Research Project

Accelerating collection and use of soil health information using AI technology to support the Soil Deal for Europe and EU Soil Observatory

Third-party funded project

Project title Accelerating collection and use of soil health information using AI technology to support the Soil Deal for Europe and EU Soil Observatory
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Departement Umweltwissenschaften
Project start 01.01.2023
Probable end 31.12.2026
Status Active
The objective of AI4SoilHealth is to co-design, create and maintain an open access European-wide digital infrastructure, compiled using state-of-the-art Artificial Intelligence (AI) methods combined with new and deep soil health understanding and measures. The AI-based data infrastructure functions as a Digital Twin to the real-World biophysical system, forming a Soil Digital Twin. This can be used for assessing and continuously monitoring Soil Health metrics by land use and/or management parcel, supporting the Commission's objective of transitioning towards healthy soils by 2030. The project is divided into seven (7) work-packages including: (WP2) Policy and stakeholder engagement — networking and synchronizing with EU and national programs, (WP3) Soil health methodology and standards - developing/testing methodology to be used by WPs 4-6, (WP4) Soil health in-situ monitoring tools and data - developing field and laboratory solutions for Observations & Measurements, (WP5) Harmonised EU-wide soil monitoring services - developing the final suite of tools, data and services, (WP6) Multi-actor engagement pilots — organizing field-works and collect users' feedback, (WP7) Soil literacy, capacity building and communication — organizing public campaigns and producing educational materials. Key deliverables include: 1) Coherent Soil Health Index methodology, 2) Rapid Soil Health Assessment Toolbox, 3) AI4SoilHealth Data Cube for Europe, 4) Soil-Health-Soil-Degradation-Monitor, and 5) AI4SoilHealth API and Mobile phone App. Produced tools will be exposed to target-users (including farmer associations in >10 countries), so their feedback is used to improve design/functionality. Produced high-resolution pan-European datasets will be distributed under an Open Data license, allowing easy access by development communities. AI4SoilHealth will provide an effective Soil Health Index certification system to support landowners and policy makers under the new Green Deal for Europe. Keywords: Biogeochemistry, biogeochemical cycles, environmental chemistry, Earth observations from space/remote sensing, Environment, resources and sustainability, Environmental monitoring systems, Terrestrial ecology, land cover change.

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Financed by
Commission of the European Union

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