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SPACE BASED AIS DETECTION WITH THE MARITIME MONITORING AND MESSAGING MICROSATELLITE

Abstract

In 2008, a 6.5 kg nanosatellite called NTS was launched with the challenging and pioneering mission of demonstrating that Automatic Identification System (AIS) signals transmitted by maritime vessels could be received from space. NTS exceeded all mission objectives and provided valuable input into the research for an operational microsatellite called the Maritime Monitoring and Messaging Microsatellite or M3MSat. M3MSat is being developed in a partnership between COM DEV Ltd and the UTIAS Space Flight Laboratory (SFL), with COM DEV as the prime contractor. In addition to building upon the innovative AIS receiver technology developed for NTS, M3MSat will provide enhanced data collection and handling capabilities. The mission also entails detecting and de-colliding AIS signals in an operationally timely manner providing a responsive ship tracking capability to both commercial customers and the Canadian government. M3MSat is based on the COM DEV AIM multi-mission bus which is a highly flexible platform that is 0.6 x 0.6 x 0.8 m in size with a mass of 80 kg. This paper describes the transition from a nanosatellite to a microsatellite platform, the development of the AIM multi-mission bus and the capabilities of M3MSat. With the launch scheduled for July 2013, details of the spacecraft early operations and status will also be discussed. M3MSat is funded by Defence RD Canada (Ottawa), the Canadian Space Agency, exactEarth and COM DEV Ltd.