

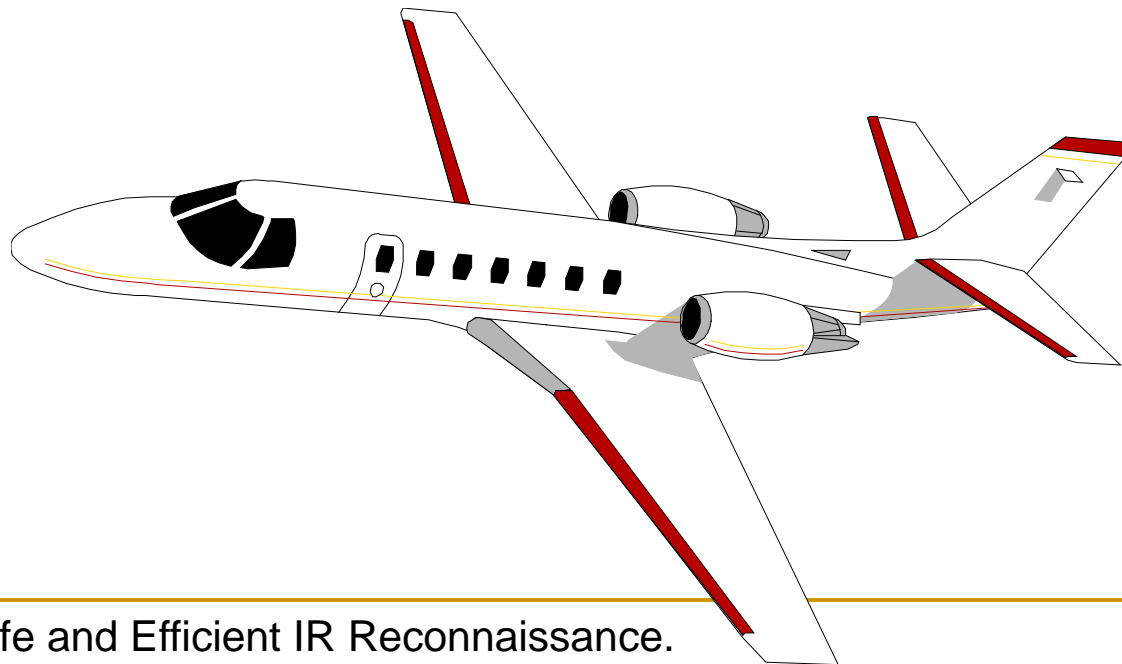
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Fire & Aviation Management

2009 INFRARED OPERATIONS REVIEW



Providing Safe and Efficient IR Reconnaissance.

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Fire & Aviation Management

2009 INFRARED OPERATIONS

This is a Fire!



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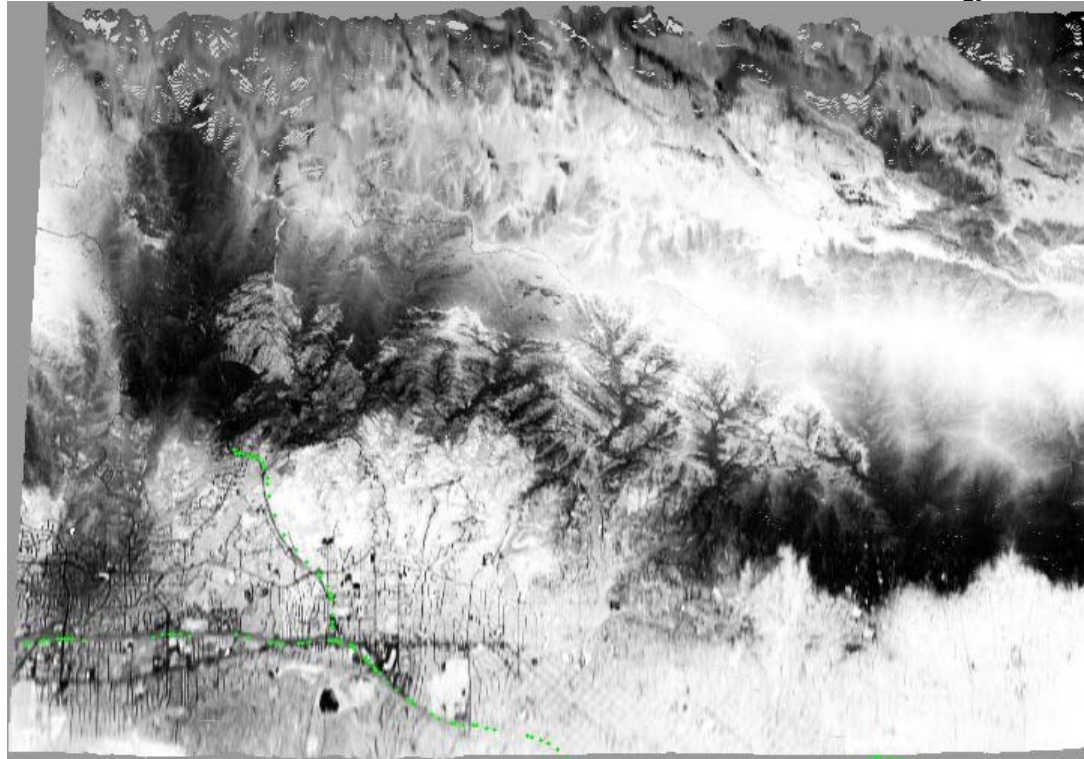
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FIRST FIRE FLOWN:

Jesusita Fire California – May 14, 2009



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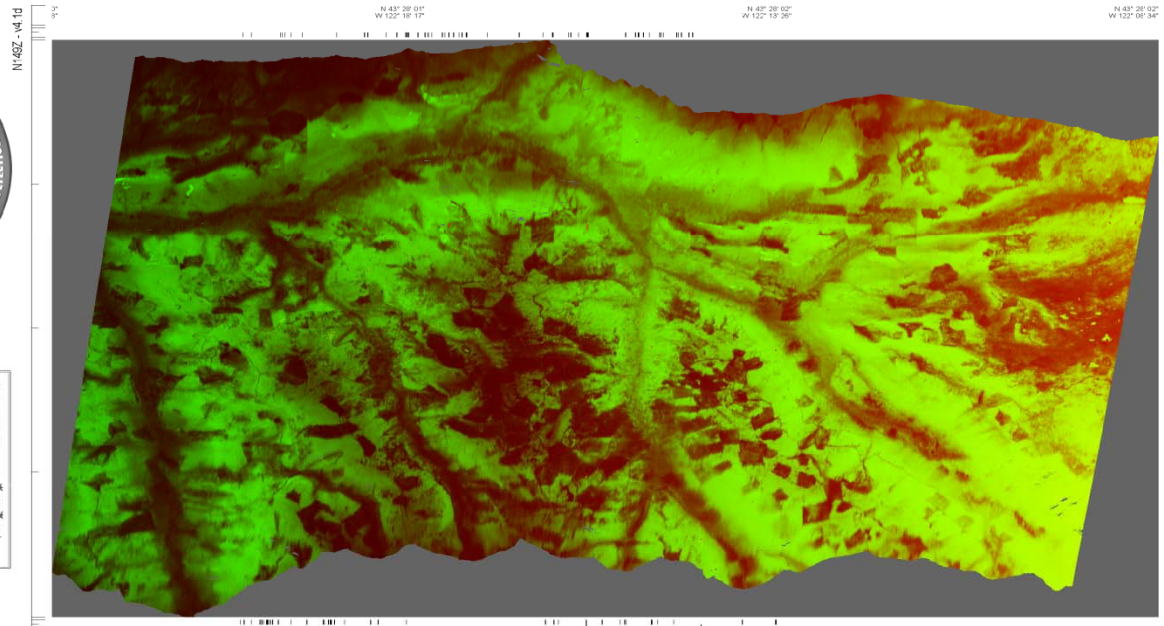
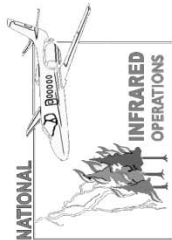


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Last Fire October, 06 Oregon Tumblebug Complex Fire

END ORTHORECTIFICATION -- 091006_2100_Tumblebug_1 IR TECH KAZ HEADING 270

Image Scale = 26.5 ft/pixel (61 pixels) -- Width = 8.1 miles -- Length = 12.3 miles



START ORTHORECTIFICATION -- 091006_2100_Tumblebug_1 -- HEADING 270



2009 IR TRIVIA:

- Number of Different States Flown in 1 Night: 4
 - Number of Different Fires/Complexes Flown in 1 Night: 11
 - Highest Pyro-Cumulus Cloud: 18,000' (Station Fire)
 - States / Provinces Flown During 2009 Fire Season:
 - CA, ID, MT, NV, OR, UT, WA, British Columbia
Alberta
 - Total Combined Flight Hours – 403
 - Below Normal Fire Season
-

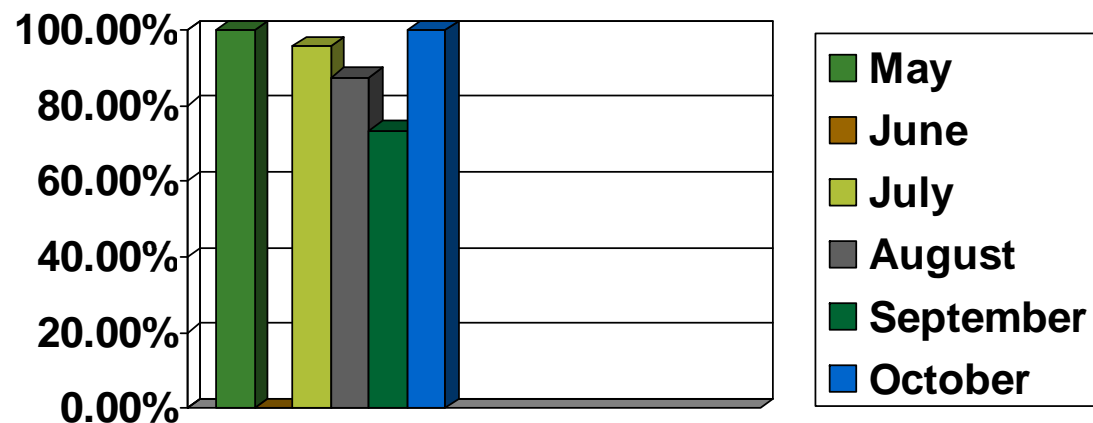


2009 Percentages of I.R. filled 144z & 149z:

Total Number 342

Data Source Nirops Summary

May - October
2009



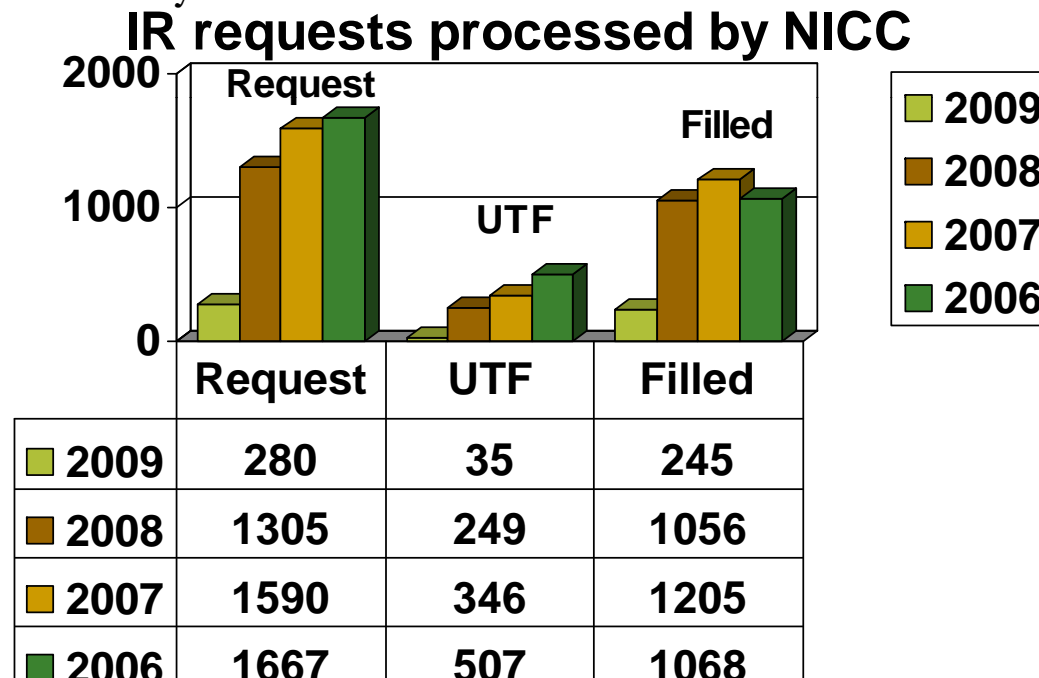
Note: IR Requests for AK not included in above Summary.

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2006 - 09 & Comparison filled:

Total Number (245) (35)

Data Source NICC Summary



IR Requests for Alaska not included in the above summary.

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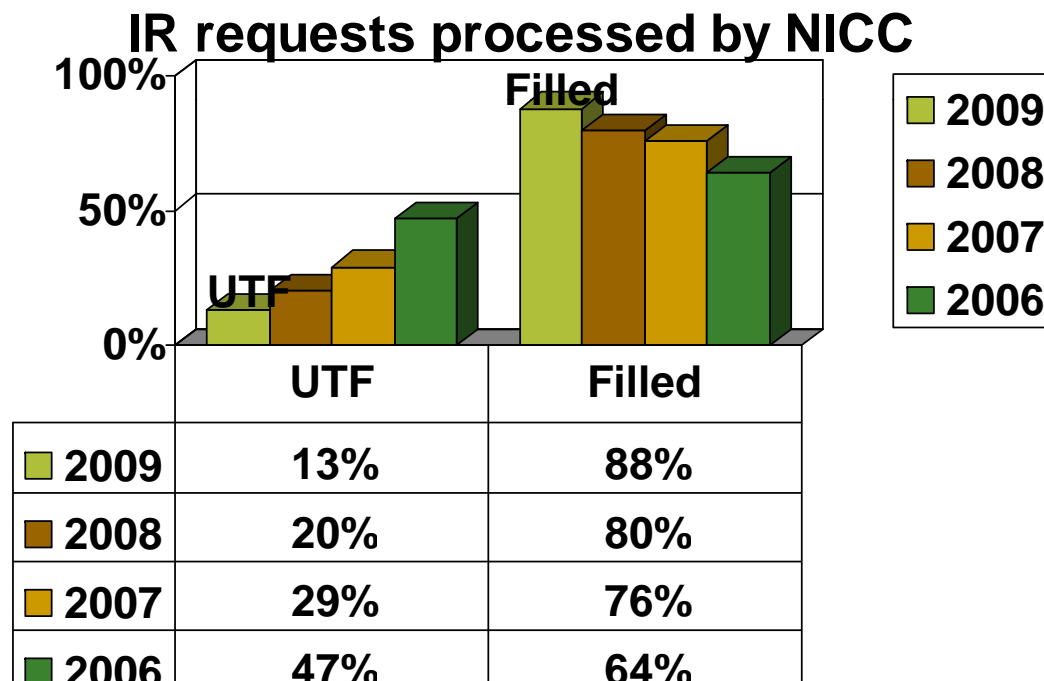
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2006 - 09 & Comparison Percentage filled:

Data Source NICC Summary



IR Requests for Alaska not included in the above summary.

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2009 British Columbia Operations 144/149

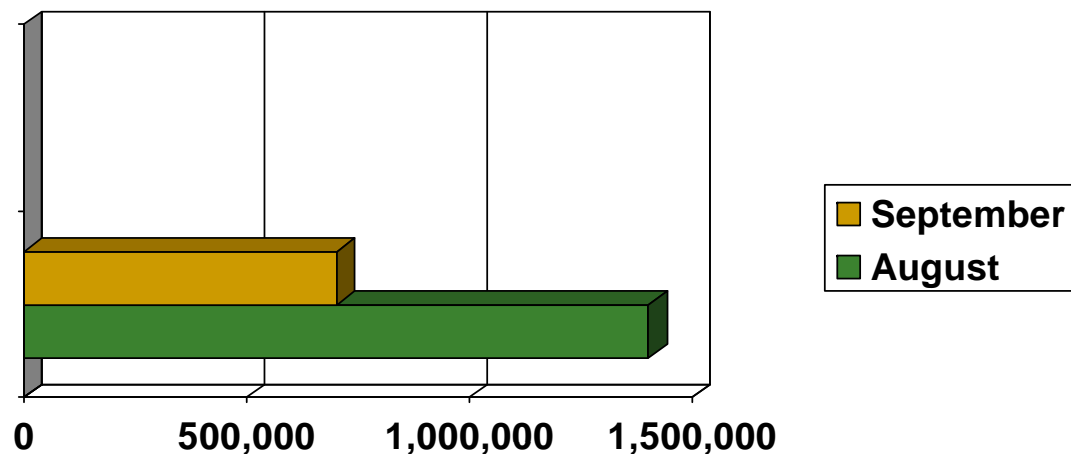
Total Number Fires Flown: 102

Hours Flown – 66.8

Total Operating Cost - \$164,809.00

Total Acres Flown: 2,105,215

Acres Flown Canada 2009



N149Z 2009 STATISTICS



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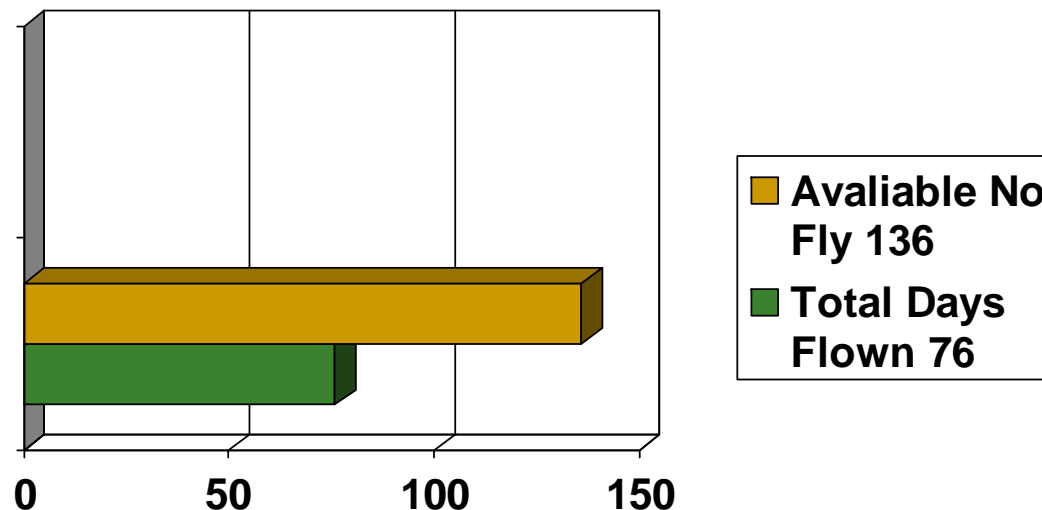
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N149Z:

Hours Flown – 211.6

Total Aircraft Operating Cost - \$238,050.00

**April - October
2009**



Aircraft Hourly Flight Rate 2009: \$978.00

Aircraft Hourly Flight Rate 2010 Projected: \$918.00



N149Z:

- **July 01 - 07, AirCell Antenna installation**
- **August 13-17, Phase 3**
 - **Removed from service to complete Maint,**
 - **All IR coverage provided by 44z**
- **September 03 - 04, Prop Governor**
 - **R4 Maintenance Traveled to LAS to repair**
- **October 24, Phase 5**

Hobbs time between phase for BE200 200 hours.

N144Z 2009 STATISTICS



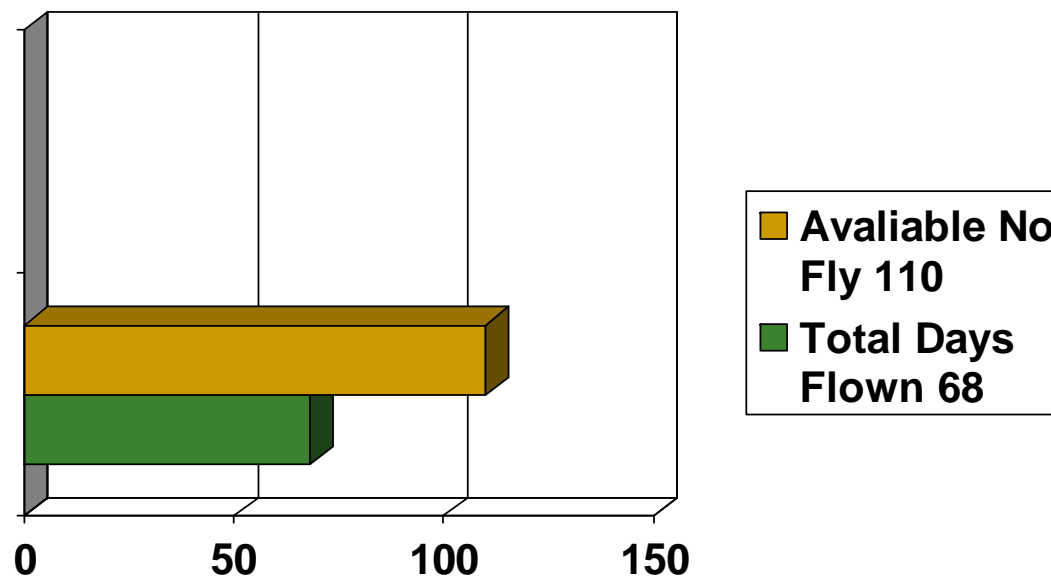


N144Z:

Hours Flown – 191.5

Total Aircraft Operating Cost - \$215,054.00

April - October 2009



Aircraft Hourly Flight Rate 2009: \$1370.00

Aircraft Hourly Flight Rate 2010 Projected: \$1377.00



N144Z:

- **January 2009 Heavy Phase 5**
- **June 05, Return to Service**
 - **Flap Cable Repair ICT**
- **July 29 – August 03, Phase**
 - **Removed from service, OGD for Phase**
 - **All IR coverage provided by 49z**
- **August 04 Scanner Door Switch**
- **August 31, Fuel Gauge**
 - **Recovered Ogden for service, water in fuel**

Hobbs time between phase for C550 150 hours.



AirCell Down link



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NETWORK OPTIONS

Aircell® offers the industry's widest variety of network options, so you can choose equipment and services that meet your individual airborne communications needs.

Many Aircell products can provide service over multiple networks simultaneously, thereby increasing utility and capabilities. In addition to the networks covered, some Aircell products can interface with additional network services, such as Inmarsat Swift64 and Inmarsat Classic services.

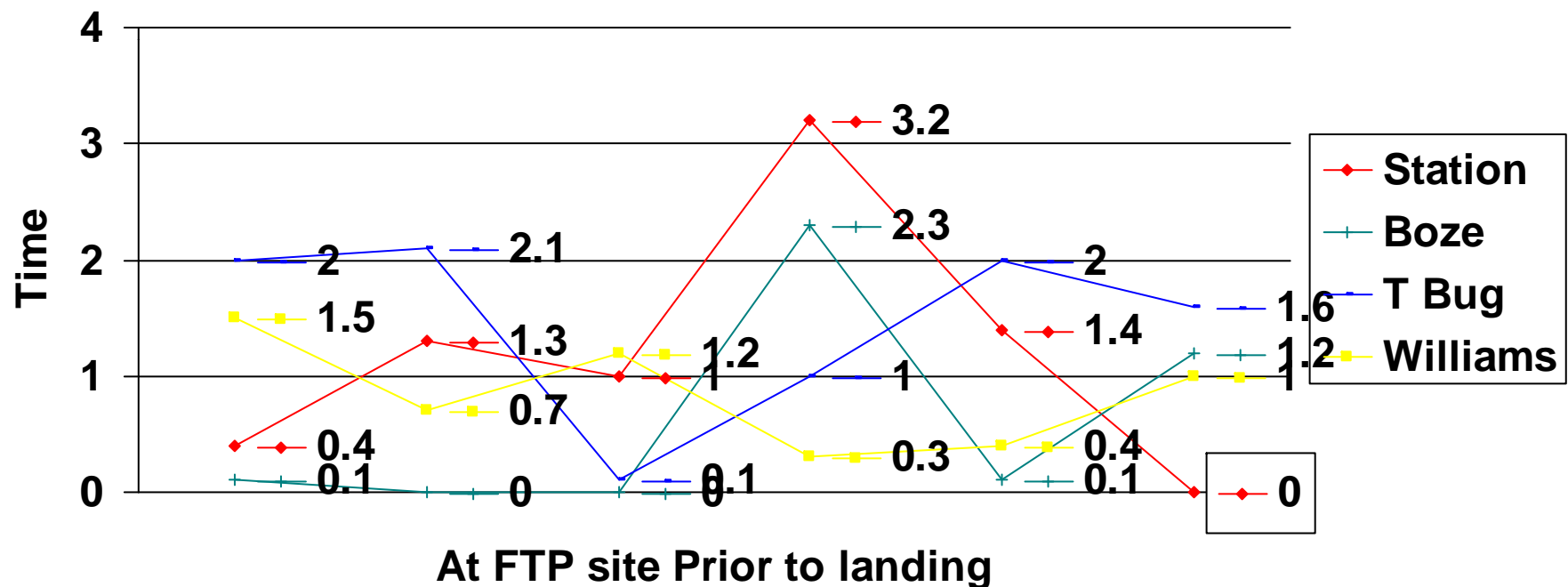


Aircell Mobile Broadband Network

OWNER/OPERATOR	Aircell; Itasca, IL & Broomfield, CO, USA; www.aircell.com
QUICK HIT	Powers the Aircell High Speed Internet system
HOW IT WORKS	Operates over exclusive, dedicated spectrum (communications frequencies) won by Aircell in a 2006 FCC auction. Uses modified version of CDMA EV-DO mobile broadband technology — the same employed by consumer services from Sprint®, Verizon® and others on the ground. Utilizes a network of wireless ground sites.
KEY SERVICES	High-speed data.
SERVICE COVERAGE AREA	North America. Full continental U.S. coverage above 10,000 feet AGL, and up to 200 miles offshore in some areas. Coverage in Canada & Mexico is planned.
INSIDE SCOOP	Serving both business aviation and the airlines, the Aircell Network is best-of-breed for high-speed data in North America. Because it uses ground-based mobile broadband technology, it allows very robust data speeds, with affordable service, and small antennas & equipment.



Sample Data Set Uploaded to FTP via AirCell



Data shown as 0.0 Represents Data not uploaded to FTP via AirCell .



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AirCell Actual & Projected Efficiency

- Increase Mission Time
 - Beta Season Proof 2009
 - 28 kb average
 - Full Bandwidth 2010
 - 1.8 KB down
 - 3.1 KB up
 - Travel to Aircraft IRIN
 - Drive Time Exposure
 - Upload Delay
 - Air Crew Low Level Exposure
 - Eliminate need for Air Drop
-

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System: Flight Operations		2008 Infrared Program Assessment						
Sub-systems	Hazards	Pre Mitigation			Mitigation	Post Mitigation		
		Likelihood	Severity	Outcome		Likelihood	Severity	Outcome
CWN/Other A/C	Use of uncarded aircraft and crew. Failure to follow policy/safety recommendations resulting in use of pilots who are not proficient or current for the mission. Using aircraft that may have exceeded inspection and/or component replacement deadlines.	Occasional	Negligible	Low	Check aircraft data cards and pilot qualification cards	Improbable	Negligible	Low
Night Ops	Incidents or errors caused by physiological challenges (circadian rhythm deviations, impaired vision, fatigue)	Frequent	Catastrophic	High	Education and training; implement CRM; Recognize and operate within personal limitations.	Occasional	Critical	Serious
Communication	Losing radio communications	Remote	Negligible	Low	Carry back up hand-held radio in the survival kit; cell phones available	Remote	Negligible	Low
	Chance of striking person or property with drop tube because of a lack of clear communications during air drop	Occasional	Critical	Serious	Ensure clear communications prior to drop--no drop if no communications; follow established drop procedures	Improbable	Negligible	Low
Instrument Flying	Inadvertant flight into IMC Conditions	Remote	Marginal	Medium	Filing IFR; preflight planning; if you encounter IMC inadvertently fly instruments and exit IMC conditions	Improbable	Marginal	Medium
	Lack of currency and proficiency	Remote	Catastrophic	Serious	Maintain currency and proficiency; Do not allow non-current crewmembers to fly missions	Improbable	Catastrophic	Medium
	Controlled flight into terrain (CFIT)	Improbable	Catastrophic	Medium	Maintain situational awareness; training; file IFR	Improbable	Catastrophic	Medium
Airspace	Congestion, mid-air collision potential	Remote	Catastrophic	Serious	File IFR, TCAS, Situational awareness, visual scanning	Improbable	Catastrophic	Medium
	Non-radar/uncontrolled airspace-unknown aircraft, possible mid-air collision	Remote	Catastrophic	Serious	See and avoid, Use TCAS	Improbable	Catastrophic	Medium
Delivery of Imagery	Hot hand-offs resulting serious injury or death	Remote	Catastrophic	Serious	Ensure crew is adequately trained. Maintain Situational Awareness. Be sure communications are clear between air-ground personnel.	Improbable	Catastrophic	Medium
	Air drop tubes striking an object or person causing damage or personnel injury	Remote	Catastrophic	Serious	Ensure crew is adequately trained. Maintain Situational Awareness. Be sure communications are clear between air-ground personnel. employ data transfer via satellite, No communications-NO drop	Improbable	Catastrophic	Medium
	Low/slow flight profile in delivery of air drop resulting CFIT	Probable	Catastrophic	High	Training, Situational Awareness, CRM, clear and positive air to ground communications, IAPs, Use radio altimeter, Determine criteria for go-no go situations/decisions. Drop only during clear VFR conditions.	Remote	Catastrophic	Serious

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System: Policy

2008 Infrared Program Assessment

		Pre Mitigation			Mitigation	Post Mitigation		
Sub-systems	Hazards	Likelihood	Severity	Outcome		Likelihood	Severity	Outcome
Duty Day	Fatigue-Chronic, errors due to fatigue (SA)	Frequent	Critical	High	Scheduling management (reduce duty hrs and/or flight time), sufficient staffing levels , sleep-power naps, training, CRM, support crew decision to decrease duty day	Remote	Marginal	Medium
	Fatigue-Acute, errors due to fatigue (SA)	Frequent	Critical	High	Training, CRM, sleep-power naps, support crew decision to decrease duty day	Remote	Negligible	Low
Qualifications	Unqualified personnel flying the aircraft- Resulting in: CFIT, emergency procedures, incidents, accidents	Occasional	Critical	Serious	Qualified and mission proficient personnel flying the aircraft, adequate staffing levels.	Improbable	Negligible	Low
Ill-defined policy and procedures	Procedures that do not reflect the entire IR system leading to ambiguity in the decisions that need to be made, adding stress and anxiety to the crew's workload ultimately leading to hazardous decision making with possible damage/injury to aircraft or crew	Occasional	Critical	Serious	Clearly defined policies, procedures, and roles (Infrared Operations Guide); Have IR Ops Guide approved by line officer authority.	Improbable	Negligible	Low

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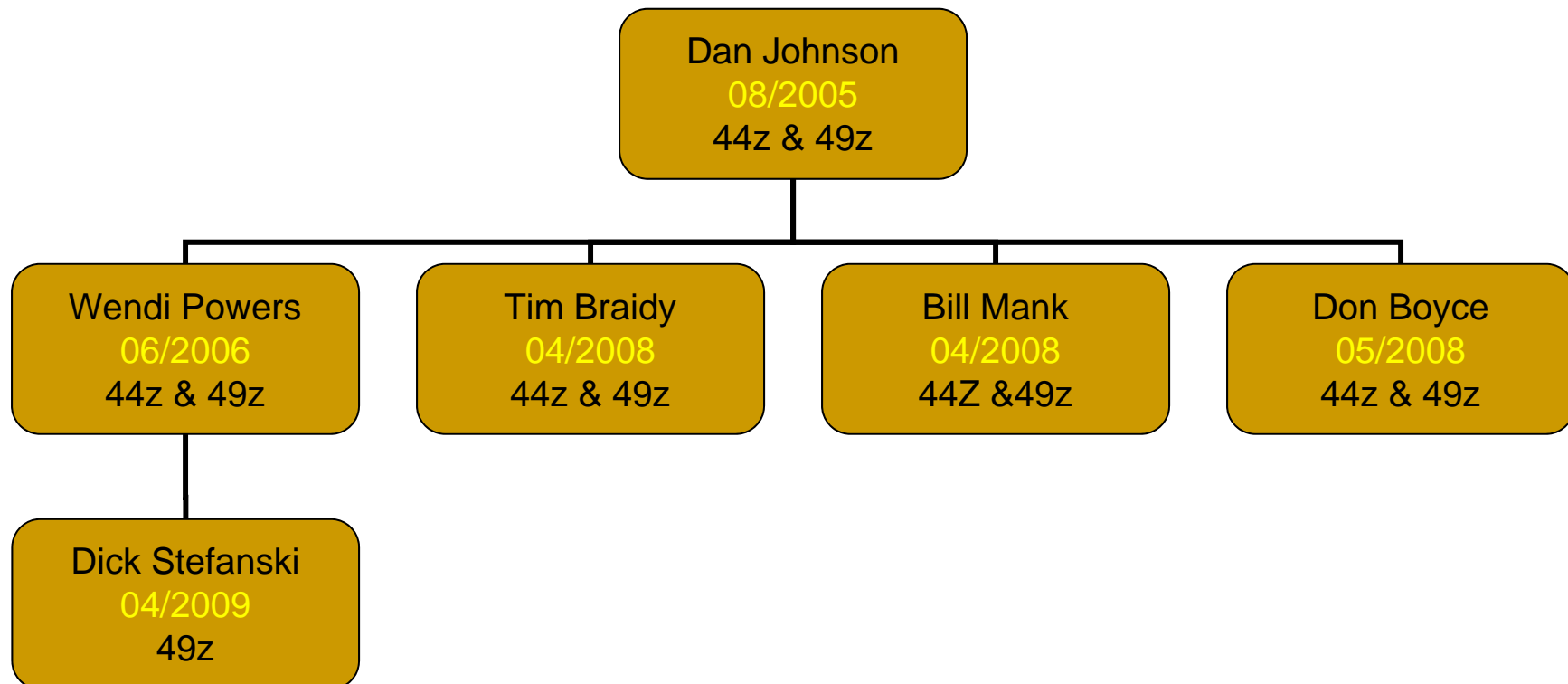
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Region 4

I.R. Pilot Staff:





REVIEW ITEMS

- **Staffing:**
 - **Pilot Staff**
 - **Pilot Schedule**
 - <http://fsweb.r4.fs.fed.us/unit/faa/aviation.htm>
 - **I.R. Equipment:**
 - **User input / Feedback**
 - **IC / Team**
 - **Additional Aircraft**
 - **Communication**
 - **Twitter**
 - **Skype**
 - **Nirops Guide Update:**
 - **Reviewed 10/22/2009**
 - **Planned Operational for 2010 Fire Season**
-

Any Questions?

