

Bondville Ameriflux Network

Investigators

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Tilden Meyers³

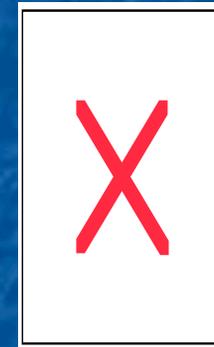
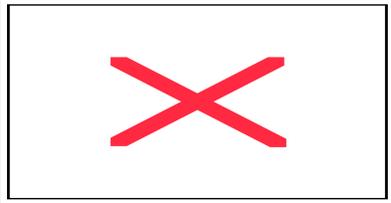
Ken Kunkel¹

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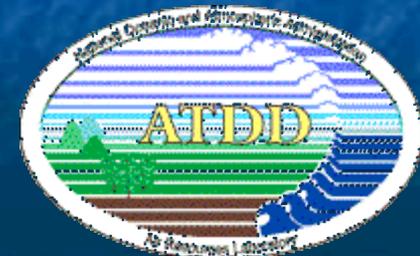


¹Illinois State Water Survey

²University of Illinois

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⁴University of Alabama



On-Going Activities:

- Eddy Covariance
 - No-till Maize
 - No-till Soybean
 - Conventional-till maize/soybean (alternating)
- Biomass Measurements (above- and below-ground)
- LAI
- Soil Respiration (one no-till field)
- CO₂ profiles (one no-till field)

Long-term objectives

- Characterize variability within fields in the Bondville area (e.g., Bondville Intensive)
- Quantify variability over large area through collaboration (Batavia, IL; Iowa; Nebraska)
- Identify effects of cultivation on ecosystem, vegetation and soil C fluxes
- Identify climate feedbacks on fluxes associated with each cultivation
- Link eddy Ameriflux sites with SoyFACE

SoyFACE: Soybean Free Air Gas Concentration Enrichment



SoyFACE: Soybean Free Air Gas Concentration Enrichment

- Control
- Elevated CO₂
550 ppm [CO₂]
- Elevated ozone
Ambient + 50%
To 22%
- Elevated CO₂ X ozone
550 ppm [CO₂]
Ambient + 50%

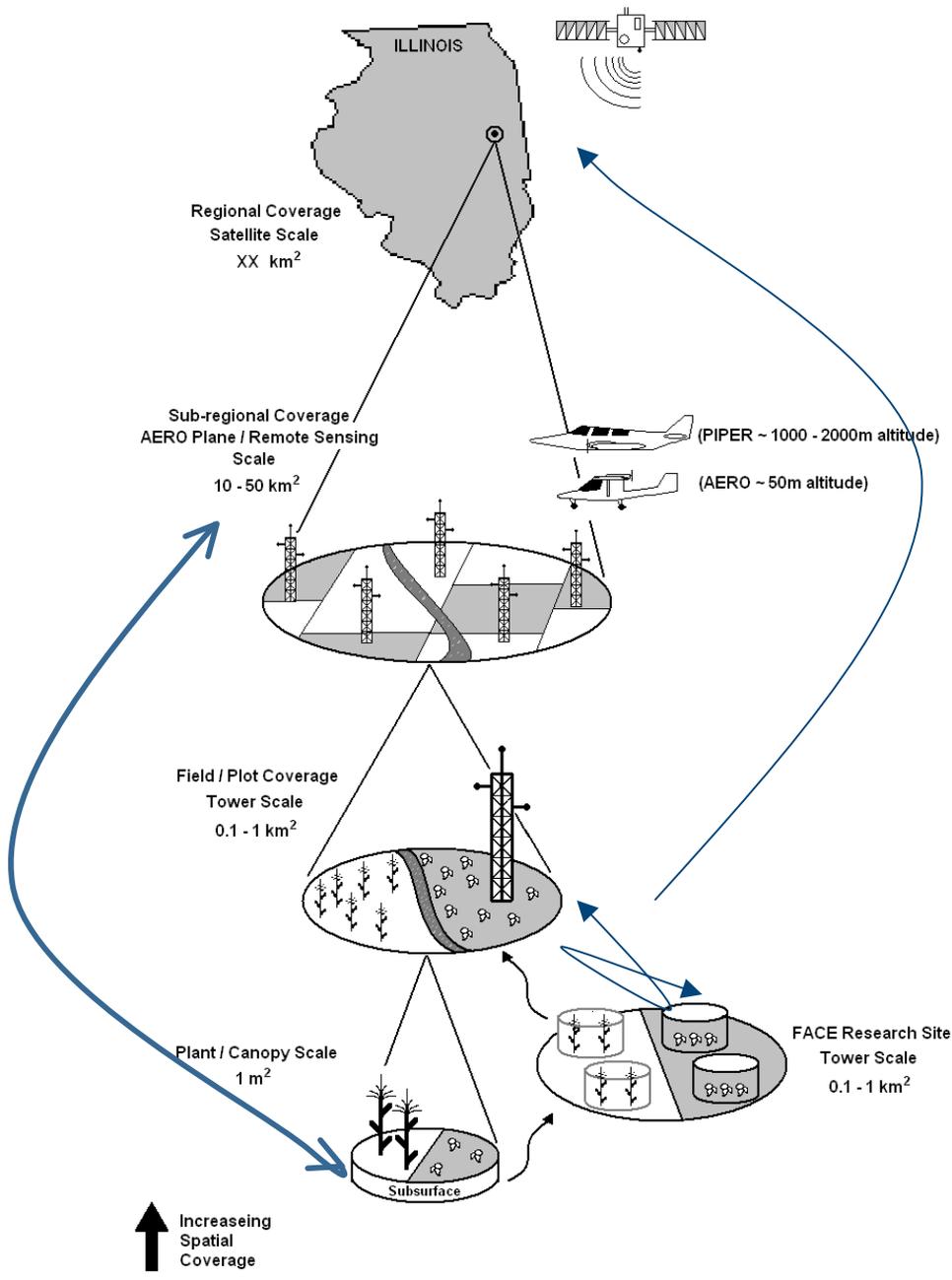


Bondville Ameriflux link to SoyFACE

- Link the extensive measurements done at the molecular to the canopy level for the control plots at SoyFACE to the long-term high frequency measurements at the Ameriflux fields
- Extrapolate the linkage between control plots and eddy covariance to anticipate fluxes in CO₂- or ozone-rich atmospheres
- Long-term objective: obtain funding for additional eddy-covariance towers at SoyFACE

Bondville Ameriflux link to Tall Tower

- The Illinois State Water Survey administration has agreed to negotiate for access to a local tall tower
- Established cooperation between the University of Illinois, Illinois State Water Survey, local Farm Bureau, and local media
- We expect low to negligible costs for tower access and through the combined research in area we may provide support to tower operations



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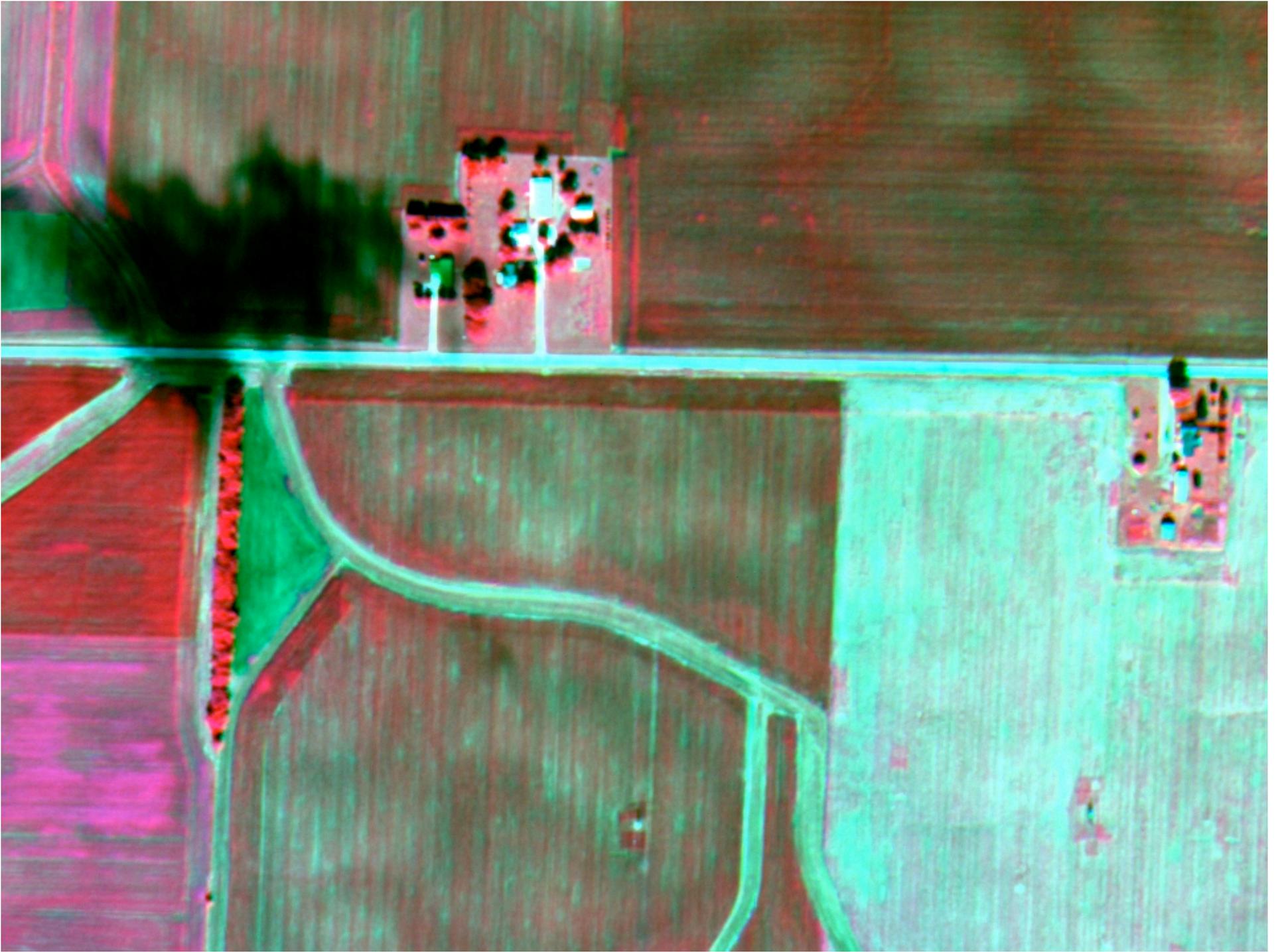
Tracy twine UIUC

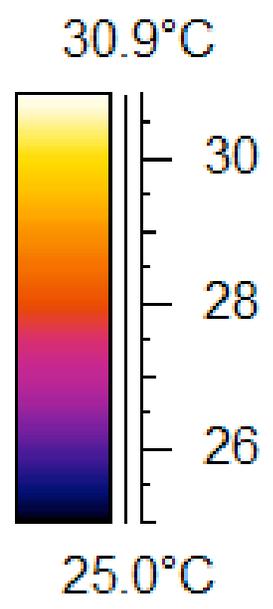
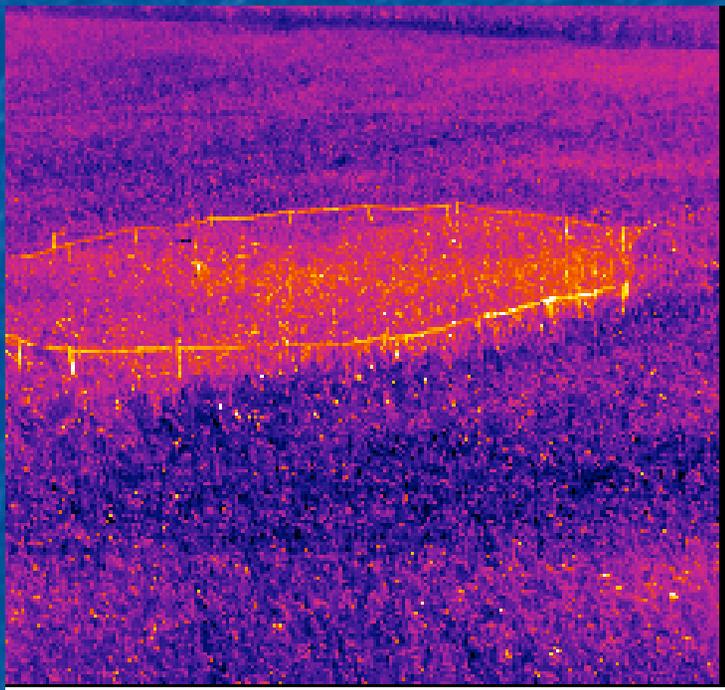
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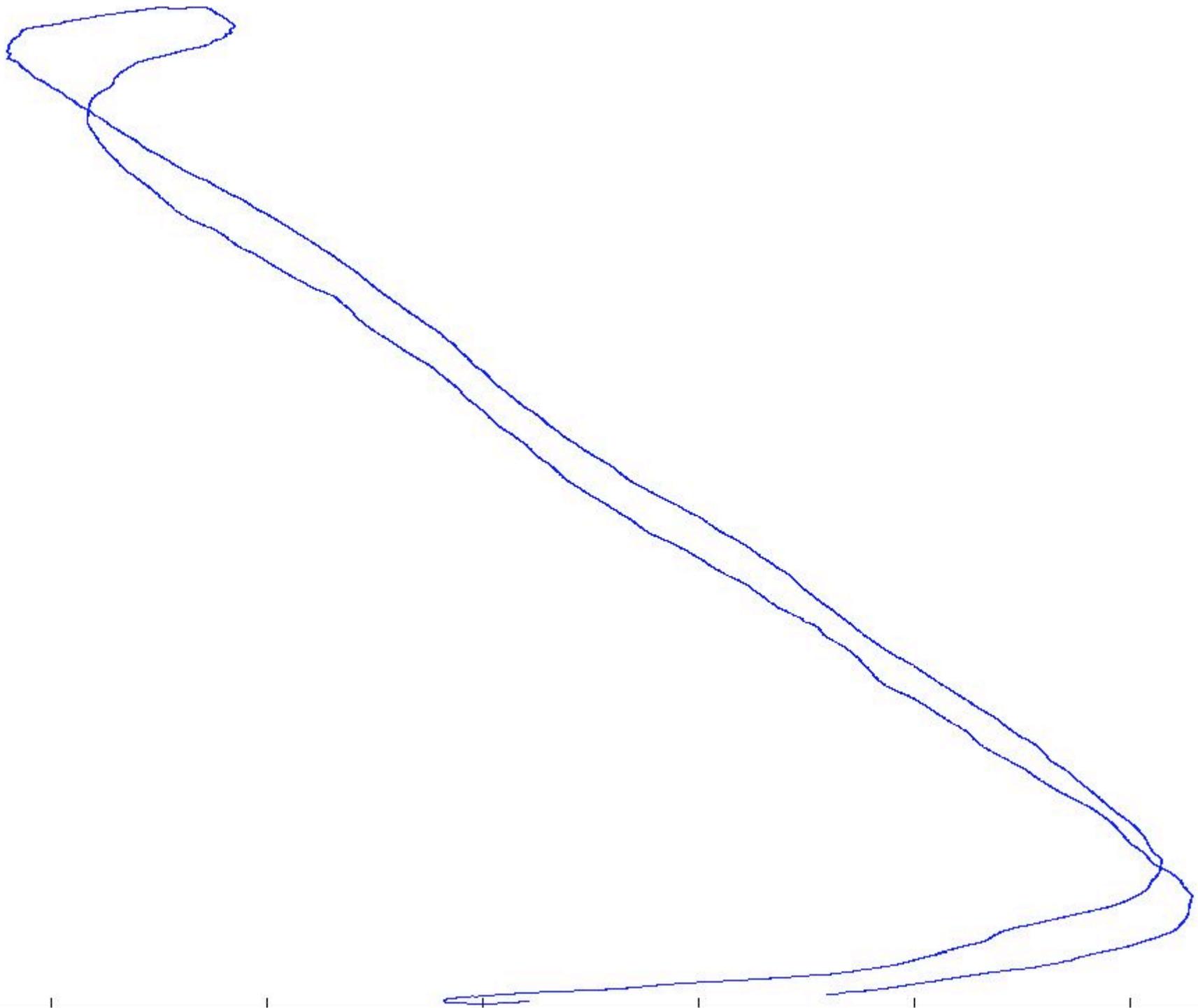
Jason Kirby, UAB

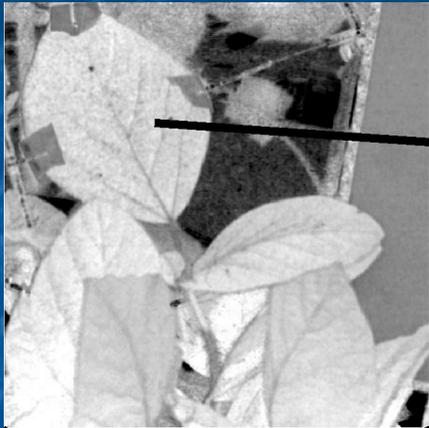


total flux
towers

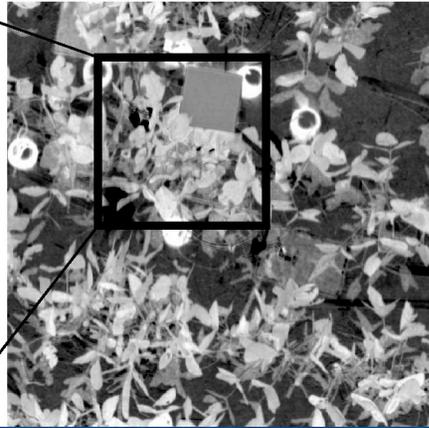
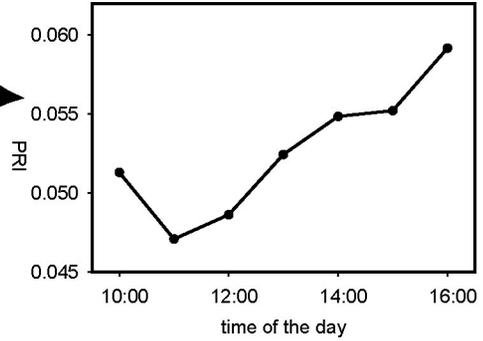








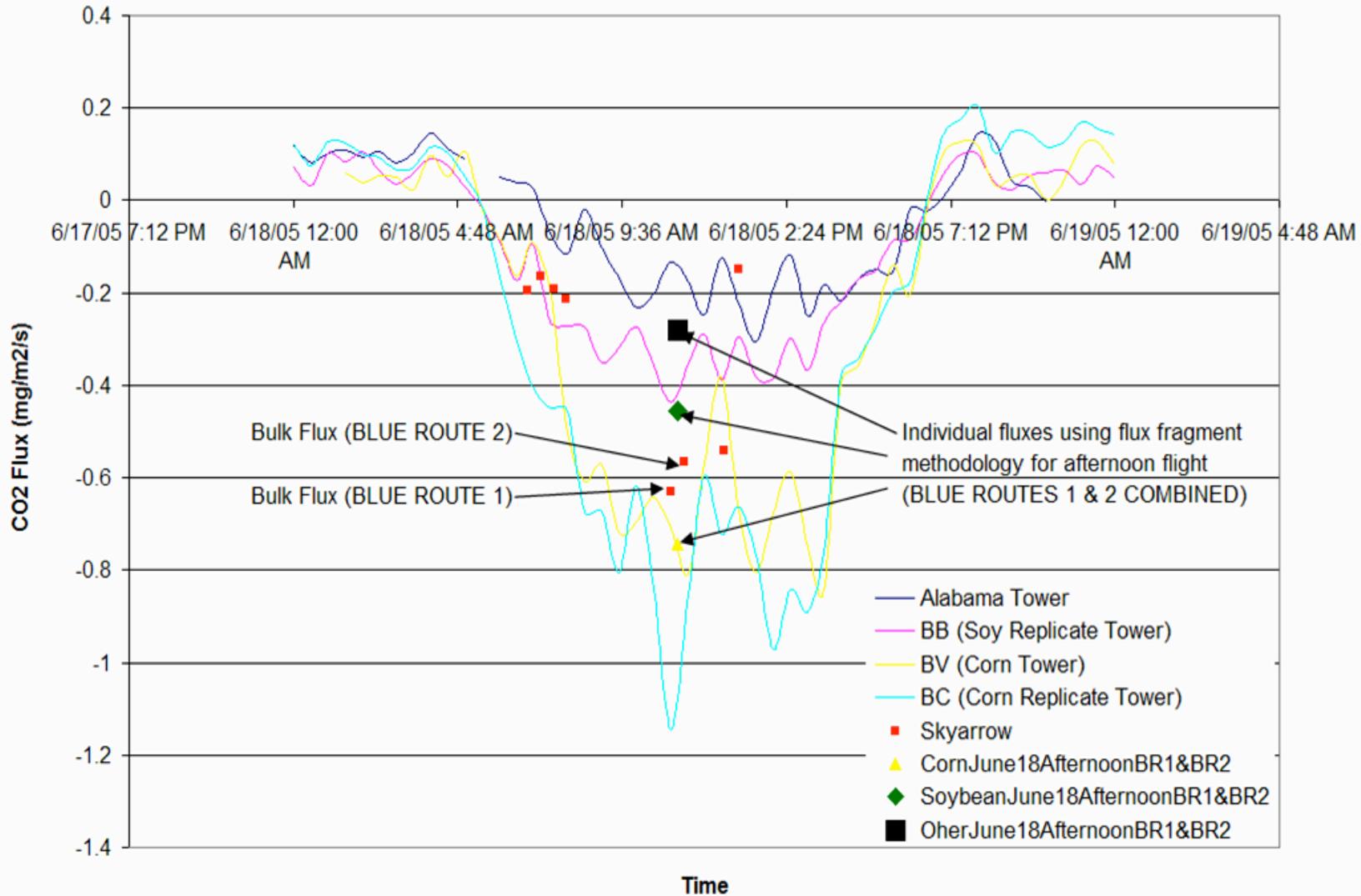
Integrated PRI measured over one leaf, hold in vertical position







SkyArrow Bulk Carbon Dioxide Flux Measurements versus Ameriflux Towers
Bondville, Illinois
June 18th, 2005



SKY ARROW 650 ERA (Environmental Research Aircraft)

