

NASA Langley Research Center
National Transonic Facility - Hampton, VA

THE CHALLENGE

NASA's Langley Research Center houses more than 20 wind tunnels used to test the aerodynamics of existing and prototype aircraft models. The National Transonic Facility is one of Langley's most advanced tunnels. In this tunnel, liquid nitrogen is injected and evaporated into a gas that is accelerated through the tunnel's test section at speeds up to 1.2 times the speed of sound. The low temperatures increase the density and decrease the viscosity of the atmosphere and, thus, simulate full-scale flight conditions at transonic speeds with great accuracy.

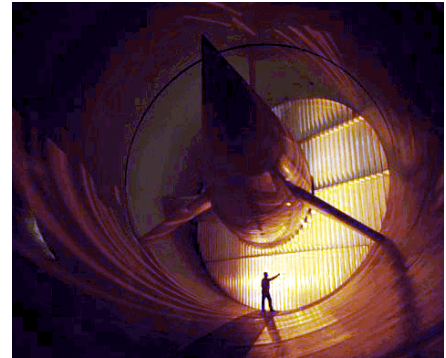
Wind tunnels such as the National Transonic Facility are vitally important to modern flight and space travel. No aircraft or spacecraft is built today until its design and components have been thoroughly tested in a tunnel. From the high volume of data gathered in wind tunnel studies, engineers can determine the behavior of an aircraft or its components at takeoff, while cruising, and during descent and landing. Therefore, it is crucial that the data from these studies can be clearly and accurately interpreted.

THE SOLUTION

In 1993, NASA initiated a project to move the National Transonic Facility beyond its outdated, menu-driven user interfaces. The Langley Research Center searched for a product that could be thoroughly built into the data acquisition platform at the facility, as well as used for plotting capabilities.

After an industry-wide survey, the Langley team chose Sammi as the graphical solution for the National Transonic Facility. Sammi met Langley's specific needs – flexibility, real-time data reflection, reliability, and the capability for users without programming experience to build their own interfaces and displays. Another factor in Langley's decision was a strong recommendation from NASA's Johnson Space Center, which already used Sammi in Mission Control.

Langley Research Center implemented Sammi throughout the National Transonic Facility, where it is used on a continuous basis. Everyone who uses the facility uses graphical interfaces and data plots developed with Sammi. In fact, Langley was so pleased that it recommended Sammi to the Marshall Space Flight Center, when they undertook a similar re-vamping of their systems.



Langley Research Center uses Sammi to manage wind tunnel testing GUIs.

"We chose Sammi because it met our specific needs – flexibility, and the capability for users to build their own types of displays without having to program."

*- Frank Batts
Langley Engineer*

- **Industry:**
Aerospace
- **Application:**
Wind Tunnel Testing
- **Benefits:**
 - ◆ Provides a flexible solution for a complex and critical system
 - ◆ Allows real-time reflection of high volumes of data
 - ◆ Gives users the capability to create GUIs without programming experience