



# **RADARSAT-1 End of Mission**

Presentation to Polar Space Task Group

May 23, 2013

Satellite Operations, Infrastructure and Applications  
Space Utilization



Canadian Space Agency  
Agence spatiale  
canadienne

**Canada**

## Chris Hadfield de retour sur Terre



# RADARSAT-1 Achievements

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- Launched in 1995 with a 5-year mission lifetime, and has continued to operate for 17 years, surpassing its expected lifetime by 12 years.
- Performed 90,828 orbits around the earth
- Provided 625,848 images to more than 600 clients and partners in Canada and 60 countries worldwide.
- Assisted with information gathering during 244 disaster events and literally mapped the world, providing complete coverage of the World's continents, continental shelves and polar icecaps.
- Conducted Antarctic Mapping Missions (AMM) in 1999 and 2000 and delivered the first-ever, unprecedented high-resolution maps of the entire frozen continent.
- Delivered the first stereo-radar coverage of the planet's landmass, the first high-resolution interferometric coverage of Canada, and produced complete single season snapshots of all the continents.





# Anomaly Background

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- On March 29, 2013, communication with RADARSAT-1 could not be established at the first morning contact (10:56h UTC) from the CSA Mission Operations Center, Saint-Hubert.
- A recovery procedure restored communication with the satellite and telemetry data revealed a problem with the satellite's electrical power distribution system.
- Subsequent contacts with the satellite revealed a further degradation of the power status.
- Since 22:30 UTC March 29, 2013, it has not been possible to communicate with the satellite.





# Actions Taken

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- RADARSAT-1 stakeholders (MDA/GSI, CCRS, Government User Departments, foreign reception stations) were informed on Friday evening, March 29 that the satellite had entered into Safe Hold Mode.
- An Anomaly Investigation Tiger Team, composed of experts from CSA and industry, investigated the event and provided recommendations on potential recovery actions, or definitive confirmation of the permanent inoperability of the satellite.
  - The expert team concluded that there is a high probability that RADARSAT-1 faced a catastrophic anomaly





# Expert Team Recommendations

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- To continue recovery sequence of command until June 14, 2013
- To perform aliveness test once a week
- To officially advise JSpOC that RADARSAT-1 is uncontrolled
- To officially advise all users of the end of the mission
- To issue a press release highlighting all the accomplishments of RADARSAT-1
- To declare end of mission
- To initiate project closure



# Next Steps

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- Expert Team recommended to declare end of mission
  - End of mission declared 09 May 2013
- Users were advised of the declaration of the end of mission
  - Press release issued 09 May 2013
- To initiate RADARSAT-1 project close-out



# The loss of RADARSAT 1 occurred during the 2013 monitoring campaign over Greenland and Svalbard



## Technical Proposal

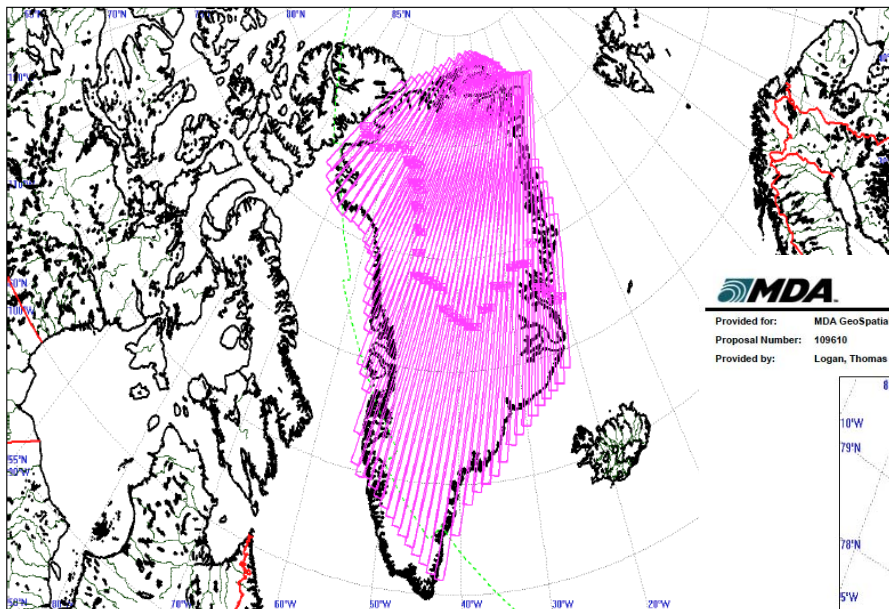
## GEOSPATIAL SERVICES

Thursday, January 10, 2013

Provided for: MDA GeoSpatial Services (HQ)  
 Proposal Number: 109586  
 Provided by: Logan, Thomas

Greenland  
 F1  
 Radarsat-1

Contact: Mr. Rigby  
 International Projects Manager  
 Client Ref. ID:



Scene coordinates are subject to change up to +/- 5 km. All times in UTC (Universal Coordinated Time)



## Technical Proposal

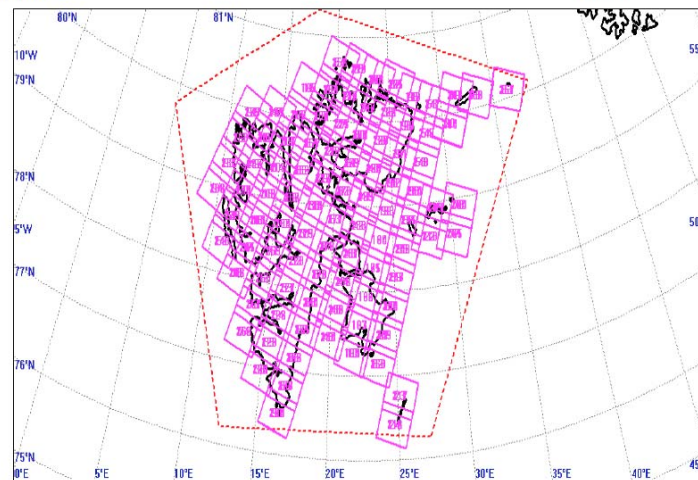
## GEOSPATIAL SERVICES

Friday, January 11, 2013

Provided for: MDA GeoSpatial Services (HQ)  
 Proposal Number: 109610  
 Provided by: Logan, Thomas

Svalbard  
 F1  
 Programmable

Contact: Mr. Rigby  
 International Projects Manager  
 Client Ref. ID:



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