

Forest Service Update

Tactical Fire Remote Sensing Advisory Committee

Everett Hinkley
National Remote Sensing Program Manager
703-605-0830
ehinkley@fs.fed.us

Geospatial Management Office (GMO)
USDA Forest Service



Challenges Ahead

Declining Budgets / Impacts

- ✓ National Agricultural Imagery Program (NAIP)
- ✓ Remote sensing imagery access
- ✓ Centralizing geospatial capabilities
- ✓ Loss of institutional knowledge, expertise and positions
- ✓ Enterprise Architecture, Software, Field Equipment

GTAC Center Move

- ✓ Disposition of Historic Imagery
- ✓ Ability to provide web services
- ✓ X-Band antenna location

Maintaining relevance and needed skills in chaotic times



Opportunities

There is recent, widespread interest in improving IR support to incidents as well as an appreciation of the range of IR missions and requirements. This is a welcome development, and both the TFRSAC and the Thermal Working Group (TWG) are well positioned to provide great service in its advisory capacity both to fire leadership and back to the development/research community when IR requirements are released.

“In times of chaos, look for opportunities”

Remote Sensing and Wildland Fire

Fire Phases

- Pre Fire
 - Fuels, terrain, weather, assets at risk
- Fire Ignition (starts)
 - New fire starts
- Active Fire
 - Fire perimeter, hot spots, intense fire
- Post Fire
 - Fire severity

Remote Sensing Tools

- Manned Aircraft
 - NIROPS
- Unmanned Aircraft
- Satellite systems
 - MODIS / VIIRS
- Ground observation
 - Manned towers
 - Unmanned towers

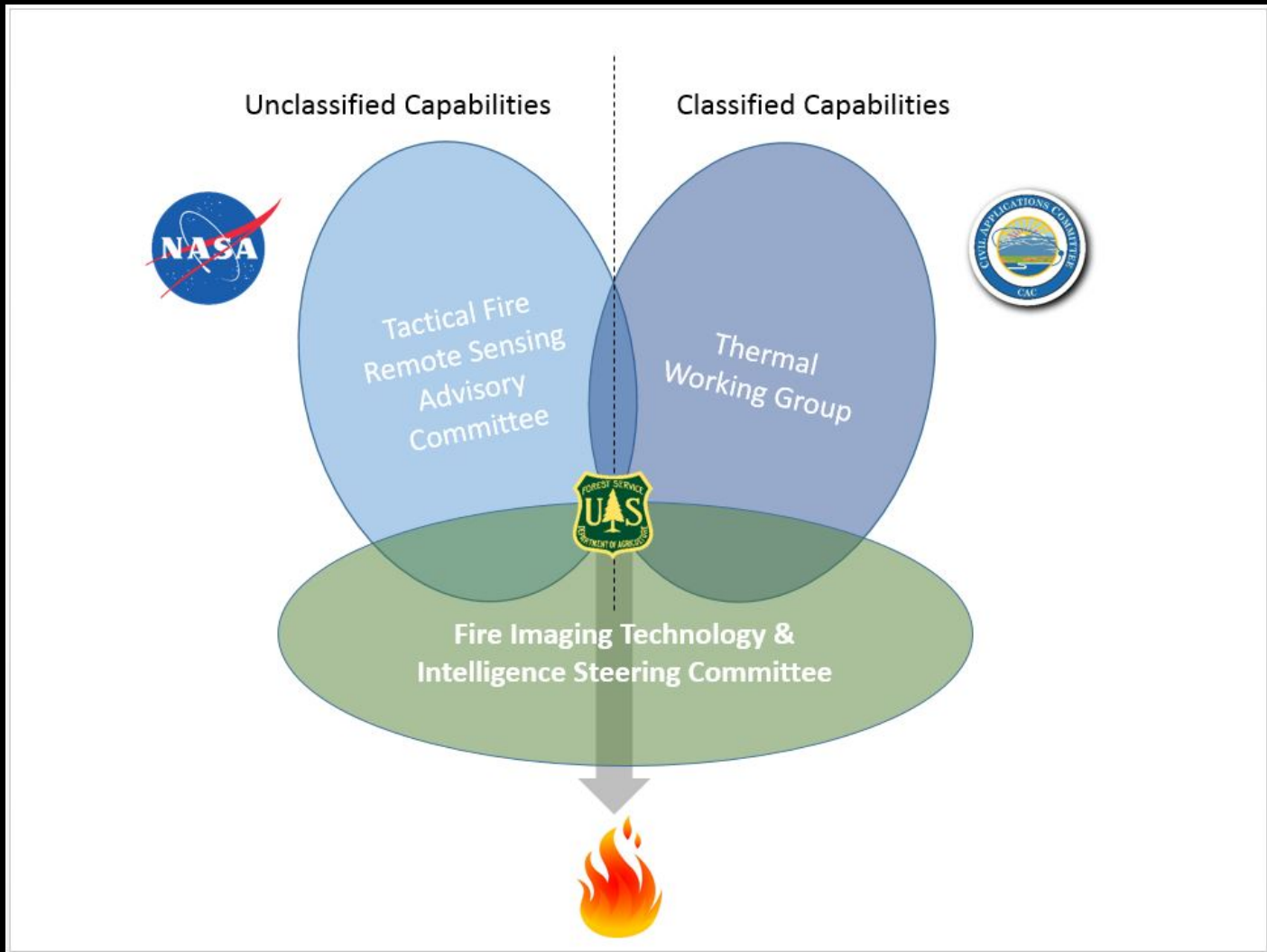


Remote Sensing Working Groups

- **Tactical Fire Remote Sensing Advisory Committee (TFRSAC)** The TFRSAC is co-hosted by NASA and the Forest Service and is a broad collaborative forum for advancing and enabling the development and delivery of remote sensing platforms, sensors and decision support tools to the wildland fire community. **Focus: largely unclassified.**
 - The TFRSAC meets biannually and includes representatives from federal and state agencies, academic institutions, international partners, and the vendor community.
- **Thermal Working Group (TWG)** - has authority and responsibilities as a standing sub-working group under the Overhead Persistent Infrared (OPIR) Working Group (OWG) and Civil Applications Committee (CAC). The TWG is the coordinating body for advancing and enabling the development and delivery of data, information or products derived from classified thermal remote sensing platforms to civil users. **Focus: largely classified.**
 - The Thermal Working Group hosted the second Thermal Summit in early February 2017. The meeting was a gathering between Civil and DoD/Intelligence Community members that have a common interest and mission in thermal detection and reporting.



Remote Sensing Working Groups



Current Capabilities – National Systems*

- Hawkeye Fire Detection and Reporting System
 - The Hawkeye Fire Detection and Reporting System uses airborne and space borne remote sensing assets to rapidly detect and report new fire starts within the continental United States.
 - Detected fire starts are relayed to the Ignition Point Database (IgPoint) operated and managed by the Forest Service.
- Firehawk Fire Mapping Capability (Aircraft 3)
 - The Firehawk capability provides large scale fire detection/mapping support to incident command operations. The Firehawk product is designed to have the same “look and feel” as products from NIROPS.



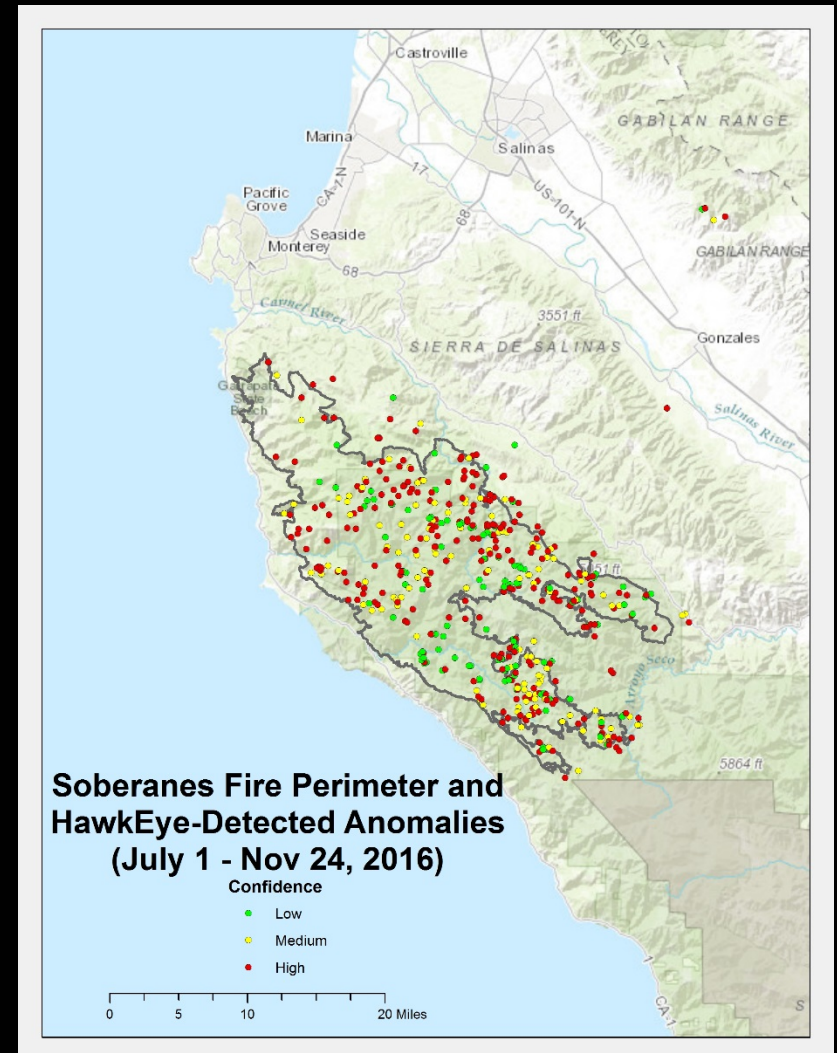
Hawkeye Fire Detection

2016 Statistics

Quarter	Anomaly Count
FY16Q1	14,630
FY16Q2	8,691
FY16Q3	17,281
FY16Q4	18,063
FY17Q1*	5,309
	63,974

2017 Statistics

Quarter	Anomaly Count
CY17Q1	23,678
CY17Q2	24,477
CY17Q3	23,919
CY17Q4	15,919
	87,993



Aircraft 3 - 2017 Summary

- One Alaska support request.
- Incident support started on April 25-26
 - Sawmill Fire, AZ
- Incident support ended on October 10-11
 - Canyon 2 Fire
- 46 days of continuous support from August 4 – September 19
- Eastern Area (EA) was the only GACC that didn't request support
- **NCAC-Denver provided support for the first time since 2009**
 - Cleared USGS and USFS personnel.

GPS

GPS: The Global Positioning System

www.gps.gov

- How accurate is GPS?
- How vulnerable is GPS to malicious jamming?

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Featured Content

How GPS Works

GPS Jamming is Illegal

Guidance for Critical Infrastructures

- Best Practices for Improving the Operation and Development of GPS Equipment Used by Critical Infrastructure (PDF)
- Best Practices for Improved Robustness of Time and Frequency Sources in Fixed Locations (PDF)
- Best Practices for Leap Second Event Occurring on 31 December 2016 (us-cert.gov)

User Content

- Service Outages & Status Reports
- Civil GPS Performance Data
- UPDATED** Interface Specifications
- Other Technical Documentation
- Public Presentations
- Congressional Legislation & Funding

Cybersecurity

Spoofing

Jamming

Assured PNT

GPS Jammers

Travellers: Don't Use Consumer GPS Devices

DANGER

LOW GPS



Items of Interest

- GOFC-GOLD Fire IT meeting at the Univ. of Maryland, October 1-2, 2018.
- May 6 to 12 2018 is Arson Awareness Week
- National Imagery Summit – Postponed until September



Questions?

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GTAC

Mapping Our Future Together

Remote Sensing, Geographic Information Systems, Cartography, Photogrammetry, Training, and Information Services

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