ABMI Wetland Inventory

Metadata

ABMI Geospatial Centre

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ABMI ALBERTA BIODIVERSITY MONITORING INSTITUTE

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1. Overview

1.1 Summary

The Alberta Biodiversity Monitoring Institute (ABMI) province-wide wetland inventory is divided into three project areas representing ecoregions of Alberta with distinct wetlands. These three regions are: (i) the boreal and foothills region, which is characterized by large peatland complexes; (ii) the prairie region with wetlands usually occurring in small depressional potholes, and (iii) the Rocky Mountain region where wetlands are constrained to narrow valleys.

1.2 Description

The ABMI Wetland Inventory comes in polygon and raster data sets. The data covers the entire province of Alberta and maps wetlands up to a size of 400 m^2. This product represents the most up to date wetland data set created by the ABMI for Alberta/Canada and can provide users with high quality data to meet their needs.

1.3 Credit

This dataset was developed and generated by the ABMI's Geospatial Centre under the Advanced Landcover Prediction and Habitat Assessment (ALPHA) Program.

1.4 Citation

This product should be cited with reference to the paper below and this document:

DeLancey ER, Simms JF, Mahdianpari M, Brisco B, Mahoney C, Kariyeva J. Comparing deep learning and shallow learning for large-scale wetland classification in Alberta, Canada. Remote Sensing. 2020 Jan;12(1):2. doi: https://doi.org/10.3390/rs12010002.

ABMI. 2021. "ABMI Wetland Inventory – Metadata." Edmonton, Alberta, Canada.

1.5 Contact Information

If you have questions or concerns about the data, please contact:
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1.6 Keywords

Alberta, remote sensing, spatial modelling, wetlands, wetland inventory, Synthetic Aperture Radar, Sentinel-1, Sentinel-2, ALPHA, machine learning, cloud computing, Google Earth Engine, hydroperiod, fen, bog, marsh, swamp.

2. Use Limitations

This dataset was based on freely available open-source data: Sentinel-1 Synthetic Aperture Radar (SAR) data, Sentinel-2 optical data, and Advanced Land Observing Satellite (ALOS) topographical models. This data set, ABMI Wetland Inventory, may be freely used if cited properly.

2.2 Open Sourced Data

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other terms of any kind, whether express or implied, whether in contract, tort (including liability for negligence) or otherwise, including, but not limited to any implied term of satisfactory quality, fitness for a particular purpose, and any standard of reasonable care and skill.

3. Data Product Specifications

3.1 Spatial resolution and minimum mapping unit

All project areas were based on Sentinel-1 and Sentinel-2 10 m resolution data. Therefore, the resulting raster product is a 10 m resolution. The minimum mapping unit (MMU) varied between project regions. The Prairie product approaches a 400 m^2 MMU but some potholes between 400 m^2 and 800 m^2 are missed. The Boreal/Foothills and Rocky Mountain projects have an effective MMU of 1,000 m^2.

3.2 Processing Environment

Google Earth Engine code editor (Gorelick et al. 2017), Python 2.7, ESRI ArcGIS Pro 2.6.

3.3 Extents

West: -120.0000°
East: -110.0000°
North: 60.0000°
South: 49.0000°

3.4 Resource Maintenance

Maintenance will be implemented as needed if errors are noticed. New versions will be completed for future years with improvements to the modelling or variable inputs.

3.5 Spatial Reference

Alberta 10-TM (Forest)
North_American_1983_Transverse_Mercator
WKID: 3400 Authority: EPSG
Projection: Transverse Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: -115.0
Scale Factor: 0.9992
Latitude of Origin: 0.0
Linear Unit: Meter (1.0)
Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.0

Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

4. Lineage

This layer represents the first version of the ABMI Wetland Inventory. The ABMI will produce future versions when and where improvements can be made.

5. Fields and raster codes

Table 1: Fields in the ABMI Southern Wetland Inventory

Field	Possible values	Description
WetlandClass	Fen, Bog, Marsh, Open water, Swamp	Wetland class under the Alberta Wetland Classification System
hydroPeriod	0-100	How often the polygon is flooded during the years 2017-2020. This takes into account the area of the polygon flooded and the time the polygon is flooded. This is only available for select areas in southern Alberta.
Project	Boreal/Foothills, Prairie, Rocky Mountain	Identifies which project area the polygon is located within

Table 2: Raster codes for the ABMI Wetland Inventory and their associated ABMI style symbology.

Value	Landcover class	Description	Symbology (Hex)
0	Open water	Areas of open water. No limit of water depth.	#08306B
1	Fen	All types of fen habitat.	#CBE39B
2	Bog	All types of bog habitat.	#BF584B
3	Marsh	All types of marsh habitat.	#FEE391
4	Swamp	All types of swamp habitat.	#009474
5	Upland	All types of upland habitat. This includes: upland forest, human footprint, barren ground, etc.	#969696

6. Methods and results

Please see the technical documentation for the ABMI Wetland inventory.