Remote Sensing Workshop Feb 12-13, 2008
Sacramento, Calif

- Focus on gathering real time info to those that need it.
- Local resources, midlevel managers and others were unaware of each others mapping projects.
    - How to share the data?
    - Where to share the data?
- Georeferencing imagery very important. Including roads.
- Cal Fire data system almost crashed during the 2007 fire siege. Communication towers were either burned up or blown over.
- Technology is constantly changing.
- CAL Fire would like tools available on initial attack as well as extended attack.
- FIRESCOPE looking at developing remote sensing intel division.
- End users need to be trained on products.
- FEMA
    - Mission Assignments
    - NRCC National Response Coordination Center
    - USGS, EROS, NGA, NASA
    - Contract with ERSI

- RST (Proposal)
    - Remote Sensing Team, Set up a team focusing on emergency incidents to travel where needed.
    - Webmap
    - GeoPDF (Terrago), Can turn layers on and off
- Look at ESRI conference DVD for a digital pen that will update GIS data. Shown on Monday session.
- NIFC
    - 2 fixed wing aircraft
    - Complex order process for a I.R. flight
        - Order flight from Incident, Dispatch, GACC, NICC, National I.R. coordinator, Priorities, Best resource for request, assigned and filled in ROSS.
        - Request must be in by 1500 (Mountain Time) for any flight request.
        - Scanner request form – optional flow, few hours to make a decision.
        - 3 vendors on a national list
        - National coordination for all assets needed.
- NIROPS – National Infrared Operations
    - Large fires are best use of this product
    - 2 fixed wing
    - Phoenix line scanner
        - 6.5 mile wide image @ 20,000’
        - Can find heat 10” wide @ 200 knots
        - 3-5 micron range for fire
        - 8-12 micron used for background images

        - 3.5 meter pixels
        - No hardcopy, data only
        - Use NAD83 datum
        - GeoTiffs
        - JPEG as output, only heat area supplied, no background
        - 1-2 hour processing time
        - Could be bumped by higher priority flight
        - Often not delivered until 0600. Too late for IAP development.
        - Dispatch office has user name and password for ordering.
    - I.R. vendor list is going to be updated soon
    - Myfirecommunity.com
    - Sit Stat
        - I.R. is great if in time and useable.

- Fs.fed.us/r6/fire/aviation/airspace/airops
- FireMapper
    - Web Based
    - Web tool
    - Image sequences of a given area.
- High speed internet a must
- FireHawk – Military
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- FireHawk – Military

- NASA
  - IKHANA (predator)
  - Flies at 40,000’ altitude
  - 24 hour flight possible
  - VIRS will replace MODIS
  - I.R., great images, georeferenced
  - Not an operational entity, used for research
  - Will assist only
  - GeoTiff – how is it created

- NASA – AMES
    - Masterweb.jpl.nasa.gov
    - MODIS – Satellite
    - Data available 2-4 hours after acquisition
    - Active fire maps
    - Resolution could be from 250 meters, 500 meters or 1 Kilometer
    - Accuracy + - 50 meters
    - Line scanner
    - Fire detection 1 kilometer
    - 100 sq meters to see a fire, best case is 50 meters
    - Printable maps, revised every hour. SHP & KML
    - IKHANA – creates perimeter on the fly by joining a series of polygons
    - CDE – Collaborative Decision Environment
        - Uses goggle earth for display
        - FPO Web
        - Ricoh GPS Camera
        - Capl100 500SE
        - LTI TRU Pulse 360
        - http://sggate.arc.nasa.gov:9518/GoogleEarth/cde.kml
            - Francis Enomoto, 650.604-6133, Francis.y.enomoto@nasa.gov
            - Sandy Johan, 650.604-4406, Sandy.Johan@nasa.gov
- Intell Link

- www.intellink.gov
- NGA.earth.org
- U2/Globalhawk
- Intelipedia
- Google
    - Josh Mendelsohn
        - 650.253-4870
        - 650.387-1588
        - joshm@google.com
        - KPBS Mashup
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Final thoughts on typing remote sensing equipment

Regardless of what vendors can supply it is what the incident needs that is critical. If typing (1-3) is where we are going then starting with basic functions and working to a more sophisticated solution might be a good way to start.

Basic functions……

Common Datum: (WGS84 , NAD83)

Common Location: All data must be posted to an agreed upon location. Each vendor can host whatever they would like on their own website but they MUST post the data required by their contract to a universally known FTP site. The GIS community has worked many years to develop this process. It is now part of the GISS responsibility to get the incidents current data posted quickly in a standard format and named correctly. See attached documents. I suggest using the NIFC ftp site as the standard location.

Basic outputs: points, lines, and polygons

Add Ons: PDF maps, Incident Photos, Aerial imagery, video downlink

	Type 1	Type 2	Type 3	
Create Fire Perimeter	y	y	y	
Locate Hotspots	y	y	y	
Create incident Imagery	y	y		Georeferenced
Incident Photos	y	y	y	Not Georeferenced
Video downlink	y	y		

Dedicated R.S. ship	y	y	1	1. Best but not required
Not a complete list. Just a start				

The typing is by function only. The platform does not matter to the requester.

Questions:

- **Contact with incident.**
  - Type 3 may have better hands on contact. Usually located at incident instead of off site sometimes states away.
- **Video:**
  - How valuable is a live downlink? To be affective the right people need to be available to view the downlink. In practical application this is rarely the case.
  - Stored Video. Must be able to distill important parts to 2-3 minutes.
  - Common video format that ANY notebook computer can run.
- **Timeliness**
  - How long after data is acquired is it available for download?
  - It must be ready to be included in the appropriate IAP or its value is decreased significantly. The number one

priority on every IAP you see is firefighter safety. Knowing where the fire is critical for situational awareness.

- **Contractors:**
  - What is the process for rotation for contract I.R.?
  - Do you see a separate list for I.R. equipment as a single resource and another for I.R. equipment attached to a dedicated ship? This is a common problem for rotorwing platforms.