

Phoenix System

Where We Were, Where We're Going





WHY IR LINE SCANNERS?

- Map extremely large areas in a very short period of time

... while simultaneously ...

- Detecting very small fires
- Extremely accurate for geo-positioning pixels
- Ability to over-sample = multiple looks at same area
- Multi-channel fire detection & false target rejection

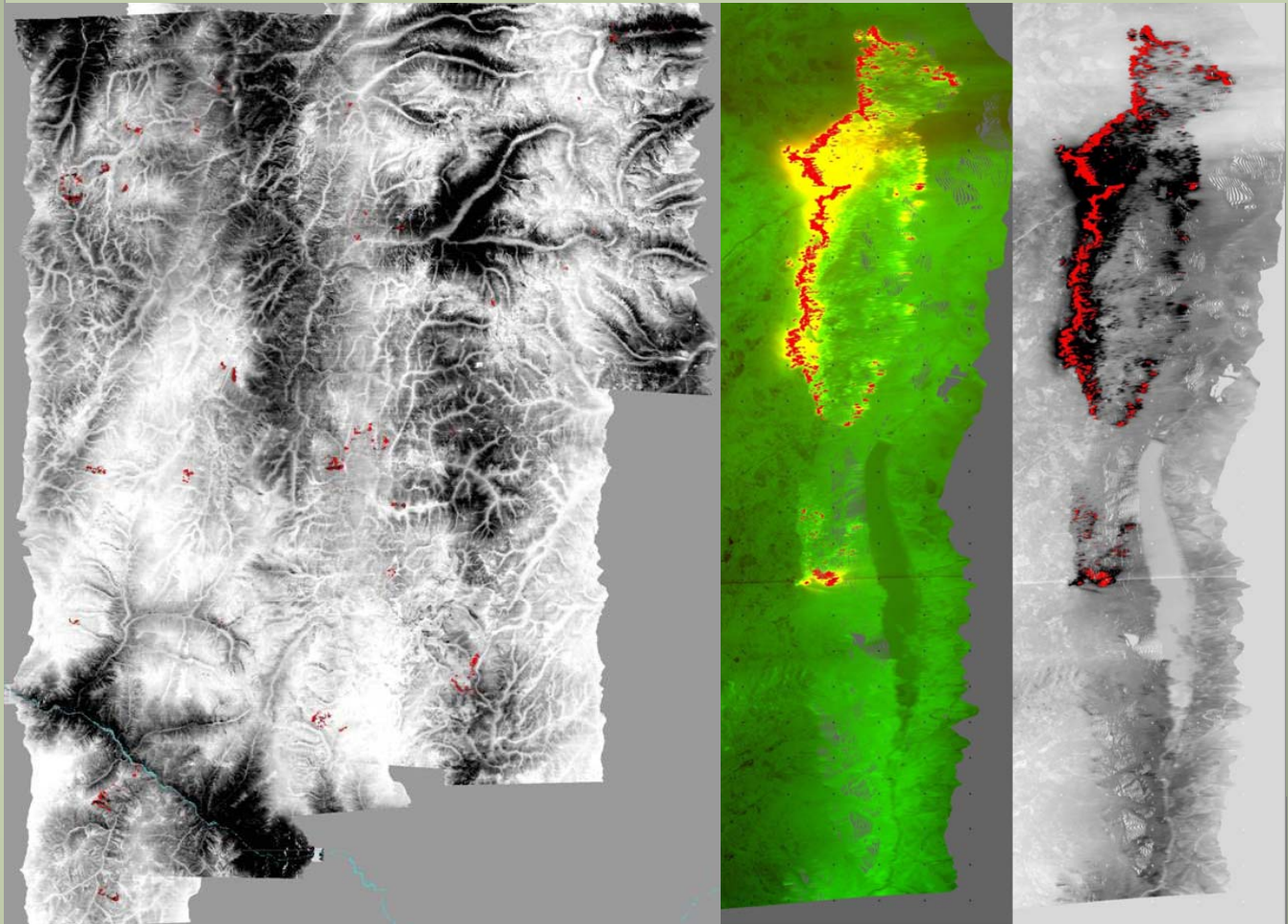


What is Phoenix?

- Phoenix is a digital image processing system coupled with a dual-channel line scanner
- Maps 6 mile swath width (at 10,000 ft AGL) while detecting 6-8 inch heat sources (at 10,000 ft AGL)
- Collects data, processes fire detections, and creates imagery in near real-time

Phoenix Data Products

- Detected Heat point shapefiles
- Orthorectified GeoTiffs
 - Color
 - Grayscale
 - Fire Layer
- Quick-Look JPEGs
- Mosaics
- Metadata





NIROPs History

- 1964 – Research begins with DoD, Civil Air Patrol, NASA, USFS
- 1969 – First full system deployment
- **Deliverable Products:**
- 1969-1972 – “stitched” Polaroids
- 1972-1993 – 5” continuous dry silver film
- 1993-2005 – 8½” continuous thermal paper
- 2004-present – digital GIS-ready orthos
- **Delivery Methods:**
- 1976-2005 – drop tubes
- 1996-present – hand delivered imagery
- 2006-present – Files uploaded to ftp site
- 2009-present – AirCell to ftp site

Systems: HRB Singer, RS-7, RS-25, FLAME, FireFly

Ordering Process: FAX, hand written, call in.

System Weights: 350 to 400 lbs system racks

Aircraft: Beech 99, Queen Air, Merlin IIIB, King Air B90, Sabreliner (Christine)



Past/Present IRIN Duties

(not all inclusive)

Past ... remember when ...

- Travel to Fire Camp
- Load up IRIN Kit (light table, bottle of fixer, colored pencils, paper maps, etc. etc etc.)
- Drive up to several hours one way to pick up imagery from air crew
- Visually remove distortions
- Hand draw map and needed products on clear media
- Setup tent, live in fire camp, attend briefings, etc. etc.

Present

- Order flight online
- Download imagery from ftp site
- Create maps using GIS software
- Present briefing to IMT via ftp site using Word, Excel, Adobe Reader



New Phoenix Data Features

- Work is underway to implement:
 1. Google Earth output layer
 2. Auto-upload of individual run imagery
 3. Upgrade Mission Planner software
 1. - coordinate and share flight plans
 4. Upgrade Phoenix software
 1. - change DSP board, integrate FPGA for clamp/timing, improve user control of image enhancements, protect FTP transfers, auto-calibrate ortho alignment



End