RCN FORECAST New Investigators Conference:
New perspectives on data assimilation in global change science

Organizers:  Jim Clark, Shannon LaDeau, Yiqi Luo, Shuli Niu, Kiona Ogle, and Dave Schimel
Dates:  8-11 October, 2012
Location:  Registration, hotel and meals: Swope Center, MBL, Woods Hole, MA, USA
Meeting room:  Speck Auditorium, Rowe building, MBL, Woods Hole, MA, USA

The conference is organized according to three themes. In each thematic session, there will be a combination of invited talks (30 minutes per talk) and talks selected from submitted abstracts (15 minutes per talk). Breakout discussion is organized on synthetic projects and/or publications. Talks and discussions will be complimented by a poster session, happy hour, free time, and a banquet.

Monday, October 8
Arrival at Woods Hole
Dinner:  5:00-8:00pm

Tuesday, October 9
7:00-8:30  Full breakfast

Opening Session
Chair:  Kiona Ogle
8:30-8:35  Shuli Niu: Introduction and overview of NSF RCN FORECAST:
8:35-9:00  Jim Clark: Objectives of the conference
9:00-9:30  Jerry Melillo: Keynote address: Challenges in data-model integration to improve predictions of biosphere-atmosphere feedbacks

Session I: Data assimilation with multiple data sources
9:30-10:00  Mike Dietze: The PEcAn Project: Carbon-cycle reanalysis facilitated by model-data ecoinformatics
10:00-10:15  Trevor Keenan: Using model-data fusion to learn what data can tell us about terrestrial carbon cycle models, and vice-versa
10:15-10:45  Coffee break
10:45-11:15  Andrew Latimer: Using data from different scales to model plant population responses
11:15-11:30  Kai Zhu: Assessing climate change impact on forest biodiversity by assimilating juvenile and adult responses
11:30-12:00  Juan Morales: The challenges of linking movement and population dynamics
Radhika Dhingra: Spatially-explicit simulation of ecological responses to climate change: data assimilation issues in estimating shifting population patterns of the Lyme disease vector, Ixodes scapularis, in the presence of environmental change

Lunch

Session II: Data assimilation with diverse scales of processes
Chair: Jim Clark

13:30-14:00 Mat Williams: Pattern and process - constraining carbon cycling in space and time
14:00-14:15 Zhuosen Wang: Assimilating MODIS data into regional hydro-ecological model (RHESSys)
14:15-14:45 Ines Ibanez: Integrated assessment of biological invasions
14:45-15:00 Adam Wilson: Constructing a high resolution global daily weather dataset: assimilating remotely sensed, topographic, and station data

15:00-15:15 Coffee break
15:15-17:00 Breakout groups: Discussion on synthetic projects/papers
17:00-17:30 Group reports
17:30-18:00 One-slide presentation of posters
18:00-19:00 Poster session (drinks and snacks served)
19:00 Dinner

Wednesday, October 10

7:00-8:30 Full breakfast
Chair: Shannon LeDeau
8:30-9:00 Yiqi Luo: General talk: Nonautonomous system of carbon cycle: Theoretical understanding to facilitate data-model integration

Session III: Applications of data assimilation

9:00-9:30 Matt Ferrari: State space models in public health: assessing performance from imperfect data
9:30-10:00 Ephraim Hanks: Modeling drivers of animal movement
10:00-10:15 Lauren Buckley: Functional approaches to forecasting insect responses to climate change
10:15-10:45 Coffee break
10:45-11:15 Sasha Hararuk: Evaluation and improvement of two global land models against soil carbon data using a data assimilation approach
11:15-11:30 Wonsik Kim: FluxPro as a real-time data assimilation system
11:30-12:00 Perry DeValpine: Future directions for computational methods and software
12:00-13:30 Lunch time
Chair: Shuli Niu

13:30-14:00 Mevin Hooten: Top-down versus bottom-up approaches to modeling dynamic epidemiological processes

14:00-14:15 Bardan Ghimire: Quantifying parameter equifinality, uncertainty and variability using model-data fusion in a recently clear-cut temperate forest ecosystem

14:15-14:45 Scott Loarie: Quantifying barriers to pronghorn movement

14:45-15:00 Phoebe Zarnetske: Predicting the effects of climate change on communities of species

15:00-17:30 Free time or self-organized discussion groups

18:00 Banquet (Lobster Boil or your choice)

Thursday, October 11

7:00-8:30 Full breakfast

Closing session: Challenges and opportunities

Chair: Yiqi Luo

8:30-9:00 Terry Chapin: Predictive ecology and earth system stewardship

9:00-9:30 Kiona Ogle: Strategies for applying individual-based models at regional to continental scales

9:30-10:00 Tim Jupp: Fitting the seasonal cycle with ADJULES

10:00-10:30 Coffee break

10:30-11:00 Jim Clark: Future opportunities and challenges to develop predictive ecology

10:10-12:00 Discussion and summary: Future challenges and opportunities to use DA to address ecological issues

12:00 Adjourn (bag lunches to pick up)