

Spatially explicit forest carbon modeling in Canada: a prototype system

Canada

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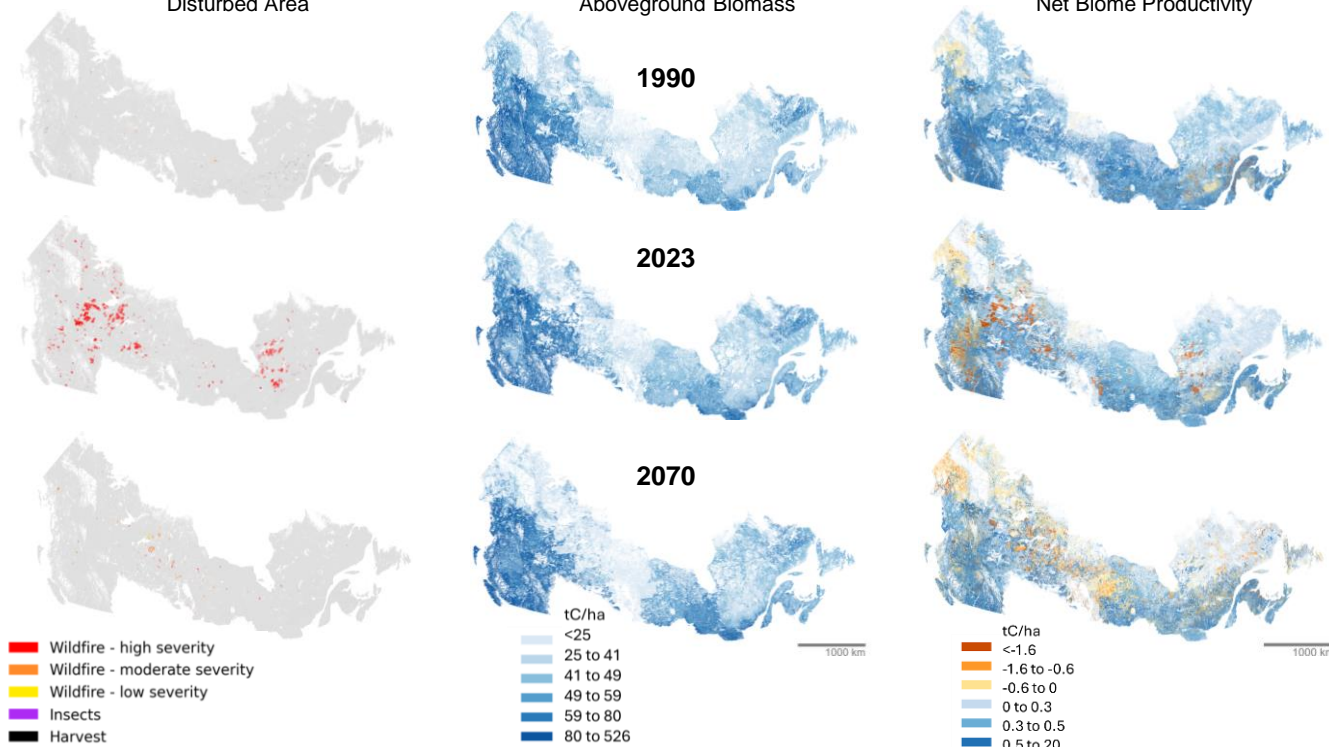
National C stocks and fluxes: Sample Results

- This prototype system supports the development a spatially explicit modelling system for use in National GHG Inventory reporting system, building on the spatially referenced [National Forest Carbon Monitoring and Reporting System](#) and expanding to all forests in Canada.
- The carbon budget model integrates forest inventory information (stand age, area and species composition), curves of merchantable volume over age, equations to convert stand merchantable volume into total biomass, data on natural and anthropogenic disturbances, and simulations of C transfers between pools and exchanges with the atmosphere that are associated with ecosystem processes and disturbance events.

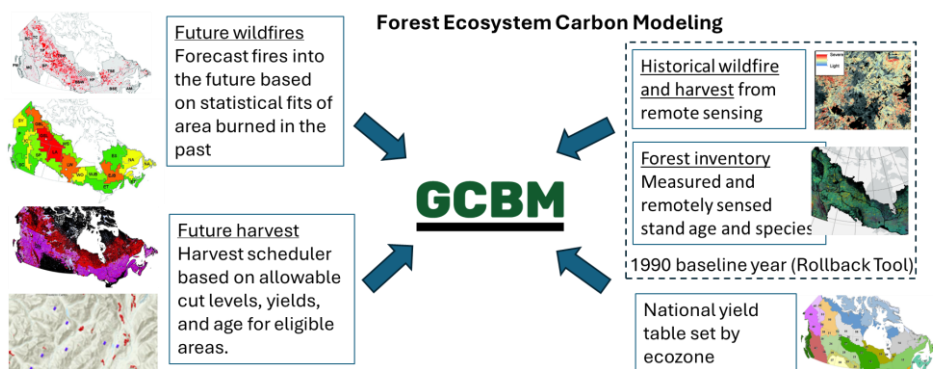
Disturbed Area

Aboveground Biomass

Net Biome Productivity



Forest Ecosystem Carbon Modeling



Links: [Model GCBM](#) open source carbon model compliant with IPCC guidelines simulating the dynamics of all forest carbon stocks required by the UNFCCC. **Forest Inventories:** [CASERI](#) data provided by participating provincial, territorial, and federal government departments and agencies. Remotely sensed forest inventory: [National Terrestrial Ecosystem Monitoring for Canada](#) (species, age). **Harvest:** Provincial harvest cutblocks ([British Columbia](#), [Quebec](#)) and [National Terrestrial Ecosystem Monitoring for Canada](#). **Wildfires:** [National Burned Area Composite](#), remotely sensed burned areas with [wildfire severity](#).

Generic Carbon Budget Model is a spatial version of the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) which is used for international reporting of forest carbon for Canada's managed forest.

Development of national post-fire restoration system to assess net GHG impacts and salvage biomass availability, C. Smyth, M. Fellows, S. Morken and M. Magnan, 2024, In Review.