



Preparing for the weather of the future

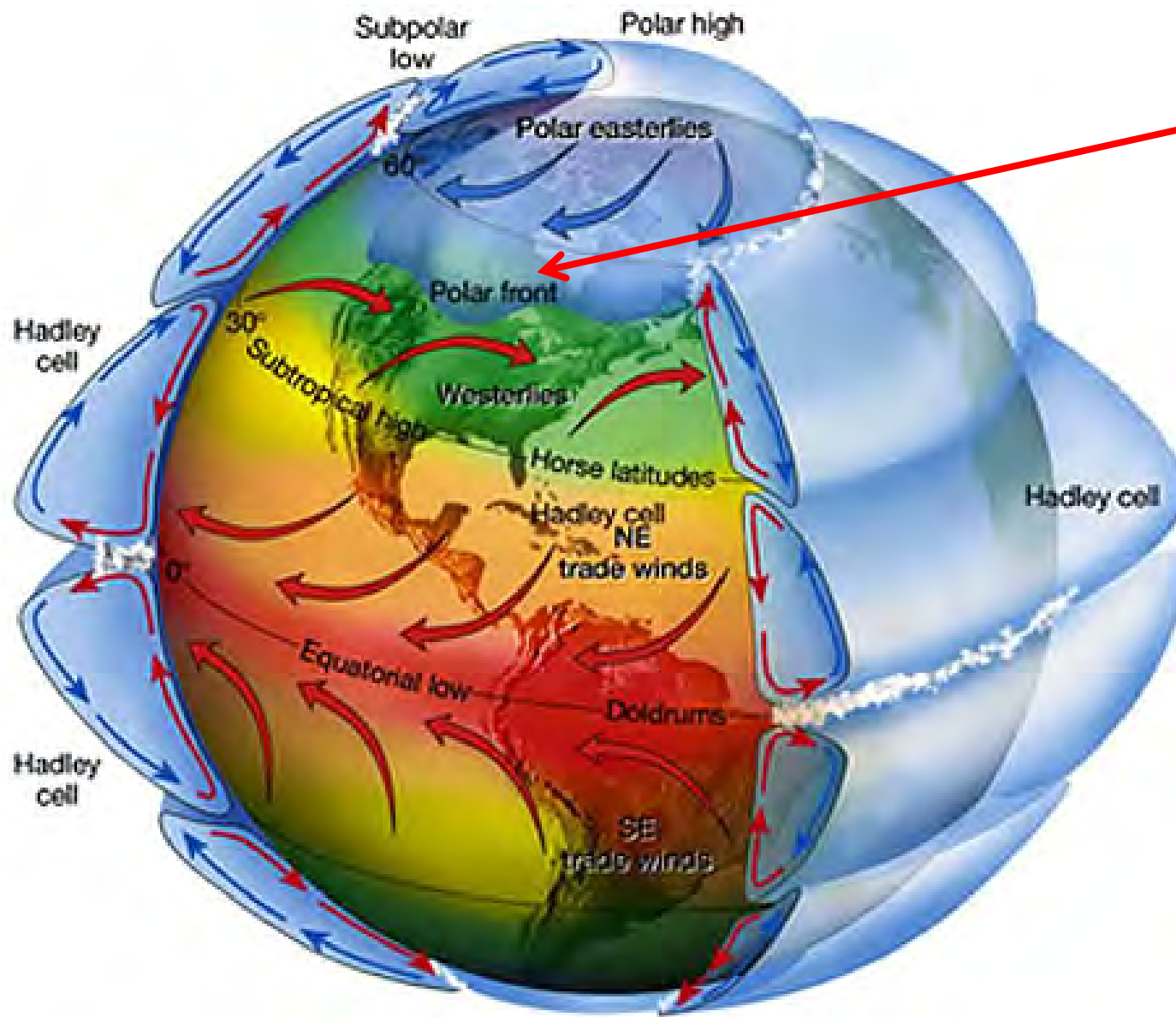
David Pearson, Laurentian University
NOFNEC
29 September, 2015

+ 8°C and rain in Fort Severn, 21 March, 2012





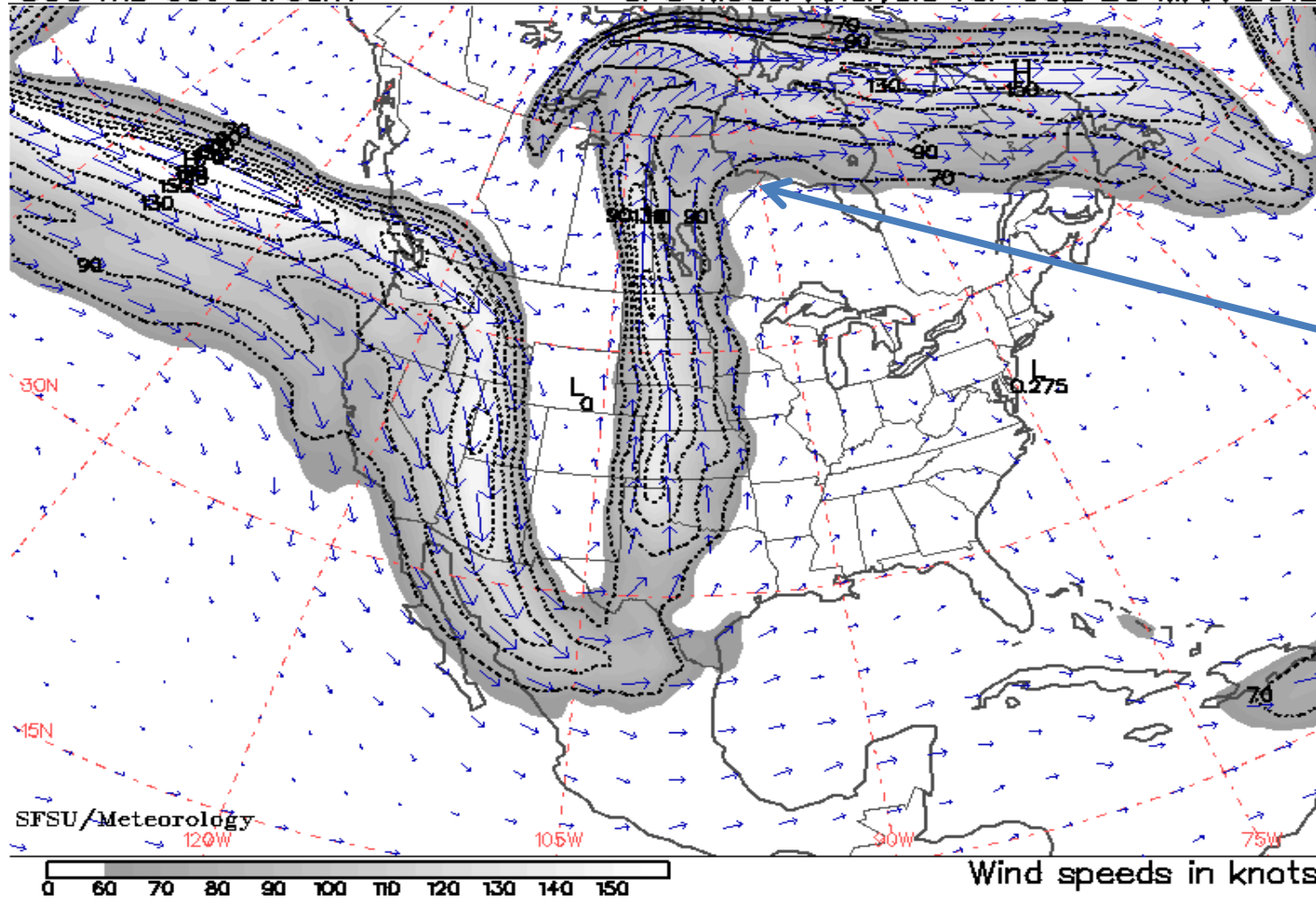




**Far North
Ontario**

300 mb Jet Stream

GFS Model Analysis for 06Z 20 MAR 2012



Fort Severn

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

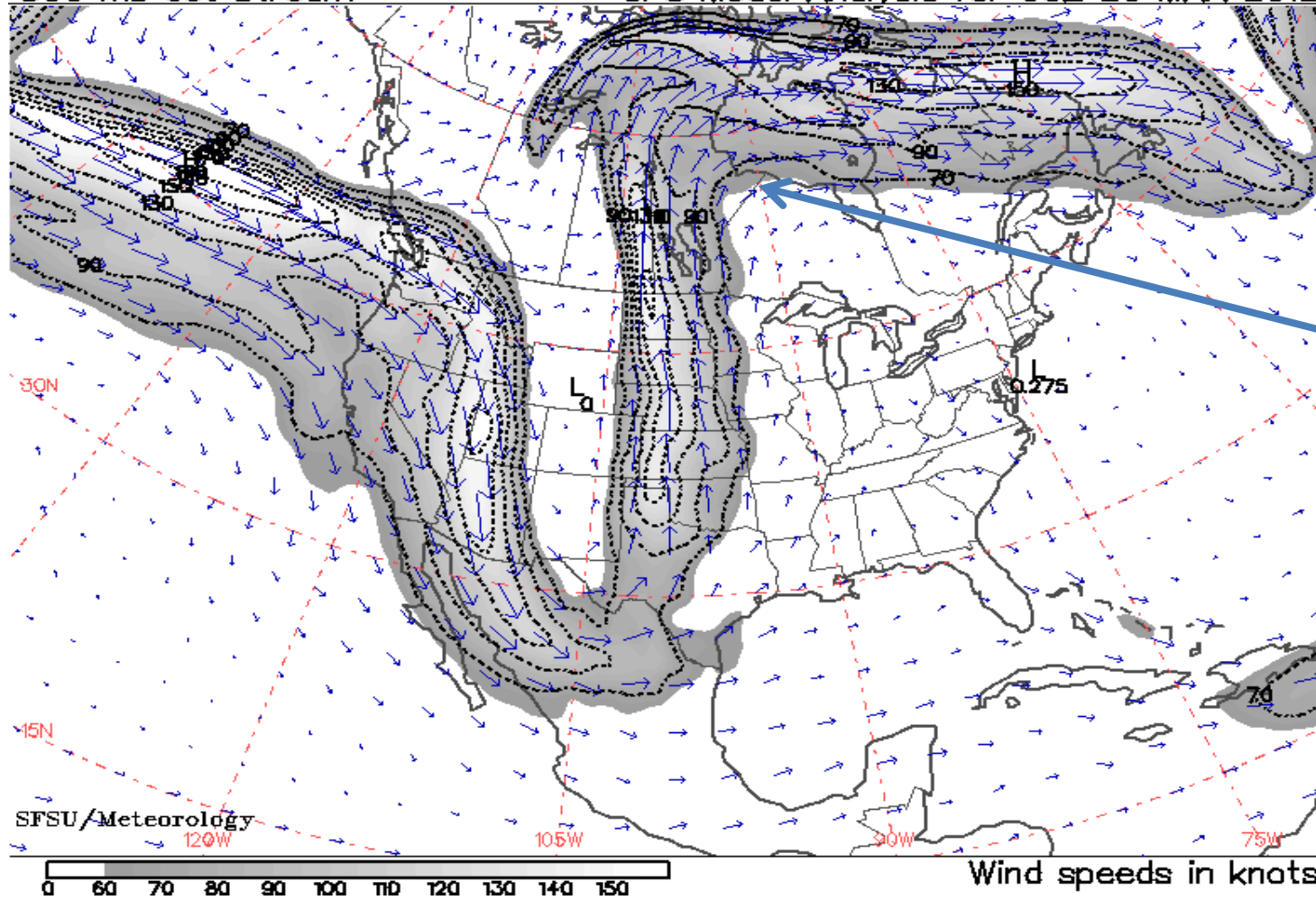






300 mb Jet Stream

GFS Model Analysis for 06Z 20 MAR 2012



Fort Severn

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

Fort Severn
March 1, 2000



Chris Koostac

3-1-2000 12:5





Remains of the winter road out of Fort Hope,
16 May, 2014



The two faces of Hudson Bay :

29 April 2006:

Reflecting radiation from the sun. Cold on-shore breezes cool the first weeks of spring as far south as Kapuskasing

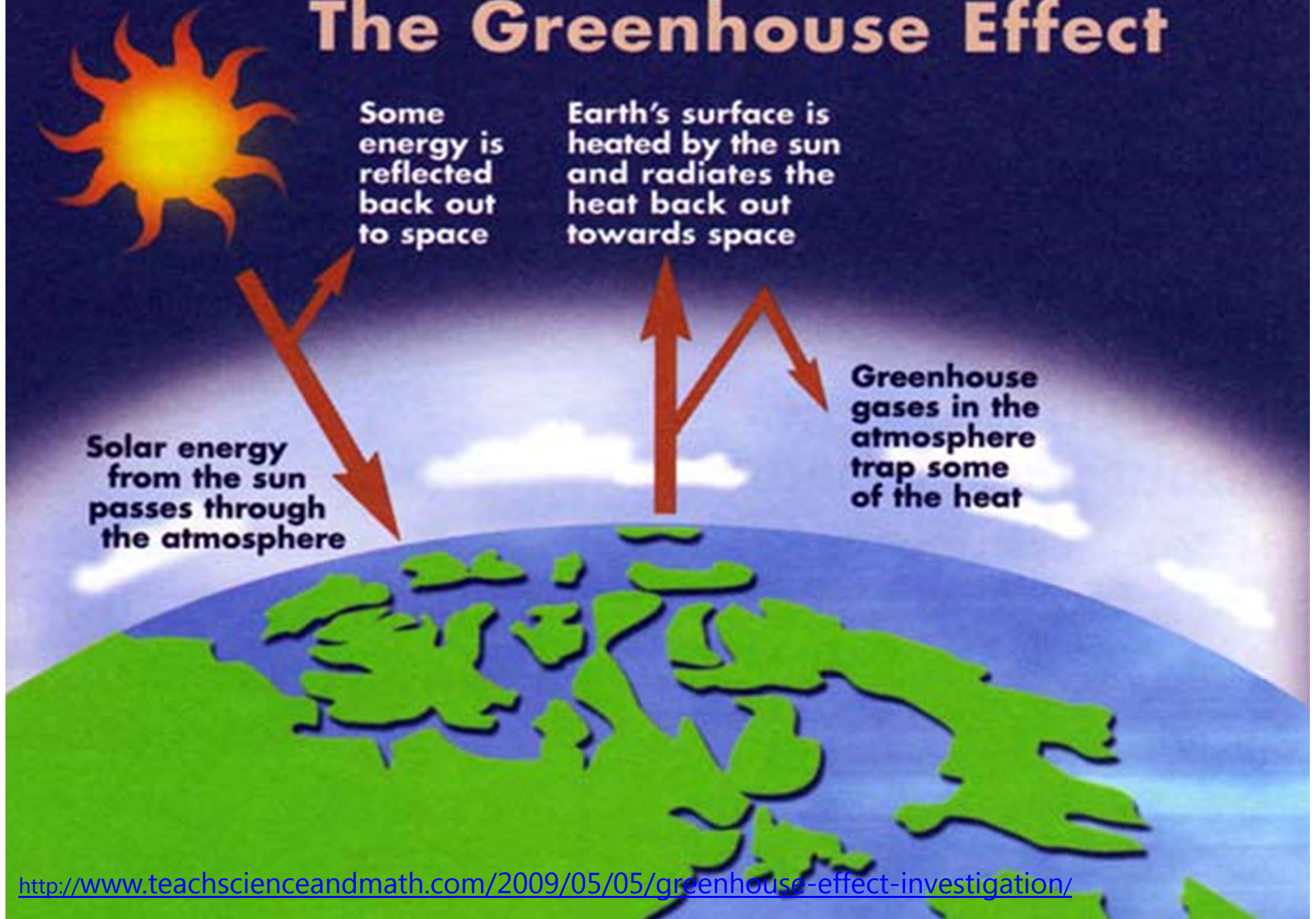
14 November, 2005:

Ice free and a source of warmth to breezes after absorbing energy all summer. Also a source of moisture for early winter snow.



About 10 – 11 days less ice cover each 10 years

The Greenhouse Effect









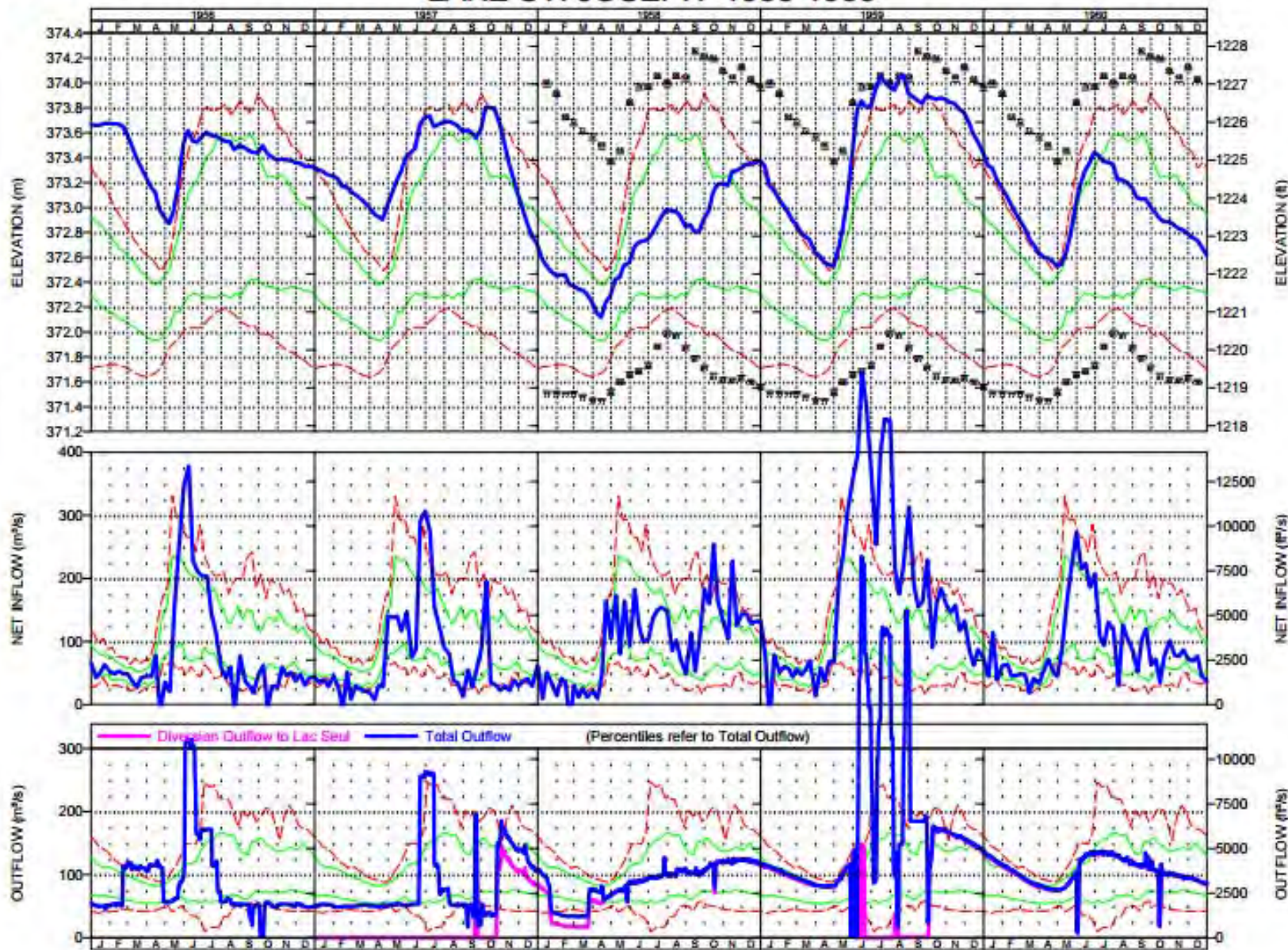
Flooding of the community in 1959



Drawn by Xavier Sagutch, 2012



LAKE ST. JOSEPH 1956-1960





Approximately 400mm of rain fell in 48 hours in parts of N.W. Ontario during June 8 – 11, 2002. Fort Hope and Marten Falls are about 200km north of the path of the storm.

Mount Polley Tailings Spill, BC . 4 August, 2014



<http://commonsensecanadian.ca/VIDEO-detail/aerial-video-burst-mout-polley-mine-tailings-pond/>

Posted by Damien Gillis. Courtesy Cariboo Regional District

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<http://atlookancheesequay.myknet.org/>



Sandy Lake First Nation
July 19, 2011

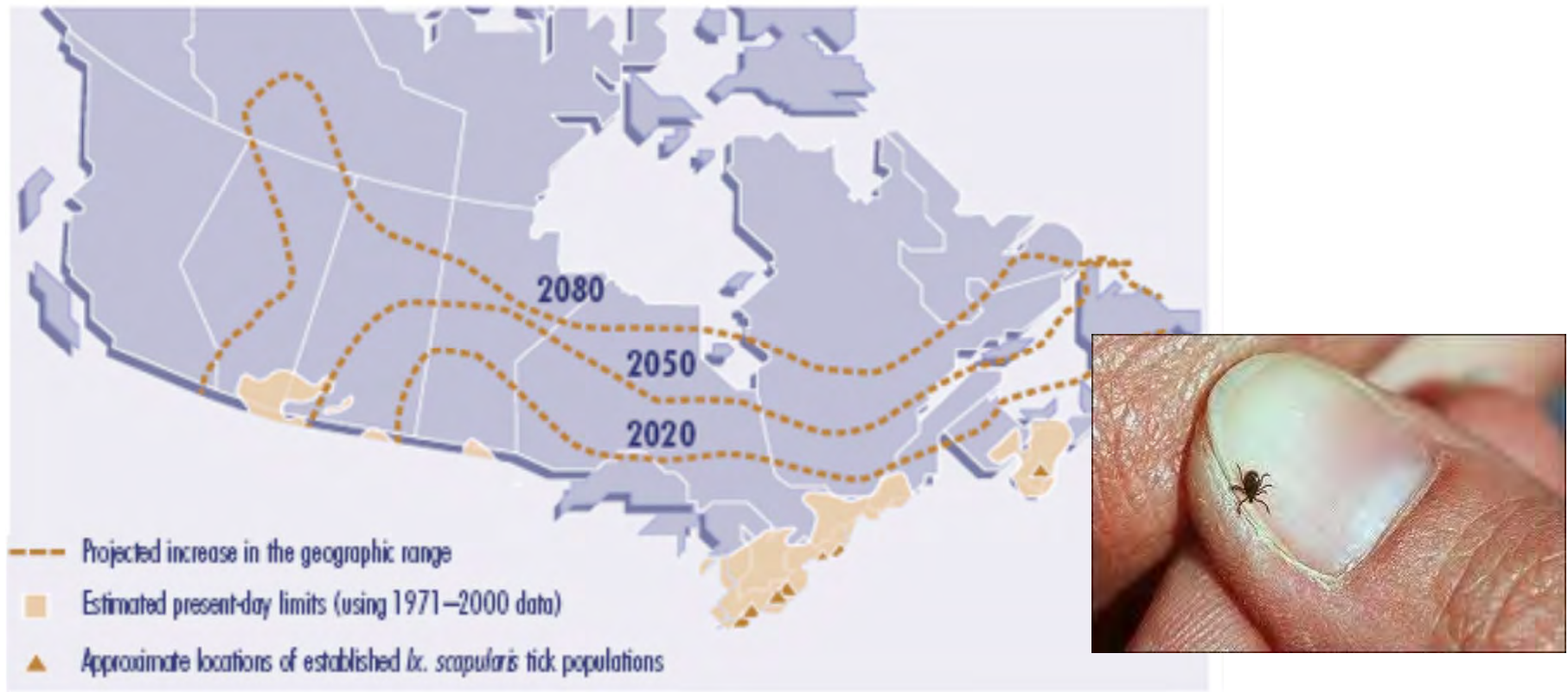


Dense smoke from the Pioneer Road fire east of Fort Hope
June 9, 2006. http://www.eabametoong.firstnation.ca/index.php?q=gallery&g2_itemId=7514



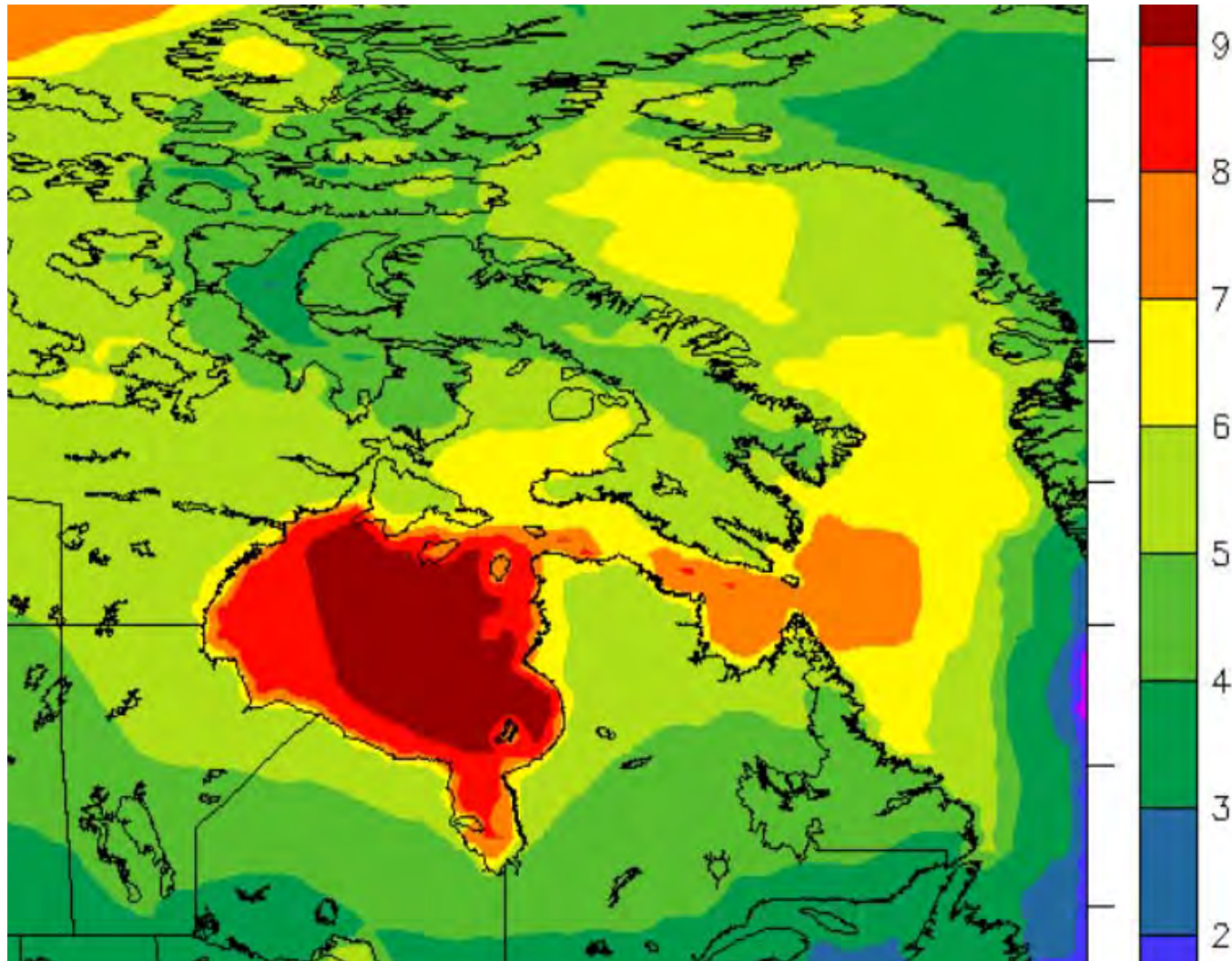
Canker worms
Fort Severn, July 2011

Diseases moving north ... Lyme Disease

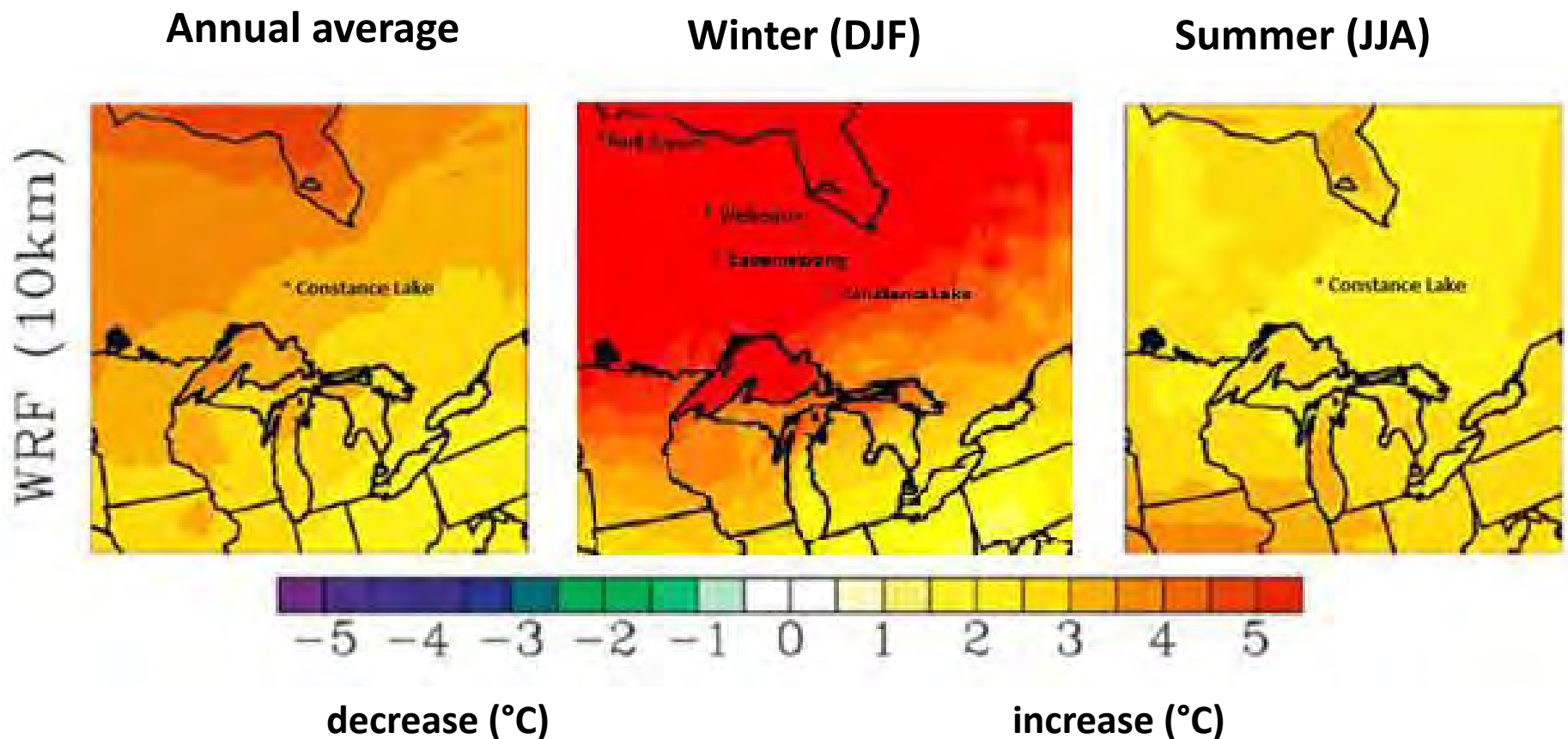


Potential spread of the black legged tick and Lyme disease

(Ogden et al 2005)



Projected change in average mean winter temperature in the 2050s compared with 1961 – 1990 over northern Canada combining two versions of the Canadian Regional Climate Model (CRCM 4.2.0 and 4.2.3). CCCSN Ouranos Consortium.
<http://www.cccsn.ec.gc.ca/images/ensemblescenarios/ontario-winter-2050s-crcm.png>



Projected changes in Annual, Winter, and Summer temperatures in the 2050s compared with 1979-2001 at 10 km resolution (Gula and Peltier (2011))

Vulnerability Indicators – ecosystem services and infrastructure			Climate Projections to 2050		Risks	
TEK and Community Observations	Community Weather Incidents	Technical Information	Temperature & Precipitation climate scenarios	Weather Event modelling	Risk = Consequence x Likelihood High - Med – Low	
Severe flooding in the 1950s from rise in Albany River	Flooding not in recent memory but Elders speak of severe event in the 1950s. Implies water level of 20 feet higher	See Lake of the Woods water release records for 1959 – may be related to incident. Need to understand			Need to determine if cause was related to control of flow in Albany by hydro dams. What weather event?	
Spring flooding from rapid local snow melt and rain in March	See locations on oblique aerial photo. Relates to surface drainage.		Winter average +4- 5 ⁰ C in 2050 shorter winter = late winter rain on frozen surface drains fast		Med - High Risk likely rising from late winter rain on frozen ground	
Late freeze up (Nov) and thin ice at time when good winter travel conditions expected.	Dangerous ice breakthrough incidents				High	M H

Being prepared ... Being resilient

- Designate a community member as a “climate change information gatherer”
- Coordinate with other First Nations in developing a statement of needs for preparing or adapting to a changing climate
- Collaborate in identifying past severe weather events and vulnerabilities in the future
- Think regionally as well as locally; think and plan strategically for long term resilience

Miigwetch

