

# Netcentric Operations with Hawaii's Emergency Management Center

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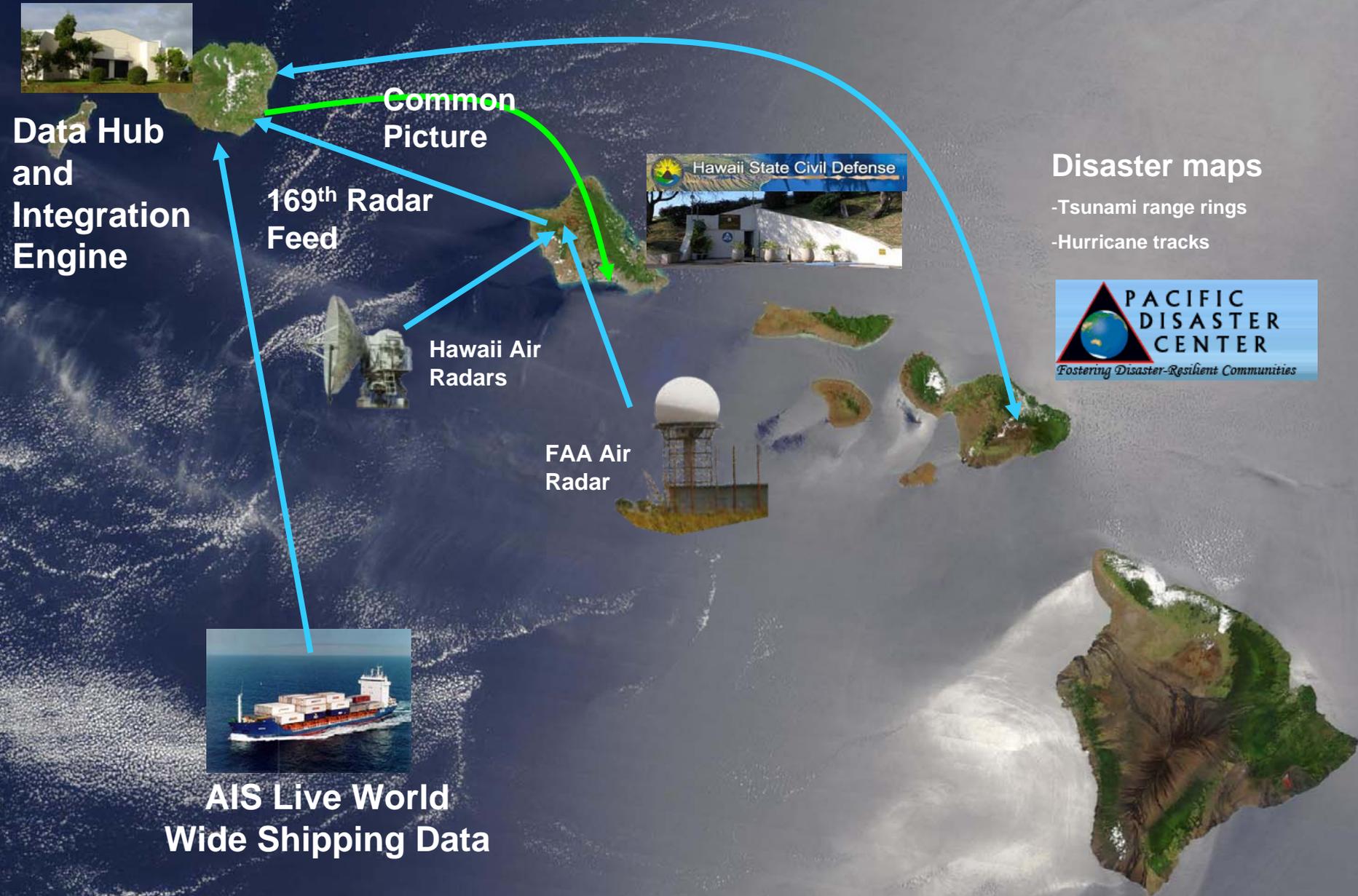
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Topic 9, Paper 098

# Emergency Management Center

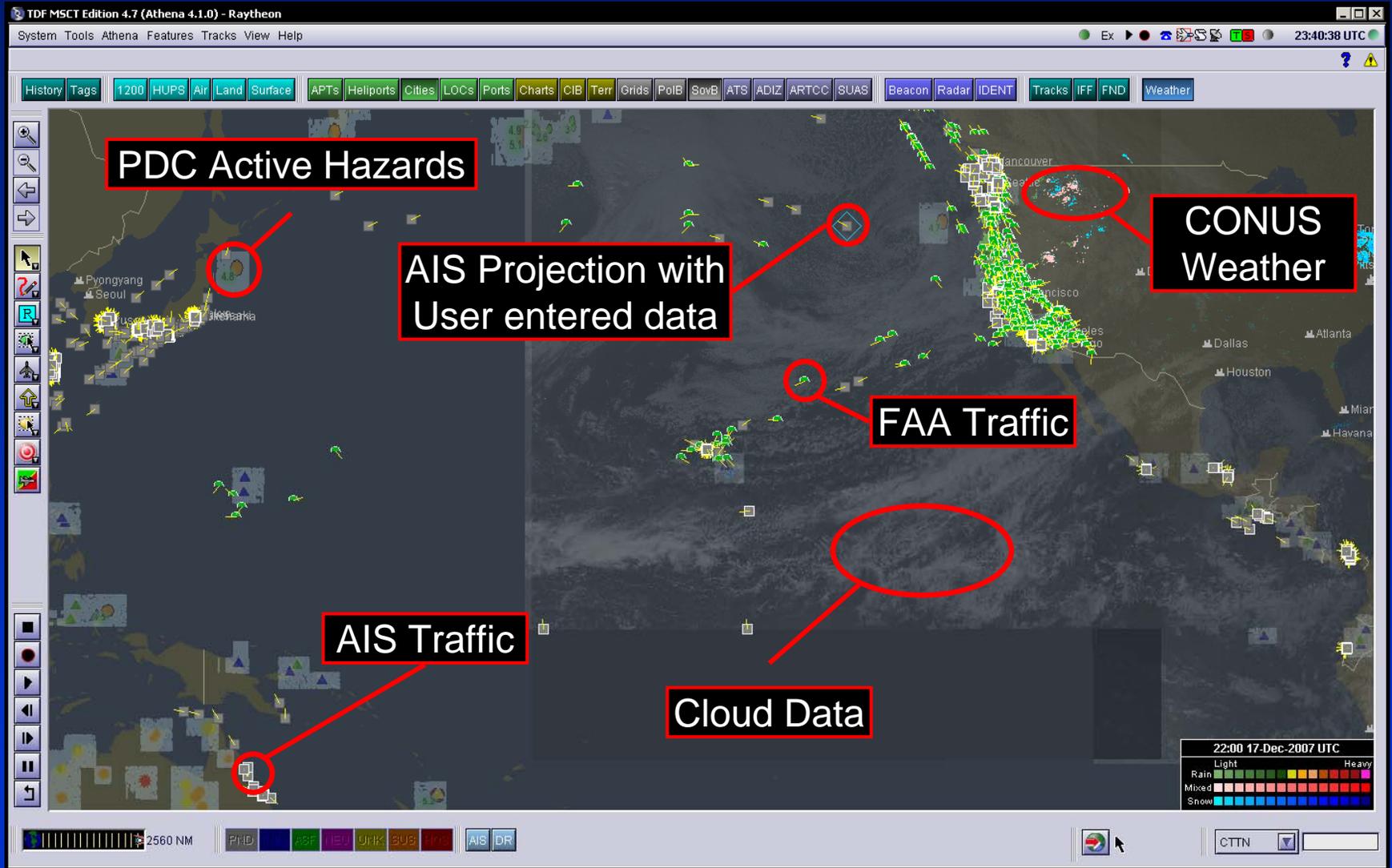
- **Hawaiian State Civil Defense agency**
  - Early warning, protection and response management
  - Wide variety of natural and man-made threats and disasters
  - Operational on December 18, 2007
- **Netcentric solution**
- **Increase situational awareness**
- **Data integration for common picture**
  - Airspace
  - Maritime
  - Natural disaster data
- **Support early disaster alert or warning**
  - Pacific Disaster Center (PDC)



# The Solution



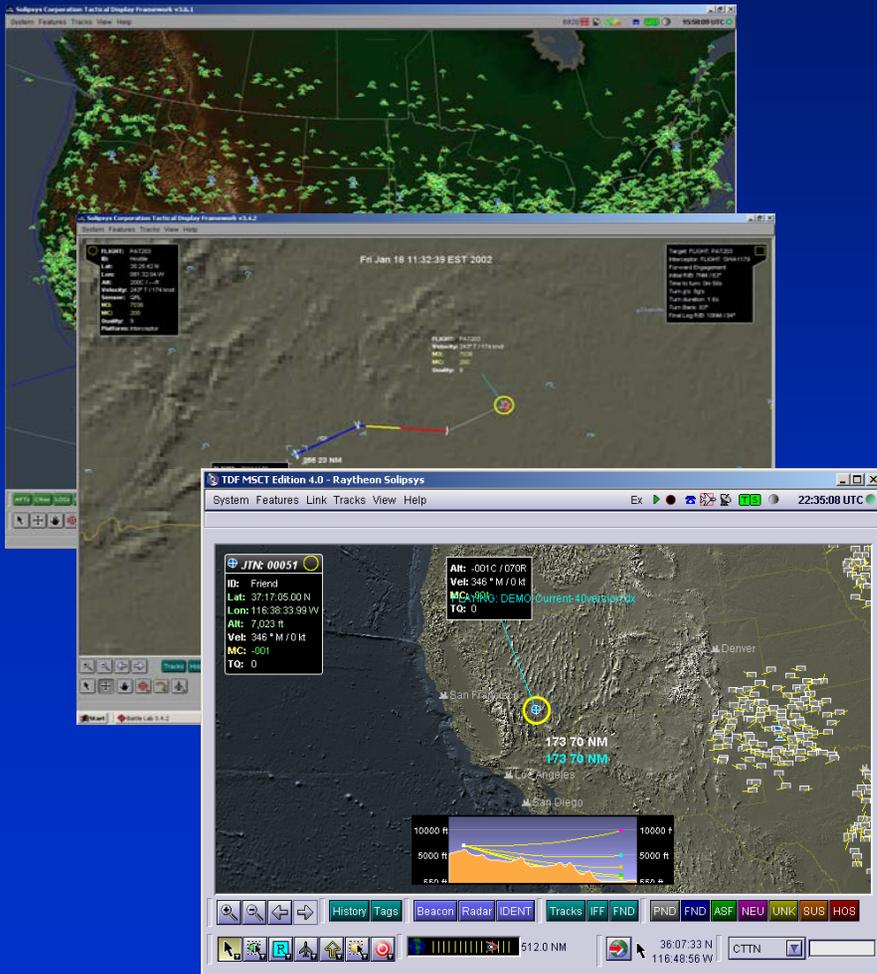
# Example Data on EMCS Display



# Background: MSCT

- Multi Source Correlator Tracker
- Collection of robust and reusable software components
- Generic information synthesis and data integration capability
- Correlates high fidelity, real-time local radar information with other sources:
  - Remote real-time
  - Near-real-time
  - Non-real-time
- Mature and field-tested algorithms
- Correlation and data integration engine can handle
  - > 17,000 tracks
  - > 20,000 plot updates per second
  - From over 100 simultaneous sensor and system feeds
- Fully customizable correlation and track integration processing

# Background: TDF



- Tactical Display Framework
- Adaptable, user-defined or preset look-and-feel
- Customized track/plot/sensor history for time-critical tasks
- Selectable symbol sets to support joint operations
- Built-in graphing and analysis tools
- Programmable key combinations for repetitive and time-critical tasks
- Multi-screen and PDA displays
- Java-based runs in any environment
- Supports evolving requirements

# Background: Project Athena

Athena Track Reports - Microsoft Internet Explorer

Address: http://138.125.167.70:8888/athena/ship\_detail.jsp?hms=220129000

### Athena Track Report

Ship Details | Track History | Owner | Engine | Service

#### Ship Information

Name: COLUMBINE MAERSK  
 Callsign: OUKC2  
 MMSI Number: 220129000  
 Type and Cargo: Cargo ship  
 Draught: 109  
 Destination: YANTIAN  
 ETA: 10/7 7:00  
 Nav Status: Under way using engine

#### Position Data as of 2006-10-06 11:26:33.258

Lat: 0209.20.25.72 N  
 Lon: 114.11.16.91 E  
 Speed: 23.0 kt  
 Course: 8.0°  
 True Heading: 0°  
 Rate Of Turn: 0  
 Position Device: Undefined  
 Position Accuracy: Low

#### Track History



#### Photograph



Current Information

Athena Track Reports - Microsoft Internet Explorer

Address: http://138.125.167.70:8888/athena/track\_history.jsp?hms=220129000

### Athena Track Report

Ship Details | Track History | Owner | Engine | Service

#### Track History



Historical Data

Athena Track Reports - Microsoft Internet Explorer

Address: http://138.125.167.70:8888/athena/owner.jsp

### Athena Track Report

Ship Details | Track History | Owner | Engine | Service

#### Owner Information

Vessel Name	COLUMBINE MAERSK	LR/IMO Ship No	9245/768	Call Sign	OUKC2
Flag		Port of Registry	Thyboron	Status	In Service / Commission
Official No	D3902	Group Beneficial Owner	Moller AP	Location	Denmark
MMSI No	220129000	Shipmanager	Moller AP	Location	Denmark
Shiptype	Container Ship (Fully cellular)	Operator	Maersk Line	Location	Denmark
IMO Company No (DOC)	0120158	DOC Company	Moller AP	Location	Denmark
IMO Registered Owner No	0309317	Registered Owner	Moller-Maersk	Location	Denmark

Information provided by Lloyd's Internet Ship's Registry

Ownership Data

Athena Track Reports - Microsoft Internet Explorer

Address: http://138.125.167.70:8888/athena/engine.jsp

### Athena Track Report

Ship Details | Track History | Owner | Engine | Service

#### Engine Details

##### Summary

Propulsion	Screw	Service Speed	Consumption
OIL ENGINE(S), DIRECT DRIVE	SINGLE-SCREW	25.00	0

##### Detail

Builder	Type	Position	Make	Model	BHP	KW	RPM
HSD Engine Co., Ltd. - Changwon	Oil Engine	CENTRE OR ONLY	Suzler	12RTA96C	89,564	65,880	102

##### Propellers

Position	Type
CENTRE OR ONLY	PROPELLER - FIXED PITCH

##### Thrusters

Position	Type
FORWARD	Thwart. FP thruster

Other Relevant Data

# Background: iTAC

- Thousands of tracks shown in near-real time
- Interact with unlimited integrated databases:
  - Maps, NOAA, PDC, Other
- Secure VPN ensures privacy/authorized use
- Customize view
- Collaborate and add content
- Link multiple user views via “chat room”



# Scenario

- Natural disaster in Hawaii: hurricane
- National and civil defenses
  - Temporary sensors are brought into the area
- Non-governmental organizations (NGOs) deploy
- Households, businesses, roads, airports, and communications
  - Destroyed or disrupted
  - Intersections lose traffic control signals
  - Roads are washed out or blocked with debris
  - Significant failures in all utilities
  - Numerous people stranded, trapped, or seriously wounded
  - Evacuations are ongoing
- Hospitals reach out to neighboring hospitals

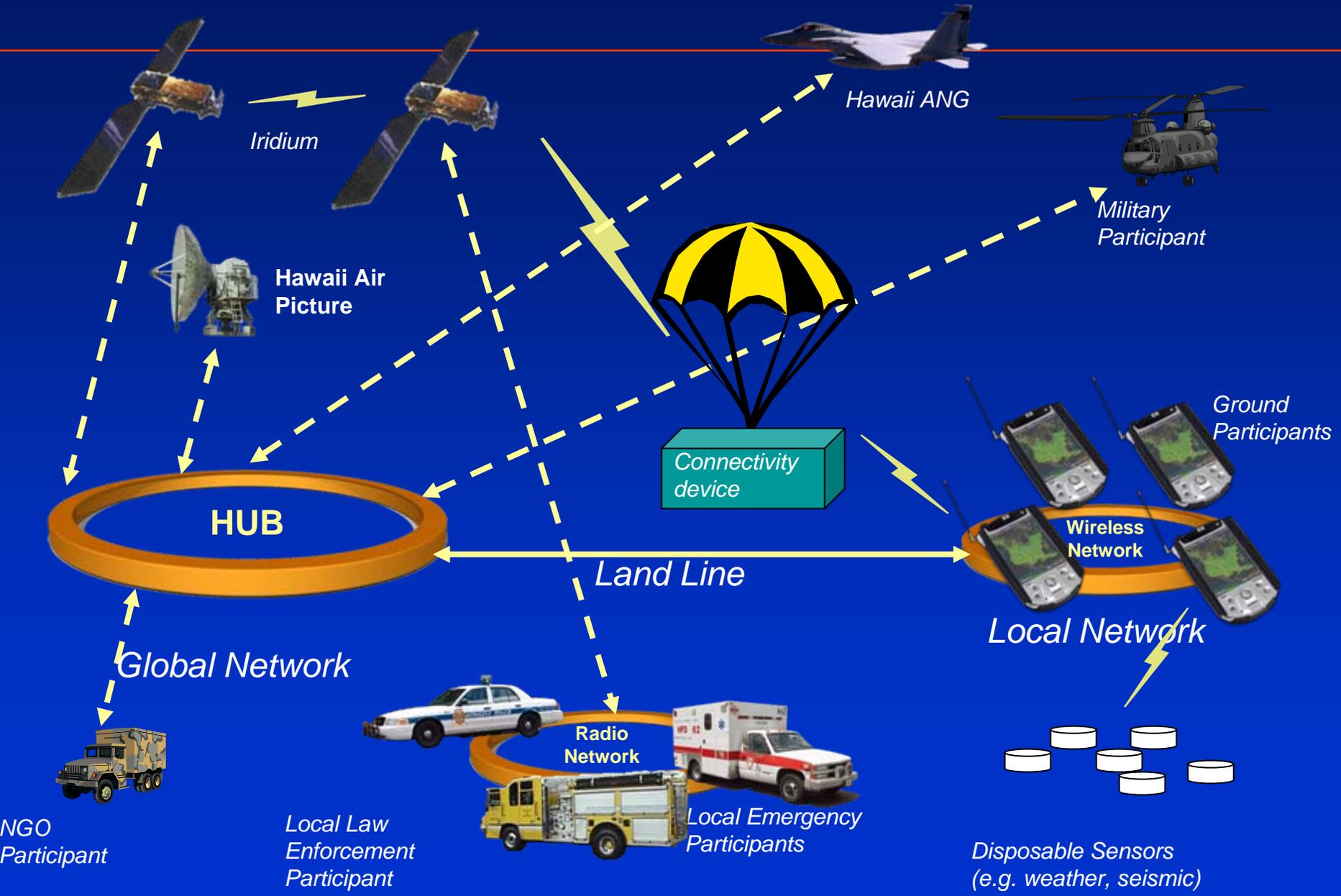
The EMCS enables netcentric operations for all participants in the time during and immediately after the disruptive event

# Upgraded System Scenario

- Small, portable devices are used
  - Display TDF
  - EMCS personnel in the field
  - Users in all roles
  - Instantaneous conditions reporting
  - Faster information dissemination
  - VPN for security
  - May require wi-fi routers

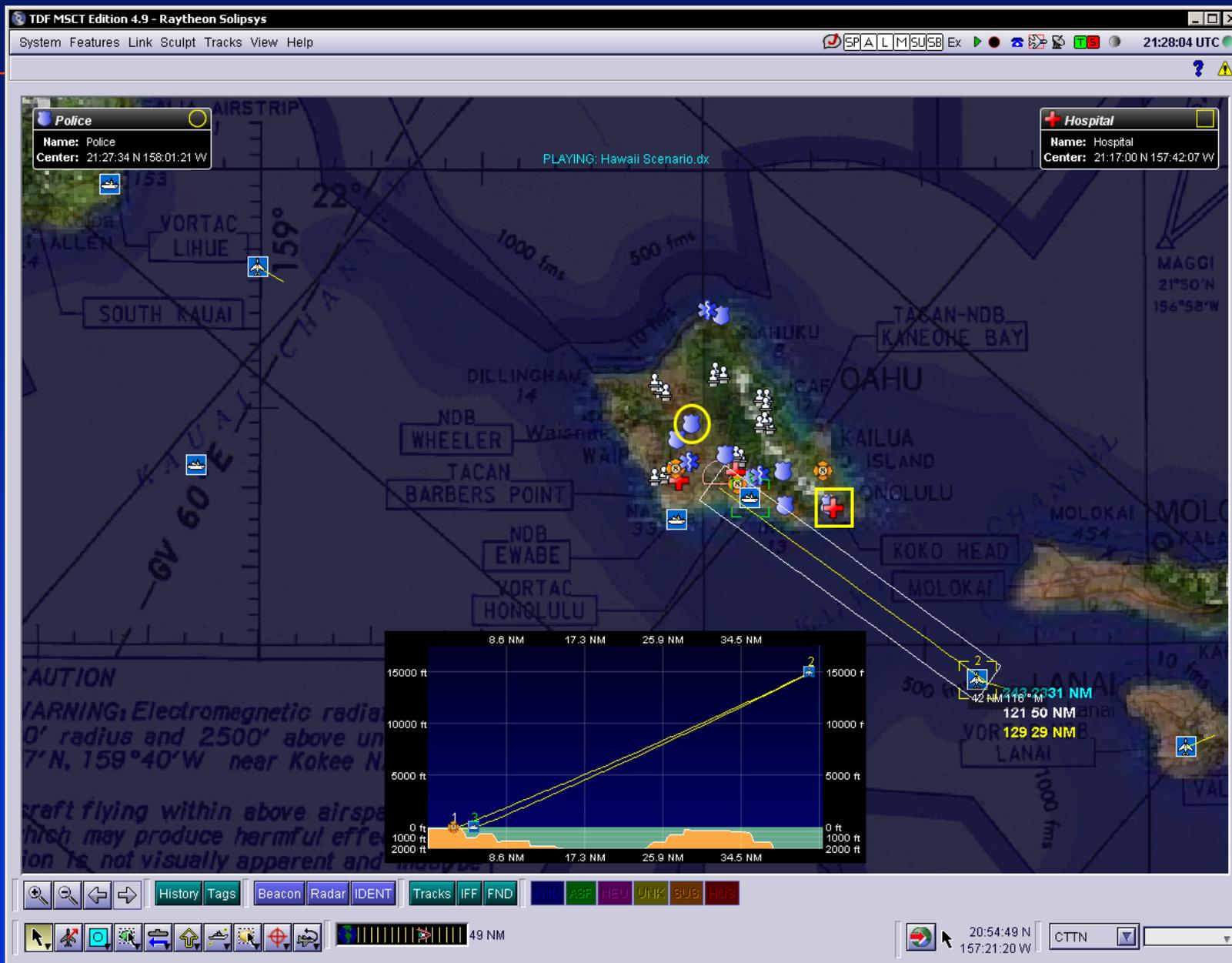


# Disaster Scenario



# Disaster Scenario Display

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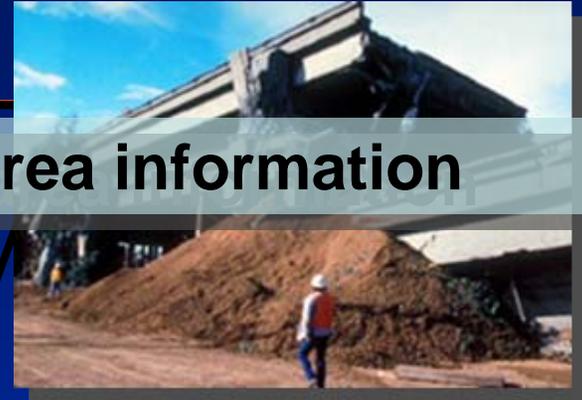


# Route Status

The ambulance contacts the Hub for area information



"Accident here"



"Bridge is down!"

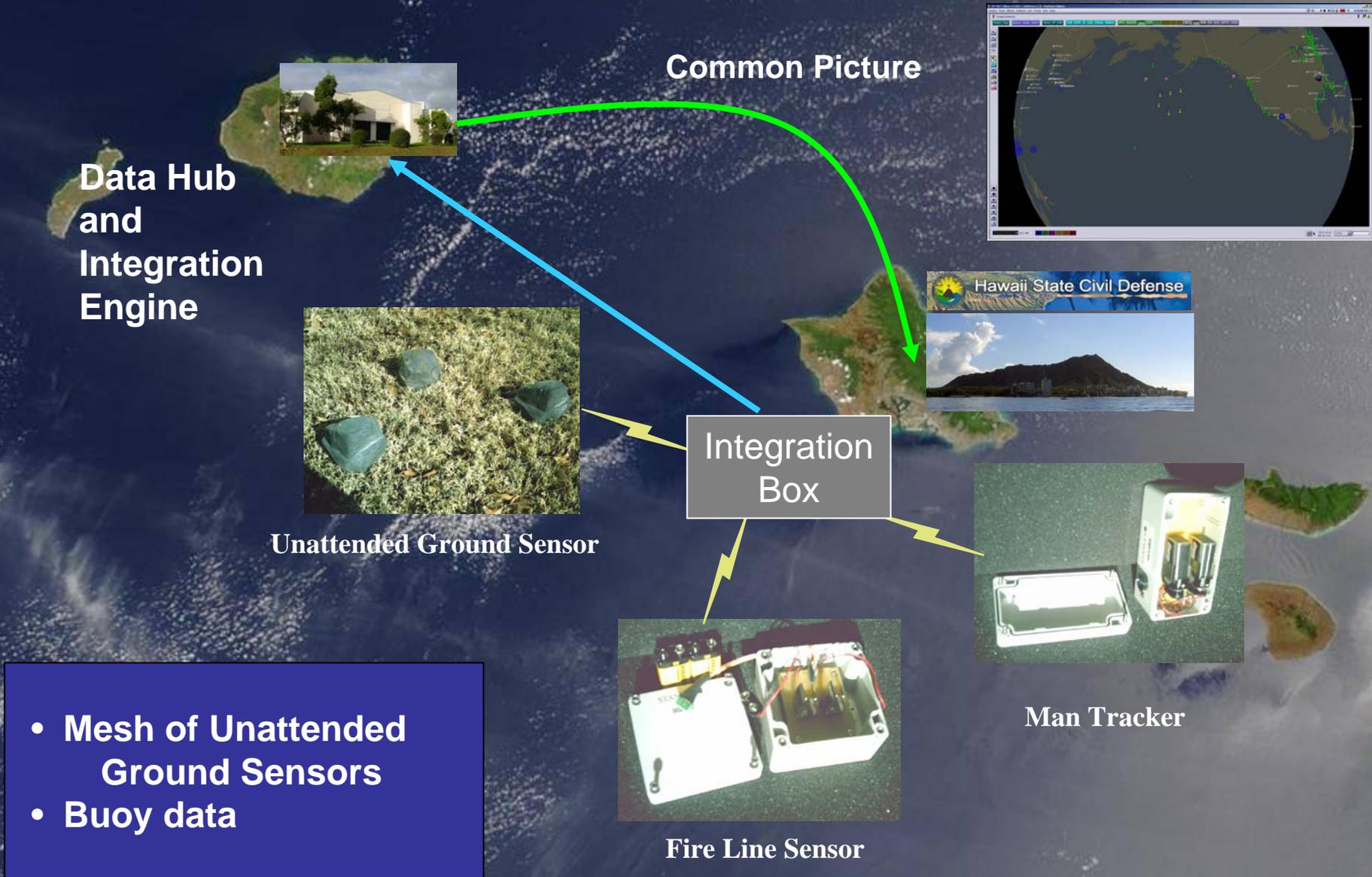
I need route status!



"Traffic jam"



# EMC Demo: Feb 2008





# Conclusion

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- EMCS implements a netcentric approach to a civil defense mission
- Critical data can cross military, civilian and state government network boundaries
- Data is integrated into information and then shared for emergency preparation and response
- Increasing the types and diversity of the inputs
  - More netcentric collaboration between
    - Military, civilian and state government
    - Non-governmental agencies
  - Ensure a more concise, coordinated and rapid response

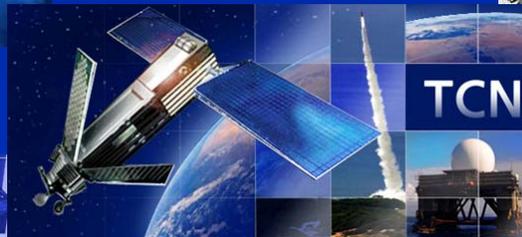
# BACKUP Viewgraphs

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# Raytheon Solipsys... Who We Are

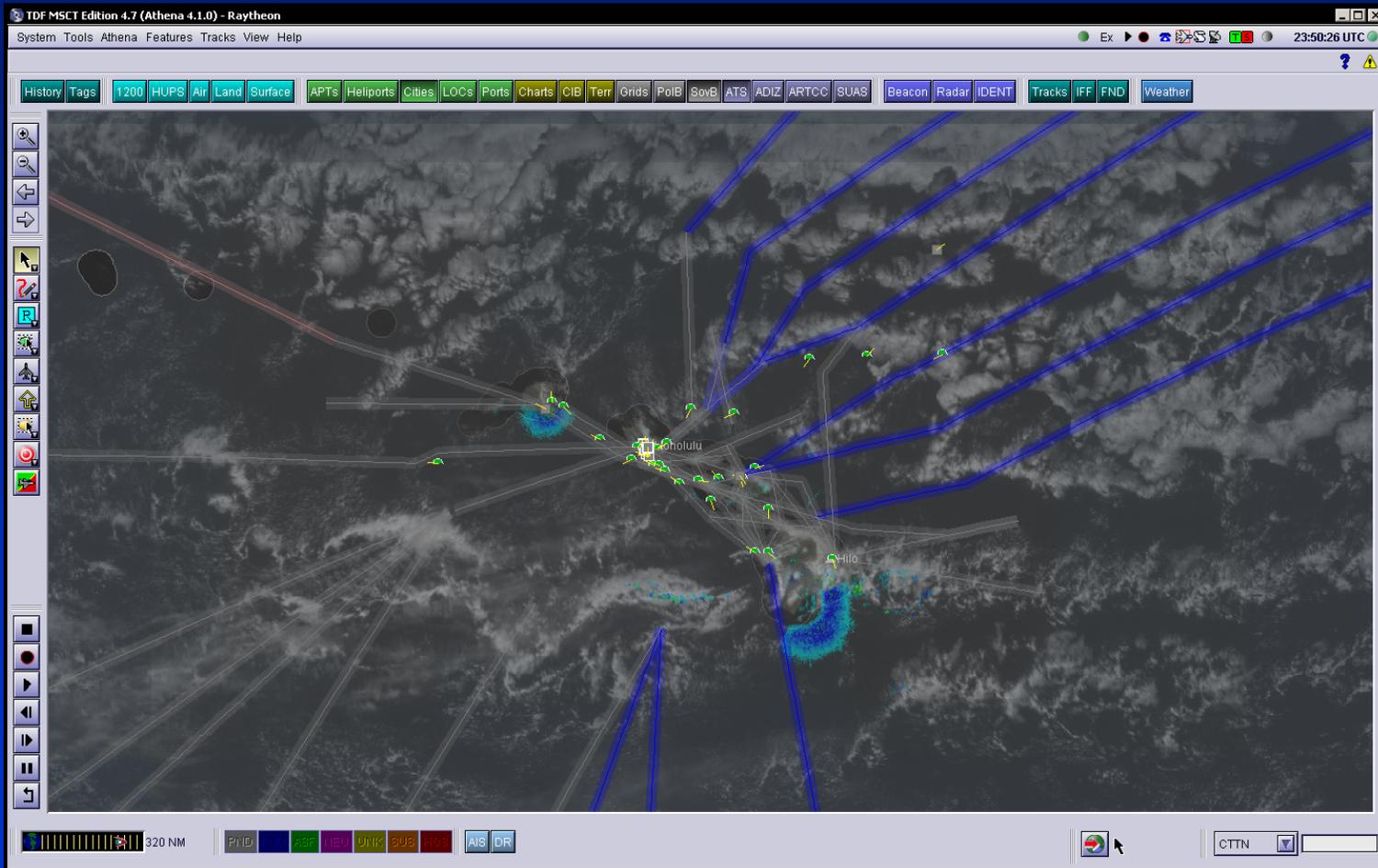


- About 200 employees
- Half hold advanced degrees (Masters, PhD)
- Headquarters in Fulton Maryland
- Offices in Kauai, Norfolk and Seattle



- Specialize in correlation/tracking, communications, and visualization
- Suite of mature software deployed around the world for Situational Awareness

# EMCS Display with Weather and Flight Routes



# Buoy Data

