

Earth Observation and Artificial Intelligence



The government of the United Kingdom is strongly supporting the UK aerospace industry and Earth Observation is an important component of that. In January, the UK government Science Minister stressed the importance of space in the UK industrial policy and particularly how young people will empower this sector. The UK is especially strong in building EO satellites, with SSTL a key component, and Airbus building Sentinel satellites in Stevenage. The UK also takes a lead in innovative applications.

The theme of this issue is Earth Observation and we have an article from Daniel Wicks which covers activities in the UK with specific reference to geospatial surveying and an interview with Steven Ramage from The Group on Earth Observation (GEO) on the international dimension of EO and its importance in benefitting society. Other items in the

magazine demonstrate the ubiquity of EO in many applications and the role that the UK plays in this. Gordon Johnston points out that EO is one of the sources of Big Data and David Selviah describes the use of artificial intelligence and machine learning in automatic processing. These techniques are becoming increasingly relevant to handling geospatial data and as autonomous vehicles and robots move from being novel aspects of science fiction to part of our daily lives we need to understand the implications to us all.

A key player in the increasing spread of the use of EO is the European Copernicus programme and a report from EARSC (The European Association of Remote Sensing Companies) on the internationalisation of the EO services industry outlines the importance of Copernicus in driving business growth. Will the UK still be able to use this major asset initiated by the EU after Brexit?

Two articles from *GIM International* in December give further body to this topic with articles on how EO can provide real-time information to improve our health (another Copernicus project) and how open access to EO data in The Netherlands creates many innovative applications. In *Modus Dec/Jan* we see the geospatial contribution to detecting earthquakes through DfSAR and to damage assessment; the UK has played a major role in developing this technology.

Keeping Space Demilitarised

I attended an interesting seminar before Christmas on Space Policy and Law to mark the 50th anniversary of the Outer Space Treaty (OST). The keynote speaker was Gerard Brachet, founder of SPOT Image and a former Director general of CNES and chair of UN COPUOS (Committee on the Peaceful Uses of Outer Space). Brachet emphasised the success of OST in keeping weapons out of space but noted that both USA and USSR had launched a vast number of EO satellites in the Cold War period from 1960 to 1980, which was an indication of what might have been. He also pointed out the current challenges of which space debris and the risk of collision were serious. Another speaker referred to the scenario of 'a day without space' which could threaten civilisation itself. It is not well known that Landsat 7 was hacked to the extent that it could have been taken over by cyber criminals.

We also have two items about the aftermath of disasters. Phil Payne writes about his personal experiences in the British Virgin Islands during Hurricane Irma and the report on the RICS lecture by Alan Mills from MapAction describes the critical importance of geospatial data in the response to disasters. EO data is an essential component of the data required.

The Editorial Board of *GW* met in February to plan future editions. The next issue will feature education and will also look forward to GeoBusiness. We welcome any comments on the content of *GW* and ideas for future issues. *GW* wants to serve the geospatial community in the UK and to do this effectively we need your feedback.

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