RegCM3

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RegCM3 Model Details

- Model documentation and source code available: http://users.ictp.it/RegCNET/model.html
- Primary reference: Pal et al. 2007, Bulletin of the American Meteorological Society (BAMS)

RegCM3 Model Details

- Hydrostatic equations
- Sigma coordinates in vertical (terrain following)
- Zeng ocean flux parameterization (atm/ocean fluxes)
  - Zeng et al. 1998
- SUBEX large scale precipitation parameterization
  - Pal et al. 2000 (JGR)
- Grell convective precipitation parameterization
  - Fritsch and Chappell closure scheme (1980)
- CCM3 radiation scheme
- BATS1E land surface model

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RegCM3 Initialization

- Soil moisture
  - Set to initial values specified in landuse type data set at first time step
- Atmospheric variables
  - Surface pressure, 3D winds, 3D temperature, 3D humidity
  - Set to initial values of first time step of the boundary condition data (interpolated to RCM grid)
- Sea Surface Temperatures (SST)
  - Set to values from GCM driving data

RegCM3 Domain Details

- Horizontal resolution of 50 x 50 km
- Vertical resolution of 18 levels
- Rotated Mercator projection, 130 north-south grid cells, 160 east-west gridcells
- Centered over North America at 47.5 N and 97.0 W

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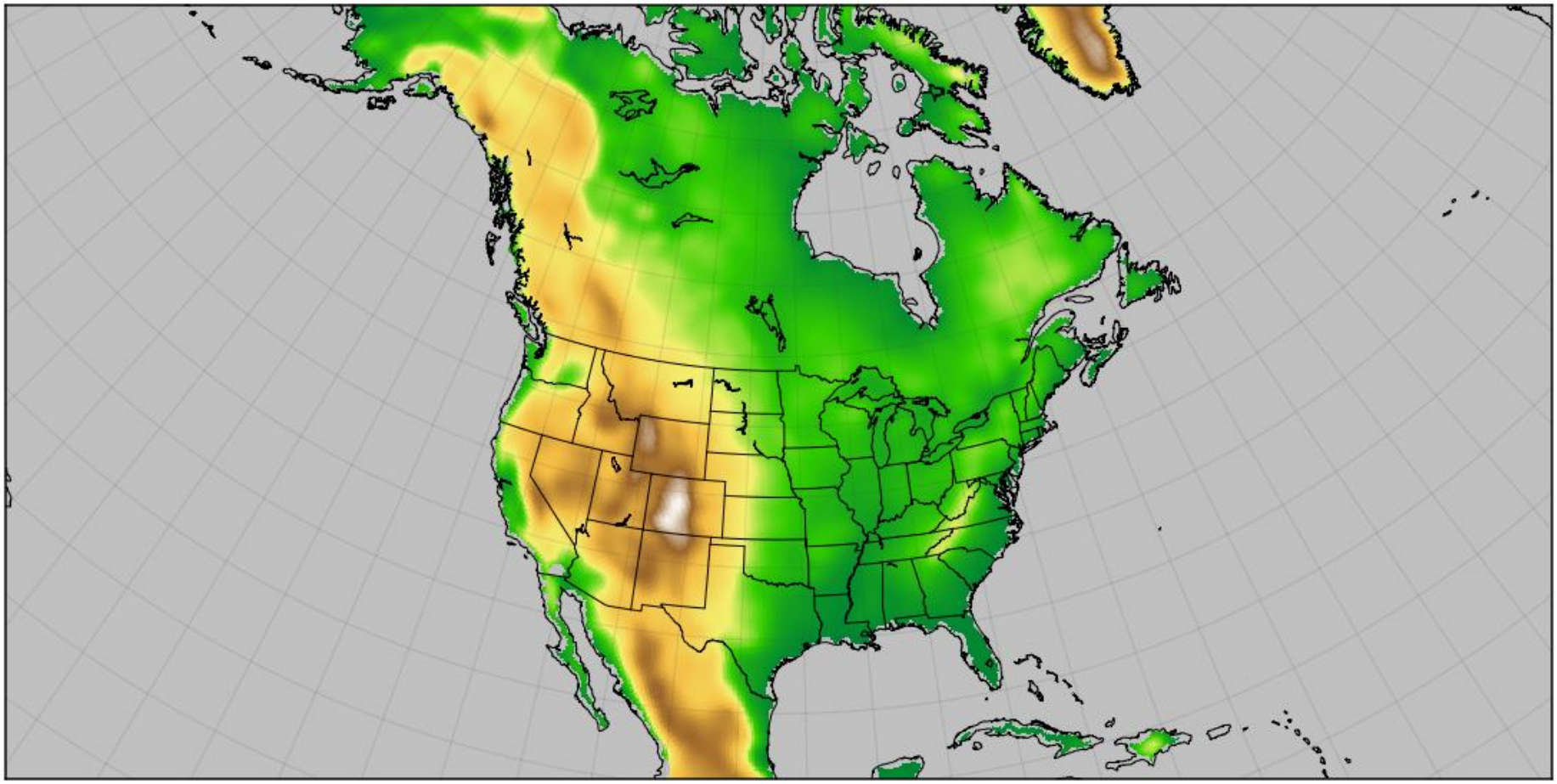
RegCM3 Topography (m)



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RegCM3 NARCCAP Details

Parameter	Value
Main model timestep	150 seconds
BATS timestep	450 seconds
Radiation timestep	30 seconds
# vertical levels	18
Pressure at model top	50 mb
Spectral nudging?	No
Relaxation technique	Exponential
Sponge zone	12 grid cells on all boundaries
Spin-up time	1 year

BATS1E Land Surface Model

- 20 landuse categories
- 10 minute resolution global topography and vegetation data
  - Interpolated to RCM grid
  - GLCC vegetation data (http://edc2.usgs.gov/glcc/)
- No lake model used in NARCCAP runs

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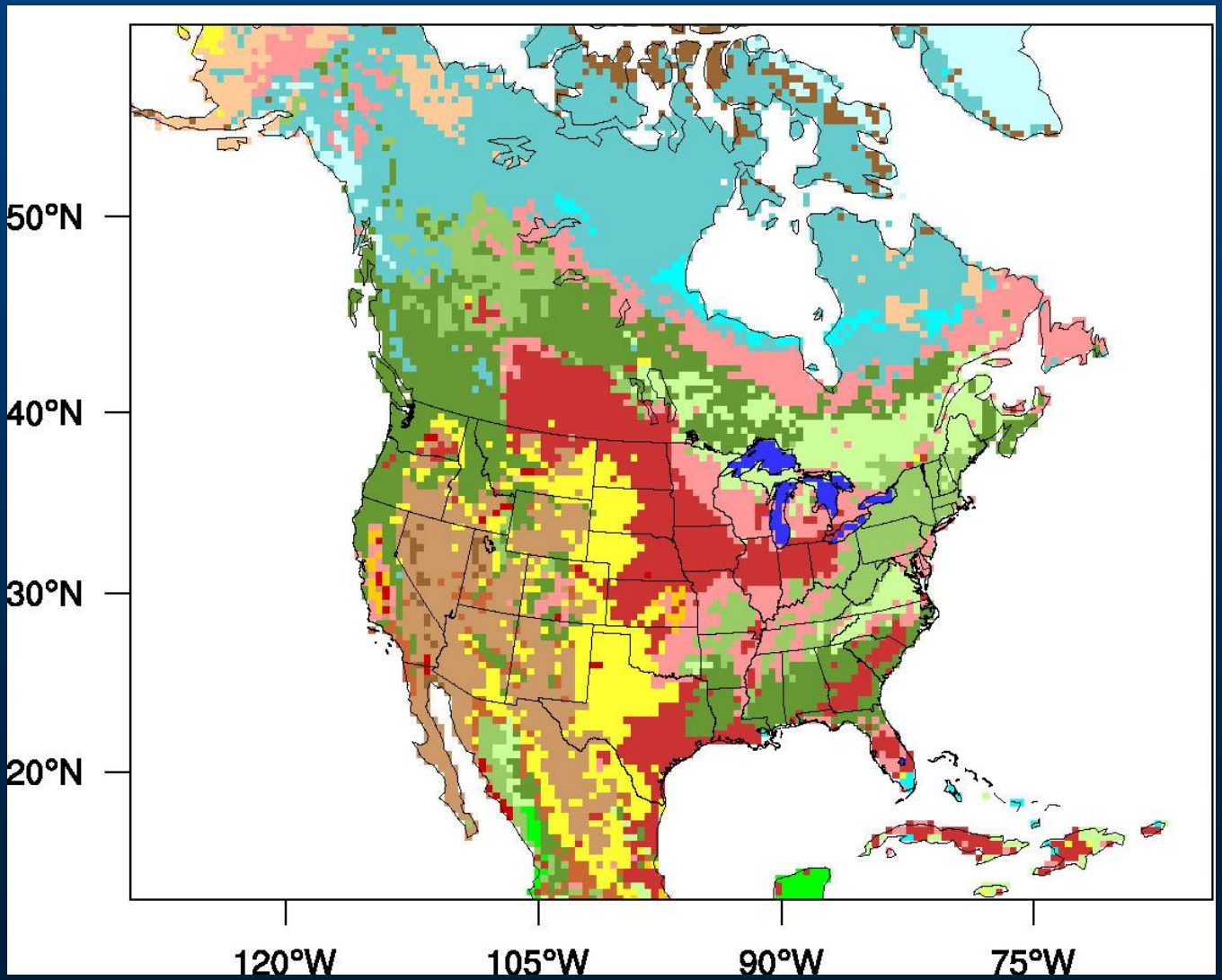
RegCM3 Land Cover Types



RegCM3 NARCCAP Details

- RegCM3 missing variables
  - Table1
    - sic : Daily average sea-ice fraction
  - Table 3
    - mrfso : Soil Frozen Water Content
  - Table 5
    - cli : Cloud ice fraction of layer

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RegCM3 Runs

- Control run (NCEP) 1/1968 – 12/2000 is completed; post-processing nearly completed and transferred
- GFDL historical (1/1968 – 12/2000) and future (1/2038 – 12/2070) runs completed; post-processing and transfer of data started
- CGCM runs pending

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