Propulsion Aerodynamics Workshop

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 nozzle force, vector and moment; nozzle thrust (Cv) and discharge (Cd) coefficients; and surface pressure prediction accuracy. Experimental data are available for each test case but the CFD studies will be performed as a blind trial and compared with the experimental data during the workshop.

Models will be provided for multiple cases featuring isolated inlets, isolated nozzles, and nozzles with a ground plane. A statistical framework will be used to assess the CFD results.

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

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

Propulsion Aerodynamics Workshop

Participating Organizations

The Boeing Company

Bombardier Aerospace

GE Aviation

Lockheed Martin Aeronautics Company

NASA-Langley

Onera

Raytheon Missile Systems

Syngenics Corporation

United Technologies Research Center

University of Virginia

Wright-Patterson AFB

Tentative* Dates *(as of 10/2013)

Finalized Test Cases/Geometries	***4Q 2013***
Sample Grids Available	***1Q 2014***
Cases Available	***1Q 2014***
Participant Application	***1Q 2014***
Participant Application	***1Q 2014***
Abstracts Due	***1Q 2014***
Acceptance Notification	***1Q 2014***
Data Submittal	***2Q 2014***
Workshop	***7/31-8/1 2014***

2nd AIAA
Propulsion Aerodynamics Workshop (PAW02)

Sponsored by the

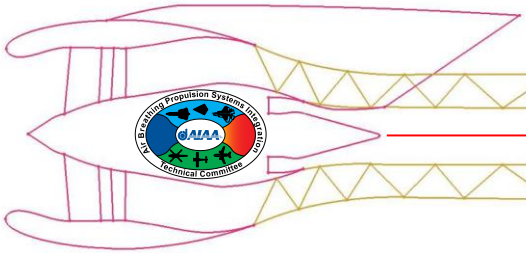
Air Breathing Propulsion Systems Integration Technical Committee

2-Day Workshop

July 31st- Aug. 1st 2014 @

50th AIAA JPC Conference

Cleveland, Ohio



For more information, visit the PAW website at:

http://www.tecplot.com/AIAA_Air_Breathing_Propulsion_workshop.html

or send e-mail to:

aiaapaw@yahoo.com

Propulsion Aerodynamics Workshop

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 Navier-Stoke's 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 capability 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.
- Cultivate collaboration between the aerospace industry, research institutions and academia.

Propulsion Aerodynamics 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 laboratories.
- Participation in the studies is not required to attend the workshop. Everyone is welcome!
- Preparation for the workshop is encouraged but not required.
- Open forums will be included in the workshop to discuss, exchange solutions, ideas and modeling techniques.
- Results will be made available after the workshop in a report and on the PAW01 website.
- A nominal application/registration fee will be required for participation and attendance.
- AIAA membership is not required but encouraged.

Other Information

***Academia Scholarship**:*

The workshop is offering scholarship to qualified students, educators and retirees. It will be available upon request. Additionally, early registration discounts for participate are also available.

Workshop Support:
Financial contribution & services to the workshop are welcome. If interested, please email aiaapaw@yahoo.con for more details.

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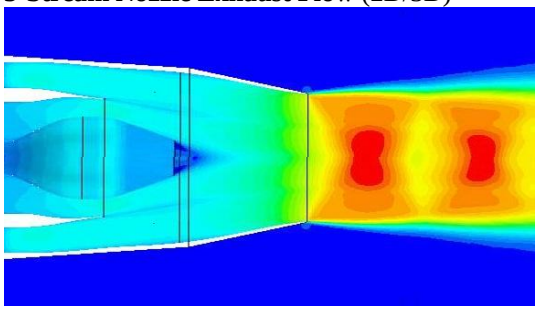
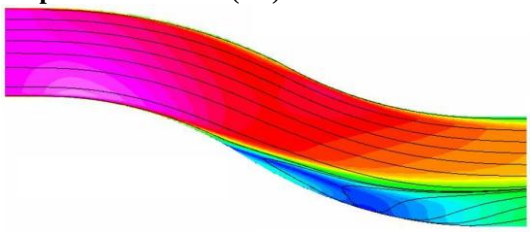
Potential Cases for Consideration

3-Stream Nozzle Exhaust Flow (2D/3D)



Serpentine Diffuser (3D)



Convergent Diffuser (2D Axisymmetric)