Global Early Warning System for Wildland Fire: The Links to Multi-Hazard Approaches in Early Warning

The Global Wildland Fire Early Warning Consortium

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Wildland Fire: A Global Source of Multiple Hazards

- Significant Ecosystem damage
  - Degradation in forest/grassland health due to uncontrolled burning
  - Agriculture and land degradation with losses in production
  - Hydrological changes resulting in siltation and flash flooding
- Significant loss of life, including negative societal impact and economic losses
  - Losses and vulnerability at urban-rural interface increasing
  - Health impacts due to smoke and emissions
  - Disruption of transport due to poor visibility
  - Costly fire suppression programs
- Potential impact on climate change
  - Global carbon cycle impact (negative or positive)
  - Increased aerosols

MODIS Rapid Response Global Fire Map

Fire Danger Class
Classe de danger
22 Oct/Oct 1997

Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters

1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation
2. Identify, assess and monitor disaster risks and enhance early warning.
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
4. Reduce the underlying risk factors
5. Strengthen disaster preparedness for effective response at all levels

Global Early Warning System for Wildland Fire: A global partnership reflecting a multidiscipline approach

- Global Fire Monitoring Center (GFMC), Max Planck Institute for Chemistry, c/o Freiburg University / United Nations University, Germany on behalf of the UNISDR Wildland Fire Advisory Group / Global Wildland Fire Network- Information dissemination and technology transfer
- Canadian Forest Service (CFS), Edmonton, Canada- Fire Weather Index monitoring system, decision tools, outreach
- Bushfire Cooperative Research Centre (BCRC), Australia-End user products and evaluation
- Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD) Secretariat, Edmonton, Canada- Outreach, Support, product evaluation
- University of Maryland (UMD), USA- Remote sensing hotspot detection and vegetation specification
- World Meteorological Organization (WMO)- Operational Framework and Development Support
  - World Weather Research Programme (WWRP)
- Bureau of Meteorology Research Centre (BMRC), Melbourne, Australia-Ensemble/Deterministic Weather and Climate Global Fire Products
- European Centre for Medium Range Weather Forecasting (ECMWF)- Ensemble/Deterministic Weather and Climate Global Fire Products
  - Instituto Nacional De Meteorologia, Spain
  - Finnish Meteorological Institute, Finland
  - MetOffice, UK

Activities

a) Early warning system development & fire index product calibration: CFS, UMD, GFMC, BMRC,ECMWF
b) Operational implementation: BMRC, WMO, WWRP, ECMWF, GFMC, UMD,BCRC
c) Technology transfer: GFMC, GOFC-GOLD, CFS, BCRC
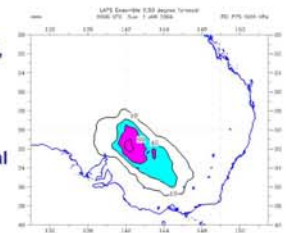
Example product: 60h forecast showing 75 % probability values of Forest Fire Danger Index (FFDI) -derived from regional ensemble-based weather forecasts
FFDI-Risk
>5 Moderate
>12 High
>25 Very High
>50 Extreme

Global Early Warning System for Wildland Fire: Multiple Links through ISDR/ Wildland Fire Advisory Group/Global Wildland Fire Network to Existing Disaster Mitigation Frameworks
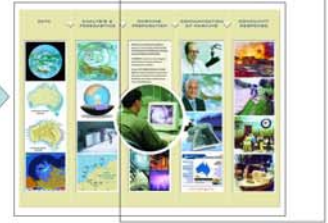
Community-Based Fire Management

WMO Programme

WMO provides a robust operational global framework providing timely comprehensive exchange of data and sophisticated products for advanced warnings to nations and other organizations to mitigate disasters, save lives and reduce damage to property and the environment.

The WMO assists 181 National Meteorological Hydrological and Services by sharing expertise, technology, products and providing training and expertise building

EWC III
Third International Conference on Early Warning
From concept to action

Global Early Warning System for Wildland Fire undertaken in collaboration with WMO-

National Meteorological and Hydrological Services
Provide meteorological, hydrological and related services
- Protection of life and property
- Safeguarding the environment
- Contributing to national security and development
- Promotion of capacity building
- Meet international and regional commitments including support to WMO's Programmes and activities
- Contributing to international and regional cooperation

NMHS's routinely involved in services for multi-hazards and have established mechanisms for coordination and treatment dealing with responsible authorities, public etc. Provides an effective end-to-end process

Technology transfer through the United Nations University to facilitate a people-centred Early Warning System for Wildland Fire

Land and forest management in which a locally resident community (with or without the collaboration of other stakeholders) has substantial involvement in deciding the objectives and practices involved in preventing, controlling or utilising fires.

Global Early Warning System for wildland fire product generation and operational dissemination through WMO/NHMS to provide a reliable and effective delivery and usage. Dissemination also available through GFMC/CFS.