

RADARSAT CONSTELLATION, PROJECT OBJECTIVES AND STATUS

Guy Séguin
Canadian Space Agency, Canada
guy.seguin@asc-csa.gc.ca

Mailing address: Canadian Space Agency, 6767 route de l'Aéroport, St-Hubert, QC, Canada, J3Y 8Y9

INTRODUCTION

The RADARSAT Constellation is an evolution of the RADARSAT Program with the objective of ensuring C-band data continuity in the next decade with improved operational use of Synthetic Aperture Radar (SAR) and improved system reliability. The three-satellite configuration will provide complete coverage of Canada's land and waters offering an average daily revisit as well as daily access to 90% of the world. The greatly enhanced temporal revisit provided by an orbital cycle of 12 days combined with accurate orbital control will enable interferometry in between satellites on a four-day cycle that will allow the creation of very accurate coherent change maps.

MISSION OBJECTIVES

In support of Maritime Surveillance, the RADARSAT Constellation mission will assure safe year round navigation in Canadian waters and improved maritime threat identification and tracking. It will also contribute to improved weather prediction, climate monitoring and oil pollution monitoring.

In support of Disaster Management, the RADARSAT Constellation's availability of frequent revisits will allow for regular collection of data to support all aspects of risk assessment and disaster planning. The mission will provide information based on interferometric SAR analysis over large areas to detect shifting infrastructure, allow prediction of flash floods through InSAR analysis, measurement of wind speed and direction for hurricane monitoring, and monitor soil moisture information to forecast drought and forest fires.

In support of Ecosystem Monitoring, the RADARSAT Constellation mission will assure support to sustained development of agriculture and forestry resources, contribute to protection of the global environment and enhance understanding of climate change and its impact on ecosystems. SAR satellite imagery will enable the detection of changes over time in Canada's coastal, wetlands and wildlife habitats.

PROJECT STATUS

The RADARSAT Constellation mission completed its Phase A in 2007. During this phase, the initial design concept was completed based on the User Requirements developed by the Canadian User and Science Team in collaboration with the International User Team. During Phase B the design concept will be refined and the preliminary design of the satellites will be completed. CSA will continue consultations with other Canadian Government Departments that have a vested interest in this space mission, to ensure that the design effectively responds to their requirements. Internationally, CSA will continue discussions with a number of potential partners to identify collaborations in the following main areas:

- Missions' interoperability;
- Data exchange; and
- Use of International ground stations for data reception.

CSA is also closely following the evolving developments in the international remote sensing community to identify potential synergies, recognizing how the mission could serve global initiatives that rely on data from advanced earth observation satellites.

The final design will be approved in Phase C and the satellites will be manufactured in Phase D. Currently the satellites are planned to be launched in 2014, 2015 and 2016.

The paper will present the main features of the Mission contributing to maritime surveillance, disaster management and ecosystem monitoring.