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DeepHorizon: DEploying Ecosystemic solutions to imProve soil Health and uncOveRing subsoil functIons in the critical ZONe

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DeepHorizon is a Horizon Europe Soil Mission project which aims to uncover hidden potential of European subsoils, an overlooked but vital component in soil functioning. Knowledge of subsoil dynamics, functions and degradation remains limited, and the pressure of unsustainable land management practices (LMPs) and climate change are increasing. To address this, DeepHorizon is leveraging multi-disciplinary collaborations across 19 international institutions to i) map subsoil properties, ii) identify sustainable subsoil management practices, and iii) develop and refine user-oriented tools to monitor and improve subsoil health.

The initial sampling campaign is underway, with 19 of our 40 sites sampled, which will be completed by the end of Autumn this year. Excavating a soil trench up to 2-meters provides comprehensive physical, chemical and biological data to capture subsoil properties including soil texture, pH, Carbon, Nitrogen and other nutrients, X-ray CT, hydraulics, root length density, fauna, microbiology and more. These data will contribute to a better representation of subsoils in existing databases and calibrate two process-based models to improve representation of subsoil functions.

These models will be validated across 100+ test sites and 3 regional case-study areas (CSA), then adapted to suit the needs of end-users through farmer- and manager-friendly tools. The project will also assess the socio-economic impact and environmental trade-offs of LMPs to generate policy recommendations and incentives to propose the sustainable management and restoration of European subsoil.

To ensure widespread impact, DeepHorizon engages land managers, researchers and policymakers through Community of Practice (CoP) and targeted outreach and communication activities. To facilitate the work planned on future test sites and case study areas, we are looking for constructive feedback, synergies, and collaborations that may be available across existing projects, institutions or individuals.