RADARSAT-2 GOVERNMENT ORDER HANDLING OPERATION

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1. INTRODUCTION

A key priority of the Canadian Space Program is to provide high-quality Earth Observation data on an operational basis to commercial, government and scientific users worldwide. The program started with the launch of Canadian Space Agency's (CSA's) RADARSAT-1 satellite with a C-band Synthetic Aperture Radar (SAR) instrument on-board on November 4, 1995. RADARSAT-2, having again a C-band SAR, is a follow-on mission to RADARSAT-1 [1]. RADARSAT-2 was launched on December 14, 2007 and declared operational on April 24, 2008. This mission has been developed under a unique partnership between the CSA and MacDonald, Dettwiler and Associates (MDA). The satellite is owned and operated by MDA, whereas CSA's contribution is for pre-purchase of data for the use by various departments of the Government of Canada (GoC). The design of end-to-end RADARSAT-2 system represents a significant evolution from RADARSAT-1 with new capabilities added [2].

2. GOVERNMENT ORDER HANDLING OPERATION

Central to the order handling operation is the Order Handling System (OHS). It is a web-based application that supports a distributed access from various locations across the world to large volume customers such as the Government of Canada or a foreign data receiving station. This application allows secure ordering and real time tracking of a RADARSAT-2 order as it progresses through the order life cycle: from data ordering to product delivery. The system interfaces with the Acquisition Planning Tool (APT), the Acquisition and Reception Planning System (ARPS), the Product Generation System (PGS), the Delivery Manager System (DMS) and the Product Storage and Distribution System (PSDS). The Order Desk (OD) component of OHS integrates all the ordering functions: ordering, approving, tracking and cancelling, quoting and invoicing for a wide range of order transaction types such as retail, wholesale, the Canadian Government or a foreign receiving station. The distributed nature of this access to OD requires that confidentiality of an order and associated information be maintained. The OD implements a hierarchy of visibility by grouping customers into Customer Service Group (CSG). There is a hierarchy in CSG such that a lower level CSG does not have access to the same or higher level CSG. The higher level CSG has visibility to lower levels within its branch to help and assist lower levels in such cases as data allocation or conflicting situation [3].

In this system CSA acts as the Canadian Government Distributor (CGD) for all government data needs. Each government department requiring a large volume of data can be assigned a CSG status. Each CSG

operates the Order Desk system and manages its own departmental data orders. Presently two departments namely, the Environment Canada and the Department of National Defence (DND) have each been assigned a CSG status, each of which has a high volumetric requirement. CSA also acts as a CSG for all other government departments where volumetric requirement is small. Some other departments may become CSGs in future as their data requirements evolve over a period of time. CSA being the CGD has the full visibility and access to all government CSG operations. CSA also coordinates and manages internal conflicts for all government data orders. Similar hierarchy exists on the commercial side with MDA acting as the commercial distributor. At the mission level, MDA has the full visibility and access to all CSG operations including GoC CSGs. All products generated under GoC data orders are delivered and stored on a centralized server via FTP. All GoC Authorized Users (AUs) have access to this server for downloading their products or for that matter any other product ordered by any department of GoC. All products are calibrated and meet the image quality specification. As of November 30, 2008, more than 3850 data acquisitions have been made with more than in 4350 scenes processed involving all available beams and modes for GoC utilization.

3. REFERENCES

[1] S. K. Srivastava and J. Smyth, "RADARSAT Mission – A Canadian Innovation", Physics in Canada, Vol. 61, No. 5, pp. 243-245, 2005.

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[3] S. K. Srivastava and P. Rolland, "Meeting Global Customer Needs of RADARSAT-2 Data", Proc. 58th International Astronautical Congress, Hyderabad, India, 2007.