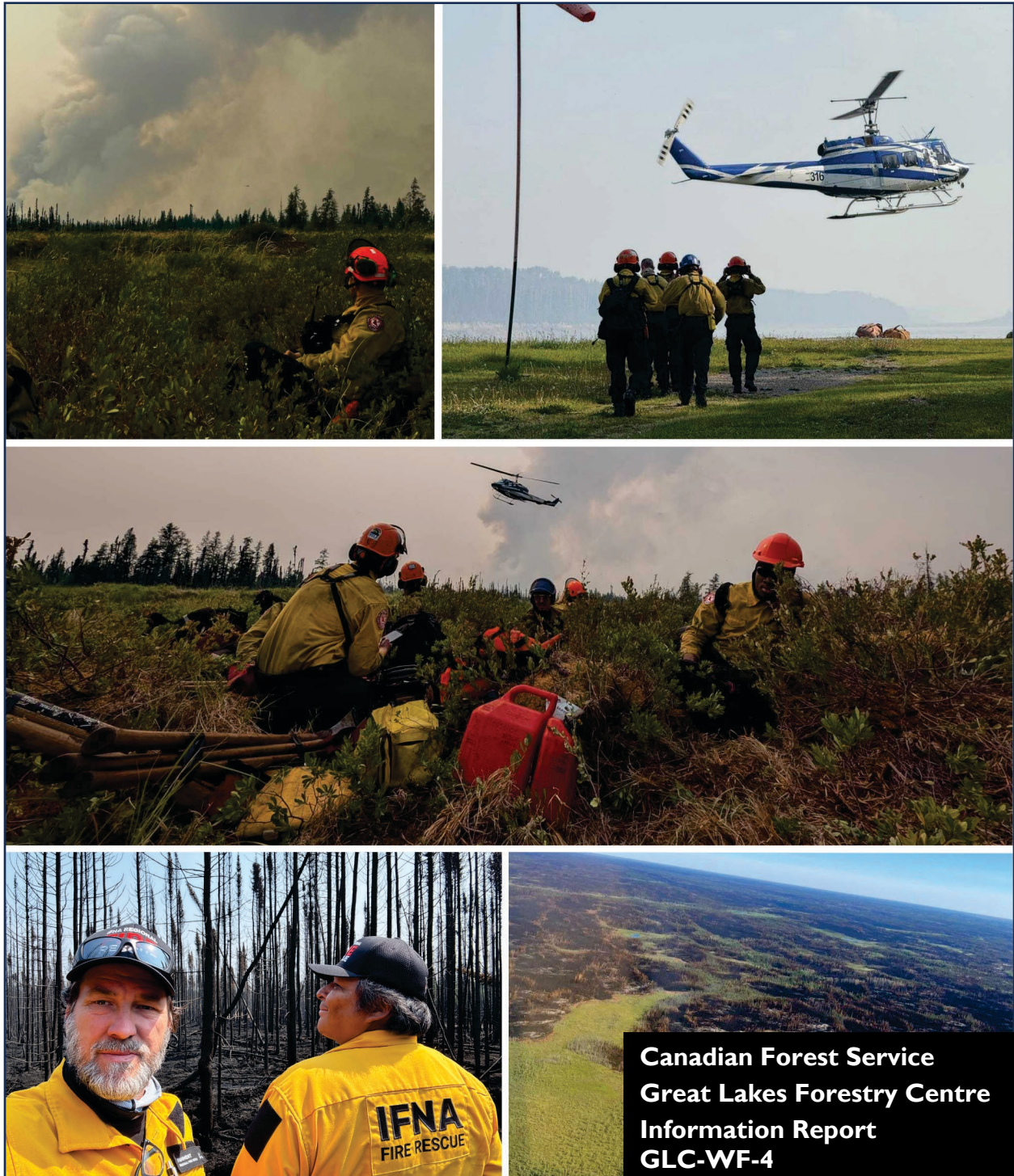




Shared Sky and Constellations: The 2025 CIFFC-WildFireSat Indigenous Fire and Emergency Management Outreach Session



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The Great Lakes Forestry Centre, Sault Ste. Marie, Ontario

The Great Lakes Forestry Centre is one of five research centres within the Canadian Forest Service, which is the national and international voice for Canada's forest sector. One of the core mandates of the Service is to conduct scientific research on Canada's forests. This research can be used to inform forest management planning and policy decisions and to assist the forest industry, the public and other scientists. The research projects cover diverse forestry related issues including climate change, forest fires, pests, and remote sensing. The results of this research are distributed in the form of scientific and technical reports and other publications.

Additional information on Natural Resources Canada, the Canadian Forest Service, and the Great Lakes Forestry Centre research and publications is also available online at <https://natural-resources.canada.ca/science-data/science-research/research-centres/great-lakes-forestry-centre>.

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Shared sky and constellations: The 2025 CIFFC-WildFireSat Indigenous Fire and Emergency Management Outreach Session.

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His Majesty the King in Right of Canada, as represented by the Minister of Natural Resources Canada, 2026.

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PREAMBLE

WildFireSat is the first government-owned satellite mission specifically designed to monitor active wildland fires daily across Canada. This mission will provide timely and essential data to track fire activity and support fire and emergency management efforts with a launch planned for 2029.

Indigenous Peoples in Canada, often located in wildfire-prone areas, are deeply connected to the land and are disproportionately impacted by wildfires. The Canadian Interagency Forest Fire Centre (CIFFC) coordinated a WildFireSat knowledge exchange event specifically geared for Indigenous organizations that prepare and respond to wildland fires and emergencies. This is part of a multiyear partnership between CIFFC and Natural Resources Canada's Canadian Forest Service (CFS) WildFireSat mission team to help deliver key components of WildFireSat's knowledge exchange program, which includes outreach sessions with the wildfire management community.

The objective of the CIFFC – WildFireSat Indigenous Wildfire and Emergency Outreach Session was to engage with Indigenous fire and emergency management and fire stewardship organizations to share information about the mission, listen, and discuss Indigenous perspectives on the opportunities and challenges that WildFireSat presents.

The WildFireSat team recognizes the important and growing role of Indigenous fire stewardship and emergency management. As such, the mission is prioritizing efforts to better understand the needs of Indigenous fire and emergency management and fire stewardship organizations as users of WildFireSat data through engagements such as this session. The session included an overview of the mission, discussions on end user products and the training that will be available, funding opportunities, and several interactive activities designed to foster relationship-building, promote transparency, and create space for sharing perspectives. An Indigenous consultant assisted in the design, facilitation and delivery of the session (Whitestone Industry Services Ltd.). Notably this session was facilitated in a trauma-informed and culturally grounded way. This session was also conducted in a manner that respected the First Nations principles of Ownership, Control, Access, and Possession (OCAP®), which affirm that First Nations have authority over data collection processes and retain ownership and control over how their information is used.

The following proceedings summarize the outcomes from the session.

- **Where:** Treaty 1 territory (Winnipeg Manitoba) at the Inn at the Forks (located at the junction of the Red and Assiniboine rivers, an important meeting place for over 6,000 years).
 - **When:** October 23 and 24, 2025.
 - **Who:** 12 Indigenous organization representatives (9 organizations - Independent First Nations Alliance, Interlake Reserves Tribal Council, ISN Maskwa, Kee Tas Kee Now Tribal Council, Nokiwin Tribal Council, Northern Inter-Tribal Health Authority, The First Nations' Emergency Services Society of British Columbia, Wolastoqey Tribal Council Inc., Yukon First Nations Wildfire), 3 consultant/advisors (Whitestone Industry Services Ltd.), 3 CIFFC staff and 12 federal government participants (11 CFS, 1 Canadian Space Agency).
-



Participants

DAY I – GETTING TO KNOW EACH OTHER

Opening Prayer

Hughie Jones

The workshop opened with a smudge ceremony, at the Oodena Celebration Circle, led by Lyndon Aginas (Iska Native and Ceremonialist; Alexis Nakota Sioux Nation), who offered prayer to the Great Spirit to ask for guidance and a good workshop. This is an outdoor amphitheater near where the two rivers meet in a natural shallow bowl. The Oodena Celebration Circle pays homage to the 6000 years of Indigenous peoples in the area and in Ojibwe “Oodena” translates to “heart of the community”.

Land Acknowledgement

Tracey Cooke

A welcome and land acknowledgement on behalf of the Canadian Forest Service as follows: “As we come together today in Winnipeg, we acknowledge that we are meeting on Treaty 1 Territory, the traditional lands of the Anishinaabe, Cree, Oji-Cree, Dakota, and Dene Peoples, and the homeland of the Métis Nation. We honour the deep and enduring relationships Indigenous Peoples have with the land, water, and fire. Their knowledge systems and stewardship practices have shaped these landscapes for generations and continue to guide us in our shared responsibility to protect and care for them. We recognize the importance of working in respectful partnership with Indigenous communities, learning from traditional fire knowledge, and supporting collaborative approaches to land and fire management. We are grateful to live, work, and learn on these lands, and we commit ourselves to reconciliation, relationship-building, and the respectful integration of Indigenous knowledge in our work.”

Bridging Perspectives: scientists and Indigenous participants

Facilitated by Hughie Jones and Duane Kootenay, Whitestone Industry Services Ltd.

Introduction

Following the opening prayer Hughie Jones and Duane Kootenay facilitated a mirrored dialogue exercise named “Bridging Perspectives: Scientists and Indigenous Partners”. The exercise was delivered as a core component of the WildFireSat Outreach Session to create a structured environment in which Indigenous participants and scientific/government representatives could reflect on their respective roles, assumptions, and expectations of one another to inform collaboration on the WildFireSat Mission. The exercise provided a facilitated process for both groups to articulate their understandings of each other, explore points of convergence and tension, and identify pathways toward more balanced and reciprocal collaboration. Through mirrored breakout sessions, participants examined their values, priorities, the strengths and practices they bring, and the barriers that may limit effective partnership. The exercise emphasized respect, plain language, relational approaches to help build transparency, shared meaning, and trust as essential foundations for future work with the WildFireSat Mission.

Methodology

The exercise was delivered as a structured, two-group breakout activity, with the following groups:

1. Indigenous organization participants.
2. Scientists/government representative participants.

Before the breakout, the lead facilitator introduced the purpose and procedure of the exercise, after which participants were divided into two separate rooms. Each group was supported by a dedicated facilitator who guided the discussion through the structured questions and recorded summary notes. Both groups completed the same mirrored worksheets, which comprised of two (2) key sections:

1. Values Section – Participants were prompted to list: “As a human being, what do you value most? List five words in order of priority (1 highest priority and 5 lowest priority).”. Participants were provided five (5) empty lines to provide their responses.
2. Prompt Section- seven (7) mirrored discussion prompts covering strengths, expectations, relationship dynamics, relevance of the wildfire constellation, potential barriers, reciprocity, and decision-making. Participants were provided one (1) full page per prompt to offer semi-structured responses and comments (Table 1).
3. Reflection Section - After the breakout sessions, both groups reconvened in plenary to present ten (10) minute summaries of their discussions. Following the summaries the group engaged in a 1-hour discussion to reflect on the exercise and summaries. This comparative reflection allowed participants to identify areas of alignment, clarify misunderstandings, and highlight priorities unique to each group. All outputs, including written worksheets, facilitator notes, and group summaries, were consolidated to form the basis for the thematic analysis included in this report.



Photographer: Haitch Hayes, Yukon First Nation Wildfire.

Table 1. Summary of the seven mirrored discussion prompts used in the Bridging Perspectives exercise.

Section	Theme	Guiding questions
1. Offerings, Strengths & Practices	What each group believes the other brings	• What do we believe the other group is bringing to this collaboration? • What do we understand about their current practices, knowledge systems, or ways of working? • Which of those contributions do we value most, and why?
2. Intentions & Expectations	Perceived motivations and expectations	• Why do we think the other group wants to work with us? • What do we believe they expect from us in this collaboration?
3. Relationship Dynamics	Current relationship and assumptions	• How do we currently experience our relationship with the other group? • What assumptions (positive or negative) do we think exist between us? • What power dynamics do we notice in this relationship?
4. Relevance of the Initiative	Importance and usefulness of WildFireSat	• How do we see the wildfire constellation (data, tools, services) being relevant—or not—to our needs and priorities?
5. Barriers & Risks	Challenges to successful collaboration	• What challenges, barriers, or risks might prevent this collaboration from working well? • Where might misunderstandings or conflicts arise?
6. Mutual Benefits & Reciprocity	Defining balanced partnership	• What would a balanced, mutually beneficial outcome look like for both groups? • How can reciprocity be demonstrated in this partnership?
7. Decision-Making & Moving Forward	Integration of knowledge systems and next steps	• How do we each make decisions and determine what knowledge is valid or important? • How can both Indigenous and scientific knowledge systems be respected and integrated? • What first steps and commitments are needed to build trust and move forward together?

Results

Exercise explanation

During the initial explanation of the Bridging Perspectives: Scientists & Indigenous Partners exercise, before the groups were separated, some participants expressed sentiments such as:

1. That they did not understand why the participants needed to separate into groups and that it might be better to remain together.
2. That a single combined discussion could be more appropriate.

The facilitator followed up by asking participants to ‘trust’ the exercise and the process, noting that this approach would support a richer discussion and deeper understanding of one another. The groups mutually agreed to follow-through with the exercise.

Exercise response rate

The Indigenous organization and scientists/government representative participant worksheet completion rate for the **Values Section** was 30.8% (4/13) and 100% (9/9), respectively. The highest ranked values were “Respect” and “Integrity” for the indigenous organization representative group and “Family” for the scientists/government representative participant group (see Table 2). On an individual basis, Indigenous organization and scientists/government representative participant worksheet had a 100% completion rate (meaning a response was provided for every section). The **Prompt Section** response rate was 23% (3/13) and 0% (0/11; facilitator took notes) (Table 3), respectively.

Post-exercise summaries

Post-exercise, the initial remarks from the indigenous organization representative group included:

1. “It is difficult for us to complete the [Prompt Section] of the exercise, because we all come from different parts of Canada, and we all have different teachers and teachings [traditional knowledge].”
2. “The other group [scientists/government representative group] all have the same teacher [scientific method].”

Table 2. Value ranking comparison (1 = Highest; 5 = Lowest) between Indigenous organization representatives and scientists/government representatives.

Value ranking (1 = highest; 5= lowest)	Indigenous organization representatives	Scientists/government representatives
1	Relationships, Respect, Integrity, Family [¹ Land & Water, ¹ Stewardship, ¹ Adaptability, ¹ Peace]	Compassion, Caring, Health, Family, Family, Family, My Family (Spouse, Children, Parents), Trust, Family
2	Opportunity, Inclusivity, Accountability, Safety [¹ Dependability, ¹ Freedom]	Integrity, Support, Family, Nature, Happiness/Wellbeing, Health, Health, Respect, Freedom
3	Safety, Knowledge, Respect, Health [¹ Family & Health, ¹ Compassion]	Respect, Time alone, Friends, Building, Health, Knowledge, Freedom of Thought, Integrity, Respect
4	Freedom, Belonging, Family, Community [¹ Empathy]	Honesty, Exploration – Understanding, Well-being, Teaching, Home/Earth/Environment, Community, Time, Openness (Open-Minded), Education
5	Health, First People, Trust, Comfort [¹ Truth]	Humility, Calmness, Meaningfulness, Community, Belonging/Community, Voice, Place (Nature and Home), Sense of Humour, Life

¹ Taken from semi-structured facilitator notes. Ranks are approximate.

Table 3. Summary of workshop prompts and thematic responses from Indigenous organization representatives and scientists/government representatives.

Prompt	Indigenous organization representatives (Answers reflect perceptions of the other group)	Scientists/government representatives (Answers reflect perceptions of the other group)
I. Offerings, Strengths & Practices	• Control • New ideas and perspectives • Information • Open-mindedness • Current practices are paternal, systems restrictive (but changing) • Recent changes sometimes feel like “lip service” • Hope for genuine empathy and willingness to work together, not just policy • Intelligence (book knowledge) • Science • Research • Mathematics • Experiments • Financial resources • Contracts • Things, expertise, money • Ongoing mistrust, lack of long-term support • Too much “sunsetting” (projects ending prematurely) • Value resources to “start” things	• Wisdom (any creation story is right!) • Dialogue about values • API & UI – how do you want the data formatted, searchable for information • Knowledge of how things work in real life. • Different perspective on fire use/management (admission of personal bias) • Data sovereignty – understand what that means

Prompt	Indigenous organization representatives (Answers reflect perceptions of the other group)	Scientists/government representatives (Answers reflect perceptions of the other group)
2. Intentions & Expectations	• They want to work with us to bring in Indigenous worldviews • The mission will provide important products that will hopefully benefit Indigenous communities and put those communities on par with other communities. • First Nations are disproportionately affected by air quality & evacuation. I think this is why they "Need" to work with us. • They may expect Indigenous Stakeholders to provide perspective on how to develop the program / products/ services in a way that benefits those communities • I think they expect us to use this resource in a meaningful way. • Collaboration may feel forced • Desire for reconciliation • Inclusion of a larger, more diverse group • Shift from single-group focus • Expect respect, testing, and information sharing	• Indigenous partners seek influence and to have their voices heard • Collaboration has operational utility • Desire to assess usefulness of the initiative • Inclusion in the wildfire management community • Aim for self-reliance and sovereignty • Transparency and respect for participants' time • Data products should support tangible decision-making
3. Relationship Dynamics	• Other group holds power to make life easier or harder • Assumption that Indigenous partners are not seen as true partners • Power dynamics: other group acts as gatekeepers and controllers • Non-Indigenous perspective: federal representatives often experienced as barriers • Assumptions that government is present to monitor/control conversation • Relationship somewhat condescending and "over" • Need to foster attitude of walking "not in front or behind" (implies equality and partnership)	• Relationship is often institutionalised and transactional • Limited interaction and mistrust present • Segregation between groups • Roles defined as clients/end users versus government employees • Power dynamics and expectations can create challenges

Prompt	Indigenous organization representatives (Answers reflect perceptions of the other group)	Scientists/government representatives (Answers reflect perceptions of the other group)
4. Relevance of the Initiative	• Hopefully the tools exist to empower communities to help them make decisions that promote health and well-being and safety. • Hopefully tools are accessible for non-technical users or Communities with limited technical access to technology • Hopefully the tools are provided for free with guidance for how to Use + interpret • Increase in safety, accuracy of strategy, air quality, and evacuation advice. • Need for more information and education to involve nations and the public in wildfire issues • Value in better tools for predicting systems that affect communities	• Importance of sharing with the broader community • Concerns about inclusivity and jurisdiction • Messaging coordination is complex (“Pandora’s box”) • No existing template for this kind of collaboration • Fear and uncertainty about outcomes
5. Barriers & Risks	• Systemic racism and past indiscretions as barriers • Collaboration should be based on mutual need • Conflicts arise when collaboration is mandated rather than voluntary • Indigenous partners sometimes viewed as contractors, not partners • Imposition of parameters on collaboration • Risk if user group feels “talked down to” • Meetings shifting towards government policy vs. First Nations sovereignty • Dissemination of raw data • Receiving data at same time as provincial/federal agencies • Risk of data not being interpreted or edited for local relevance	• Risk of losing consistent communication • Historical mistrust due to broken promises from federal representatives • Need for transparency • Trust issues between provinces and Indigenous communities • Technical constraints (inability to redesign requirements)

Prompt	Indigenous organization representatives (Answers reflect perceptions of the other group)	Scientists/government representatives (Answers reflect perceptions of the other group)
6. Mutual Benefits & Reciprocity	• Fair and equal access to information and products • Importance of being involved from the very beginning of the process • Having the ability to influence and effect change	• Practicality for all groups • Seamless service and integration of Indigenous knowledge into new products • API as a tool for collaboration • Feedback loops and strong education • Reciprocity in data product development and user experience • Sharing resources across departments and constellations • Acknowledgement of knowledge deficits and differences in operational approaches
7. Decision-Making & Moving Forward	• True integration of Indigenous and scientific systems • Commitment of time and effort from both sides • Active listening to each other • Avoiding pressure for quick results or rigid timelines • All information is good; don't assume anyone knows best for a given place • Allow individuals/communities to decide what is important	• Decisions should inform practical outcomes and align with beliefs • Respect for both scientific and Indigenous knowledge systems • Utility and assessment of practices are key • Building relationships through transparency and understanding • Admission that the scientific method is not almighty • Commitment to asking questions and fostering trust

Discussion

Values section

The Bridging Perspectives: Scientists & Indigenous Partners exercise required more time than was available for participants to complete it meaningfully. During the post-exercise discussion, one Indigenous organisation representative emphasised the importance of the activity and stated:

“I think that the questions inside the exercise are critical to discuss...but we need more time. Perhaps we can take the questions with us and send them later.”

Despite time constraints, the value rankings shared by both Indigenous and scientific/government participants revealed a strong foundation for collaboration and mutual understanding.

Highest-ranked values for both groups centred on relationship-based principles. Indigenous representatives prioritised Relationships, Respect, Integrity, and Family, often explicitly linking these to land, water, stewardship, adaptability, and peace. Scientists and government participants similarly emphasised Compassion, Caring, Health, Family (with repeated mentions of family and specific reference to spouse, children, and parents), and Trust. This convergence suggests that strong working relationships and mutual respect are essential starting points for effective collaboration.

Second-ranked values showed Indigenous participants valuing Opportunity, Inclusivity, Accountability, and Safety, with additional mentions of dependability and freedom. Scientists and government respondents highlighted Integrity, Support, Family, Nature, Happiness/Wellbeing, Health, Respect, and Freedom. These sets point to a shared interest in inclusive, supportive environments where people can contribute meaningfully and safely.

Third-ranked values continued this alignment: Indigenous participants listed Safety, Knowledge, Respect, Health, Family, and Compassion, while scientists/government participants named Respect, Time alone, Friends, Building, Health, Knowledge, Freedom of Thought, and Integrity. Both groups appreciate safe, respectful spaces for sharing ideas and knowledge.

Fourth-ranked values for Indigenous representatives included Freedom, Belonging, Family, Community, and Empathy. Scientists/government participants listed Honesty, Exploration/Understanding, Well-being, Teaching, Home/Earth/Environment, Community, Time, Openness, and Education. These rankings indicate a mutual interest in community connection, open communication, and learning.

Lowest-ranked values (but still important) for Indigenous participants were Health, First People, Trust, Comfort, and Truth. Scientists/government participants identified Humility, Calmness, Meaningfulness, Community, Belonging, Voice, Place (Nature and Home), Sense of Humour, and Life. These values point to the importance of grounding, listening, and maintaining connection to community and place.

Prompts section

Building on the shared values, the workshop prompts revealed both the strengths and expectations each group brought to the collaboration.

Offerings, strengths and practices: Indigenous organisation representatives highlighted a broad spectrum of expertise and resources, including intelligence (book knowledge), science, research, mathematics, experiments, financial resources, contracts, control, and new ideas and perspectives. Scientists and government representatives emphasised wisdom (recognising the validity of any creation story), dialogue about values, technical aspects such as API & UI design, practical knowledge of real-world operations, openness to different perspectives on fire management (with admission of personal bias), and a desire to understand data sovereignty.

Intentions and expectations: Indigenous participants expressed a desire to bring Indigenous worldviews into the mission, expecting products that benefit their communities and put them on par with others. They noted that First Nations are disproportionately affected by air quality and evacuation and expect to use resources meaningfully. There was also a sense that collaboration sometimes feels forced, with a desire for reconciliation, inclusion, and respect. Scientists and government participants sought influence and voice for Indigenous partners, operational utility, assessment of usefulness, inclusion in the wildfire management community, self-reliance, transparency, and data products that support decision-making.

Relationship dynamics: Indigenous participants described the other group as holding power to make life easier or harder, with an assumption that Indigenous partners are not seen as true partners and that power dynamics are controlled by gatekeepers. Scientists and government participants acknowledged that relationships are often institutionalised and transactional, with limited interaction, mistrust, segregation, and roles defined as clients/end users versus government employees.

Relevance of the initiative: Indigenous participants hoped tools would empower communities, be accessible for non-technical users, and be provided for free with guidance. They emphasised the need for more information and education, and better tools for predicting systems affecting communities. Scientists and government participants stressed the importance of sharing with the broader community, concerns about inclusivity and jurisdiction, complexity of messaging (“Pandora’s box”), lack of templates, and fear/uncertainty about outcomes.

Barriers and risks: Indigenous participants identified systemic racism, legacy of colonial policies, the need for mutual collaboration, and the risk of being viewed as contractors rather than partners. Scientists and government participants noted risks of losing consistent communication, historical mistrust, need for transparency, trust issues between other levels of government (e.g., provinces) and Indigenous communities, and technical constraints.

Mutual benefits and reciprocity: Indigenous participants called for fair and equal access to information/products, involvement from the beginning, and the ability to influence change. Scientists and government participants emphasised practicality, seamless service, integration of Indigenous knowledge, API as a tool, feedback loops, strong education, reciprocity in data product development, sharing resources, and acknowledgement of knowledge deficits.

Decision-making and moving forward: Indigenous participants advocated for true integration of Indigenous and scientific systems, commitment of time and effort, active listening, and avoiding pressure for quick results. Scientists and government participants stressed decisions that inform practical outcomes and align with beliefs, respect for both knowledge

systems, utility, assessment of practices, building relationships through transparency, and humility about the scientific method.

Reflections section

As the workshop progressed, participants moved from structured prompts to deeper reflection and storytelling. The dialogue became more candid and personal, with Indigenous participants sharing teachings about the land, weather, and fire, and scientists/government representatives responding with openness and curiosity.

One Indigenous participant emphasised the importance of recognizing Indigenous science:

“A really big step and commitment from you guys is accepting us and our science as science.”

Relationship-building and trust remained central, with hopes that the workshop would foster better communication and more inclusive decision-making. There was a strong acknowledgement of diversity within Indigenous communities and the need to respect different perspectives and teachings:

“Common thing that the word indigenous doesn't characterize well the diversity of opinions, and everybody else has a common employer, the Canadian government, and that's easier to resolve, right?”

The conversation also addressed the challenges of collaboration, including historical mistrust, the risk of tokenistic engagement, and technical constraints. As one participant noted:

“They understand the heritage of broken promises, and it appears they want to be part of changing that.”

Looking ahead, the group discussed the need for early engagement in future projects, continuous feedback, and mechanisms for relationship-building beyond the current initiative. The session closed with a sense of hopefulness and realism:

“Better late than never.”

Throughout, the workshop was marked by a willingness to share, listen, and learn from one another, with participants reframing anxiety into collective purpose:

“Instead of problems, focus on outcomes; instead of anxiety, focus on passion.”

Conclusions

The Bridging Perspectives exercise highlighted important differences, gaps, and diverse viewpoints, which have helped improve alignment between Indigenous groups/organizations and the scientific and governmental sectors. Both groups prioritised relationship-centred values such as respect, integrity, family, and compassion. Participants expressed a desire for inclusive and meaningful collaboration, recognising complementary strengths and acknowledging challenges including power dynamics, mistrust, and technical limitations. There was consensus on the importance of early engagement and mutual respect. Key takeaways include:

1. Shared values include relationships, respect, integrity, and community, which provide a solid foundation for partnership.
2. Participants value technical expertise, traditional knowledge, and practical experience.
3. Barriers such as power imbalances, historical mistrust, and technical constraints need to be addressed for effective collaboration.
4. Early involvement, transparent communication, and integration of diverse knowledge systems are essential for success.
5. There is a clear commitment to sharing, listening, and learning, with participants reframing challenges into collective purpose.

The exercise established important groundwork for balanced and reciprocal collaboration between Indigenous fire and emergency management groups and the WildFireSat Mission Team. Continued attention to shared values, open dialogue, and integration of Indigenous and scientific approaches will be critical for building trust and achieving meaningful outcomes for all partners. Finally, it was conveyed that WildFireSat data and data products are more likely to be implemented and adopted by Indigenous Peoples of Canada when they align with Indigenous values and desired outcomes.

WildFireSat information sessions

Several presentations were prepared to provide background information on different aspects of satellite fire data and the WildFireSat mission. Their purpose was to set the stage for a deeper discussion about the needs, opportunities, and constraints related to using WildFireSat data within different organizations. Presentation timelines were kept flexible to allow questions and conversations to develop based on the interests of the participants.

WildFireSat mission overview

Presented by Josh Johnston

Dr. Johnston delivered a presentation providing a comprehensive overview of the WildFireSat mission, including its origins, motivations, and applications in fire management. The presentation also highlighted Dr. Johnston's personal connection to wildfire in Ontario.

Interest in satellite-based wildfire monitoring emerged in the 1980s, when it became evident that satellites could effectively measure wildfires. By the 2010s, feasibility studies for a Canadian system were undertaken under the Canadian Wildland Fire Monitoring System, laying the groundwork for the WildFireSat mission.

- Read more about the history of the mission: <https://ostrnrcan-dostrncan.canada.ca/handle/1845/275221>

WildFireSat is the first government-owned satellite mission specifically designed to monitor all active wildland fires daily across Canada. This mission will provide timely and essential data to track fire activity and support fire management efforts. Budget 2022 provided funding for this shared initiative between Natural Resources Canada, the Canadian Space Agency, and Environment and Climate Change Canada. At the G7 Leaders' Summit in Kananaskis Alberta the Prime Minister announced additional funding for the WildFireSat mission to provide global coverage. Launch is targeted for 2029 and will enhance Canada's ability to manage wildland fires.

- Learn more about the mission: <https://natural-resources.canada.ca/forest-forestry/wildland-fires/wildfiresat-canadian-operational-mission>

WildFireSat is a fire monitoring mission and will address a gap in current low earth orbit satellite coverage at important times of the day before important preparedness decisions are made in the morning and during the 'peak burn' period when fires have the most potential for active behaviour. When combined with data from other public sensors such as the Visible Infrared Imaging Radiometer Suite (VIIRS), WildFireSat will produce more comprehensive fire intelligence products.

Dr. Johnston emphasized that the mission's focus is on fire information, such as where, how active fires are and the direction and speed of the fireline and the rate of smoke production rather than high-definition imagery. These things you can't get from an image alone.

The WildFireSat mission will be a constellation of microsatellites, 11 in total.

- 1 precursor (around 2028) which will be helpful for testing.

- 7 operational (targeting 2029) which will be where the fire management product data comes from.
- 2 hot spares (in orbit) & 1 cold spare (on ground). These are in place in the event any of the 7 operational satellites require to be swapped out.

These will be low Earth orbit around 475 km above Earth with overpasses around 17:00 and 05:00 LST. Generally, we can expect 2-4 observations per day of any given location, depending on latitude. More northerly locations will have an increased number of observations.

Key outcomes of the WildFireSat mission will be that Canadian fire managers will be given unprecedented strategic intelligence on all active wildfires, daily and in near-real-time (around 30 min) when fire managers make important decisions on preparedness and priorities.

WildFireSat will contribute to air quality forecasts to help people in Canada take action to protect against the impacts of wildfire smoke.

- Learn more about the WildFireSat constellation: <https://www.asc-csa.gc.ca/eng/satellites/wildfiresat/>

The path to hotspots

Presented by Mark de Jong

Dr. de Jong provided a primer on satellite hotspots, one of the more recognizable and accessible sources of fire information derived from satellite observations. Hotspot data are currently publicly available through several internet platforms, including NASA FIRMS (<https://firms.modaps.eosdis.nasa.gov/>) and the Canadian Wildland Fire Information System (<https://cwfis.cfs.nrcan.gc.ca/home>). These datasets can also be imported into an organization's mapping platform for operational use. Each hotspot typically includes associated metadata such as the time of detection, confidence level, and other technical attributes.

While hotspots are easily accessible, the intermediate data and processing steps from satellite imagery to classified images and finally to hotspot identification require additional technical skills and data access. Dr. de Jong illustrated these processes using VIIRS data as a stand-in for future WildFireSat data.

The presentation highlighted the value of examining false-colour composites and mid-wave infrared imagery alongside classified fire maps. In the example provided (**Figure 1**), it was demonstrated that relying solely on hotspot data can lead to misinterpretation. While not a major issue in this specific example, large smoke columns like the one shown here can act like a cloud, obscuring the ground from the satellite sensor and preventing the detection of hotspots beneath it. Consequently, the fire might appear smaller than it was. By reviewing the classified imagery, users can obtain critical contextual information and derive a more complete picture of fire activity, enhancing fire intelligence and situational awareness.

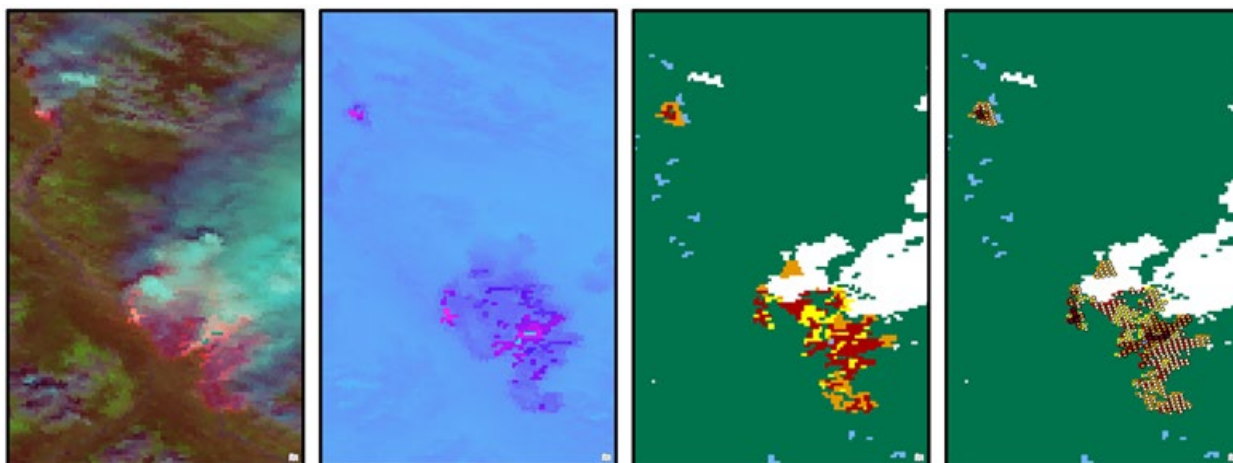


Figure 1. An example using VIIRS data, from left to right: false colour composite imagery (representing something close to what the human eye can see); mid-wave infrared imagery (is good for highlighting hot features, like fires); classification of image pixels into water, forest, fire and clouds/large smoke plumes; and the same classified image overlaid with hotspots.

WildFireSat product examples

Presented by Alan Cantin

The products from WildFireSat are still in the research and development stage. Alan Cantin provided an overview of the three product tiers and described the ongoing work to develop these. The products are developed under three tiers, each building on the one before:

- Tier 1 – uses only WildFireSat data
- Tier 2 - combines WildFireSat data with data from other public satellites
- Tier 3 – combines Tier 2 data with non-Earth observation data to create modelling products for input into existing fire modelling and decision support tools.

Priority information will be provided in near real-time (under 30 minutes) and generally products will provide information on where, how large and active a wildfire is along with other important contextual information. A few examples were shown, with the disclaimer that products will change prior to the final versions.

Product delivery could occur in several ways. For example, data may be made accessible on a web-based platform such as the Canadian Wildland Fire Information System, where users can view it on an interactive map alongside other data. Data may also be provided through an Application Programming Interface (API), allowing organizations to integrate the products into their own mapping platforms.

Overall, the goal is to offer multiple ways for users to interact with the data products, depending on their technical capabilities and specific needs. In the example below are some other examples of the Tier 1 products for an area of Red Lake and Kenora Ontario in 2021 (**Figure 2**). When looking at many fires or larger landscapes, both the context of the basemap products and the hotspots reveal different aspects of the fires, where they are, which parts are most active, where cloud or dense cloud-like smoke may block the satellite sensor. During this period in 2021, significant ambient smoke prevented visual flight regulations from being met, sometimes for several days in a row in some locations. As a result, aircraft were not always

able to provide up to date information on wildfire conditions. In these situations, WildFireSat products such as these (**Figure 2**) are expected to be especially useful.

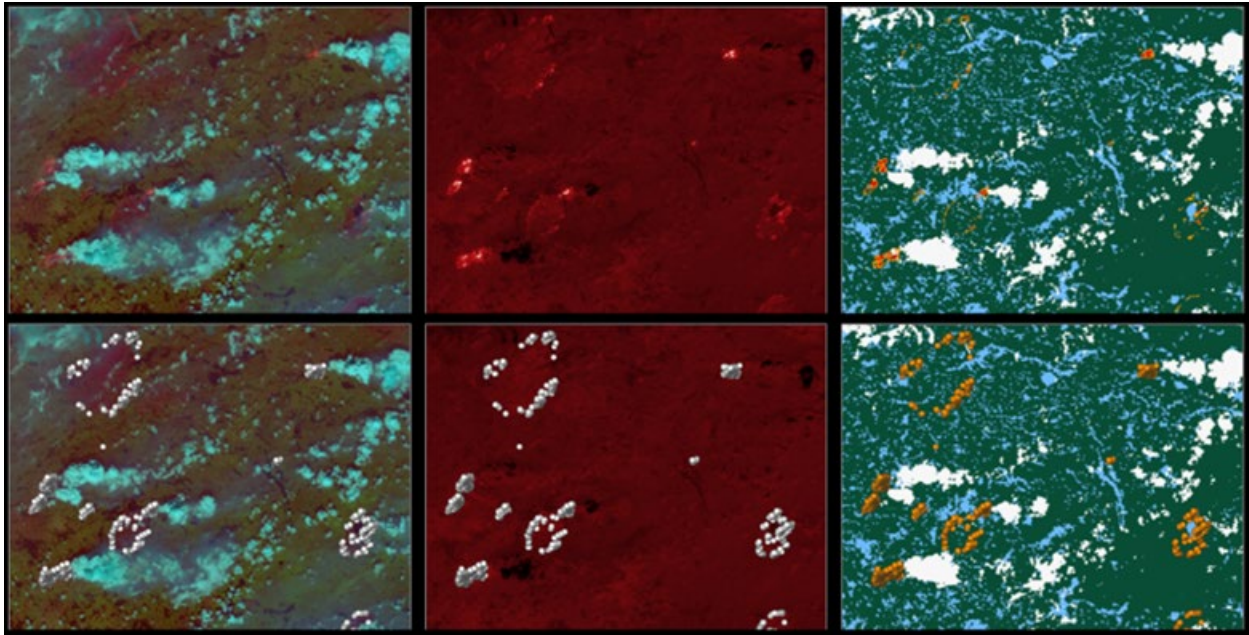


Figure 2. An example using VIIRS for a wide area of interest in the Kenora and Red Lake area of Ontario in 2021. On the top row, left-to-right: false colour composite imagery (representing something close to what the human eye can see); mid-wave infrared imagery (good for highlighting hot features, like fires); classification of the image into water, forest, fire and clouds/large smoke plumes. The bottom row from left-to-right shows the same information but overlaid with hotspots.

WildFireSat can also estimate how fires progress through time day to day or within a day with Tier 2 products. The timestep is based on how often satellite data is updated. The examples shown in **Figure 3** are generated using VIIRS and the Moderate Resolution Imaging Spectroradiometer sensors (MODIS). This kind of information will also allow us to get at data such as rate of spread (how fast the fire travelled between satellite observations), its primary direction and other useful context for planning. To map fire progression, we also need to estimate the perimeter, which is done by clustering hotspots. While not as precise as someone mapping the fire by hand on the ground, these estimated perimeters will be useful especially for remote fires, monitored fires and those situations where fires are too large or there are simply not enough people to manage them. For example, **Figure 3** represents the progression of wildfires between August 3 and 7 for central Newfoundland in 2022. The darker colours are the older extents with newer in brighter colours. In the fire on the left, you may notice that there were 2 separate fires (dark purple) which grew together around August 4th. The hotspots corresponding to the perimeters are also shown.

This presentation gave a short introduction of some of the potential products. Work is ongoing to complete prototypes and better describe use-cases for real-world applications.

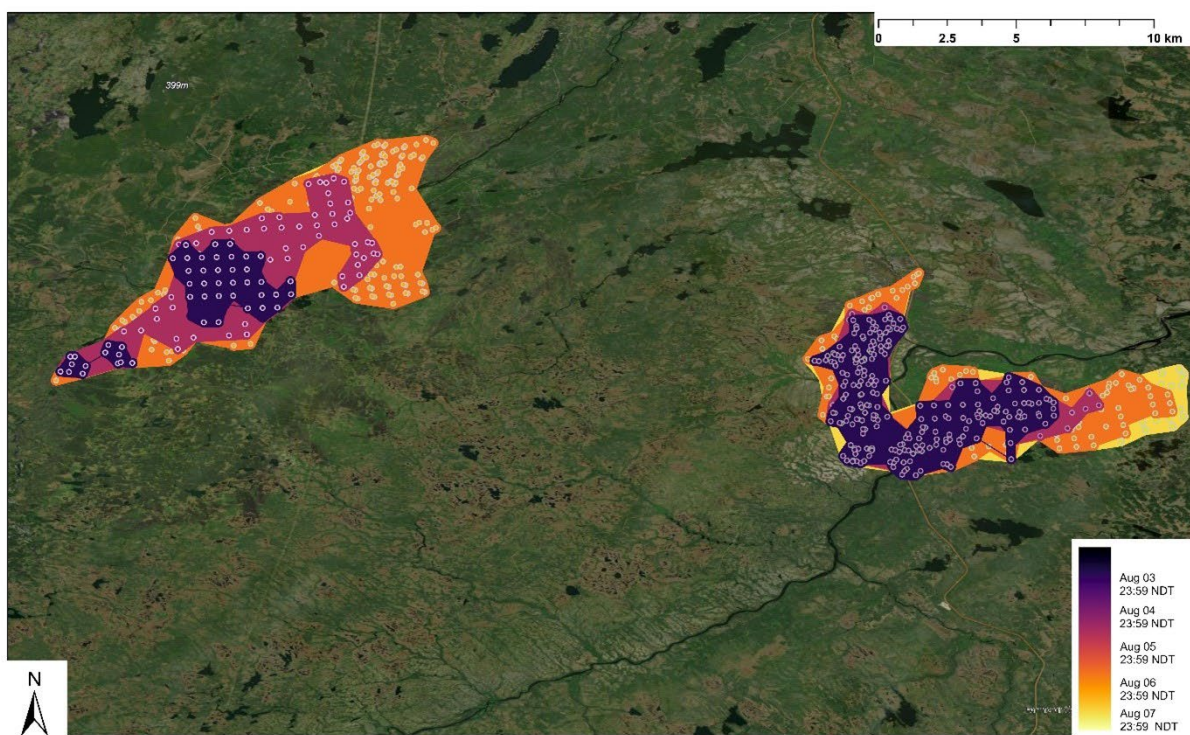


Figure 3. An example of fire progression maps based on estimated perimeters and hotspots recorded by both VIIRS and MODIS over a 5-day period in August 2022.

- Read more about the products in the WildFireSat Science and Applications Plan: <https://ostrnrcan-dostrncan.canada.ca/handle/1845/307362>

Training course development **Presented by Maurice Lecours**

The Canadian Forest Service is developing curriculum for an introduction into the application and use of satellite data in fire and emergency management. The curriculum is titled “An introduction to satellites in wildfire management - Types, Kinds and Uses”. Currently training does not exist on the use of satellite data in a Canadian fire management context. Participants of this session also highlighted in discussion that opportunities to engage with satellite data or receive hands-on training have often been limited.

The course materials have been developed in the form of e-learning materials with downloadable course content (PowerPoint) which can be tailored to specific uses. The overall objective was to develop trainings that address the needs of fire and emergency managers that make decisions related to wildfires. The materials are also aimed for those with an interest in wildfire that may use satellite data (e.g., broader public, industry). The training will provide new information to support the development of capabilities for the interpretation in the use of satellite data for fire management across Canada.

The training will be released under an open CC BY NC 4.0 license to allow use, sharing, and adaptation with proper credit and non-commercial use. This means that there will be no barriers to taking, adopting, translating and using these materials for non-commercial purposes.

The training is organized into three-modules. Module 1 introduces what satellites measure, how different sensors and orbits work, and key concepts such as the electromagnetic spectrum. Module 2 focuses on how Earth Observation (EO) information can be used for wildfire detection, tracking, hotspot monitoring, and situational awareness, including examples that reflect tools commonly used across Canada. Module 3 looks at how satellite data can support preparedness and response activities at regional scales, such as planning, communication, and resource deployment. People that complete training should have a general understanding how satellite remote sensing supports wildfire management before, during, and after fires.

Questions were asked during the presentation to gain a better understanding of participants familiarity with training content and delivery interests. A live polling software was used allowing participants to respond with their smartphones by scanning a QR code and seeing responses in real-time. Responses showed that while most participants already are at least somewhat familiar with satellite data (62%), a good portion are generally not familiar (23%), with the remaining unsure (15%). (**Figure 4**). Participants identified strong interest in both technical training (data, tools, and analysis) and functional, operations-focused learning (**Figure 5**). This highlights the need to support learners with different levels of familiarity in the use of wildfire satellite data. In terms of the types of training delivery, participants expressed a preference for short, practical formats such as mini courses, followed by full courses and quick guides (**Figure 6**).

What we heard

Participants described a wide range of familiarity with satellite data, highlighting the need for training that supports both beginners and more experienced users. Across this spectrum, there was strong interest in both technical learning on data, tools and analysis, and applied, operations-focused training that connects satellite information to real wildfire and land-management tasks. Participants also emphasized a preference for short, practical learning formats such as mini courses or microlearning, with full courses and quick guides as secondary options. When we look at all the results together, participants indicated that some people would benefit from flexible training to help them use satellite data in ways that can support Indigenous fire stewardship and emergency management.

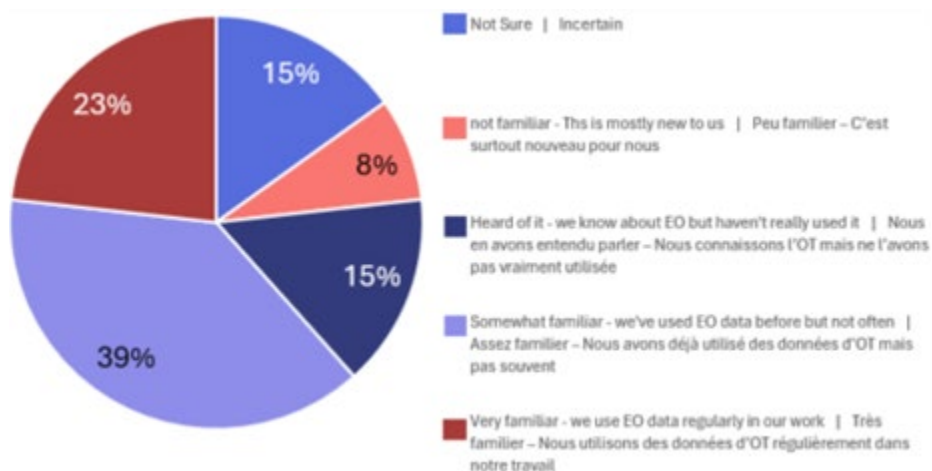


Figure 4. Participants were asked, “How familiar are you or your organization with using Earth Observation in wildfire or land management?” Responses showed a wide range of experience. Most (39%) reported being somewhat familiar, having used EO data before but not often. This was followed by very familiar users who work with EO data regularly (23%), and both not sure and somewhat unfamiliar participants (15% each). A smaller group (8%) indicated that EO data is mostly new to them.

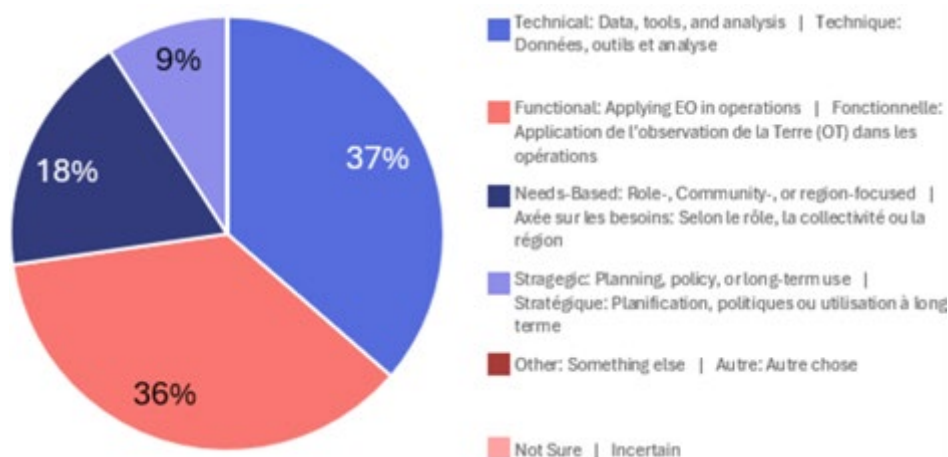


Figure 5. Participants were asked, “What types of Earth Observation (EO) learning would be most useful for your organization?” Responses were split between technical training on data, tools, and analysis (37%) and functional training focused on applying EO in operations (36%). Smaller proportions identified needs-based learning (18%) and strategic training related to planning or long-term use (9%).

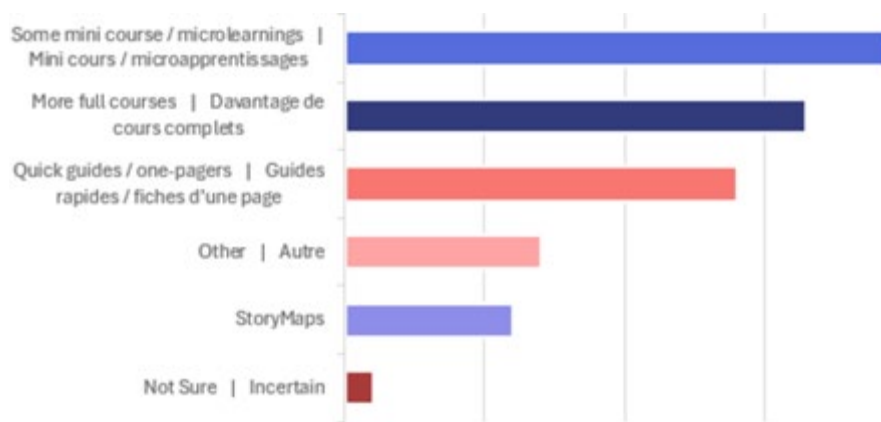


Figure 6. Participants were asked, “If we built more EO learning options, what would be most useful – and how would you want to learn it? (please rank your preferences)”. The largest preference was mini courses or microlearning, followed by full courses and quick guides or one-pagers. Smaller proportions selected other formats, Story Maps, or indicated they were not sure.

The WildFireSat contributions fund introduction **Presented by Colin McFayden**

The path for fire and emergency management organizations to adopt new science and technology is not always clear or simple. This presentation provided a summary of the ‘WildFireSat Remote Sensing Capacity for Use in Fire Management program’. Starting in fiscal year 2026 to 2027, \$6 million over three years (\$2 million per year) has been allocated by the WildFireSat mission to support Canadian wildland fire agencies and emergency management organizations in enhancing their use of WildFireSat data products.

The objectives of the program were discussed, which are to increase:

- Education in the use of Earth observation (EO) satellite wildland fire products.
- Expertise in the use and interpretation of EO satellite wildland fire products within wildland fire and emergency management organizations.
- Alignment and compatibility of information management technology to access and use EO satellite wildland fire products.
- Organizational capacity to use WildFireSat products.

The contribution program is open to Provincial and Territorial wildland fire management agencies, Indigenous wildland fire management, stewardship and emergency management entities, the Canadian Interagency Forest Fire Centre (CIFFC) and the Canadian Association of Fire Chiefs (CAFC). The program was open for applications as of October 1st, 2025, and will remain open for continuous intake of proposals until October 1st, 2026.

A discussion was held on the kinds of project ideas heard in earlier engagement and the role and limitations of the Canadian Forest Service to participate in projects and the potential for organizations to collaborate on proposals.

- Learn more about this funding opportunity: <https://natural-resources.canada.ca/forest-forestry/forest-programs/wildfiresat-remote-sensing-capacity-fire-management-program>

An active offer to provide individual presentations to organizations interested in the funding was made by Colin McFayden and the administrators of the program.

These may be requested by emailing wildfireprograms-programmesdefeuxdeforet@nrcan-rncan.gc.ca.

The Arctic Observing Mission

Presented by Denis Dufour

Denis Dufour, the WildFireSat Mission Manager, saw the WildFireSat Indigenous workshop as an ideal opportunity to present another space mission under development at the Canadian Space Agency that could one day hold significant benefits for indigenous peoples, particularly those living in more northerly regions. The Arctic Observing Mission (AOM) is a proposed concept for a two-satellite system deployed on a unique highly elliptical orbit which would allow for persistent 24 hour a day coverage of all latitudes north on 45 degrees (**Figure 7**). The two AOM satellites would each include highly specialized camera and spectrographic instruments to provide measurements of weather patterns, smoke, air quality, wildfires, sea ice, greenhouse gasses and vegetation cover with unprecedented coverage over the North. If funding is allocated, AOM would be operational in the mid-to-late 2030s timeframe. Significant benefits are anticipated for Northern communities in the form of: (1) more accurate forecasts of severe weather events and sea ice, (2) enhanced situational awareness of wildfires and smoke (complementary to WildFireSat), (3) better knowledge of the effects of climate change and their risks on northern infrastructure.

The AOM initiative seemed positively received by the workshop attendees, and the presentation was followed by several questions to better understand various aspects of the mission. AOM is still in the early days of seeking approval and funding, the workshop was a great opportunity to raise early awareness of this mission with Indigenous community emergency response managers, as an initial step towards more directed co-development activities to ensure that the anticipated benefits of the mission on these communities is fully realized. Towards this goal, there was an active offer for interested organizations attending the event to engage with the AOM development team at the Canadian Space Agency, and a request for advice on how to proceed with Indigenous engagement.

Participants were encouraged to reach out to denis.dufour@asc-csa.gc.ca.

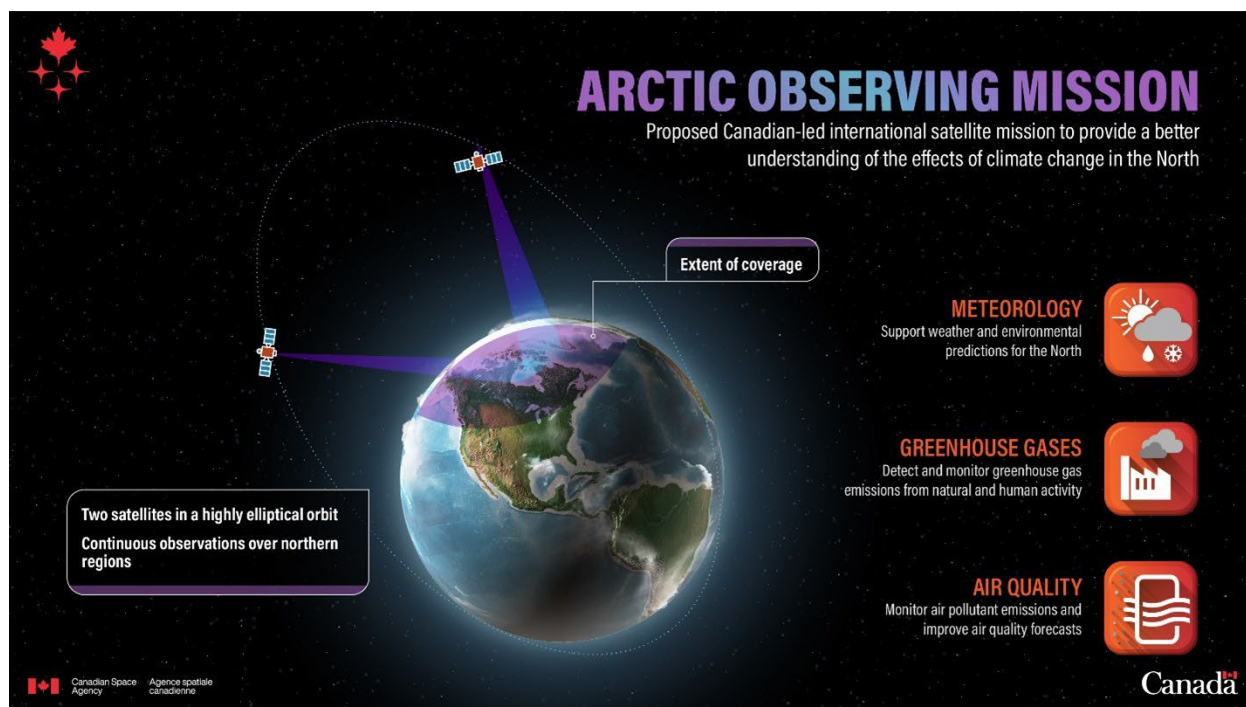


Figure 7. Infographic of the Arctic Observing Mission (Credit: Canadian Space Agency).

DAY 2 – LISTENING TO AND LEARNING FROM REPRESENTATIVES OF INDIGENOUS FIRE AND EMERGENCY MANAGEMENT ORGANIZATIONS

Reflection circle

Facilitated by Hughie Jones

On the second day of the workshop, participants began with a reflection circle, lasting approximately 90 minutes, where each shared personal insights and comments about the workshop so far. This session surfaced several key themes:

1. Communication and Connection
2. Respect for Diverse Knowledge Systems
3. Authenticity and Trust
4. Practical Concerns
5. Hope for Future Collaboration

Communication and connection

Many participants emphasised the importance of open communication and building genuine connections. One speaker reflected:

“In particular, it was communication, it was communication with people. It's communication on what our products are, what that means to us. And then being able to help people communicate that to their own people as to what that actually means for them.”

Others spoke about the value of personal relationships over professional roles:

“I'd rather sit down and talk with anybody about who they are and what they mean as opposed to what they do for work.”

The circle fostered a sense of unity and gratitude for being able to gather in person:

“I'm also feeling pretty grateful to be here. I think it's pretty cool that we managed to get all these experts in their own field in the same room together, not just the email chain or [virtual] meetings. It kind of brings a lot of, I guess, humanity to what we're doing.”

Respect for diverse knowledge systems

A recurring theme was the recognition and respect for both Indigenous and Western scientific knowledge. One participant highlighted:

“One of the moments that stood out for me was [Indigenous Person], when you comment and made the comment that we're scientists, too... I thought it was a very poignant statement.”

This was echoed by others who called for the integration of different perspectives:

“I would love to get to the point where it's just science, period. Right. Like whether it comes from a traditional person with a Ph.D. or sort of traditional Western person with a Ph.D. or, you know, whether it comes from, you know, traditional indigenous knowledge like that, It's all science, right?”

Authenticity, trust, and vulnerability

Several participants spoke candidly about their initial apprehensions and the challenge of creating an authentic, meaningful space.

“I spent most of yesterday afraid... I was afraid of a couple of things. One was that this [the meeting] was going to work, that it was going to come across as disingenuous... not as a genuine and authentic, meaningful way to learn more about a part of fire management stewardship, emergency management that typically we don't spend enough time on.”

There was appreciation for the honesty and willingness to listen:

“If we continue to be honest, if we continue to be open to information and being well informed and can continue to contribute, I think there's a lot of great things this group can do.”

Practical concerns and curiosity

Participants raised practical questions about the utility and accessibility of WildFireSat data and tools, especially for communities with limited technical capacity.

“As far as, you know, what commitments exist for capacity building and training for our communities... if, you know, there's been any thought about kind of user-friendly tools and training. You know, will the data be provided in formats that are usable for communities that don't have advanced degrees, your technical capacity, or if there's any plans for real time dashboards or alerts or mobile apps or some sort of notification process when there are wildfires?”

Others expressed curiosity and a desire for clarity:

“I'm still a little bit sort of excited to hear more, to figure out how that could have helped their decision with [past wildfire]. If you want to start or stop evacuations.”

Hope for future collaboration

The reflection circle closed with a sense of hopefulness and commitment to ongoing collaboration. Participants recognised the importance of Indigenous data sovereignty, the inclusion of traditional ecological knowledge and values, and the need for First Nations leadership in decision-making.

“Firstly, there's a want for Indigenous data sovereignty. There's a want for first nations to contribute local or what we call traditional ecological knowledge into national wildfire intelligence. And the third, and probably most importantly, if there is a steering or oversight body, First Nation leadership, it needs to be brought into that in a decision-making capacity. Not merely symbolic or advisory.”

There was also a call to continue building relationships and learning from one another:

“It's never too late to get together and talk. Somebody's got to bring this to the point where we have something to talk about. Now that we have something to talk about, let's build a relationship where a WildFireSat is something that First nations trust and understand and utilize.”

Closing sentiments

Participants expressed gratitude for the opportunity to share, listen, and learn:

“I'm humbled by your trust in me. I thank you all for allowing me to be here to listen and guiding my words.”

The circle reinforced the importance of humility, respect, and the willingness to challenge assumptions:

“And again, not something that was necessarily focused on this mission, but I think that kind of brings it to a whole other level. These gatherings and these meetings have a focus, but there are going to be wins and thoughts and next steps that have nothing to do with WildFireSat. We should be open to that, and a win is a win...those come in many forms. That little conversation you have over a bag of chips from Manitoba could be more fruitful than the whole two days you're here for, as long as you recognise and accept that.”

In summary, the reflection circle provided a space for honest dialogue, mutual respect, and the sharing of diverse perspectives. Themes of communication, knowledge integration, authenticity, practical needs, and hope for future collaboration were supported by participants' own words, highlighting the value of continued relationship-building and inclusive engagement in the WildFireSat Mission. These perspectives and others are highlighted in the graphic facilitation work carried out by Liisa Sorsa during the reflection circle (**Figure 8**).

The WildFireSat Science Team recognizes Indigenous science and ways of knowing as valid and essential, and as complementary to Western science in shaping our understanding of fire.

Dr. Joshua M. Johnston. Principal Investigator of the WildFireSat mission.



Photographer: Trustin Boulanger. Summer of 2025, Yukon First Nation Wildfire.

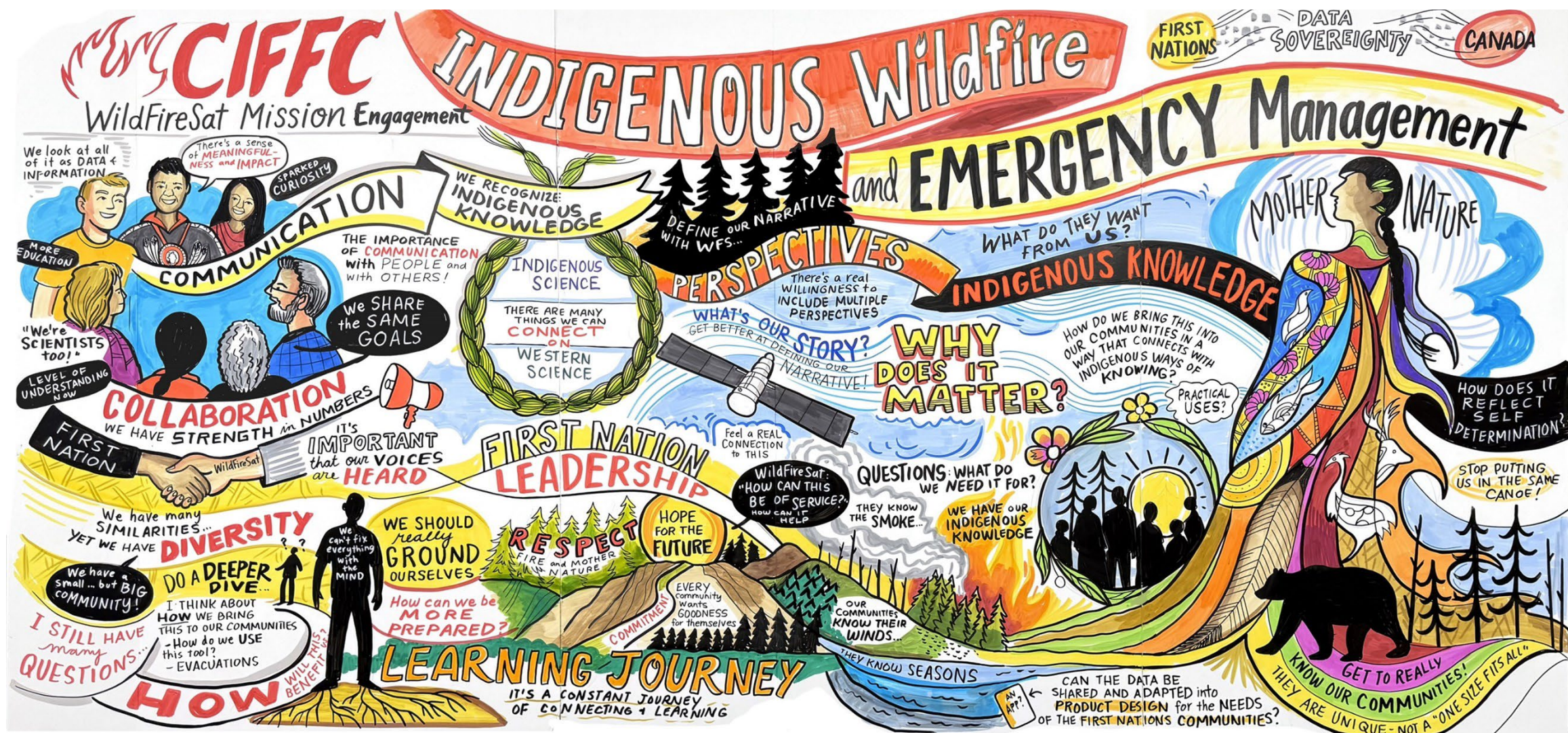


Figure 8. A graphic representation of key themes arising from the reflection circle. Summary and artwork by Liisa Sorsa.

Does satellite fire data matter?

Rob McAlpine and Colin McFayden

One of the recurring themes in the Day 1 reflections (highlighted in **Figure 8**) was the questions participants had in determining how WildFireSat data could be applied to their operations, along with concerns about dedicating limited capacity to integrating satellite data while managing other priority needs.

“... We're a small tribal council. How is this going to add to the information that we have?... is this worth the time and limited resources to bring this to our communities as a tool?”

We also heard stronger support for incorporating satellite data into operations, highlighting the breadth and diversity of the organizations.

“exciting for me... looking forward to seeing that technology enhance and hopefully use ... even more so by as many First Nations as possible as they [become] more and more involved in their own direction as far as emergency management”

These two perspectives show how individuals can view a tool differently based on their experience and needs. Fire management decision making ranges from the small-scale, short-term decisions of a front-line firefighter to long-term, large-scale decisions about priorities across many fires and evacuations.

WildFireSat provides a range of fire intelligence products for a single fire up to all fires burning across Canada. For individual firefighters working a specific section of fireline, the information may be of interest but lacks the resolution needed for practical use, especially since they can observe the fire directly. Its value increases as the scale of decision-making increases, supporting larger fires, wider regions, and situations involving strategic resource allocation and emergency actions such as evacuation planning. This is particularly important in remote areas or in communities separated by large distances, where direct observation by ground or air is difficult or impossible. This was evident in 2021 and 2023, when smoke made flying unsafe in many locations and the number of fires exceeded the capacity to collect aerial data even when weather allowed.

Unlike drones or helicopters, which require pilots and data processing, WildFireSat will deliver information at least twice daily with no cost or effort from the user. Automated, end-to-end fire intelligence will be available and, in some cases, may be the only data source. While WildFireSat will not replace other technologies (each has its own strengths and limitations) it will be a reliable and valuable source of fire information for a wide range of current and emerging applications in fire and emergency management (**Figure 9**).



Figure 9. Infographic showcasing the objectives of the WildFireSat mission and its benefits for Canadians (Credit: Canadian Space Agency).

Dialogues on wildfires and satellite data

Colin McFayden, Rob McAlpine and Hughie Jones

Approach

The remaining portion of the workshop focused on learning about the perspectives of the Indigenous organization representatives on satellite fire data uses, connection with Indigenous data, adoption and coordinating with other levels of government. The participants were formed into two groups for semi-structured conversations with four questions to prompt conversations. These questions were determined by the meeting facilitators and based on feedback and observations from day 1. The questions were:

- 1) What information about a fire is most useful to you and why?
- 2) What Indigenous data, knowledge and wisdom should complement satellite data?
- 3) How can agencies like Natural Resources Canada help with adoption of satellite data?
- 4) Given that data will be available to all, what are the benefits and problems you may expect when dealing with other levels of government?

Each table was facilitated by a CIFFC or CFS person with dedicated CFS note takers. There was no time limit provided for each question; however, the exercise was given a hard-stop time (~40 minutes). Our graphic facilitator also recorded what resonated to them (**Figure 10**).

Discussions

Generally, woven through discussions there is a recurring theme of balancing technical innovation with cultural sensitivity and practical accessibility. The following is a summary of key themes arising from the discussions.

Practical wildfire information needs

Participants identified a consistent set of valuable wildfire information including.

- Fire location, direction, and rate of spread.
- Proximity to communities, cultural values, and critical infrastructure.
- Fuel type, fuel structure, and pre-/post-fire conditions.
- Smoke and air quality information, particularly for protecting elders and vulnerable people.
- Severity mapping and fire progression products for training, recovery, and situational awareness

Participants flagged that information overload can be debilitating and emphasized the importance of visual, easy to interpret, and accessible tools that can be used in community briefings and political discussions. Data and products must be easy to interpret under time pressure.

This type of information supports stronger situational awareness and more informed decision-making, including evacuation planning, assessing fire threat alongside smoke and air quality impacts, understanding potential displacement of community members, and improving communication about what is happening on the land.

Some participants expressed interest in predictive and simulation models, though they also discussed the need for technical expertise to use them and that not all are suitable for everyday community use.

Indigenous knowledge, data sovereignty, and ownership

A central theme from both tables was that Indigenous knowledge and cultural data must remain fully under Indigenous ownership and control, following OCAP® Principles.

Key points included:

- Many communities maintain internal databases of cultural and valued sites such as foraging areas, traplines, ceremonial areas, and burial sites which can inform wildfire decisions.
- These data are sensitive and should be shared only with explicit consent.
- These decisions must happen at the community level.
- Community-controlled digital platforms were identified as an effective way to enable communities to integrate external satellite data without sacrificing privacy or sovereignty.
- Indigenous knowledge is both spatial (map-based) and relational (stories, seasonal understanding, local history) and must be integrated respectfully.

Overall, participants emphasized that federal engagement must prioritize relationships, consent, consultation, and respect over data acquisition. This work should happen at the community

level, since regional or tribal councils may not know all the important sites, with Indigenous organizations facilitating the work so communities can bring WildFireSat data into their own systems that they already use.

Supporting adoption through training, and capacity building

Participants recognized the potential of satellite data, while noting that adoption depends on:

- Training on accessing, interpreting, and communicating wildfire satellite data.
- Products that are user-friendly, culturally relevant, and available in multiple languages (not only English and French).
- Offline-capable outputs such as georeferenced PDFs and KML files
- Collaboration with local language experts and knowledge holders to contextualize information.
- Open-source algorithms and transparent processing steps to support innovation and community involvement.

Indigenous fire and emergency management organizations need sustained support and tools that are accessible, can be understood and applied in real-world conditions at the community level along with training.

Multi-Level government data sharing and coordination

Participants noted that democratized wildfire data comes with both benefits and challenges.

Strengths include:

- Improved transparency and broader access to information.
- Opportunities for more collaborative, shared situational awareness.
- Opportunities for value added data.

Challenges include:

- Conflicting information between federal, provincial, and local systems.
- Clarity on which jurisdictions are the authoritative source of information.
- Confusion around priority-setting, roles, and responsibilities, especially during evacuations.

Participants re-emphasized the importance of simplified, consistent messaging and tools that help leadership make decisions.

What we heard

The discussions underscored strong interest in satellite data that is practical, visual, and readily interpretable for decision-making. Participants stressed that Indigenous data sovereignty must remain central and that respectful, sustained engagement is essential for successful integration of satellite products. Indigenous ownership should guide all data integration work. Clear information and ongoing capacity support will be critical as wildfire data becomes more widely available across all levels of government. Communities want full control of their cultural information and prefer that satellite data be brought into their systems rather than the reverse. There is a desire for meaningful training, ongoing engagement, accessible tools, and language support.

CLOSING

The workshop concluded with an Indigenous led tour of The Forks organized by several attendees who opened the invitation to the rest of the group, the tour of The Forks focused on Winnipeg's Indigenous history. The tour focused on oral storytelling, cultural immersion, and connecting visitors with the history and significance of The Forks as a gathering place for various Indigenous peoples.

Overall, organizers felt this session was a good step in an evolving and continuing dialogue. We sincerely thank everyone for their open, honest, and authentic participation in the meeting. We recognize that there is a long and difficult history between Indigenous peoples and the Crown and that many government actions have been detrimental to Indigenous people. This is the same for Indigenous fire stewardship practices which have taken place over thousands of years. Due to colonization these practices have not always been respected, and it is important to acknowledge that history clearly and respectfully.

We recognize that the perspectives shared in this session do not reflect all Indigenous perspectives. Across Canada, there is a diversity of Nations and teachings, and the participants in this workshop represent a relatively small sample of that diversity. It is also important to acknowledge that the exercises allowed limited time to explore every line of discussion, and that participants had different comfort levels with the engagement format and written reflections. For these reasons, this summary should not be interpreted as broadly representing Indigenous perspectives on these topics.

Within the WildFireSat mission, we are committed to learning, listening, and working alongside Indigenous wildfire and emergency management organizations in a way that reflects meaningful relationships. The WildFireSat team appreciates the valuable insights shared throughout this process. We will continue to engage in open dialogue with participating organizations and remain available to provide presentations, upon request, to the organizations and their communities. The team will also maintain and expand these discussions, including opportunities to connect with other Indigenous organizations as well as Indigenous Services Canada. In addition, we will explore options for holding a similar workshop closer to the WildFireSat launch, and we are prepared to help coordinate regular virtual sessions.

Within the real-world constraints of our funding and operational capabilities, the team at the CFS working on the WildFireSat mission will continue the conversation with Indigenous fire and emergency management organizations, with a focus on listening, learning, and taking these perspectives to heart as the mission moves forward.

We deeply appreciate the trust, guidance, and honesty shared with us, and we look forward to continuing this work together in that spirit.

Participant organizations and session contributors

- Independent First Nations Alliance – Doug Pamment
- Interlake Reserves Tribal Council – Martin McLean
- ISN Maskwa – Dean Roy
- Kee Tas Kee Now Tribal Council – Joshua Peer and Jason Wigton
- Nokiiwin Tribal Council – Andrew Base and Jamie Scrimger
- Northern Inter-Tribal Health Authority – Patrick Hassler
- The First Nations' Emergency Services Society of British Columbia – Dane Cox
- Wolastoqey Tribal Council Inc. – Timothy Plant
- Yukon First Nations Wildfire – Nick Mauro and Tyler Porter
- Canadian Forest Service – Catriona Armstrong, Justin Beckers, Alan Cantin, Tracey Cooke, Mark de Jong, Josh Johnston, Mary Knockwood, Maurice Lecours, Colin McFayden, Kajal Tomar
- Canadian Space Agency – Denis Dufour
- Canadian Interagency Forest Fire Centre – Emmanuel Diaz, Van Ly, and Rob McAlpine (consultant)
- Whitestone Industry Services Ltd. – Lyndon Aginas, Hughie Jones and Duane Kootenay

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