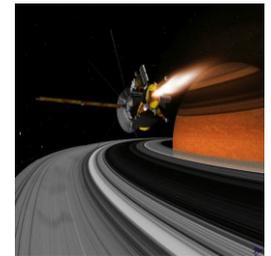
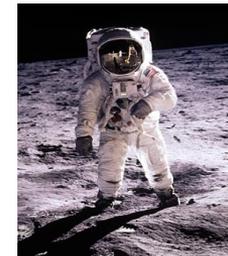
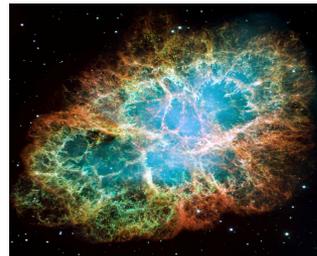
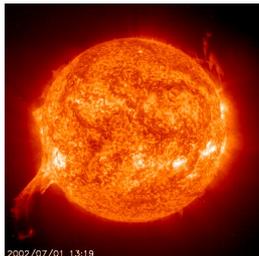


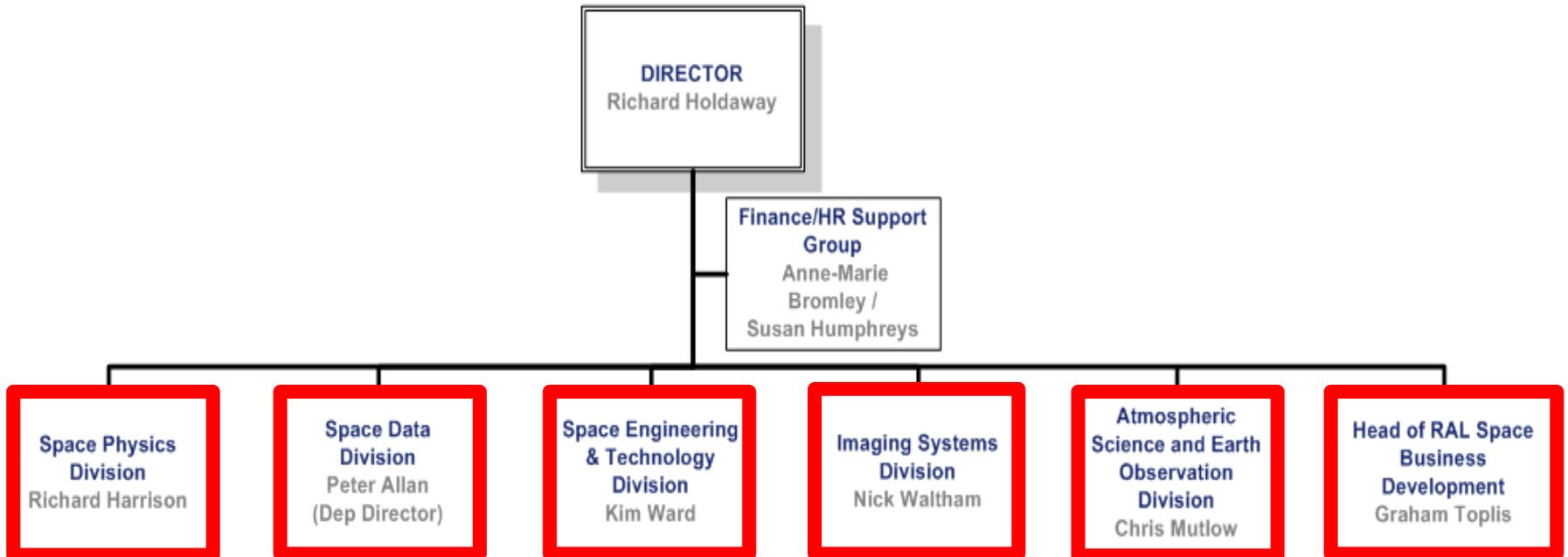
RAL Space

- *Current status of RAL Space*
- *Current & Future Programmes*
- *Logistics for rest of evening*





Organisational Structure



Space at RAL



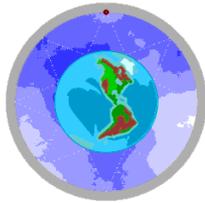
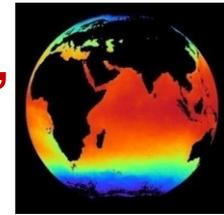
- 200 staff; £20M turnover;
- In 2000 95% income was internal. **Now 95% is external**
 - ➔ STFC, NERC, BIS, DEFRA, FCO, DECC, MoD, NHS, EU
 - + 24 Space Agencies (inc NASA, ESA, UKSA, JAXA, CNES, CNSA,...)
 - + 25 Institutes (eg JPL, GSFC, Sandia, CAST, USAFRL, ATC, Met O',...)
 - + 62 Companies (eg Astrium, SEA, SciSys, Vega, **Lockheed**, Thales,...)
 - + 30 Universities (eg MIT, Cal Tech, Beijing, Oxford/Camb, B/L/M, IC,...)
 - + International Space Innovation Centre (ISIC) & SACC here at Harwell

..... in 34 countries

What do we do today?

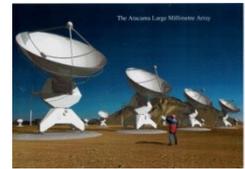
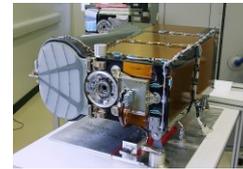
- **Research**

Solar Physics, I-R Astronomy, Space Weather, Climate, Radio/Atmospheric Propagation



- **Design & build Space & Ground-based Instruments**

199 instruments in Space,
Ground-based telescopes



- **Develop key technologies**

Electronics, Detectors, Optics, Thermal, MMT, Robotics

- **Data/information Centres**

Curation, Analysis, Dissemination

What else do we do?

- **Economic impact**



Collaborate with Industry, 5 Spin-Outs, Licences...

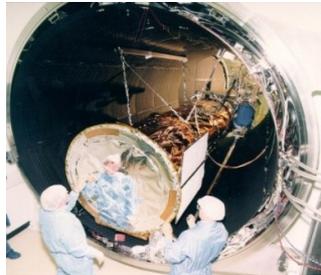


- **Societal impact**

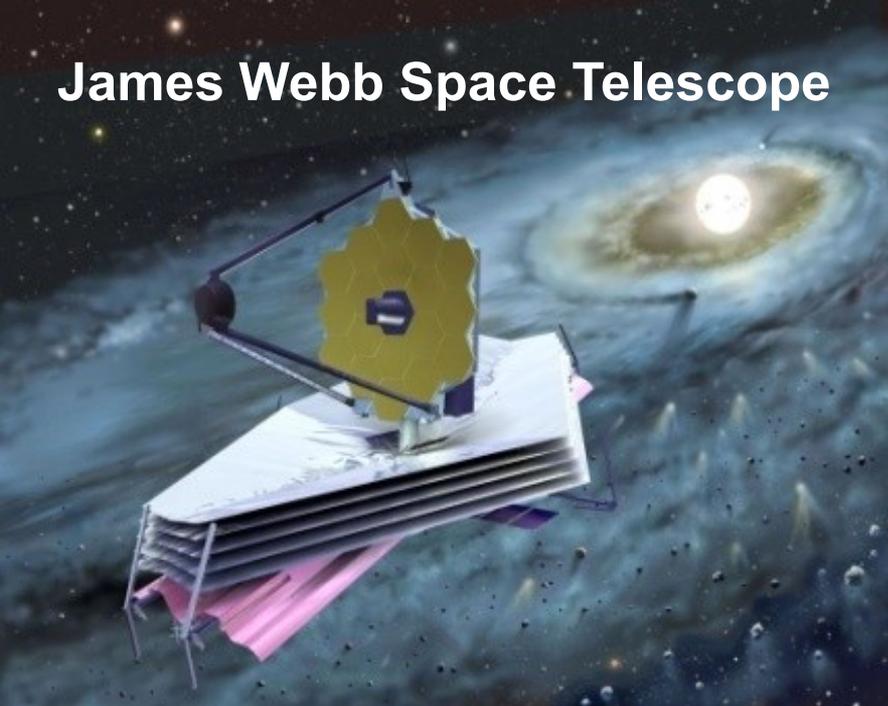
Outreach, Training, Climate analysis...

- **Facilities**

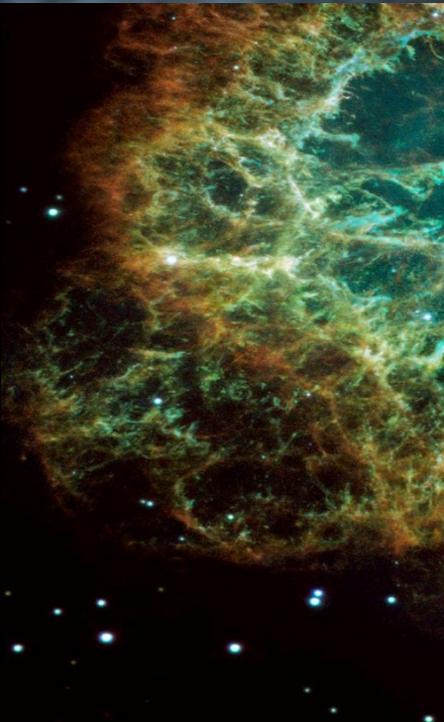
2 Ground stations, Thermal vac, Vibration, Calibration, CDF Spectroscopy, Precision components, Robotics test facility

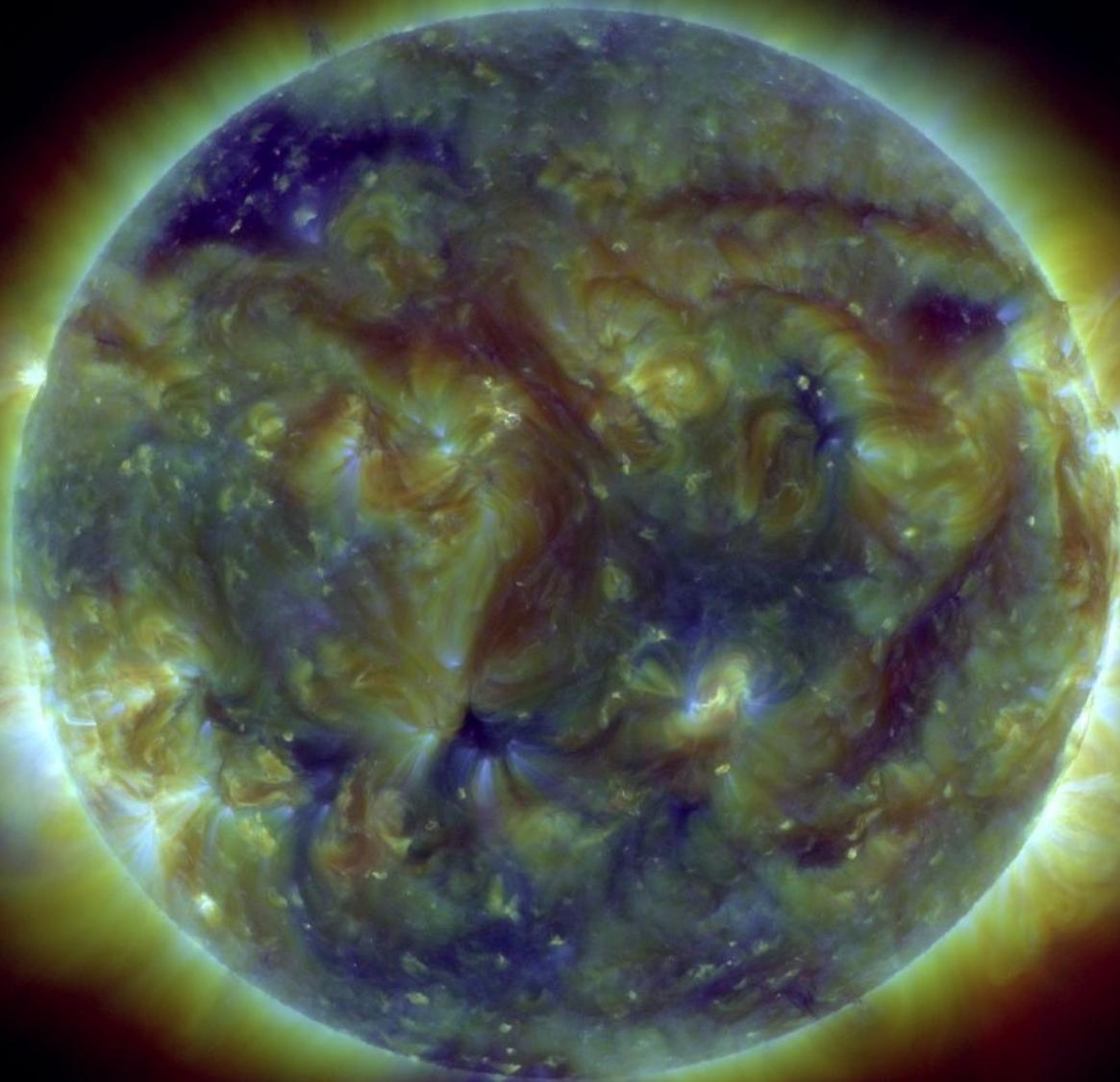


James Webb Space Telescope



MIRI





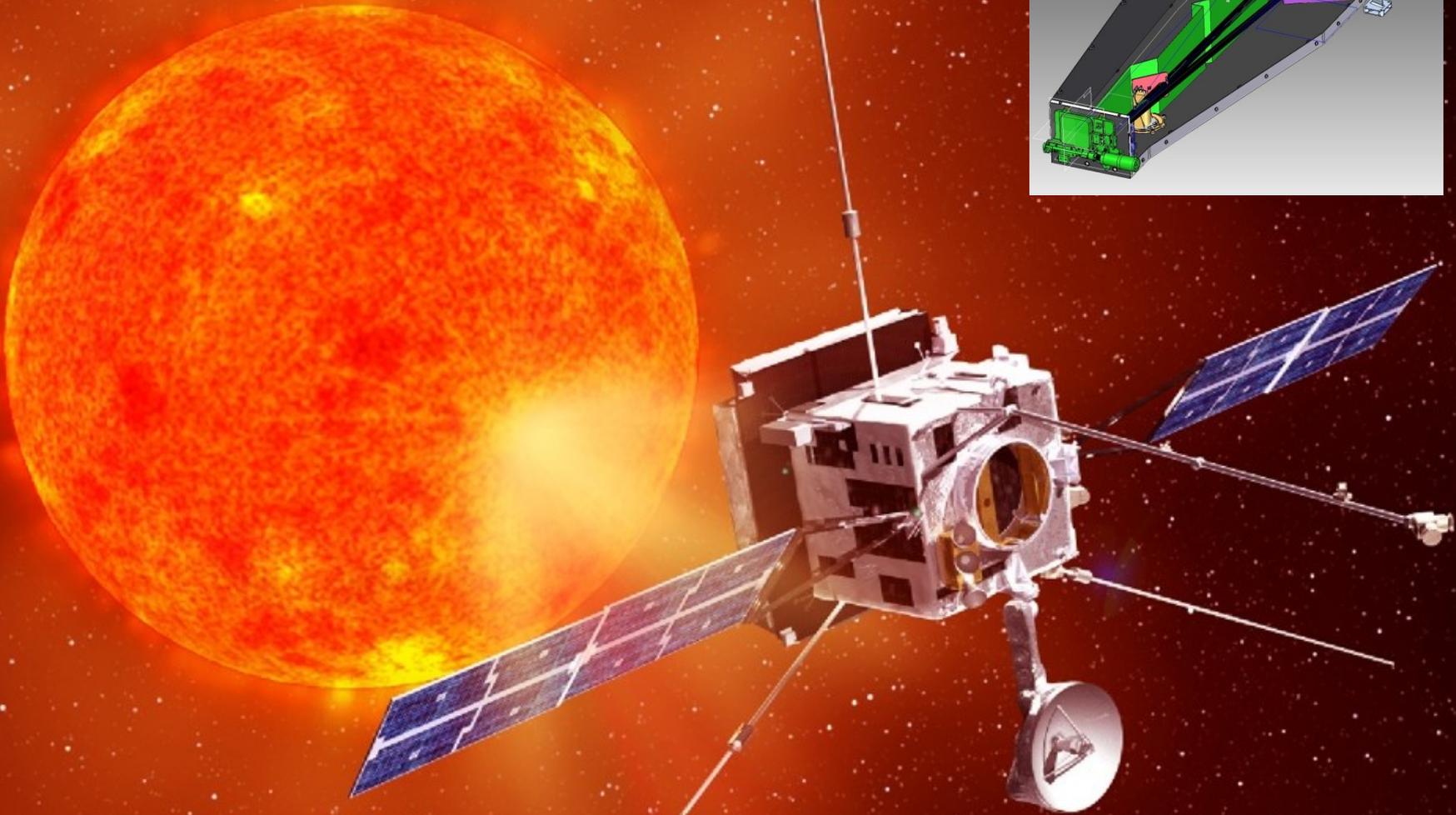
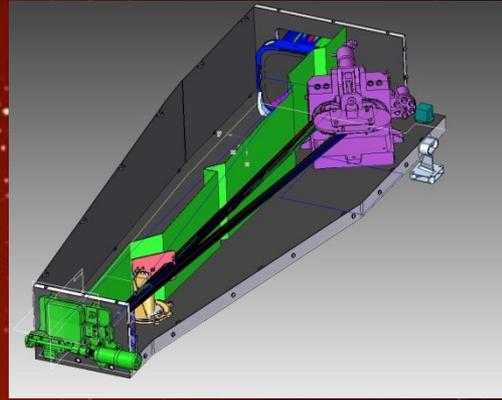
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SDO/AIA- 193 20120621_105956
SDO/AIA- 171 20120621_105837

aia.lmsal.com



Solar Orbiter

ESA/NASA
Launch in 2017

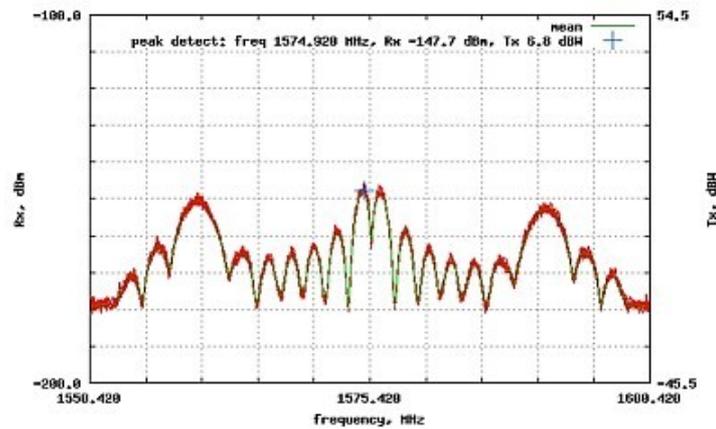
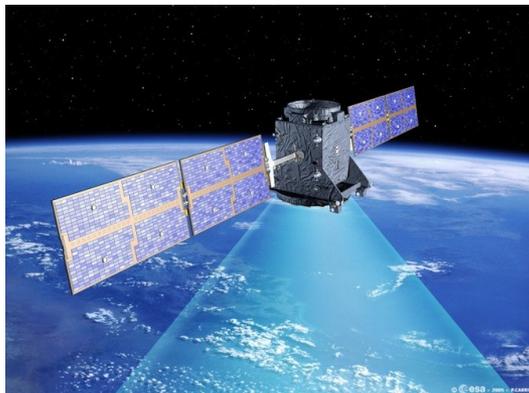


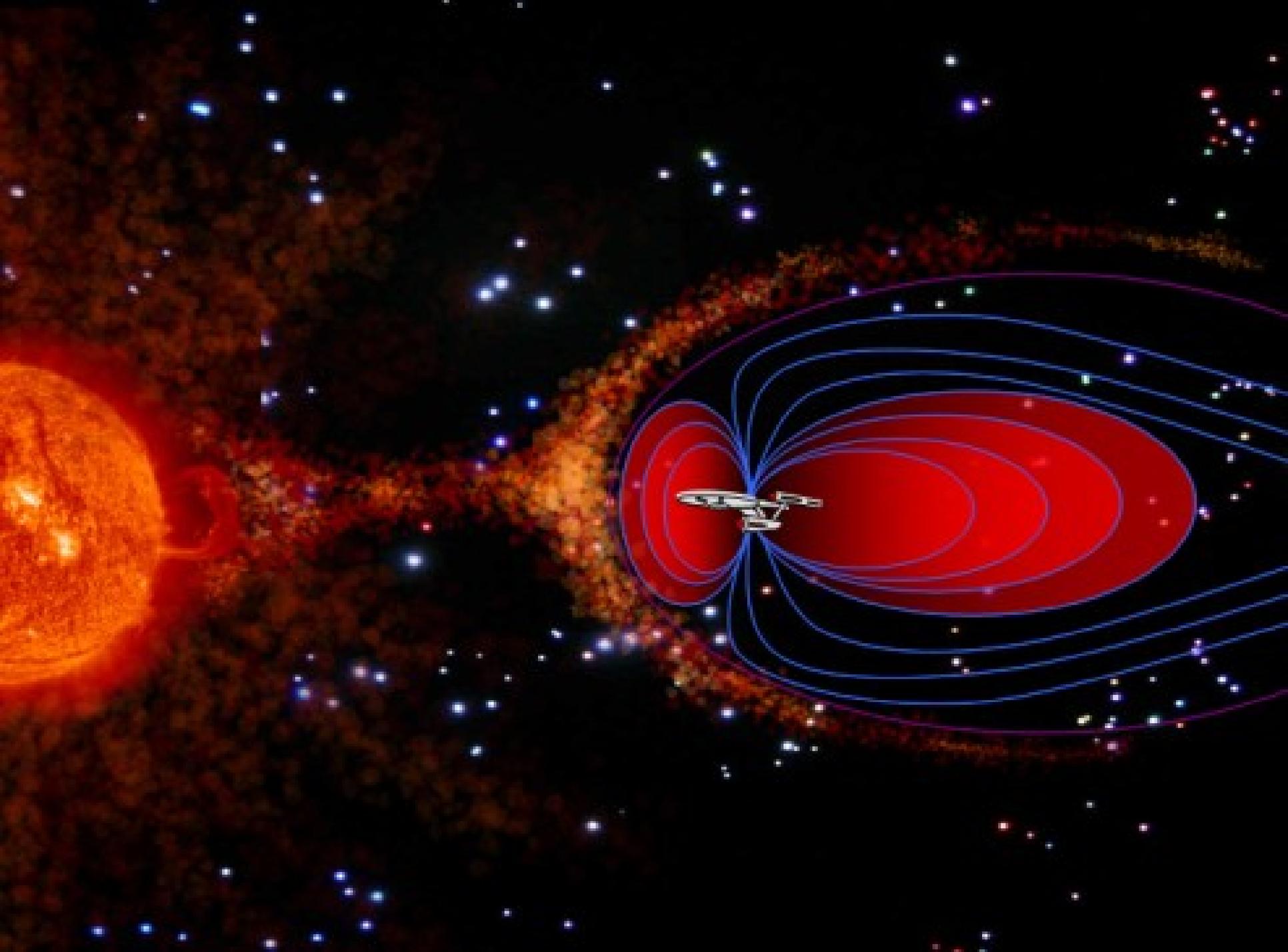
Atacama Large Millimetre Array (ALMA)





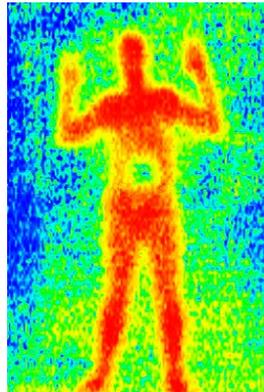
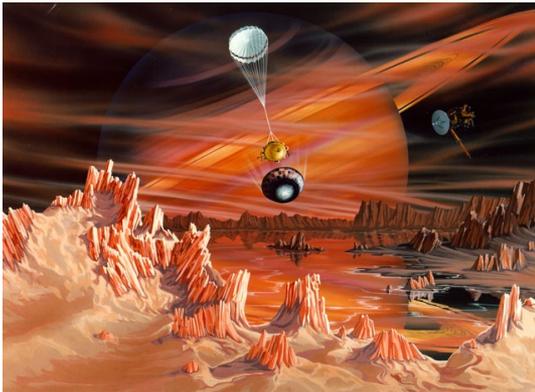
GIOVE-A satellite and first signal







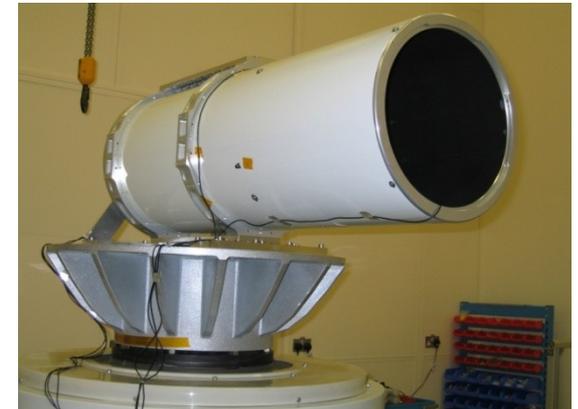
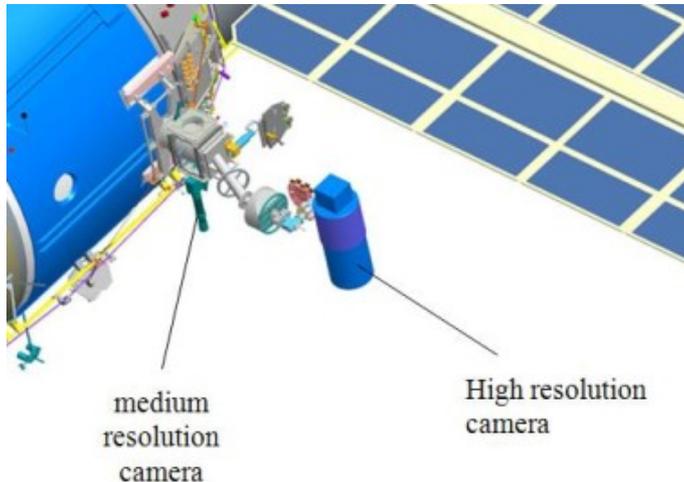
Science to Technology to Impact



High Res' Video from ISS



- **5½m images**
- **1m video**
- **Free public access to data**
- **Launch 1st Q 2013**
- **Funded by VC**



So what is or future?

- **We have a great heritage thanks to everyone here today**
- **We currently have 134 projects, some going beyond 2020**
 - ➔ **We're in good shape**
- **Very strong Gov't support for UK Space**

Space is the fastest growing sector in the economy

£200M > £7B annual turnover

70,000 jobs

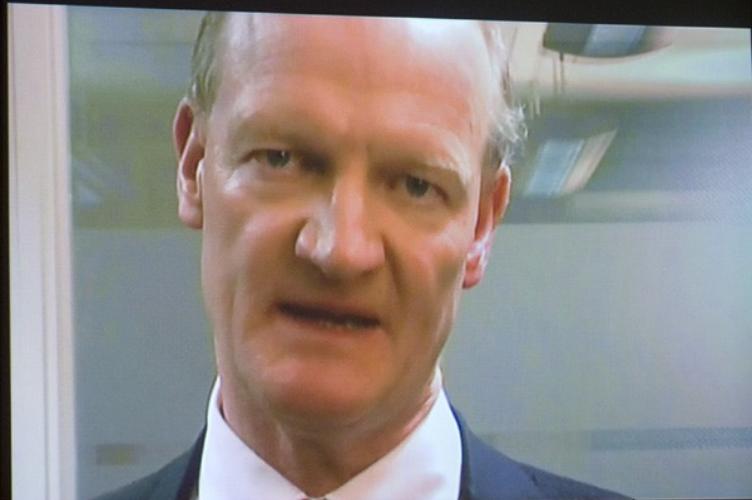
Currently 300 on this site, "1000 by 2015" (Vince Cable)

Getting support from the right people 😊





**Ministers
too 😊**



ROCKET SCIENTISTS



ROCKET SCIENTISTS