Sphere

Environment Systems Newsletter

Welcome

In this issue of Sphere there's news of two projects focusing on Ecosystem Services, plus an R&D project that uses our data processing expertise to monitor agricultural productivity. There's an update of our Data Services Platform which now provides a 'Premium' option enabling subscribers to select precise areas of interest and the time of data capture. Sentinel-2 data will join Sentinel-1 data and be available later this year. editor@envsys.co.uk

Data Services Update

Composite Sentinel-1 imagery is available for the whole of Great Britain

At the time of writing, early July 2017, our open Data Services platform has just received an update. When the portal was originally launched, earlier in the year, there was only a free data option. This enables those who sign up, to view and download free and open composite imagery of Great Britain derived from the Sentinel-1b radar satellite. A user can also view and download time series and feature analysis data based on representative points within the four most recent seasons.

We are now providing a 'Premium' service option that builds on our expertise to deliver not only imagery but also change and feature metrics. As a premium user you can select precise areas using the map based tools or upload a shapefile and then select the dates of interest. If you need to be able to track change over time for a particular area or region this is the way to do it.

The Data Services platform also provides access for Enterprise customers. We work with customers to provide consultancy and direct access to the platform's data processing API. The platform roadmap includes access to Sentinel-2 data, multiple projection support and of course wider coverage.
www.data.envsys.co.uk

Environment Systems has recently been approved as a G-Cloud 9 supplier which will make any buying decision for public sector organisations even easier.
https://goo.gl/NHnNvC

Ecopotential Update

The mid-project AGM was held in Heraklion, Crete

Ecopotential is a four year Horizon 2020 EU funded project. It is focused on creating a new generation of European satellite missions with the ultimate aim of developing a single framework for the study and management of ecosystems, using Remote Sensing.

In May, at the midway AGM held in Heraklion, Crete, Jamie Williams, a lead consultant at Environment Systems, was appointed Innovation Officer. This is a reflection of our involvement in two of the

12 Work Packages one of which involves the creation of a prototype system 'EO Data for Ecosystem Monitoring' (EODESM) that will set the standards for the future. The other package is aimed at participation and knowledge transfer between practitioners, scientists and citizens to ensure the best possible use of Earth observation tools in land management, planning and monitoring.

As Innovation Officer for the project Jamie will be responsible for developing business model canvases for both commercial and non-commercial exploitation from an SME perspective.

Environment Systems will also be providing the WMS (Web Mapping Service) data feed of the Camargue protected area for the Ecopotential data portal.

You can find out more about this project here: www.ecopotential-project.eu

Satellites to Improve Agri-Food Systems

This is a two year, collaborative R&D project which aims to develop applications of Sentinel, Earth observation (EO) derived information products for environmental compliance and productivity monitoring in agriculture. The team comprises Ecometrica, Environment Systems and Rothamsted Research. The project is funded by Innovate UK, the UK's Innovation Agency, the Natural Environment Research Council (NERC) and the industry partners.

The focus of the research is the development of processing methods, calibration, validation and demonstration applications that can be scaled-up to run across large geographical areas on a continual basis. The data output is aimed at the specialist/expert users in national agencies and businesses focused on food production and food security markets.
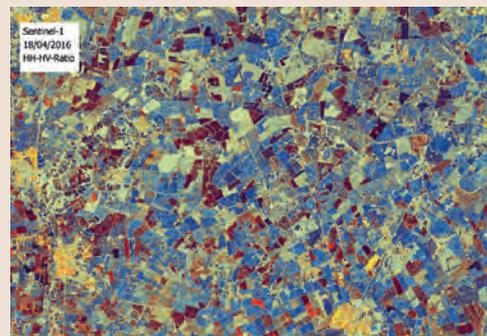
Sentinel-1 composite identifies distinct land cover types. The key advantage of using radar over optical imagery is the fact that radar waves penetrate through cloud. For Sentinel-1 over the UK this means that we can be guaranteed an image at least every six days.

Environment Systems is providing advanced automated Sentinel-1 data processing with a direct feed into Ecometrica's award winning earth observation platform. The data is already being used by Rothamstead Research for ground testing and evaluation focused on soil moisture and crop productivity.

Work is also underway to introduce the Environment Systems Sentinel-2 processing chain, promising indices such as NDVI. The project runs until August 2018.

Environmental Data Sharing in Anguilla

Anguilla now has a rich collection of spatial datasets including detailed maps

Environment Systems has been working with the Government of the British Overseas Territory of Anguilla for the last five years. The initial work with the Department of Environment, focused on habitat mapping for the whole land area, followed by coastal and marine habitats, all vital to the understanding of the territory's vital ecosystems. Ecosystem sustainability is critical to the national economy, individual livelihoods and health. Anguilla's fragile ecosystems provide an important source of income through the export of products, and exploitation of the island's unique biodiversity to promote tourism.

As a consequence of Environment Systems' and others' work in recent years Anguilla now has a rich collection of spatial datasets. These can be used as an important tool for decision makers to better understand where a change in land use in one area might impact a much wider area, and when considering the impact of policy on the Island's environment. The ability to view and scrutinise environmental data and maps enables developers to site their plans in the best place to minimise environmental damage. Maps can also help the public understand more about their island.

To make these data easily available Environment Systems is now working to produce a data portal for the controlled display of maps as well as an underlying spatial data management strategy. The system will be hosted on the Government of Anguilla's IT infrastructure and provide access to terrestrial data and that of Maritime Affairs, Marine Spatial planning and Ocean Governance.

Wales Citizen Observatory

During the COBWEB Citizen Science project, Environment Systems hosted the Dyfi Biosphere Reserve Portal (https://dyfi.cobwebproject.eu/geonetwork/portal/eng/catalog.search#/home). The Dyfi Biosphere Reserve Portal is a gateway for people (citizens) to discover, learn about, take part in, and even initiate their own environmental surveys, collecting important scientific data using mobile devices (smartphones or tablets). The data collected are invaluable pieces of information, that provide researchers and policy makers with the evidence they need to support their research and decisions. The COBWEB project has now come to an end but the portal will continue, as a pilot, funded by the Welsh Government, hosted by Environment Systems and run in collaboration with Edina and other COBWEB partners.

Ireland's National Ecosystem and Ecosystem Services Pilot
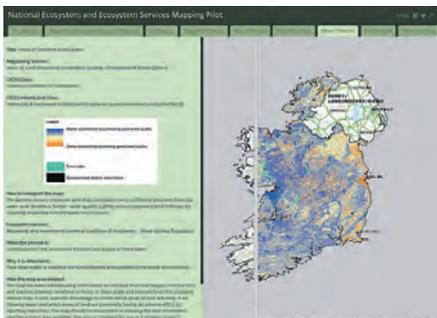
Web based 'Story Map' provides access to eight ecosystem services maps

This project commissioned by the National Parks and Wildlife Service set out to establish a framework for a National Ecosystem Assessment for Ireland. By assessing and valuing the known benefits of ecosystem services it is possible to demonstrate how Ireland's biodiversity affects the economy, society and future development opportunities. It also demonstrates that conserving biodiversity and healthy ecosystems gives multiple benefits to society.

On this project Environment Systems used its SENCE (Spatial Evidence for Natural Capital Evaluation) tool because it can accept a wide range of data sources at different scales and deliver outputs for a variety of ecosystem services. A 'Habitat Asset Register' and 8 ecosystem services maps were created from over 300 spatial datasets with inputs from a number of different stakeholders. These included organisations likely to be involved in implementing projects to restore ecosystems in Ireland, people with existing knowledge of environmental and societal issues and policy, and technical experts with knowledge of relevant data and projects. All the outputs from the project are available for download from the National Parks and Wildlife website.

A web based 'Story Map' provides an explanation of supporting ecosystem service information. Each ecosystem service map can be viewed along side an explanation of what the service is, how it was produced and how it can be interpreted and used. The Story Map can be viewed here: https://goo.gl/tnhXEX

The full report on the research has been published and can be downloaded here: https://goo.gl/Rq8L6v

COMPANY NEWS

Jamie Williams

Jamie Williams has been appointed an Honorary Research Fellow of the University of Swansea, School of Science.

Whilst continuing his role as a lead consultant at Environment Systems Jamie will be also be involved in the research activity of the School including his own pre-existing research, carried out whilst based at the School's Geography Department. He will also look to improving the department's reach beyond academic channels into areas of business and technology innovation.

Joe Hotchkiss

Joe Hotchkiss joined us recently as a backend software developer. He will be working as part of the team focused on our new Data Services platform. Joe has a BSc in Applied Physics from Strathclyde University and over twenty years experience working in the software industry.