



# DIVIDED WE FALL

## IF THE UK VOTES TO LEAVE THE EU, THE EFFECT ON EUROPEAN GEOSPATIAL SCIENCE COULD BE PROFOUND

On June 23, the people of the UK will reply to the question 'Should the United Kingdom remain a member of the European Union or leave the European Union?' It will be the first opportunity they have had to decide on their membership since 1975, when the last referendum was held shortly after the UK joined what was then called the Common Market. This isn't the first threat to the EU in recent times – Greece nearly headed for the door last year.

Whatever the rights and wrongs of a British exit, cooperation between European countries has extended into every walk of life, including geospatial development. The European Space Agency (ESA) was born coincidentally in 1975 with the membership of 10 founding countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the UK. It was formed, according to its establishing treaty, 'to provide for, and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems'.

Membership now stands at 22, which in another numerical coincidence is the same number of astronauts who have visited space wearing the ESA insignia. But whilst manned space travel has always grabbed the headlines, it is the work that ESA has done in the earth observation space (to use a pun) that could be the organisation's biggest contribution yet.

The Copernicus programme, formerly called the Global Monitoring for Environment and Security programme, is an investment of nearly €9bn by the European Commission (and therefore by every taxpayer in Europe) in partnership with ESA with the ambitious aim of providing an overall assessment of the health of our planet. That picture will be built up through the combination of remotely sensed data from a fleet of missions called Sentinels. Each Sentinel – and there will be six in total – will consist of two satellites.

At the time of writing, Sentinel 3A has just been successfully launched, joining 1 and 2 whilst 3B is planned for 2017. In July, Sentinel 3A will start to monitor sea and land surface temperatures and topography (highs and lows in plain speak).

When all six sentinels are in orbit and operational, the data they will provide (with additional information from over 30 supporting

missions) will give organisations and indeed anyone who wants it, the opportunity to start building huge data models and providing a much better understanding of the global marine environment, climate change and the atmosphere.

It is a huge, ambitious project that is squarely aimed at addressing issues that will affect how the planet and human beings can co-exist (and it is just one of the projects that ESA and the member countries are involved with). If it is successful, the human race will have the information it needs to better plan how to use the land available to it, be better able to respond to humanitarian emergencies and improve the security of peoples all over the world.

It has been made possible because countries have worked together to build something for the benefit of everyone. Scientists from a vast range of disciplines, including marine and atmospheric sciences, earth observation and big data modelling, have worked and continue to work side-by-side in the pursuit of a remarkable ambition.

Copernicus has already achieved a huge amount and it will continue to do so if the cooperation stays in place. The UK leaving the EU may not damage these precious scientific collaborations but it is hard to see how it would reinforce them. But if it did separate the best geo-scientists in Europe and stopped them working together, that would be a great loss for everyone.

Jack Johnson, the first African-American world heavyweight boxing champion, said that 'an individual action, multiplied by a million, creates global change'. He was right and maybe now is the time for scientists, geo or otherwise, to speak up about the benefits of working together on behalf others.

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