H2020 Restarting Economy in Support of Environment, through Technology (ReSET)

The **ReSET project** has been been working on **Regenerative Agriculture** research with a focus on **Water Resilience** and **Ecosystem Services**.

Come and see us at our exhibition stand at Groundswell 2024 to discuss our results and view our DIY FreeStation environmental monitoring hardware. More programme details to follow.

Tickets for Groundswell are available soon at www.groundswellag.com

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@H2020ReSET #H2020ReSET

www.h2020reset.eu

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WE USED ENVIRONMENTAL MONITORING .....

As part of ReSET, we deployed a distributed networks of in-field sensors to monitor the hydrological impact of regenerative agriculture (RA). RA has the potential to increase water storage capacity of the soil, thereby reducing downstream runoff generation and flood risk.

Our monitoring provides capacity to directly analyse the effectiveness of RA and helps develop the understanding to better parameterize RA in spatial hydrological models such as WaterWorld.

....AND HYDROLOGICAL MODELLING ...

We have also applied WaterWorld to assess the hydrological impact of large-scale implementation of RA. Our modelling case study regions are the OxCam development region (between Oxford and Cambridge) in the UK and Duero river basin in Spain with the farms for monitoring also located within those regions.

..... TO ASSESS THE BENEFITS OF REGENERATIVE AGRICULTURE FOR WATER RESILIENCE

(1) Our local-scale monitoring highlights the potential of RA to increase water retention and storage on agricultural land and thus improve dry season flows and reduce flood peaks downstream.

(2) Our regional-scale modelling indicates that soil stores are critical to natural flood management since water body and wetland stores have only local influence and floodplain stores often contain important assets that preclude the use of the floodplain.

(3) **Regenerative Agriculture has the potential to increase water retention and storage on agricultural land and thus improve dry season flows and reduce flood peaks downstream.**

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ReSET gathered Environmental Intelligence to assess how to achieve the **triple win of economic, environmental and employment benefits** in **green recovery investments** - such as Regenerative Agriculture. We studied investments in the **Thames Gateway, OxCam Arc and London** and the **Duero river basin** in Spain

Regenerative agriculture monitoring
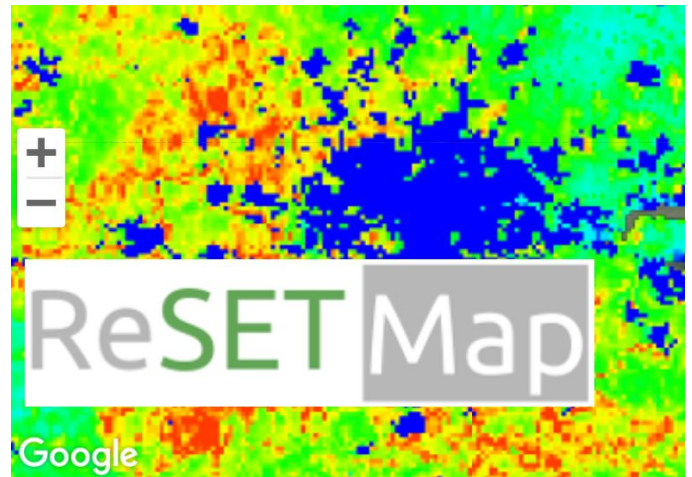
Ecosystem Services mapping

Urban greening for urban heatwave planning

New transport infrastructure

Natural Flood Management

Air and Noise Pollution

For more information see **www.h2020reset.eu**

FREESTATION FREESENSOR

King's College London — Department of Geography

AmbioTEK — Technology Environment Knowledge — www.policysupport.org

The **FreeStation** initiative uses open source hardware and software to build and deploy **accurate, reliable environmental data** loggers with the **lowest cost** and **easiest DIY build** possible.

This is a low-cost, open source **soil water** monitoring system installed to help manage response to drought by providing a real-time drought alert system and by testing the effectiveness of drought and flood mitigation strategies such as **Regenerative Agriculture which can encourage infiltration to produce:**

- less runoff during rainfall - reduces flood risk;
- more water held in soil - water reaches aquifers supporting dry season flows;
- benefits for water resources.

It measures the moisture of the soil and water flow through the soil alongside air temperature and humidity. It sends this information to a freely accessible database at www.freestation.org.

How can I get involved?

The effectiveness of interventions such as Regenerative Agriculture needs to be monitored under a range of conditions to understand their effectiveness. We are looking for further survey sites.

What can I measure?

Soil & Hydrology:
-Soil moisture at 2 depths
-River surface water level (stage)
-Soil carbon emission / sequestration*
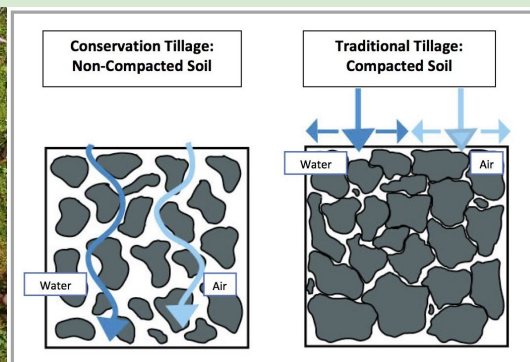-Soil Temperature

Pollution:
-PM10, PM2.5 & PM1*
-Volatile organic compounds *
-NOx, O3 *
-Light pollution
-Noise
-Water Quality*

Weather:
-Rainfall intensity
-Solar radiation
-Air Temperature
-Humidity
-Air pressure
-Wind speed
-Wind direction
-Fog

(*under testing)

Conservation Tillage: Non-Compacted Soil — Water — Air

Traditional Tillage: Compacted Soil — Water — Air

Contact us at: www.freestation.org

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