



DARPA-SN-09-32 DARPA/IPTO

Tactical Aircraft to Increase Long Wave Infrared Nighttime Detection (TAILWIND)

Industry Day – May 1, 2009

Arlington, VA

The Defense Advanced Research Projects Agency (DARPA) will conduct a briefing to Industry in support of the anticipated TAILWIND program Broad Agency Announcement (BAA). This announcement serves as a pre-solicitation notice and is issued solely for information and program planning purposes. When released, the BAA will be found on the FedBizOpps website, <http://www.fedbizopps.gov>.

INTRODUCTION AND AGENDA

Introduction

The overall goal of the Tactical Aircraft to Increase Long Wave Infrared Nighttime Detection (TAILWIND) Program is to provide a medium-area persistent day/night surveillance capability, with real-time image products to multiple users, mounted on the Shadow platform, a small, low-flying, tactical unmanned air vehicle (TUAV).

Many airborne electro-optical sensor systems in the field today provide “soda straw” (i.e., narrow field-of-view) coverage on the ground at their highest resolution resulting in only a few tens of square meters visibility. Automated multi-target detection and tracking methods for those systems are often capable of tracking vehicles, but typically do not enable high performance and tracking of all targets of interest, such as dismounted soldiers, in urban areas. In addition, current sensor systems are typically controlled by one operator, with the rest of the military force “slaved” to that single operator’s perspective. The TAILWIND program will address these mission deficiencies by providing a wide-area, persistent day/night surveillance capability, with real-time image products to multiple users. The processor intensive “Server in the Sky” architecture will push intelligent image exploitation closer to the raw data from the sensor and reduce the bandwidth required to send information to the ground.

The low-altitude, medium-area day/night surveillance mission requires a significant advance in infrared optical sensors, specifically uncooled long-wave infrared (LWIR) microbolometers. To date, airborne sensors using these lightweight focal planes had limited operational utility for finding, characterizing, and tracking dismounts due to current sensor designs with relatively

large pixel sizes, and small pixel counts. The TAILWIND program seeks to improve this technology by developing a sensor with smaller pixel sizes and larger pixel counts, including integration of a 17 μm pitch 3.14 Mpixel LWIR FPA into a turreted sensor system. In addition, the TAILWIND sensor will include a co-boresighted daytime or day/night color camera to aid in target detection and tracking.

Reliably detecting and tracking dismounts day and night using an airborne uncooled LWIR sensor in an urban environment is a significant new capability that will be developed within the TAILWIND program. It is a challenge because there will be relatively few pixels on any given dismounted target and urban visibility obstructions are expected to be frequent. As a result, software algorithms must leverage additional contextual information to detect and track dismounts. It is required that the TAILWIND software generate a 3D model of the urban environment on-the-fly from the collected imagery and leverage that model for real-time detection and tracking of multiple targets.

The goals of Industry Day are threefold: 1) to familiarize participants with DARPA's interest in the TAILWIND technology, 2) to identify potential offerors and promote understanding of the BAA proposal requirements, and 3) to promote discussion of synergistic capabilities among potential program participants. It is DARPA's desire to facilitate the formation of strong teams and business relationships in order to develop comprehensive, quality responses to any potential DARPA solicitation. Information on the TAILWIND BAA will be available at: http://www.darpa.mil/ipto/solicit/solicit_open.asp following the publication of the BAA in FedBizOpps. Following the Industry Day, the web site will contain Frequently Asked Questions, presentations from the Industry Day, and an attendance list for teaming purposes.

Attendance at the Industry Day is voluntary and is not required to propose to subsequent Broad Agency Announcements (if any) or research solicitations (if any) on this topic. DARPA will not provide reimbursement for costs incurred to participate in this Industry Day. The Industry Day does not constitute a formal solicitation for proposals or abstracts. Attendance is limited to two (2) representatives per organization.

Agenda

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| 9:00 – 10:00 am | Opening Remarks and Program Manager Presentation
This session will include the introduction of the DARPA TAILWIND Program vision and philosophy, objectives and goals |
| 10:00 – 10:15 am | Contracting Officer Presentation
This session will cover acquisition and contract vehicle details |
| 10:15 – 10:45 am | Break |
| 10:45 – 12:00 noon | Q&A Session |

REGISTRATION

Registration must be completed by April 27, 2009 via the following site -- <http://www.eventmakeronline.com/sta/View/index.asp?MeetingID=100>. Questions or special needs should be indicated in the comments section.

NOTE: attendance is limited to two (2) representatives per organization.

LOCATION

FDIC L. William Seidman Center
3501 North Fairfax Drive
Arlington, VA 22226
<http://www.ahl-seidman.com/directions.cfm> (map and direction)

HOTEL INFORMATION

The Seidman Center offers a residence center which is linked to the meeting areas by an enclosed walkway. Because this is a part of the FDIC building, you must have a U.S. government-issued ID to enter the premises.

Seidman Center (FDIC)
1001 N. Monroe Street
Arlington, VA 22201
703-516-4630

Other suggestions (all within 1 mile of FDIC Seidman Center):

Arlington Hyatt
1325 Wilson Blvd
Arlington, VA
703-525-1234

The Westin Arlington Gateway
801 N. Glebe Road
Arlington, VA
703-717-6200

Holiday Inn - Ballston
4610 N. Fairfax Drive
Arlington, VA
703-243-9800

Hilton - Arlington
950 N. Stafford Street
Arlington, VA
703-528-6000

Comfort Inn - Ballston
1211 N. Glebe Road
Arlington, VA
703-247-3399