

CEC's work to support the Local Environmental Observer (LEO) Network (2015–2016)



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Long-term Impact Assessment



The Local Environmental Observer (LEO) Network is an online community of local observers and topic experts who share knowledge about unusual animal, environment, and weather events. The Network originated within the Alaska Tribal Health System as a project of the Alaska Native Tribal Health Consortium (ANTHC) in 2012 to bring local area experts in rural communities into contact with topic experts who might be far away. Through LEO, members can share observations, connect on various topics with experts from different knowledge backgrounds—local, Indigenous, and scientific—help detect emerging environmental concerns in their communities and engage in a range of observer and citizen science opportunities. The Network aims to increase understanding of environmental change and help identify healthy and effective ways to adapt to it.

In 2015 and 2016, with support from the Commission for Environmental Cooperation (CEC), the Network was expanded into Mexico and Canada via partnerships with *Grupo de Ecología y Conservación de Islas* (GECI) and First Nations Health Authority (FNHA). The project assisted partners with the development and training of their own affiliated LEO Network chapters and in identifying climate change-related impacts in focus regions, along with enhancing dialogue on the value of local observations, the health and environmental effects of climate change, and strategies for mitigation and adaptation.”¹ This project targeted local community members and, as a result, the Network has now expanded to include members from many places: 212 communities in Alaska and 1,280 communities worldwide, representing different knowledge backgrounds and possessing a wide range of skills and expertise.

Following the completion of the CEC project, the LEO Network has continued to grow and evolve. While many of the objectives and deliverables of the 2015–2016 project have been retained and expanded, others have not. With the benefit of hindsight, a long-term impact assessment was carried out to measure the project’s impact to date and to identify future directions for the LEO Network in the United States, Mexico, and Canada.²

1. Available at: <http://www.cec.org/files/documents/operational_plans/operational-plan_2015-2016.pdf>.

2. The full report is available upon request. Please contact José Antonio Casis García at jacasis@cec.org for further details.

PROJECT OUTPUTS

The 2015–2016 project included four main deliverables:

1. Development of the LEO User Guide to support potential users.
2. Translation of LEO into Spanish and French.
3. Creation of short Animated Introduction Videos to introduce new audiences to the network.
4. Engagement, training, and support of LEO expansion

Topics posted on the LEO Network

The three main topic groups are **Natural Environment**, **Unusual or Unexpected Event**, and **Impact on Human Environment**.

The top categories used in Canadian observations to describe Unusual or Unexpected Event are unusual species' sighting and changes in ice and snow. In Mexico, extreme precipitation and wind are used most frequently.

The “fingerprint” of a place is a helpful summary of the kinds of environmental issues and challenges found there. This becomes especially valuable when comparing one place to another, one year to another, or one season to another. This is so valuable that various views to the LEO website were added to make this sort of comparison easy.





MAIN FINDINGS

LEO User Guide

The original version of the LEO User Guide contained an extensive section on “Hubs.” However, as the LEO initiative evolved, the Guide no longer provided an accurate description of the LEO Network’s processes. While LEO was still highly cooperative, Hubs were no longer an important governance structure within LEO. Instead, it was more successful to engage individual users than organizational groups, which might have control over a particular Hub. As of March 2023, the LEO User Guide is being revised to bring it up to date with the platform. This has been an ongoing challenge, since the platform continues to evolve rapidly.³

Translation of LEO into Spanish and French

Translating LEO into Spanish and French was a great success for the project. And due to LEO’s multi-language capabilities, language has generally not been a significant barrier to LEO adoption in other parts of the world. As of March 2023, the LEO interface had been translated into French, Spanish, Ukrainian, Portuguese, Yu’pik, and two dialects of Sámi. For languages where a human translator was lacking, the user interface was translated algorithmically. In addition, LEO content was automatically translated into various languages. Observations could be submitted to LEO in any language. The internal workflow ensured that the original language was preserved, plus an English translation.

Creation of Animated Introduction Videos

The animated introduction videos are still available on the LEO and CEC websites in multiple languages, including English, French, and Spanish, and have been popular with viewers.

Engagement, Training, and Support of LEO

Expansion of the LEO network throughout the North American region was done through partnerships with GECl (in Mexico) and FNHA (in Canada), and kick-off workshops were held in late 2016 in Ensenada, Baja California, and Victoria, British Columbia. The expansion of LEO to Canada and Mexico has experienced both successes and challenges, as the following sections will describe.

3. Information as of March 2023.

Growth and Usage of the LEO Network

An analysis of LEO growth in Canada and Mexico was conducted, especially considering the potential influence of this project. The process was to look directly at the LEO Network database, both at observations posted there and at members and communities enrolled in LEO. Data analyzed were as of February 2023. Notably, growth outside North America is especially strong due to the multi-language capabilities that were added to the platform in 2015–2016.

In Canada

LEO membership has grown steadily in Canada, with over 500 members as of April 2023. This contrasts with fewer than 100 Canadian members at the time of the kick-off workshop in Victoria.

Since the original focus of the project was on British Columbia, cities in that province still have the highest concentration of LEO members, although many other communities also have substantial numbers of LEO members.

Just as membership has steadily increased in Canada, so have the number of observations from there. as of April 2023, over 600 posts were geocoded to Canada.

In Mexico

The scale of LEO membership in Mexico is far smaller than in Canada, although as of April 2023 over 80 members had enrolled from Mexico. The initial kick-off workshop in Ensenada resulted in a steep increase in membership but this has since leveled off.

One possible reason for the steady growth of membership in Canada, in contrast to the leveling off in Mexico, could be FNHA's continued hosting of informational workshops and webinars featuring the LEO Network. The same has not been done in Mexico but is a potential future activity.

Unlike in Canada, a single community (Ensenada, the home of GECl) accounts for the vast majority of LEO members in Mexico. The country has had a modest number of posts to LEO, with fewer than 20 as of April 2023.

Experiences of Partners

Interviews were conducted via Zoom with key representatives of FNHA and GECl to obtain feedback about the adoption of the LEO Network in Canada and Mexico.

In Canada

The conversation with FNHA yielded these important insights:

- FNHA views LEO as a tool in their toolbox for discussing unusual events and environmental health and environmental change, with a focus on utilizing a two-seeing-eye approach.
- There is hesitancy from communities to share sensitive information, and some are opting for private portals or databases for complete control.
- Networks like LEO can play an important role in documenting the changing environment or helping communities cope.
- LEO could help with the need for data analysis, education, and awareness, as well as making available support and connections with other government agencies to help with understanding trends and predictions of such events as drought or flooding.
- There is a shift in the traditional science landscape to embrace citizen science and Indigenous knowledge, but it is slow.
- Data governance and sovereignty are critical issues for First Nation communities in Canada, and they have been and will continue to be barriers to the adoption of LEO in Canada.

In Mexico

The conversation with GECl yielded some great insights into the challenges and opportunities in deploying LEO to Mexico, including:

- The overlap between LEO and iNaturalist and the challenge of explaining the differences between the two platforms.
- The narrow mission of GECl, which limited the potential use cases for LEO. GECl has a narrower geographical scope, focusing on specific communities on islands. Contrarily, LEO is a non-specific, general-purpose network, which might make highly focused partners an unnatural fit.
- The limited Internet access on some islands may have been a barrier to LEO adoption.
- Notably, language was not mentioned as a major barrier to adoption in Mexico.



LESSONS LEARNED

The interviews with FNHA and GECI reinforced the beliefs that the potential value of citizen observer networks is as strong today as it was in 2015 when the project started, that the urgency to observe and understand the changing environment is even stronger today than it was then, and that Local and Indigenous knowledge are seemingly more accepted alongside scientific knowledge than they were just a few years ago.

Concerns over data governance and sovereignty are difficult to overcome for a US-based program. This is especially true in Canada, but elsewhere in the world as well. The acceptance of LEO depends somewhat on what it is being compared to. Is LEO a social media platform? A citizen science platform? An Indigenous knowledge platform? Depending on the answer, it may be viewed very differently and this could constitute a barrier to its adoption.

LEO is an evolving platform. This is a challenge insofar as it nudges aspects of the platform toward obsolescence; for example, the User Guide developed as part of the project is mostly invalid at this point. However, evolution is an important part of LEO: after all, the goal is to document how the state of the environment is changing.

Finally, there is admittedly still a *de facto* Arctic aspect to LEO, owing to its roots in Alaska. This is perhaps another reason that there has been greater uptake in Canada and other northern places than in Mexico and other southern places.

KEY RECOMMENDATIONS

Based on the lessons learned through this project and the long-term impact assessment, the following actions could improve the LEO Network and enhance its value to communities in Alaska and elsewhere:

1. Continue to engage with FNHA to address data governance and sovereignty concerns in Canada, possibly exploring options for developing a sister platform to LEO.
2. Refine and articulate the unique aspects of LEO and update the promotional materials accordingly, to make it clearer how LEO is different than other citizen science platforms.
3. Expand outreach and training efforts: continue hosting workshops and webinars to introduce communities to the LEO Network and provide ongoing support for its adoption and use.
4. Continue leveraging mainstream news coverage, with an emphasis on places where LEO is not already well-established. This could help raise awareness of the network and its value among a wider audience, in new regions of the world.
5. Establish a workflow for keeping the LEO User Guide and other educational materials up-to-date. This will help new users understand how to use the network effectively and contribute their observations.
6. Continue evolving and adapting the LEO platform; regularly assess the needs and interests of users and communities; adjust the platform accordingly; and establish a forum where discussions like those can happen more regularly, especially with partners outside of Alaska.

Local Environmental Observer (LEO) Network



CONCLUSION

With CEC support, in 2015 and 2016 an effort was made to expand LEO in Canada and Mexico. This effort involved several dimensions and had some successes as well as some challenges. For example, in Canada, there has been steady growth in LEO membership, but there is still understandable hesitancy in communities to share sensitive information with a platform based in the United States. Meanwhile, in Mexico, the overlap between LEO and another platform has made it difficult to convince potential users of LEO's value.

Overall, this project has highlighted the challenges of engaging different populations in a common cause and common systems, just as it underscores the importance of collaboration between different knowledge backgrounds.

