

USFS AMS Operations Fall 2015

TFRSAC Fall Meeting

NIFC

29 October 2015

Boise, ID



USDA Forest Service, Remote Sensing Applications Center,
FSWeb: <http://fsweb.rsac.fs.fed.us>
WWW: <http://www.fs.fed.us/eng/rsac/>

Outline

- 2015 AMS tech transfer and support operations
- Ongoing AMS Activities

USFS N144Z Specifications



Cessna Citation Bravo

- Primary Mission – Infrared Fire Mapping (April – October)

AirCell Datalink

- Average 204 Kbs downlink
- Continuous coverage CONUS at 10,000 AGL

Sensor Bay

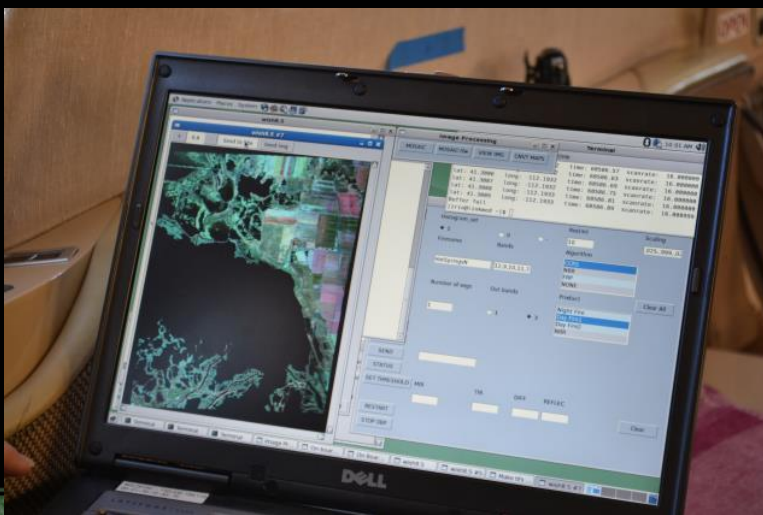
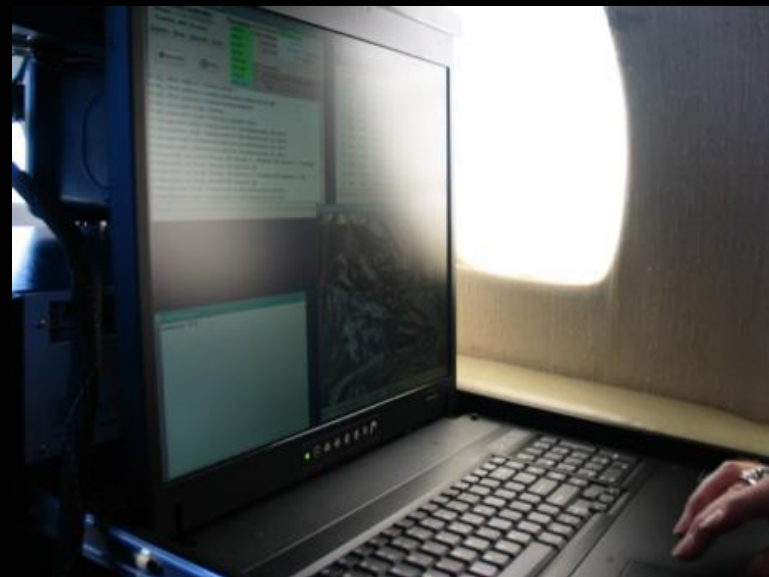
- Port Side blister
- Opening 18 in long 15 wide
- Sensor bay 24 in long 17 wide

Flight Rate - \$1710 per hour
Contact Dan Johnson
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Citation Specifications

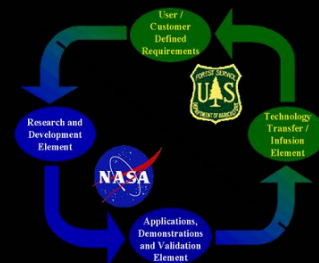
- Cruise Speed 380 kts
- Max Altitude 45,000 ft
- Min Safe Acquisition 120 kts
 - This creates limitations with using the AMS
 - Max AMS Height/Velocity= 11.1
 - Minimum 10,000 ft. AGL
 - 7.6 meter pixel
 - 3.07 nautical mile swath width (3.5 statute miles)

144Z AMS Installation



Inter-Agency AMS Tech Transfer Activities 2015

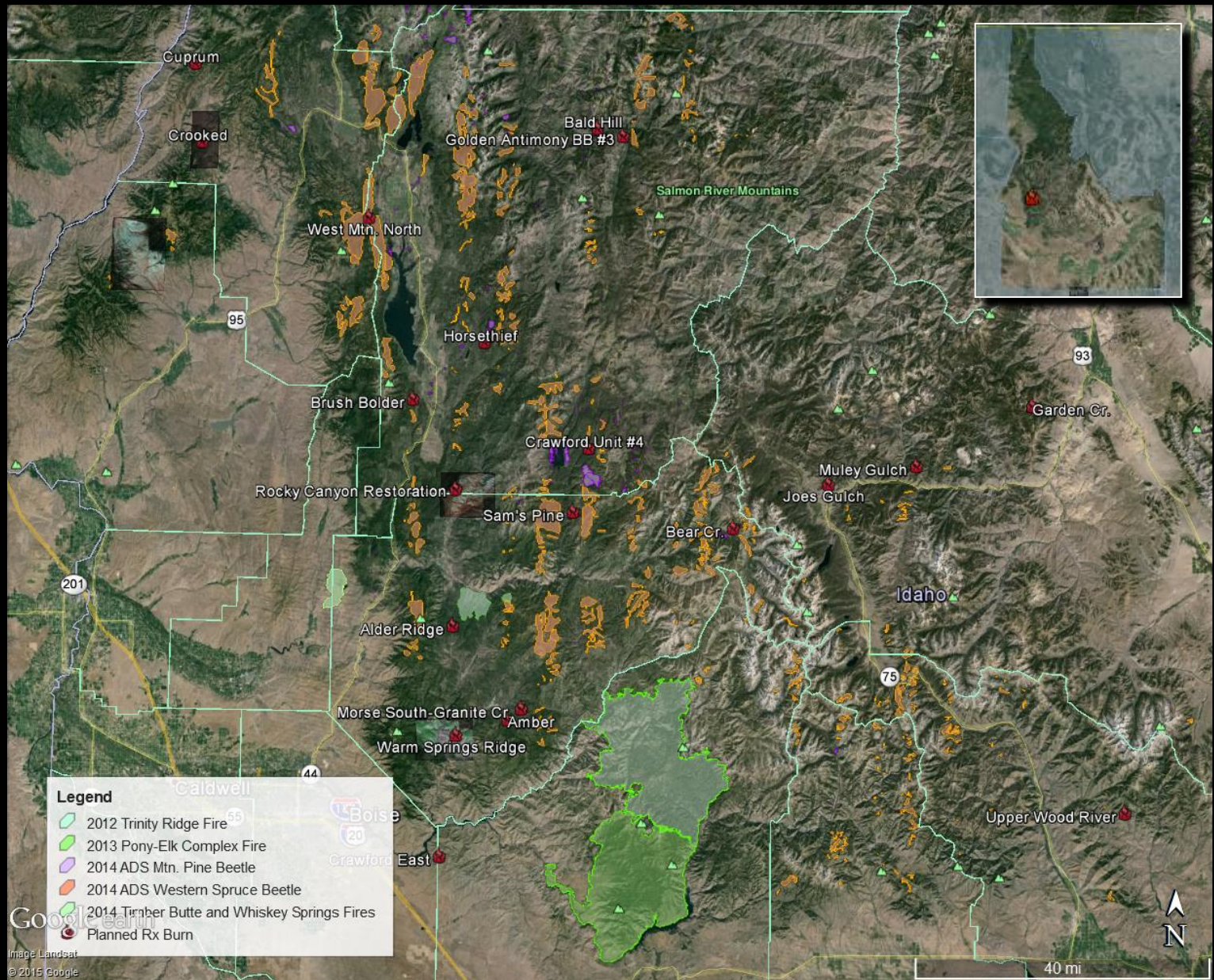
- Updates/refinements of the On-Board Processing System (OBP)
 - User interface, mission planning software and documentation (users guide)
- USFS IR Technician training
 - Simulations of imagery acquisition and processing workflow
- AMS installed in N144Z in late March
 - Initial bore site and integration test mission



2015 AMS Testing/Integration

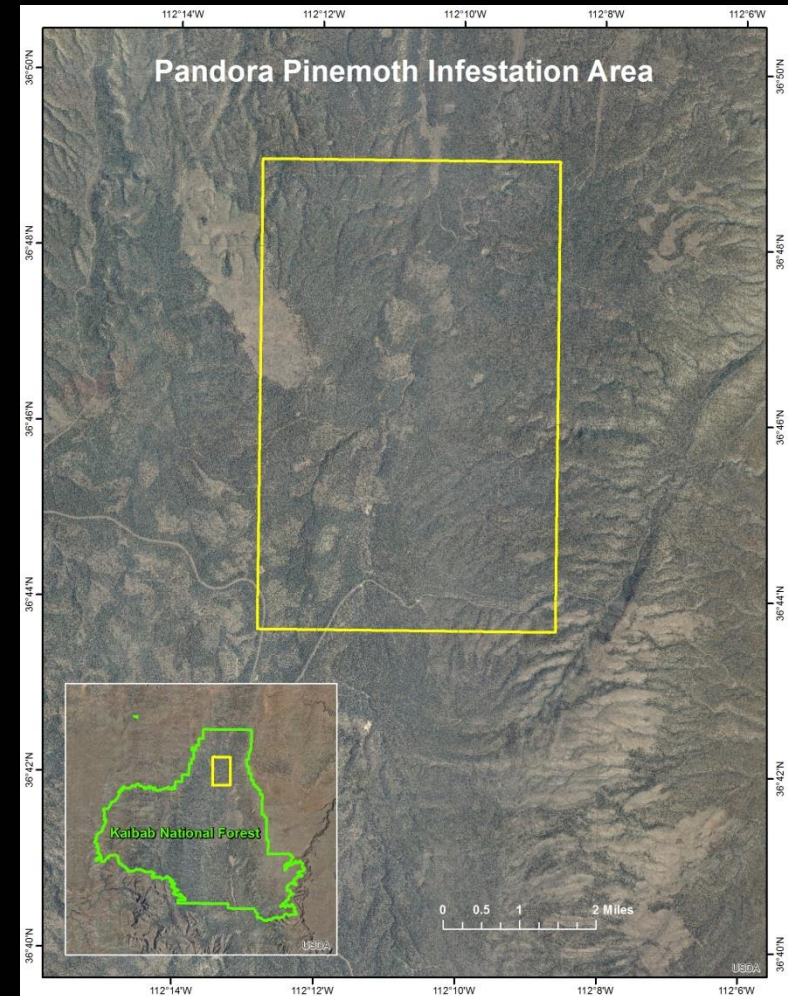
- Significant test objectives/goals:
 - Remote command and control of sensor from the ground
 - Remote operation of OBP system for NRT data production and delivery
 - Continue technician training and system familiarization

Areas of Interest: Spring 2015 AMS Missions

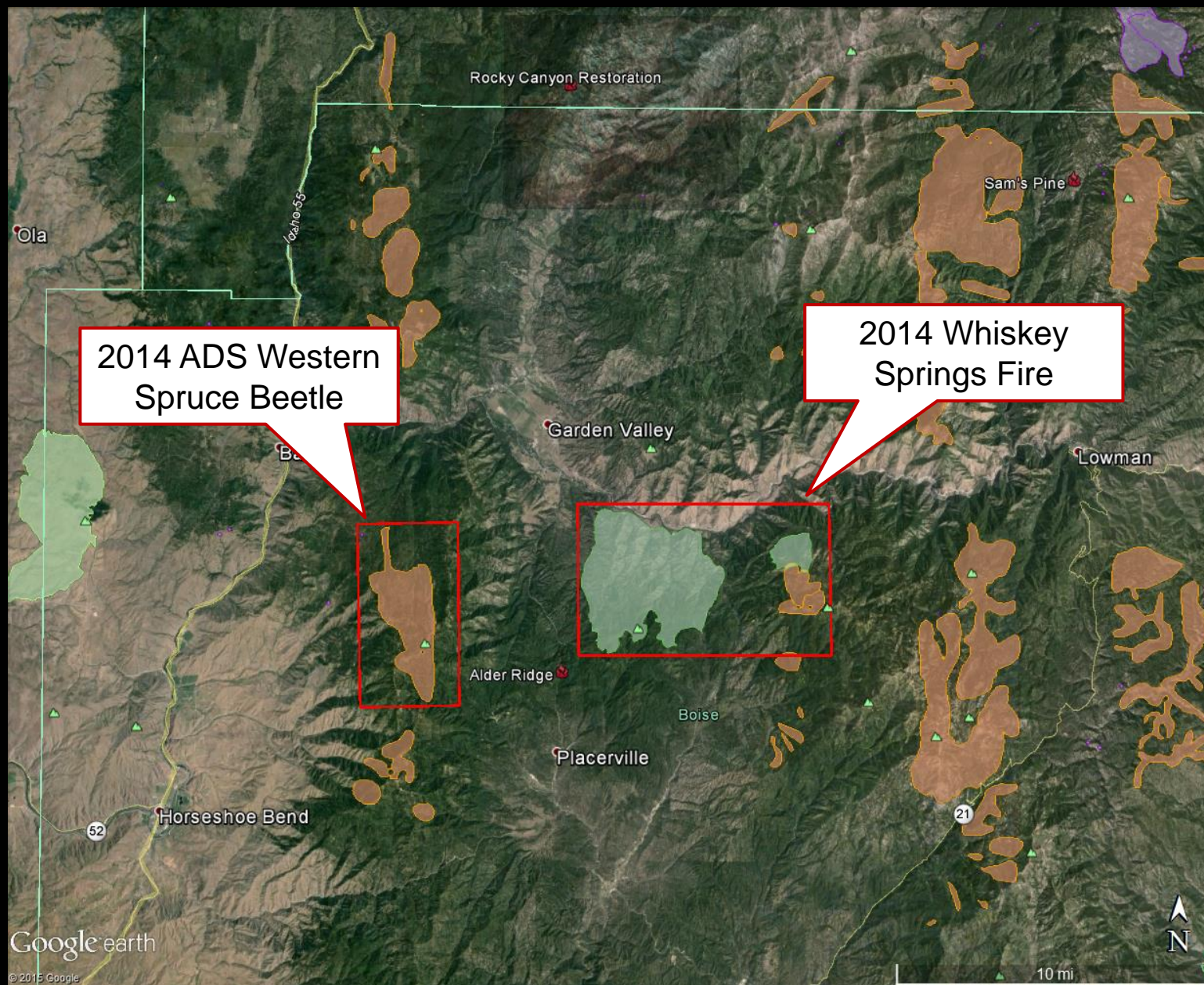


Areas of Interest: Spring 2015 AMS Missions

- Pandora Moth infestation area
 - Kaibab NF
- Current active large incidents
 - Southwest (UT, NV, AZ)
 - Possible daytime missions



2015 AMS Acquisitions



2015 AMS Activities

- Test command/control of AMS from ground
 - Finalize and test AirCell/AMS configuration
 - Fixed IP for ground station and access through the BLM firewall completed late CY14
 - Initial remote command/control test conducted on April 9, 2015
 - Subsequent tests on April 29, May 6, May 13 2015
 - April 9 and May 13 tests conducted with 144Z on the ground in Boise



2015 AMS Activities

- Remote C-and-C results:
 - Connecting to OBP from ground station via Aircell was successful
 - Issue with product generation from OBP via the remote ground station
 - Acquired “raw” imagery
 - NRT processing and delivery of 3-band imagery products failed



Ongoing AMS Activities

- 3rd Aircraft Proposal (N182Z)
 - Submitted to F&AM for in March 2015
 - Has been received favorably by F&AM
 - Working with R8 RAO and WO F&AM
- NASA-Ames AMS support
 - Support contract finalized in August 2015
 - New contract will run through CY 2020
 - Received updated OBP documentation and draft post-processing guidelines



Ongoing AMS Tasks

- AMS Testing/Integration Mission Support
 - Conduct routine technical assistance to Forest Service AMS evaluation and integration missions.
- AMS Algorithm Updates
 - Implement modifications/adjustments to existing AMS On-Board Processing (OBP) system science algorithms and derived data products as needed.
- Improved Histogram Matching/Tone Balancing for Mosaic Products
 - Implement AMS OBP software modifications to improve histogram matching and tone balancing for imagery mosaic products compiled from multiple flight line segments in the AMS OBP.
- AMS System & AirCell Integration
 - Implement software modifications to enhance existing integration between the AMS system and Forest Service AirCell telemetry communications systems.



Ongoing AMS Tasks

- AMS System Navigation/Flight Data Display
 - Implement AMS software modifications to display navigation/flight data to aircraft-based or ground-based system operators.
- Boresight Process Automation
 - Develop an automated AMS boresight process.
- AMS Technical Documentation
 - Develop basic user guide documentation and supporting information for current and to be developed AMS software.
- Consultation and Technology Transfer
 - Provide consultation to Forest Service staff regarding the support, maintenance and application of AMS software systems, and participate in NASA/Forest Service technical transfer/outreach activities.





Thanks

Comments/Questions?



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