

Press release: Dstl reports on space weather

Every day this week, Dstl will be posting a 'Space Weather Forecast' on social media to increase awareness of how weather in space can impact us on Earth.

The Met Office Space Weather Operations Centre (MOSWOC) continuously monitors space weather in order to assess the risk to us on Earth. The Space Weather forecasters from the MOSWOC, in conjunction with scientists at Dstl, research the impact of space weather such as solar flares, coronal mass ejections (CMEs), geomagnetic storms and changes in our ionosphere.

Space weather describes disturbances in Earth's upper atmosphere and magnetic field which have a variety of impacts on mankind and our technology.

The major impacts of a severe space weather event can be divided into 2 areas: impacts on technology on Earth; and threats to equipment and health in space and at high altitude.

These could potentially include:

- Power grid outages
- Disruption to Global Navigation Satellite Systems (GNSS) / Global Positioning Satellites (GPS)
- High Frequency (HF) radio communications outages
- Satellite damage
- Increased radiation levels at high altitude

Thankfully, severe space weather events are rare but when they do occur the impacts to our national infrastructure are extremely significant.

Space weather events have always occurred, but our modern reliance on technology driven systems makes us more susceptible to the impacts.

Different systems are exposed to varying levels of risk depending on technical design, location and the type of space weather that can affect them. The challenge for scientists is to ensure new systems are designed with appropriate engineering solutions to minimize the risk posed by space weather.

Dstl Space Weather specialists have stated that:

Monitoring space weather is fundamental to ensuring that our defence systems and national infrastructure remain secure. Part of the work we undertake is to collaborate with international scientists and the Met Office to ensure that we assess and learn from space weather and the impact it may have on the Earth.

This week at Dstl, we will be sending out weather reports supplied by the Met Office to raise awareness and also to encourage young people to get interested in this area of work.

Space Weather Programme Manager at the Met Office, Catherine Burnett, said:

The services we deliver today, together with our plans for future products and services, are underpinned by an in-house science team who work with many partners across government and academia, including colleagues at Dstl. This way we ensure the very best scientific understanding is used to help the UK prepare for and mitigate against the potential impacts of space weather.

Check out @dstlmod for twitter updates on Space Weather, with thanks to the Met Office for the information.

[News story: F-35 Lightning fighter aircraft one step closer as RAF Marham runway intersection resurfacing completed](#)

The work forms part of a £250 million DIO programme, which is part of the major investment by the Ministry of Defence to ready the station for the arrival of the Royal Navy and Royal Air Force's new F-35 Lightning fast jet aircraft.

Construction of this kind on an active air field required a 'no fly' period to be agreed with the station. In the 3 weeks that flying was halted, DIO's contractors, a joint venture between Galliford Try and Lagan Construction, had to complete the entire construction of this element of works. The resurfacing forms the third of 9 phases of work on the project, which will also provide hangars for 12 aircraft and an air crew feeding facility.

This phase included removing more than 13,000 tonnes of existing asphalt and installing 23 pits and 1.2km of ducting for aeronautical ground lighting. To resurface the runway, more than 18,000 tonnes of asphalt were laid over an area of nearly 38,000 square metres, equivalent to more than 5 rugby pitches. To achieve this within the required timescale the contractors worked in multiple shifts, 7 days a week.

Rob Dawson, DIO Lightning principal project manager, said:

This was a crucial part of the works being undertaken by DIO and was a vast amount to complete in such a short space of time. It couldn't have been achieved without the cooperation of the teams from DIO, our contractors, the Galliford Try and Lagan Construction joint venture, our consultants AECOM and RAF Marham. It has been an integrated team effort and fills me with confidence for the hard work ahead of us.

Despite the short space of time available to design, plan and complete the work as well as some poor weather, it was completed a day early. This allowed flying operations to recommence on Friday 29 September.

Wing Commander Phil Marr, Officer Commanding Operations Wing, RAF Marham, said:

This was an immense task to complete in three weeks. With both runways out of action, any failure to deliver within the prescribed timeframe would have directly impacted flying operations at RAF Marham. This added significant pressure to an already tough construction task. In light of this, it was highly impressive to have been handed back such an immaculate new runway intersection, allowing the Station to recommence flying activities ahead of schedule. An excellent achievement all round.

Group Captain Ann Gibson, Lightning Basing Team Leader, RAF Marham said:

I am delighted that all of the teams have risen to the challenge to deliver the intersection in a 3 week period thereby minimising disruption to Tornado and RAF Marham operations.

Notes to editors

The F-35B Lightning II is the world's most advanced, fifth generation aircraft that the Royal Air Force and Royal Navy will jointly operate from both land and sea. It will form an integral part of the UK's carrier strike capability from both Queen Elizabeth Class aircraft carriers.

[News story: Accelerator Innovation](#)
[Network Event: Future Aviation](#)

Security Solutions

Suppliers attending the event will be able to hear presentations about the finding explosives hidden in electrical items themed competition which seeks to make a real difference in aviation security through innovative science and technology.

If you cannot attend the event, you can attend our webinar which will be announced shortly.

[The competition](#) is looking for proposals for technologies to improve our ability to prevent explosives hidden within electrical items in hand luggage from being taken on board an aircraft.

This Accelerator competition is part of the wider Department for Transport and Home Office Future Aviation Security Solutions (FASS) programme. This programme will invest £25.5 million over a 5 year period (2016-2021) to promote innovation and deliver a step change in aviation security.

As part of an effective, efficient and passenger-friendly screening system we're seeking new solutions that could provide an alternative to imposing bans on electrical items or additional laborious screening measures.

Through this competition we want to continue to improve our detection capability, reduce the risk of restrictive measures being imposed in the future and reduce the need for additional layers of security.

The challenges of this Accelerator competition are to enhance the detection of threats hidden in electrical items at:

- Challenge 1: central search
- Challenge 2: at a final departure screening point, where there are significant constraints on size, weight, power and portability

For both challenges, we're not just looking for solutions to detect concealed explosive devices/components. We'd also be interested in solutions to identify electrical items that may have been tampered with, or which appear to be out of the ordinary. This could allow us to focus the more resource intensive detection techniques on a smaller number of items.

Up to £3 million is available for this themed competition.

[News story: UK is ready to seize Expo](#)

2020 Dubai opportunities

Sheikh Ahmed bin Saeed Al Maktoum, Chairman of the Expo 2020 Dubai Higher Committee, welcomed Dr Fox in Dubai and briefed him on the progress in building the Expo site, supported by UK architects and construction firms.

Dr Fox reiterated the UK's support for Expo 2020 Dubai as he handed over its official letter of participation, adding the UK planned to theme its Pavilion around 'Opportunity', focusing on how UK expertise can help spread prosperity across the world.

He emphasised that the UK, as an outward looking country, will use Expo 2020 Dubai as a springboard for strengthening international trade and relations as we leave the EU.

International Trade Secretary, Dr Liam Fox said:

Expo 2020 Dubai presents exciting opportunities for both the UAE and the UK to strengthen international trade relations as Dubai prepares to welcome 180 nations, and the world's top business leaders and investors.

We have a long history in showcasing the very best innovation and talent on a world stage, starting with the first Great Exhibition of the Works of Industry of all Nations in 1851. The UK is committed to playing a key role in helping Dubai stage a successful expo. As an international economic department, my department is helping British companies bring their expertise to build pavilions that will be enjoyed by 25 million visitors from around the world.

Our theme 'Global Britain – Innovating for a Shared Future' will set out our outward facing global vision, and further reinforce the many opportunities opening up to us as we leave the EU.

Sheikh Ahmed bin Saeed Al Maktoum said:

The UAE and the UK are joined by a bond of exceptional, historic relations. This relationship is embodied through the various agreements signed between our countries, from the promotion of investments to air transport and taxation.

The UK was one of the first countries to back the UAE's efforts to host Expo 2020 Dubai and we are grateful for their enduring support, which was reiterated today by Dr Liam Fox. We are looking forward to connecting further with British institutions and businesses as they join us on our journey to 2020 and beyond.

UK's World Expo legacy

The UK hosted the first ever World Expo in 1851 and has played a leading role in Expos over the past 166 years, including at the Expo Milano 2015, where the UK 'Hive' national pavilion won 22 international awards. The Hive Pavilion, which was the UK's top paid-for attraction in 2015 with 3.3 million visitors, has now been erected in Kew Gardens, London, providing education on the importance of conservation.

The UK was one of the first nations to publicly support Dubai's bid to host Expo 2020 and also one of the first countries to publicly announce its official participation.

Prime Minister Theresa May, confirmed the UK would participate in December when she met Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, on the margins of the annual meeting of the Gulf Co-operation Council in Bahrain.

UK – UAE trade and Expo opportunities

The UK and the UAE have strong trade and investment links. About 5,000 UK businesses operate in the UAE and more than 100,000 British nationals live in the country. The UAE is the UK's 12th largest trading partner, and UK exports to the Gulf region were £20 billion in 2015. In finance, UK firms represent 15 per cent of the regulated financial firms in the Dubai International Financial Centre.

British architects and construction firms, including Anglo-Emirati joint venture Al-Futtaim Carillion and architectural company Foster + Partners, are involved in the design and building of some of the pavilions and districts on the Expo site.

Opening on 20 October 2020, the Dubai Expo is projected to attract 25 million visits, with 70 per cent expected to come from outside the UAE – the largest proportion of international visitors in the 166 year history of World Expos. More than 200 countries, companies, charities and educational institutions are also expected to participate.

[Press release: Legal Services are GREAT](#)

The 'Legal Services are GREAT' campaign will target stronger links with emerging and established markets across the world and cement the UK's reputation as the world's pre-eminent legal centre.

The campaign – the latest under the government's prestigious 'GREAT' series –

will highlight the strengths of English law and embed and extend the reach of our legal services to ensure the UK remains the number one place to litigate, resolve disputes and do business.

The campaign was unveiled by Lords justice spokesman Lord Keen at a reception in Singapore this lunchtime.

Lord Keen said:

Our message is simple – the UK is, and will continue to be, one of the pre-eminent legal centres in the world.

Today English law underpins more than a quarter of the world's jurisdictions, and our law firms, courts and exceptional judges are held in the highest esteem right across the globe.

As one of our greatest exports, we want to ensure our legal services sector remains at the very heart of our future as a global, outward-looking, free-trading Britain.

Lord Keen will travel on from Singapore to Sydney in Australia where he will further promote the new campaign while attending the International Bar Association conference.

Secretary of State David Lidington will front a domestic launch event later this year.

The UK legal sector contributed £25.7 billion to the economy in 2015 – double the sum it generated in 2005.

More than 200 foreign law firms from around 40 jurisdictions operate in the UK, while more than a quarter of the world's 320 legal jurisdictions are founded on English common law principles.

And in the 2015 International Arbitration Survey, London was the preferred seat of arbitration for 47 per cent of respondents and English law was the most frequently chosen governing law by a significant margin, selected by four in 10.

Notes to editors

The cross-government GREAT campaign has already been used to promote many UK goods and services, from fashion and food, to engineering and manufacturing. It's a partnership between the private and public sector (previous strands of the campaign have featured brands as diverse as Mulberry, Aston Martin and Tiptree Jams), which has already secured billions of pounds in economic returns for the UK and can be seen in 144 countries worldwide.

The Legal Services are GREAT campaign is part of the government's plan to make the most of opportunities which arise as the UK leaves the European Union and promote an outward leaning Global Britain, which upholds and

underpins the rule of law across the world.