

Long-term Monitoring Carbon Balance of Tropical Ecosystems ~ Soil Respiration ~



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Soil CO₂ efflux research teamwork & a portable soil efflux system



Measuring soil CO₂ efflux with a portable automated system

Pasoh:

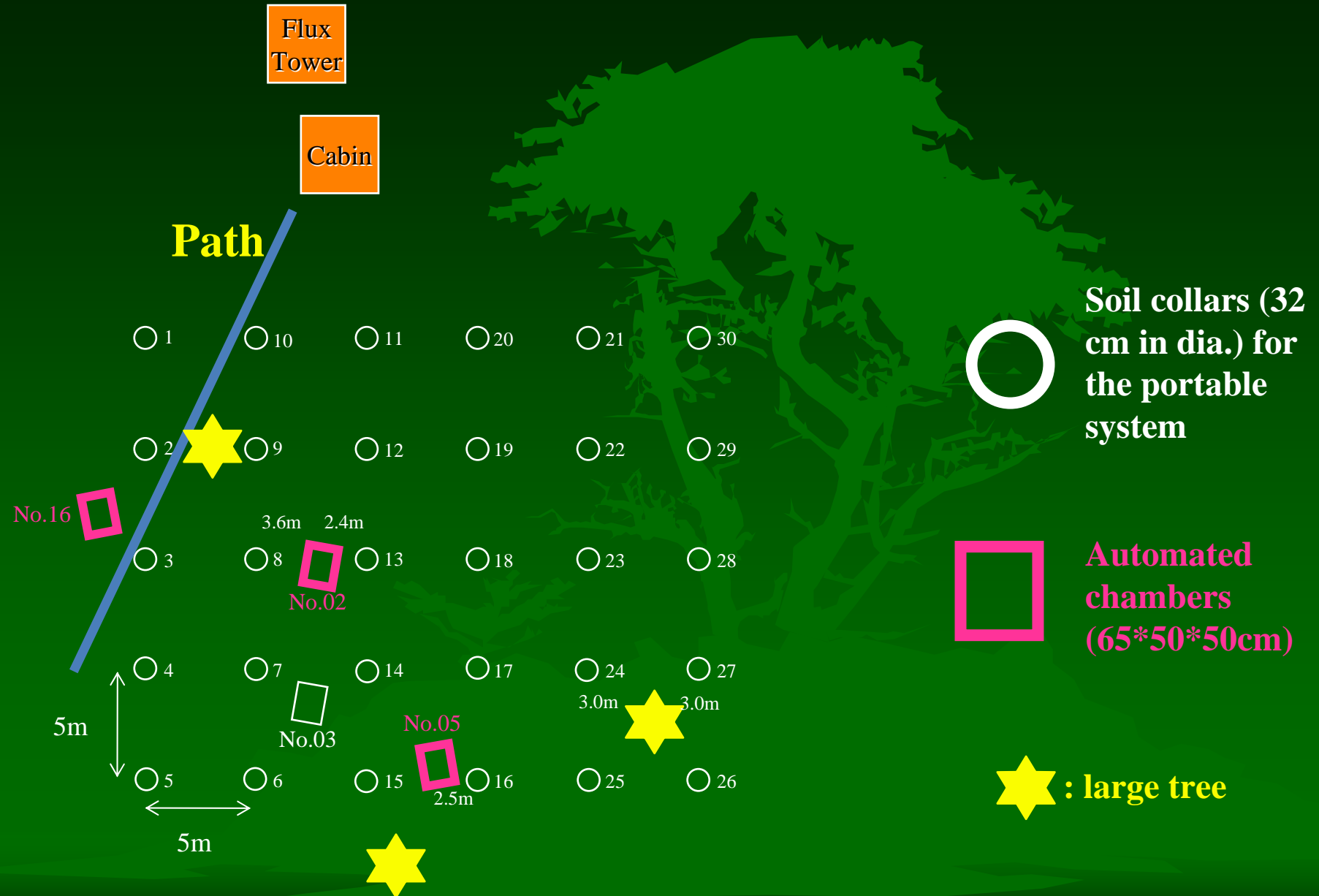
1. Primary forest – 2 plot
2. logged sites: 1 plots
(logged during 2002)

Temengor:

1. Primary forest – 1 plot
2. logged sites: 2 plots
(logged during May 2010)

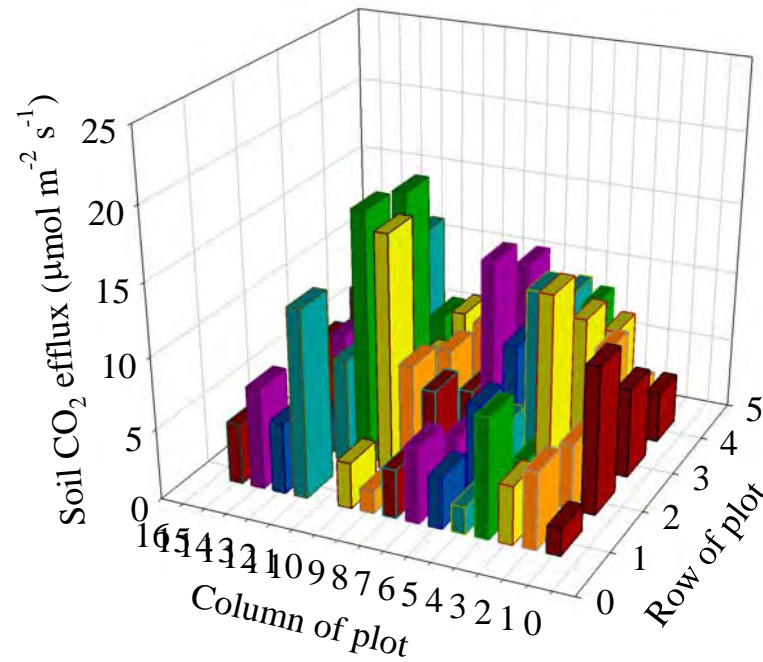


Plot near the tower

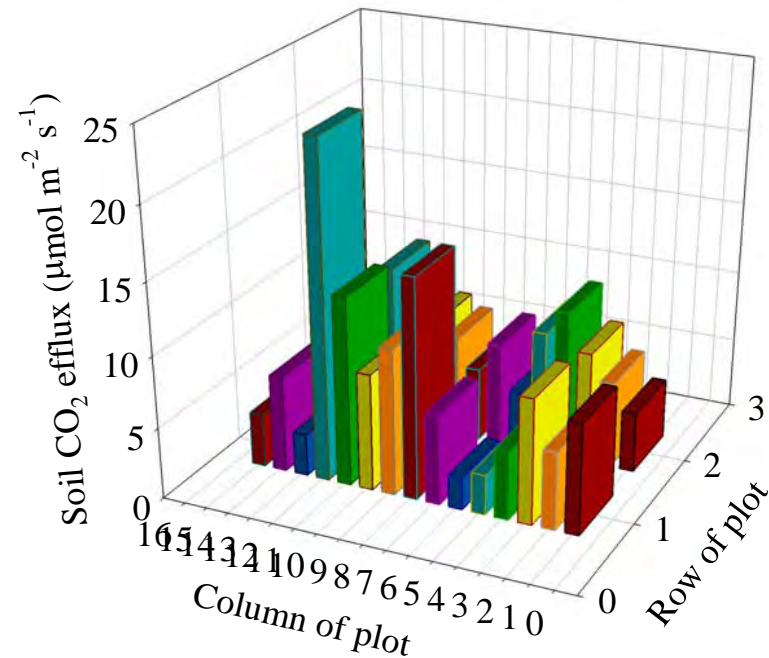


Spatial variation of Soil CO₂ Efflux

Primary forest (47 compartment)



Logged site (47 compartment)



6.85+3.88 $\mu\text{mol m}^{-2} \text{s}^{-1}$

CV = 57%

7.50+4.35 $\mu\text{mol m}^{-2} \text{s}^{-1}$

CV = 58%

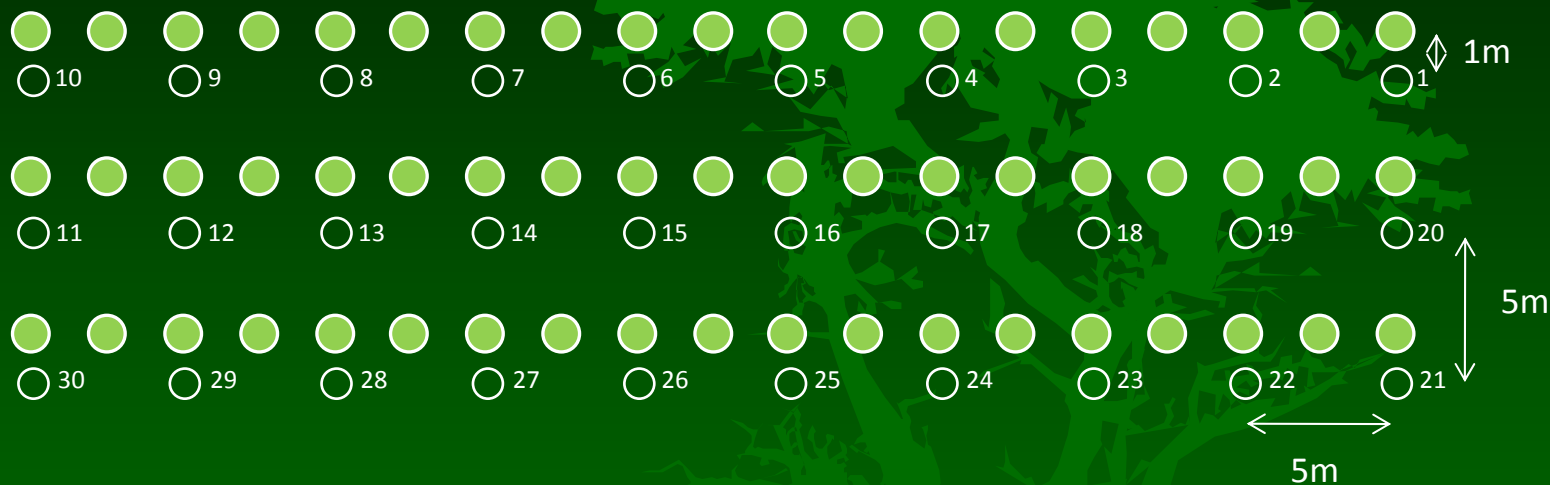
Land use change vs. soil degradation





Installation of soil efflux plot at a 4-year-old rubber plantation

Plot at the rubber plantation



Rubber trees

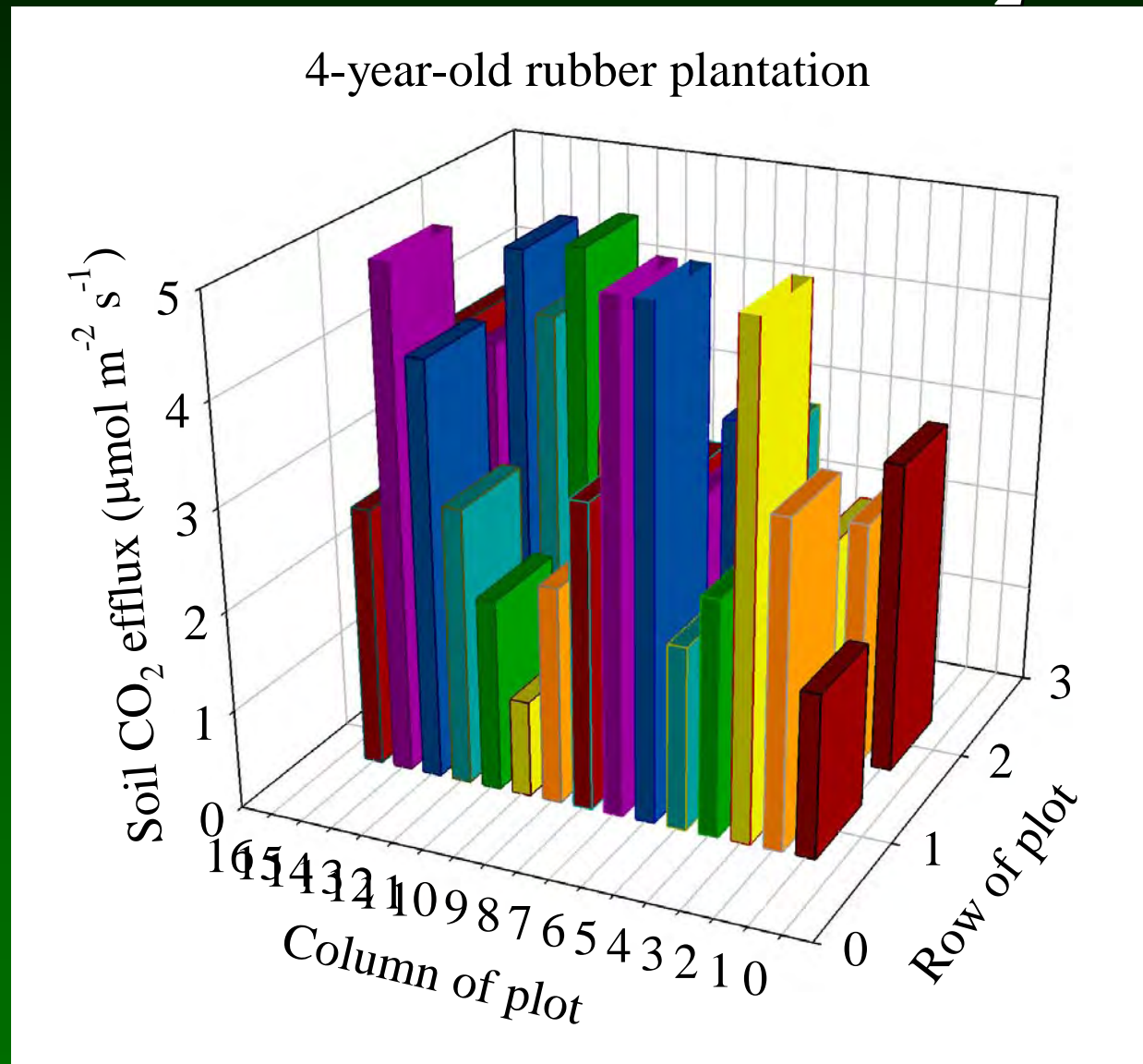


Soil collars (32 cm in dia.) for the portable system

Measuring soil CO₂ efflux at the rubber plantation



Spatial variation of Soil CO₂ Efflux

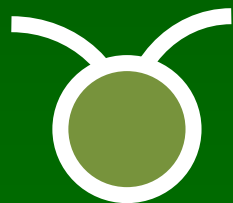
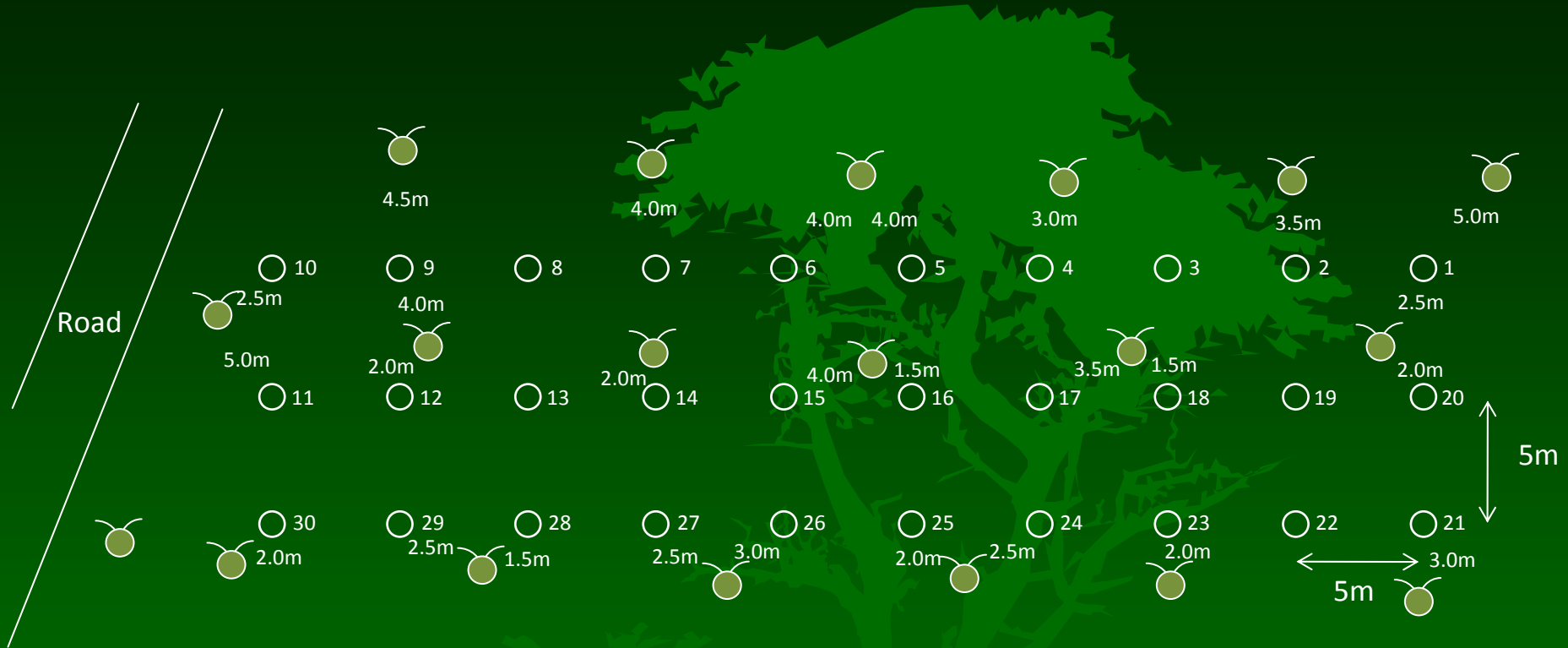


$3.34 + 1.55 \mu\text{mol m}^{-2} \text{s}^{-1}$, CV = 46%

Installation of soil efflux plot at a 4-year-old oil palm plantation



Plot at the oil palm plantation



Oil palm trees

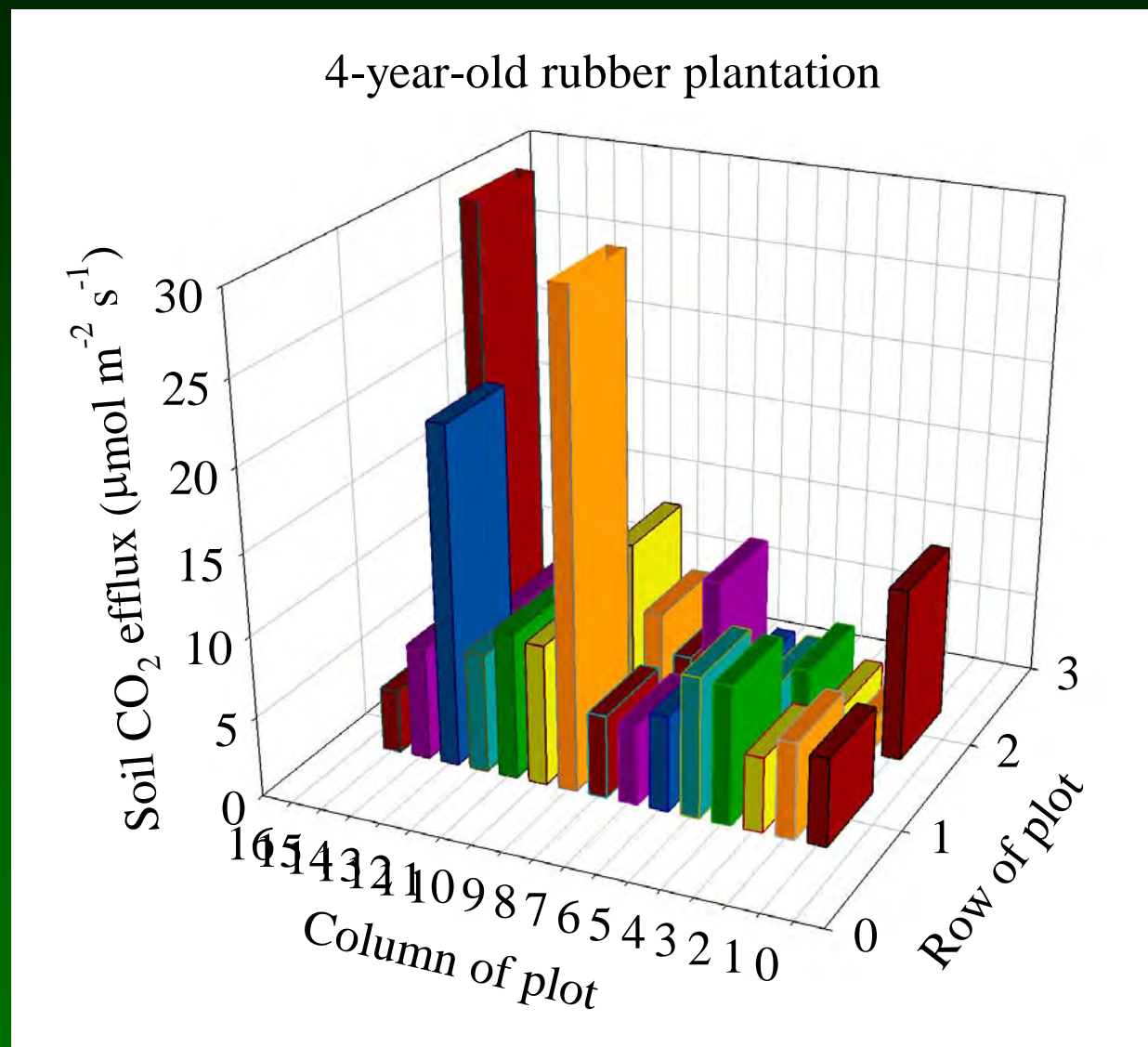


Soil collars (32 cm in dia.) for the portable system

Measuring soil CO₂ efflux at the oil palm plantation



Spatial variation of Soil CO₂ Efflux



9.11 + 10.72 $\mu\text{mol m}^{-2} \text{s}^{-1}$, CV = 118%

Old automated efflux system at Pasoh



A group of seven men are gathered on a white tiled floor in a living room, working on assembling several metal frames. The frames are made of silver-colored metal rods connected by corner brackets. The men are wearing various casual clothing, including t-shirts and long-sleeved shirts in colors like red, blue, and grey. Some are kneeling, while others are sitting on the floor. Tools like screwdrivers and small boxes of hardware are scattered around. In the background, there is a floral patterned sofa, a wooden coffee table, and a large wooden door. The overall scene depicts a collaborative assembly process in a domestic setting.

Assembly the chambers

**24 automated chambers
(65cm*50cm*50cm, L*W*H)**



Installation

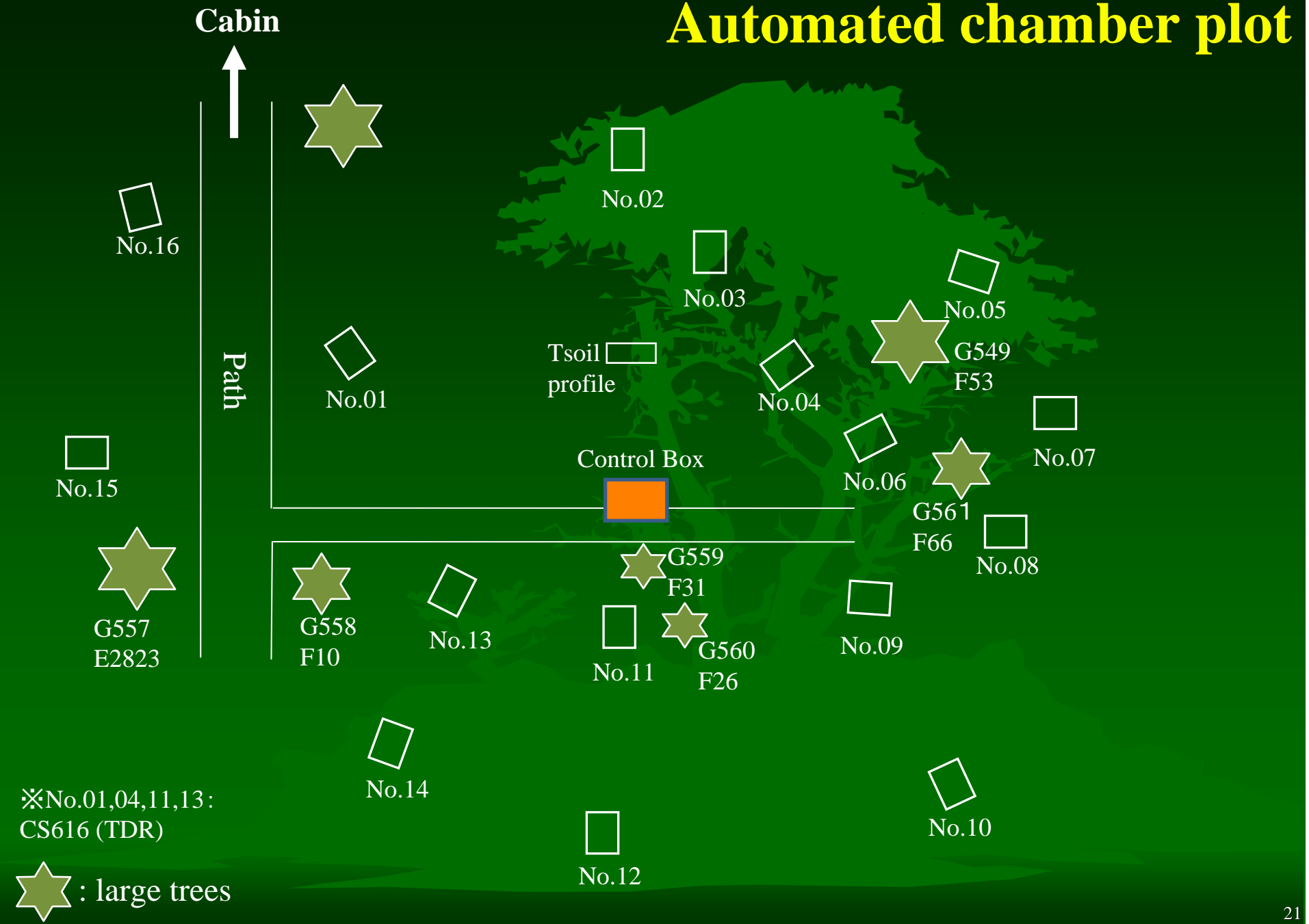


Control box





Automated chamber plot



※No.01,04,11,13:
CS616 (TDR)

☆ : large trees

Chamber campaign



Litterfall vs. soil respiration



Pasoh Tower Repairing

