

## **TRUTHS - climate and calibration observatory in space**

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TRUTHS (Traceable Radiometry Underpinning Terrestrial- and Helio- Studies) is an ESA satellite mission setting a new benchmark to detect change in the Earth's Climate system in as short a time as possible.

The TRUTHS mission will create a 'climate and calibration observatory in space' which will reduce uncertainty in the data related to our understanding of the health of our planet and its energy balance, both incoming from the Sun and reflected by the Earth.

The TRUTHS system relies on a payload capable of measuring with unprecedented accuracy the optical radiation coming from the sun (CSAR = Cryogenic Solar Absolute radiometer). which becomes the absolute reference - "the gold standard"- for measuring the radiation emitted by the Earth and measured in a large spectral range from the UV to short-wave Infrared, by an Hyperspectral Imaging Spectrometer (HIS).

An On-Board Calibration system (OBCS), permits to "transfer "the accurate measurement of the sun, to the Earth samples acquired by the HIS instrument and to trace it to SI units.

TRUTHS observation product will create a climatological database to be used for estimating Essential Climate Variables over a long-term and will also permit to calibrate observation made by other satellites or data-sets acquired over specific calibration sites on Earth at different times, improving their accuracy

The TRUTHS mission is part of the ESA (European Space Agency) Earth Watch program and is in its Study phase. TRUTHS is supported by five ESA member states, UK, Switzerland, Greece, Czech Republic and Rumania.