

ECHO: Engaging citizens in soil health and science

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11 January 2024

Here, we learn about the ECHO project, coordinated by Soil Scientist Prof Tanja Mimmo of the Free University of Bozen-Bolzano, Italy

While often overlooked, soil is the cornerstone of life on Earth. Soil plays a crucial role in regulating our planet's health and provides multiple benefits to society.

However, this essential resource is under a range of threats, including a changing climate, erosion, and a loss of fertility with consequences that include reduced crop yields, increased greenhouse gas emissions, plus biodiversity loss.

In response to this challenge, ECHO, funded by the European Union and UK Research and Innovation (UKRI), has embarked on a mission to revolutionise soil health and secure a more sustainable future.

ECHO unveiled: A soil health transformation

The ECHO project, running from 2023 to 2027 and coordinated by Soil Scientist Prof Tanja Mimmo of the Free University of Bozen-Bolzano, Italy, is not just a research initiative. It is a dynamic, forward-looking initiative that seeks to reshape our understanding and care for soil. ECHO's mission is clear – to amplify existing knowledge and generate new insights through cutting-edge scientific research, while increasing awareness and literacy regarding soil health-related issues.

ECHO takes a fresh and unique approach to achieving its ambitious goals. It will lead and deliver coordinated citizen science initiatives across European Member States and Scotland. Citizen science represents a powerful instrument to generate information and address knowledge gaps at scale, recognising Europe's diverse land uses, soil types, biogeographic regions and, importantly, stakeholder needs.

These citizen-driven initiatives will place ordinary individuals at the forefront of soil monitoring and protection. They will empower people from all walks of life to safeguard one of the key resources of our fragile planet.

ECHO and the EU Mission 'A Soil Deal for Europe' and beyond

ECHO is an integral part of the EU Mission, 'A Soil Deal for Europe', that aims to revolutionise soil health and deliver healthier soils by 2030. ECHO's activities aligned closely with the goals and objectives of this overarching European mission, The Nature Restoration

Law, and the forthcoming Soil Monitoring and Resilience Law, making ECHO a central pillar in delivering improved soil health. The EU Mission for Soil seeks to turn ambitious goals into real-world action, and ECHO is at the forefront of this transformative change.

ECHO extends its influence far beyond the borders of Europe. It is part of a global movement addressing soil degradation, promoting sustainable land management, and ensuring food security. ECHO's vision resonates with international commitments, including the UN Sustainable Development Goals (SDGs), the United Nations Convention to Combat Desertification (UNCCD), and the Convention on Biological Diversity (UN CBD).

ECHO is, therefore, a vital contributor to global efforts to safeguard our planet's future. ECHO will achieve this through cognate work streams of which co-creation with citizens at all levels is the cornerstone of delivering a step change in increased soil literacy in society across the Member States.

Citizen Science: Unleashing the power of the people

Citizens, through active engagement, will gain awareness of their individual influence on soil health and be empowered to support soil-friendly practices, including making environmentally conscious consumer choices. This, in turn, may leverage improved supply chain engagement on soils. Citizen science, coupled with novel research delivered by soil researchers, represents an innovative dual approach to both inform and actively involve citizens in European soil issues, collecting valuable data and insights that traditional research efforts alone cannot match.

Citizens bridge the gap between scientific expertise and practical, real-world understanding by participating in soil monitoring and data collection.

This participatory approach is a potential game-changer, underscoring collective action's power. This active citizen participation will ultimately foster social change through trust and improved understanding.

Monitoring for a healthier planet

With the implementation of 28 tailor-made citizen science initiatives, ECHO aims to collect data from up to 16,500 sites across Europe and Scotland, consolidating this information into ECHOREPO, a long-term open-access data repository.

This valuable data resource seeks to benefit scientists, the broader public, and end-users, including farmers, landowners, businesses, educators, and institutions responsible for soil management. By doing so, ECHO seeks to optimise the utilisation of project findings and existing data from other pertinent soil monitoring initiatives. Generating high-quality, robust soil data is vital to developing sustainable land management strategies and driving policy actions that protect our essential soil resources.

Join the soil health revolution

ECHO aims to promote soil stewardship across European Member States and beyond by actively engaging and supporting citizens to participate in the project, focusing on encouraging soil health practices. This initiative seeks to enhance citizens' understanding of fundamental soil processes, drivers, and mechanisms that influence soil health, empowering them to influence land management and other factors affecting soil health collectively.

ECHO's promotion of soil stewardship will extend beyond agricultural soils to encompass various land uses, including urban and forest soils, fostering a constructive link between citizens' practices and positive soil health outcomes. These activities will build strong motivation, capacities, and profound knowledge bases for soil stewardship, bringing the concept of soil health closer to citizens' realities and people's lives.

In the future, ECHO will be a project for scientists and a movement for citizens, land managers, industries, and policymakers alike. ECHO is a call to action to preserve and restore the foundation of life on Earth and is at the forefront of a revolution in how we view and protect soil health.

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