

# SunSpaceArt

## Dr Helen E. Mason OBE



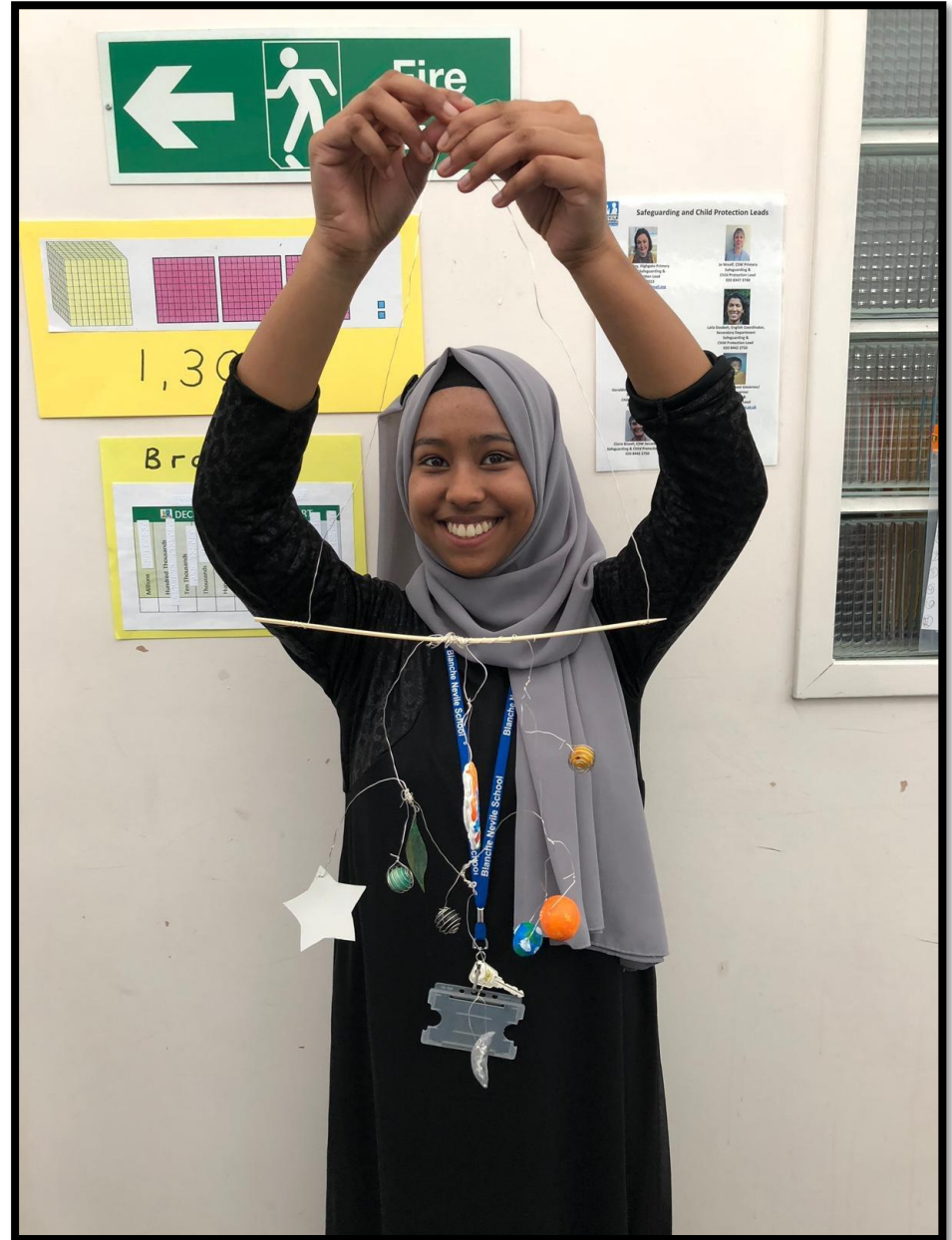
University of Cambridge  
STFC Leadership Fellowship

# Blanche Nevile School

## This child is:

- A female
- An ethnic minority
- Very bright
- Interested in science
- Very creative
- **Profoundly deaf**

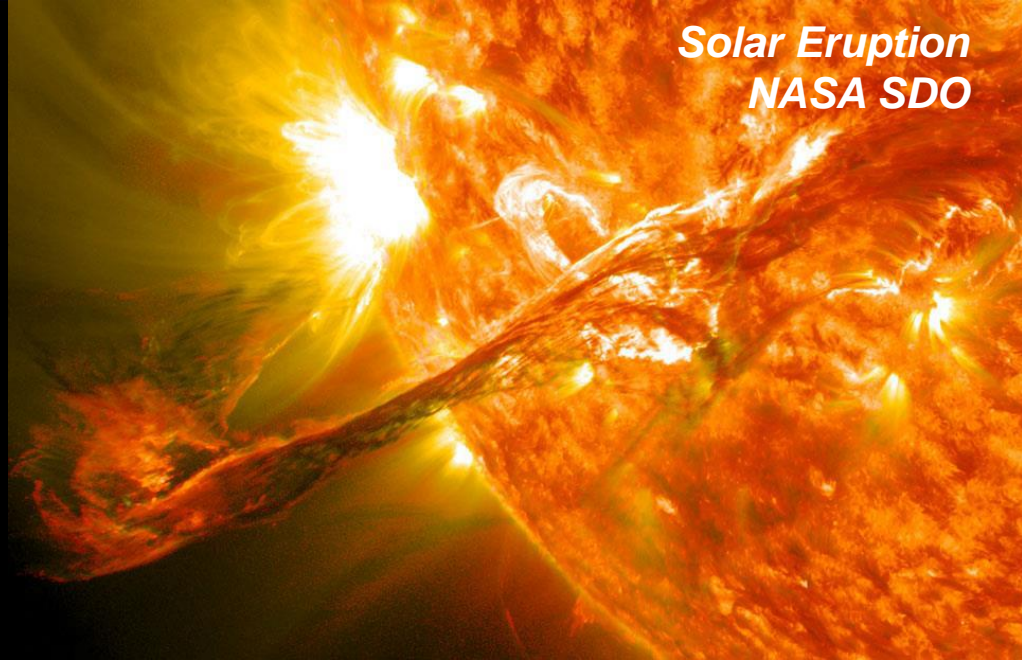
**Could she be working  
in the Space Industry  
in 15 years time?**







*Tim Peake, EVA  
ESA/NASA*

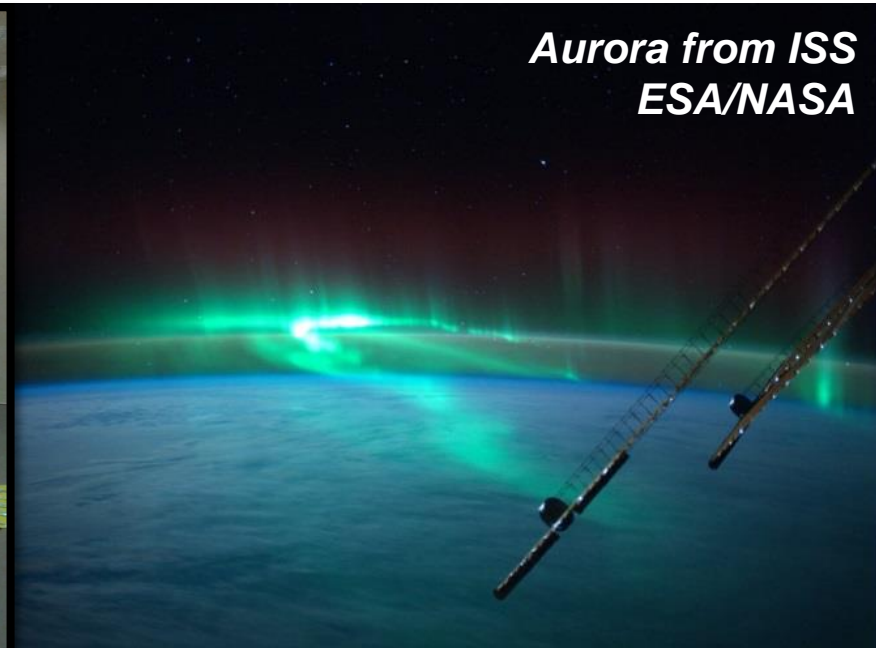


*Solar Eruption  
NASA SDO*

# SunSpaceArt



*SUN Dress for the  
Yellow Giantess  
Helen Schell*



*Aurora from ISS  
ESA/NASA*

# SunSpaceArt Team

**Taking Artists and Scientists into schools**

**Helen Mason**

**Sarah Bridgland**

**Geraldine Cox**

**Clare Dudeney**

**Christabel Forbes**

**Dagny Kimberly Yousuf**

**Heather MacRae**

**Krishna Moorooogen**

**Dave Pike**

**Helen Schell**

**Emma Wride**

***S/W - Matt Tidbury, ThinkNoodle***

***Funded by STFC***





# SunSpaceArt

Our Aim - to inspire children and develop creativity.



*‘The industrial revolution was driven by the steam engine and I think this industrial revolution is driven by STEAM as well’ (Prof Sir Mark Walport).*  
**STEAM – STEM + Arts**

# Five Science Themes

- Colours of Light
- Beyond the rainbow
- Gravity and orbits
- Solar energy
- Light and dark



Linked to the  
KS2 (upper primary)  
KS3 (lower secondary)  
School National  
Curriculum



# UKSA : Space to Earth Challenge #Principia

Ubuntu changes



Space is closer than you think. British ESA astronaut Tim Peake invites you to take part in a new space race - stride, swim, spin the 400 km distance from Space to Earth. Try out fun physics, technology, mathematics and design activities linked to space and sport.



<http://www.spacetoearthchallenge.org.uk/>

For educators

## Space To Earth Challenge



British ESA astronaut Tim Peake invites UK children to exercise alongside him as he trains two hours a day on the highest and fastest gym in the Universe – travelling at 27,600 km per hour and circling the world every 90 minutes. The triathlon styled challenge encourages schools to create their own 'spaceathlons' – a trio of space, sport and science activities using the resources on this website. Schools who can demonstrate the most innovation and engagement will be invited to take part in a unique visit to the European Astronaut Centre in May 2016.

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### Tweets

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**Helen Mason** @helen\_hm11 4h  
@NUTMaxHyde @SaturnSheila  
@ScarletHarris @PhysicsNews  
@NUTonline Take a look at  
@space2earth science challenges  
for primary schools.

Retweeted by MissionControl

Expand

Tweet to @space2earth

# SunSpaceArt

- We have worked with around 45 primary and 15 secondary schools, reaching over 3000 children.
- We work throughout the UK, targeting schools with 'low science capital' and 'high ethnicity'.



*'Today I loved this lesson because the science and art inspired me'. (child, Northbury, Barking)*



## Feedback: 'What was good about the day?'

- *'Everyone was able to learn about science and art together, no one was left out.'*
- *The SunSpaceArt team were all experts in their field. They were able to adapt their knowledge to the appropriate level.*
- *The visual and practical resources were WOW! Fantastic!'* **Teacher, Blanche Nevile School**



# Providing support for teachers

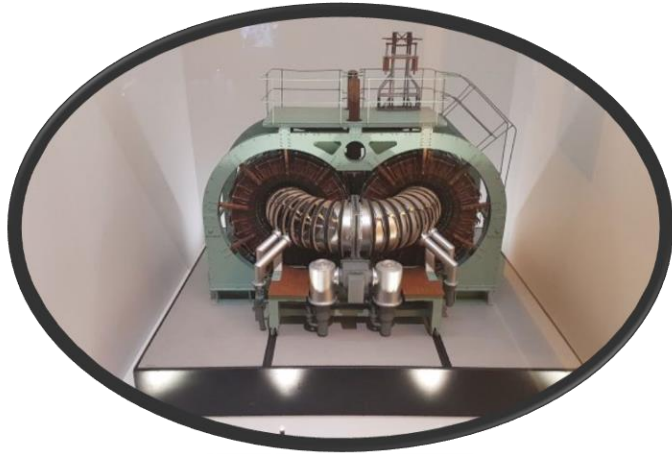
- Dedicated CPD (Continued Professional Development)
- Work with Science Centers
- Resources on the SunSpaceArt website



*‘What do you feel that your students could gain from a SunSpaceArt science/art session?’  
‘Creativity, independence, ownership of learning’  
(teacher, Manchester)*

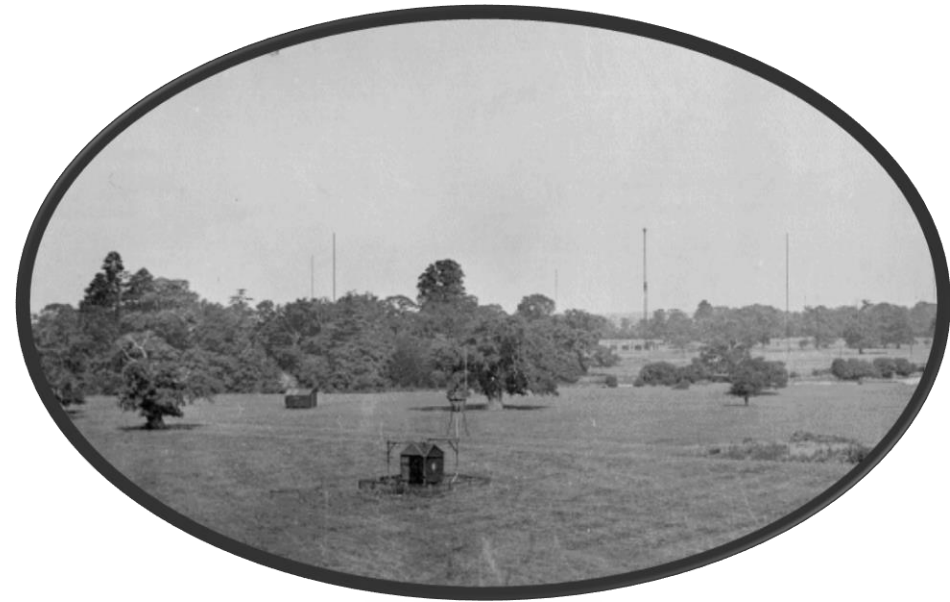


# My own personal journey



**My father was an engineer at Harwell and worked on ZETA. I loved science and maths.**

**I had a summer job at the Radio and Space Research Station, Ditton Park.**



**I worked closely with RAL and with NASA/ESA colleagues in the USA on Solar Space Missions**

# My research group, DAMTP, @cam

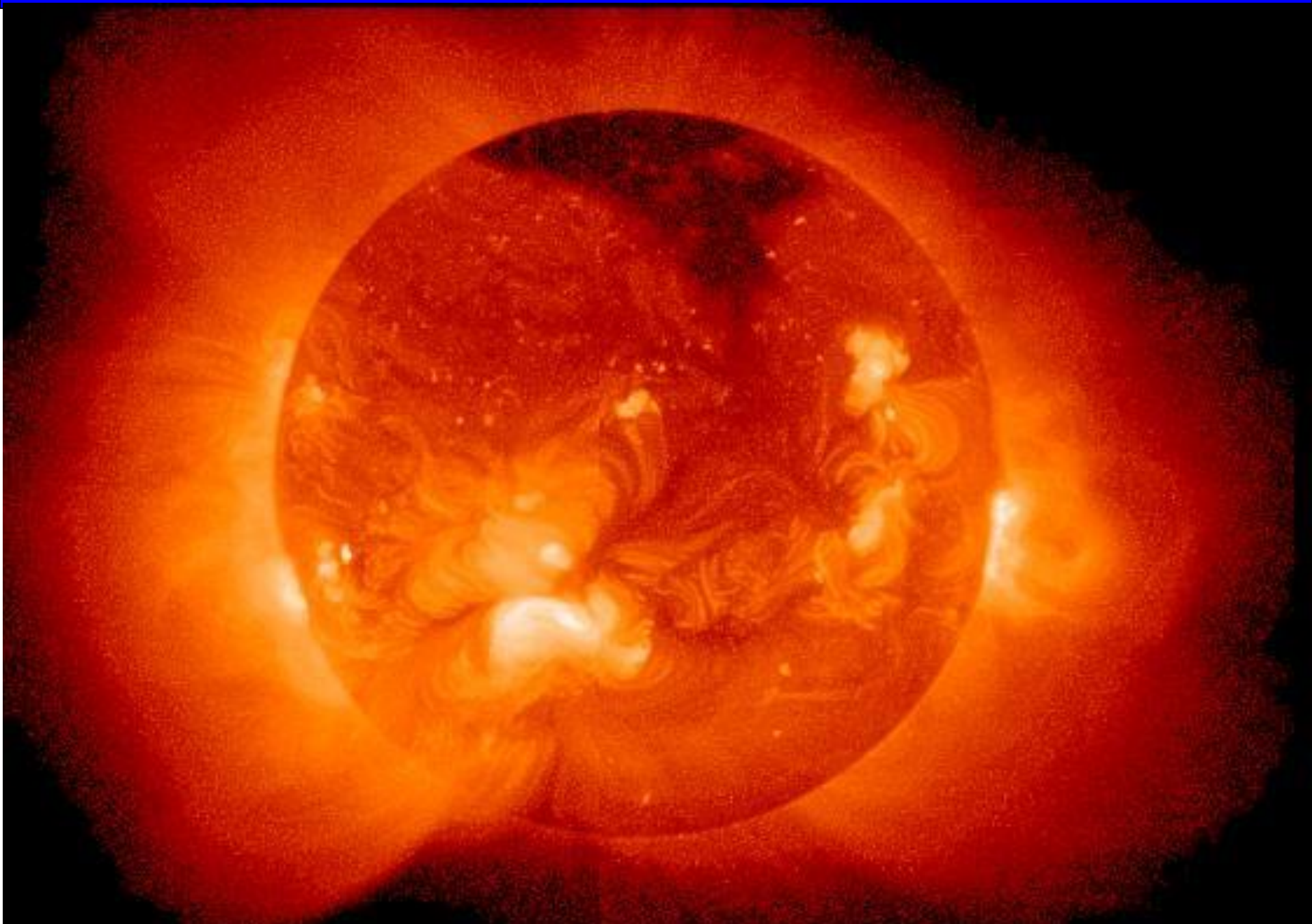




# Total Eclipse of the Sun



# YOHKOH – the X-RAY Sun



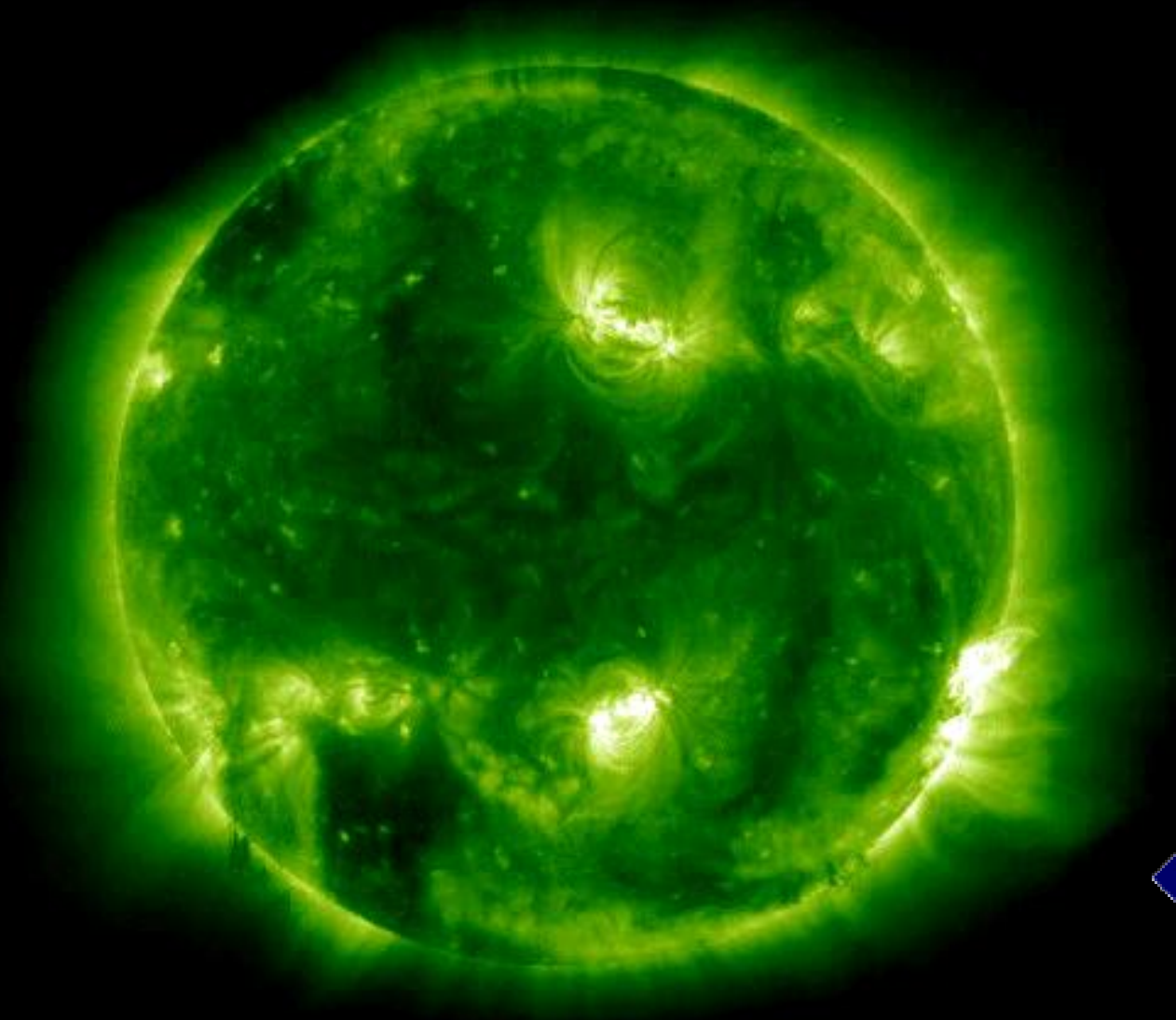


**SOHO**

**New Views of the Sun**

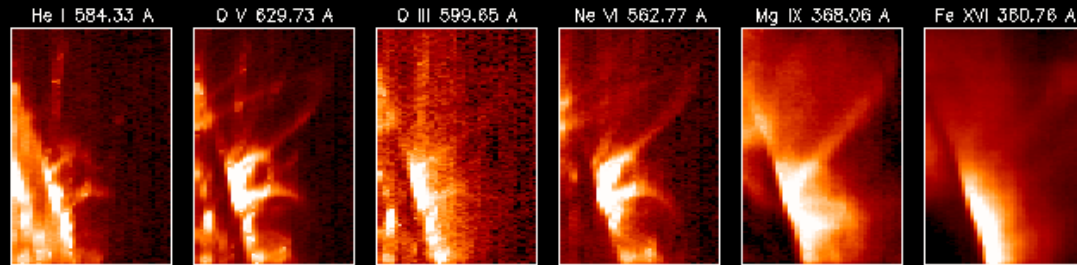


# NASA/ESA - SoHO – EIT - the UV Sun





# NASA/ESA - SoHO/CDS - RAL



6-Mar-2001 23:48:44



**Prof. Richard Harrison**  
**PI of SoHO CDS**

# Hinode

- Japan/USA/UK mission
- 3 scientific instruments
  - X-ray imager (XRT)
  - EUV spectrometer (EIS)
  - Optical telescope (SOT)
- Launched 2006



**Prof Louise Hara  
(PI of EIS)  
MSSL, UCL**





# No lack of senior female role models in UK solar physics!



**On our way home from Hinode12 2018**

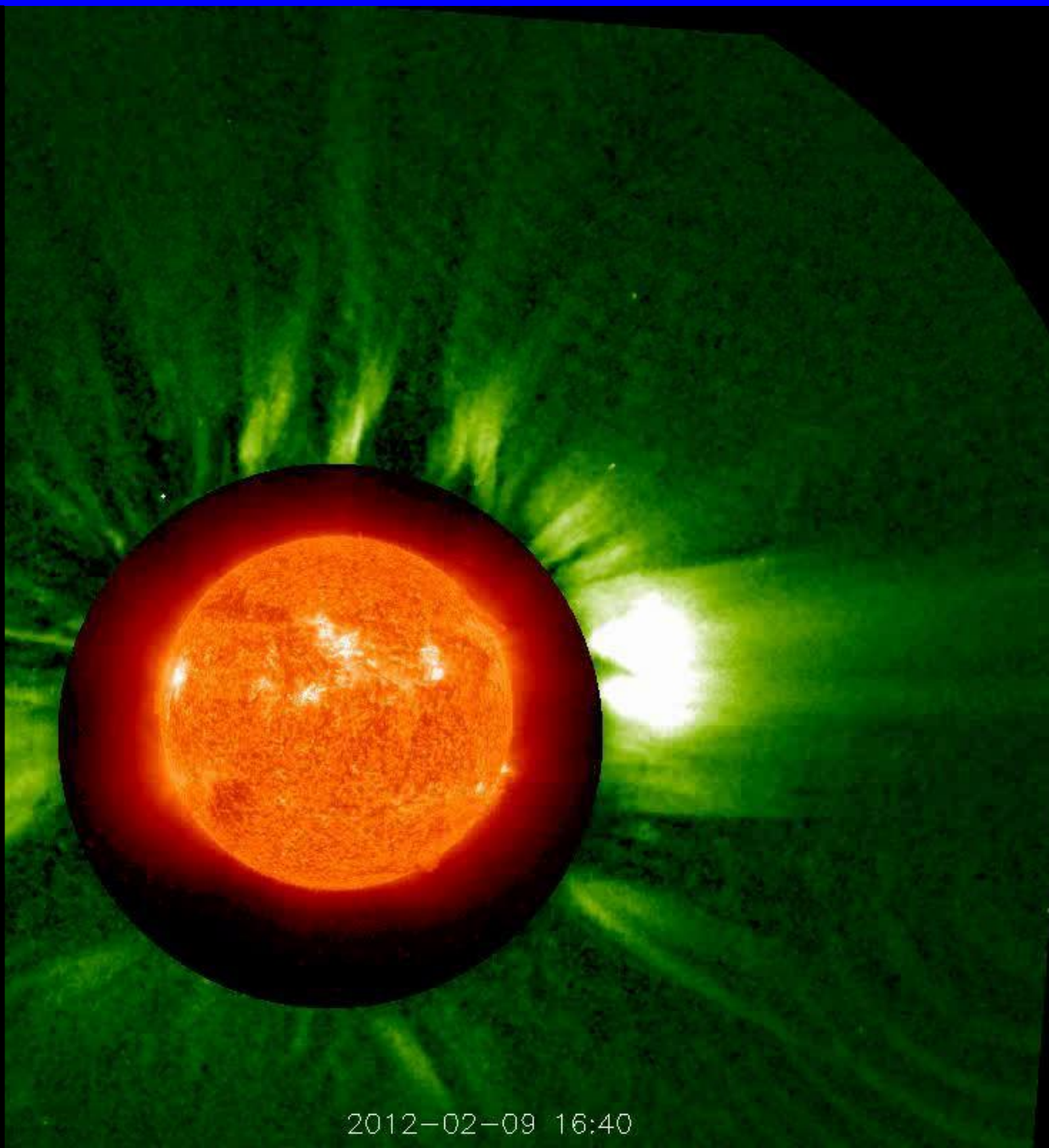
# NASA's SDO/AIA – different filters, different temperatures

## Observing the Sun's atmosphere with the Solar Dynamics Observatory





# Blast from the Sun shooting out into space



**Credit:**  
**NASA/ESA**  
**SoHO**  
**STEREO**

2012-02-09 16:40

# Solar storms can cause problems

**Affect satellites**

**Cause electricity blackouts**

**High flying aircraft in polar orbits**

**Be a hazard to astronauts in space**

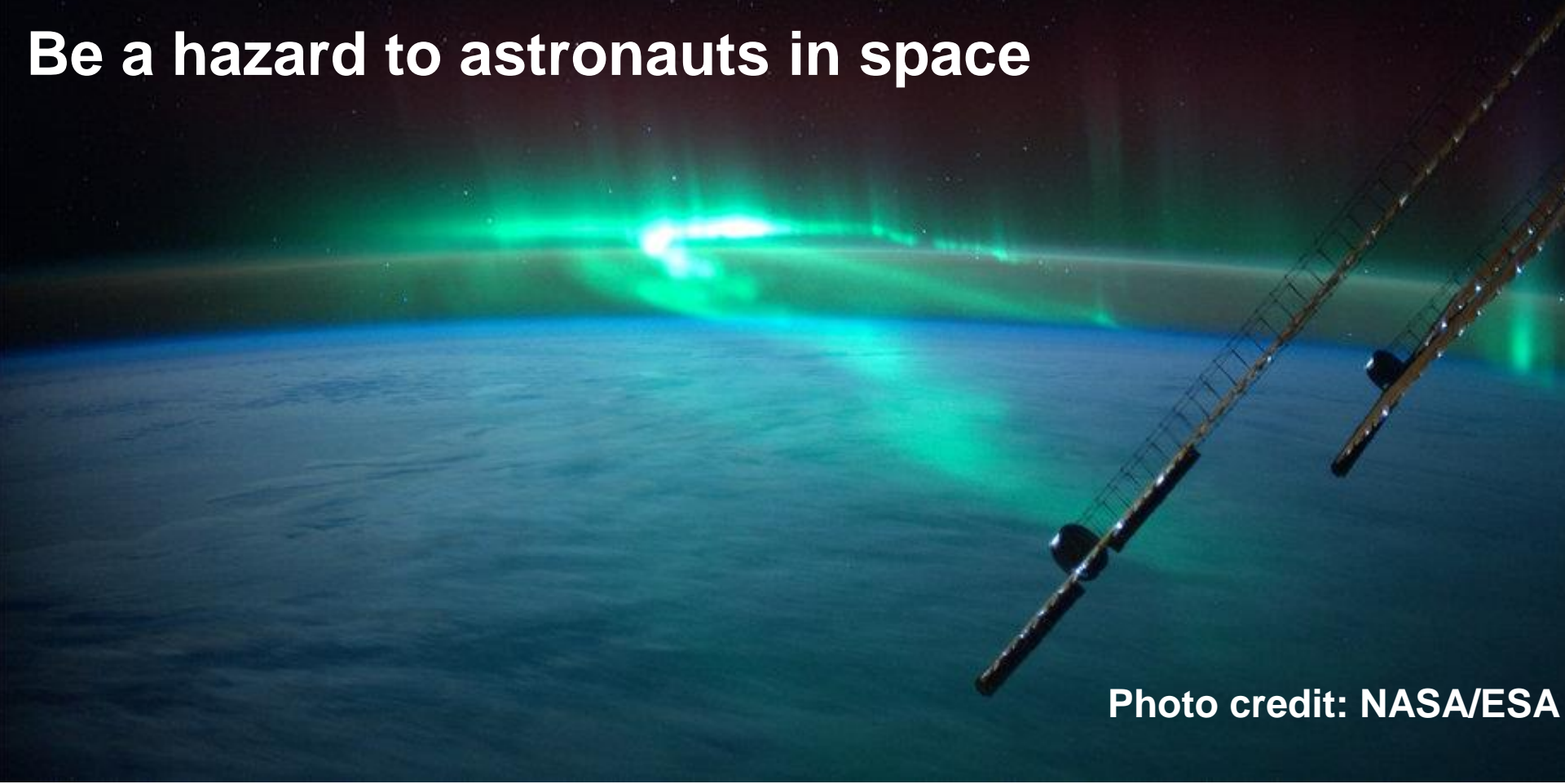
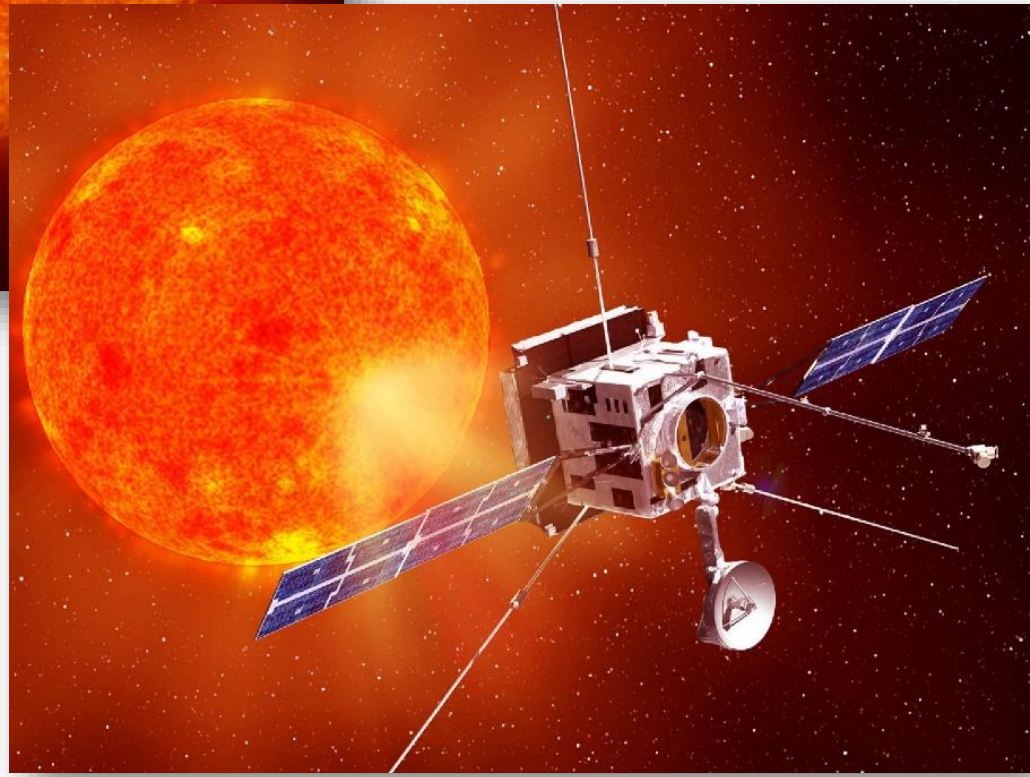
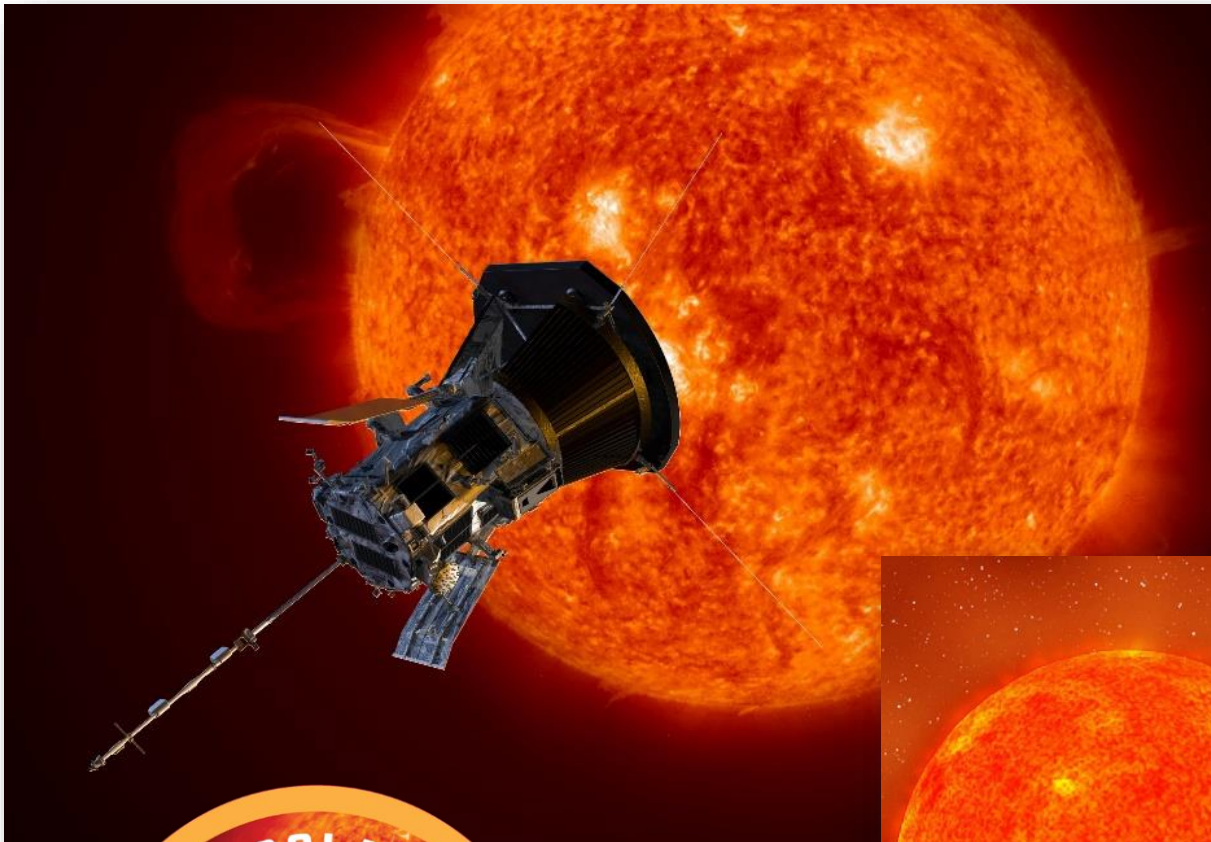


Photo credit: NASA/ESA



# NASA's Parker Solar Probe and ESA's Solar Orbiter





# Work with colleagues in India, IUCAA, Pune

**IUCAA SciPop –  
working with  
schools and  
teachers in India**



**ISRO's Aditya-L1, India's first mission to the Sun  
will be launched in 2020.**



## Skills for life

**Besides scientific and technical skills, the space industry needs..**

- **Innovation**
- **Collaboration**
- **Imagination**
- **Creativity**
- **Communication**
- **Self Confidence**
- **Team work**
- **Inclusivity**



***ISS over the Pyramids***

info@sunspaceart

