Component parameterizations requiring re-tuning for ACME land model
Deliverables

• Detailed Plan of Experiments
• Metrics
• Expected Results
• Possible Compromises, Unacceptable Behavior and back up Plan
Detailed Plan of Experiments
- designed for model tuning and parameter optimization

• Simulations at sites along a phosphorus availability gradient in the Amazon region (UQ package will be used to determine some important parameters involved in P cycle dynamics)

• Standard point simulations
  – Representative sites (different combinations of pft, soil texture, climate, soil order...)
  – Super sites
  – Fluxnet sites

• Manipulation experiments at certain sites targeting specific processes
  – Litter addition
  – Fertilization experiments
  – FACE
  – Warming experiments

• UQ Framework and the ILAMB Benchmarking tools to help with model parameter tuning.
Detailed Plan of Experiments

• Global offline simulations
  – Factorial simulations (CO2, climate, N deposition and land use change and all)
  – C, CN and CNP
  – ECA vs Relative demand for representation of nutrient competition
Benchmarking and Metrics

• ILAMB
• Additional evaluation focusing on specific processes, especially the role of nutrients
• C14 datasets
Expected Results

• Finalized parameterization sets ready for coupled model testing
• Publications on site level and global level offline simulations
Coupled model testing and re-tuning

• Changes made in the land model may change atmospheric variables such as precipitation
• Suggesting Atmospheric group to tune their model using the prognostic land model instead of satellite phenology mode
• Integrate land and atmosphere tuning early
Possible Compromises and Back up

• Limited site level simulations we can do
  – A core sets of site simulations

• Any fallback if the new development in land component breaks the coupled simulation?
  – Land team is well prepared. We have different configurations in land model that can be used as needed
Other discussion points

• The question on forcing data when doing the offline parameterization and benchmarking
  – GSWP3 for offline forcing
  – Forrest Hoffman’s poster