# Agricultural Drought Assessment: An Update

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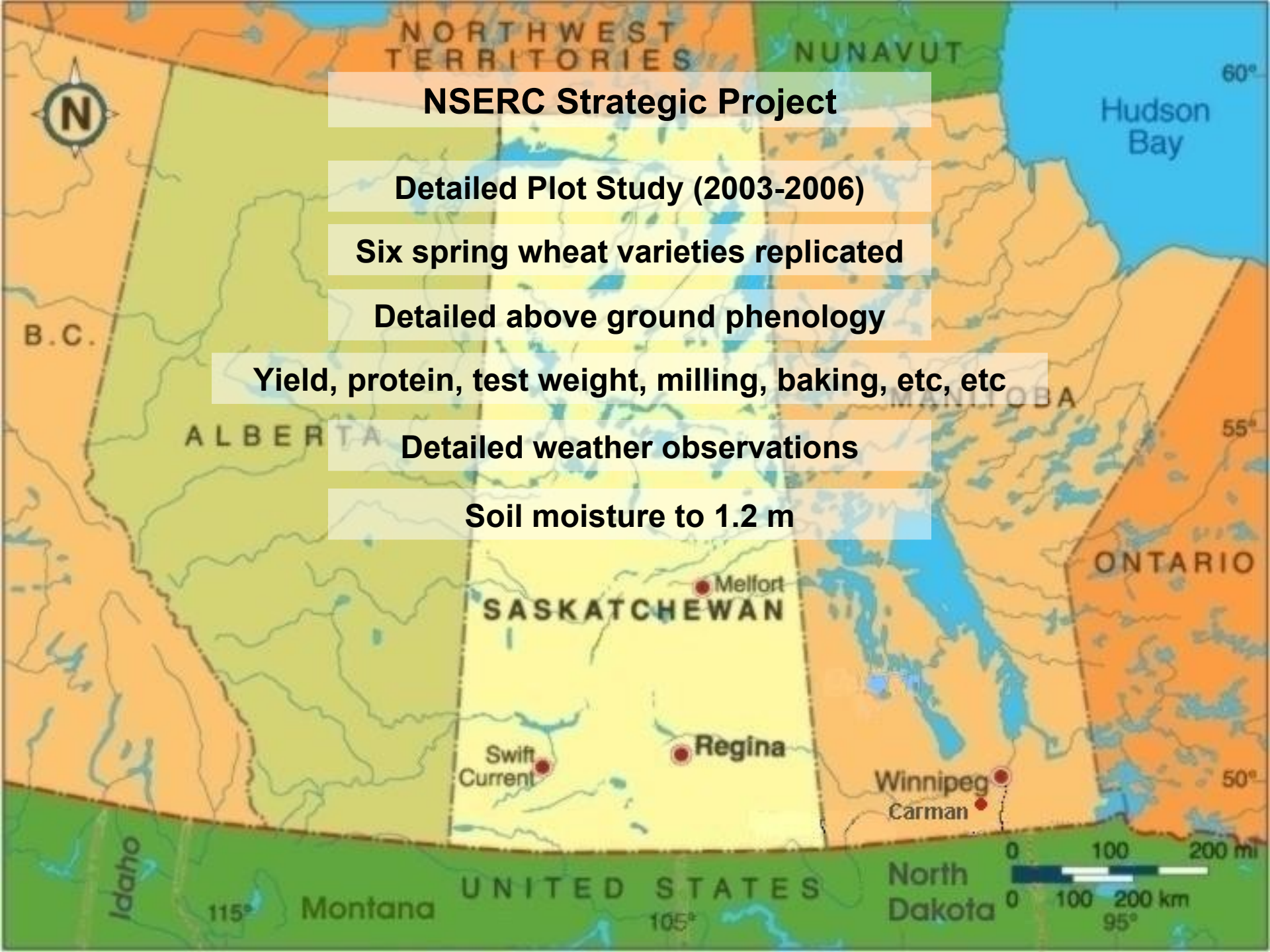

NSERC Strategic Project
Detailed Plot Study (2003-2006)
Six spring wheat varieties replicated
Detailed above ground phenology
Yield, protein, test weight, milling, baking, etc, etc
Detailed weather observations
Soil moisture to 1.2 m
NORTHWEST TERRITORIES
NUNAVUT
Hudson Bay
B.C.
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
Melfort
Regina
Swift Current
Winnipeg
Carman
Idaho
Montana
North Dakota
UNITED STATES
115°
105°
95°
60°
55°
50°
0 100 200 mi
0 100 200 km

- Preliminary assessment of several drought indices in relation to spring wheat yield and quality suggests that evapotranspiration may provide better correlations than precipitation.

# Preliminary Results

Barrie

| Crop Variable | Moisture Index | Time Period | r |
|---|---|---|---|
| Grain Yield | BLSMETa | AnthMat | 0.87* |
| | BLSMETp | Jul | -0.77* |
| | PMETc | PlAnth | -0.75NS |
| Flour Protein Concentration | PMETc | JulAug | 0.92** |
| | PMETo | PlMat | 0.91** |
| | PMETo | PlAnth | 0.88** |
| Farinograph Absorption | PMETc | MayJun | 0.89** |
| | PMWU | MayJun | 0.89** |
| | PMETc | May | 0.88** |

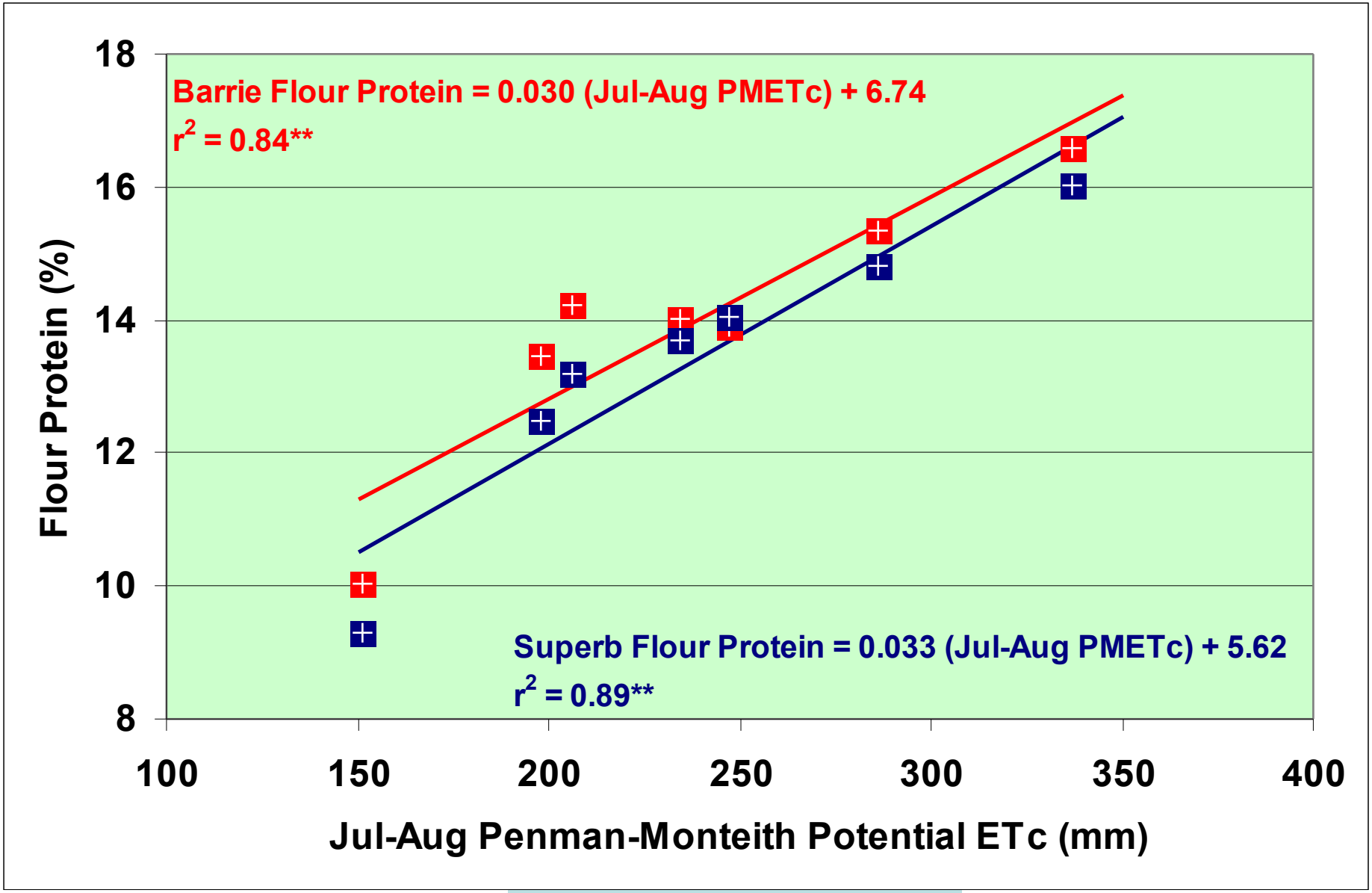
* Significant at 95%  ** Significant at 99%

# Preliminary Results

---------- Superb ----------

| Crop Variable | Moisture Index | Time Period | r |
|---|---|---|---|
| Grain Yield | BLSMETp | Jul | -0.82* |
| | BLSMETa | AnthMat | 0.81* |
| | BLSMETa | May | 0.76* |
| Flour Protein Concentration | PMETc | JulAug | 0.94** |
| | PMWU | AnthMat | -0.92** |
| | HarETo | PlMat | 0.91** |
| Farinograph Absorption | PMETc | MayJun | 0.88** |
| | SPI | Aug | -0.88* |
| | PMWU | May | 0.88** |

* Significant at 95%  ** Significant at 99%




**Jul-Aug PMETc**

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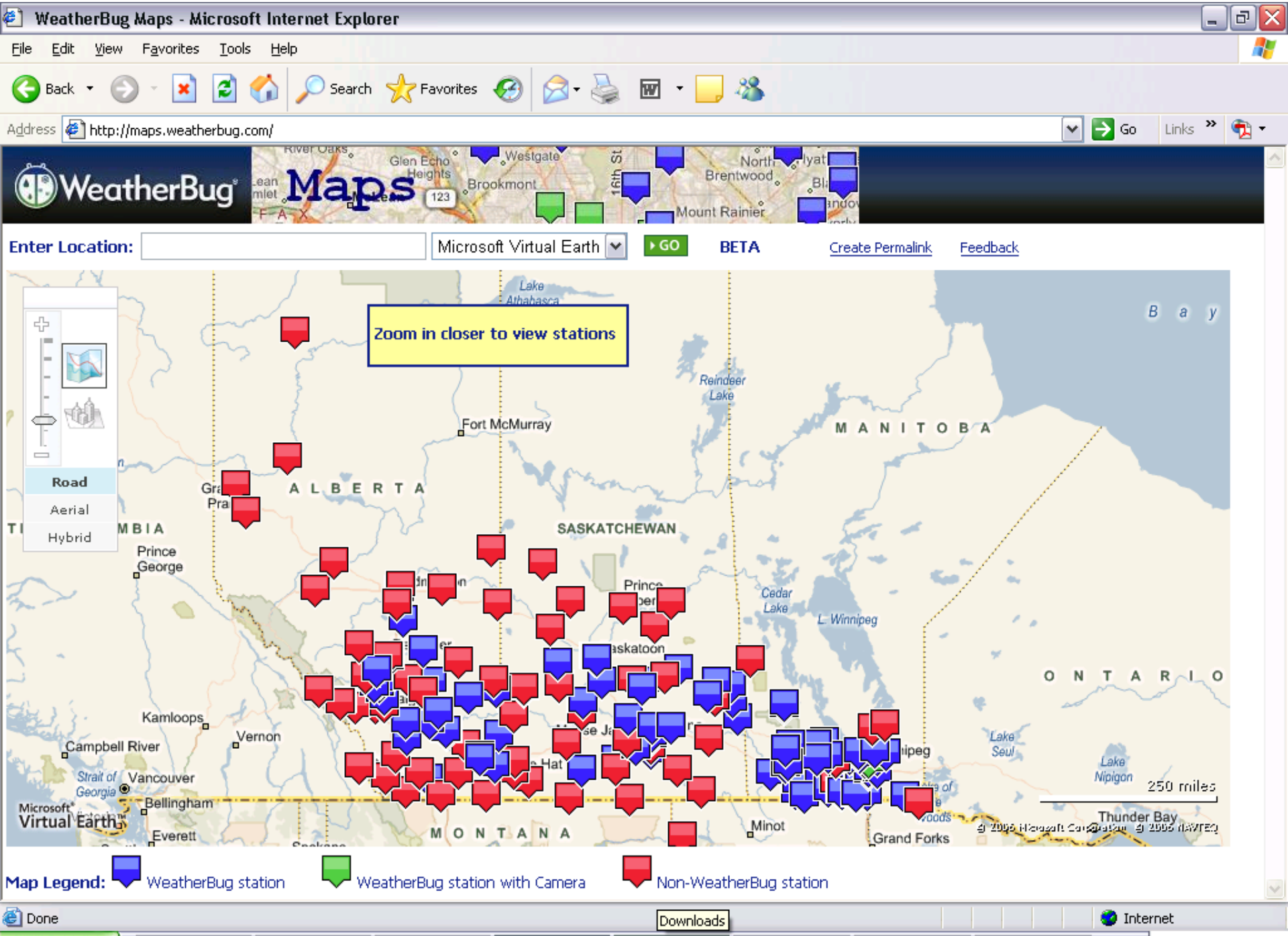
# Next Steps

- The assessment must be completed using wheat quality data from all years (which is now processed).
- Model testing and calibration is underway (Julian Brimelow, Mark Gervais).
- A mechanism is needed to scale up agricultural drought estimation from plot to regional scale.


WeatherBug Maps - Microsoft Internet Explorer
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Address http://maps.weatherbug.com/
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WeatherBug Maps
Enter Location:
Microsoft Virtual Earth
GO
BETA
Create Permalink
Feedback
Zoom in closer to view stations
Road
Aerial
Hybrid
Lake Athabasca
Reindeer Lake
Fort McMurray
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
Prince George
Cedar Lake
L. Winnipeg
Lake Seul
Lake Nipigon
Kamloops
Vernon
Campbell River
Strait of Georgia
Vancouver
Bellingham
Everett
MONTANA
Minot
Grand Forks
Thunder Bay
250 miles
Microsoft Virtual Earth
Map Legend:
WeatherBug station
WeatherBug station with Camera
Non-WeatherBug station
Done
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# Soil Landscapes of Canada

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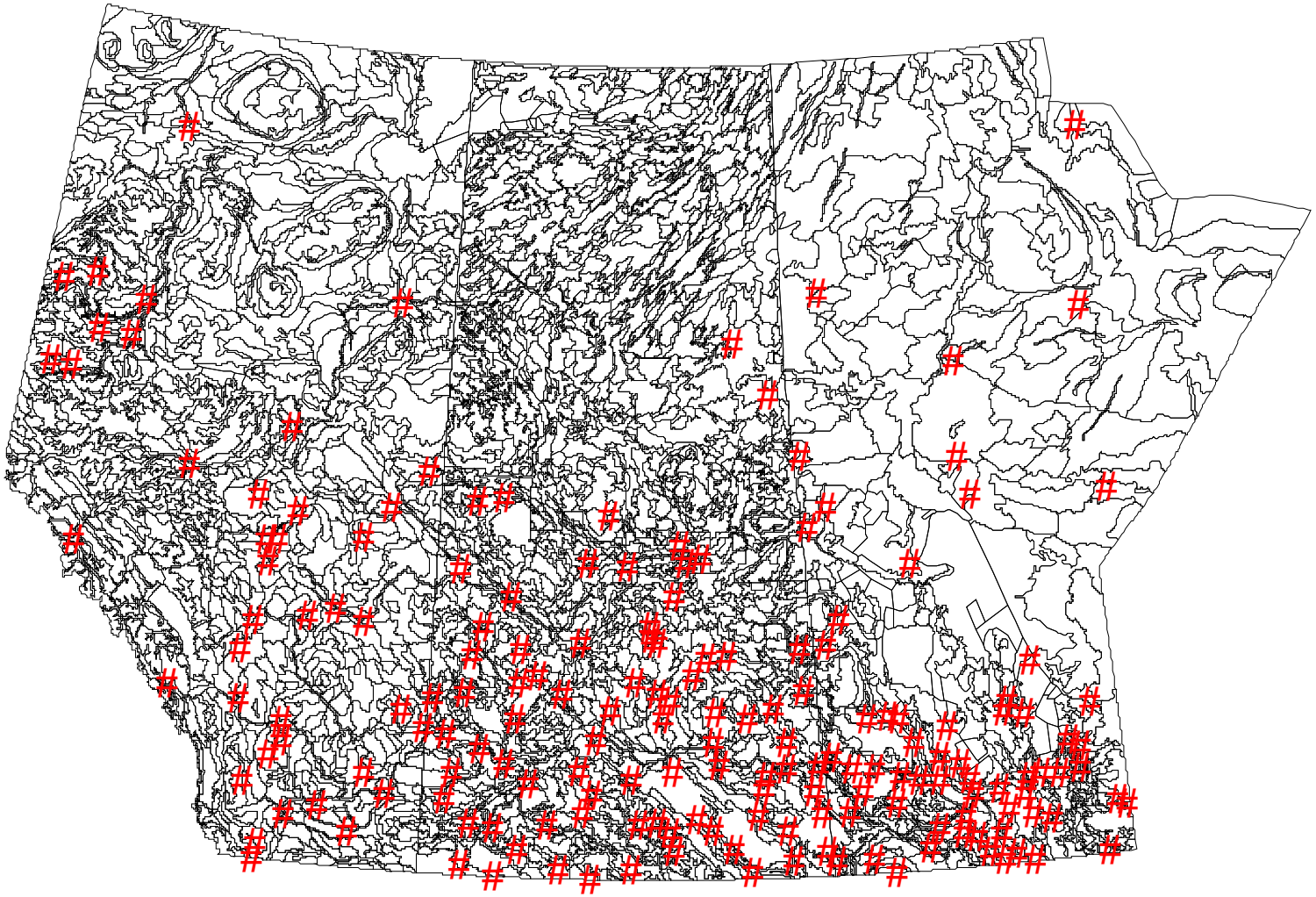
# Soil Landscapes of Canada



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# Following On

- French Exchange student project (Summer 2008)
  - Miniature (10-week) project to test soil moisture model accuracy using real-time weather and soil data
- CFCAS 2007 Call for Proposals (Sep 2008 – Aug 2010)
  - Building a drought/soil moisture monitoring system using the real-time weather network in western Canada
  - Partner with the Canadian Wheat Board
- Broad scale drought index verification (2008-2009)
  - Agricultural drought estimates at census scale versus census division wheat yields and wheat protein

# Acknowledgments


***CFCAS***
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