



ACAST Workshop – 16-17 August 2005



## ACAST Workshop 2005

*Space-Based Technologies Project*

# Satellite-Based CNS Subproject Review

Israel Greenfeld  
NASA





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## Satellite-Based CNS Subproject Review

- Subproject Overview – Israel Greenfeld
  - Oceanic/Remote Communications/Surveillance
    - Oceanic Situational Awareness
    - Oceanic Benefits
    - Partnership Developments
  - Satellite Communications for En-Route
- Oceanic Benefits Study
  - Almira Williams, CSSI, Inc.





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## **Satellite-Based CNS Subproject Review**

### **Oceanic/Remote Communications/Surveillance**

**Goal: Evaluate an Efficient and Safe Satellite Communications Scheme for Oceanic ATC/ATM.**

**Rationale: Aircraft Separations Distances based on Current Communications Capabilities Force Large Procedural Separations which Limit Traffic Growth**

**Final Product: Demo of Satellite Transmission of ADS Data to Oceanic Control Centers that Enables Frequent Situational Awareness Updates**

**Approach: Conduct Benefit Studies; Develop Concept of Operations & Perform Oceanic Demonstration**





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## Satellite-Based CNS Subproject Review

### Oceanic Situational Awareness - FY 2005 Results and Accomplishments

- Accomplishment : Conducted ADS/Satcom Studies on Four Oceanic Regions & Published NASA Technical Memos

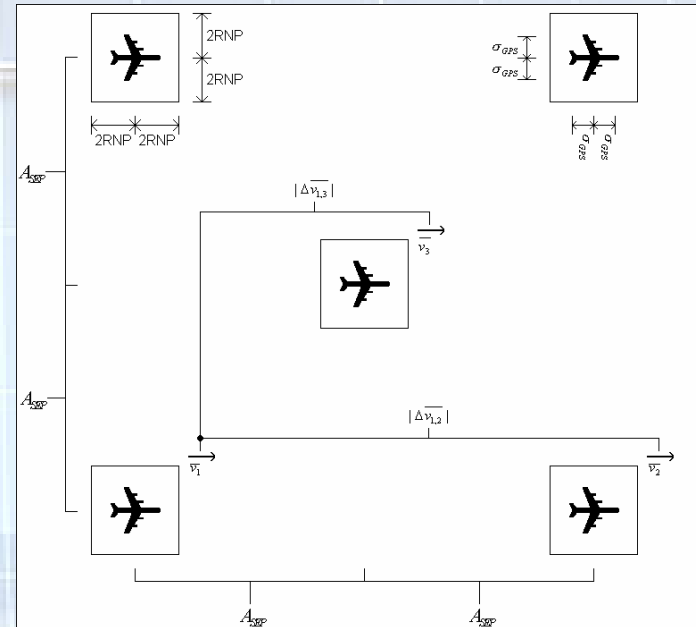
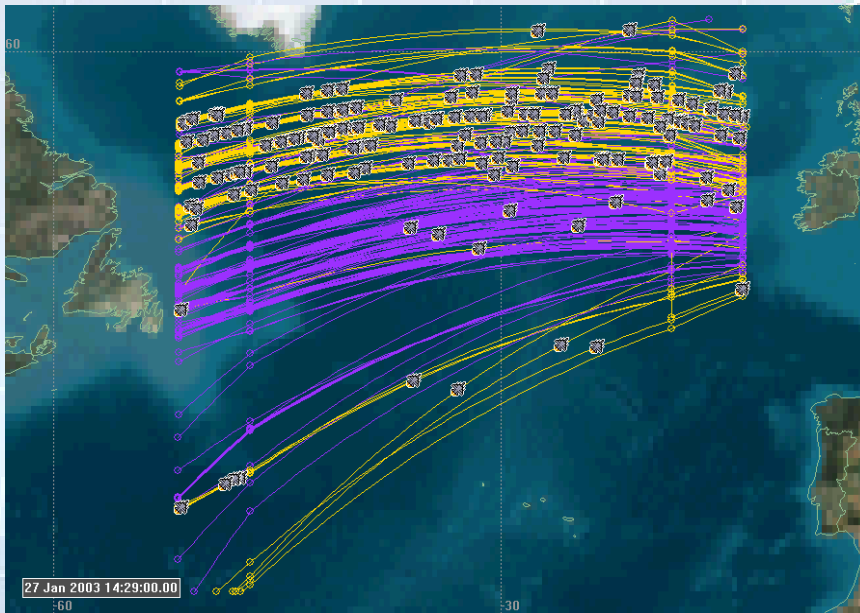
#### GRC Studies:

North Atlantic  
Western Atlantic  
Pacific  
Gulf of Mexico



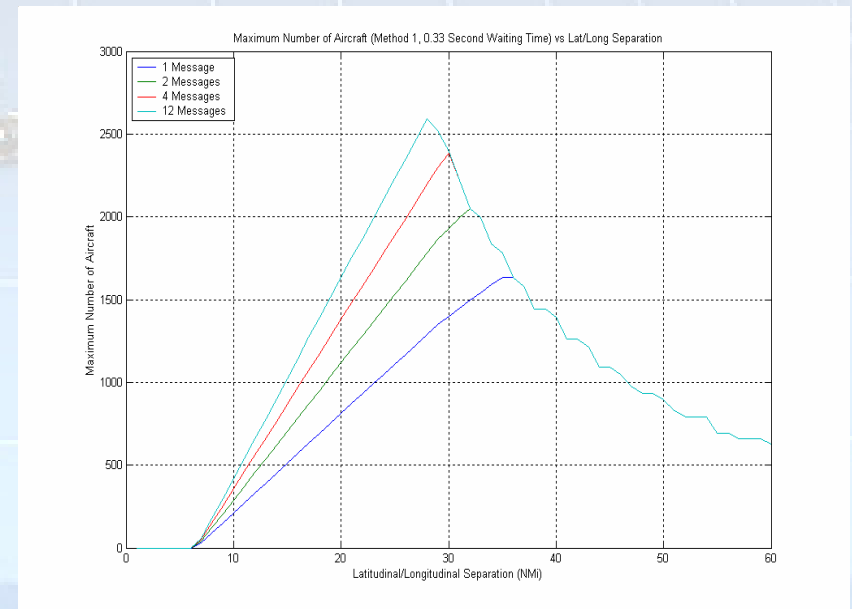
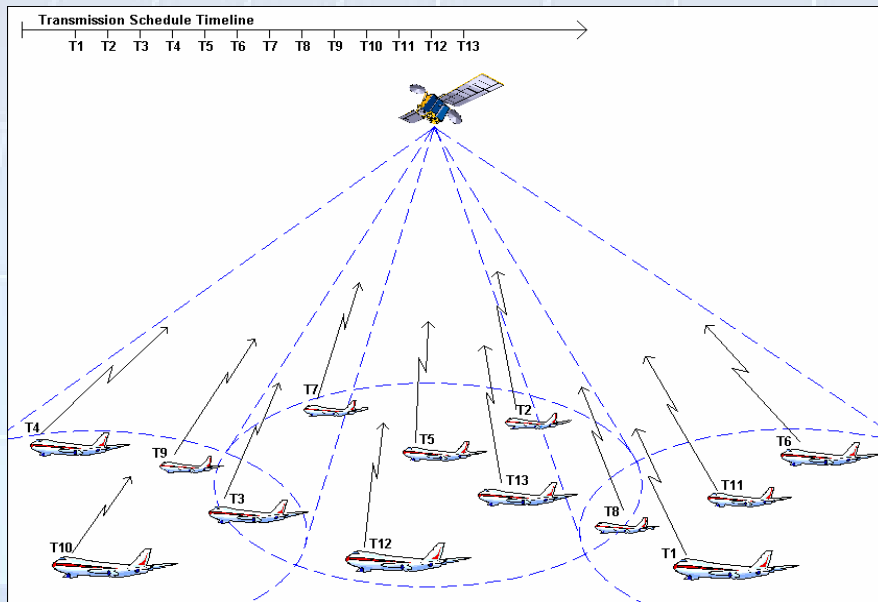
# Satellite-Based CNS Subproject Review

## Oceanic Situational Awareness



## Satellite-Based CNS Subproject Review

### Oceanic Situational Awareness





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## Satellite-Based CNS Subproject Review

### Oceanic Benefits - FY 2005 Results and Accomplishments

- Accomplishment : Completed Benefits Study that Considers ATOP-like Operations for Varying Levels of Equipage & Traffic

Study Conducted by CSSI, Inc. & Presented by Next Speaker





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### Other FY 2005 Results and Accomplishments -

#### Partnership & Collaborations:

- Boeing Global Interoperability Project Meetings
  - Potential Participation Planning
- NASA Langley
  - Enhanced Oceanic Operations (ASAS)
- FAA
  - Oceanic & Offshore Division
  - William J. Hughes Technical Center







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## Satellite-Based CNS Subproject Review

### Oceanic Situational Awareness - FY 2006 Plans and Deliverables

#### Concept of Operations:

Develop an Operational Concept for Oceanic ATC/ATM  
that can be evaluated

Contracted, Concept of Operations Report

Contracted, Demo Requirements/Plan Report

#### Situational Awareness:

ADS/Satcom Studies using Operational Concept & for  
Evaluation/Demo region

Contracted & GRC, Reports





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### Oceanic Investments - FY 2006 Plans and Deliverables

Studies : Extend Current Findings

- Improve Segregated Track Selection Logic
- Incorporate Messaging Costs
- Apply to Evaluation Region

Contracted, Reports





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### Satellite Communications for En-Route – FY 2006 Plans and Deliverables

Studies: Determine Needs & Capabilities

- Analysis of En-Route Requirements
- Assessment of Satellite Communications Technologies  
(under Future Communications Study)

Contracted, Reports





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### Partnership & Collaborations - FY 2006 Plans and Deliverables

- Airlines: Oceanic Routes
  - Obtain Requirements
  - Plan Evaluation/Demo
  - Conclude Agreements
- Air Traffic Services Providers:
  - Contact Appropriate Entities – Evaluation/Demo
  - Identify Integration Needs
  - Conclude Agreements



## Satellite-Based CNS Subproject Review

### Partnership & Collaborations - FY 2006 Plans and Deliverables (cont.)

- Satcom Providers: ITU Approved for ATC
  - Determine Capabilities & Costs
  - Incorporate into Evaluation/Demo Plan
  - Conclude Agreements
- Government Entities: Plans Coordination
  - FAA
  - JPDO