European Joint Programme EJP SOIL
Towards climate-smart sustainable agricultural soil soil management

EJP SOIL _ WP6 and LUCAS 2022

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Some reminders…

WP6 **mandate** is about :

- developing a **prototype of a distributed system** to integrate agricultural soil information across Europe and streamline the data flow to ESDAC
- providing **thematic databases and maps** of agricultural soil indicators, properties, and maps of agricultural soil properties and management systems
- setting **target values** of agricultural SOC, agricultural soil degradation and fertility
- **developing methods to account, monitor and map agricultural soil carbon, fertility and degradation.**

Concerning soil monitoring: it is expected from WP6 the "*Proposal of methodological development for LUCAS programme in accordance with national monitoring programmes*"

This could also be a way to build the EU Soil Observatory: how to involve MS and EU-JRC
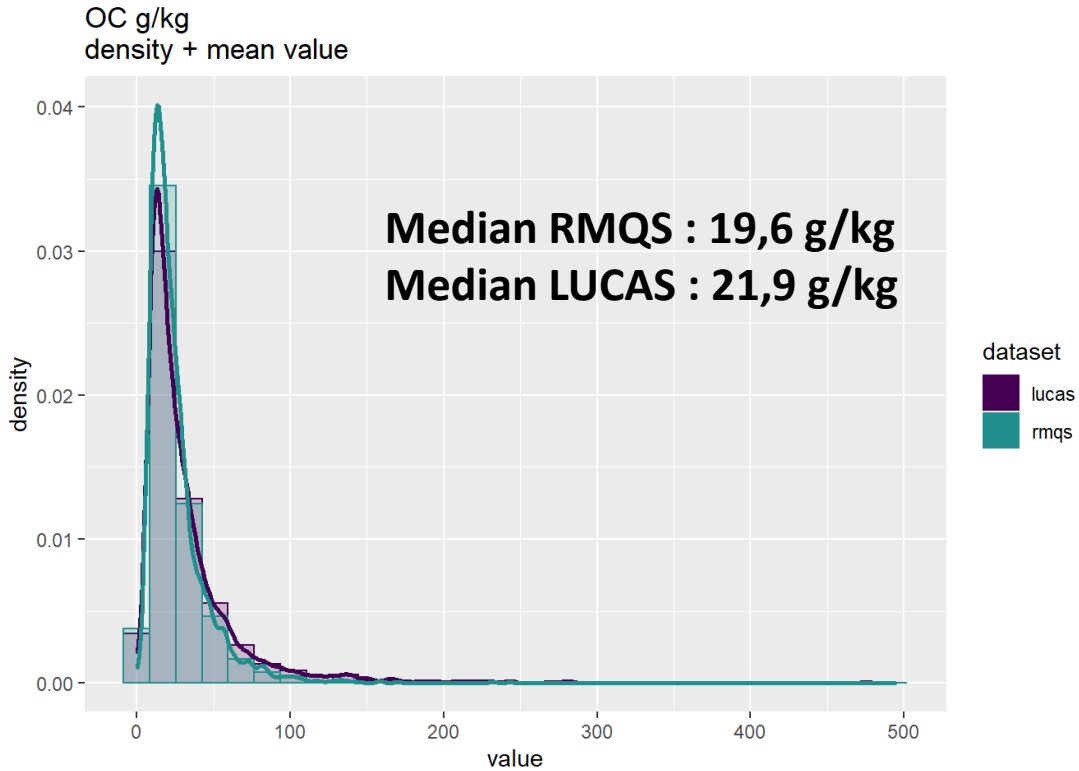
Meeting JRC/Eurostat and EJP Soil on 1st December

- JRC is planning the **2022 LUCAS soil sampling campaign** and asked Eurostat where to resample soils to better characterize soil carbon stocks (mainly for croplands)
- Work done by Eurostat
  - 41 000 sampling points to be selected
  - Part of the samples from 2009/2012, 2015 and 2018 campaigns should be resampled
  - New sampling points to be added (round 20 000 new points)
  - Prediction of C stocks (based on a RF model) on the LUCAS points
  - Optimization step to select locations based on precision constraints and other criteria (e.g. elevation, slope, distance from roads…)
  - Then ajustement of number of samples / landuse
- Eurostat sent **3 simulations** (xls files) for discussion
- A new meeting will be organized mid-December (and others in January)
- From the discussions it seems possible to **ask for alternative points** (not only the 3 simulations) but the sampling points should be part of the master base of LUCAS

What we started in France

- Comparison of national and LUCAS 2015 datasets for several parameters

- Distance between national sampling sites and Eurostat proposal

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Comparison between RMQS (national SMN) and LUCAS 2015 (e.g. OC)

OC g/kg
density + mean value

Median RMQS : 19,6 g/kg
Median LUCAS : 21,9 g/kg

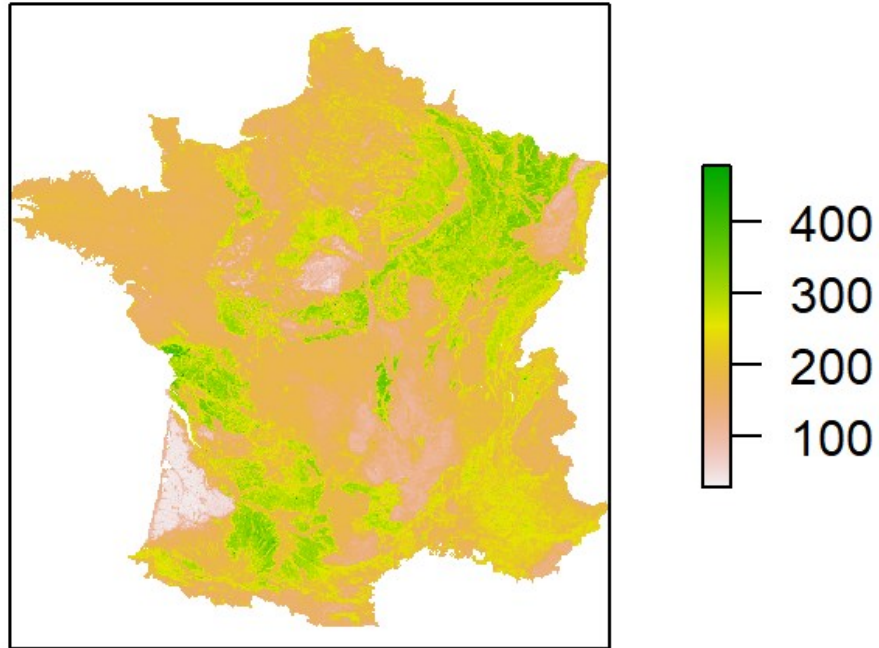OC g/kg depending on Land Cover Classes

Number of points

- **Work on different parameters**
- **Main differences for OC on grasslands and woodlands**
- **Why ?**
  - **Sampling depth ?**
  - **Litter/roots incorporated ?**
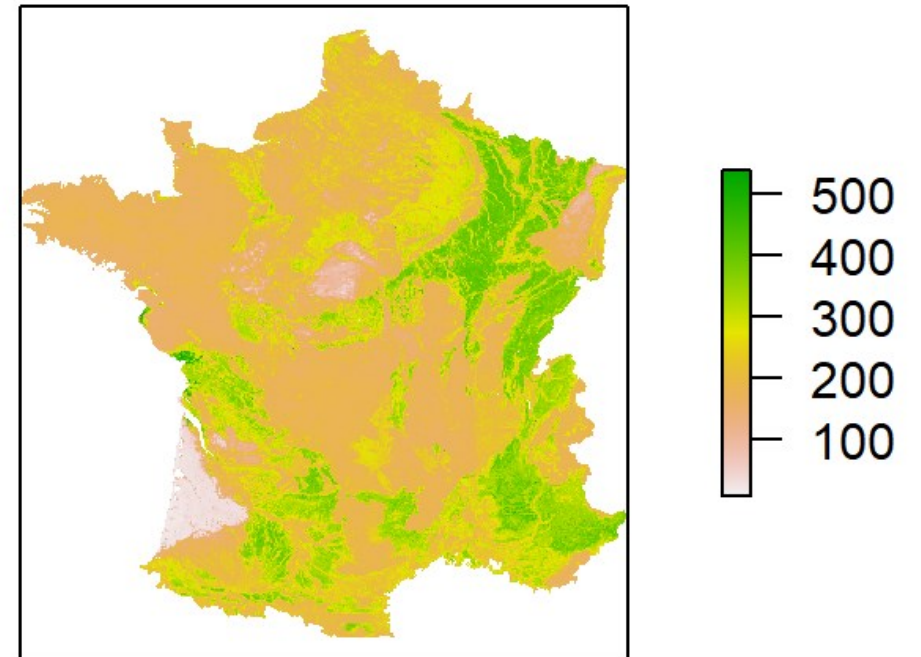 - **Methods ?**
  - **Other ?**
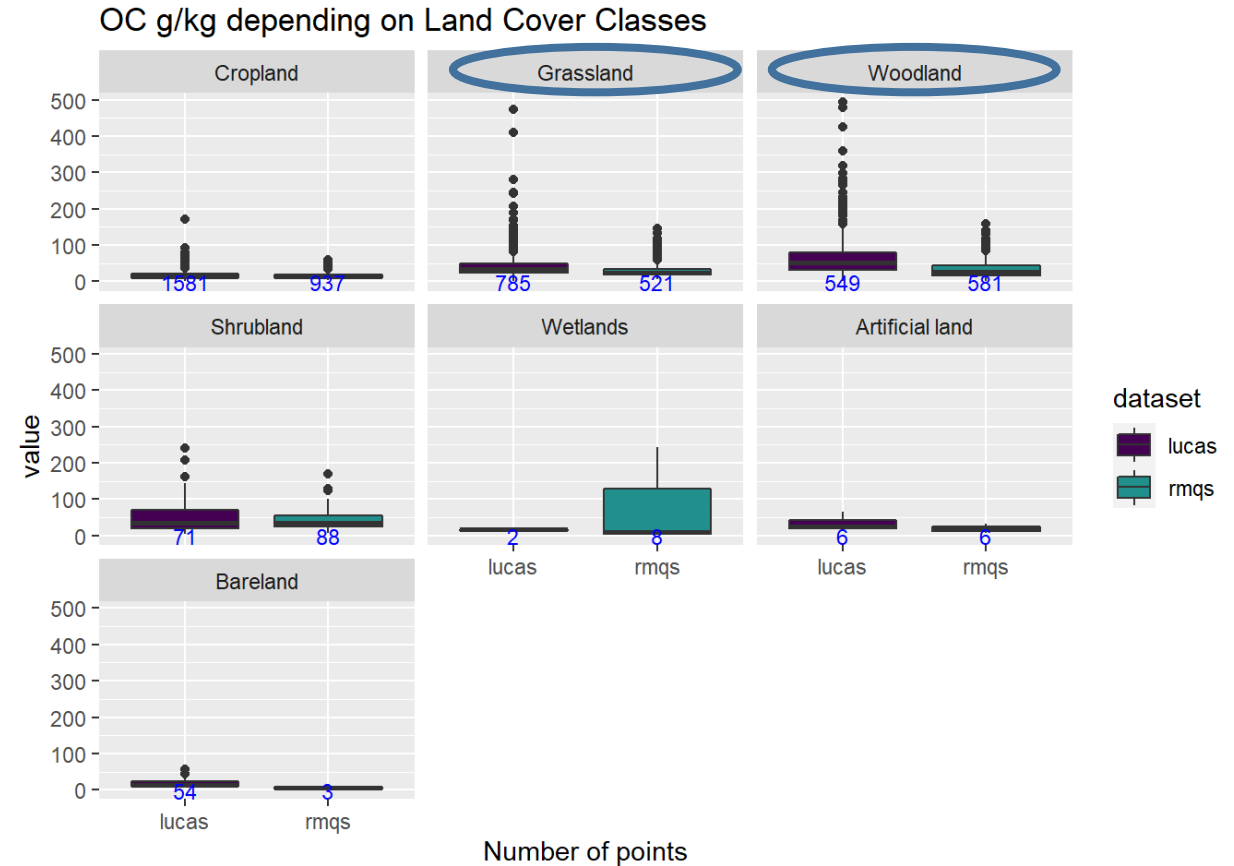
Comparison between RMQS (national SMN) and LUCAS 2015 (e.g Clay)

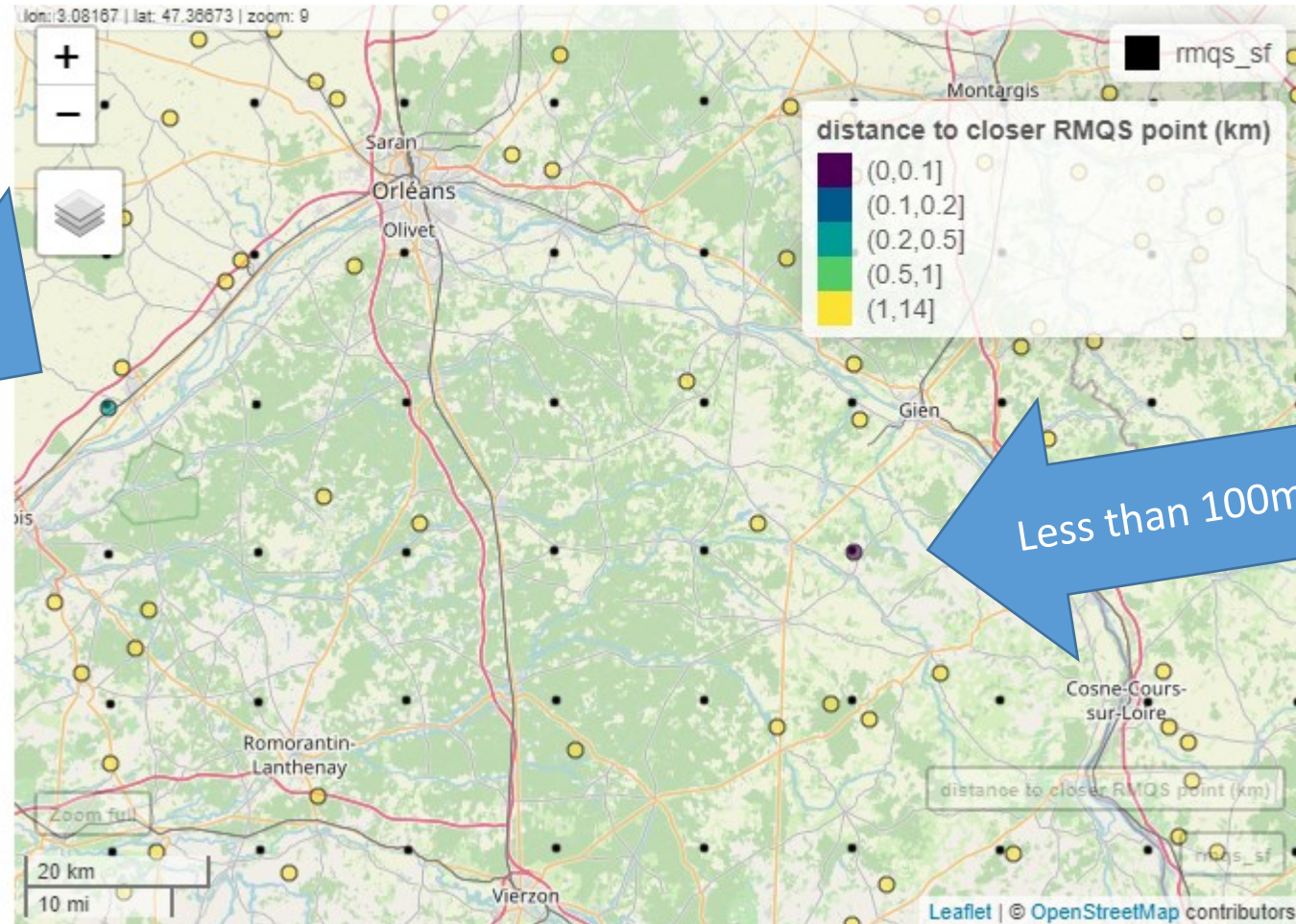Clay predicted with LUCAS points (g/kg)

Clay predicted with RMQS points (g/kg)

- Work on different parameters
- Map the soil data with the same model
- Differences between maps being studied

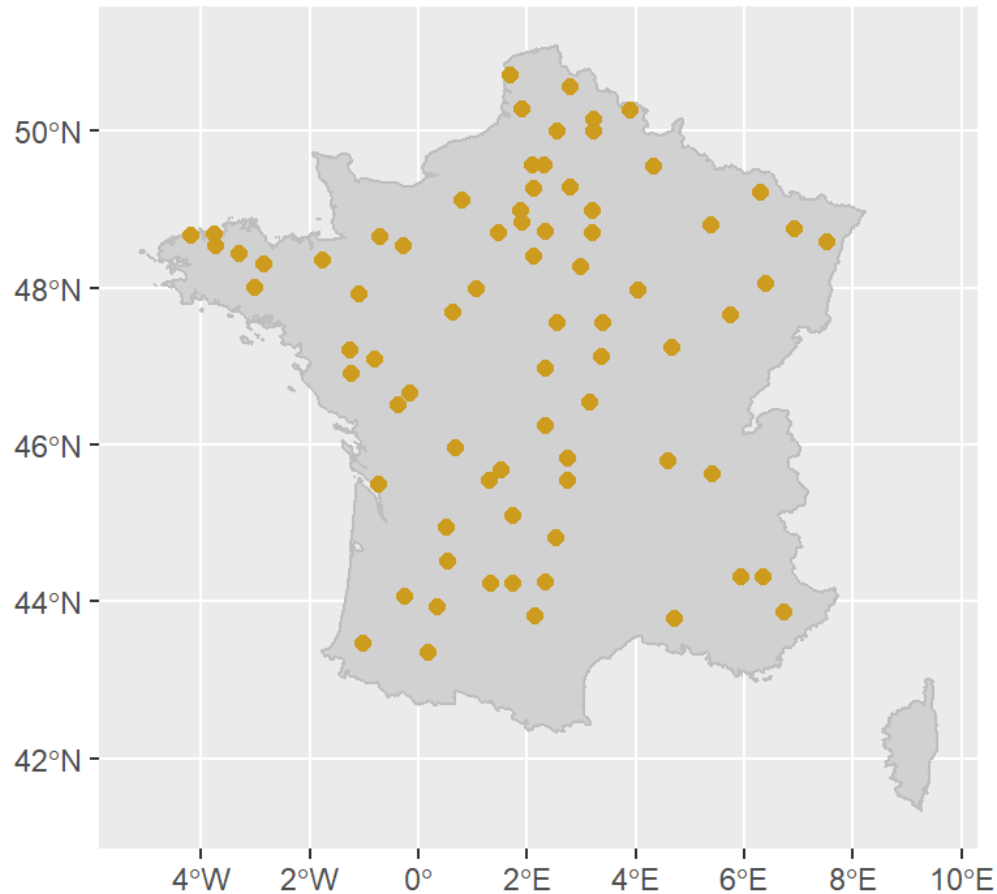# Distance between national and LUCAS 2015 sampling points

LUCAS 2015

Distance LUCAS 2015 - RMQS

distance_km	Freq	cumFreq
(0,0.1]	2	2
(0.1,0.2]	1	3
(0.2,0.5]	8	11
(0.5,1]	31	42
(1,14]	3008	3050

Less than 1000m

Less than 100m

distance to closer RMQS point (km)
- (0,0.1]
- (0.1,0.2]
- (0.2,0.5]
- (0.5,1]
- (1,14]

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Comparison between LUCAS simulations

simul.1 points with RMQS site < 1 km

Number of RMQS sites close to LUCAS points

distance	LUCAS2015	simul.1	simul.2	simul.3
< 0.1 km	2	1	1	2
< 0.2 km	3	5	1	3
< 0.5 km	11	18	10	17
< 1 km	42	76	48	60
Total	3050	6437	3972	4585

- **How many points are needed to have the same estimates ?**
- **Is it possible to change the coordinates of LUCAS points ?**
- **Can we add new constraints to select LUCAS 2022 points (i.e. having x% common points)**

Next steps ?

- What do you plan to do ?

- Should we work country by country?

- Should we agree on a common way to compare networks, to look at Eurostat's simulations?

- Should we ask Eurostat for a new constraints (e.g. % of new points located on the national SMN?)

- Other ?