

Amazon tropical rain forest

Seasonality of water and heat fluxes over a tropical forest in eastern Amazonia.

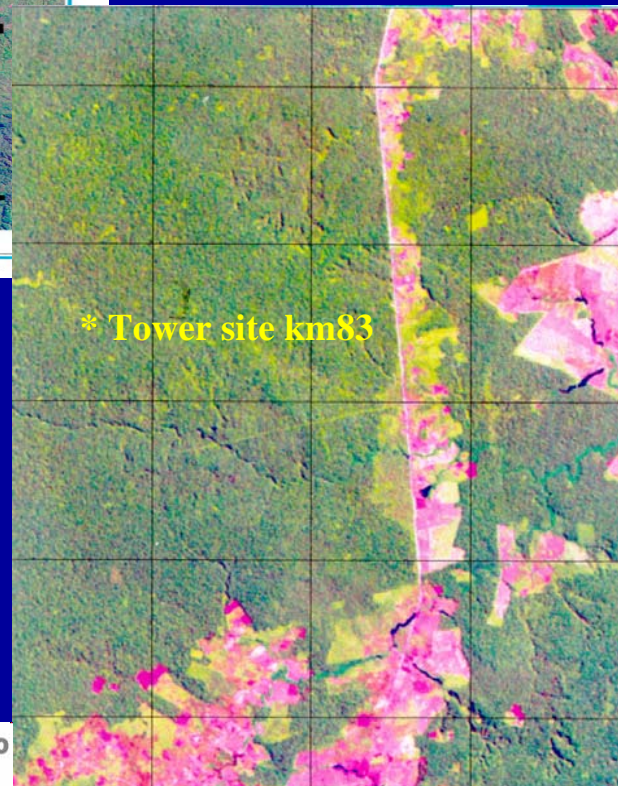
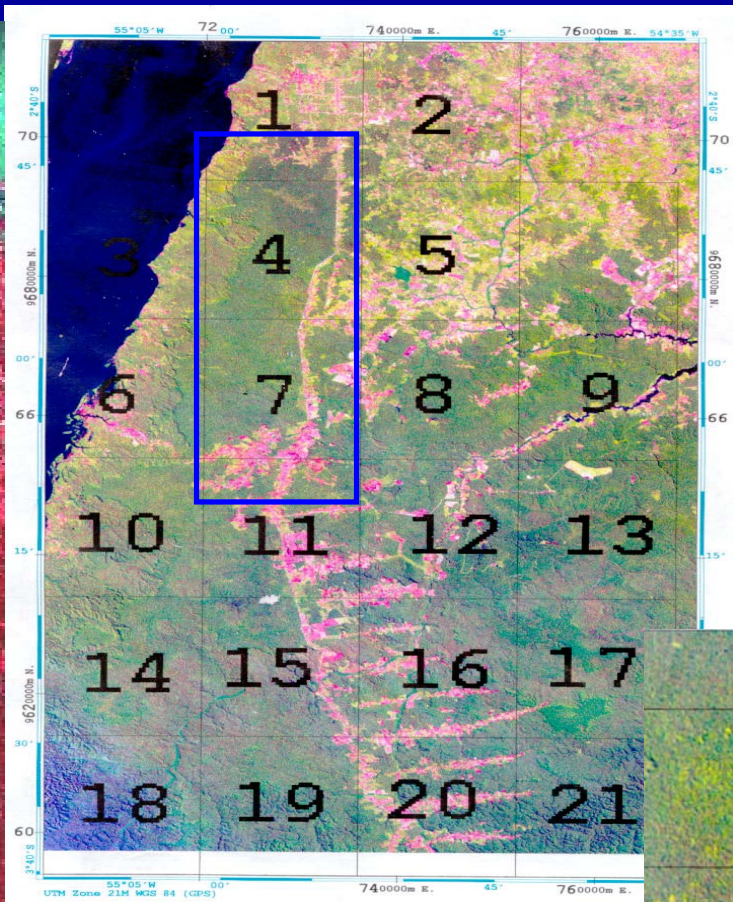
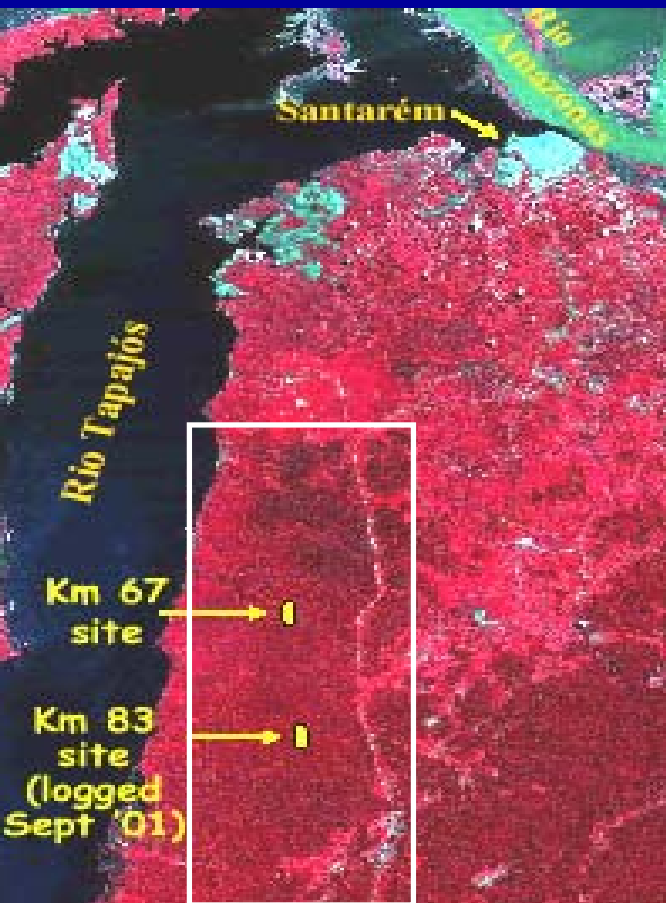
Project LBA-ECO CD 04 (Mike Goulden / Humberto Rocha / S. Miller)

Site: Santarém, Floresta Nacional do Tapajós km83

Primary forest (Jun 2000 to Jun 2001)

Selectively logged (after July 2001)







Tropical forest (Santarém) km83

Factors controlling deforestation in Amazonia - paving roads, new roads*, selective logging*, pastureland, soyben production

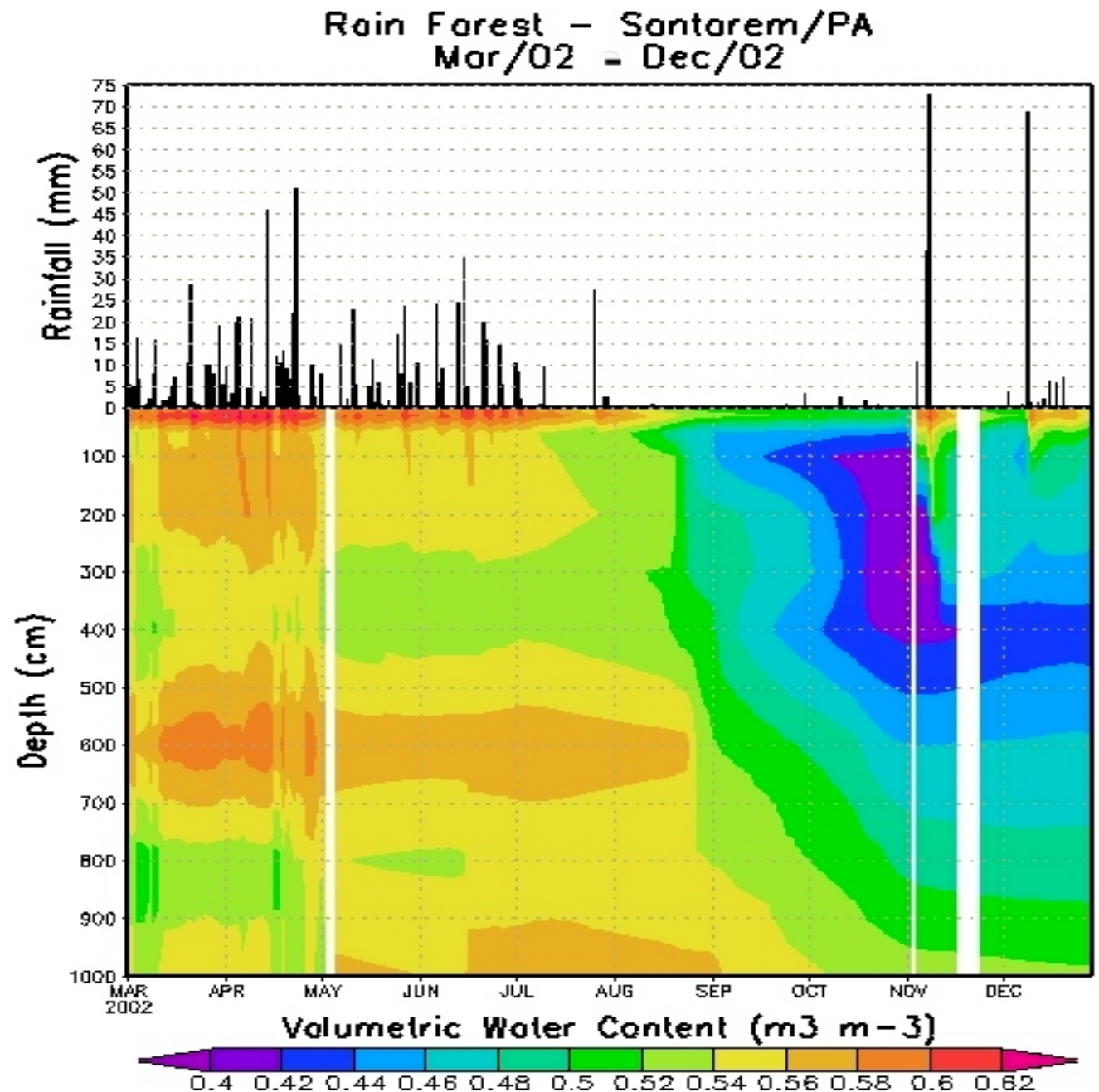


Seasonality

Tropical rain forest

site: Santarém -
Flona Tapajós
km83

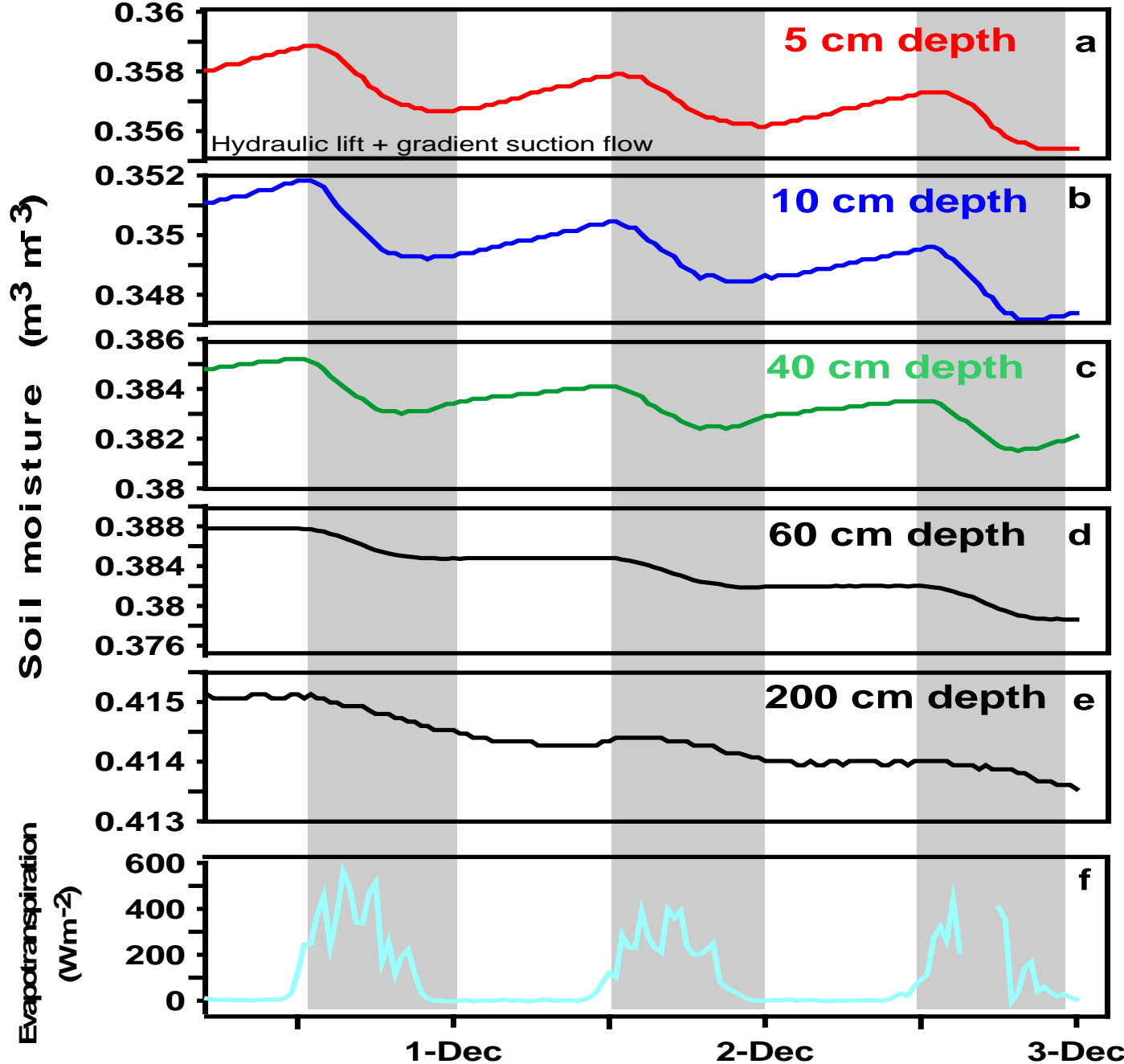
(MSc thesis,
Rogério Bruno,
IAG/USP)



Tropical forest

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Soil moisture
redistribution
(hydraulic lift,
gradient suction
flow)

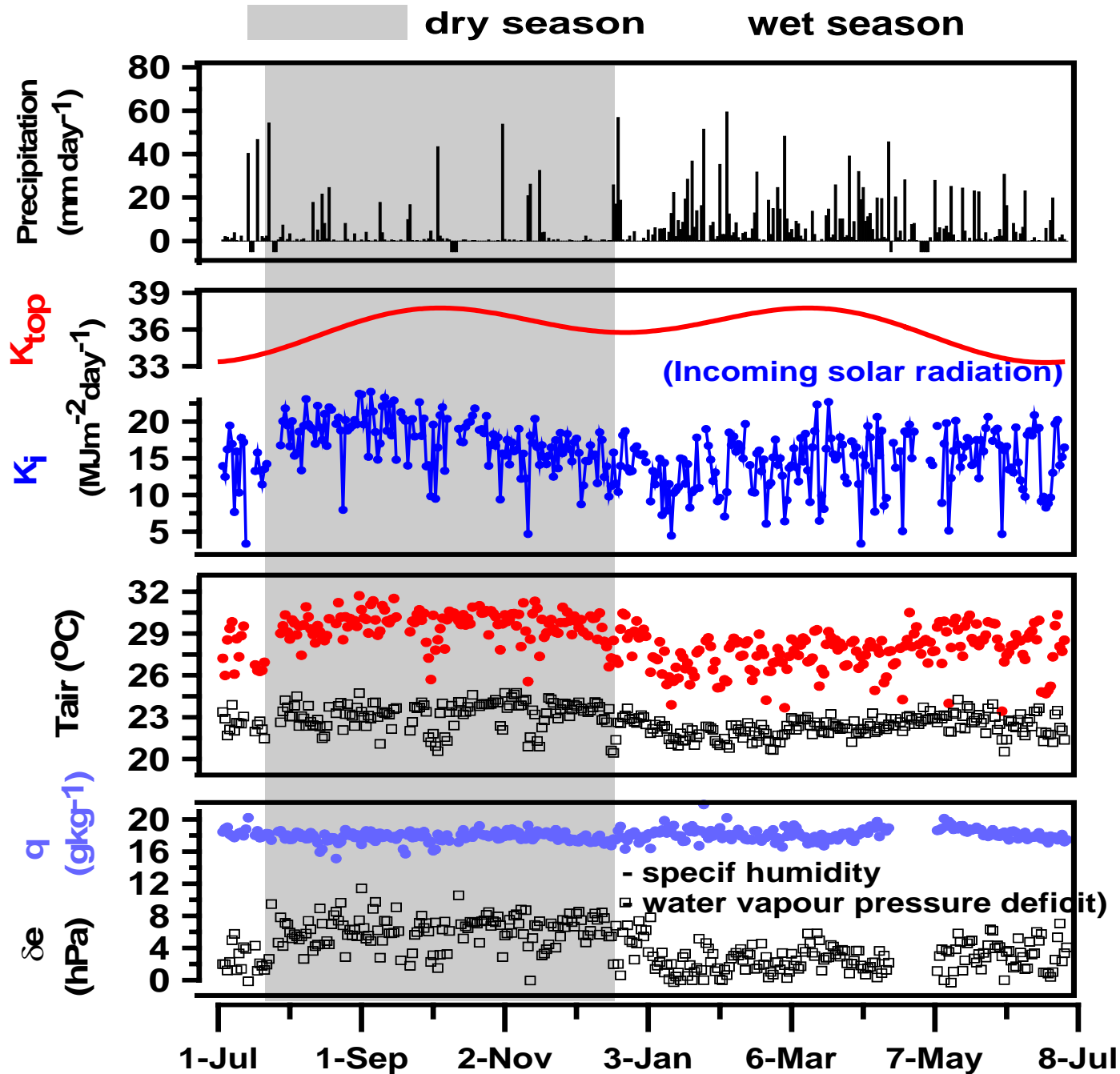


Rocha et al (Ecological Applications 2003)

Tropical forest

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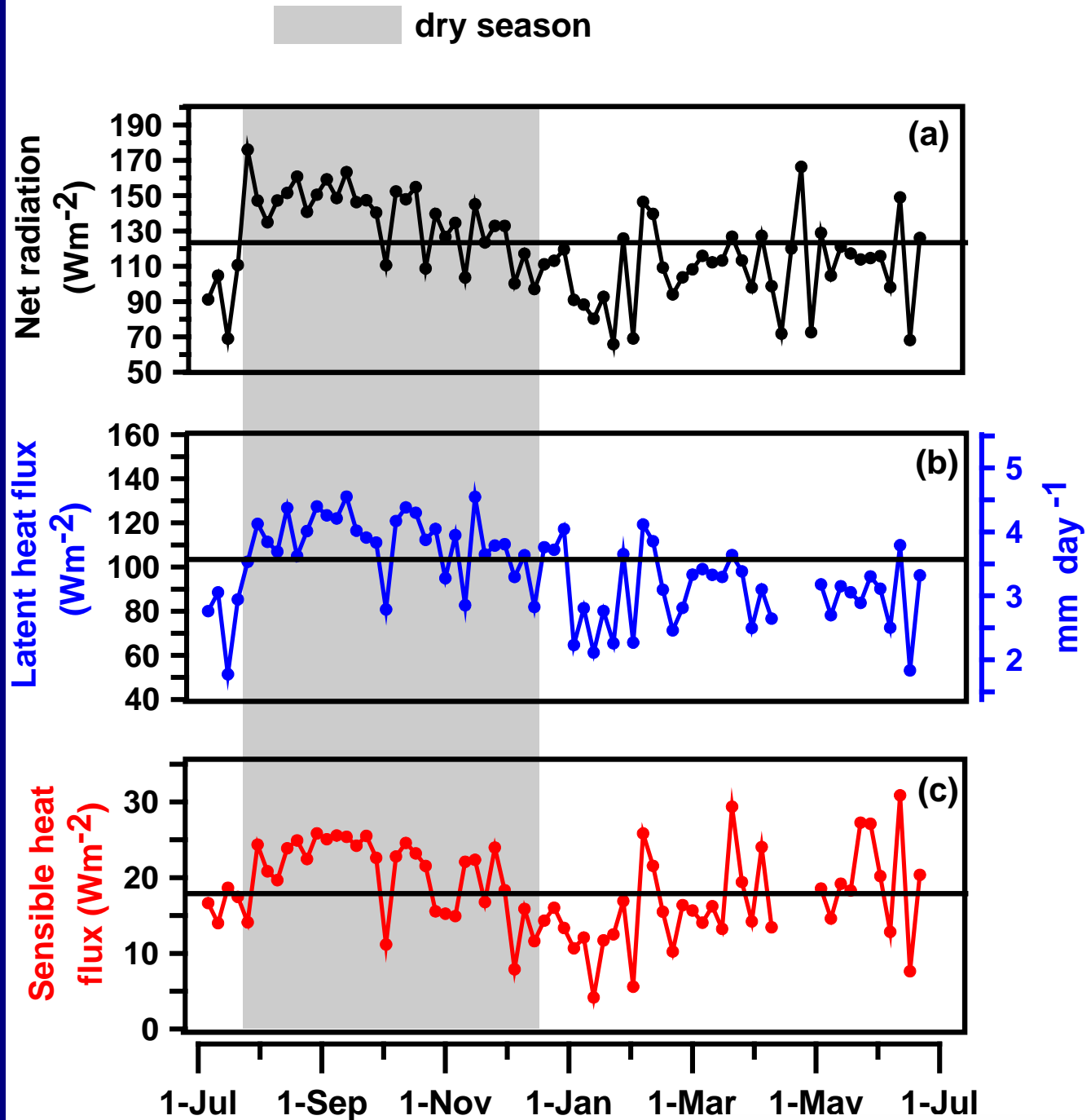
(Climate)



Tropical forest

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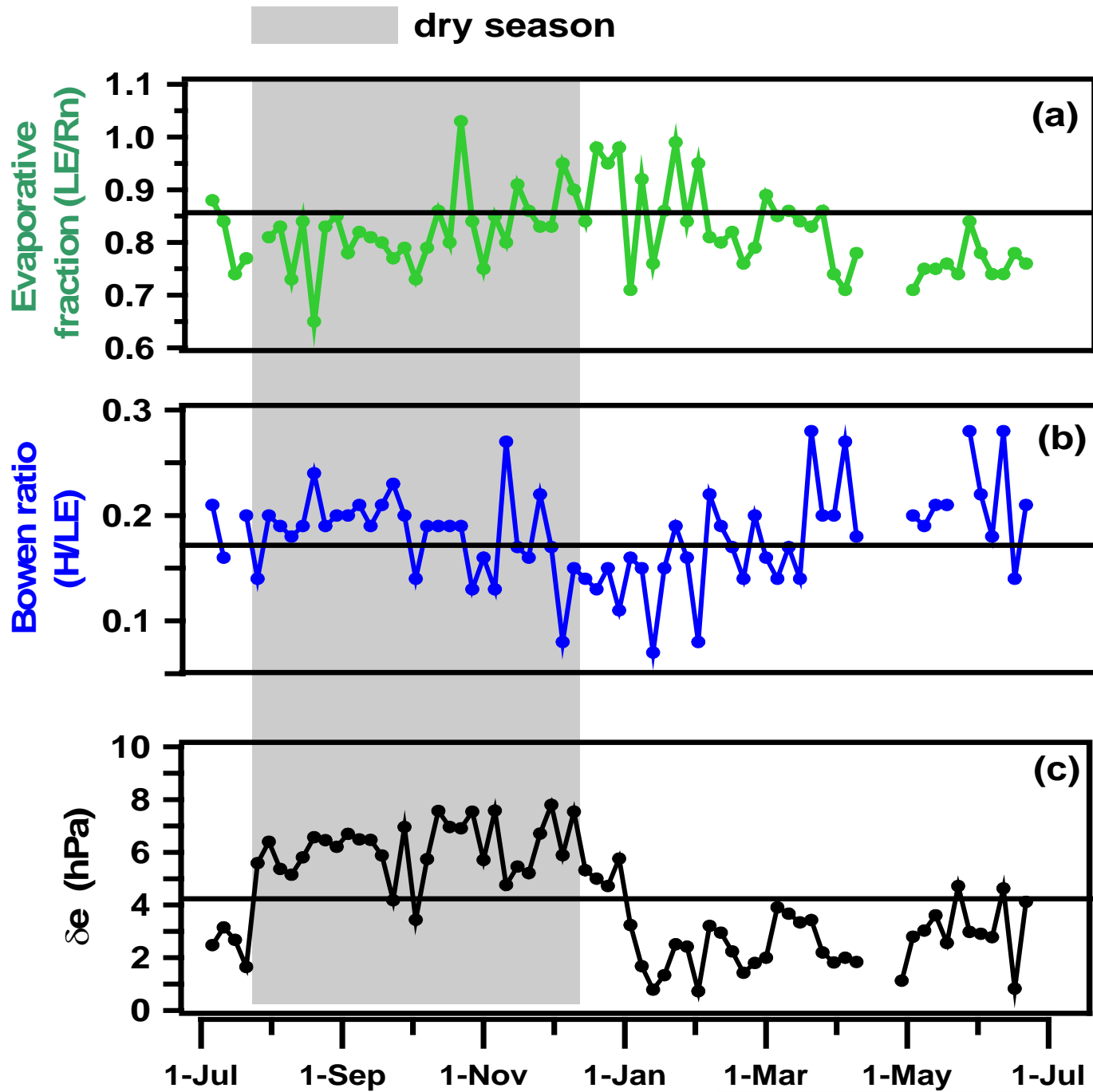
Available energy,
latent heat flux,
sensible heat flux



Tropical forest

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Functionality of energy transfers



FLUXES	Dry season	Wet season	Yearly average
H (sensible heat flux) MJ m⁻² day⁻¹	1,80 ± 0,07	1,61 ± 0,09	1,71 ± 0,06
λE (latent heat flux) mm day⁻¹	3,89 ± 0,07	2,99 ± 0,09	3,47 ± 0,06
Rn (net radiation) MJ m⁻² day⁻¹	11,3 ± 0,2	9,4 ± 0,2	10,4 ± 0,2
G (soil heat flux) MJ m⁻² day⁻¹	0,18 ± 0,01	0,16 ± 0,01	0,17 ± 0,01

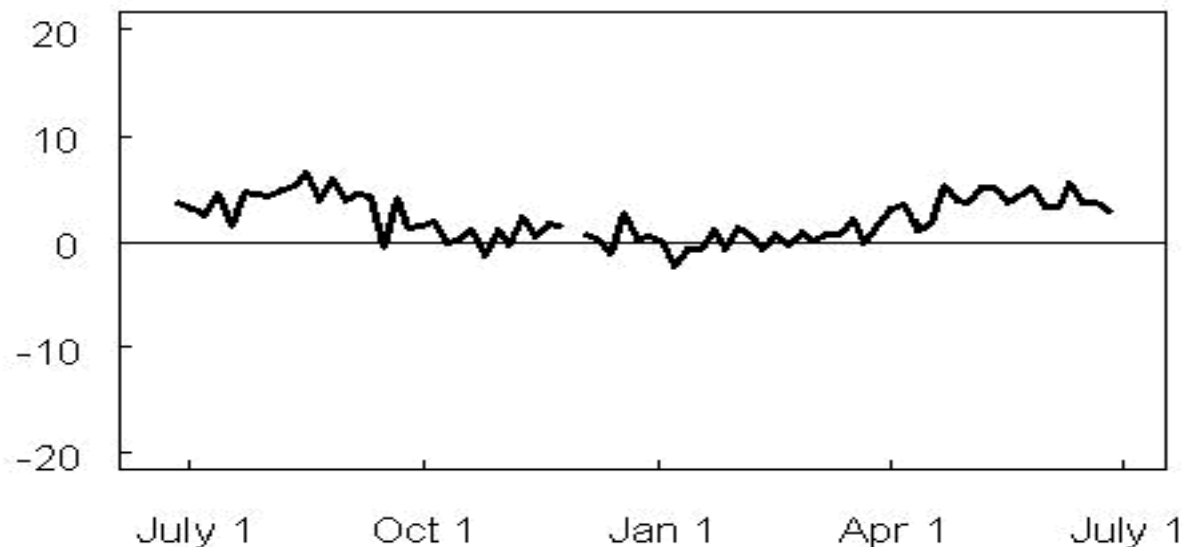
Tropical forest

Santarém Flona
Tapajós km83

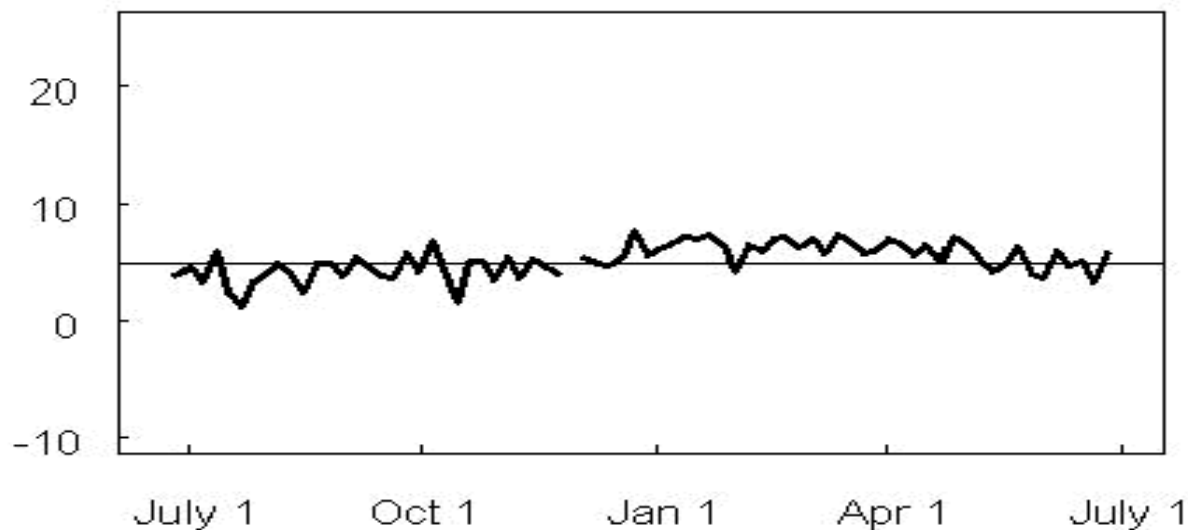
Canopy physiology

Goulden et al (2003)

Residual CO₂ Exchange ($\mu\text{mol m}^{-2}\text{s}^{-1}$)



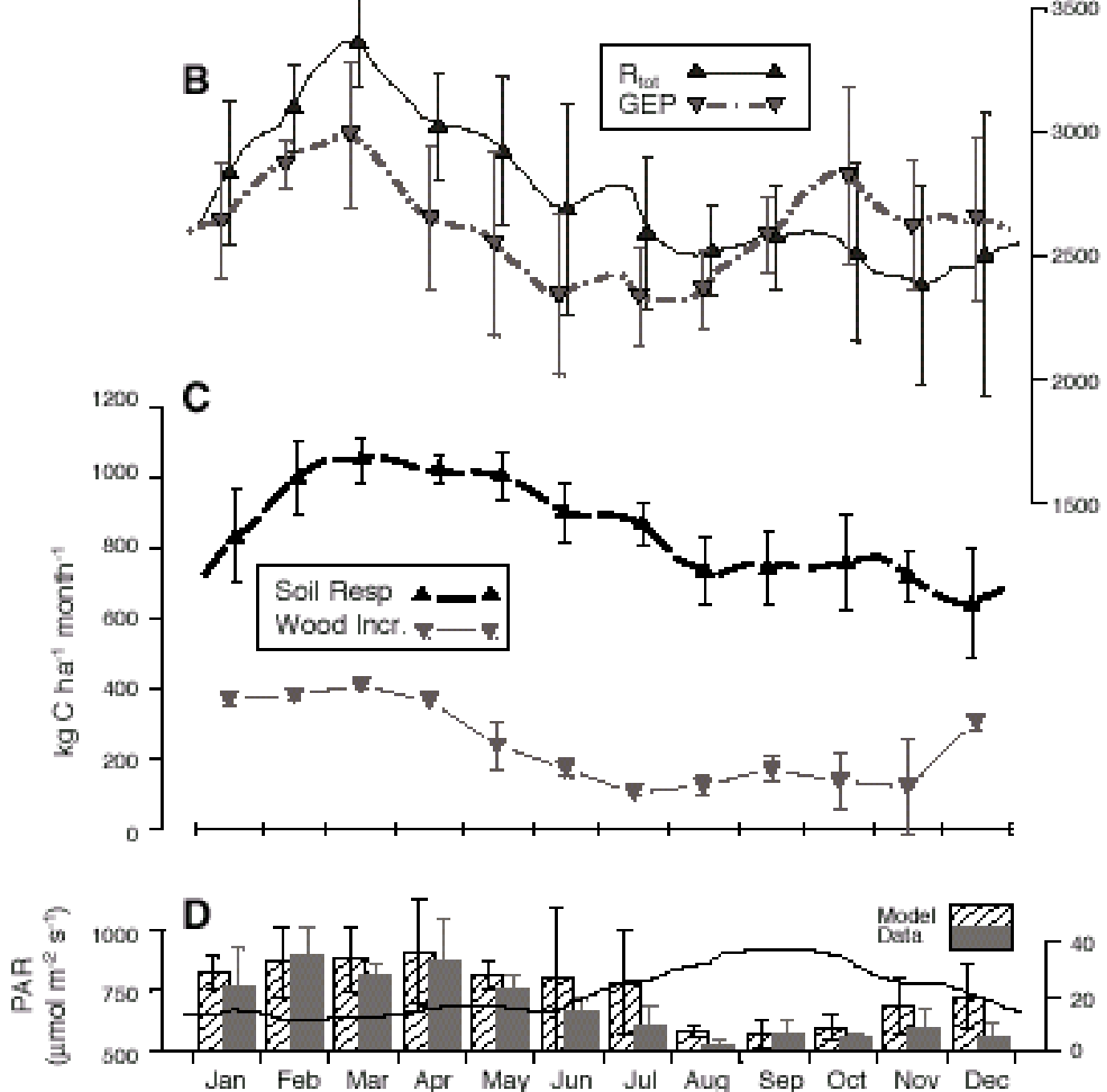
Nocturnal CO₂ Exchange ($\mu\text{mol m}^{-2}\text{s}^{-1}$)



Tropical forest (Santarém)

Seasonality of GEE (photosynthesis) and R_{tot} (Soil respiration)

Saleska et al 2003
(Science)



**Tropical forest
(Santarém)**

**Annual CO₂ flux
sum**

**$u^*=0.2$ m/s
filtered**

+2 tonC/ha/yr

**Saleska et al 2003
(Science)**

