

**Ken**

- Making the map is not the solution. It is a good start and comparing uncertainty in multiple products is very useful
- Need to pay attention to process understanding
- Carbon is getting all the attention but there is opportunity to model water fluxes too.
- Diagnosing (primarily spatial) and predicting (spatial and temporal) future carbon and water fluxes.
- ChEAS region is useful for forest management and diagnosis problems.
  - Strength of ChEAS: great flux data and ancillary data
  - QC of flux data and database management needs to be addressed

**Ankur**

Ankur found new data which would be a good addition to the existing long term data.  
QA/QC should be revisited

Main work done in his group

- making data available online
  - Data harmonization
  - PeCAN Phenocam [www.pecanproject.org](http://www.pecanproject.org)
  - CH<sub>4</sub> sensor at WLEF
  - Lake flux
- Buffam et al 2011 GCB

**Jonathan**

Is the best person to contact if you want to start measurements at Ankur's sites

**Erika**

- Soil organic matter in successional forest
- Physical fractionation to separate soil organic matter.
- Soil C cycling looking at the stable isotopes and radiocarbons.
- Landscape scale soil organic matter dynamics

**Claire**

- Assessing forest thinning impacts on soil C emission with radiocarbon
- Thinning could enhance more decomposition and influence of physical and biological drivers
- Measurement of C<sup>14</sup> traces in soil air across the entire profile
- Radiocarbon signature in the atmosphere helps to separate that out
- WLEF measurements at 140 m
- Impact of disturbance (thinning) on radiocarbon signature in the atmosphere
- Not seeing any decomposition of old C
- C<sup>14</sup> is not a good way to distinguish respiration

**Peter**

Gough et al 2008, bioscience

In theory NEP should go to zero in old forests but there are multiple evidence of substantial C storage in forest >200yrs

Hardiman et al 2011, Ecology

- Measures of canopy complexity and NEP are correlated and have similar relationship with age

- Forest can have same LAI but different complexity or spatial structure. More complex canopies handle light better. LUE is related to rugosity of canopy.

Gough et al 2010 fem

- Higher biodiversity = greater ecological resilience

- The response of NEP with time could have continued C storage due to change in canopy complexity/rugosity

Nave et al 2011 JGR Biogeosciences

- Ecosystem LUE is improving with aspen mortality

- Light penetration is better with aspen mortality.

- Impact of disturbance on LUE in ChEAS region???

- Forest ecosystem resistance/resilience to gradients of disturbance

- Mechanism of canopy level response to changing structural and biotic complexity

### **Dong**

- Impacts of forest harvesting and prescribed fire on C storage and exchange in northern temperate forest (Century results)

- Simulate the impacts on harvesting and prescribed fire on C storage

- Provide potential options and approaches for forest management

- Century model at willow creek

### **Mike**

- Predictive Ecosystem Analyzer

LeBauer et al

- Shawn from mike's lab is a good contact person for data

- AVIRIS data and using ED2 in data-model assimilation framework

- Foliar nitrogen and temperature is interesting to look at stomatal conductance and photosynthesis

- Vcmax, N, SLA from AVIRIS

### **Aditya**

- How do PFTs change across the gradients of disturbance and climate

- Implication of PFT patterns

- Genetic differences in aspen

- Functional traits

- AVIRIS data from willow creek

- Leaf nitrogen, LMA, Fibre/lignin/cellulose, Leaf d15N, Chl conc., Vcmax and jmax

### **Bruce**

- GLiHT Lidar Hyperspectral Thermal

- Multiple sensors in the same package

Rosette et al 2011 Silvilaser

- Two Lidar acquisition 7 year apart for disturbance around WLEF
- Relationship of ANPP (biomass) and age is saturating curve
- Neigh et al 2012 disturbance mapping especially insect damage
- Decreasing trend in NDVI with time and no explanation for it

**Linda**

- Climate change response framework
- Vulnerability assessment
- Mitigation assessment
- Adaptation tools
- Collaboration opportunities
- Ecosystem vulnerability assessment and synthesis (EVAS)
- Evaluate key ecosystem vulnerabilities
- Climate change tree atlas
- Landis II is being used
- Forest carbon sequestration and mitigation
- Mitigation options
- Forest management
- Rotation ages
- Harvest strategies
- Forest density
- Harvest intensity
- Carbon accounting and climate change mitigation
- Compare life cycle analysis
- Second phase of modeling and mitigation
- Forest adaptation resources
- climateframework.org

**Bjorn**

PaleON

**Robert**

- Goals: remote sensing opportunities and challenges
- What is the role of remote sensing in C cycle science?
- Management-assess and map to aid planning
- Modeling-state variable or parameter initialization
- Separating real from false change
- State change (forest to parking lot), cyclical change (clearcut followed by succession) and condition change (disturbance-insect drought stress)
- Timing magnitude and disturbance: ChEAS
- Disturbance signal varies by spectral index
- How do we characterize C when trees are dead or when they are salvaged
- No dataset is available to cross validate
- How to bring long and slow processes in models?

-How to represent in accounting?

Bruce-lidar data is a good cross validation product for Robert's product and Linda is a key source for validation and attribution process.

-Willow creek is being used for pre- and post harvesting lidar flight and evaluate management activities.

-Linda-already using SRGL lidar looking at small scale

-How to integrate best quality of long term change and marry that to lidar

-Lidar is change in terms of sensors and methodologies and it is difficult to compare datasets

-Where are the biggest hole in the data collection, maybe there is something occurring more commonly in space and we don't have any data on it.

-Where and how we should be sampling based on disturbance

-Looking at the soil and hydrology and its influence on carbon fluxes

-Land type association which considers land type, soil, hydrology and nutrients, vegetation, past disturbances. Linda is willing to provide these maps

-Look at the representation of our flux sampling based on Linda's maps

-Put all the data together on ChEASII server-Robert need to check if he can access it

-Representativeness of the spatial distribution