



# FLUXNET-CANADA

- University/government science network
- Measurements of  $CO_2$  exchange between forests & peatlands and the atmosphere
- Part of the international Fluxnet network (300+ sites internationally)
- 2002 - 2007
- Now: The Canadian Carbon Program





# Canadian Carbon Program

CFCAS Funded 2007-2010.

\$1.5 M/year

## Fundamental CCP Science Questions:

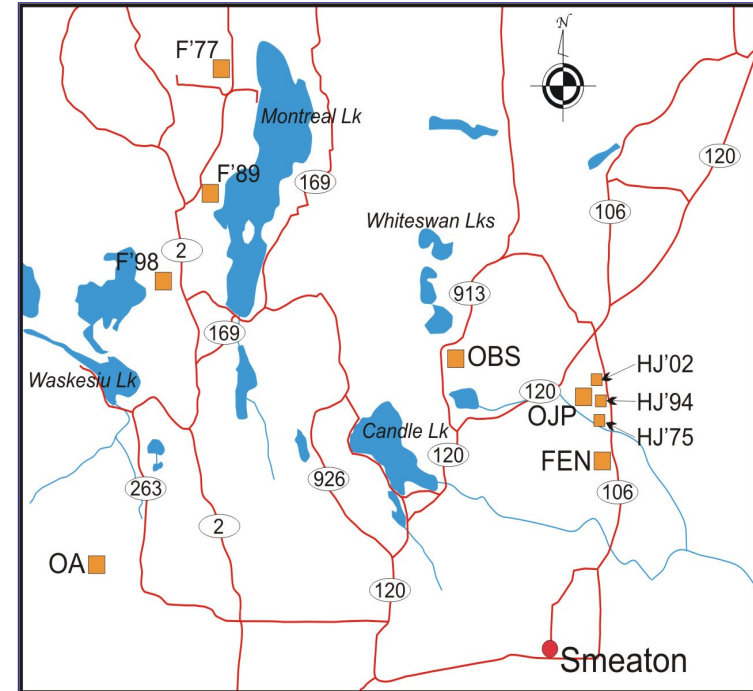
What are the magnitudes and distributions of Canadian and North American carbon sources and sinks on monthly, seasonal, and inter-annual time-scales?

How can we best estimate them?

What are the processes controlling their dynamics and can they be manipulated?



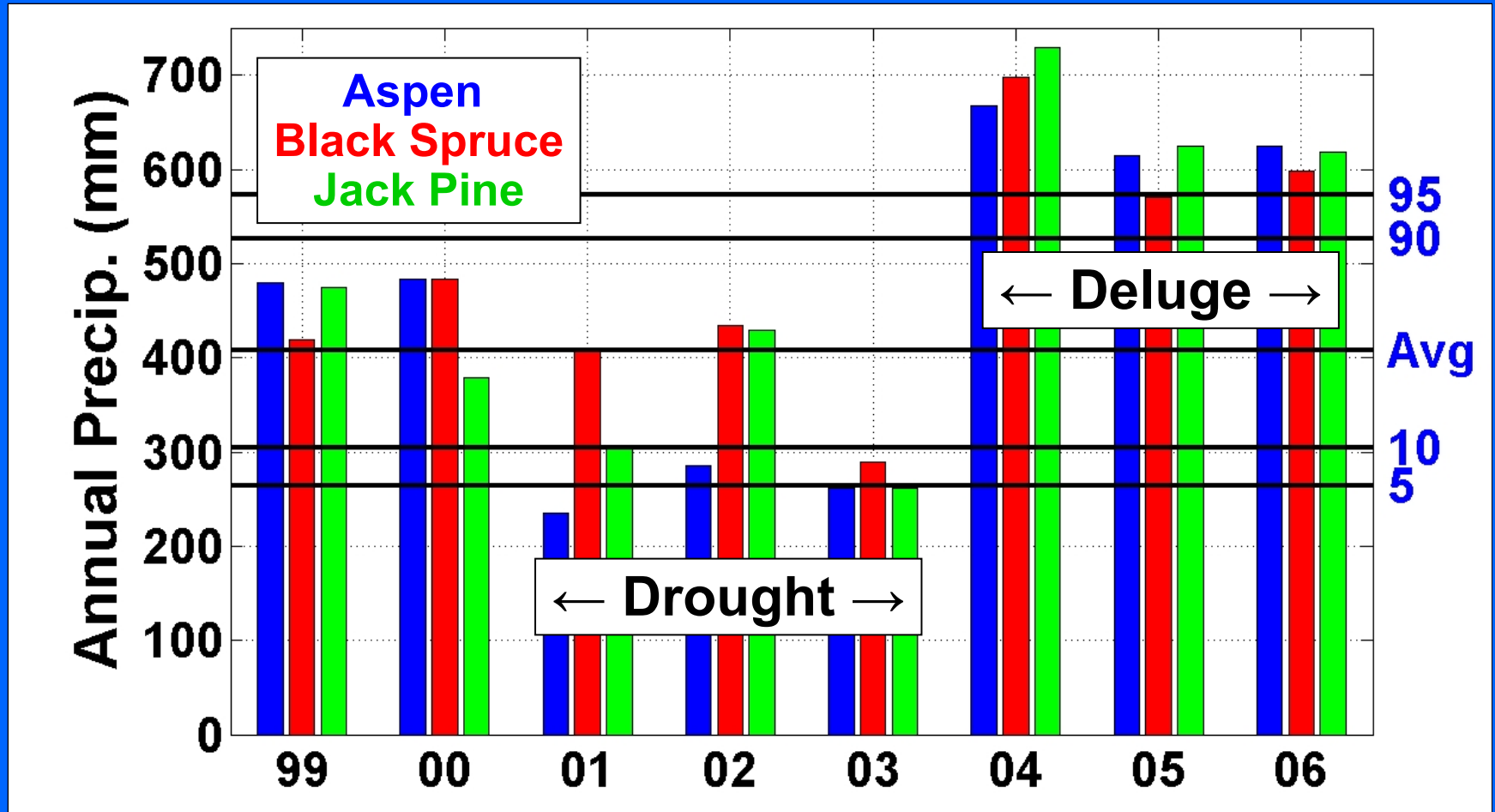
Evapotranspiration is also measured at each flux tower



BERMS (Boreal Ecosystem Research and Monitoring Sites)

# Annual Precipitation 1999 to 2006

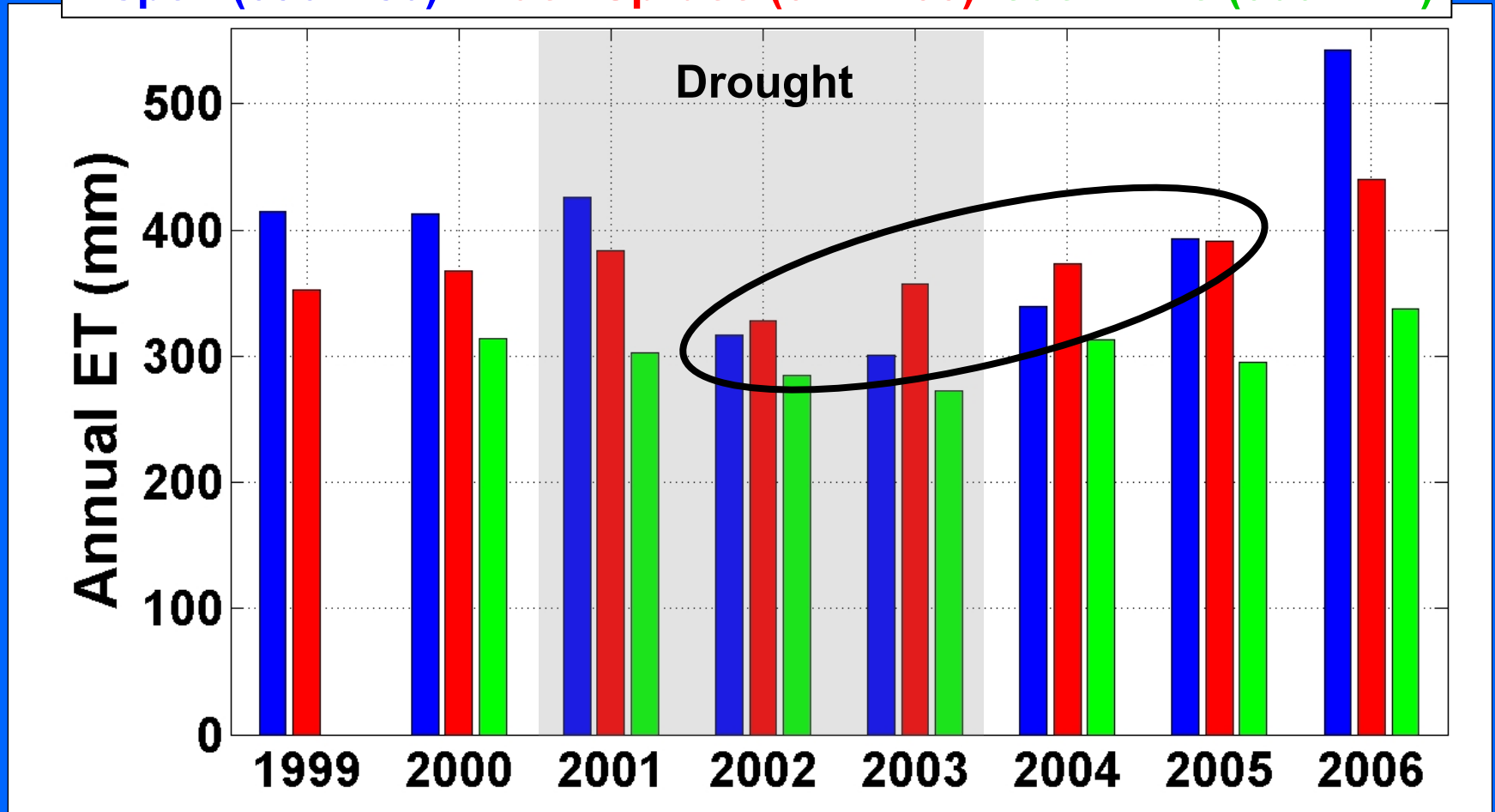
(The horizontal lines show percentiles from Prince Albert, 1900-2000)



# Annual Evapotranspiration 1999 to 2006

(adjusted by ~ +15% for energy-balance closure)

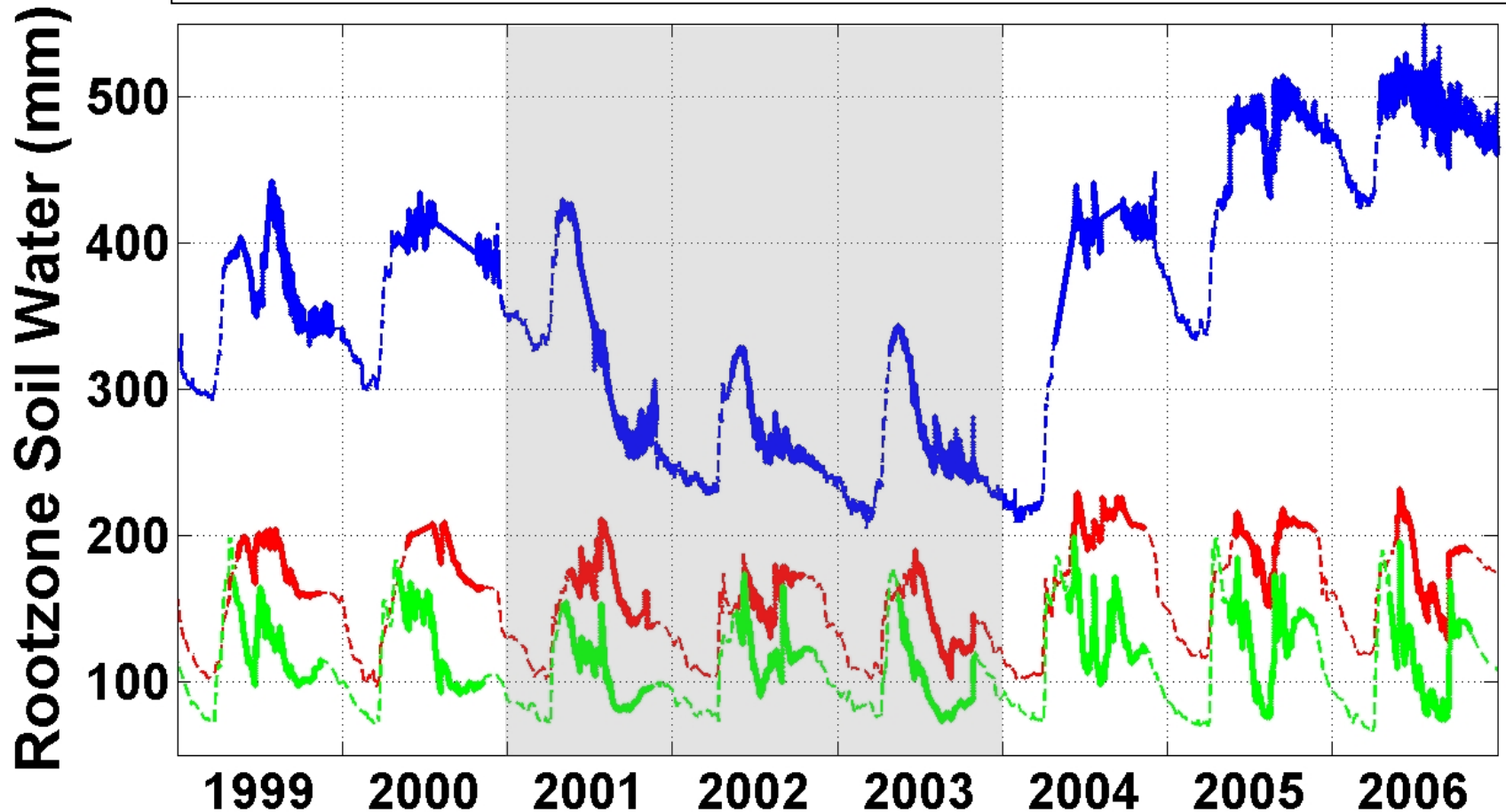
Aspen ( $393 \pm 80$ ) Black Spruce ( $374 \pm 33$ ) Jack Pine ( $303 \pm 21$ )



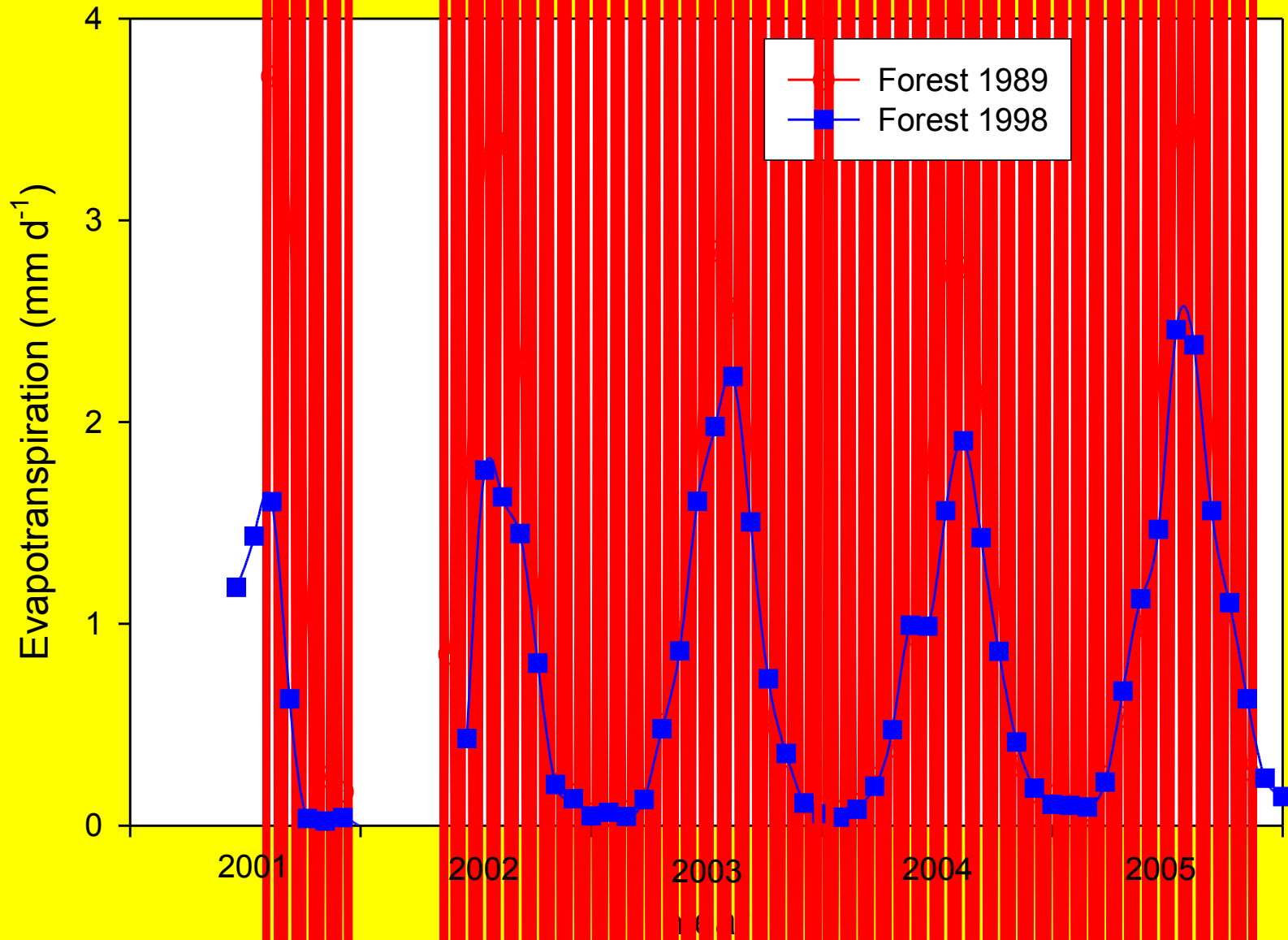
# Integrated Root-Zone Soil Water

(dashed lines indicate frozen soil)

Aspen (0-1.2m) Black Spruce (0-0.3m) Jack Pine (0-1.5m)



# Young successional forests: mixed



# Summary of drought impacts

- ET decreased in mature and young successional forests
- ET less affected in very young forests (lower water demand)
- Near surface soil moisture decreases variable, depending on site



