

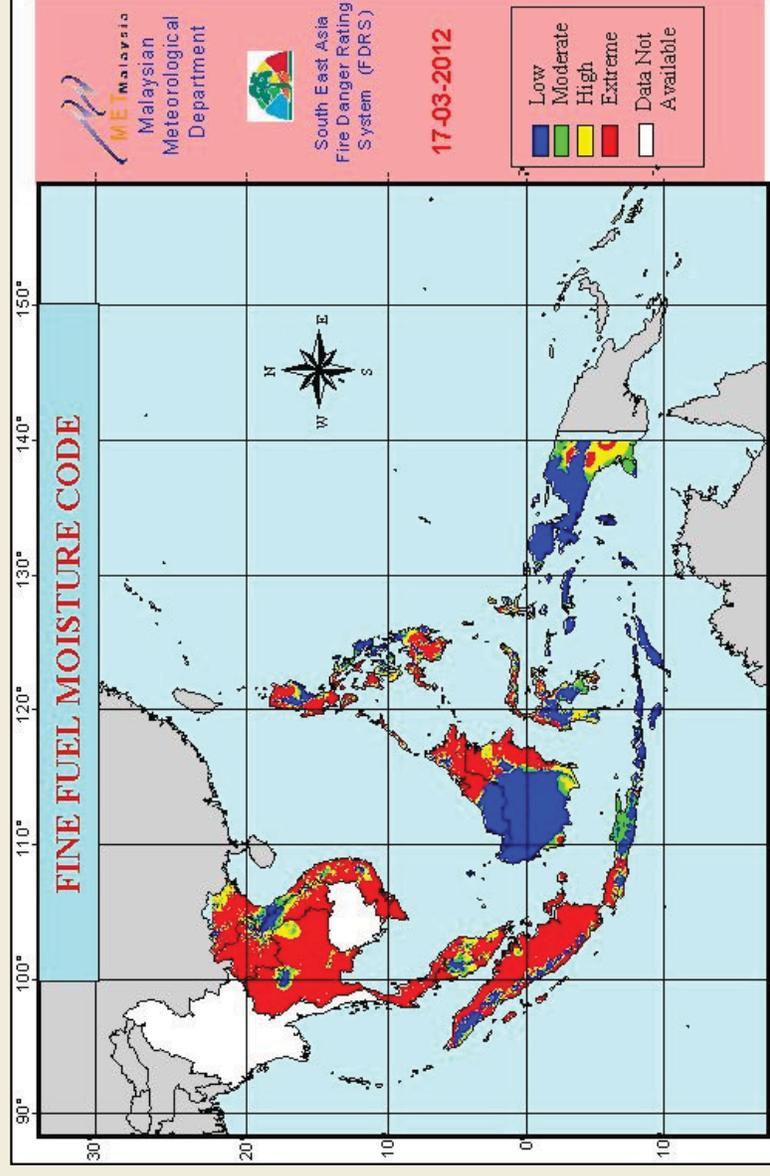


GOFC-GOLD

GLOBAL OBSERVATION OF FOREST
AND LAND COVER DYNAMICS

Regional Fire Early Warning:

a key component of national to local fire management



WJ de Groot
JG Goldammer

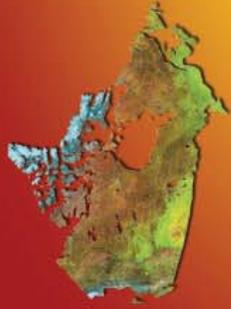


Natural Resources
Canada

Ressources naturelles
Canada

ASEAN Workshop – Peatland Fire and Early Warning
20 March 2012 Kuala Lumpur, Malaysia





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:

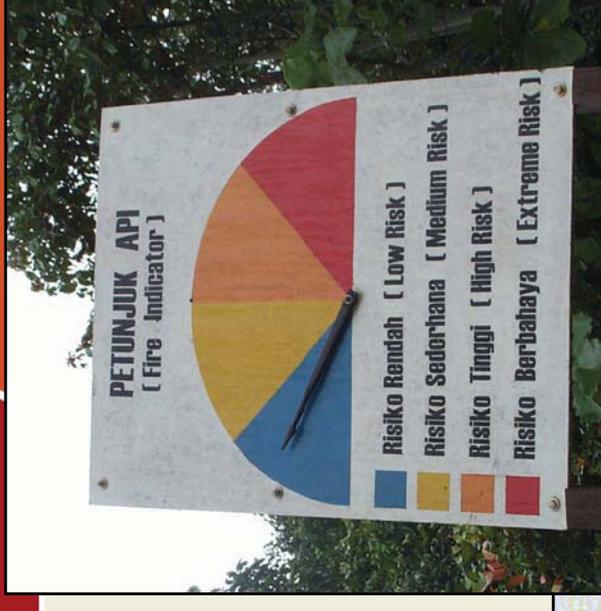
<http://www.fire.uni-freiburg.de/gwfews/index.html>



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.

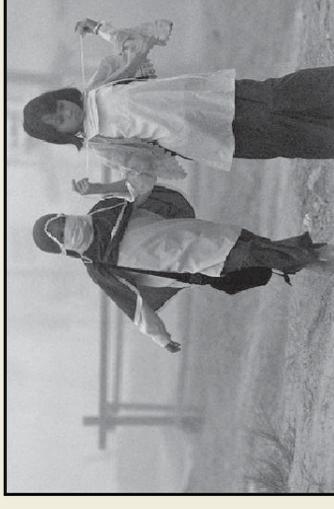




Why do we need fire danger rating?

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



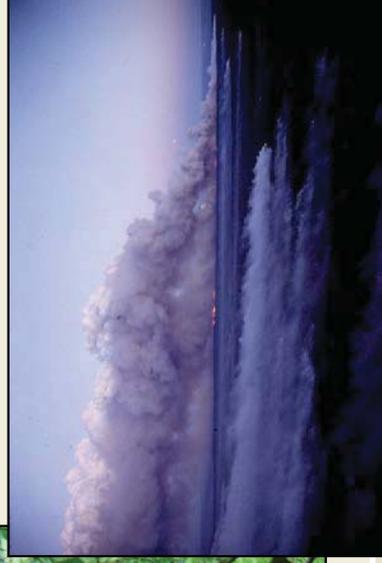
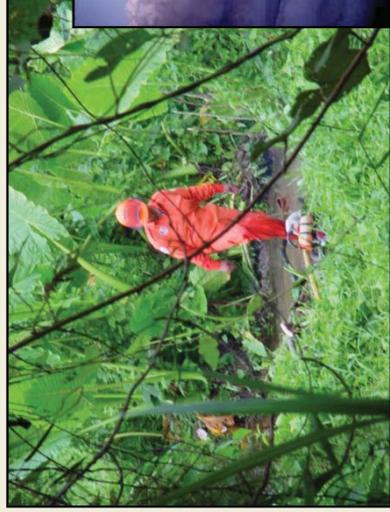
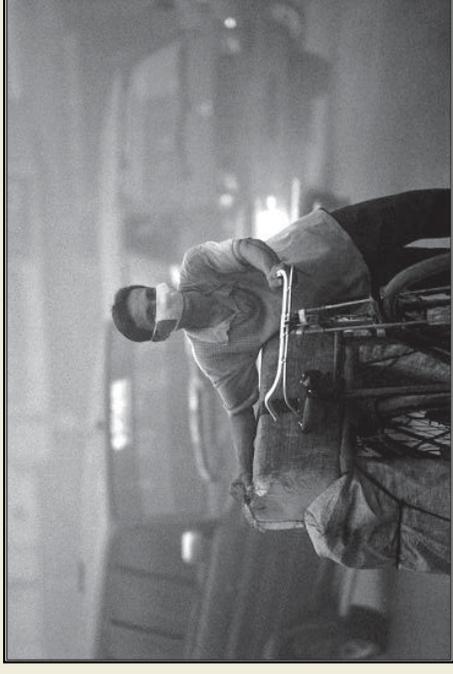


What is Fire Early Warning?

Early warning is advanced knowledge of future fire danger conditions

Fire early warning provides:

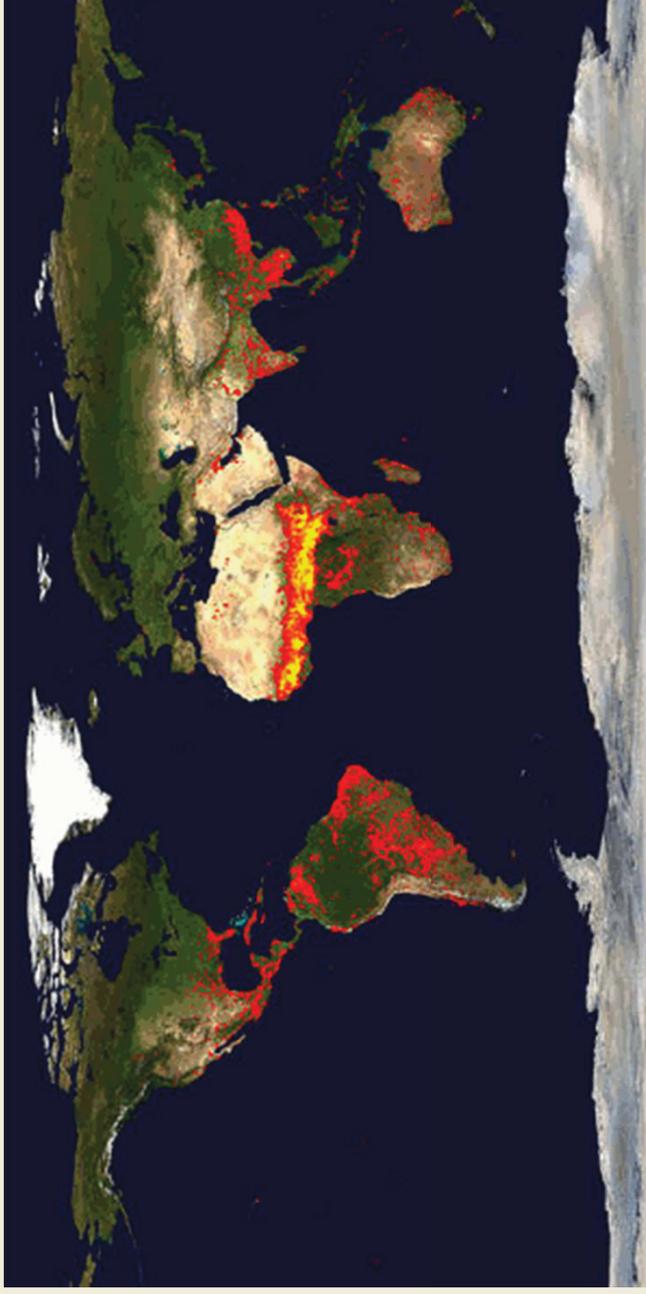
1. Time to implement fire management actions that mitigate or prevent wildland fire disaster before fires occur
2. Guidance in the planning and appropriate use of prescribed fire





Global EWS for Wildland Fire

2009 Global fires



Jan Feb Mar Apr May June July Aug Sep Oct Nov

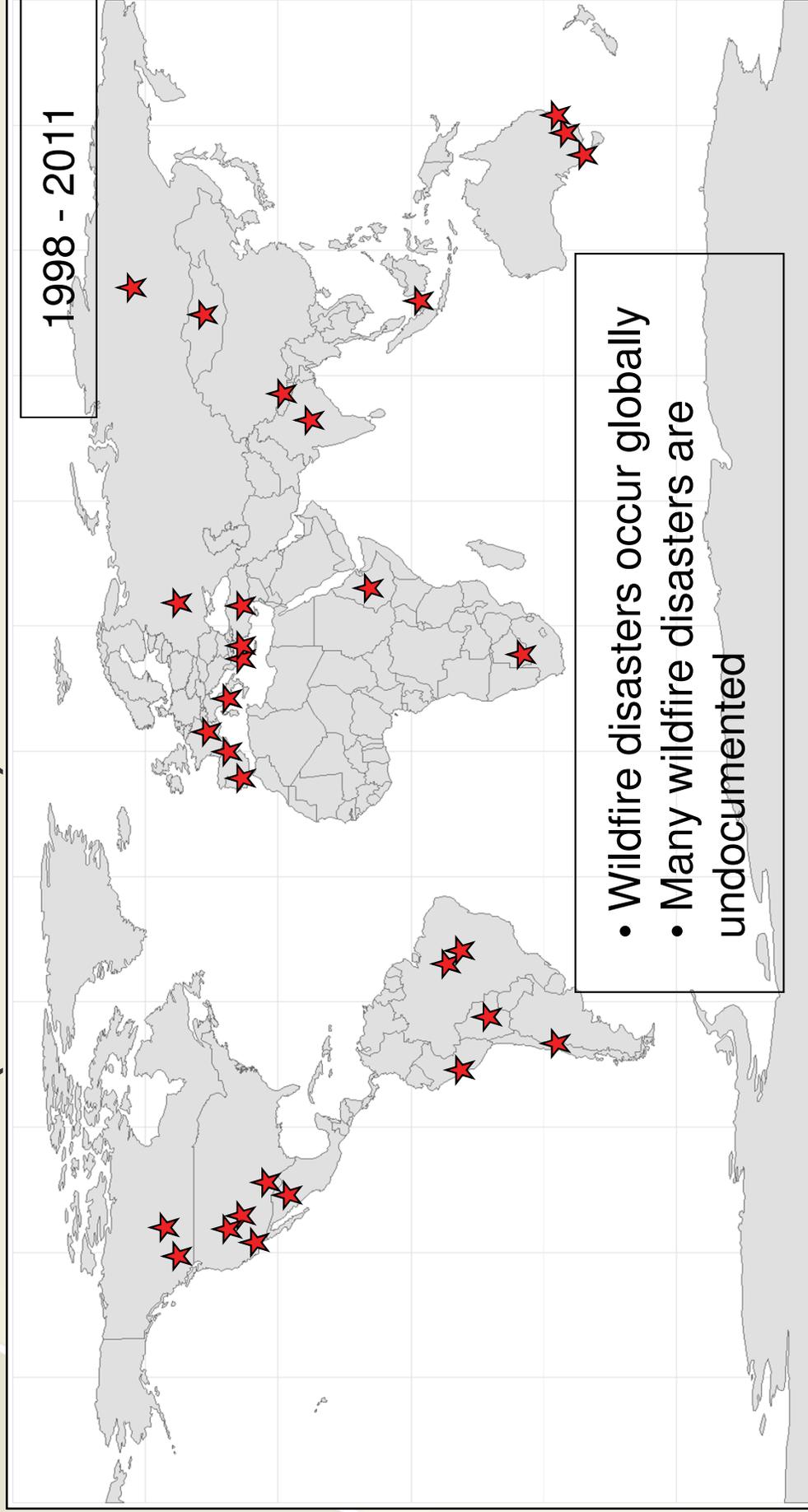


Credit: NASA/GSFC, MODIS Rapid Response
<http://rapidfire.sci.gsfc.nasa.gov/firemaps/>

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

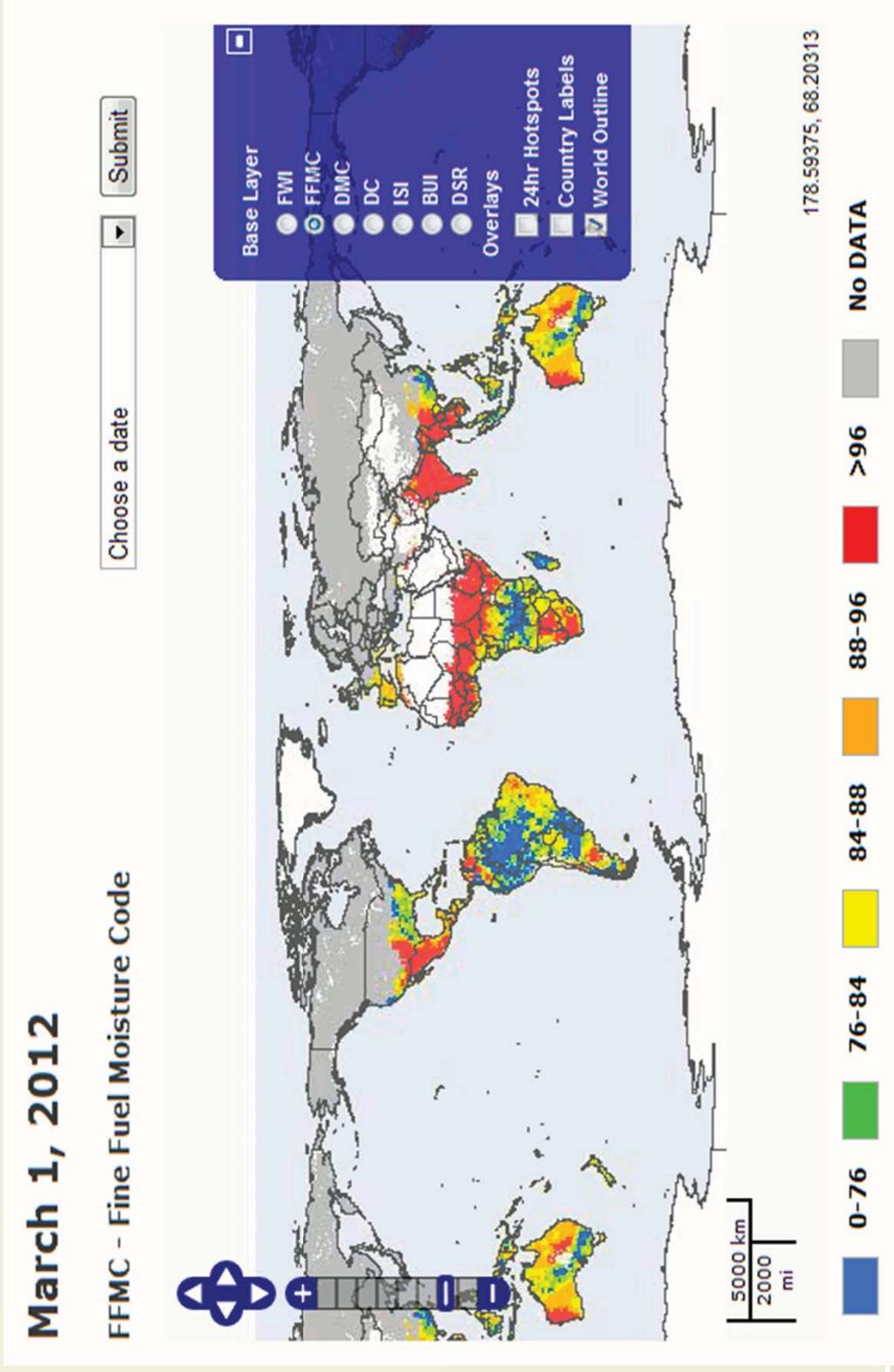


Examples of Recent (Documented) Wildfire Disasters



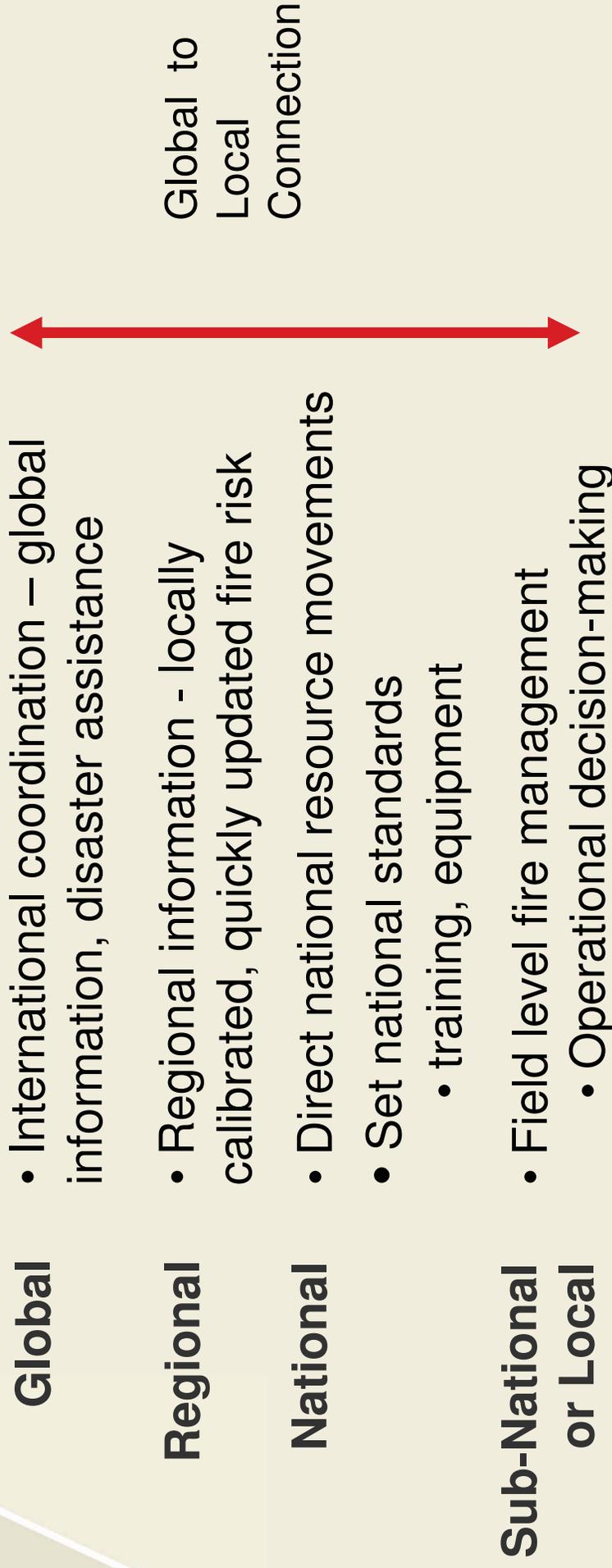


Global Early Warning System for Wildland Fire





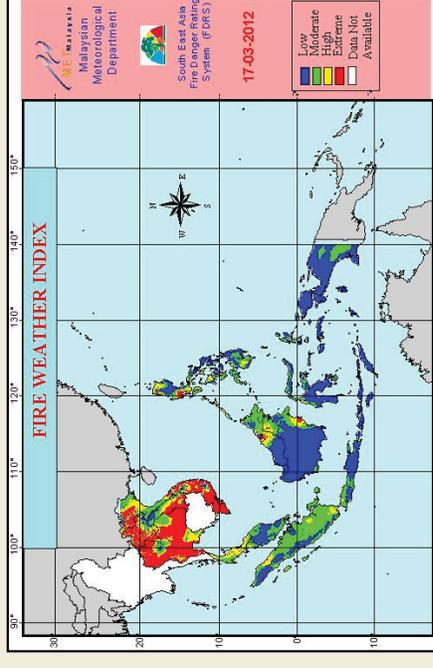
Global EWS for Wildland Fire: Basic Structure





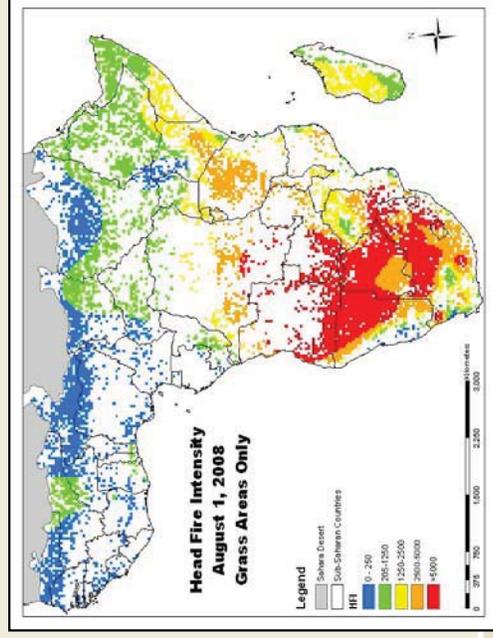
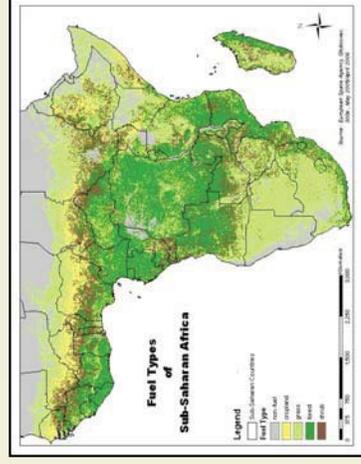
Role of Regional Early Warning

- 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

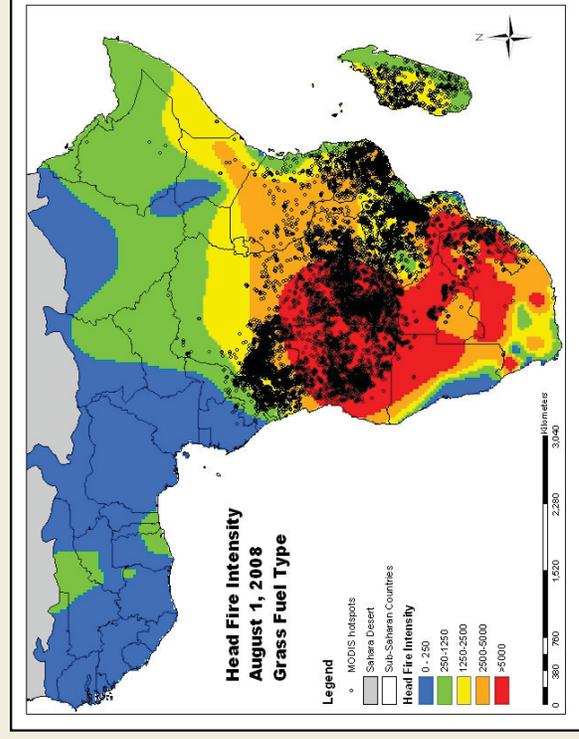


Africa Example – Regional prototype

Vegetation Classification

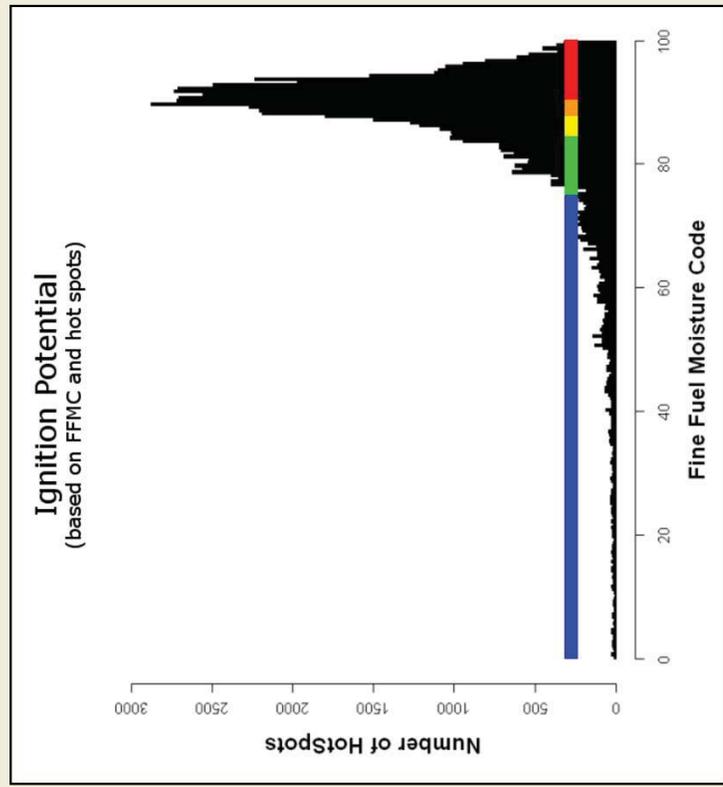
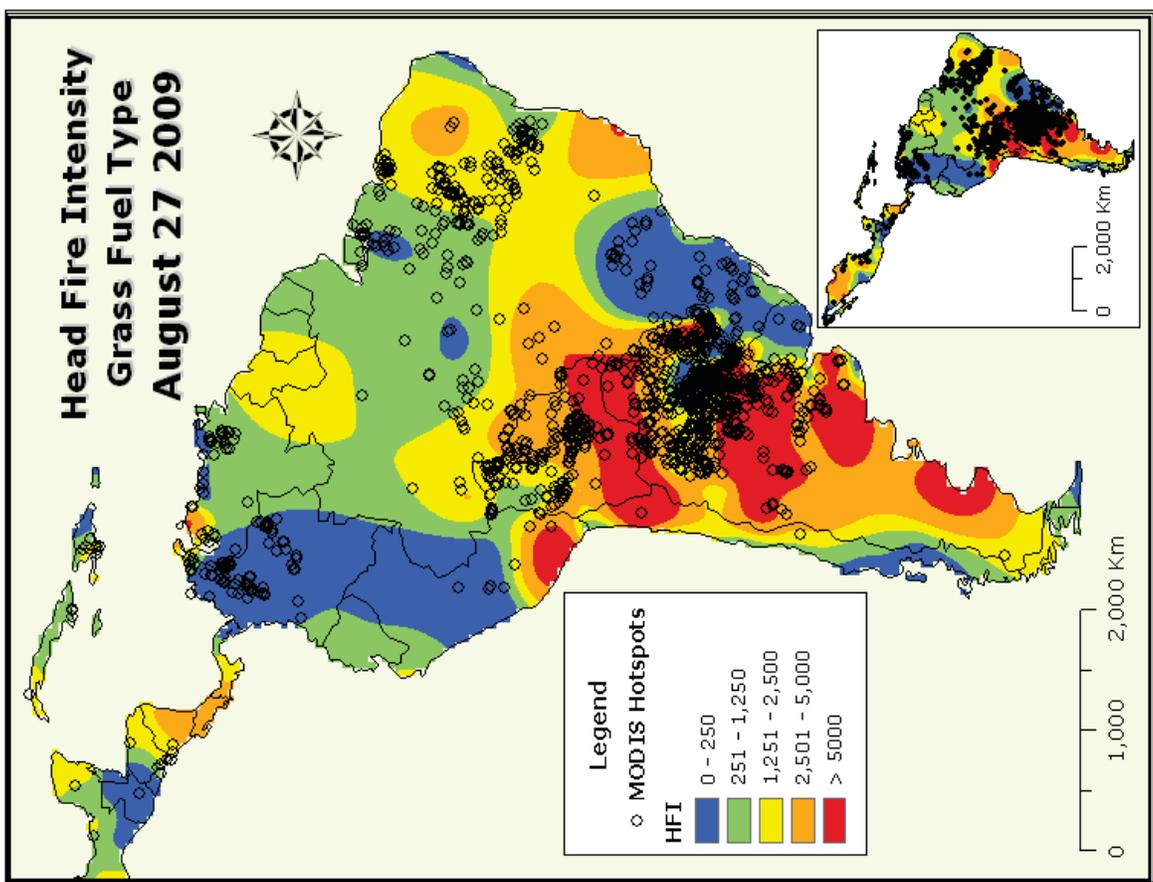


Fire Danger



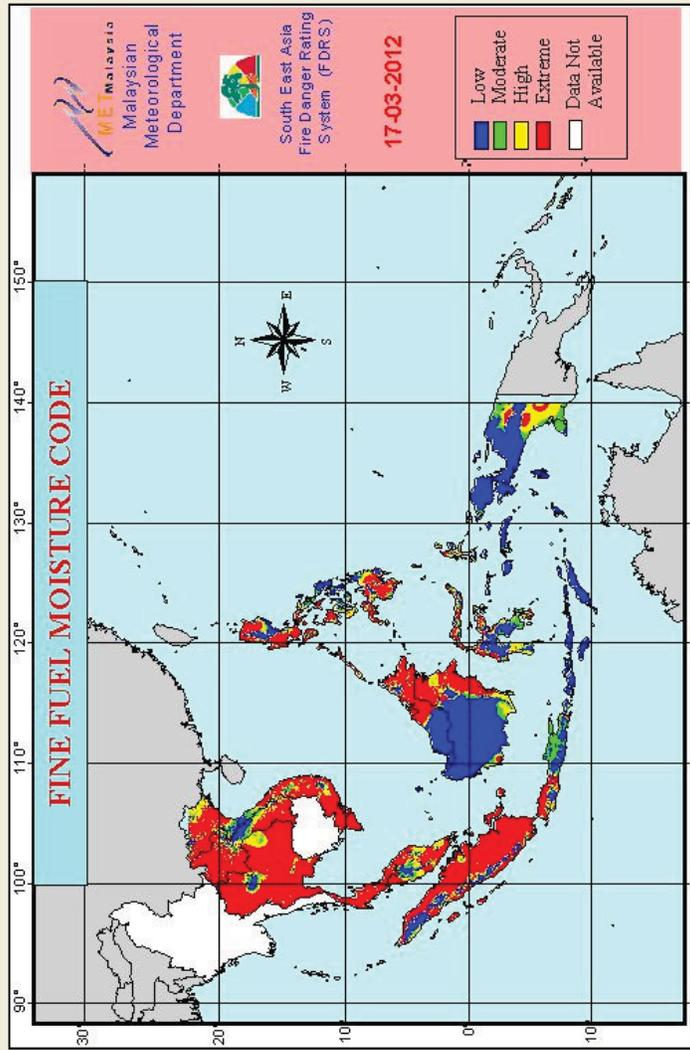
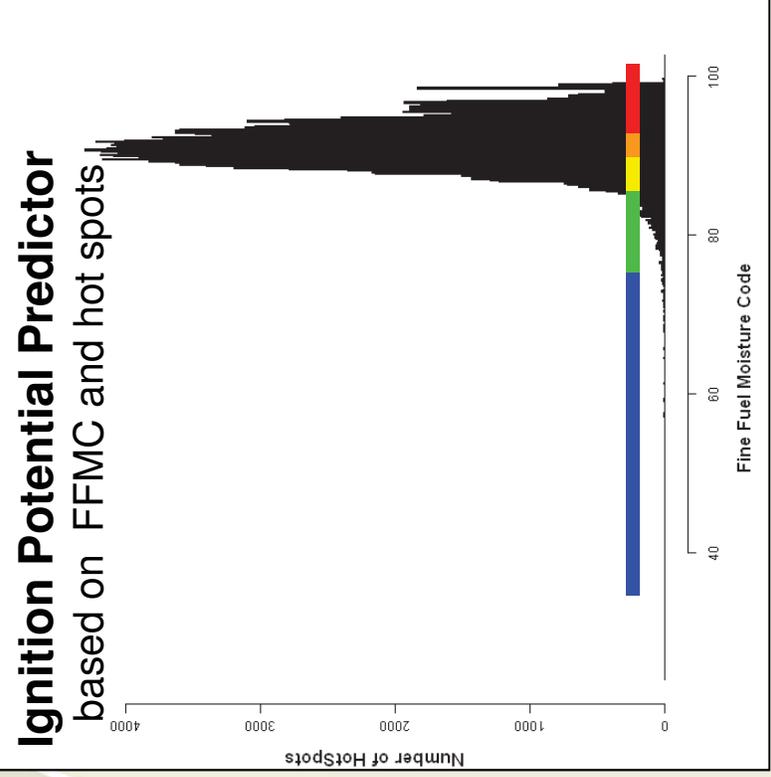
Equipment Needs and Active Fires

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

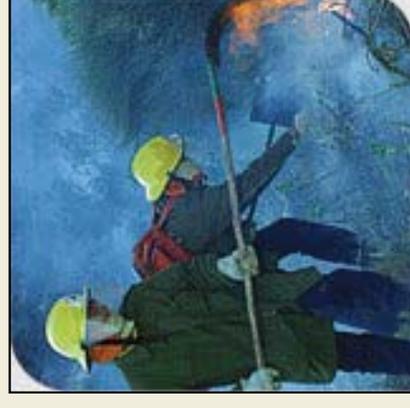
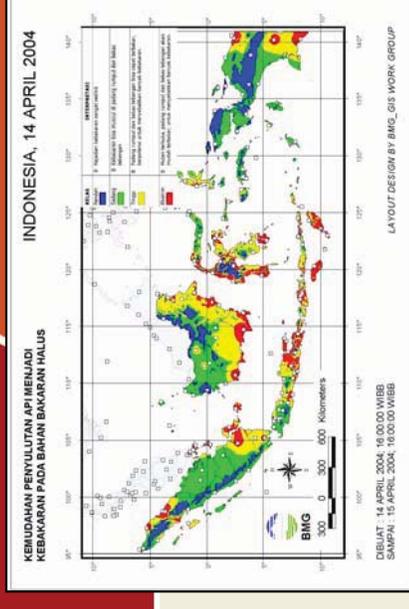
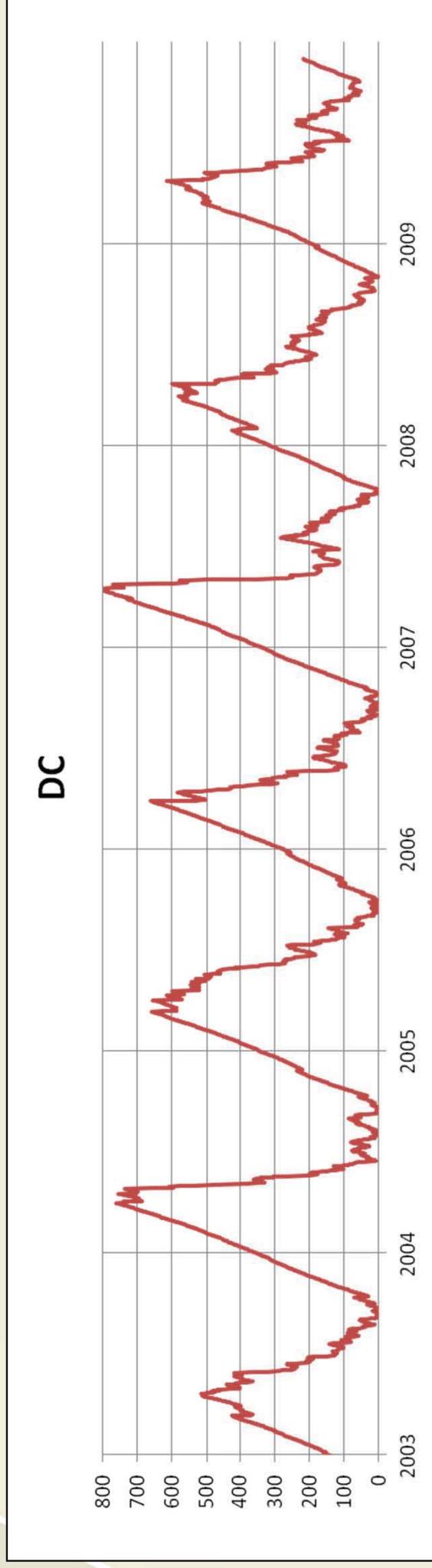


Photo: Working on Fire



NW Thailand Calibration Example ¹

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



¹ Robert Field, Columbia University



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



Pre-Suppression Planning Guide

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