

C/AFT ADS-B FOCUS GROUP

CAPTAIN CLAUDIA R. GERSTLE

UNITED AIRLINES
GROUP LEADER



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WHAT IS ADS-B?

- ◆ ADS-B IS A FUNCTION ON AN AIRCRAFT OR GROUND VEHICLE THAT BROADCASTS ITS POSITION, VELOCITY, CALL SIGN, ALTITUDE AND OTHER INFORMATION.
 - AIR TO AIR (ex: station keeping)
 - AIR TO GROUND (ex: ATC conformance monitoring)



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ADS-B IS AN ENABLING ELEMENT FOR CNS/ATM APPLICATIONS THAT OFFERS THE POTENTIAL TO:

- ◆ PROVIDE DIRECT OPERATIONAL BENEFITS TO THE AIRLINE OPERATORS
- ◆ IMPROVE ATM SAFETY AND EFFICIENCY
- ◆ LOWER THE COST OF THE EXISTING SURVEILLANCE INFRASTRUCTURE



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TEAM OBJECTIVES

- ◆ CONSTRUCT COST/BENEFIT FRAMEWORK FOR ADS-B APPLICATIONS

- BENEFITS

- ◆ COST AVOIDANCE
- ◆ REVENUE ENHANCEMENTS
- ◆ IMPLEMENTATION INDEPENDENT ANALYSIS

- COSTS

- ◆ IMPLEMENTATION DEPENDENCIES
- ◆ INVESTMENT AND OPERATIONAL



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RISKS ASSOCIATED WITH BENEFITS AND COSTS

- ◆ OPPOSITION FROM THOSE WHO DON'T WANT TO EQUIP
- ◆ NOT EVERYONE WILL EQUIP UNLESS MANDATED
- ◆ COMMUNITY RESISTANCE
- ◆ UNION RESISTANCE
- ◆ IMPLEMENTATION OF SYSTEM CHANGES
- ◆ COSTS GREATER THAN EXPECTED



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FURTHER OBJECTIVES

- ◆ HARMONIZE REQUIREMENTS
 - DEFINE BENEFITS OF ADS-B
 - IDENTIFY KEY PERFORMANCE REQUIREMENTS
- ◆ ASSIST IN DEFINING EVOLUTIONARY PATH FOR ADS-B
 - BEGIN WITH LOW-COST, LOW-RISK STEPPING-STONE REQUIRING A SUBSET OF ADS-B FUNCTIONALITY
- ◆ SAFETY BENEFITS DESCRIBED BUT NOT QUANTIFIED



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WHERE TO BEGIN?

◆ NARROWED SCOPE OF ANALYSIS TO FOUR APPLICATIONS:

- ENHANCED VISUAL APPROACHES AND DEPARTURES (NEAR TERM)
- DISCRETE EVENTS IN NON-RADAR ENVIRONMENT (NEAR TERM)
- PARALLEL APPROACHES (VMC TO IMC) (FAR TERM)
- SELF-SEPARATION (FAR TERM)



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INITIAL APPLICATION OF STUDY

◆ ENHANCED VISUAL APPROACHES AND DEPARTURES

- LOW IMPLEMENTATION RISK
- WELL-UNDERSTOOD OPERATIONAL ASSUMPTIONS
- POTENTIAL BENEFITS
 - ◆ BETTER TRAFFIC ACQUISITION
 - ◆ REDUCTION IN PILOT/CONTROLLER WORKLOAD
 - ◆ GREATER RELIABILITY IN CONDUCTING VISUALS



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LATER APPLICATIONS...

- ◆ DISCRETE EVENTS IN A NON-RADAR ENVIRONMENT
 - IN-TRAIL CLIMBS AND DESCENTS IN OCEANIC, ENROUTE AND REMOTE NON-RADAR AIRSPACE
 - LEAD CLIMBS AND DESCENTS
 - LATERAL PASSING
 - STATION KEEPING



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PARALLEL APPROACHES

- ◆ VMC TO IMC
- ◆ REDUCE LATERAL SEPARATION
- ◆ SAFETY BACK-UP TO PRM
- ◆ ENHANCED CONFLICT AVOIDANCE
- ◆ REQUIRES MORE EXTENSIVE CHANGES



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ADS-B SELF-SEPARATION

- ◆ AIR-TO-AIR
- ◆ CONFLICT AVOIDANCE
- ◆ SEPARATION ASSURANCE



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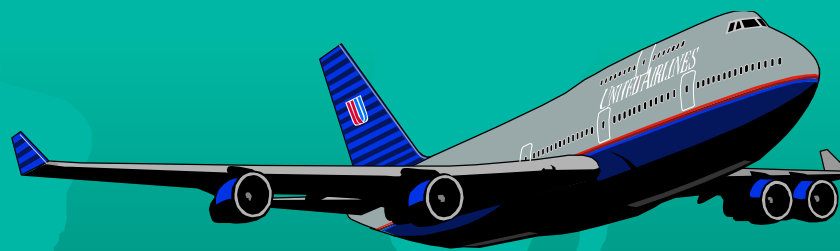
IN WORK

- ◆ ENHANCED VISUAL APPROACHES AND DEPARTURES
 - AIRLINES TO PROVIDE DATA AND VALIDATION OF ANALYSIS
 - MITRE TO EVALUATE THE IMPACT ON U.S. AND EUROPEAN AIRPORTS
 - BOEING TO DEVELOP INDUSTRY ECONOMIC MODEL BY QUANTIFYING COST-AVOIDANCE
 - COMPLETE ANALYSIS BY 11/98



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QUESTIONS?



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