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- **Soil initialization:**

  - Reanalysis run: soil moisture at initial time

  - GCM runs: soil moisture in a “neutral” year of reanalysis run

- **Spin up:**
  - **3 years**
- **Interior nudging? No**

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- **Boundary conditions relaxation:**

  - 15-point sponge zone

  - damping strengths decays exponentially toward interior

- **Time step:**
  - **100 seconds**
- **Missing output variables:**
  - **No**

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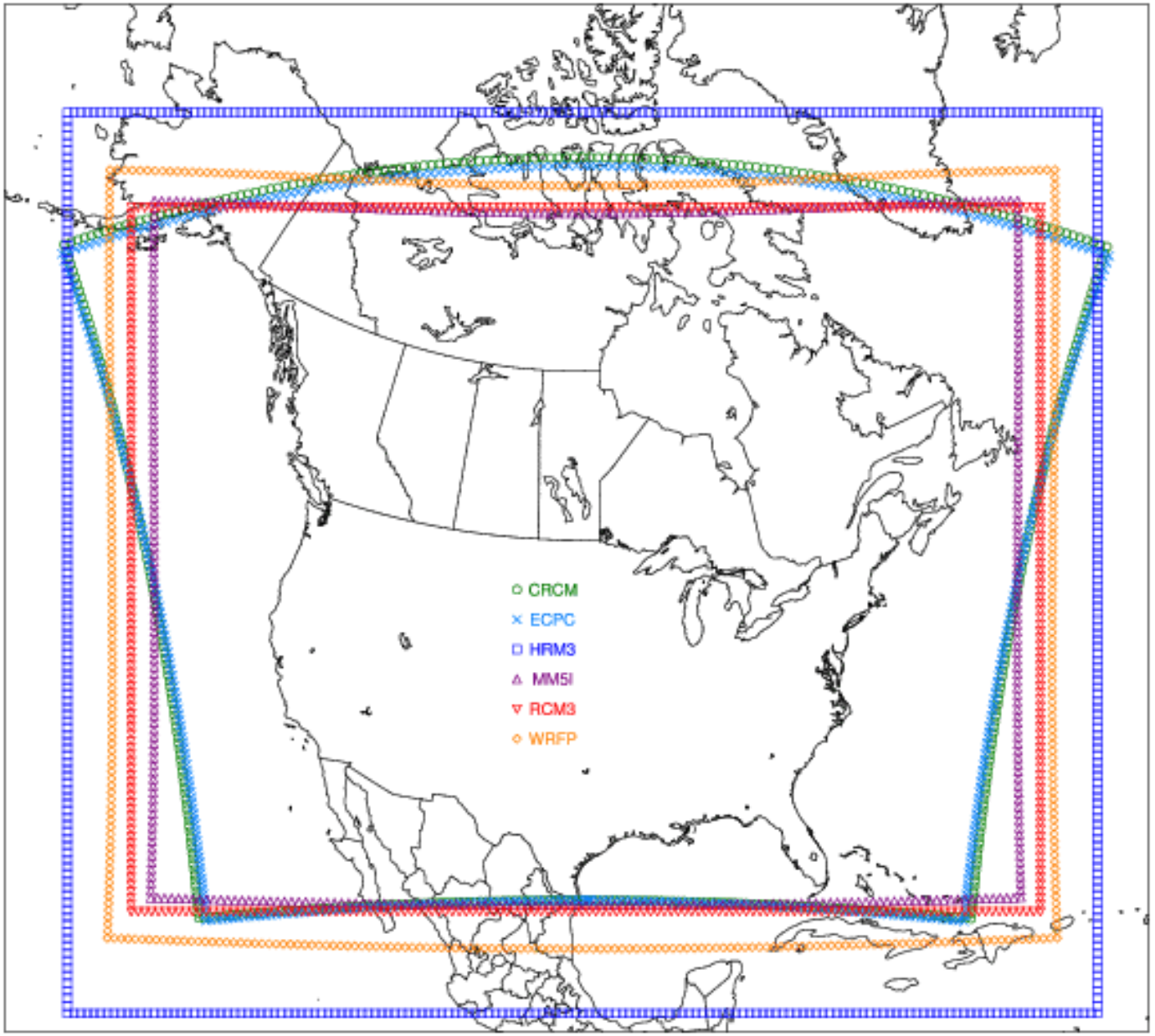
- **Parameterizations:**
  - Non-hydrostatic, compressible dynamics
  - Kain-Fritsch2 mass flux convective scheme
  - Reisner mixed-phase mmicrophysics
  - NOAH land scheme
  - USGS 25 land/24 vegetation categories
  - thermal/water layers: 4
  - Hong-Pan (MRF) counter-gradient, non-local K PBL

NARCCAP Domains



MM5 – Variables Submitted to Archive

- Reanalysis run: pr, zg500, huss, tas, uas, vas, snd, ts, zmla
- CCSM current: pr, zg500, huss, tas, uas vas, snd, ts, zmla, ps, psl, prc
- CCSM scenario: pr, zg500, huss, tas, uas, vas, snd, ts, zmla, ps, psl, prc

- Bottleneck? Script development

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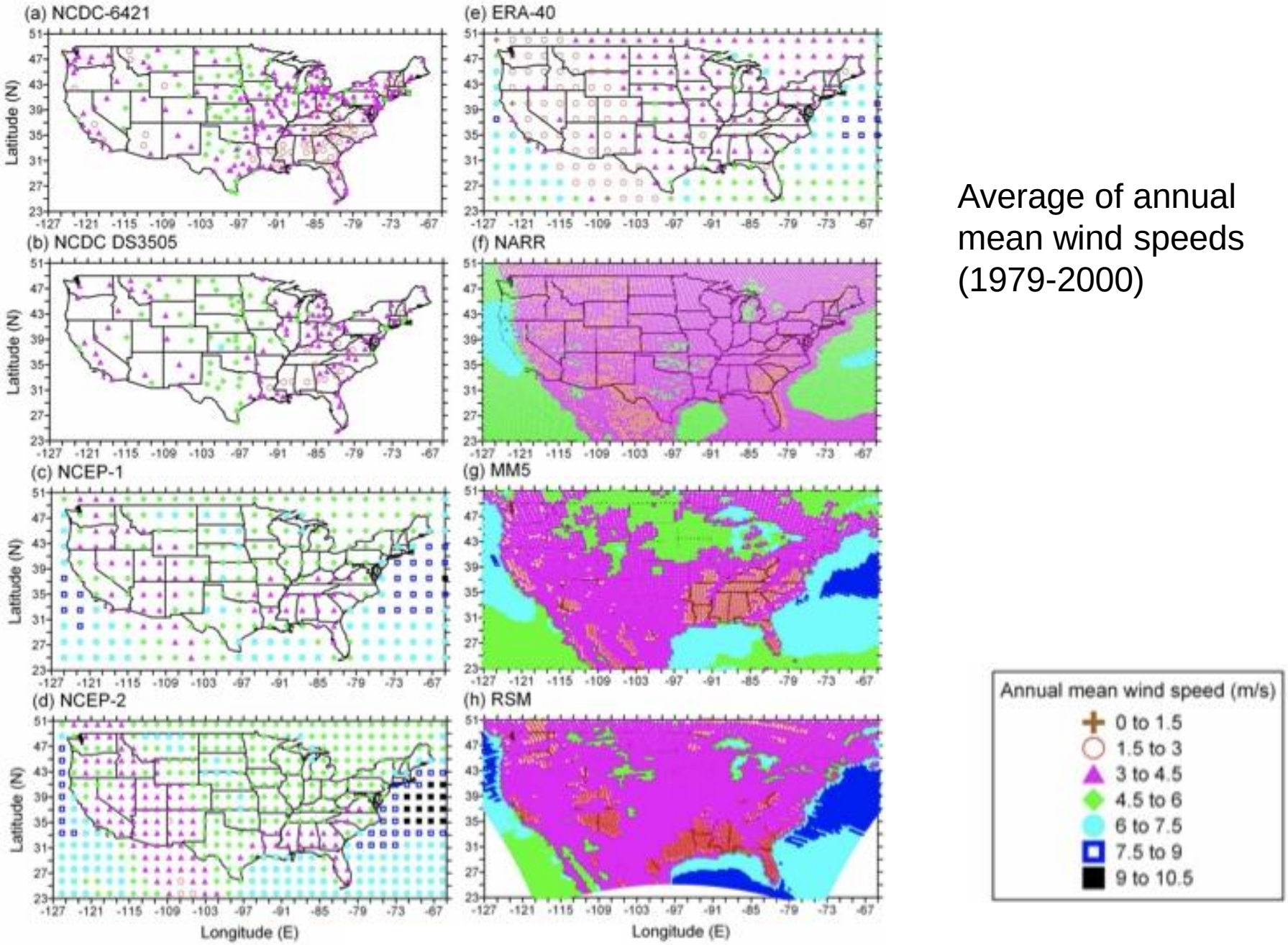
RESEARCH PLANS

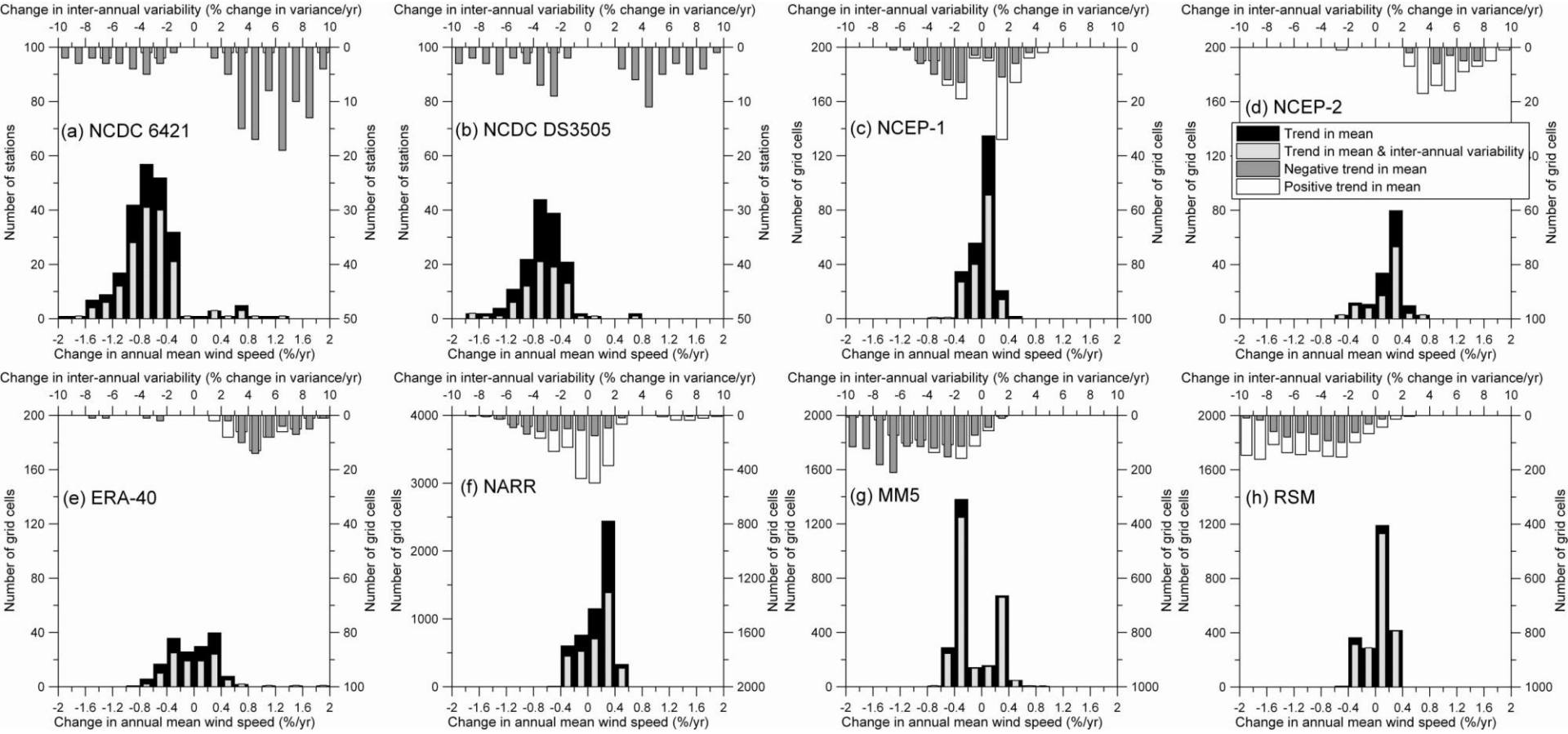
- ENSO cycle in NARCCAP domain
- Extreme monthly (and more frequent?) precipitation
- Surface and upper air winds

Surface Wind Analysis (Pryor et al.)



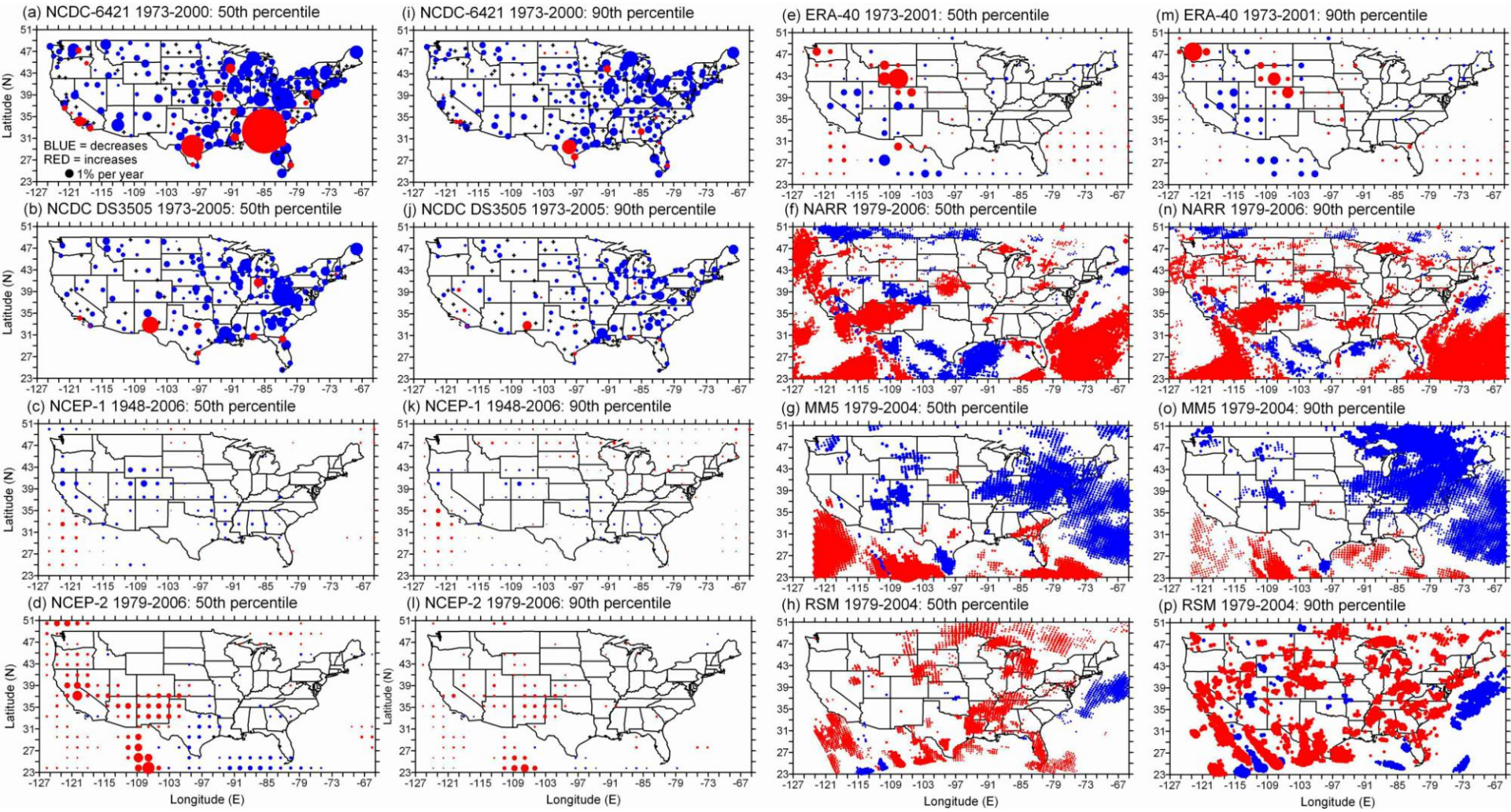
Average of annual mean wind speeds (1979-2000)

Surface Wind Analysis (Pryor et al.)



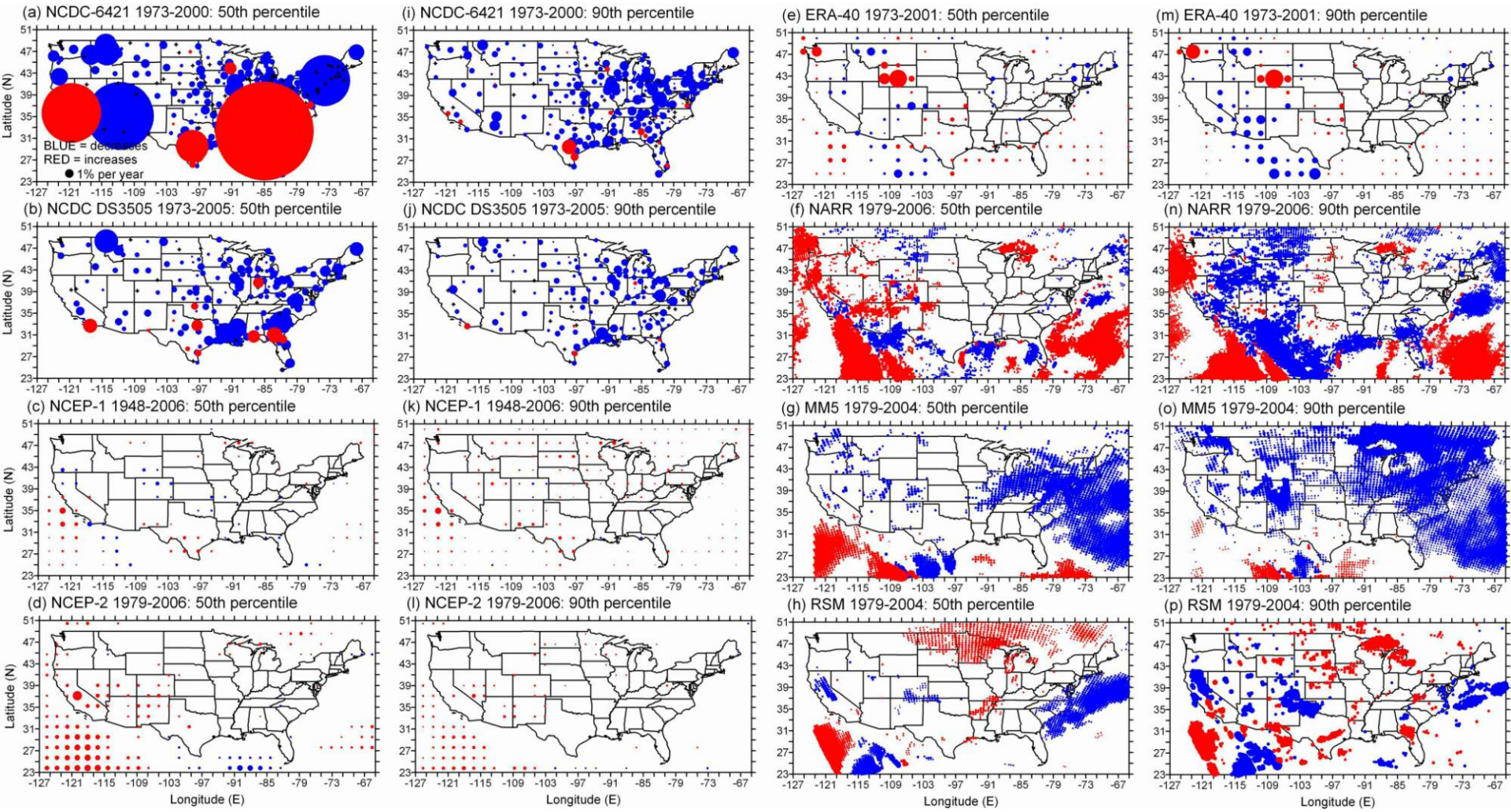
Synthesis of trends

Surface Wind Analysis (Pryor et al.)



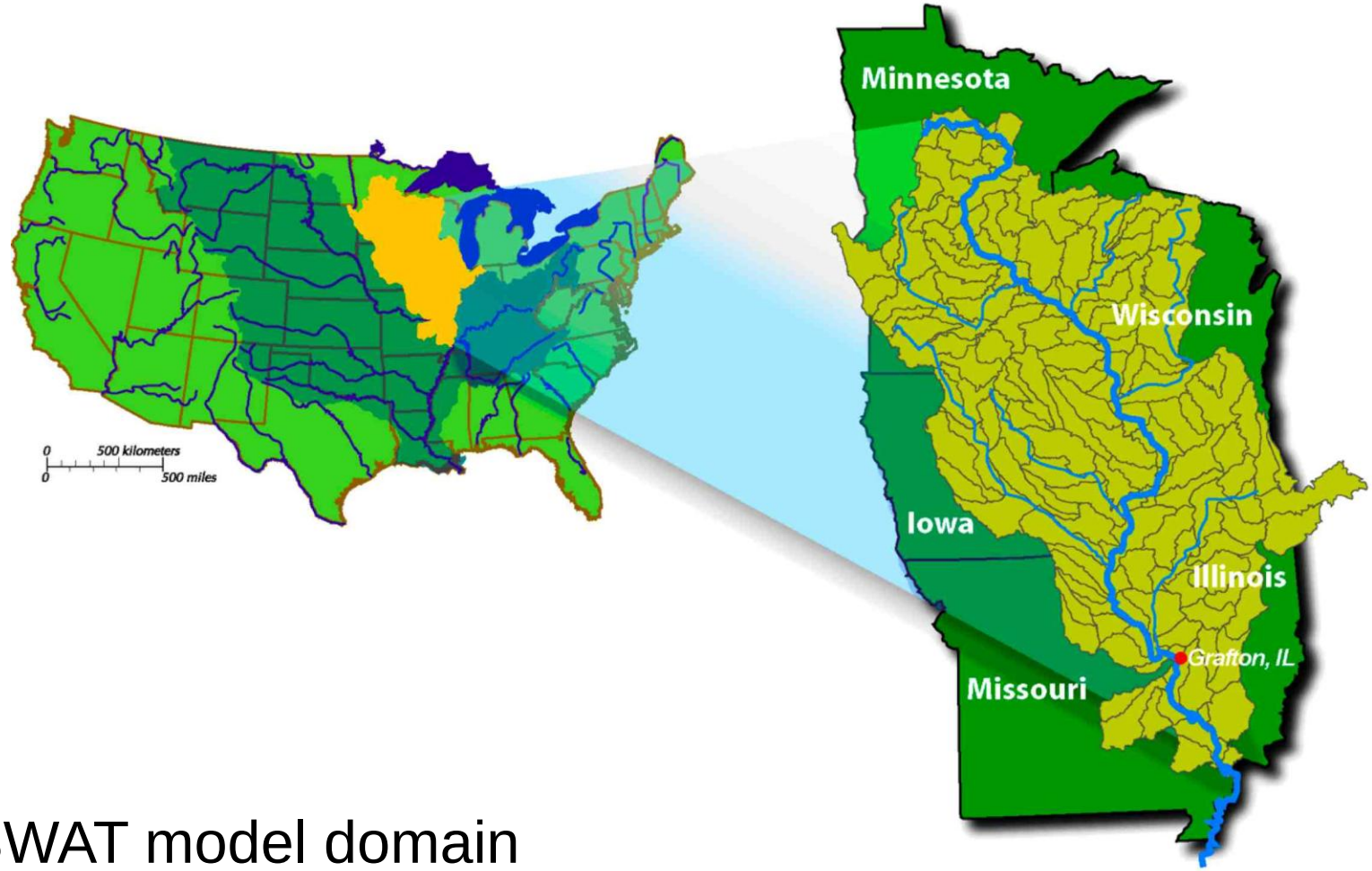
Trends in annual mean wind speeds at 00 UTC

Surface Wind Analysis (Pryor et al.)



Trends in annual mean wind speeds at 12 UTC

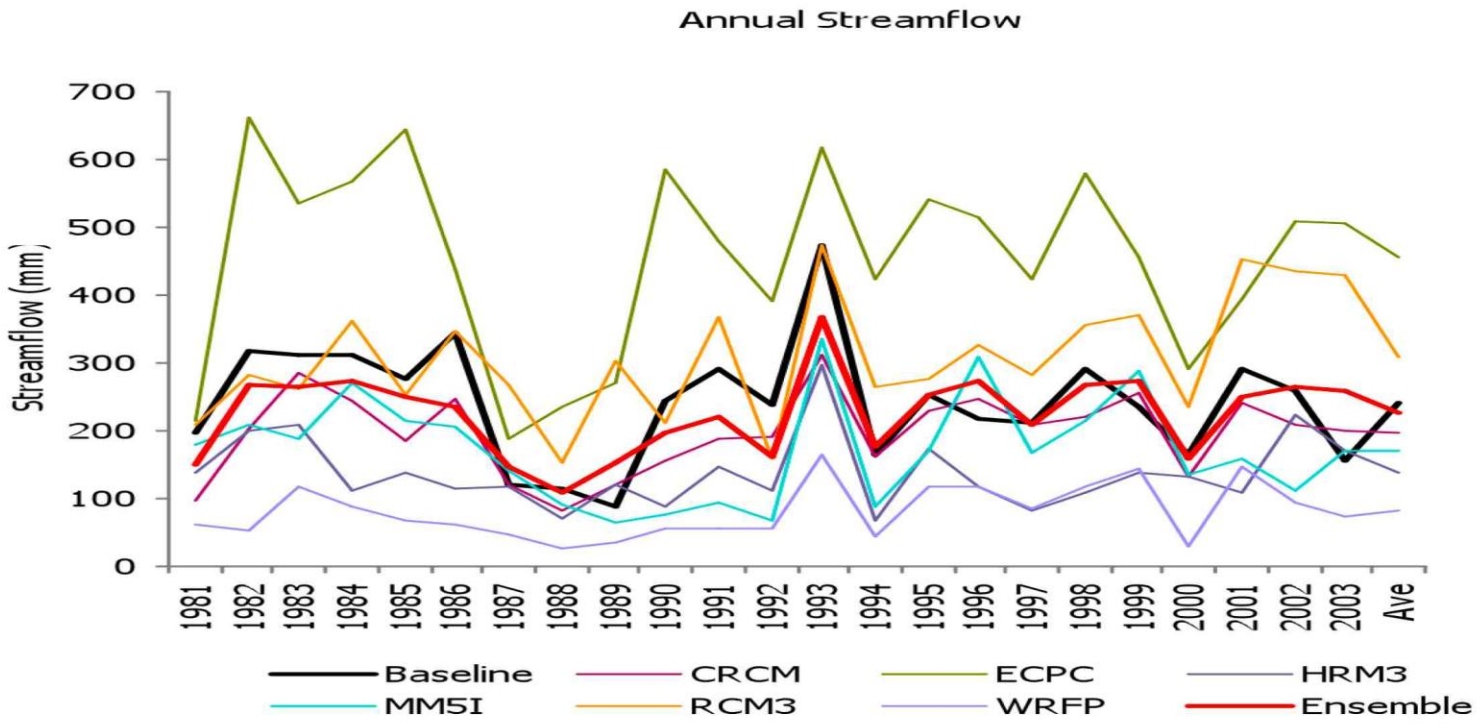
Hydrologic Analysis (Takle et al.)



SWAT model domain
Simulation period: last 2 decades of 20C

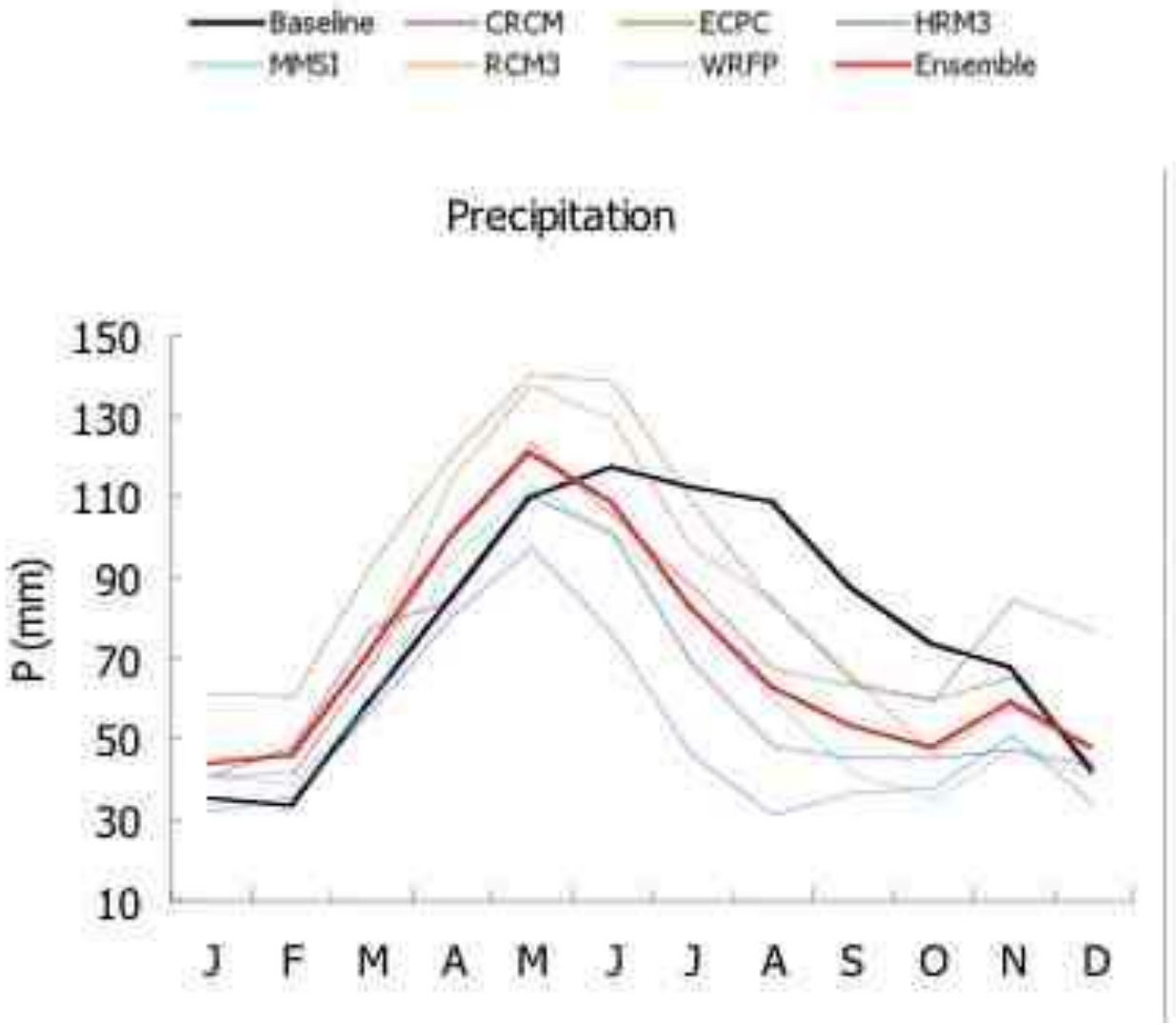
Hydrologic Analysis (Takle et al.)

Streamflow Interannual Variability



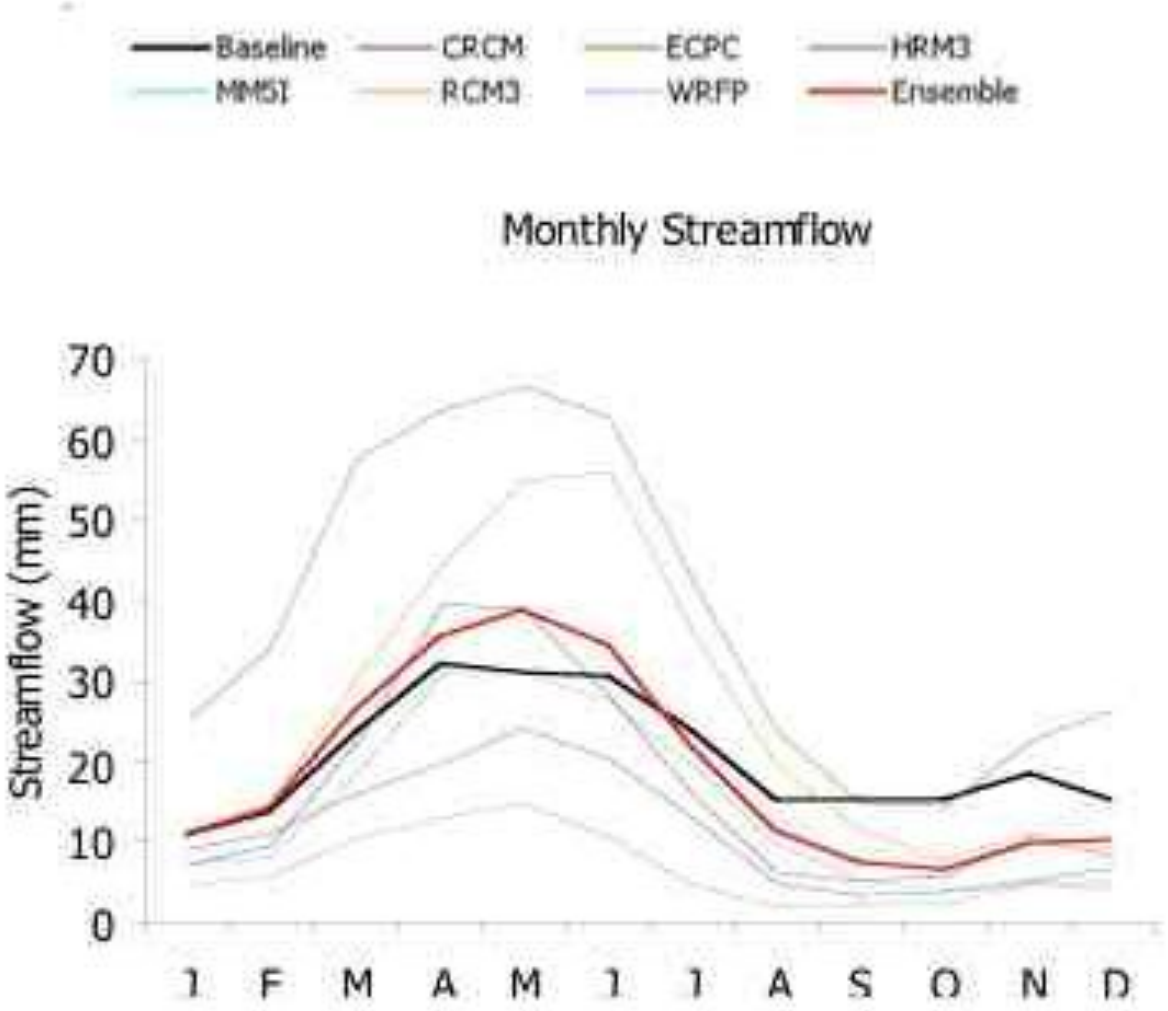
Hydrologic Analysis (Takle et al.)

Precipitation Annual Cycle



Hydrologic Analysis (Takle et al.)

Streamflow Annual Cycle



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Thank you