



TERN

Terrestrial Ecosystem  
Research Network

# Ozflux in FNQ

## - unravelling the data .....

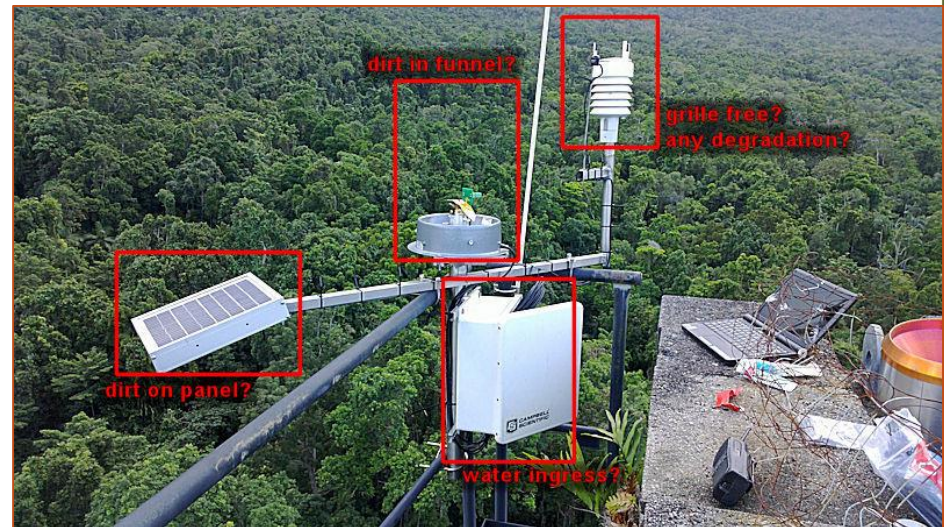
Presented by :

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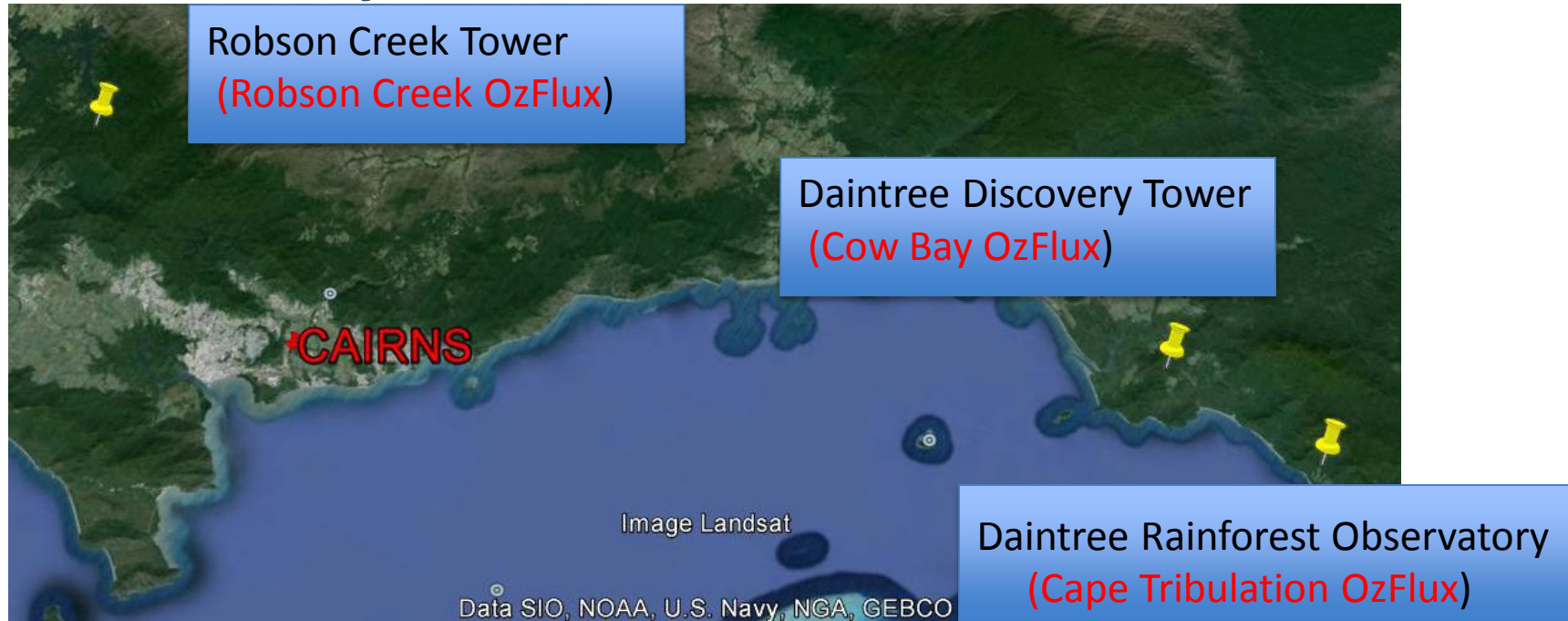
ph: 07 4232 1275





## A Tale of Three Towers

- ❖ All three sites are in terrain with a 'complex' element.
- ❖ Daytime flux data is being used for data analyses on the Daintree towers.





## Site 1: Robson Creek OzFlux

### ❖ Lamb Range

Simple Notophyll Vine Forest

26 – 40m canopy

❖ **Soil pit:** Acidic,  
Dystrophic,  
Brown Dermosol

❖ Tower at 691m

❖ **Rainfall:**  $\approx 2093\text{mm}$

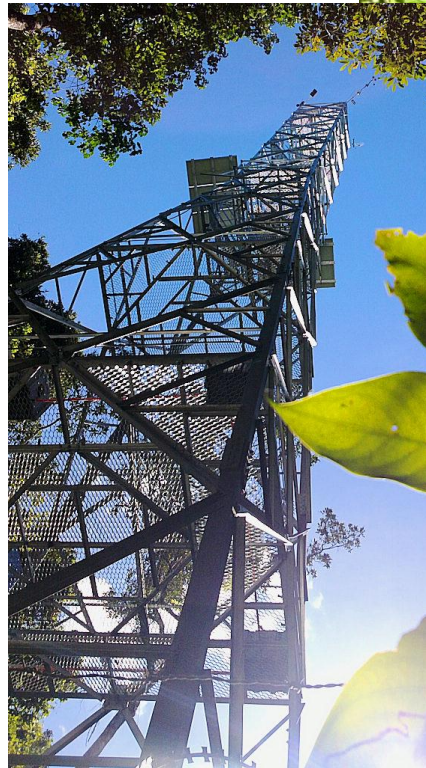
❖  $T_{\text{mean}}$ :  $\approx 19.2^{\circ}\text{C}$

❖  $T_{\text{min}} - \text{max } ^{\circ}\text{C}$  (ROB)  
 $\approx 2.9 - 39.1$

❖ **Tower data:** 08/2013

❖ TERN OzFlux system 08/2013

❖ Data at Level 5 : 2013 - 15





## Site 2: Cow Bay OzFlux

- ❖ **Tower data:** 01/2009
- ❖ **TERN OzFlux system** 11/2010
- ❖ **Data at Level 5 : 2009 - 15**







- ❖ Cape Tribulation Ozflux station.  
(Running since December 2001)
- ❖ TERN OzFlux system 03/2012
- ❖ Data at Level 5 : 2010 - 15





# Daintree OzFlux Sites



- ❖ Pristine lowland rainforest at both stations.
- ❖ Complex Type 1A mesophyll vine forest
- ❖ Canopy height 25-35m
- ❖ Leaf area index  $\approx 4$
- ❖ Elevation: 65m
- ❖ Rainfall: 4250mm (COW)  
5179mm (CTR)
- ❖  $T_{\text{mean}}^{\circ\text{C}}$ : 24.2 (COW)  
24.4 (CTR)
- $T_{\text{min} - \text{max}}^{\circ\text{C}}$
- ❖ COW  
11.2 – 39.9
- ❖ CTR  
10.6 – 38.6





❖ What's new on the tower:

❖ **NDVI sensor: SKYE SKR1860**

Ch1- 531, Ch2- 570, Ch3- 660, Ch4- 850 nm

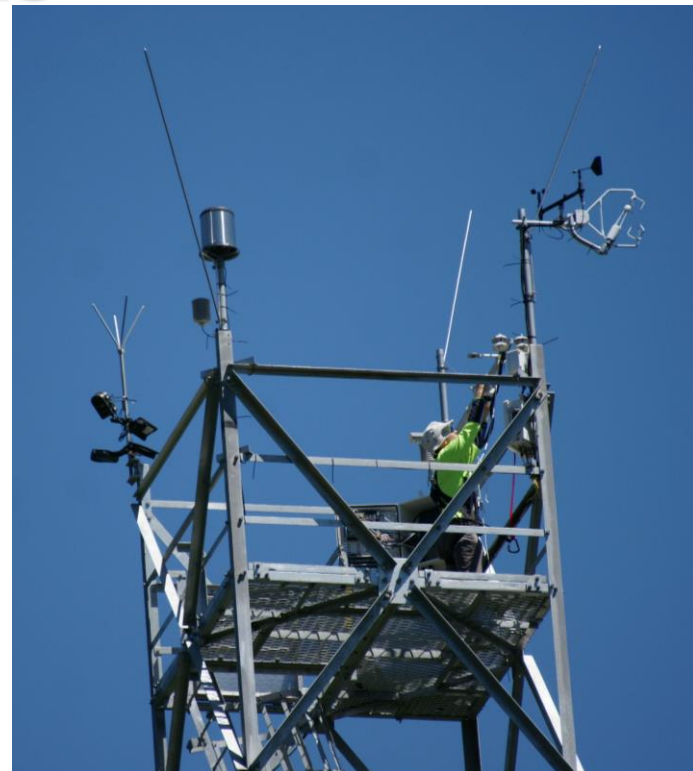
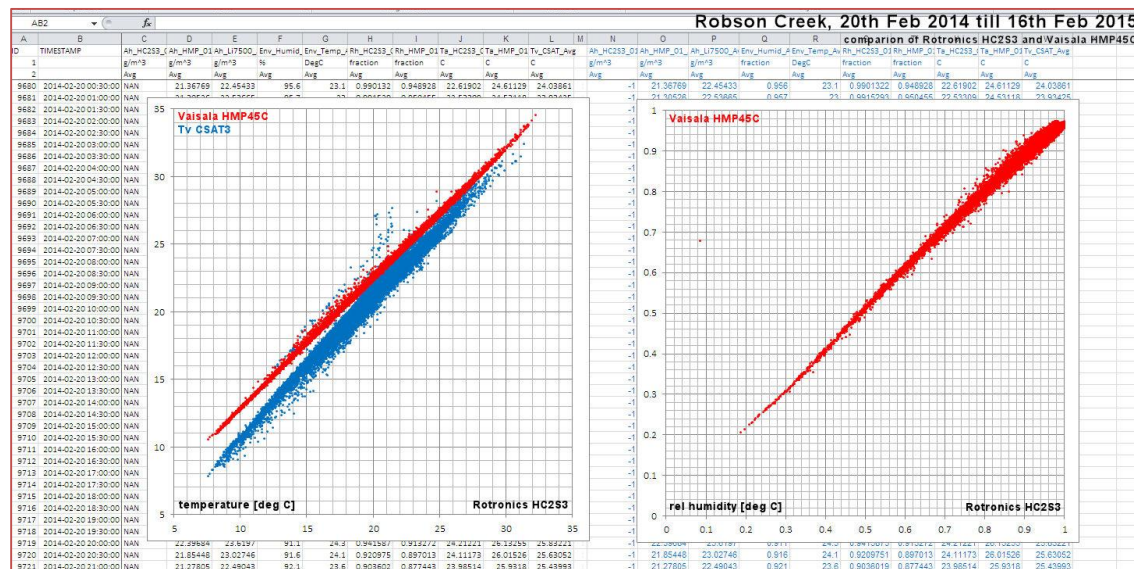




## ❖ What's new on the tower:

## ❖ Rotronics RH/T sensor:

### HC2S3

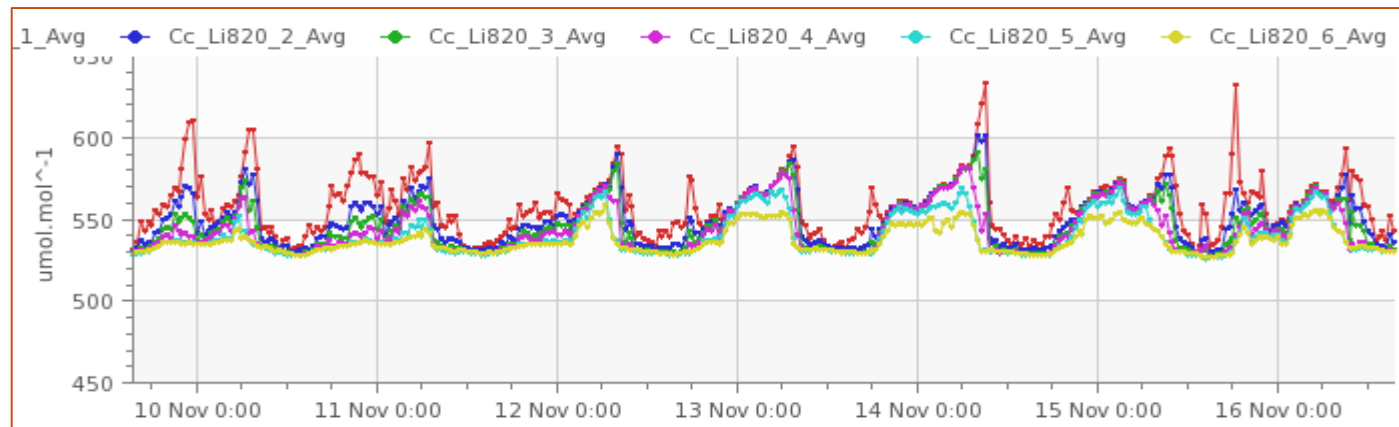
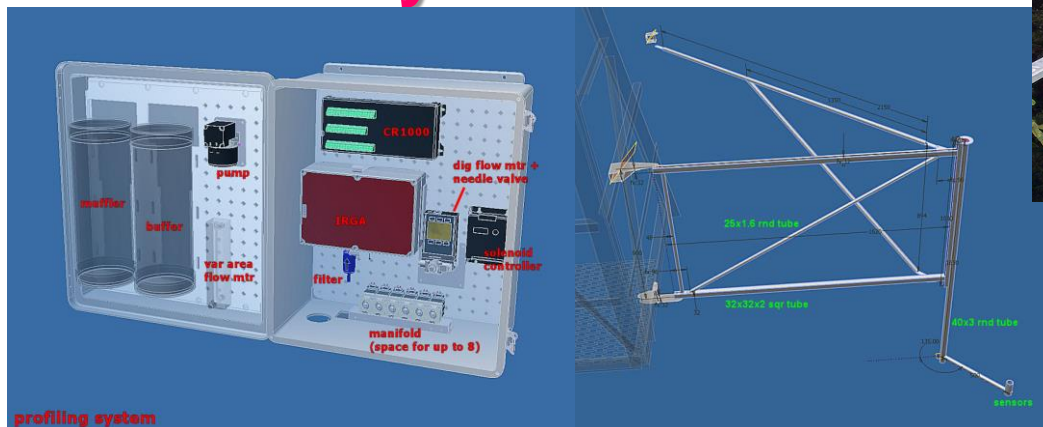




## ❖ Profile system

red = 1m blu = 2m grn = 4m  
prp = 9m cyn = 25m yel = 40m

## ❖ Monash system+





## ❖ What's new on the tower: OWL & SNAKE



looking from tip down towards south  
(with mast bent over 90 deg towards north)





## ❖ What's new on the tower:

### WIRELESS 😊

**14 years with no comms is over**

❖ **Backup AWS on jib – Vaisalla WXT**

❖ ***Sue Laurance***: Underneath the tower the drought experiment has altered soil water availability in 0.5Ha with the 4 control soil pits showing normal seasonal dry down while the 4 treatment soil pits are substantially drier in the 0 – 50cm depth.

❖ **The flux tower soil pit finally has heat flux plates** and will one day be connected to the tower....





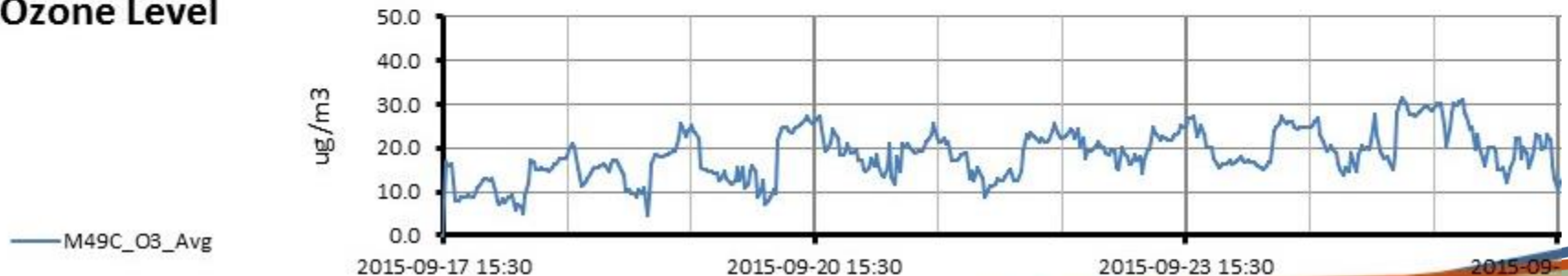
## ❖ What's new on the tower: OZONE ANALYSER

**Rebecca Wilson, Paul Nelson (MU)**



Field	Value
RecNum	28
TimeStamp	17/09/2015 15:22:31
M49C_O3	19.73 ug/m3
M49C_O3bkngnd	0.4 ug/m3
M49C_FlwA	0.776 l/min
M49C_FlwB	0.769 l/min
M49C_cAint	94080 Hz
M49C_cBint	67848 Hz
M49C_ps_mmHg	727.6 mmHg
M49C_ps	97.00536 kPa
M49C_bnchT	31.4 deg C
M49C_lampT	56.3 deg C
M49C_OzFlw	NAN l/min
M49C_flags	1c1c0000
M49C_unit	

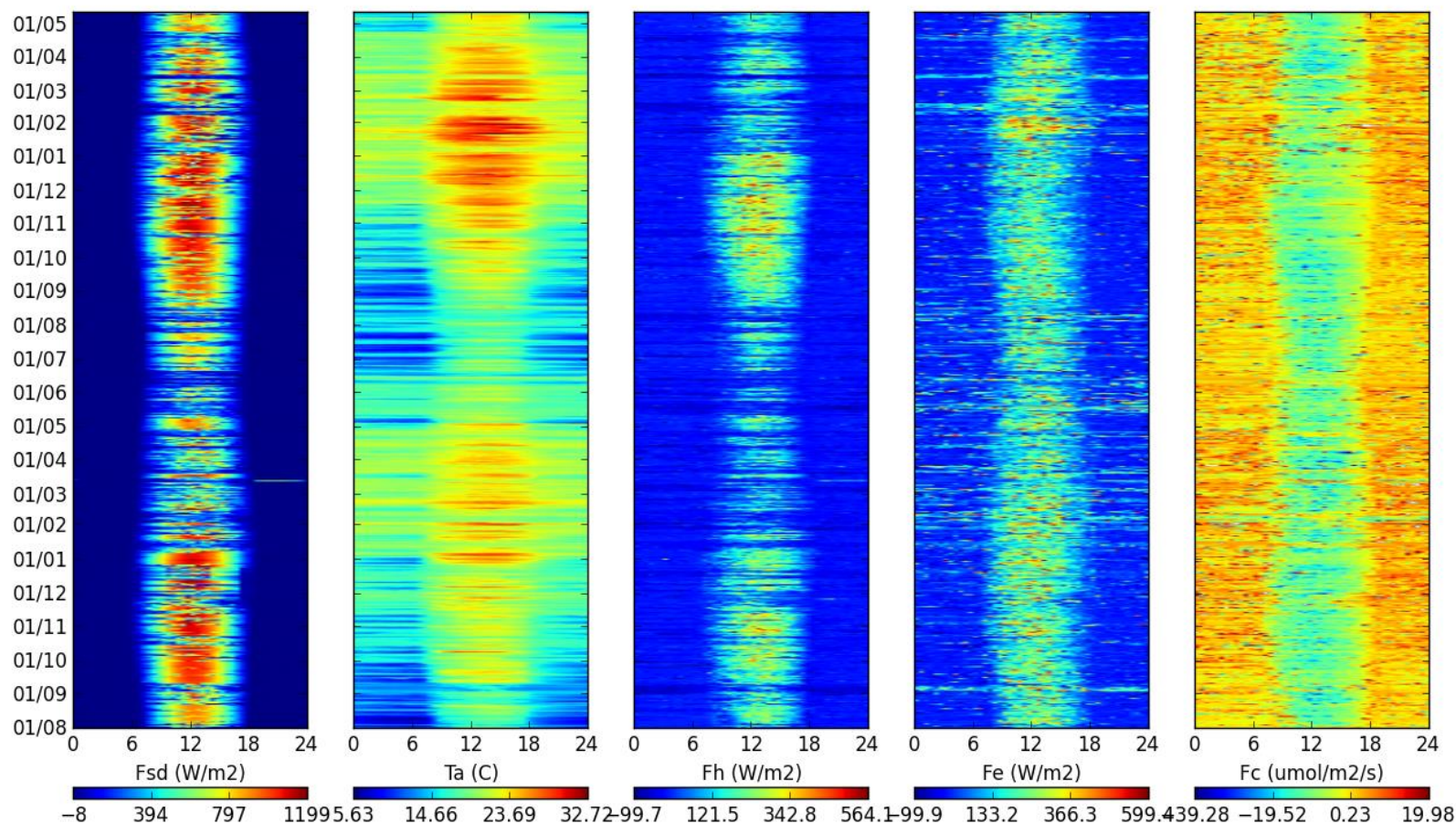
### Ozone Level





# THE DATA... ROB

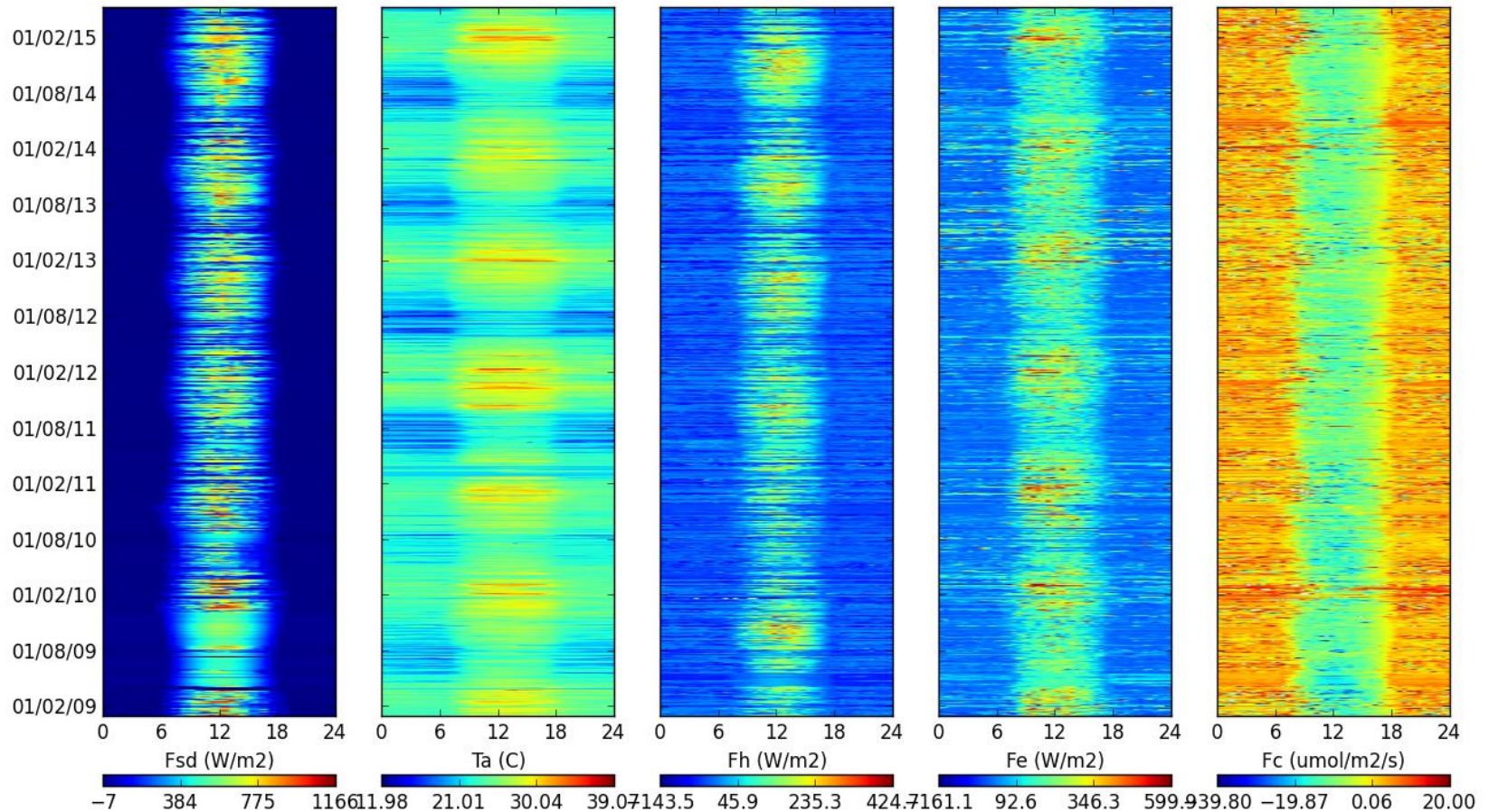
Robson Creek L5 from 2013-08-01 00:00:00 to 2015-05-12 13:30:00





# THE DATA... COW

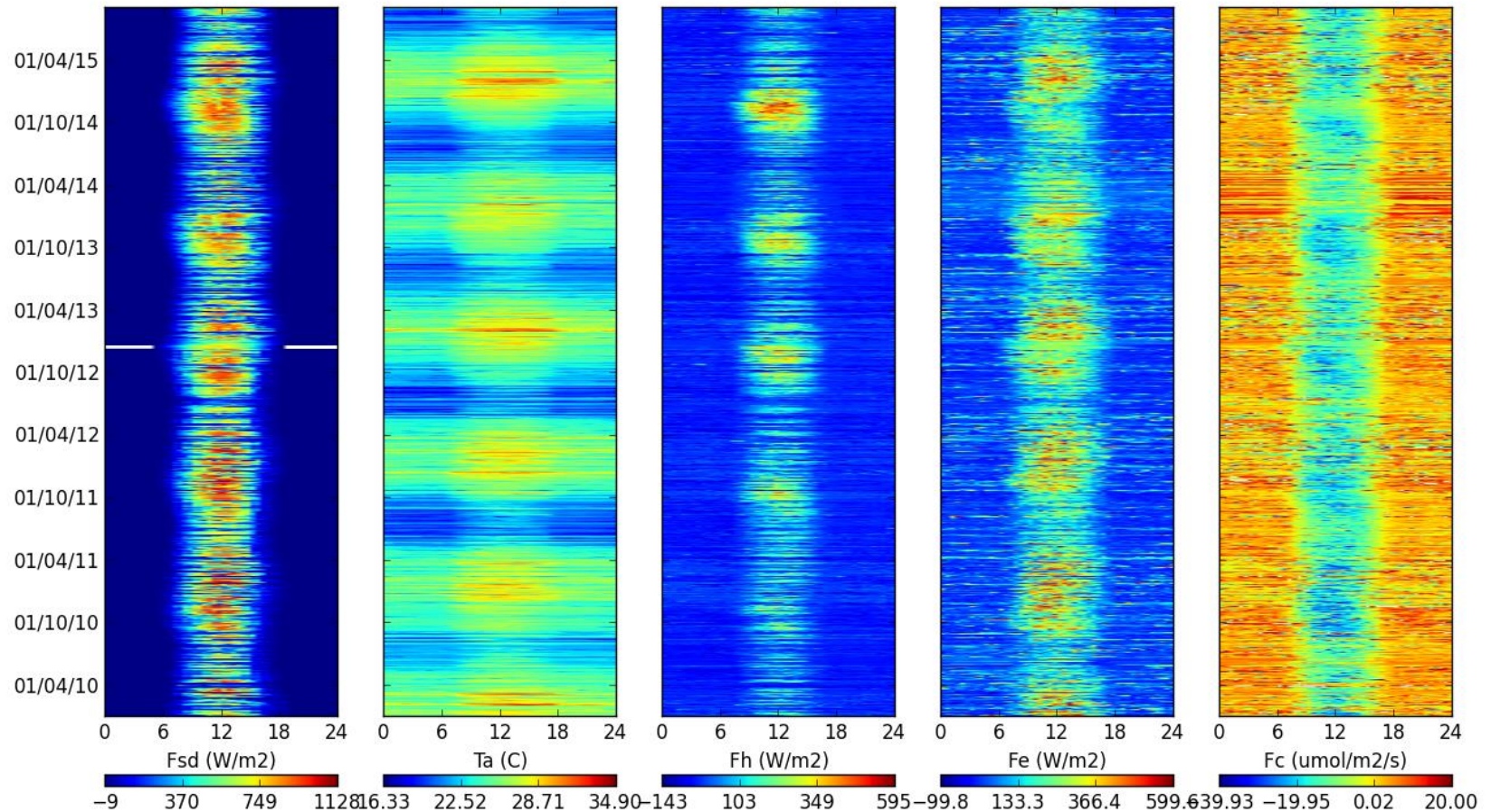
Cow Bay L5 from 2009-01-01 00:00:00 to 2015-05-12 18:30:00





# THE DATA... CTR

Cape Tribulation L5 from 2010-01-01 00:00:00 to 2015-09-03 15:00:00

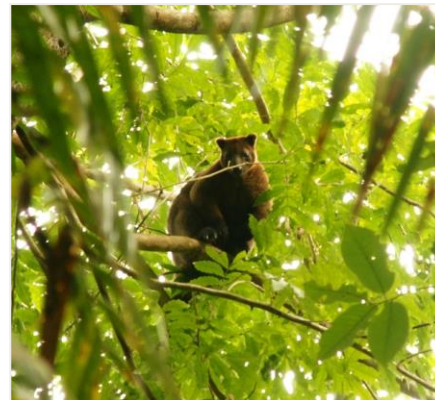


# FNQ Supersite OzFlux sites

## The relevance of locations

	Regional Ecosystem (1:25 000)	BVG (1:1 million)	BVG (1:2 million)	BVG (1:5 million)
Robson Creek upland	340 ha [7.3.36a]	30,000 ha [1b:CMVF-NVF on Tablelands]	60,000 ha [complex mesophyll to notophyll vine forests]	700,000 ha [type 1: rainforests, scrub]
Daintree Rainforest upland	<b>4,000 ha</b> [7.3.17]	<b>30,000 ha</b> [1a: CMVF-NVF in very wet locations]		

- ❖ **Vertebrate fauna : 28%**
- ❖ **Native flora : 10%**
- ❖ **Landmass : 0.2%**







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