



- Thermal infrared imagery showing temperature variation of the built environment is familiar from terrestrial applications.
- It is now possible to do this from space using a satellite equipped with a telescope and the new generation of high-resolution mid-infrared sensors. These imagers can operate both day and night.
- This allows climate-related monitoring such as heat loss/thermal efficiency of buildings, heat plumes in the ocean, forest fires, volcanoes, and applications in defense and security.



Credit: SSTL / Satellite Vu

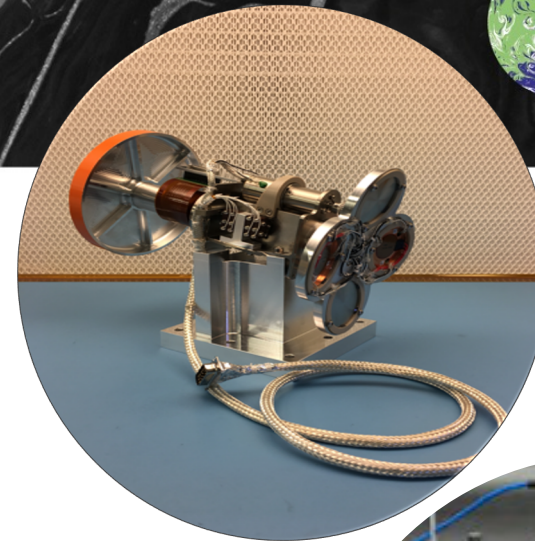
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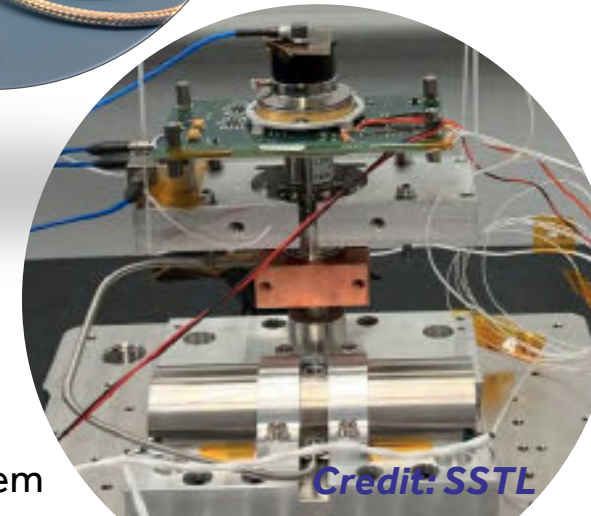


Leonardo MW and SSTL, with CEOI support, are repurposing and re-engineering a commercial high-resolution mid-infrared detector for space use.

- This requires some modifications (cooler, electronics, calibration system) to ensure the detector works in the vacuum of space.
- The detector (currently) has the smallest available pixel size, enabling high resolution ground sampling distance of 3.5m, which means that buildings and vehicles will be resolved.
- A new telescope and focal plane array suitable for infrared imaging have been developed (every surface gives off heat!).



Calibration system



Cooler system

Credit: SSTL



SPACE CLIMATE

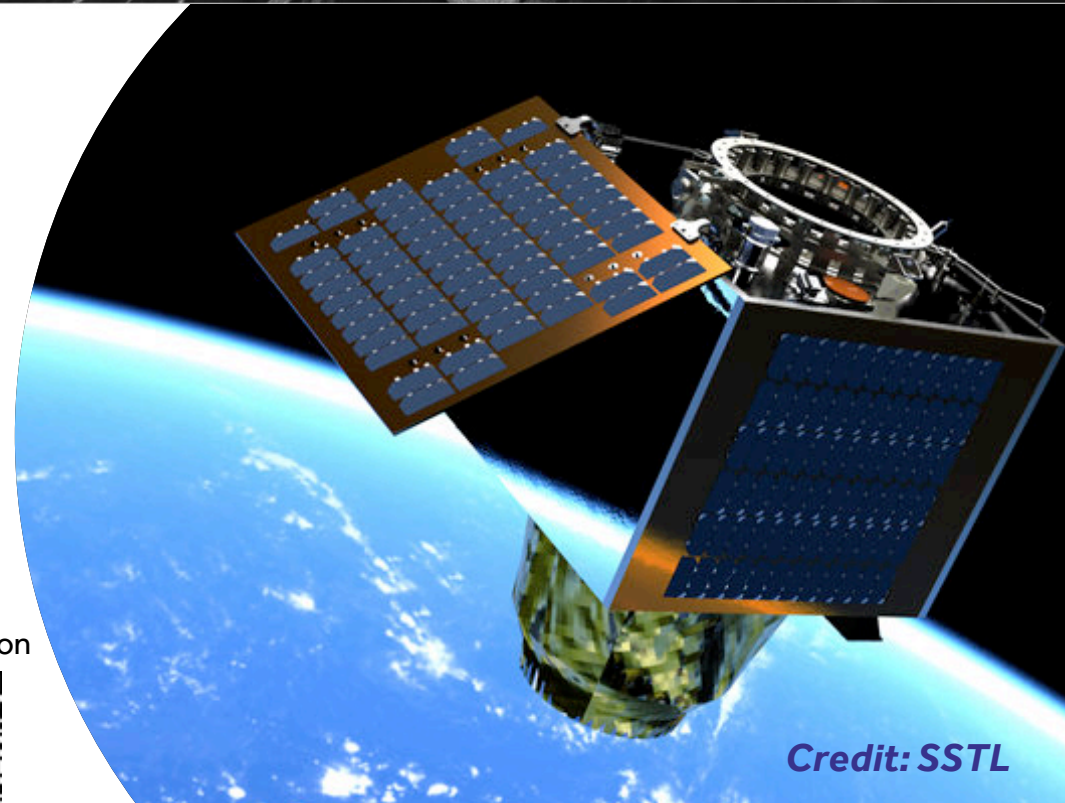
Thermal Imaging: DarkCarb Mission



TOGETHER
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- SSTL are developing the DarkCarb satellite to extend their range of commercial imaging spacecraft into the mid infrared.
- With CEOI Support, Leonardo MW and SSTL have been developing a new thermal detector system for the DarkCarb satellite.
- Satellite Vu are SSTL's exclusive partner for commercial MWIR missions and will develop commercial services offering insights into the thermal efficiency of the built environment, important both for the economy and for the climate.

More information



Credit: SSTL



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