

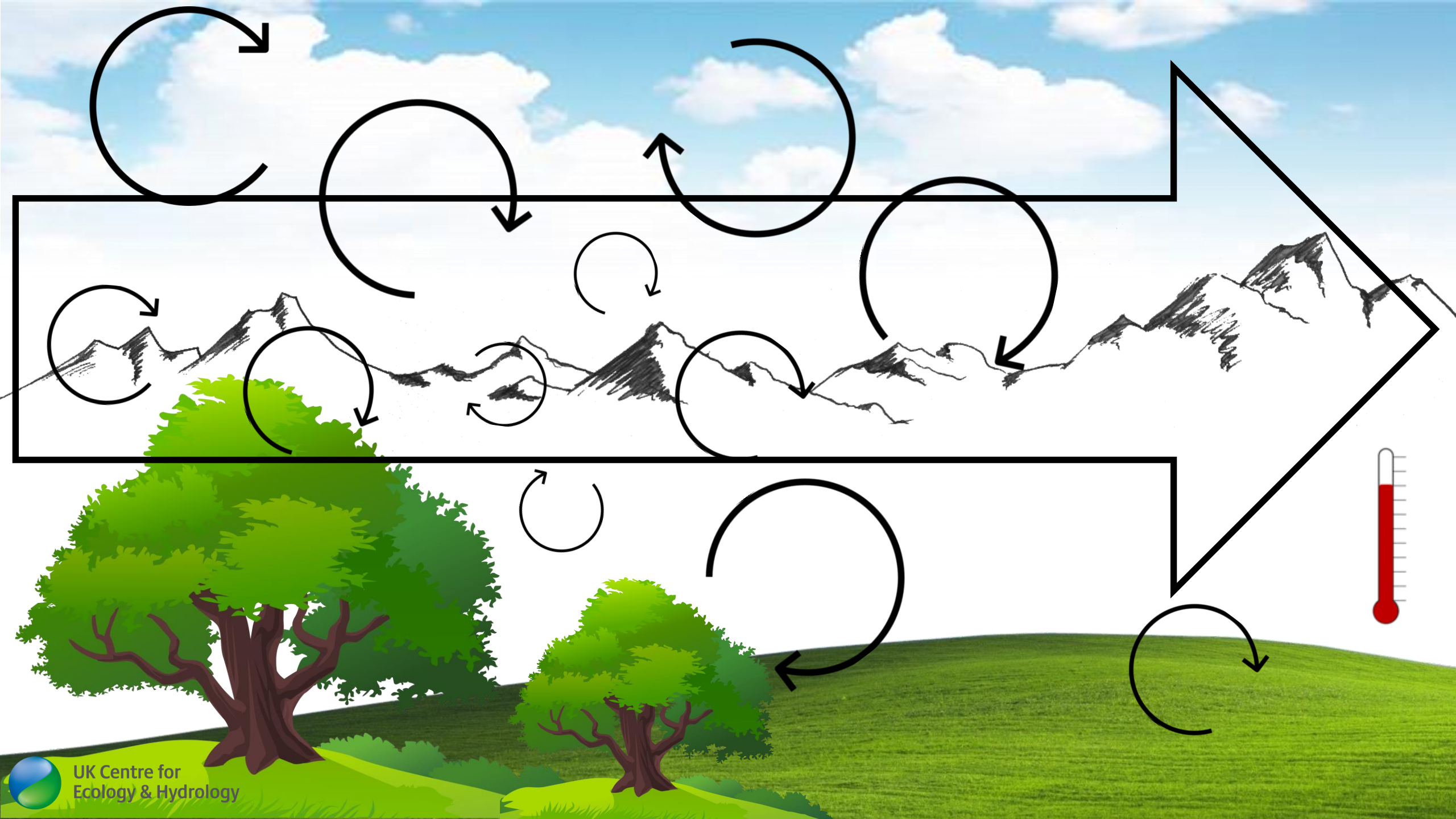
# Eddy Covariance



UK Centre for  
Ecology & Hydrology

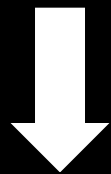
Dr Jeanette Whitaker (PI) - Soil Ecologist  
Dr Caio Fernandes Zani - Soil and Ecosystem Scientist  
Luke Pritchard - Soil Greenhouse Gas Scientist

- What is Eddy Covariance?





Co \* Variance

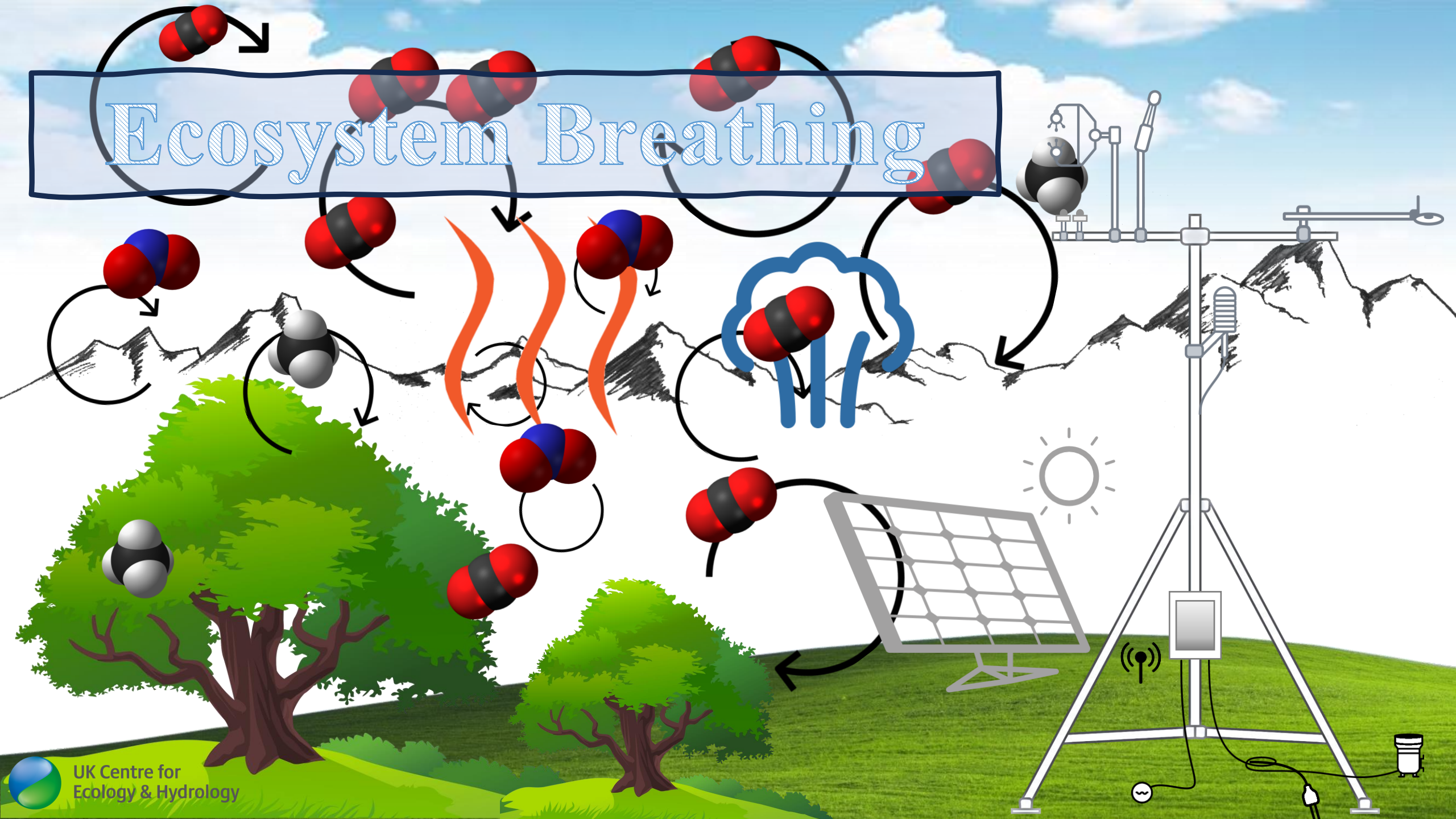


together



change

# Ecosystem Breathing



- What is in it?

TECH

## 3D Sonic Anemometer

Measurements:

- vertical wind speed
- temperature

Sampling rate:

$\geq 10$  Hz  
(10 times/sec)

## Gas Analyzer

Measurements:

- CO<sub>2</sub> density
- Water vapor density
- CH<sub>4</sub> density

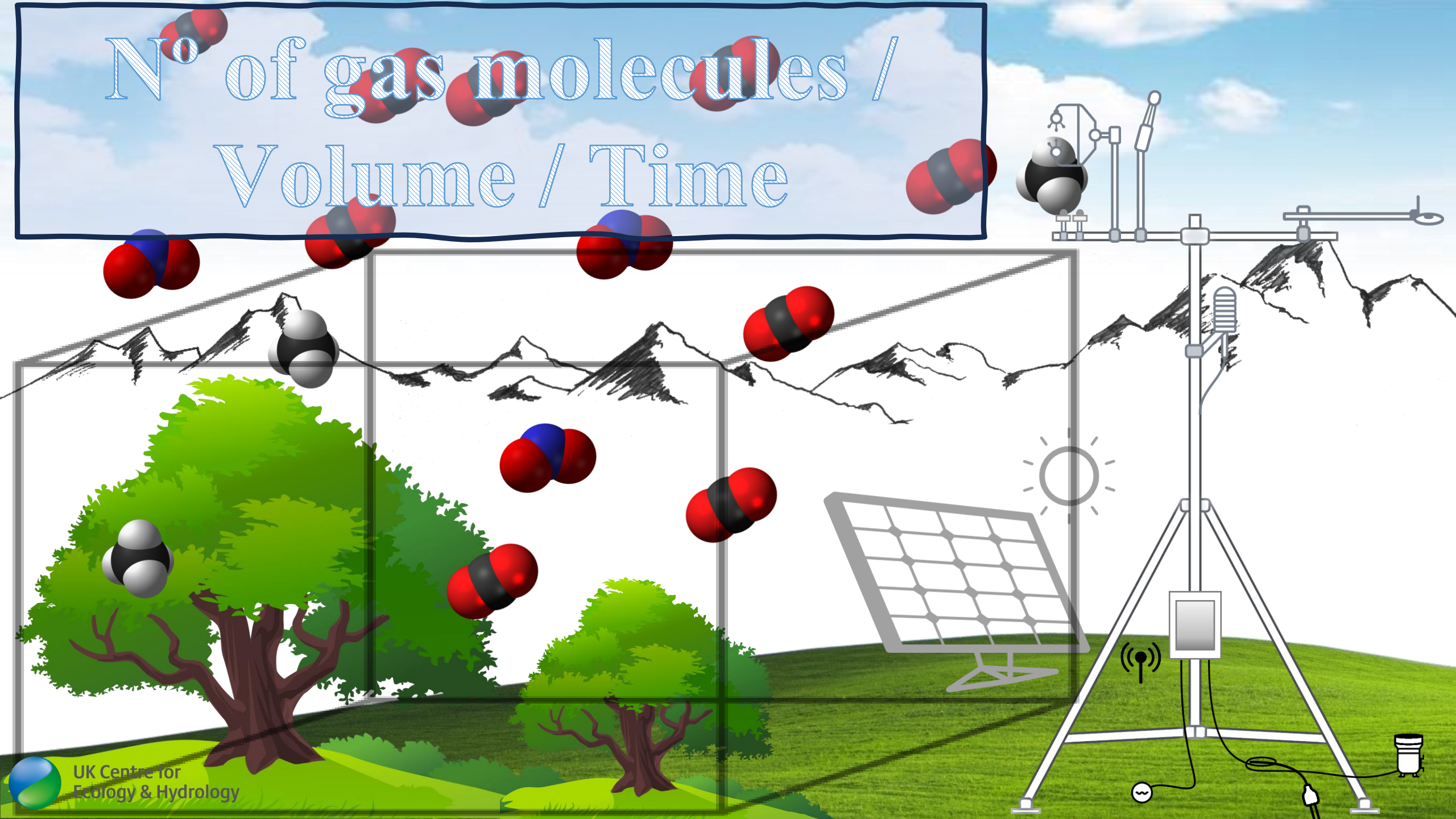
Sampling rate:

$\geq 10$  Hz





No of gas molecules /  
Volume / Time



Infrared Gas Analyser

sonic anemometer

Normalised Different  
Vegetation Index

Incoming & Outgoing  
longwave radiation

Photosynthetically  
Active Radiation

Air temp & Relative Humidity

**Covers Large areas**

**Operates 24/7**

Battery bank  
powered by  
Solar panels

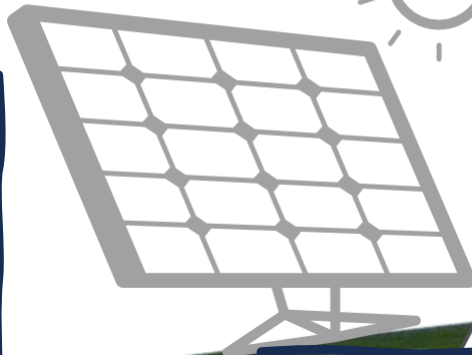
Data Loggers

GPS

Modem

Tipping bucket rain gauge

Soil temp & Moisture



- Why is it important?



PERENNIAL BIOMASS CROPS

**PBC4GGR**

GREENHOUSE GAS REMOVAL

How could the information that will be generated benefit farmers and stakeholders?



PERENNIAL BIOMASS CROPS

**PBC4GGR**

GREENHOUSE GAS REMOVAL

- Understanding LUC impacts on biomass crops
  - Net Ecosystem Exchange



## Farmers

## Stakeholders

Deciding whether to transition to biomass crops or not

Crop productivity

Plant health

Resilience

Water use efficiency

Management decisions

Certifications

How biomass crops could contribute to C sequestration

Creation of financial incentives

Policies for sustainable agri

Ground truth

# Thank you for your attention



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