

Title: Global Lake Census

Product Leader: Kevin Telmer

Affiliation: University of Victoria (Canada)

Product Team (confirmed members only):

- Maycira Costa (University of Victoria)

Agreement status: Ready to sign!

Preferred agreement type (individual/institutional): Individual

Project objective(s):

- To use PALSAR to count the world's lakes and reservoirs and map their size and spatial distribution: a Global Lake Census
- Using results from (1) to determine the rate of Carbon accumulation in the world's lakes and reservoirs and its spatial distribution
- Establish the baseline for monitoring changes to lakes globally

Global Lake Census

- **Carbon accumulated in lake sediments has been recognized as an important component of the global cycle and a significant sink for atmospheric CO₂**

Ex: Boreal lakes ~ 110Tg CO₂ → 20% of annual emissions

- **Recent lake census → 1995 (based on lake registers and limnological literature)**

- **Needed information for achieving better estimates:**

- **Number and size of lakes for different geomorphologic terrain and climates**
- **Estimates of variation of carbon**

Global Lake Census

Prototype Area 1: Boreal Biome (Canada, Russia)

Corresponding observation plan polygon(s): F3, F4, F5

No. PALSAR paths/coverage: ~160 passes

PALSAR request (Year 1-3): ~320 passes (1 coverages per year for 2 years in July-August @~30°)

Input data (EORC products): PALSAR path images (Sigma-0, ortho-rectified, 50m); PALSAR continental-scale mosaics, SRTM corr., 50m)

Ancillary data requests: JERS-1 Boreal Mosaic and selected fine res data

Prototype Area 2: Pantanal (Brazil)

Corresponding observation plan polygon(s): G1(part); C3 (part)

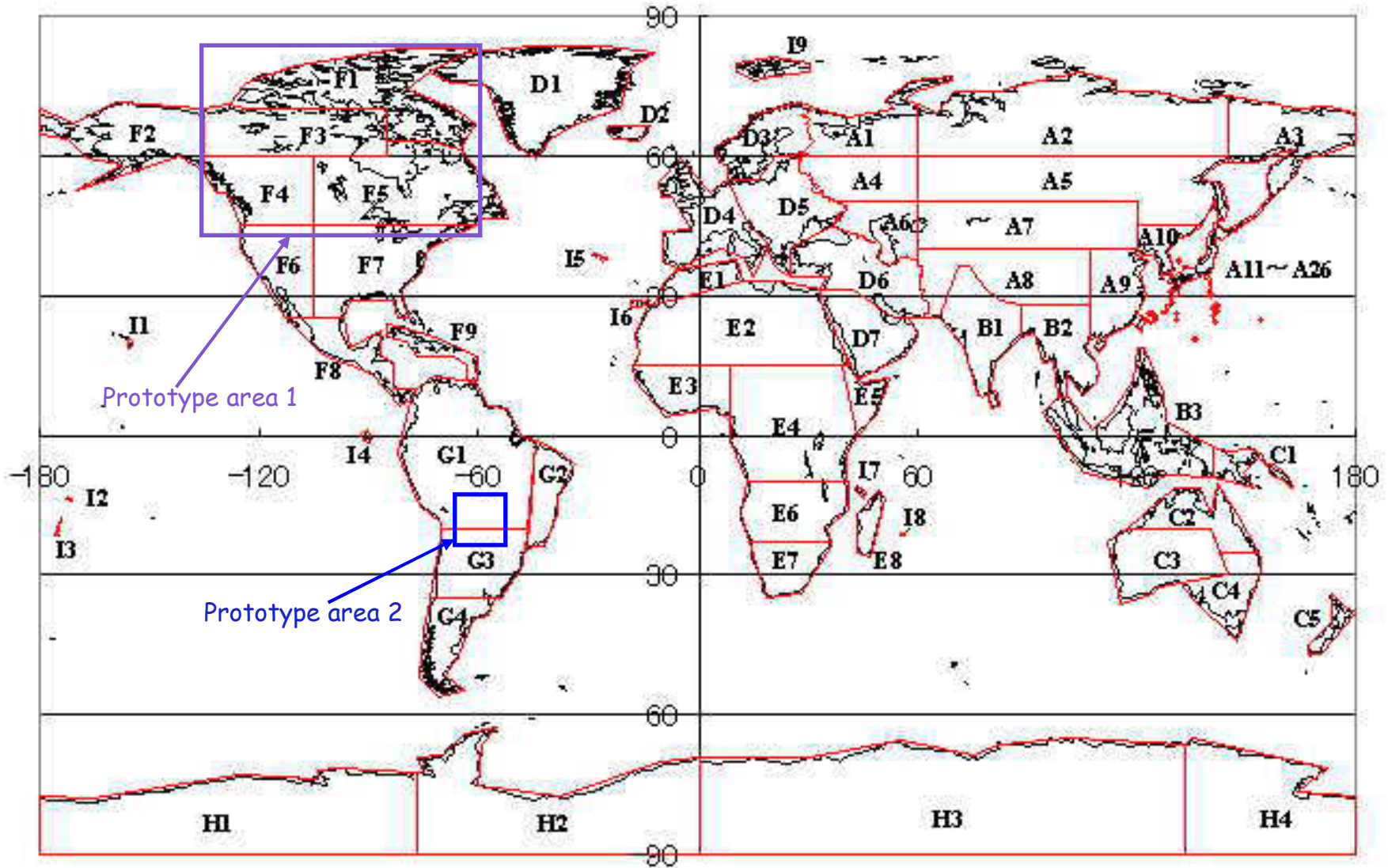
No. PALSAR paths/coverage: ~10 passes

PALSAR request (Year 1-3): 90 passes (3 coverages per year, 2 years @~30° HH+HV); PALSAR continental-scale mosaics, SRTM corr., 50m)

Input data (EORC products): PALSAR path images (Sigma-0, ground range, ?m)

Ancillary data requests: JERS-1 fine res data and mosaics

Global Lake Census



Location of Prototype Areas

Global Lake Census

K&C Product Deliverables (before end of Year 3):

- maps of lake distribution, area, and number for target areas.
- Product methodology and validation report
- Estimates of regional C accumulation based on lake class distribution

Prospects for Years 4-6 (assuming agreement extension)

- Extension to global coverage
- Rates of carbon accumulation for lakes regionally and globally
- 10-year Lake change map for Pantanal and Boreal Biome and possibly other areas depending on JERS-1 availability

Title: Wetlands in Canada

Product Leader: Maycira Costa

Affiliation: University of Victoria (Canada)

Product Team (confirmed members only):

- Robert Helie (Environment Canada), National Wetlands Inventory
- Kathleen Moore (Environment Canada), National Wetlands Inventory
- Climate Change Action, Boreal Ecosystem Atmosphere Study, and Fluxnet Canada

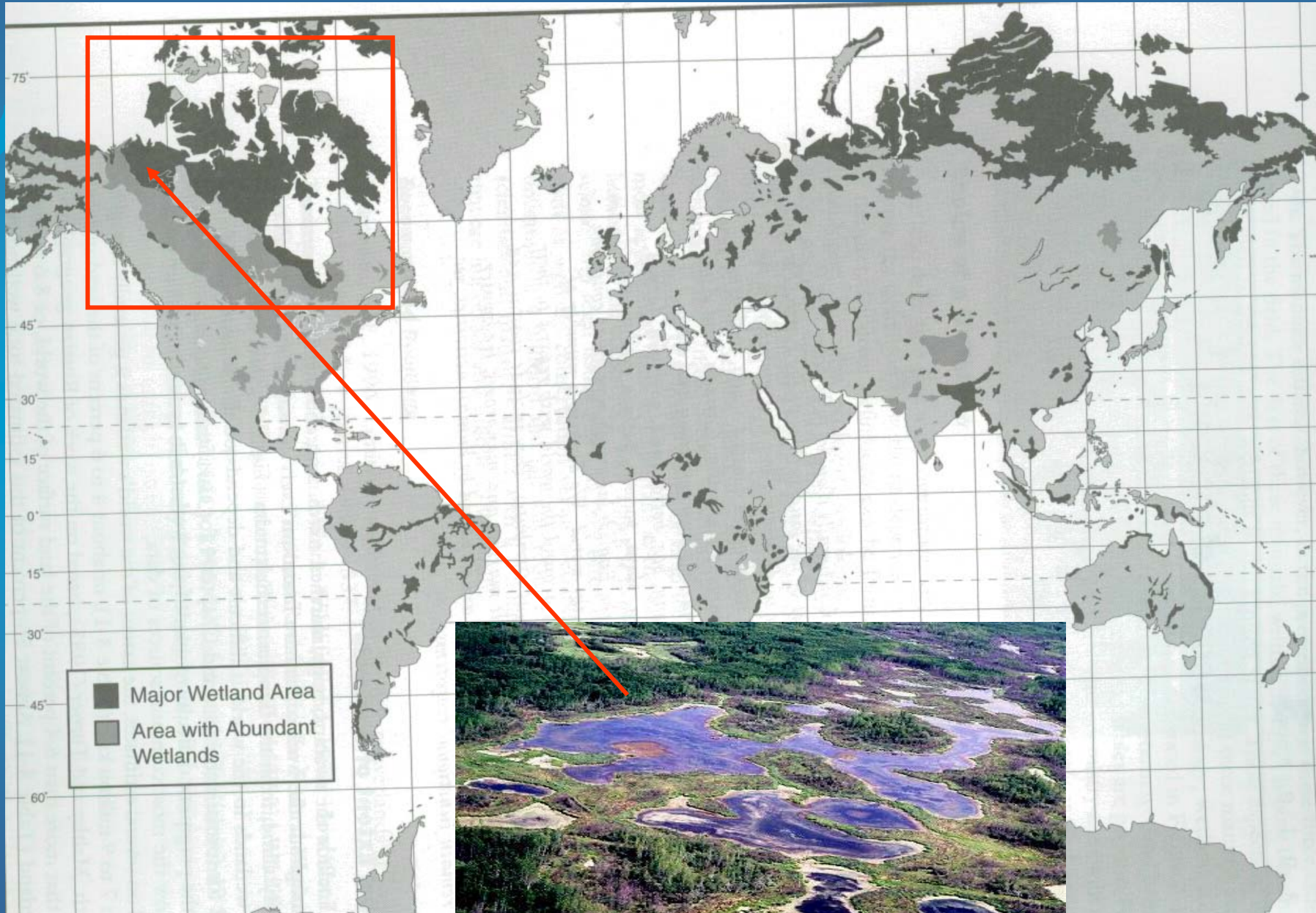
Agreement status: collaboration with Kyle McDonald (JPL)

Preferred agreement type (individual/institutional):

Project objective(s):

- To use PALSAR to map seasonal distribution of Canada's wetlands, and establish the baseline for monitoring wetlands in Canada
- Using the previous maps to assist on the production of carbon maps and carbon budget of wetlands in Canada.

Wetlands distribution



Wetlands in Canada

Prototype Area 1: Boreal Biome

Corresponding observation plan polygon(s): F3, F4, F5 (all)

No. PALSAR paths/coverage: ?

PALSAR request (Year 1-3): ? X 3 (3 PALSAR mosaics (spring –high water; summer –max. vegetation; fall –low water, leaf off) - Sigma-0, SRTM corr., 50m res)

Input data (EORC products): PALSAR path images (Sigma-0, ortho-rectified, 50m); Ancillary data requests: JERS-1 Boreal Mosaic

Prototype Area 2: Mackenzie Basin, Central Saskatchewan, Northern Ontario, British Columbia

Corresponding observation plan polygon(s): F3, F4, F5 (part)

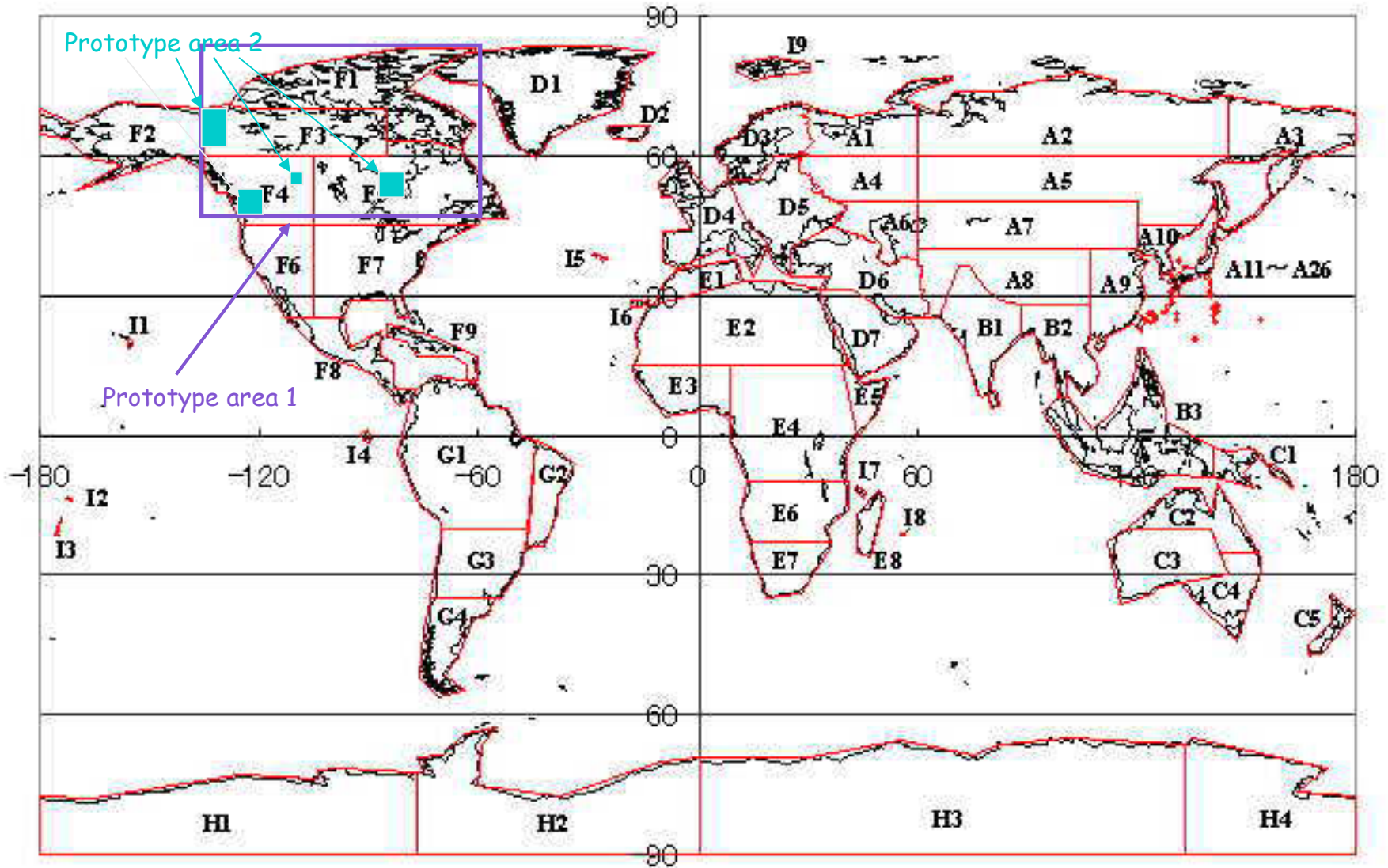
No. PALSAR paths/coverage: ?

PALSAR request (Year 1-3): ? (3 annual coverages @30° and HH+HV; 3 annual coverages @45° and HH+HV)

Input data (EORC products): PALSAR path images (Sigma-0, ortho-rectified, fine resolution)

Ancillary data requests: JERS-1 fine res data

Wetlands in Canada



Location of Prototype Areas

Wetlands in Canada

K&C Product Deliverables (before end of Year 3):

- **seasonal maps of wetlands distribution in Canada – temporal (1. JERS-1 mosaic and 2. POLSAR)**
- **tentative classification of wetland types**
- **assist on the production of the carbon budget of wetlands in Canada**
- **Product methodology and validation report**
- **Prospects for Years 4-6 (assuming agreement extension)**
- **Extension of the temporal coverage**
- **National wetlands change in relationship to climate change - models**