

SCIENTIST PROFILE

The Pacific Forestry Centre

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REMOTE SENSING IN CANADA – A DATA REVOLUTION!



Txomin Hermosilla

To measure and catalogue Canada’s massive forest resource—covering more than 350 million hectares—requires advanced technologies and a data revolution.

Early foresters had to hike through the wilderness, manually measuring and tabulating information. Twentieth century innovation in remote sensing gave foresters the ability to observe forests from above, first from the air, and then from orbit. Innovations have

further revolutionized forest monitoring and management. Satellites, airplanes and drones can now capture unprecedented amounts of data with an accuracy and intelligence that allows foresters to create information-packed maps and visual displays.

NRCan’s remote sensing researchers are leading this revolution. Canada’s forest scientists collaborate on many projects to study what the data are revealing about forest characteristics, both at home and around the world. The Pacific Forestry Centre (PFC) in Victoria, BC, has a dedicated team engaged in this cutting-edge forest research.

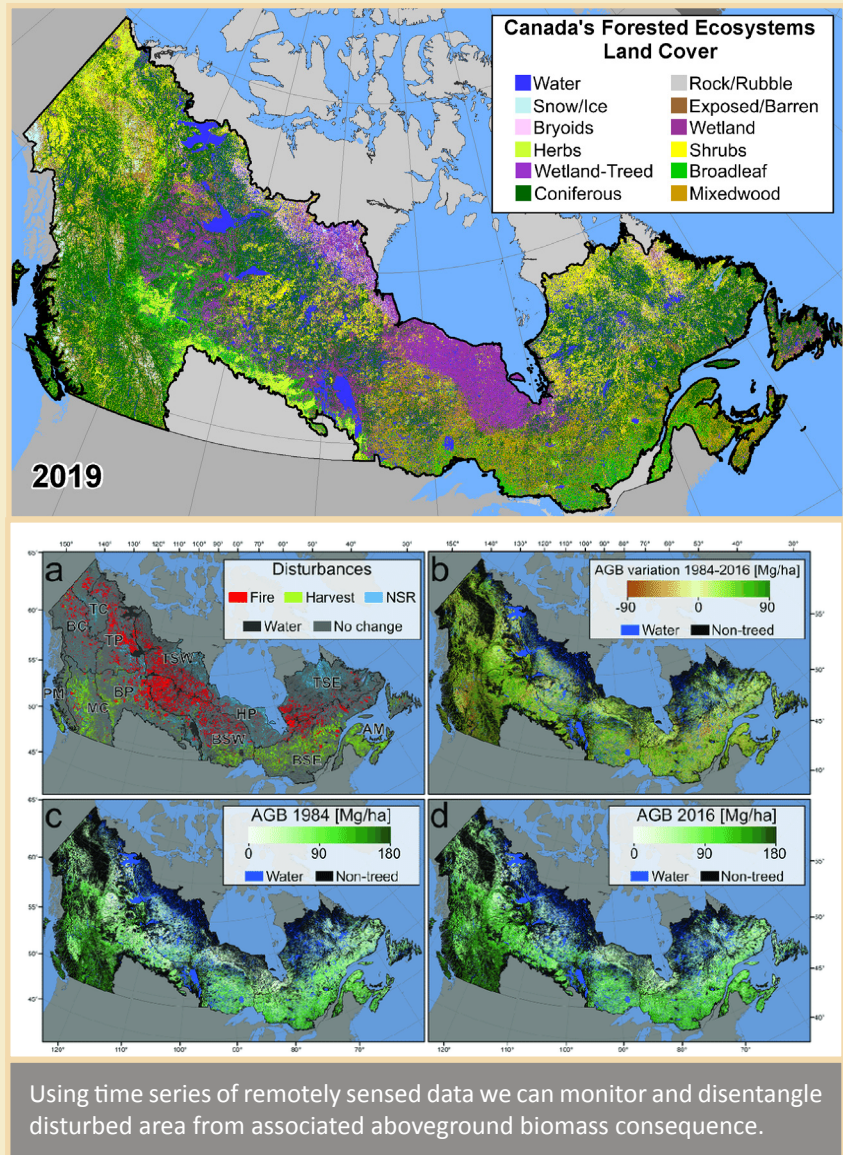
Using the latest in computational technology to analyse a variety of remotely sensed data, scientists like Txomin Hermosilla are monitoring and reporting on Canada’s forest changes following disturbance events. Hermosilla is reconstructing Canada’s forest history across more than three decades using remote sensing data. “We are able to map and characterize important disturbances such as wild fires and harvest activity, and monitor land cover and forest structure changes through time,” explains Hermosilla. “This is of key importance where forest information in remote areas is difficult to collect. Having a detailed knowledge of forest dynamics allows us to establish baselines to characterize current and past forest conditions, which

has implications for forest management, climate change mitigation, and restoration initiatives in the near term”.

As part of the remote sensing team at the Pacific Forestry Centre, Herмосilla enjoys developing methods to derive forest information from diverse remotely sensed data. “To do this, we use super-computing and mass data processing,” Herмосilla says. There is increasing variety of remote sensing data being collected and the time series are getting longer, expanding to over four decades. “We can envision a thrilling future, full of opportunities to improve the quality, level of detail and frequency in which key aspects of Canada’s forests and their dynamics are mapped”.

A research exchange scholarship brought Herмосilla to Canada after completing a PhD in Cartography. Originally from Spain, he says he was always interested in maps. “As a kid, I loved leafing through maps in atlases. Later, I became fascinated with the amount of information maps convey, including social and historical data. I was intrigued by how complex information was so elegantly displayed”. In college, he was excited to discover that he could build a career in coding remotely sensed data into visual and information tools like maps.

When he’s not in the lab or in front of his computer, you might find Herмосilla head-first in toy bins at flea markets and vintage stores, hunting for the perfect addition to his pop culture collection of PEZ dispensers! While collecting is a hobby, he thrives on solving problems with data, “I can’t go home in the middle of solving a programming issue,” he adds. “Working with the top scientists in our field gets me up in the morning and knowing our work is needed to help us better understand Canada’s forests keeps me passionate about my work”.



Links:

Remote sensing in forestry: <https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/sustainable-forest-management/measuring-reporting/remote-sensing-forestry/13429>

Canadian Forest Service directory: <https://cfs.nrcan.gc.ca/employees/read/thermosi>

Twitter handle: <https://twitter.com/txominhermos>

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