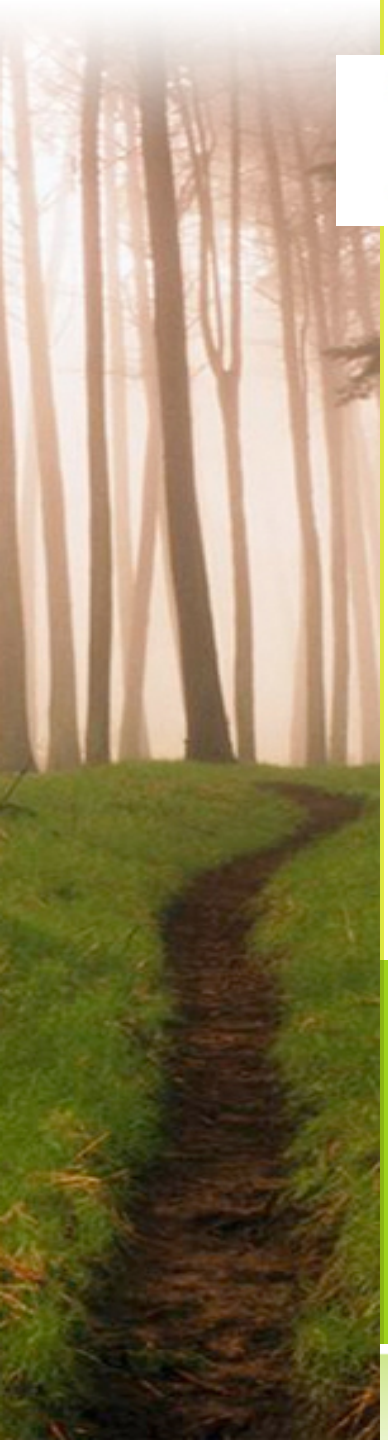
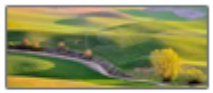


BioEarth

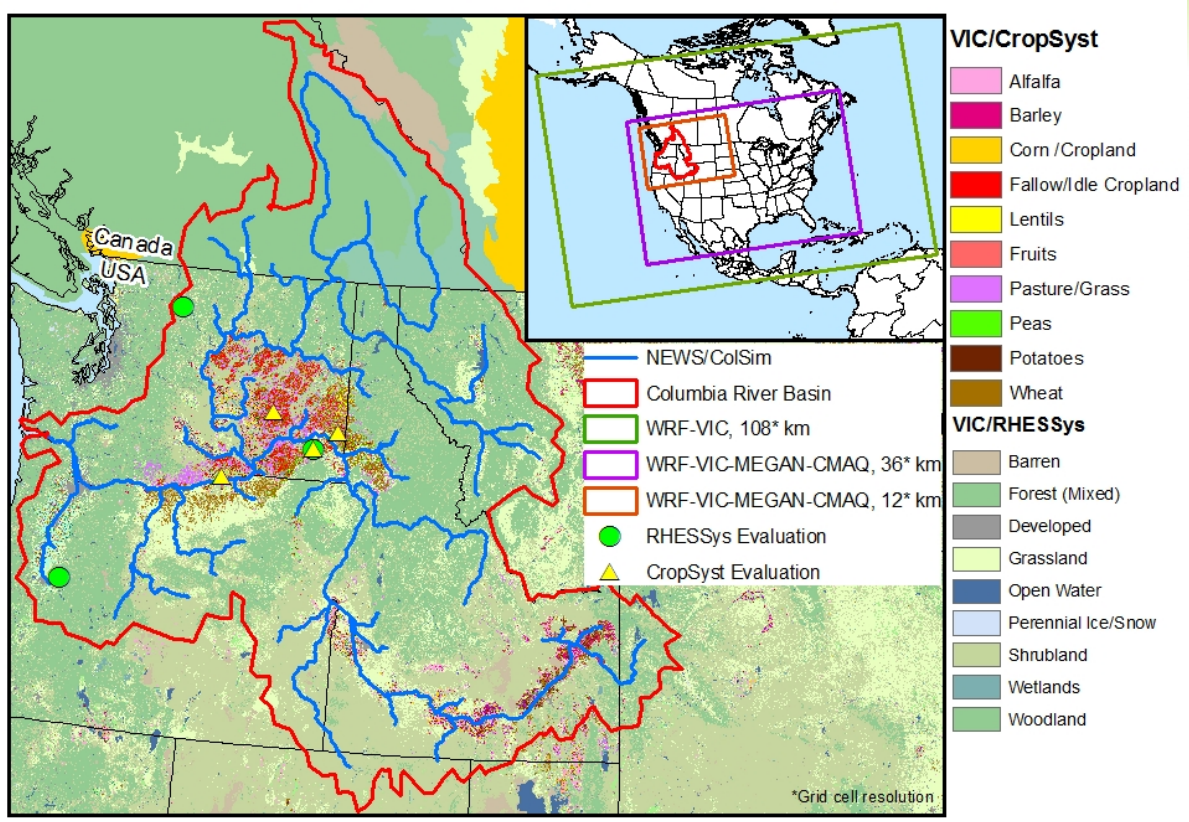

Biosphere-relevant earth system model

Dicussion Topics:

1. BioEarth's Ever Evolving Domain
2. Spatial and Temporal Scales of Various Models (Upscale- & Down-scaling)
3. Bias Correction Strategy

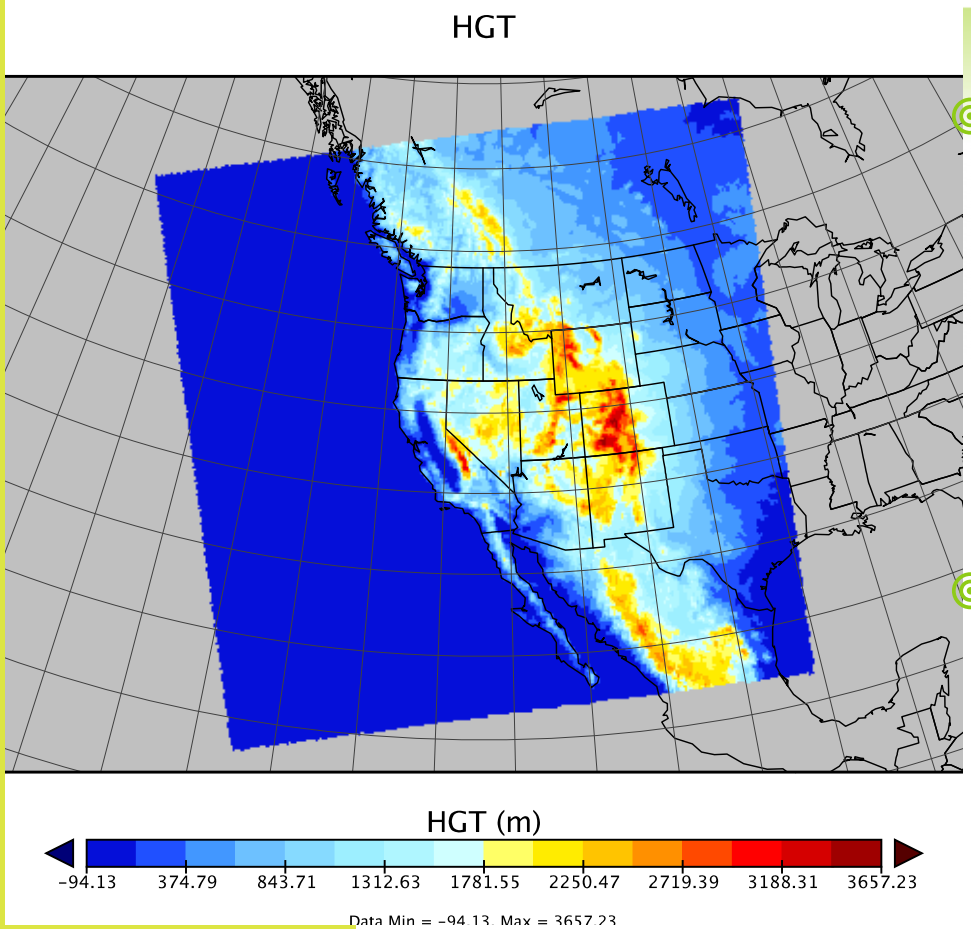
Integration Discussions
Feb 4, 2013
Pullman, WA

Domain Version 1: in the Proposal



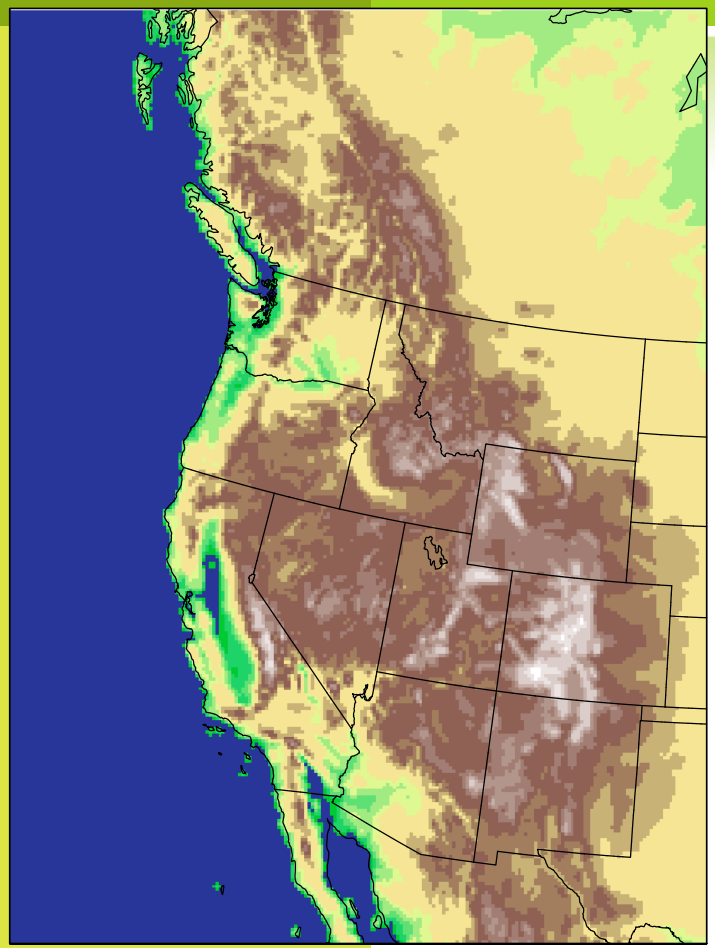
- Nested 108-km/36-km/12-km WRF/CMAQ/MEGAN domains
  - But WRF-VIC has not been tested for nesting

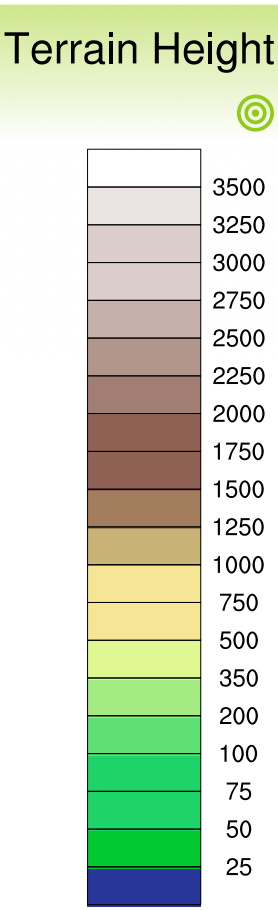
Domain Version 2: Ruby's WRF-CLM Domain



- 12-km WRF/VIC for western US:
  - Avoids nesting
  - Including the whole western US allows for more comprehensiveENSO analysis
- Unfortunately ☹
  - Projection does not work well with CMAQ (if at all)

Domain Version 3: The Current Iteration





- 12-km WRF/VIC for western US:
  - Avoids nesting
  - Including the whole western US allows for more comprehensive ENSO analysis
  - CMAQ simulations can be the whole domain for short-term simulations, or a smaller domain for long-term simulations
  - Potential Pitfull – not big enough for Macrosystems

Items to Think About (Questions from Serena)

- Do RHESSys, CropSyst, Economic Models, etc need to be the same domain as WRF-VIC or can they be a subdomain for WRF-VIC (CMAQ can, even in coupled WRF-CMAQ)
- Are there important feedbacks between our domain of interest (CRB) and the rest of western US in terrestrial or economic modeling (assuming no land-use change outside the CRB)?
- Can we use a bigger domain for analysis/evaluation of historical period, but a smaller for fully-coupled version for future projection?

Spatial & Temporal Scales

- RHESSys will be run at finer spatial scales than WRF/CMAQ
  - Statistically downscaling will be applied to WRF/CMAQ results – what are the variables RHESSys needs as input? Temperature, Radiation (wavelength dependent?), Precipitation, N depostion, others?
- What is the temporal scale of RHESSys?
  - At what time step will RHESSys report information back to WRF? (Typical WRF step step is ~ 1 minute)
- What is the spatial and temporal time scales of economic modeling

Bias Correction Strategies

2013-02-04
BioEarth Integration Discussions