

Quantitative Network Design (QND) within ICOS framework

Summary

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Quantity to be observed: see Philippe C. presentation

4 types of QND have been presented:

- 2 using inversion approach
- 2 using geostatistic/neural network approach

Write the report for ICOS on the state of art of network design tool in Europe -> be a scientific paper (Philippe will send the outline. Paper planned to be submitted about mi-January 2011)

Special issue?: that will contain the synthesis paper+ separated papers linked to the different tools. Christoph Gerbig to contact AMT journal.

FTIR presentation

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Presented tools

A) Inversion approach

1. CCDAS

The tool is conceptually valuable and applicable to ICOS objectives, but needs to be more elaborated over Europe

- CCDAS is model dependent
 - use the up-to-date CCDAS with
 - fine description of vegetation and soil types over Europe for biosphere model (Dario agreed to produce vegetation map ...)
 - high –resolution of the both transport and biosphere models
- Sensitivity of the tool to underlying models of CCDAS?

Include ocean network

A network for future climate

Flexibility for users to select atmospheric sites

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A.2. Matrix approach

Helps to demonstrate the current critical areas that need sites
(e.g., Península Ibérica, Easter Europe)

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B) Geostatistic/ neural network approach

B.1. Ecosystem network

Targeted quantity: GPP from ORCHIDEE model

The tool is under development

issues have been drawn

- Model data instead of observations
- The variability of both drivers and PFTs are not separated
 - Before further step, a need to distinguish each source of variability by using only observations

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B.2) Network Design using Fluxnet

Target Quantity: GPP

Similarity between sites according to climatology/phenology variables

Issues: site can be wrongly classified

Add e.g., soil variable

FTIR

European TCCON relatively dense network is not yet integrated into ICOS

QA/QC has to be improved

Precision <0.25%