Roy Jones – training center

This classroom is named "DUDE"

Dennis Hulbert, Region V (California) – Regional aviation coordination

Remote sensing…

National IR

Consolidate it, bring it together.

Ability to have real-time information, it's available, What is the process to bring it together? Go to the IC, and they don't know OR the IC gets information and middle management doesn't know.

Need information / process management.

Del Walters, CalFire

The value of remote sensing – effects communities.

Important metrics:
- precise location (GPS)
- real-time communication
- color thermal map – right away
- weather prediction and real-time weather reports
- fuels survey
- information gathering and dissemination
- end user access and knowledge; information AVAILABILITY – put it together
- geo-referencing
- google maps and topozones – which road, where's the road
- hardware and knowledge on the ground is inadequate
- enterprise GIS – engage this
- bandwidth, wide-area network – need this
- partnering, rather than reinventing the wheel; what are the mechanisms?
- need a vision of where we want to be, so we know when we get there
- need tools before there is a disaster
- interface with the media, be the front face, first face
- develop agreements in advance – military, etc.
- plan for coordinating, data format, etc.
- dissemination and analysis: FIRESCOPE example
- training for awareness of the end-users

- funding support! To make it happen.

John Perry, FEMA

Sense of urgency needed. DUH.
Coordination,, mostly.
Disaster response = Disaster Operations
Disaster recovery
Mission assignment => Federal agencies

Remote Sensing Team – total visibility of RS assets – Proposed
1. USGS = all commercial
2. NGA = intelligence
3. NASA, USDA
4. DHS - analysis
5. DoD
6. State OEM

TCPED
Tasking
Collection
Processing
Exploitation
Dissemination

Metrics:
- Dissemination, compression of large data sets
- Map scanning, it's the pen
- Update geospatial databases, quickly
- Reducing the amount of background data

FEMA can only respond to fire if there is a federal declaration of disaster area.
Otherwise, fire is coordinated through NIFC.

ACTION items:
1. Cost of GH, U-2, P3
2. Representative products from each

Doug Shinn – NIFC - Boise

Mobilize = deploy
11 regions = geographic area
area coordination center in each, Dept Ag, Dept Interior

methodologies for processing a request – flow

who handles IR requests depends on "preparedness level" 3-5 are high =>National IR Coordinator

Geographic area coordination requests scans, independent of other geographic areas – what is decided at the national level?

DoD process is similar, if there are assets available.

Requests to NIFC are due by 15:30 mountain time for next morning briefing and deployment.

Darrel VanBuren
NIROPS = National Infrared Operations

Customer = ICs

Metrics:
- Find the small ones
- Precisely locate them on a map
- Weather
- Fire behavior
- Fire perimeter fire front
- Hot spots
- Where has the fire been
- Containment lines
- Backfire effectiveness
- Mop-up / hot spots
- Post-fire burn severity
- Unknown heat sources??

Assets:
1. Citation with pod –state to state
2. King air 200 complex fires
3. Scanners: Phoenix, Daedalus

Faster, better, bigger, higher
Fly large areas AND detect small fires

Phoenix is digital

Line scanner = type 1
FLIR = type 2
Star Fire = type 3

Two thermal channels, one for fire, one for background

Products:
- geotiffs,
- jpegs,
- mosaics,
- active heat perimeter shape file

need satellite to get the data down – need bandwidth
-need training to exploit full benefits
- technology dependent
- use FTP – don't need interpreter at the site

barrier: ICs own the data - how to share? how to control?
Need it to be "common knowledge"
FLIR unit for evacuation suggestions

NIC sets the priorities
May - Oct. on duty. Rest of year, need advance notice.

Frustration: Schedule online whether you'll get flown. Sorry, you're not going to get coverage tonight.

Challenge: get the data to the fire planner by midnight. They process, they print. Meet at 6am. Need satcom to get data to the FTP site. Improvement using antenna on the plane $500K.

What does the interpreter do? Take the data, make the map, use the GIS, help set the priorities. 36 hours of training now. Qualifications. GIS training, IRIN training.

Products – order with request:
- Geo-corrected,
- Map projection
- integrated into GIS

Resubmit every day.

Issue: how to find out what's available when NIROPS is not – Tim Ball / "myfirecommunity.com"

Capt. Wilson

Remote sensing background

"In time and in a useful format" – need
Get info to the boots on the ground

Southops Southern California GACC

Situational awareness = shaping the battlefield
Look up, look down, look around

- operational
- planning

Situation unit leader = first point of contact for intell
Then fire … leader

In the cell:
- information management
- space-based assets
- nirops RSAC
- Beale
- MAC

Brian – CAL FIRE
area level, sitting at the GACC

State ops

How to make sure everybody knows what's available (assets)
Issue – mismatch of data collected and dissemination process, format, portal access
How to discover and share information?
NIROPS managed itself

Satellite imagery – hard to get, except for MODIS
Commercial data is not automatic
U-2 damage assessment not during operation because of black and white
Ikhana – fire perimeter, line scanner use
Global hawk = coverage asset, over-watch capability

How quickly can things happen, within DoD? How bad, is it available, where is it?

Full motion video, California national guard
Streaming video, P3 – couldn't locate ground terminal at the IC, too far

Timing, location, …
Civil Air Patrol – digital imagery after the fire / damage recovery; fire initiation points

GIS – Damage assessment - portals, image data, coordinate GIS analysis to avoid duplicate efforts.

OBSERVATIONS get these slides

Wilson- Wish list: helicopter based ir during the day, plus recon

Coordinate with TFRs
Every few hours from fixed wing get the fire perimeter
Get night imagery
Full motion video was Gold, make it fire fighter proof

Brian – CAL FIRE

Where Firescope is going to go:
Information needs to be coordinate, information management, institutionalized to the right people
State needs to be ready to coordinate with the Feds,
ICS and NIMS integration / share information

SUCCESSES
- blend operators and decision makers
- FEMA
- Firescope

IMPROVE
Pre-deployment planning
Information requirements vs. system requirements (resources)
Data sharing
GIS analysis

Multi-Agency Coordination (MAC)

Julie Stewart

Temporary flight restrictions TFRs
Deconfliction of aircraft
Make use of Automated Flight Following (AFF) system

Rob Lewin
Major question all the time: where are we?

Wish list: improve the following:

- pre-attack planning
- planning on fires
- Command and Control
- Tactical use = get the right map to boots on the ground; accuracy is key
- Evacuation and reentry
- Damage inspection
- Recovery
- Public info, reverse 9-1-1
- Historical data

Who's the audience?
Get a good tactical map to the field: accurate and timely
Perimeter mapping is critical for <u>dynamic fires</u>
<u>Static fire</u> requires accurate spotting with Lat Long

C&C: Plan, Organize, Staff, Direct, Evaluate
Planning Process "P"

How to help:
- behavior & prediction
- asset location
- perimeters
- when containment & control is achieved
- saving time, dollars and MORALE
- right info to the right people at the right time

Need to update Incident Action Plan maps

Clearinghouse of assets / how to order / typing
Suggest daily conference call during a siege
Consistent tactical maps: Google, ESRI, etc

Tim Chavez
Wish list

Need to keep up with technology and PROCESSES
- topography
- fuels – fuel moisture, forest health, use of LIDAR/RADAR
- Weather
- FIRE – perimeter,…, smoke management

Internet access is critical, must have it at the Situation Unit: How to do it??

Would like – MODIS resolution of 10 to 30 m

Experience with Ikhana mission operations:
- Easy to use Google Earth interface
- Import to GIS
- Provides data to everyone
- Imagery provides fire intensity
- Experimental – not operational

Some pluses and minuses

Toubs + Steve McShay

Operate RC-26, provided full motion video
Live video has many advantages, but is not geo-referenced
Flies out of Gillespie
- Data link, down-link is the line of sight Rover unit
- Available 16 hrs per day
- Deliver on CD/DVD
- Full motion video on UTM grid

L-band vs. title 10 Rover
Pod: 6' x 2' x 2'

Characteristics / issues
- VHF
- 6+ hrs
- Common software => GE
- TFR- access
- Night flights
- Control camera: IR, color, video

Wish list:
Training
Operations: Automated Vehicle location, Mobile Data Computing Environment

Return on Investment:
- Timely, accurate info
- Improved situational awareness
- Reduced risks
- Improved efficiency
- Cost containment or savings

Panel

Tim Ball – Fireball

Perimeters, rate of spread

Jan Johnson – Firehawk

When NIROPS is not available, NGA satellite

Phil – Riverside fire research lab – FireMapper on the Navajo

Synoptic
Quantitative
Consistent

Timely

Want to know what's burning (houses) in real time
Vegetation

Communication – who's doing what, don't duplicate, coordinate
Much better than MODIS

Stan Kaboda - Firewatch – operational

Multifunction Bell 209 Cobra

Human-Aiding Technology (HAT)

FLIR starSAFIRE day operation
Full motion video
Avalex mapping pointing, georeferencing

Satellite communications phone
Broadcast real-time streaming video 20 miles to the van

Jill Johnson, RAM Systems / Evergreen

Actual temperatures, hazards
Briefing maps
Location tags
Burn intensity maps: BARE team and rehab
Fire progression

Q&A
Absolute temperature – does the user need it?
Put Legends on product
Saturation – intensity (burn rehab / soil damage) – fuels – cooling curve – energy release – fire behavior map – prediction – carbon flux in the plume – structure failures – hot spots

Private sector contracts – the ordering process, especially on the govt side
How were you requested? Who was your customer? Were you used correctly?

RAM works under mid-valley helicopters. "ARA" cap is $25,000. Dept. of Interior. Type 3s.

RSAC/NIROPS –vendor list

Stan – order COBRA through USFS

Make up more detailed product specifications because there are more, varied capabilities than show up in typing.

"Resource Order" for firemapper – through southops
"Resource Order" for Fireball – he calls and offers

Jan: Customer is the Situation Unit Leader – he gets what he wants

Wind limits, visibility limits

Wednesday Morning Panel - Questions

Vince - WSFM
Julie - COA
Bruce – AMS, MASTER imagery
Tom Z - MODIS

Is the perimeter done manually? No, using an algorithm similar to NIFC.
How accurate? 1000 degree +/- .5 degree.
Can you increase resolution?
How to do tech transfer?
How do commercial vendors get a contract?

Conference call on CDE training, was very useful. Can this be outsourced?
What staffing is needed for sensor operation? Staff of at least 3 – like Ted, Sally, Don, Patrick.

Comm, integration, engineering. Handoff will not be quick. Need personnel.

Small UAS. Operate by a pilot. In the airspace.

Mode C veil?

Francis Enomoto – CDE

Mission management / decision support tools – not really mission planning in CDE
Many kml layers now: MODIS, weather, etc.
RAWS
Fire Name

What about east coast floods, hurricanes, etc?
Joint GOOGLE NASA partnership
Menlo Park Fire – disaster response, search and rescue
GeoCAM

Get Francis' slides for final report

Military
RC-36
Fed side Northcom
Vs. Airborne national guard
How do we coordinate?
Priority L-band, etc.
Dissemination
No great coordination – ops
Active duty national guard (state), DOD, etc.

GH
Lessons learned
Imagery: Training, planning, analysis dissemination (snap shots, not scans)
IT: Lack of collaborative environment (classified systems)

U2
Optical bar camera: Resolution is nominally 1 ft B&W
Push-broom
Very high resolution, but not timely
Only processing at NGA and Beale
GWOT tasking = global war on terror

Break-out session topics: suggestions

- Coordination within and between ICs and agencies
- Situational awareness: define it, then provide it
- Data dissemination, the right information, a consistent format, timing
- Tactical maps: what should the data products be?
- How to order or request? What to ask for and from whom? Clearinghouse.