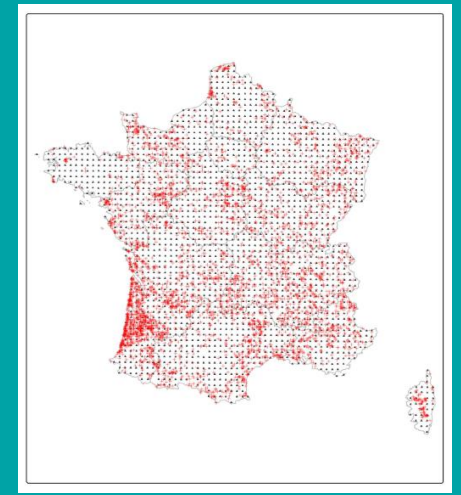
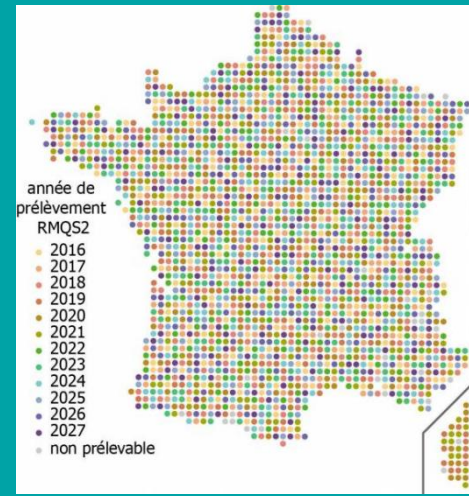
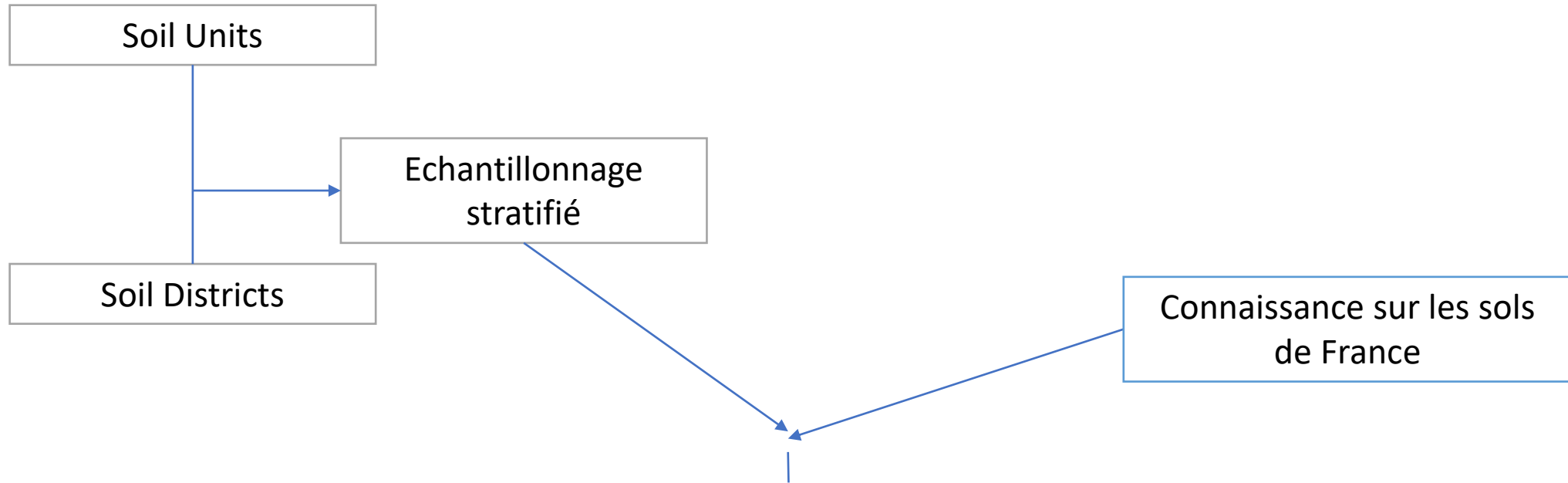




➤ Premiers calculs, conséquences pour le réseau ?

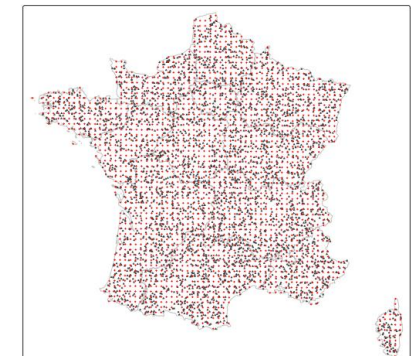
Nicolas SABY, S Lehmann, B Laroche, Louis POTEL &
Antonio BISPO

Info&Sols INRAE, Orléans, France



5% de précision sur la moyenne des X propriétés d'une unité de sol
Ex: Podzols sous forêts mixtes en région nouvelle aquitaine

Allocation du nombre de sites par unité de sol/District de sol



RMQS
LUCAS
Renecofor
IFN
...

Quel protocole ?



Soil Units

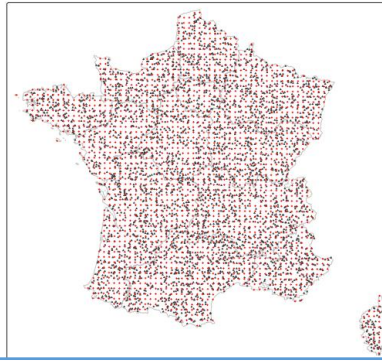
Echantillonnage
stratifié

Soil Districts

Connaissance sur les sols
de France

5% de précision sur la moyenne des X
propriétés d'une unité de sol
Ex: Podzols sous forêts mixtes en région
nouvelle aquitaine

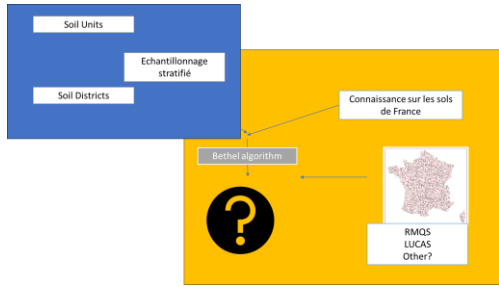
Allocation du nombre
de sites par unité de
sol/District de sol



RMQS
LUCAS
Renecofor
IFN

...

Quel protocole ?



Les unités de sol et districts

SU

- Occupation du sol
- Type de sols
- Écorégions

SD

- France
- Régions administratives



Les propriétés

Carbone

pH

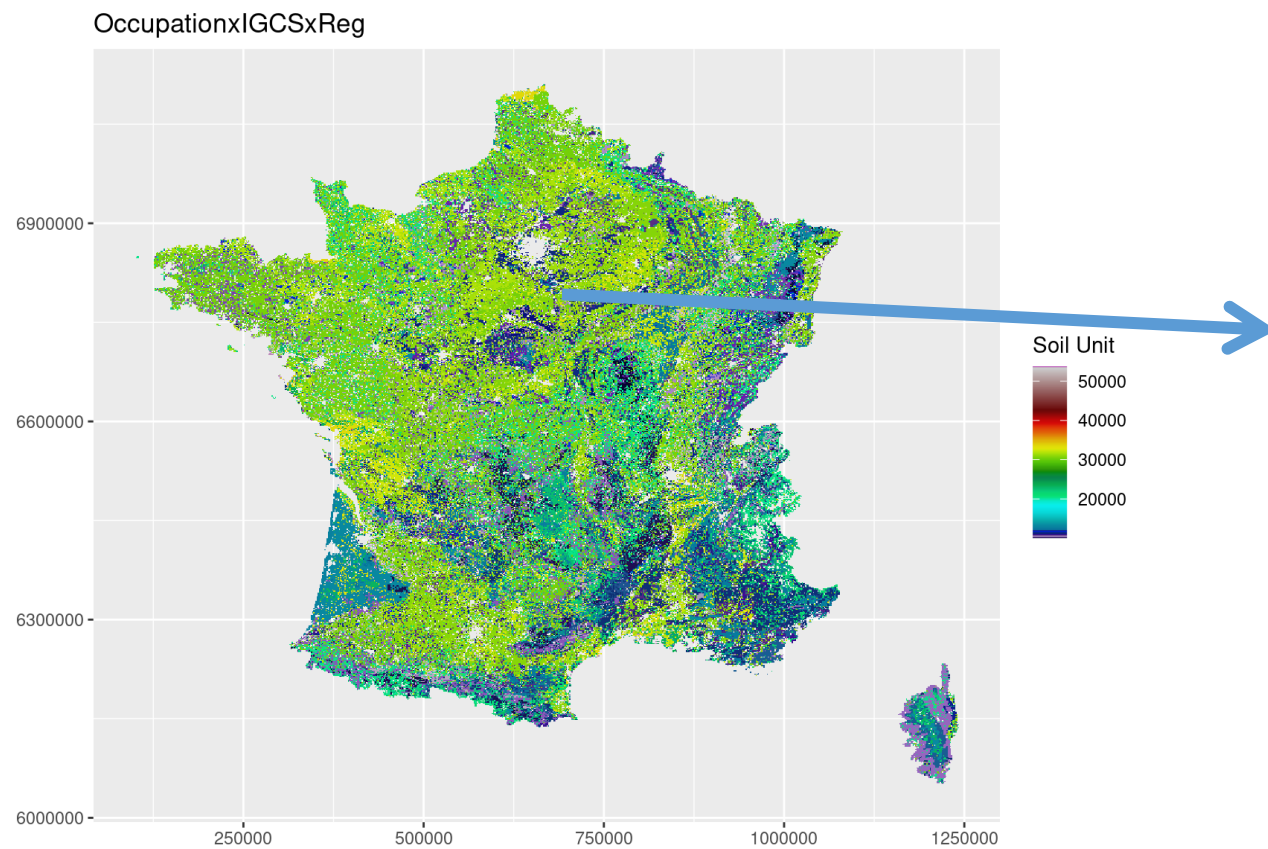
K échangeable

Argile / limons

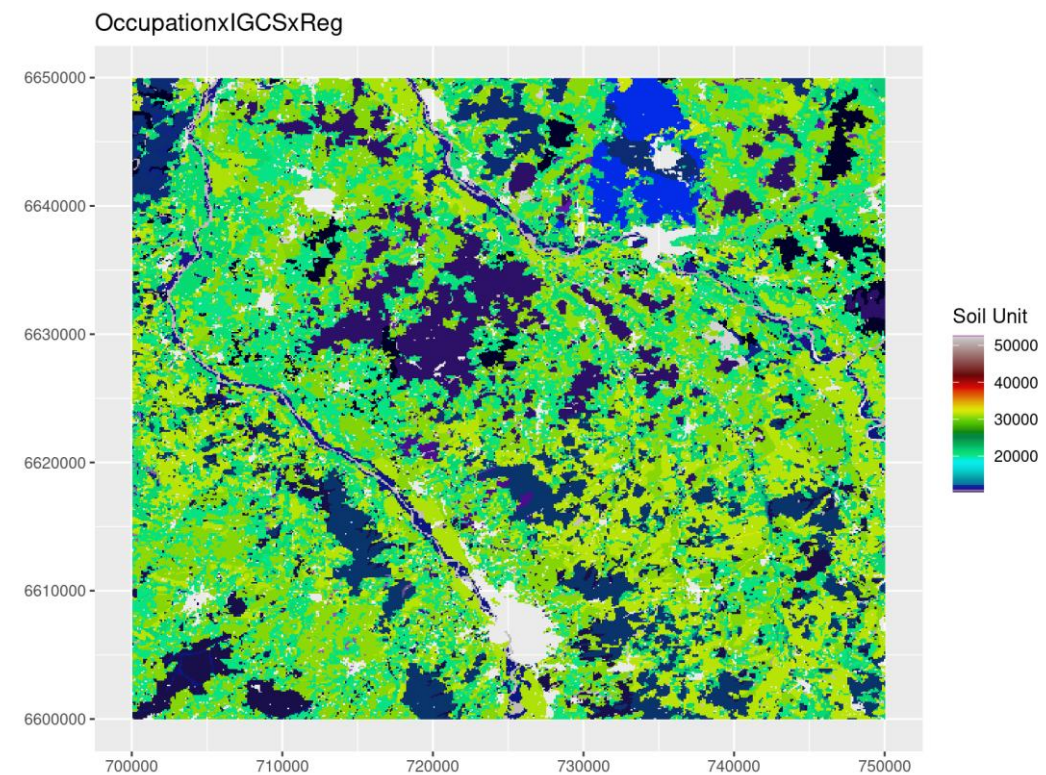
Densité
apparente

Pb Total

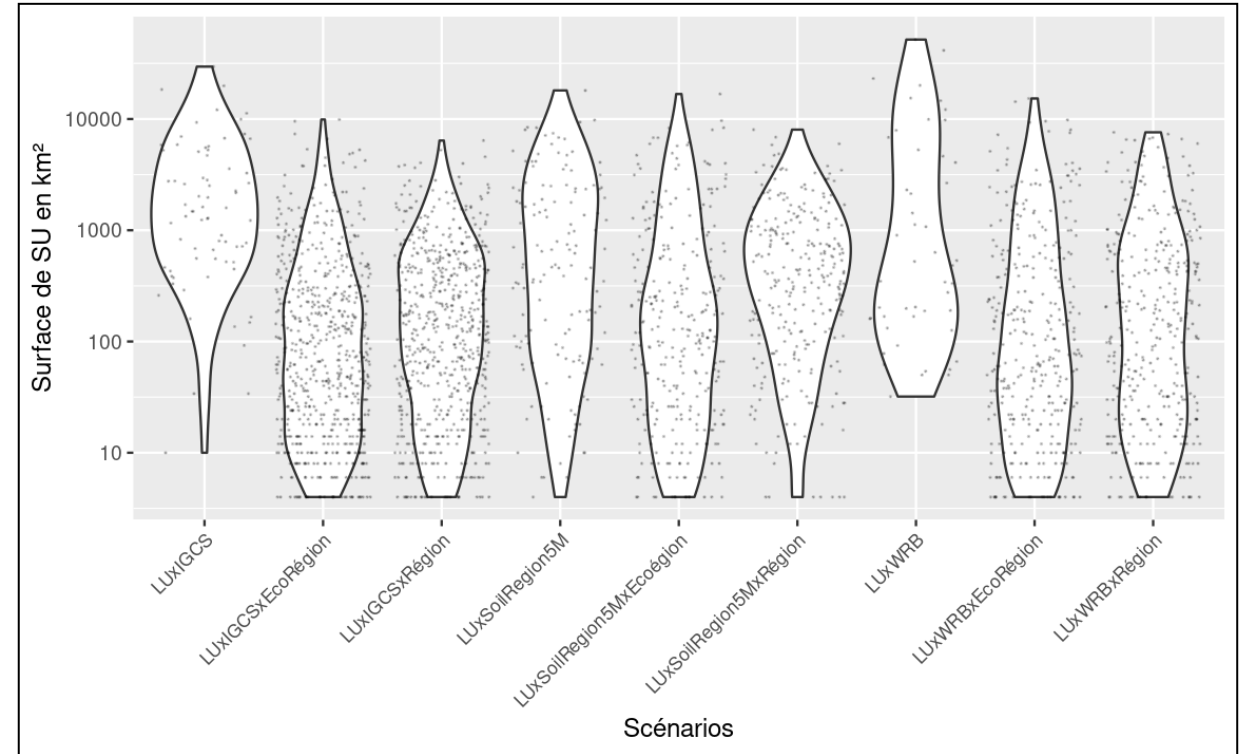
P assimilable



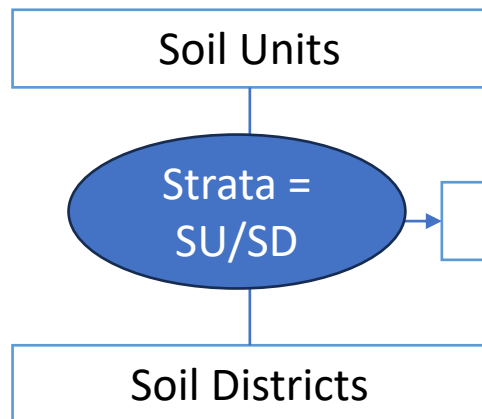
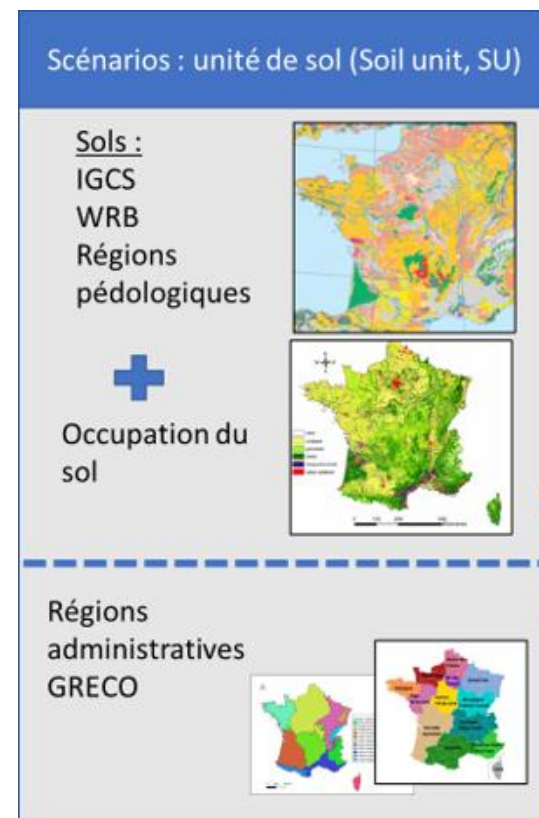
District de sol = Région
Unité de sol = occupation croisée avec la carte IGCS simplifiée



Nom SU	Nb de SU
LUXIGCSx EcoRég	569
LUXIGCSx EcoRégxRegAdmn	1,242
LUXSR5Mx EcoRég	264
LUXSR5MxE coRégxRegAdm	488



> Schéma de simulation



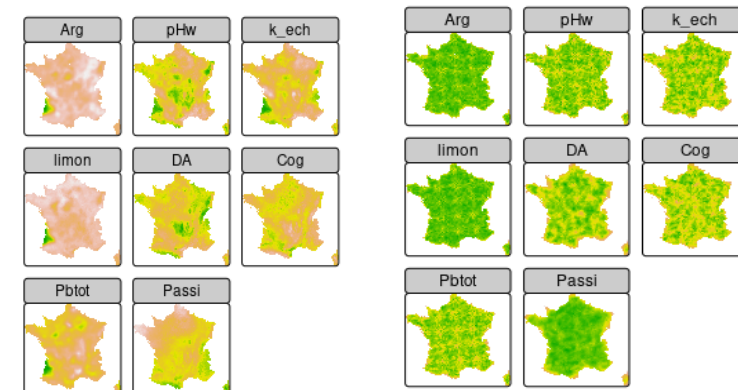
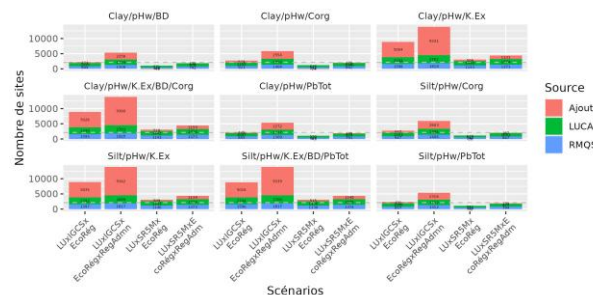
Strata

Ospats

Means and variances
of soil properties per
strata

Bethel algorithm

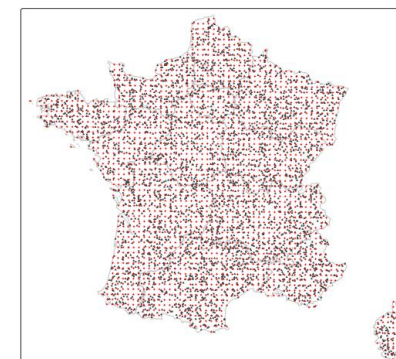
N sites per Soil
District?



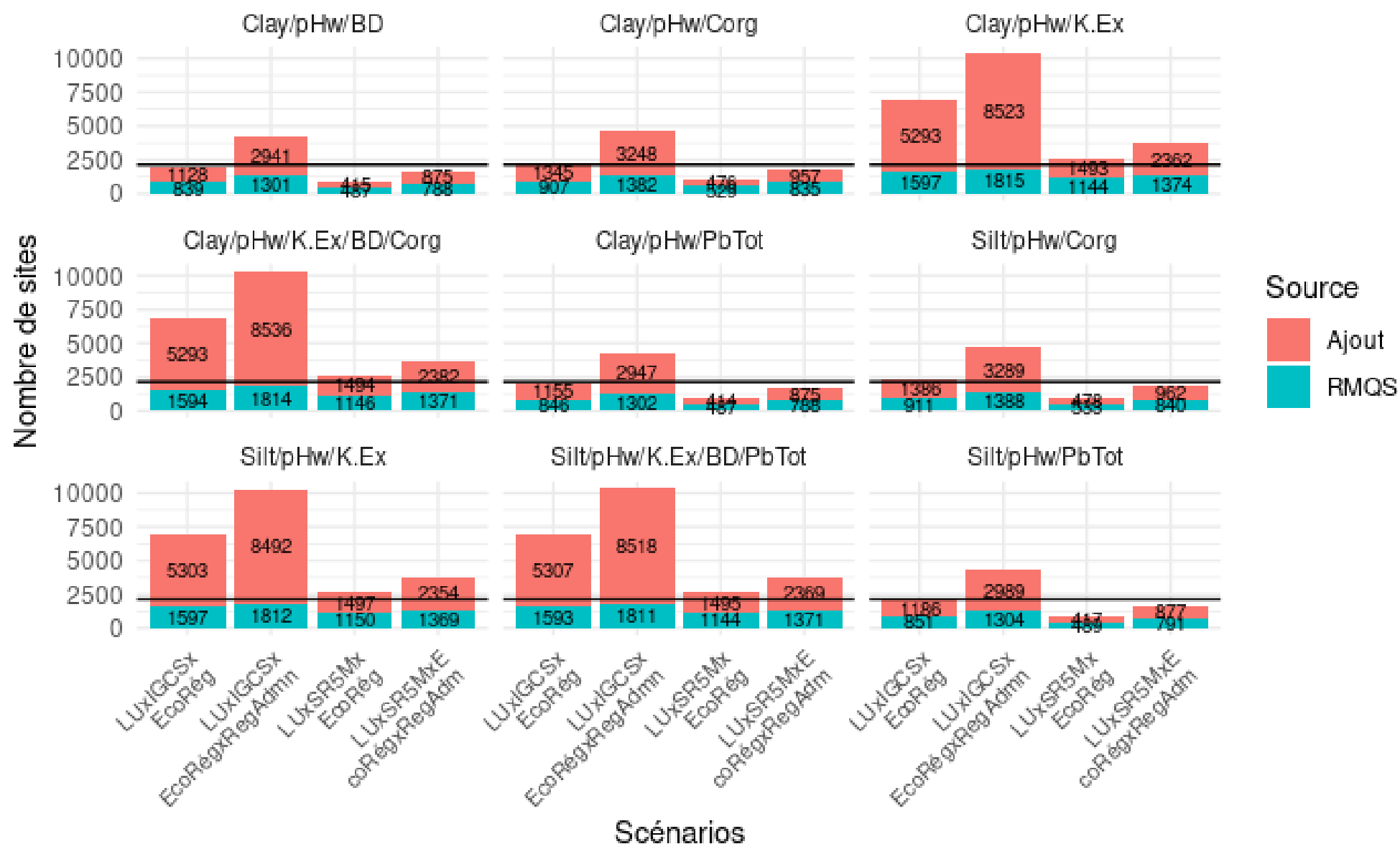
Log

Mixed model using INLA SPDE,
posterior mean and sd
Using RMQS observations and GSM
covariates

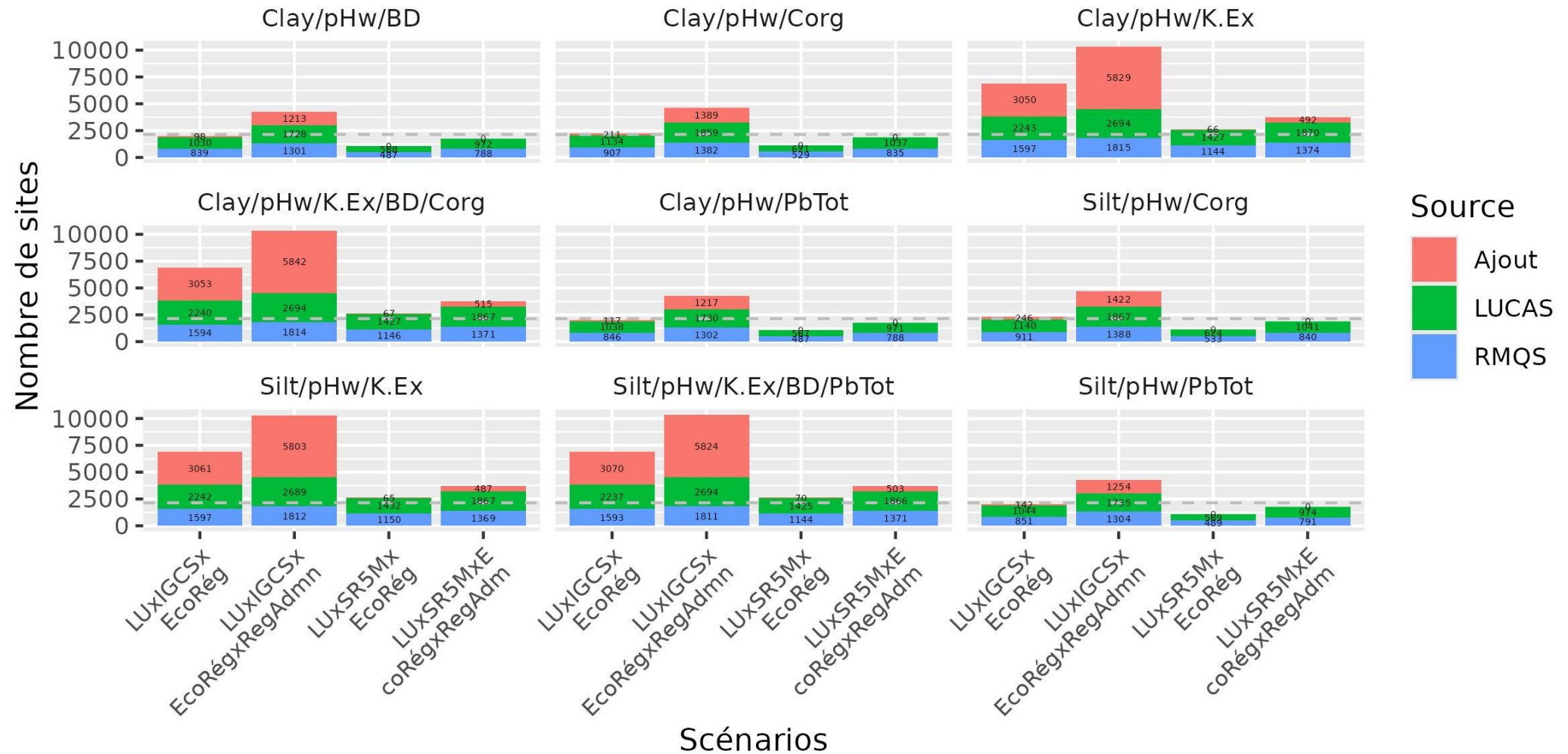
Assume SI
estimator



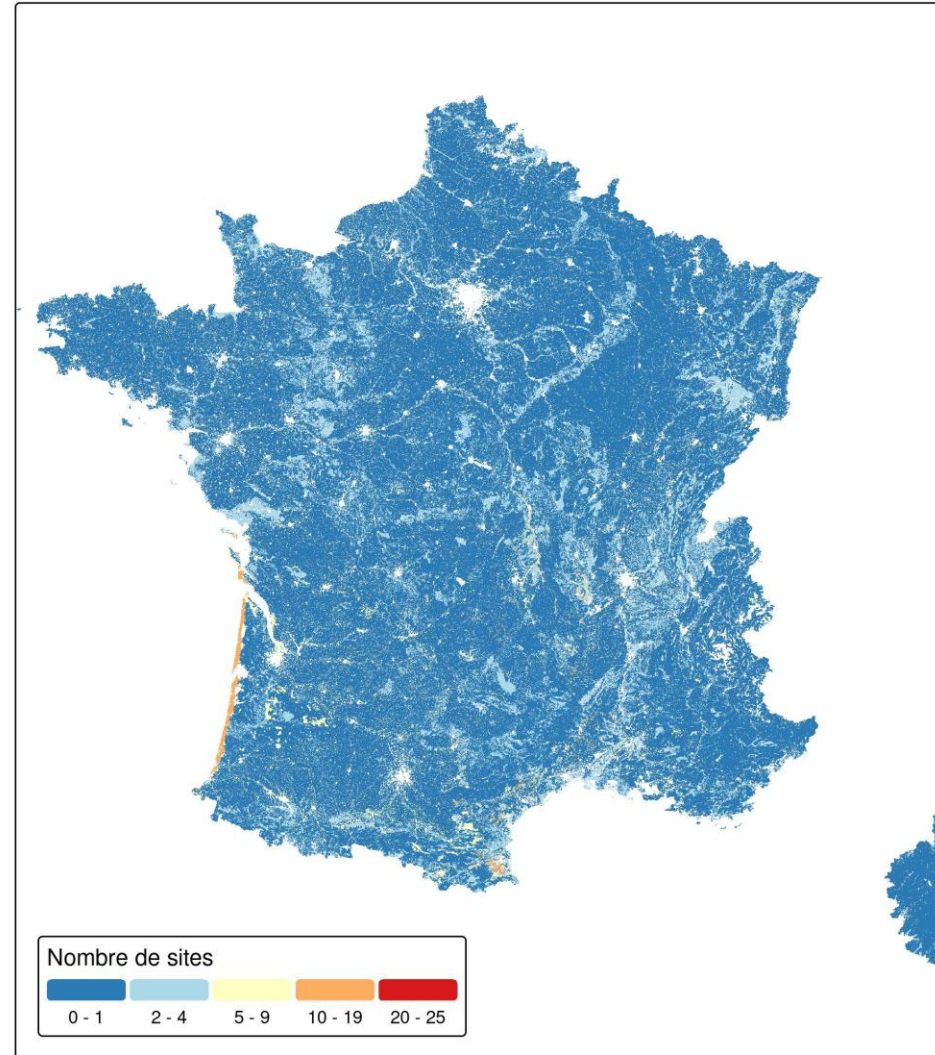
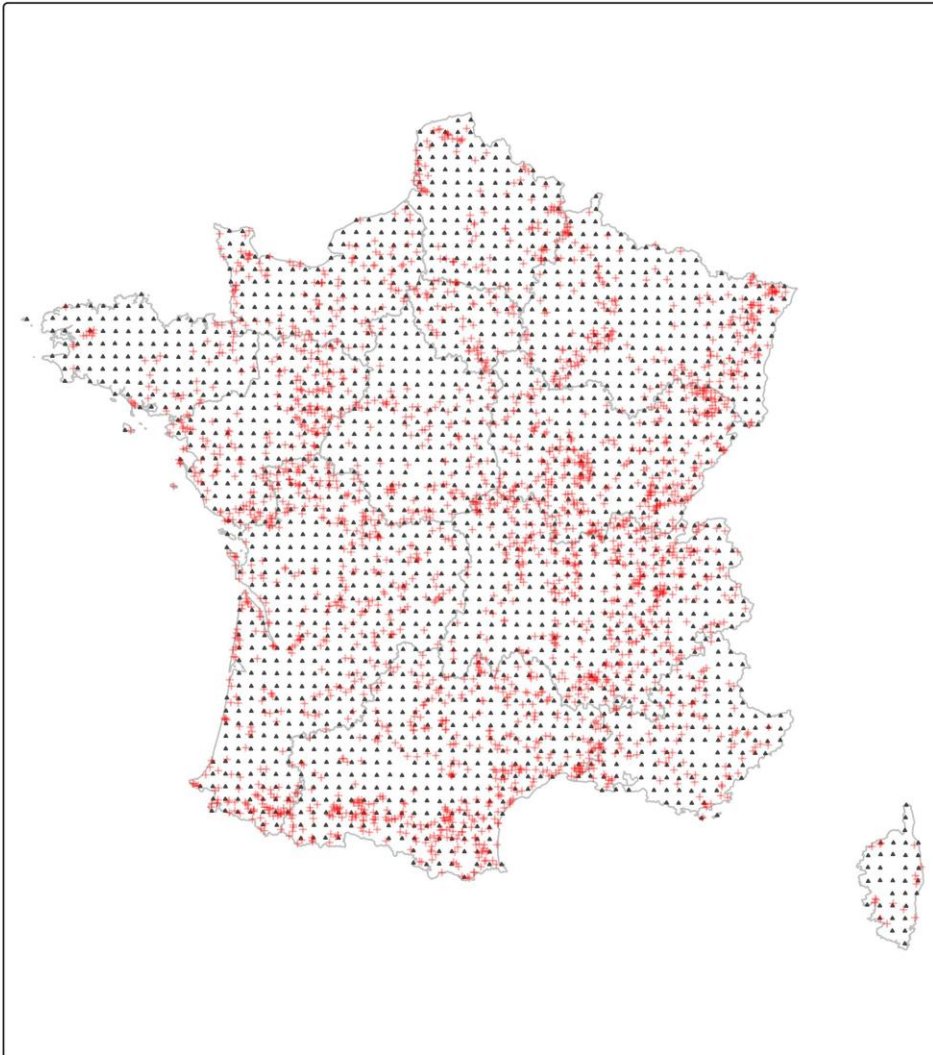
RMQS
LUCAS
Other?



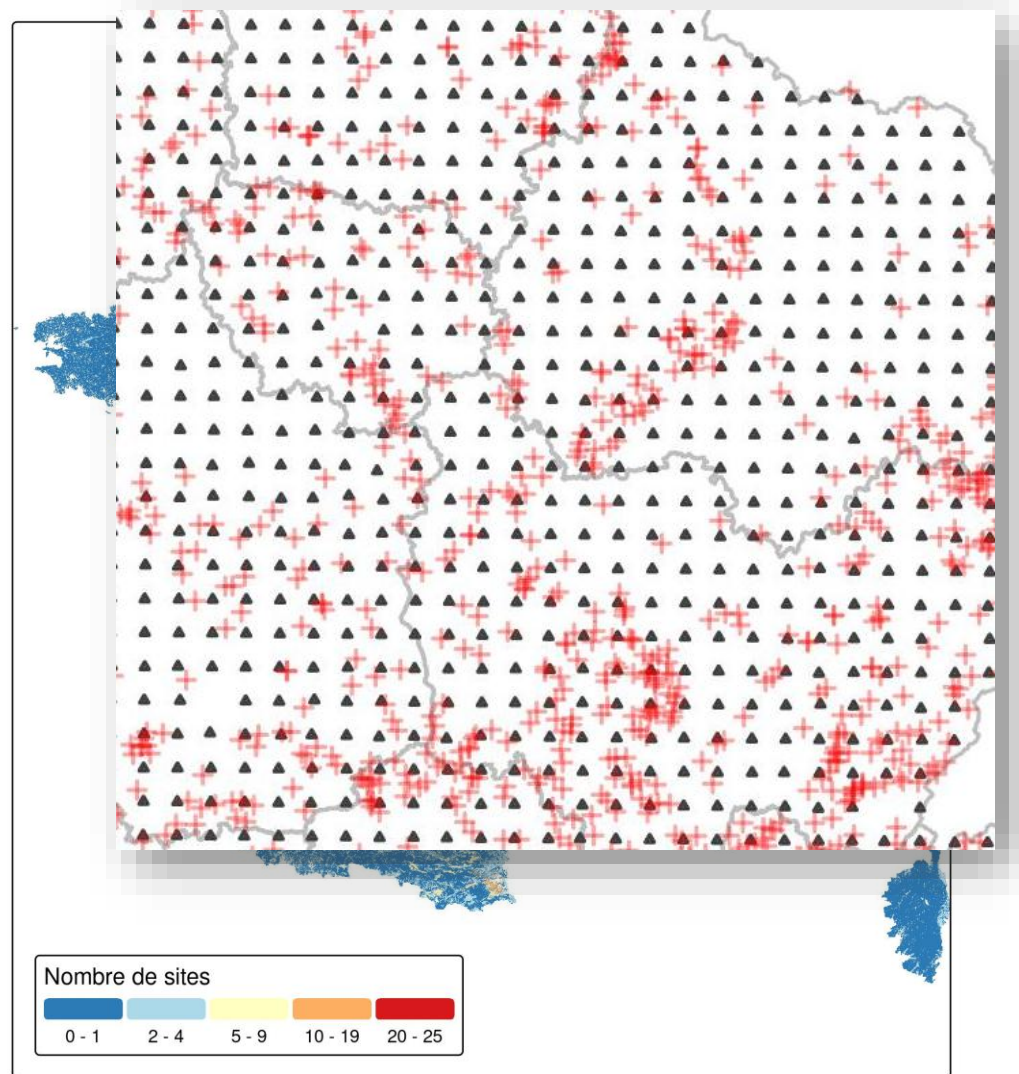
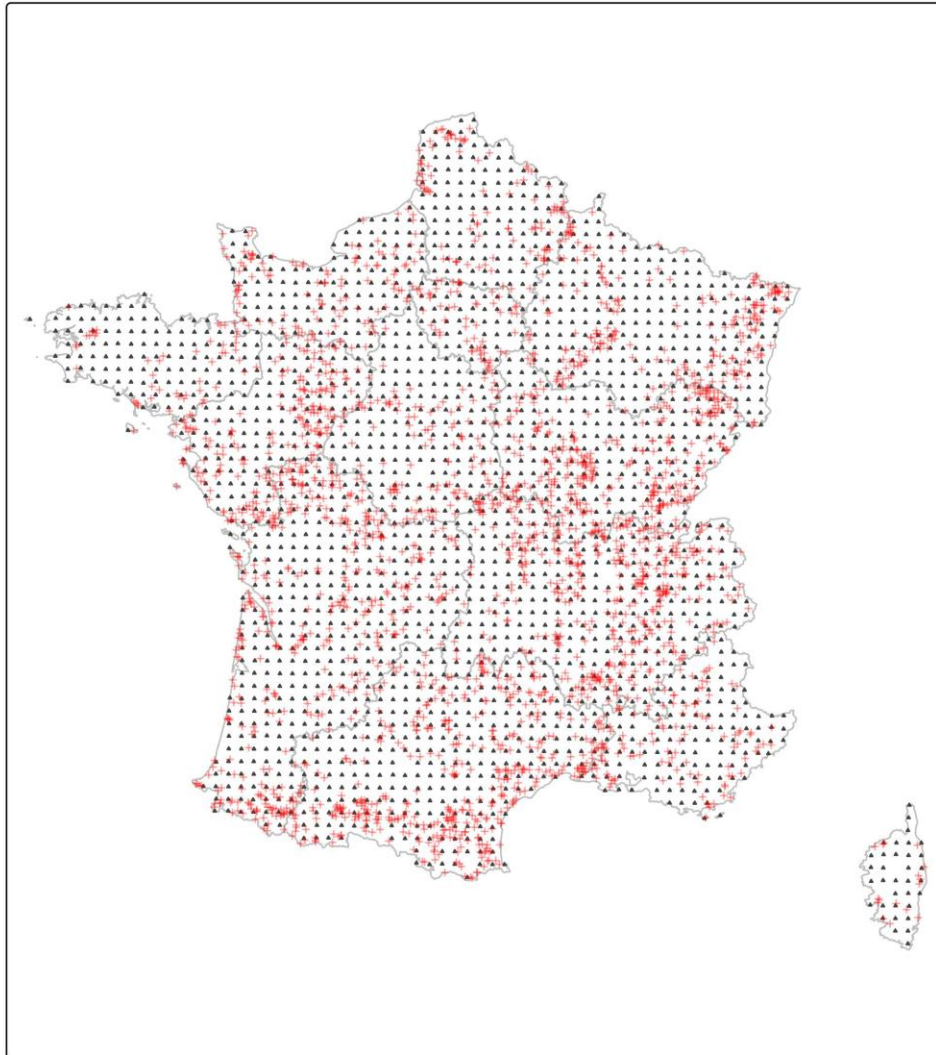
ET LUCAS ? Avec plein de « si » !



Argile / pH / Carbone – Région x IGCS x Occup x Climat

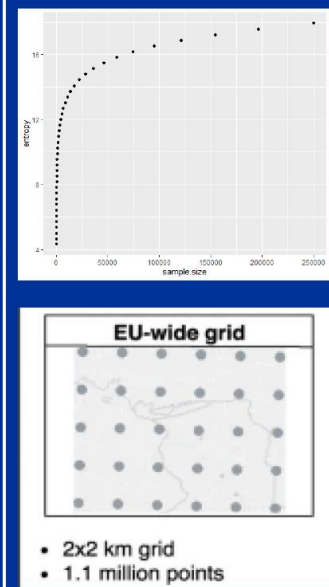
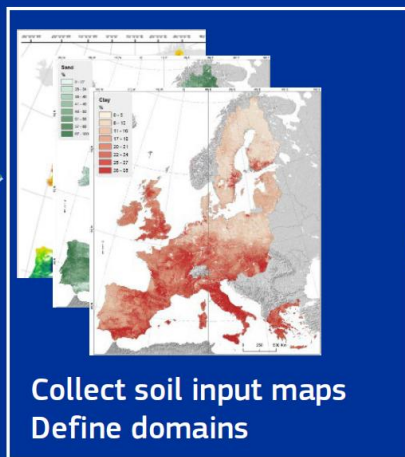


Argile / pH / Carbone – Région x IGCS x Occup x Climat



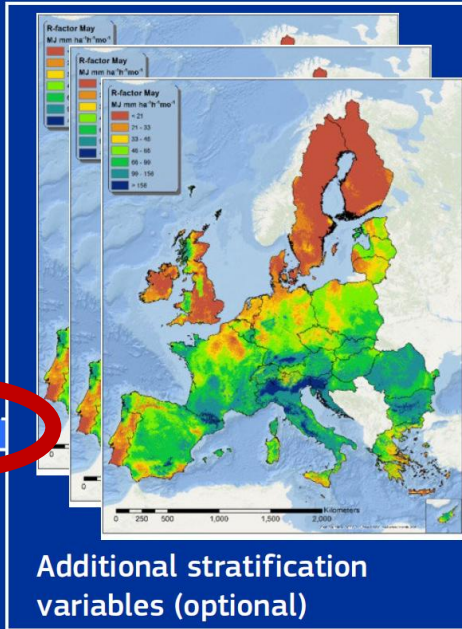
➤ Conclusions

- Grande variabilité du nombre d'unités d'échantillonnage selon les scénarios
- Présence de petites unités de sol (à regrouper ? à éliminer ?)
- Algorithme de Bethel informé de la variance a priori (donc pas celle de la future campagne)
- L'utilisation des réseaux existants est possible mais nécessite néanmoins toujours de rajouter de nouveaux sites.
- Travail toujours en cours
- Et le protocole, l'harmonisation avec les différents réseaux (LUCAS, RENECOFOR, IFEN)

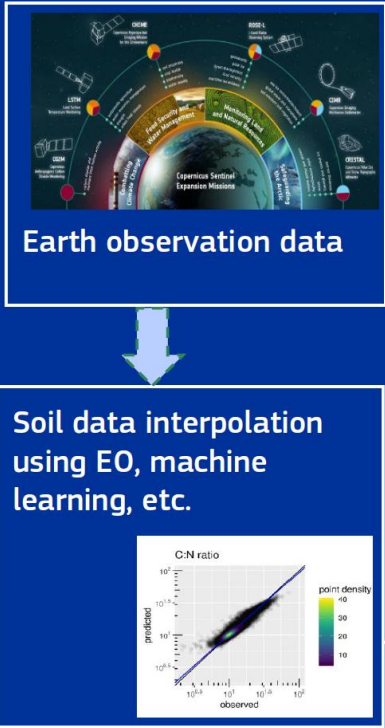
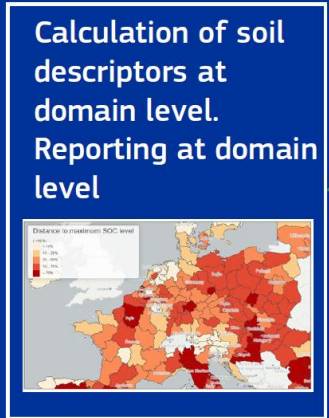
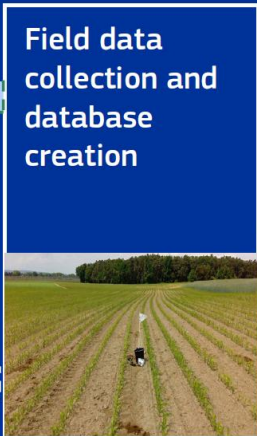
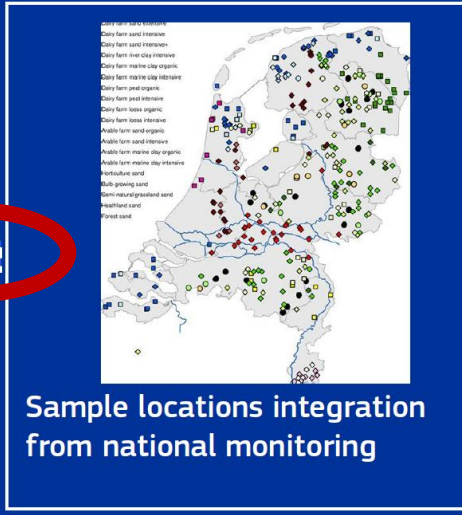


Reduce sample size to manageable size using CLHS.
Accounting for spatial distribution in CLHS.

Compute strata from input layers using k-means clustering.
Additional data to be used for stratification might be included here (i.e. climatic data)



Allocate samples to each strata as to meet the CV target of 5% for each domain through Bethel's algorithm



Calculation of soil descriptors at pixel level.
Spatially continuous reporting.
Leveraging EO for ongoing monitoring.
Update for the input maps.