

We take great pride in supporting local students on their innovative projects. We know the key to technological evolution is providing new generations with our support and sharing knowledge from the experienced we've gained along the way.

This newsletter is unique because it is not every day we see parts we've machined being launched to space, so thanks to the ORCASat project and the UVic Satellite design team.

# THE PROJECT

The Optical Reference Calibration Satellite (ORCASat) project is a nanosatellite-class spacecraft designed and built at the University of Victoria (UVic)- Centre for Aerospace Research by the student engineering team UVic Satellite Design, in collaboration with the University of British Columbia.

The ORCASat mission is to provide an unmatched hands-on learning experience for undergraduate and graduate students and demonstrate a novel method of calibrating how we measure the light coming from space and telescopes used in astronomy.



The spacecraft is scheduled to launch in quarter four of 2022, and it will be carrying an in-situ-calibrated light source. This will assist with calibrating photometric references, best known as supernova stars used in astronomy.

Atmospheric and instrumental interference accounts for the largest sources of systematic uncertainties when measuring the universal expansion rate. A reference light source in orbit will 'zero out' interference and allow astronomers to make more precise measurements.

All light sources change their brightness due to temperature and aging over time. Therefore, calibrating it on the ground before its launch is not good enough; it must be calibrated when it is operating in orbit.

Photometric references are the brightness of every star compared to the brightness of a standard candle. Supernova stars are known as standard candles in which all photometry or brightness measurements are referenced.