

OLLO - A 3U Open Access astronomical telescope mission

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Open Little Luminary Observatory - OLLO is a small orbital telescope system concept aimed to provide an open access platform for astronomical observations. OLLO's mission is to create an open, interactive tool allowing everyone to access and request images of astronomical objects, such as planets, nebulae or star clusters. This concept aims to bring astronomy and science closer to the public. Our main objectives are to:

1. Complement existing astronomy infrastructure with a universally accessible observation platform for educational, scientific and amateur purposes.
2. Design a 1.5U optical imaging telescope to be integrated into a 3U CubeSat platform.

To achieve these goals we will connect the CubeSat observation platform with a web service through the available ground segment at the University of Vigo. This will allow users to access previously collected data or to request observations of specific bodies, which the OLLO orbital platform shall carry out when the target object is in sight of the payload. After the observation, the resulting data is downloaded to the ground segment and is made accessible to the end users.

The motivation for our second mission objective is derived from most CubeSat-based astronomical telescope missions using 6U platforms. Using past missions data, especially JPL's ASTERIA mission, a feasible target resolution of 15 arcseconds per pixel can be achieved with the corresponding pointing accuracy and pointing stability requirements, which should allow for wide field of view images of deep-sky objects, like M31-Andromeda, the M81 and M82 Galaxies, or M42-Orion Nebula.

The OLLO mission was selected to participate in the Concurrent Engineering Workshop organized by the ESA Academy. Several members from UVigo SpaceLab will attend the workshop when it takes place in 2021 at their installations of ESEC-Galaxia in Belgium to further develop the concept.

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