

Status Report: InfoEx, Canadian Avalanche Information System Development, and Data Ownership, Security and Management Issues

Operational Background and Context

InfoEx is a program for the voluntary exchange of avalanche-related information between subscribers. This program is provided by the Canadian Avalanche Association (CAA) in accordance with an annual contract between the CAA and each of the InfoEx subscribers. The community of InfoEx subscribers currently includes more than seventy professional private and public sector operators delivering avalanche protection programs for ski areas, commercial backcountry skiing and snowmobiling, highways, railways, resource industries, national and provincial parks, and other winter activities.

The primary benefit to subscribers participating in the InfoEx program has been the timely and open exchange of snow, weather and avalanche-related information between peers, for operational decision making purposes. Subscribers are informed of what other operators are experiencing, so they can avoid being surprised by conditions that have been previously observed elsewhere. For the CAA, the primary benefit of InfoEx has been its use in the Industry Training Programs as a tool for training avalanche workers. The “in kind” value of InfoEx as a source of data for the Canadian Avalanche Centre (CAC) public avalanche forecasters to produce and verify public avalanche bulletins and warnings has been estimated to be in excess of \$2 million annually. Over time the dataset, which now contains historical InfoEx information back to 1991, has become increasingly important for subscribers, CAA/CAC uses and research. One respected avalanche researcher has called it “the most powerful avalanche dataset in the world.”

In the spring of 2003, at the urging of Canadian Mountain Holidays, the BC Ministry of Transportation, Parks Canada and a consensus of InfoEx subscribers, researchers and others within the Canadian avalanche community, the CAA undertook the development of the Canadian Avalanche Information System (CAIS). The goal of the CAIS project was to integrate data collected and owned by the CAA with InfoEx data and data from all possible other sources to create a master CAIS dataset containing the avalanche-related information for Canada. The CAIS dataset could then be used in as many ways as possible to advance avalanche safety in Canada and internationally. There was broad agreement of the tremendous future benefit in ensuring the CAIS dataset is as comprehensive and complete as possible, and recognition that InfoEx was an important source for collecting information for the CAIS dataset.

As the guiding principles and architecture for the CAIS project began to be developed and discussed within the InfoEx community, some operators began to question the wisdom of integrating all InfoEx data into a single comprehensive CAIS dataset managed by the CAA. These operators were concerned their data could perhaps find its way into the hands of unknown third parties and used in ways that could be detrimental to the interests of the organizations that provided that data. Information about avalanche incidents and accidents, and the “point-in-time” comments or opinions of their workers

that could prove to be inappropriate in the clear light of 20-20 hindsight, were seen by these organizations as being potentially sensitive. Although these concerns are not new, modern data transfer and processing technologies have exacerbated them.

These issues were explored at a meeting of the InfoEx subscribers at the CAA's annual general meeting in May, 2005. During those discussions, representatives of the CAA and other organizations advocated for transparency and full disclosure of InfoEx information, contending that in the modern age any data exchanged electronically between seventy or more operations cannot be effectively secured, and that the optics of limited disclosure could undermine public confidence in the professionalism and integrity of the Canadian avalanche community. Public sector operators noted that information originating from government agencies may be subject to federal or provincial access to information legislation, and therefore their InfoEx data submissions could effectively already be "public documents." Private sector operators noted their data is not subject to access to information legislation and that they were free to establish all terms and conditions for use of their data by others.

Throughout these discussions the question of who owned the InfoEx system and had ownership and rights to the historical information contained in the InfoEx dataset was admirably argued by both camps, without resolution.

Deliberations of the Boards of Directors

In the past two years, over \$80,000 has been invested into development of the CAIS, with an additional \$40,000 proposed for fiscal year 2005-06. Given the uncertainty regarding InfoEx data in the CAIS, the Boards of Directors of the CAA and CAC deferred approval of the 2005-06 funding until these structural and legal issues were resolved.

At their face-to-face meeting of June 26 in Revelstoke, the boards of the CAA and CAC took considerable time to explore the InfoEx – CAIS issues. The board members observed that the strongly held positions of both camps of InfoEx subscribers were reasonable and legitimate and seemed related to the legal, insurance and operational risk-management environments of these organizations. They also noted potential for negotiation around common ground. Both camps strongly supported the CAIS concept and recognized the benefits of having the CAIS dataset contain all possible avalanche-related information from all possible Canadian sources.

The boards noted with interest that subscribers wanting enhanced security for their potentially sensitive data also stated that much of their InfoEx data was clearly non-sensitive. Further, these subscribers would be pleased to have their data from non-sensitive fields included in the CAIS dataset. Their only requirement was a need to retain ongoing ownership and control of data deemed to be potentially sensitive. Subscribers advocating transparency and full disclosure for their InfoEx data were willing to have their entire InfoEx submissions contained in the CAIS dataset. A mechanism for resolution of the data security issues became clear.

Subscribers concerned with data security could review the list of InfoEx data input fields and classify those fields into two categories: non-sensitive and potentially sensitive. These lists could be submitted to the BC Helicopter and Snowcat Skiing Operators Association (BCHSSOA), the Canada West Ski Areas Association (CWSAA) and the Backcountry Lodge Operators of BC (BLBC) for review and ratification prior to the 2005-06 winter operating season. Then, InfoEx subscribers could be offered two options for participation in the InfoEx program. Under "Option 1," subscribers would agree to allow their entire InfoEx submissions to be included in the CAIS dataset. Under "Option 2" subscribers would agree to allow their non-sensitive data to be included in the CAIS dataset, while their potentially sensitive data would be held in a parallel, secured dataset.

Analysis, Legal Issues

To resolve InfoEx and CAIS related legal questions, the CAA retained the services of Sze Mei Yeung of Richards Buell Sutton ("RBS"), a highly-respected Vancouver legal firm with an extensive intellectual property law practice. After a thorough examination of past InfoEx contracts and other background materials, Ms Yeung offered the following analysis that the CAA has accepted as definitive:

1. The CAA owns the InfoEx trademark, the InfoEx system, exchange system, the (CAIS) master data base and associated processes and underlying source code (other than certain server code that was licensed from Canadian Mountain Holidays), subject to ownership of Infoex data as outlined below.
2. InfoEx subscribers likely own their originally submitted inputs to InfoEx.
3. The CAA and the InfoEx subscribers likely have a joint proprietary interest in the industry output, and are thus potentially all co-owners of the existing InfoEx industry outputs.
4. Unless otherwise contractually agreed, co-owners of a protected work (i.e. the existing InfoEx industry outputs) cannot license the protected work or assign a partial interest in the protected work without the consent of all other co-owners.
5. Given the evolving nature of technology and the CAIS project, it is difficult for the CAA to predict all possible future uses and purposes for the CAIS dataset, therefore all possible future uses cannot be definitively defined in the new InfoEx contracts with subscribers.
6. If the CAA is to continue its significant investment and efforts in developing the CAIS it would be problematic and practically unworkable for the CAA to have to obtain consents from all InfoEx subscribers (including retroactive consents from past subscribers) on a going forward basis for future initiatives involving the CAIS dataset.

7. If the subscribers are able to recognize and sympathize with this difficulty faced by the CAA, (RBS) would suggest they assign ownership of their data that is stored in the (InfoEx) dataset to the CAA, provided that a restated subscription agreement ... addresses subscriber concerns with respect to disclosure, data access and liability.

It is the position of the CAA that all information contained in any dataset owned or administered by the CAA must be collected and managed in full compliance with all Canadian intellectual property and privacy legislation and in accordance with the terms and conditions in any contracts or agreements relating to those data. If any InfoEx subscriber decides the information they submit to the InfoEx is to be used only for those purposes specified in the relevant InfoEx contracts, the CAA is legally and ethically obliged to comply with that decision.

Board Direction for Moving Forward

The CAA remains committed to creating a comprehensive and useful CAIS dataset, while at the same time doing everything necessary to ensure the security of the information that InfoEx subscribers own or hold rights to, and deem potentially sensitive.

During their meeting of August 10, 2005, the boards approved the following motion: ***The Boards of Directors of the CAA/CAC have confidence that current efforts to resolve the issues of data ownership will lead to an agreement that respects the interests of all parties, and authorizes continued development of the Canadian Avalanche Information System. Initial emphasis should be on developments that are less dependent on the resolution of the data ownership issue, as determined by Clair and the contracted developers.***

The Boards have reviewed and ratified the guiding principles outlined below, and have tasked their Executive Director to do everything possible to ensure the InfoEx program and the CAIS are fully integrated and operational prior to the upcoming winter season.

Guiding Principles for InfoEx within the Canadian Avalanche Information System

1. Vision & Guiding Principles

The vision for the CAIS project remains unchanged from what was endorsed by the CAA and the InfoEx subscribers at their meeting of May 2003: ***To develop the capacity to collect and create a master dataset containing avalanche-related information from all possible Canadian sources, so that (CAIS) information may be used in as many ways as possible to advance avalanche safety in Canada.***

- 1.1 The CAIS dataset and InfoEx datasets (existing and future) will be developed and managed as separate and distinct data sets. Database structures and processes will be designed to ensure comprehensive data collection, data integrity and security, and inter-operability between these systems.

- 1.2 In keeping with recent legal advice regarding effective management of intellectual property, the CAIS dataset will only contain data the CAA owns or holds rights to. The CAA Data Sharing Policy (under development) will apply to the CAIS dataset.
- 1.3 In keeping with recent legal advice regarding InfoEx, it is acknowledged that each subscriber's existing and future data in the InfoEx data set is owned by that subscriber, and that data will not be used for any purposes other than those specified in the annual InfoEx contracts without the express written permission of the subscriber, except as otherwise required by law. The CAA Data Sharing Policy (under development) will not apply to the InfoEx datasets.
- 1.4 Beginning winter season 2005-06, InfoEx contracts will assign ownership and rights to all InfoEx data inputs classified as non-sensitive to the CAA, for inclusion in the CAIS dataset.
- 1.5 Beginning winter season 2005-06, InfoEx contracts will offer subscribers the choice of assigning ownership and rights to data classified as potentially sensitive to the CAA for inclusion in the CAIS dataset, or retaining ownership and rights to their potentially sensitive data and having that data held in the secured InfoEx data set.

2. InfoEx & CAIS: A Conceptual Framework for Moving Forward

For winter season 2005-06 InfoEx contracts will be redrafted by the legal firm of Richards Buell Sutton to ensure compliance with all relevant intellectual property, licensing and contract law, and congruence with the concepts outlined in this document.

The revised contracts will offer subscribers a choice of two options for participation in the InfoEx program. These options will determine the subsequent ownership, management and/or uses of the data submitted. The CAA will advise each InfoEx subscriber to solicit legal and insurance advice prior to taking a decision on which option they should select.

Option 1: Full Release of Data Ownership and Rights

This option will offer InfoEx subscribers preferred subscription rates on the condition that the subscriber assigns full ownership and rights to both *non-sensitive* and *potentially sensitive* InfoEx data submitted to the CAA, (including the historical data submitted by such subscribers) and that this data may immediately be inserted into the CAIS dataset for future uses as determined by the CAA.

Option 2: Partial Release of Data Ownership and Rights

This option will offer InfoEx subscribers enhanced security and management for their **potentially sensitive** InfoEx data at subscription rates commensurate with this increased level of service. "Option 2" contracts will specify that:

- The subscriber assigns full ownership and rights to their *non-sensitive* data to the CAA and that data may immediately be inserted into the CAIS dataset for future uses as determined by the CAA.
- The subscriber retains full ownership and rights to their own *potentially sensitive* information and that data only will be inserted into the InfoEx dataset, with a limited license to CAA and other subscribers to use such data as contemplated by the InfoEx contract, during the current season. Each subscriber's data in the InfoEx dataset will only be released to third parties outside of the InfoEx community with the express written permission of the subscriber.
- The InfoEx dataset will be managed by the CAA according to conditions as specified in the InfoEx contract for that particular winter season. Conditions will include royalty-free use by the CAC public avalanche forecasters, and royalty-free use by the CAA's Industry Training Programs.

Both contract options will specify the following:

- The CAA and all InfoEx subscribers agree to indemnify each other against harm or damages resulting from that organization's failure to ensure the security of the InfoEx operating system and associated data submissions and outputs as specified in the InfoEx contract.
- InfoEx subscribers will have full and unrestricted access to both non-sensitive and potentially sensitive data submitted by all other InfoEx subscribers during the winter season that they subscribe to the InfoEx.
- InfoEx subscribers will also have unrestricted access to all current season data contained in the CAIS dataset.
- In consideration of a service fee set by the CAA, all InfoEx subscribers will have unrestricted access to their own data from previous winter seasons that is contained in the InfoEx dataset.
- InfoEx subscribers wishing to use other subscribers' data from previous winter seasons contained in the InfoEx dataset will be required to submit a written request to the CAA identifying the specific data requested and all intended uses. In consideration of a fee set by the CAA, the CAA will administer the process for acquiring and documenting the necessary consents from the other subscribers and provide that data for which consent has been obtained (if such consents are readily available).
- InfoEx subscribers wishing to use CAIS data from previous winter seasons will be required to submit a written request to the CAA identifying the specific data requested and all intended uses. In consideration of a fee set by the CAA, and if the request is congruent with an approved Data Sharing Policy, the CAA will provide the data that has been requested.
- Each subscriber's participation in the InfoEx will be under license to use CAA proprietary systems. Contracts may include non-competition or other clauses required to protect the CAA's proprietary rights, and capital and operating investments in development of the CAIS and InfoEx operating systems.

3. The Business Case For Continuing With InfoEx - CAIS Systems Development

As of 2005-06, more the \$120,000 will have been invested into the CAIS project. While this may seem modest for the scope and volume of work accomplished and the value of the resulting products, the CAA-CAC Boards of Directors have continually stated their position that this investment must be recoverable within a three- to four-year period. Mechanisms for achieving this requirement include:

- 3.1 The CAA will own or hold rights to all data in the CAIS dataset and may license or sell rights to use that data to researchers or other third parties according to terms contained in an approved CAA Data Sharing Policy.
- 3.2 InfoEx subscribers choosing “Option 2” may be assessed a one-time legal and programming services premium in 2005-06 to cover the CAA’s increased legal and consulting costs incurred to meet their newly requested needs for enhanced data security.
- 3.3 Each season each InfoEx subscriber will receive up to one hour of technical support from the CAA free of charge. Additional technical support will be billed to the subscriber at the rate of \$(to be determined) per hour.
- 3.4 Beginning in winter 2005-06, the CAA will charge higher InfoEx subscription fees for those who choose “Option 2” for participation in the InfoEx program. This fee increase will cover: the CAA’s extra costs for developing and operating a distinct and secure InfoEx dataset (in parallel to the CAIS) for their potentially sensitive data; anticipated extra work to inform “Option 2” subscribers of all requests from researchers or others for uses of their InfoEx data; administering the required written “consent” or “non-consent” process for documenting subscribers’ replies to those requests; and the extra work required to filter and verify the InfoEx data according to the consent documents returned by subscribers.
- 3.5 Beginning in winter 2006-07 the CAA will charge a higher Infoex subscription fee to those operators who do not have the minimum hardware or software required for fully electronic participation in Infoex. Other subscribers should not continue to pay for a dedicated evening shift CAA staff person to manually transpose the daily fax or “text only” formatted submissions of a few low tech subscribers.
- 3.6 The CAA will solicit statements of interest from other groups (BLBC, ACMG, etc) to develop similar cooperative information exchanges that could utilize the InfoEx - CAIS technology with minimum added costs to the CAA, thereby generating new revenue streams.
- 3.7 The CAA will work to develop standardized, secure avalanche data management services for smaller operators lacking the means or technical

capacity to develop comprehensive internal systems comparable to those systems in place at CMH, BC MOT, and Parks Canada. Over time the CAA could develop data visualization and analysis tools, and create an affordable “industry standard / due diligence” avalanche data management product for those Canadian operations choosing to participate at an annual cost to be determined. Participants would fully own all of their non-CAIS data, and have sole and full access to their data at all times.

4. InfoEx – CAIS Project Development Priorities, Summer / Fall 2005

- 4.1 Programming required to achieve InfoEx – CAIS systems architecture and the data collection, management and security goals outlined above.
- 4.2 Programming to required to generate metadata documenting the data fields / contents of the CAIS and Infoex datasets, and the sources of those data.
- 4.3 Programming requested by CAC staff to support PAB production and new data collection services required for Alberta.
- 4.4 System enhancements to make the data transfer processes more “user friendly” for small operators and the less than technically advanced. This should include developing minimum hardware and software requirements for participants.
- 4.5 Programming required to facilitate the establishment of other information exchange groups.

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