# Data acquisition and post-processing

## Turbulence analysis

# Turbulence modelling and energy balance

#### Raw data processing

- despiking
- · lag-time correction
- · detrending
- · coordinate rotation
- $\cdot \ \mathsf{time} \ \mathsf{averaging} \to \mathsf{mean}$
- · calculation of covariances
- · WPL correction
- · SND correction
- $\cdot \text{ unit conversion} \to \mathsf{flux}$
- · quality flagging
- · flux gap-filling
- · spectral corrections

### Download postprocessed data

· from FLUXNET

#### **Turbulence diagnostics**

- · stability parameter
- · TKE, friction velocity, ...

#### **Quadrant analysis**

- · coherent structures
- · organization ratio

#### **Spectra**

- · averaged FFT spectra
- · MRD spectra / wavelets

#### **Anisotropy analysis**

- · Reynolds stress tensor
- · barycentric map

#### Flux footprint

· 2D flux footprint

# Turbulence modelling / parameterizations

- · bulk closures
- · eddy-diffusivity closures
- · flux-variance relations
- · flux-profile relations

#### Comparison to models

· model data processing

#### Surface energy balance

- · radiative fluxes
- · residual and closure ratio

#### **Ecohydrology**

- · Bowen ratio
- · evaporative fraction
- flux partitioning

#### Meteorological and environmental contextualization

 $\cdot$  wind speed profiles, gradients, Richardson number, clear-sky index,  $\dots$