Kolob Canyon Air Services:

IR Support

Outline

- Platform and Imaging System
- IR Interpretation
- First Incident Support
- Northern California Support
- Some Observations

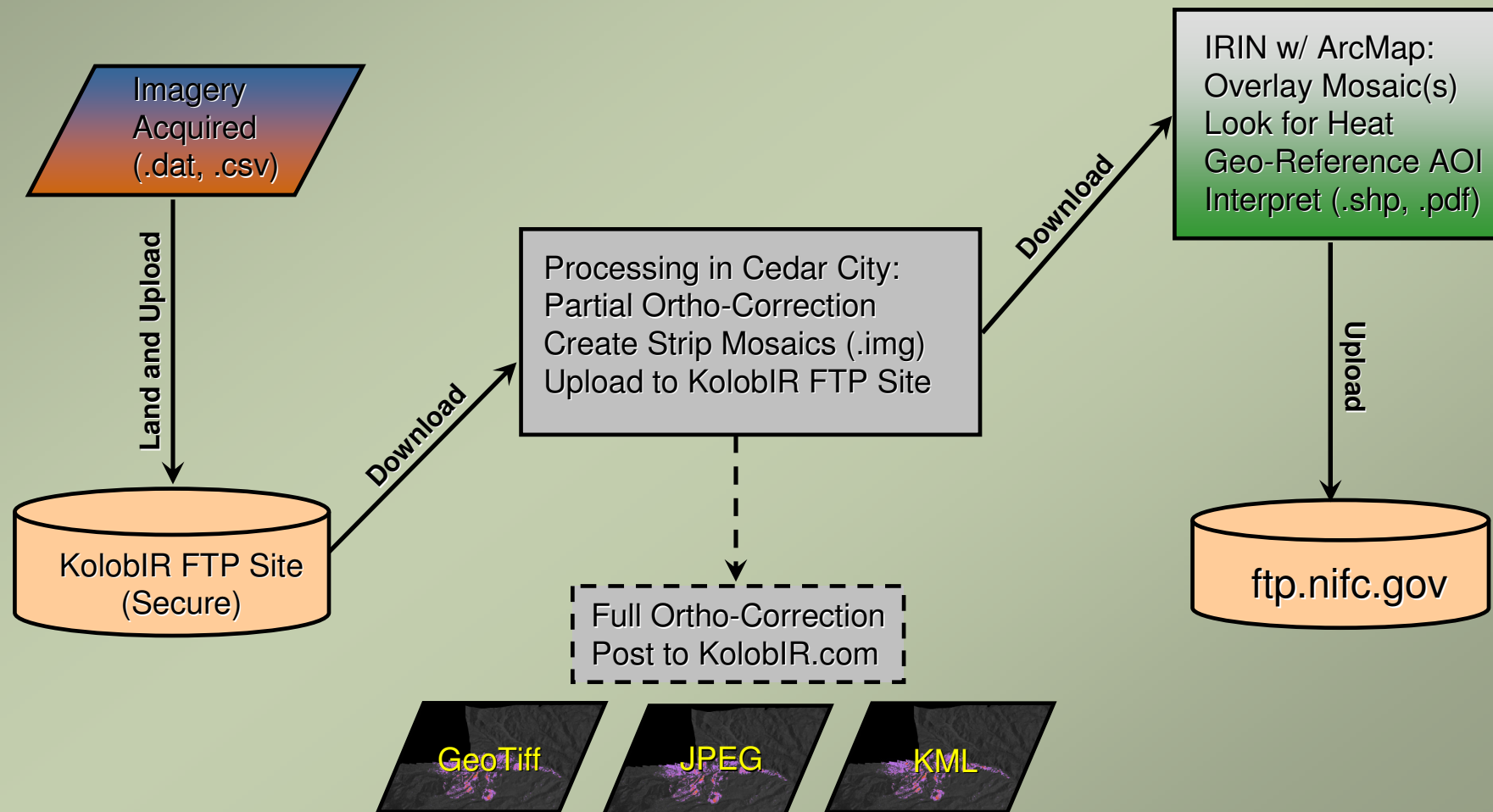# Platform and Imaging System

- **Platform**
  - Turbo Commander

- **Imaging System**
  - FireMapper™ 2.0
    - Uncooled microbolometer
    - Framing system
    - 16-bit imagery
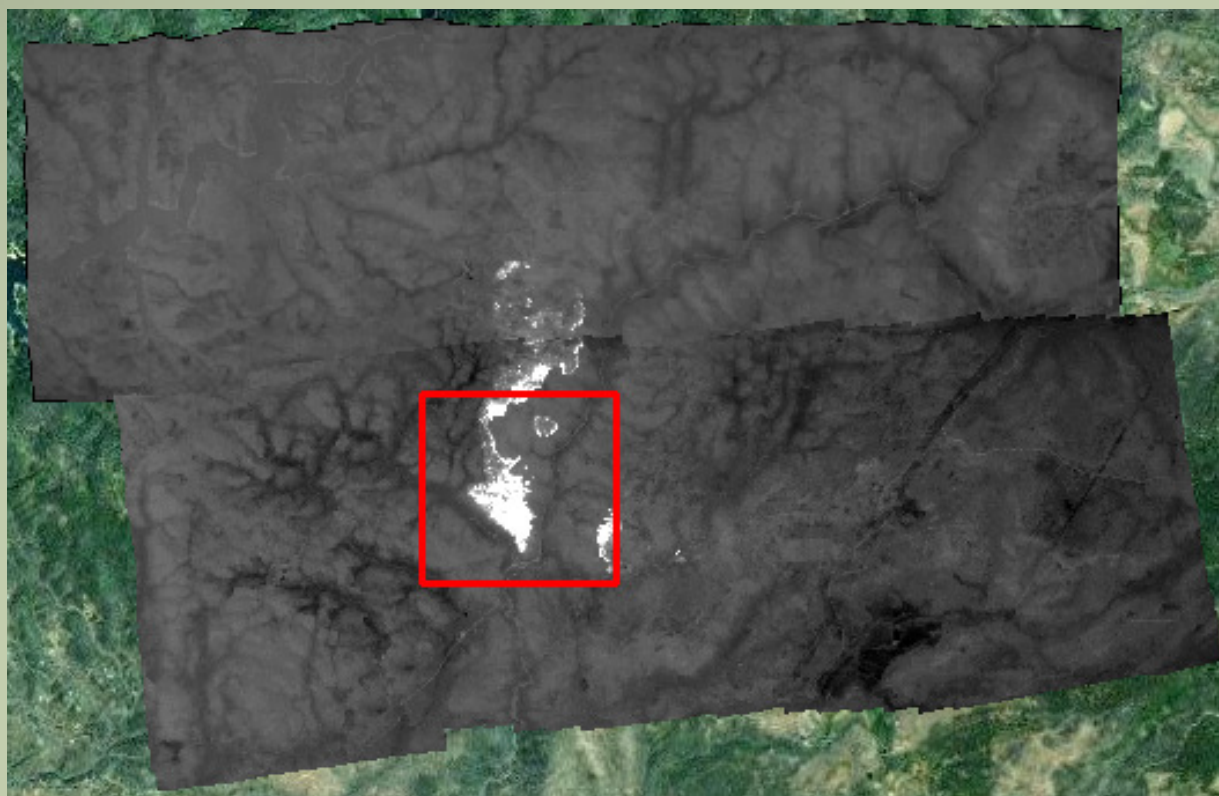   - 0-65536
    - 2 mile swath

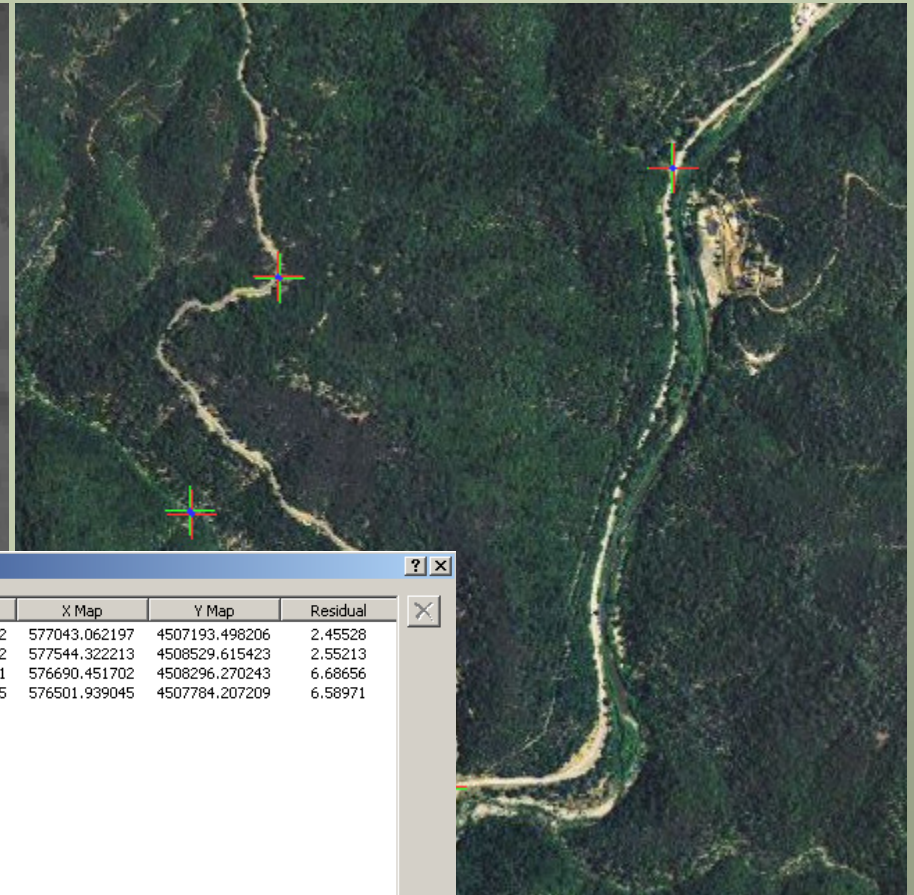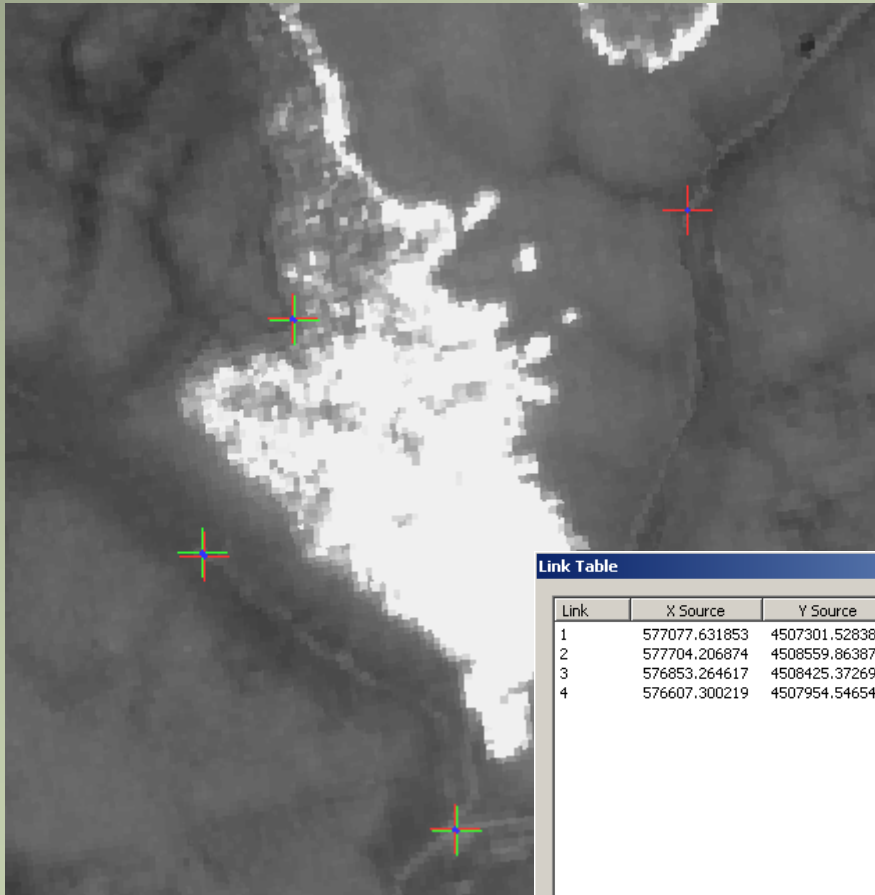| Sensor specifications:			
Manufacturer	Space Instruments	Sensors Unlimited	Kodak (Redlake)
Camera model	FireMapper™	SU320M	Megaplus 1.6i
Spectral bands (micrometers)	8.1 to 9.0	1.5 to 1.65	0.615 to 0.685
	11.4 to 12.4		0.815 to 0.885
	8.1 to 12.4		
Image dimensions (pixels)	327x205	320x240	1528x1024
Image size-uncompressed (Mbytes)	0.134	0.144	3.03
Image encoding (bits)	16	12	10
Instantaneous field of view (milliradians)	1.85	1.6	0.45
Crosstrack field of view (degrees)	35	29	39

IR Interpretation Process

Imagery Acquired (.dat, .csv)

Land and Upload

KolobIR FTP Site (Secure)

Download

Processing in Cedar City:
Partial Ortho-Correction
Create Strip Mosaics (.img)
Upload to KolobIR FTP Site

Download

IRIN w/ ArcMap:
Overlay Mosaic(s)
Look for Heat
Geo-Reference AOI
Interpret (.shp, .pdf)

Upload

ftp.nifc.gov

Full Ortho-Correction
Post to KolobIR.com

GeoTiff   JPEG   KML

IR Interpretation

Whiskey East Mosaics 1 and 2, June 24, 2008, 2135 PDT

IR Interpretation

Whiskey East, June 24, 2008, 2135 PDT

IR Interpretation

IR Interpretation

IR Interpretation

First Incident Support

CornCreek - Infrared Map June 19, 2008

NO DATA

Legend
- firepoint_20080619_1130
- firepoly_20080619_1130
- firepoly_20080618
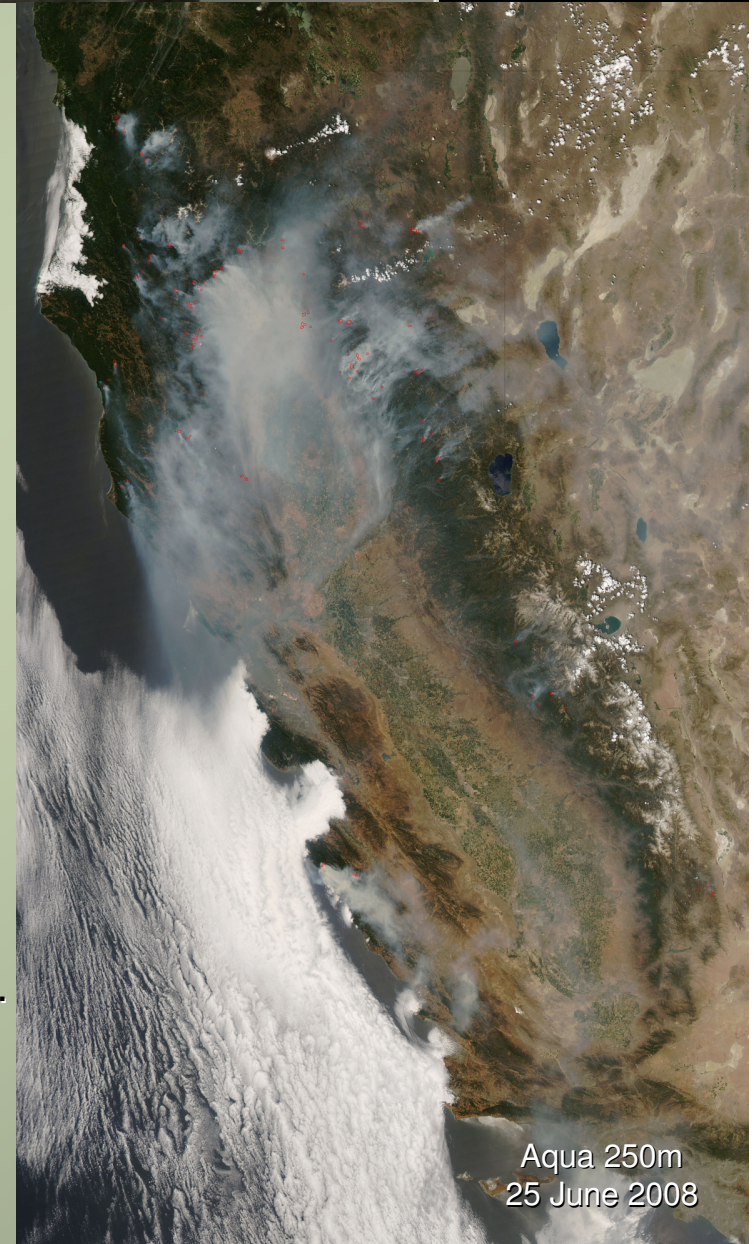
Miles
0 0.125 0.25   0.5   0.75   1

- Dixie NF, UT
- Type II Team
- 2,269 acres
- "See How The System Functions"

Northern California Support

June 22 – July 12

"…On June 20, 2008, a severe thunderstorm system moved through northern and central California resulting in over 6,000 total lightning strikes in more than 26 counties. The overwhelming number of lightning strikes, along with record dry conditions sparked over two thousand lightning fires…"
CalFire, 11 August 2008

Aqua 250m
25 June 2008

Early (Initial) Missions

- "Go out and find the fires"
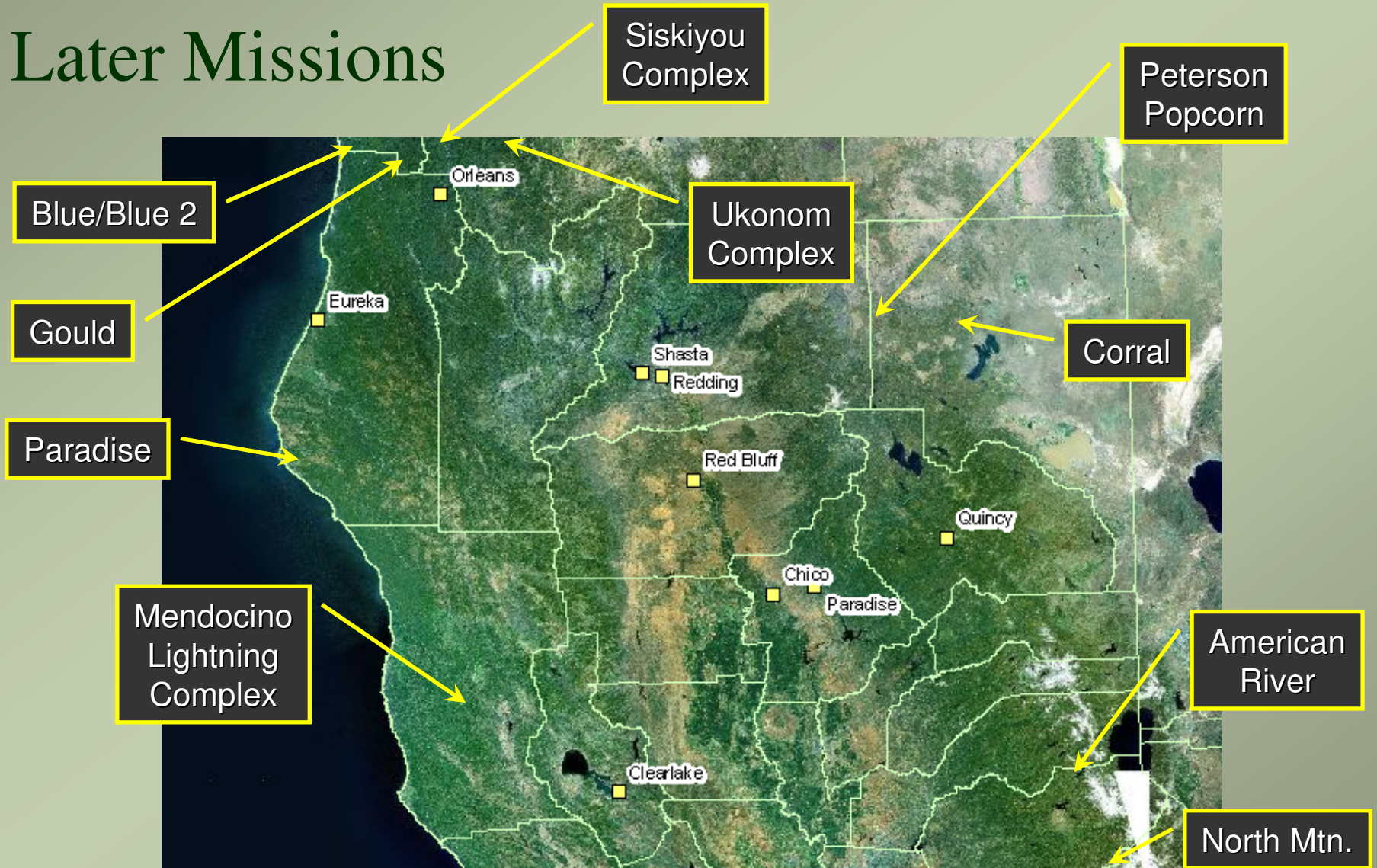- Remote interpretation

Later Missions

- Daytime coverage of fires
  - Mid-day, late afternoon flights
    - Mendocino Complex after marine layer moved off-shore
    - UTFs from previous night's flights
- Fires coordinated/assigned by regional coordinator in Redding
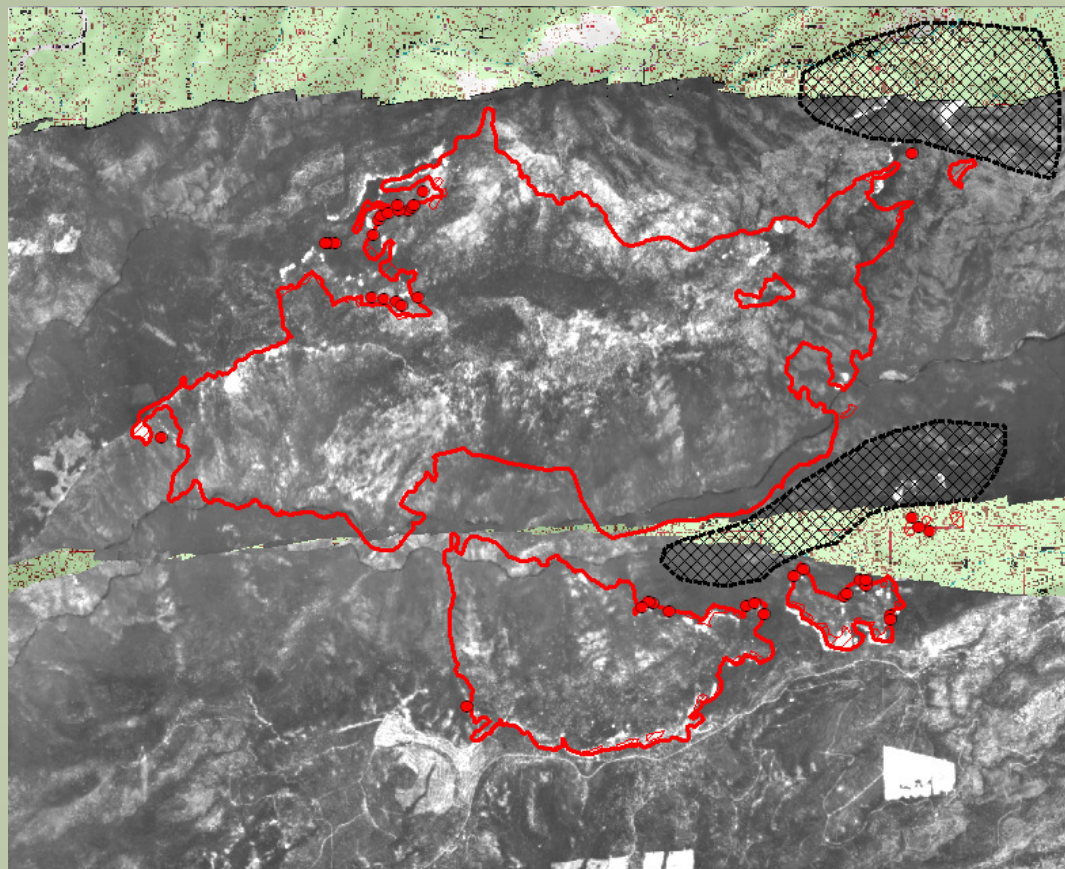- Remote interpretation

Later Missions

Issues

- **Gaps in coverage**
  - Steep canyon terrain
  - Ortho-rectification pulled frames
- **Happened only one time**

Government & Westville Fires (American River), July 5

Some Observations

- Plus Side
  - Kolob Air flew the wings off the Turbo Commander
  - Communication between Kolob techs (Redding), Cedar City techs and IRIN not an issue
    - Notified prior to takeoff
    - Uploading on return
    - Call from Cedar City when mosaics posted
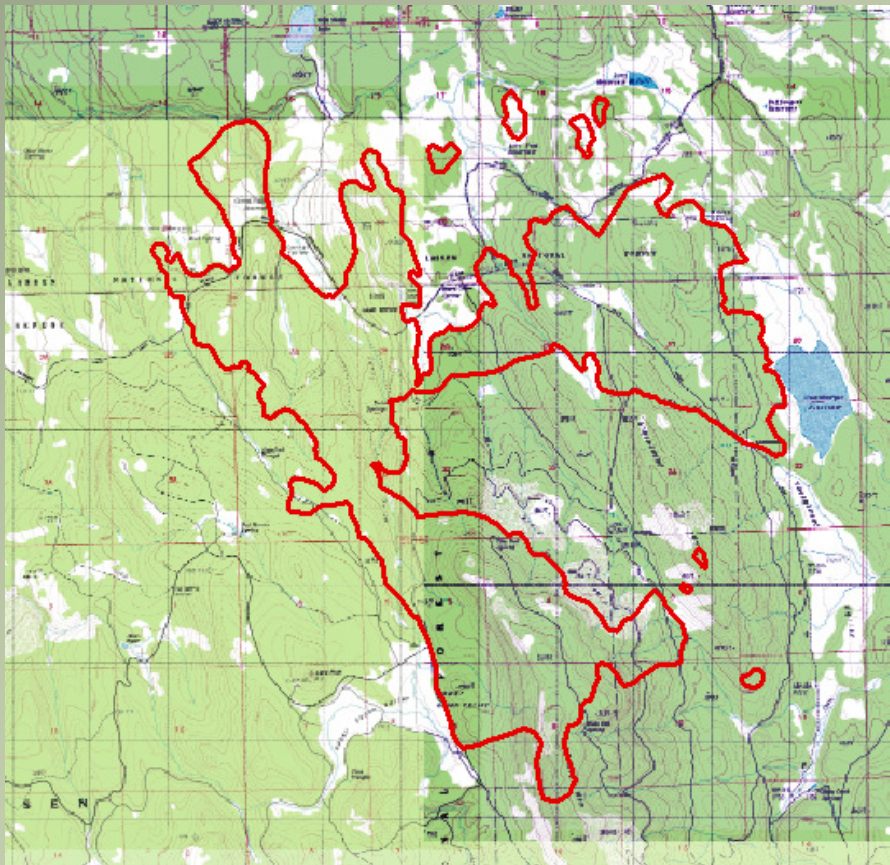 - No problem with feedback from the IRIN

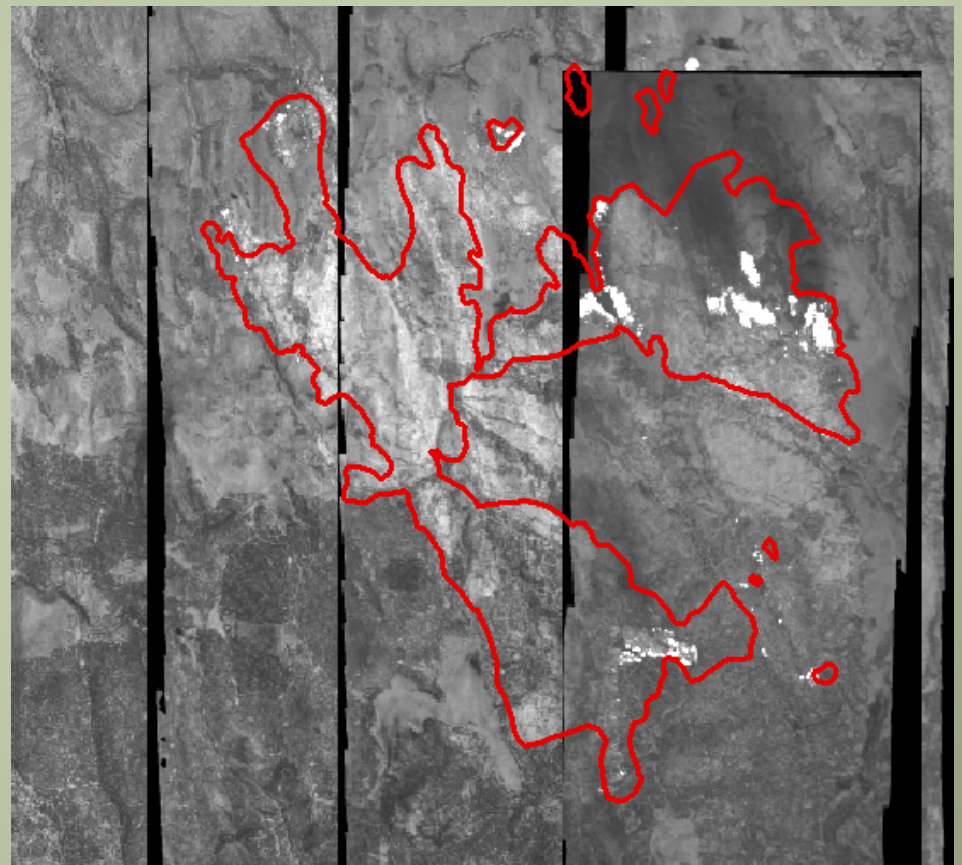# Some Observations

- Plus Side
  - Image quality not an issue
    - Requires more interpretation than Phoenix
      - NAIP was essential for daytime imagery
        - Final registration of imagery
        - Distinguishing warm background objects from heat

Some Observations

Corral Fire: 5,878 acres

Corral Fire: 4+ strips to cover

Some Observations

- ## Down Side
  - Small image footprint + multiple images + large boxes = Lots of images to upload, ortho-rectify and mosaic
  - Also = mutiple long strips to register and interpret
    - Time from acquisition to incident delivery longer
  - System as currently configured works more efficiently with smaller areas to be acquired
  - Kolob has purchased an Applanix system to integrate into their FireMapper system
    - Will make ortho-rectification process faster

Questions?