


Project Note

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Aerial intelligence-gathering platforms: a needs-analysis for wildfire operations

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Background

Wildfire management agencies are frequently asked by equipment vendors to adopt the latest technological offering. In many cases, these unsolicited “solutions” have not been tested under operational conditions and are not well suited to the specific needs of wildfire operations. After acquiring a new technology, an agency often invests additional funds and human resources into developing new processes and training programs to help fit that technology into the organization. The financial consequences are tremendous if that technology ultimately fails to meet the agency’s needs and expectations.

One of the latest technological advancements under development is the aerial intelligence-gathering platform. The platform combines geo-referenced images (infrared and colour) with real-time telemetry. Data can be transferred to a fire centre, an incident command post, and hand-held devices. In 2010, FPInnovations conducted an analysis for the British Columbia Wildfire Management Branch to identify the branch’s data collection needs and priorities that might be addressed by this latest technology.

Because the British Columbia Wildfire Management Branch contracted this study, the full report is proprietary. However, we wanted to share some aspects of the study and its results with other agencies and developers who may be interested in the potential of aerial intelligence-gathering platforms. We believe that this information can provide developers with a basis for practical product design and can help other agencies consider their own needs and priorities.

Study Design

Five informal focus-group interviews were conducted in the summer of 2010. The focus groups were drawn from all areas of wildfire management including legal and administration. Using a worksheet, the interviewer solicited participants for their needs for data collection in each of the seven identified categories:

- Operations
- Planning
- Safety
- Logistics
- Information
- GIS
- Aviation

Results Summary

Across all five focus groups, the top priority was a real-time, geo-referenced fire perimeter—specifically, the fire front. The turn-around time for this information must be quick and the information must be provided frequently. All interviewees identified this as a top priority because this kind of information is crucial to the timing of resource deployments or withdraws, and evacuations.

The second priority identified by the focus groups was video footage of the fire. The interviewees preferred video over still images because video can provide a situational awareness that still images cannot. Still images remain a valuable tool for numerous operational activities (planning, recording values at risk, monitoring control lines; back-burning, etc.), but the interviewees recognized that still images could be captured from video footage. Video information need not be immediate—interviewees felt there was no real need for live streaming video—but must be provided frequently.

The interviewees identified some administrative issues regarding the data generated from these platforms (standards, format, distribution, archiving, and rights), and the processes that need to be in place to ensure success of the technology:

- Operator certification
- Equipment maintenance and calibration
- Data verification and quality control
- Data gathering and distribution procedures

Timely fire perimeter and video images will influence strategic and tactical operational decisions, as well as improve fireline and public safety. This information could also be used to support legal actions that may follow from the loss of private property, agency actions, and human-caused fire incidents. Aerial intelligence-gathering platforms have the capability to provide this information, but suppliers of this technology need to work with agencies to ensure that product development is driven by users' needs and priorities.