

Technical Program

Workshop Day 1: Monday – 2 November (8:30-16:50)

Session 1: Plenary and Keynote Addresses (8:30 – 11:45)

Session Chair: Ken Korporal (Canadian GEO Secretariat, Canada)

8:30-8:45: Welcome and Logistics

Ken Korporal (Canadian GEO Secretariat, Canada)

8:45-9:15: Welcoming Remarks

- **Government of Canada**

Sherman Nelson (Agriculture and Agri-Food Canada, Canada)

- **Province of Alberta**

Brenda Brindle (Alberta Agriculture and Rural Development, Canada)

9:15-9:45: GEO and GEOSS – A Canadian Perspective

David Grimes (Environment Canada, Canada)

9:45-10:00: Workshop overview, objectives, targeted outcomes

Anna Pacheco (Agriculture and Agri-Food Canada, Canada)

Jai Parihar (Indian Space Applications Centre, India)

10:00-10:15: Health Break

10:15-10:45: The GEO Agricultural Monitoring Community of Practice

Jai Parihar (Indian Space Applications Centre, India)

10:45-11:15: Developing Agriculture Monitoring Requirements and Recognizing the Earth Observation Gaps

Brad Doorn (National Aeronautics and Space Administration, USA)

11:15-11:45: SAR for Agricultural Monitoring

Brian Brisco (Natural Resources Canada, Canada)

11:45-13:00: Lunch

 **Session 2: SAR Data Providers (13:00 – 15:30)**

Session Chair: Yves Crevier (Canadian Space Agency, Canada)

Overview of satellite sensors, access to SAR data, on-going monitoring initiatives and future SAR systems

13:00-13:05: *Introduction and Objectives*

Yves Crevier (Canadian Space Agency, Canada)

13:05-13:30: *Comision Nacional de Actividades Espaciales (CONAE)*

Marc Thibeault and Gladys Ortega (Argentina)

13:30-13:55: *Canadian Space Agency*

Denis Auger (Canada)

13:55-14:20: *German Aerospace Centre (DLR)*

Achim Roth (Germany)

14:20-14:45: *European Space Agency (ESA)*

Malcolm Davidson

14:45-15:10: *Japan Aerospace Exploration Agency (JAXA)*

Masato Ohki (Japan)

15:10-15:35: *MacDonald Dettwiler and Associates Ltd. (MDA)*

Gordon Staples (Canada)

15:35-15:50: *Health Break*

 **Session 3: SAR Supporting Agricultural Mapping and Monitoring: Case Studies (15:50 – 16:50)**

Technical presentations on state of the art in SAR methodologies for monitoring agricultural production under three themes: agriculture productivity, soils and water availability, land cover and land management

Agricultural productivity

Session Chairs: Yolanda Fernandez-Ordonez (Colegio de Postgraduados, Mexico) and Jiali Shang (Agriculture and Agri-Food Canada, Canada)

15:50-16:10: *Operational Rice Crop Monitoring Using SAR*

Chakrapani Patnaik (Space Applications Centre, ISRO, India)

16:10-16:30: *Building an Operational Rice Mapping Program Using SAR: An Example from the Philippines*

Jim Finnigan (Digital Environmental Management, Canada)

16:30-16:50: *Polarization Signature Analysis of Paddy Rice in Southern China*

Shao Yun (Chinese Academy of Sciences, Institute of Remote Sensing Applications, China)

Evening Reception and Ice Breaker (17:30 – 19:00)

Official Opening of Demo Area and Posters

(Demo area and posters will be open throughout the remainder of the Workshop)

The reception beverages are generously sponsored by



Workshop Day 2: Tuesday – 3 November (8:30-17:10)

- **Session 3 continued: SAR Supporting Agricultural Mapping and Monitoring: Case Studies (8:30 – 14:50)**

Agricultural productivity (continued)

Session Chairs: Brigitte Leblon (University of New Brunswick, Canada) and Carlos Cotlier (Universidad Nacional de Rosario, Argentina)

8:30-8:55: *Monitoring Rice and Sugarcane Using ENVISAT-ASAR Data*

Jinsong Chen (Institute of Space and Earth Information Science, Hong Kong Chinese University, Hong Kong)

8:55-9:20: *Mapping and Monitoring of Rice with Multi-temporal PALSAR: Developing Spatially and Temporally Explicit Products for Modeling Methane Emissions at Regional to National Scales*

Nathan Torbick (Applied Geosolutions, USA)

9:20-9:50: *Beyond C-band SAR for Agricultural Monitoring*

Jai Parihar (Space Applications Centre, ISRO, India)

9:50-10:20: *Health Break*

Soil and Water Availability

Session Chairs: Brian Brisco (Natural Resources Canada, Canada) and Genya Saito (Tohoku University, Japan)

10:20-10:40: *Use of Multi-Temporal SAR Data for Monitoring Soil and Vegetation Parameters over Agricultural Surfaces*

Francesco Mattia (CNR-ISSIA, Bari, Italy)

10:40-11:00: *Soil Moisture Monitoring with C-band SAR Sensors: Learning from Operational Scatterometer Services*

Daniel Sabel (Institute of Photogrammetry and Remote Sensing, Vienna University of Technology, Austria)

- 11:00-11:20: Supporting Agricultural Risk Management: An Active Microwave Approach to Identify Soil Moisture Extremes**
Amine Merzouki (Agriculture and Agri-Food Canada, Canada)
- 11:20-11:40: Estimating top soil moisture and analysis of 4 polarizations in C-band SAR imagery for wide scale maize LAI retrieval from SAR data**
Emilie Beriaux (Université catholique de Louvain, Faculty of Bioengineering, Agronomy and Environment, Belgium)
- 11:40-12:00: Using Fully Polarimetric and Dual-Pol SAR for Soil Moisture Estimation under Vegetated Condition**
Francois Charbonneau (Natural Resources Canada, Canada Centre for Remote Sensing, Canada)

12:00-13:30: Lunch Break

Land Cover and Land Management

Session Chairs: Anna Pacheco (Agriculture and Agri-Food Canada, Canada) and Roshanak Darvishzadeh (Shahid Beheshti University, Iran)

- 13:30-13:50: Accuracy of Crop Classification from Different SAR Modes**
Henning Skriver (Technical University of Denmark, Denmark)
- 13:50-14:10: Investigating RADARSAT-2 as a Tool for Monitoring Grassland in Western Canada**
Anne Smith (Agriculture and Agri-Food Canada, Canada)
- 14:10-14:30: The Use of RADARSAT-2 Ultra Fine Images in Horticulture Intensive Farming: Detecting Land Use and Crop Discrimination**
Carlos Cotlier (Universidad Nacional de Rosario, Argentina)
- 14:30-14:50: Preparing SENTINEL-1: Operational Capabilities of C- Band Multi-Resolution and Multi-Polarized SAR Data for Crop Mapping. Results from the DLR ENVILAND and ESA Radar Cover Projects**
Christiane Schmullius (Institute of Geography, University Jena, Germany)

14:50-15:10: Health Break

Breakout 1: Bridging the Discovery to Delivery Continuum – Technical and Operational Requirements, Challenges and Strategies in Integrating SAR into Agricultural Monitoring (15:10 – 17:10)

15:10-15:40: Presentation of results from pre-workshop survey
Don Ball (DB Geoservices Inc, Canada)

15:40-17:10: Breakout on the technical and operational requirements, challenges and strategies for exploitation of SAR in agriculture

Sub-groups will be formed corresponding to the workshop themes. Each group has been assigned with a breakout leader and rapporteurs.

- *Agriculture Productivity (Leader- Shao Yun, Chinese Academy of Sciences; Rapporteur- Tamuka Magadzire, USGS/FEWSNET, Botswana)*
- *Water Availability (Leader- Brad Doorn, National Aeronautics and Space Administration, USA; Rapporteur- Estuardo Lira Prera, USDA-APHIS-IS, Guatemala)*
- *Land Cover and Land Management (Leader- Anne Smith, Agriculture and Agri-Food Canada; Rapporteur- Emil Cherrington, CATHALAC, Panama)*

Special no-host dinner, cultural and networking evening

6:30 PM in the Rockies Restaurant

Featuring:

INTO THE WILD: ACTS, ACCIDENTS & HEROES WHO HAVE DEFINED PLACE IN THE ROCKIES

an illustrated talk by Robert Sandford

The presentation and dinner wine are generously sponsored by



Tickets must be purchased in advance at the registration desk for only \$35

Workshop Day 3: Wednesday – 4 November (8:30-17:00)

Session Chair: Don Ball (DB Geoservices Inc, Canada)

8:30-10:00: *Breakout (continued) on the technical and operational requirements, challenges and strategies for exploitation of SAR in agriculture*

10:00-10:30: **Health Break**

10:30-11:00: *Reporting on breakout session*

Session 4: Bridging the Discovery to Delivery Continuum – Capacity Building Activities and Opportunities (11:00-12:10)

Session Chair: Johnson Owaro (Capacity Building Programme Secretariat, Uganda)

11:00-11:20: *RADARSAT-2: Science and Operational Applications Research (SOAR) Program*

Stéphane Chalifoux (Canadian Space Agency, Canada)

11:20-11:40: *AgriSAR 2009 Campaign: Overview, Early Results and Analysis Plan*

Ron Caves (MacDonald Dettwiler and Associates Ltd. (MDA), Canada)

11:40-12:10: *Developing Earth Observation Agriculture Monitoring Capacity Building Programs in Developing Countries: Major Considerations and Practices*

Johnson Owaro (GEO Capacity Building Programme Secretariat, Uganda)

12:10-12:30: *Capacity Building in Earth Observation Applications for Agricultural Monitoring in Africa and Central America: A FEWSNET Perspective*

Tamuka Magadzire (FEWS-NET, Botswana)

12:30-13:30: **Lunch Break**

 **Breakout 2: Bridging the Discovery to Delivery Continuum – Requirements for Transitioning From Research to Operational Use and, Challenges and Strategies in Capacity Building (13:30-15:50)**

13:30-15:00: Breakout on the requirements for transitioning from research to operational use, challenges and strategies for exploitation of SAR in agriculture, capacity building

Sub-groups will be formed corresponding to the workshop themes. Each group has been assigned with a breakout leader and rapporteurs.

- *Agriculture Productivity (Leader- Brian Brisco, Natural Resources Canada; Rapporteur- Richard Tswai, ARC-ISCW, South Africa)*
- *Water Availability (Ian Jarvis, Agriculture and Agri-Food Canada; Rapporteur- ElSayed Hermas, National Authority for Remote Sensing and Space Sciences, Egypt)*
- *Land Cover and Land Management (Leader- Anne Smith, Agriculture and Agri-Food Canada; Rapporteur- Cynthia Rolli, CATHALAC, British Virgin Islands)*

15:00-15:20: Health Break

15:20-15:50: Reporting on breakout session 2

 **Session 5: Panel Discussion (15:50-17:00)**

Session Chair: Chris Justice (University of Maryland, USA)

15:50-16:20: Strategies for advancing the use of SAR for agricultural monitoring; recommendations and actions

Members of the panel

16:20-16:45: Open discussion on the suggested recommendations and actions

All attendees

16:45-17:00: Summary, way forward and closing remarks

Chris Justice