

# FIELDVIEW animates unsteady aerodynamics

BAe Systems researchers at Farnborough are using FIELDVIEW to visualise results from Fluent CFD analysis into the acoustic fatigue suffered by aircraft bomb bay structures.

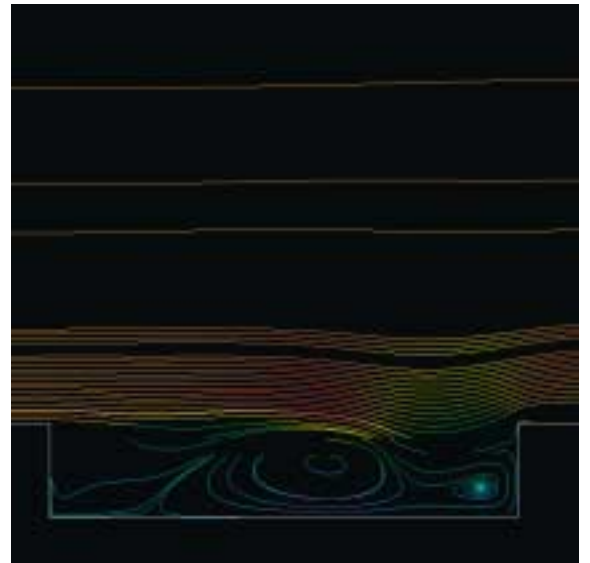
The design of the bay structure is the outcome of balancing the need to ensure good dispatch of munitions while reducing the acoustic fatigue caused by pressure variations over the bay structure during flight and operation. David Kirkham, Leader of Unsteady Aerodynamics Work Package and his team are designing and developing prediction tools for unsteady aerodynamic flows in cavities in the bomb bay, in parallel with wind tunnel testing to calibrate the prediction tools.

Kirkham has been using FIELDVIEW for three years. The Fluent analysis creates unsteady CFD simulations which are captured in discrete time steps. The simulation data is read into FIELDVIEW to give the flow field over time. The process of transfer from Fluent to FIELDVIEW is automated with a script file after which FIELDVIEW's animate function is used to run a flipbook MIFF file. The MIFF file runs on Unix, and is converted to an AVI file for use in PowerPoint presentations. The conversion to AVI reduces the size of the file so it is manageable to run the animation as part of a presentation during project reviews and reporting.

"BAe Systems is using FIELDVIEW because it is functionally richer, as well as

providing fast animations in 3D," said David Kirkham.

The eventual outcome of the Unsteady Aerodynamics Work Package will be a greater understanding of acoustic fatigue on the structure, enabling engineers to predict what of the current bay structure is needed and what is not needed. "This will lead to weight and cost savings, as well as extending the operational life of the bomb bay structure avoiding later expensive in-service modifications," explained David Kirkham.



Mach 0.85 flow in a deep cavity

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## Fieldview new release

Intelligent Light Inc.'s new FIELDVIEW 8 visualisation software now offers a powerful scripting capability, allowing greater customisation for analysing complex surface flows.

FIELDVIEW's FVX advanced scripting can be applied to read datasets captured in a variety of ways, create and manipulate

surfaces, and perform complex quantitative post-processing tasks. This enables users to balance the mix of visualisation and quantitative analysis to meet their project needs. It also allows the engineer to conduct more integrated analyses where previously they may have used two or more post-processing tools.

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