



**Mullard Space Science Laboratory
University College London**

UCL Today

Based in London in Gower Street (near to British Museum)

- 11 Faculties and >70 Departments and many more Units
- >5000 academic and research staff
- 30,000 students from 145 countries (~30% from abroad)
- its own theatre, museums and art collections



University College London

UCL context:

- UCL ranked joint 5th in 2014 in the world's top universities (QS World University Rankings)
- 18th best in the world in 2014 and 3rd best in Europe (Shanghai Jiao Tong University ranking)
- UCL is the top-rated university in the UK for research strength. (REF2014)
- 29 Nobel Prize winners (staff and alumni)



The Mullard Space Science Laboratory

- Space Group founded at UCL in 1953 using sounding rockets for upper atmosphere research.
- In 1965 Mullard Ltd made a donation to UCL to establish the Mullard Space Science Laboratory. Holmbury House, Holmbury St Mary was purchased, renovated and formally opened in 1967.
- The UK's largest university-based space research group
- Many UK and international leading figures in space science are MSSL alumni
- It's special characteristic is the close connection between our science and the space instrumentation it seeks to produce, as well as a broader enabling of space-based facilities for the wider community

Making research happen...

MSSL builds the satellite instruments that we use for most (but not all) of our research:

- mechanical & thermal
- optical
- electronics
- software
- organising it all
- testing & calibration



MSSL Track Record

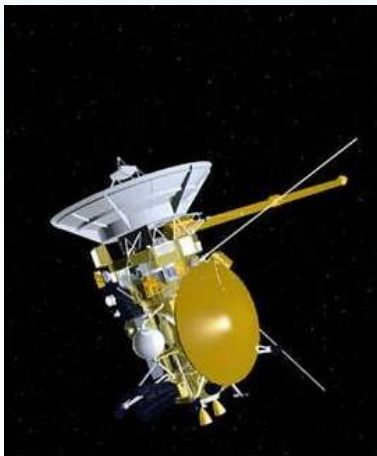
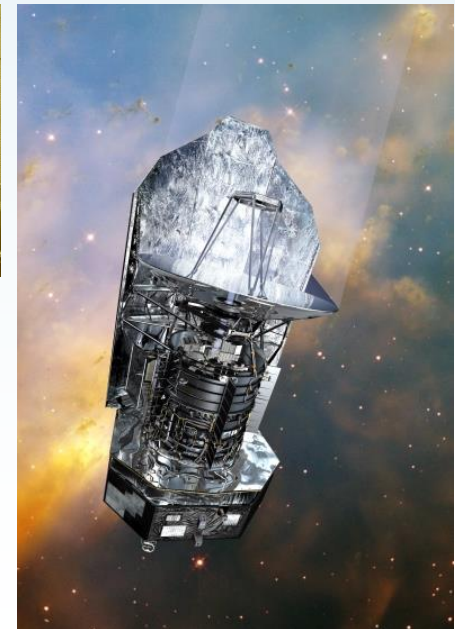
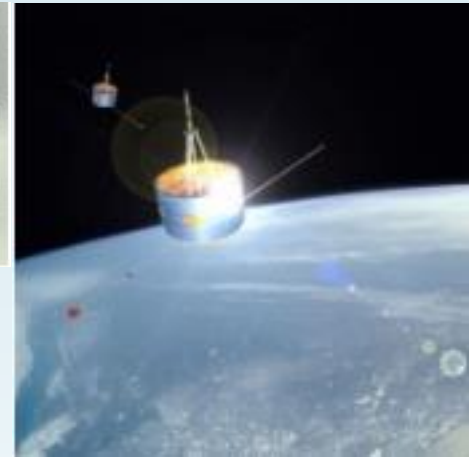
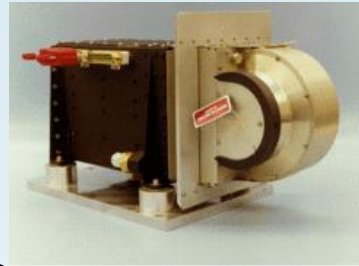
MSSL has a long and distinguished record of space projects with ESA, NASA, USSR/Russia, Japan, China and India:

~50 instruments on satellites in orbit

~230 rocket launches (suborbital)

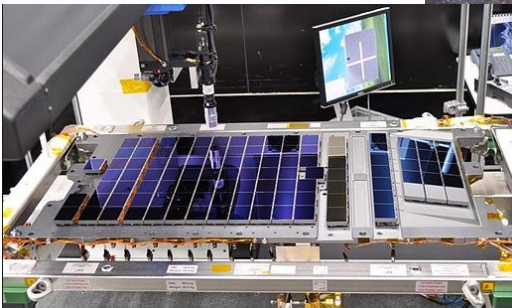
Recently ended projects

- *Double-Star PEACE* (CNSA+ESA)
- *Herschel – SPIRE* (ESA)
- *SOHO – CDS* (ESA+NASA)
- *Cassini – CAPS* (NASA)
- *Venus Express* (ESA)



Currently operating projects

- *Hinode* – EIS and FPP (JAXA)
- *Cluster II* – PEACE (ESA)
- *Mars Express* (ESA)
- *INTEGRAL* – OMC (ESA)
- *Swift* – UVOT (NASA)
- *XMM-Newton* – OM and RGS (ESA)
- *Gaia* (ESA)
- *AstroSat (ISRO)*
- *LisaPF (ESA)*



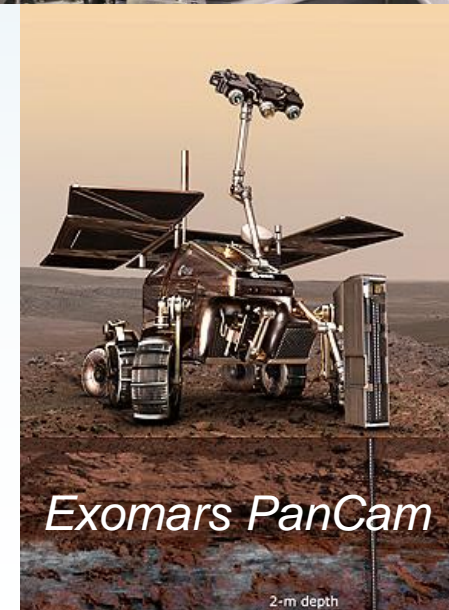
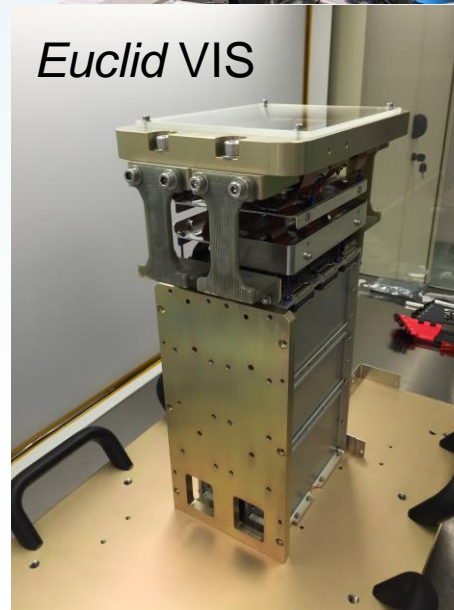
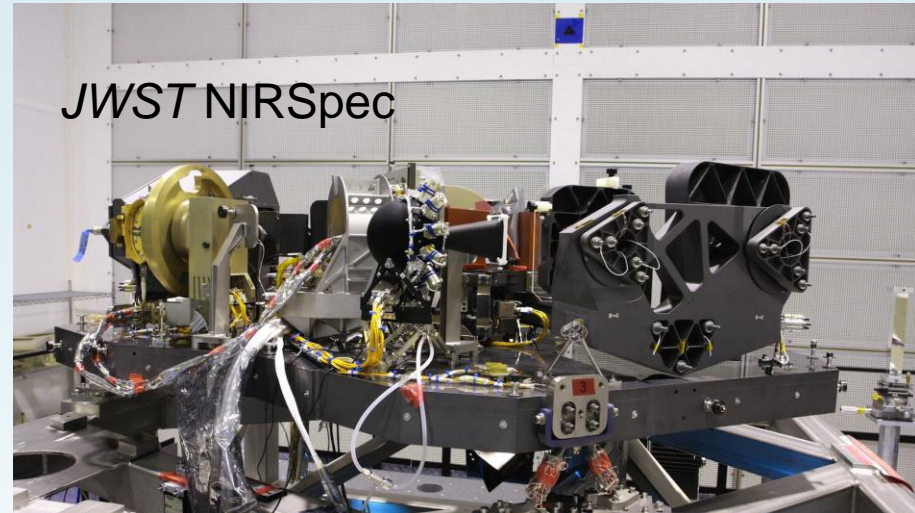
Projects in Development

delivered waiting for launch:

- *James Webb Space Telescope* (NASA)

in build:

- *Solar Orbiter* (ESA)
- *EXOMars 2020* (ESA)
- *Euclid* (ESA)
- *PLATO* (ESA)
- *JUICE* (ESA)
- *SMILE* (ESA+CNSA)
- *ESA M4 – one of: XIPE, THOR, Ariel*



MSSL Research Groups

MSSL is a unique interdisciplinary department within University College London:

- close coupling between space science and engineering disciplines
- several research groups all linked by the common theme of access to space:

Astrophysics

Solar/Stellar Physics

Space Plasma Physics

Climate Extremes

Detector Physics (cryogenics)

Planetary science

Theory

Imaging

Imaging group consists of 10 people

1 academic

3 postdocs/fellows

6 PhD students

Total Personnel at MSSL: ~195 consisting of scientists (50), engineers (80), administrative support (15) and PhD students (~50)

Holmbury House

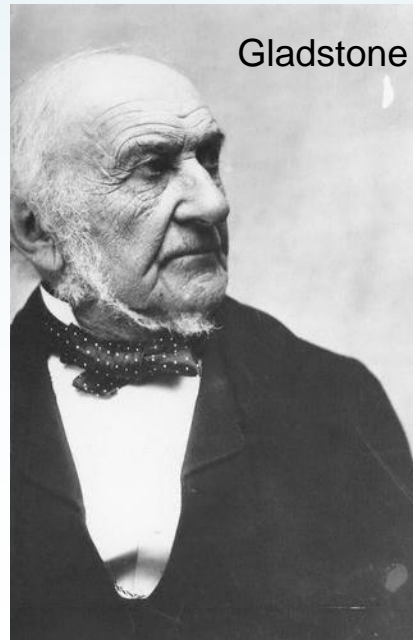
- Holmbury House was built for the Hon. Frederick Leveson-Gower in 1870. The architect may have been George Edmund Street. It replaced an old farmhouse here called Deacons, where the author Ann Marsh-Caldwell lived (records of Dekens go back to 1367)
- Leveson-Gower was a significant figure in Whig (Liberal) politics and was friendly with the Victorian Prime Minister Gladstone who visited Holmbury House frequently. Gower Street in London (UCL's address) is named after his great aunt Elizabeth



Leveson-Gower



Gladstone



Holmbury House

- The house was sold to
 - Sir James Stevenson in 1919 and then to
 - Arthur Ernest Guinness of the brewing family who lived here through the 1940s
 - and then to the Maharaja of Boroda
- From 1950-1965 the house was used as a school for disabled children (the Salmon's Cross School)
- Then to UCL in 1966



Oonagh Guinness



Maharaja of Boroda