

UN/Austria Symposium 2023

“Space for climate action: space applications and technologies for sustainability on Earth”

Graz, Austria - 12-14 September 2023

“Winter-Water-Warming”

A European-Canadian Mini-MOOC Cooperation to Advance Online Radar Remote Sensing Education

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With contributions by **Paul Briand** (CSA), **Dirk Werle** (CSA),

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Heather McNairn, Agriculture and Agri-Foods Canada, AAFC),

Andrew Davidson (AAFC), **Tom Zagon**, Environment and Climate

Change Canada / Canadian Ice Service), **Joost van der Sanden**

(Natural Resources Canada, NRCAN-CCMEO), **Christian Prévost**

(NRCAN-CCMEO), **Carsten Oathe** (FSU Jena), and

Mikhail Urbazaev, FSU Jena

EO Outreach, Online Learning and MOOCs

MOOC = Massive Open Online Course

COVID and *post*-COVID SITUATION:

- Engaging users of Earth Observation (EO) data **online**
- Adjusting to **shorter attention spans** and **screen time** of learners

GOAL OF THIS LEARNING ACTIVITY:

- Highlight use of Canada's satellite radar imagery in R&D and operations
- Application examples: Agriculture, Sea Ice, Lake & River Ice

PROJECT OUTCOME (2021):

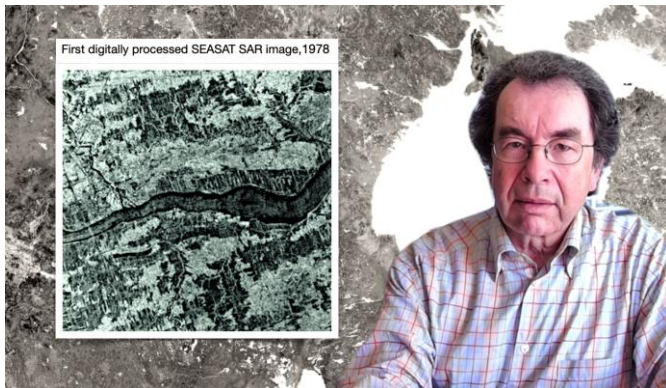
- Canadian SAR Mini-MOOC "**Winter – Water – Warming**"
- ~90 minutes, 5 learning units for the "EO College" and online public

Lesson 1: Canada and RADAR

Topic **Early Canadian RADAR Connections**

Topic **Canada's Pathway to the RADARSAT Program**

Topic **RADARSAT Program in Brief**



Canadian Space
Agency

Agence spatiale
canadienne



Lesson 2: Agriculture

**Agriculture and Agri-Food Canada team lead by
*Dr. Heather McNairn and Dr. Andrew Davidson***

Topic SAR research and development at AAFC

Topic Crop monitoring, classification, adaptation



Agriculture and
Agri-Food Canada
Agriculture et
Agroalimentaire Canada



Lesson 3: Lake and River Ice

Natural Resources Canada / CCMEQ / CCRS

Dr. Joost van der Sanden

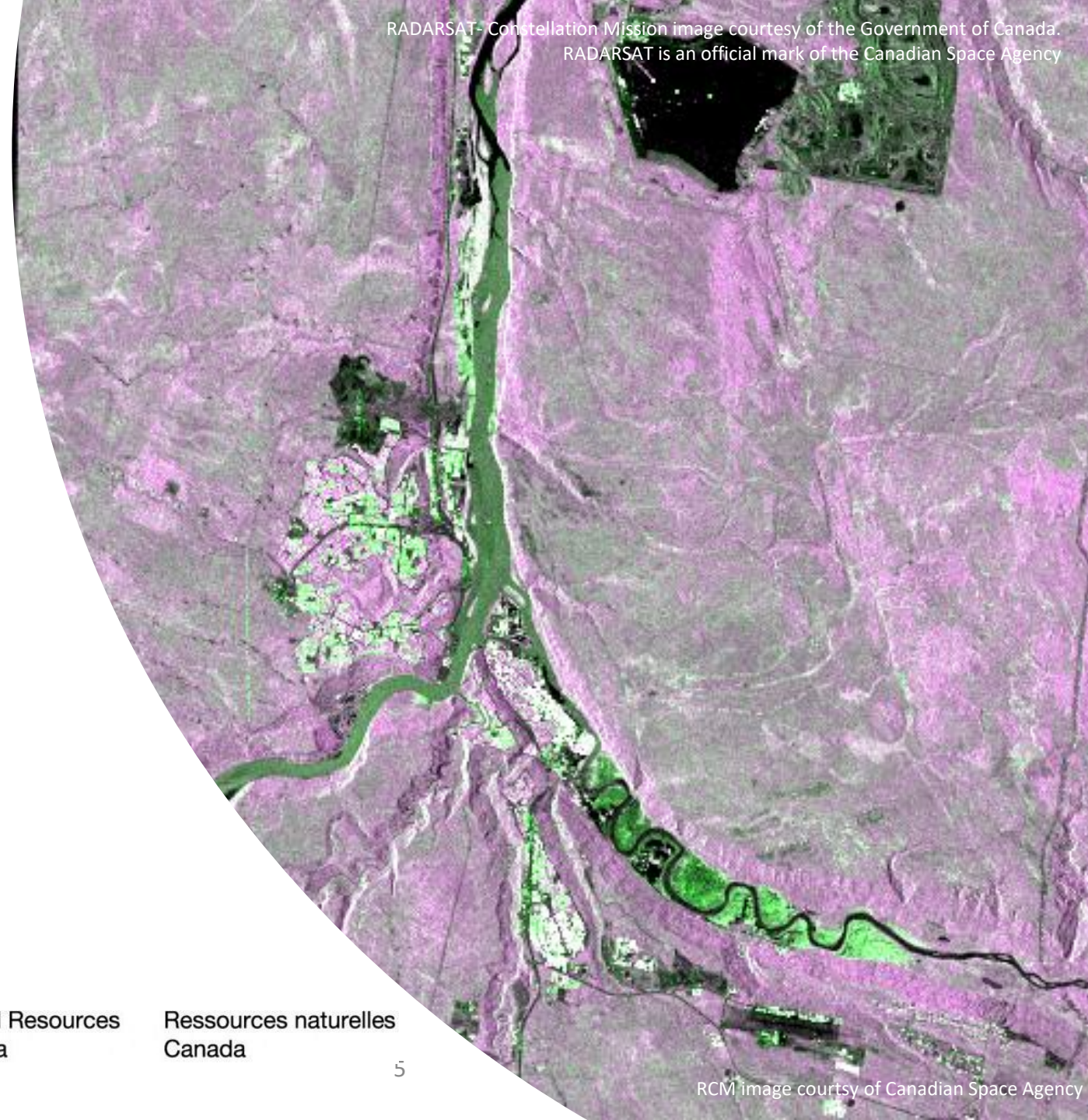
Topic Lake and river ice properties and SAR

Topic Ice roads, river ice jams, warming trend



Natural Resources
Canada

Ressources naturelles
Canada



Lesson 4: Sea Ice Monitoring

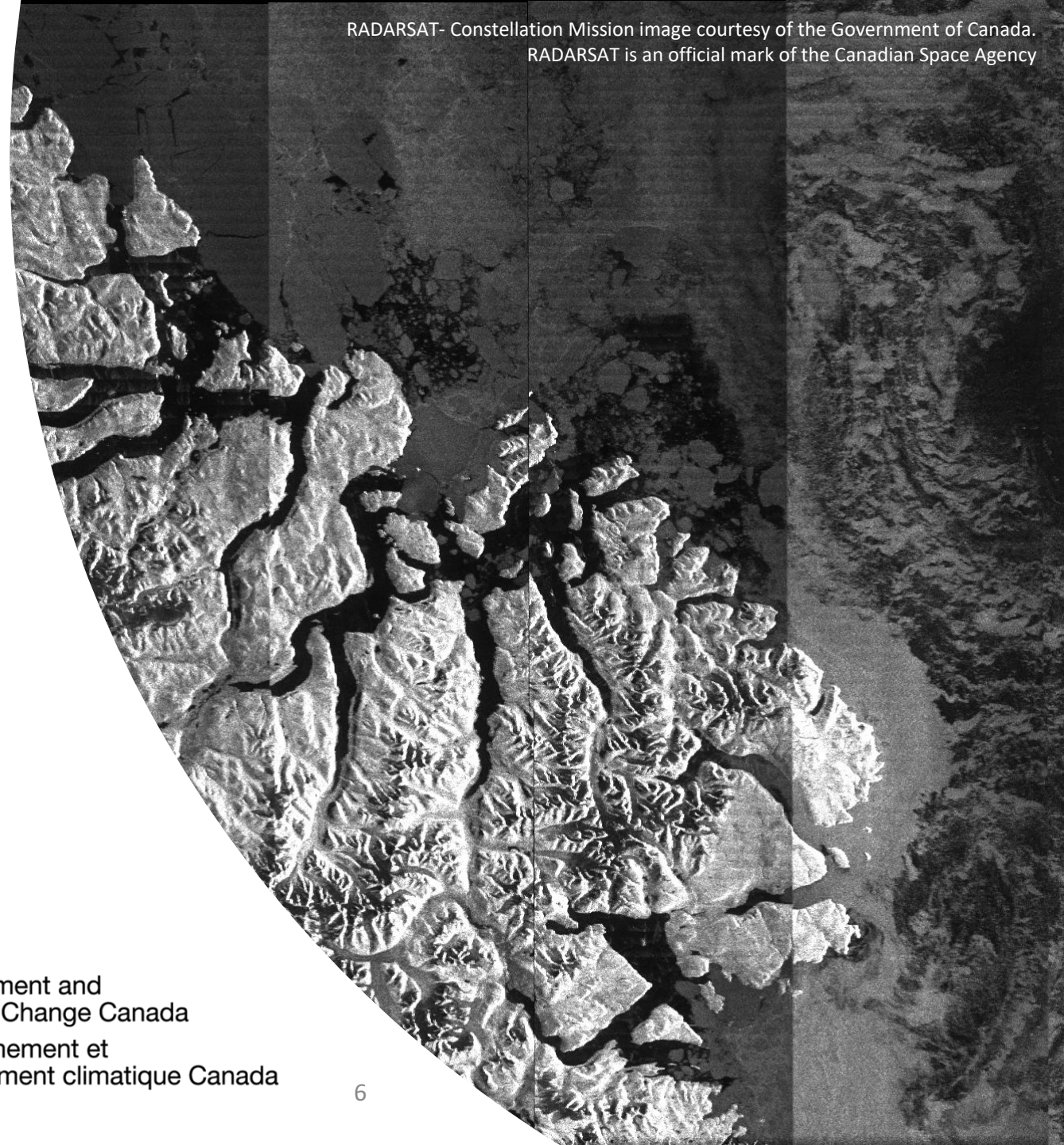
Environment and Climate Change Canada /
Canadian Ice Service: *Tom Zagon*

Topic **Operation sea ice monitoring with SAR**

Topic **Local near-shore ice and travel safety**



Environment and
Climate Change Canada
Environnement et
Changement climatique Canada



Lesson 5: Canada's RCM

RADARSAT Constellation Mission (RCM) Focus:

Topic **Disaster Management**

Topic **Ecosystem monitoring**

Topic **Maritime surveillance**



RCM image courtesy of CSA / Government of Canada



Canada





LINK: [Winter-Water-Warming: Canadian SAR Applications – EO College \(eo-college.org\)](https://eo-college.org)

Canadian SAR mini-MOOC
Winter, Water, Warming

