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Impact of uncertainties when estimating spatialized soil parameters for soil hydrodynamic models

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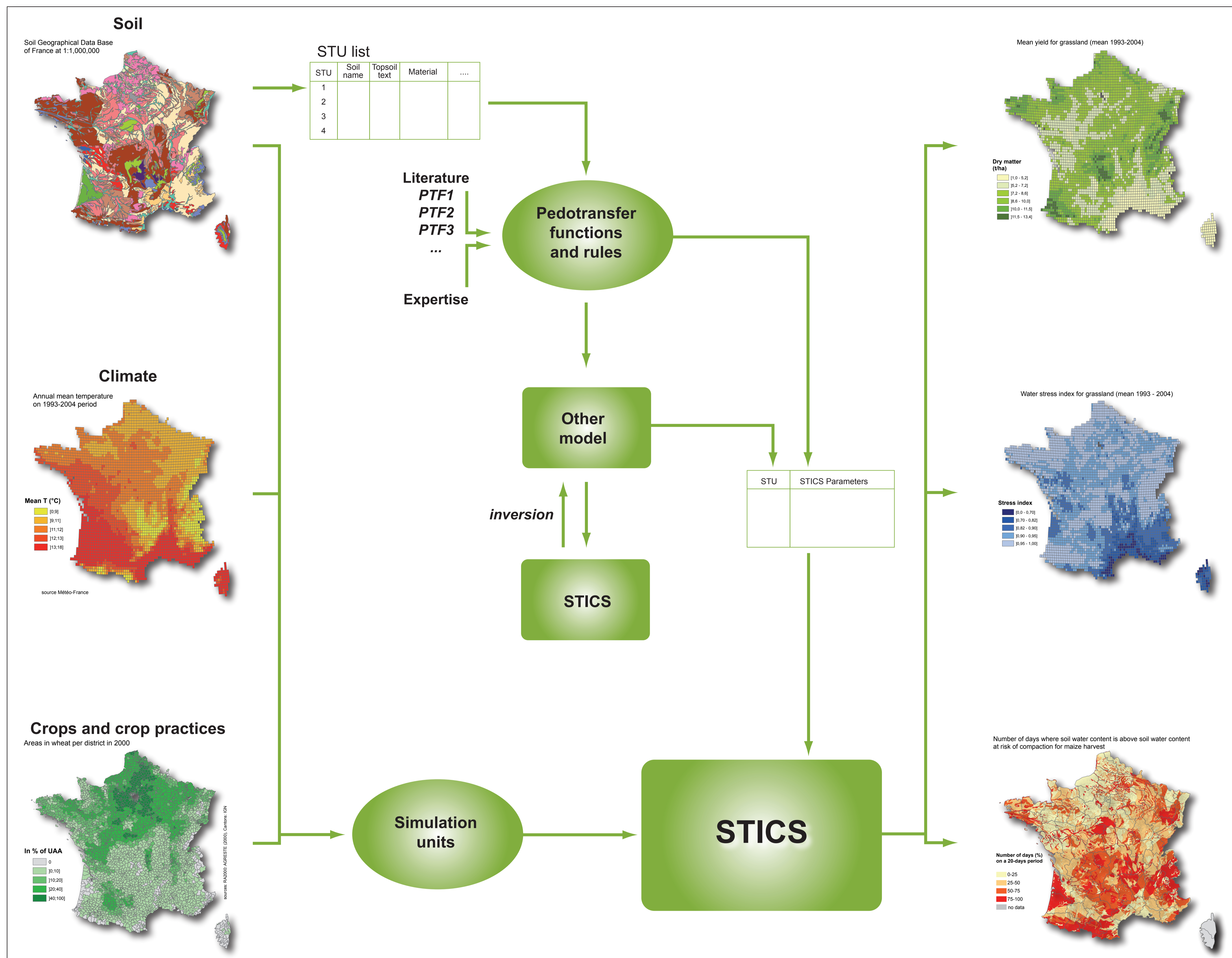
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INTRODUCTION

Soil hydrodynamic models are often developed for a field use. But they are more and more used for regional to continental studies.

At these scales, this use is beyond the contexts for which these models were designed and validated. Moreover, precise measures for input data or parameter calibration data are not available.

→ Need to develop estimation methods for soil input data of models from spatialized soil data bases



QUESTIONS RAISED BY MODEL SPATIALIZATION

How evaluate input parameters? What is their reliability?

Does parameter estimation depend from modelling objectives?

What are the impacts of estimation uncertainties on model outputs?

How could be taken into account the internal variability of STU?

Some soil parameters are dependent from other factors: how could we improve their estimation?

THE THESIS OBJECTIVES

The thesis is based on experiences accumulated on the use of the Soil Geographical Data Base of France at 1:1,000,000 (SGDBF) for spatializing the crop model Stics. The different steps of the thesis are:

- 1) perform a sensitivity analysis to determine to which soil parameters Stics is more sensitive
- 2) perform an uncertainty analysis on these parameters when estimating them using the SGDBF
- 3) develop a methodology for evaluating a spatialized set of parameters.

