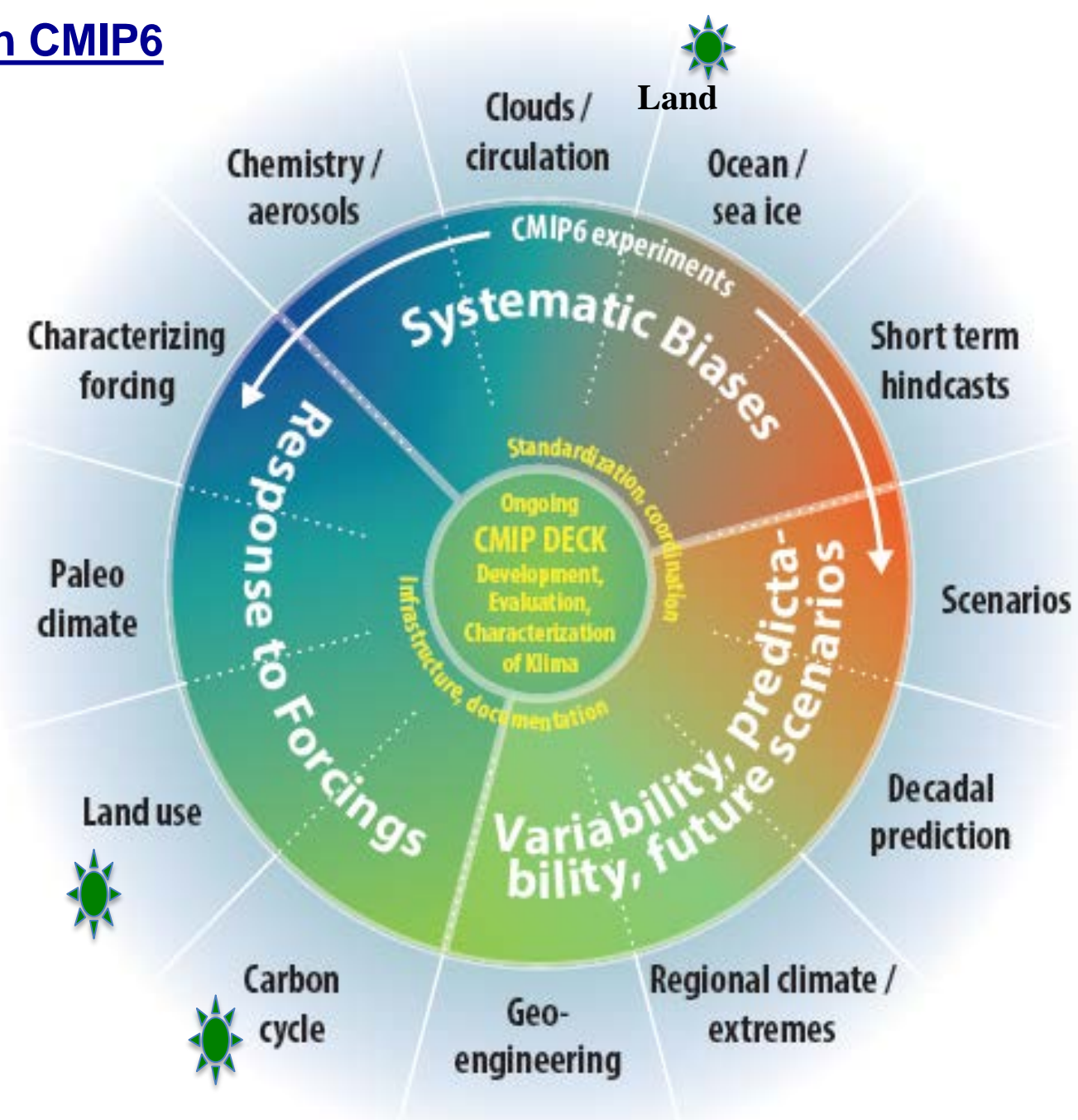


Terrestrial Processes in CMIP6

Collection of coordinated activities to assess land role in climate and climate change

- **Land Only** simulations forced with obs historical climate (GSWP3, CRUNCEP, WATCH, Princeton)
- **Land Use = LUMIP** land use forcing on climate, biogeophysics and biogeochemistry with policy relevance
- **Carbon Cycle = C4MIP** land biogeochemical feedbacks on climate change
- **Land = LS3MIP** land systematic biases and biogeophys feedbacks including soil moisture and snow feedbacks

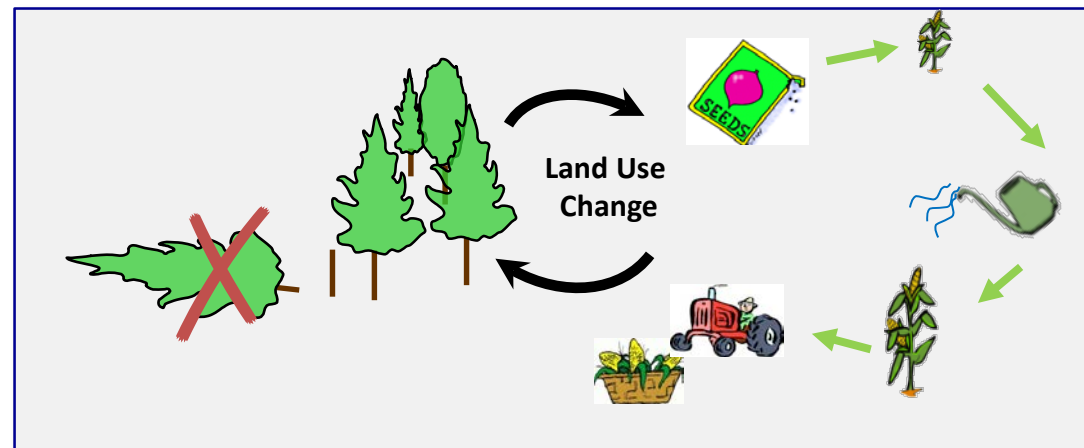


Adapted from Meehl et al., EOS, 2014

Land-only land management experiments

Set of land-only historic (1850 – 2014) simulations with one-at-a-time modification of particular aspects of land management

- 1 Land historical all management
- 2 Year 1700 instead of 1850 start
- 3 No LULCC change
- 4 Alternate land use histories
- 5 No shifting cultivation
- 6 Crop and pasture as unmanaged grassland
- 7 Crops with crop model but no irrigation/fertilization
- 8 No irrigation
- 9 No fertilization
- 10 No wood harvest
- 11 No grazing on pastureland
- 12 No human fire ignition/suppression
- 13 Constant 1850 CO₂
- 14 Constant 1850 climate



Land management in the Community Land Model

Included in default CLM5

- Global crop model with 8 basic crop types; planting, grain fill, harvest
- Irrigation
- Industrial fertilization
- Wood harvest
- Urban environments
- Anthropogenic fire ignition and suppression

Corn*



Winter wheat



Sugarcane

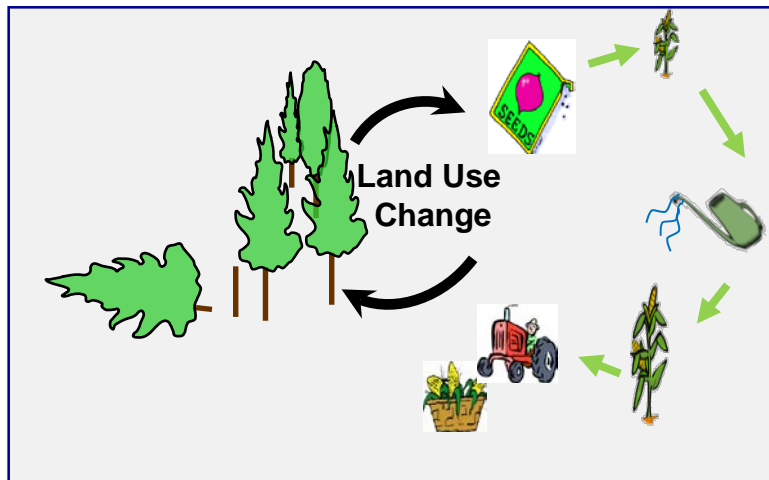


Soy*

Cotton

Rice

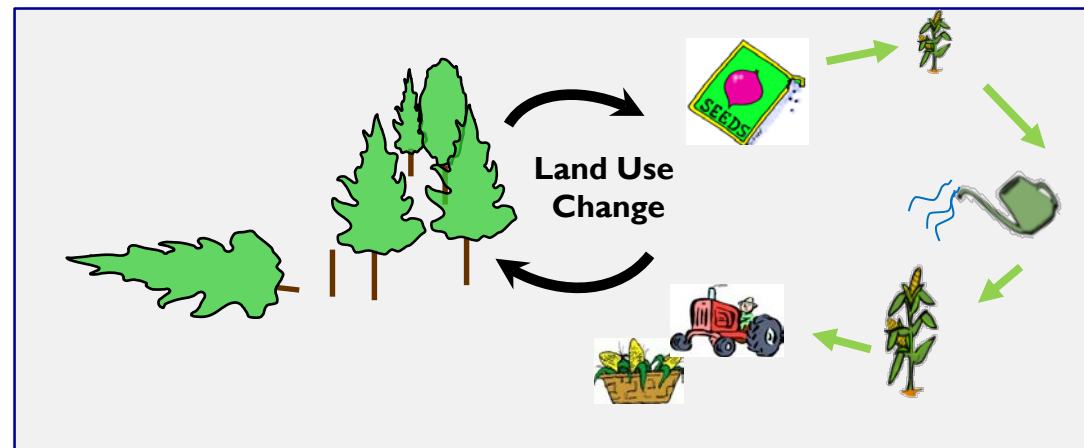
* *Temperate and tropical varieties*



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Set of land-only historic (1850 – 2014) simulations with one-at-a-time modification of particular aspects of land management

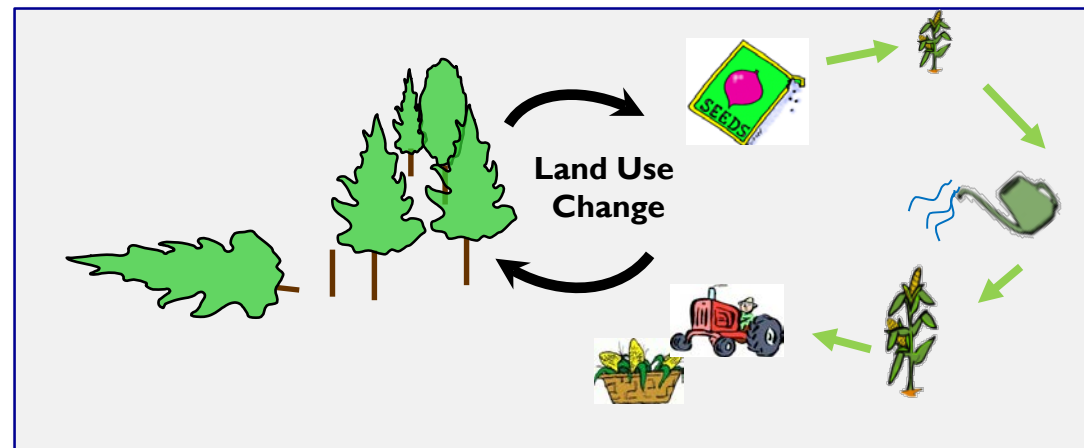
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LUMIP Analysis Plans

LUMIP simulations will be available to anyone who registers for access to CMIP6 data. Below is a list of planned analysis projects. Please add your proposed analysis following the format provided. We recommend that you try to work with other research groups with similar analysis interests to develop projects that are complementary and that minimize overlap. The LUMIP leads are happy to help organize.

Resources

Full list of CMIP6 experiments:

http://rawgit.com/WCRP-CMIP/CMIP6_CVs/master/src/CMIP6_experiment_id.html

(search for LUMIP to get list of specific LUMIP experiments)

LUMIP experimental description paper:

<http://www.geosci-model-dev.net/9/2973/2016/>

Project Title: Climate response to idealized deforestation

Project participants: Victor Brovkin (victor.brovkin@mpimet.mpg.de), David Lawrence, et al.

LUMIP / CMIP6 simulations used: deforest-globe, piControl

Brief Project Description: Assess global and regional temperature and precipitation response across models to idealized deforestation. Data from piControl will be used to establish internal variability.