

**Theme 4: Comparisons of the
Recent Canadian Prairie Drought
with Droughts at Other Times & in
Other Regions**



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Objectives

1. How do the physical features, processes, and feedbacks of the recent Canadian Prairie drought compare with a) previous Canadian Prairie droughts, b) Canada-wide droughts, c) US Great Plains droughts, and d) droughts across the world?
2. How does the prediction of the recent drought compare with predictions of other droughts?
3. How does the recent drought compare with past climate variability and projected climate change?



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Original Proposed Research Plan

1a. Physical Features Comparison – Other Prairie Droughts:

- | Individual studies (from Themes 1 & 2) to compare similarities/differences of specific physical features
- | Extent of comparisons will depend on specific variables and data availability
- | Will involve direct comparisons with identified droughts as well as, determination of trends and variability during period of record
- | Other severe droughts will be identified using various meteorological, agricultural, and hydrological indices.



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Original Proposed Research Plan

1b. Physical Features Comparison – Droughts in Other Regions:

- | Will focus on larger-scale aspects such as teleconnections, soil moisture anomalies, moisture sources, and drought indices
- | Canada-wide, US Great Plains (potential collaborations), and other regions of the world through global focus on water cycle



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Original Proposed Research Plan

2. Prediction Comparisons:

- | Several multi-decadal model data sets including the current drought period resulting from Theme 3 studies
- | Analyze these data sets to compare the prediction of recent Prairie drought with other droughts



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Original Proposed Research Plan

3. Comparisons with Past Climate Variability and Projected Future Climate Change:

- 1 Identified similarities and differences as well as, analysis of past trends and variability in physical features will place this recent drought in the context of past climate variability during instrumental and perhaps paleo-climatic period of record.
- 1 Using climate output from GCMs/RCMs, place the recent drought in the context of projected future climate change (e.g., how often can we expect this type of drought in the future?)



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Recently Completed Projects

- | Preliminary atmospheric circulation and teleconnection comparisons with 1961 and 1988 Canadian Prairie droughts (Bonsal & Wheaton, 2005)
- | CCIAP Project “Canadian Agricultural Adaptations to 21st Century Droughts: Preparing for Climate Change” (funded by Federal Gov’t)



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Potential Future Collaborations

- | Canadian Climate Impacts Scenarios Project
- | Various paleo-climatic studies of drought
- | Others? For discussion



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