



# The UK Space Programme in 2010

July 2010

ILWS, Bremen

# Introduction: UK Space Agency

Formerly known as the British National Space Agency (BNSC)

The UK Space Agency was launched in March 2010 to:

- develop UK Space policy
- coordinate UK government space activity
- invest in the growth of the UK space industry
- represent the UK in international space programmes

The UK Space Agency reports to Minister of Universities and Science

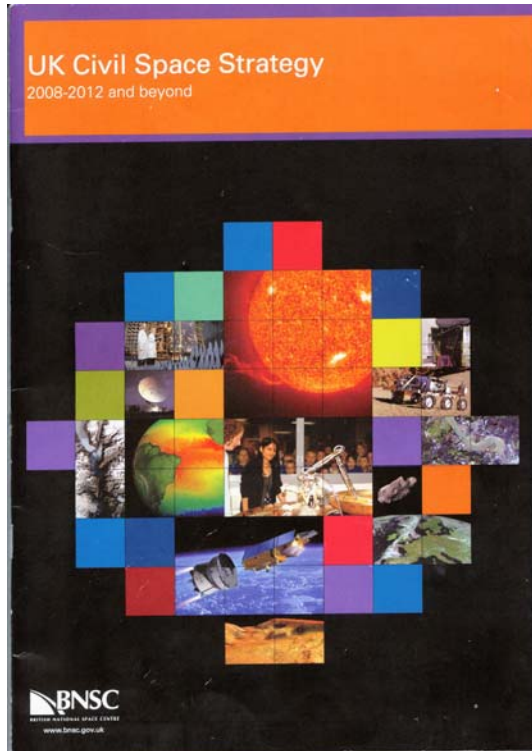
The UK Space Agency is located in Swindon, Wiltshire



**Dr David Williams**  
**Chief Executive (Acting)**



# Our strategy



## Seek new knowledge through:

- Understanding our changing planet
- Exploring the Universe

## Use innovation to build tomorrow's economy:

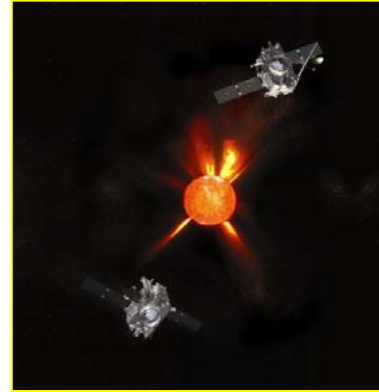
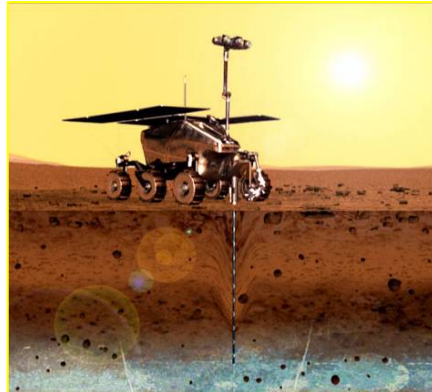
- Increasing the UK's share of the global space market
- Using space to support public services and create new businesses

## Show why space matters and thus:

- Increase public and political recognition of the value of space as part of the critical national infrastructure
- Use space to inspire and train the next generation



# UK space science & exploration



*Examples (left to right)*

GAIA astrometry mission

ExoMars rover

STEREO solar observatory

**Tackling the big questions:** the origin of the Universe; How galaxies, stars and planets form; the search for life:

**ESA Science Programme:** exploring the Sun, our Solar System and the Universe beyond

**ESA Aurora Programme:** robotic exploration of Mars, leading to the first international Sample Return mission

**Bilateral Programme:** selected opportunities to enhance our space science e.g. Stereo and Hinode



# ILWS Activities – missions under development

- Development studies for Solar Orbiter
  - currently funded to IPDR (30<sup>th</sup> September 2011), further support pending ESA mission selection
- UK involved in 4 out of 10 instruments
  - Solar Wind Analyser (SWA): in situ instrument, UK PI role for SWA suite and provision of EAS instrument
  - Magnetometer: in situ instrument, UK PI role
  - Extreme Ultraviolet Imager (EUI): remote instrument, UK Co-PI role
  - Spectral Imaging of the Coronal Environment (SPICE): remote instrument, UK Co-I role



# ILWS Activities – in build

- BepiColombo, Europe's mission to Mercury, due for launch in 2014
  - Mercury Imaging X-ray Spectrometer (MIXS) instrument: UK PI role
  - Solar Intensity X-ray Spectrometer (SIXS): UK Co-I role



# ILWS Activities – post launch support operations

- Hinode: PI role on EUV Imaging Spectrometer (EIS)
- Stereo: PI role on Heliospheric Imagers (HI)
- Cluster\*: PI roles on FGM, PEACE & DWP. Co-I roles on RAPID & CDHF
- SOHO\*: PI role on Coronal Diagnostic Spectrometer (CDS)
- \* In 2009 the UK funding organisation (STFC) prioritised its science programme and decided to undertake a managed withdrawal from some projects, including Cluster and SOHO, in order to invest in new ones. Negotiations are currently underway with ESA to secure funding for Cluster operations from 2011 onwards.



# Hinode operations

- Since the start of 2009, operations have been carried out remotely from the US, UK and Norway.
- The mission is reaching its 4<sup>th</sup> year of operations, and all 3 instruments are operating well.
- There are now over 400 refereed publications using Hinode data.



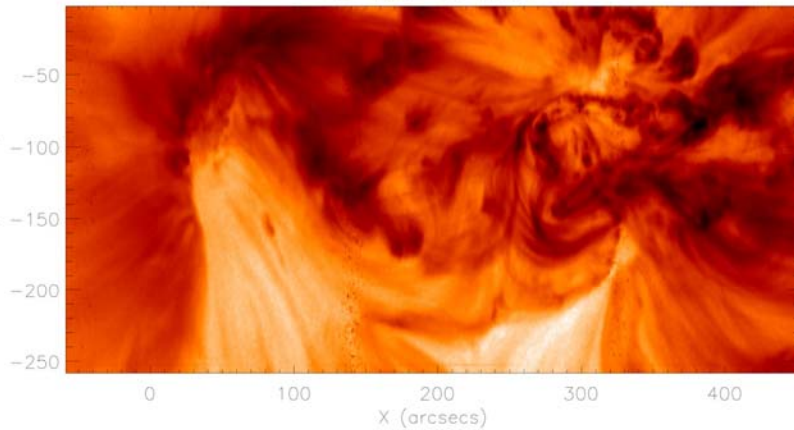


# Hinode EIS highlight from MSSL, UCL: the magnetic flux of a coronal mass ejection. To be presented to COSPAR.

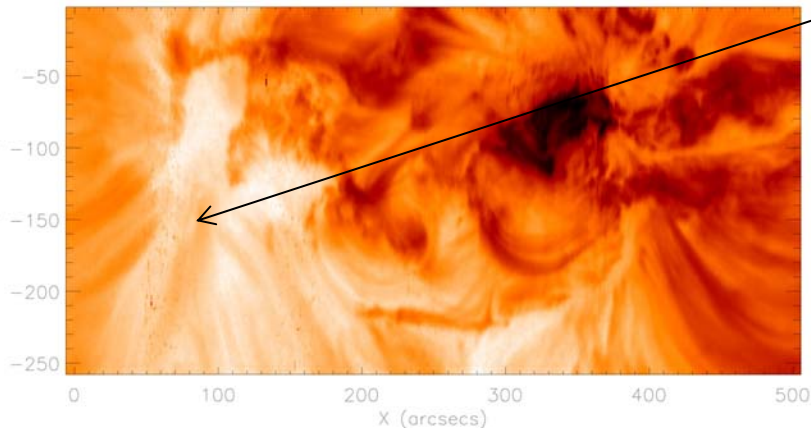
Strong reductions in coronal mass are seen during coronal mass ejection eruptions (known as dimming).

- Hinode EIS now allows us to probe the main 'dimming region' which is often obscured by bright emission through measuring velocities.
- The velocity difference image highlights the regions with the strongest upflow.
- This means we can now measure accurately the source region of a CME!

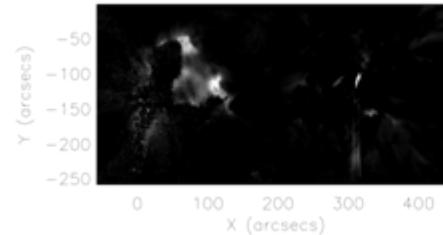
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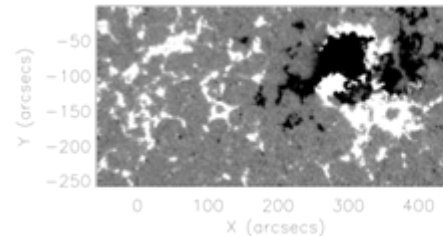
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Enhanced velocities



MDI



# In summary

- **The UK Space Agency is at the heart of UK efforts to explore and exploit space including the Sun, our star.**
- **The UK Space Agency co-ordinates the UK civil space programme, provides international representation and nurtures the UK space industry.**
- **The UK's approach to space is lean, agile and with a strong commercial drive.**



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