About LEO

The Local Environmental Observer Network

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Alaska Native Tribal Health Consortium
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Google us: “LEO Network”
Healthy Environment
A few intro questions about LEO Network:

• When did it start? Formed in 2012 by the Alaska Native Tribal Health Consortium.

• What is the purpose? To provide a system for communities to share information about environmental change and to connect with the resources needed to address impacts.

• Who is involved? Local environmental managers and a wide range of agencies and organizations that provide technical support.

• What is the mission? To provide the eyes, ears and voice of environmental change.
January 24th  There is no snow! The mountain right behind the village provides water in the summer time, the lack of snow has many people concerned. Nancy Yeaton - Nanwalek
February 12th  The first fur seal of the year, a male, came ashore on St. George, one of the Pribilof Islands located in the Bering Sea. They usually return in May. Bruce Wright
March 14th The absence of snow did not allow caribou harvest except by two hunting parties, otherwise families would have been out hunting more often. Toby Anungavuk, Jr. - Golovin
April 13th  Very little snow this year in the Bethel area makes traveling in the springtime on the Kuskokwim River very dangerous and difficult. Travelers need to look out for open water and thin ice. Ben Balivet - Bethel
May 16\textsuperscript{th} Herring has arrived early this year! Last night some of the hunters noticed some were starting to spawn near Cape Denbigh. Herring season was scheduled for May 25th 2014 but due to the early arrival, i'm not sure what will happen. Jolene Auliye - Shaktoolik
June 6th  An abundance of kelp on one side of the island is the most I've ever seen during the low tide. There is also a large deposit of herring eggs covering the kelp, which was harvested. Anna R. John – Toksook Bay
July 15\textsuperscript{th} Tuesday there was unusually high water on the Koyukok River. We lost 5 feet of bank or more at one site. The bank below my mother’s house is cracking back to the driveway of the old house! Debbie Sue Nictune - Evansville
August 18th Have you heard about dead salmon (thousands) on the beaches on the Kobuk River? We have been concerned about some brown foamy stuff in the bottom of the river which is not usually there.

Virginia Commack, Ambler
September 25\textsuperscript{th} This has been a terrible year for berry harvest in the Upper Nushagak River. There is an absence of salmon (cloud) berries, blue berries, cranberries and black (crow) berries. Unusual weather conditions over the past few months have contributed to the poor harvest. Sylvia Kazimirowicz - Ekwok
October 29th - We found hard mollusks inside the stomach of a moose we harvested. There were hundreds of them. I collected them, took pictures and put them in a ziplock bag. We were concerned about sharing this moose with elders, because some have weak immune systems. Jessica Chernikoff - Egegik
November 14th While I was commercial crabbing in Chilkoot Inlet I notice a lot of jelly fish and they were everywhere in the water.

Luke Williams - Haines
December 13th We observed Coho salmon in the stream going up to spawn. On the river the temperatures was at 52° degrees Fahrenheit, clear skies and no winds; eagles, ravens and sea gulls could be observed feeding on salmon carcasses on a sunny day. Could the sockeye be adapting to climate change and coming in to spawn later waiting for river flow to be up? We need to adapt and maybe change current regulation governing subsistence fishing.

Veronica Redifer - Klawock
The climate is warmer

Noatak River, 2011
and weather is changing and more extreme.

Kivalina, 2005

Photo Millie Hawley
There is less ice on the land and on the sea,
and a shorter ice season.
There are fewer lakes,

Thaw related drying near Deadhorse.  

Photo Vladimir Romanovsky
and some rivers are becoming wide and shallow.
Alaska is getting smaller each year.

Cape Halkett, 2009.

Photo Ben Jones
Animal behavior and health is changing.

Point Lay, 2014.
and so is the sea, ice and conditions for hunting,
preparing foods,
and storing foods.
Increasingly there have been unusual die-offs.

Photo Suzanne Georgette
and declines.

Western Alaska Caribou Herd, 2011
Some animals are increasing their range.

Photo Brian Sharp
Others are seeing their range decline.
Transportation routes are being disrupted.
and travel can be more hazardous.
Many communities are vulnerable to land change,
and some to sea change.

Projected 1 meter sea level rise inundation.

Source: CRESIS
Golovin, Flooding November 2011

Photo by Toby Anungazuk Jr.
So we need to design and site our projects for the climate conditions of the future.
And build infrastructure that is resilient to change.

Thawing pipe - Selawik, 2012
For elders climate change is new and can be troubling.
But youth are growing up with climate change. They are accustomed to a changing world.

Nondalton, 2013
Alaskans are finding ways to benefit from a warming climate and longer growing season.

Photo courtesy of Linda Stotts

Kiana, 2011
The climate has changed in the past.
And communities have adapted to the changes.
But how do we prepare for the future?
LEO was developed as a tool for communities to use for sharing information about environmental change and connecting with resources.
LEO is a about unusual, extreme or unprecedented events,
Members decide locally if they want to share an observation with LEO,
LEOs submit photos and text to be posted on public Google Maps, and...
and connected with network members and other technical experts.
LEO started in January 2012, a network of local observers across Alaska. There has now been over 200 participants.
The focus for LEO is environmental change, and observers report on a wide range of local events that are time and location specific.
The LEO participants apply local and traditional knowledge to decide what kinds of events are relevant, important and appropriate to share.
Many LEOs are also experienced with western scientific methods.

Daniel Chythlook - Aleknagik
Observations can be from anyone in the community. LEOs serve as local contacts for collecting, reviewing and completing the information and for follow-up based on the findings and technical consultations.
LEOs decide within their own organizations what information to share.
LEO is built on open and available web-based services and uses social media. You can find links to our Facebook, flickr and YouTube pages on our website (see arrow).

Local Environmental Observer (LEO) Network

Northern communities are changing due to environmental impacts, climate change and development. Monitoring the environment is important for understanding the risks and benefits and for adaptation. The LEOs are the eyes, ears and voice of environmental change in our communities.

We are tribal professionals who apply traditional knowledge, western science and technology to document unusual plants and wildlife, extreme weather, erosion, flooding, droughts, wildfire and other events that can threaten food security, water security and community health. Check out our LEO Public Maps, and resource links to learn more. You can view our observation data on our 2012 and 2013 spreadsheets.
LEO is an information archive – you can find observation maps organized by month, category and geographic region (see arrow).

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All LEO data is also available in Excel spreadsheet format, organized by the year when it was posted (see arrow).

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All observations are available the map archives as well as in a spreadsheet format located on the LEO website.
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Webinar/Teleconference Archive

**March 24, 2015 Webinar**

Presentation title: [SZONet/ELOKA community-based sea ice observations: Education, Outreach and update on ice conditions](https://example.com) (3.11 MB .pdf)

Presenters: *Hajo Eicken*, Deputy Director — International Arctic Research Center Professor of Geophysics, University of Alaska Fairbanks; *Mette Kaufman*, Geophysical Institute, University of Alaska Fairbanks; *Irene Holak*, Science Director, Northwest Arctic Watershed Association; *Seasonal Ice Zone Observing Network (SZONet)* Location: Barrow, Alaska

Presentation title: [Avian pathogen, the flu, and how disease in birds may perturb Arctic ecosystems](https://example.com) .pdf)

Presenters: *Andy Ramey*, U.S. Geological Survey, Alaska Science Center, and University of Alaska Fairbanks; *Andrew Neafsey*, Department of Fish & Game, Division of Wildlife Conservation

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**February 24, 2015 Webinar**

Presentation title: [Knowing Our Traditional Foods: During a time of rapid environmental change](https://example.com) (3.13 MB .pdf)

Presenter: *Desiree Roehl*, Environmental Program Manager, Community Environmental Health, Alaska Native Tribal Health Consortium

**January 20, 2015 Webinar**

Presentation title: [Coastal Storms in Alaska](https://example.com) (2.09 MB .pdf)

Presenters: *Aimee Fish*, Public, & Fire Weather Programs Manager and *Laura E. Zirbel*, Public & Severe Weather Programs Manager; NOAA National Weather Service Anchorage
A good observation provides information about the nature of the observation as well as why it is unique and important, and any interpretations by the observer. Ideally it also includes photos or video.
LEO is also a social network and participants correspond with each other directly to discuss local concerns and exchange information.
Observations are shared with other LEOs, networks and technical experts to assist with interpretation and work with the LEO on the issue.
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Checkout our LEO Public Maps, and resource links to learn more. You can Post an Observation or "Join LEO".
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The maps with LEO posts and climate events maps are shared publically through the weekly Northern Climate Observer. There are over 1500 subscribers around the circumpolar north, who receive weekly updates on LEO Observations.
What is the type of observation?

Answered: 289   Skipped: 4
Extreme Warm Waters
The take home

Our environment is changing very quickly.

Communities seek assistance responding to impacts.

LEO members posts observations on publically available maps.

LEO members engages directly with technical experts.

LEO is helping to improve understanding and response to climate change.