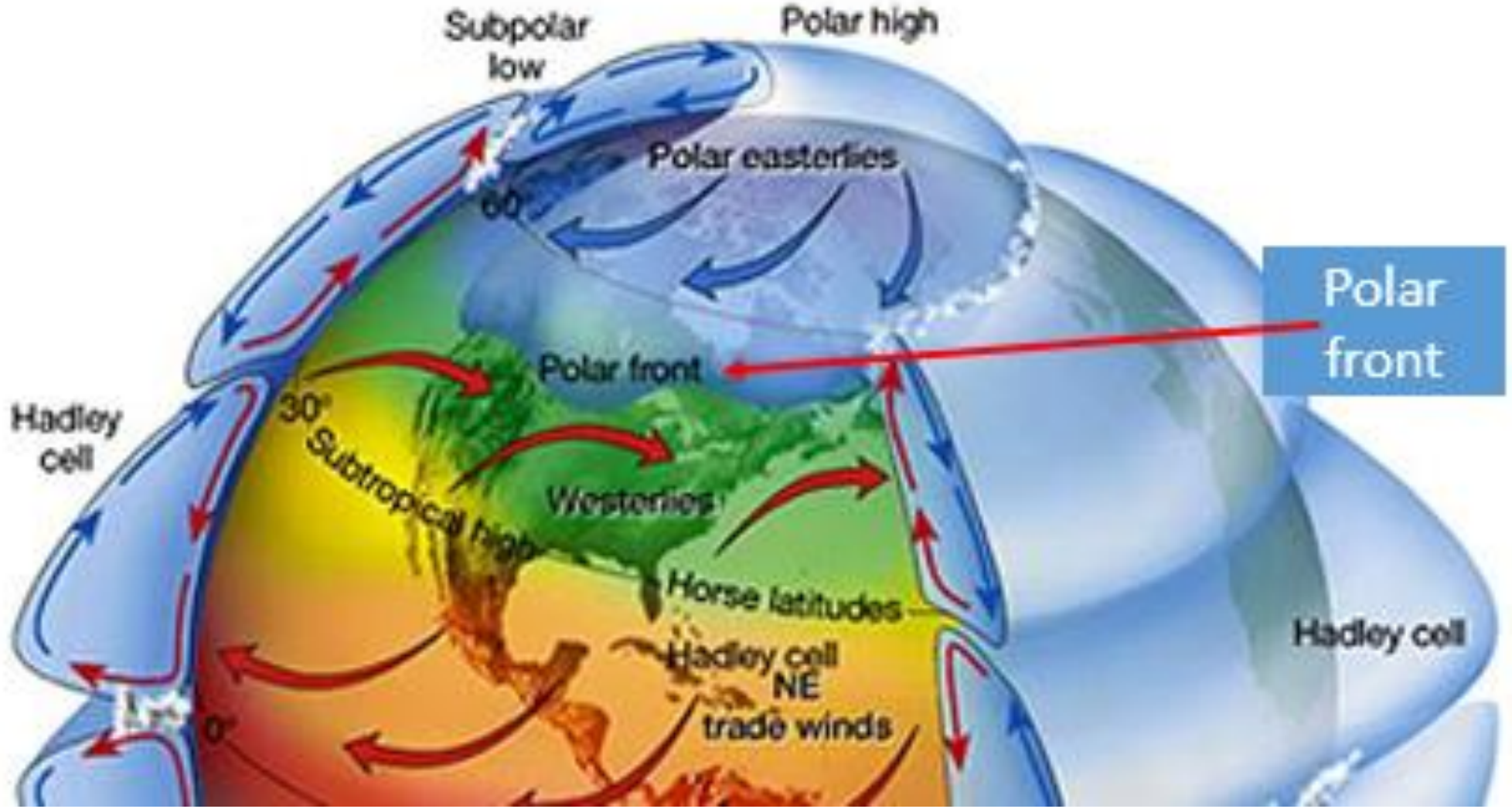

WEYBURN, SK | OCTOBER 9, 2019
NORMA LESLIE
The Weather Network
0:02 / 1:59



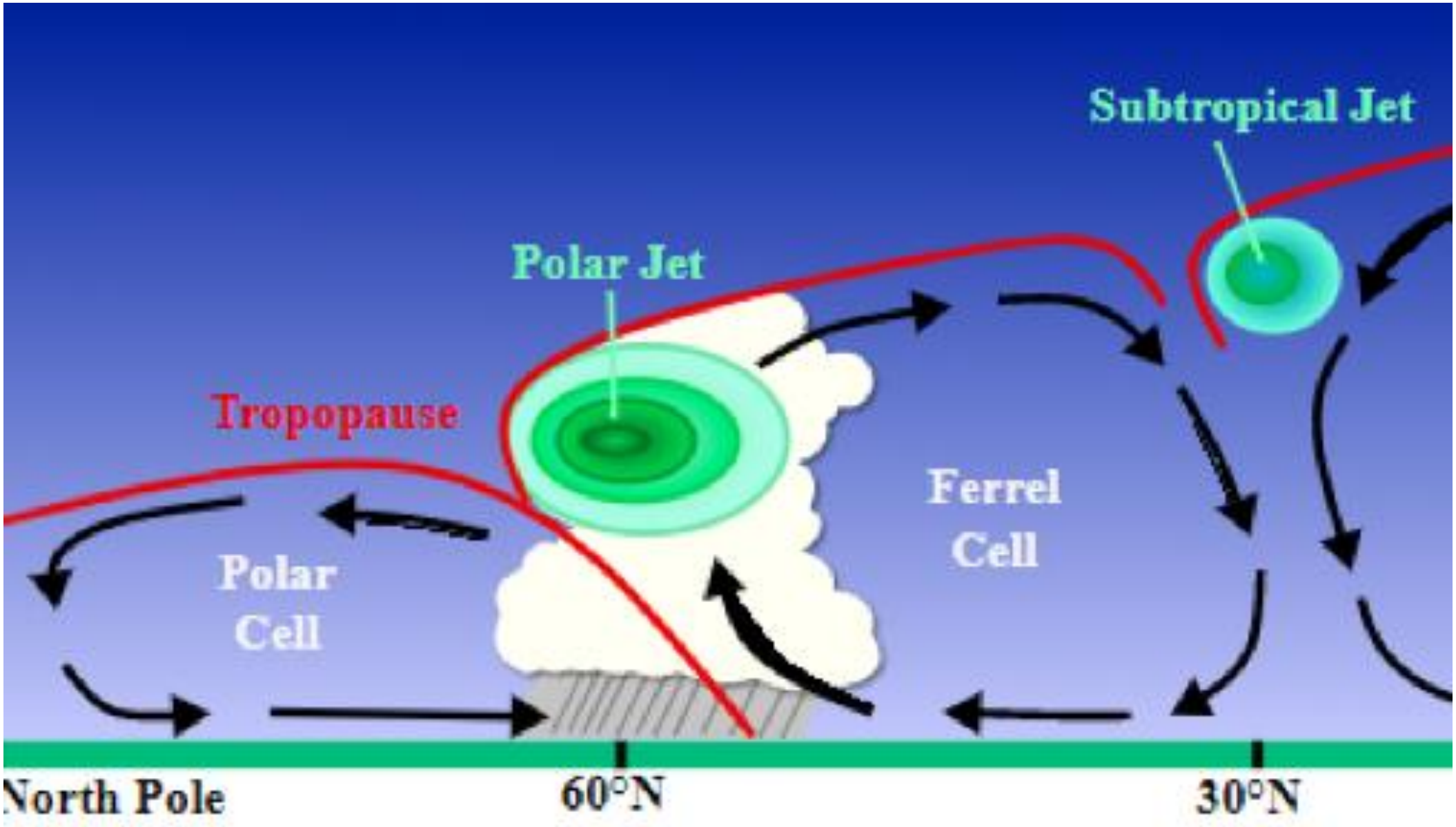

http://serc.carleton.edu/eslabs/hurricanes/index.html

UP NORTH ON CLIMATE

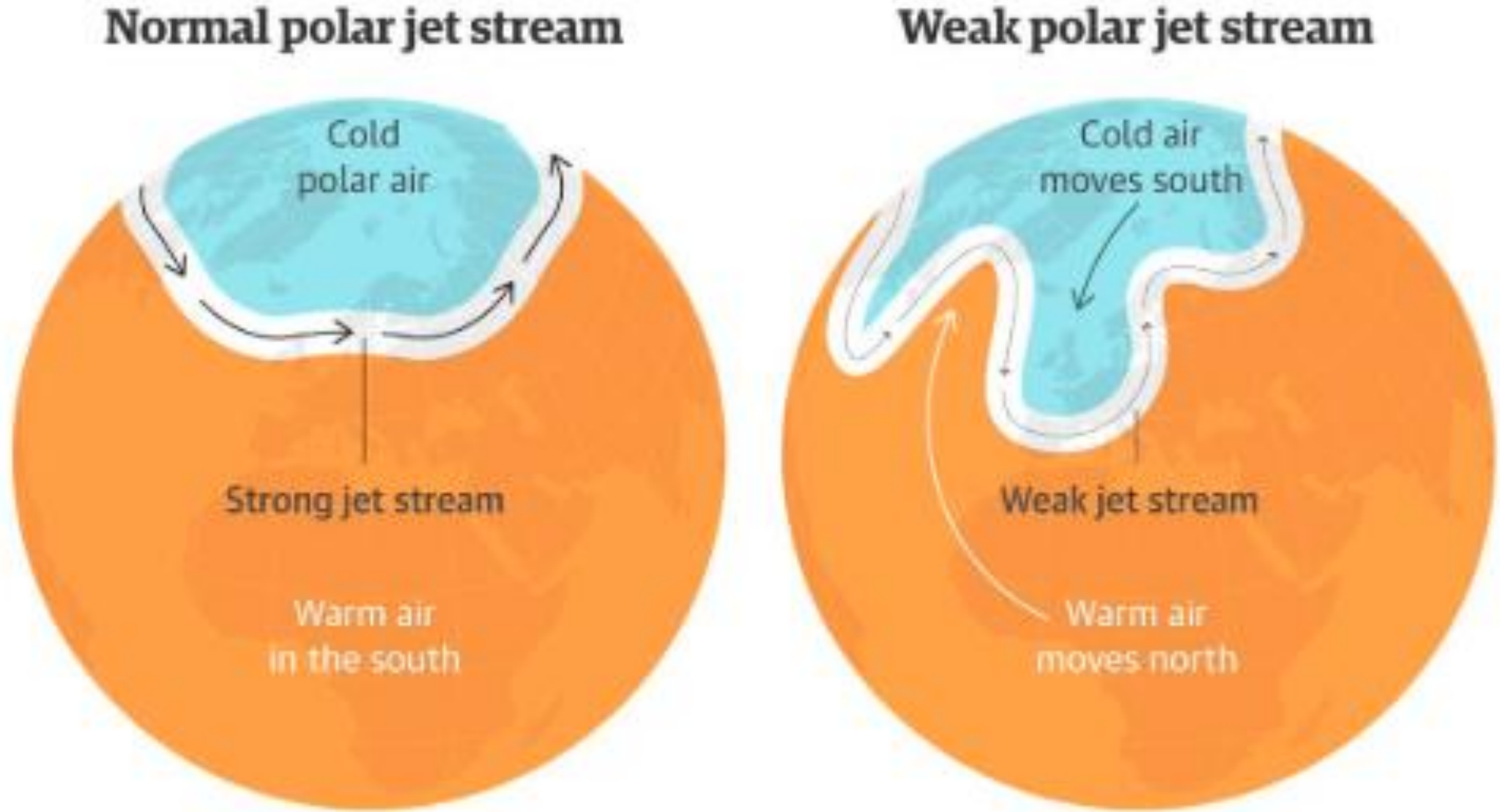

WEATHER SYSTEMS
THURSDAY
RAIN
MIX
SNOW
Iqaluit
Yellowknife
Whitehorse
Fort McMurray
Terrace
Thompson
Labrador City
St. John's
Edmonton
Charlottetown
Saskatoon
Vancouver
Calgary
Winnipeg
Regina
Timmins
Thunder Bay
Halifax
Montréal
Ottawa
Sault Ste. Marie
Toronto
1:51
1:52 / 1:59


TEMPERATURE PATTERN
OCTOBER 8-10
ABOVE SEASONAL
BELOW SEASONAL
Whitehorse
Yellowknife
Arviat
Iqaluit
Nain
St. John's
Smithers
Thompson
Edmonton
Moosonee
Halifax
Vancouver
Regina
Montreal
Winnipeg
Portland
Toronto
Minneapolis
Washington
Chicago
Denver
THE WEATHER NETWORK


TEMPERATURE PATTERN
THANKSGIVING LONG WEEKEND
ABOVE SEASONAL
BELOW SEASONAL
Whitehorse
Yellowknife
Arviat
Iqaluit
Nain
St. John's
Smithers
Thompson
Edmonton
Moosonee
Halifax
Vancouver
Regina
Montréal
Winnipeg
Portland
Toronto
Minneapolis
Washington
Chicago
Denver
THE WEATHER NETWORK




UP NORTH ON CLIMATE




Guardian graphic. Source NASA

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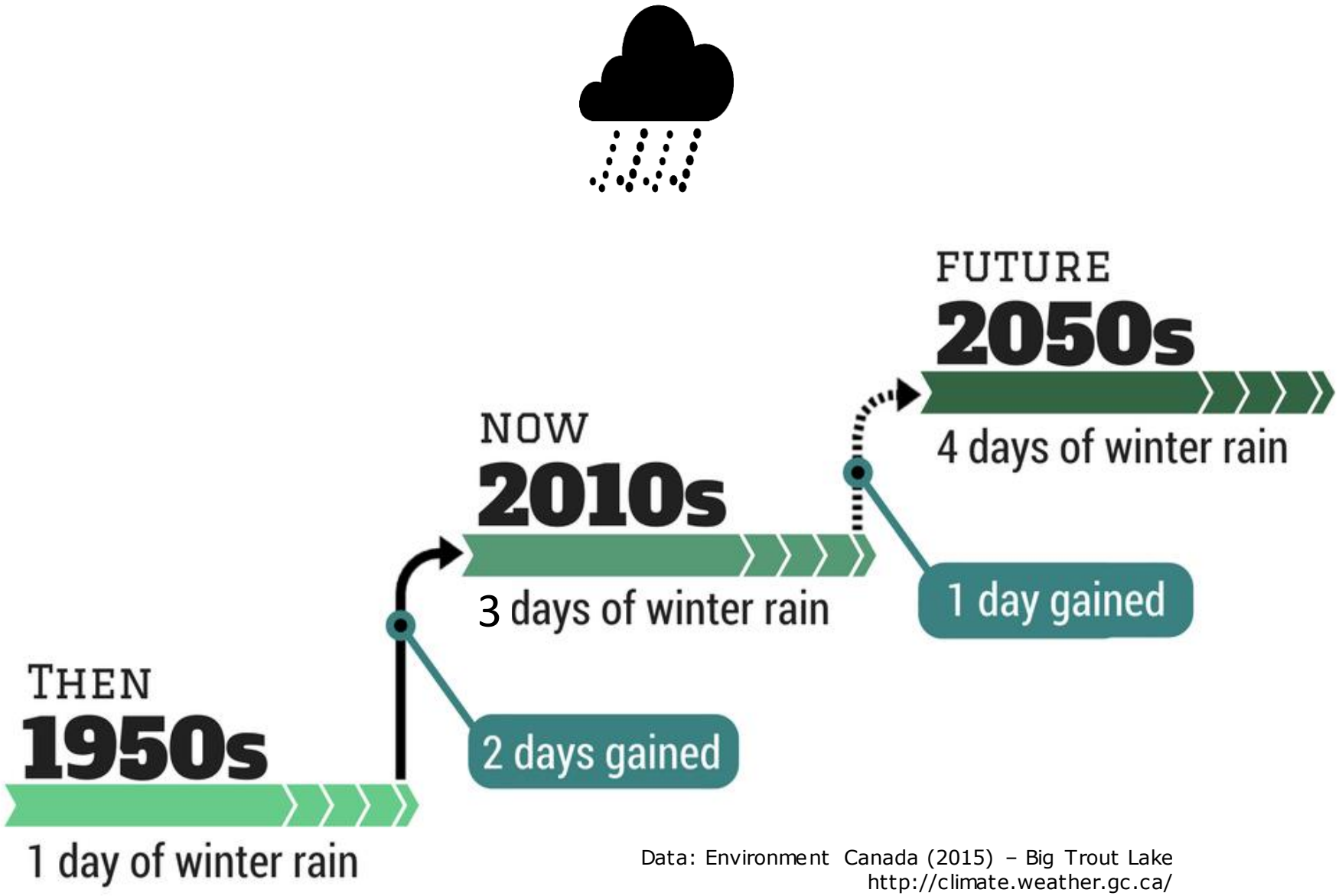
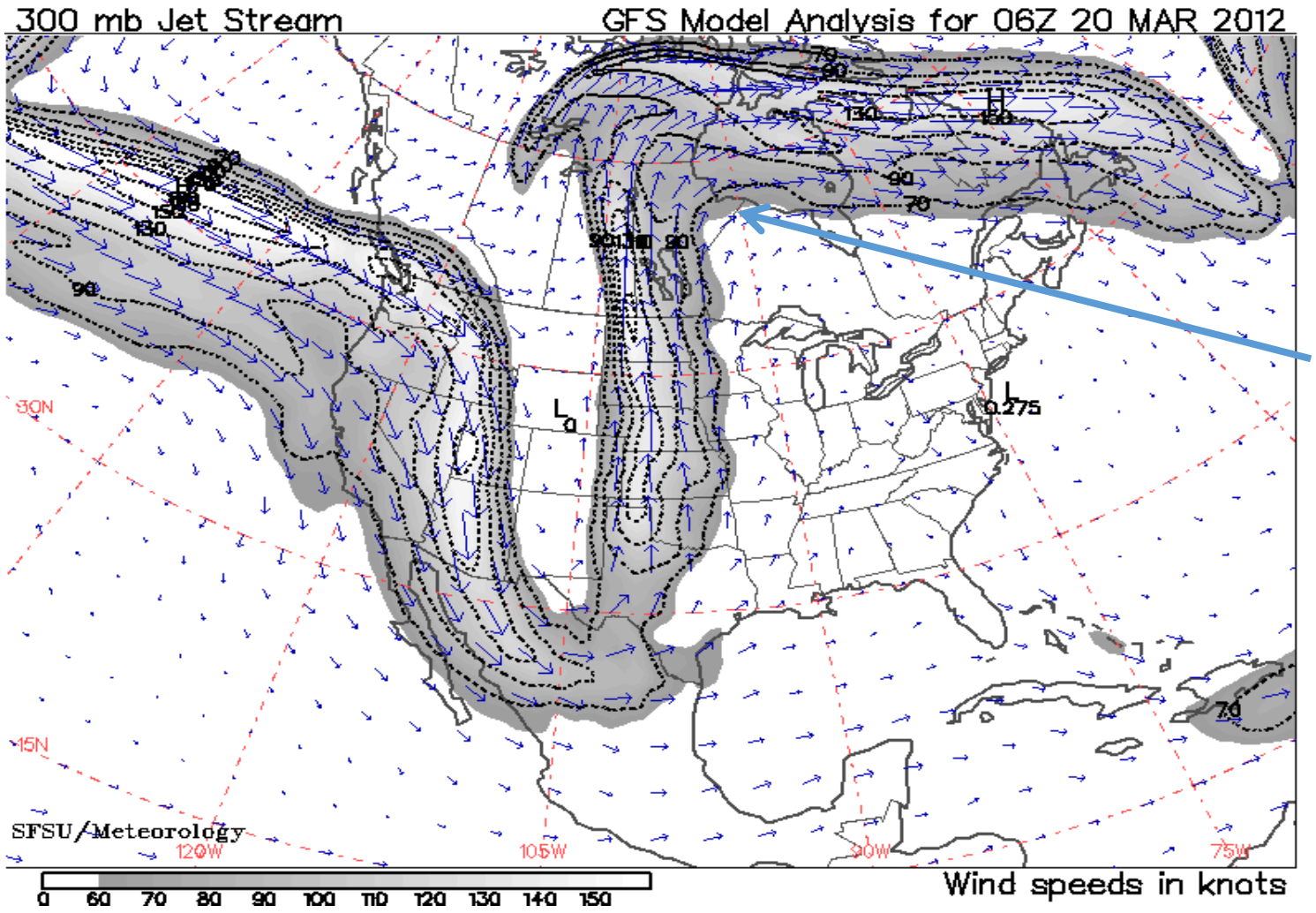
# A Lifetime of Wetter Winter Days




Data: Environment Canada (2015) – Big Trout Lake
http://climate.weather.gc.ca/




Pattern of the jet stream between Polar and Mid-latitude air masses on March 20, 2012

# Pools of rain in Fort Severn, 21 March, 2012, + 9$^0$C


reflectionsoutdoors.wordpress.com

Chris Koostachin

23 April 2012



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DANGER
Dam Ahead
Keep Out
Rat Rapids Dam
In an Emergency Call 1-888-558-1110
ONTARIOPOWER GENERATION
DANGER
Keep Out
Access Beyond This Point May Result In Drowning

UP NORTH ON CLIMATE

# Rapid Risk and Adaptation Assessment

(June 2019, Up North On Climate)

Weather has an impact on communities in many different ways. As climate changes some of those impacts are becoming worse. Some, like thinner winter ice, are becoming dangerous.

It is important to adapt to what is happening now and to prepare for what might happen in the future. What are you seeing ? What is most urgent ? What needs to be done ?

Community _____ (Optional)

| *Tick if seen* | |
|---|---|
| ☐ | **Flooding of ditches and buildings when winter or early spring rain falls on frozen ground**<br>  <br>Does it happen often ? During the winter or in the spring ? Which months ?<br><br>Can ditches and culverts handle the water ?<br><br>Are homes and buildings affected ?<br><br>What could be done to reduce this winter rainstorm flooding ? |

# Questions for interviewing First Nation Elders and community members

Community: _____ Interview Number: _____

Interviewer: _____ Date: _____

1. **Has the land changed during your life ?**

**Changes in the "bush" … trees and plants**

- Have you seen any changes in plants or trees such as areas of dead or dying trees or bushes … any kinds that have disappeared or are there any new ones ?
- Have any of the changes made a difference to harvesting activities by members of your community, such as finding healing plants or harvesting berries ?
- Have any of the changes on the land been good or bad for people in your community? In what ways ?

**Changes in lakes and rivers**

- Have you seen changes in lakes, rivers and creeks, such as unusual water levels or colour, or how warm the water is.
- When do lakes freeze and when do they break up ? How does that compare

## Climate Change Impacts and Adaptation Worksheet

| **Observations** *(What changes/ issues have you noticed on the land or in your community?)* | **Projections** *(What conditions are predicted with future climate change)* | **Effects** *(What effects are these changes having? What effects could they have in the future?)* | **Objectives** *(What specific concerns/ issues/ problems need attention or action?)* | **Adaptation Ideas** *(What are the options for addressing the problem?)* | **Selected Actions** *(Which action ideas will be put into practice?)* |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

UP NORTH ON CLIMATE

# Community-based Climate Change Impact, Risk, and Adaptation Planning Matrix

Community: ……

(D.P. Nov 2017)

| Vulnerability Indicators – land, life, infrastructure, health | | | Climate trends and projections to 2050 | | Risks and Adaptations | | | Priorities |
|---|---|---|---|---|---|---|---|---|
| TEK and Community Observations | Weather Incidents Examples - flood; heavy snow; winter rain; freezing rain; heatwave; drought; fire | Technical information and follow up re observations and incidents | Examples - temp; rain; snow; freeze up; break up; seasonal weather patterns | Extreme Events Examples - rain, snow, heatwave, drought, wind | Before Adaptation Risk = Likelihood x Consequence High - Med - Low | Adaptation Options (for community discussion) | After Adaptation Risk = Likelihood x Consequence / Capacity to Adapt High - Med - Low | Community Priorities Selected for action High - Med - Low |
| | | | | | | | | |
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# Eabametoong First Nation

## Adapting to a changing climate

### For consideration in preparing a community-based climate change adaptation plan

Draft. 10 February, 2017

Prepared by David Pearson, Laurentian University with assistance from Xavier Sagutch, Eabametoong First Nation, and with contributions from many members of the community.

# Rapid Risk and Adaptation Assessment

(June 2019, Up North On Climate)

Weather has an impact on communities in many different ways. As climate changes some of those impacts are becoming worse. Some, like thinner winter ice, are becoming dangerous.

It is important to adapt to what is happening now and to prepare for what might happen in the future. What are you seeing ? What is most urgent ? What needs to be done ?

Community _____ (Optional)

| *Tick if seen* | |
|---|---|
| ☐ | **Flooding of ditches and buildings when winter or early spring rain falls on frozen ground**<br>  <br>Does it happen often ? During the winter or in the spring ? Which months ?<br><br>Can ditches and culverts handle the water ?<br><br>Are homes and buildings affected ?<br><br>What could be done to reduce this winter rainstorm flooding ? |

# Climate Change Impacts and Adaptation Worksheet

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|---|---|---|---|---|---|
| Localized flooding in community from rain on frozen ground along with spring melt Culverts often blocked | Rain in winter and early spring when ground is frozen is becoming more frequent | Basements and crawlspaces are flooded as a result of water flowing off roads and spilling out of ditches and creeks | Stop crawl space and basement flooding | | |

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# Climate Change Impacts and Adaptation Worksheet

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|---|---|---|---|---|---|
| Localized flooding in community from rain on frozen ground along with spring melt. Culverts often blocked | Rain in winter and early spring becoming more frequent | Basements and crawlspaces flooded as a result of the water flowing off roads and spilling out of ditches and creeks | Stop crawl space and basement flooding | -keep culverts open<br>-put grills on entrance to culverts to catch debris | Debris will be cleared out of culverts before winter |

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# Flooding – Adaptation Ideas

Localized flooding

- improve community drainage (culverts, ditches, land grading, etc.)
- pile snow strategically
- limit surfaces that don't allow water to pass through
- preserve wetlands

Major Flooding

- land-use planning (know high water levels, flood plains, etc. and build accordingly)
- structures for water regulation (dams, levees, etc.)
- reduce risk of ice jams
- monitor for flood risk
- have an emergency plan

Crushed culvert in need of replacement (ABS culverts don't crush like this)

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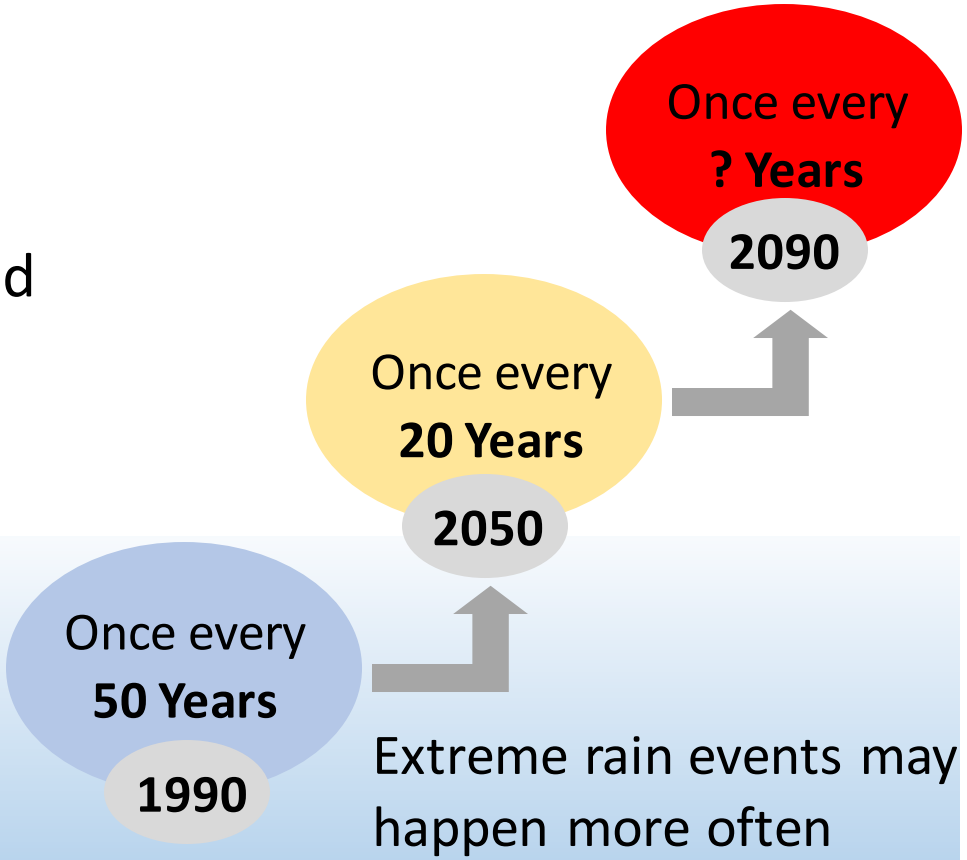
# Flooding

Localized Community Flooding

- flooding of a particular area
- due to heavy rain or rapid spring melt
- often also by rain falling on frozen ground

With climate change we can expect:

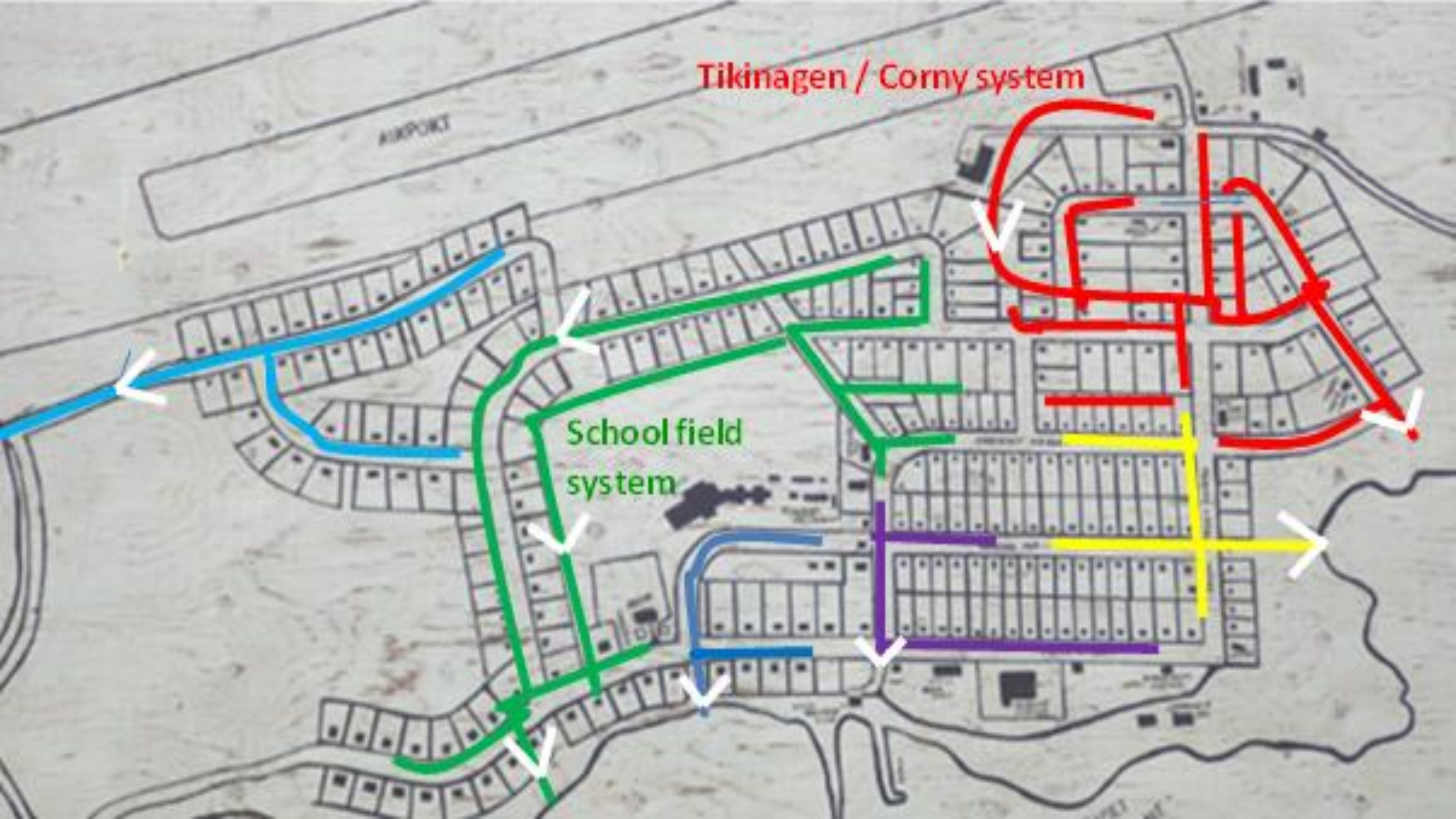
- more heavy rain events
- faster spring melt
- more rain in winter



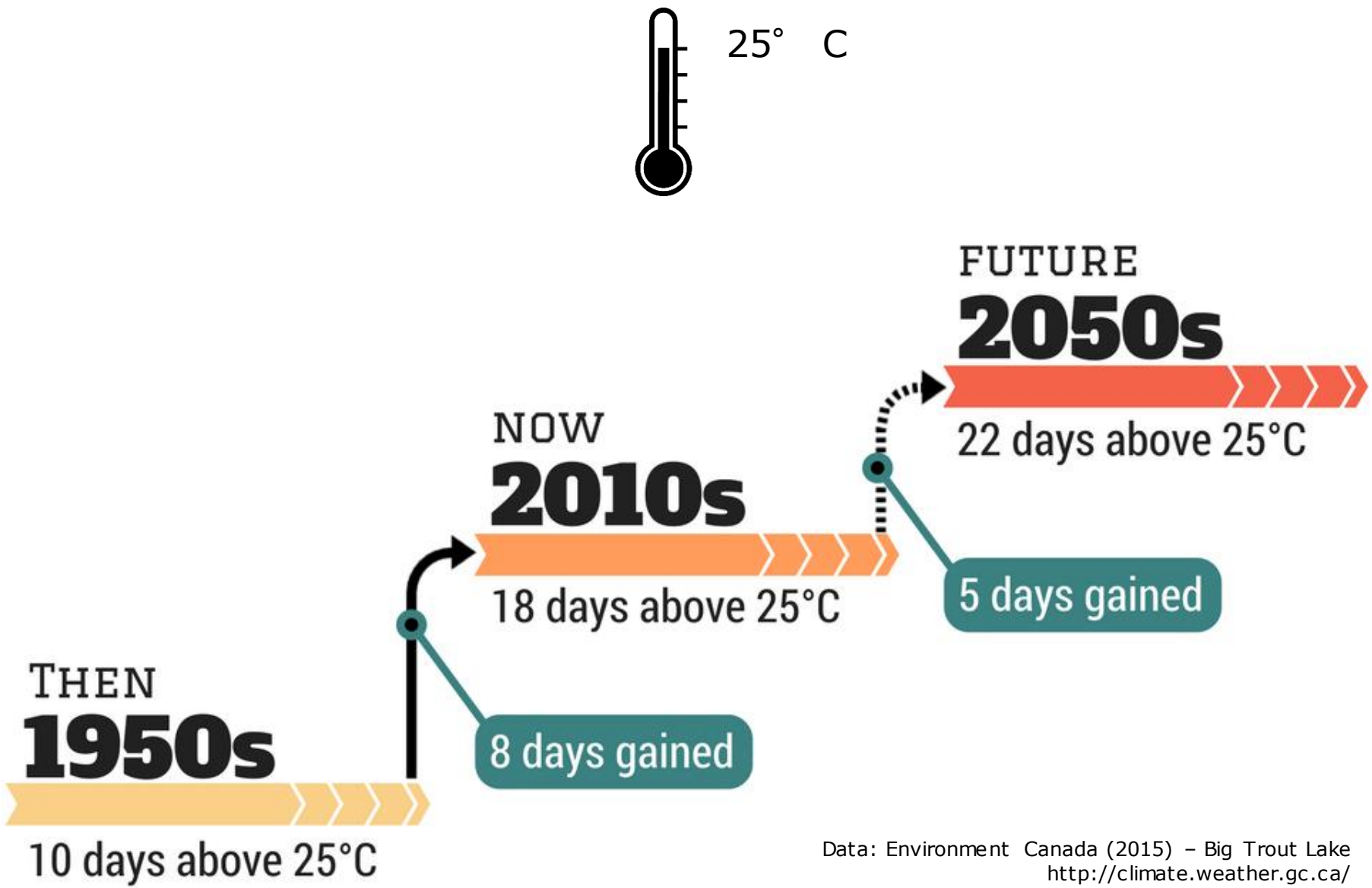

UP NORTH ON CLIMATE


SESAME STREET


http://atlookancheesequay.myknet.org/


Tikinagen / Corny system
School field
system

# A Lifetime of Warmer Summer Days




Data: Environment Canada (2015) – Big Trout Lake
http://climate.weather.gc.ca/

# Climate Change Impacts and Adaptation Worksheet

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|---|---|---|---|---|---|
| Hotter summers | Summer temperatures will continue to rise. Heatwaves could become more common. | Could impact the health of community members, especially Elders, children, those with medical conditions | Protect the health of community members | -Community cooling centers<br>-Wellness checks for vulnerable people<br>-Public education on heat illness | Immediate – heat stress checks<br><br>Future – cooling centres |

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# Health

Health challenges with changing climate include:

- heat stress as temperatures rise
- disease carrying insects, like ticks, moving north
- increase in asthma and allergies
- extreme weather impacting people and the land
- affects on mental health


With climate change we can expect:

- more heatwaves
- continued movement of disease carrying insects
- more airborne allergens (like pollen)
- more extreme weather

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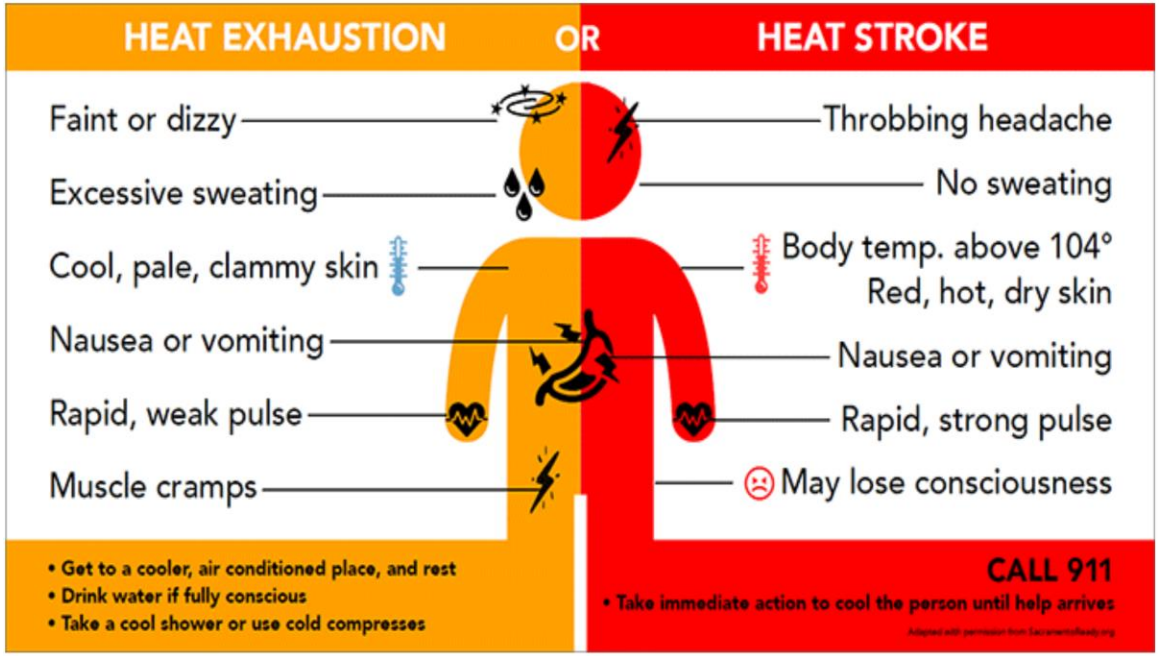
Blacklegged ticks can carry Lyme Disease

A longer growing season can mean more allergens

Hotter temperature increase heat illness




More wildfires lower air quality

Pioneer Road fire east of Fort Hope June 9, 2006.

http://www.eabametoong.firstnation.ca/index.php?q=gallery&g2_itemId=7514




Some deer carry black legged ticks infected with bacteria that cause Lyme Disease in humans

# Health – Adaptation Ideas

Inform community about health threats (like heat illness, new diseases, etc.) and how they can be prevented

Monitor your area for insects that can carry disease

Prevent insect bites

Limit contact with allergens

Community initiatives like:

- information campaigns
- cooling centres
- checks for vulnerable community members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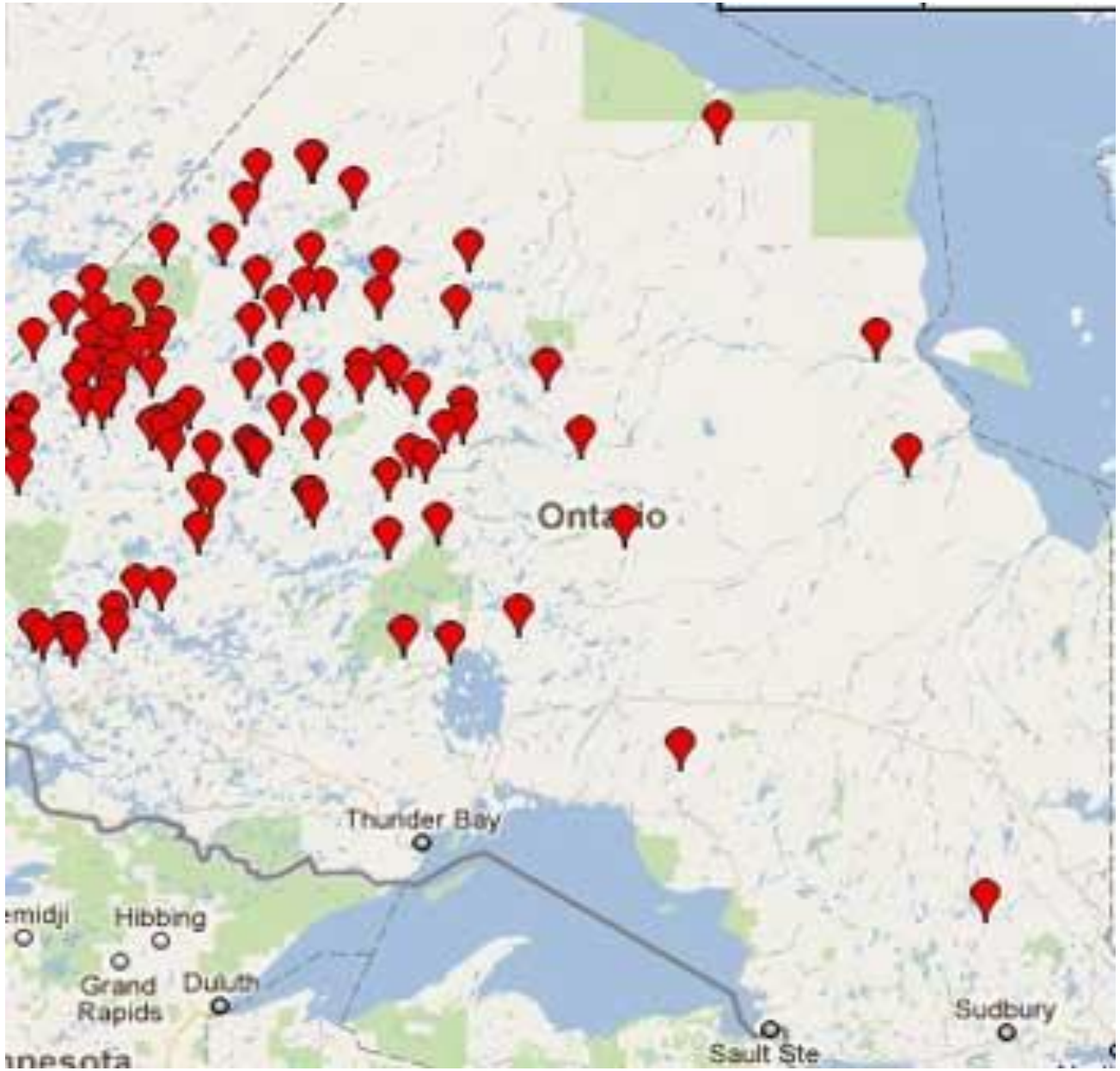


103 fires on 19 July, 2011

# Wildfire

The land in the north has evolved with fire and wildfires play an important part in renewing the forest.

However, remote communities in Ontario can be more at risk from wildfires and smoke due to limited fire management resources and lack of road access.

Photo from Ontario Forest Fires/Twitter

With climate change we can expect:

- hotter temperatures and drier forests
- longer forest fire season
- more storms can mean more lightning
- other climate effects (like blow downs, or insect damage) can make forests more vulnerable

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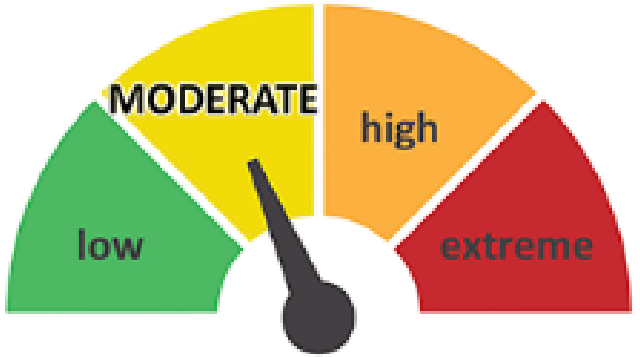
# Wildfire – Adaptation Ideas

Emergency Preparedness

- make a community emergency plan
- create a community alert system
- monitor for smoke, fire index, bush conditions, etc.
- inform individuals/households how they can be prepared for emergencies
- use resources like FireSmart

Fire Prevention

- promote safe fire practices to lower risk of human-caused fires
- manage vegetation in and around community
- use resources like FireSmart




**FOREST FIRE HAZARD**

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# FireSmart – www.firesmart.ca

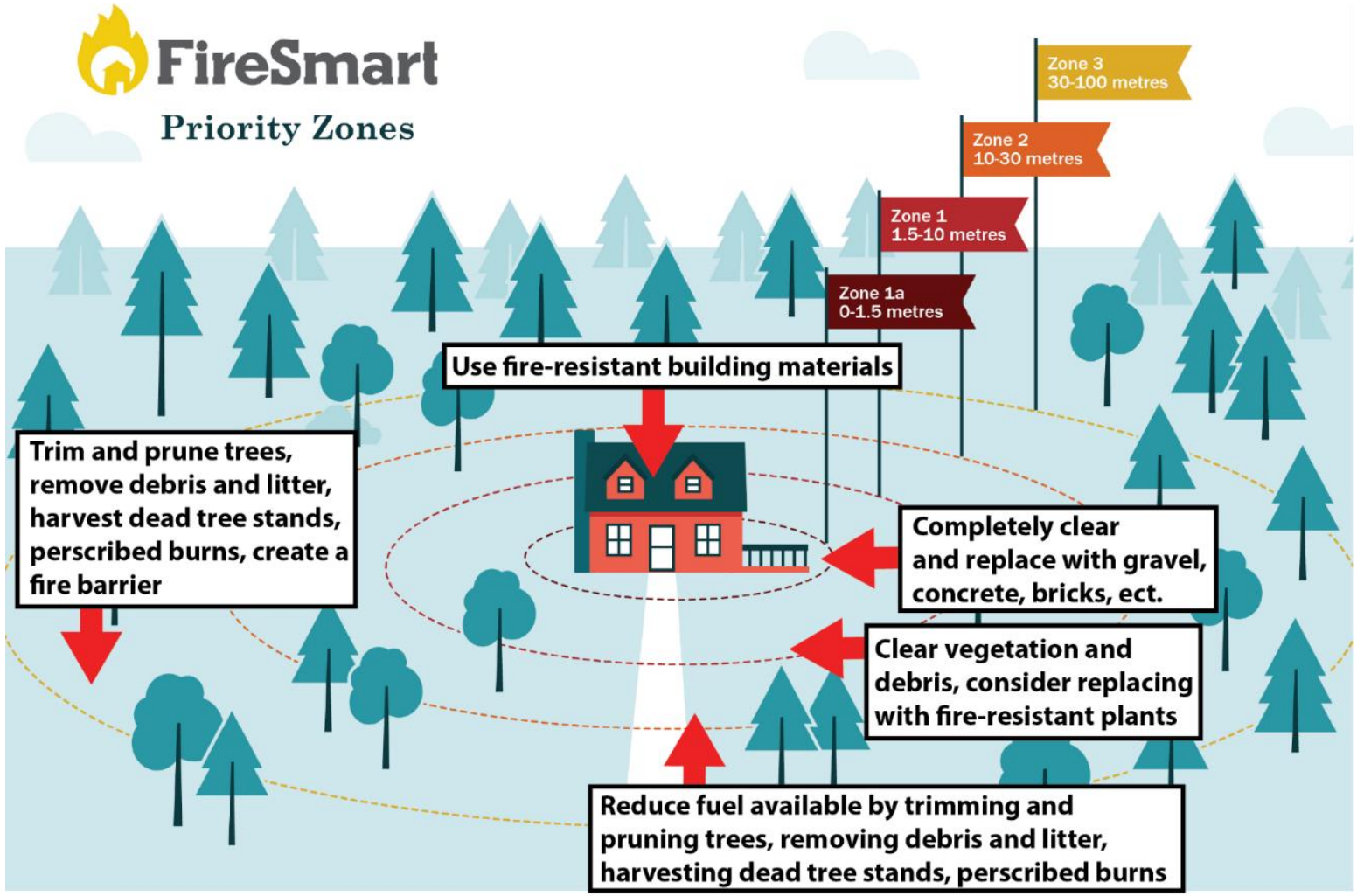


*Figure modified from FireSmart Canada's original image*

FireSmart is a set of guidelines designed to reduce the impact of wildfire on communities and property.

It offers advice for homeowners, community members, and community leaders.

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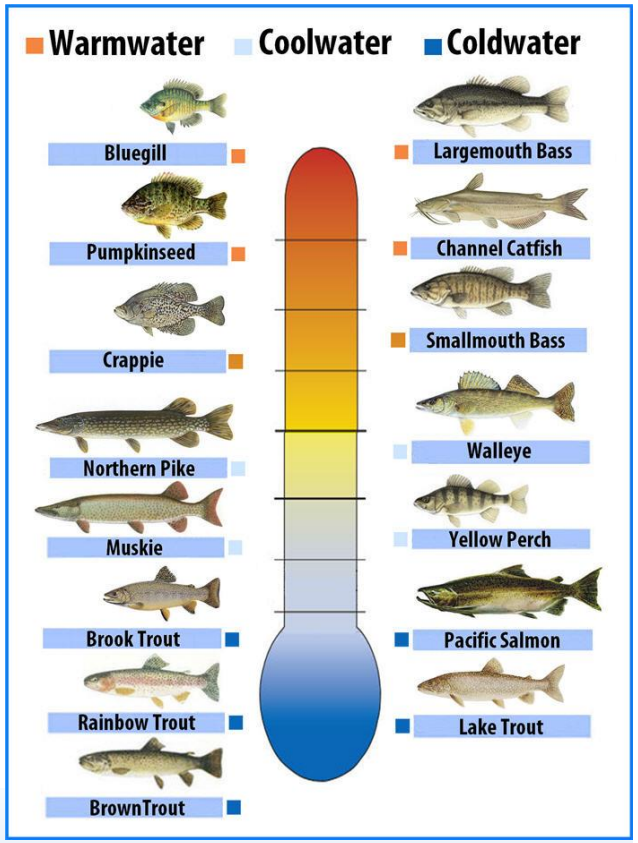
# Food Security

People have been noticing

- berries and plants fewer and/or harder to find
- changes in fish (species, size, spawning, health, etc.)
- fewer moose, concerns about moose health
- changes with geese (migrations patterns, flock sizes)
- changes in harvesting (when they can harvest, access to harvesting areas, etc.)




With climate change we can expect:

- changes in the habitat range of plants and animals
- northward movement of many species
- remote communities impacted by shorter winter road season
- longer growing season

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# Food Security – Adaptation Ideas


Smallmouth Bass

Monitoring

- species present, population counts, timing of events like migration, spawning, etc.

Habitat Protection/Restoration

- areas to protect/restore might include nesting areas, migration corridors, spawning areas, cool water streams, etc.

Adjust Harvesting Practices

- timing, equipment, target species, etc.

Community Initiatives

- community gardens, community coolers, food sharing, etc.

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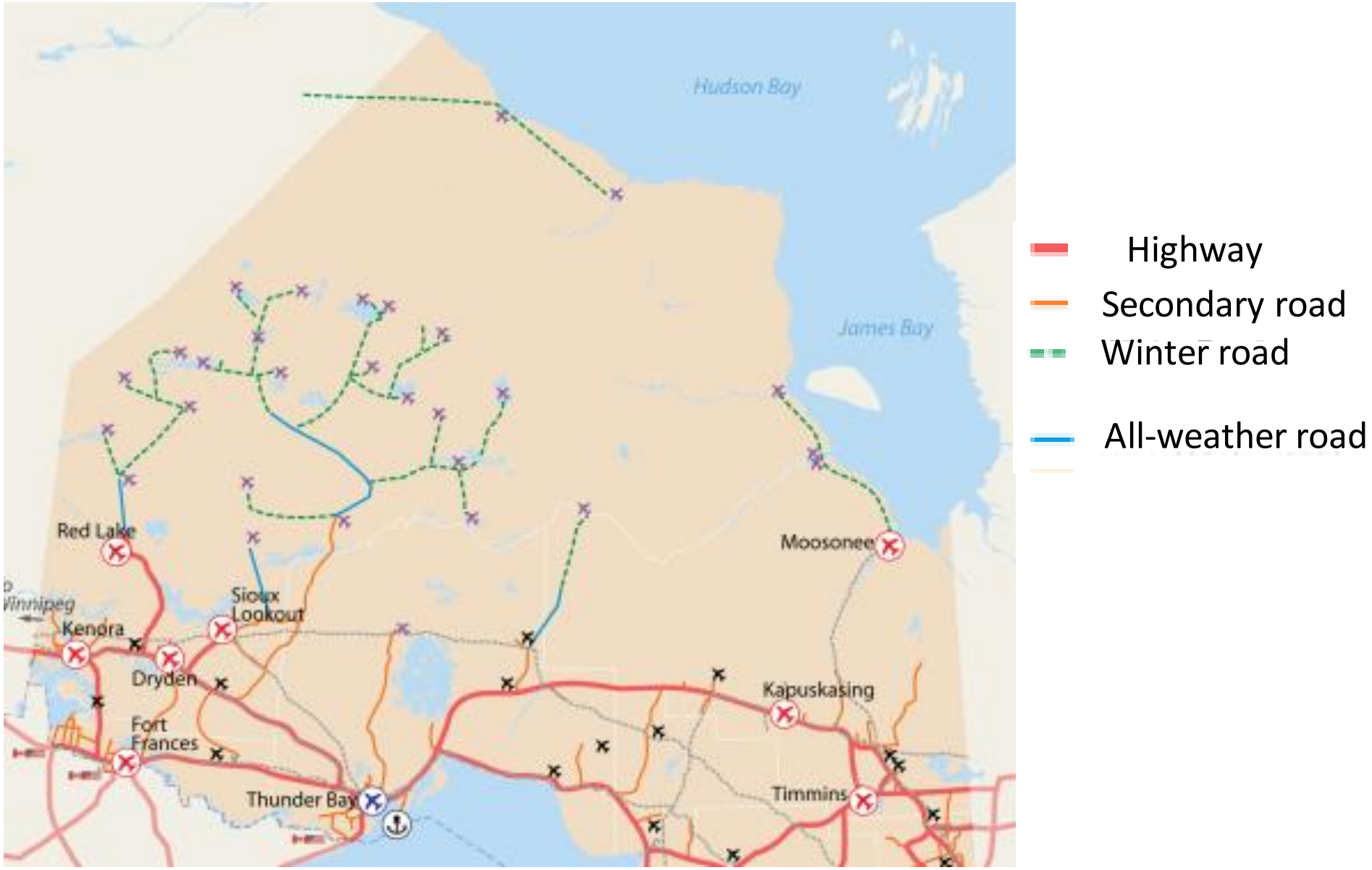
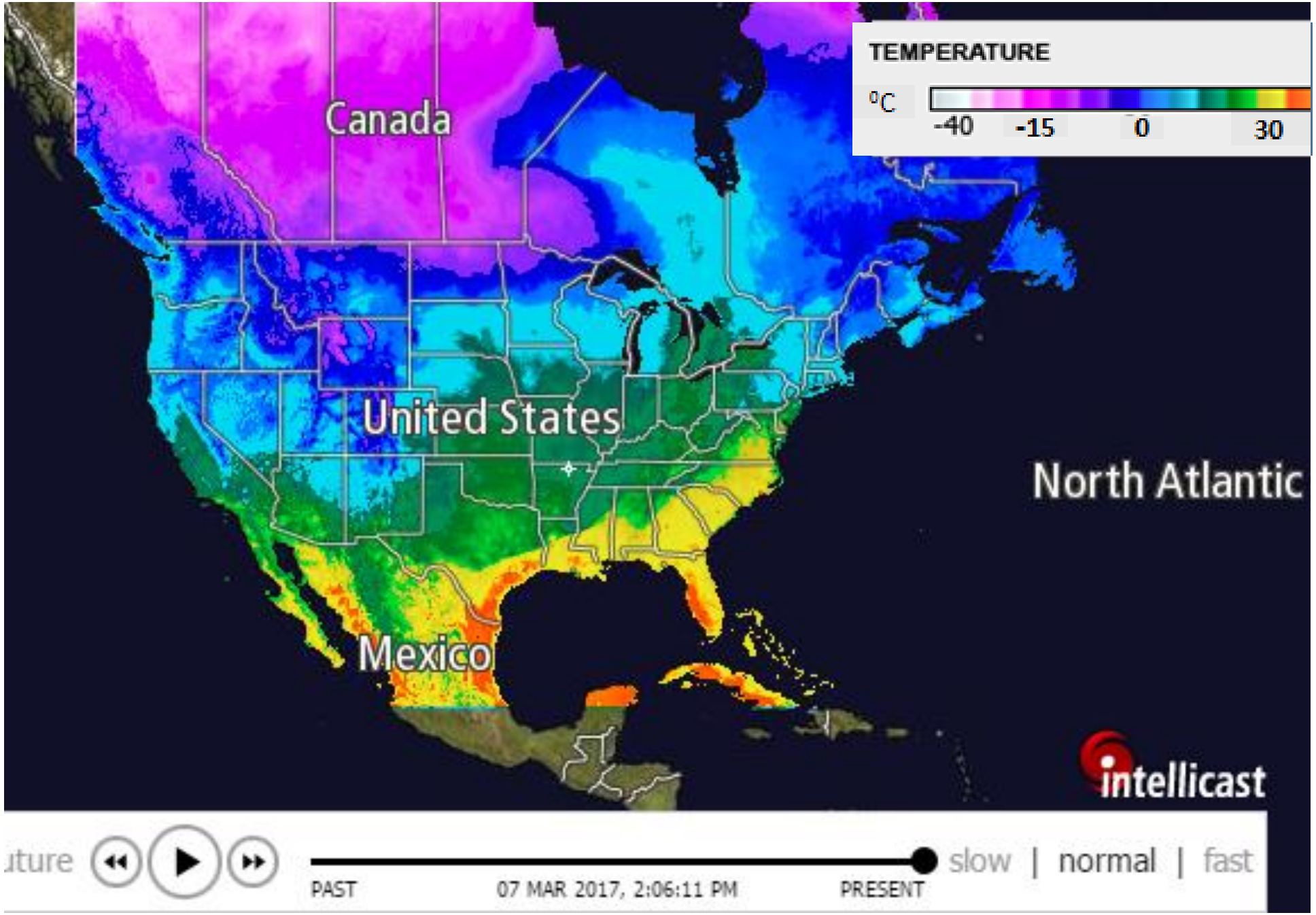



Source: Growth Plan for Northern Ontario (2011) in the Northern Ontario Multimodal Transportation Strategy (2015) https://nomts.ca/


TEMPERATURE
°C
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30
Canada
United States
Mexico
North Atlantic
intellicast
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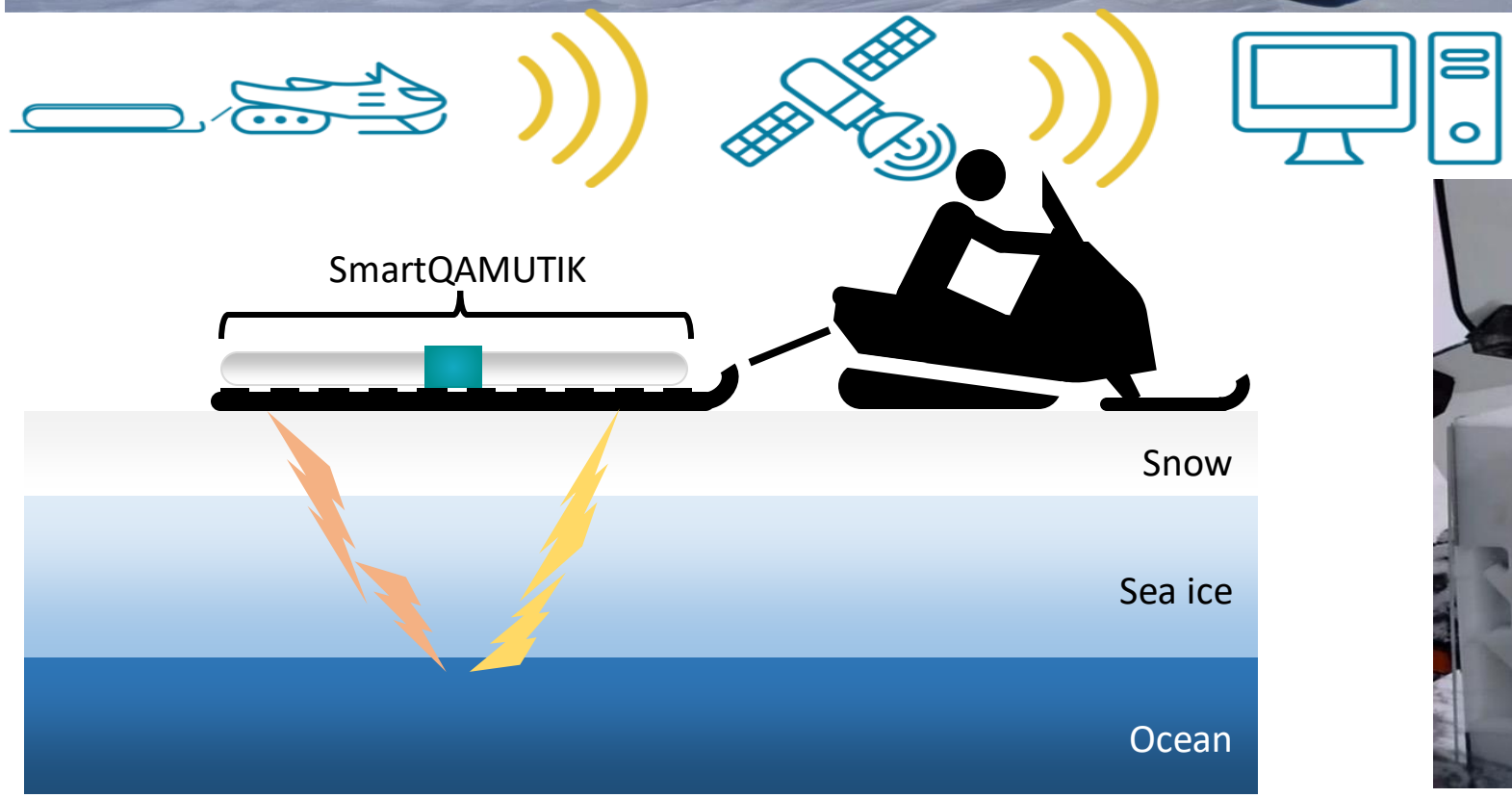
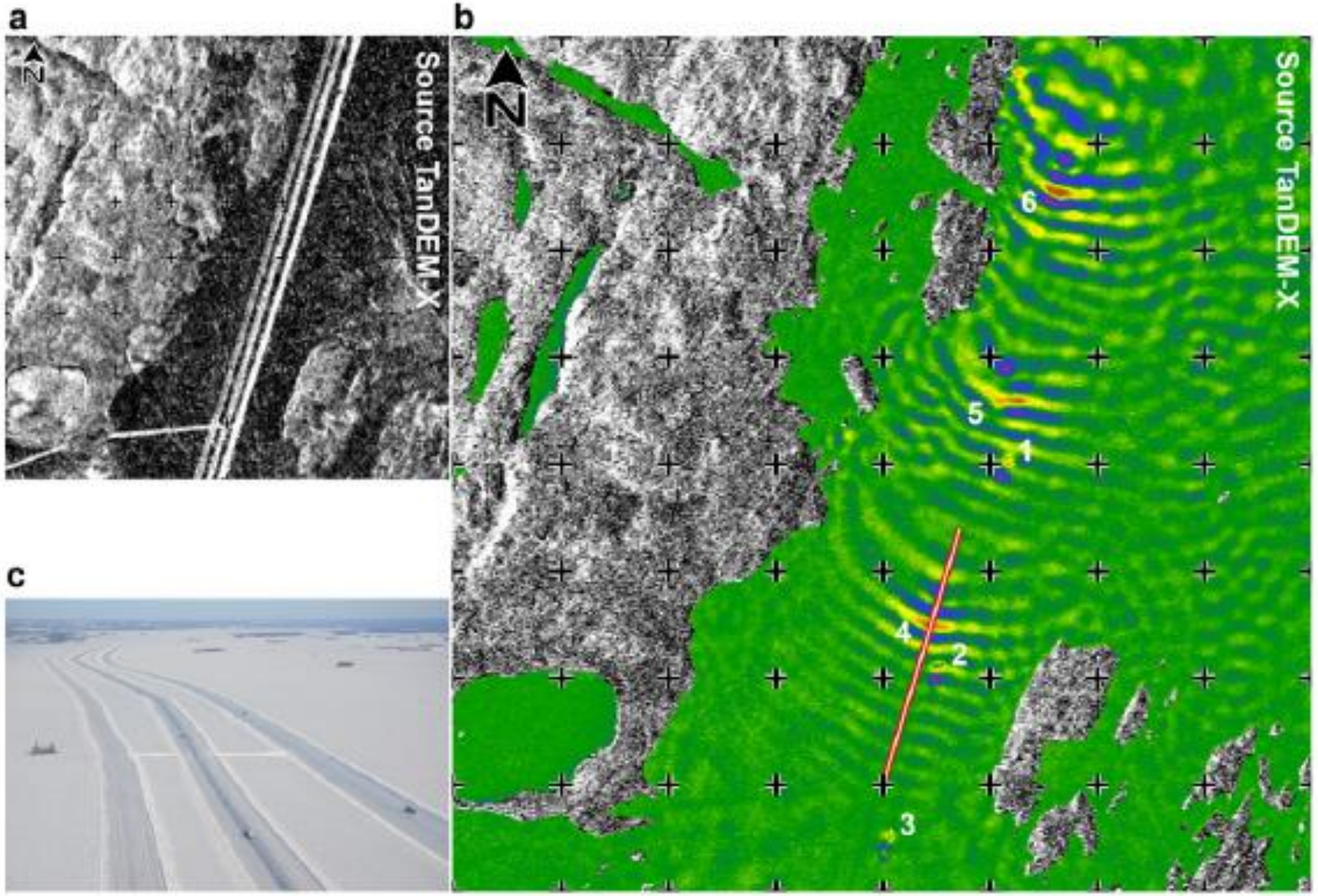
PAST
07 MAR 2017, 2:06:11 PM
PRESENT


# Using ice penetrating radar to check the thickness of ice

Kevin Bell, Memorial University




# Waves on winter roads behind laden and unladen transport trucks




Gordon Lake
Winter road Conwoyto to Tibbit
10 February, 2015

Vehicles 1 – 3 loaded northbound 7 m/sec (25 km/hr)

Vehicles 4 – 6 unloaded southbound 16 m/sec (57 km/hr)

http://dx.doi.org/10.1016/j.coldregions.2016.10.001
J.J. van der Sanden, N.H. Short CCRS

# Winter Roads – Adaptation Ideas

Infrastructure Changes

- change winter road construction techniques
- reroute roads to reduce water crossings
- build permanent crossings over water bodies
- build all-season roads


Lower Need for Outside Supplies

- green-energy options and local micro-grids can reduce need (and cost) for transporting fuel
- growing food locally can improve food security

Framing for a solar panel farm - Fort Severn

# Travel Over Land – Adaptation Ideas

Equipment Changes

- motors for shallow water
- lighter vehicles for crossing ice

Monitoring and Alerting

- monitor ice thickness on traditional routes and well traveled areas
- share ice thickness information with community
- alert community members of unsafe conditions

Trip Planning

- bring supplies and safety equipment when traveling
- check weather forecasts and plan with weather in mind
- tell someone where you're going and when you plan to return

UP NORTH ON CLIMATE


miigwetch
Stephanie Baker