Conclusions

6 relevant reasons why to conduct studies with tower fluxes

1.1. Regional climate changes

1.2. Global climate changes

1.3. Role of the biosphere in the global C cycle

1.4. Mitigation of greenhouse effect and the C market

1.5. Using Ecosystem and climate models: improving predictability of weather, climate and ecosystems

1.6. Aggregate knowledge with Interdisciplinary projects

Eddy covariance can represent ecosystem functionality

Select a site as flat, uniform as possible, thin tower

Check prevailing wind direction and install sonic/IRGA properly

(highest as possible, leveled, oriented with prevailing wind)

Calibrate IRGA as often as possible

Check spectra and co-spectra for high-pass filtering

Apply axis-rotation, Webb correction if proper

Use alternative measurements (chambers, LAI, others)

Use biosphere models, calibrate and validate them for the site

Check for low turbulent conditions (u* filter is site specific)

Fill gaps properly for annual sum

Make independent biometric measurements

2. At night, low wind and thermal stratification prevent CO2 exiting leaves and soil to reach the IRGA, consequently underestimating the flux. It can be reduced thru:

- estimating storage term correctly

- work with ideal hypothesis of flat and uniform terrain

- fill gaps and fill events under large uncertainties with alternative approaches (similar wind and climate conditions at near days, models fitted on other observations, like chambers, sap flow, and the eddy covariance as well)

A long term eddy correlation measurement is not a "thermometer". Not all covariances are surface fluxes. Long term measurements offer a strong statistical basis for inference of

response of the ecosystem to climate forcing, and *other environmental influences,* and

for *carbon fluxes and budgets*

(S. Wofsy, LBA Tower Flux Workshop, Brasil 2002)