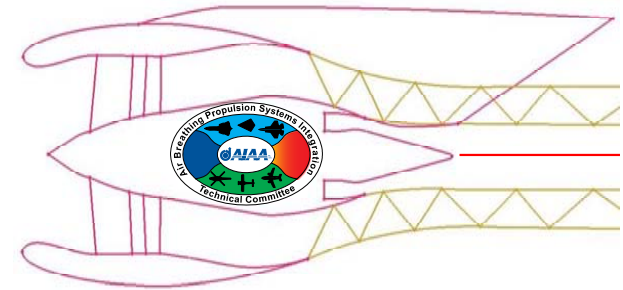
Dates are subject to change, please refer to the website <http://aiaapaw.tecplot.com> for the most up to date information

1st AIAA Propulsion Aerodynamics Workshop (PAW01)

Sponsored by the
Air Breathing Propulsion
System Integration
TC Committee

1-Day Workshop
July 29, 2012

Preceding the 2012
48th AIAA JPC Conference
Atlanta, Georgia



For more information,
visit the PAW website at:

<http://aiaapaw.tecplot.com>

or send e-mail to:
aiaapaw@yahoo.com

Objectives

■ Assess the numerical prediction capability (e.g., mesh, numerics, turbulence modeling, high-performance computing requirements, and modeling techniques) of current-generation CFD technology/codes for air breathing propulsion related aerodynamic flows.

■ Develop practical numerical simulation guidelines for 2-D and 3-D CFD prediction of jet related flow fields utilizing the Navier-Stokes equations.

■ Explore the underlying physics, flow interaction, jet mixing, and dissipation flows related to propulsion aerodynamics.

■ Enable development of more accurate prediction methods, processes, procedures, and tools.

■ Enhance CFD prediction capabilities for practical air breathing propulsion aerodynamic design and optimization.

■ Provide an impartial forum for evaluating the effectiveness of existing computer codes and modeling techniques.

■ Enhance interests in jet related flows and identify areas needing additional research and development.

General Information

■ Results of the CFD blind trials will be presented during the workshop. All participants will have the opportunity to see how their results compare to other submissions as well as relevant experimental data. These data sets will subsequently be concatenated into a technical paper that will be published and presented during the JPC.

■ This workshop is open to participants worldwide. Efforts will be made to ensure representation from all areas of industry, academia, and government laboratories. AIAA membership is not required, but encouraged.

■ Participation in the studies does not require attendance of the workshop. Everyone is welcome! Preparation of briefing material for the workshop is encouraged, but not required.

■ Open forums will be provided during the workshop to discuss results and exchange ideas on meshing and modeling techniques.

■ Results will be made available after the workshop in a report to be picked up, as well as being posted on the PAW01 website.

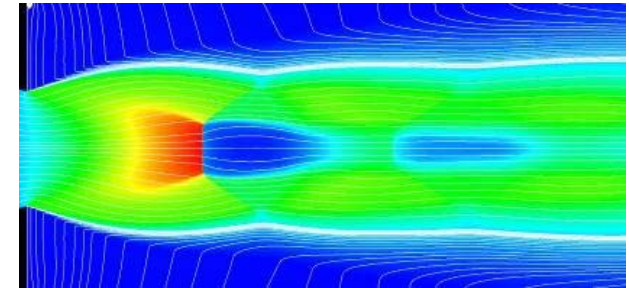
■ The application/registration form is available from the website. A returned signed form, with abstract, is required to begin the enrollment process. A nominal AIAA application/registration fee is required for participation and attendance.

■ Workshop results will be summarized into a conference paper to be published in the future/next JPC conference.

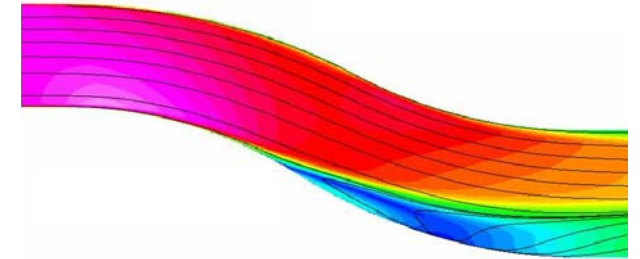
■ Best work and presentation for the cases will be selected and awarded after the workshop. Selected team will be asked to present their results as a paper at a special session in the future/next JPC conference.

Potential Cases for Consideration

Convergent nozzles (2D Axisymmetric)



Serpentine Diffuser (3D)



Other Information

AIAA membership and early registration discounts are available. Additionally, scholarships for qualified academics (Professors and students) and retirees are available and are on a first come, first serve basis. (For the most current information, please refer to the Workshop's website.

<http://aiaapaw.tecplot.com>). If you have any question, please do not hesitate to email us at aiaapaw@yahoo.com