ICE

Icing Collection Efficiency

The Icing Collection Efficiency code (ICE) uses a surface panel model and pre-calculated flow field grid to predict:

- Water droplet trajectories from a specified starting point
- The starting position and trajectory of a droplet that intersects a specified point in space
- The four particle paths that intersect the corners of a panel on (or off) the body and the resulting collection efficiency
- The collection efficiency and all the particle paths that intersect the corners of all panels crossed by a surface streamline
- The trajectory of an object with arbitrary drag characteristics, specified starting location, and input velocity.

The collection efficiency is the ratio of the surface collection rate to the freestream flow. The user may specify up to eight (8) different droplet diameters to describe an atmospheric droplet distribution, and thereby obtain the mean collection efficiency also. The ICE code generates a graphics file with the surface panel geometry, collection efficiency for each panel, particle path trajectories and collection efficiency along a surface streamline.

ICE input consists of seven lines specifying the reference velocity, density and viscosity of air and the droplet size distribution. The body panel geometry and flow field are typically produced by VSAERO, a potential flow code; Euler and Navier-Stokes results can also be accepted. Besides water droplets, ICE allows the drag versus Reynolds number to be input for any object.

Questions?

For more information about ICE, contact:

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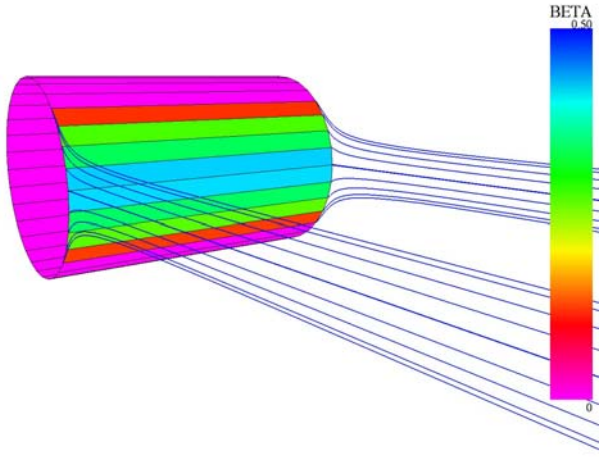
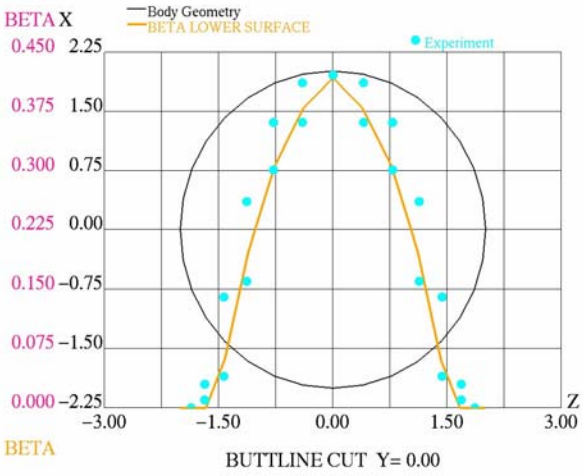


Droplet Trajectories



Collection Efficiency of Cylinder

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