



EGU22 Media Tip Sheet: Nature-based solutions

From using earthworms to increase carbon sequestration, to the first global quantitative assessment of mangrove restoration – this list of abstracts highlights the many possibilities of nature-based solutions to mitigate climate change, preempt disasters and reduce flood risk.

Completing Urban GHG Emissions Data to Assess the Effectiveness of Climate Action Plans in Europe

Urban areas are major contributors to global greenhouse gas (GHG) emissions. Many cities have developed climate action plans to reduce their emissions and strive for emission neutrality and climate resilience by 2050 or before. In this presentation, scientists complete the urban emissions data for cities across the European Union (EU) to assess if, and for which types of cities, the inclusion of blue-green emissions in the GHG accounting is similarly relevant.

Tue, 24 May, 15:10–15:16 CEST

Session [ITS4.4/ERE1.10](#)

Resilience to flow rate variability in a green wall for greywater treatment

Green and blue infrastructures are an innovative solution to contrast climate change (SDG 13 of UN 2030 Agenda) and increase city resilience (SDG 11), using a smarter water management that transforms wastewater into a new resource for non-potable reuses. This study aims to improve green wall design and test its resilience to variations in the flow rate of greywater fed to the green wall.

Thu, 26 May, 13:55–14:02 CEST

Session [HS5.10](#)

Can earthworms enhance mineral weathering and thereby increase carbon sequestration?

Negative Emission Technologies (NETs) are urgently needed to keep global temperature increase below 1.5 °C. Evidence suggests that Enhanced Silicate Weathering (ESW) is a NET that can be amplified by biotic activity, including that of earthworms. Researchers unravel the mechanisms through which earthworms increase mineral weathering rates and try to develop a bio-reactor where these processes are optimized.

Thu, 26 May, 14:22–14:29 CEST

Session [SSS4.2](#)

Nature-based solutions, mangrove restoration and global coastal flood risk reductions

This is the first global scale assessment of future flood risk reduction and the benefits mangrove restoration. Unlike previous studies on Nature-based Solutions, researchers provide a quantitative assessment of mangrove

restoration and nature contributions to people in terms of monetary flood risk reduction, people exposed to flooding, and poverty indicators.

Thu, 26 May, 14:39–14:46 CEST

Session [HS5.10](#)

[Optimal design of nature-based solutions in highway runoff management based on resilience to climate and pollution load changes](#)

Sedimentation ponds (SPs) are nature-based solutions for sustainable stormwater management. They also help control the quantity and quality of runoff and promote biodiversity. In this presentation, scientists aim to optimize the design of roadside SPs in terms of location and surface area, considering the resilience to stressors such as climate change and pollution load variations.

Fri, 27 May, 13:26–13:32 CEST

Session [ITS4.2/ERE1.11](#)

[Application of the International Guidelines on Natural and Nature Based Features for Flood Risk](#)

In 2021, the International Guidelines on Natural and Nature Based Features for Flood Risk Management were published, as a joint project between the Rijkswaterstaat (Netherlands), the Environment Agency (England) and the Army Corps of Engineers (USA). These Guidelines give direction in the application of Nature Based Solutions (NBS) for coastal and fluvial systems. This research focuses on the fluvial part of the guidelines, the processes that lead to their origin and their intended use.

Fri, 27 May, 13:32–13:38 CEST

Session [ITS4.2/ERE1.11](#)