Centre for Polar Observation and Modelling
Natural Environment Research Council

esa

1st ESA ADVANCED TRAINING COURSE ON REMOTE SENSING OF THE CRYOSPHERE

Welcome from the UK Space Agency

Beth Greenaway

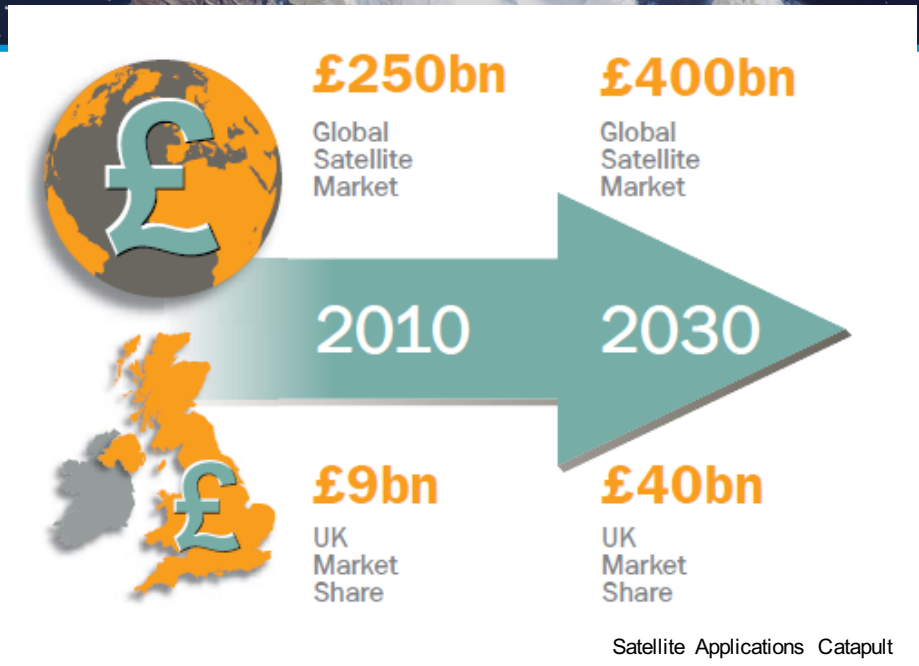
Head of Earth Observations

12–16 September 2016 | University of Leeds | Leeds, UK

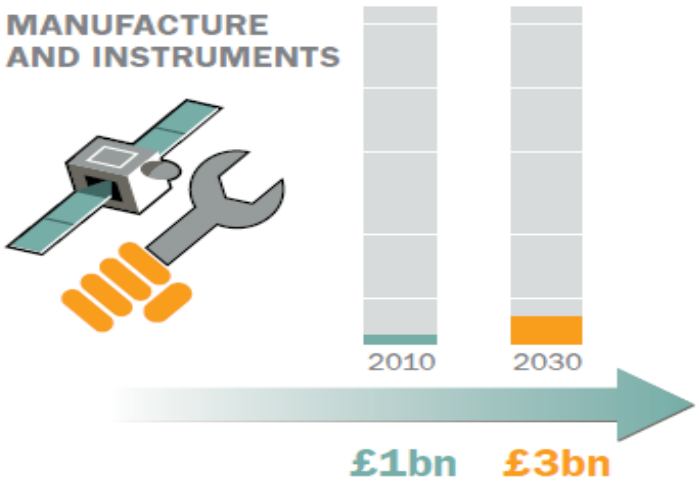
The UK Space Agency

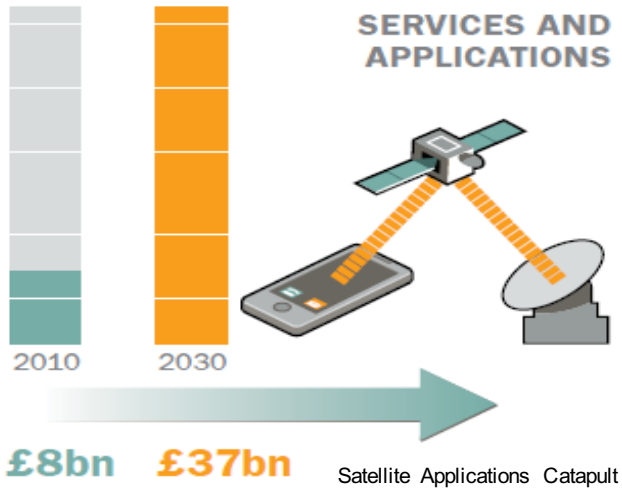
- Part of UK Government – an Executive Agency of Department of Business Energy and Industrial Strategy
- Strategic leadership for the policy, regulation and programme delivery necessary to keep the UK's £11.8b space sector growing and innovating.
- Working with industry, academia and international partners to realise the government's ambition of capturing 10% of the global space market by 2030.
- It provides a stable regulatory framework for industry – an essential element of continued growth in the sector, helping to attract inward investment and secure export deals for UK space businesses.
- 2016 will see a major European Space Agency (ESA) Council of Ministers meeting in December where we hope to sustain UK involvement in world class science and innovation projects essential to understanding our changing planet, exploring our Solar system, and keeping UK industry competitive in a rapidly changing global space economy.

UK Space – Growth



Satellite Applications Catapult

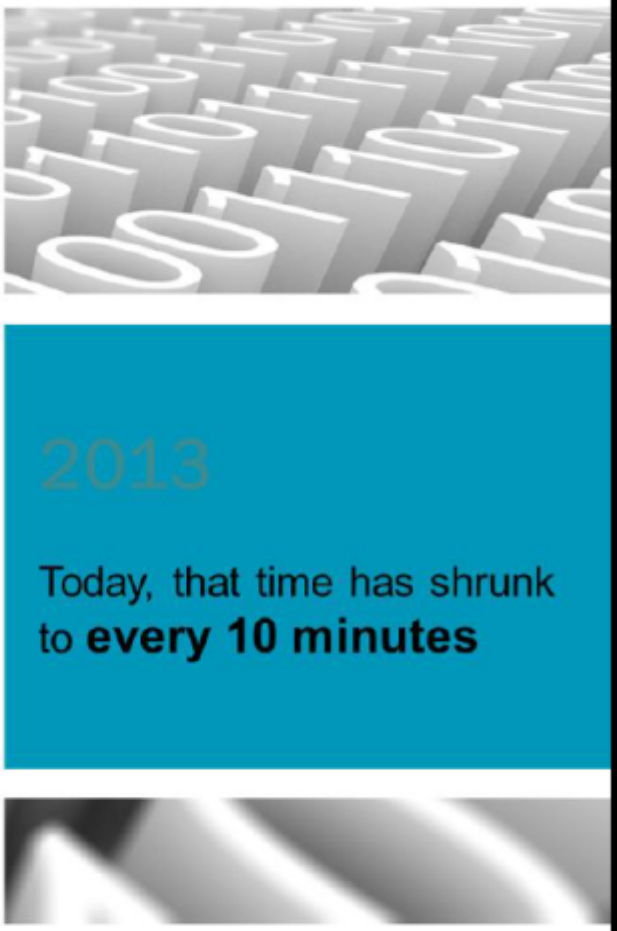




Satellite Applications Catapult

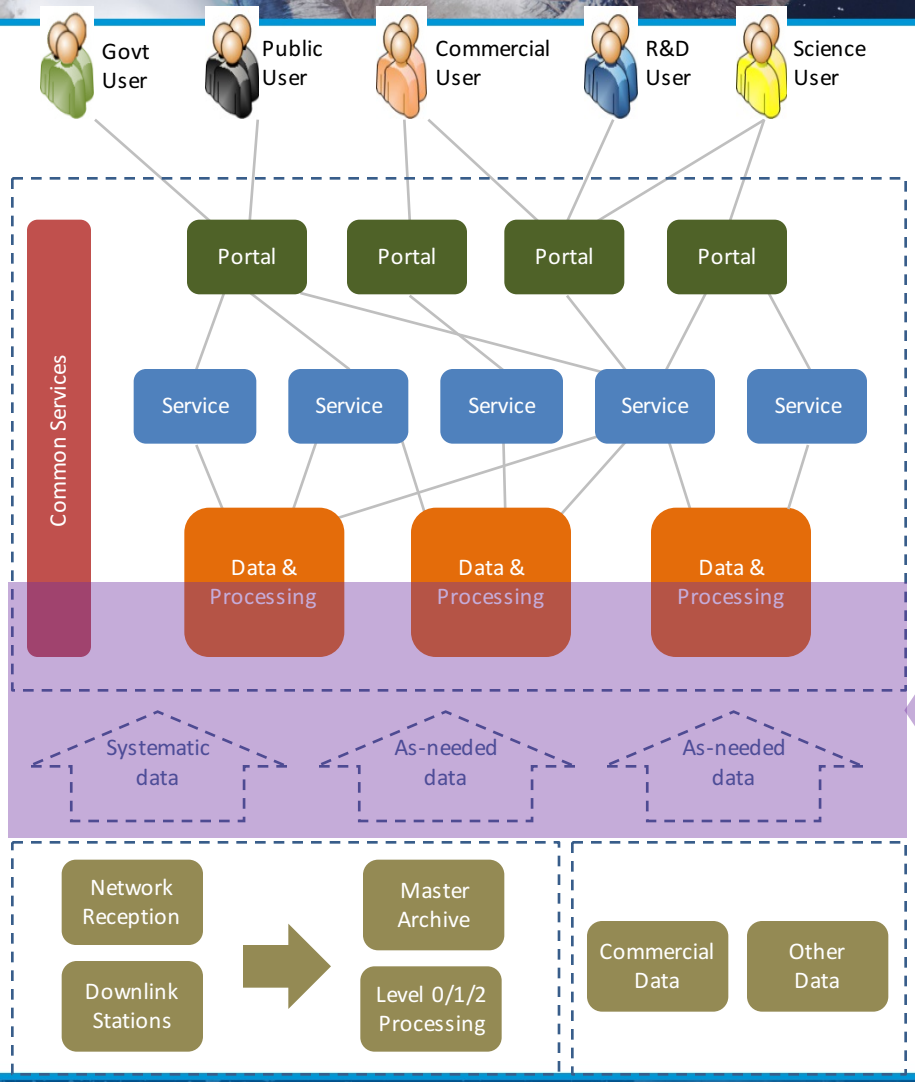
EO applications and services predicted to be central to space enabled economic growth aiming for a 10% UK share of the expected £400 billion global space-enabled market 2030.

DATA is the new resource



When fully operational eight terabytes of new data per day will be available from Copernicus for people to access, equivalent to eight computer hard drives worth, and all of it free to all for download.

1 exabyte = 1 billion GBs



Earth Observation Data Access and Exploitation:

A Vision for the UK

UK SPACE AGENCY

esa

Agency

Ofcom

Spectrum & Licences

Launch

Academia

Industry

ESA

Operations

Industry

ESA

Global agencies

National

Development

Local & Devolved Administrations

Space Infrastructure supporting Earth Observation enabled services

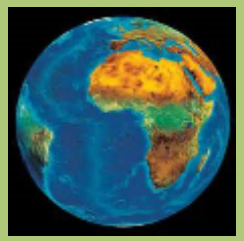
Data & Ground Segment

Agency

RAL

Industry

Non EO data



Central Government

EU (H2020)

Agency

Research Councils

National

Innovate UK

ESA

Research

Information & Services

Space Enabled markets

General Public

Academia

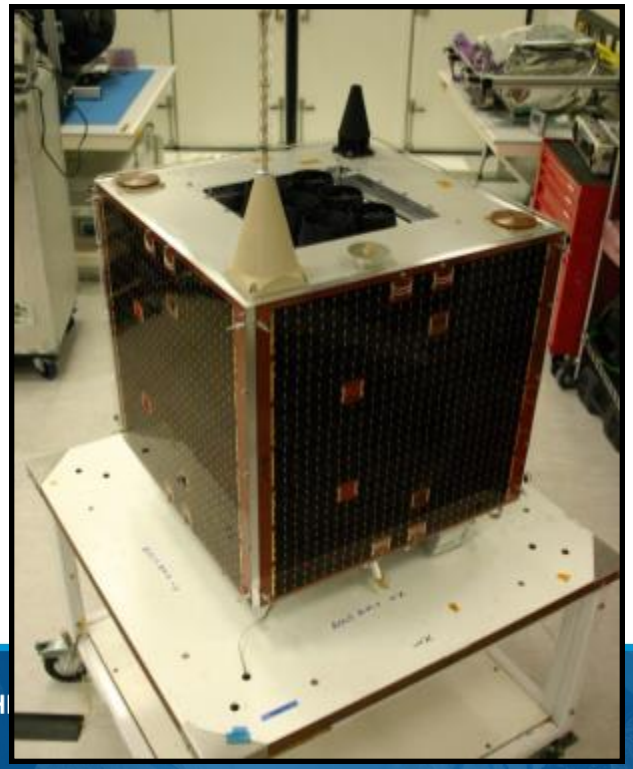
Industry

Local Government

Space Industry

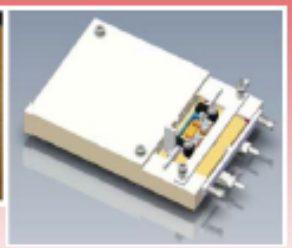
UK Strengths

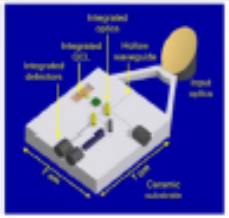
Satellite Manufacture



Example EO technology developments

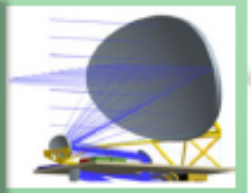
LIDAR & Laser Heterodyne Radiometry (LHR)

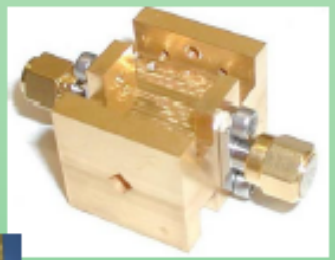




Hollow waveguide implementations
QinetiQ, Hollow Guide Ltd & RAL Space

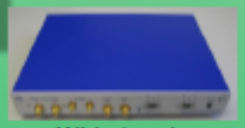
Sub-millimetre wave technology





Frequency Selective Surface
QUB

320-360 GHz sideband separating mixer showing (above left) the STEAM-R radiometer (SSC)
RAL Space, Airbus DS & QUB



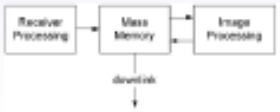
Wide-band spectrometer
STAR-Dundee

Meta-materials devices
Airbus DS, QMC

Microwave technologies

GNSS Reflectometry

SSTL + NOC, Universities of Surrey & Bath



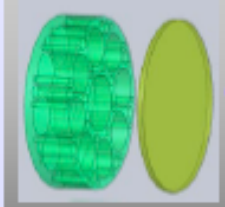
On-Board SAR Processing
Airbus DS/BAE Systems

Thermal Infrared instrumentation

Fourier Transform Spectroscopy with 2D TIR detectors
Airbus DS, SELEX & RAL Space

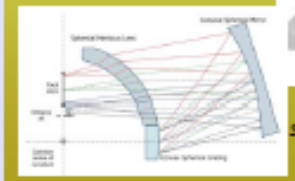
TIR Imaging for clouds
UCL

Optical instrumentation



Lightweight mirror technologies
Gooch & Housego + SSTL

Microslice hyperspectral imager
U of Durham

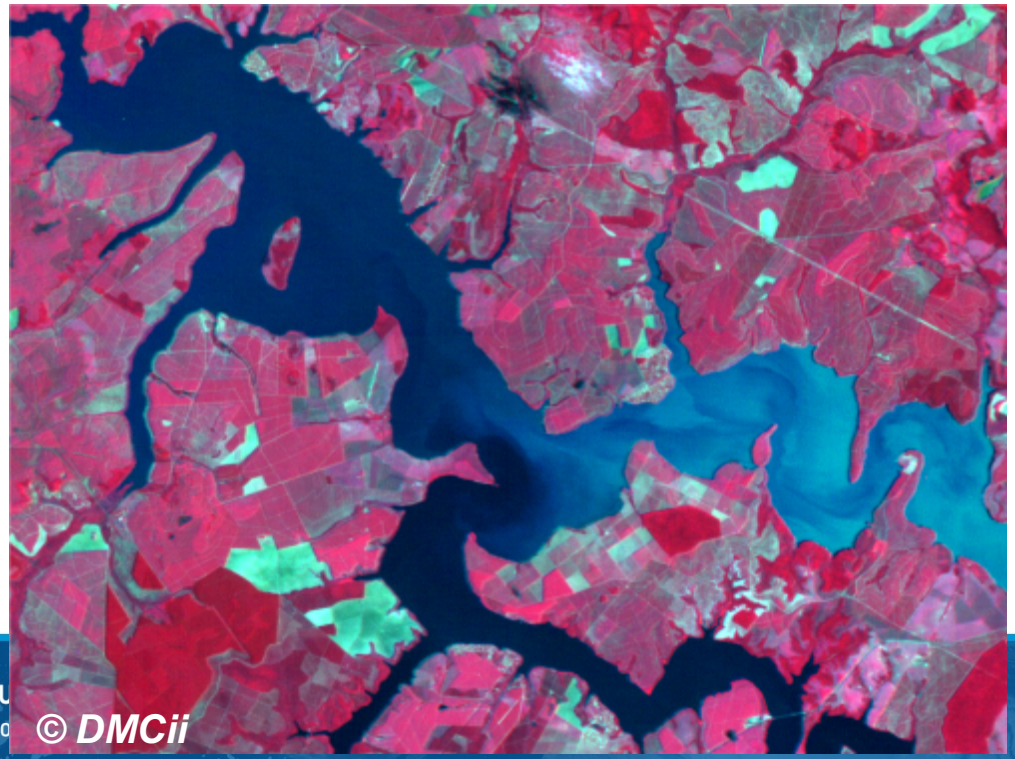


Compact concentric spectrometer for space and terrestrial use
U of Leicester & SSTL

UK Strengths

Satellite Manufacture

Data Handling & Cal/Val

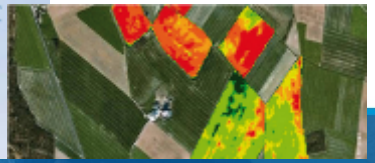


UK Strengths

Satellite Manufacture

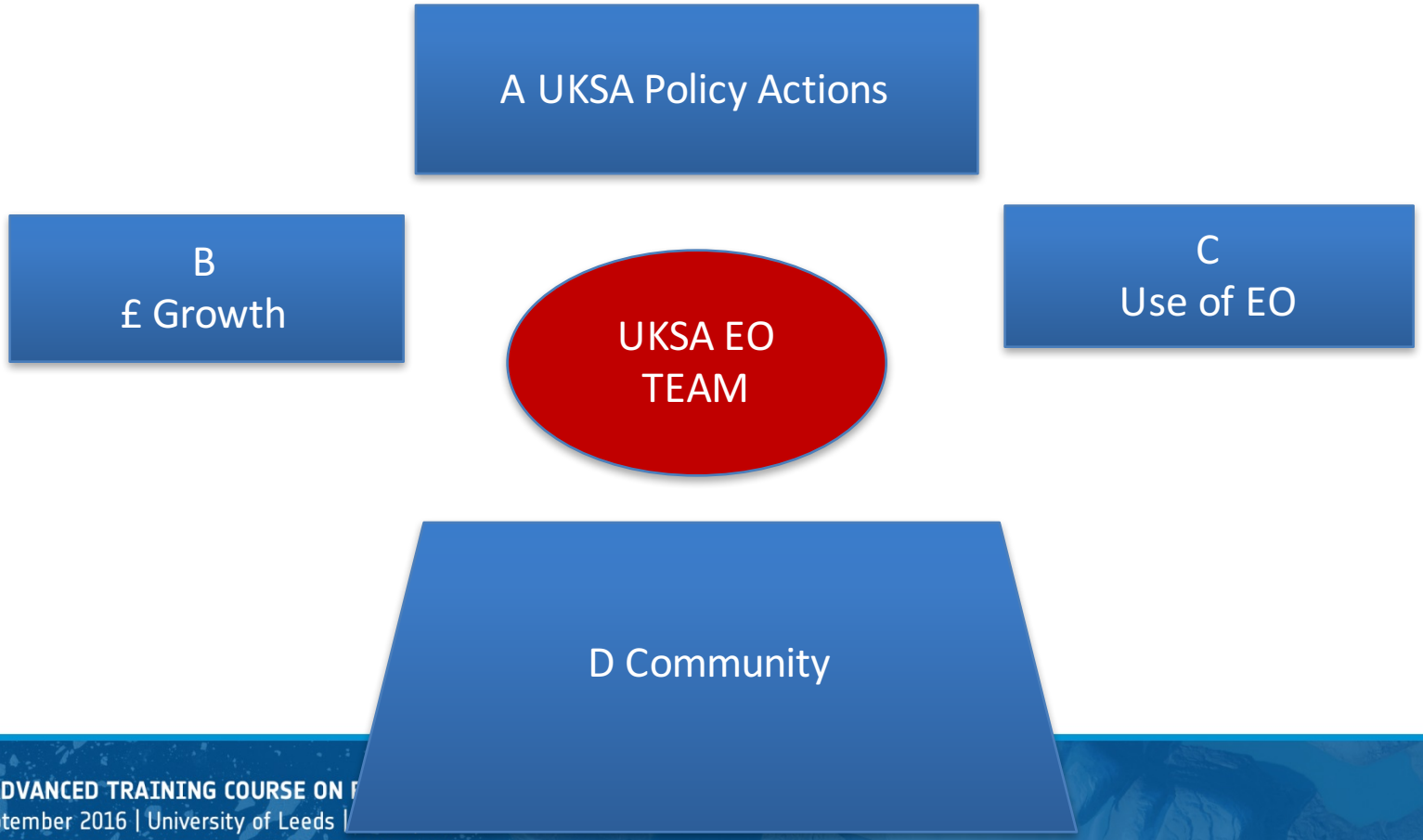
Data Handling & Cal/Val

Applications



EO Priority Actions

A. Define and Lead EO strategy and policy development
B. Enable growth of the EO and related sectors
C. Position UK as a global leader in use of EO in applications and services
D. Sector sponsor for the EO community (nationally and internationally)



UK Space Agency – Our EO Roles

Centre for Polar Observation and Modelling
Natural Environment Research Council

esa

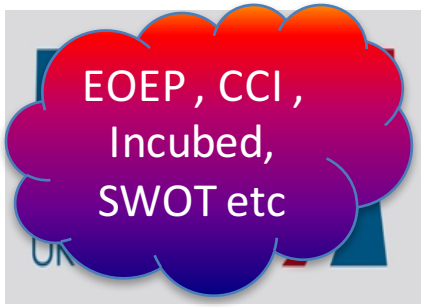
Leadership

3 staff
£75m/yr

Policy & Regulation

Education & Training

Programmes



Science & Technology

Innovation & Investment

Business Growth

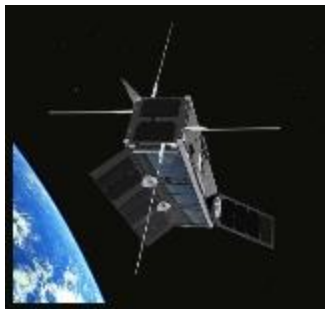
Partnership

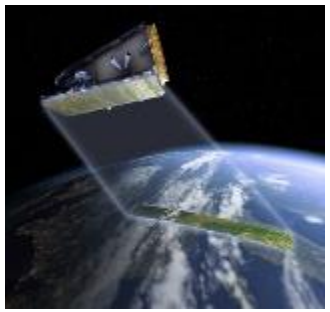
National and International

National Initiatives

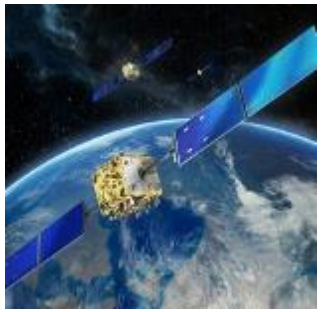
SSGP

EOWG





European Space Agency & European Union



International Space Partnerships

Emerging SPACE economies
“Newton”-like
CEOS GEO
Disaster Charter

Brexit

- We remain a full member of the EU – until the process for leaving is concluded there is no change in the legal framework (i.e. EU space programmes)
- The Government's policy to leave has no immediate effect on those applying for or participating in EU programmes - the UK is still an EU Member State
- UK participants can continue to apply for H2020/ Galileo/Copernicus/other contracts in the usual way
- EEA nationals are welcome to live and work in the UK
- ESA is not part of the EU. Our membership of ESA does not change in any way.
- Part of

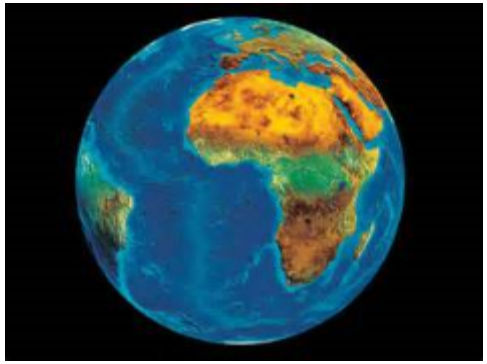
Finally

@spacegovuk

EO is an essential component of the infrastructure and contributor of economic growth, data and science.

Success for UKSA requires growing existing UK strengths, seizing new markets and engaging the public sector as operational users.

Technology and business models are changing. Skills development is essential to deliver operational services to realise the benefits of EO.



Beth.Greenaway@ukspaceagency.bis.gsi.gov.uk
eoteam@ukspaceagency.bis.gsi.gov.uk
www.gov.uk/ukspaceagency
@spacegovuk

Any questions?

ENJOY THE COURSE