

# THE CHANGING LANDSCAPE OF EARTH OBSERVATION



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What does the future hold for Earth Observation in an age of Big Data, machine learning, Analysis-Ready Data (ARD) and cloud-based technologies? **Terri Freemantle** is off to Birmingham to find out

Technological advances in recent years have seen an explosion in the use of Earth Observation (EO) and the rapid development of downstream applications. Such growth is unprecedented in the history of EO and, thanks largely to the democratisation of data through open access, has witnessed the commercialisation of new EO-based products and services.

This influx of data has triggered an innovation revolution in the industry, opening doors to the exploitation of EO data by non-experts. A Big Data movement has resulted in the quest for faster, more cost-effective ways to analyse EO imagery at scale – the data is acquired

faster than we can process it, leading to the advent of innovative techniques such as machine learning, the provision of analysis-ready data (ARD), and the adoption of cloud-based technologies capable of handling the enormous amounts of data currently being generated.

Critically, it has been widely recognised that the insights made possible using geospatial data are fundamental to delivering the Sustainable Development Agenda. This puts EO technology firmly in the global spotlight.

So what does the future hold for the downstream application of Earth Observation? And how will the changes mentioned above impact on research?

### Changing landscape

It's no secret that the Earth Observation landscape is changing and this is acknowledged by both industry and the academic community. In response to this, the 2018 joint-annual conference between the National Centre for Earth Observation (NCEO), the Remote Sensing and Photogrammetry Society (RSPSoc) and the Centre for Earth Observation Instrumentation (CEOI) is themed around 'Earth Observation into the Future'.

As part of this event, to be held in Birmingham in early September, the Satellite Applications Catapult will be hosting a plenary session on 'The Future of Downstream EO'. Its intention is to act as an open forum at which industry leaders and academics can discuss how these changes might impact on their activities, and how ongoing collaborations can ensure EO technology is exploited fully as we move on. Some of the big questions to be addressed are:

- Can we bring together experts in computer vision and artificial intelligence to develop algorithms capable of applying deep learning techniques to Earth Observation data?
- Can we break down the barriers to mass exploitation of Earth Observation data through the provision of Analysis Ready Data?
- In supporting the vision outlined by the Committee on Earth Observation Satellites (CEOS) to open up access to EO to the world,<sup>1</sup> can we as, a community, push for the establishment of 20 Data Cubes globally by 2020?

Will data providers move away from image-based sales and towards pay-per-pixel subscription services?

### Meeting of minds

By bringing together innovation leaders from the private sector and academia - and who are tackling these challenges head-on, the meeting of minds and the sharing of ideas and insights may well point to how the EO community can fulfil its ambition for the greater operational exploitation of satellite data and services.

**The NCEO/RSPSoc/CEOI Conference 'Earth Observation into the Future' will take place at the University of Birmingham, 4-7 September. More information can be found here: <http://www.rpsoc.org.uk/index.php/rpsoc-events/neoconf2018.html>**

1. <https://www.opendatacube.org/ceos>

**Earth observation into the future**  
UK National Earth Observation Conference  
4-7 September 2018  
Birmingham University

**KEY DATES:**  
08 June Final submission of Abstracts  
23 July Early Bird Registration  
20 August Final Registration

#EarthObsConf2018  
[www.rpsoc.org.uk/neoconf2018](http://www.rpsoc.org.uk/neoconf2018)

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RSPSoc  
National Centre for Earth Observation  
Centre for Earth Observation Instrumentation