

### General Session

11:30 am to 12:30 pm

Room: Provinces

### Radarsat-2 Program

#### **RADARSAT-2: Earth Observation Data for the Canadian Government**

Daniel De Lisle, *Canadian Space Agency, Canada*

The new era of synthetic aperture radar (SAR) sensors will allow the acquisition of high resolution and multi-polarization images. RADARSAT-2 will be the most versatile commercial SAR Earth observation system with a high spatial resolution mode of 3 meters and a fully polarimetric mode that will be available on an operational basis. In addition, the advancement in satellite technology don't only profit the imaging modes, other innovations on RADARSAT-2, such as high downlink power or onboard digital recorders will also increase the quality of the service and products. RADARSAT-2 represents a unique collaboration between government and industry. In addition to the commercial benefits, the Government has a vital interest in the public good aspects of RADARSAT-2. The CSA has committed to objectives that pertain to natural resource management, environmental monitoring, support of Canadian sovereignty in the Arctic, and support to security policy around the world.

This paper will briefly present RADARSAT-2 and its imaging capabilities, and will focus on the activities that the Canadian Government has undertaken to optimize the use of RADARSAT-2 in support of its mandate and priorities. It will specifically address the EO Data Utilization Plan, Applications Development Support Programs and the RADARSAT-2 Data Management Plan.

#### **Overview of the RADARSAT-2 System and SAR Products**

Gordon Staples, *MDA Corporation, Canada*

The RADARSAT-2 spaceborne SAR sensor incorporates a suite of advanced features designed to meet the needs of end-users. The first section of this presentation provides an overview of the RADARSAT-2 space segment and ground segment. The space segment will outline the RADARSAT-2 imaging modes and highlight the high resolution and polarimetry modes. In addition, the development of new RADARSAT-2 imaging modes will be discussed. The ground segment will discuss how the RADARSAT-2 system has been optimized for rapid satellite tasking, fast data processing, and near-real time data delivery.

The second section of this presentation will provide an overview of the RADARSAT-2 products with specific focus on the polarimetric data formats and products. The polarimetric products are discussed from the perspective of the information that can be extracted to meet a variety of end-user needs. In addition, software tools that are available for the extraction of polarimetric information will be discussed.

#### **Radarsat-2 – Innovative Satellite SAR Technology for Earth Observation Applications**

Joost van der Sanden, *Canada Centre for Remote Sensing, Canada*

In this session we assess how RADARSAT-2's technical enhancements in terms of polarization, spatial resolution, look direction and orbit control will impact the potential utility of its data products for selected applications in the fields of agriculture, cartography, disaster management, forestry, geology, hydrology, oceans, and sea and land ice. Our assessment relies on bibliographic sources and, in particular, case studies drawn from ongoing applications development work.



Daniel De Lisle

**Daniel De Lisle** graduated from the University of Sherbrooke with a degree in Earth Observation and has completed several graduate courses in Oceanography. He has more than 20 years of experience using satellite imagery. During these years, he has worked at the Canada Centre for Remote Sensing in Ottawa, taught at the Université du Québec in Rimouski & l'Université Senghor in Alexandria, Egypt. De Lisle also received a 2-year scholarship to study in Japan. His

main interest is to investigate coastal erosion problems from space. De Lisle joined the Canadian Space Agency five years ago and is responsible for the applications development using the RADARSAT-2 satellite, scheduled for launch this fall.



Gordon Staples

**Gordon C. Staples** received the MSc degree in physical oceanography and the BSc degree in honors physics from the University of British Columbia. He joined MDA in 1993 and is currently Senior Technology Manager, Research and Development, for Geospatial Services. In this role, Staples is responsible for RADARSAT-2 polarimetry research, management of research projects, development and delivery of radar training, and strategic technical initiatives. He is currently

serving on the Canadian National Committee of the International Radio Science Union, and is Program Manager for the RADARSAT-2 Science and Operational Applications Research Program.



Joost van der Sanden

**Joost van der Sanden** received formal undergraduate and postgraduate education in forestry and remote sensing from the Wageningen University in The Netherlands and the University of Aberdeen in Scotland. Following completion of his PhD in 1997 he has worked, first as a postdoctoral fellow and then as a research scientist, at the Canada Centre for Remote Sensing from Natural Resources Canada. van der Sanden co-chairs the RADARSAT-2 Applications Working Group of the Government of Canada and has led the compilation of two comprehensive RADARSAT-2 applications reports.