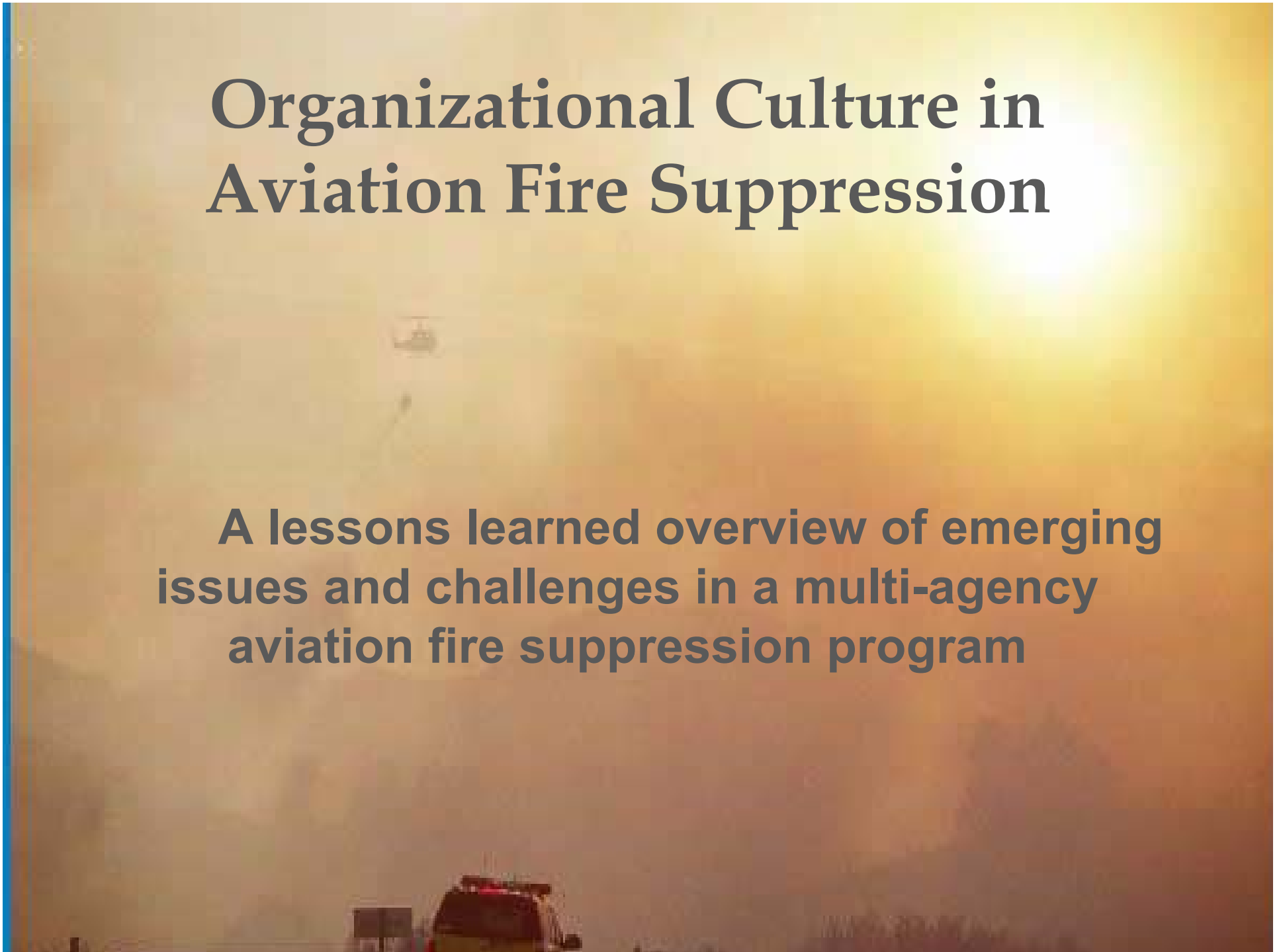
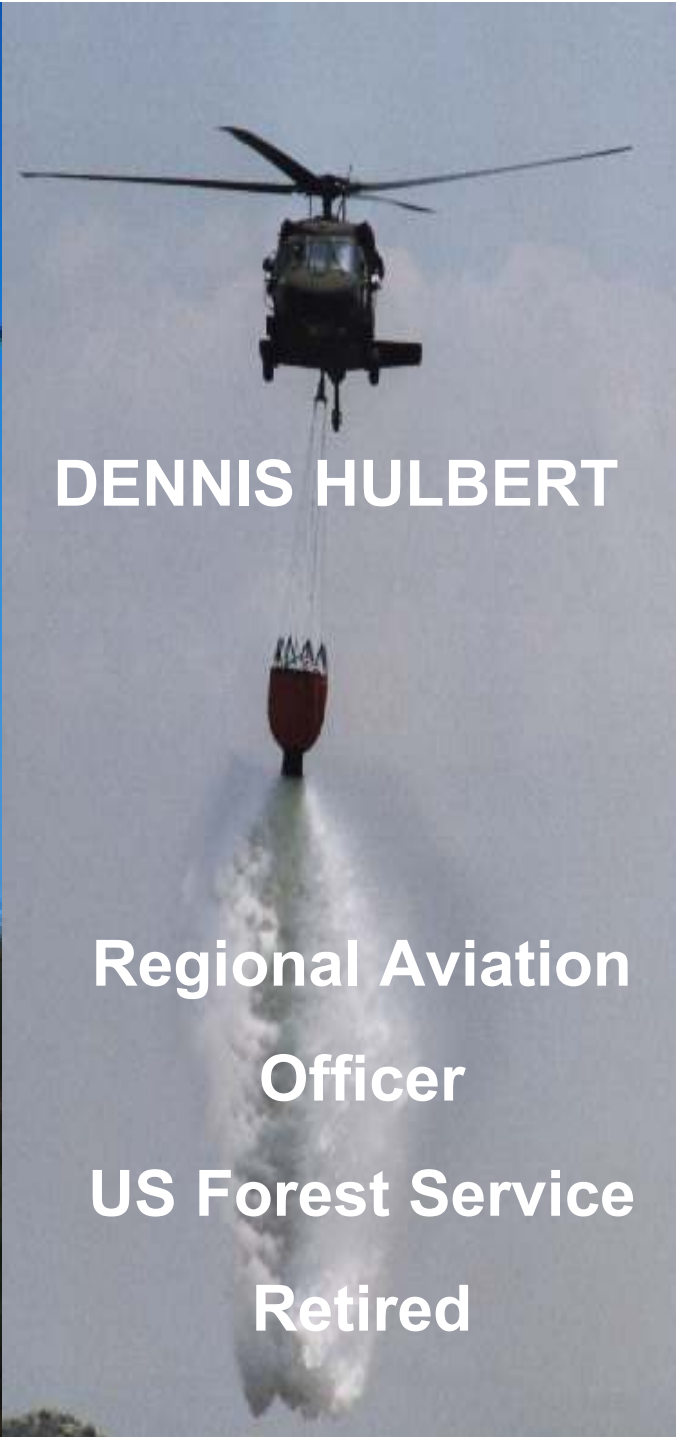


Organizational Culture in Aviation Fire Suppression

A lessons learned overview of emerging issues and challenges in a multi-agency aviation fire suppression program





DENNIS HULBERT

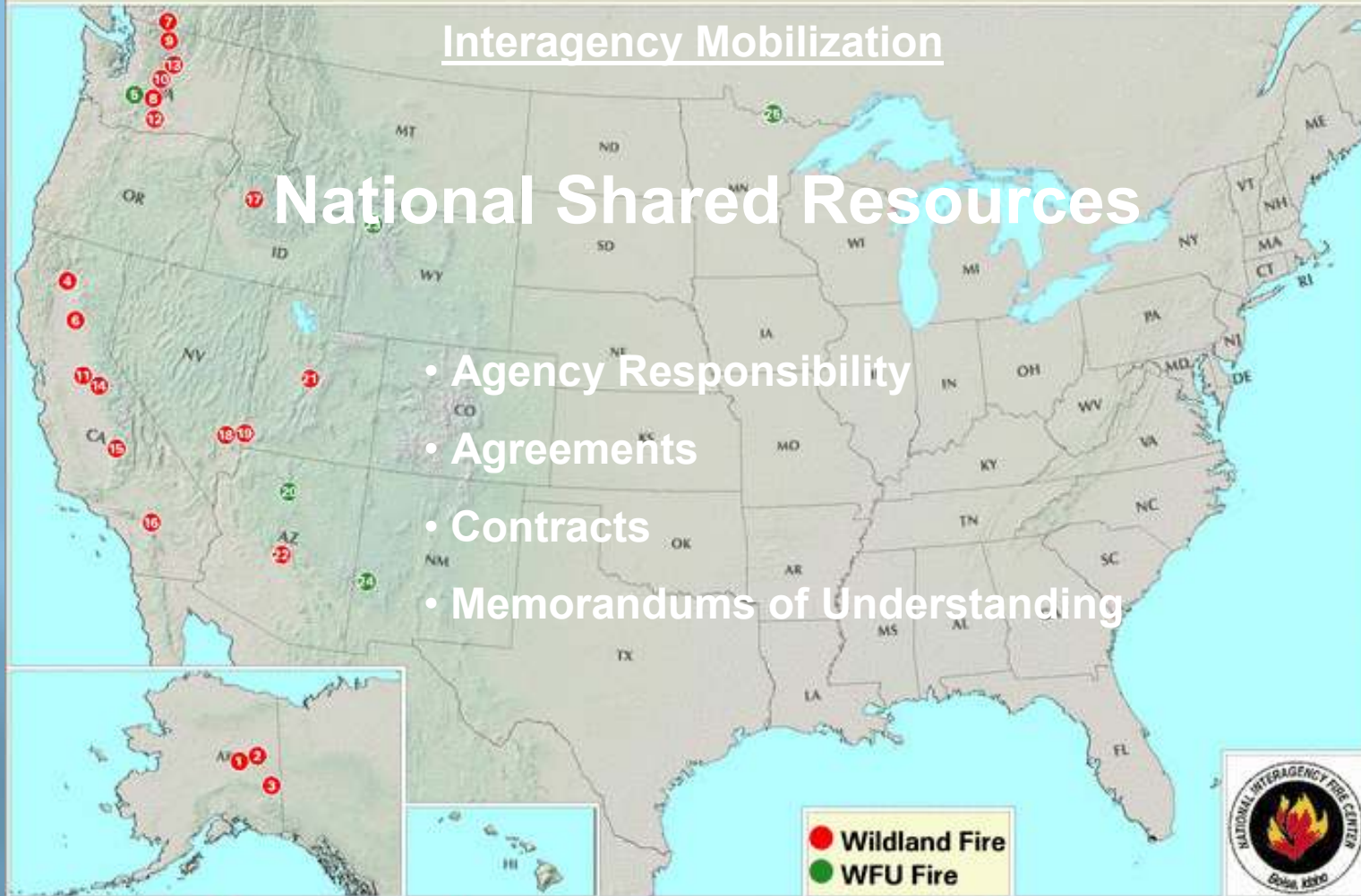
**Regional Aviation
Officer
US Forest Service
Retired**

Large Incidents - August 13, 2004

Interagency Mobilization

National Shared Resources

- Agency Responsibility
- Agreements
- Contracts
- Memorandums of Understanding



- | | | | |
|--------------------|--------------------------------|-----------------|-------------------|
| 1 BOUNDARY FIRE | 8 MUD LAKE | 15 DEEP | 22 HUMBOLDT |
| 2 CENTRAL COMPLEX | 9 MEBEE PASS | 16 SUGAR II | 23 PROMONTORY |
| 3 TAYLOR COMPLEX | 10 FISCHER | 17 PORTER | 24 PITCHFORK |
| 4 BEAR | 11 HUNT | 18 RIGGS | 25 SECTION 33 WFU |
| 5 RATTLESNAKE PEAK | 12 MILE MARKER 44 | 19 MIDDLE RIDGE | |
| 6 OREGON | 13 POT PEAK/SISI RIDGE COMPLEX | 20 CAMP 36 | |
| 7 FREEZEOUT | 14 EARLY | 21 SALT CREEK | |

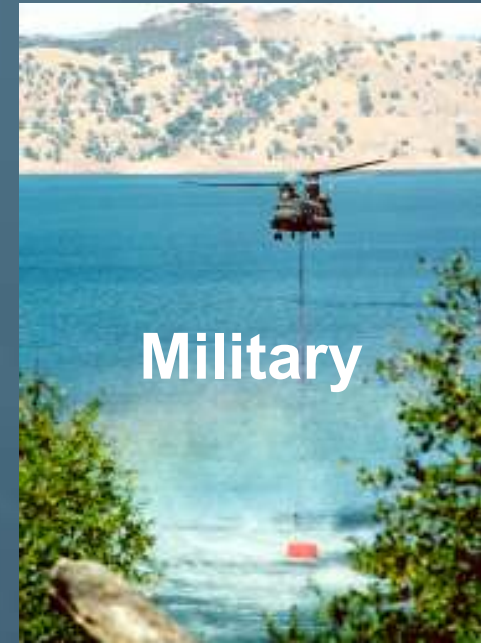
INTERAGENCY COOPERATION



**Call When
Needed**



**Federal Resource
Agencies**



Military

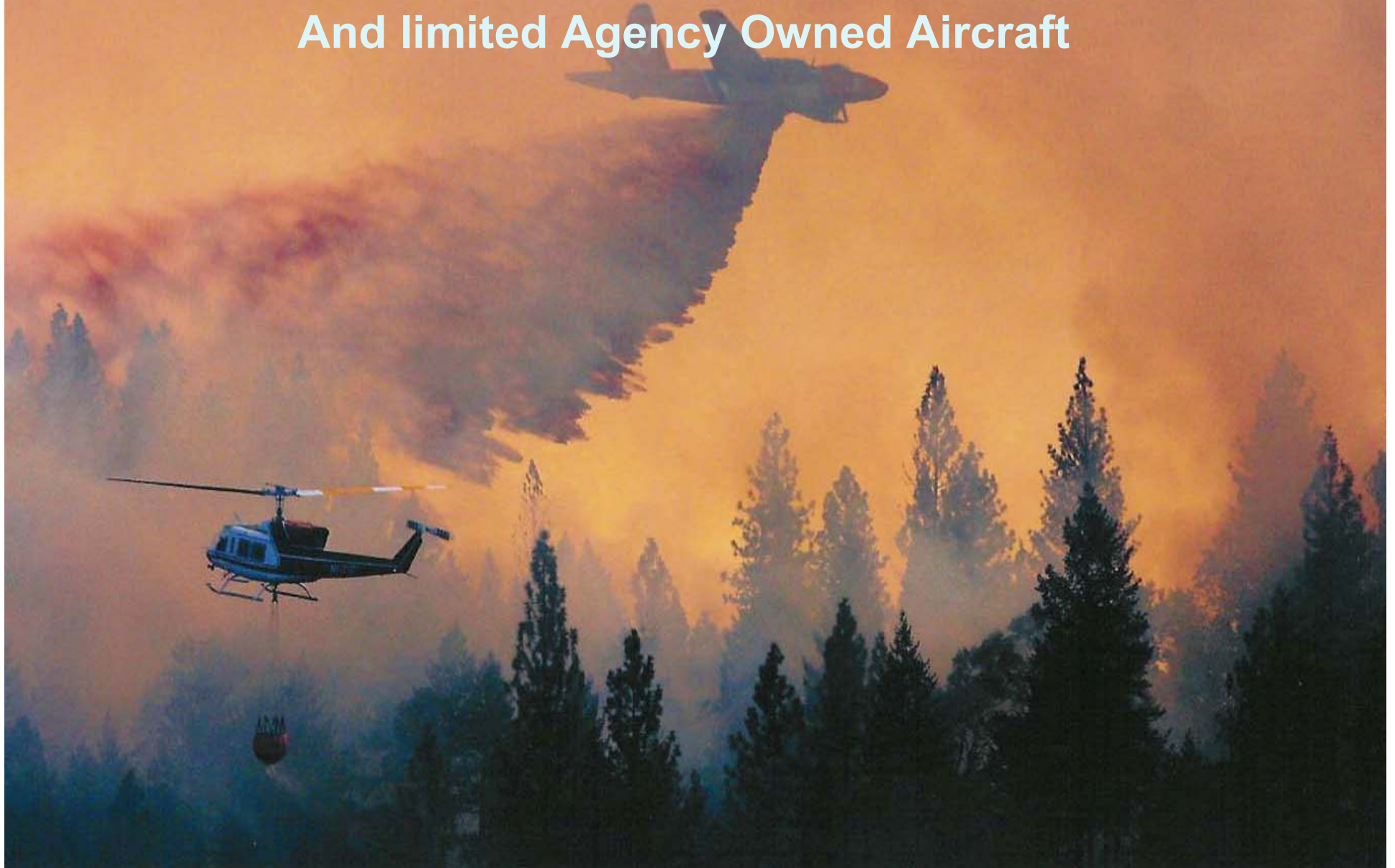


**National
Guard**



**State &
Local
Government**

Federal Agencies Use Exclusive Use Seasonal Contracts And limited Agency Owned Aircraft



**All aircraft used on Federal Emergencies
meet Interagency Standards with pilots
and airframes**



Interagency Contract Standards

- Current FAA Certifications
- Avionics, Radios and Systems
- Aircraft Maintenance & Support
- Aircraft Equipment
- Pilot Requirements
- Pilot Flight and Duty Limitations



All Federal Resources Shared between agencies through cooperative agreements



State & Local Emergency Departments Use Federal Excess, Contract, and Purchased Aircraft

California Department of Forestry & Fire Protection

The Super Huey is able to quickly deliver a nine-person fire crew.

▶ [more information...](#)



Fighting Fire From The Air

State & Local Aviation Resources must meet Interagency Standards before they can operate in the same airspace/emergency or be shared with federal agencies



Common Interagency Standards

- 1,500 hours PIC
- Annual Check Ride
- Incident Command Training
- Fire Behavior Training
- Common Terminology
- Common Communication/radios



Military Resources must also meet Interagency Standards and are only used when no other aircraft are reasonably available



Common Interagency Standards for Military

- 500 hours PIC (Active Military)
- 1,500 hours PIC (National Guard)
- Annual Check Ride
- Incident Command Training
- Fire Behavior Training
- Common Communication/radios



Incident Command System

- Standard Terminology
- Standard Training
- Standard Command Structure
- Standard Safety Regulations
- Common Dispatch
- Common Communication/radio



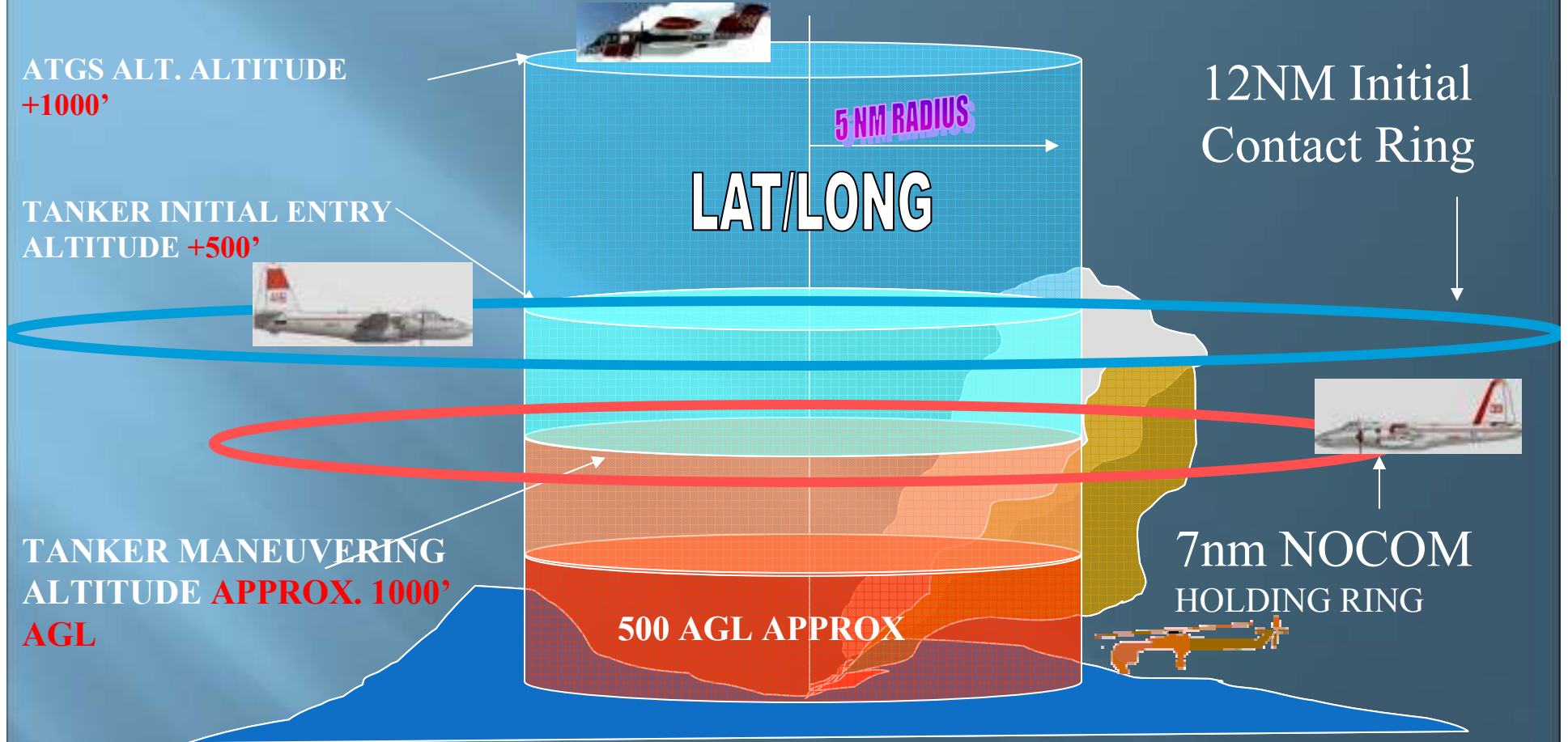
Air tactical Group Supervisor

Helicopter Coordinator

Fixed Wing Coordinator



FIRE TRAFFIC AREA (FTA)



3 C'S:

COMMUNICATIONS
CLEARANCE
COMPLY

NOCOM

IF COMMUNICATIONS
ARE NOT ESTABLISHED,
HOLD AT THE 7NM RING
UNTIL THEY ARE
ESTABLISHED!!!

**DO NOT PENETRATE
THE FTA IF YOU
CANNOT COMPLY
WITH A CLEARANCE**

California is the most diverse, complex, multi-agency Region in which wildland fire aviation operations are conducted.





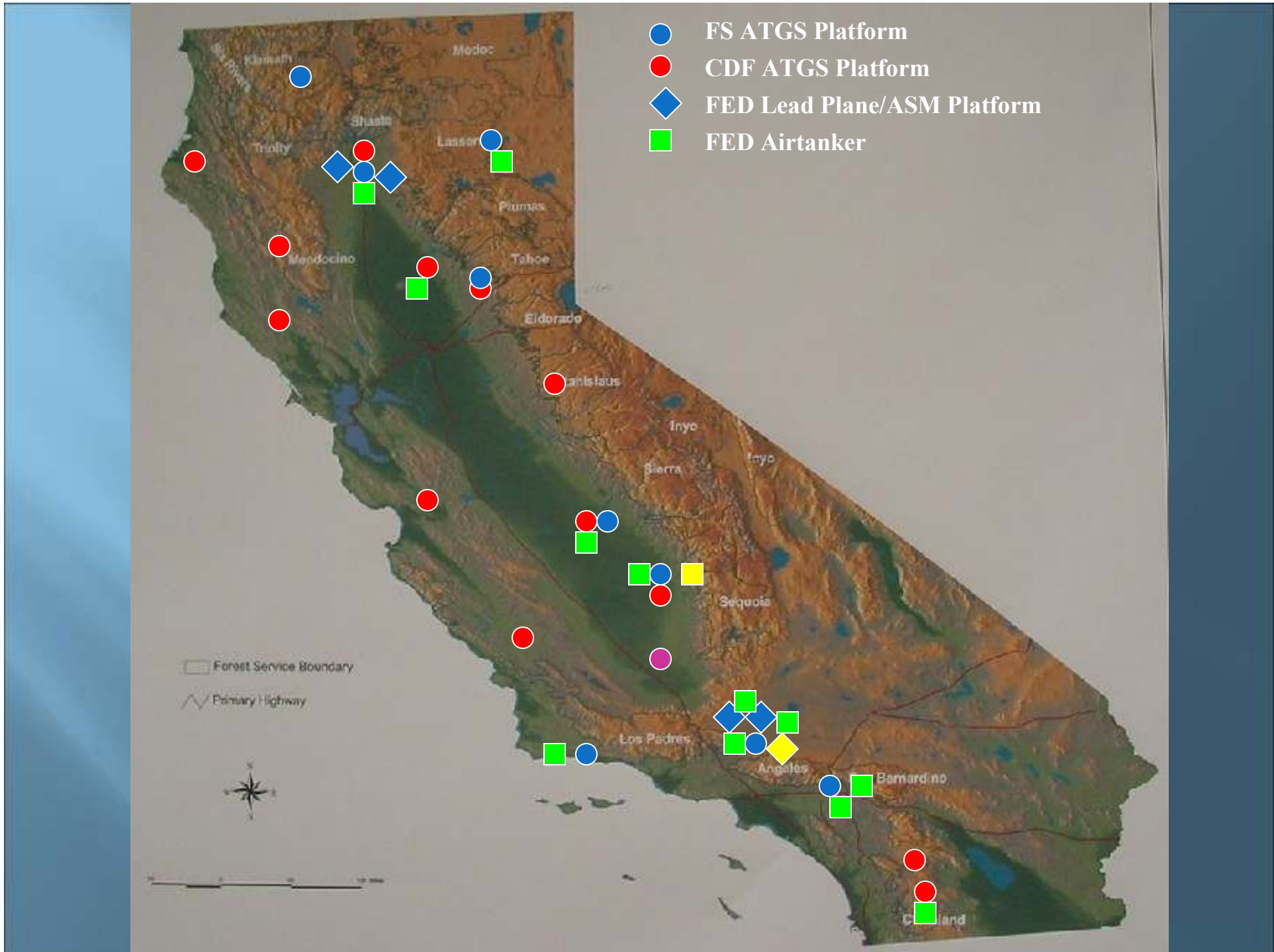
● FS ATGS Platform

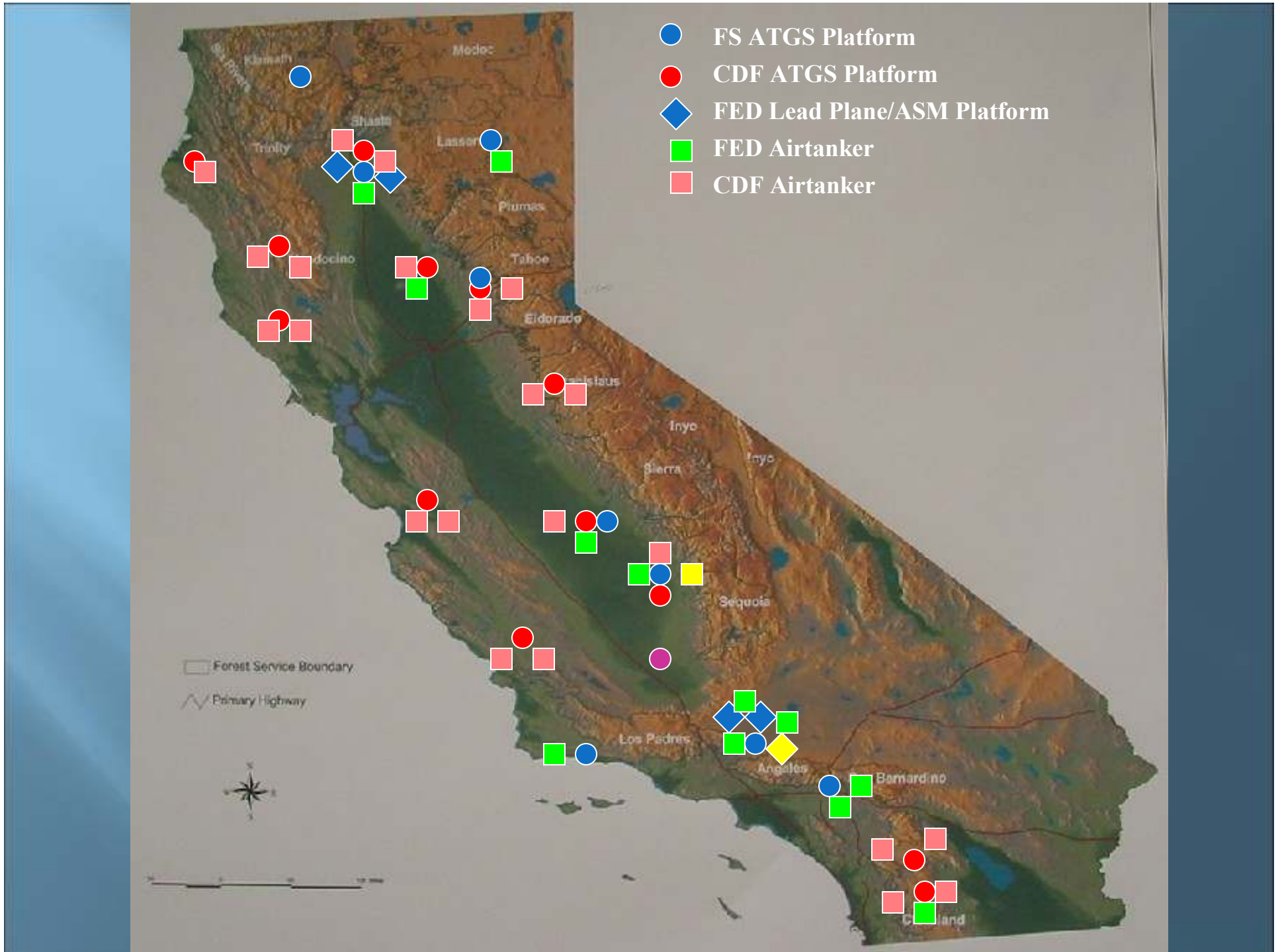


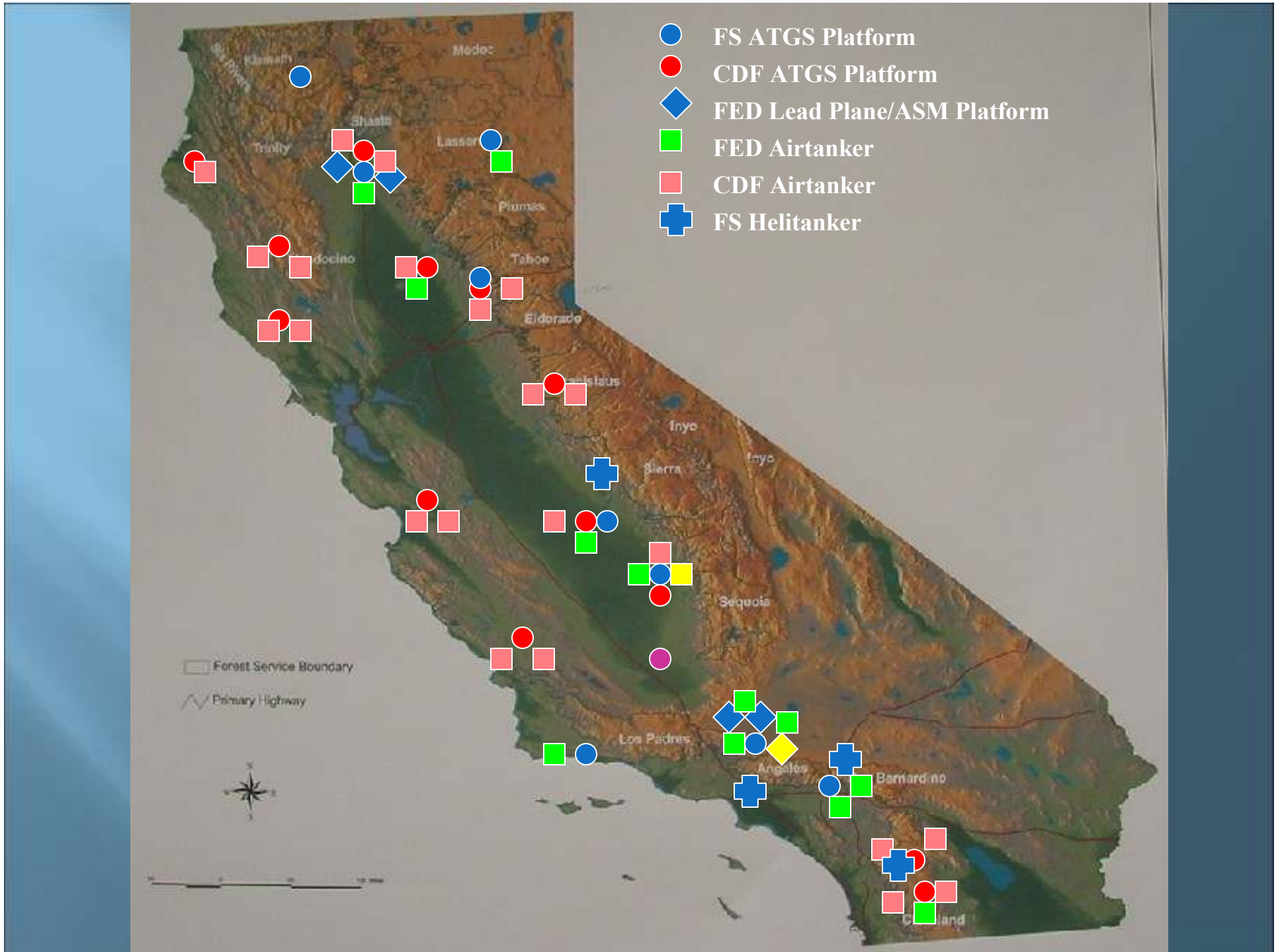


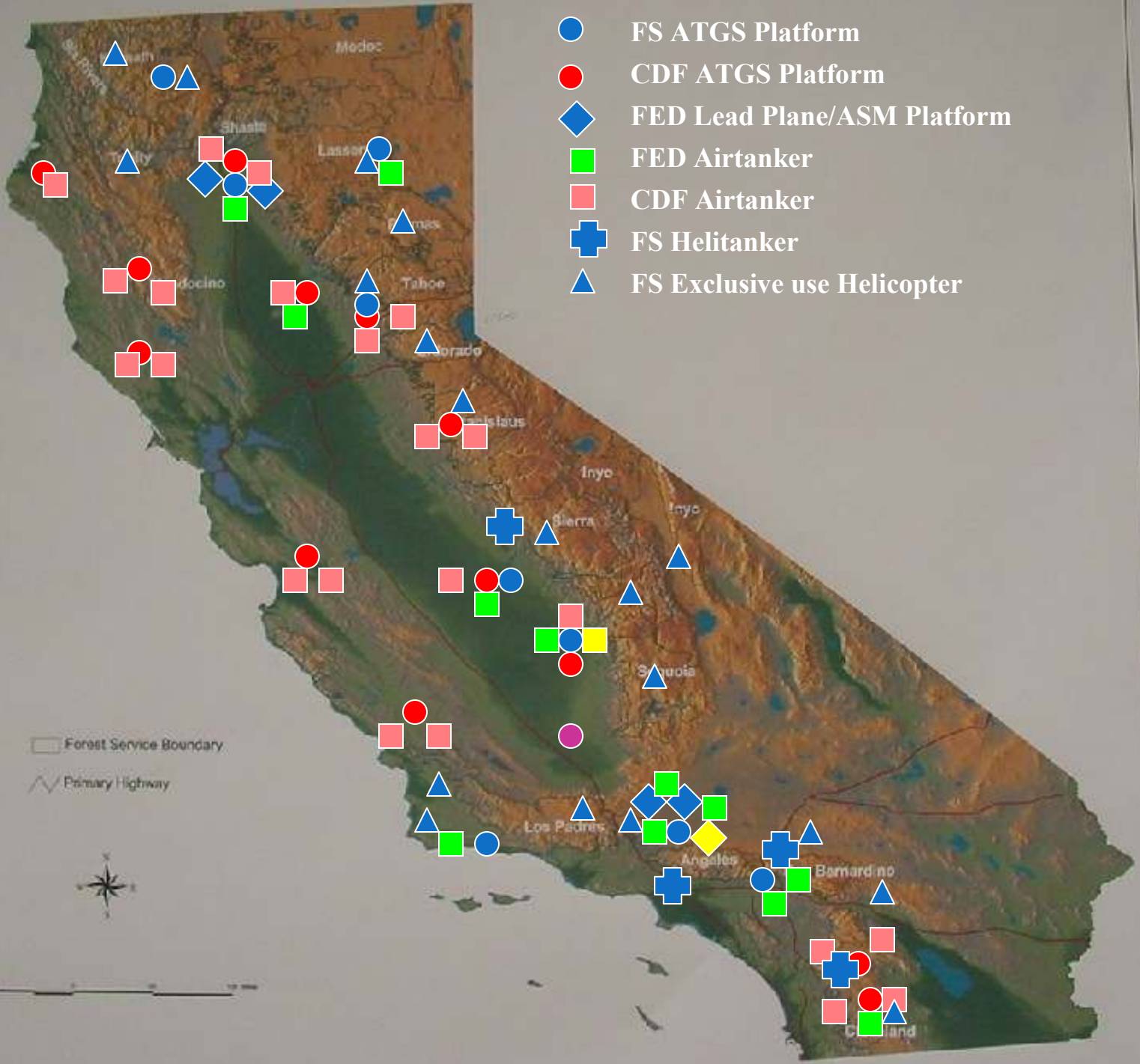
- FS ATGS Platform
- CDF ATGS Platform
- ◆ FED Lead Plane/ASM Platform











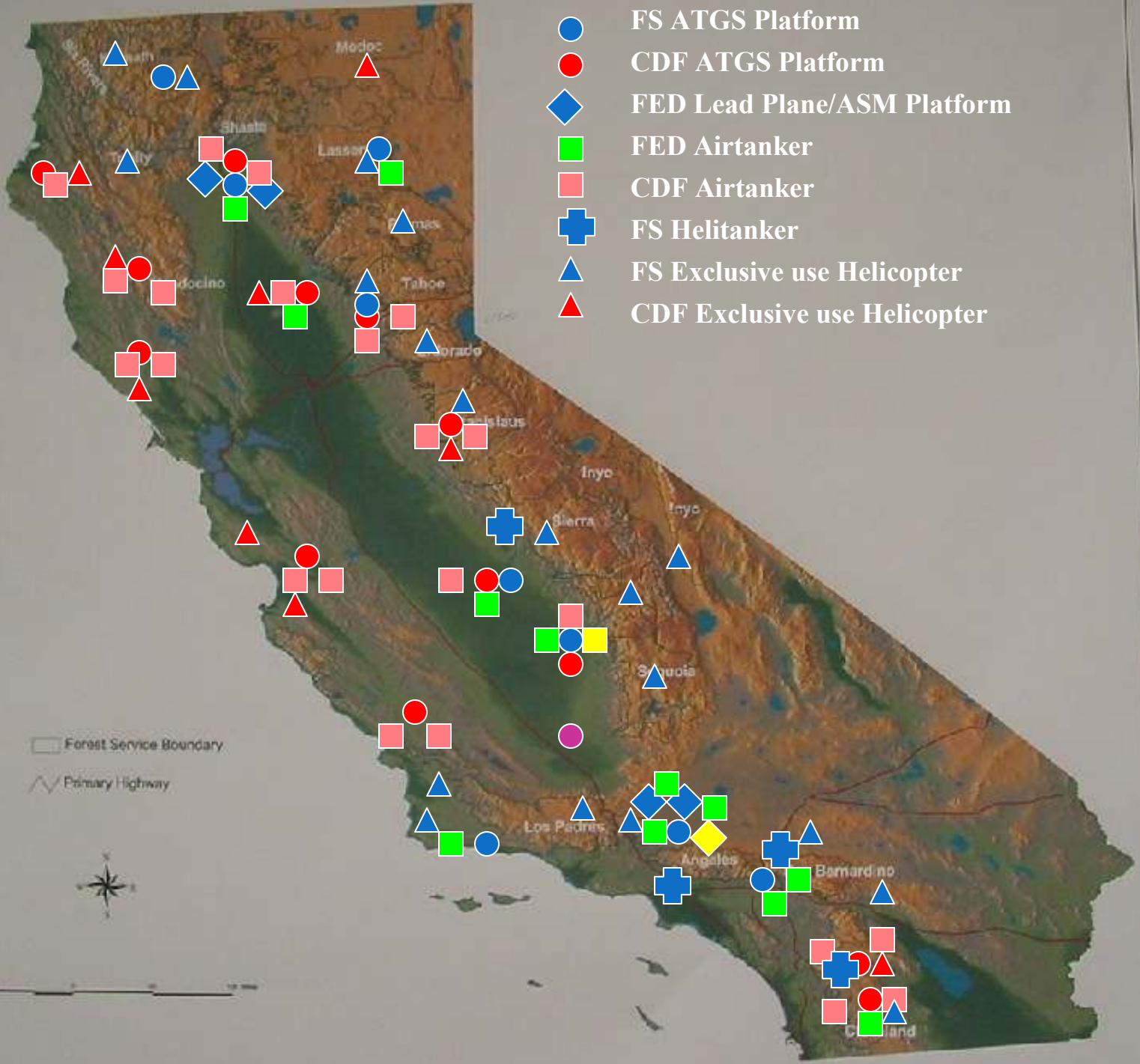
- FS ATGS Platform
- CDF ATGS Platform
- ◆ FED Lead Plane/ASM Platform
- FED Airtanker
- CDF Airtanker
- ⊕ FS Helitanker
- ▲ FS Exclusive use Helicopter

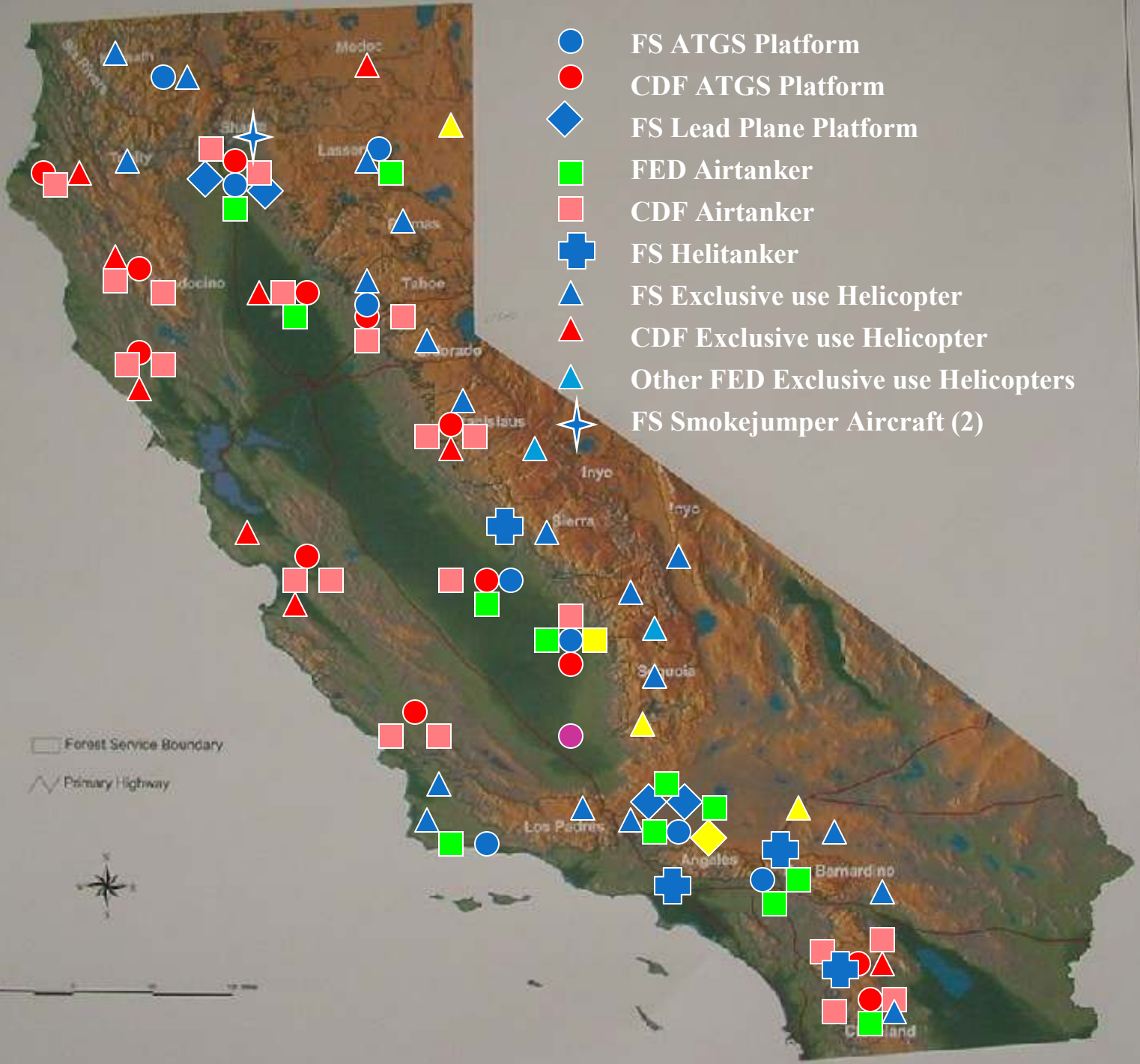
□ Forest Service Boundary
 ~ Primary Highway



- FS ATGS Platform
- CDF ATGS Platform
- ◆ FED Lead Plane/ASM Platform
- FED Airtanker
- CDF Airtanker
- ⊕ FS Helitanker
- ▲ FS Exclusive use Helicopter
- ▲ CDF Exclusive use Helicopter

□ Forest Service Boundary
 ~ Primary Highway



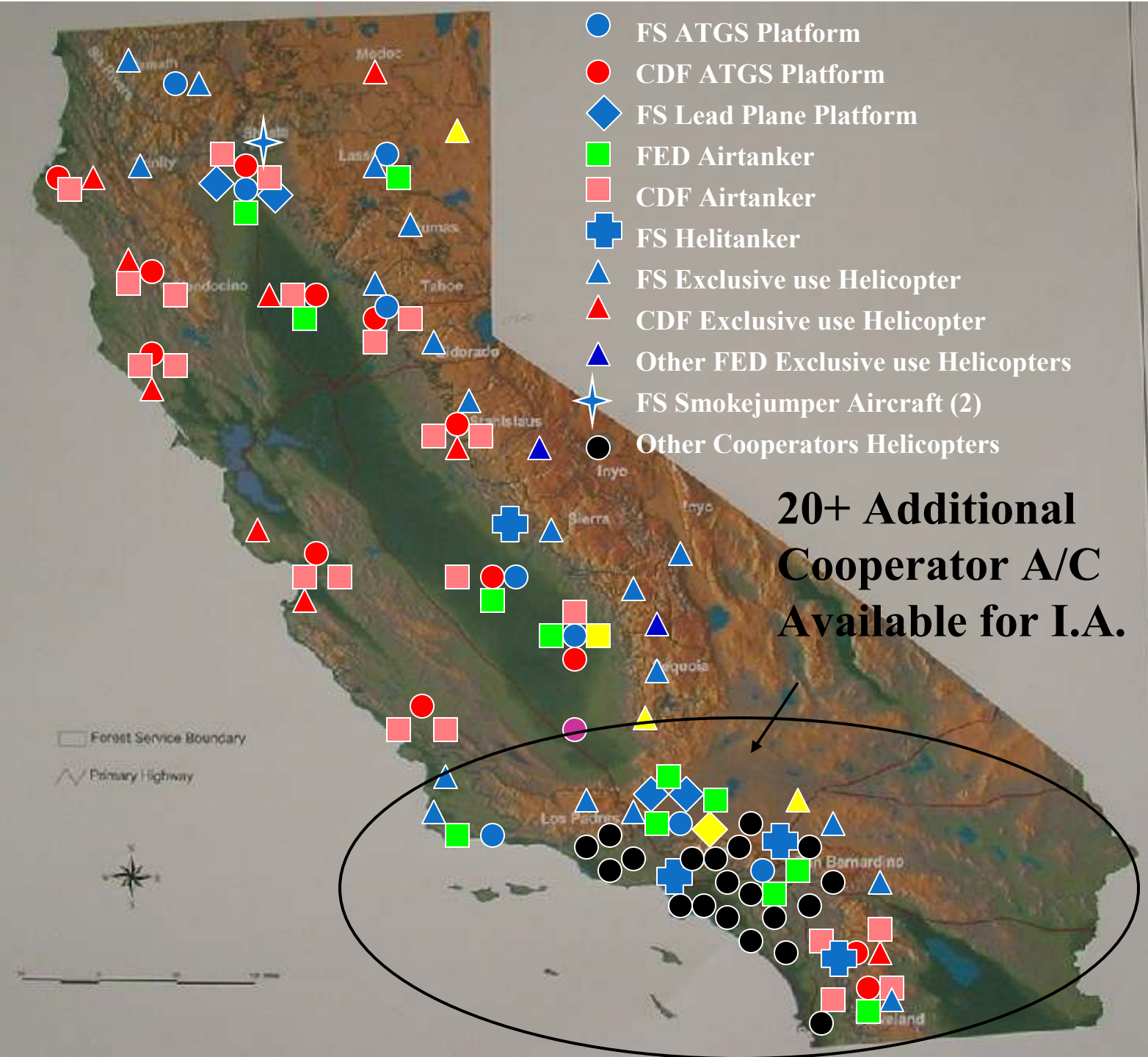


- FS ATGS Platform
- CDF ATGS Platform
- ◆ FS Lead Plane Platform
- FED Airtanker
- CDF Airtanker
- ⊕ FS Helitanker
- ▲ FS Exclusive use Helicopter
- ▲ CDF Exclusive use Helicopter
- ▲ Other FED Exclusive use Helicopters
- ★ FS Smokejumper Aircraft (2)

□ Forest Service Boundary

⚡ Primary Highway





THE SIEGE

October 21-November 4, 2003

- 6,169 Engines
- 200 Aircraft
- 15,631
Personal
Assigned

- 14 Major Fires
- 24 lives lost
- 3,710 Homes
- 750,043 Acers













Traffic backed
up on I-15 from
closures forced
by the wildfires



















(RAPY THE DESERT SUN)





(GAP PHOTO)

































Emerging Challenges in Aviation Program Management



Major Issues in Aviation Program Management

▣ Safety



What Drove Change?



Major Issues in Aviation Program Management

- ▣ *Safety*

- ▣ **Costs**



Major Issues in Aviation Program Management

- Safety
- Costs

- Politics



Major Issues in Aviation Program Management

- Safety
- Costs
- Politics

- Media



Major Issues in Aviation Program Management

- Safety
- Costs
- Politics
- Media

▪ Policy





Safety
Costs
Politics
Media
Policy



Strategy

- Risk Assessment principles
- Best Value (cost avoided/money invested)
- Performance Measures
- Technology

Strategy

- ▣ National emphasis on incorporating technology to measure:
 - Aviation Business Systems
 - Real Time Costs/use
 - GIS reference mission use
 - Safety & Aircraft Performance
 - Real Time Tactical Reporting

SAFETY & REPORTING



Safecom Reporting

This page is used to report any condition, observance, act, maintenance problem, or circumstance which has the potential to cause an aviation-related mishap. Submitting a SafeCom is not a substitute for on-the-spot correction(s).



Reported By (Optional)

Name
Phone *Office*
Organization Other
Date *mm / dd / yy*

EVENT

Date Local Time Injuries? Y N Damage? Y N
mm / dd / yy *24 hour clock*
Location State
Airport, City, Lat/Long, or Fire Name
Agency Involved Other

MISSION



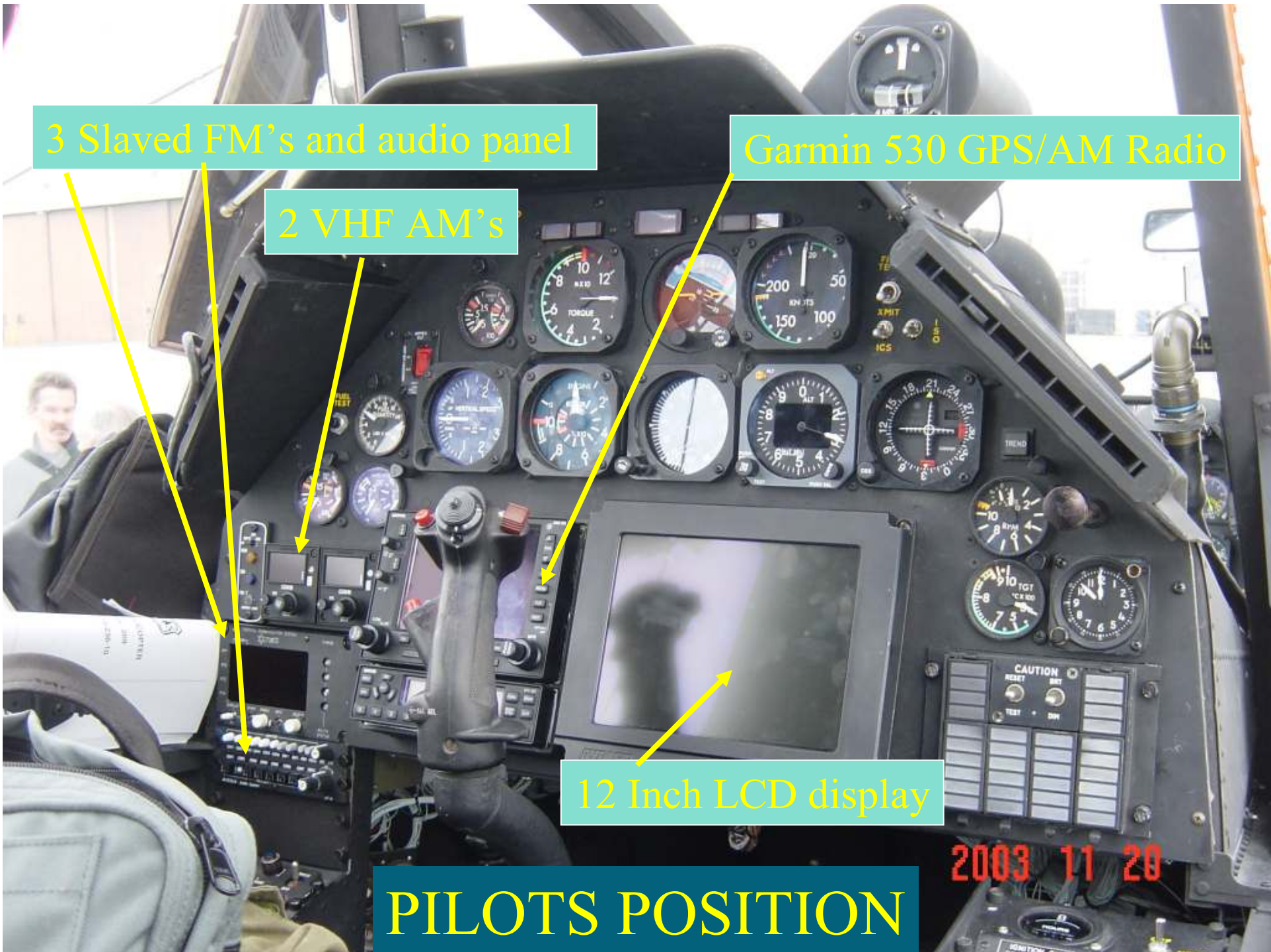
SAFECOM

AVIATION SAFETY COMMUNIQUE

- **The Safety Communiqué is designed to report any condition, act, maintenance problem or circumstance which has potential to cause an aviation-related mishap.**
- **Can be filed in writing or electronically.**



Firewatch



3 Slaved FM's and audio panel

2 VHF AM's

Garmin 530 GPS/AM Radio

12 Inch LCD display

PILOTS POSITION

2003 11 20

2 VHF AM Radios

3 VHF FM Radios with Touch pad entry

15 Inch Color LCD Screen

Slide-out Keyboard

Audio Panel and Mapping touch pad

2003 11 28
ATGS POSITION



Front Position ATGS/Copilot
15" Multiple Display Color Screen
Full Forward Flight Controls
and Instruments

10 3:50 PM



Laser Range Finder

3-5 Micron
Infrared
Camera

Laser pointer

Spotter Scope

3 CCD Camera

FLIR Star Safire III

10

3:54 PM



FLIR Hand Controller

18 1:31 PM

Avalex Mapping System Intergrated With FLIR Camera



Various Map Configurations with Multiple Display Options

TCAD Information Displayed On Any Map

Custom Fire Editing

Format Finished

Map Center

A/C Center	Waypt Center	Flir Center	Track MidPt
Icons...	Trails...	Compass...	Video
Data	Comms...	Maint.	Profiles

BRG ◀ ▶ ○
DST — · — nm IN
TTG — · —

FLIR INACTIVE

OUT ○
IN ○

ALT TRK GS IDLE — ○ — kts

10 3:49 PM



Video Displayed With Map

FLIR
INACTIVE

BRG
DST
TTG

OUT TUP FUP
IN NUP
MARK CAPTURE
GOTO FORMAT SHOW
LEFT UP RIGHT
DOWN

ALT TRK GS
IDLE
kts

18 2:02 PM

PWR MAP VID FROM



**BMS
Microwave
Receiver**

18 1:35 PM

Mission;

**Receive and Record Real Time
Microwave and Map Data**

Data Recovery Van

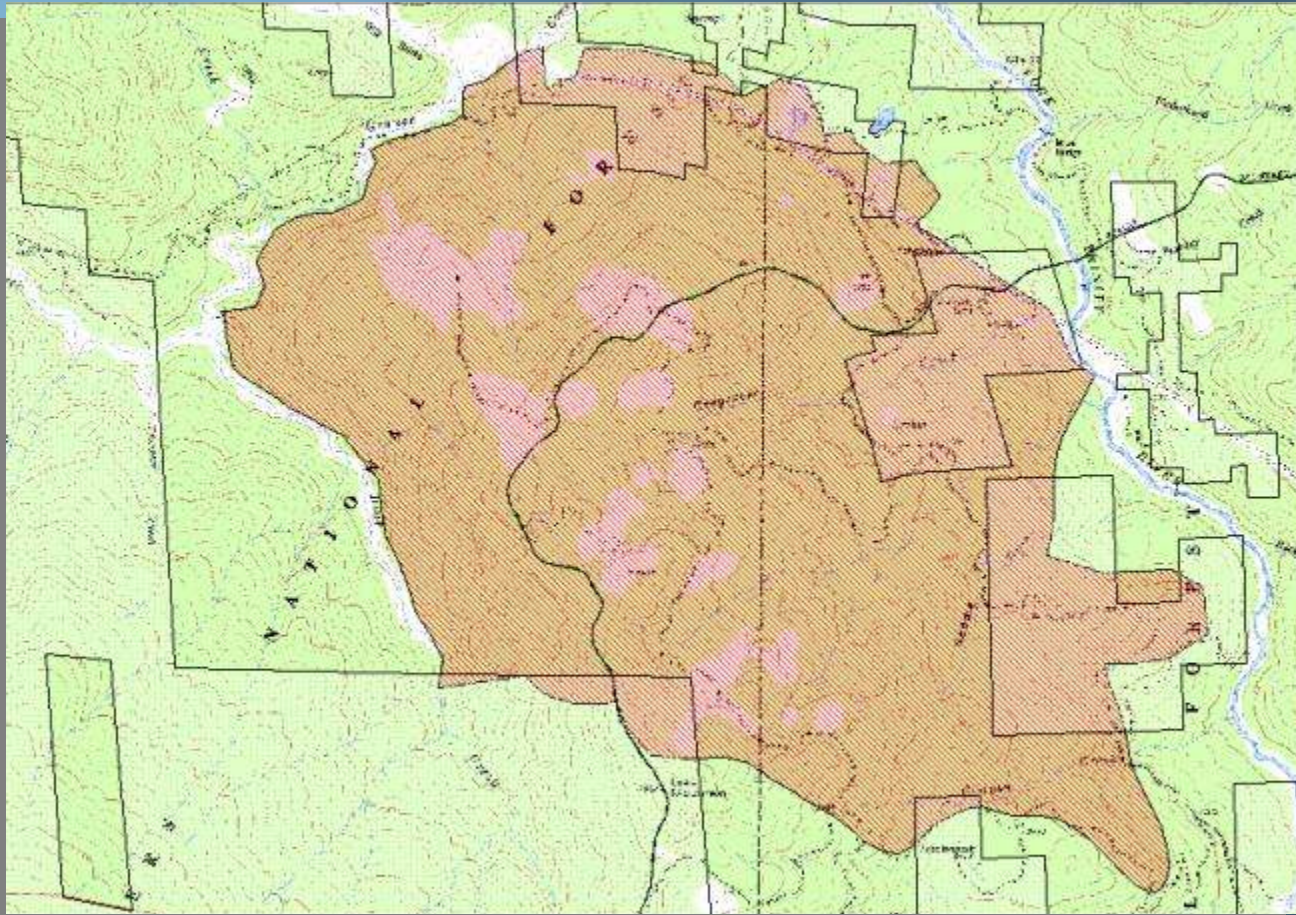


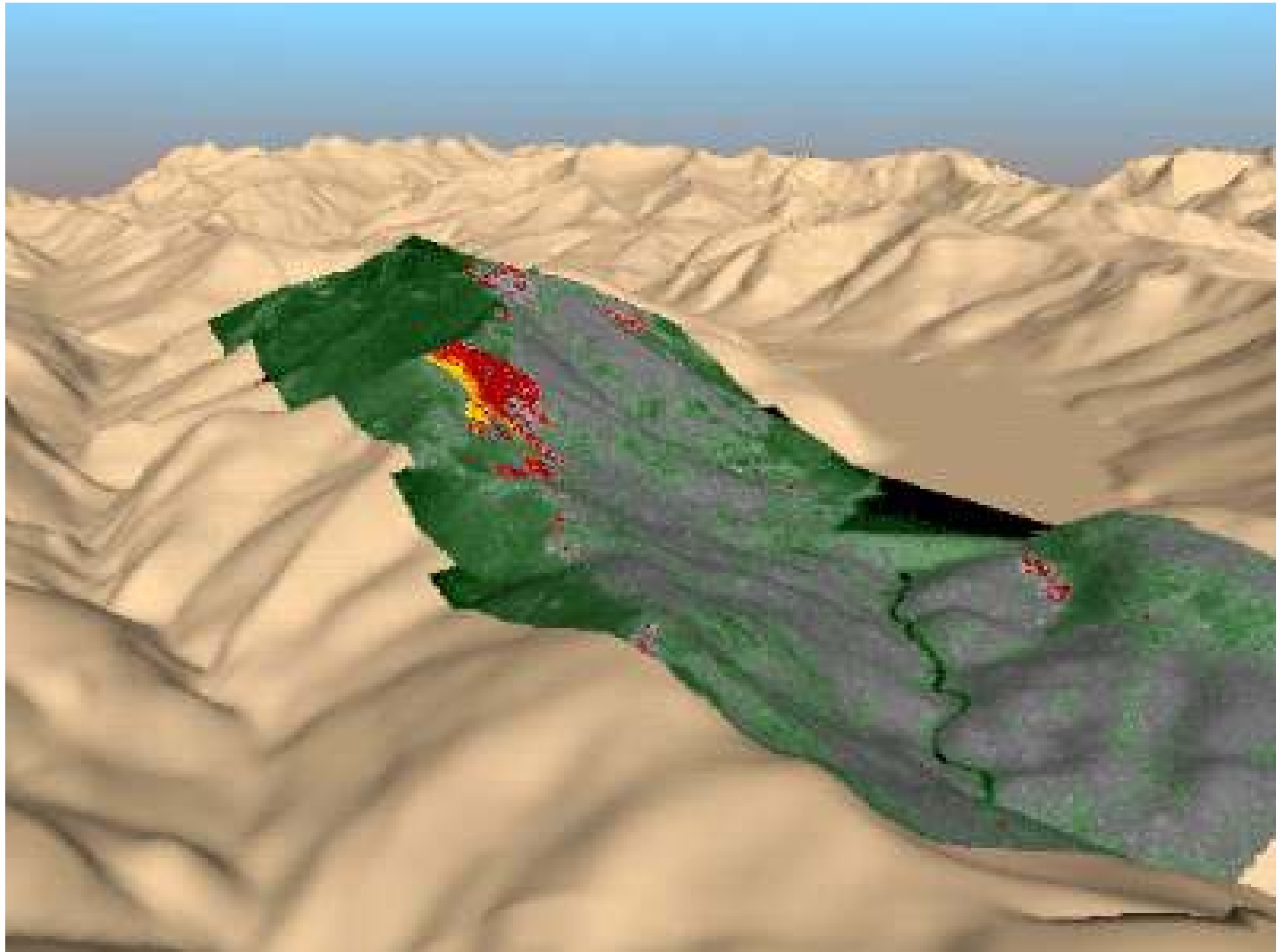
COBRA POWER



data in

Fire Perimeter Mapping

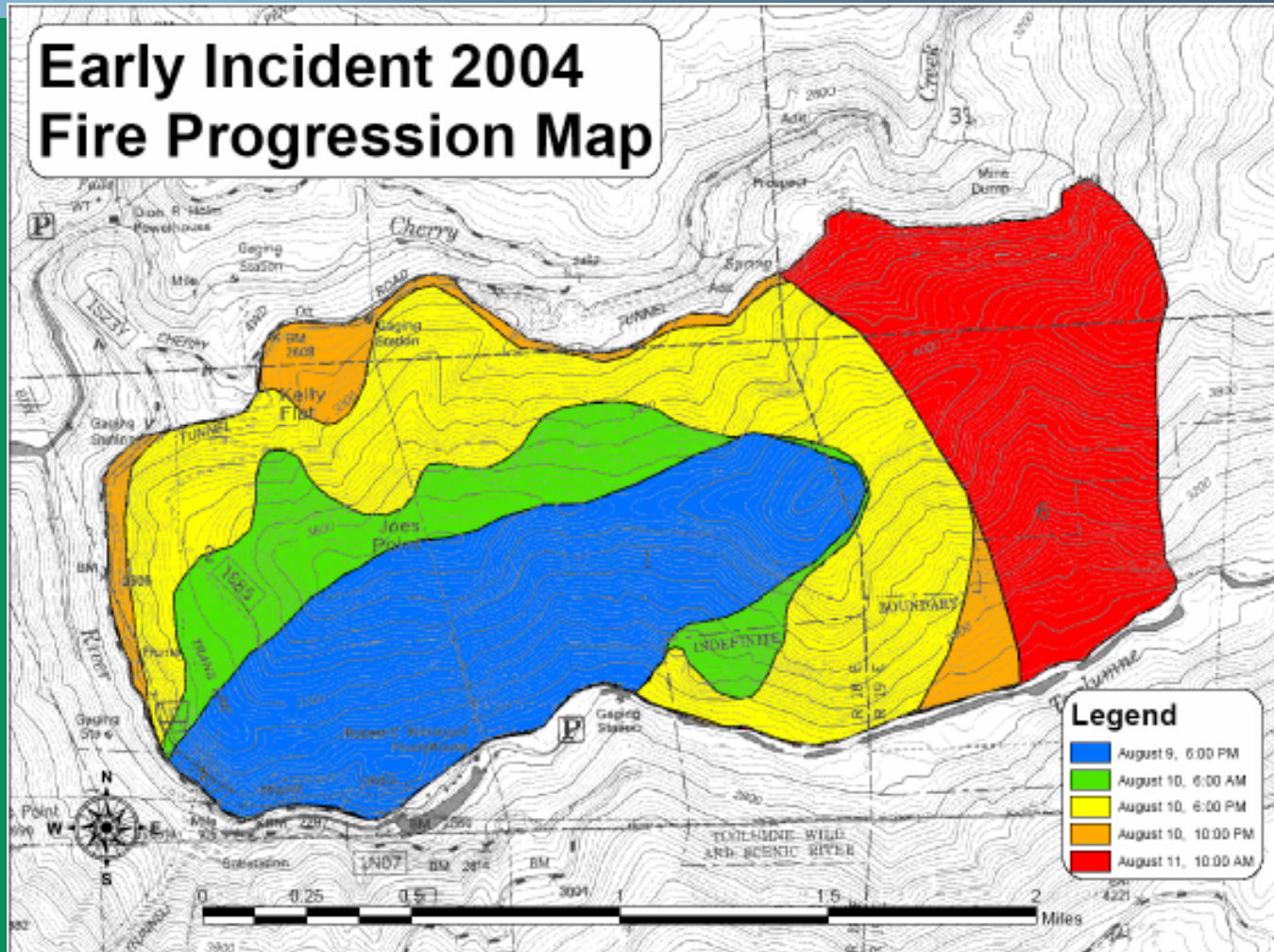




Fire Progression Mapping

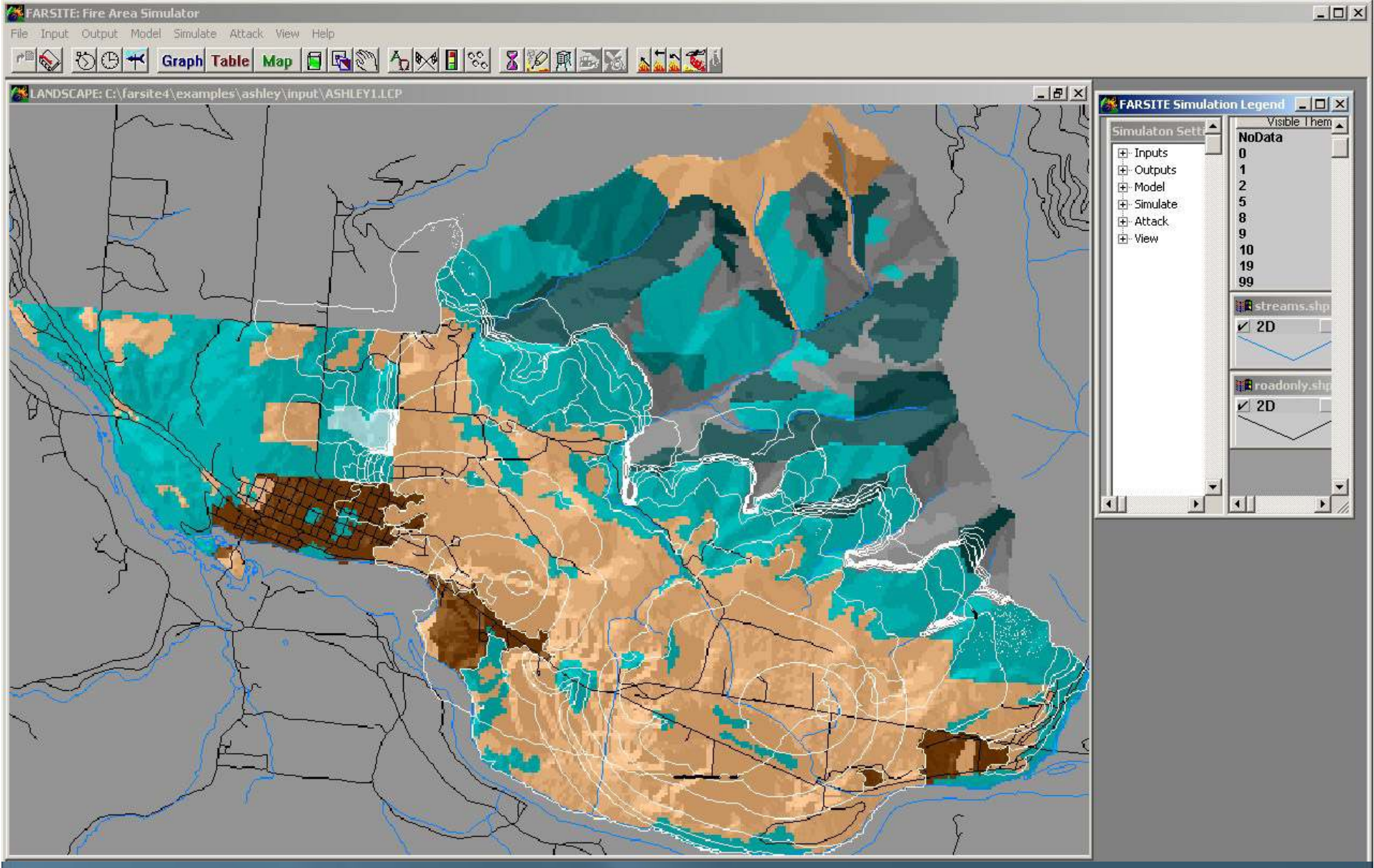
Fire Progression Mapping

Early Incident 2004 Fire Progression Map



FARSITE Products

FARSITE Products



**data
out**



**ftp
site**



**Data Administrator
and
Cartographer**

products:

- fire perimeter maps
- fire progression maps
- ownership and DPA maps
- fuels
- fire history
- weather maps
- FARSITE output maps
- sensitive areas



Martin Mars/Sikorsky S-76 Real Time Technology



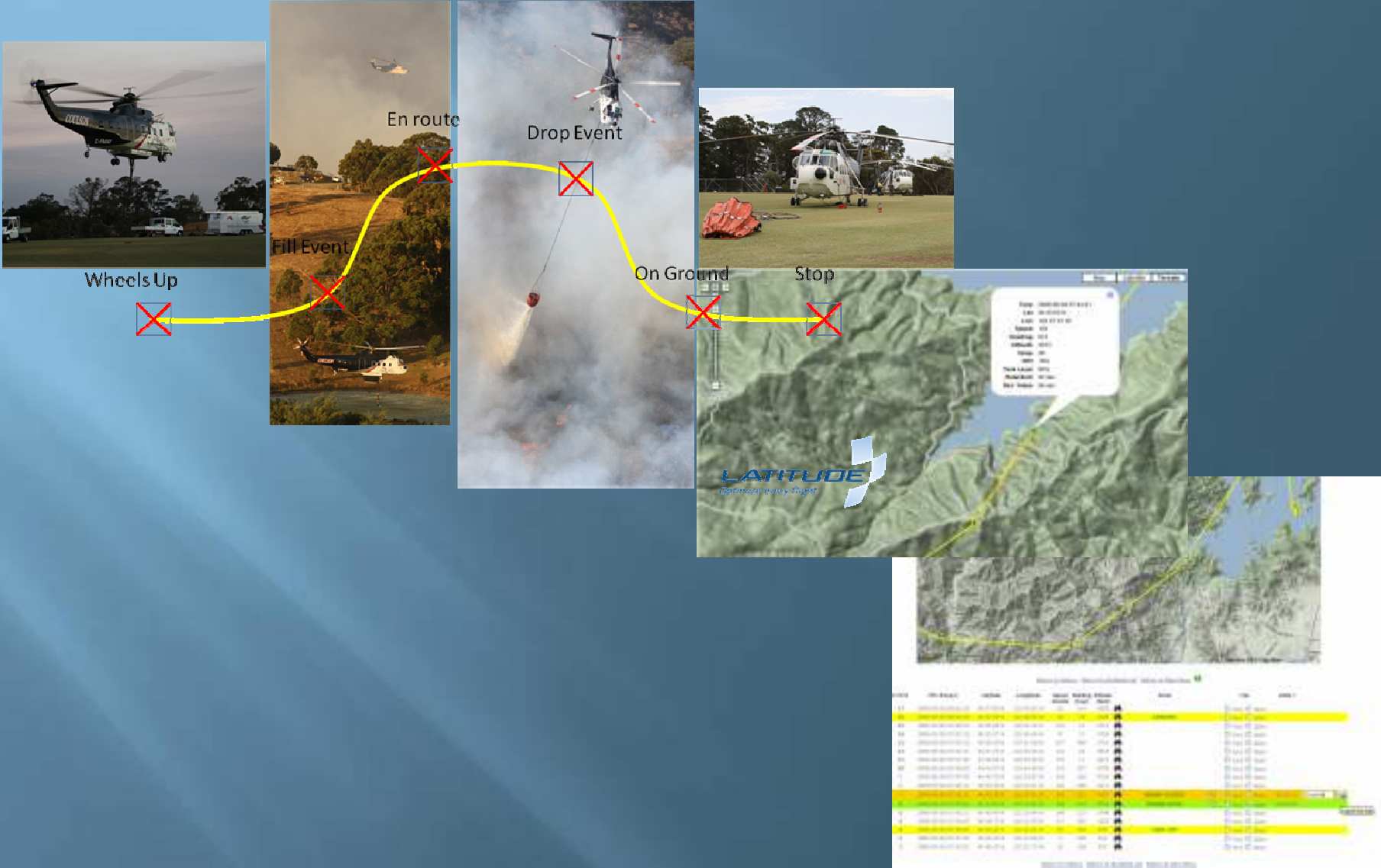
“THE POWER OF PERFORMANCE IS MEASUREMENT”

BY COULSON GROUP

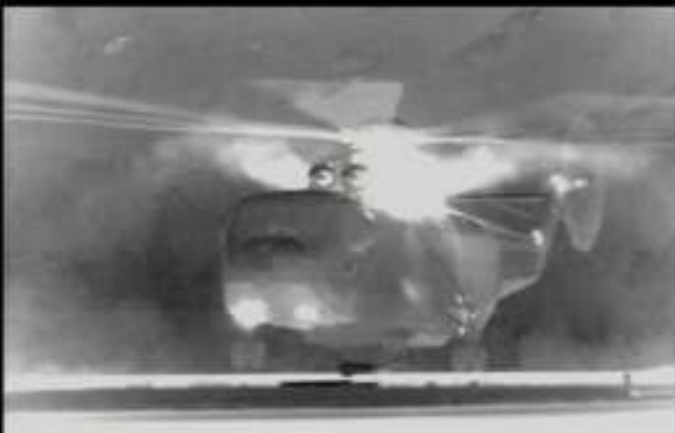
- Certified single pilot IFR operations
- Full Air Tactical Group Supervisor Radio Package
- HD Camera screen, camera hand controller and mapping system
- Two HD Digital video recorders for HD & IR Simultaneously
- Laser Pointer
- Autotracker
- Downlink



Real Time Data Reporting



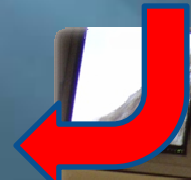
Night Vision Technology



Fire Simulators









Product and Application



QUESTIONS

