

# Data Mining Tools Make Flights Safer, More Efficient



***Ames Research Center***

***Southwest Airlines Co.  
Dallas, Texas***

## **NASA Technology**

- ◆ The Aviation Safety Program under the Aeronautics Research Mission Directorate has many initiatives to enable safer air transport systems
- ◆ A data-mining team at Ames developed multiple algorithms useful for sorting through flight data and has shared them with the industry



## **Partnership**

- ◆ Southwest first used some of NASA's tools in 2003 when evaluating a higher-than-usual rate of actual unstable approaches versus reported ones
- ◆ After years of on-off collaboration, Southwest and NASA signed a Space Act Agreement in 2011 to share NASA's algorithms and refine them using Southwest's real-world flight data

## **Benefits**

- ◆ The two algorithms—the Multivariate Time Series search and Virtual Sensors—have been used by the company to track and improve fuel efficiencies for flight paths between cities
- ◆ Southwest has also leveraged the technology to work with air traffic controllers, developing methods to increase the number of stable approaches by its planes