

LBA-MIP: Motivation and Overview

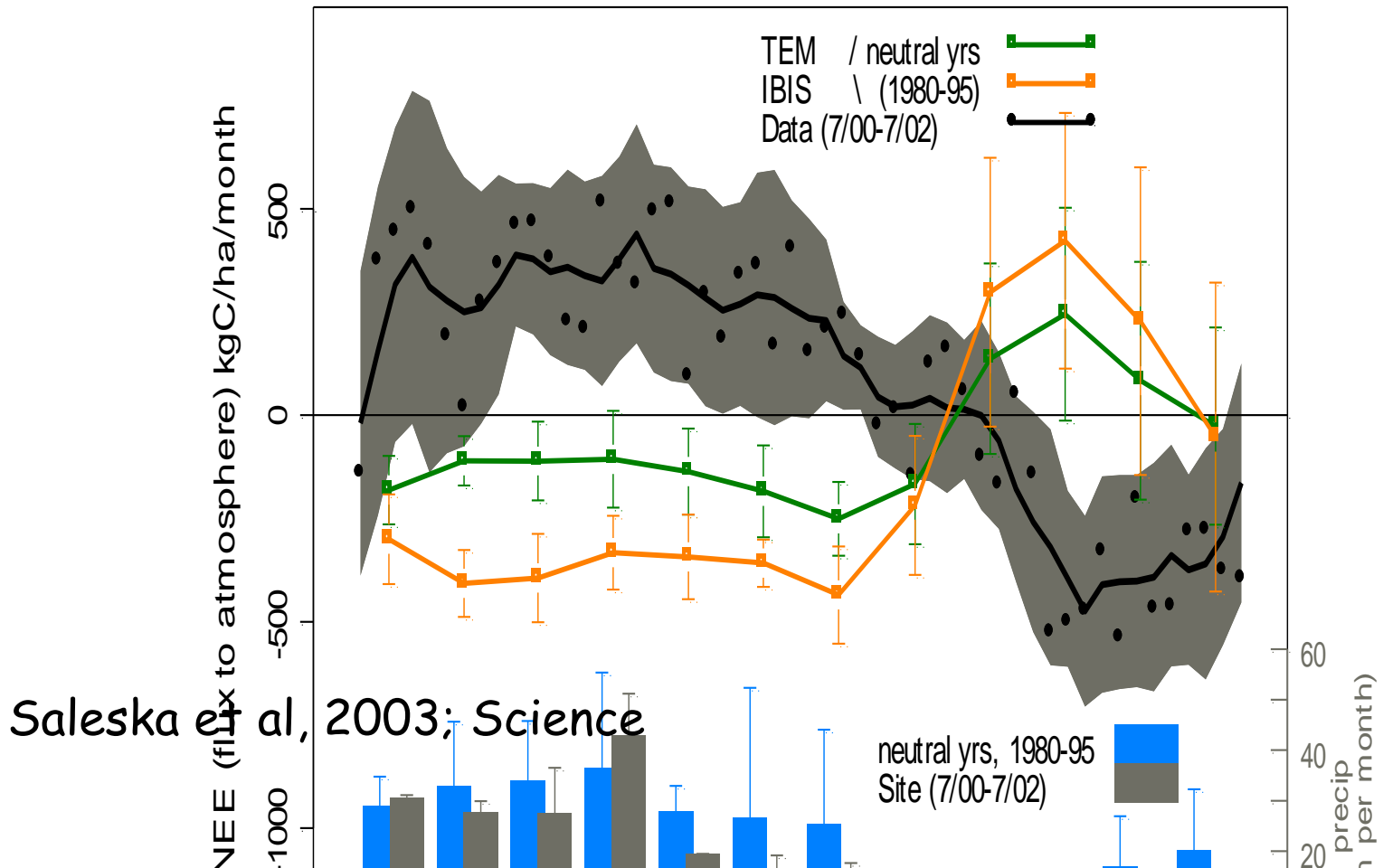
Ian Baker, Colorado State University

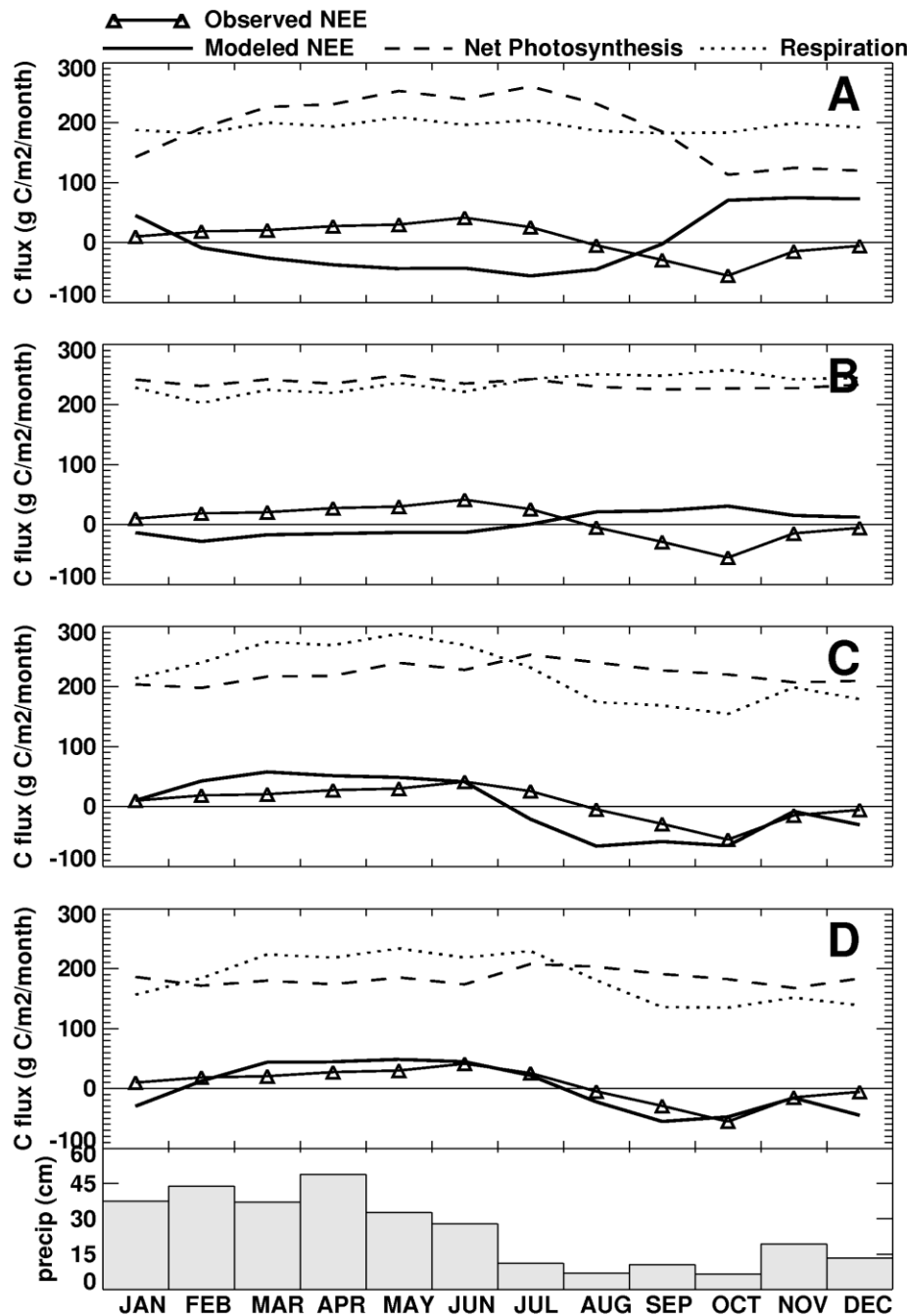
Movers and Shakers: Gustavo Concalves, Scott Saleska, Natalia Restrepo, Reto Stockli, Brad Richardson, Ben Poulter, and many others...(Tower PIs: Don't forget tower PIs!)

Motivation

- Amazonia: 10% of global biomass
- Gross Carbon fluxes large: net flux uncertain
- Interannual variability?
 - Several studies: sink during La Nina, source during El Nino (precipitation)

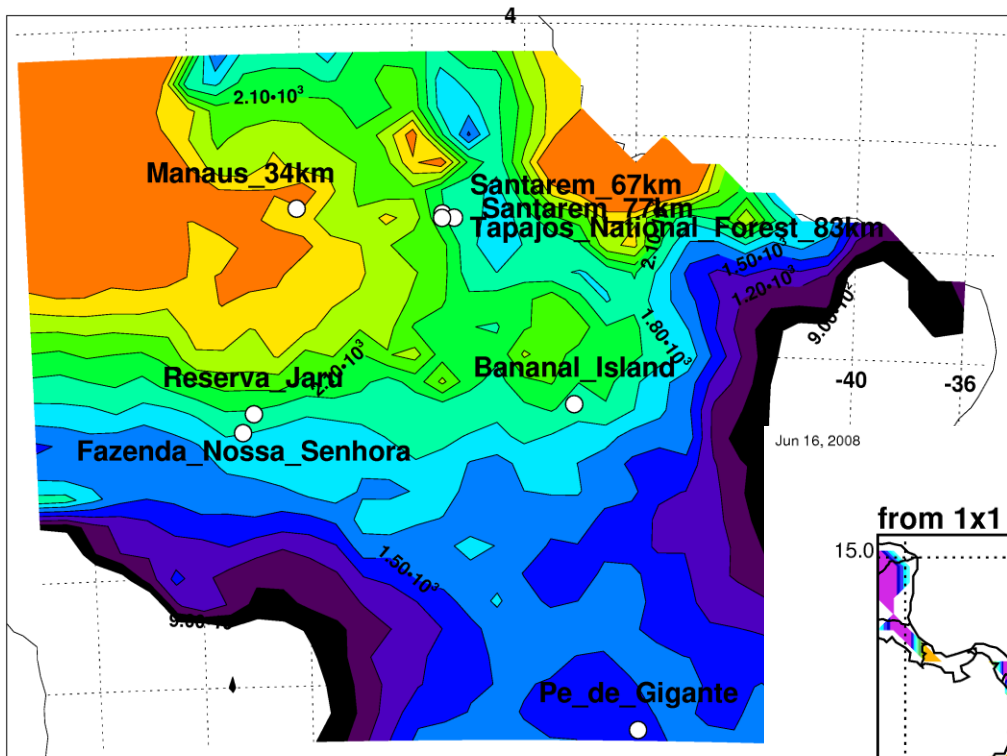
More Motivation



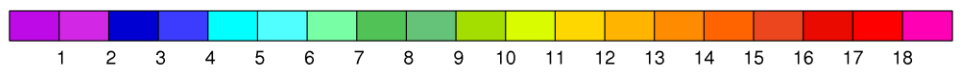
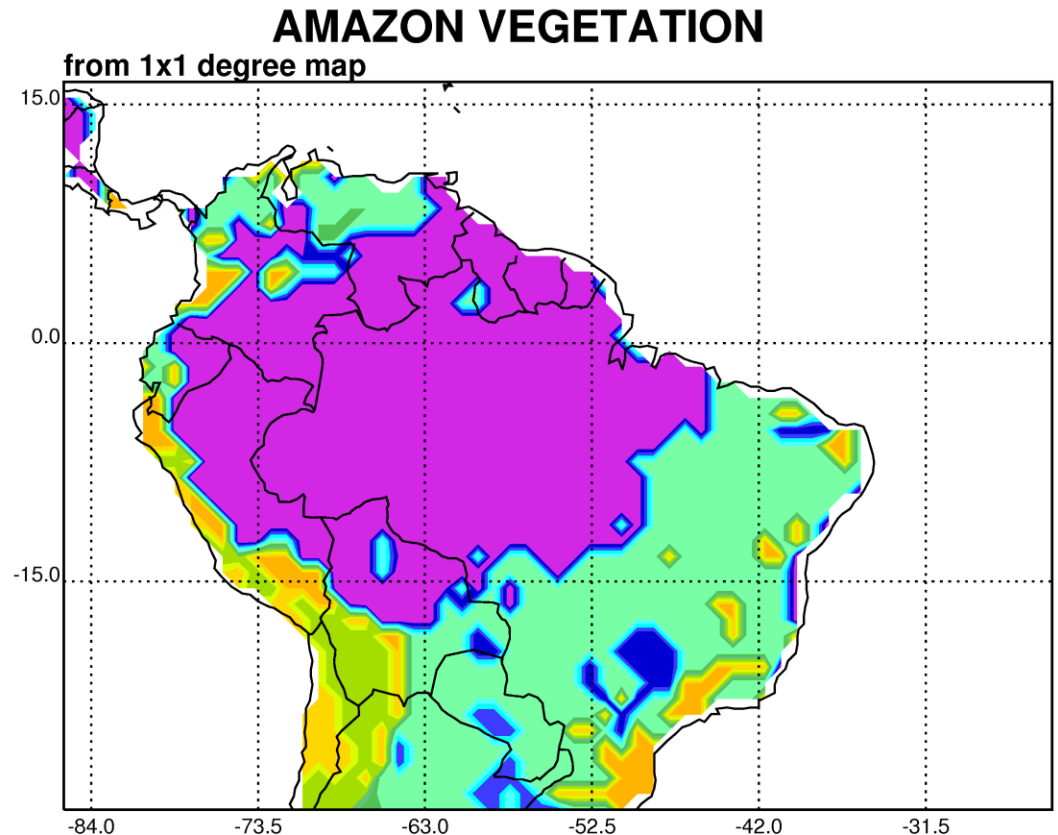


Mechanisms: Tapajos km83

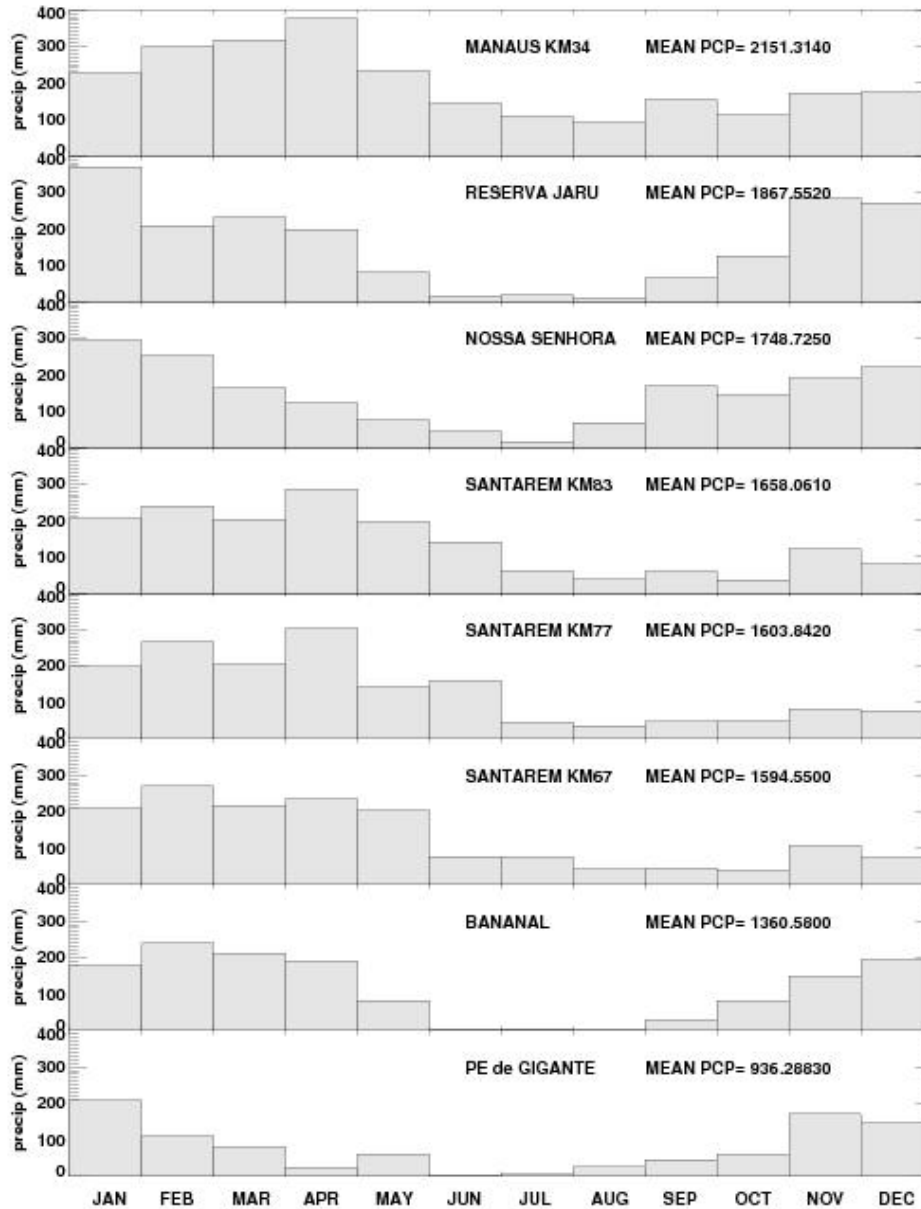
- Root Water Access
- Hydraulic Redistribution
- Deep Soil/Root Access/Respiration Wetness
- Combination!



Location of Sites



LBA-MIP TOWER SITES; MEAN ANNUAL PRECIPITATION DISTRIBUTION



Precipitation Distribution

- Precipitation mean for 3 or 4 years
- Dry season defined as number of months with precipitation < 100mm
- 0-1 month dry season at Manaus km34
- 7-8 month dry season at Pe de Gigante

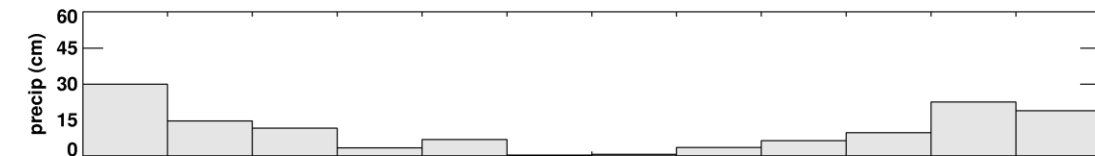
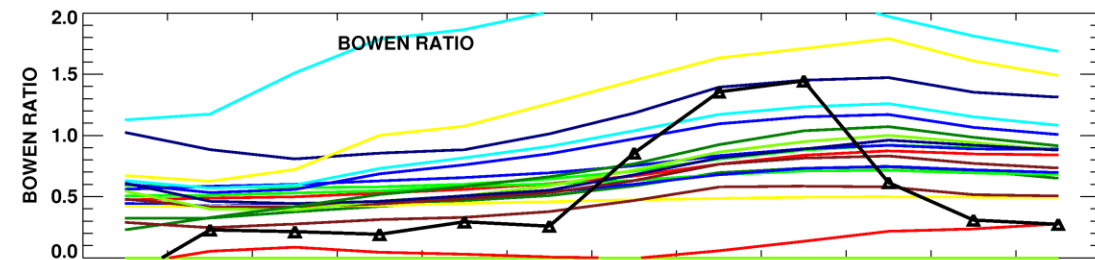
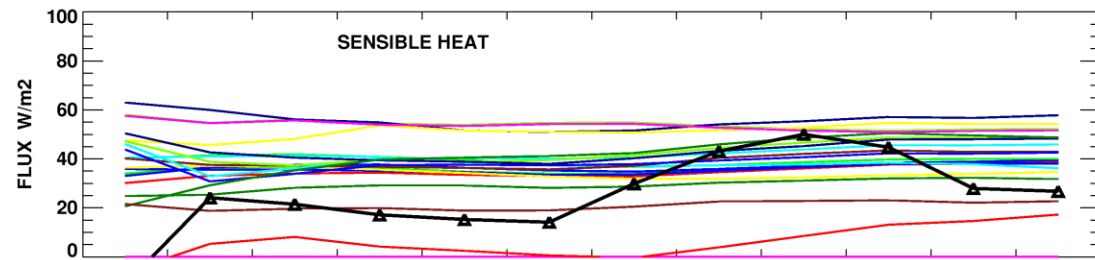
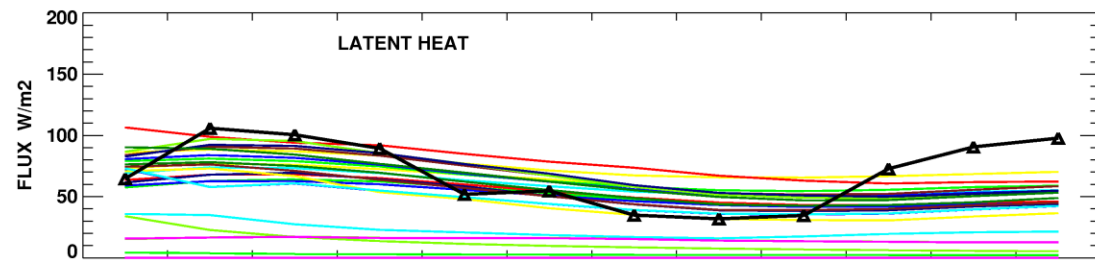
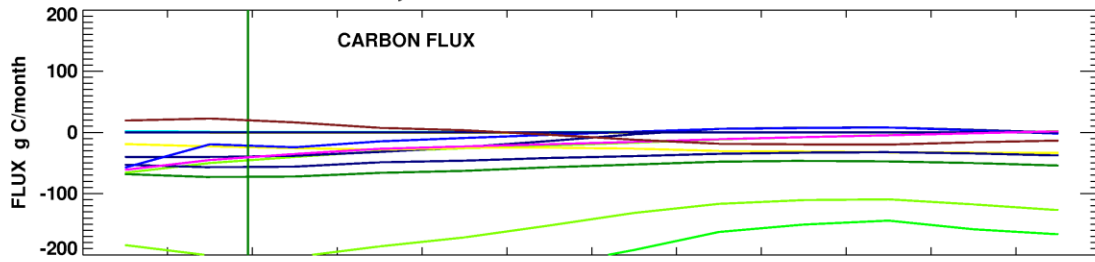
Models

- SSiB2c1
- SSiB2c2
- SSiB2c3
- SiB3
- BiomeBGC
- LPJ
- HYLAND
- JULES
- SPASTD
- SPAMOD

- SPAPHEN
- CLM35c
- CLM35nc
- SiBCASA
- ORCHIDEE
- VISITC1
- VISITC2
- VISITC3
- COLM
- IBIS

- 5PM
- SiB2
- CLM3DP
- CLM300TB
- NOAHDV
- NOAHSTD
- SiB2B
- LPJ2
- LM3V
- CLM3GW

PE DE GIGANTE; SAVANNA

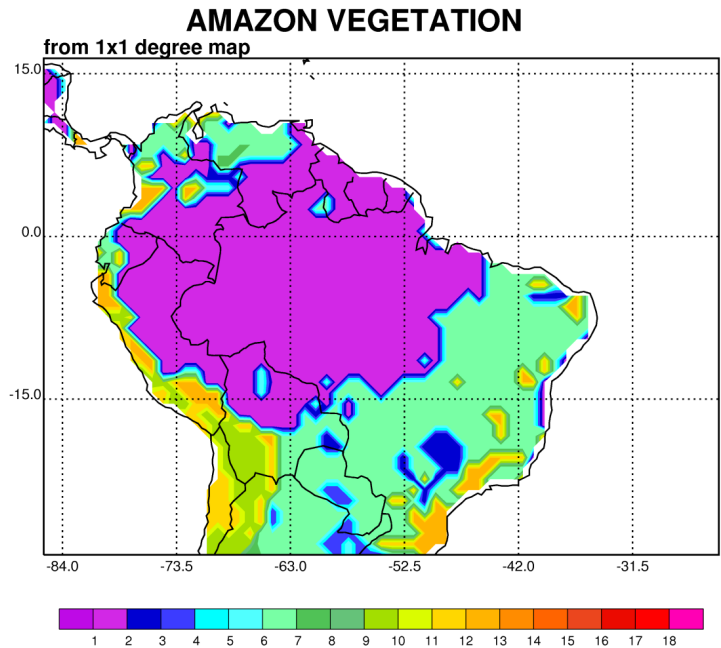
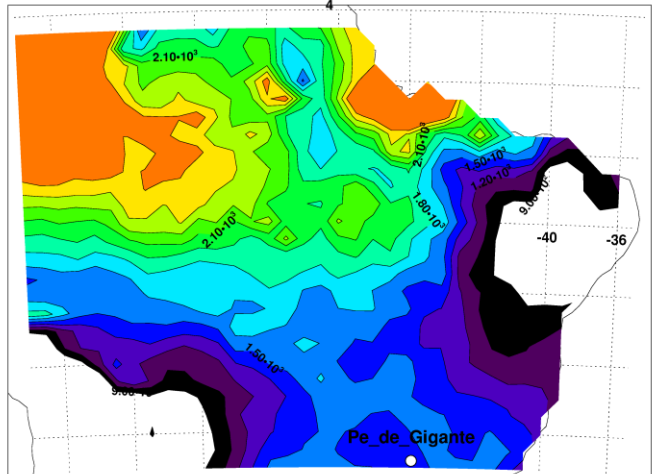
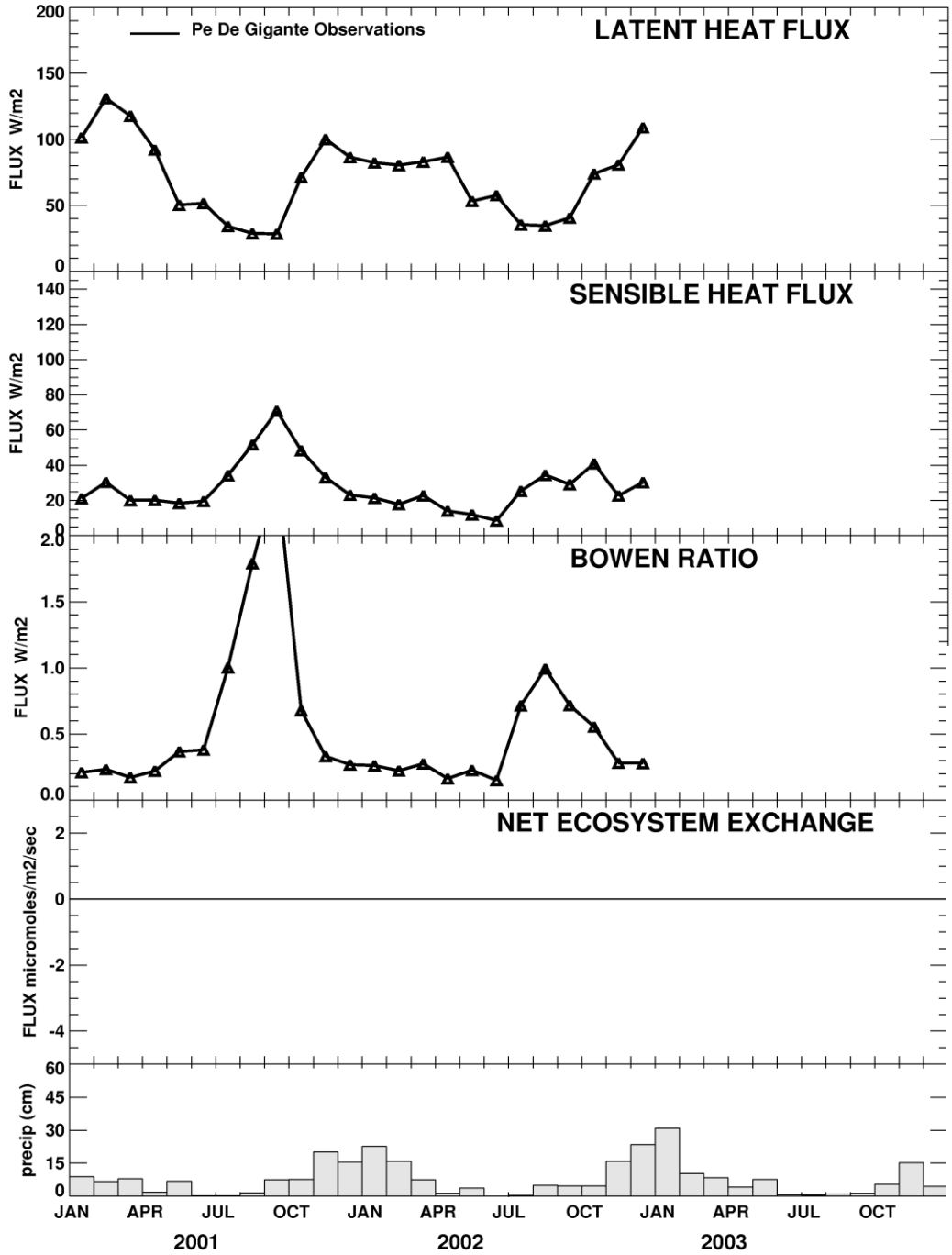


Results!

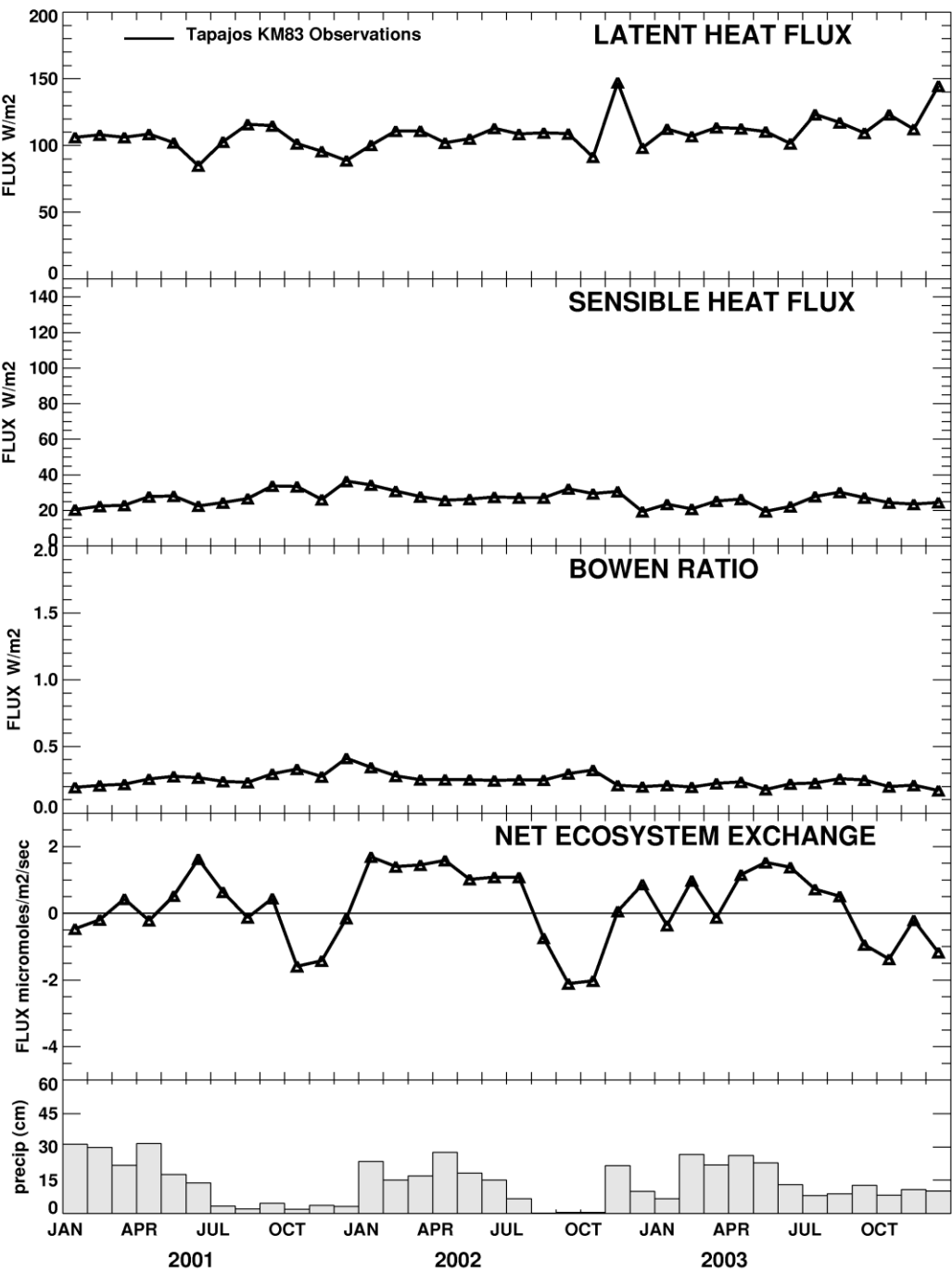
- Preliminary-most models are being re-run
- netCDF!
- Units
- Sign Convention
- Energy/Water Balance

Pe De Gigante: 2001-03 MONTHLY FLUXES (SAVANNA)

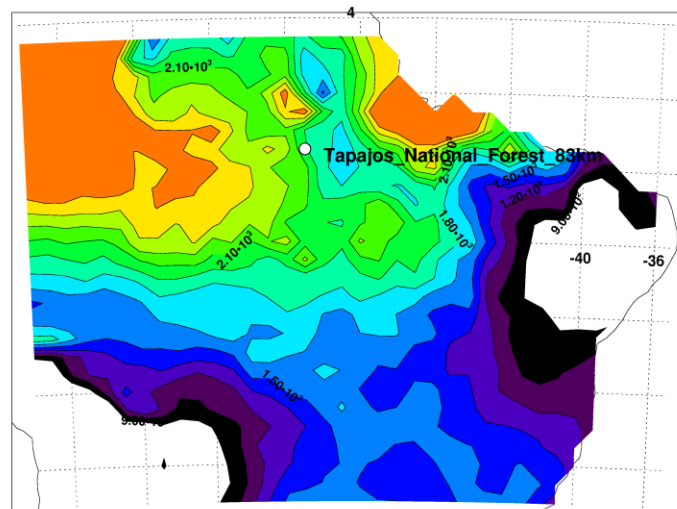
Site Obs: PDG



TAPAJOS KM83: 2001-03 MONTHLY FLUXES (FOREST)

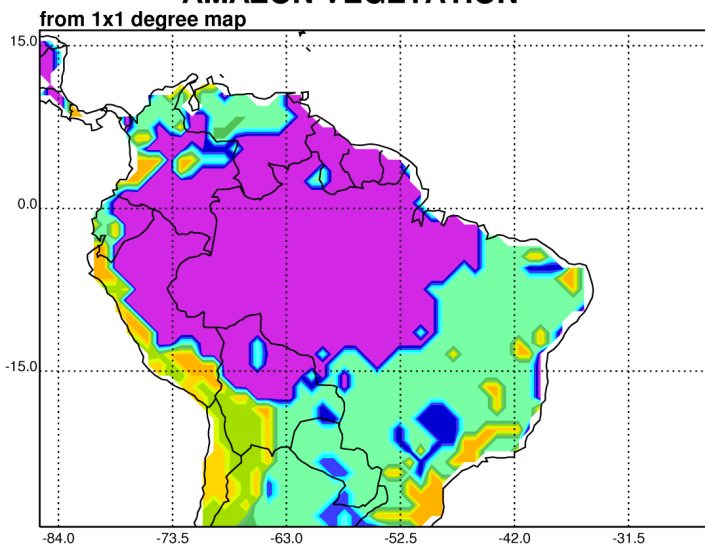


Site Obs: K83



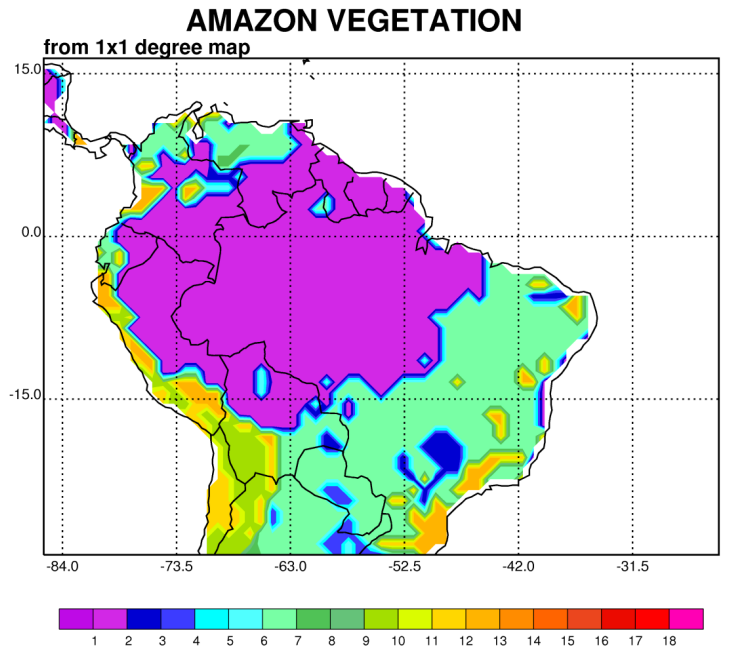
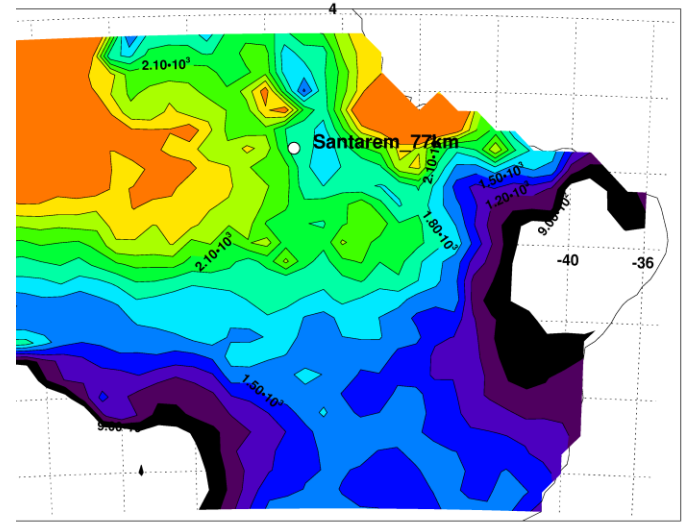
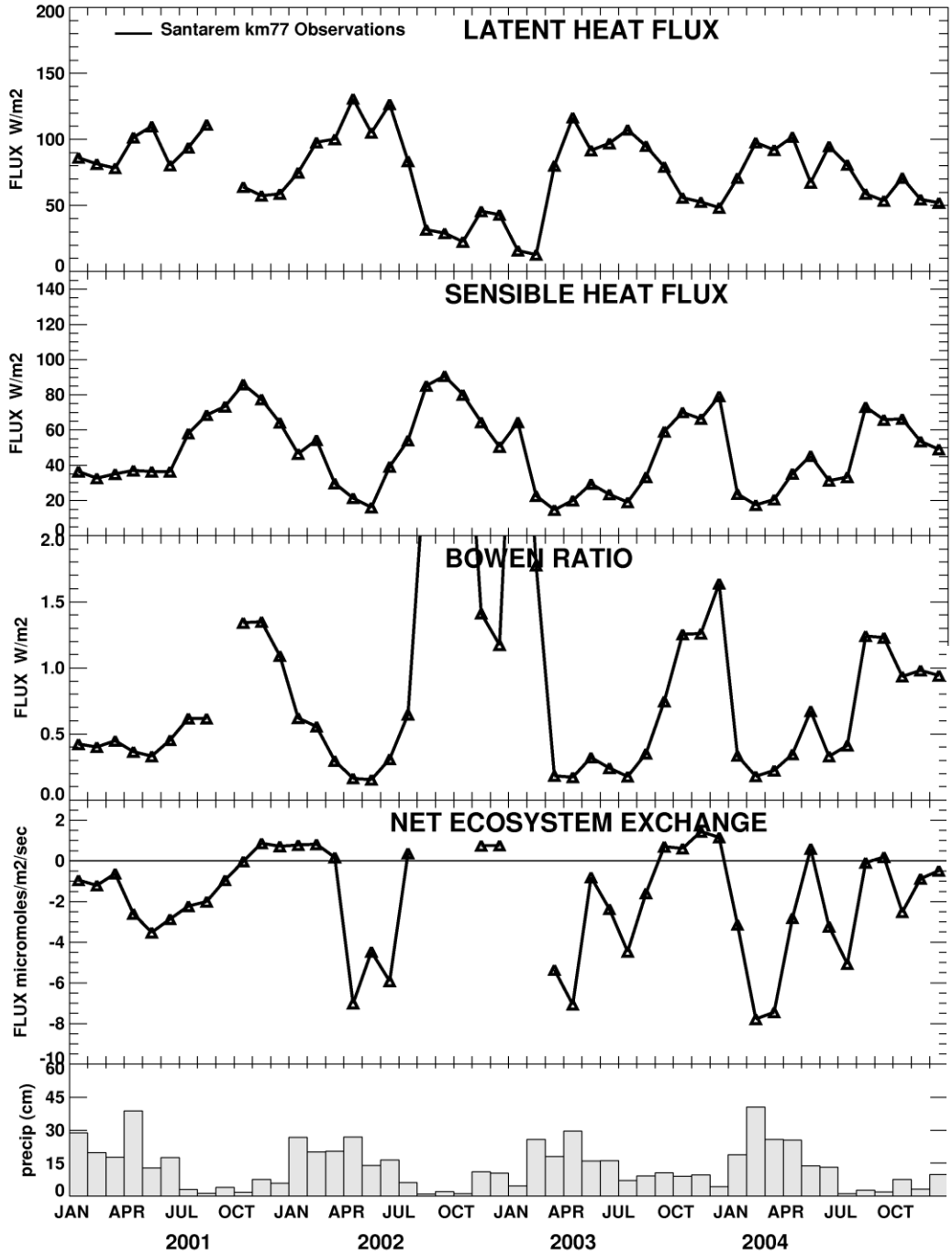
Jun 16, 2008

AMAZON VEGETATION

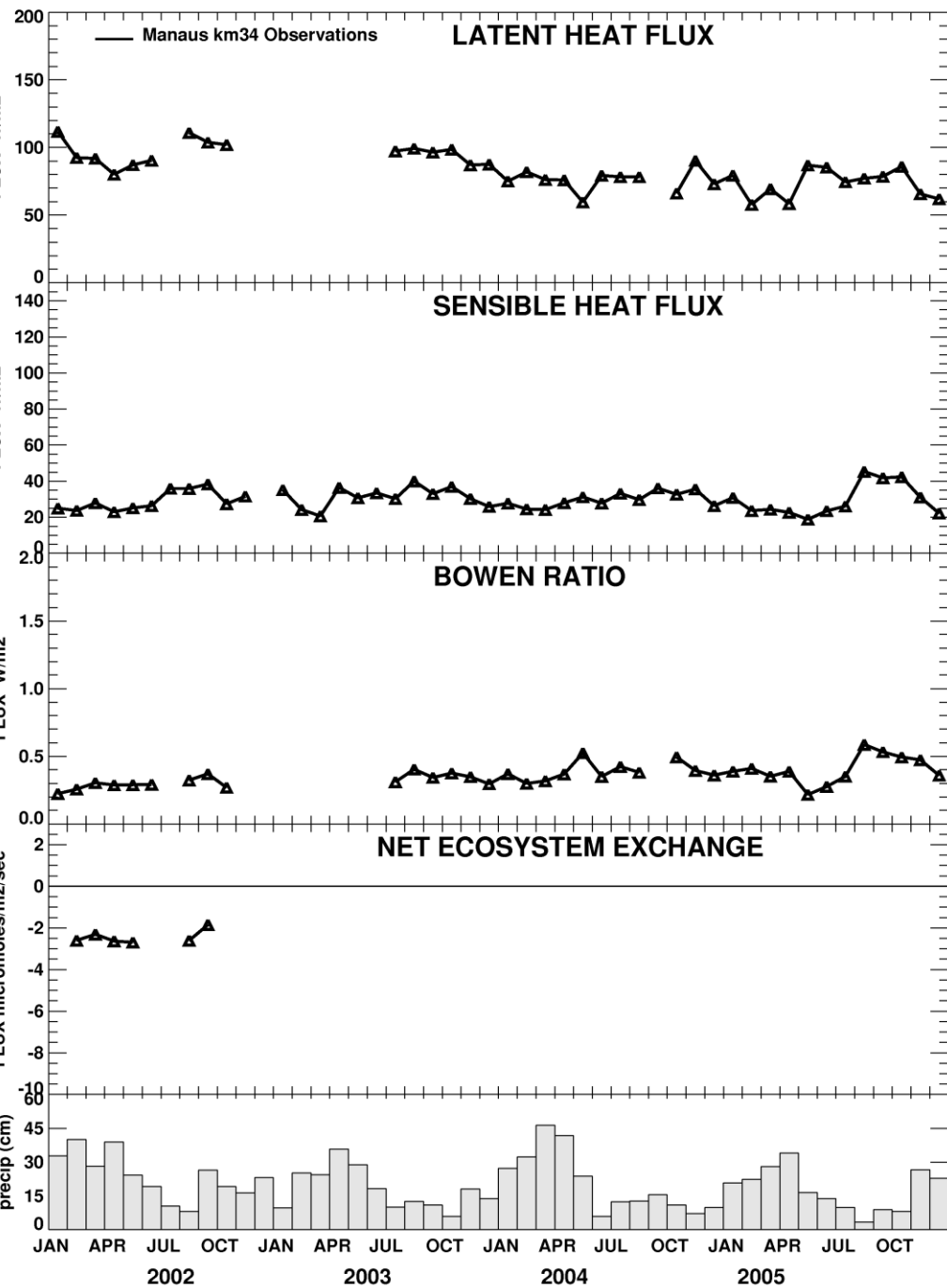


SANTAREM KM77: 2001-2004 MONTHLY FLUXES (PASTURE)

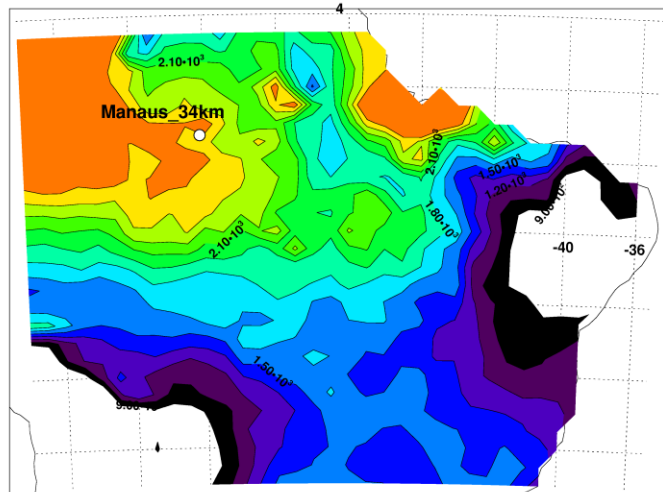
Site Obs: K77



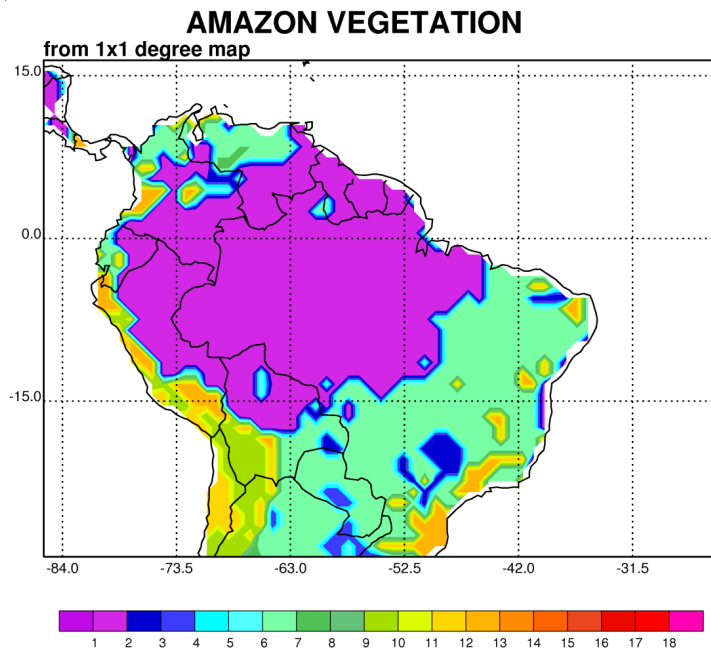
MANAUS: 2002-05 MONTHLY FLUXES (FOREST)



Site Obs: K34



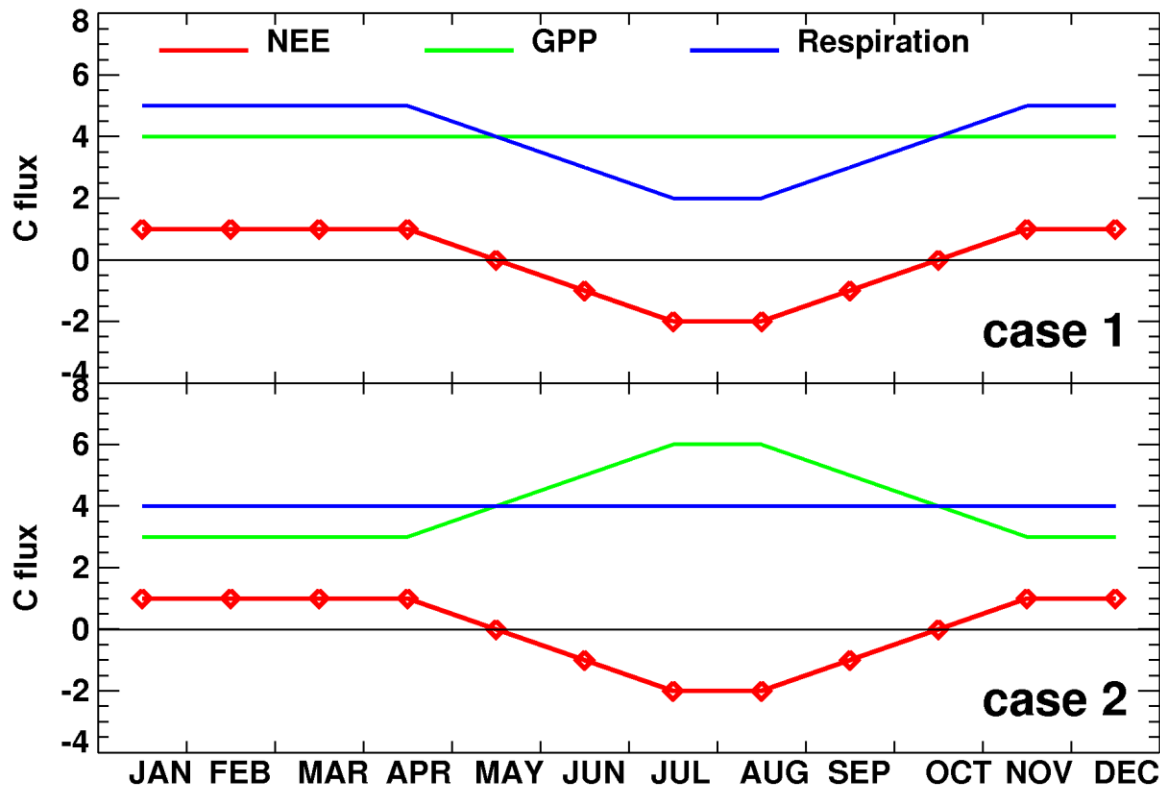
16, 20



Things to Emphasize

- Observation/Model Synthesis
- Seasonal Stress?
- Soil/Rooting depth
- Equifinality of Mechanisms?

Mechanism Equifinality (km83)



What Would We Like to Accomplish?

- Start: Annual cycle
- Next: IAV (don't forget diurnal cycle!)
- Behavior Across Vegetation/Moisture Gradients
- Amazonia/Continental scale biophysics
- NEE Mechanism Dependence (ENSO)