

**Mission Planning Through Image Processing: Flying a Remote Sensing
Satellite with Commercial-off-the-Shelf Software**

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Abstract. Ground systems for satellite operations often involve expensive, high maintenance, custom software suites. The Miniature Sensor Technology Integration (MSTI-3) operations team has broken that mold by building an operations architecture around commercial-off-the-shelf software (COTS). COTS products contribute to all aspects of the mission, from mission planning and command generation through trend analysis and image processing.

Advantages of the COTS approach over customized software suites include relatively low purchase price, minimal hardware requirements, flexibility and portability, ease of development and maintenance, and ease of training. In addition, COTS products interact well. Every member of the MSTI team can easily read and use each data product from any computer, without specialized software. Transferring data between various products requires little or no "hands-on" data manipulation. This approach has provided an inexpensive, flexible, and highly successful operations system.

This paper discusses the use of COTS for such tasks as experiment development, command generation, pass plan development, memory management, data management, telemetry processing, trend analysis and image processing. Tools used by the operations team are analyzed and discussed, demonstrating the significant contribution of COTS to MSTI-3's success.