

GCAM-USA and Other Regional Modeling

November 5th, 2019

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GCAM Regional Modeling Context

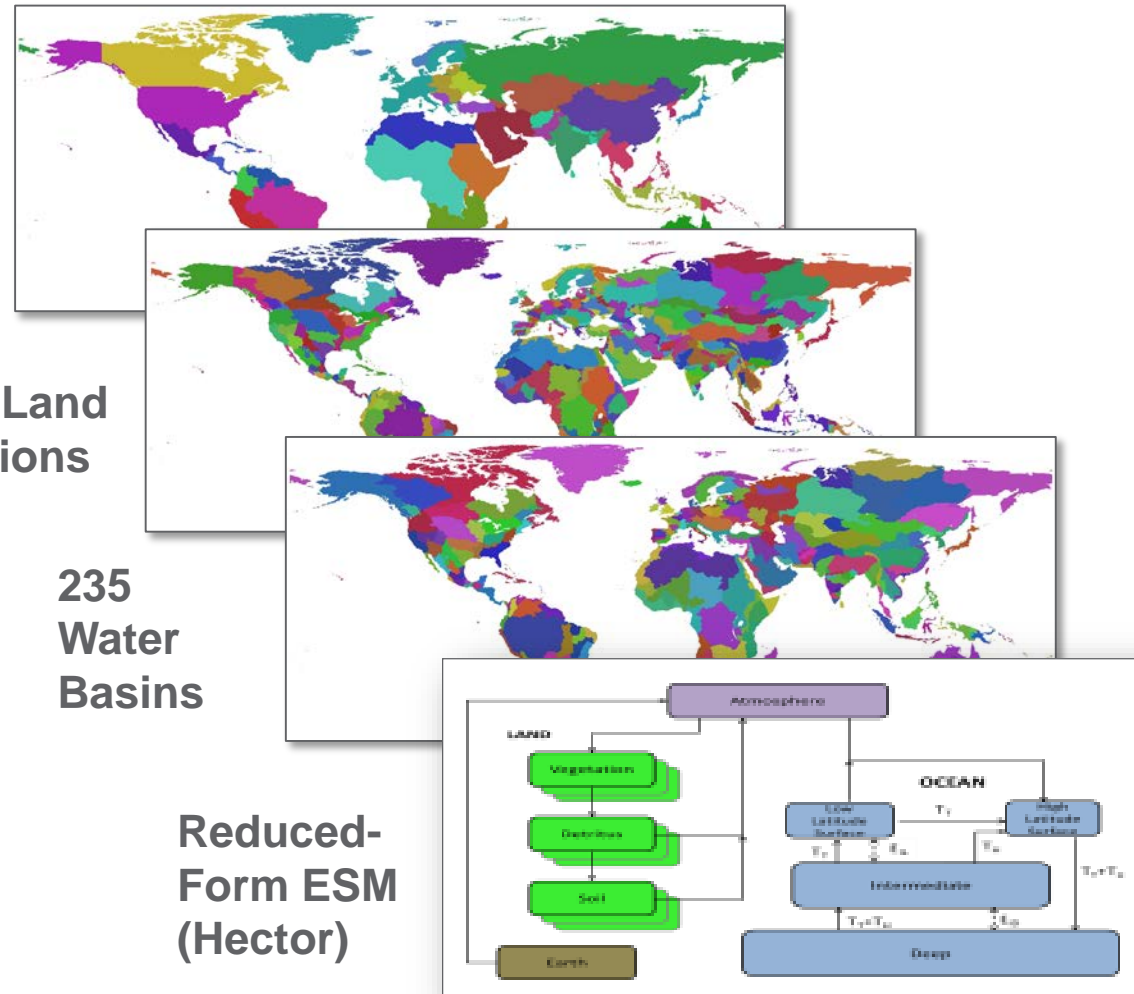
Global Coverage

32 Energy & Economy Regions

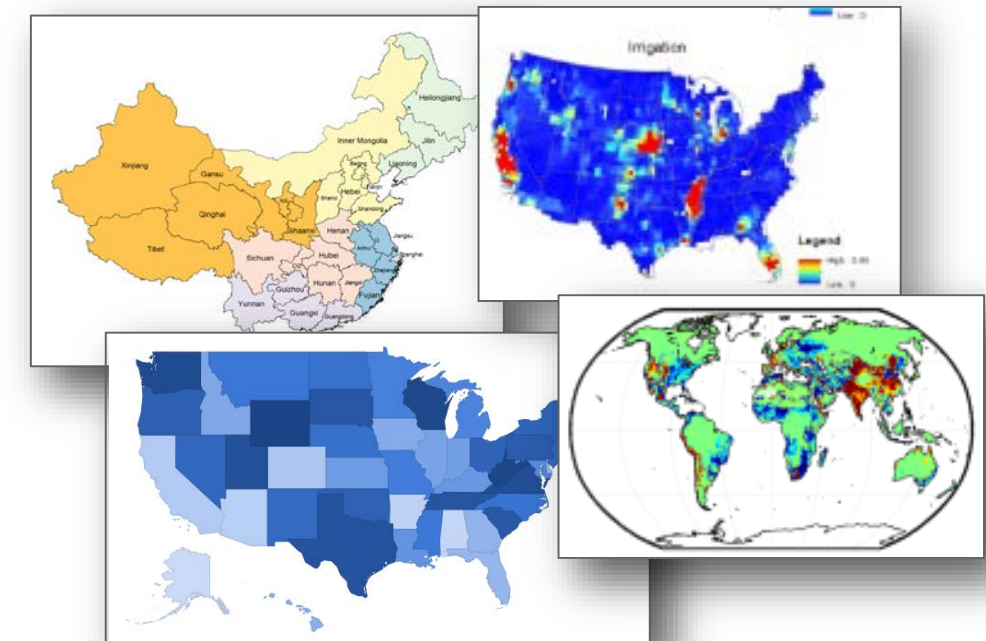
384 Land Regions

235 Water Basins

Reduced-Form ESM (Hector)



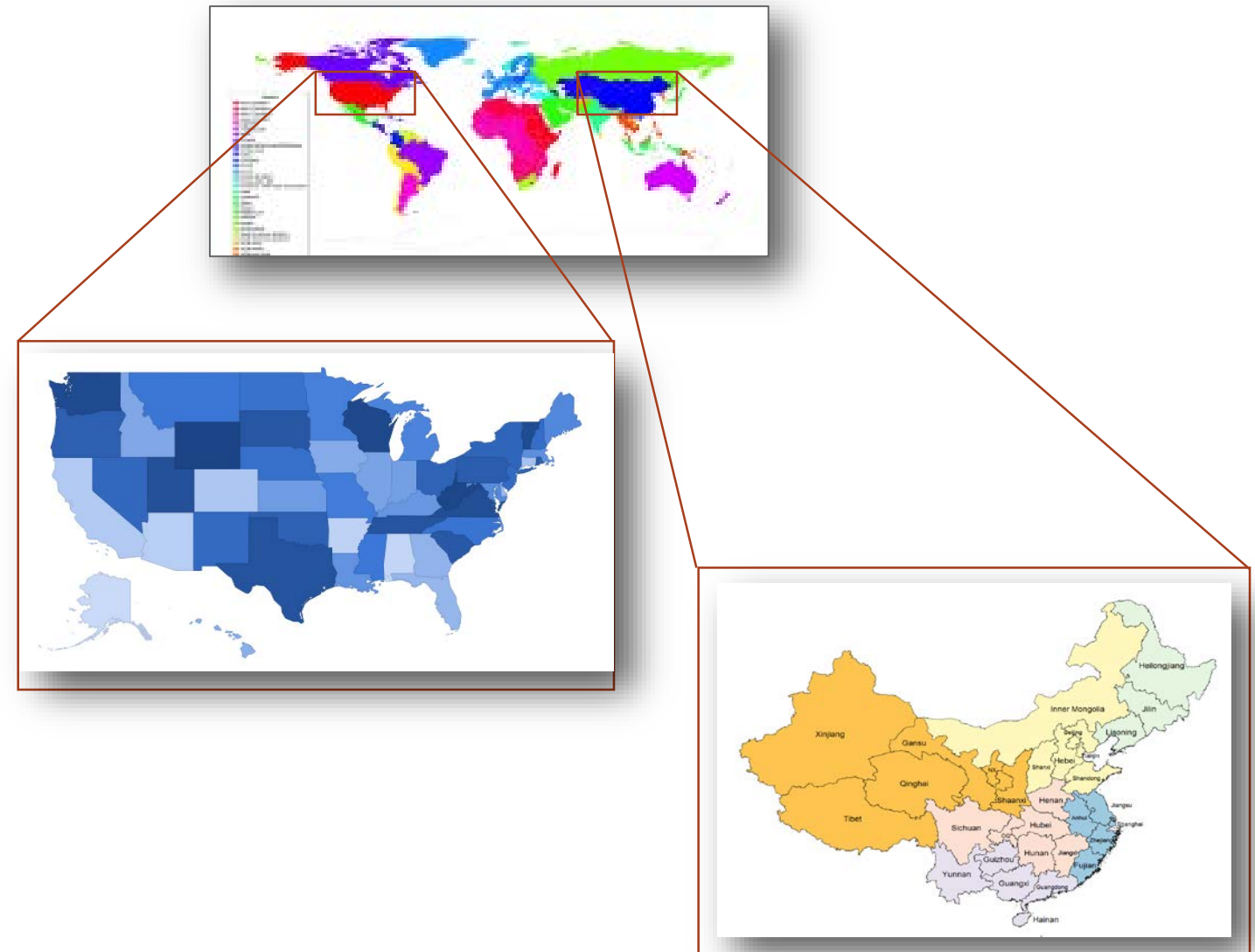
Flexible Scale



Flexible and extensible modeling framework to explore multi-sector dynamics at various spatial scales

GCAM is structured for detailed regional and sectoral disaggregation

- GCAM versions with disaggregated regions include:
 - GCAM-USA
 - GCAM-China
 - GCAM-LAC
 - GCAM-India
 - GCAM-Boston
 - GCAM-Canada
- GCAM-USA is a part of the release version.
- GCAM ecosystem tools (e.g. Demeter and Tethys) can be used to produce information at a gridded level.



Current level of detail in GCAM-USA

Socio-Economics	Energy Resources	Energy Transformation	Final Energy
<ul style="list-style-type: none"> Population Labor Productivity (GDP) 	<ul style="list-style-type: none"> Oil* Coal* Natural Gas* Biomass** Solar Wind Geothermal Carbon Storage 	<ul style="list-style-type: none"> Refining Gas Processing* Hydrogen* Electricity 	<ul style="list-style-type: none"> Buildings <ul style="list-style-type: none"> Commercial Residential Industry Transportation <ul style="list-style-type: none"> Passenger Freight

**Production represented at the national level*

*** Production at Land Region level*

GCAM-USA is embedded within global version of GCAM. Hence state-level outcomes are consistent with international conditions and markets.

Regional Modeling in This Meeting: Today

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- **Leon Clarke/ Sha Yu**: Sub-national modeling and scenario development using GCAM-China



Regional Modeling in This Meeting: Tomorrow

- **GCAM-USA** Breakout session from 1:00 pm to 2:50 pm: **Room 1105**
 - Focused presentations on GCAM-USA capabilities, assumptions, and applications
 - Moderated discussions on future developments