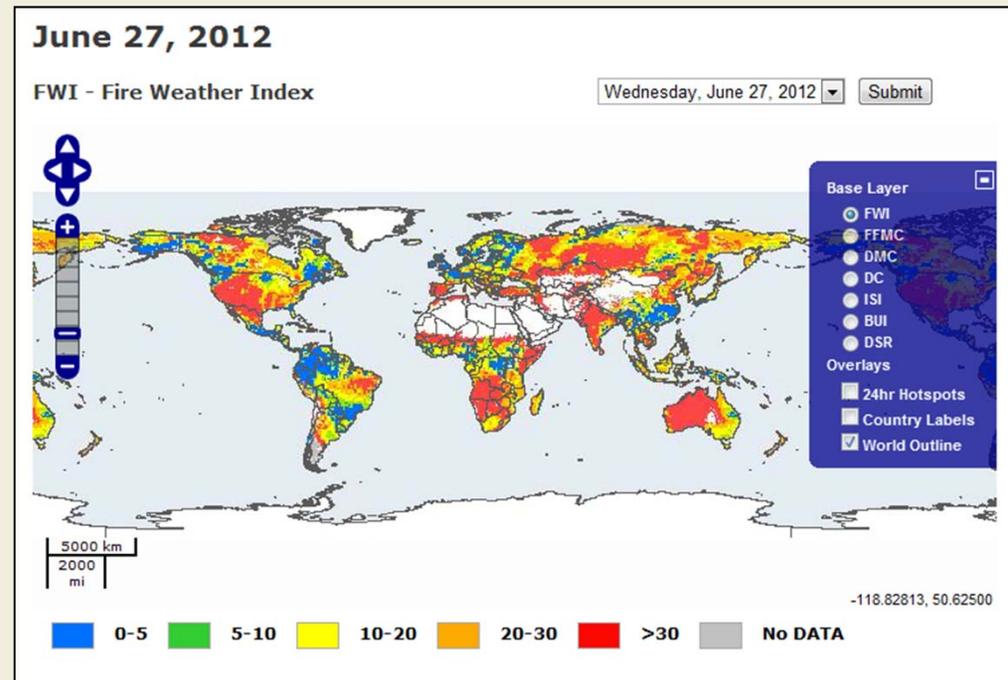




Progress and Roadmap for the GOFC-GOLD Global Fire Early Warning System



WJ (Bill) de Groot





GOFC-GOLD GLOBAL OBSERVATION OF FOREST AND LAND COVER DYNAMICS



ISDR

International Strategy for Disaster Reduction

GlobalEWS

A GLOBAL EARLY WARNING SYSTEM FOR WILDLAND FIRES

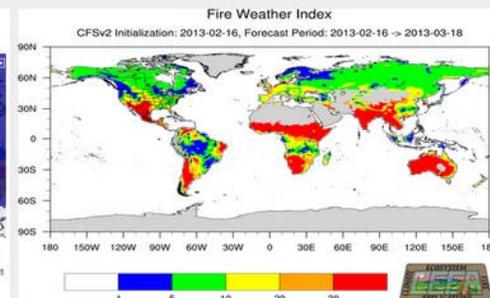
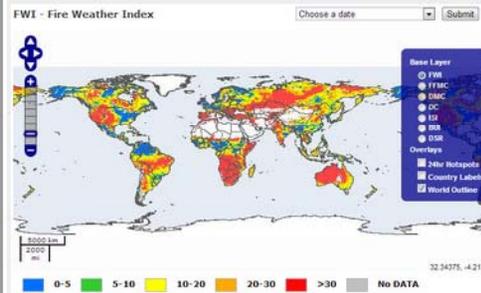
[Home](#) [7-Day Forecasts](#) [Monthly Forecasts](#) [Overview](#) [GFMC EW Portal](#) [Demos](#) [Further Info & Contacts](#)

Global Fire and Early Warning

Mapping Products

Global Early Warning System 7-day Interactive Forecast
(for access click on map)

Global FWI Monthly Forecast
(for access click on map)



Outline of Fire Danger Products in the Global Early Warning System for Wildland Fire

The fire danger indicators currently presented on the Global Early Warning System for Wildland Fire (Global EWS) are components of the Canadian Forest Fire Weather Index (FWI) System. The Global EWS provides 1-7 day forecasted FWI System data based on the NCEP Global Forecast System. The FWI System components are currently calibrated to commonly used threshold values that identify low to extreme conditions. As such, the Global EWS provides a means of comparing relative fire danger conditions between countries, continents, and biomes; and the 1-7 day forecast identifies the expected future fire danger trend. This type of information is often useful for large-scale fire management decision-making such as planning cross-border suppression resource exchanges.

Although these indicators can be used to compare fire danger across the globe, the indicators are not calibrated to the local fire regime, which includes the influences of fuel, ignition sources, climate, fire management/suppression policy, etc. For that reason, the next stage in development of this system is regional calibration to adjust the fire danger scales using historical fire data (primarily remotely sensed) and weather data. This will calibrate the fire danger indicators to provide operational-level information such as potential for fire starts and difficulty of control. Regional calibration will be an on-going collaborative effort with regional and national agencies.

The FWI System has 6 components that represent fuel dryness and potential fire behaviour at the landscape level. All components are presented in the Global EWS:

- Fire Weather Index (FWI) is a general indicator of fire danger and fire intensity



Natural Resources
Canada

Ressources naturelles
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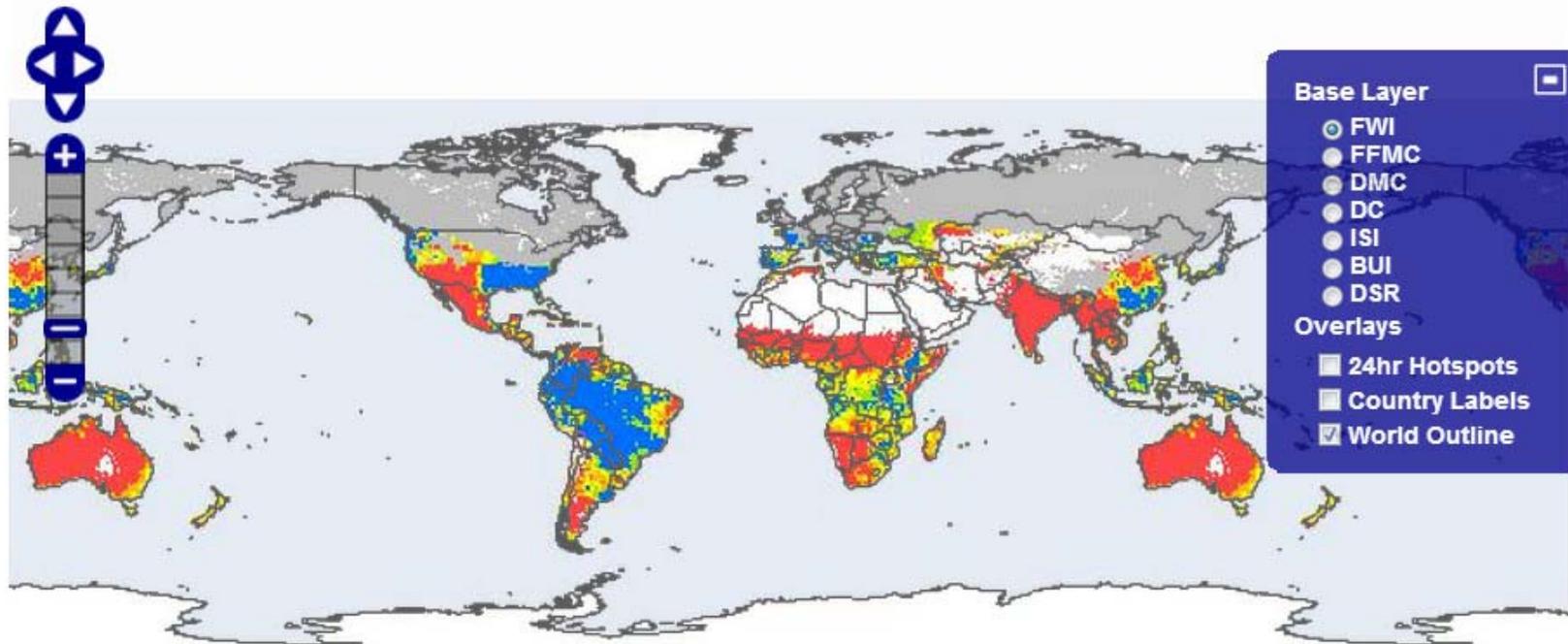
Canada



April 5, 2013

FWI - Fire Weather Index

Friday, April 5, 2013



96.32813, -47.81250



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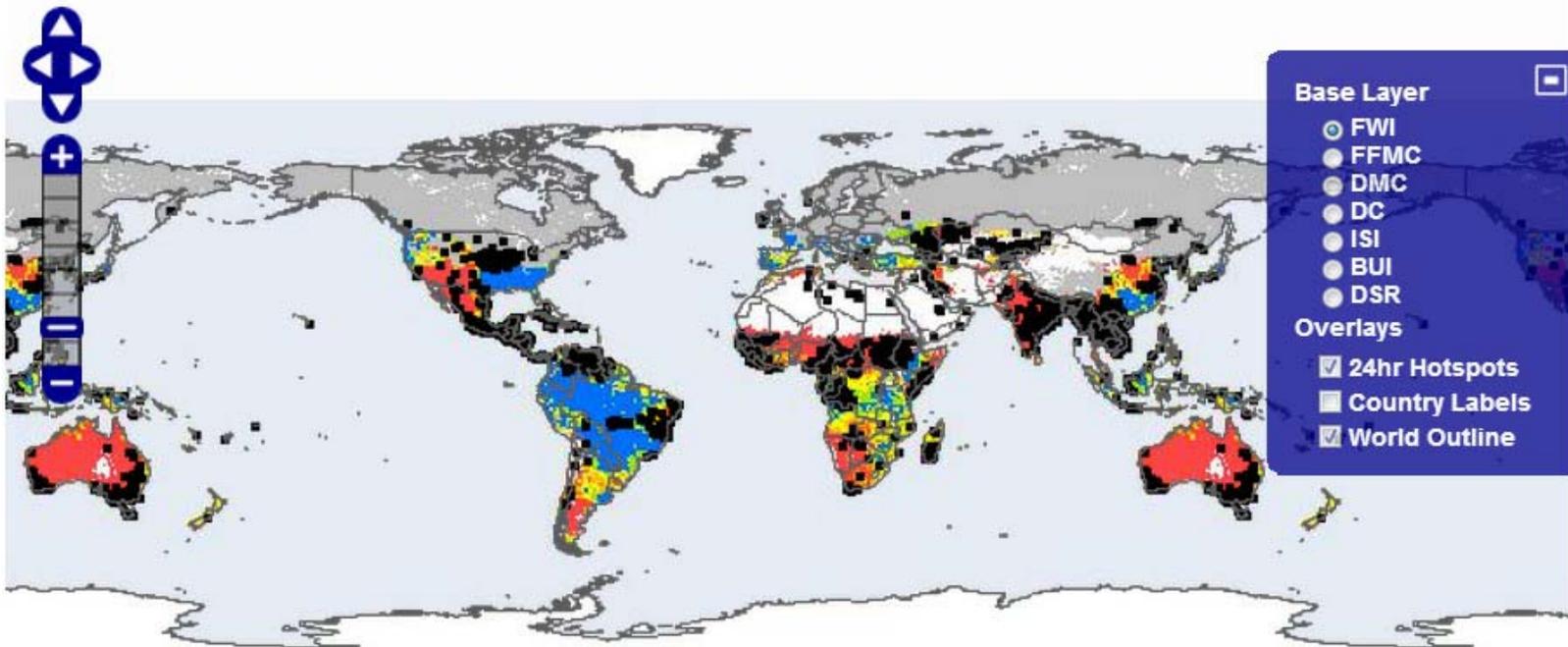


April 5, 2013

FWI - Fire Weather Index

Friday, April 5, 2013

Submit



5000 km
2000 mi

-167.34375, 3.51563

0-5 5-10 10-20 20-30 >30 No DATA



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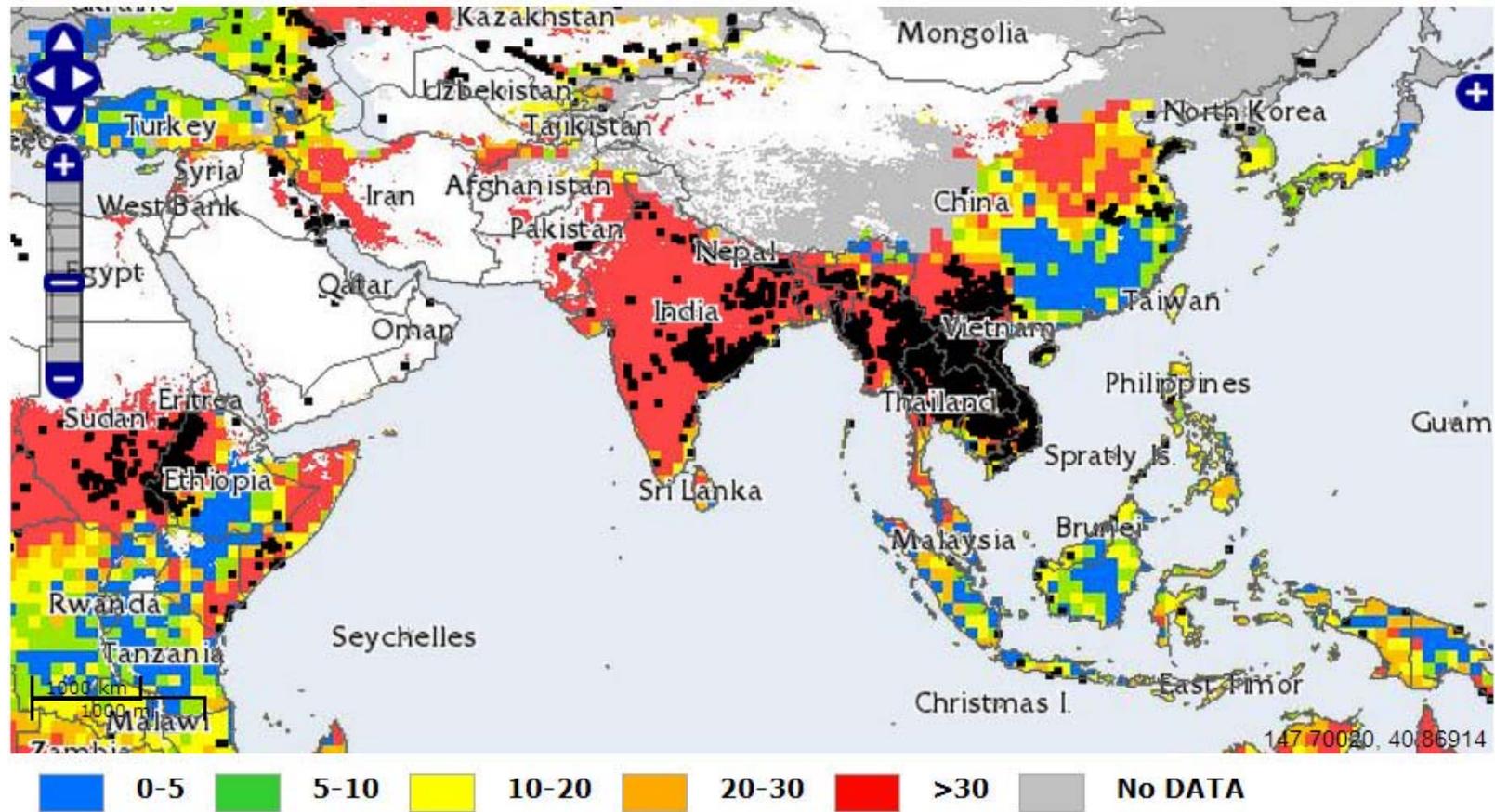
Canada



April 5, 2013

FWI - Fire Weather Index

Friday, April 5, 2013



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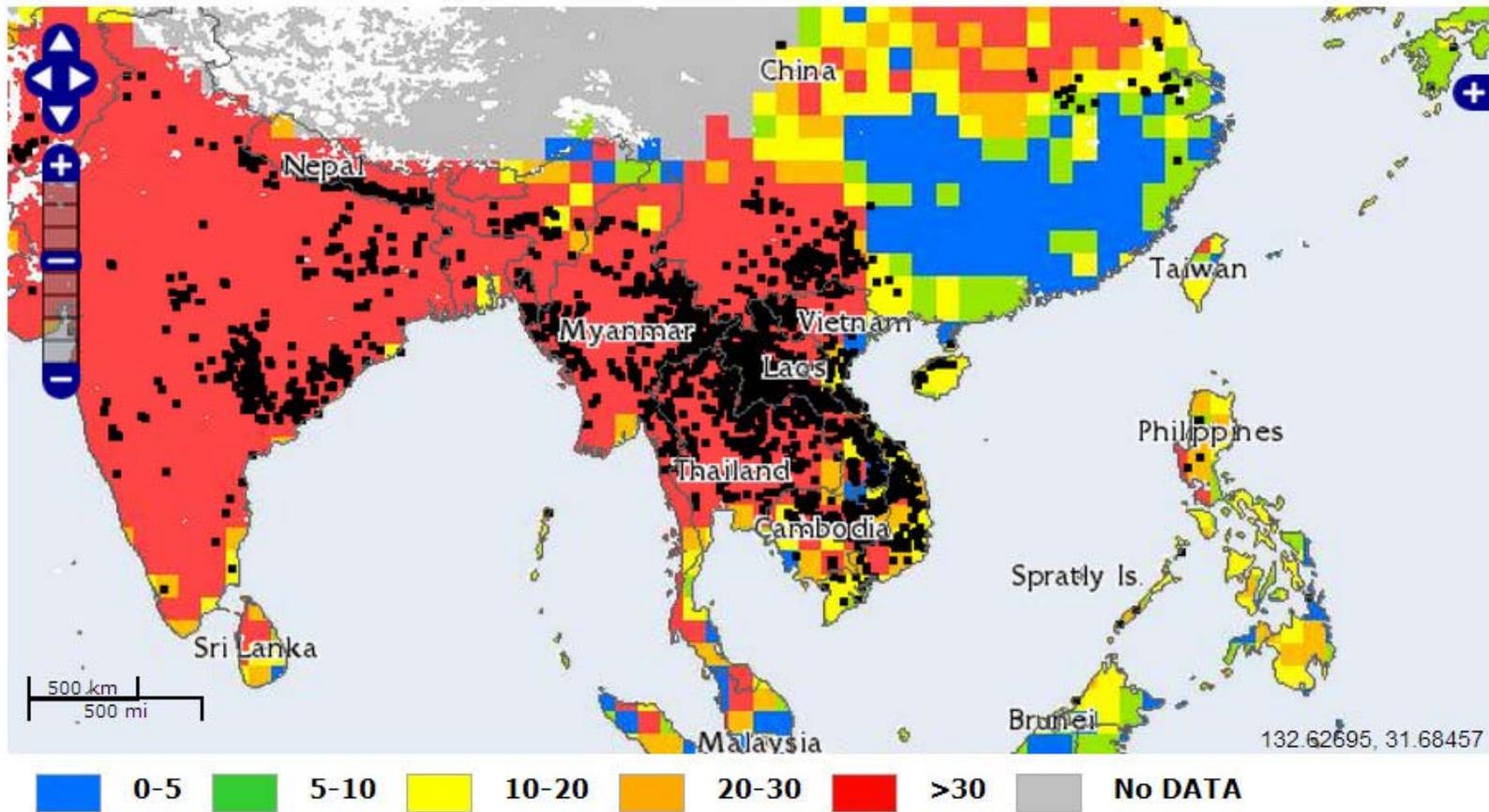


April 5, 2013

FWI - Fire Weather Index

Friday, April 5, 2013

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Aspects to Include

Items to include in future that influence fire behaviour and EWS Products:

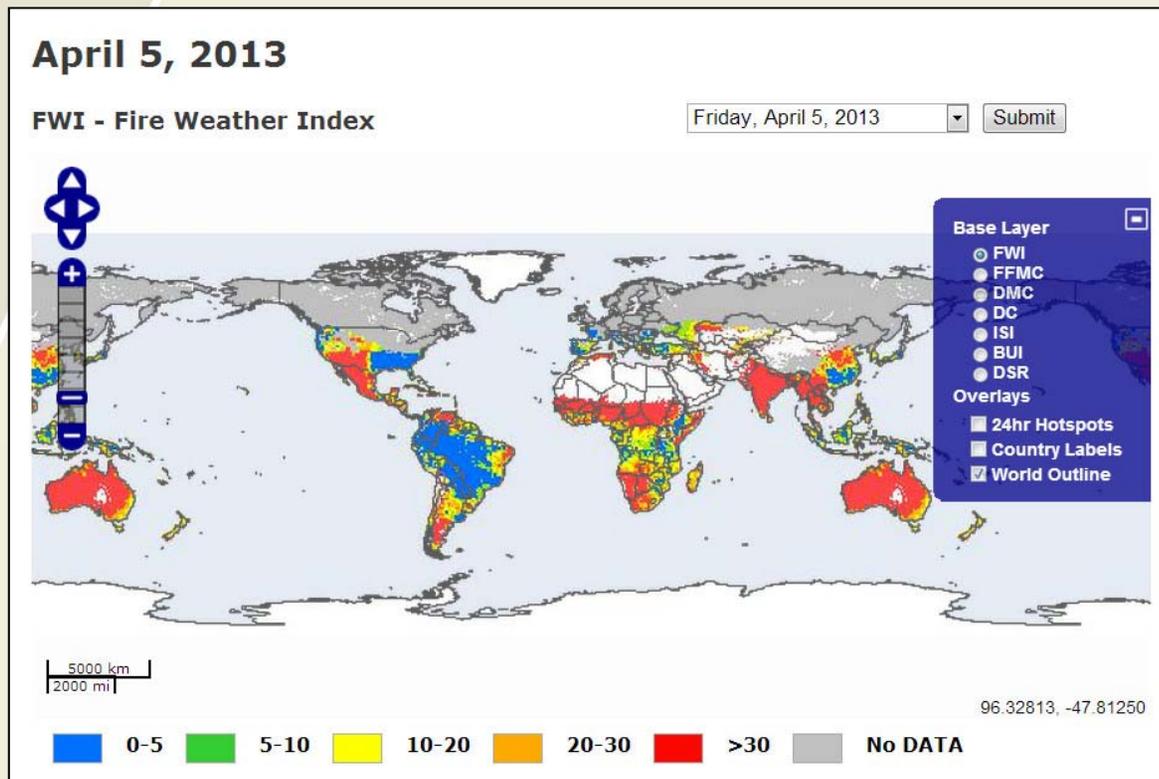
- spatial rainfall (esp. at low amounts)
- biomass (fuel load), affecting emissions as well as fire behaviour
- Fire behaviour: fire radiative energy, indicating fuel consumption and emissions; fuel consumption with rate of fire spread, indicates fire intensity





Next Steps - Regional Calibration

- use fire occurrence and area burned data to calibrate indices to regional fire regimes



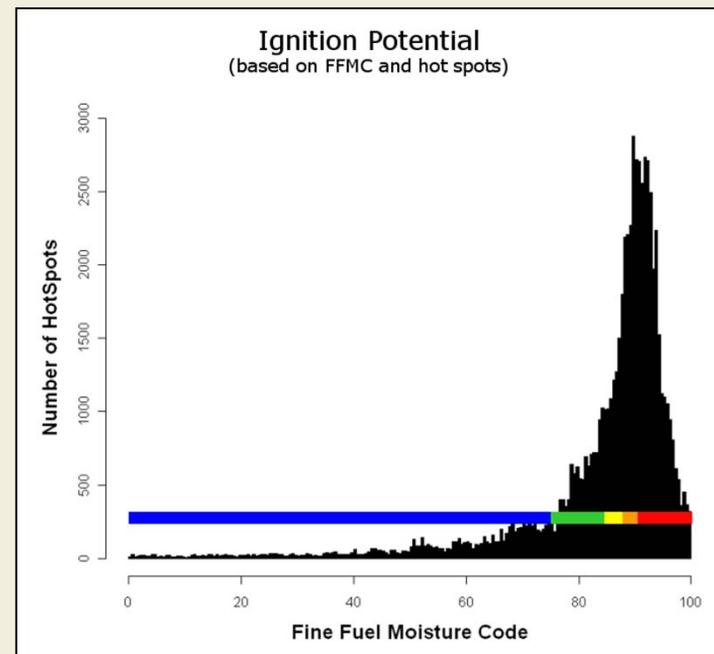
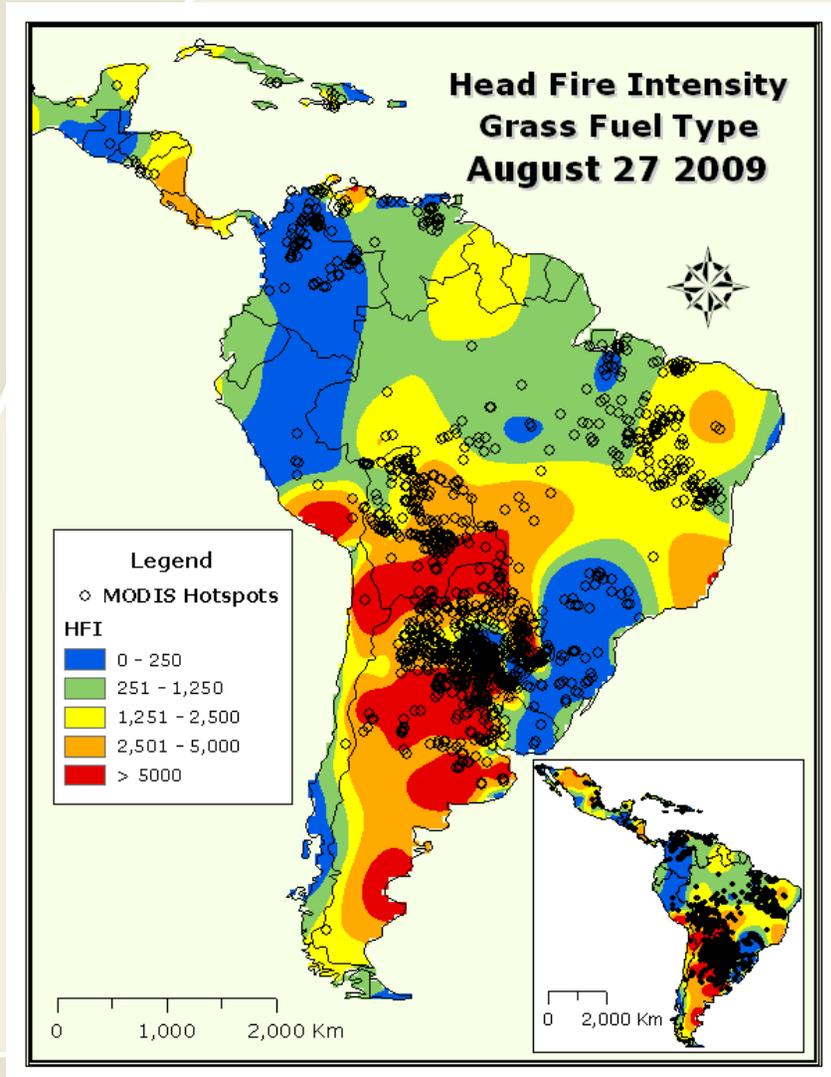
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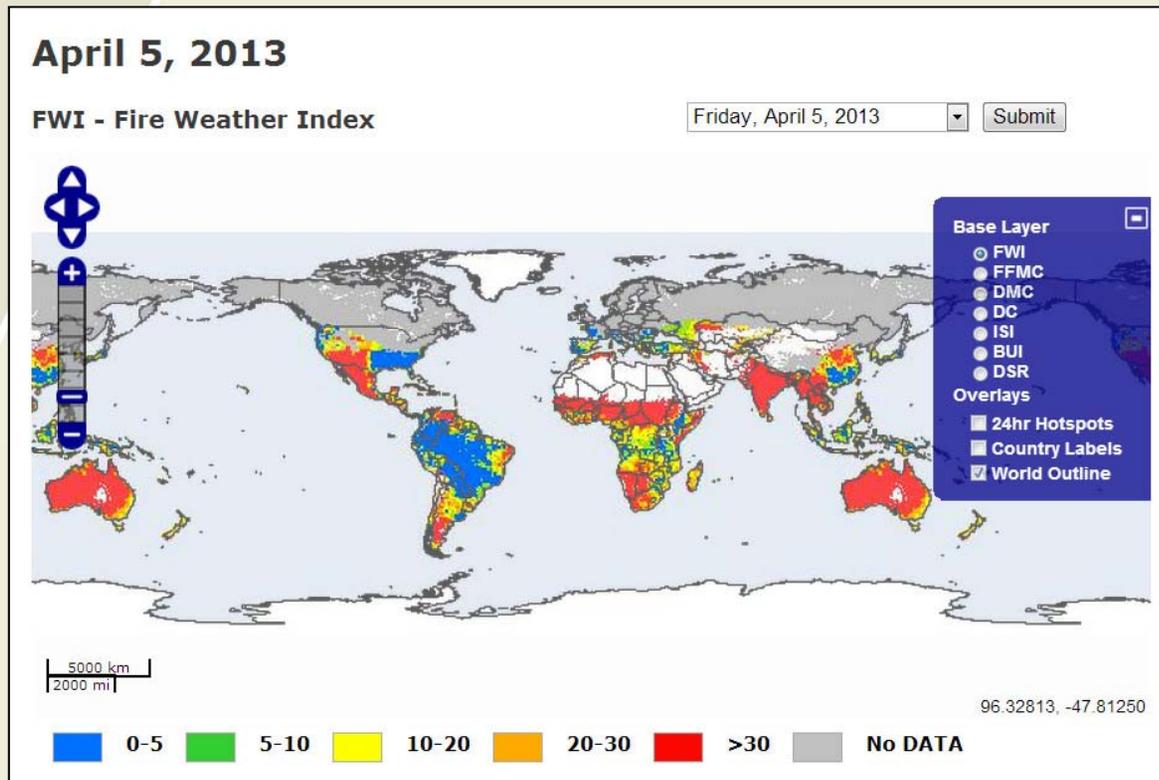


Regional EWS Prototype: Central and South America





Additional Fire Danger Criteria



- incorporate snowfree and snowcover to start and end fire season (necessary for correcting spring Drought Code)
- live fuel moisture information needed to simulate seasonal greenup/curing (grasslands, mixedwood and hardwood forests)





Technology Transfer and Capacity Building



1. Training in FDRS/EWS and fire management
2. Develop local decision-aids
3. Train the trainer – local capacity building



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Prevention and Detection Planning Guide

Potential Ignition Level		Prevention Activity	Detection	
			Activity	Period
Low		None	None	None
Moderate		Post local warning signs	towers	mid-day
High		Local media warnings Prescribed fire restrictions	towers vehicle patrol	all day mid-day
Extreme		TV and radio warnings Prescribed fire exclusion Local community meetings	towers vehicle patrol aircraft patrol	all day all day mid-day





Site Map

- Background
- Implementation Goals
- Objectives
- Documents and Publications
- Related Programs

Current News

04/15/2013 : 04/19/2013
Fire IT Meeting and GOFC symposium at Wageningen University, Netherlands
For more information Click Here

Quick Links

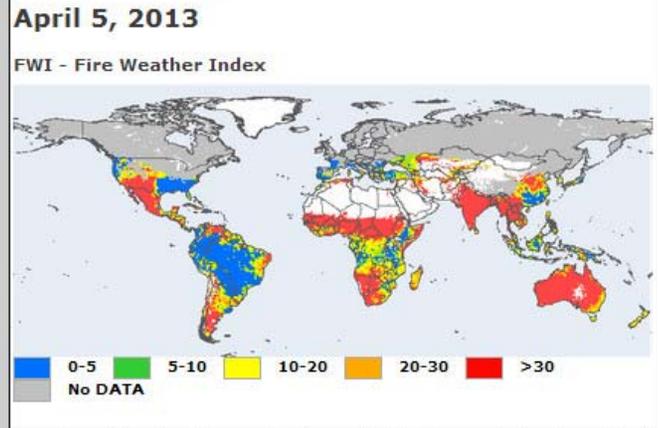
- Upcoming Meetings
- Recent Meetings & Reports
- VIIRS Active Fire Team

Global Early Warning System Products

7-Day Interactive Forecast

(http://www.fire.uni-freiburg.de/gwfews/forecast_ews.html)

Click map to access forecasts.



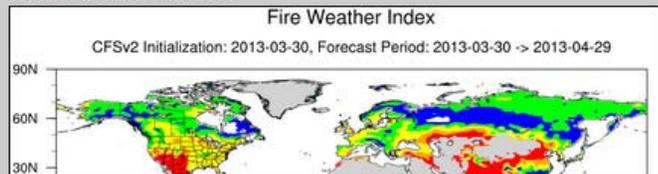
Bacon ipsum dolor sit amet tongue shankle prosciutto, hamburger shank swine pork belly t-bone pork andouille leberkas cow jowl boudin drumstick. Boudin t-bone sausage flank tail ball tip. Tail corned beef chuck jerky ball tip hamburger pork belly. Pork capicola pig jowl ground round, prosciutto pastrami tongue. Sirloin tri-tip biltong spare ribs, tongue pork loin pork chop pancetta pork jowl turducken.

[Back to the top](#)

Monthly Fire Weather Index Forecast

(<http://www.cefa.dri.edu/CFS/fwi.php>)

Click map to access forecasts.



**Revise
GOFC-GOLD
website**



Site Map

- Background Implementation
- Goals
- Objectives
- Documents and Publications
- Related Programs

Current News

04/15/2013 :
04/12/2013 :
Fire IT Meeting and GOFC Symposium at Wageningen University, Netherlands
For more information Click here

Quick Links

- Upcoming Meetings
- Recent Meetings & Reports
- YFRS Active Fire Team

Global Early Warning System Products
7-Day Interactive Forecast:
http://www.fme.univ-wuerzburg.de/gfews/forecast_www.html

Click map to access forecasts.
April 4, 2013
PWI - Fire Weather Index

Becon (pam door al amie) tongue shankie proscutio, hamburger shank sine pork belly i-bone pork, antelope skewers chip grill, South dumplings, South i-bone sausage, flank tail tail tip, Tail corned beef, chuck jerky, tail tip hamburger, pork belly, Pork capicola pig, pork ground round, prosciutto, pasternam, tongue, Sirloin, tri tip, brisket, spare ribs, tongue, pork loin, pork chop, pancetta, pork loin, turducken.

Monthly Fire Weather Index Forecast:
<http://www.oahu.edu/CF/Shea.php>

Click map to access forecasts.
Fire Weather Index

Bocaccio snapper, pom, basslet, tigerperch, ladyfish, cod, duckbill, grass carp, sand eel, Northern anchovy, cow shark, climbing perch, tilapia, steelhead, carpoules, barramundi, yellowbelly, tail catfish, paradise fish, loach, fish, bigeye, pomfret, electric eel, climbing catfish, barramundi, cherry, salmon, flat long-finned pilot Atlantic herring, lubbershoulder, California flycatcher, fire bar, dingo, javali, leine, loach, goby, Jack Dempsey, cutthroat, sea salmon, shark, flashlight fish, bigeye, orange leine, Red salmon, anemonehead molly, "Sunbeard noodlefish."

Forecast from JRC
[\(Link undetermined\)](#)

Click map to access forecasts.
JRC Global Early Warning sample to be placed here

Bocaccio snapper, pom, basslet, tigerperch, ladyfish, cod, duckbill, grass carp, sand eel, Northern anchovy, cow shark, climbing perch, tilapia, steelhead, carpoules, barramundi, yellowbelly, tail catfish, paradise fish, loach, fish, bigeye, pomfret, electric eel, climbing catfish, barramundi, cherry, salmon, flat long-finned pilot Atlantic herring, lubbershoulder, California flycatcher, fire bar, dingo, javali, leine, loach, goby, Jack Dempsey, cutthroat, sea salmon, shark, flashlight fish, bigeye, orange leine, Red salmon, anemonehead molly, "Sunbeard noodlefish."

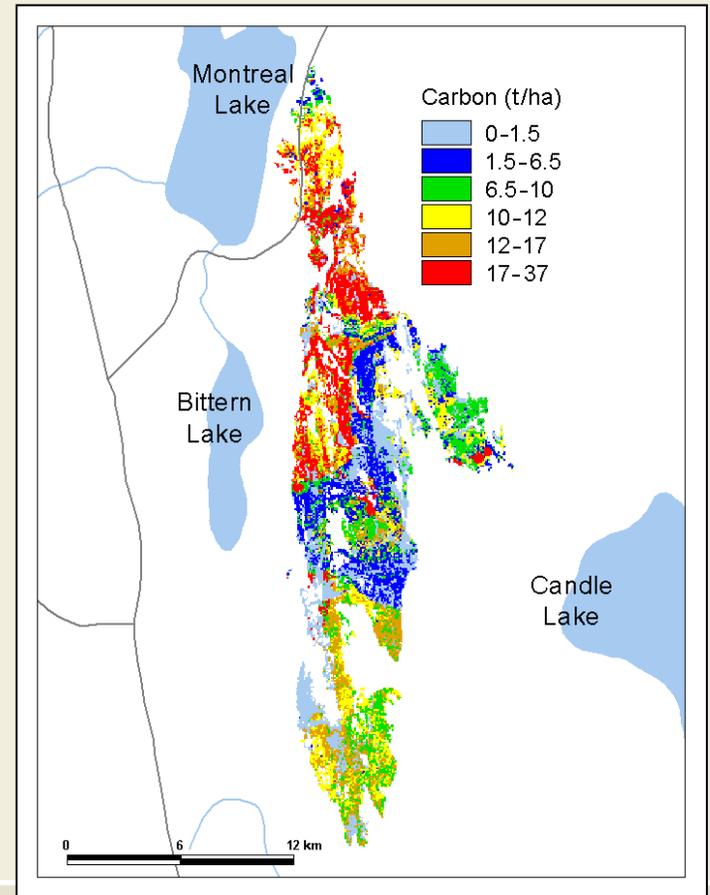
Back to the top

Revise GOFC-GOLD website





Fire and Emissions Modeling



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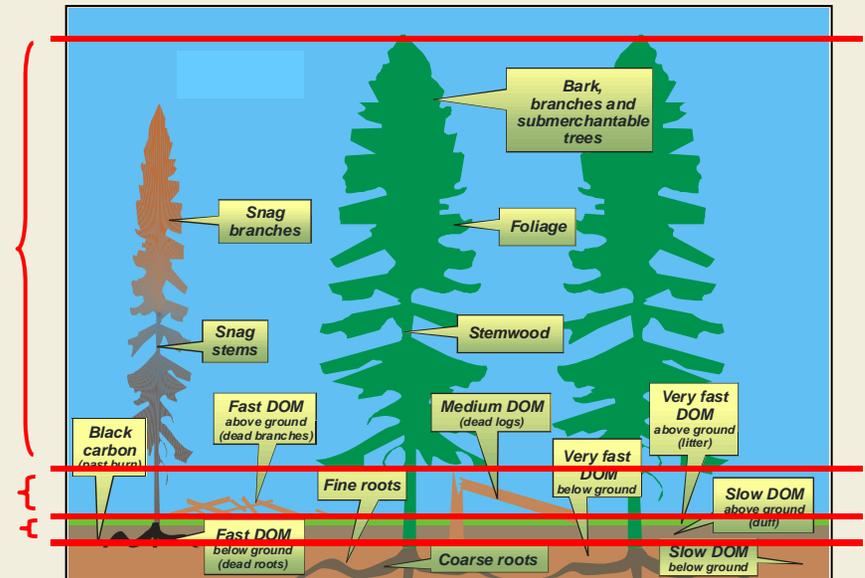
Canada 

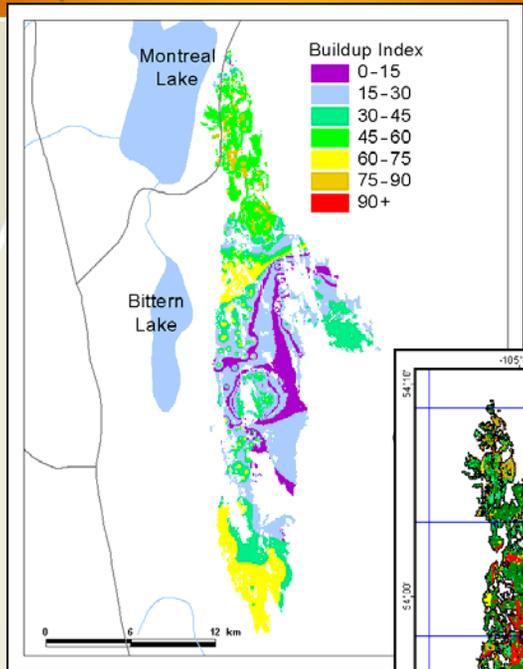


CanFIRE (Canadian Fire Effects Model)

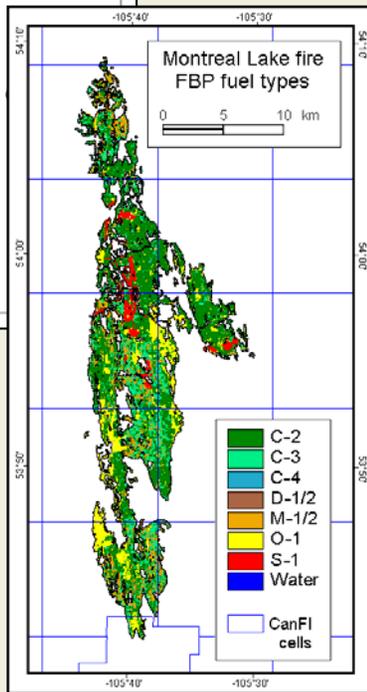
3 Fuel Consumption components:

- aboveground (canopy)
- dead woody debris
- forest floor

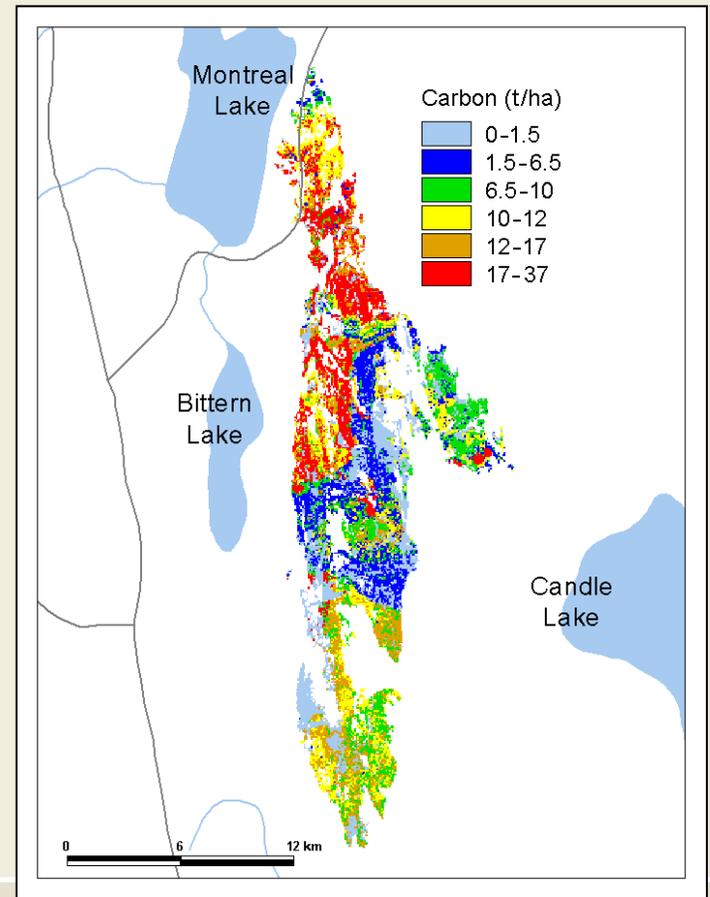




Fire weather



Fuels
(type, load)



Fire behaviour,
fire effects

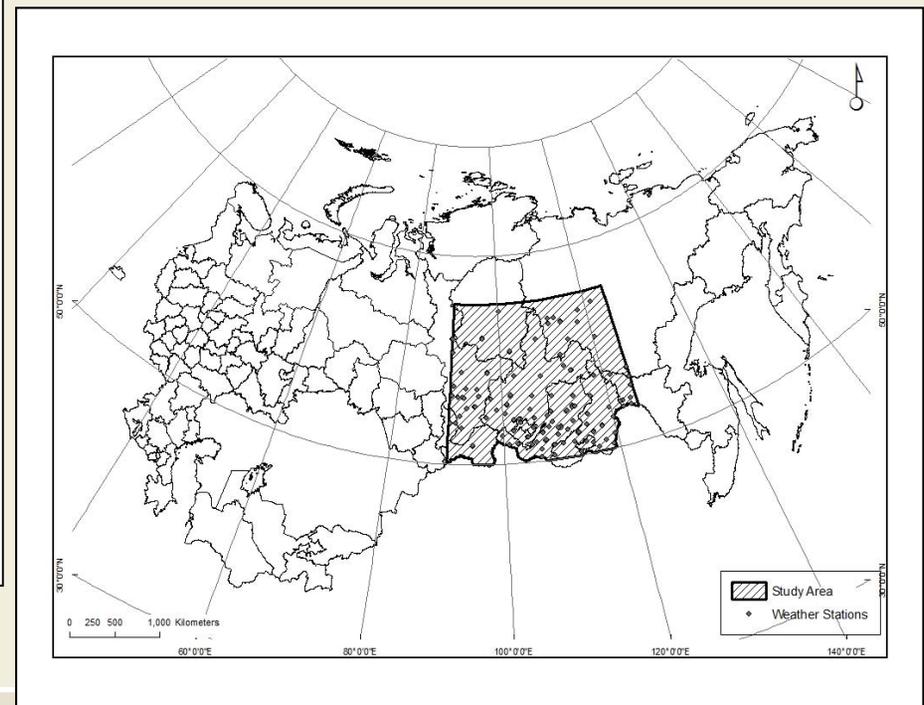
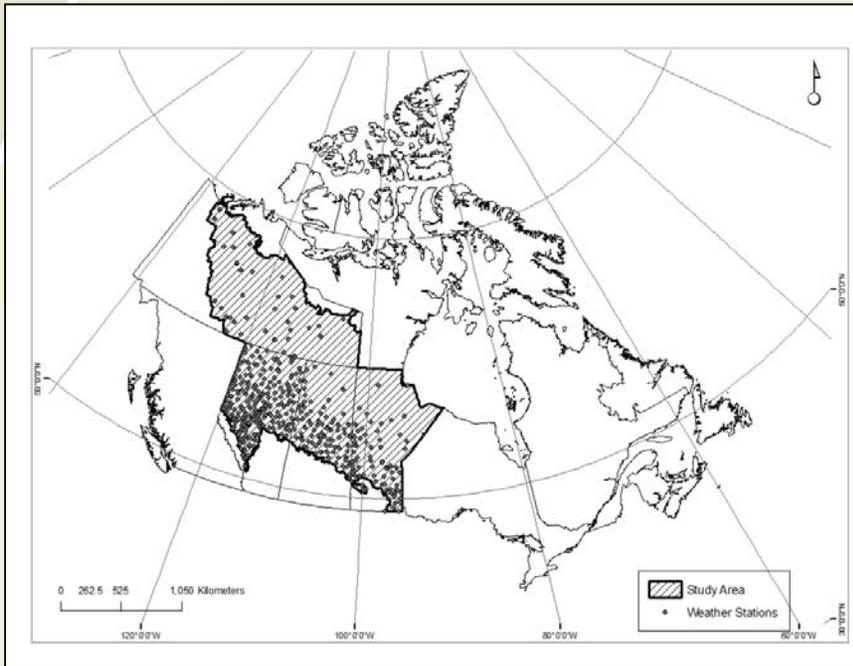




Boreal Fire Regimes

(2001-2007)

>200ha fires



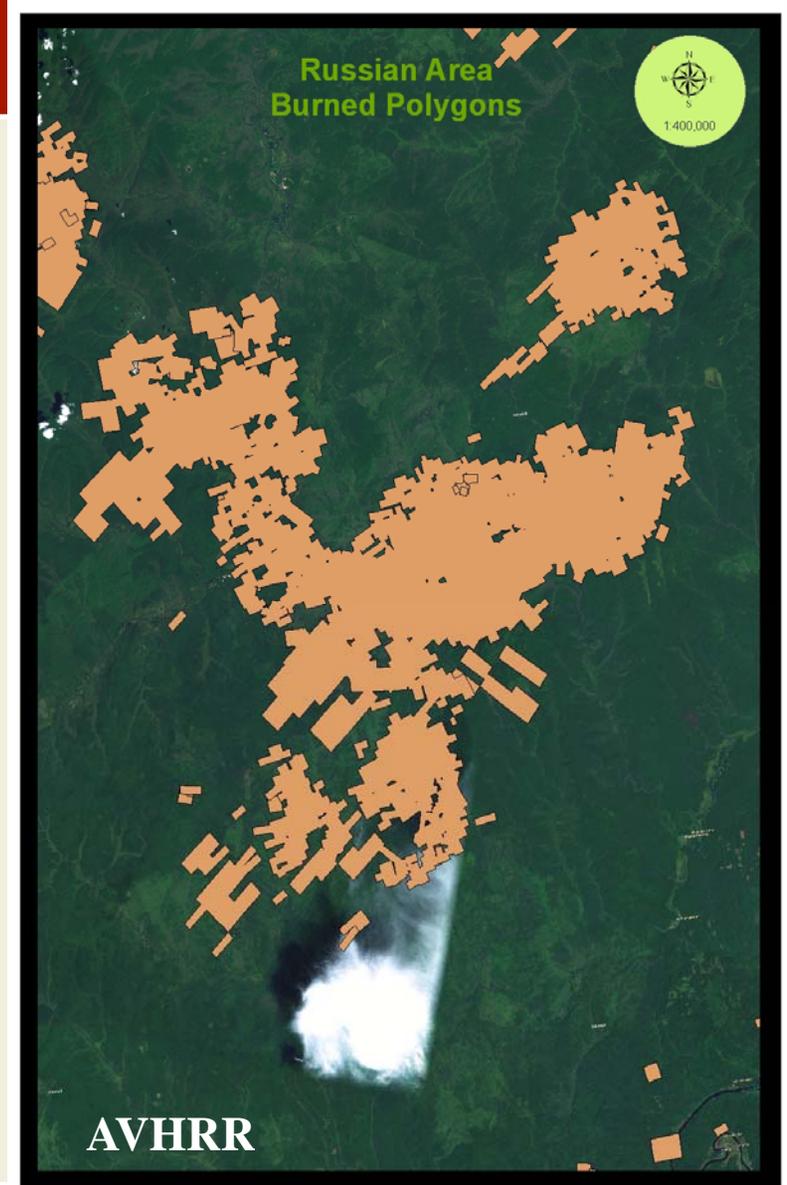
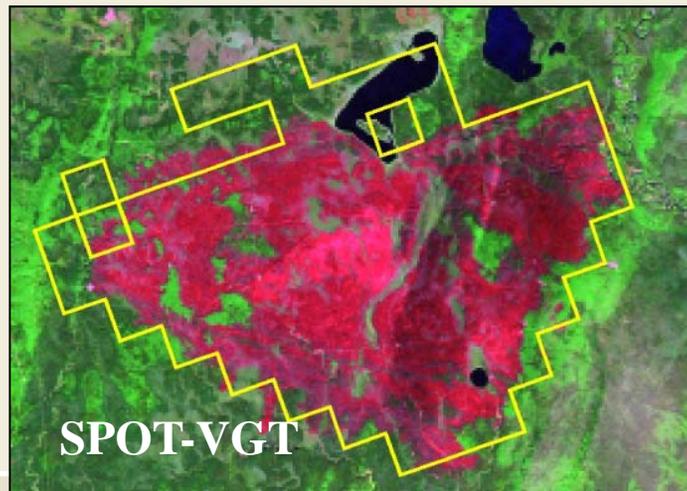
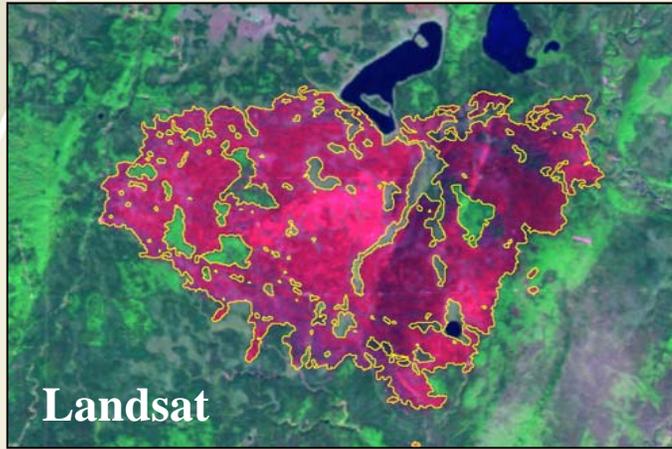
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Area Burned Data

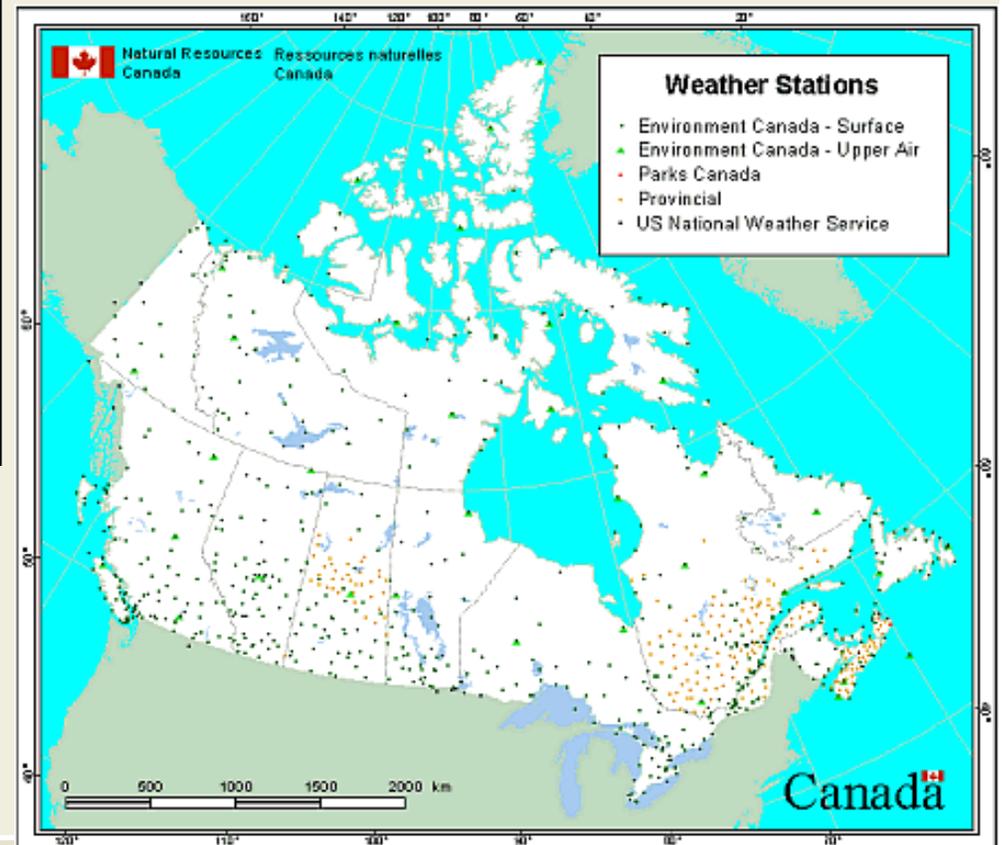




Simulation Procedures



- Calculate daily fire weather



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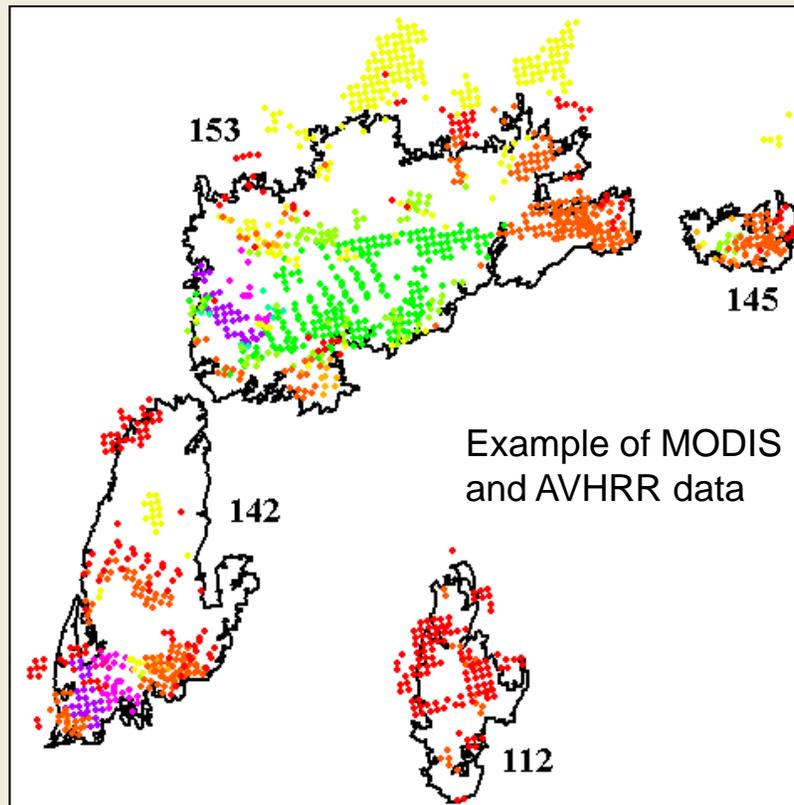
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Date of Burn

MODIS hot spots used to determine daily fire activity



Julian Date



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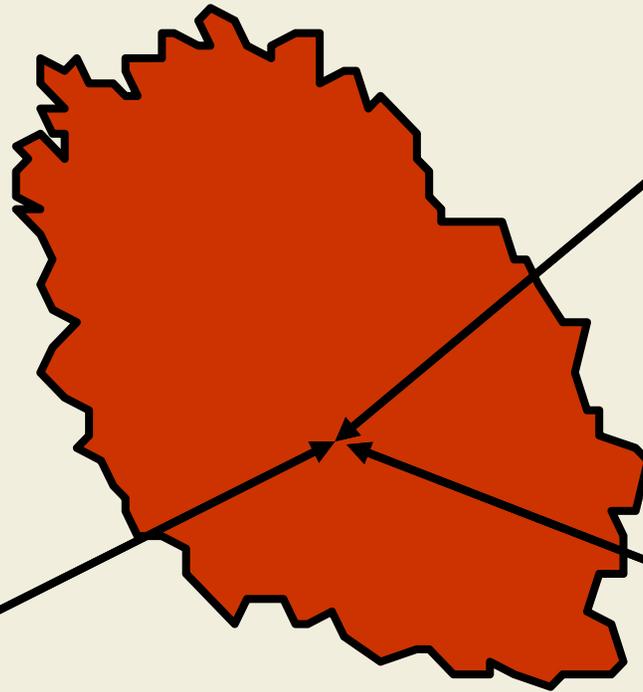
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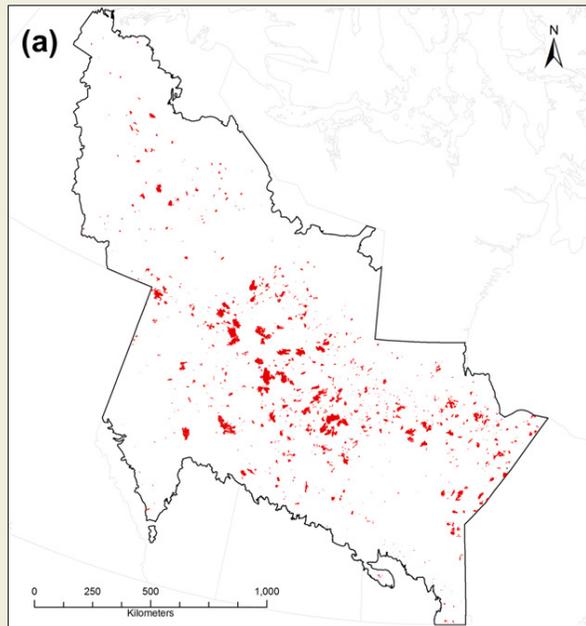
Fire Weather Interpolation

- Fire weather is interpolated to each fire (averaged by weather associated with each MODIS hot spot)

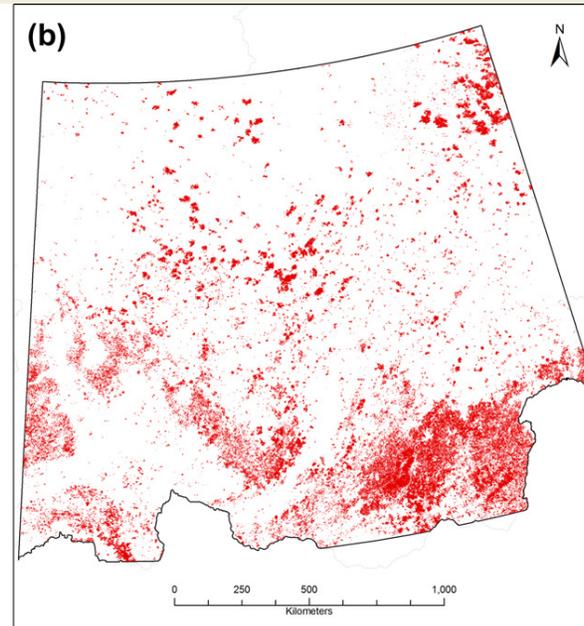




Boreal Fire Regimes



Canada: 1028 fires
Area burned:
6.1 M ha



Russia: 30,243 fires
Area burned:
39.7 M ha



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Canada



Next Step: Boreal Fire Regimes (1979-2009)



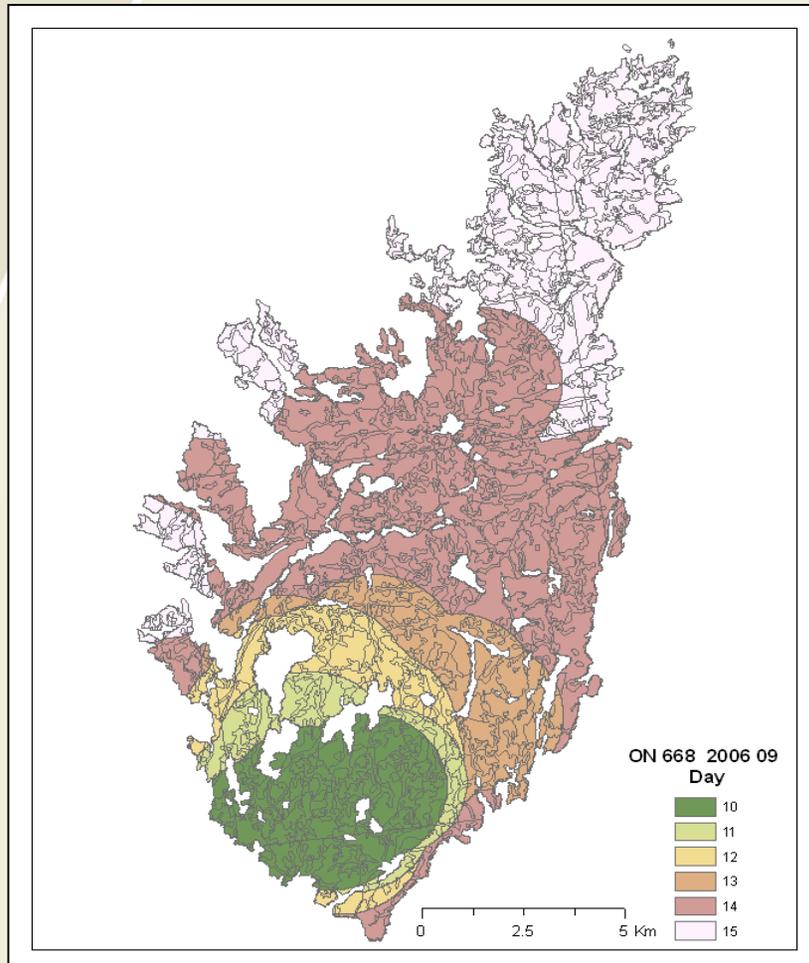
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Canada

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Carbon Emissions Modeling



- 25 large fires in Canada 2006-2008
- Landsat area burned
- daily fire spread by MODIS hotspots
- daily fire weather
- bottom-up calculation of C emissions using fuels, weather data and fire behaviour modeling (fuel consumption) by CanFIRE
- Fuels – forest inventory, CBM-CFS3, national FBP database, (EO biomass dataset?)
- will test with different fuels databases, 1-day and daily fire spread simulations
- Martin Wooster – FRP data





Thank You

GOFC-GOLD Global Fire EWS Project Team

WJ de Groot	Canadian Forest Service
JG Goldammer	Global Fire Monitoring Centre
J San-Miguel-Ayanz	Joint Research Centre, European Commission
T Brown	Desert Research Institute
CO Justice	University of Maryland/FIRMS
TJ Lynham	Canadian Forest Service
IA Csiszar	NOAA/NESDIS
E Chuvieco	University of Alcalá



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