Modelling drought in prairie watersheds

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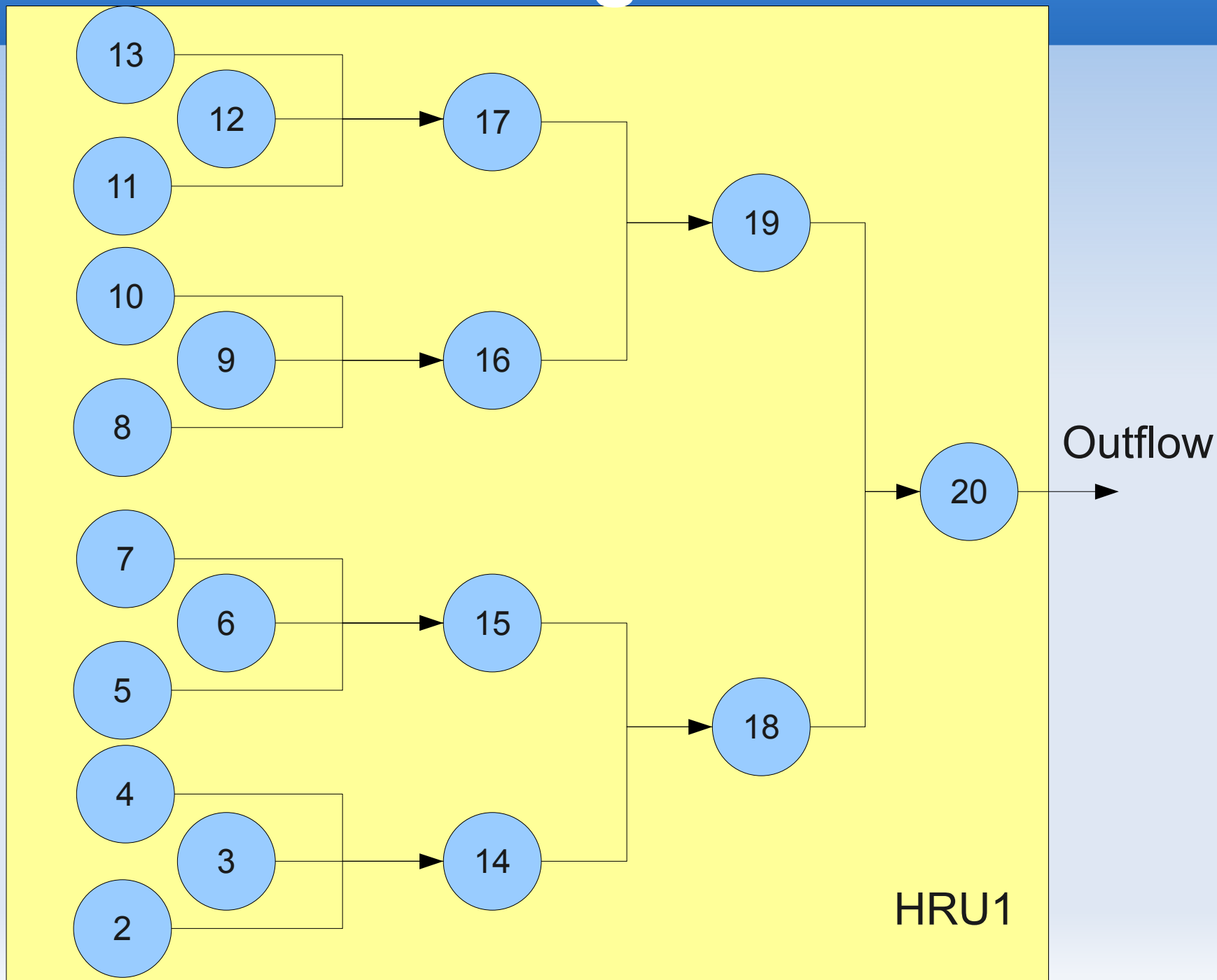
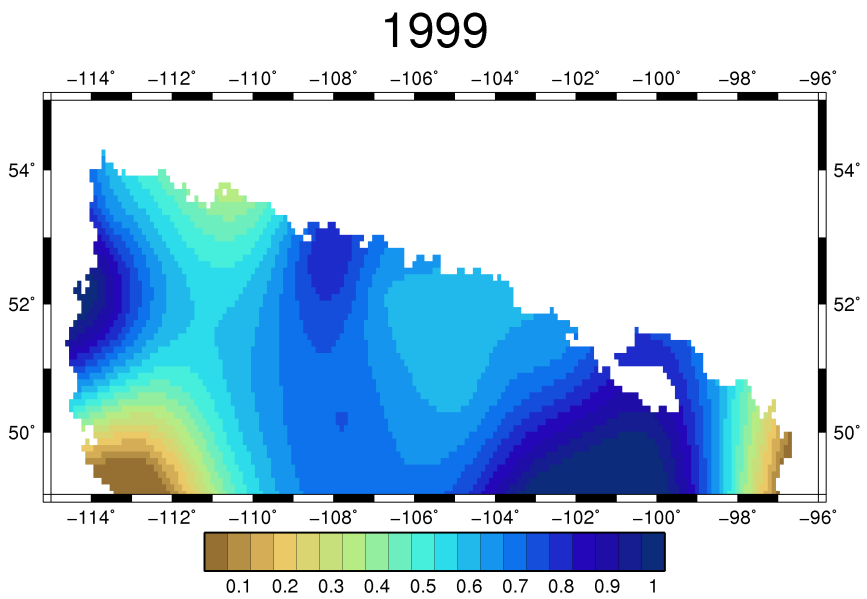
Slough HRUs

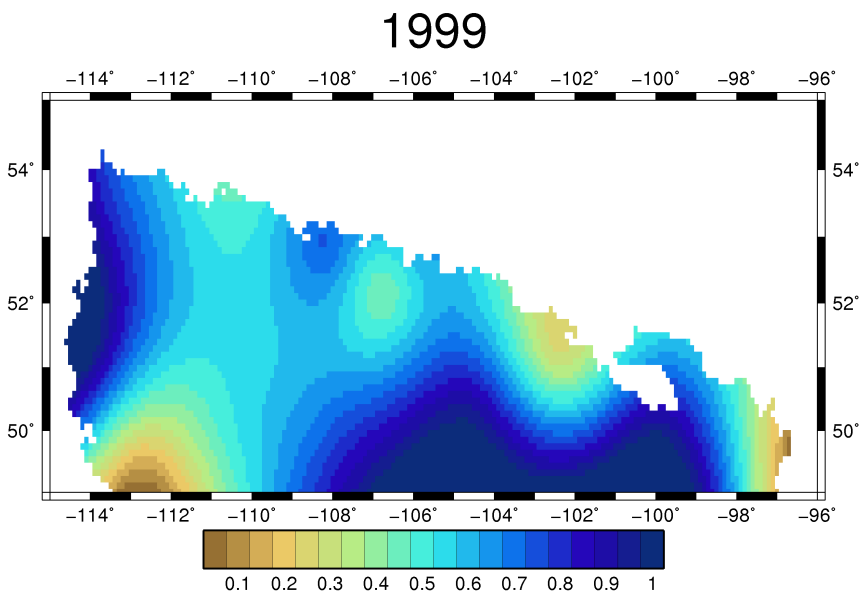


Modelled Streamflow 1999

Wetland basin

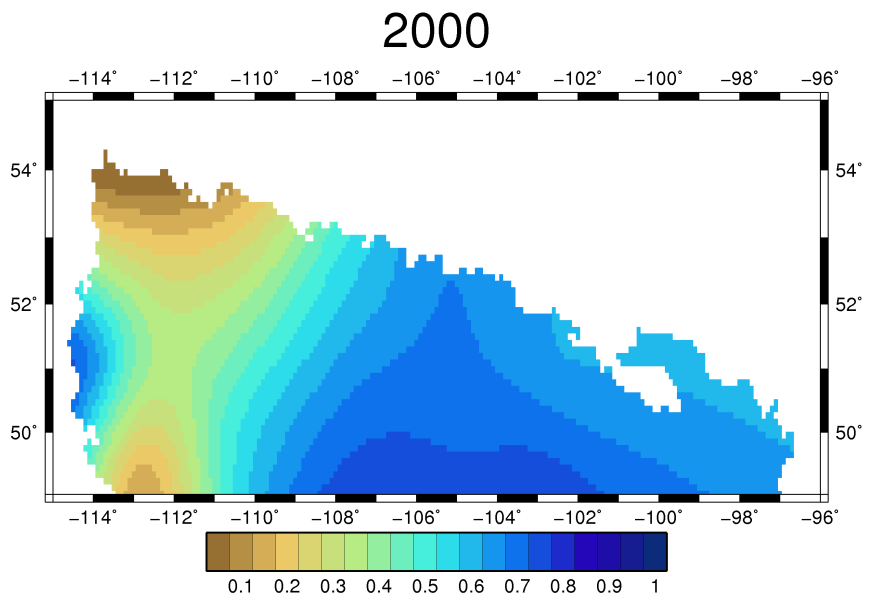


Upland basin

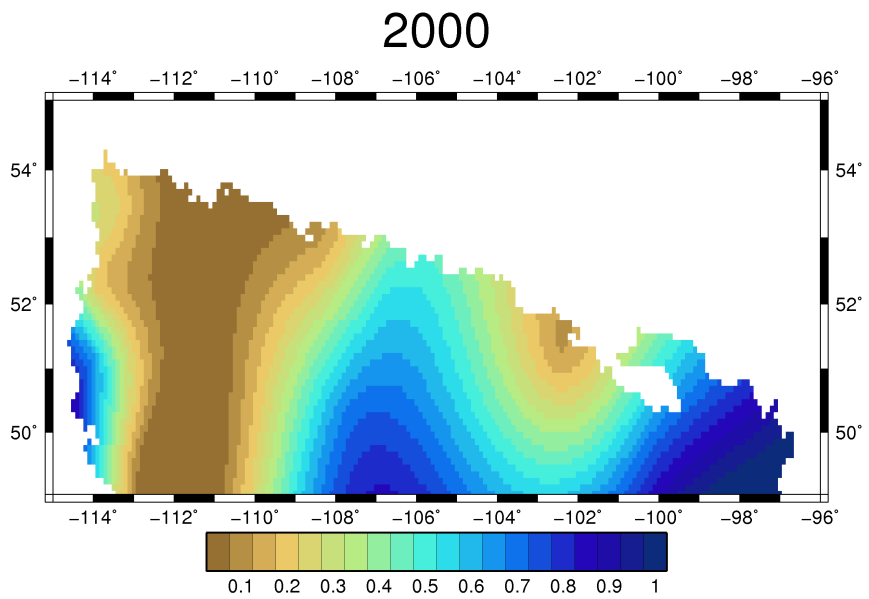


Modelled Streamflow 2000

Wetland basin

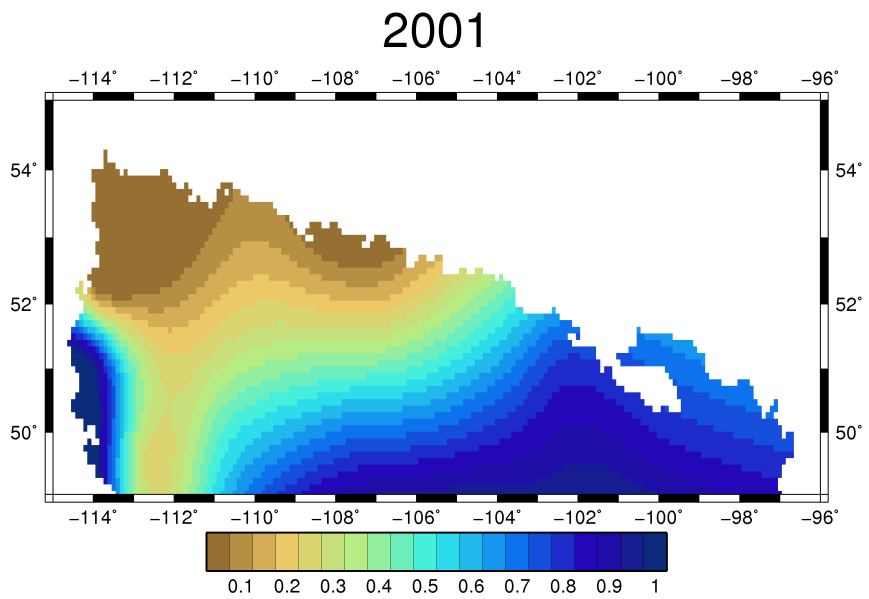


Upland basin

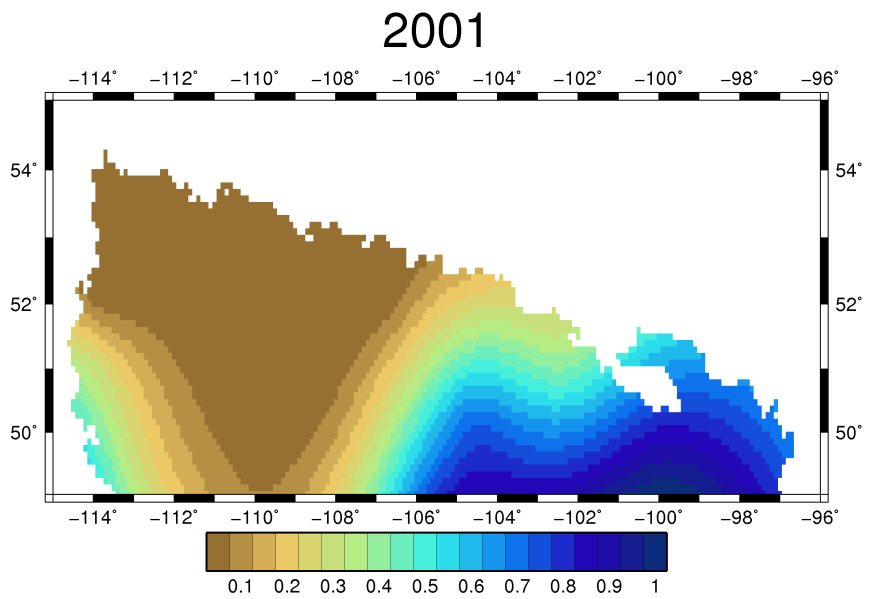


Modelled Streamflow 2001

Wetland basin

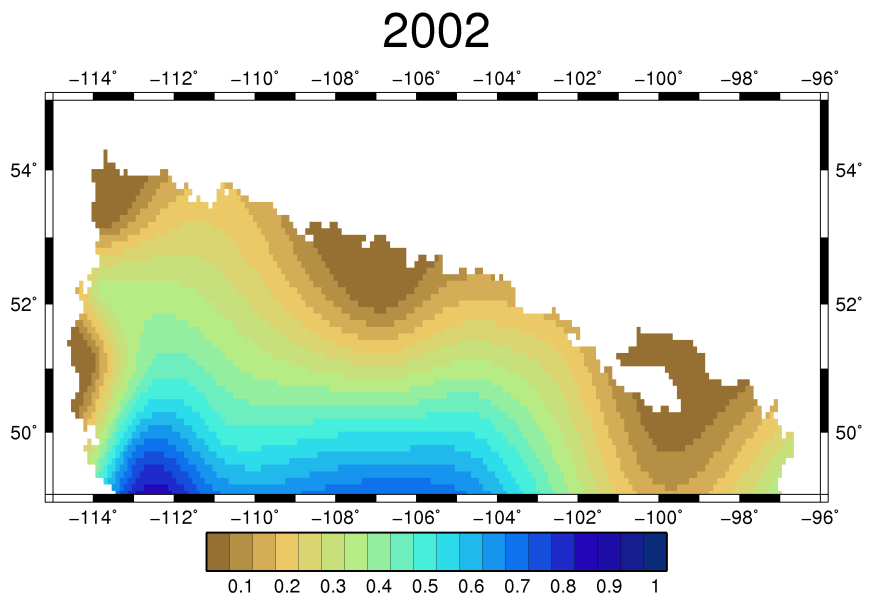


Upland basin

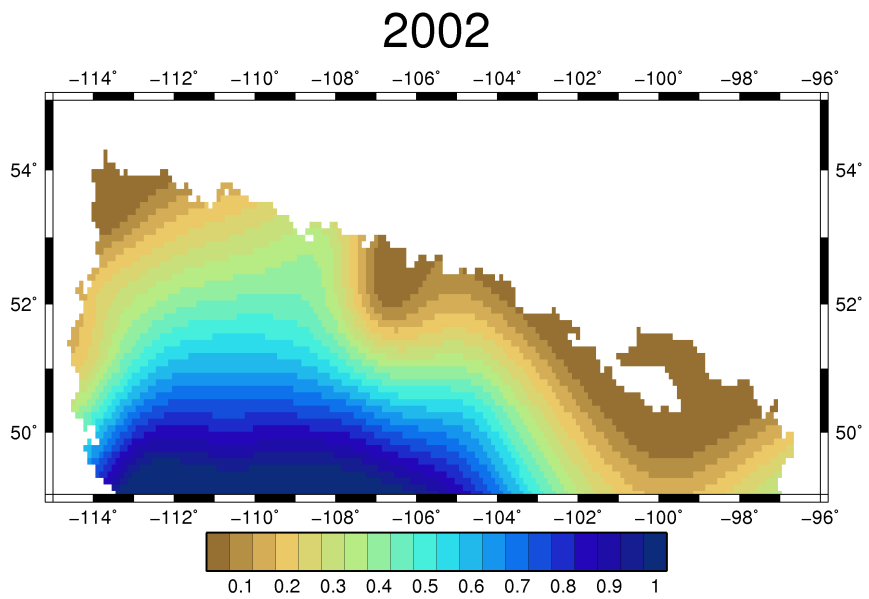


Modelled Streamflow 2002

Wetland basin

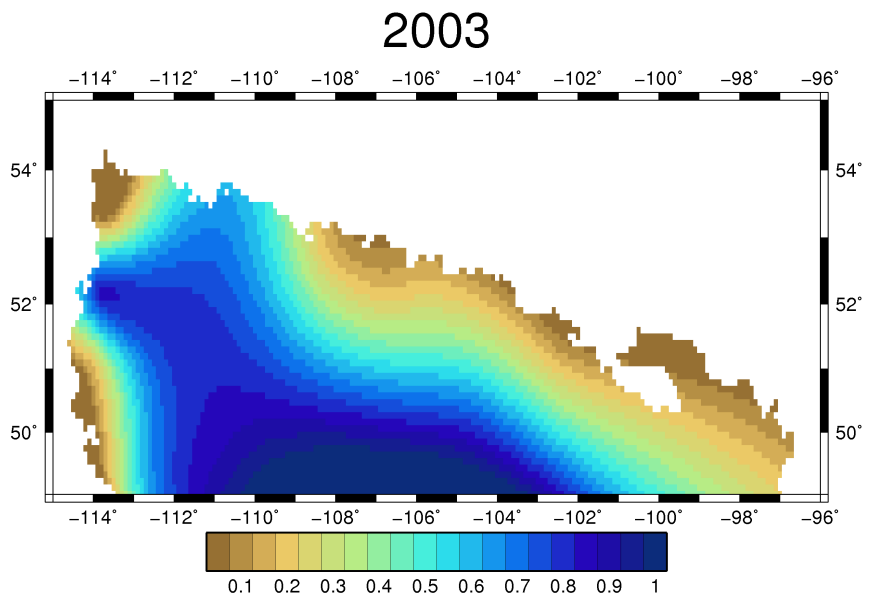


Upland basin

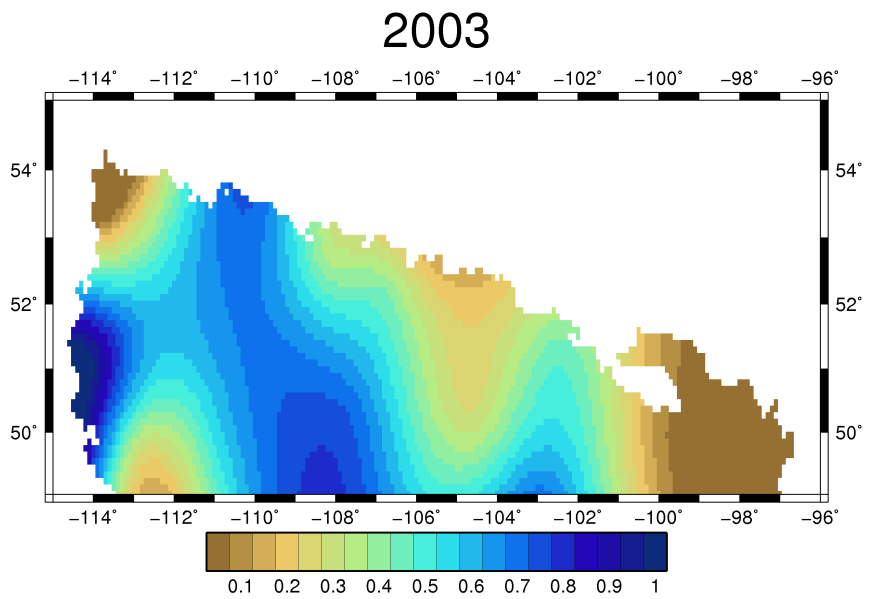


Modelled Streamflow 2003

Wetland basin

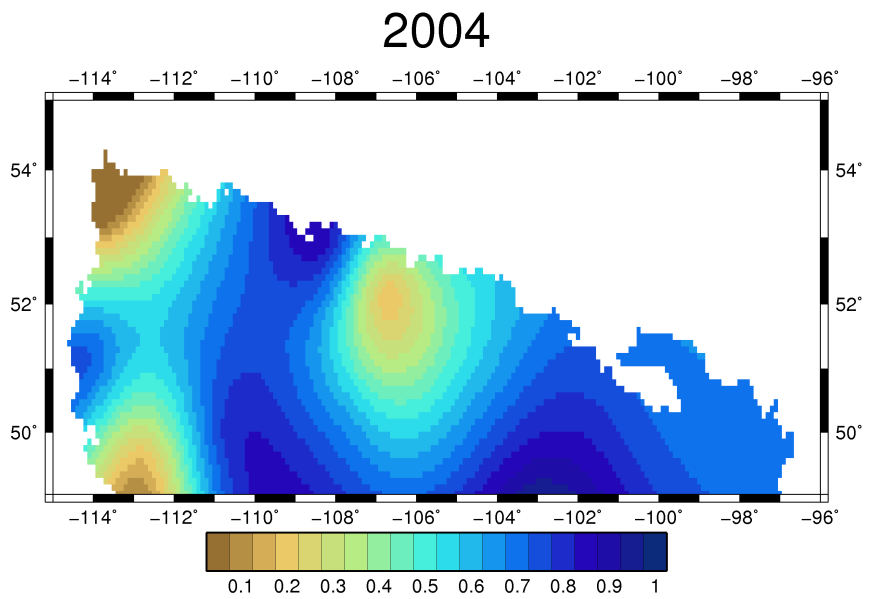


Upland basin

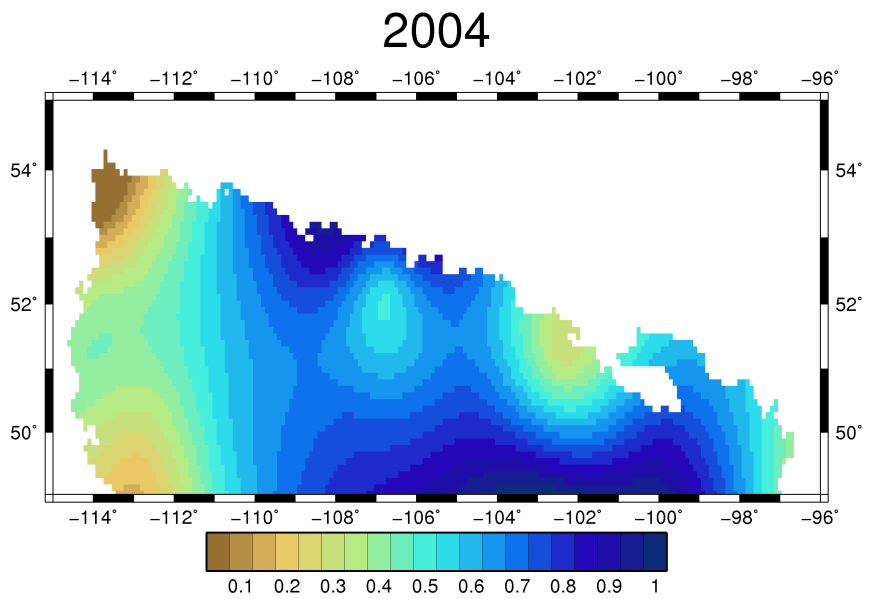


Modelled Streamflow 2004

Wetland basin

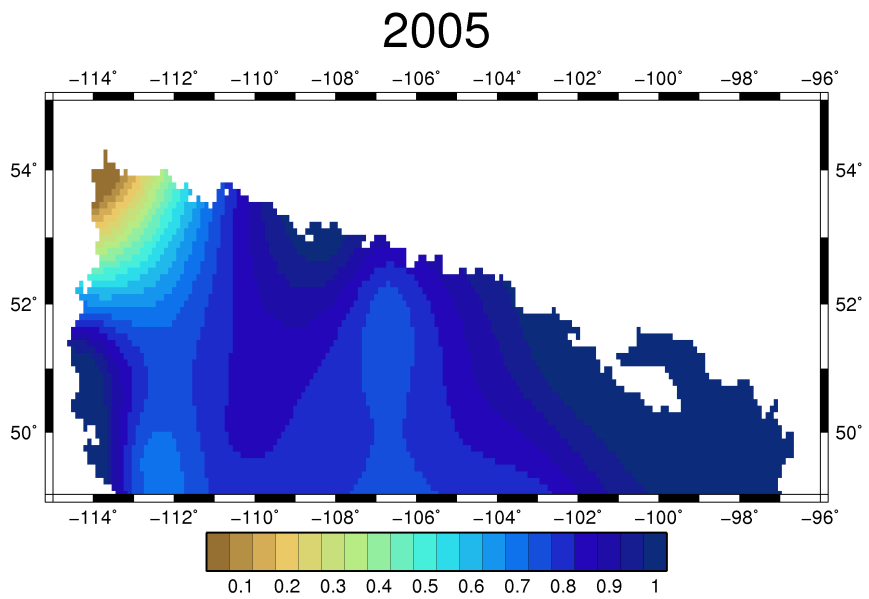


Upland basin

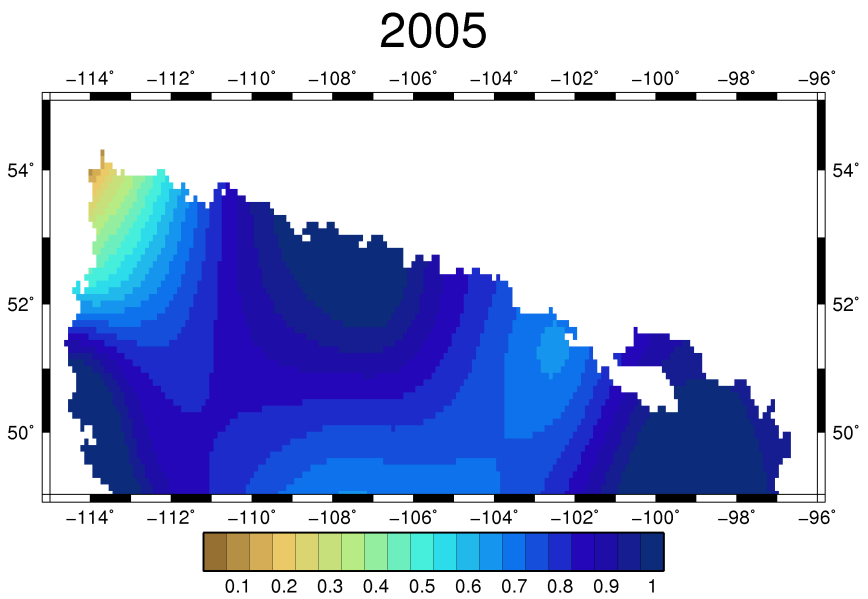


Modelled Streamflow 2005

Wetland basin

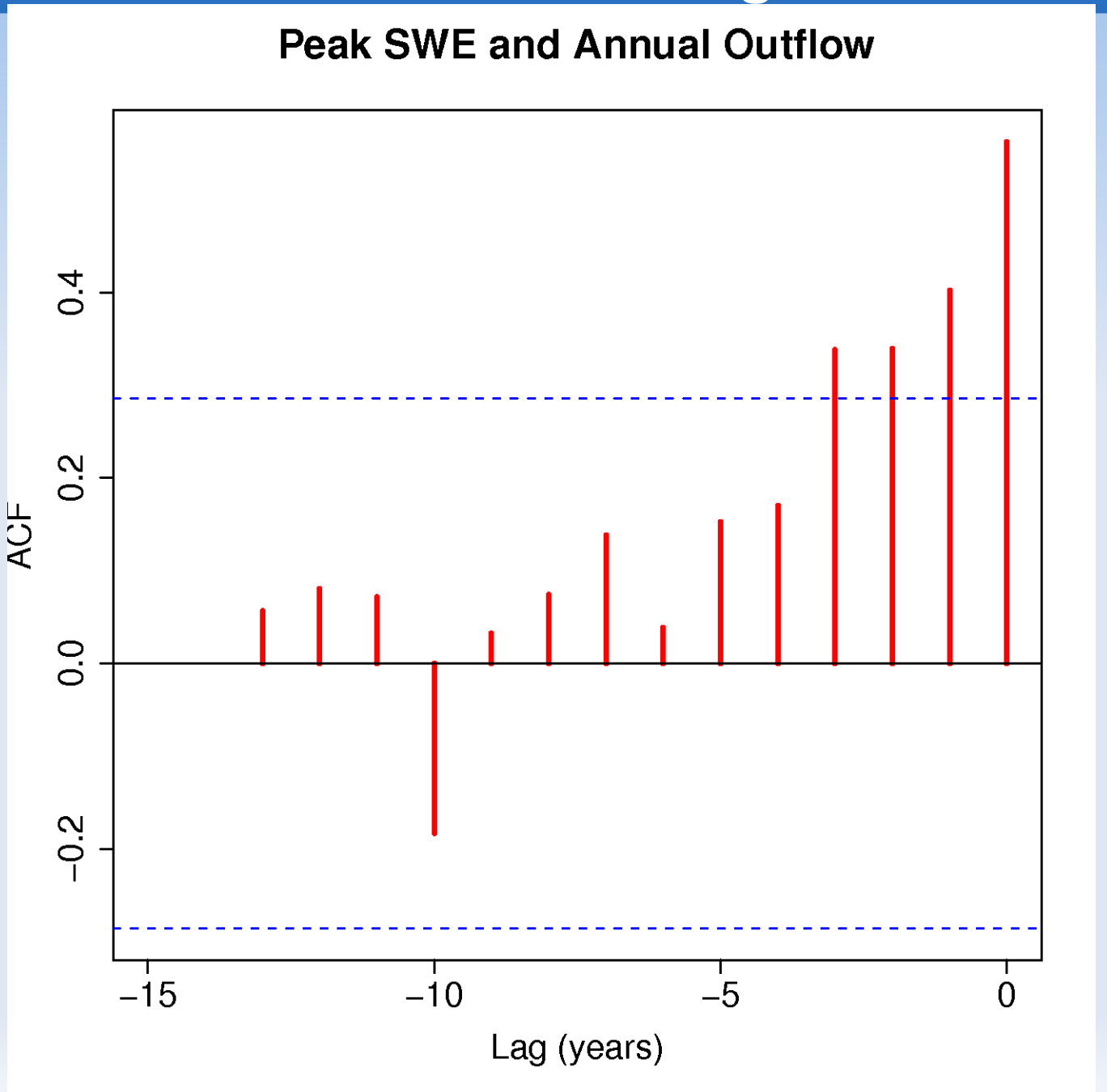


Upland basin



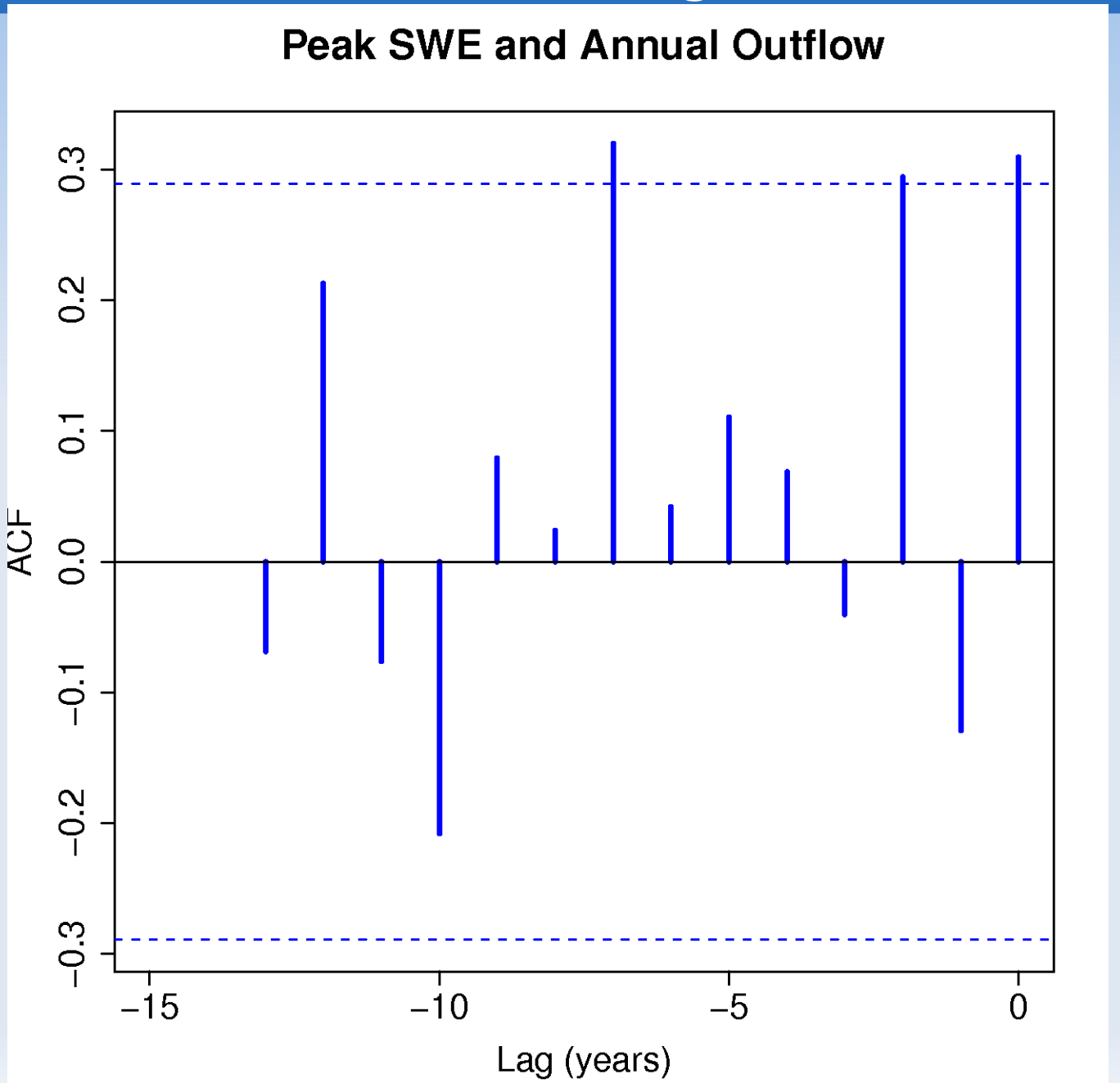
Cross-correlation

Saskatoon Peak SWE and Slough Model Outflow



Cross-correlation

Saskatoon Peak SWE and Brightwater Ck Outflow



Conclusions

- Simple simulations can show the same type of responses as natural systems
- May lead to a hybrid model:
  - Physically-based calculation of hydrological inputs
  - Statistically-based dynamic model of system response
- Eventual intent is to link the system response to macroscopic state variables (i.e. to observed wetland storage)