

Satellites for peat's sake

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Peatlands play vital role in curbing climate change. Credit: N. Mrtgh

Satellites can help us to safeguard nature's richest carbon storehouses – peatlands.

Peatlands make up just 3% of land but capture twice as much carbon as all forests combined.

They are also an important source of drinking water and provide a home to many rare and threatened animals and plants.

Ecosystems work best when left intact but these wetland areas are being threatened by human exploitation, resulting in vast [carbon emissions](#), frequent and uncontrollable fires and loss of valuable landscapes.

Rezatec in Oxfordshire, UK, supported by ESA's Integrated Applications Promotions programme, in the Peat spotter project will give landowners an easier and cheaper way of calculating the potential economic value of conserving or restoring their [peatlands](#) and monitoring the results of their investment.

"Peat spotter helps landowners to manage their peat resource more sustainably through mapping the area, measuring the carbon it contains and monitoring how its integrity is changing over time," says Patrick Newton, CEO of Rezatec.

To do this, satellite imagery is used to locate and create initial mappings of peatlands. This information is enriched with ground data collected by field agents using handheld devices.

An app prompts users in the field for measurements, satnav adds location information, and the data are then sent directly to a centralised office via satcom for analysis.



Peat spotter handheld device for collecting ground data. Credit: Rezatec

The new approach is a cost-effective way of measuring peat extent and how intact it is over wide and potentially remote areas that are otherwise expensive to measure or inaccessible from the ground.

Rezatec expects water companies, conservation groups and those using typically state-owned land for uses such as plantations to sign up for this service.

Peatlands are an important source of drinking water. Water companies using these resources can significantly reduce the water treatment necessary to meet [drinking water](#) standards if they are able to identify areas of degraded peatland and make restoration efforts at source.

Water derived from degraded peatlands can contain raised levels of dissolved organic carbon causing significant discolouration.

On land that is typically used for plantations, peat assets are included in the measurement of the greenhouse gas balance, but only through a rough calculation.



Deforestation damages peatlands. Credit: Rezatec

Making it cheaper and easier to locate and monitor peatlands will make it simpler to calculate the economic value of conserving and restoring these areas and, in turn, this can be positive for society, the economy and the environment.

Within the mobile device apps RezaTec includes: guides to help identify flora and fauna, videocam monitoring of borders, photo uploading, alerts when levels are breached, and fire mapping.

"This innovative use of [satellite](#) data has far-reaching benefits for the space industry and the wider UK economy," notes Alan Brunstrom, head of the Service Business Office in ESA's Integrated Applications Promotion programme.

"Perhaps more importantly, it demonstrates how the scientific analysis of 'big data' can benefit the environment and, in this particular scenario, provide valuable information to allow sustainable peatland management practices on a global scale."

Provided by European Space Agency

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