**Ten New Projects Selected in the CEOI Fourteenth Open Call**

The UKSA Centre for Earth Observation Instrumentation (CEOI) announces ten new space instrumentation development projects, value totalling £1.55M, with additional investment funding from industry. Together, these projects will advance the state of the art of UK space Earth observation and will position the project consortia for new commercial and scientific missions and exports in Europe as well as globally. Projects are in 2 categories:

* Pathfinder projects, which aim to develop novel instrumentation ideas to a laboratory proof of concept level;
* Fast Track projects, which aim to develop successful Pathfinder and similar developments to a higher Technology Readiness Level (TRL) to demonstrate suitability for spaceflight.

**Pathfinder Projects:**

* **GLAMIS Phase -3 (Global Lidar Altimetry MISsion)**: Lead by the University of Edinburgh and collaborating with Space Flow Ltd. The GLAMIS project is pioneering a new approach to space-borne lidar, developing the subsystem technologies required in order to realise a constellation of lidar satellites with wide area coverage, a global lidar system (GLS), cost-effectively. A GLS would enable a wide range of new applications.
* **Monolithic space imaging systems:** Lead by the University of Huddersfield and collaborating with Wayland Additive Ltd & Thin Metal Films Ltd. The team are exploring the feasibility of a novel, streamlined way to make optical imaging systems based on mirrors. This new approach would be particularly suitable for remote-sensing missions requiring fast-turnaround, including environmental and disaster monitoring, with obvious extension to defence and security.
* **Umbrella Radiation Monitor:** A University College London team are working on a project which is a stepping stone to develop a more powerful, low-resource and high-performance radiation monitoring instrument.
* **Climate change detection by the application of Linear Variable Filters:** Lead by Thales Alenia Space UK team and collaborating with the University of Leicester, this is a proposal to investigate the potential application of technology to produce a compact suite of instruments which exploit recent advances in optics to monitor climate change.

**Fast Track Projects:**

* **NIMCAM (Near Infrared Multispectral Camera for Atmospheric Methane):** Lead by the University of Edinburgh and collaborating with UK Astronomy Technology Centre. The team continue to build on their previous Pathfinder project from the CEOI 13th Call. This 14th Call project will undertake the detailed design, build, and initial testing of a field demonstrator instrument, a key step along the road to launch of a satellite mission.
* **BARDODAR (BAROmetric Differential Absorption Radar):** Lead by STFC RAL Space and collaborating with NanoAvionics UK Ltd. Due to climate change, the intensity and frequency of devastating weather events, the BARODAR mission promises to provide an unprecedented 5 km x 5 km spatial resolution for global surface pressure measurements, at high temporal resolution.
* **2.0-THz local oscillators for radiometric observations of atomic oxygen:** Lead by the University of Leeds and collaborating with STFC RAL Space. A new 2.0-THz instrument was included as part of the recent Keystone proposal to the 11th call of the ESA Earth Explorer programme. This would provide more accurate measurements of atomic oxygen at lower levels of the atmosphere, and would allow additional important gases (e.g., ozone) to be studied. However, there has been no demonstration, to date, of a 2.0-THz receiver as part of a satellite payload. The team’s specific technical goal is to develop the first satellite-compatible (compact, integrated, robust and low-power) 2.0-THz laser source.
* **Project Kartographer:** An Orbital Astronautics Ltd team is working towards the realisation of a new type of Synthetic Aperture Radar mission architecture that allows for very high-resolution real three-dimensional cartography.
* **VLWIR MCT Arrays:** A Leonardo team are carrying out a programme of work for the characterisation of its MOVPE grown Very longwave infrared (VLWIR) MCT focal plane arrays produced using its latest wafer processing techniques. The goal of this work is to demonstrate the capability to produce VLWIR MCT hybridized arrays with a wavelength cut-off up to 15 μm using the latest Leonardo production processes.
* **TRUST (Traceability Using Standards):** Lead by STFC RAL Space and collaborating with National Physical Laboratory. Project TRUST will develop additional phase change cell standards to allow their use in a wider range of applications.