Data acquisition and post-processing

Turbulence analysis

Turbulence modelling and energy balance

Raw data processing

- despiking
- · lag-time correction
- · detrending
- · coordinate rotation
- \cdot time averaging o 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
- $\cdot \ \mathsf{eddy}\text{-}\mathsf{diffusivity} \ \mathsf{closures}$
- · 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

· wind speed profiles, gradients, Richardson number, clear-sky index, ...





