

The DIGISOIL multi-sensor system: from geophysical measurements to soil properties.

Gilles Grandjean

▶ **To cite this version:**

Gilles Grandjean. The DIGISOIL multi-sensor system: from geophysical measurements to soil properties.. EGU General Assembly 2010, May 2010, Vienne, Austria. pp.1. hal-00509270

HAL Id: hal-00509270
https://brgm.hal.science/hal-00509270

Submitted on 11 Aug 2010

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.

Geophysical Research Abstracts
Vol. 12, EGU2010-4885, 2010
EGU General Assembly 2010
© Author(s) 2010

The DIGISOIL multi-sensor system: from geophysical measurements to soil properties.

Gilles Grandjean and the DIGISOIL Team
BRGM, RNSC, Orleans, France (g.grandjean@brgm.fr)

The purposes of the multidisciplinary DIGISOIL project are the integration and improvement of in situ and proximal measurement technologies for the assessment of soil properties and soil degradation indicators, going from the sensing technologies to their integration and their application in (digital) soil mapping (DSM). In order to assess and prevent soil degradation and to benefit from the different ecological, economical and historical functions of the soil in a sustainable way, high resolution and quantitative maps of soil properties are needed. The core objective of the project is to explore and exploit new capabilities of advanced geophysical technologies for answering this societal demand. To this aim, DIGISOIL addresses four issues covering technological, soil science and economic aspects: (i) the validation of geophysical (in situ, proximal and airborne) technologies and integrated pedo-geophysical inversion techniques (mechanistic data fusion) (ii) the relation between the geophysical parameters and the soil properties, (iii) the integration of the derived soil properties for mapping soil functions and soil threats, (iv) the pre-evaluation, standardisation and sub-industrialization of the proposed methodologies, including technical and economical studies related to the societal demand. With respect to these issues, the preliminary tasks of the DIGISOIL project were to develop, test and validate the most relevant geophysical technologies for mapping soil properties. The different field tests, realized at this time, allow focusing on technological suitable solutions for each of the identified methods: geoelectric, GPR, EMI, seismics, magnetic and hyperspectral. After data acquisition systems, sensor geometry, and advanced data processing techniques have been developed and validated, we present now the solutions for going from such data to soil properties maps.