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THE IN-ORBIT DEMONSTRATION PROGRAMME, MISSION 1 - ACCELERATING THE  
DEMONSTRATION OF COMMERCIAL WEATHER DATA USING SMALL SATELLITES

**Abstract**

Small satellites continue to promise great opportunities with more than 70 constellations being proposed currently. However, few are getting over the first hurdle of getting a satellite into space to test and demonstrate the commercial service they wish to provide. The Satellite Applications Catapult In-Orbit Demonstration (IOD) Programme is a collaborative research initiative structured to assist start-ups, companies, consortiums or other institutions in getting their payload on a satellite in space, and accelerating the demonstration of a commercial service.

This paper will briefly provide the context of the growing and evolving commercial small satellite constellation market followed by an overview of the IOD Programme and its missions. Focus will then be given to the IOD-1 GEMS (Global Environmental Monitoring System) mission being undertaken in partnership with Orbital Micro Systems (OMS). IOD-1 GEMS, to be deployed from the ISS towards the end of 2018, will demonstrate that the miniaturised microwave radiometer OMS have developed can deliver the improved temperature measurements required to address the needs of the weather data markets, paving the way for a future small satellite constellation to be deployed by OMS.