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Model driven Soil Probing, Site Assessment and Evaluation– Final results of the EU Project ModelPROBE

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Conventional techniques for site characterization are time consuming, cost intensive, and do often not support decision making. Therefore, new techniques for a step by step site characterization strategy with smart feedback loops were developed in the framework of the ModelPROBE project: advanced geophysical site characterization techniques combined with new types of vegetation analysis (tree core monitoring), including integrated statistical analysis and modelling. Based on these non- to low invasive surveys, the extension of sources, contamination levels and soil heterogeneities can be localized. Hot spots can then be investigated by new direct push probing systems integrated with geophysical & hydrogeological methods, and combined with chemical & isotopic contaminant analysis for source localization and identification. The actually occurring bioprocesses, such as contaminant degradation or precipitation/mobilization processes, can be assessed using biosensors, in situ microcosms, and stable isotope and biomarker analysis. Some of these new techniques and tools were successfully evaluated against best practice of conventional methods at the fully equipped and characterized European reference sites available in the project. Beside scientific publications, the methods and techniques developed in the project will be provided in the form of an operation guideline handbook that will be published in September 2012.

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