

SPACE SYSTEMS SYMPOSIUM (D1)
Innovative and Visionary Space Systems Concepts (1)

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AN INNOVATIVE MULTI-SPECTRAL AND MULTI-ANGLE BASED CUBESAT FOR EARTH
OBSERVATION APPLICATIONS**Abstract**

Small satellites are widely used for Earth Observation applications. CubeSats in formation flight can improve low-cost environmental monitoring as track natural disasters with a resolution of few meters and daily revisit capability. The main missions commonly use a nadir-pointing sensor, not always able to quantify atmospheric properties. In order to obtain these data, an off-set nadir sensor is necessary, providing a multiple angle observation. This architecture scheme is similar to the MISR sensor (Multi-angle Imaging SpectroRadiometer) successfully flown on the EOS NASA's TERRA satellite. The paper describes the feasibility study of a CubeSat-based multi-angle and multi-spectral Earth Observation system able to collect multi angle and multispectral data. As opposite to large satellite EO platforms, the observation payload is split among several spacecraft, by splitting the optical observation capabilities into a cluster of small satellites based on four 6U CubeSats in formation flight. The main technical and scientific objectives of the mission and the main system requirements are outlined and the paper gives a description of the main key performance parameters and expected results of the designed sensor and mission.