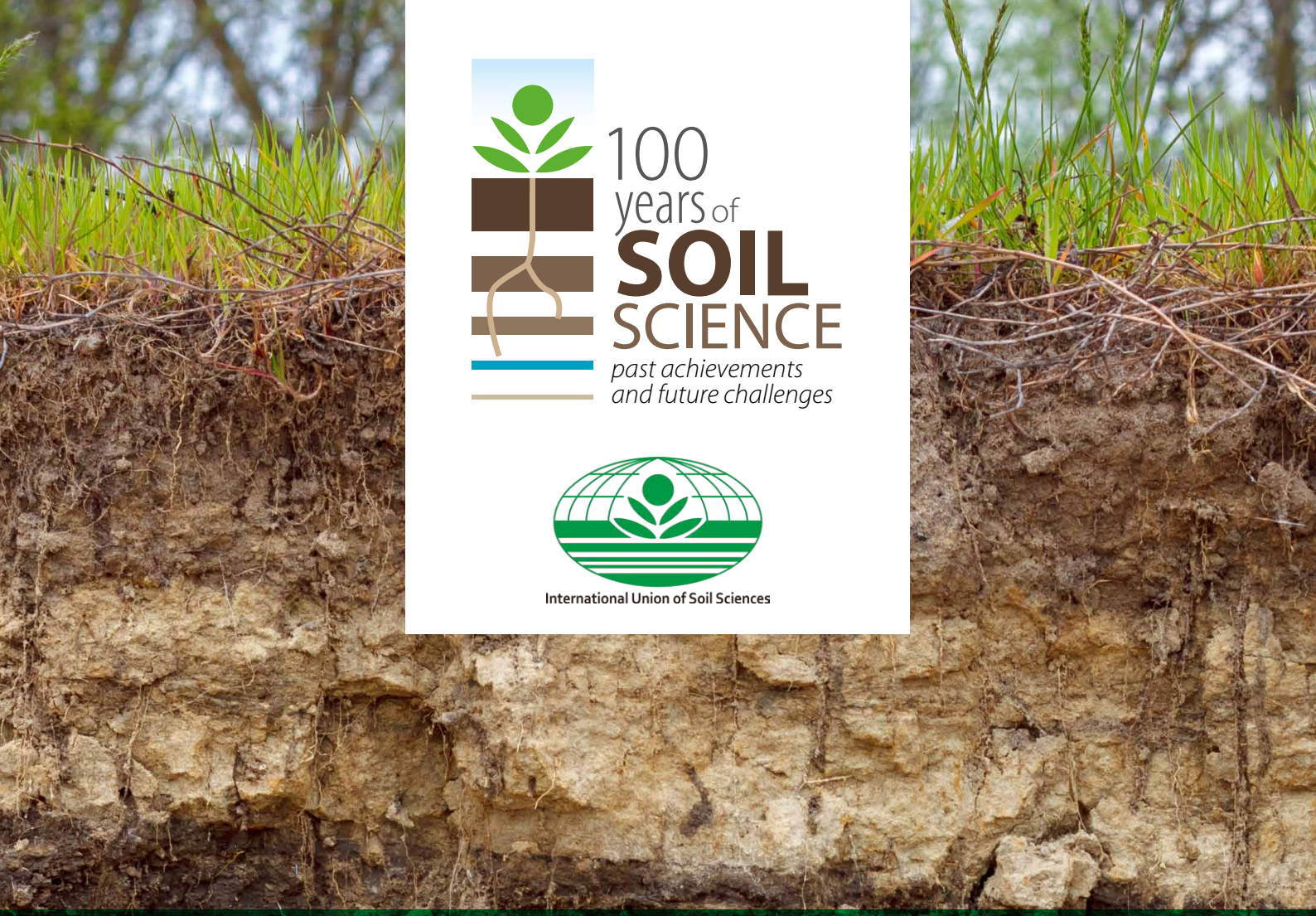

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ABSTRACT BOOK

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6. Soil in the digital era
6.07 133441 - Soil Erosion and Land Degradation: methods, observations and perspectives

INITIATING THE PREDICT-ER: A NEW MULTIDISCIPLINARY FRAMEWORK FOR THE DEVELOPMENT OF AN EROSION PREDICTION TOOL

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Significant progress in studying and subsequent modeling of erosion processes resulted in the development of many empirical, semi-empirical, and physically-based models, ranging from simplistic equations to complex models considering multiple interacting factors. However, the ease of their use with remotely sensed data and geostatistics increased the number of models and tools that rely on globally available data and lack field activities and validation. These drawbacks limit their applicability in identifying priority areas and site-specific measures for effective soil management. Here, a new concept for developing an erosion prediction tool (Predict-Er) is presented, and the field/laboratory analyses as input for tool development are discussed. The Predict-Er brings a novel approach that combines nuclear, analytical, statistical, and remote sensing techniques to produce high-resolution field data, which will be modeled and integrated within a multilayer web GIS Predict-Er tool to enable predicting changes in soil erosion rates and sediment dynamics over various management scenarios. It aims to predict soil erosion rates and sediment yield by simulating the effects of land use/cover changes, precipitation, land management, and conservation measures. Sediment fingerprinting, integrated with other methods, is envisaged to furnish data for directing interventions in sediment management. Thus, the Predict-Er Tool facilitates decision-making processes for stakeholders aiming to implement informed conservation measures to mitigate the dual impacts of on-site and off-site consequences of soil erosion. The tool developed on representative study catchment in Serbia will be validated in Spain's catchment of different physiographic and geological characteristics and then thoroughly and continuously tested in other catchments. The Predict-Er approach enhances understanding of the complex interactions among the soil erosion drivers. It contributes to achieving sustainable development objectives, particularly aligned with the United Nations Sustainable Development Goal (SDG) targets related to responsible land use and environmental conservation.

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Keywords: Remote sensing,Sediment souce fingerprinting,Soil,Sustainable soil management