

# Analysis of different treatments schemes of ERT dataset in view of monitoring the structure of a soil tilled layer in space

Maud Seger, Arlène Besson, Guy Richard, Bernard B. Nicoullaud, Guillaume Giot, Isabelle I. Cousin

### ► To cite this version:

Maud Seger, Arlène Besson, Guy Richard, Bernard B. Nicoullaud, Guillaume Giot, et al.. Analysis of different treatments schemes of ERT dataset in view of monitoring the structure of a soil tilled layer in space. EGU European Geosciences Union, General Assembly 2010, May 2010, Vienne, Austria. 2010. hal-02813667

### HAL Id: hal-02813667 https://hal.inrae.fr/hal-02813667

Submitted on 6 Jun2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## Analysis of different treatments schemes of ERT dataset in view of monitoring the structure of a soil tilled layer in space

Seger M.<sup>1</sup>, Besson A.<sup>1</sup>, Richard G., Nicoullaud B., Giot G., Cousin I.

<sup>1</sup> Centre de Recherche INRA Orléans Unité de Science du Sol 2163 Avenue de la Pomme de Pin-CS 40001 Ardon 45075 ORLEANS cedex 2 – France

maud.seger@orleans.inra.fr

2D images of electrical resistivity (ER) of soil do not provide directly relevant informations on soil structural variability. A reconstruction process leading on inversion techniques for imaging the spatial distribution of resistivity is required. However in heterogeneous media, noise in ER dataset can restrict inverse processing. In this work, we have tested several schemes of ER treatment to obtain an accurate modelling of the soil structure variability in 2D from resistivity. Our approach gathered 4 steps: from raw ER dataset measured in field, on a plot locally and artificially compacted by wheel traffic to the final ERT compared to a visual morphological profile (VMP) of soil structure. We discuss then on the impact of filtering, meshing implemented in inversion process and time lapse constraint on final ER results.

#### Material and method

#### **Results and discussion**





The DIGISOIL project (FP7-ENV-2007-1 N<sup>2</sup>11523) is finan ced by the European Commission under the 7th Framework Programme for Research and Technological Development, Area "Environment", Activity 6.3 "Environmental Technologies". European Geosciences Union General Assembly 2010

Vienna, Austria, 02-07 May 2010