ALAMOD project highlight

From long-term experiments data to multi-model evaluation of soil carbon dynamic

Our ability to model C stocks in ecosystems is not very good

Concerns...

but also opportunities!

Concerns about the ability of current models to simulate changes in carbon stocks in soils and biomasses

Absence of assessments due to lack of available data on stock changes
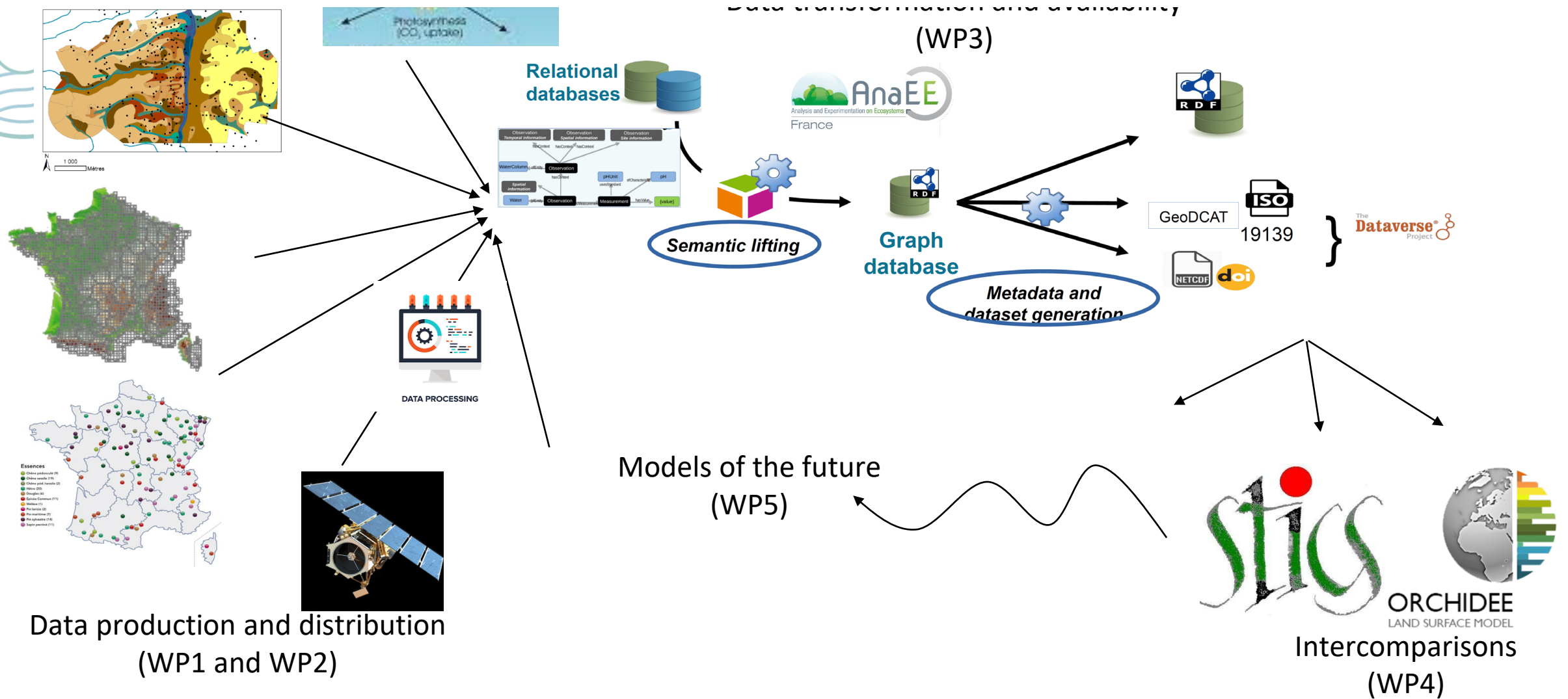
Numerous sites and networks with C stock measurements

Development of tools to facilitate the acquisition of C stock and flux data

Large community of modellers at different spatial and temporal scales

The objectives of ALAMOD

Gather soil carbon data and required variables for soil carbon modelling from long-term experiments (WP1)
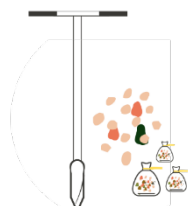
Data interoperability through semantic modeling (WP3)

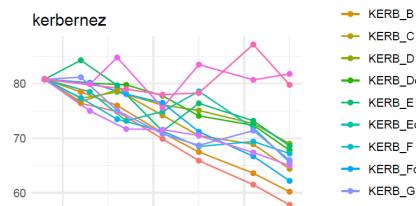Multi-model evaluation of soil carbon dynamic (WP4)

Dataset of ~ 30 long-term trials in temperate croplands
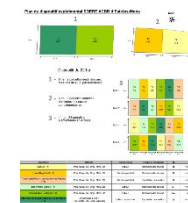
daily weather

soil characteristics

kerbernez

- KERB_B
- KERB_C
- KERB_D
- KERB_Dd
- KERB_E
- KERB_Ed
- KERB_F
- KERB_Fd
- KERB_G

soil carbon stocks

crop yields, harvest index, crop residue management

organic fertilisation

site metadata

carbon inputs calculation

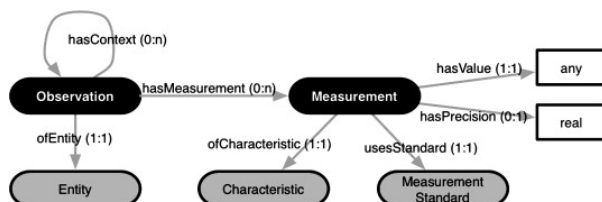Gather soil carbon data and required variables for soil carbon modelling from long-term experiments (WP1)

Data interoperability through semantic modeling (WP3)

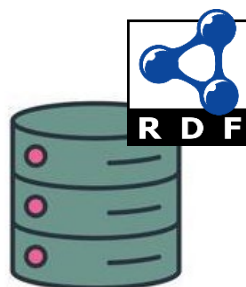Multi-model evaluation of soil carbon dynamic (WP4)
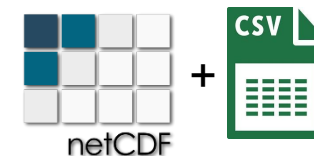
Semantic modeling of the dataset variables

graph database with shared AnaEE standards

metadata and dataset generation

models

Data repository

hasContext (0:n)

Observation — hasMeasurement (0:n) → Measurement

hasValue (1:1) → any

hasPrecision (0:1) → real

ofEntity (1:1) → Entity

ofCharacteristic (1:1) → Characteristic

usesStandard (1:1) → Measurement Standard

OBOE ontology

netCDF + CSV

Gather soil carbon data and required variables for soil carbon modelling from long-term experiments (WP1)

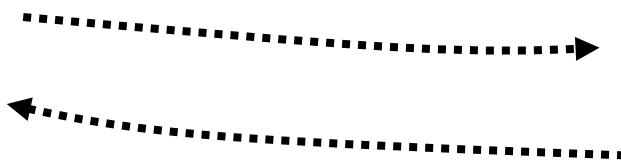Data interoperability through semantic modeling (WP3)

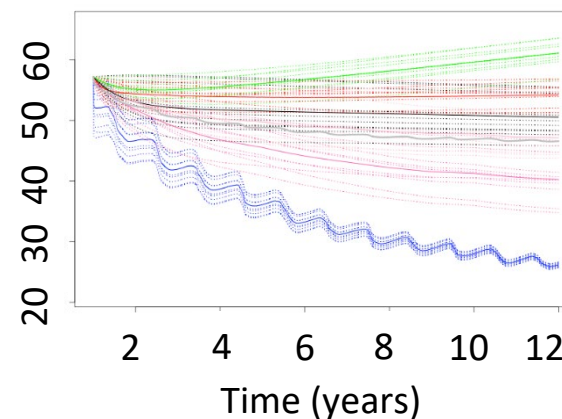Multi-model evaluation of soil carbon dynamic (WP4)

Forcing data

netCDF

Model calibration and evaluation

SOC stocks (Mg C ha^{-1})

Time (years)

Roth-C
Century
ICBM
Yasso07
Millennial
Yasso20
Mean