June 27, 2012
5 Minutes talks

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 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
-CH4 sensor at WLEF
-Lake flux
Buffam et al 2011 GCB

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

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

Claire
-Assesing forest thinning impacts on soil C emission with radiocarbon
-Thinning could enhance more decomposition and influence of physical and biological drivers
-Measurement of C14 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
-C14 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

June 28, 2012
Workshops

Mike
Barriers to modeling
Improving models needs to be a community effort
Models represent our current understanding of the system
Good for forcasting
Datastream is one way traffic field-model
No feedback loop
Put simple informatics in front of each process
Workflow
Transparency
Repeatability
Accessibility
PeCAN
www.betydb.org-online model for biofuels

Linda
WDNR website for landtype association data
FSGEODATA clearinghouse
http://fsgeodata

Great lakes ecological assessment

Robert's workshop
Ankur suggested that remote sensing folks should think about producing data based on flux tower based 1 km2 for people who don't work on spatial scale.
Defining a boundary as a group to communicate data and products.
Assign people may be Bruce and Robert and Shawn to create images for GIS data
7X7 km layers for all the towers and larger 10X10 km around wlef.
Put linda's map and tower in xyz and see how many landform units towers cover/represent
What is the list of RS variables people think and where we can find them.

NIACS
www.nrs.fs.fed.us/carbon/tools
human-natural environment, usda
foloow-up with pecan