NASA SBIR 2010 Phase I Solicitation

A1.05 Crew Systems Technologies for Improved Aviation Safety

Lead Center: LaRC

NASA seeks proposals that will improve aerospace system safety through: the development of highly innovative, crew-centered, technologies that result in effective joint human-automation systems; and improved methods for evaluating such systems in the context of NextGen operations.

We seek proposals for the development of advanced technologies that:

- Effectively convey information and aid decisions which support novel NextGen operational requirements (e.g., 4D trajectory-based operations, visual operations in non-visual meteorological conditions, etc. as described in [http://www.faa.gov/about/initiatives/nextgen/media/NGIP_0130.pdf](http://www.faa.gov/about/initiatives/nextgen/media/NGIP_0130.pdf));

- Foster the appropriate use of automation and complex information sources by, for example, conveying constraints on automation reliability and information certainty/timeliness;

- Support effective joint cognitive systems by improving the communication and collaboration among multiple intelligent agents (human and automated, proximal and remote);

- Characterize the operational status of the human crewmembers, effectively modulate this state, and/or effectively adapt interfaces and automation in response to functional status (e.g., situationally-aware display reconfiguration, aiding, and multi-modal presentation of information to maximize system performance and minimize information processing bottlenecks).

We also seek proposals with novel approaches to evaluating joint human-automation systems, particularly with adaptive automation, to assess team (human and automated agents), and system performance and reliability.

culminate in a final report that specifies, and a Phase II proposal that would realize, technology that improves the effectiveness of joint human-automation systems in aviation, or improves the ability to assess the effectiveness and reliability of such systems.