

# NACP @ AGU

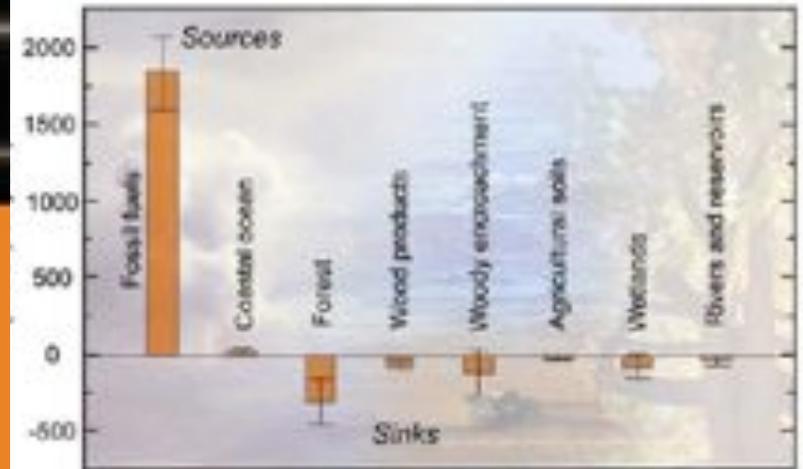
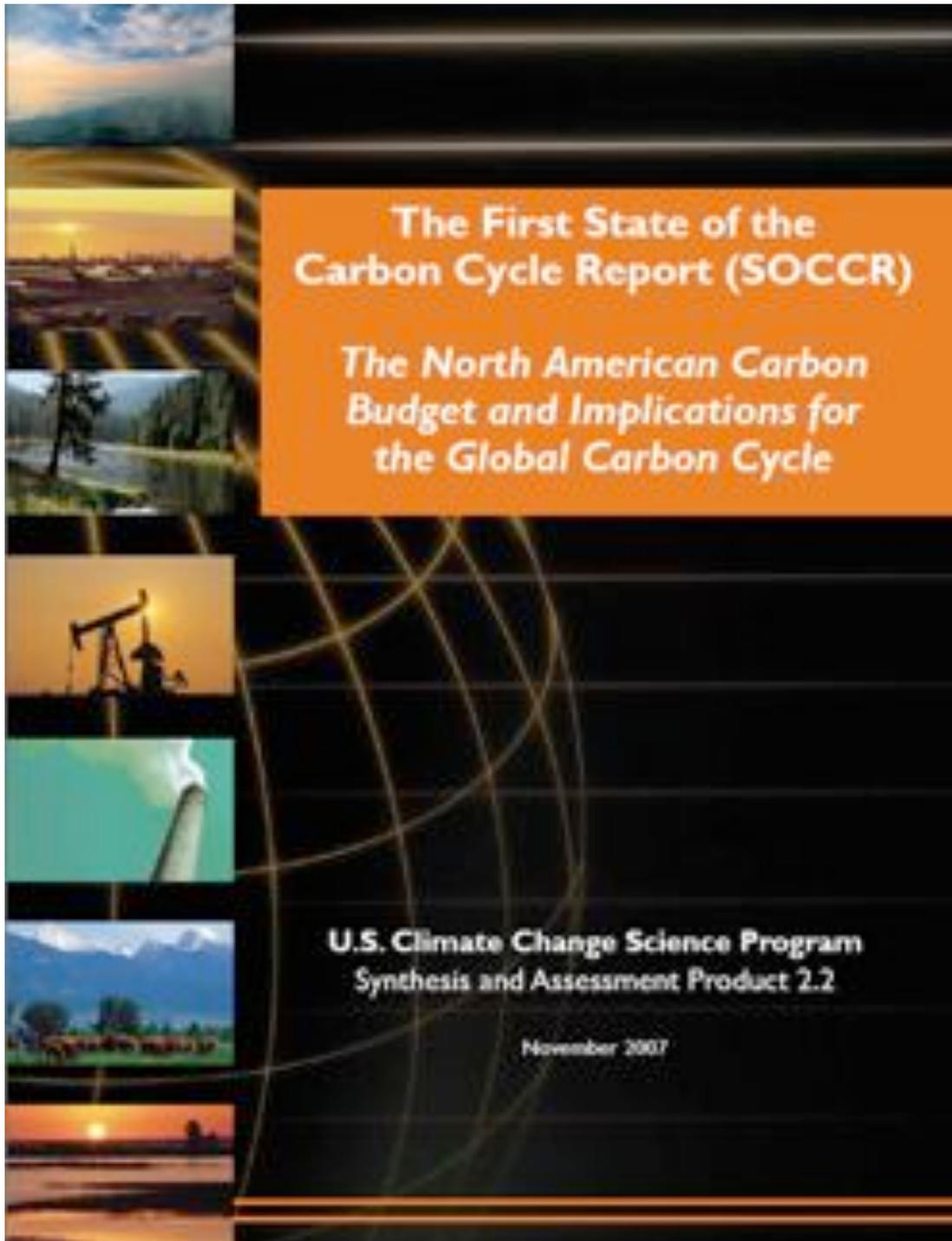
## Agenda

1. Scott Denning (10 minutes)  
Status of NACP & "Interim Synthesis"
2. Peter Thornton/Bev Law (10 minutes)  
Draft NACP Synthesis Roadmap
3. Bob Cook (10 minutes)  
NACP Model-data Intrcomparison
4. General Discussion (30 minutes)

# NACP Status

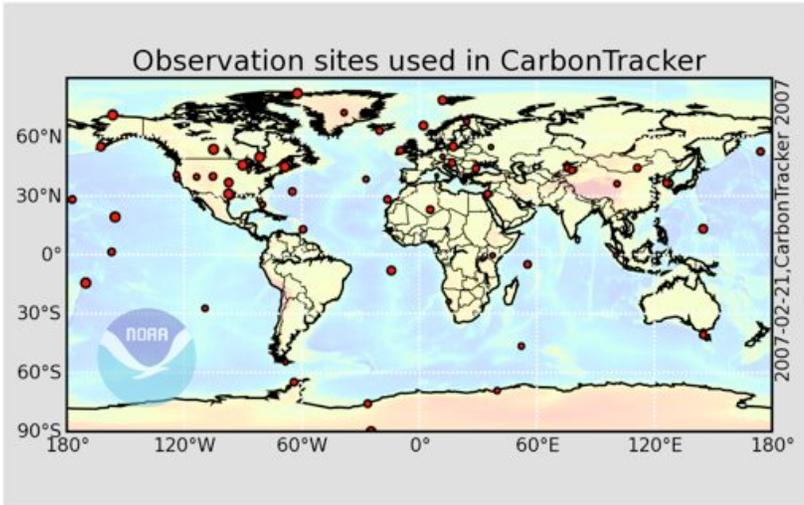
## December, 2007

- About **200 funded projects**, plus new selections and ongoing lab-based work
- **Hundreds** of peer-reviewed publications listed on NACP website
  - (update your project profiles!)
- State of the Carbon Cycle **Report**
- 90 papers in regional carbon cycle **session this week** (Thurs-Fri)

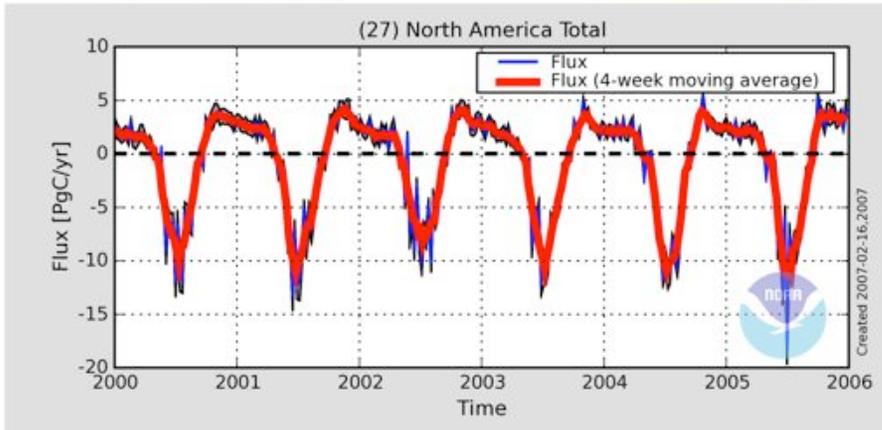
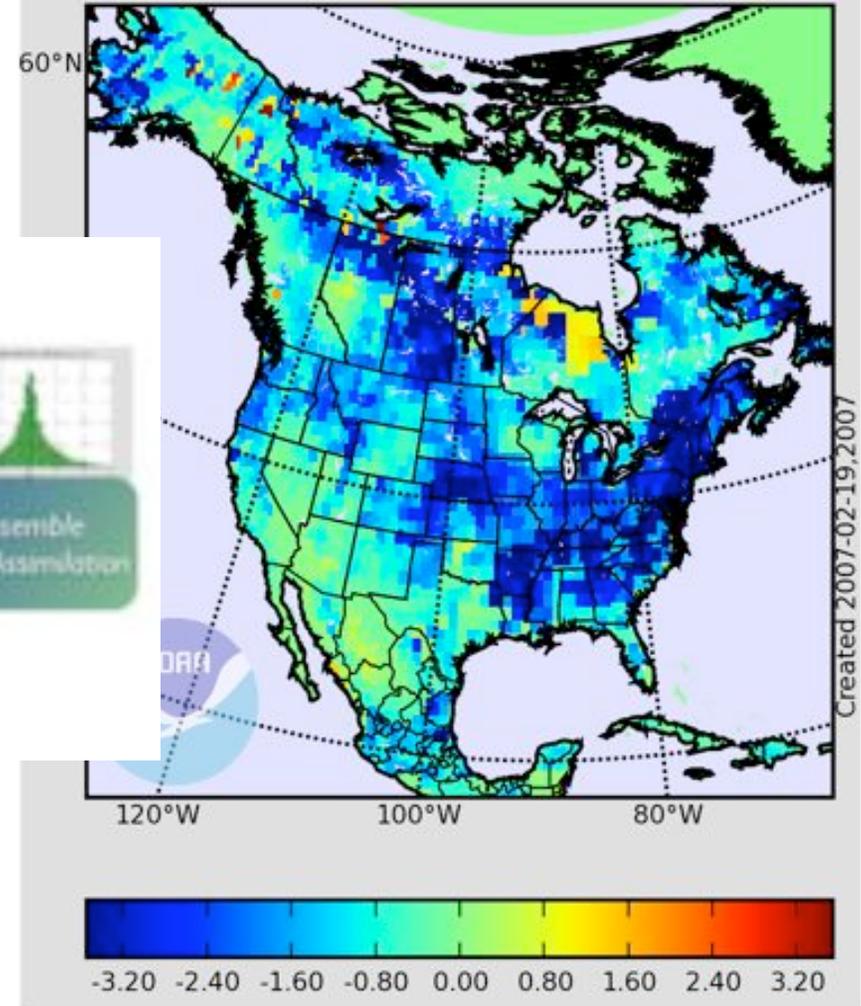


- Comprehensive assessment of sources & sinks
- Based on bottom-up inventories

# CarbonTracker



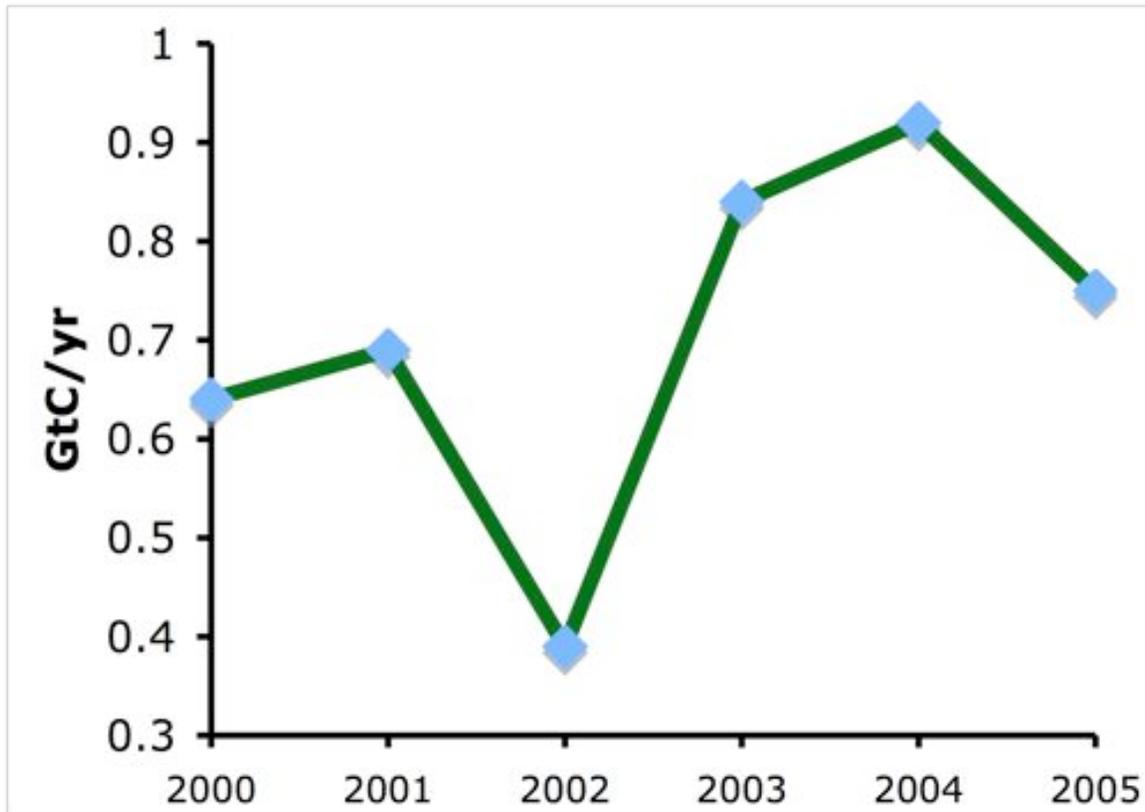
weekly mean flux [ $\mu\text{mol}/\text{m}^2/\text{s}$ ]  
for 2004-07-03 +7 days



Peters et al, *PNAS*, 2007

# CarbonTracker Result

## North American Sink Strength

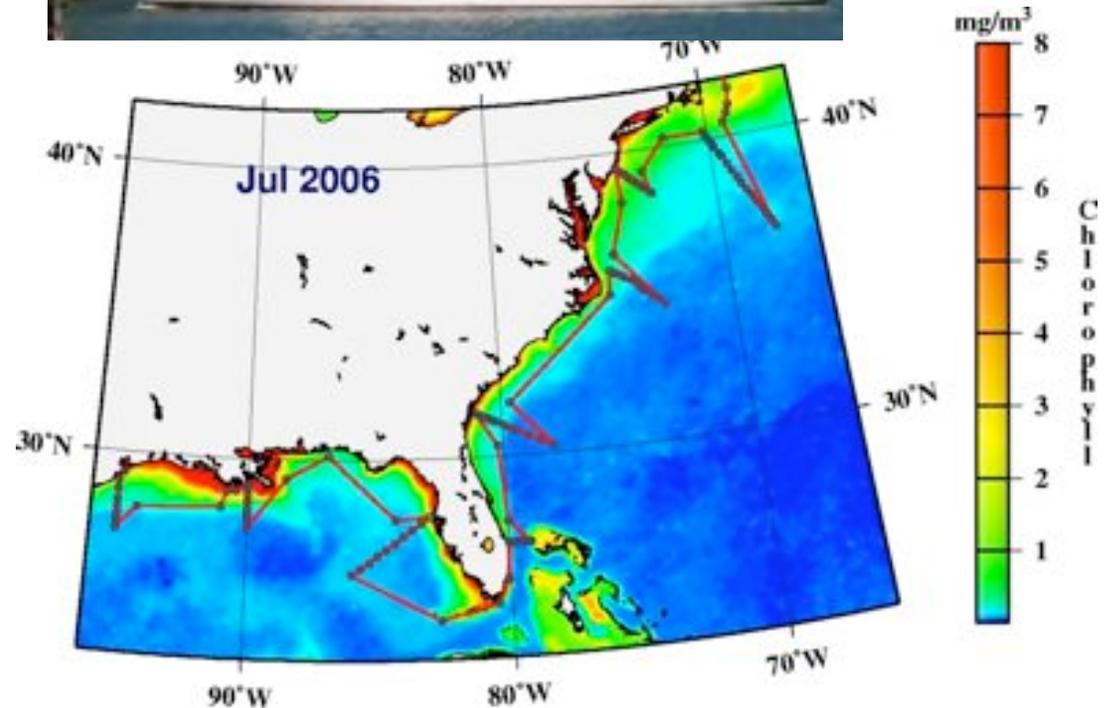
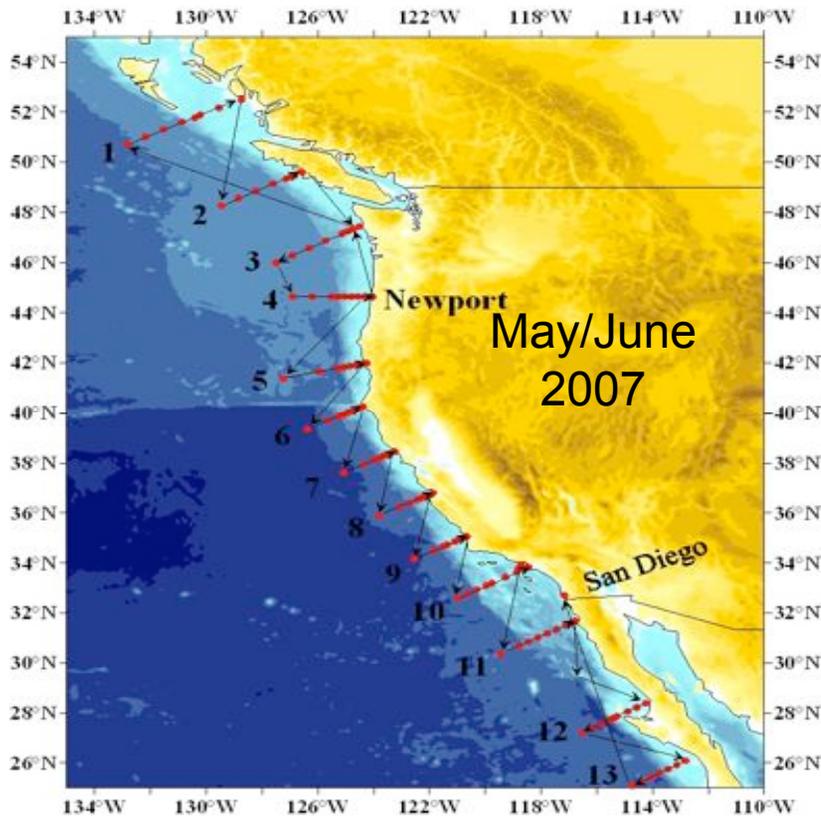


- Based on top-down constraint
- Consistent with SOCCR budget in time mean
- Interannual variations ~100%

<http://carbontracker.noaa.gov>

# NACP Coastal Oceans Carbon Cycle

NOAA PMEL, AOML

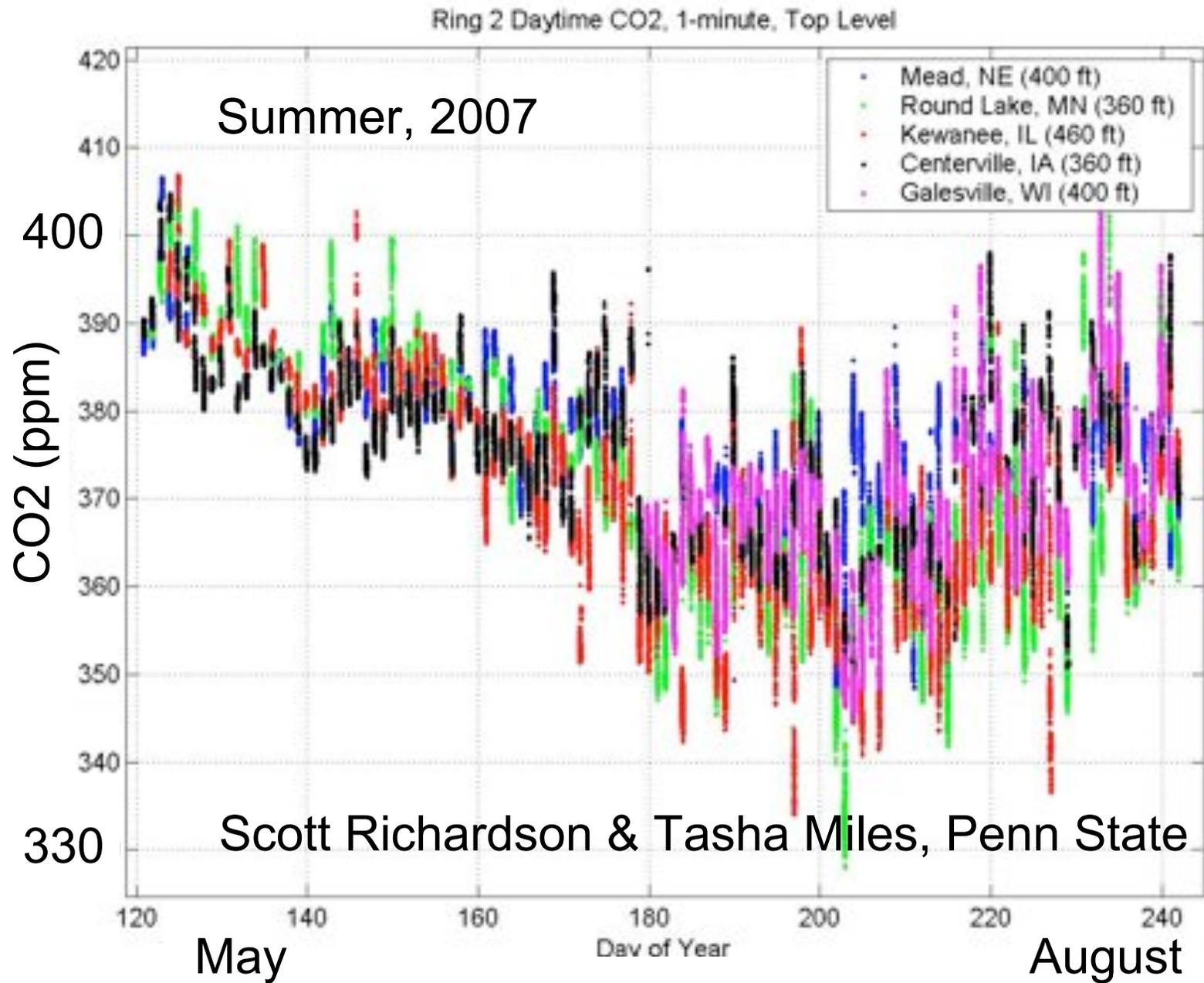


- First comprehensive characterization of carbon dynamics in coastal zones
- “Poster Child” for international collaboration!

## Continuous, Well-Calibrated CO<sub>2</sub> Measurements in North America



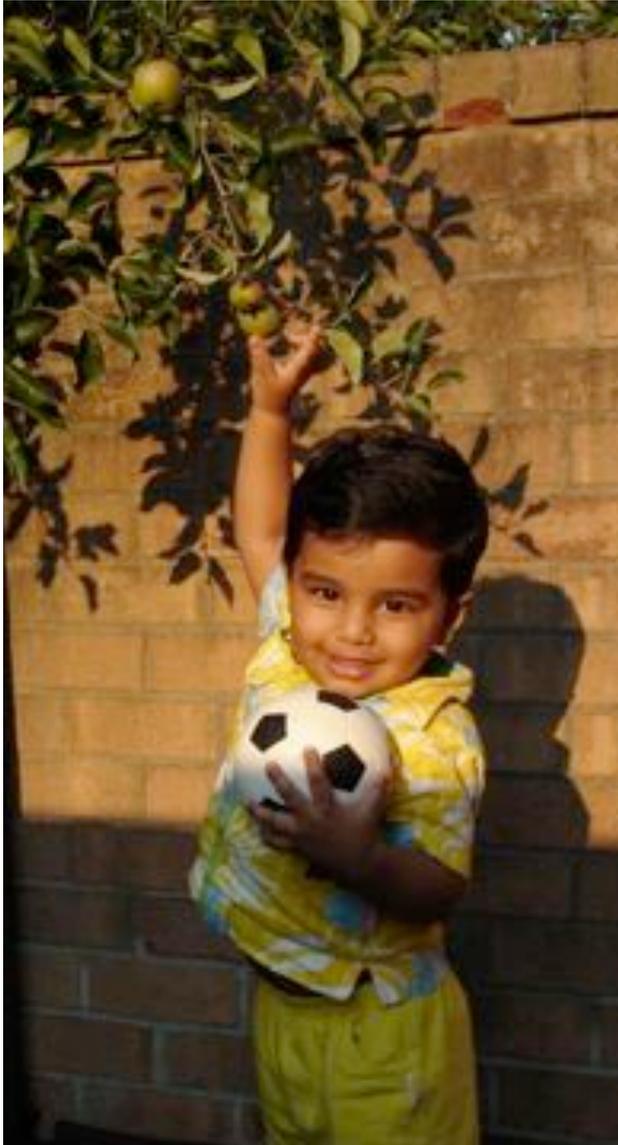
# Corn, as seen from 400 feet up



# "Interim Synthesis"

- Lots and lots of great data & science!
- Agencies under pressure to show that effort is paying off
- Can we "answer" the Big Questions?
- Work is still going on, and new research is just beginning
- Carbon Cycle Agency program managers encourage us to define interim synthesis products

# “Low Hanging Fruit”



- Evaluate and **explain huge interannual variability** on regional-continental budget?
- Compare budgets obtained by **complementary methods**:
  - Bottom-up inventories (FIA, USDA, DOE)
  - Remote sensing and modeling
  - Atmospheric inversion and data assimilation
- Evaluate and **intercompare models and observations** at local and regional scales
- Compare & **contrast regional controls** (MCI vs ORCA vs Northeast vs Oklahoma)

# More Low-Hanging Fruit



- **Non-CO<sub>2</sub> Greenhouse Gases (CH<sub>4</sub>, CO, N<sub>2</sub>O)**
- **Mississippi River/Gulf of Mexico**
  - Mid-continent agriculture & runoff
  - River transport of C and nutrients
  - Delta discharge, sedimentation, BGC
  - Coastal-zone eutrophication & fisheries
  - Coastal flooding & climate change
- **Impact of ethanol production on carbon cycle, agriculture, and atmospheric CO<sub>2</sub>**

# Next Steps

- Bob Cook will present emerging plans for NACP Model-Data Intercomparison project
- Peter Thornton, Eileen Hoffman, & Bev Law are drafting a document to be discussed next
- Agencies have agreed to entertain proposals for NACP Synthesis Workshops in 2008
- Plan to have exciting results at next NACP Investigators' Meeting (early 2009)