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MULTI-CUBESAT MISSION FOR AURORAL ACCELERATION REGION STUDIES

Abstract

Auroral Acceleration Region (AAR) is a key region in understanding the Magnetosphere-Ionosphere interaction. In order to understand the physical, spatial and temporal features of the region, multi-point measurements are required. Distributed small satellite missions such as constellations of multiple nano satellites (in example multi-unit CubeSats) would enable such type of measurements. The capabilities of such a mission will highly depend on the number of satellites – one reason that makes low-cost platforms like CubeSats a very promising choice. In a previous study, the state-of-the-art of miniaturized payloads for AAR measurements was analyzed and evaluated and capabilities of different multi-CubeSat configurations equipped with such payloads in addressing different open questions in AAR were discussed. Here, the mission analysis and possible mission design as well as necessary technology developments of such a multi-CubeSat mission are identified and presented.