



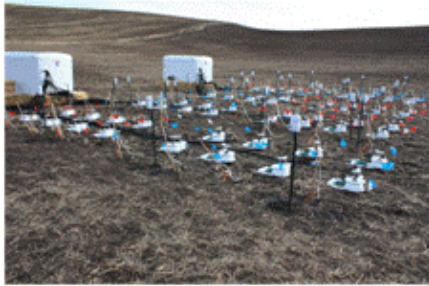
REACCH
Regional Approaches
to Climate Change –
PACIFIC NORTHWEST AGRICULTURE

**Annual
Meeting 2013
Speed Science
Presentations**

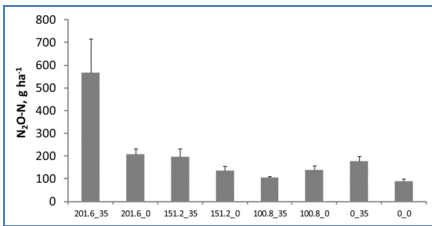


Integration of Chamber, Tower and Modeling Methods to Determine Greenhouse Gas Baselines for REACCH AEZs

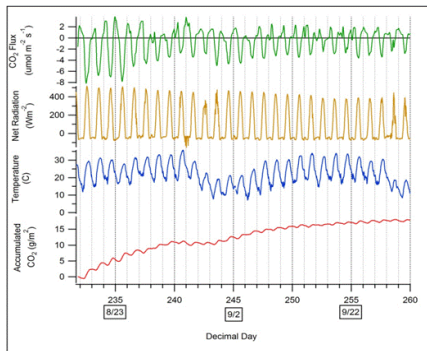
Sarah Waldo, WSU & the Objective 2 Monitoring Team



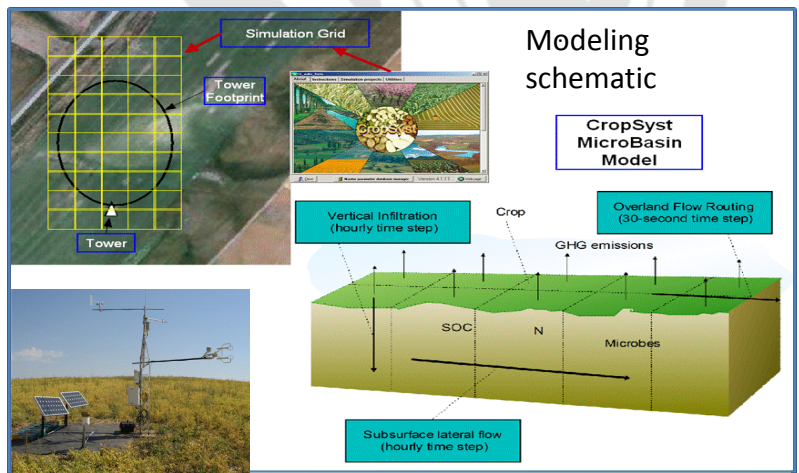
Objective 2 has a goal of determining current baselines for N₂O emissions and carbon dioxide uptake across the AEZs in the Northwest. We have adopted a multi-scale approach that employs arrays of surface enclosure chambers at the plot scale and instrumented flux towers at the field scale for several locations across the region. These long term measurements will be used to evaluate and improve the CROPSYST model, and then, the model will be used to provide AEZ estimates of long term N and C fluxes.



Measurements from chamber experiments and from paired tower flux sites will also be used to determine the effects of different crop management systems upon GHG baselines. These results will be used with the model to assess effective ways to mitigate GHG emissions and to enhance C sequestration within the Northwest cereal cropping systems.



The integration of measurements and modeling will take advantage of wind and water erosion measurements and remote sensing to construct C and N budgets at selected sites.



Top: Large array of 64 enclosure chambers deployed at the Cook Agronomy Farm.
Middle: Total N₂O-N loss between the period of April-Oct. 2012 in a microplot chamber study.
Bottom: Flux tower results (green line: CO₂ flux, yellow line: solar radiation, blue line: temperature, red line: accumulated C uptake.)

This presentation was given at REACCH 2013 Annual Meeting. This handout and supplemental video are available at reacchpna.org. Funded through Award # 2011-68002-30191 from the USDA National Institute for Food and Agriculture.



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