



Science and Operational Applications Research (SOAR)

*Recherche sur les applications
scientifiques et opérationnelles*

SOAR-International Report Rapport SOAR-International

July 2011 / Juillet 2011



SOAR
SCIENCE AND OPERATIONAL APPLICATIONS
RESEARCH FOR RADARSAT-2

• DATA ACCESS PROGRAM

RADARSAT-2 hosts a number of new capabilities including high-resolution at 3m, fully polarimetric (Quad-Pol) and dual polarisation modes for the RADARSAT-1 "heritage" beams. SOAR provides an opportunity to explore the enhanced capabilities of RADARSAT-2 and their potential contributions to applications, operational requirements, and business opportunities.

WWW.RADARSAT2.INFO

PARTNERS:
• RADARSAT INTERNATIONAL (RSI)
• MAGDONALD DETTWILER AND ASSOCIATES INC.
• CANADA CENTRE FOR REMOTE SENSING /
CENTRE CANADIEN DE TÉLÉDETECTION

SOAR
RECHERCHE SUR LES APPLICATIONS
SCIENTIFIQUES ET OPÉRATIONNELLES DE
RADARSAT-2

• PROGRAMME D'ACCÈS AUX DONNÉES

RADARSAT-2 est doté de nouvelles fonctionnalités dont le mode haute résolution à trois mètres, le mode entièrement polarimétrique (Quad-Pol) et la polarisation double pour les faisceaux utilisés par RADARSAT-1. SOAR permet d'exploiter les capacités accrues de RADARSAT-2 en vue de les mettre à profit dans diverses applications, de répondre à des exigences opérationnelles et de favoriser les débouchés commerciaux.

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Government of Canada

Gouvernement du Canada





SOAR-International / SOAR-International

The SOAR program provides an opportunity to explore the enhanced capabilities of RADARSAT-2 and their potential contributions to various applications. This opportunity consists of a loan, of circumscribed amounts of RADARSAT-2 data to research projects.

Le programme SOAR est une occasion d'explorer les capacités améliorées de RADARSAT-2 et de leurs potentielles contributions à diverses applications via un prêt d'une quantité limitée de données RADARSAT-2 aux projets de recherche sélectionnés.

The SOAR program provides an opportunity to explore the enhanced capabilities of RADARSAT-2 and their potential contributions to various applications. This opportunity consists of a loan, of circumscribed amounts of RADARSAT-2 data to research projects. The main outcome pursued by SOAR is to ensure that Canadian stakeholders benefit, through research and development activities, from the \$450M investment made for the development of RADARSAT-2. Now that the satellite is fully operational, the Government of Canada would like to develop specific initiatives under the SOAR umbrella.

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The program started in December 2003 with a successful International initiative (pre-launch activity) for which 200 proposals are supported. This initiative is now closed.

Le programme a débuté en décembre 2003 par une initiative internationale à succès (activité de pré-lancement) pour laquelle 200 propositions sont appuyées. Cette initiative est maintenant fermée.

You may consult the list of all the supported SOAR projects, visit the website :

Pour consulter la liste des projets qui sont supportés par SOAR, visitez le site (disponible en anglais seulement) :

www.radarsat2.info/outreach/soar/index.asp

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General information about the SOAR-Education initiative *Informations générales sur l'initiative SOAR-Éducation*

Submitted Project Projets soumis	228
Accepted Project Projets acceptés	186
Rejected Project Projets rejetés	42
Project in evaluation/writing stage Projet en cours d'évaluation/rédaction	0

Active Project Projets actifs	70
Inactive Project Projets Inactifs	116

Accepted Project (MDA) Projets acceptés (MDA)	117
Rejected Project (MDA) Projets rejetés (MDA)	42
Active Project (MDA) Projets actifs (MDA)	24
Inactive Project (MDA) Projets Inactifs (MDA)	93

Accepted Project (CSA) Projets acceptés (CSA)	69
Rejected Project (CSA) Projets rejetés (CSA)	0
Inactive Project (CSA) Projets actifs (CSA)	46
Active Project (CSA) Projets Inactifs (CSA)	23

Budget associated with initiative	3,212,760 \$
Budget consumed up to date	2,992,480 \$

Budget associated with initiative (MDA)	\$908,040
Budget consumed up to date (MDA)	\$693,320

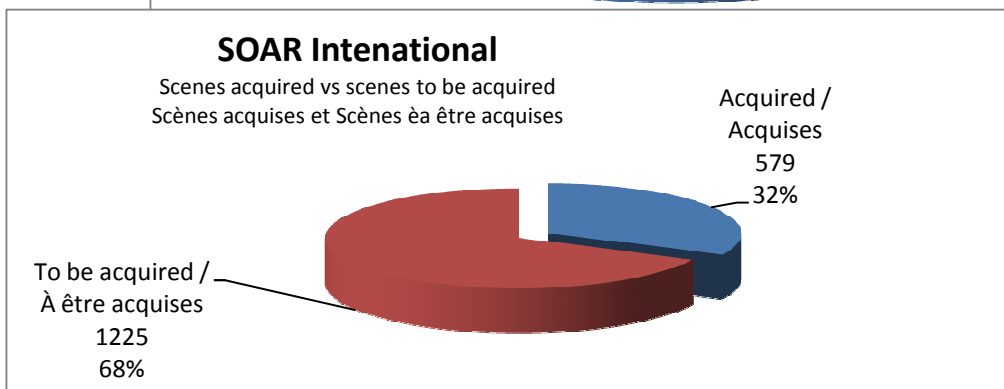
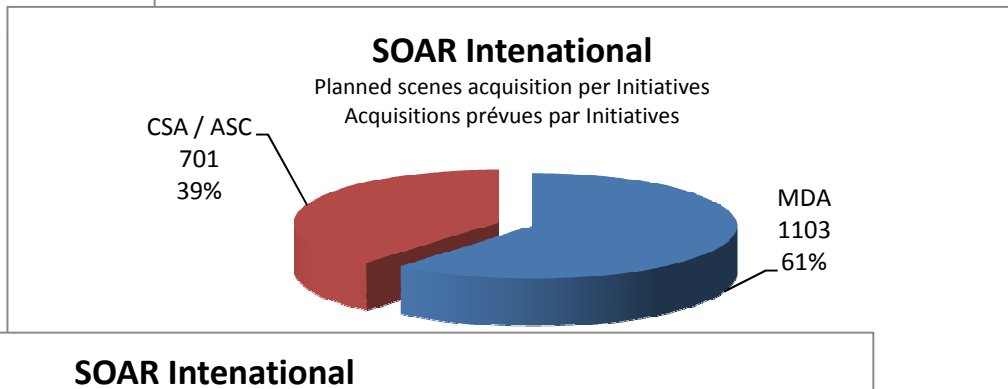
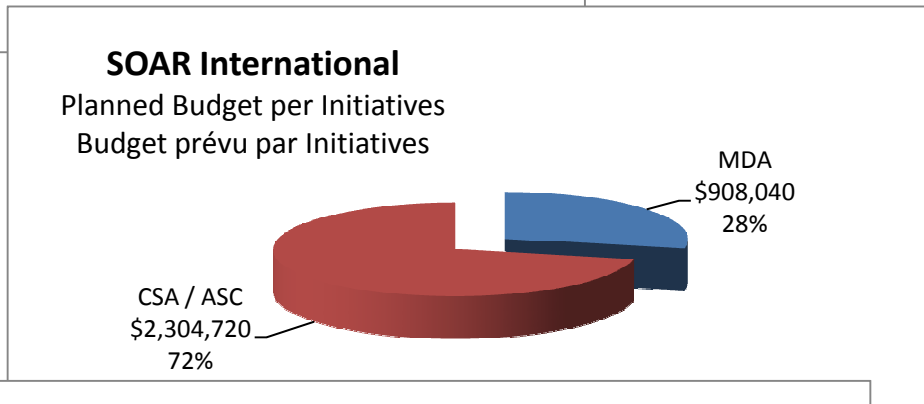
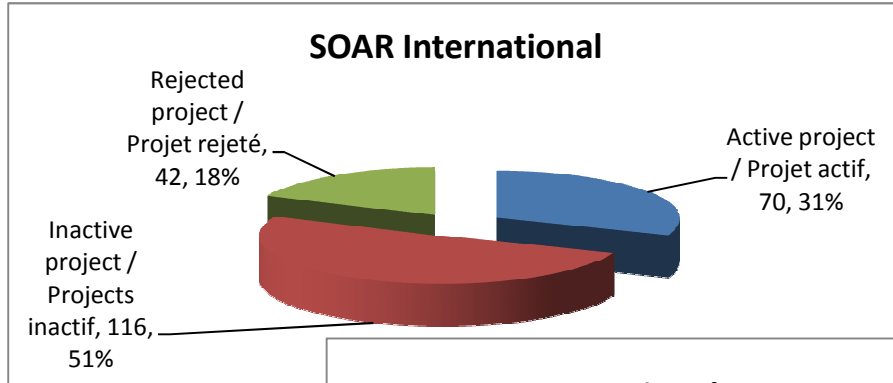
Budget associated with initiative (CSA)	\$2,304,720
Budget consumed up to date (CSA)	\$2,299,160

Scenes requested / Scènes demandées	1804
Scenes acquired & delivered / Scènes acquises et livrées	579
Scenes to be acquired / Scènes à être acquises	1225
Project that acquired all scenes / Projets ayant acquis toutes les scènes	29

	MDA	CSA
Scenes requested / Scènes demandées	1103	701
Scenes acquired & delivered / Scènes acquises et livrées	131	448
Scenes to be acquired / Scènes à être acquises	972	253
Project that acquired all scenes / Projets ayant acquis toutes les scènes	4	25

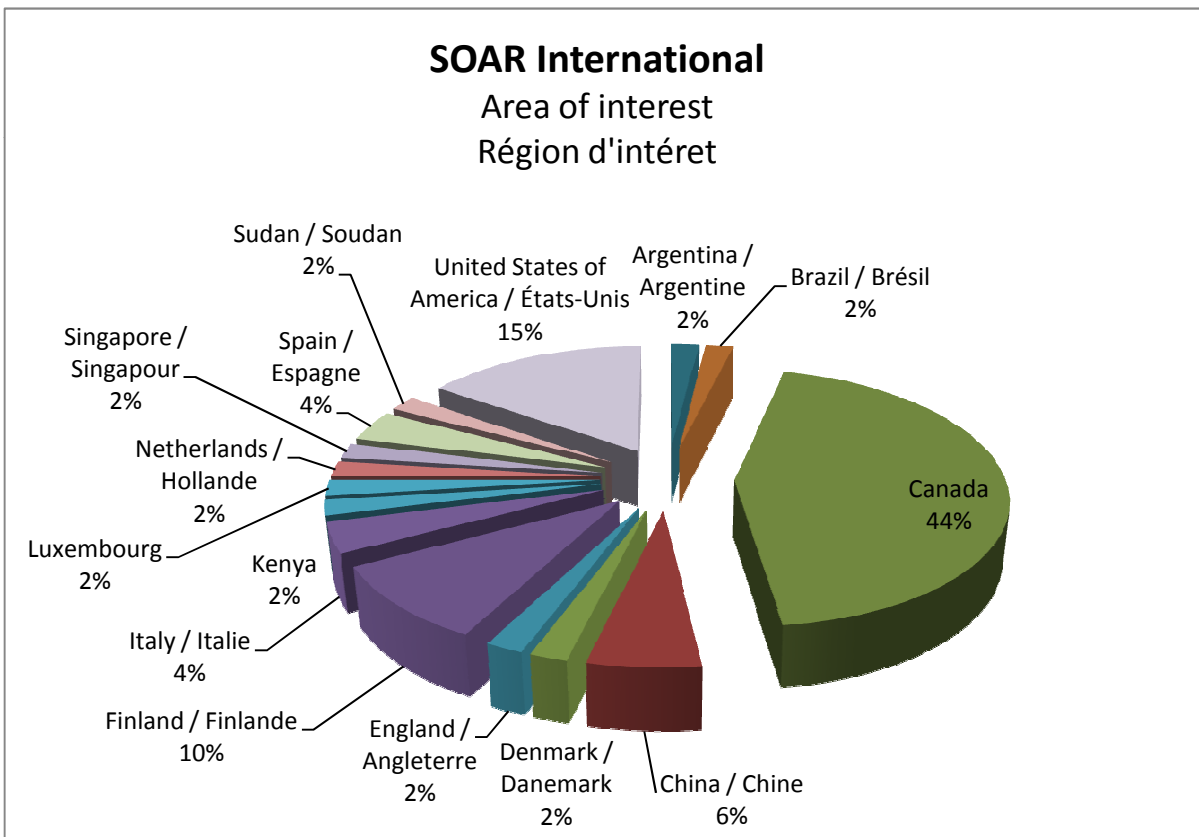
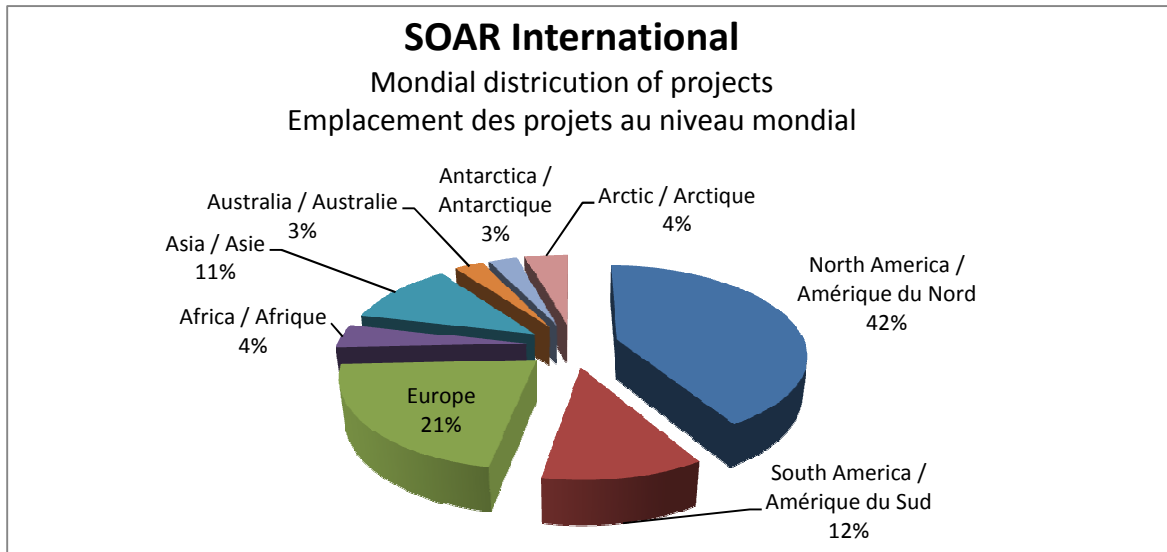
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General information about the SOAR-Education initiative *Informations générales sur l'initiative SOAR-Éducation*



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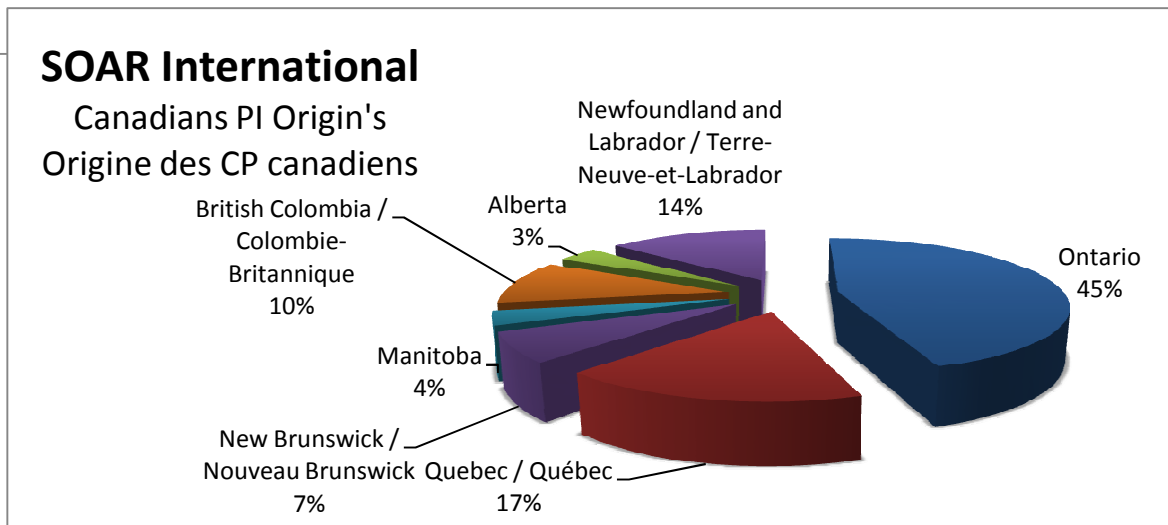
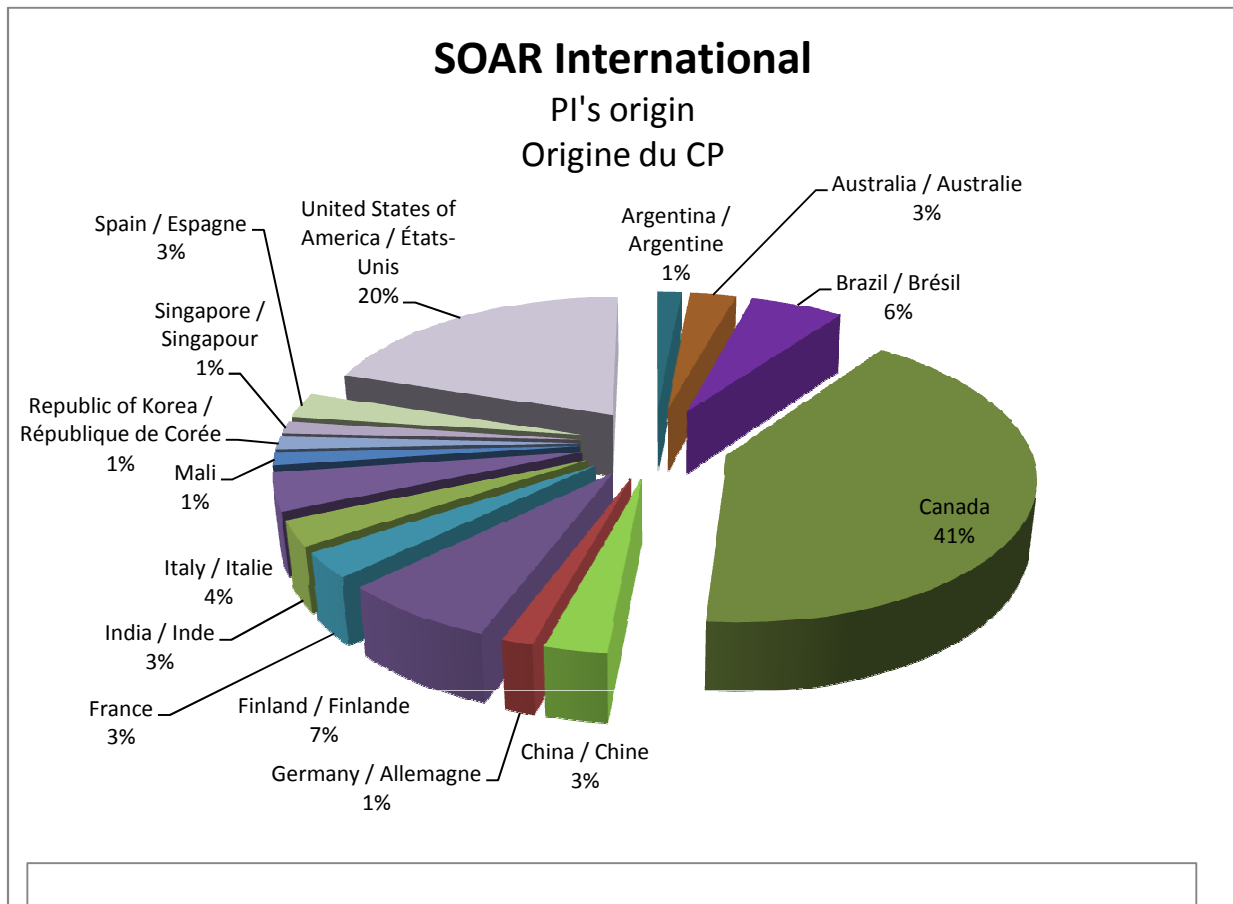
**SOAR-International supports the use of remote sensing worldwide.
SOAR-International supporte l'utilisation de la télédétection à travers le monde.**



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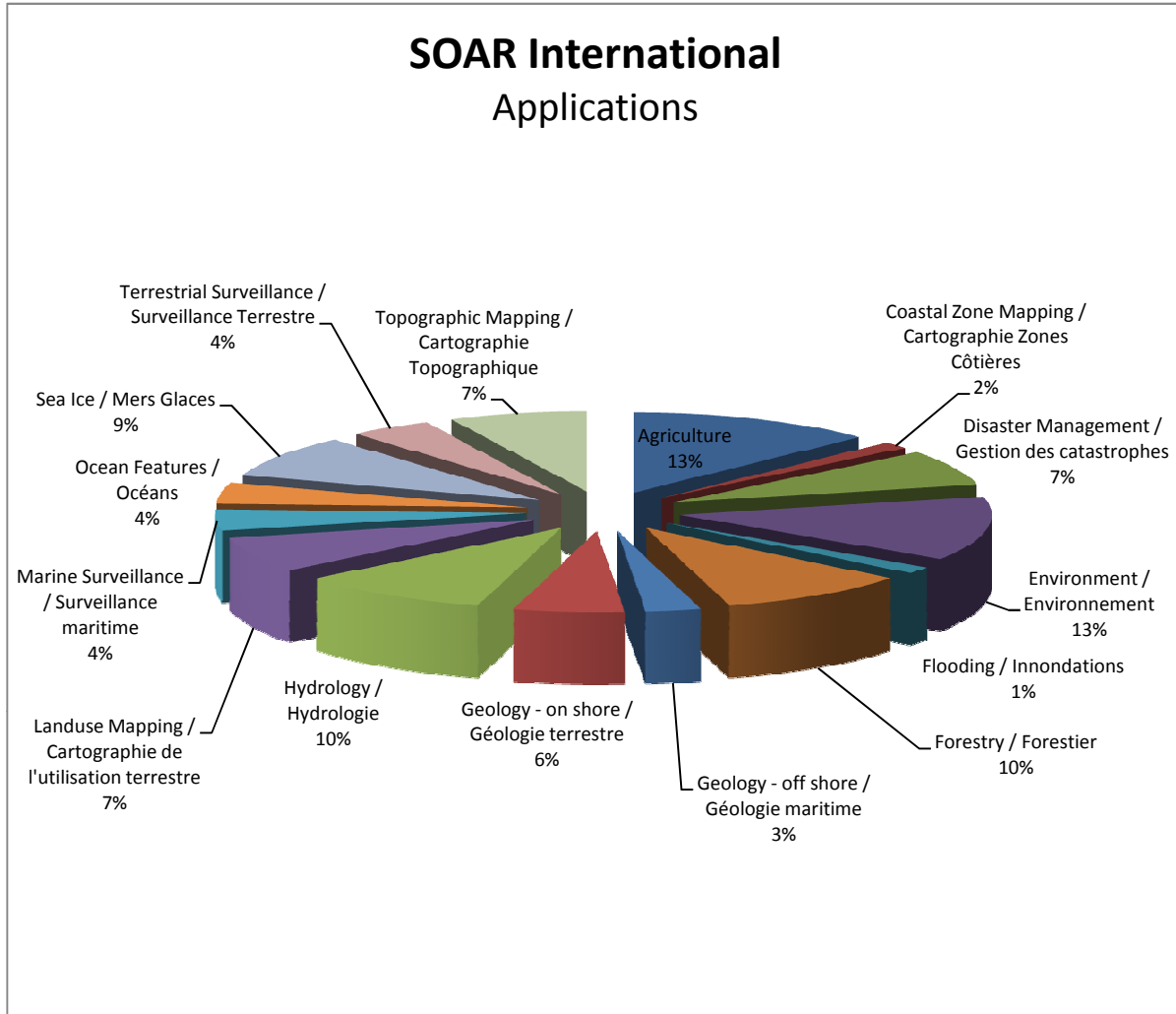
Principal Investigators (PI) and graduate students are subscribing from different provinces and universities across Canada.

Les Chercheurs Principaux (CP) et les étudiants gradués proviennent de différentes provinces et d'universités au travers le Canada.



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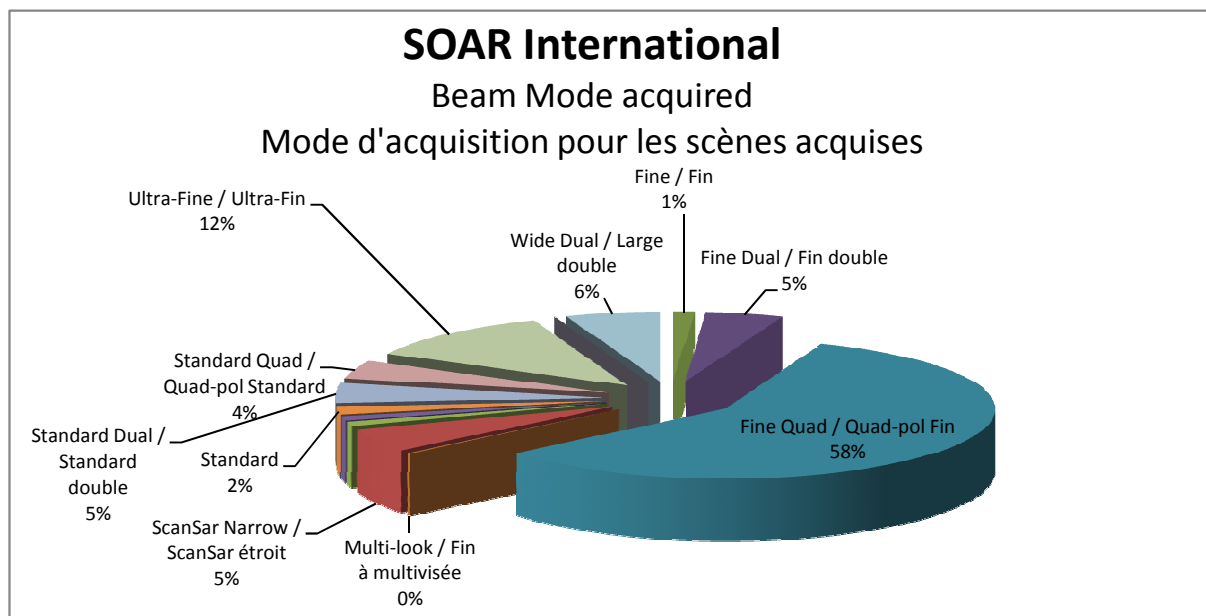
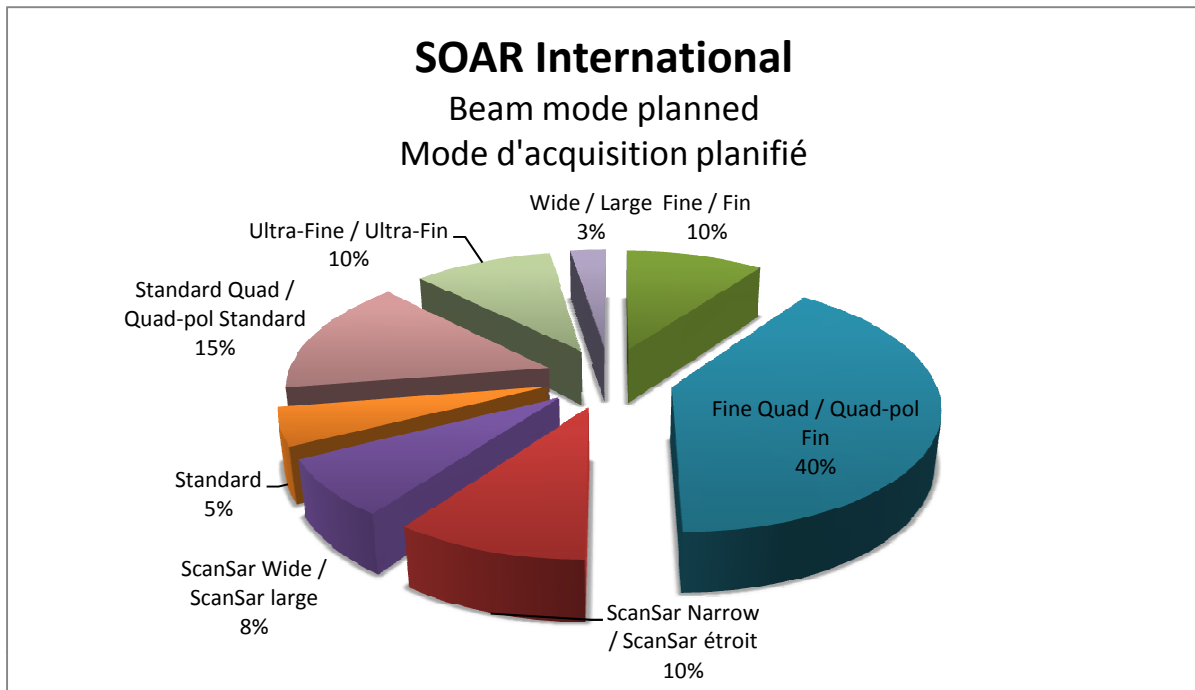
SOAR-International projects have several thematics.
Les projets de SOAR-International ont de thématiques diversifiées.



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The investigators have access to several RADARSAT-2 beam modes and polarization configurations.

Les chercheurs ont accès aux multiples modes d'acquisitions ainsi qu'aux différentes polarisations de RADARSAT-2.





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Project # (CSA)	Project Title (CSA)	Nature of Application
403	Mapping Land Use and Land Management with RADARSAT-2	Agriculture
417	Ship and Iceberg Monitoring using RADARSAT-2	Sea Ice
424	Pipeline encroachment monitoring using RADARSAT-2	Terrestrial Surveillance
445	Forest fuel moisture monitoring using RADARSAT-2 images	Disaster Management
669	Estimation de la ressource éolienne offshore avec RADARSAT-2	Ocean Features
718	Polarimetric SAR Land-Cover Mapping in Latin America	Landuse Mapping
914	Wetlands Remote Sensing	Terrestrial Surveillance
1061	Polarimetric and multi-beam RADARSAT-2 for landcover mapping	Forestry
1173	R2 MULTI POL DATA FOR GROUNDWATER EXPLO, DARFUR SUDAN	Hydrology
1502	Ice Shelf Mapping, Ellesmere Island, Canada	Coastal Zone Mapping
1530	Developing Advanced Radarsat-2 Forest Applications	Forestry
1551	RADARSAT-2 et qualité de l'eau dans un bassin agricole	Agriculture
1593	Polarimetric sea ice investigations during melt/decay stages	Sea Ice
1712	Soil moisture from polarimetric SAR for hydrologic modeling	Hydrology
2006	Sea ice surface information from polarimetric data	Sea Ice
2020	Ice Monitoring in the Approaches to Voisey's Bay	Sea Ice
2069	Wind Field Mapping for Maritime Weather Monitoring	Ocean Features
2076	Flood Mapping using Radarsat II Fully Polarimetric data	Disaster Management
2146	Characterizing Slow Slip Events in Cascadia Using RADARSAT2	Geology - on shore
2153	Great Lakes Ice Cover Mapping With RADARSAT-2 SAR Data	Environment
2405	Monitoring Mangrove Forest Structure Using RADARSAT-2 Data	Environment
2552	Retrieving the state of tundra lake ice from RADARSAT-2 data	Hydrology
2615	Monitoring wetlands in semi-arid environments of Spain	Environment
2720	InSAR-based hydrology of wetlands	Hydrology
2818	Boreal forest monitoring using Radarsat-2	Forestry
2909	Monitoring land use change along Yangtze River	Landuse Mapping
2958	R&D of Radarsat-2 apps for disaster mgmt in Mesoamerica	Disaster Management
3098	SAR Polarimetry for Prairie Landscape Classification	Environment
3105	SAR Polarimetric Analysis of Complex Earth Structures	Geology - on shore
3126	Radar Derived Measures for Improved Land Cover Mapping	Landuse Mapping
3168	RADARSAT-2 Investigation of Soil Microtopography	Environment
3231	Landslide Movements & Integrating Surface and Sub-surface	Disaster Management
3350	Hydrology and lakes of the Pantanal tropical wetland	Environment
3406	Linking Ringed Seal Productivity and Sea Ice Conditions	Sea Ice
3497	Expanding support for RSAT-2 data in PCI - Geomatica	Topographic Mapping
3518	Stéréo-pol. HR pour création de MNT avec RADARSAT-2	Topographic Mapping
3644	SAR in agricultural monitoring	Agriculture
3651	Map updating and change detection using VHR SAR images	Topographic Mapping
3665	Incidence Angle Effects on Target Decomposition Techniques	Terrestrial Surveillance
3672	Forest Monitoring	Forestry
3875	Integrating RADARSAT-2 into the classroom	Landuse Mapping
3959	Classification d'Espèces ARborescentes	Forestry
3973	Surface characteristics identification	Agriculture
4022	Validation of RADARSAT-2 InSAR-derived DEMs	Topographic Mapping
4071	Snow cover monitoring	Hydrology



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Project # (CSA)	Project Title (MDA)	Nature of Application
641	Fully polarimetric C-band segmentation and classification	Landuse Mapping
802	NIPOL	Sea Ice
830	Polarimetric SAR Analysis for Geological Interpretation	Geology - on shore
1040	Bio-physical Parameter Retrieval of Cotton and Maize Crop	Agriculture
1054	A Multi-sensor approach for Sea Surface Monitoring	Ocean Features
1460	Suivi de l'inondation du Delta intérieur du Niger (Mali)	Flooding
1488	Monitoring Vineyards and Oliveyards by Polarimetric Radar	Agriculture
1642	Apogee Imaging International Ocean Monitoring	Marine Surveillance
1810	SAR based Hydrocarbon Seep Detection in Australian Waters	Geology - off shore
2118	Investigation of Hazardous Surface Changes using Polarimetry	Environment
2125	Algorithms for Agricultural Crop Monitoring by POLINSAR	Agriculture
2195	Soil Moisture, Roughness and Vegetation Parameter Retrieval	Agriculture
2370	Rock Types and Laterites Mapping with RADARSAT-2 in Brazil	Geology - off shore
2517	RADARSAT-2 Data for Assessing Forest Structure	Forestry
3070	Crop Type Mapping using C-band Polarimetric Radar Data	Agriculture
3084	Ship Classification	Marine Surveillance
3119	Dielectric Property of Salinized Soil with Polarimetric Data	Environment
3154	Polarimetric RADARSAT-2 Data for Forest and Deforestation Mapping	Forestry
3196	Applicability of Quad-Pol for Water Quality Modelling	Hydrology
3224	TecSpln II	Hydrology
3868	MORAINE	Environment
3980	Ship Detection and ID	Marine Surveillance
3987	Soil Classification for Helicopter Operations	Geology - on shore
4029	ICA Techniques applied to SAR Interferometry	Disaster Management