

# NEWS RELEASE

National Institute of Aerospace (NIA)  
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## **NIA AND NEXTGEN AEROSCIENCES SELECTED FOR NASA NEXTGEN AIRSPACE PROJECT**

HAMPTON, Va. – The National Institute of Aerospace (NIA), in partnership with NextGen AeroSciences (NextAero), has received funding of \$520,500 to perform research in support of NASA’s Airspace Program. The funding will be provided through the Government’s American Recovery and Reinvestment Act. The NIA and NextAero team will conduct research based on a novel approach for modeling and analysis of airspace capacity to evaluate the safety of new traffic management concepts in the more crowded aviation environment of the future.

Using innovative techniques, the team will develop an analytical “toolbox” for modeling trajectory-based operations using selected airspace scenarios. One scenario will examine the effects of future flight path management technologies on shifting the boundary of conditions between airspace being congested and uncongested. The desired effect is to reduce the combinations of weather and air traffic flow that lead to cancelled or delayed flights.

The proposed development of operational tools integrates four innovative and interconnected disciplines: agent-based modeling, game theory, traffic physics, and the related science of phase transitions (in this case, transitions from safe to unsafe conditions in the system).

Frederick Brooks of NIA will serve as the manager for the project, working with the NextAero scientists and subject matter experts from the aviation industry. “We are excited about this opportunity to work in partnership with NextGen AeroSciences to explore a new transformational approach to improving the safety and efficiency of air travel in the future,” said Dr. Robert Lindberg, president and executive director of NIA.

“NextGen AeroSciences is proud to be partnered with the National Institute of Aerospace on the award of this research contract from NASA,” said Dr. Bruce J. Holmes, CEO & Chief Strategist for NextAero. “We believe our research lays the foundations for automation tools that will offer a new approach to managing the increasing autonomy of aircraft with the changing roles of pilots, controllers, and dispatchers. The result will be a reduction in delays, fuel consumption, and air traffic management workloads with improved financial performance for aircraft operators.”

The research supports the goals of national efforts to transform the U.S. air transportation system to meet the projected increases in the number of aircraft operating in the US, while minimizing delay and operating at an equivalent or improved level of safety. ([www.jpdo.gov/nextgen.asp](http://www.jpdo.gov/nextgen.asp)).

### **About NIA**

NIA is a non-profit research and graduate education institute headquartered in Hampton, VA. It was formed in 2002 by a consortium of research universities to ensure a national capability to support NASA’s mission by expanding collaboration with academia and leveraging expertise inside and outside NASA. NIA performs research in a broad range of disciplines including space exploration, systems engineering, nanoscale materials science, flight systems, aerodynamics, air traffic management, aviation safety, planetary and space science, and global climate change. The Institute’s graduate program offers M.S. and Ph.D. degrees in the fields of engineering and science through its university partners: Georgia Tech, Hampton University, North Carolina A&T State University, North Carolina State University, the University of Maryland, the University of Virginia, Virginia Tech, Old Dominion University, and the College of William & Mary.

More information about the National Institute of Aerospace is available at <http://www.nianet.org>

### **About NextGen AeroSciences, LLC**

NextGen AeroSciences, LLC (NextAero) delivers research and development, deployment and support to government and industry for innovation and practical applications in the fields of airspace, aeronautics, and air transportation using agent-based modeling, simulation and other analytic tools and approaches. The principals in the company include Dr. Bruce J. Holmes, CEO; William Van Valkenberg, President; Dr. Bruce K. Sawhill, Chief Science Officer; and Dr. James Herriot, Chief Technology Officer. These individuals collectively have more than 100 years of broad experience in thought leadership and technology development in complex adaptive systems, combinatorial mathematics, air carrier operations, large-scale system strategies, aeronautics research, and innovation management. [www.NextGenAeroSciences.com](http://www.NextGenAeroSciences.com)

### **About NASA’s NextGen Airspace Project**

The National Aeronautics and Space Administration’s (NASA) NextGen Airspace Project, under the Airspace Systems Program (ASP), directly addresses the fundamental air traffic management (ATM) research needs for NextGen by developing revolutionary concepts, capabilities, and technologies that will enable significant increases in the capacity, efficiency and flexibility of the National Airspace System (NAS).