FAA Engineering Development Services Navigation Team at the FAA Technical Center

Overview

Presented by:

John Warburton - Manager, Engineering Development Services Navigation Team Manager (AJP-652)

Date: October 19, 2010
Contents

• AJP-0 and AJP-6 Organization Charts
• AJP-6 Responsibilities
• AJP-6 Staff Characteristics
• AJP-65 Engineering Development Services Group
• AJP-652 Navigation Team
  – Role in Satellite Navigation (SATNAV)
    • Products and Analysis
• Meeting Plan
Research and Technology Development

Lead FPOC
Beth Delarosby

AJP-6000
Research and Technology Development (R&TD) Directorate
Barry Scott

AJP-6100
Human Factors Research and Engineering
Paul Krois (Acting)
Karlin Toner (On Detail)

AJP-6200
Planning and Coordination
Cathy Bigelow (Acting)
Paul Krois (On Detail)

AJP-6300
Airport and Aircraft Safety
Pat Lewis

AJP-6400
External Research Partnerships
Sabrina Saunders-Hodge

AJP-6500
Engineering Development Services
Paula Nouragas

AJP-6600
Concept Development & Validation
Michele Merkle

AJP-6700
Advanced Tech. Dev. and Prototyping
John Marksteiner (Acting)
Paul Fontaine (On Detail)

AJP-6800
Aviation Weather
Jaime Figueroa (Acting)

Business Manager
Diane Ford

Human Resources
Tanya Woodland

Management Assistant
Zhen Chou*

*Contractor
R&TD Responsibilities

• Manage the Research, Engineering & Development (R,E&D) Program to assure alignment with the agency's Flight Plan, the NextGen Concept of Operations, and agency strategic and business plans.

• Provide U.S. leadership in the coordination of aviation research with international organizations worldwide.

• Identify, execute, and manage research and development projects related to existing and new technologies and procedures consistent with FAA's mission.

• Manage, direct and coordinate the agency's human factors program, and the aircraft and airport safety programs.

• Manage FAA liaison offices at NASA's Langley and Ames Research Centers.

• Serve as the agency's R&D spokesperson and maintain liaison with other agencies, industry, and foreign governments.
R&TD Staff Characteristics

- As of the beginning of Fiscal Year 2010, the R&TD Directorate employed 285 employees.
  - *At that time there were 272 full-time federal employees, 13 students, and 24 vacancies.*
- Over 86% of staff is technical compared to management/administrative.
- Over 76% of R&TD employees are GS-13 level or higher with diverse scientific and technical backgrounds and educations.
  - *This highly skilled labor mix is required for performing the mission of R&TD, working with the technical complexities associated with modernizing the National Airspace System (NAS).*
- Staff is geographically dispersed throughout US.
Engineering Development Services Group (AJP-6500)
Manager, Ms. Paula Nouragas

Mission
……to design and develop prototypes and configure ground and airborne test beds for the purpose of evaluating and validating NextGen technologies and applicable operational procedures in the areas of surveillance, navigation, and airborne/avionics systems. This enables the identification of candidate technical solutions in support of the evolution of the NAS Enterprise Architecture

Responsibilities
• Establishes, maintains, and configures ground and airborne test beds. Applies simulation and modeling techniques to evaluate enabling NextGen technologies and applicable operational procedures to support evolution of the NAS Enterprise Architecture (EA).

Key Project Areas
• Traffic Collision Avoidance System (TCAS)
• Surveillance Broadcast System (SBS)
• Unmanned Aircraft Systems (UAS)
• Local Area Augmentation System (LAAS) / Ground Based Augmentation System (GBAS)
• Enhanced LORAN (eLORAN)
• Automatic Dependent Surveillance - Broadcast Services (ADS-B)
• UAS MAV Spectrum Analysis
Navigation Team Role in SATNAV

• Provide technical expertise to Washington DC Program Headquarters
  – Support reviews, testing, and verification to complete the Category-I System Design Approval (SDA) for the Honeywell SLS-4000
  – Serve as Technical Director for the LAAS Development Projects
    • Project Newark, CAT I Enhancements, CAT III Prototype
  – Evaluate Vendor and Key Technical Advisor (KTA) LAAS products
  – Participate in LAAS Standards Development
    • Specification, MOPS, SARPS, Siting Standards
  – Quarterly report on LAAS Signal in Space performance
  – Participate in international technical working group meetings
• Maintain and Operate several LAAS Test Prototype (LTP) systems
  – Primary LAAS SIS data collection and analysis organization in the FAA
  – Provide LAAS data to the Integrated Program Team (IPT)
  – Provide systems for interoperability testing, international cooperative efforts
LAAS Products

Test Systems
ACY LAAS Test Prototype
SLS-4000
Brazil Test System
L1/L2 Data Collection
GNSS Monitors
GPS Anomalous Event Monitor (GAEM)
Interference Testing (Prototype)
Siting Validation
Long baseline LTP
Terminal Area Path (TAP)
LAAS Products

- Analysis Products
  Test System “Quick Look” processing
  BAE Antenna Development
  Long Term Overbounding Data Collection and Performance details
  Interference Testing
  Commercial prototype development
  ADD Development
  Position Monitor Test Tool
  Site Evaluation
  System Design Approval
  Brazil Ionosphere Analysis
  EUROCONTROL Software Analysis
  WAAS Translator data analysis
Meeting Plan

• Goals:
  – Provide details on the FAA GBAS developments
  – Provide “Hands-On” access to GBAS Equipment
  – Provide answers to the any questions provided
    • Capture unanswered or additional questions for later review
  – Provide Points of Contact (POC) within the Navigation Team to assist with future developments

Shelly Beauchamp (CAT III, Monitors)
Dean Joannou (Flight Testing)      Mark Dickinson (VDB, Antennas)
Carmen Tedeschi (Siting)          Joe Gillespie (New Installations)
Chad Kemp (Prototype Operations)  Shawn Casler (Web Site, Monitor)
Ruben Velez (Flight Analysis)     Bina Pastakia (Newark Simulations)
# October 18-22 Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>09:00 AM</td>
<td>Arrive at Newark</td>
<td>Welcome/Administrative</td>
<td>Review/Overview</td>
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<td>Technical Center and the Navigation</td>
<td>Honeywell SLS-4000 Integrity</td>
<td>CAT III Standards Development and</td>
<td>Project Newark Goals and Objectives</td>
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<td>Team Navigation Meeting Plan</td>
<td>Algorithms</td>
<td>Validation Plan</td>
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<td>Basic GBAS</td>
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<td>Overview High Level System Description</td>
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<td>Honeywell SLS-4000 Integrity Algorithms</td>
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<td>Honeywell Installation Procedures</td>
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<td>GBAS Key Risk Areas</td>
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<td>12:00 PM</td>
<td>Depart for ACY</td>
<td>Lunch</td>
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<td>ACY GBAS Site Visit</td>
<td>FAA Siting Order</td>
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<td>Hazardously Misleading Information</td>
<td>CAAC Plans for GBAS*</td>
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<td>HMI Report</td>
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<td>Application to Newark</td>
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