

# **A SEVERE RECENT DROUGHT OVER THE CANADIAN PRAIRIES**

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# A CANADIAN NATURAL DISASTER

The 1999-2004/05 drought was one of the worst natural disasters that Canada has ever suffered!



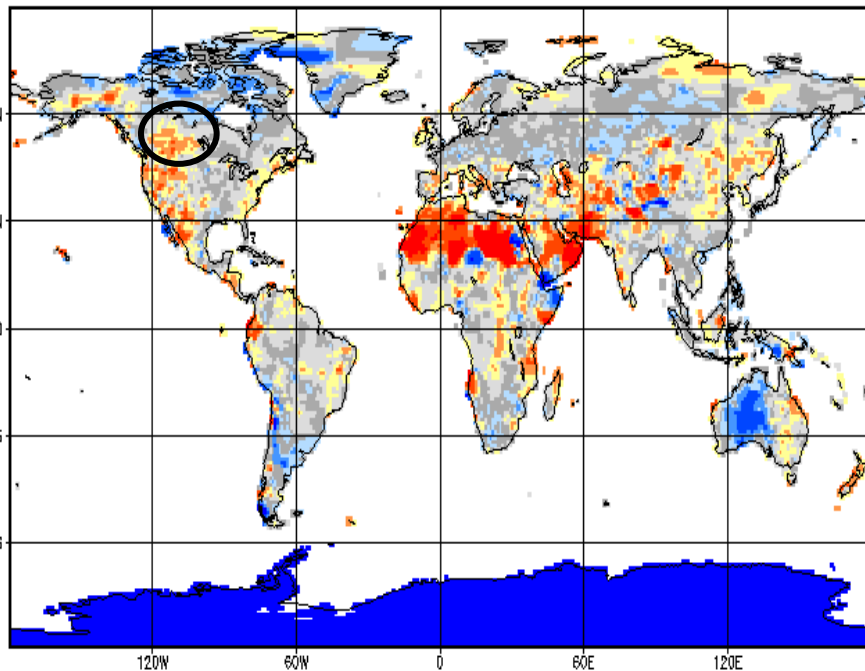
Southern Saskatchewan, April 2002

Huge impacts on:  
society  
economy  
ecosystems

# GLOBAL PRECIPITATION ANOMALY

## 2001

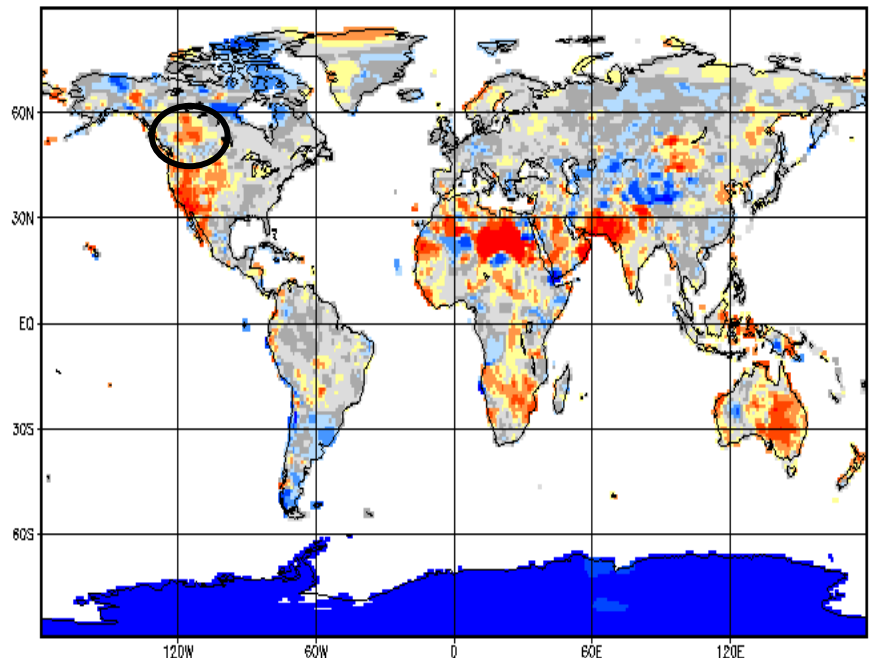
GPCC Monitoring Product Gauge-Based Analysis 1.0 degree  
precipitation percentage of normals 61/90 for year (Jan - Dec) 2001



GPCC

## 2002

GPCC Monitoring Product Gauge-Based Analysis 1.0 degree  
precipitation percentage of normals 61/90 for year (Jan - Dec) 2002



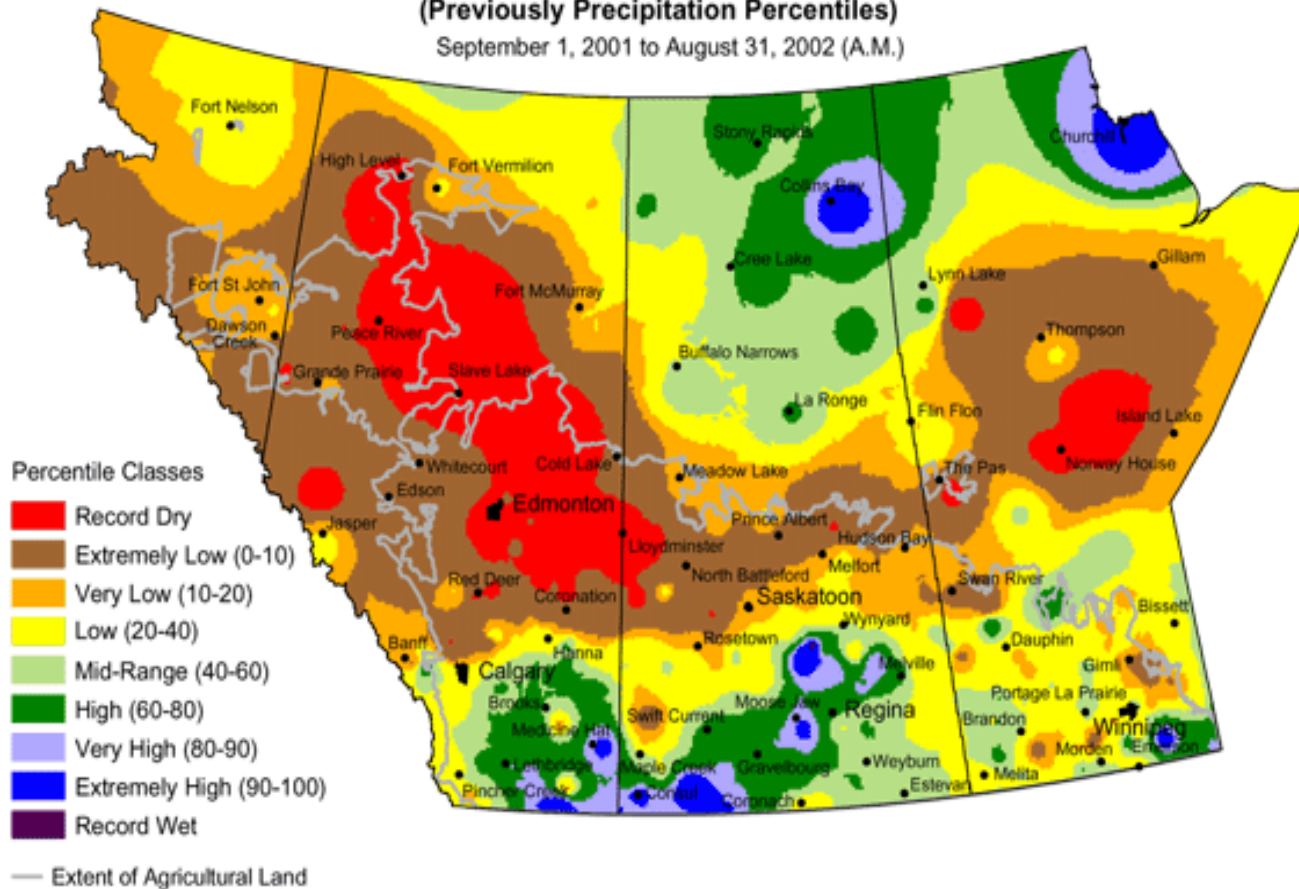
GPCC

# PRECIPITATION ANOMALIES

## Current Precipitation Compared to Historical Distribution

(Previously Precipitation Percentiles)

September 1, 2001 to August 31, 2002 (A.M.)



2001/02




Prepared by PFRA (Prairie Farm Rehabilitation Administration) using data from the Timely Climate Monitoring Network and the many federal and provincial agencies and volunteers that support it.

500 km

# DROUGHT RESEARCH INITIATIVE

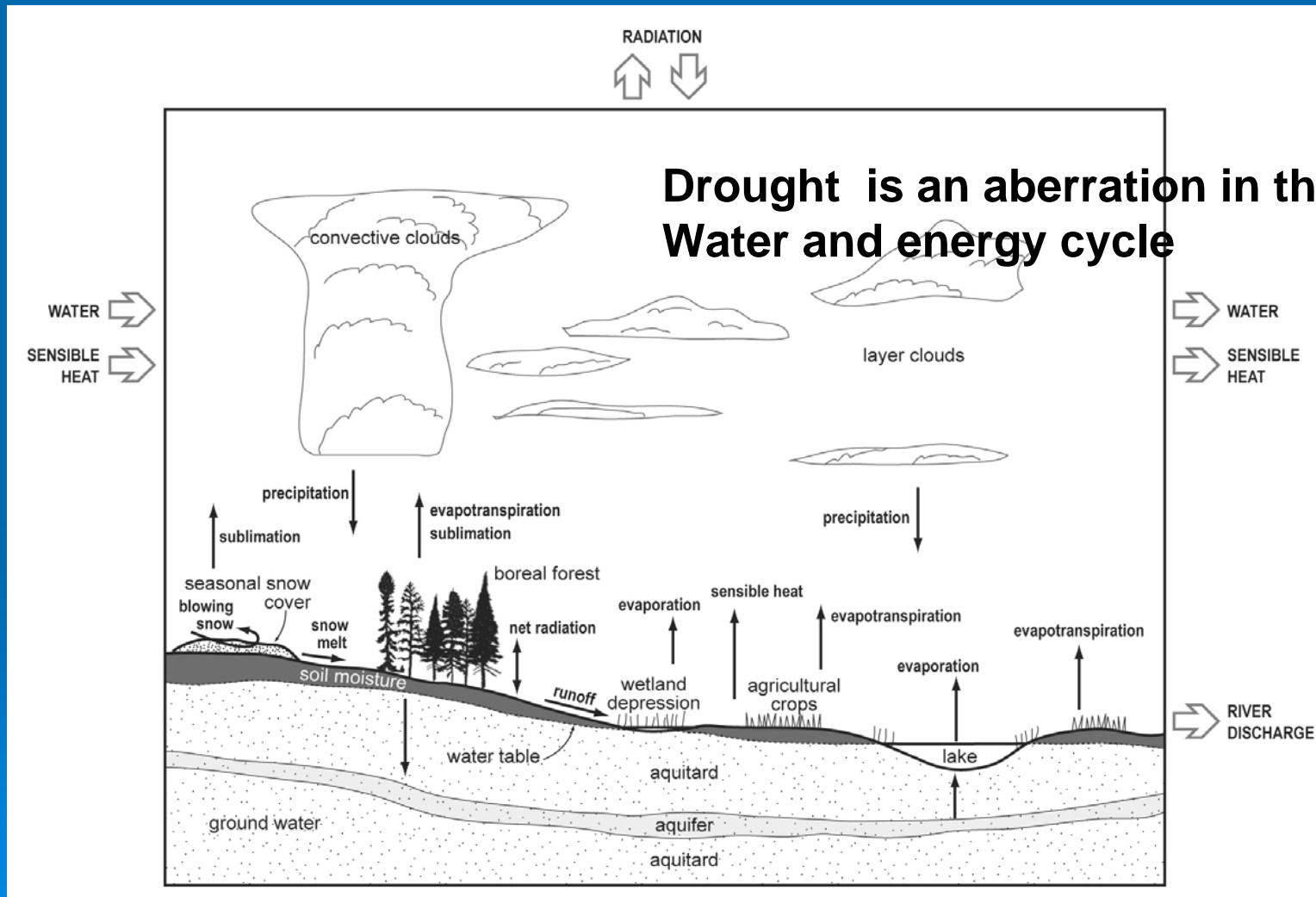
*To better understand the physical characteristics of and processes influencing Canadian Prairie droughts, and to contribute to their better prediction, through a focus on the recent severe drought that began in 1999*



# DRI FOCAL POINTS

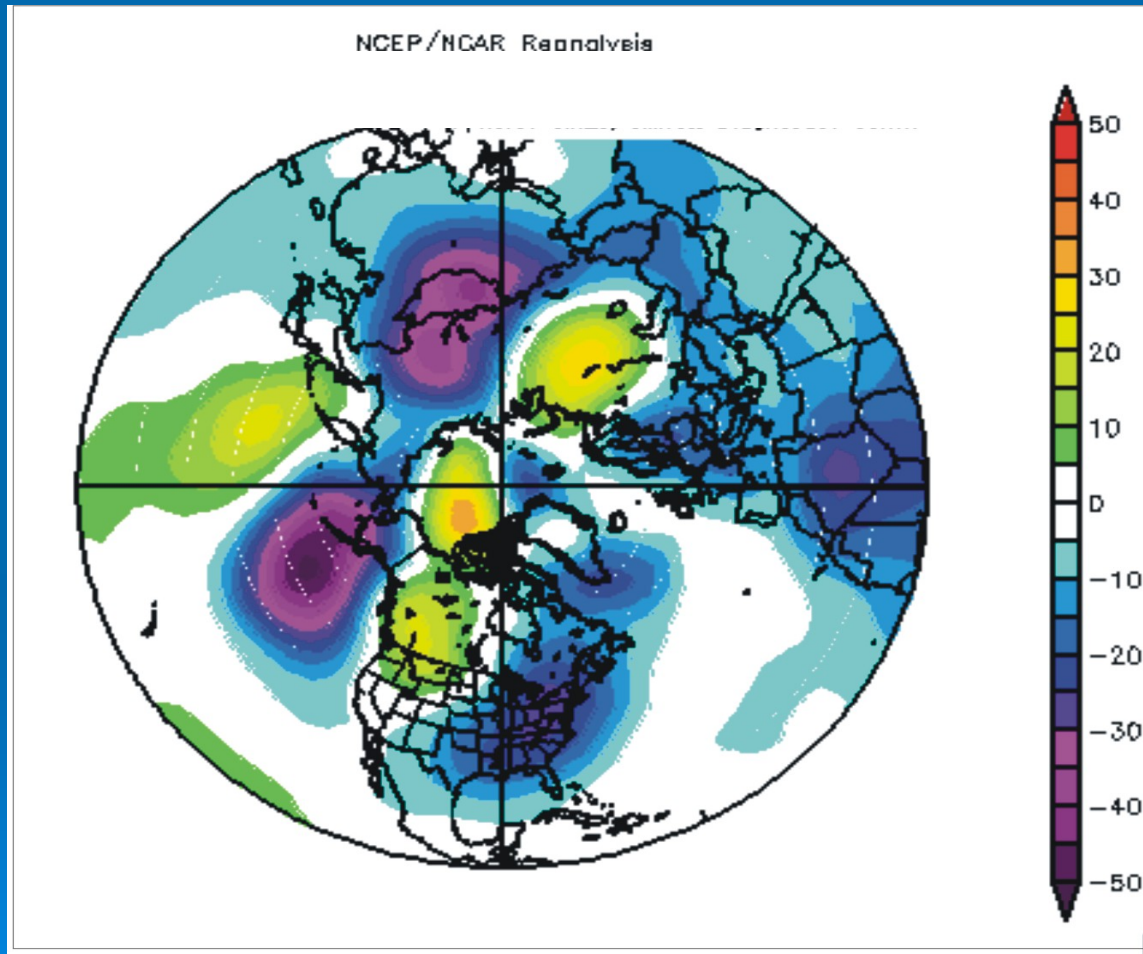
1. **Quantify the physical features** of the recent drought, its spatial and temporal features, flows of atmospheric and terrestrial water and energy into and out of the region, and their storage and redistribution within the region
2. **Improve the understanding** of the processes and feedbacks governing the formation, evolution, cessation and structure of the drought
3. Assess and reduce uncertainties in the **prediction of drought** and its structure
4. **Compare** the similarities and differences of current drought to previous droughts over this region and those in other regions, in the context of anticipated climate variability and change
5. **Apply** our progress to address critical issues of importance to society

# WATER AND ENERGY CYCLING



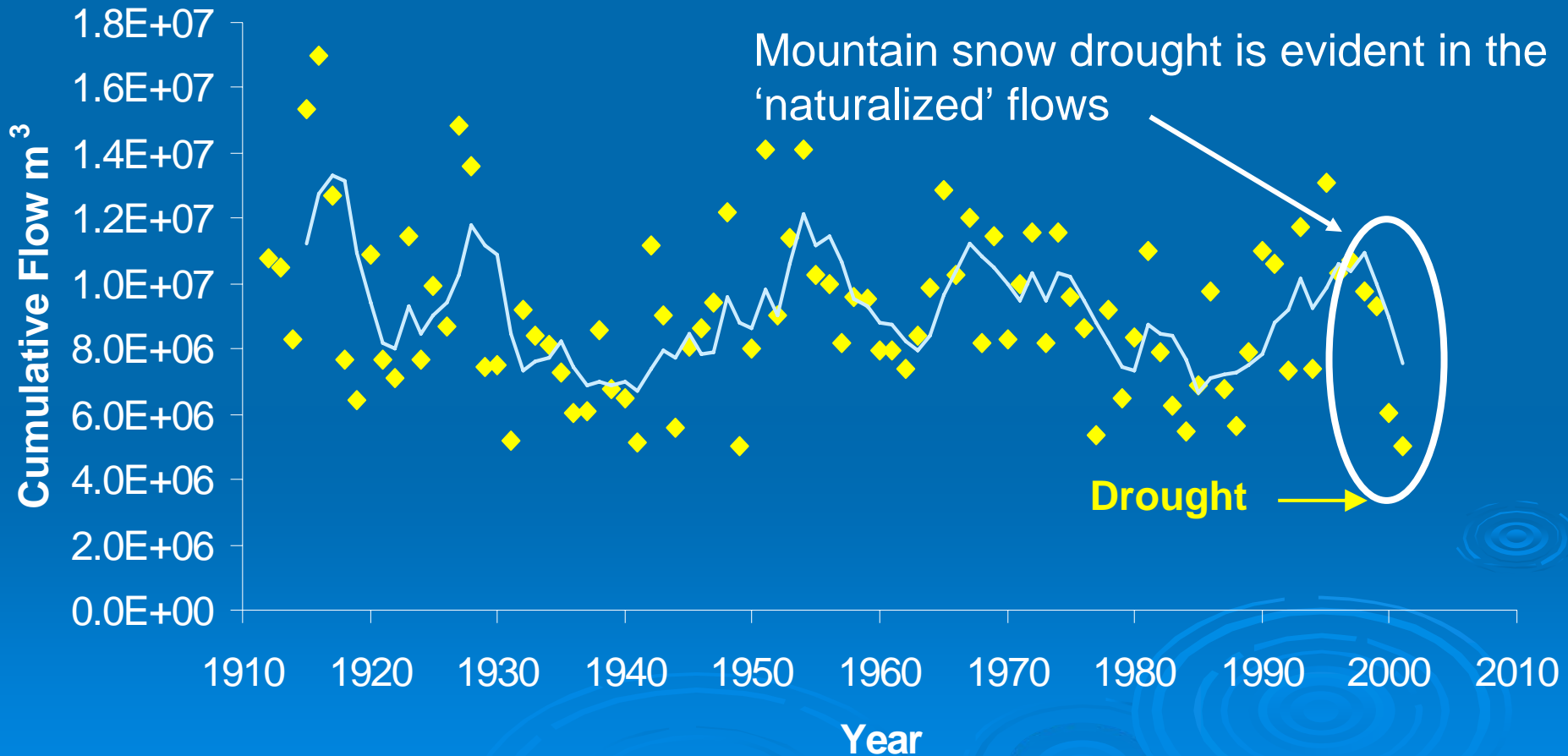
# 500 mb HEIGHT ANOMALIES

## 2001-02 compared to earlier droughts



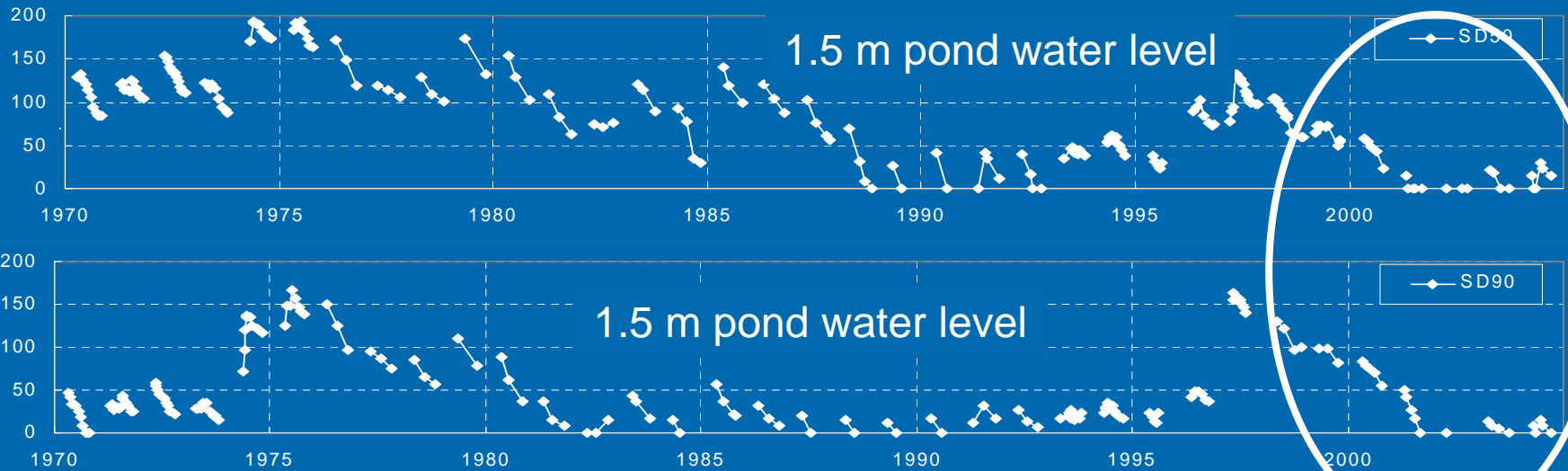


# 'NATURALIZED' FLOWS OF THE SOUTH SASKATCHEWAN RIVER ENTERING SASKATCHEWAN

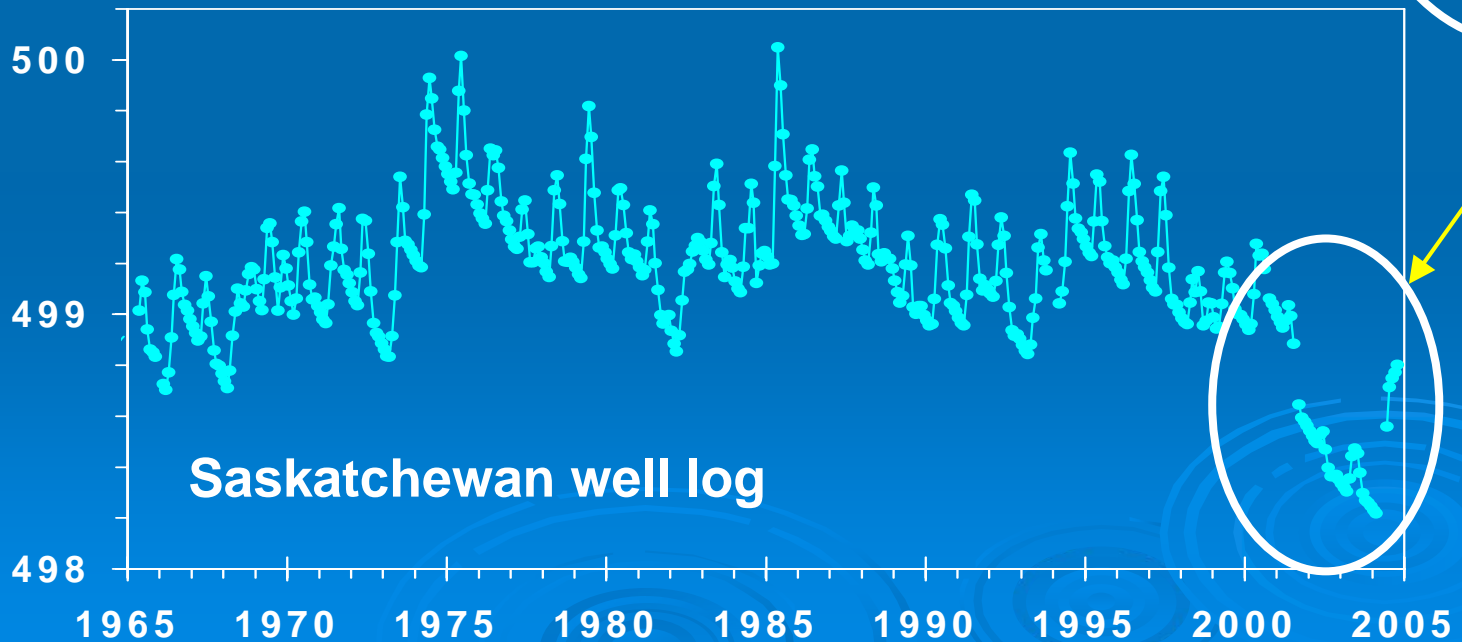


# Local Surface and Groundwater Depletion

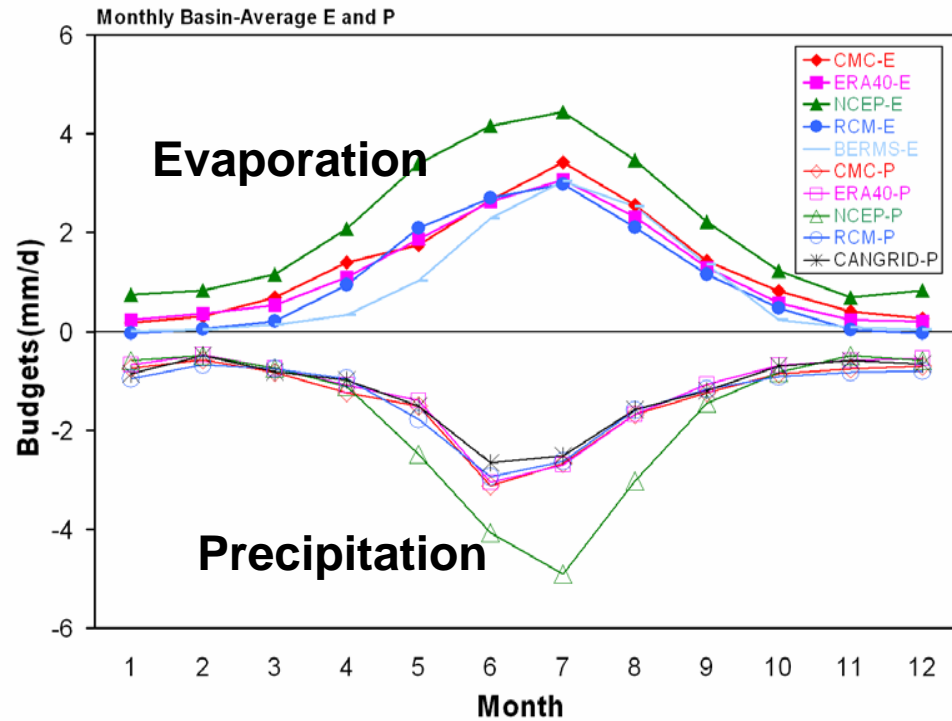
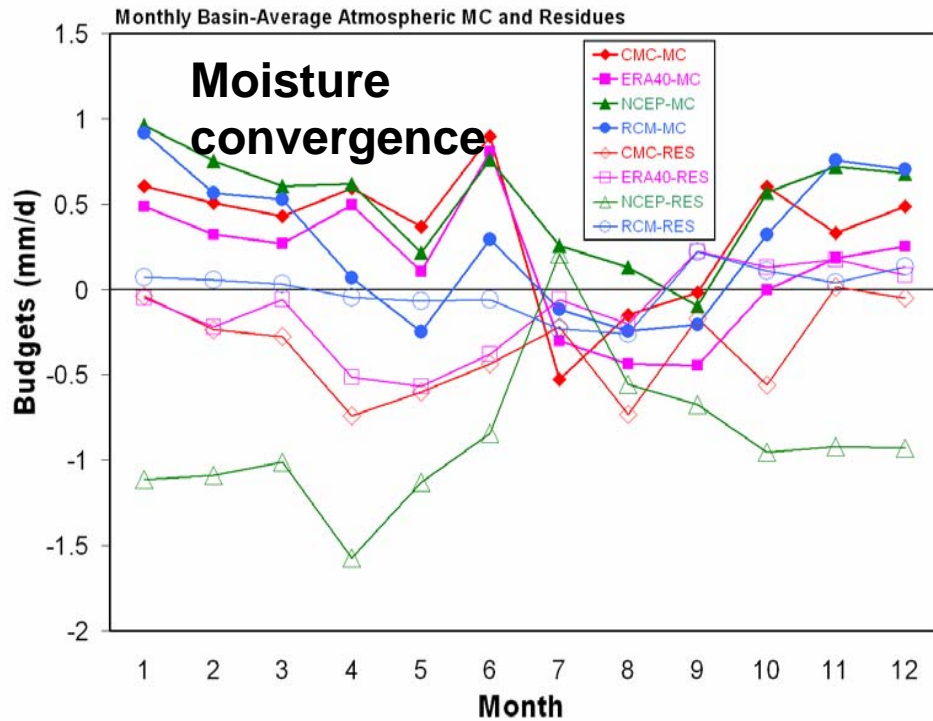
Pond Depth



groundwater level (m)



# Annual Cycles of Atmospheric Water Budgets 1997- 2002



St. Jean de Baptiste, Manitoba  
July 2005



# CONCLUDING REMARKS

A severe drought occurred over the Canadian Prairies over 1999 – 2004/05

A coordinated effort has begun to examine this event with focal points being:

- Quantification
- Understanding
- Prediction
- Comparison
- Application

Part of this event occurred during CEOP so that:

- CEOP benefits from such a detailed effort
- The effort benefits from CEOP