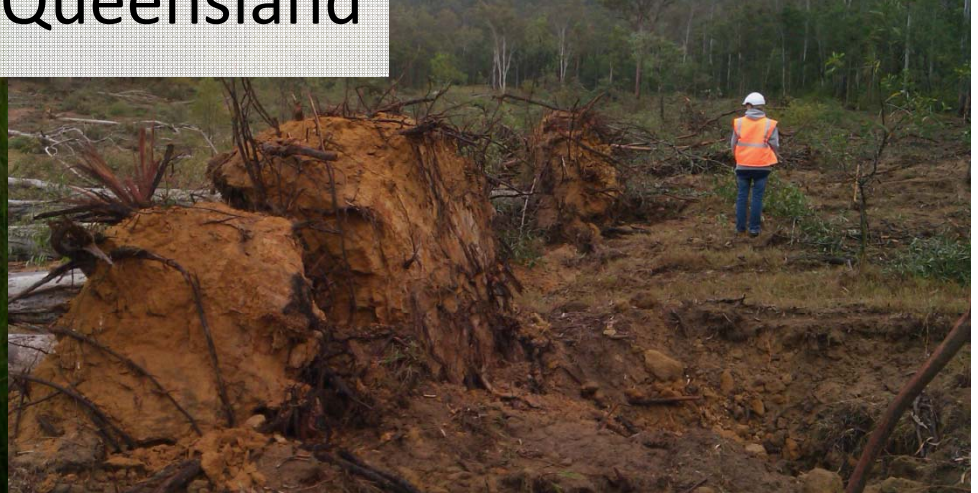


Queensland University  
of Technology  
Samford Site  
Peri-urban pasture  
South-east Queensland



# SE Queensland

Samford Valley

Brisbane CBD

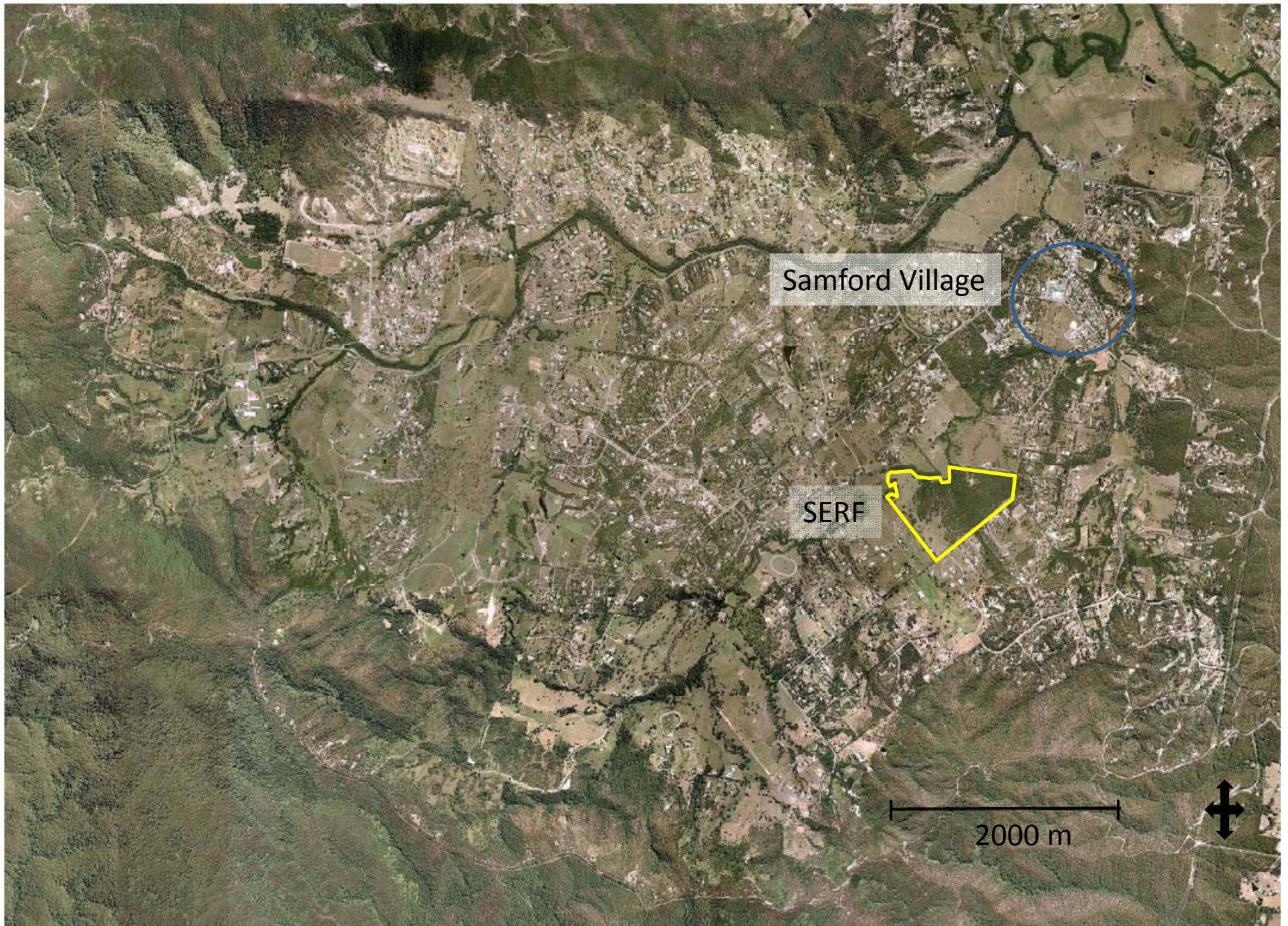
Image © 2011 GeoEye  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image © 2011 DigitalGlobe  
Image © 2011 Sinclair Knight Merz & Fugro

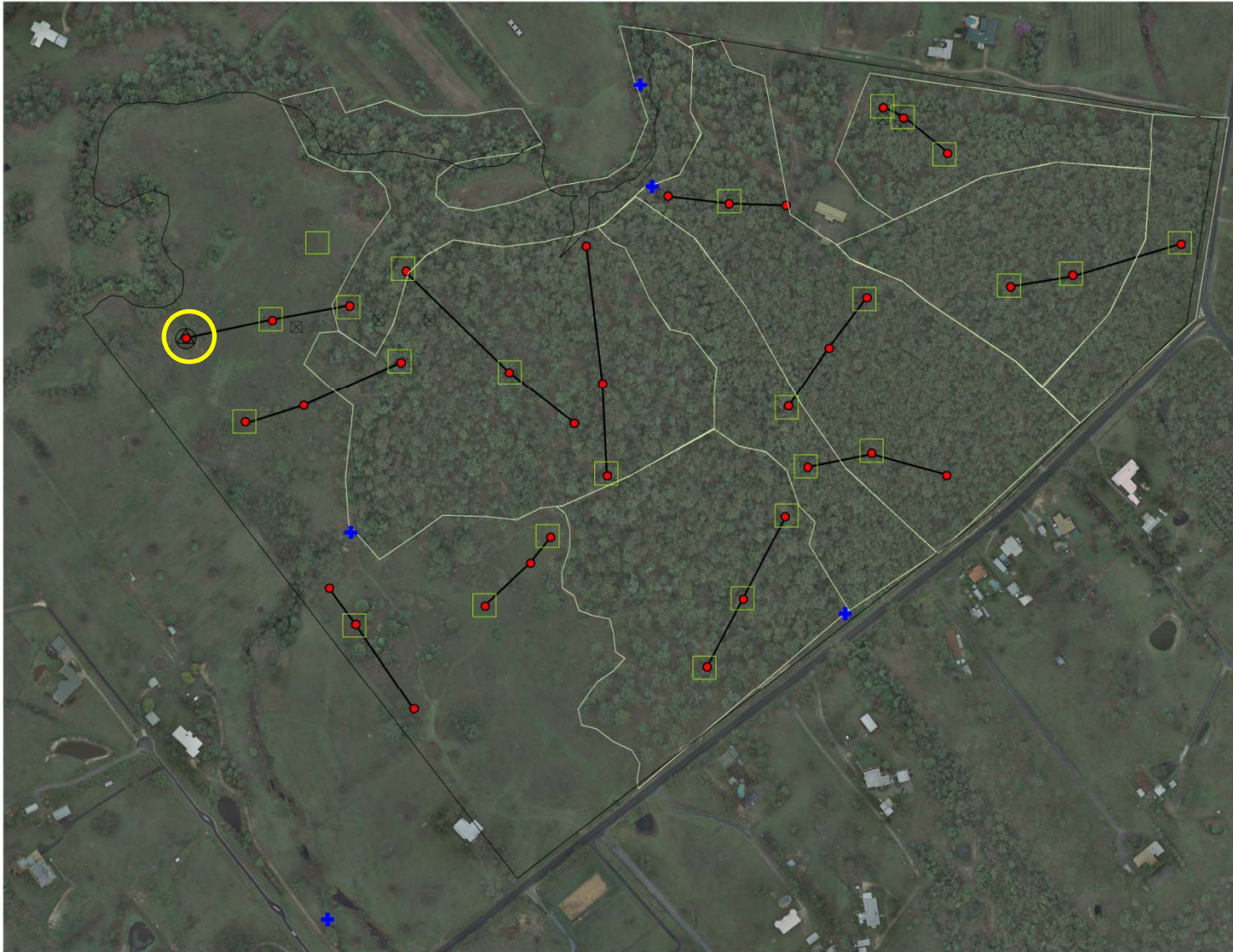
lat -27.407159° lon 153.026527° elev 23 m

© 2010 Google









Eye alt 94.42 k

30/2010





SERF  
30.05.2011

- |   |            |   |                    |   |              |
|---|------------|---|--------------------|---|--------------|
|  | SERF       |  | NPP plots          |  | Stream water |
|  | veg types  |  | GHG chambers       |  | Soil water   |
|  | Flux tower |  | Sampling transects |   |              |

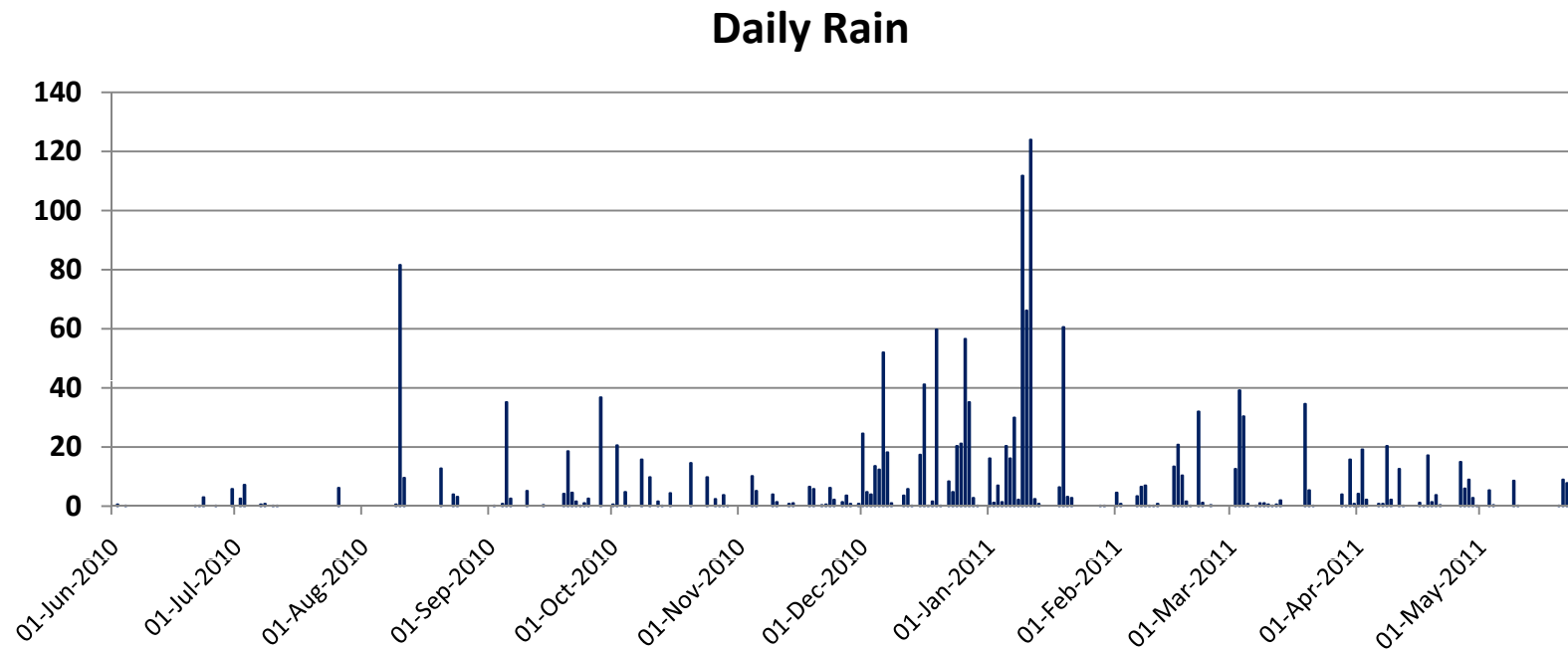


# Site Description

- Coordinates: -27° 23' S  
152° 52' E
- Vegetation type: Improved pasture  
(*Paspalum dilatatum*, *Cynodon dactylon* dominated)
- Soil type: Red Chromosol
- Tower height: 2 m
- Instruments: LI-COR 7500, CSAT-3, NR lite, CNR1, Windsonic, HFT3 soil heat flux plate, TB3 tipping bucket raingauge, CS616 soil moisture, TCAV soil thermocouple, AM16 relay multiplexer, CR3000 logger

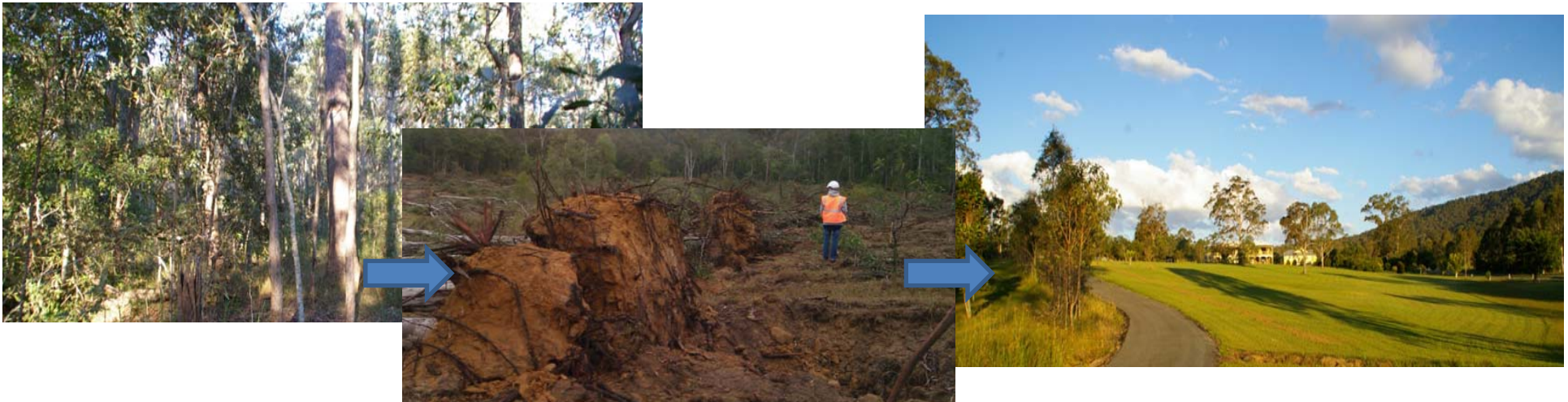
# Site Climate

- Annual rainfall (1926-2007) 1102 mm
- 2010-11 : 1701 mm (>95<sup>th</sup> %ile)



# Experimental Design

- Part of larger supersite: peri-urbanisation
- Impact of forest → pasture → urban
  - Carbon cycle of improved pasture
    - Using auto chambers for night-time ecosystem respiration (ustar issue)
    - Effect of frequent cutting/grazing on NPP



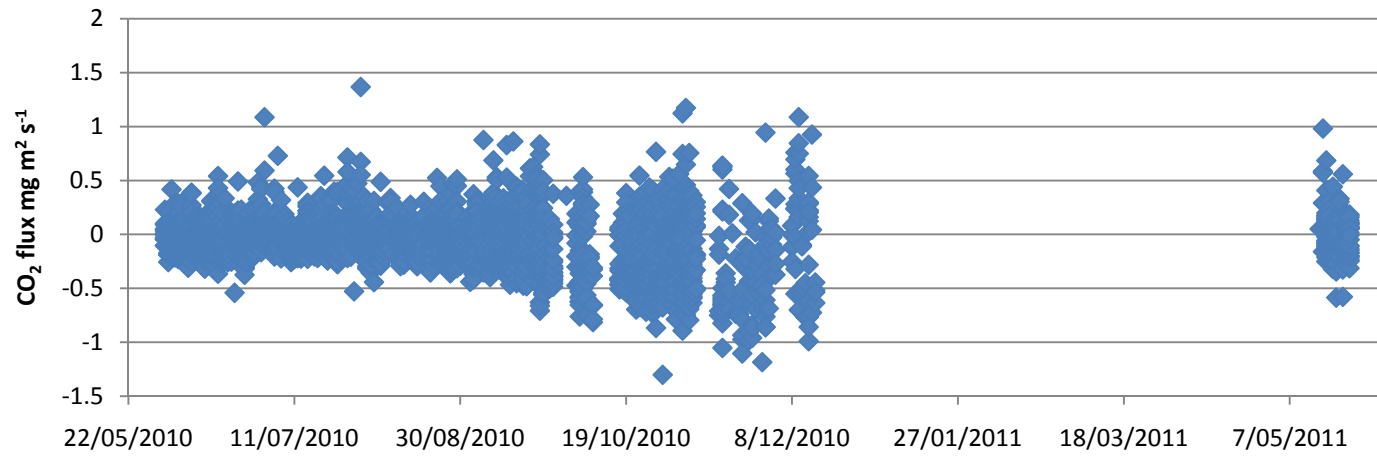
# Instrumentation issues

- Faulty CSAT-3 (transducer head A)
  - Importance of redundant sensor (2D wind-sonic)
- 2 other faulty CSAT's + trip to Utah = 6 months data lost
  - Need for a spare instrument bank
  - CHECK INSTRUMENTS ARE WORKING BEFORE INSTALLING



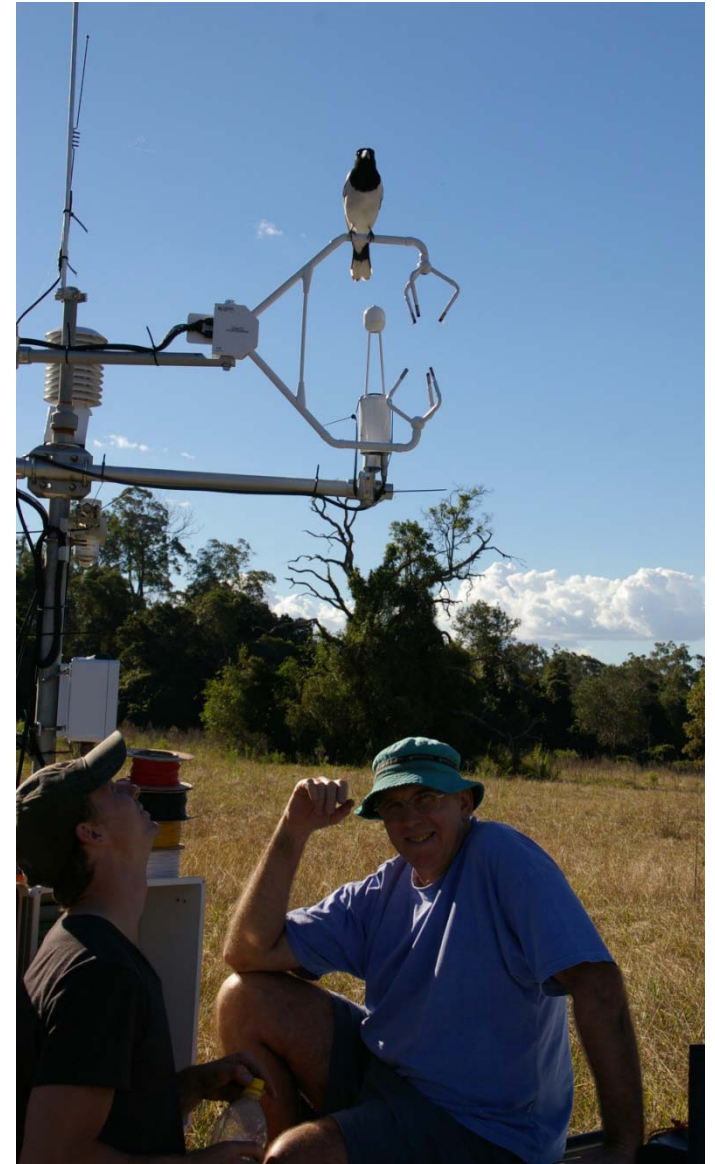


# CO<sub>2</sub> flux (wpl)

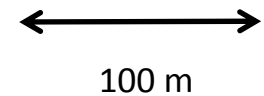
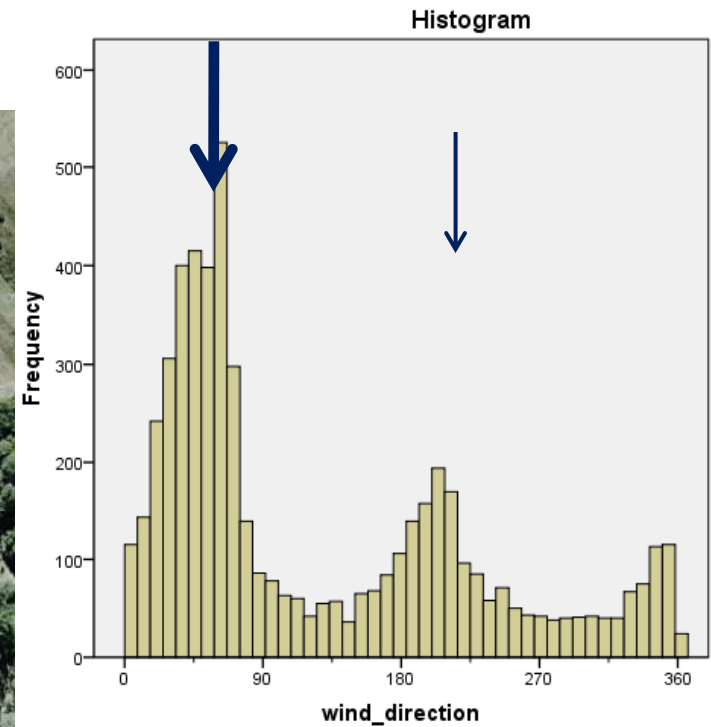
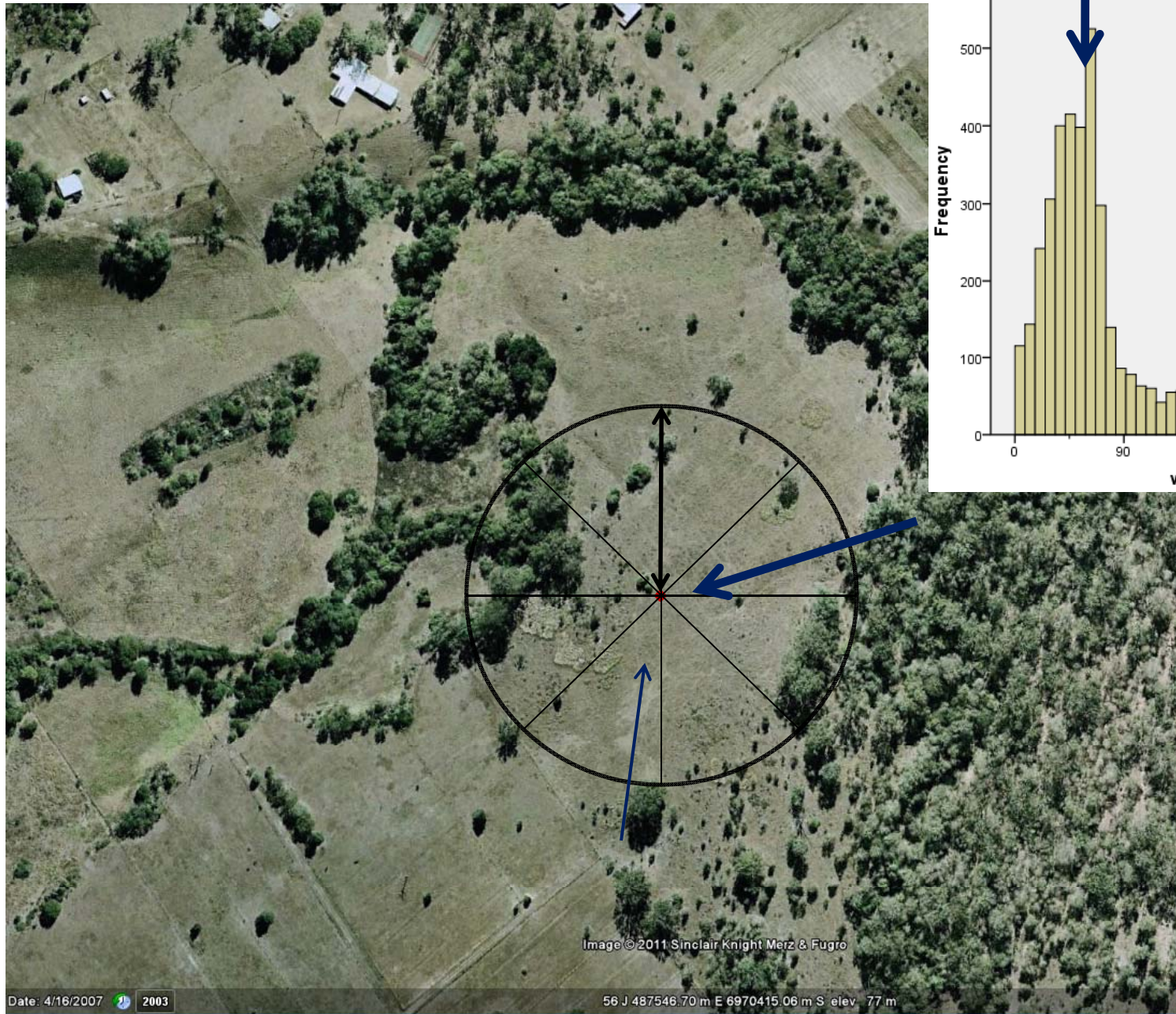


# Site issues

- Wildlife
- Site access – WET!!
- Night time CO<sub>2</sub> drainage
- Low ustar @ night
- Condensation on IRGA



# Wind direction June-Oct (CSAT)



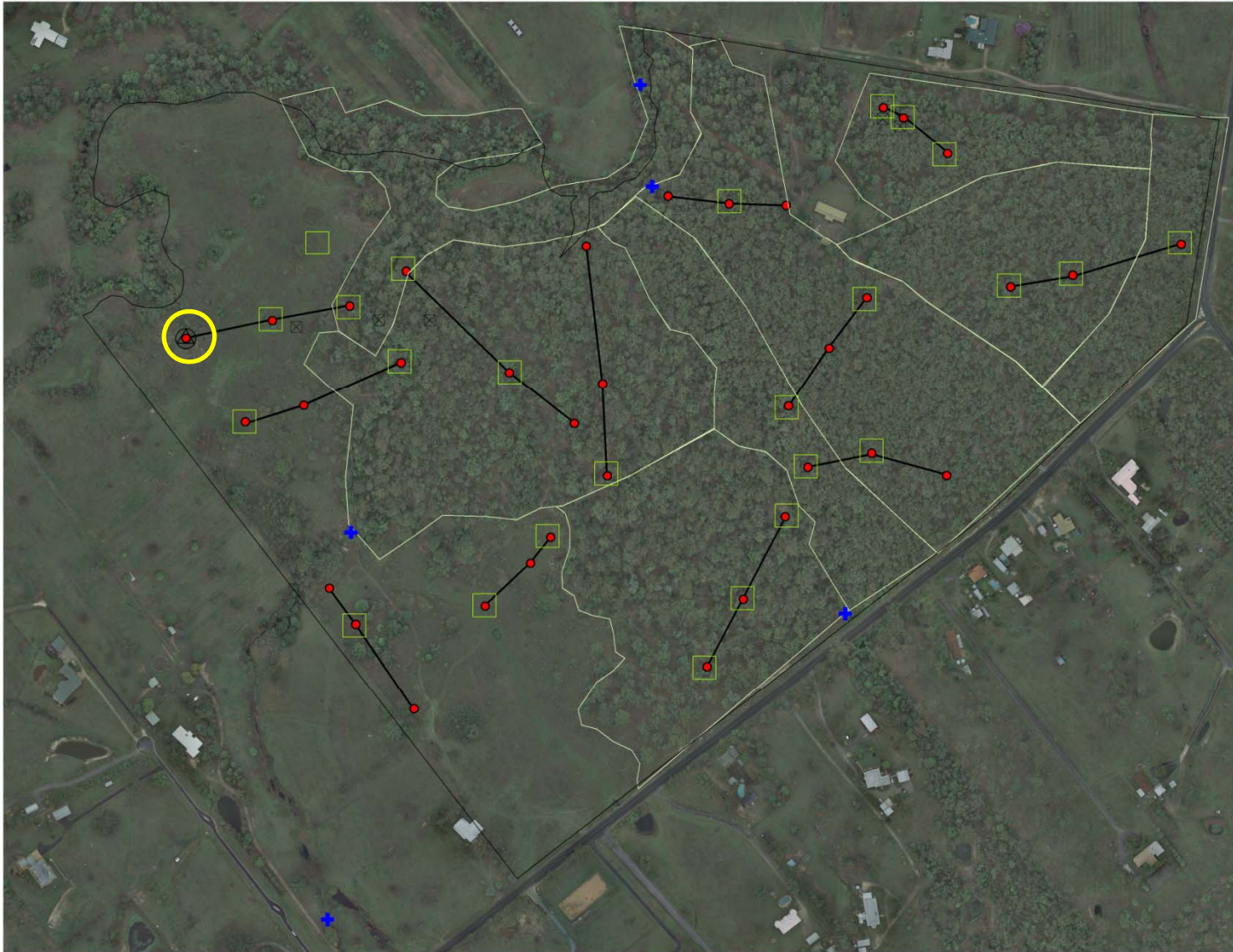
- Flux tower
- ← Prevailing wind direction











# What next?

- Pasture management (if dry enough)
- Instrument calibration (LiCOR 7500)
- Night-time respiration (auto chambers)
- Integration with supersite
- Forest????





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- |   |            |   |                    |   |              |
|---|------------|---|--------------------|---|--------------|
|  | SERF       |  | NPP plots          |  | Stream water |
|  | veg types  |  | GHG chambers       |  | Soil water   |
|  | Flux tower |  | Sampling transects |   |              |



- Plot Windsonic WD WS4 at night vs day (SPSS histogram)
- Plot Lvl 3 Fc\_WPL
- Plot ustar (histogram? Night time?)

# Outline

- Site description
  - Location, veg type, soil type, tower height, instruments, climate data
- Experimental design
  - part of larger supersite
  - impact of forest → pasture → urban
- Site data/issues
  - CSAT issue
    - Importance of redundant sensor (2<sup>D</sup> sonic- PI),
    - CHECK INSTRUMENTS ARE WORKING BEFORE INSTALL
  - Fetch, Night time CO<sub>2</sub> drainage, LICOR condensation
  - Too wet to cut grass
  - LICOR Calibration
- What next?
  - Publications – Carbon cycle of improved pasture
    - Using auto chambers for night-time ecosystem respiration (ustar issue)
    - Effect of frequent cutting/grazing on NPP