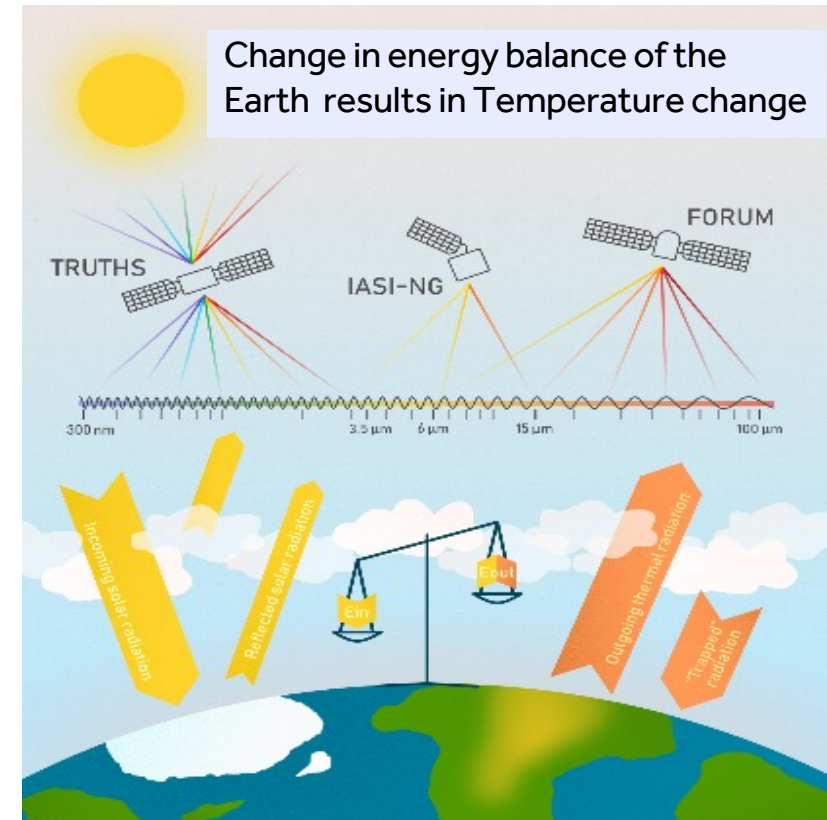


# SPACE CLIMATE TRUTHS: Improving Climate Measurements



TOGETHER  
FOR OUR  
PLANET

- It is now beyond doubt that human activity is warming the planet, and that this warming is becoming dangerous.
- To tackle the problem we must take global action to reduce our contribution whilst also adapting to its impact. Progress needs detailed assessment of change on a planetary and local scale that is best done from space.
- Recent advances have allowed us to design climate observatories in space capable of unprecedented accuracy to allow change to be detected as early as possible. CEOI and UKSA have supported the TRUTHS mission, now under development by the European Space Agency.



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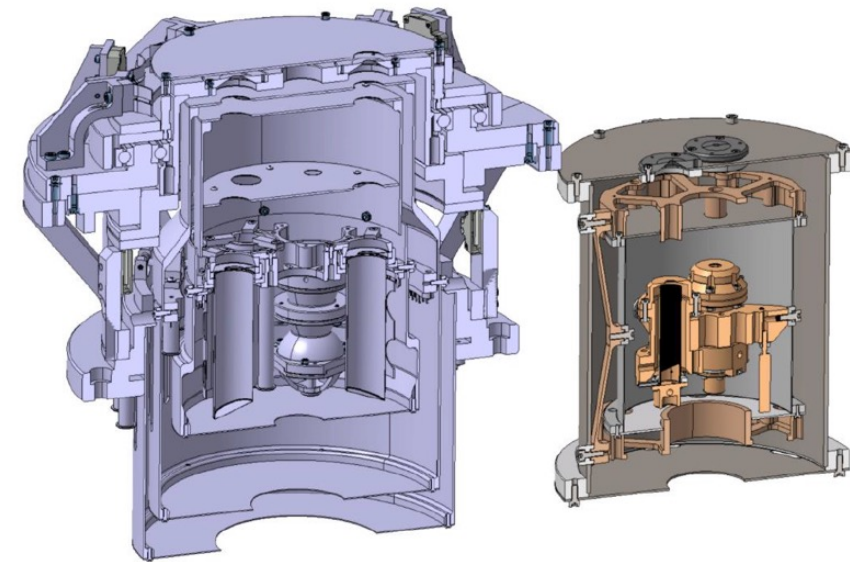


# SPACE CLIMATE Traceability of Measurements to International Standards (SI)



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- We can measure incoming energy from the Sun, and energy leaving the whole Earth, reflected and emitted. In this way we can assess the energy balance of the planet.
- To ensure that the measurements are of the best possible accuracy, the National Physical Laboratory has taken their SI reference standard instrument, like a standard clock for time, and miniaturized and re-engineered it for space.
- In this way, the TRUTHS mission will reveal small but important changes in the Earth's climate in the shortest possible time.



NPL's Cryogenic Solar Absolute Radiometer (CSAR), reference for measurement of 'light'. Lab version (Left), Space version (Right).

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# SPACE CLIMATE

# TRUTHS: An ESA Earth Watch Mission



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- TRUTHS will carry a 'camera' which will make measurements of incoming energy from the sun and that reflected by the Earth, split into a 'spectrum' (like a rainbow) from the ultraviolet to infrared at an accuracy up to 10X that of previous satellites.
- All the measurements will be traceable to international standards via calibration with the on-board CSAR.
- In addition to providing this benchmark climate data, its orbit allows its measurements to be directly compared with other missions when their orbit crosses as shown in the picture.
- In this way measurements from other satellites can be upgraded to climate-class accuracy.

More information



Centre for  
EO Instrumentation



NPL

AIRBUS



National Centre for  
Earth Observation  
NATURAL ENVIRONMENT RESEARCH COUNCIL

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