GOVERNMENT APPLICATIONS
TASK FORCE (GATF)

PILOT PROJECT SUMMARY
October 1996
GATF Program Background

- MEDEA science investigations demonstrated applicability of National Technical Means (NTM) to civil issues

- The Government Applications Task Force (GATF) formed in FY94 recommended pilot project areas

- The Intelligence Community (IC) funded eight GATF pilot projects in FY95
GATF Mission Statement

- Recommend cooperatively managed civil-agency pilot projects that address operational use of national imagery assets in support of "Real World" civil missions.
- Measure success by the ability to integrate all aspects of tasking, analyzing and storing national classified imagery in support of civil programs.
- Implement changes as appropriate.
GATF Process

- Civil Agency identifies unique requirement that can be satisfied by classified imagery systems.
- Classified data requested by Civil Applications Committee (CAC) and transferred to the USGS Advanced Systems Center (ASC) in Reston, VA.
- USGS ASC and Rocky Mountain Mapping Center (RMC) contain facilities for analysis of classified data and the creation of classified and unclassified derived products for field use.
GATF PILOT PROJECTS

DOI
USDA
NOAA
USCG
DOE
EPA
DOD
FEMA

Wetlands Mapping
Estimation of Crop Yield
Coastal Management
Bilge Oil Monitoring
Waste Site Characterization
Stream Remediation
Habitat Characterization
Floodplain Mapping
OBJECTIVE
- Improve evaluations of Alaskan wetlands areas and riparian habitats which were previously not possible due to the lack of timely, high resolution data

RESULTS
- Demonstrated utility of national systems to accurately identify and characterize wetlands in Alaska
- Unclassified derived products incorporated into National Wetlands Inventory

National Wetlands Inventory delineation and classification with updates for the Guikana River region.
Natural Resource and Crop Production Inventories
U.S. Department of Agriculture

OBJECTIVE

- Utilize national systems to support crop production estimates and natural resource inventories

RESULTS

- Used national systems to accurately characterize crop type, crop acreage, crop discrimination, row spacing, and plant population
- Reduced requirement for ground survey

Two meter multispectral data collected with a Daedalus scanner illustrating the utility of high resolution for estimating crop type and acreage.
Environmental Management in the Coastal Zones
National Oceanic and Atmospheric Administration

OBJECTIVE

• Demonstrate the utility of national systems to obtain data needed under federal mandates to manage coastal environments such as land use, land cover, and aquatic ecosystem characteristics.

RESULTS

• Demonstrated use of national systems as a valuable coastal management tool.
• Developed multi-sensor coastal area signatures.

South Florida regional climatic regimes documented by NOAA AVHRR. Project study sites are indicated.
Bilge Oil Monitoring
U.S. Coast Guard

OBJECTIVE
- Improved techniques for the detection and classification of bilge oil discharges using remotely-sensed data

RESULTS
- Experiment in Gulf of Mexico demonstrated capability of national systems for discriminating natural oil seeps from oil-laden bilge
- Demonstrated ability to characterize oil seeps and infer environmental conditions by monitoring of oil seeps over time

Photograph of the R/V GYRE underway during a field test performed in the Gulf of Mexico.
Buried Hazardous Waste Site Detection
Department of Energy

OBJECTIVE

- Support monitoring of contamination inflows of hazardous materials
- Detect buried trenches and pits which could be point sources for hazardous materials

RESULTS

- Located unreported waste sites
- Developed library of waste burial trench signatures
- Isolated surface water contamination points
- Reduced on-site ground survey requirements

An aerial photograph of the Solid Waste Storage Area (SWSA-4) at Oak Ridge.
**OBJECTIVES**

- Produce a GIS-based habitat model for the Mojave population of the desert tortoise and generate vegetation maps using both classified and unclassified-based methodologies.

**RESULTS**

- Eight layer GIS model created addressing tortoise presence, vegetation characteristics, and geological features.
- Results shared with other agencies.

Example layers from the Ft. Irwin GIS.
OBJECTIVES

- Assess the degradation of riparian vegetation and channel morphology which is the result of activities such as timber harvests, over-grazing, agriculture, floods, fires, and pest infestation.

RESULTS

- Applied uniquely developed methodology to stream water temperature problem (Salmon Recovery Program)
- Water temperature models applicable to other watersheds

Middle Fork John Day drainage paths with study reaches delineated.
GATF ‘96 Actions

- Civil Applications Committee modernization plan to address digital data distribution, and program management issues
- Training course on civil agency NTM tasking uses and security being developed
- Increase infrastructure at civil agency field locations
- Assist civil agencies in clearing and training additional personnel at all levels
Floodplain Digital Terrain Modeling
Federal Emergency Management Agency

OBJECTIVES
• Develop and evaluate improved procedures for providing digital elevation models for floodplain management

RESULTS
• Re-tasked collections for 1996 in order to complete analysis of Glasgow, Missouri site

Precision digital elevation data used to determine floodplain boundaries - Iowa City, Iowa.
GATF Lessons Learned

- Civil Applications Committee (CAC) infrastructure must grow to support civil agency operational use of classified systems.

- Civil agencies require additional trained and cleared personnel at staff and coordination centers and field levels.

- Civil agency field units require facility and equipment upgrades.

- Civil Applications Committee must incorporate routine digital data distribution to requestors.
## GATF Pilot Projects Summary

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Lead Government Agency</th>
<th>Objective</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Alaska Wetlands Survey</td>
<td>Department of the Interior (DOI)</td>
<td>Improve evaluations of Alaskan wetlands areas and riparian habitats which were previously not possible due to the lack of timely, high resolution data.</td>
<td>Demonstrated utility of national systems to accurately identify and characterize wetlands in Alaska. Unclassified derived products incorporated in National Wetlands Inventory. Wetlands mapping assists land transfer to state of Alaska.</td>
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<tr>
<td>Natural Resource and Crop Production Inventories</td>
<td>US Department of Agriculture (USDA)</td>
<td>Utilize national systems to support crop production estimates and natural resource inventories.</td>
<td>Used national systems to accurately characterize crop type, crop acreage, crop discrimination, row spacing, and plant population.</td>
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<td>Environmental Management in the Coastal Zones</td>
<td>National Oceanic and Atmospheric Agency (NOAA)</td>
<td>Demonstrate the utility of national systems to obtain data needed under federal mandates to manage coastal environments such as land use, land cover, and aquatic ecosystem characteristics.</td>
<td>Demonstrated use of national systems as a valuable coastal management tool through successful characterization of coastal feature signatures.</td>
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<tr>
<td>Bilge Oil Monitoring</td>
<td>US Coast Guard (USCG)</td>
<td>Improved techniques for the detection and classification of bilge oil discharges using remotely sensed data.</td>
<td>Experiment in Gulf of Mexico demonstrated capability of national systems for discriminating natural oil seeps from oil laden bilge. Demonstrated ability to characterize oil seeps and infer environmental conditions by monitoring of oil seeps over time.</td>
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<td>Buried Hazardous Waste Site Detection</td>
<td>Department of Energy (DOE)</td>
<td>Support monitoring of contamination inflows of hazardous materials; detect buried trenches and pits which could be point sources for hazardous materials.</td>
<td>Located unreported waste sites; developed waste burial trench signatures; isolated surface water contamination points; reduced on-site ground survey requirements.</td>
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<td>Riparian Zone Analysis Project</td>
<td>Environmental Protection Agency (EPA)</td>
<td>Assess the degradation of riparian vegetation and channel morphology which is the result of activities such as timber harvests, over-grazing, agriculture, floods, fires, and pest infestation.</td>
<td>Utilized national systems data, DEM, hydrography data, and FLIR data to provide EPA's GIS-based riparian model with information about vegetation type, height, and proximity, topographic shading, local slope, cold water seep locations, and woody debris in the area.</td>
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<td>Mojave-Sonoran Desert Habitat Characterization</td>
<td>Department of Defense (DOD), US Army Corps of Engineers</td>
<td>Produce a GIS-based habitat model for the Mojave population of the desert tortoise and to generate vegetation maps using both classified and unclassified-based methodologies.</td>
<td>Eight layer GIS model created addressing tortoise presence, vegetation characteristics, and geological features.</td>
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## Congressional Mandates Supported by GATF Pilot Projects

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<th>Project Title</th>
<th>Lead Government Agency</th>
<th>Mandate</th>
<th>Directive</th>
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<tr>
<td>Natural Resource and Crop Production</td>
<td>US Department of Agriculture (USDA)</td>
<td>Various Congressional Mandated Crop Reporting acts.</td>
<td>USDA is required to estimate worldwide crop population.</td>
</tr>
<tr>
<td>Environmental Management in the</td>
<td>National Oceanic and Atmospheric Agency</td>
<td>- Coastal Zone Management Act</td>
<td>USDA is required to provide a natural resources inventory every five years</td>
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<tr>
<td>Coastal Zones</td>
<td>(NOAA)</td>
<td>- Clean Water Act</td>
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<td>- Emergency Wetlands Resource Act</td>
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<td>- Marine Protection, Research, and Sanctuaries Act</td>
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<tr>
<td>Bilge Oil Monitoring</td>
<td>US Coast Guard (USCG)</td>
<td>- Marine Pollution Act</td>
<td>NOAA is required to inventory, characterize and monitor marine sanctuaries.</td>
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<td>- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or “Superfund”)</td>
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<td>- National Contingency Plan</td>
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<tr>
<td>Buried Hazardous Waste Site</td>
<td>Department of Energy (DOE)</td>
<td>- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or “Superfund”)</td>
<td>Federal government is authorized to clean up toxic or hazardous contaminants at closed or abandoned waste dumps. DOE is required to control the migration of hazardous materials beyond DOE reservations.</td>
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<td>Detection</td>
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<td>- Federal Facilities Compliance Act</td>
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<td>- Resource Conservation and Recovery Act</td>
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<tr>
<td>Riparian Zone Analysis Project</td>
<td>Environmental Protection Agency (EPA)</td>
<td>Clean Water Act</td>
<td>EPA is required to monitor and remediate waterways affected by pollution and loss of vegetation.</td>
</tr>
<tr>
<td>Mojave-Sonoran Desert Habitat</td>
<td>Department of Defense (DOD), US Army Corps of Engineers</td>
<td>- Endangered Species Act</td>
<td>DOD is required to protect endangered species within DOD facility perimeters.</td>
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<tr>
<td>Characterization</td>
<td></td>
<td>- Mohave-Sonoran Ecosystem Management Initiative</td>
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<tr>
<td>Floodplain Digital Terrain Modeling</td>
<td>Federal Emergency Management Agency (FEMA)</td>
<td>Robert T. Stafford Disaster Relief and Emergency Assistance Act</td>
<td>Federal government is authorized to respond to disasters and emergencies in order to provide assistance, save lives, and protect public health, safety and property.</td>
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</tbody>
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