

## ***International Land Model Benchmarking (ILAMB) Project Meeting***

Location: Arnold and Mabel Beckman Center of the U.S. National Academies of Sciences and Engineering on the University of California Irvine campus, Irvine, CA USA

### **Agenda**

#### **Monday, 24 January 2011 - ILAMB Conceptual Framework**

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- 7:00 Take shuttle at hotel for travel to Beckman Center on UCI campus
- 7:15-8:15 Breakfast at the Beckman Center (second shuttle departs hotel at 7:30am)
- 8:15 Presentation & Discussion: Welcome & Introductions and ILAMB Project & Meeting Objectives *Organizing Committee*
- 9:00 Presentations: Review of Recent and Ongoing Multi-theme Carbon and Land  
-10:00 Benchmarking Projects
- ***Pierre Friedlingstein (with input from Patricia Cadule)***, Exeter, UK and LSCE, France (20 minutes + 10 minute discussion)
  - ***Eleanor Blyth***, Centre for Ecology & Hydrology, NERC, UK (20 minutes + 10 minute discussion)
- 10:00 Break (Tea and Coffee)
- 10:20
- ***Forrest Hoffman***, Oak Ridge National Laboratory, USA, Carbon-Land Model Intercomparison Project (C-LAMP) (20 minutes + 10 minute discussion)
  - ***Gab Abramowitz***, University of New South Wales, Australia, Protocol for the Analysis of Land Surface models (PALS) (20 minutes + 10 minute discussion)
- 12:00 Lunch
- 13:10 Discussion (Plenary): Designing the first ILAMB benchmarks: What should we try to achieve conceptually? What are most important data sets in key areas and how should model tests be designed using these data? (***Colin Prentice*** discussion leader):
- Biomass and soil carbon stocks (tropical, temperate, boreal)
  - Atmospheric carbon dioxide (seasonal, interannual, decadal, centennial)
  - Ecosystem carbon fluxes (GPP,  $R_e$ , NEE, fire emissions, etc.)
  - Surface energy fluxes (satellite and eddy covariance data sets)
  - Vegetation dynamics (including leaf area, phenology, burned area)
  - Hydrology (including ET and river discharge)
- 15:00 Afternoon Break
- 15:20 Presentations: Review of Recent and Ongoing Model Evaluation Projects
- ***Deborah Huntzinger***, U. of Michigan, NACP Multi-Scale Synthesis

and Terrestrial Model Intercomparison Project (18 minutes + 5 minute discussion)

- **Peter Thornton**, Oak Ridge National Laboratory, USA, NACP Site-Level Synthesis (18 minutes + 5 minute discussion)
- **Silvia Kloster (with input from G.R. van der Werf)**, Max Planck, Germany, Burned area and fire emissions model evaluation (18 minutes + 5 minute discussion)
- **Miguel Mahecha and Nuno Carvalhais** Max Planck, Germany. CarboEurope Model Evaluation (10 minutes + 5 minute discussion)

17:15 Adjourn to informal discussions

17:30 Early Dinner at the Beckman Center

19:00 Take Shuttle back to Hotel

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## Tuesday, 25 January 2011 - Design of the ILAMB System

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7:00 Meet shuttle at hotel for travel to Beckman Center on UCI campus

7:15- Breakfast at the Beckman Center

8:15

8:15 Presentations: New observational constraints for global models

- **Markus Reichstein**, Max Planck, Germany, Fluxnet datasets and globally gridded products (20 minutes + 10 minute discussion)
- **Mac Post**, Oak Ridge National Laboratory, USA, Soil carbon and litter carbon pool datasets (20 minutes + 10 minute discussion)
- **Philippe Ciais**, LSCE, France, Use of satellite reflectance and soil moisture observations to benchmark a land surface model (20 minutes + 10 minute discussion)

10:00 Morning Break: Coffee and Tea

- 10:15
- **Yiqi Luo**, University of Oklahoma, USA, Ecosystem observations for model evaluation (20 minutes + 10 minute discussion)
  - **Joshua Fisher**, Jet Propulsion Laboratory, USA, Evapotranspiration
  - **Soenke Zaehle**, Max Planck, Germany, FACE and experimental soil warming manipulations (20 minutes + 10 minute discussion)
  - **Etsushi Kato and Elena Shevliakova**, JAMSTEC, Japan and Princeton University and GFDL, USA. Evaluating land use change simulations for AR5 (10 minutes + 5 minute discussion)

12:00 Lunch

13:15 Discussion (Plenary): How do we evaluate CMIP5 and TRENDY model simulations with respect to carbon cycle and land model performance? Are there opportunities for coordination and integration (**Chris Jones** leads discussion)?

- Identification of individual themes for model evaluation and interested

- participants (e.g., GPP, fires, hydrology, surface energy exchange, ...)
  - Application of the ILAMB 1.0 Benchmark to CMIP5 output (what this paper might look like?, who might lead?, etc.)
  - Application of an ILAMB 1.0 Benchmark to TRENDY (what should we include?, who might lead?, etc.)
  - Combined analysis of TRENDY and CMIP5 (offline and coupled analysis)
- 14:20 Discussion (plenary): What are the key logistical components needed for a new ILAMB benchmarking system?
- Software design (diagnostic and intercomparison requirements)
  - Model simulation and protocol design (relationship to GCP efforts)
  - Extensions of variable naming conventions beyond CMIP5
  - Model and data archiving
- 15:00 Afternoon Break (Tea and Coffee)
- 15:00 Discussion (plenary): What specific types of model tests should we include on multiple spatial and temporal scales for different components of the **ILAMB 1.0 Benchmark(s)**? Discussion will focus on several themes: Carbon pools, carbon fluxes, disturbance, the surface energy budget, and hydrology. We will rank most important (and readily available) datasets and the most useful cost function structures and graphics for each sector. (*Jim Randerson* leads discussion)
- 16:10 **Change of Venue** — Tour of the *Department of Earth System Science at UC Irvine*
- 17:30 Walk to Catered Dinner at Jim Randerson's house in UCI Campus Village
- 21:00 Bus transport to hotel and/or downtown Laguna Beach
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### Wednesday, 26 January 2011 -Defining ILAMB projects, relationship of ILAMB to other efforts, next steps

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- 7:00 Meet shuttle at hotel for travel to Beckman Center on UCI campus
- 7:15- Breakfast at the Beckman Center
- 8:15
- 8:20 *Chris Jones*, UK Met Office, United Kingdom. The Carbones Project and ILAMB (10 minutes + 5 minutes discussion)
- 8:35 **Discussion (plenary)**: Further discussion of the design of the ILAMB 1.0 benchmarks and coordination of evaluation projects
- 10:00 Break – Tea and Coffee
- 10:15 **Breakout Discussions** – Coordination among individual groups for analyses of TRENDY and CMIP5 output on particular themes (e.g. fires, energy, hydrology, carbon fluxes, interannual variability, land use ...)
- 11:15 **Finalize Naming Conventions** for land model variables in areas not covered by

CMIP5 Review proposal and add/modify conventions circulated before meeting  
(**Forrest Hoffman** leads discussion)

12:00 Lunch at Beckman Center

13:15 Presentation: ILAMB, carbon land model evaluation, and IPCC AR5

- **Michael Prather**, UCI, USA Quantifying and propagating carbon cycle uncertainties for the IPCC AR5 (15 minutes + 10 minute discussion)

13:40 Discussion (Plenary):

- Finalize broad-brush structure of ILAMB 1.0 benchmark (reach consensus on components, data sets, weighting schemes, cost functions).
- Finalize leadership and participants of single theme model evaluation projects

15:00 Break – Tea and Coffee

15:30 Discussion (Plenary)

- Project schedule and timelines and scheduling for future meeting (next meeting should probably occur in Dec 2011 or Jan 2012 to meet IPCC deadlines)
- Assignments for the development of ILAMB modules to individual leads
- ILAMB leadership
- Proposal writing and design (should we aim for a TRANSCOM-like proposal)?
- Meeting summary and meeting publication

17:00 Meeting Adjourns (Shuttles leave at 4:30pm and 5:00pm to airport and hotel)

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