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ECONOMIC AND SOCIAL COUNCIL

Ninth United Nations Regional Cartographic Conference for the Americas
New York, 10-14 August 2009
Item 7(c) of the provisional agenda
Geospatial data collection, management and dissemination

Leveraging Geospatial Technologies for Analysis, Decision Support, and Information Dissemination for Natural Disasters and Hazards*

* **Prepared by Jon Pollack, Senior Vice President, GeoDecisions**

Leveraging Geospatial Technologies for Analysis, Decision Support, and Information Dissemination for Natural Disasters and Hazards

Jon Pollack, Sr. VP, GeoDecisions.

Geospatial technologies provide powerful capabilities for disaster/hazard planning, monitoring and mitigation. Through the ability to rapidly assess proximity of resources as well as provide tools to route those resources to (deliver) and from (evacuate) a disaster area, GIS can greatly improve disaster response efficiency. This presentation will focus on transportation and logistics geospatial tools with a particular emphasis on management by exception approaches. In addition to a discussion of geospatial technologies, a live demonstration of an example disaster management application will be provided.

Leveraging Geospatial Technologies for Analysis, Decision Support, and Information Dissemination for Natural Disasters and Hazards

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Why Web-based Geospatial Technologies?

- **Integration of disparate databases that cannot normally "talk" to each other**
  - Flexible
  - Fast
  - Easily expandable
  - Open
- **Data Dissemination**
- **Modeling**
- **Collaboration**
- **Analytical**
  - Proximity Analysis
  - Performance Monitoring
  - Metrics Analysis
- **Enhanced Management by Exception**
  - Automated alerts
- **Real-time information**
  - Weather
  - Traffic
  - Sensors

Why Web-based Geospatial Technologies?

- **Allows analysis beyond simply showing "dots on a map"**
- **Relate shipments/vehicles with other shipments (GPS, RFID), fixed assets, infrastructure**
- **Relate shipments with high risk features/zones, weather, traffic, construction**
- **Optimize routing of shipment movements**

Example Geospatial Application - IRRIS

- **Developed as a data integration, data sharing tool to help deal with variety of disparate datasets in an agency.**
- **Asset Tracking and Asset Intelligence has since been added and IRRIS now tracks cargo on road, rail, and ocean. IRRIS also reports on asset utilization.**
- **Went into production in 1999**
- **Includes variety of real-time feeds including weather, camera feeds, traffic conditions.**
- **Has over 400 layers of full US coverage and partial global coverage of infrastructure, environmental data, real time feeds, etc.**
- **Default logistics geospatial portal for US DOD, FEMA**

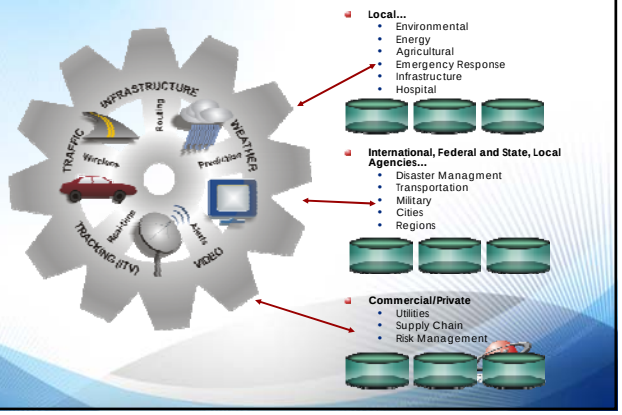
IRRIS - Capability

- Role based, secure access
- Highly secure
- Robust mapping
- Map markup and annotation
- Map and query saving, sharing
- Cargo & Vehicle tracking
- Fixed Asset Status tracking/reporting
- Integrated Charting and data analysis
- PDA support for mapping, alerting, and query

IRRIS - Capability

- Dynamic Geofencing
- Alert/Notification
- Point-to-Point routing for emergency personnel or evacuation
- Incident generation, reporting, alerting
- Shipment performance monitoring
- HAZMAT Plume modeling
- Advanced geospatial query
- Integrated PowerPoint builder
- Export to PDF, Excel, PowerPoint and other common formats

Multiple Stakeholder Integration Tool



Mobile and Fixed Asset Intelligence

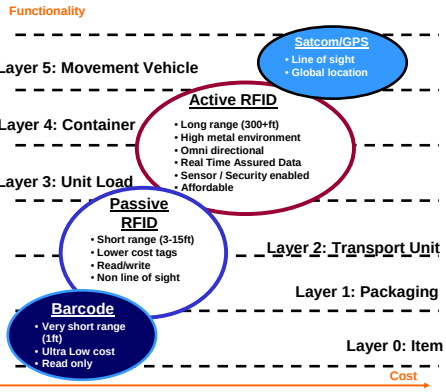
Tracking Requirements for Each Layer

(The Right Technology for Each Conveyance)

ISO has grouped supply chain goods into logistic unit hierarchy

Objects in each layer are handled in differently and have different requirements for each parts of the supply chain

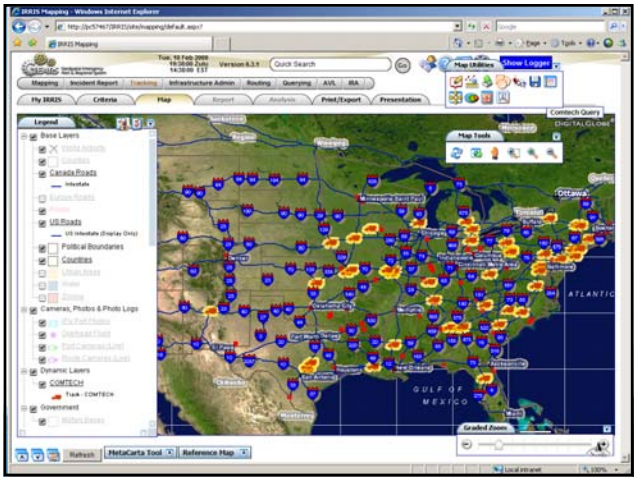
Necessitates different requirements for each layer

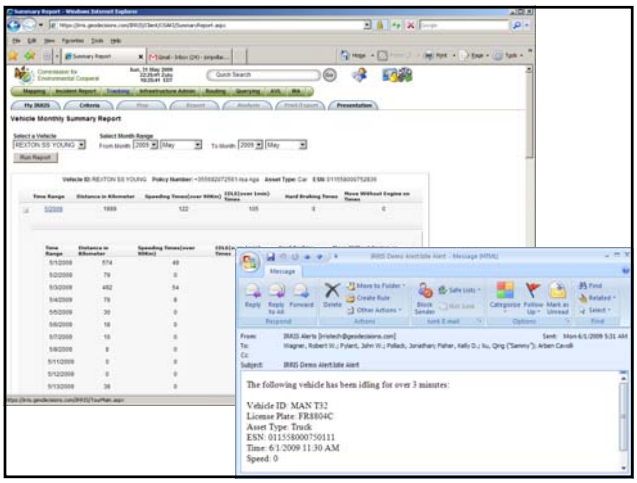


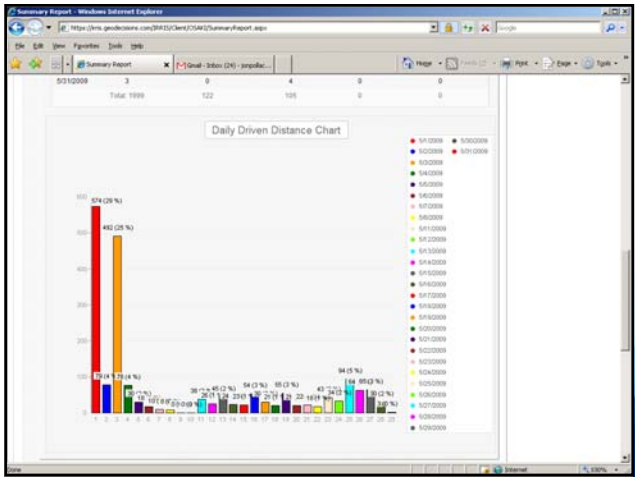
The Right Tracking Tools

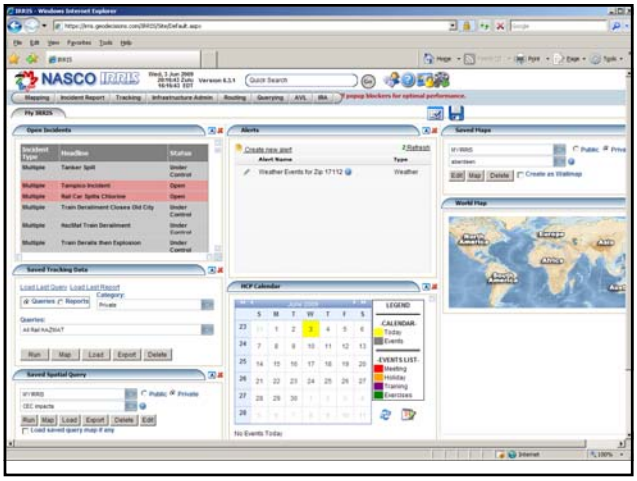
Management By Exception

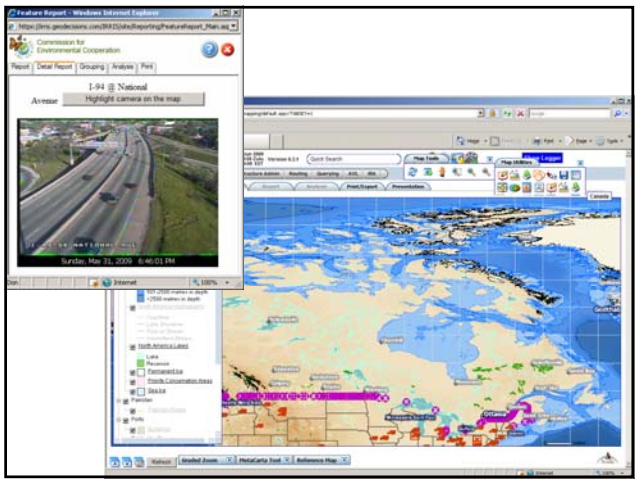
- Profile Sensors for "Normal" operation
- Tracking not "ALL" sensors, but only the ones that are not performing as profiled.
- Sensor data in relation to operational awareness and impact on "Total Asset Visibility and Performance"
- What impacts business processes
  - Slow traffic
  - Temperature, Humidity
  - Unauthorized stops
  - Leaving an area/route
  - Entering an area
  - Height
  - Weight
  - Pressure
  - Capacity
  - Performance
  - Predictive performance- notification of non performing assets

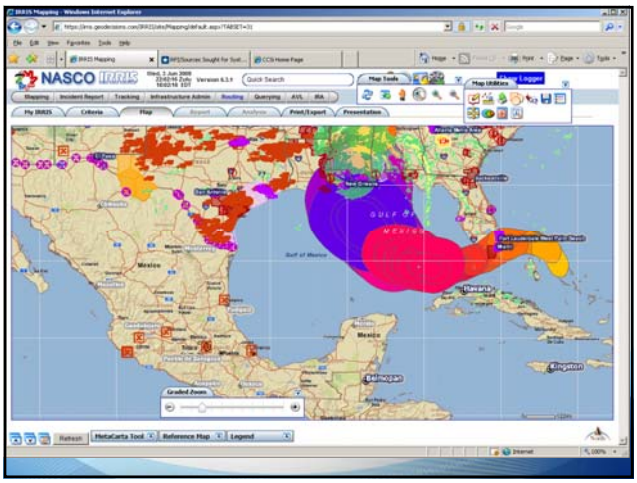


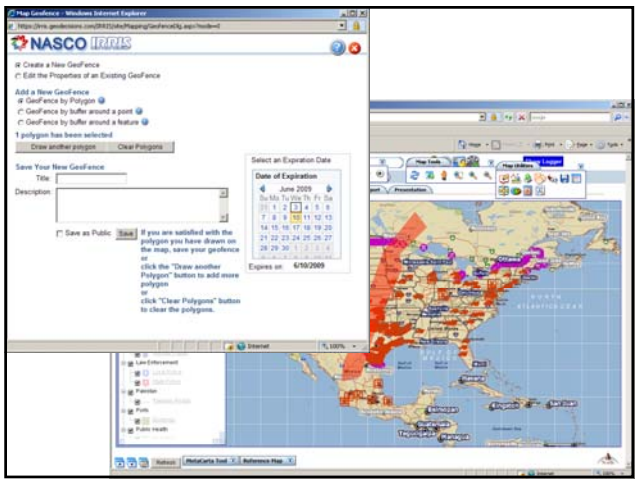


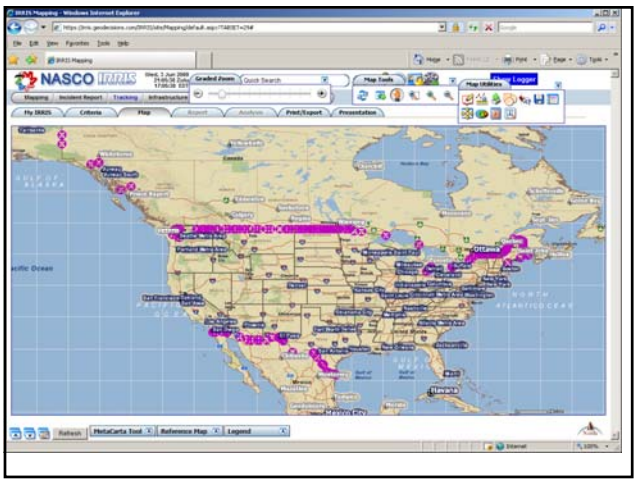

Daily Driven Distance Chart


NASCO IRIS


Commission for Environmental Cooperation
I-94 @ National
Highlight camera on the map


NASCO IRRIS


NASCO IRRIS
Create a New GeoFence
Edit the Properties of an Existing GeoFence
Add a New GeoFence
GeoFence by Polygon
GeoFence by buffer around a point
GeoFence by buffer around a feature
1 polygon has been selected
Draw another polygon
Clear Polygons
Save Your New GeoFence
Title:
Description:
Save as Public
Save
Select an Expiration Date
Date of Expiration
Expires on: 6/10/2009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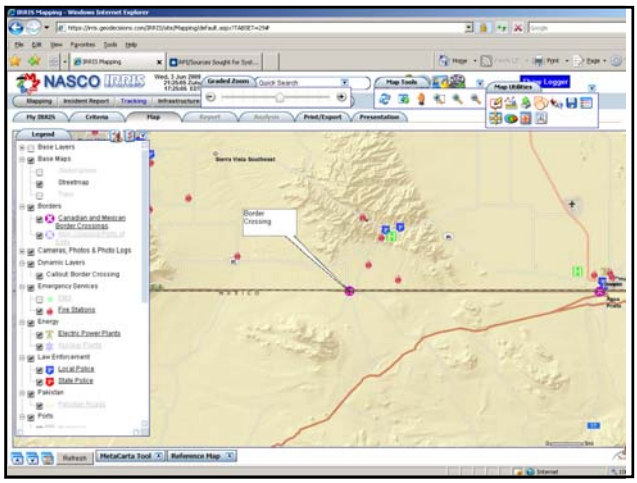
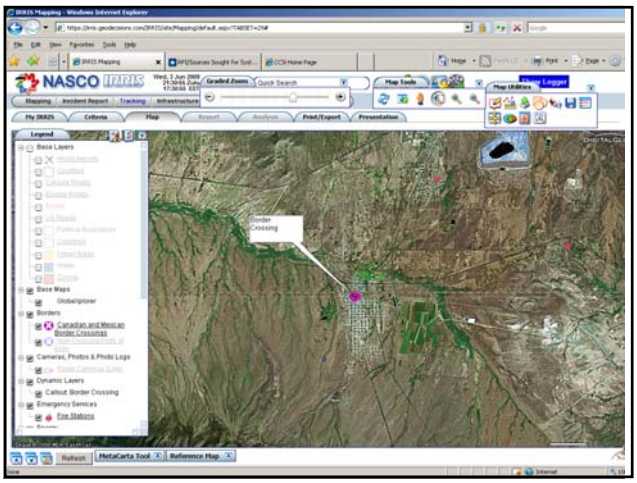

NASCO IRIS
Border Crossing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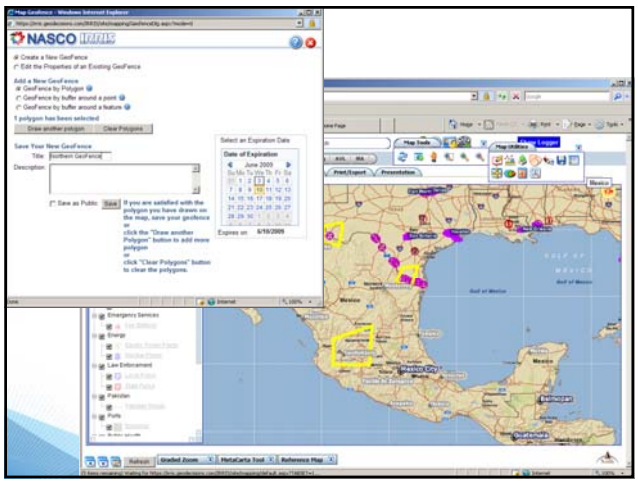
Border Crossing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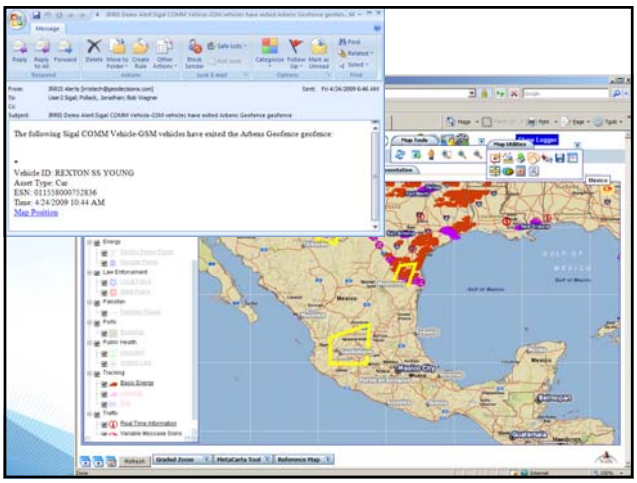
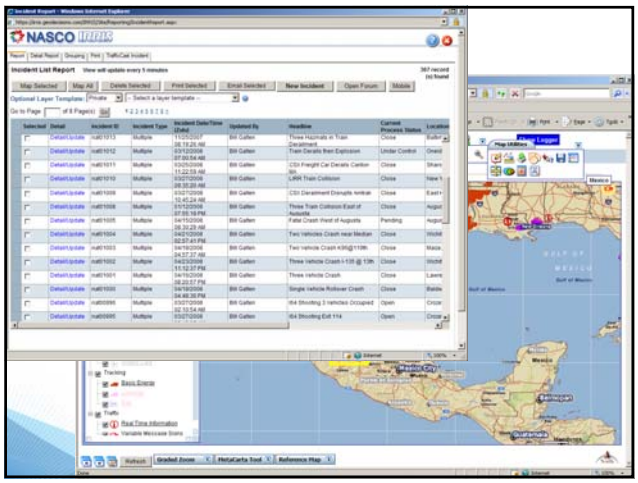
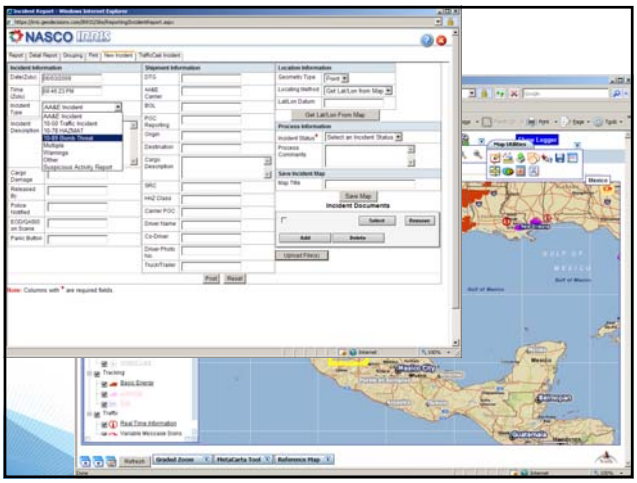

The following Sigal COMM Vehicle-GSM vehicles have exited the Arbesa Geofence geofence:
Vehicle ID: REXTON SS YOUNG
Asset Type: Car
ESN: 011558000752836
Time: 4/24/2009 10:44 AM
Map Position


NASCO Intrix
Incident List Report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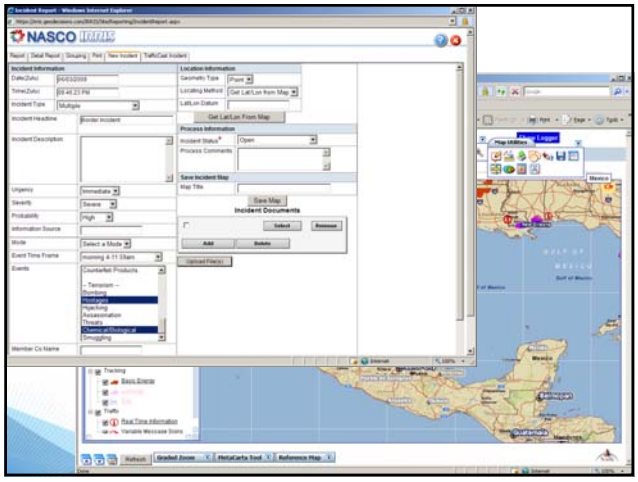
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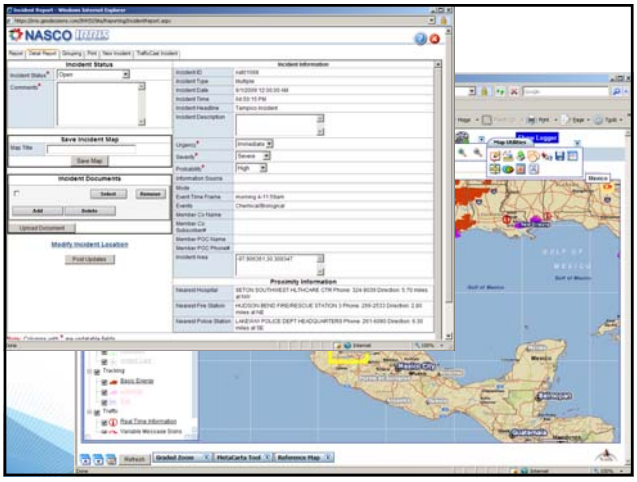
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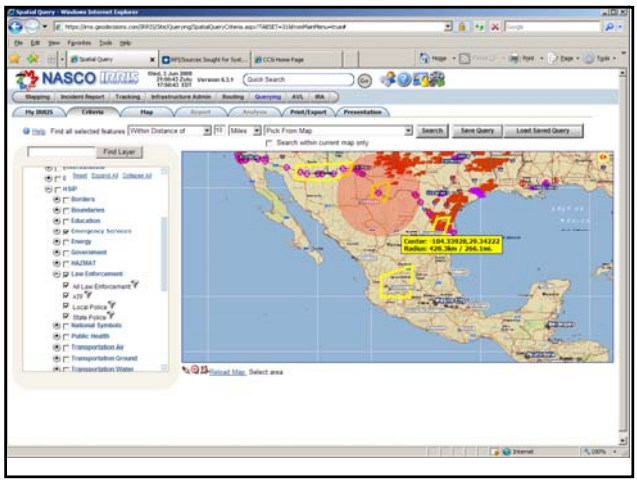

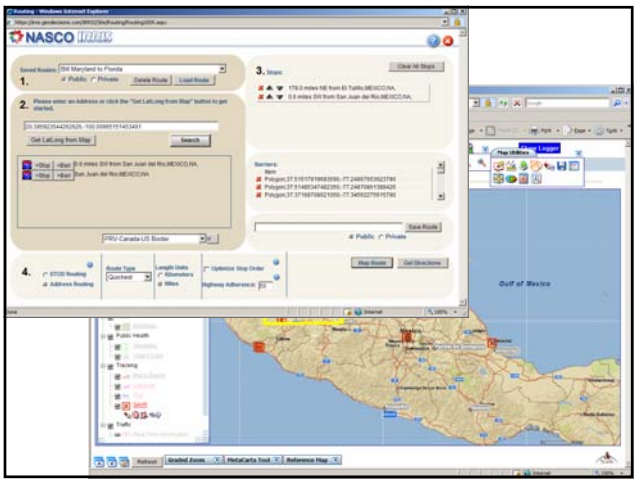

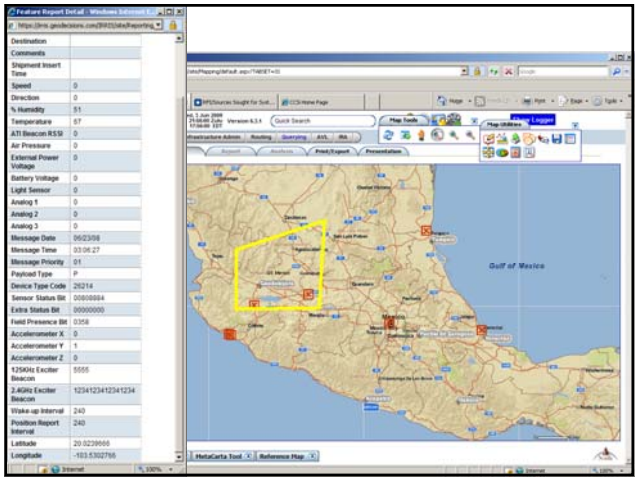

Summary

- **Geospatial technologies allow decision support beyond "dots on a map"**
  - Integrate data from different sources, different modes, different formats
  - Integrate shipment data with sensitive areas, high risk areas, populations, urban areas, infrastructure
- **Management by exception approach allows the <u>important</u> information to be brought to attention.**
- **Provides multi-use return including security, incident management, and environmental monitoring.**

Questions