VACEA Fieldwork Update: Canada

Objective of the VACEA Project

To reduce risks associated with extreme climate events for rural agricultural and indigenous communities.

VACEA overview

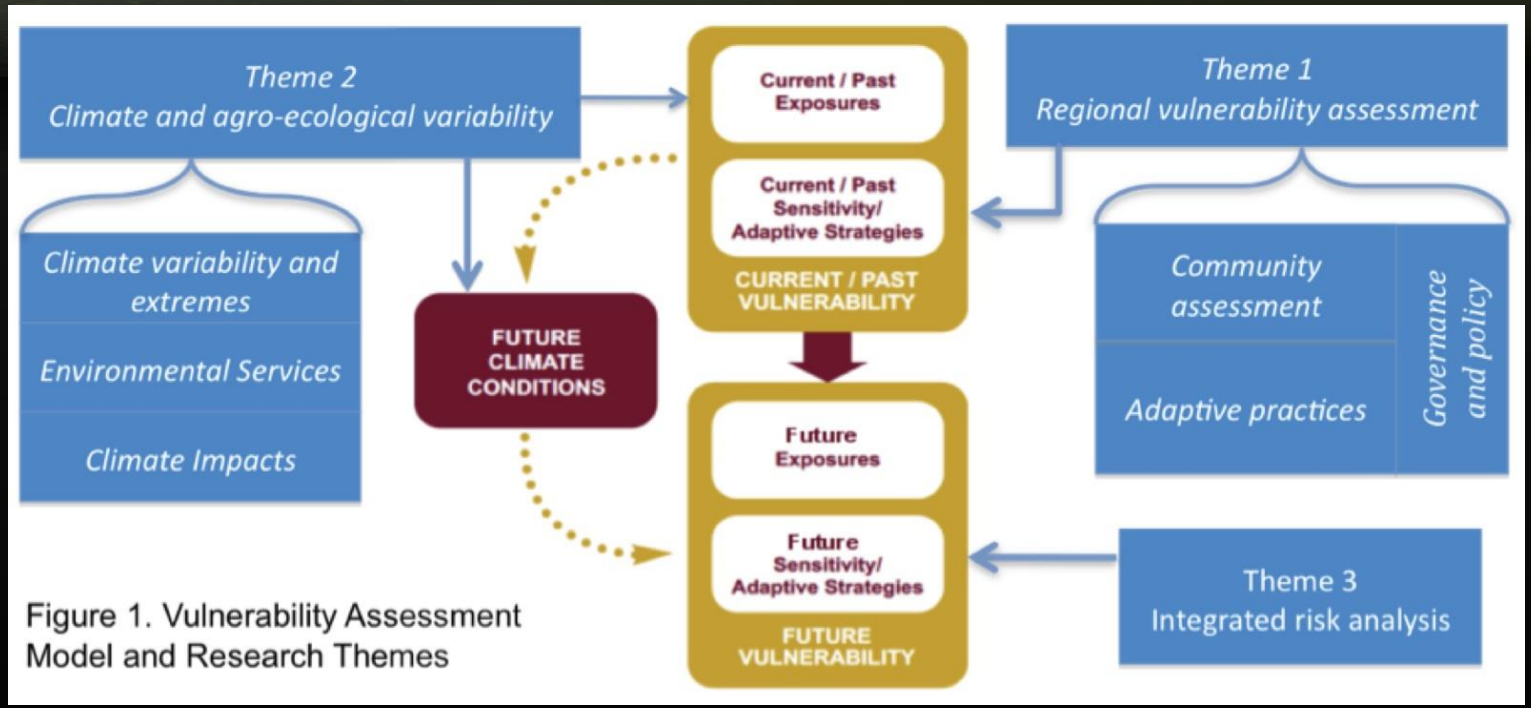
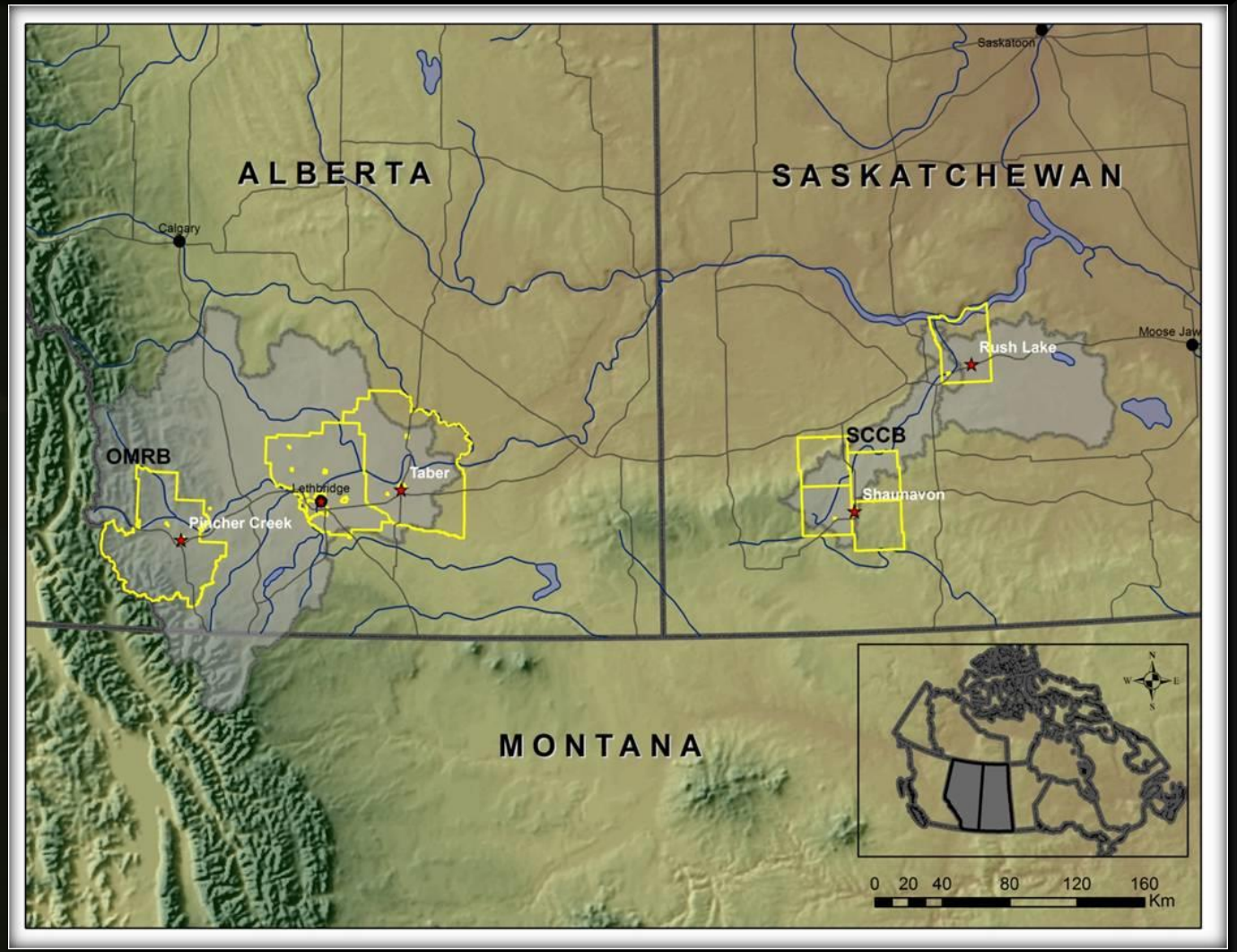


Figure 1. Vulnerability Assessment Model and Research Themes

Outline

1. Study Areas Overview
    - Saskatchewan: Rush Lake, Shaunavon
    - Alberta: Pincher Creek, Taber/Lethbridge
2. Early Findings: CVA & Governance
3. Outstanding Extreme Years
4. Next Steps

Study areas


ALBERTA
SASKATCHEWAN
MONTANA
Saskatoon
Calgary
Moose Jaw
Rush Lake
SCCB
Shaunavon
OMRB
Taber
Lethbridge
Pincher Creek
0 20 40 80 120 160
Km

Fieldwork Overview

February – March 2012: Rush Lake, Saskatchewan

May – June 2012: Pincher Creek, Alberta

June – July 2012: Shaunavon, Saskatchewan

July 2012: Taber, Alberta

Blood Tribe: to be conducted

Community	CVA	Governance
Rush Lake	17	6
Shaunavon	34	18
Pincher Creek	33	20
Taber	16	26
Total	100	70

Total participants =170

Outline

1. Study Areas Overview
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Early Findings: CVA

Purpose of VACEA CVAs

The Community Vulnerability Assessment (CVA) has the objective of developing a systematic understanding of the present and past vulnerabilities of rural actors to extreme climate events.

Early Findings

Views on Climate Extremes

- Climate variability attributed to 3 main categories:

-natural climate

-human activity

-religious attributions

Shaunavon. Photo courtesy of Bruno Hernani.

Early Findings

Integration of Traditional Knowledge & Scientific Knowledge

- Observing nature
- Farmers' Almanac
- Generational knowledge
- Internet (e.g., Weather Network)
- RCAD: use of witching for water

Early Findings

(Some) Adaptive Practices

- Weather change as a constant: focus on managing own resources
  - -Crop diversification
  - -Minimum till
  - -Rotational grazing – water management
  - -Change calving season
- Generational differences in adaptation

Early Findings

Study Areas: Specific Attributes & Issues

Rush Lake, SK	Concerns about PFRA divestiture in dams “Scattered” community (Swift Current / Herbert)
Shaunavon, SK	Oil industry: Pros & Cons Concern re: lack of health care providers

Photo courtesy of Bruno Hernani – Rush Lake

Early Findings:

Participant suggestions:

→ short-term and long-term scenarios for farm-level planning

→ groundwater mapping

→ research results must be returned to the community!

Early Findings: GOV

Purpose of VACEA Governance:

Understanding how institutions manage water resources and respond to climate variability, hazards and extreme events.

Multi-level Governance:

Local & Municipal

Stewardships; water co-ops; NGOs; watershed organizations; Irrigation districts; Mayors; Town Administration; Reeves; Municipal Council; Emergency Response

Provincial

Water infrastructure; provincial ministries of agriculture, environment, wildlife/wilderness

Early Findings:

- Funding limitations
- Lack of resources (infrastructure)
- Proactive vs. Reactive Actions

Early Findings:

Planning for extreme events

- ‘Out of sight, out of mind’ – hindrance

Emergency response and contingency plans

- Having emergency plans mandated/legislated makes a difference (AB vs. SK)
- Separate disaster mandates
- Community cooperation in response (formal + informal)
- Private sector response (e.g. oil companies)
- AB: rural route markings, GPS technology strong

Early Findings:

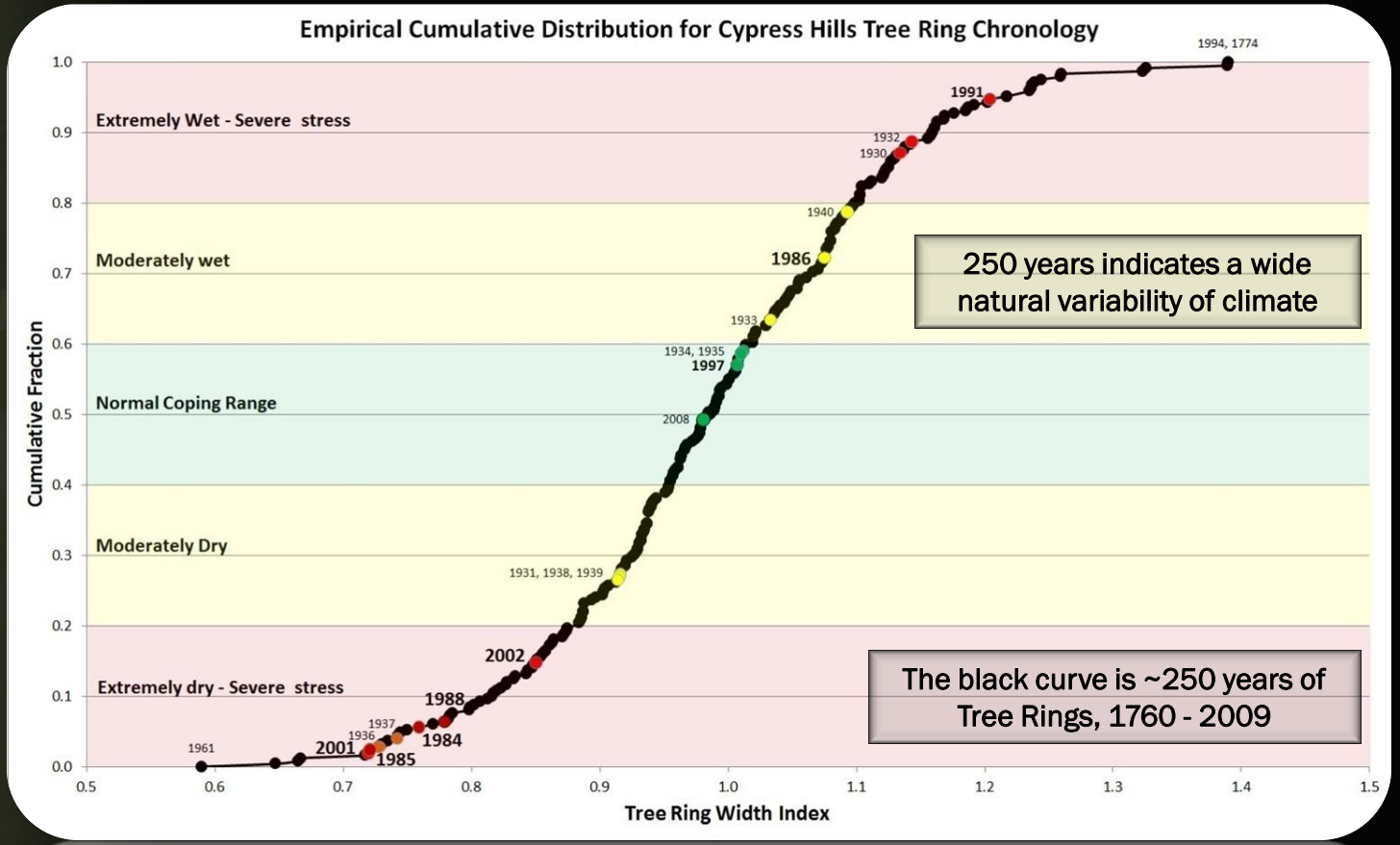
Stakeholder involvement

- Local level organizations promote stakeholders inclusion
- Partnership between local organizations and municipal government – Ex. Pincher Creek - CVA

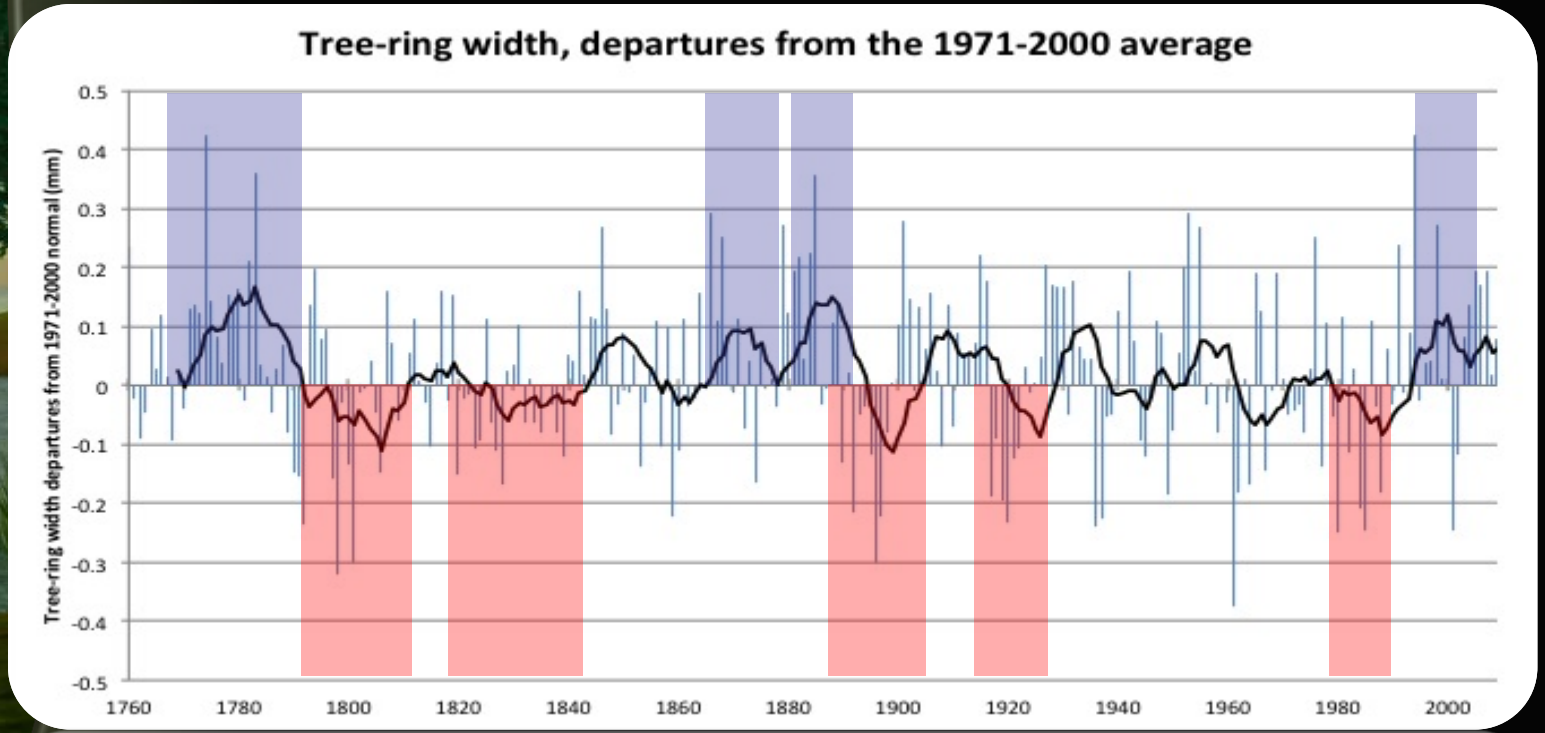
Outstanding Extreme Years

Shaunavon		Rush Lake	
Date	Extreme	Date	Extreme
1984/85	drought	1930s	extreme drought
1986	wet	1984/85	drought
1988	extreme drought	**1988**	drought - water ran out
2002	drought	1997	flood
2010	extreme wet	**2001**	drought
2011	extreme wet	**2002**	extreme drought

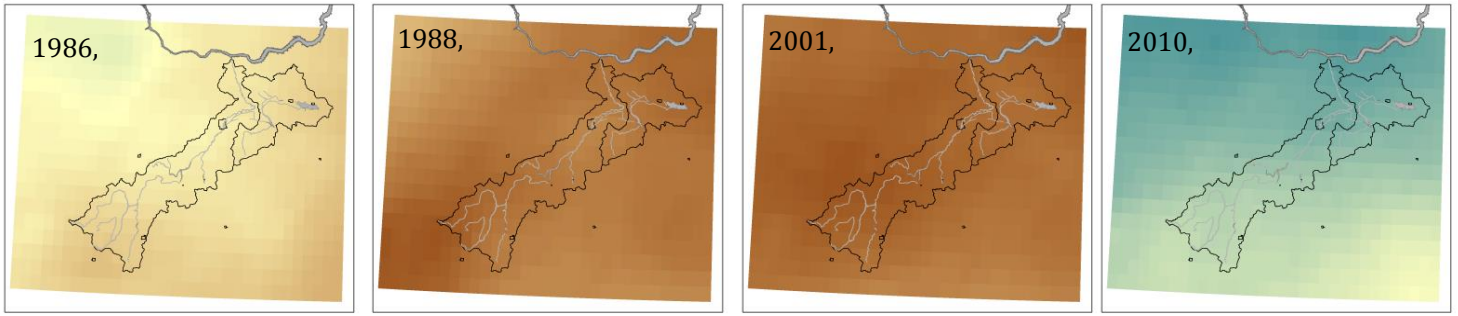
Outstanding Extreme Years



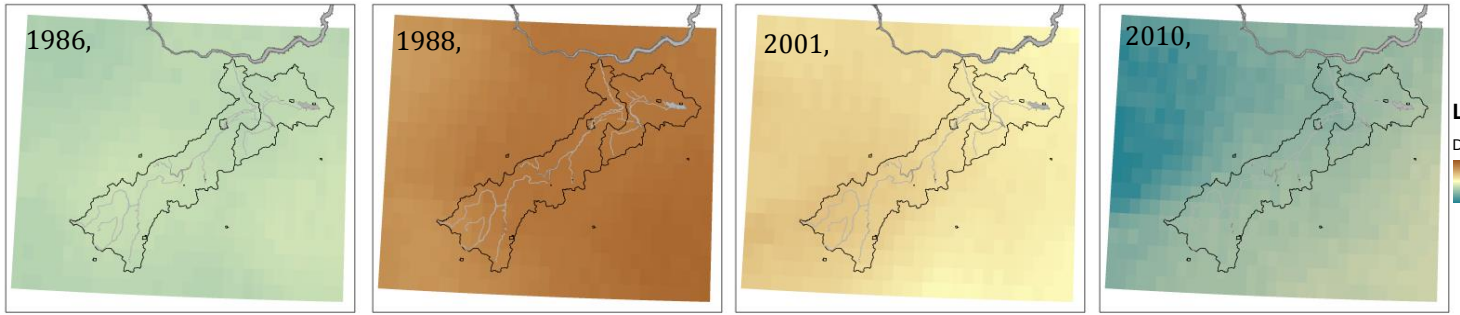
Long term variability



Seasonal,Total,Precipitation,Anomaly,(May,>,August),



Seasonal,Total,Growing,Degree,Days,Anomaly,(May,>,August),



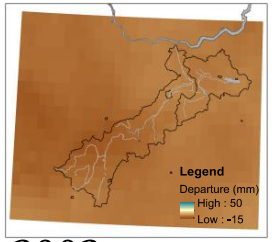
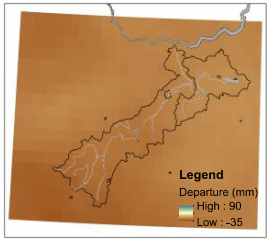
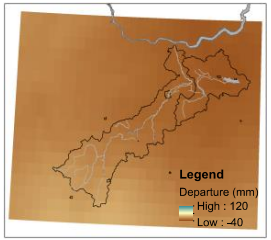
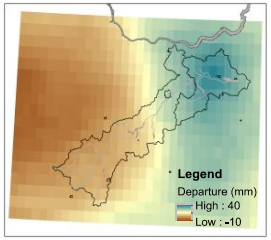
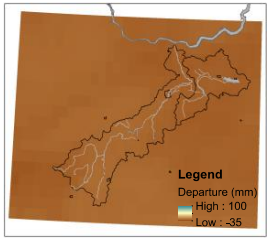
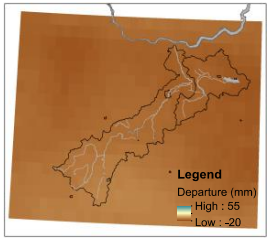
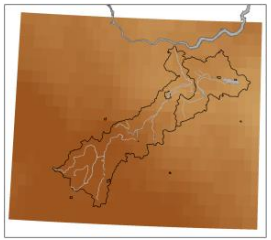
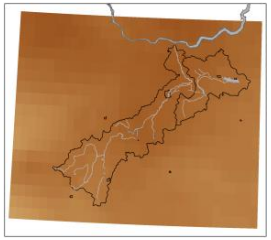
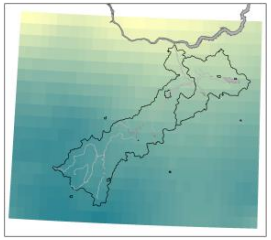
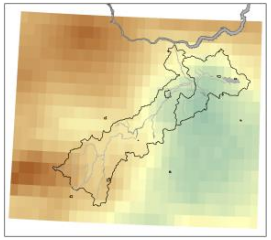
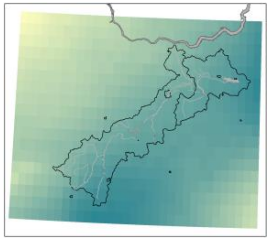
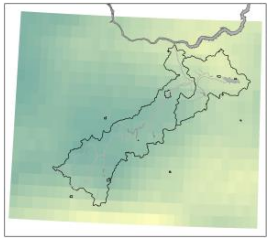
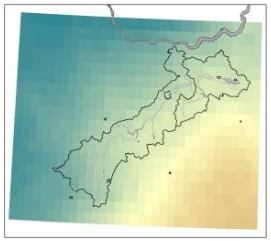
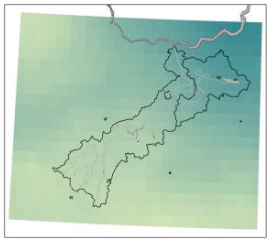
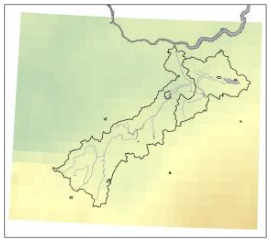
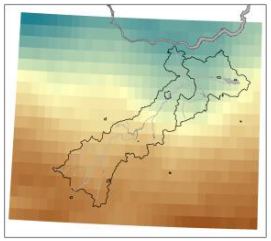
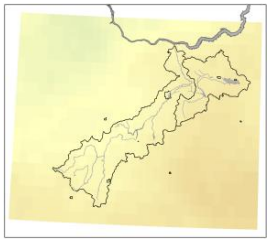
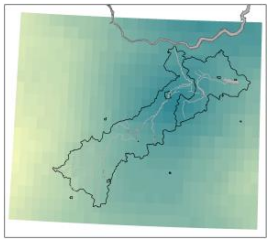
Reference,period:,1971>2000,

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA)

Monthly Total Precipitation Anomaly (April - September)

Reference period: 1971-2000

	April	May	June	July	August	September
2001						
2002						
2010						

Canada

What will the future hold??

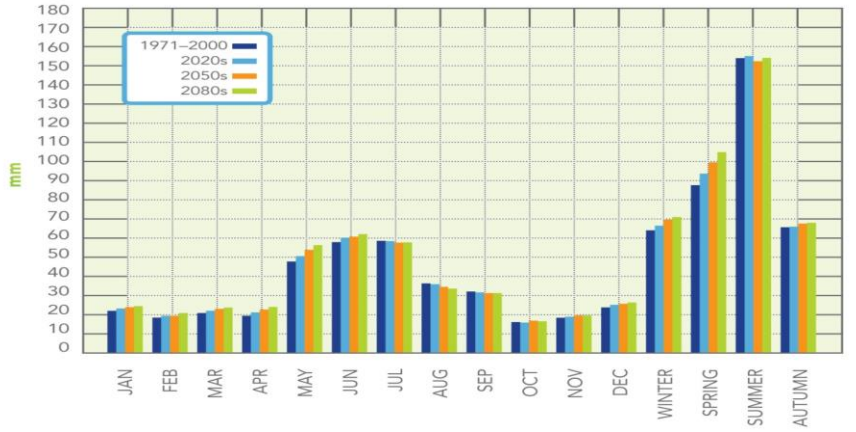
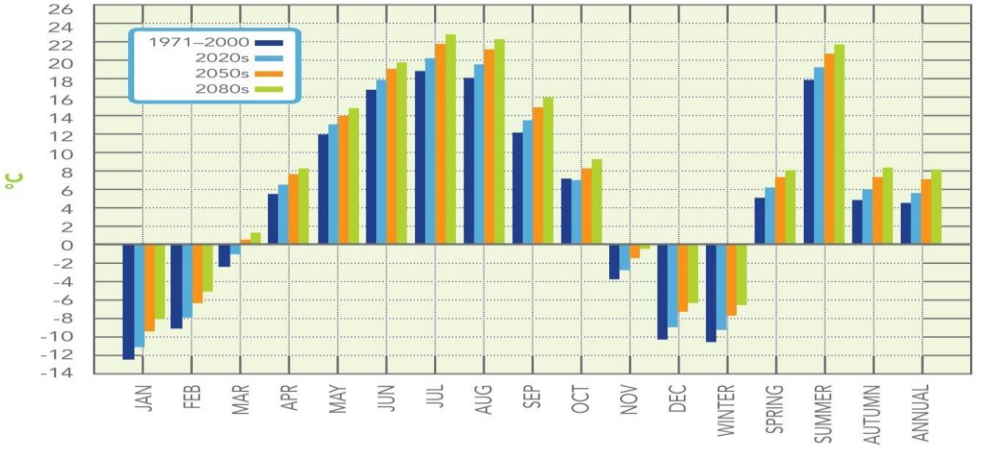


Figure 4. Precipitation Climate Scenario based on global climate models (GCMs)*: total monthly and seasonal precipitation in mm—actual for 1971-2000 and projected for 2020s, 2050s, and 2080s

Figure 3. Air Temperature Climate Scenario based on global climate models (GCMs)*: monthly, seasonal and annual mean air temperature in °C (measured at 2 metres above ground level)—actual for 1971-2000 and projected for 2020s, 2050s, and 2080s



Next Steps

- Analysis using computer software (NVivo)
- 100-year historic instrumental record
- 1000-year record of natural variability
- Future climate scenarios

Rush Lake, SK

Next Steps

- Upcoming workshops:
- Pincher Creek and Taber
- Shaunavon
- Brazil – 5 country collaboration - Canada, Chile, Columbia, Argentina, Brazil

- www.parc.ca/VACEA

- Twitter: @VACEA1

- Facebook: Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA)

Rush Lake, SK

Comments? Feedback?

If you have any additional comments or experiences you would like to share…

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