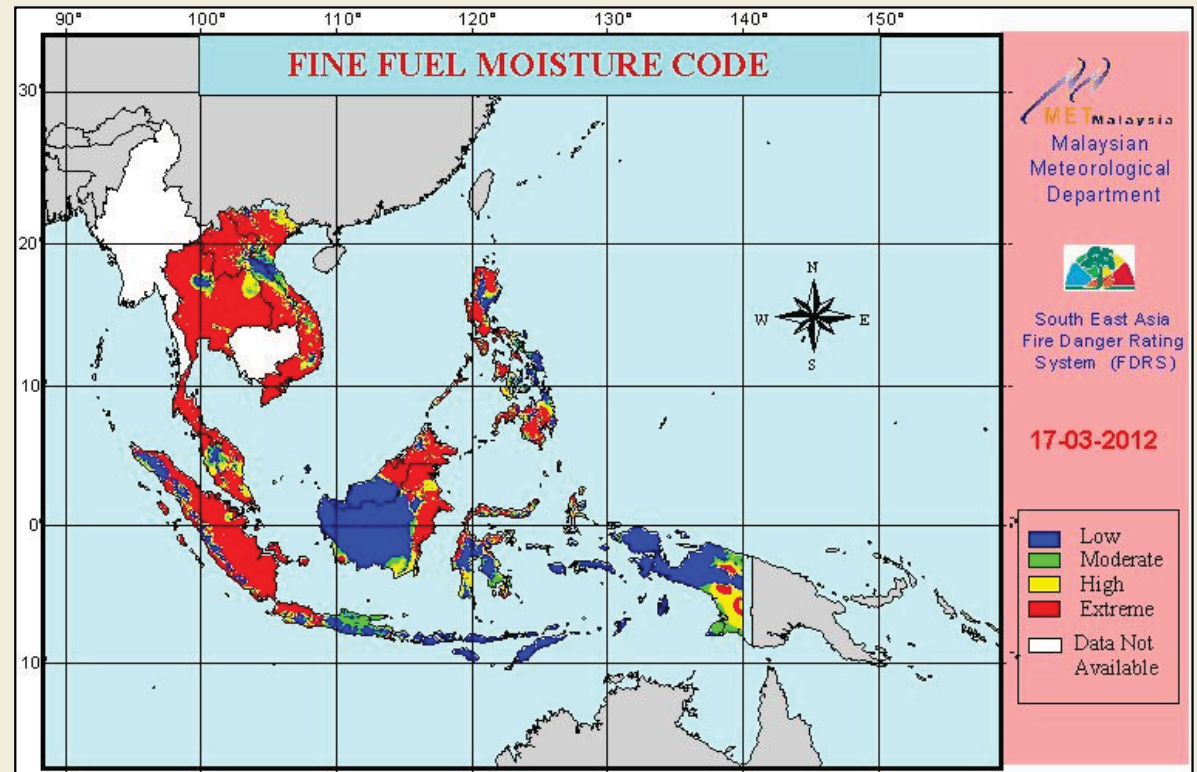




# Regional Fire Early Warning: a key component of national to local fire management



WJ de Groot  
JG Goldammer





# Presentation Outline

1. Fire danger and early warning
2. Overview of the Global EWS
3. Regional early warning
4. National and local applications

Global EWS website at  
FIRE GLOBE Global Fire Monitoring Center:  
<http://www.fire.uni-freiburg.de/gwfews/index.html>

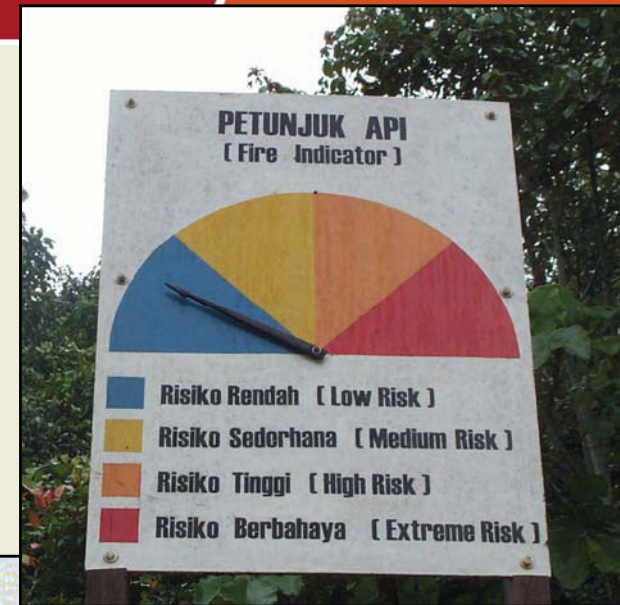




## What is Fire Early Warning?

Wildland Fire Danger – a measure of the potential for fire to start, spread, and have significant impact.

Fire danger is a primary fire management decision-aid tool.







## Why do we need fire danger rating?

Fire Danger Rating is used to:

- Justify annual budgets, and emergency funding
- Carbon emissions reporting (UNFCCC)
- Air quality hazard reporting
- Model post-fire succession and biodiversity
- Simulate climate change impacts and management adaptations
- Public information - extreme burning conditions
- Planning prescribed burns
- Determine fire suppression resource requirements and strategic positioning





## What is Fire Early Warning?

Early warning is advanced knowledge of future fire danger conditions

Fire early warning provides:

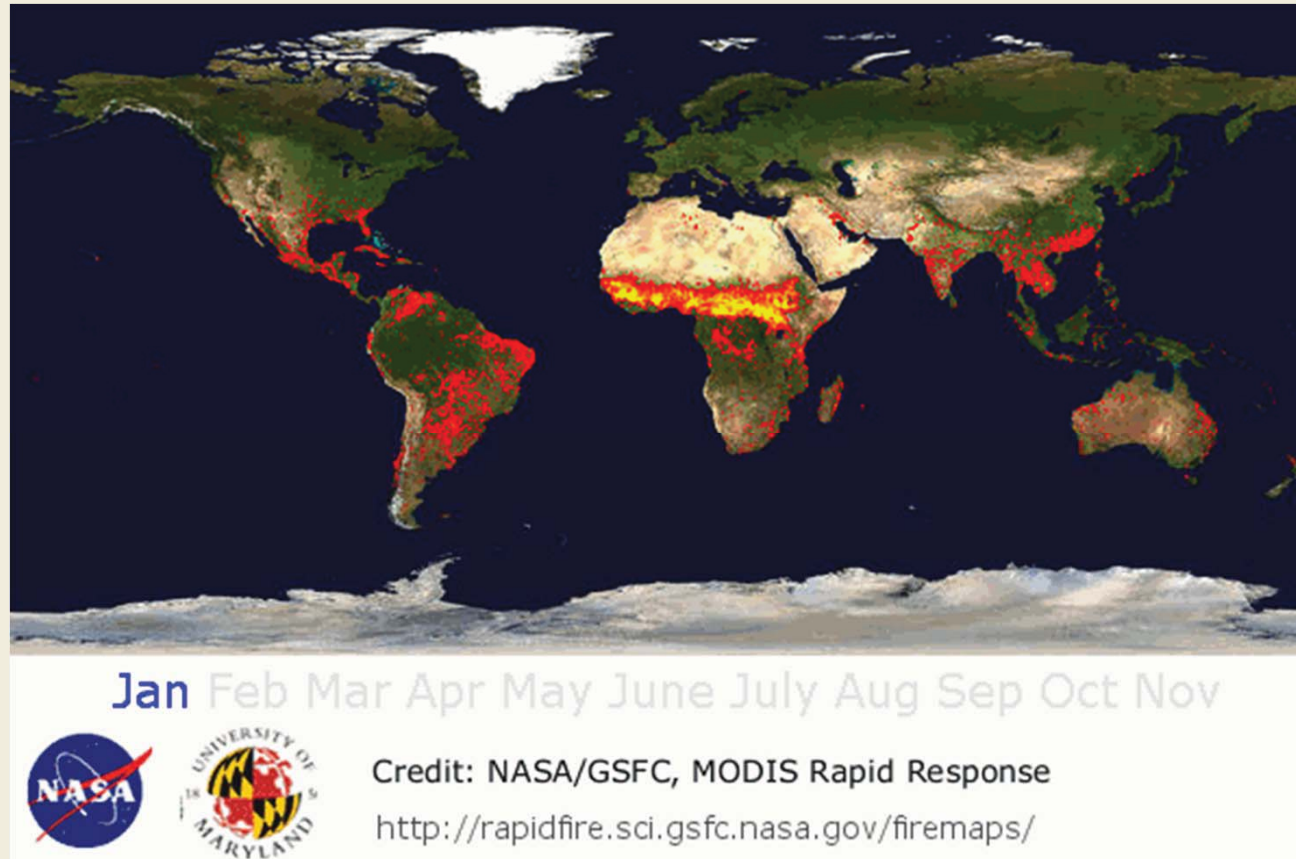
1. Time to implement fire management actions that mitigate or prevent wildland fire disaster before fires occur
2. Guidance in the planning and appropriate use of prescribed fire





# Global EWS for Wildland Fire

2009 Global fires



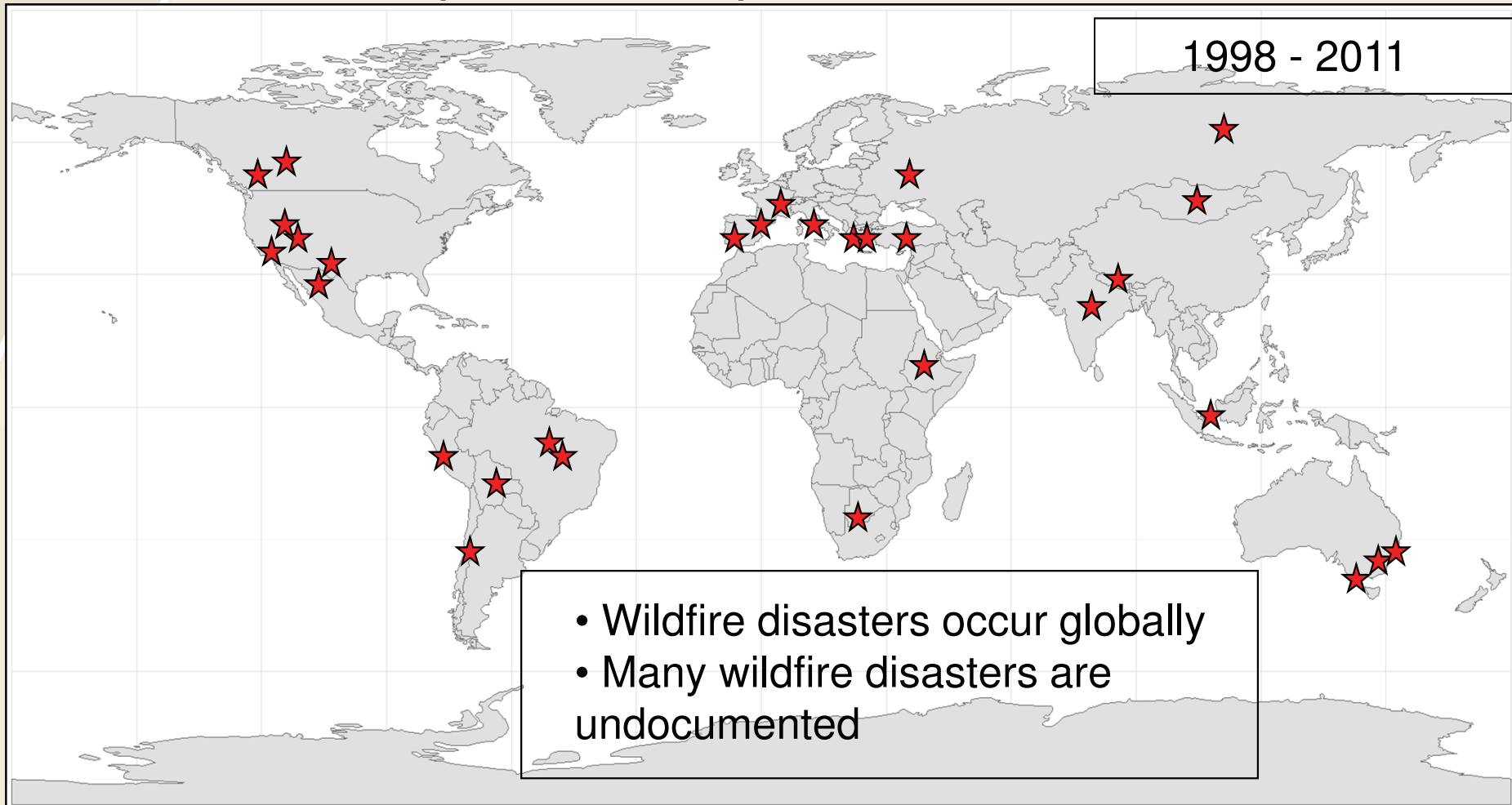
Purpose is to reduce global wildland fire disaster through early warning, and promotion of information and resource-sharing







## Examples of Recent (Documented) Wildfire Disasters





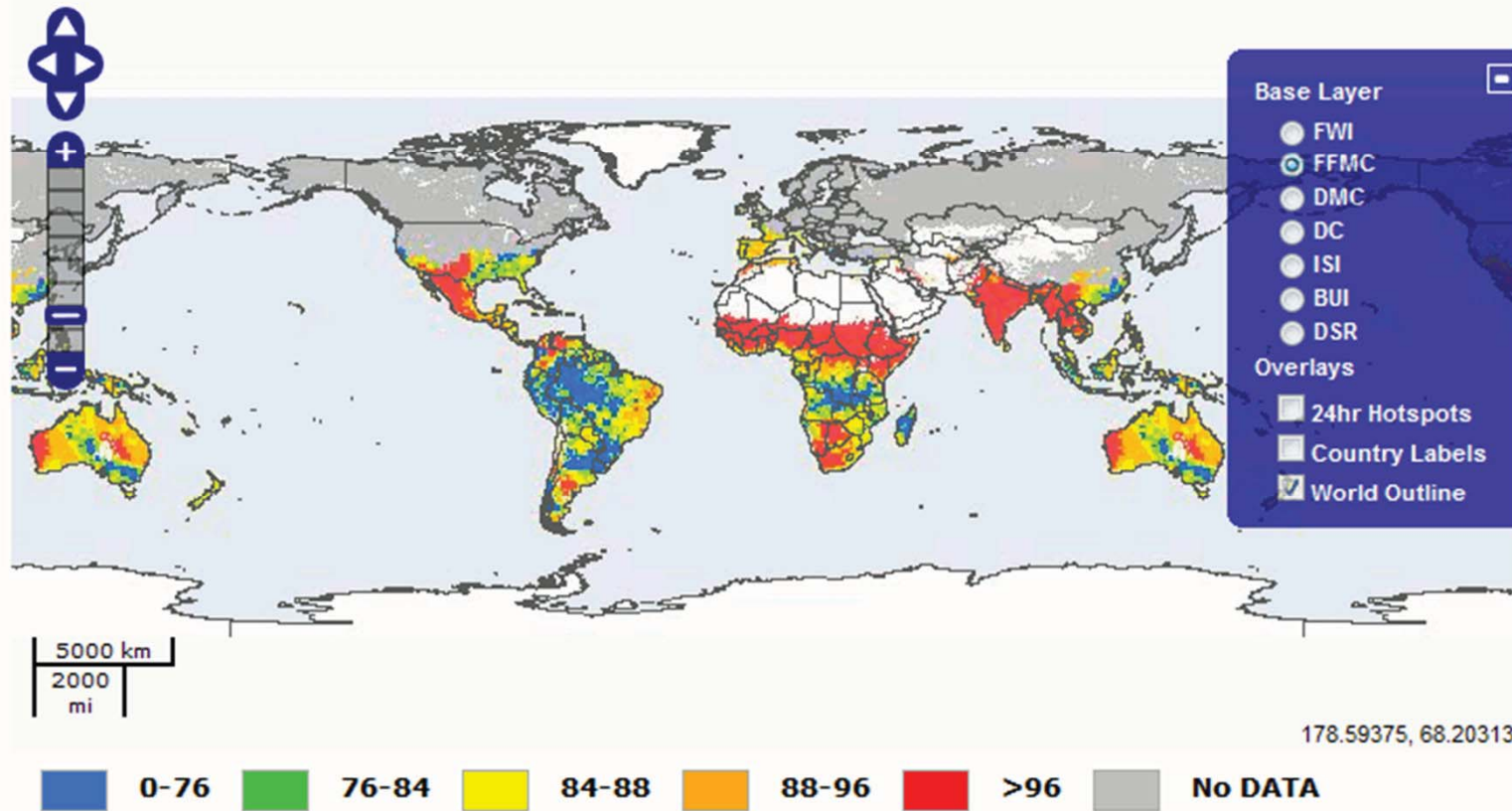
# Global Early Warning System for Wildland Fire

March 1, 2012

FFMC - Fine Fuel Moisture Code

Choose a date

Submit







## Global EWS for Wildland Fire: Basic Structure

<b>Global</b>	<ul style="list-style-type: none"><li>• International coordination – global information, disaster assistance</li></ul>
<b>Regional</b>	<ul style="list-style-type: none"><li>• Regional information - locally calibrated, quickly updated fire risk</li></ul>
<b>National</b>	<ul style="list-style-type: none"><li>• Direct national resource movements</li><li>• Set national standards<ul style="list-style-type: none"><li>• training, equipment</li></ul></li></ul>
<b>Sub-National or Local</b>	<ul style="list-style-type: none"><li>• Field level fire management<ul style="list-style-type: none"><li>• Operational decision-making</li></ul></li></ul>



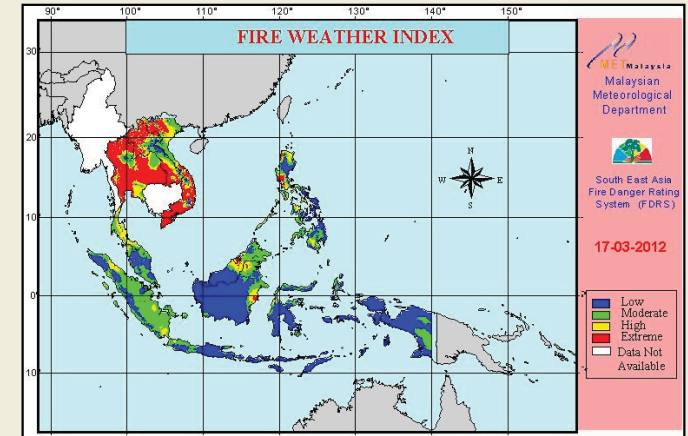
Global to  
Local  
Connection





## Role of Regional Early Warning

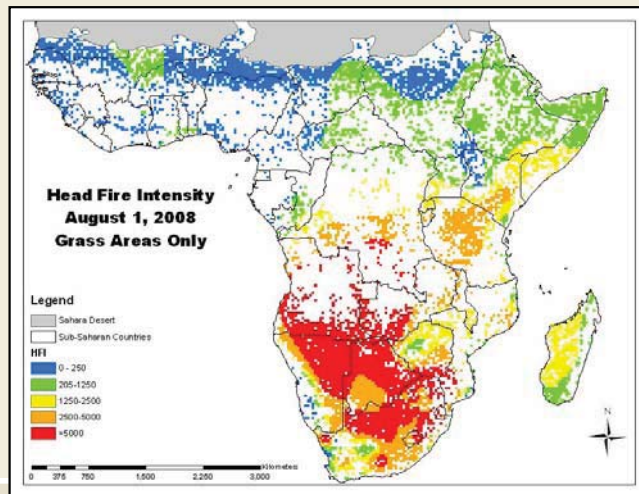
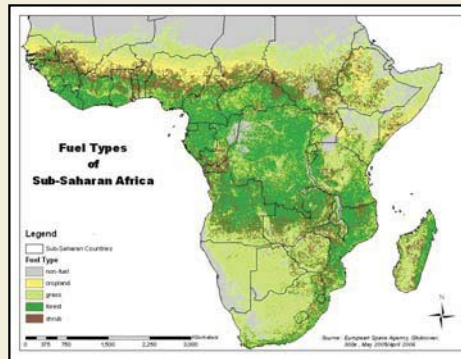
- Provide “locally” calibrated fire risk data (regional and national)
- Provide updated daily forecasts (in local time zone)
- Supports existing national FDR systems, and provides an FDRS for countries without a national system





# Africa Example – Regional prototype

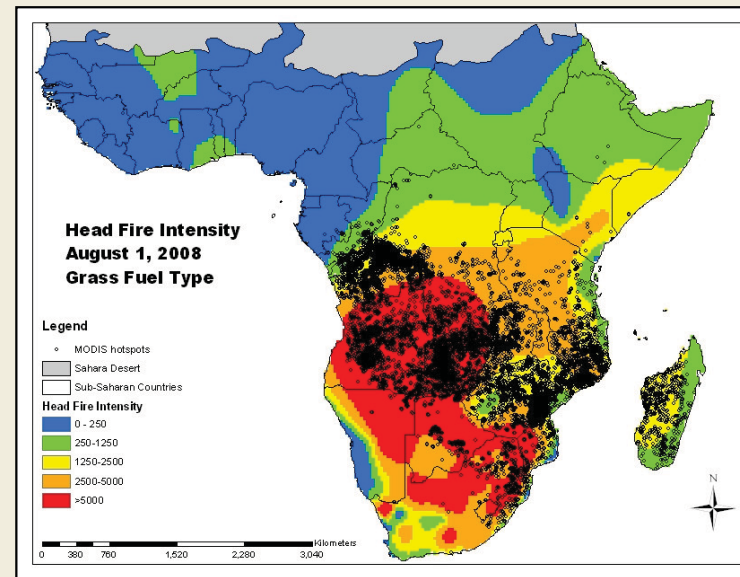
## Vegetation Classification



## Fire Danger



## Hot Spots



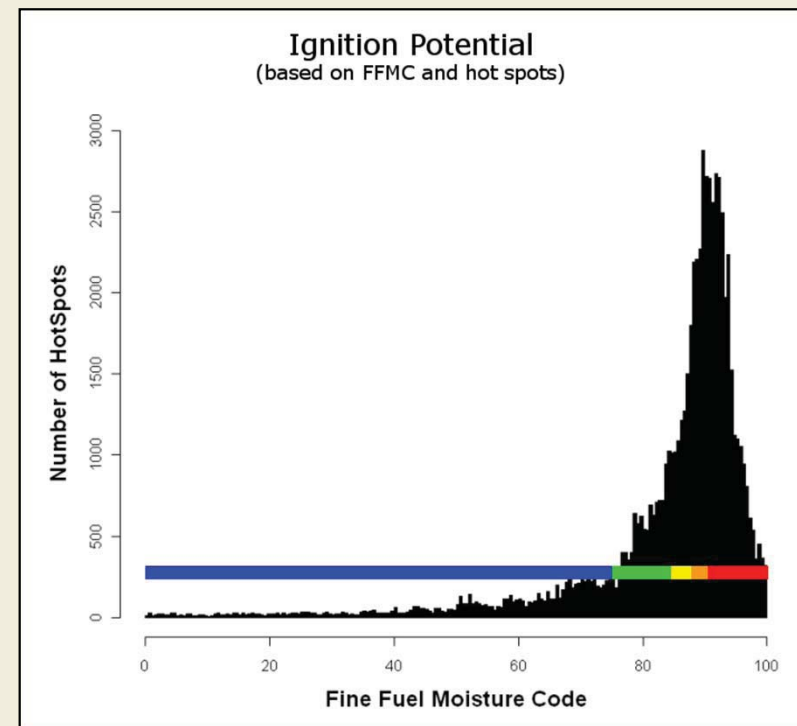
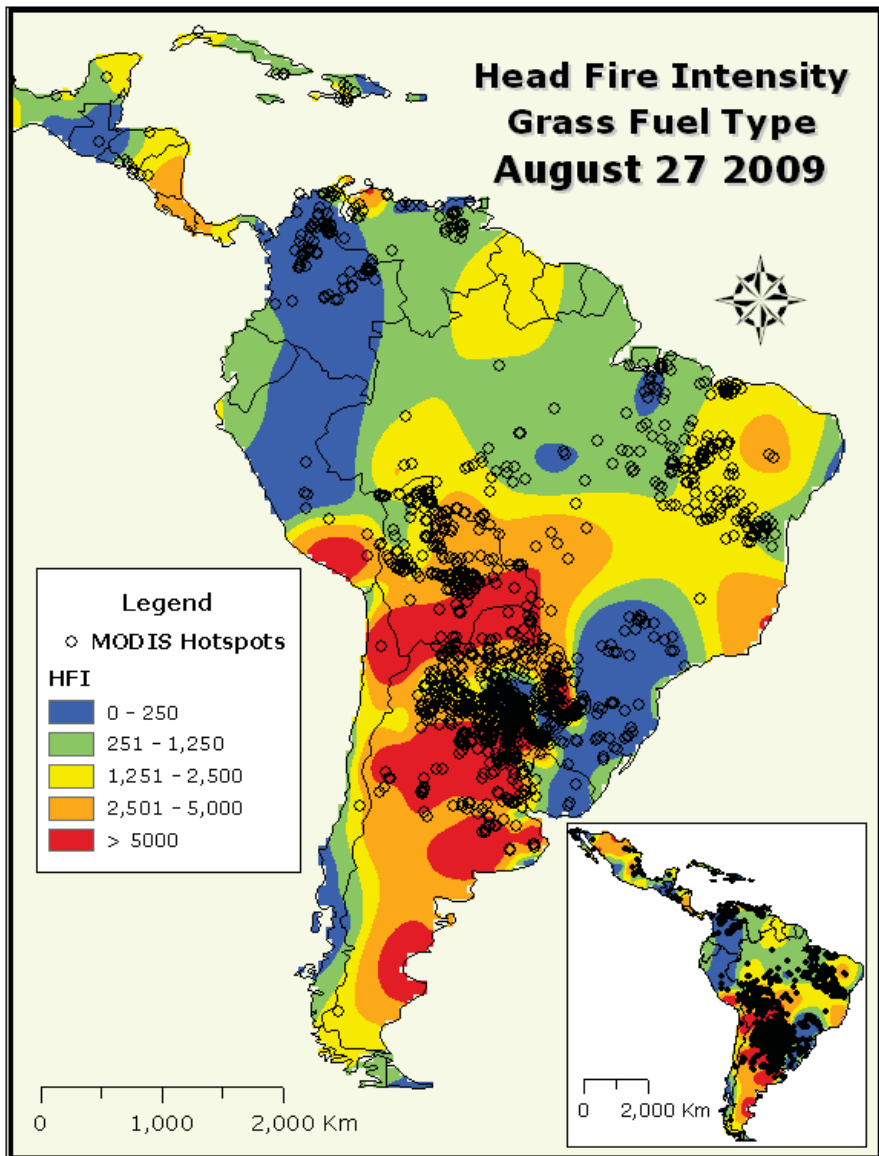
## Equipment Needs and Active Fires





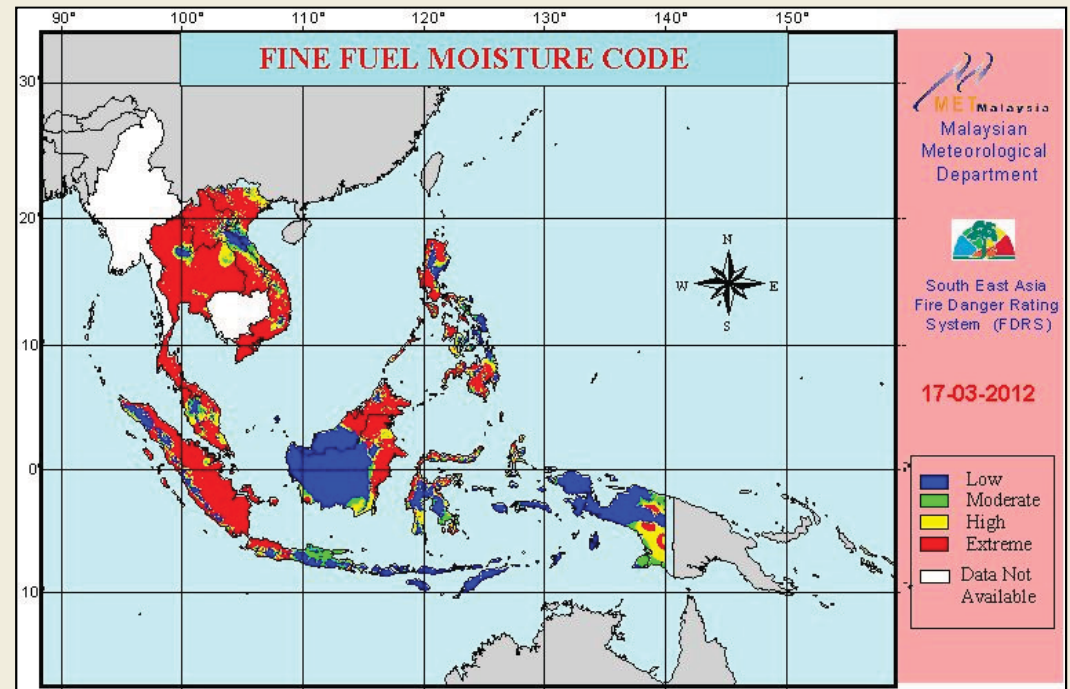
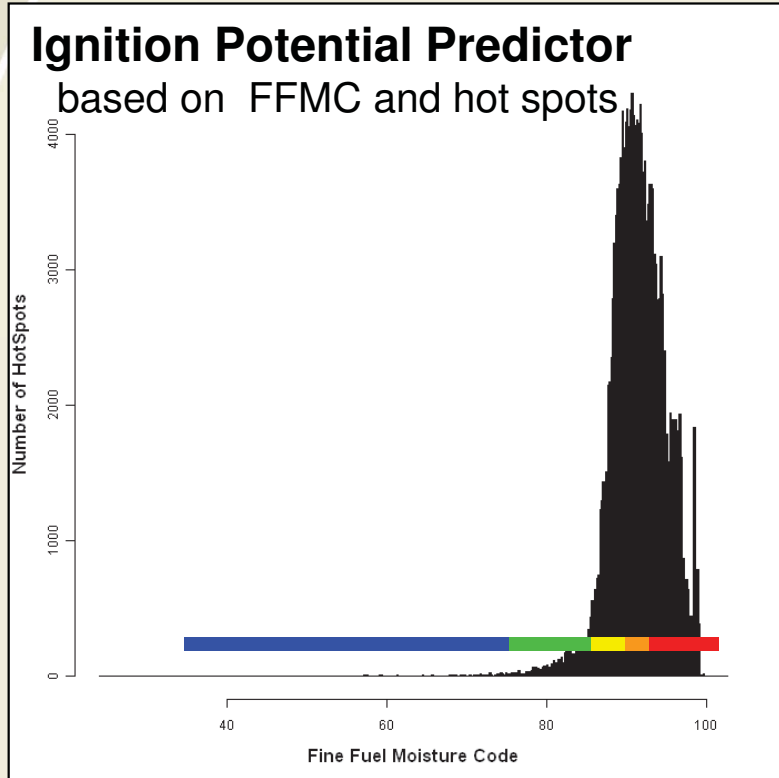


# Regional EWS Prototype: Central and South America





# Southeast Asia – Calibration of FFMC





# Early Warning Applications: National and Local Level

- Provide rapid updates of fire danger from local weather network
- Used to determine daily fire prevention, detection, and suppression activities at local level
- Based on locally-derived guidelines for prescribed fire and fire control

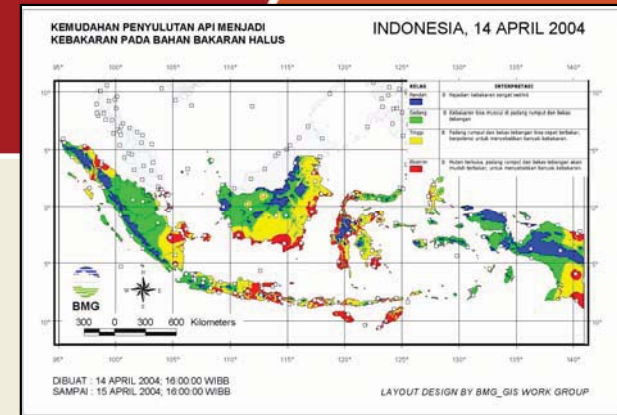


Photo: Working on Fire

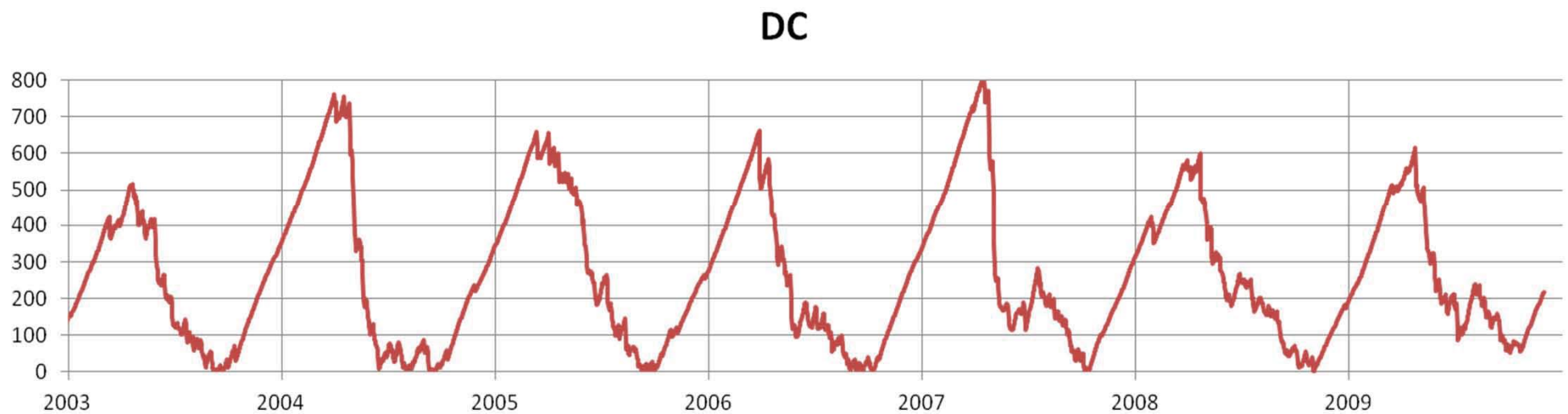






# NW Thailand Calibration Example <sup>1</sup>

- Calibration to extreme events of 2004 and 2007
- Based on Total Particulate Matter emissions
- DC threshold of 650



<sup>1</sup> Robert Field, Columbia University

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Natural Resources  
Canada

Ressources naturelles  
Canada

Canada







# Prevention and Detection Planning Guide

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





## Pre-Suppression Planning Guide

Wildfire Threat Level	Resources on Standby	Alert Period	Dispatch Time
<b>Low</b> 	crews, hand tools	mid-day	60-min
<b>Moderate</b> 	crews, hand tools	all day	30 min
	pumps, water tanks	mid-day	60 min
<b>High</b> 	crews, hand tools	all day	15 min
	pumps, water tanks	all day	30 min
	control line-building equipment	mid-day	60 min
<b>Extreme</b> 	crews, hand tools	all day	15 min
	pumps, water tanks	all day	15 min
	control line-building equipment	all day	30 min
	aircraft, burnout equipment	mid-day	60 min







# Communication and Cooperation

- Fire management collaboration occurs most often between closely-related countries
- International agency resource-sharing happens most frequently at a regional level
- Regional communication and information sharing will lead to enhanced collaboration
  - Supported by early warning and fire risk intelligence
  - Leads to resource-sharing, cross-training, exchange of expertise





# Next Steps in Regional Early Warning



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





# Thank You

**GOFC-GOLD** GLOBAL OBSERVATION OF FOREST  
AND LAND COVER DYNAMICS

## GOFC-GOLD Global Fire EWS Project Team

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E Chuvieco	University of Alcala
T Brown	Desert Research Institute

Global EWS website at  
FIRE GLOBE Global Fire Monitoring Center:

<http://www.fire.uni-freiburg.de/gwfews/index.html>

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