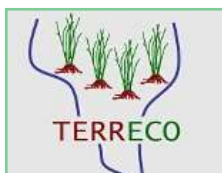




# Preliminary results of eddy covariance measurements at Haean, 2010

Zhao, Peng (趙鵬)  
University of Bayreuth



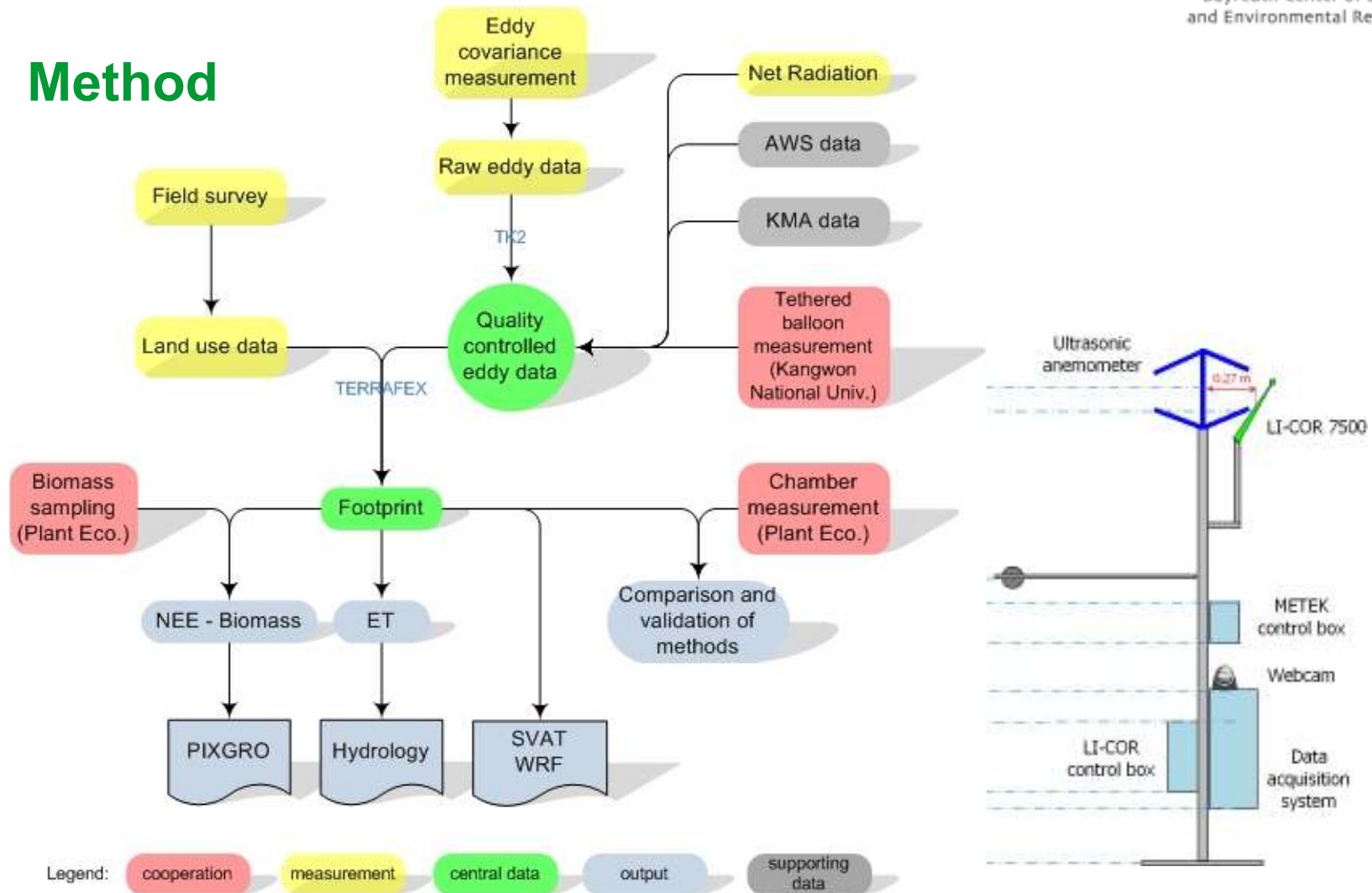


## Objectives

- To understand the sensible and latent heat fluxes in such a complex terrain as Haeon Basin, South Korea
- To better understand the energy exchange above farmlands (flooded and unflooded fields) during the whole growing period including monsoon seasons in Korea
- To determine reliable evapotranspiration and net ecosystem exchange (NEE) of carbon above farmlands
- To determine reliable information about near surface atmospheric stratification conditions, including convective events in Haeon Basin



## Method

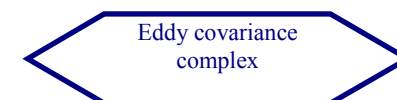




## Data processing

### Flux corrections

- Coordinate rotation (Planar fit)
- Buoyancy correction (Schotanus/Liu)
- Density correction (WPL)
- Spectral correction (Moore)



Eddy covariance  
complex

Raw data

TK2

Binary files

Covariance files

QA/QC files

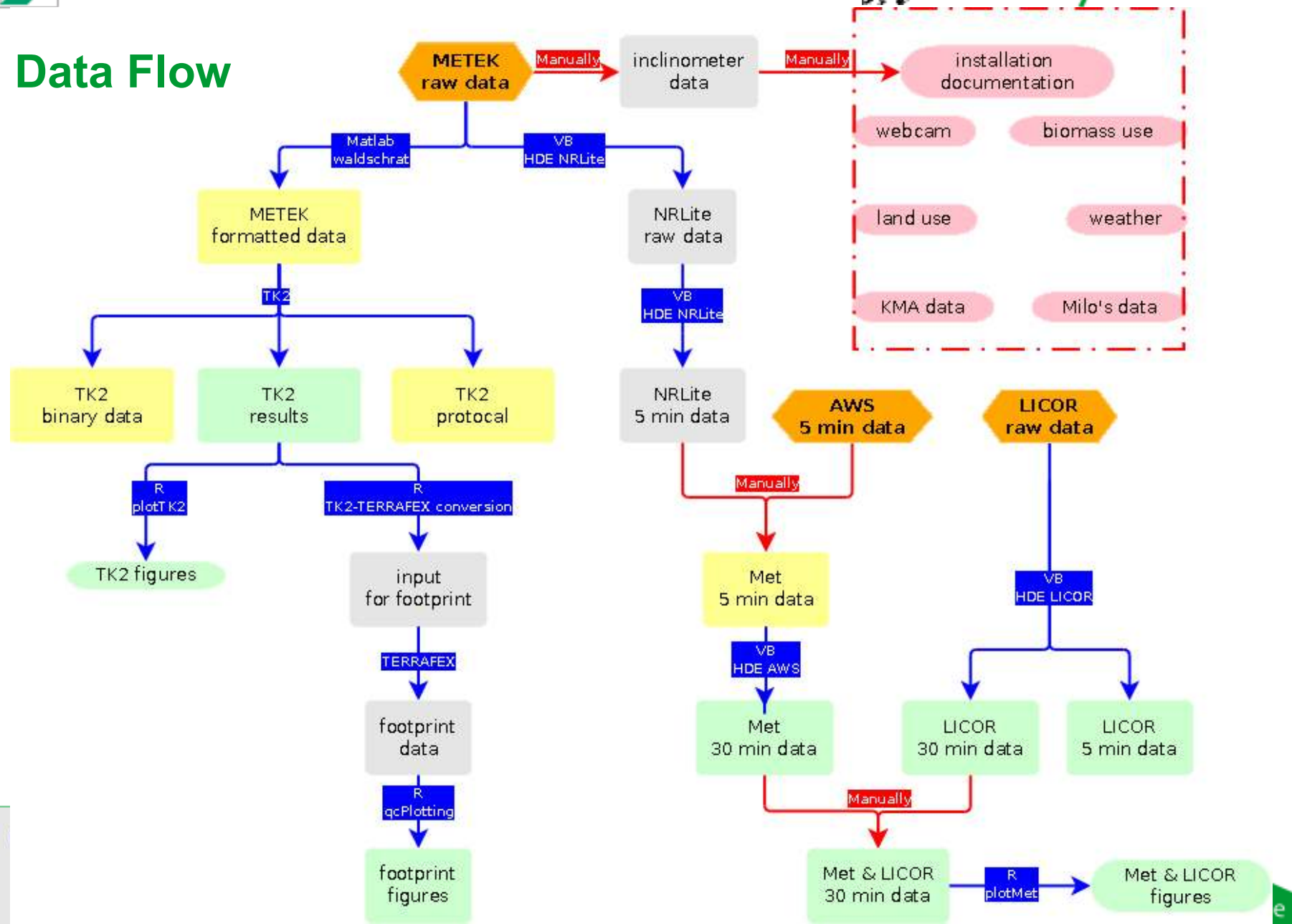
Planar fit parameters

Results files



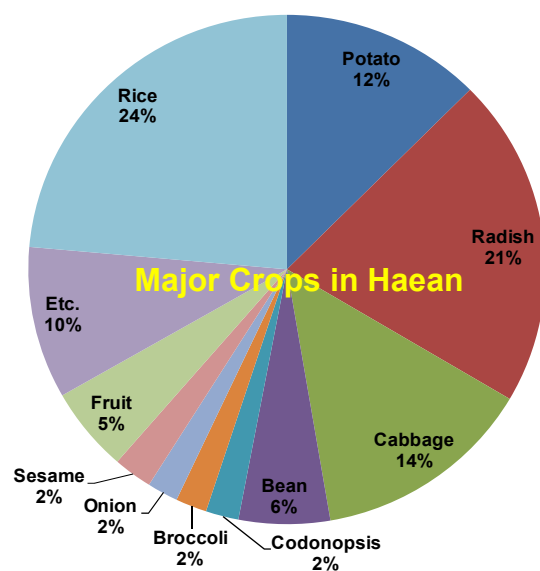
(Mauder and Foken, 2005)

## Data Flow



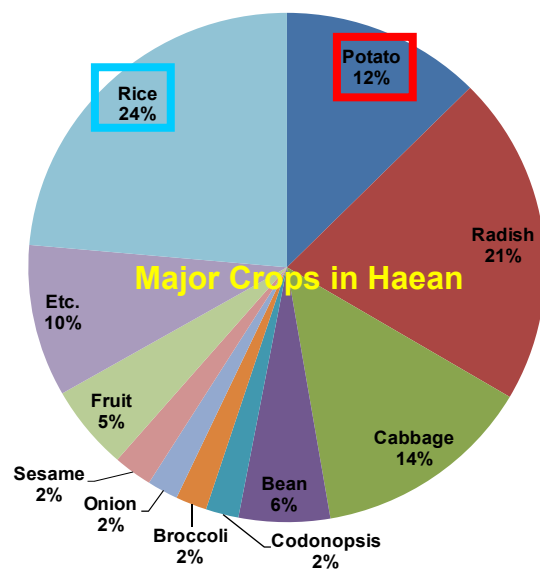


## Site Selection



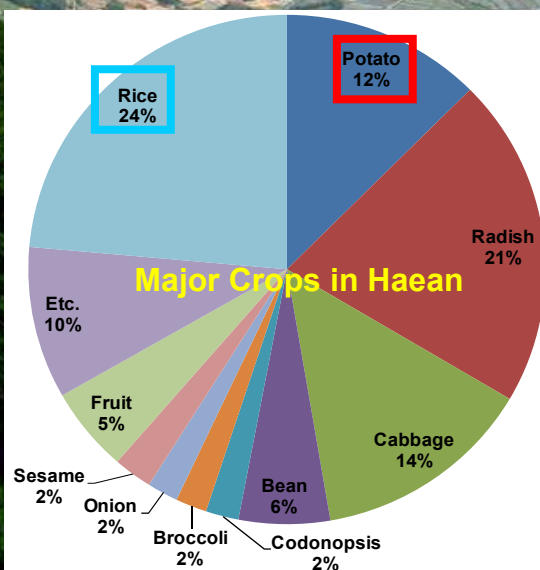


## Site Selection



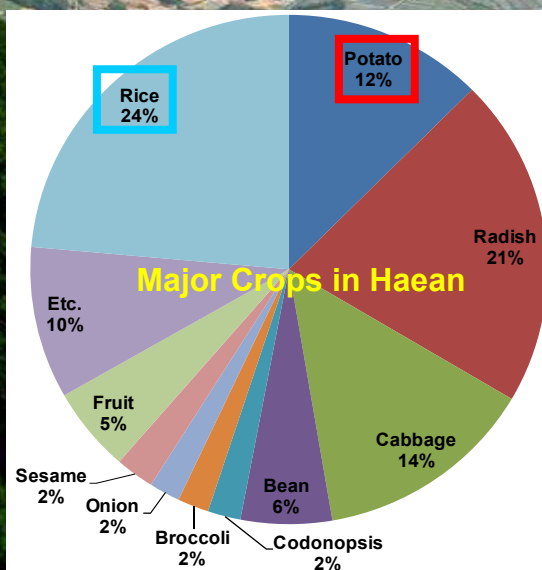
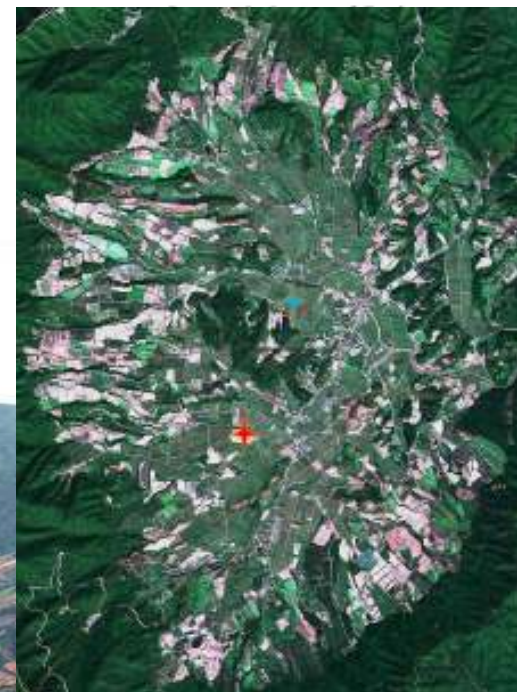


## Site Selection



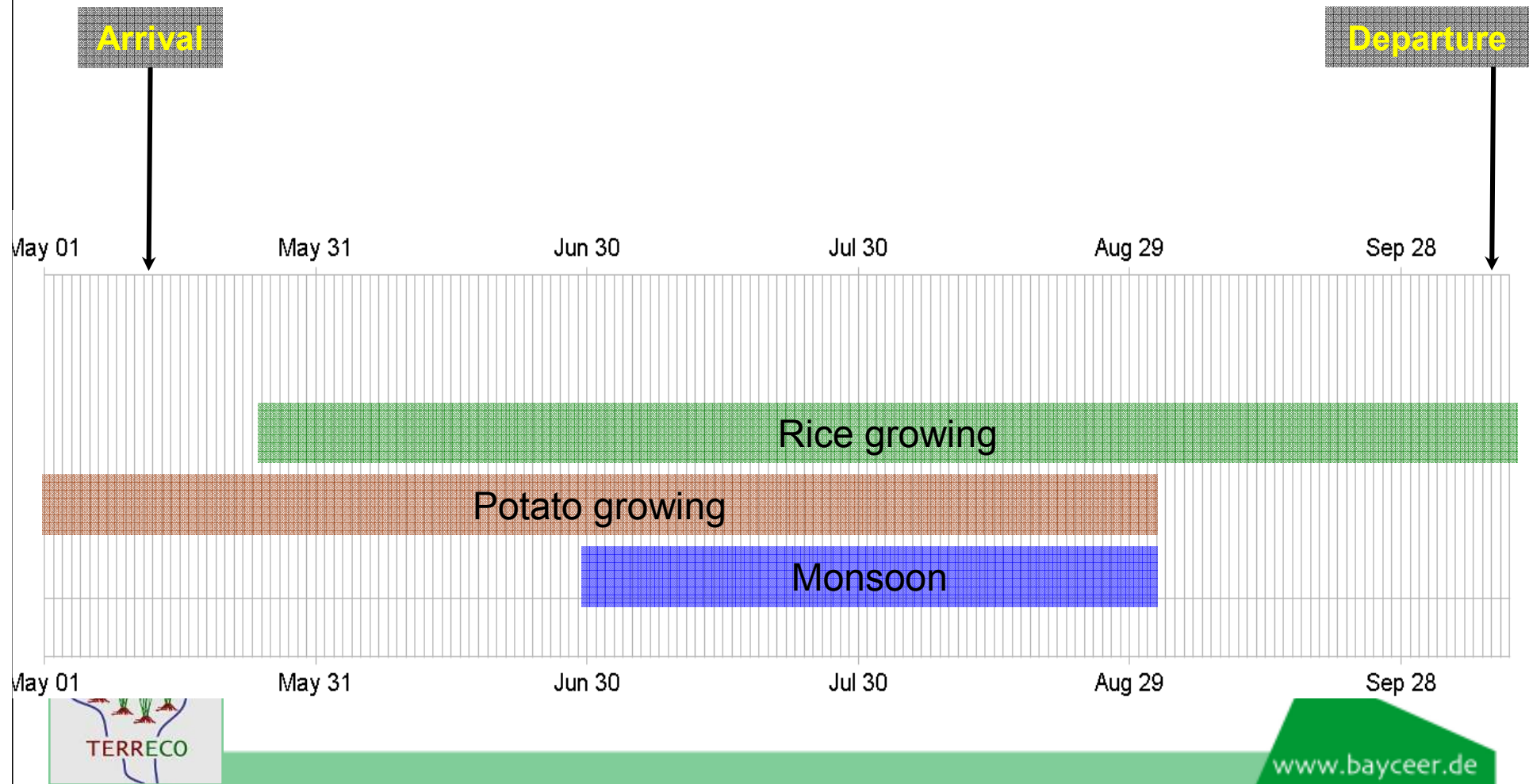


## Site Selection



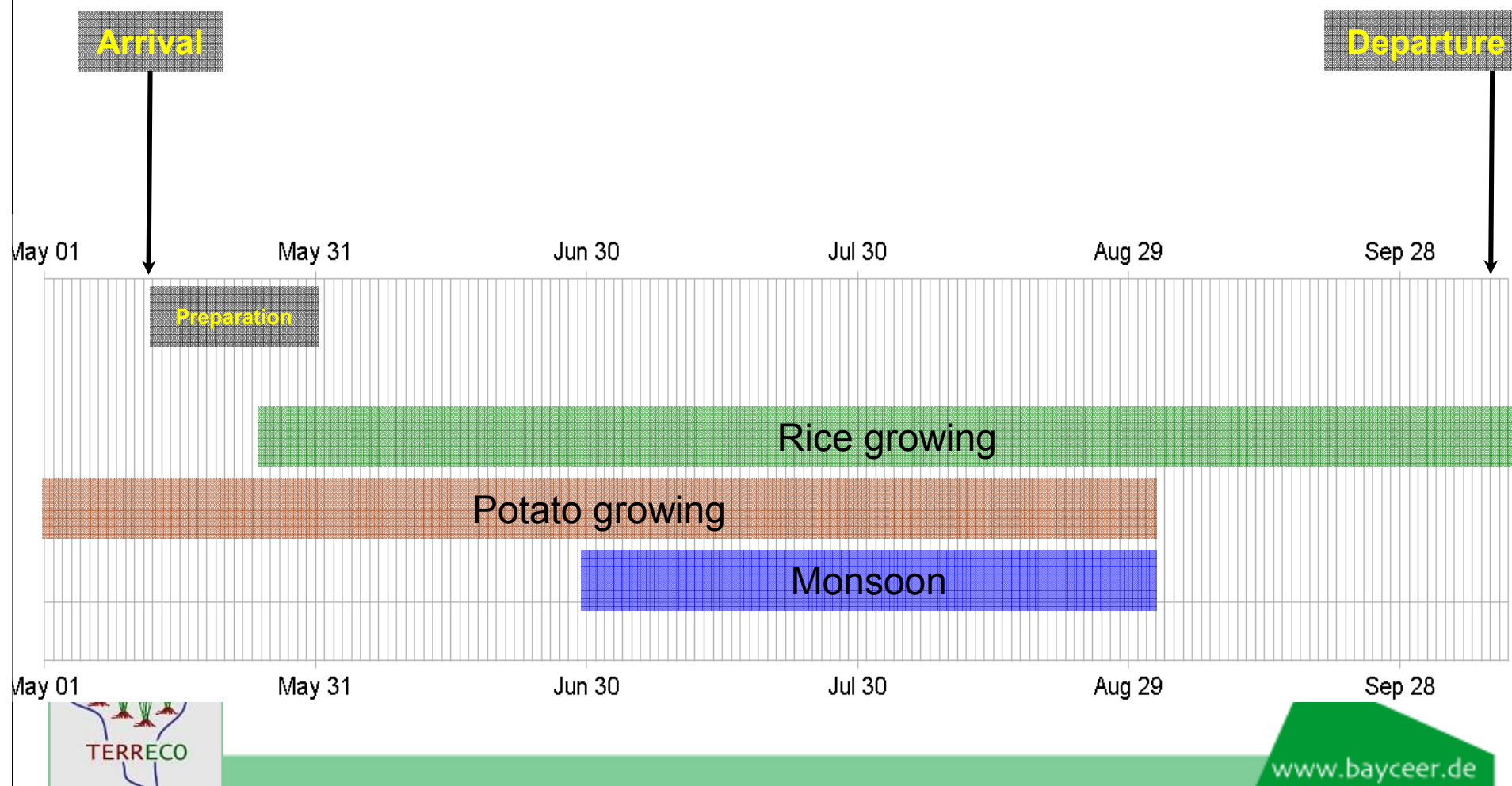


## Schedule



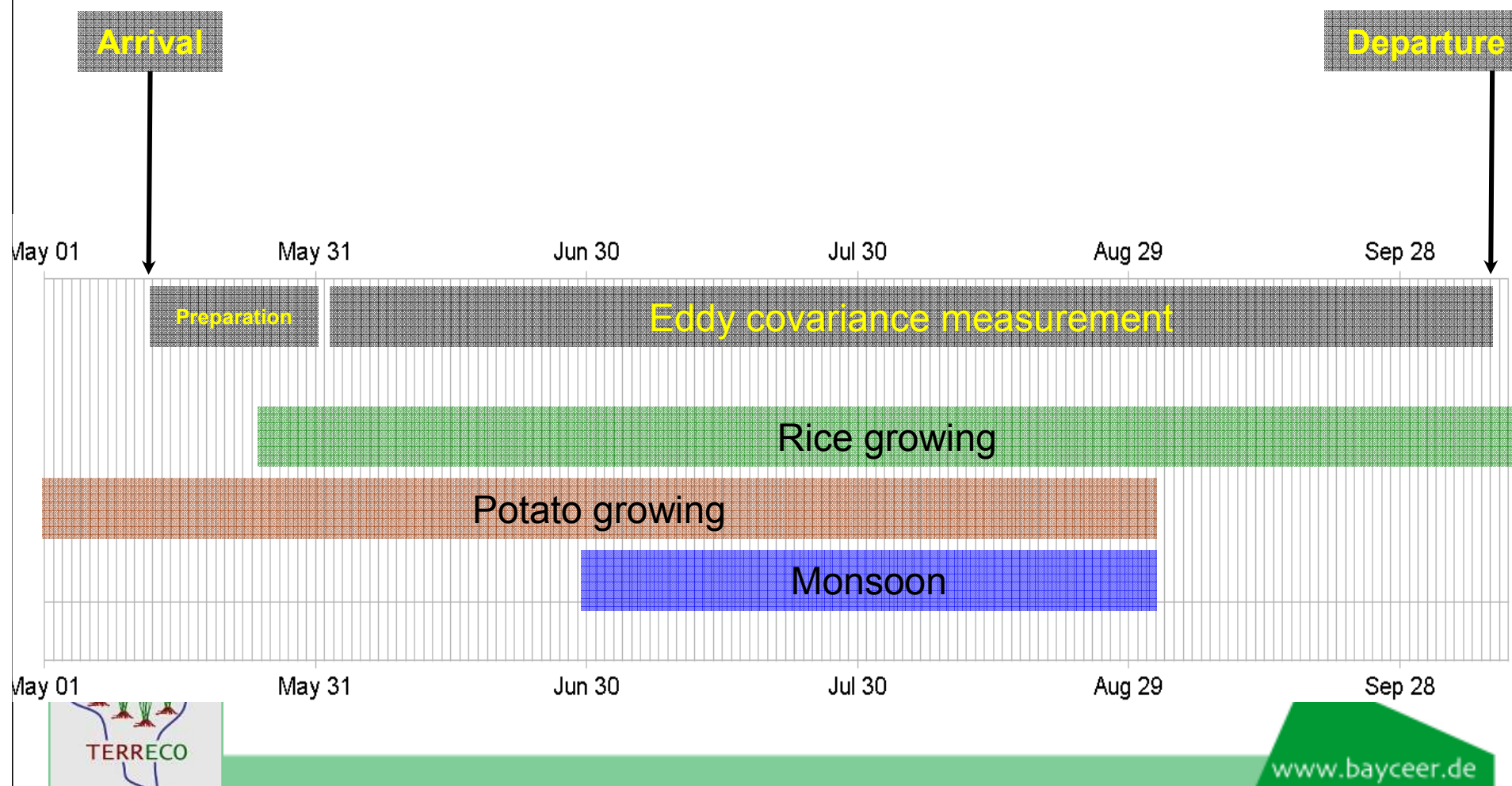


## Schedule





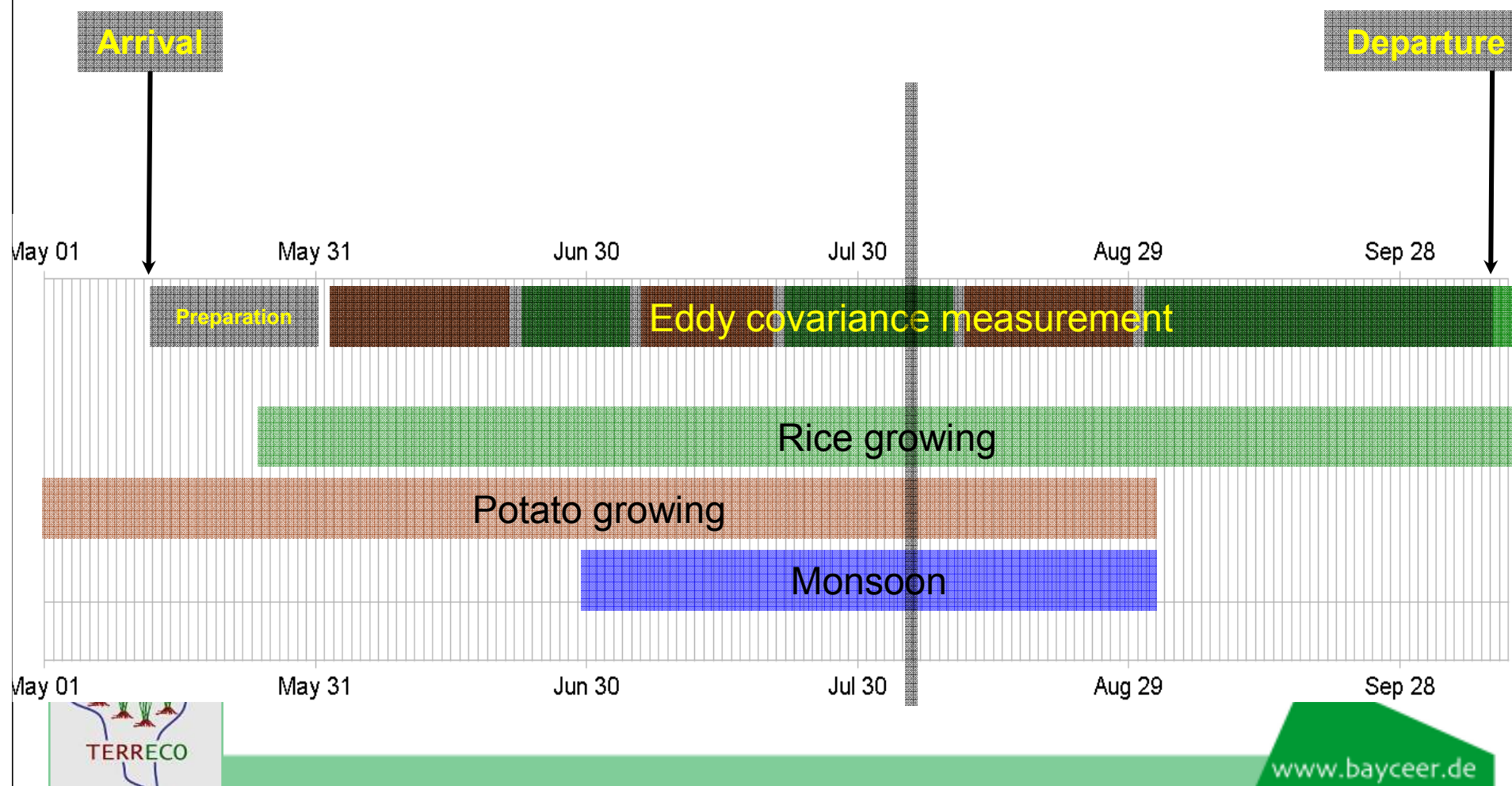
## Schedule





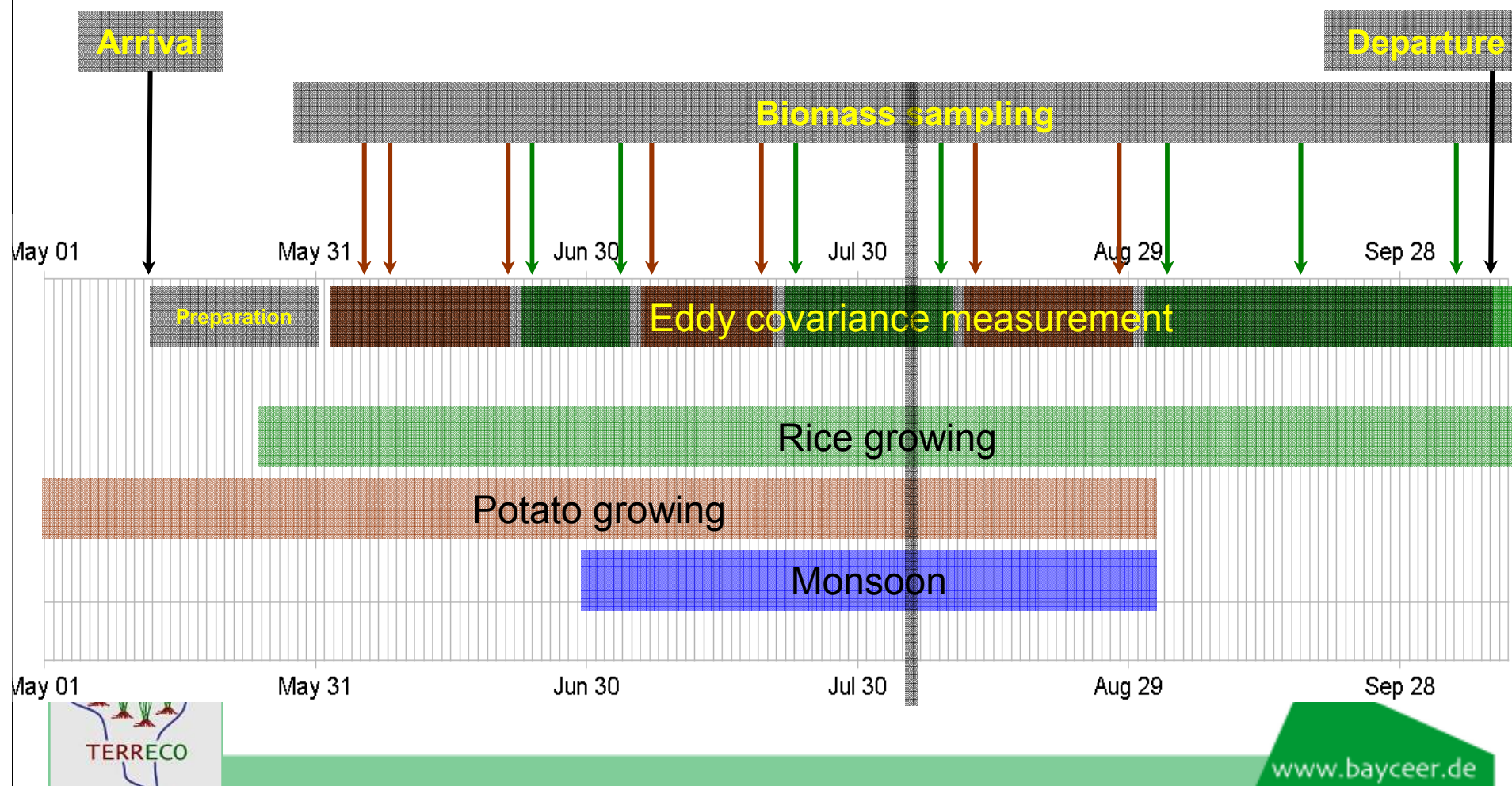


## Schedule





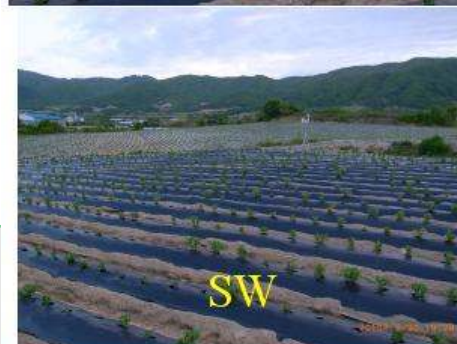
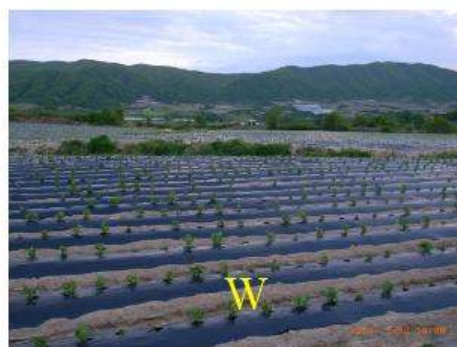
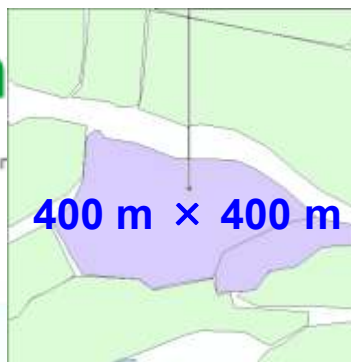
## Schedule

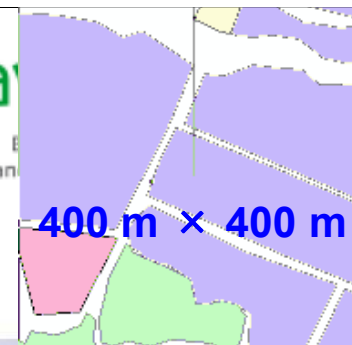






# Potato field



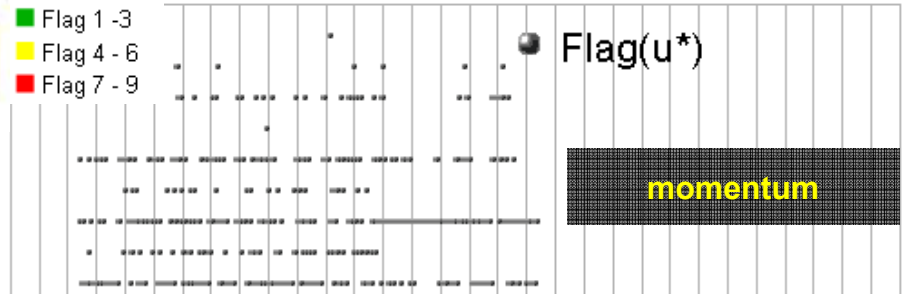
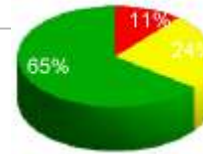


## Rice field

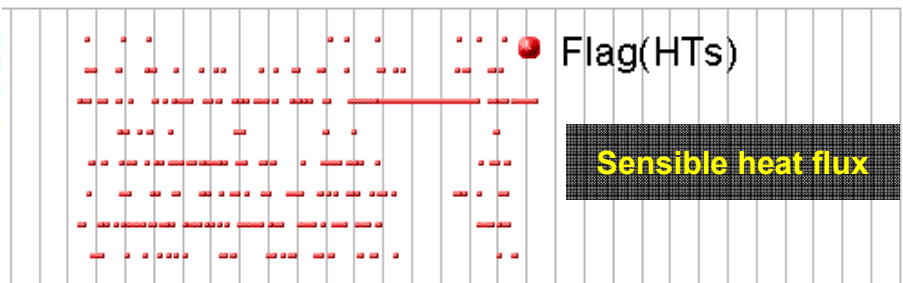
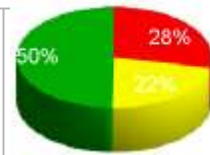
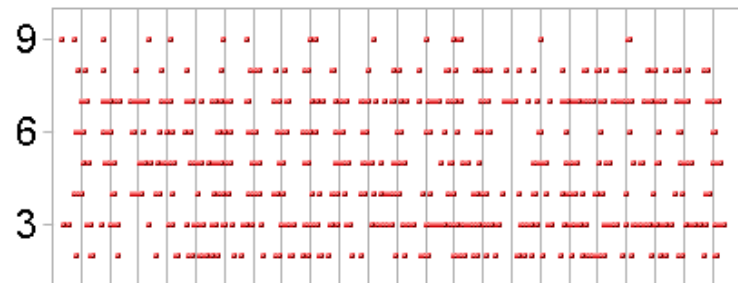




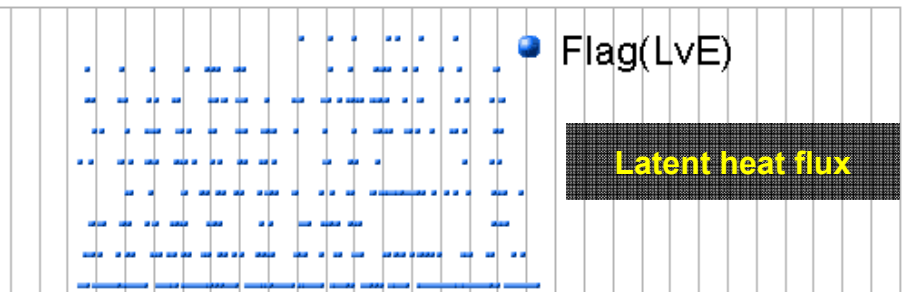
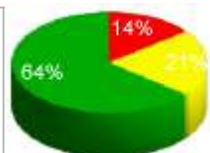
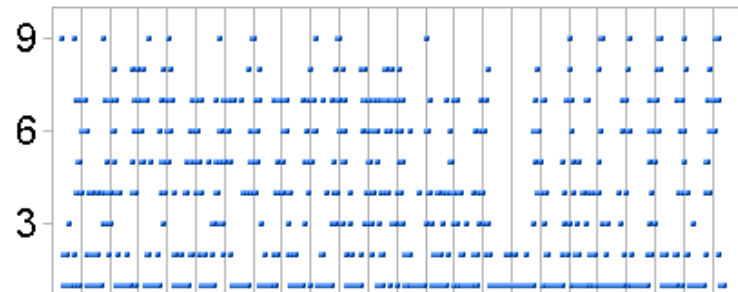
# Data quality: potato



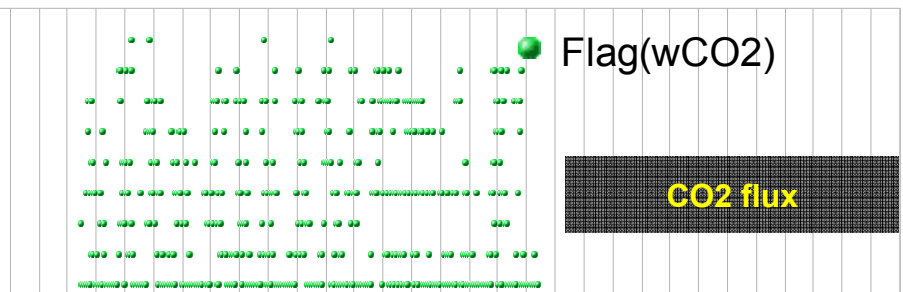
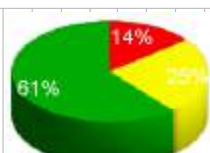
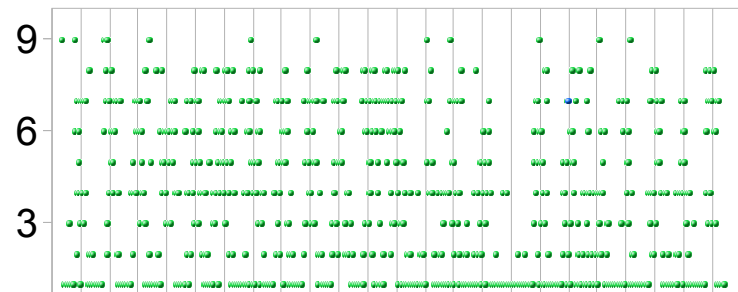
momentum



Sensible heat flux



Latent heat flux



CO2 flux

Jun 01

Jun 11

Jun 21

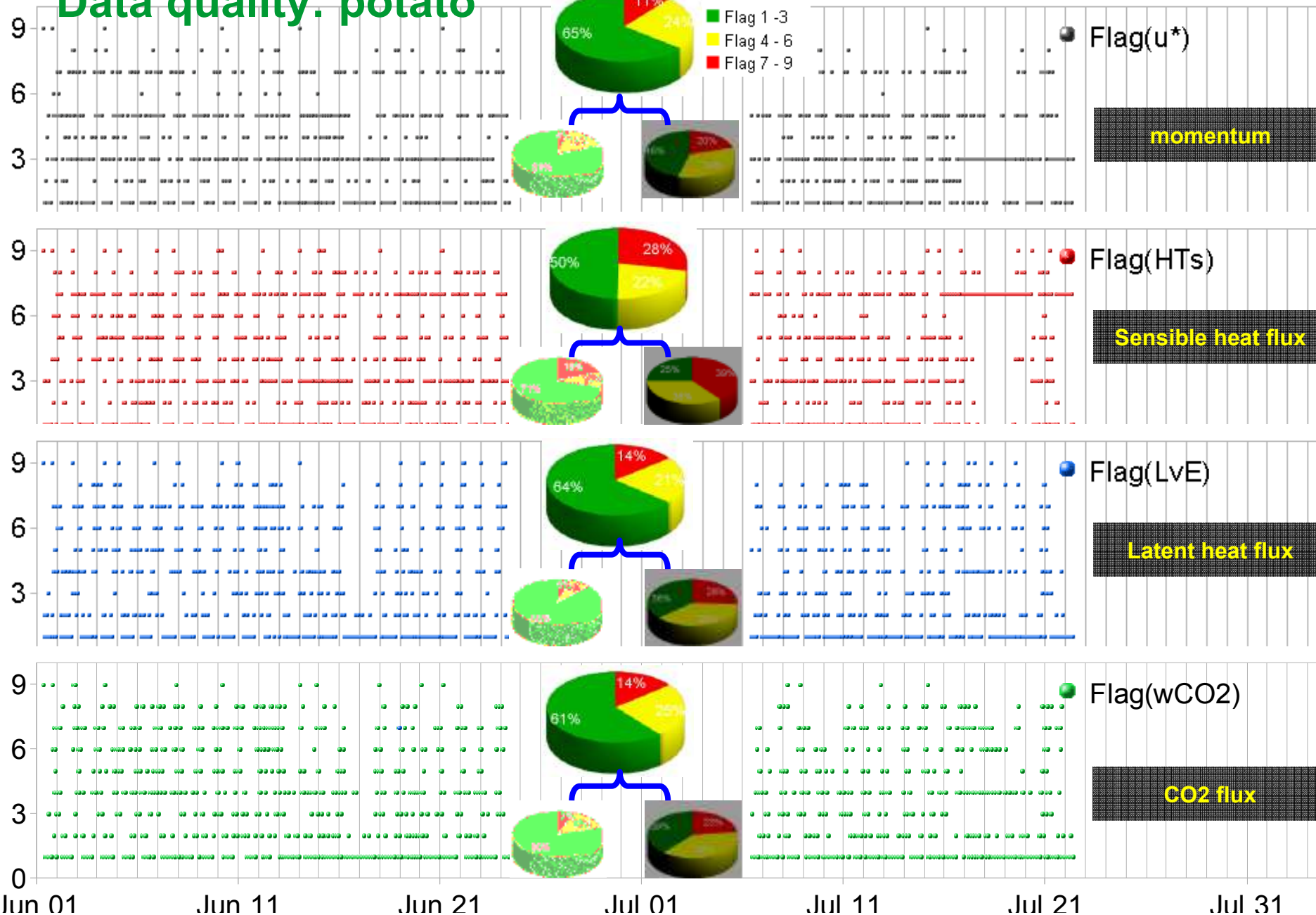
Jul 01

Jul 11

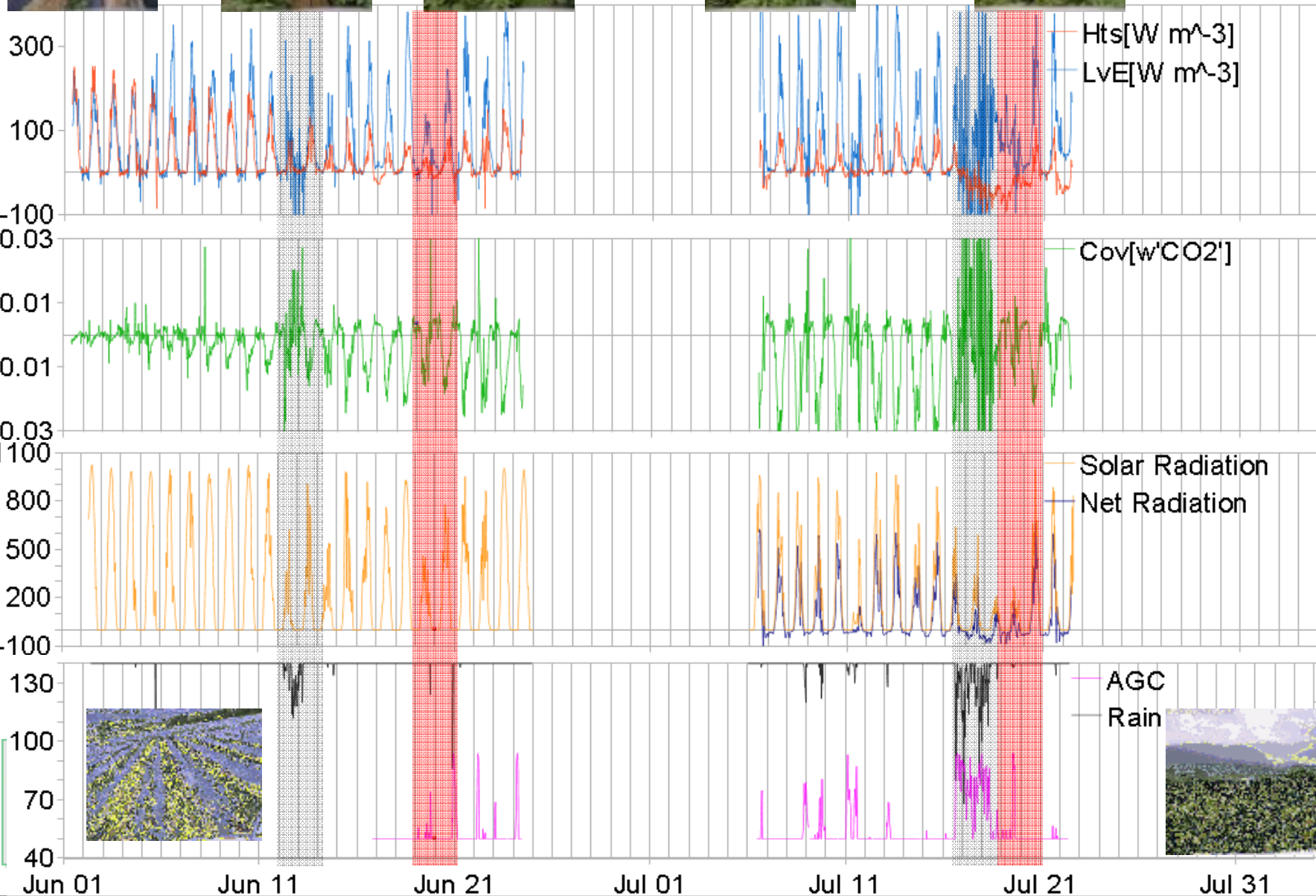
Jul 21

Jul 31

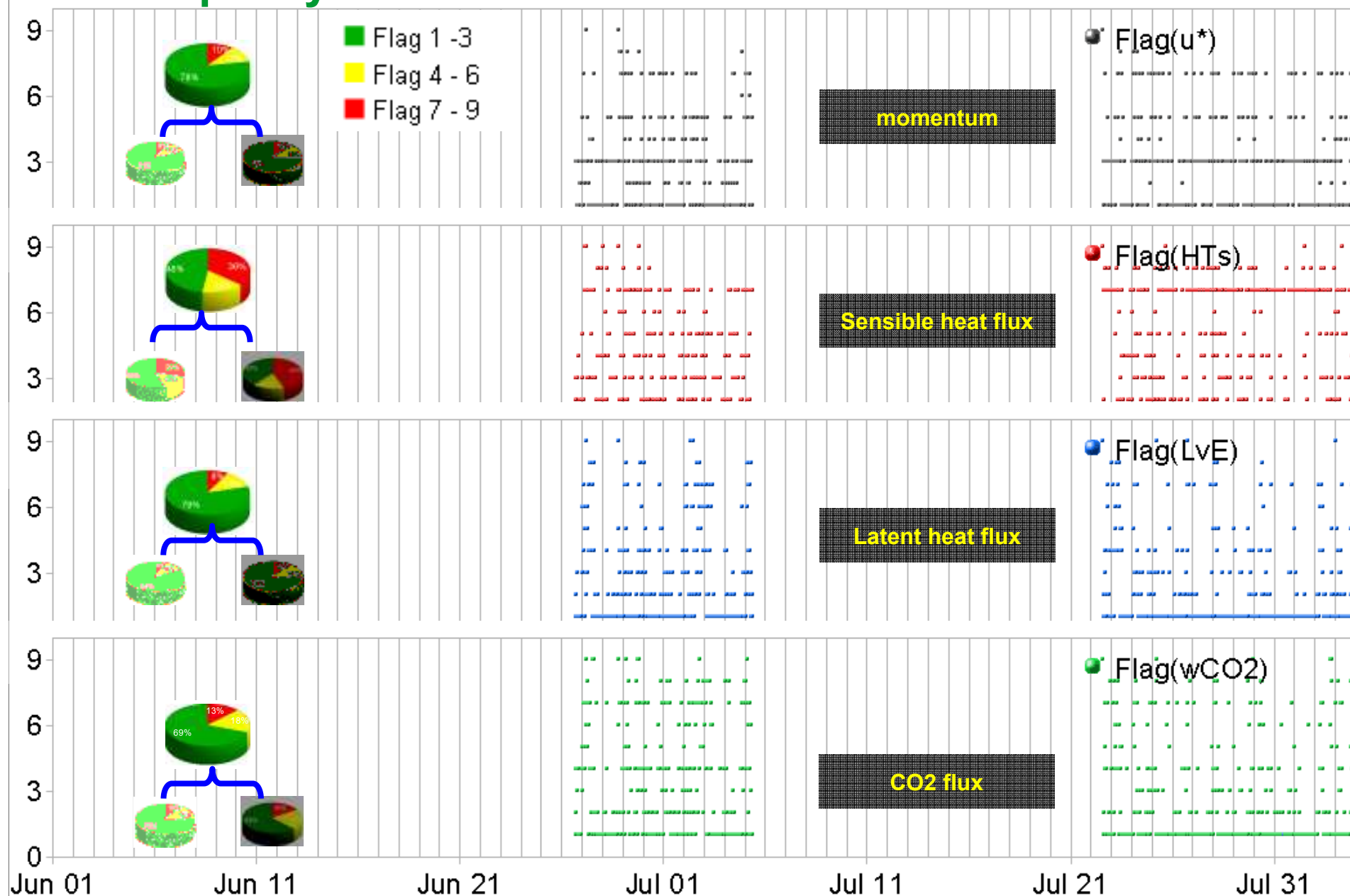
# Data quality: potato



# Potato field



# Data quality: rice







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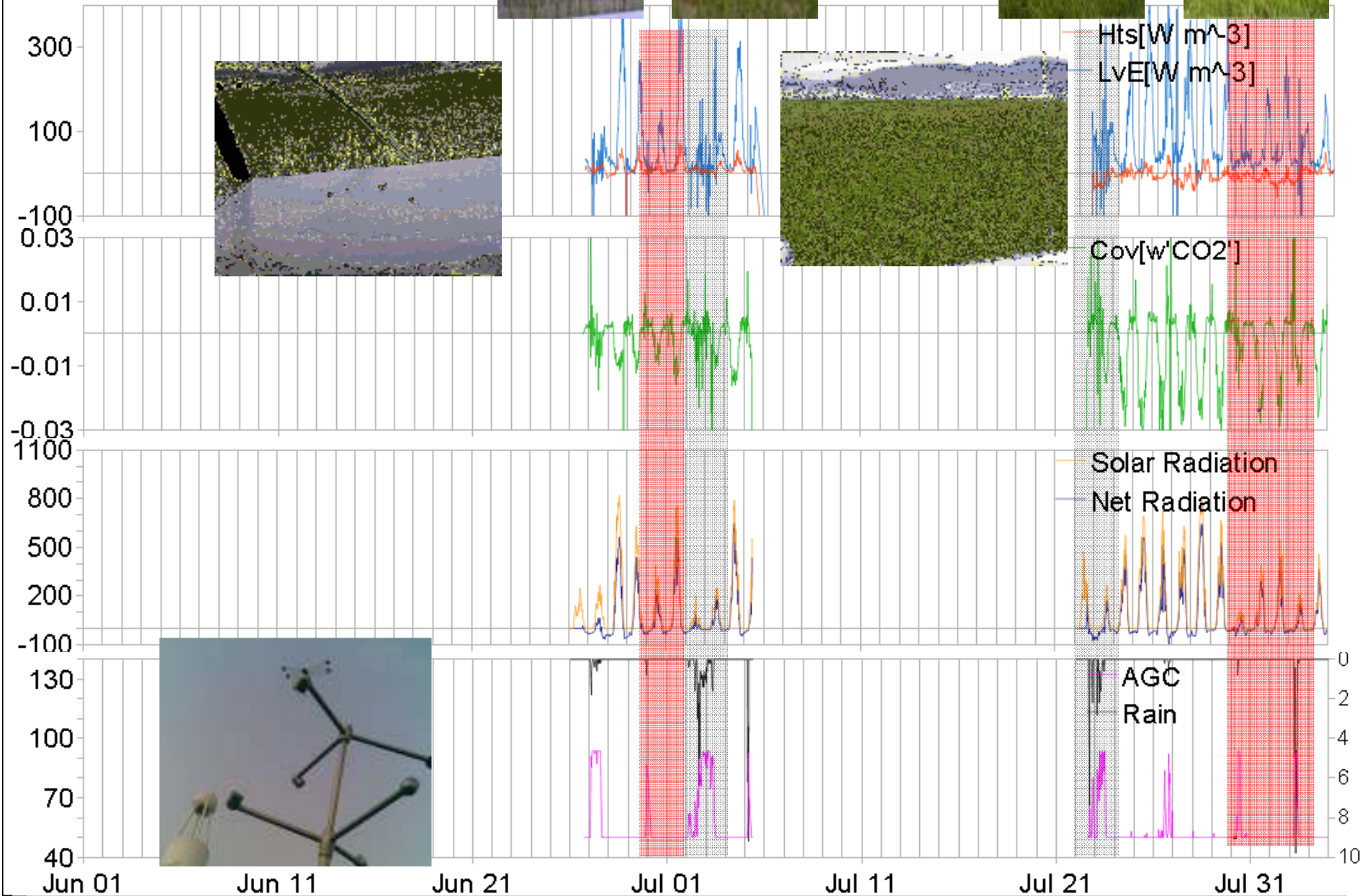
## Rice field

epi

rology

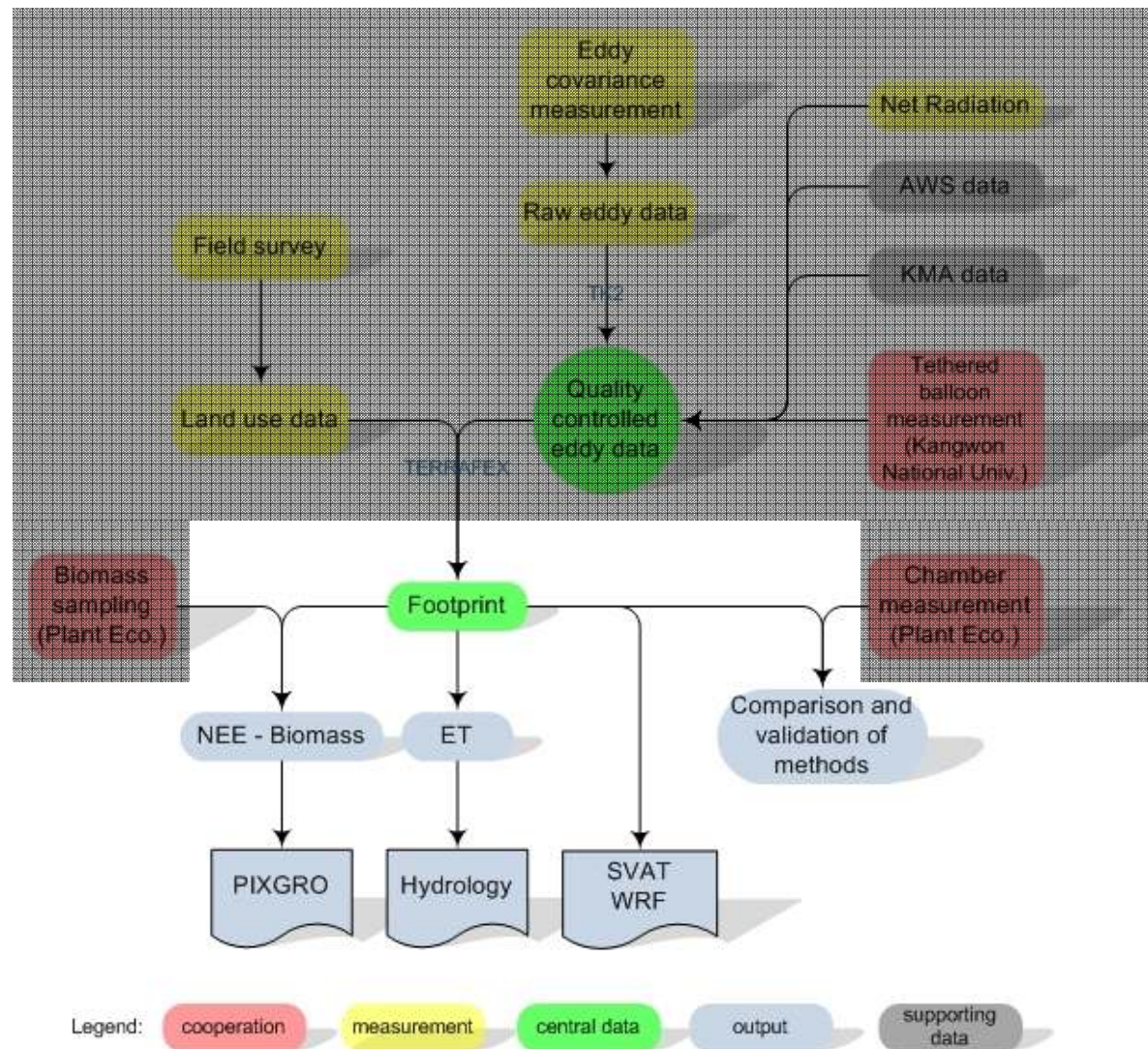
ENVIRONMENTAL

reuth  
nviro

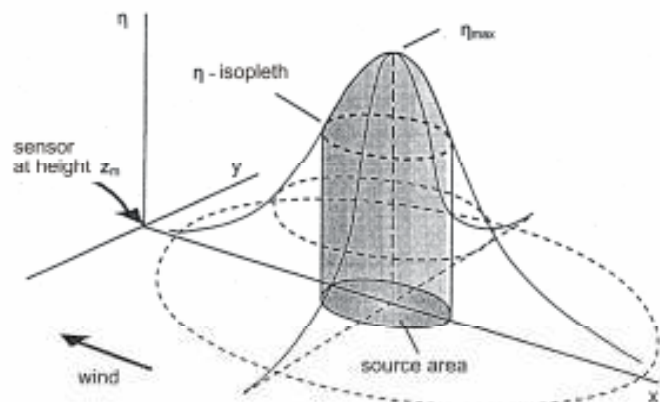




## Future work



# Footprints with TerraFex



TK2 output

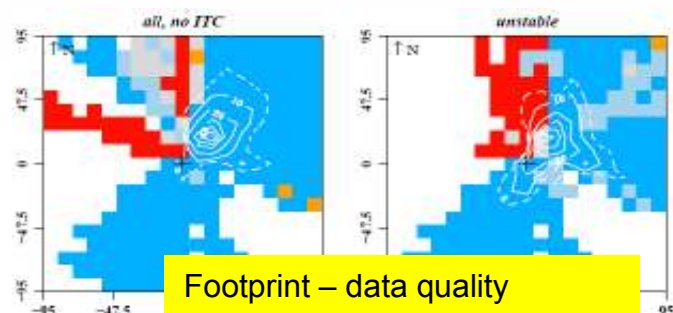
TerraFex

FOOTPRINT

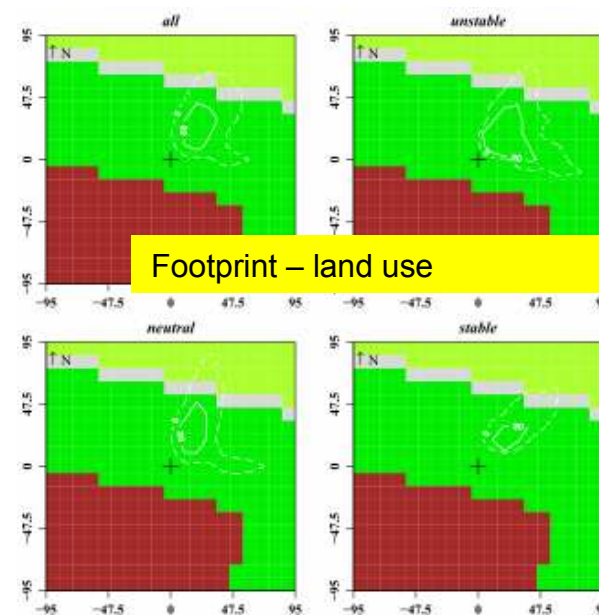
- Raw Covariances
- QA/QC (flags 1-5)
- Resultfile (flags 1-5)

Matrix Landuse

Matrix Roughness Length



Footprint – data quality



Footprint – land use

- meadow
- maize field
- bare soil
- buildings and the main tower
- path with trees and hedges



(Göckede et al., 2006)



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Dept. of Micrometeorology



Bayceer

Bayreuth Center of Ecology  
and Environmental Research

# Thank You



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