

**Joint FAO/UNECE Working Party on Forest Statistics, Economics and Management  
Thirty-fifth Session, Geneva, Palais des Nations, 23-25 April 2013**



## **Team of Specialists on Forest Fire Self-Assessment, Evaluation and Future**



**Johann Georg Goldammer**  
Global Fire Monitoring Center (GFMC)

# Team of Specialists on Forest Fire

## Leadership

**1980-1993** Italy (Giancarlo Calabri)

**1993+** Germany (Johann G Goldammer, GFMC)

**Deputy TL** Russia (Andrey Eritsov, *Avialesookhrana* / *Rosleskhoz*)

FYR Macedonia (Nikola Nikolov, Regional SE Europe / Caucasus Wildland Fire Network)

# **Team of Specialists on Forest Fire**

## **History (I)**

**1981 First Regional Seminar in Poland addressing fire fighting technologies**

**1986 Seminar in Spain addressing fire prevention**

**1991 Seminar in Greece addressing the socio-economic environment of fire**

**1996 Seminar in Russia addressing forest fire and global change**

# **Team of Specialists on Forest Fire**

## **History (II)**

- 2004 Conference on Forest Fire Management and International Cooperation in Fire Emergencies in the Eastern Mediterranean, Balkans and Adjoining Regions of the Near East and Central Asia (Antalya, Turkey 30 March - 3 April 2004)**
- 2010 International Conference on Cross-Border Forest Fires and Cooperation in their Suppression (Irkutsk, Russian Federation, 16-18 June 2010)**

# **Team of Specialists on Forest Fire (II)**

## **Terms of Reference (**extract**)**

**To provide, in close cooperation and coordination with the UNISDR Wildland Fire Advisory Group / Global Wildland Fire Network, FAO, UNISDR, Council of Europe and other partners, **guidance** to ECE member states on**

- Forest fire management**
- Forest fire policies**
- International cooperation in fire management**

# Team of Specialists on Forest Fire (III)

First activities of the Team are dating back to the early 1980s

**Membership 2013:** 22 countries

## East / SE Europe, Balkans

### Russia & Caucasus

**Azerbaijan**

**Belarus**

**Estonia**

**Bulgaria**

**Croatia**

**Macedonia, FYR**

**Poland**

**Russia**

**Serbia**

**Slovakia**

**Lithuania**

**Turkey**

**Ukraine**

### W Europe

**France**

**Portugal**

**Germany**

**Greece**

**Italy**

**Spain**

**UK**

### N America

**Canada**

**USA**

# Team of Specialists on Forest Fire (IV)

## Membership 2012: 3 International Organizations

- Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD)
- European Commission (JRC)
- Global Wildland Fire Network  
Focus: SE Europe / Caucasus and Central Asian Regional Networks)



# Team of Specialists on Forest Fire (V)

## Sponsors / partners 2012

- Global Fire Monitoring Center (GFMC)
  - Financed by Germany (Max Planck Society for the Advancement of Science & Fed. Ministry Agriculture)
- UN Int. Strategy for Disaster Reduction (UNISDR)
- Council of Europe (CoE / EUR-OPA Agreement)
- Org. Security and Cooperation in Europe (OSCE)
- Environment and Security Programme (ENVSEC)
- United Nations University (UNU)



UNITED NATIONS  
UNIVERSITY



# **Self-Assessment / Evaluation (I)**

**Topics / themes of the ToS evaluated as appropriate and successful:**

- Promotion of East-West fire science dialogue
- Key problem: Fire use in the agricultural and pastoral domain
- Newly arising fire problems in cultural landscapes
- Fire management in contaminated terrain (e.g., radioactive, chemical and UXO contamination)
- Enhancing transboundary cooperation in fire management, especially through regional networks

## Self-Assessment / Evaluation (II)

- **A priority goal of the Team has been accomplished:** Consolidation of the Transatlantic dialogue by exchanging expertise in fire management between North America and Europe
- **Regional / sub-regional cooperation is operational:** Regional Wildland Fire Networks provide a suitable mechanism for exchange between countries and at regional level
- **The UNECE Region in the global context:** The ToS created the **Global Wildland Fire Network** within which the the UNECE Region is playing a key role for the promotion of cooperation in fire management at **global level**

# Self-Assessment / Evaluation (III)

## Need to address (I)

- **Consequences of rural abandonment** and urbanization on agriculture, pastoralism, forestry and **increasing wildfire hazard**
- Rural exodus reducing **presence** of the rural work force, including **availability of volunteer firefighters**
- Re-privatization of formerly nationalized forests resulting in vacuums of forest management in **smallholder forest estates**; abandonment of forest management in smallholder forest estates as consequence of urbanized forest owners

# Self-Assessment / Evaluation (IV)

## Need to address (II)

- Weakened governance over forestry and **decreased fire management capabilities in many Eastern European and Central Asian countries** as a consequence of the transition of national economies, resulting in uncontrolled or illegal forest use and **increase of related wildfires**
- Increasing problems of wildfires affecting the **perimeters of metropolitan** areas, settlements and developments dispersedly located in wildlands

# Self-Assessment / Evaluation (V)

## Need to address (III)

- Implications of new standards for controlling gas and particle emissions from fossil fuel and biomass burning that are affecting human health:  
>> **Resulting conflicts in fire management** (e.g., difficulties for the acceptance of prescribed burning)
- Secondary problems associated with wildfires, notably on **territories contaminated by radioactivity and remnants from armed conflicts** (e.g., unexploded ordnance, land mines, uranium-depleted ammunition).

## The Underlying Causes of Increasing Severity and Destructivity of Fires in Europe (I)

- Traditional land cultivation and villages are abandoned
- Large areas of abandoned agricultural areas are now becoming more vulnerable to wildfire
- In many regions weekend / summer houses and tourism increasingly replace traditional village structures



**Spain: Masia Can Tardà. Castellolí (Anoia) – 1950 and 2001**

## The Underlying Causes of Increasing Severity and Destructivity of Fires in Europe (II)

- Young work force urbanizing
- Tourism sector does not replace land cultivation



**Abandoned villages and overgrowing pasture lands: Increasing trend all over Europe**



## **Abandoned cultural landscapes (former pasture lands – Macedonia)**





# The Underlying Causes of Increasing Severity and Destructivity of Fires in Europe (III)

- Decrease of utilization of biomass
- “Unused energy” is now available to be burned by wildfires, fuelling fire severity all over Europe







## **Russia 2010**

**3000 villages abandoned**



## **Russia 1991-2009**

**27 million ha of  
agricultural land  
abandoned and  
subjected to fallow**



# Влияние дыма на здоровье

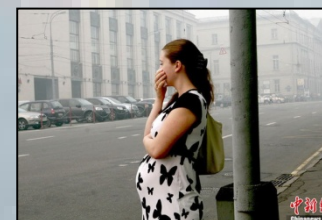
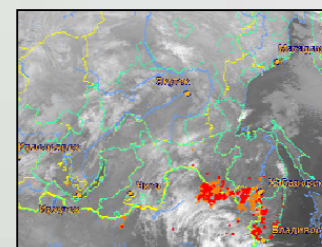
## *Impact of vegetation fire smoke on human health*

### Острая токсикация: *Acute toxicity*

- **Частицы до  $2.5\mu m$**  *Partikel unter  $2.5\mu m$*
- Формальдегид *Formaldehyd*
- Полициклические ароматические углеводороды *Polyzyklische Aromatische Kohlenwasserstoffe*
- Окись углерода (CO)

### Влияние частиц на сердечно - сосудистую систему и дыхание *Impact of smoke particles on the respiratory / cardiovascular systems*

- **Инфекция дыхательных путей** (взрослые, дети)
- Острые и хронические повреждения функций лёгких
- **Астма**
- Заболевания сердечно - сосудистой системы
- Поступление в больницы
- **Повышение уровня смертности**



# Vegetation fires in the interface of an urban or industrial area



The flame-front pathway can pass over:

- Houses, infrastructures, **plastics**
- Agricultural areas with **pesticides, fungicides, fertilizers**
- **Landfills (residual wastes)**
- **Other wastes: e.g. batteries, radioactive materials ....**

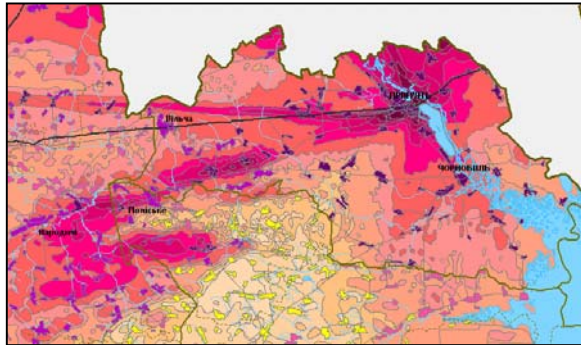
## Examples:

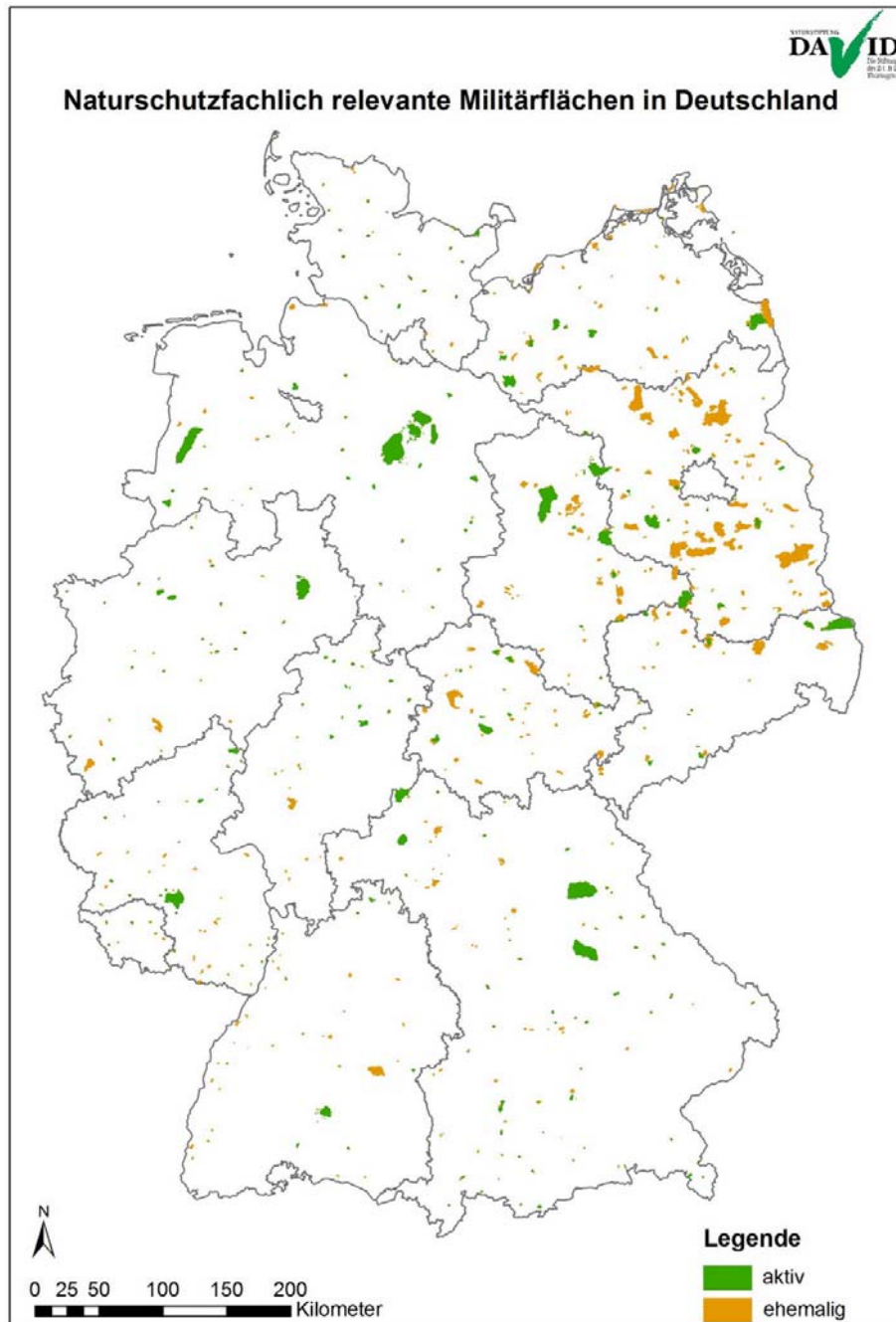
- Co-burning of forest fuel and wastes → significant quantities of dioxins
- Co-burning of forest fuel and construction materials → pulverized glass, cement, dust, plaster, asbestos, etc.



# Vegetation fires in contaminated terrain

- Unexploded ammunition
- Radioactive contamination





# Unexploded Ordnance (UXO) and land mines

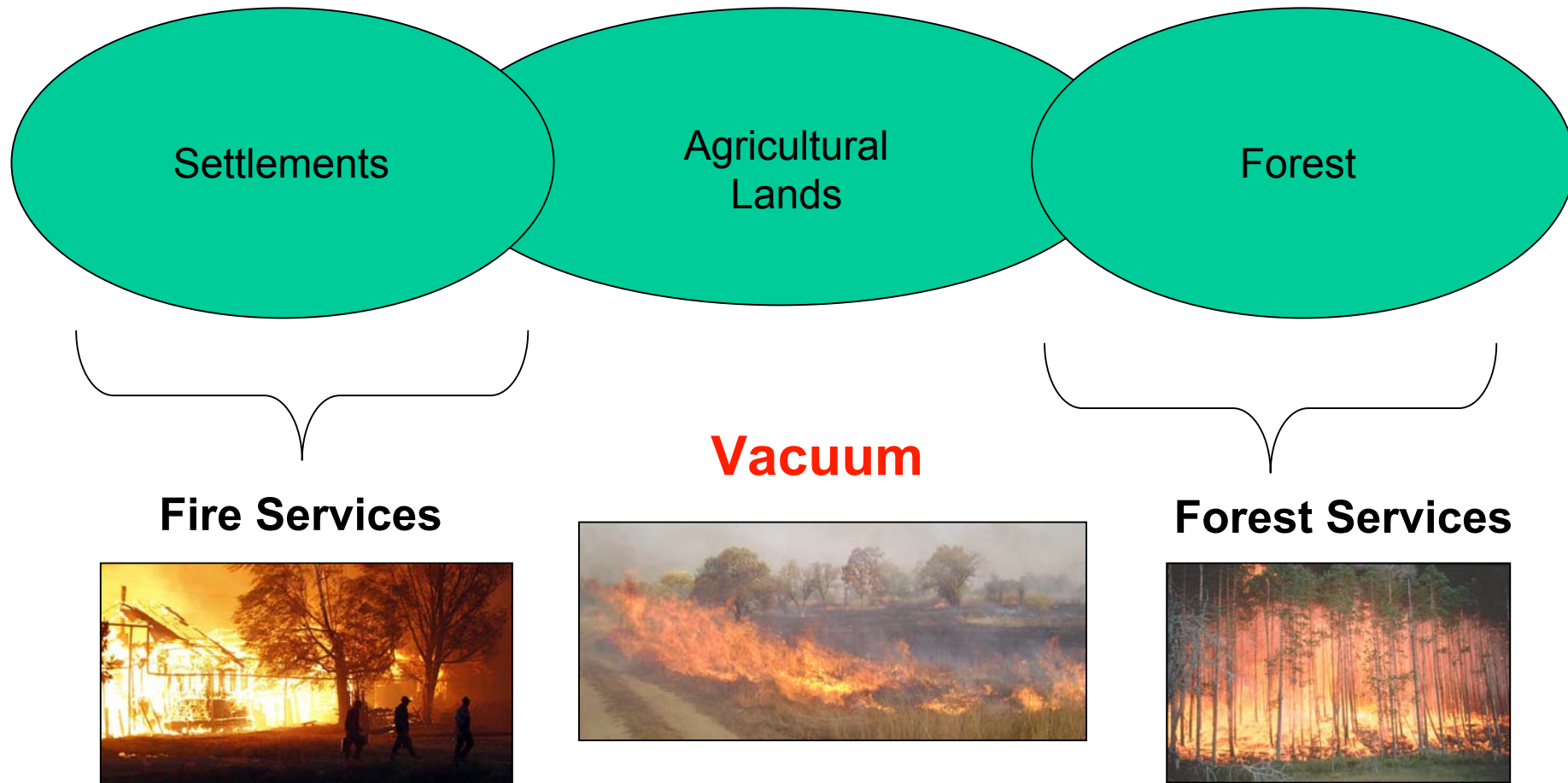
## Extent of UXO-contaminated sites in Germany

On more than 700 000 ha active and former military training sites, (= 2% of German territory) a total of ca. 250 000 ha are contaminated by unexploded ammunition





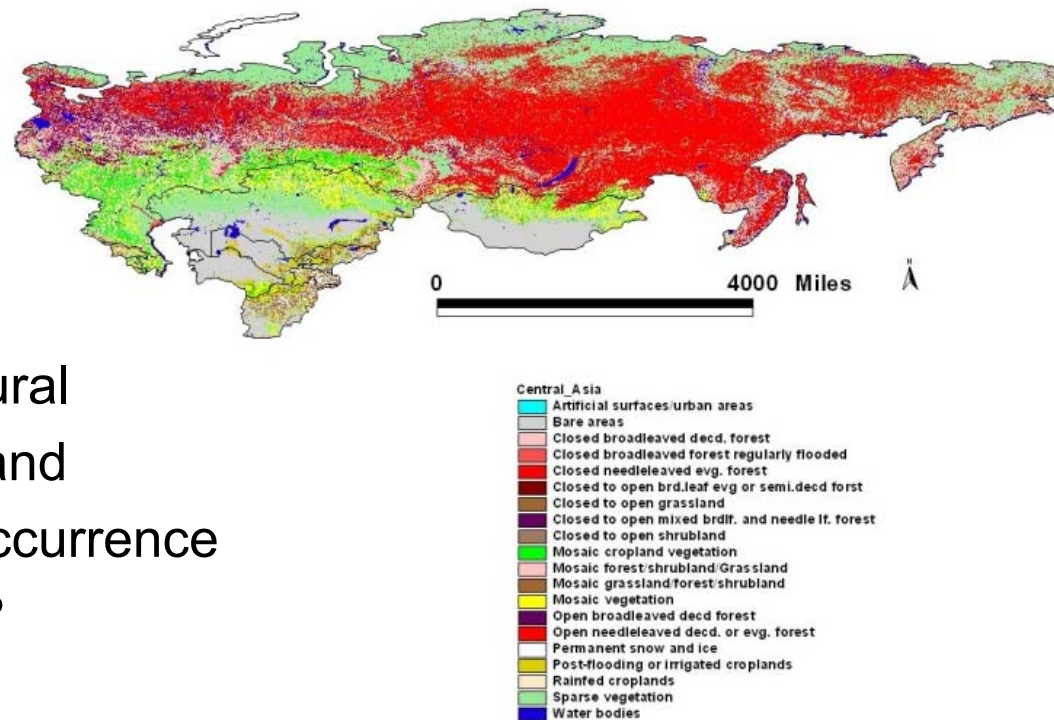
# In many countries of South and East Europe: Legal / technical vacuum for managing agricultural fires



# Temperate-Boreal Eurasia

## Agricultural burnings and forest fires

- Increasing occurrence of droughts throughout the region ?
- Are there consequences of rural exodus (dying of agriculture and villages) on increasing occurrence and destructivity of wildfires ?
- Populations at the perimeters and inside urban areas and in the rural space are affected



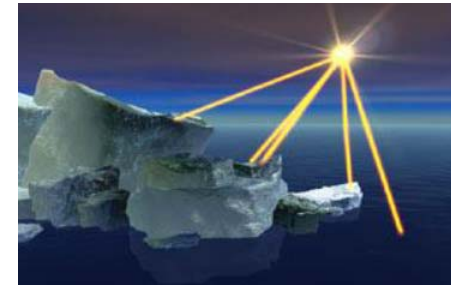
Russia - ~78% of total fire counts in Eurasia

© Courtesy Krishna Prasad Vadrevu, UMD



## New problem identified

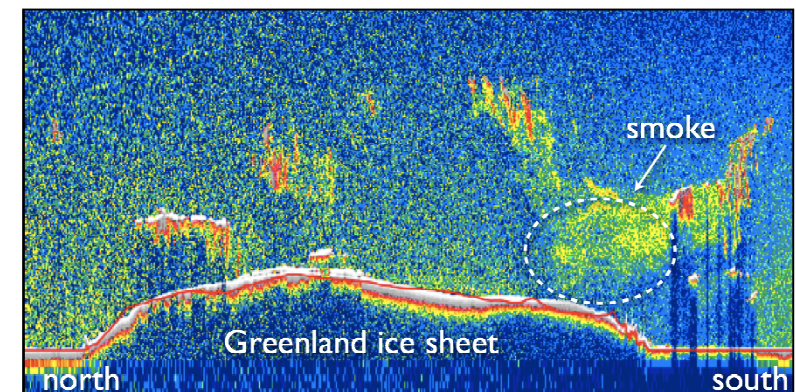
- Black Carbon (BC) deposits on the Arctic Environment



Aerial photo of the Greenland ice sheet surface from mid-August, 2005. The dark areas are concentrations of light absorbing impurities. This example the impurities are some combination of dust, soot, and microbial activity.



**Credit: Jason Box, Ohio State University**  
**Press release @ AGU, 07 Dec 2012**



# **Major focus since 2010**

## **Preparation of a “UNECE Regional Forum on Cross-boundary Cooperation in Fire Management” (I)**

### **Goal:**

- Development of a regional agreement (or a voluntary consent) on “Cross-boundary Cooperation in Fire Management”

### **Objective:**

- Enhancing national and collective regional capacity in fire management through cooperation (with a global perspective)

# Preparation of a “UNECE Regional Forum on Cross-boundary Cooperation in Fire Management” (II)



## Preparatory Process

- Financial support (“seed money”) by “European and Mediterranean Major Hazards Agreement” of Council of Europe to convene several planning meetings between 2010 and 2013 (@ GFMC). Total support ca. **€ 50,000**.

## Implementation

- German Federal Ministry of Food, Agriculture and Consumer Protection provides **€ 268,000** (contract with UNECE signed in March 2013)

## Venue

- United Nations Geneva, (27) 28-29 November 2013

# Preparation of a “UNECE Regional Forum on Cross-boundary Cooperation in Fire Management” (III)



## Objectives – Global

- Receiving advisory inputs from other regions / regional bodies (e.g., ASEAN, SADC, EU, APEC ...)
- Resulting in mutual benefits for UNECE and other regions for enhancing transboundary cooperation in fire management

# Preparation of a “UNECE Regional Forum on Cross-boundary Cooperation in Fire Management” (IV)



## Connectivity – Global

The political and technical planning and consultation process will be connected to the

- Outcomes of the 5<sup>th</sup> International Wildland Fire Conference (May 2011)
- Congress on Forest Fire and Climate Change (Novosibirsk, Russia, 11-13 November 2013)
- and feed into the 6th International Wildland Fire Conference in South Korea (October 2015)



## Open questions (I)

How would an informal (voluntary) or a formal (legal) agreement become connected to related conventions, e.g.

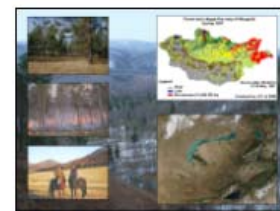
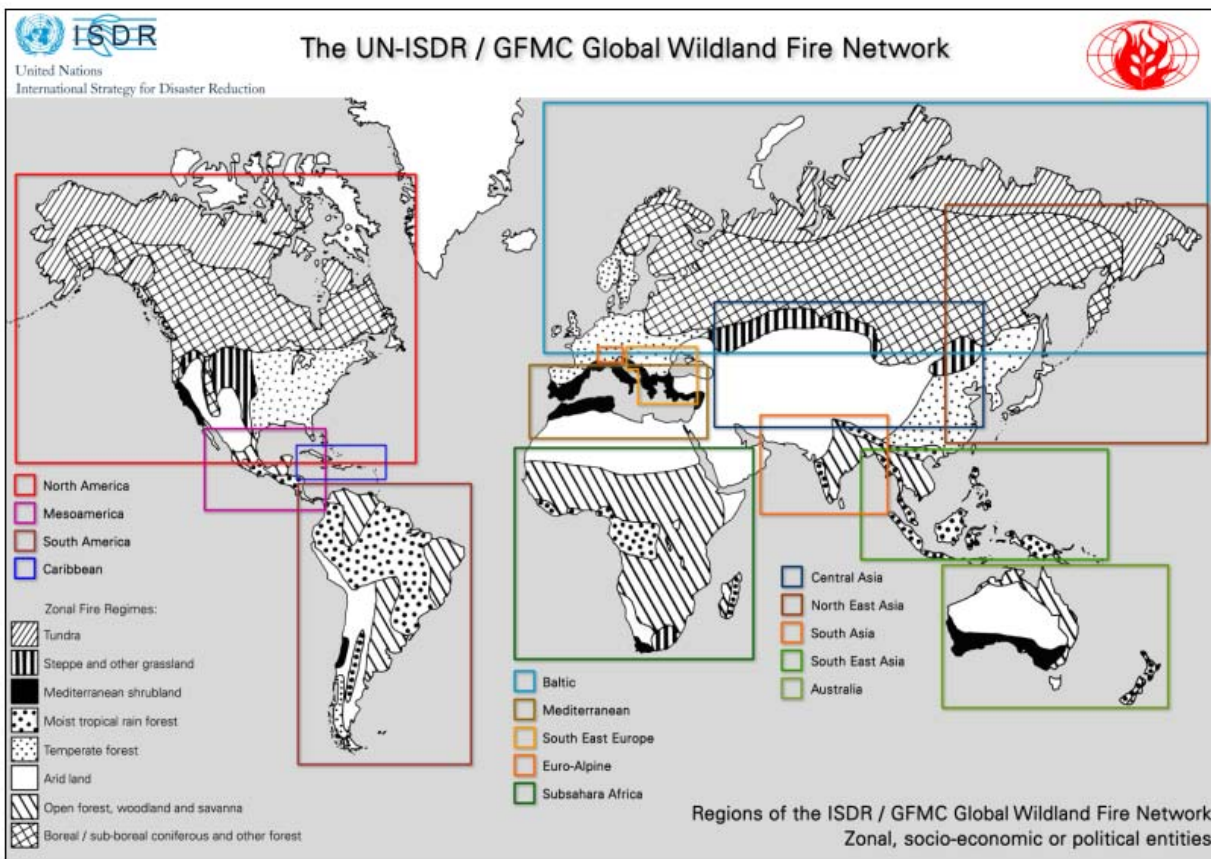
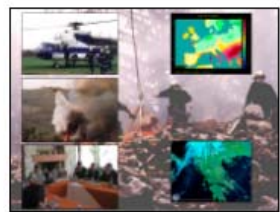
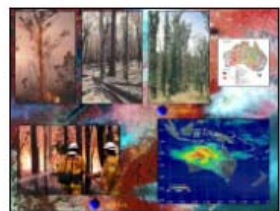
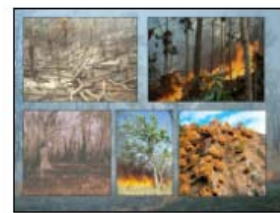
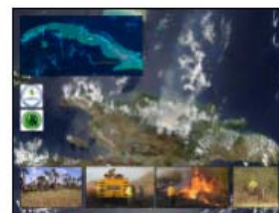
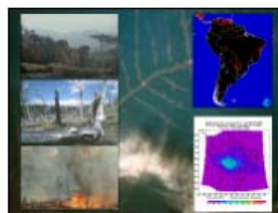
- UNECE Convention on Long-range Transboundary Air Pollution (LRTAP) and its *Gothenburg Protocol*?
- European Landscape Convention (Council of Europe)
- Convention on the Conservation of European Wildlife and Natural Habitats (*Bern Convention*)
- Ministerial Conference for the protection of Forests in Europe in its endeavour to develop a *Legally Binding Agreement on Forests in Europe*

# Open questions (II)

## Main challenges

- Identify vegetation fires as a cross-sectoral affecting
  - Human health and security
  - Atmosphere and climate
  - Landscape patterns, carrying capacity and productivity
  - Biodiversity
- Overcome “sectoral characters” of international conventions
- To bring this process to a tangible result





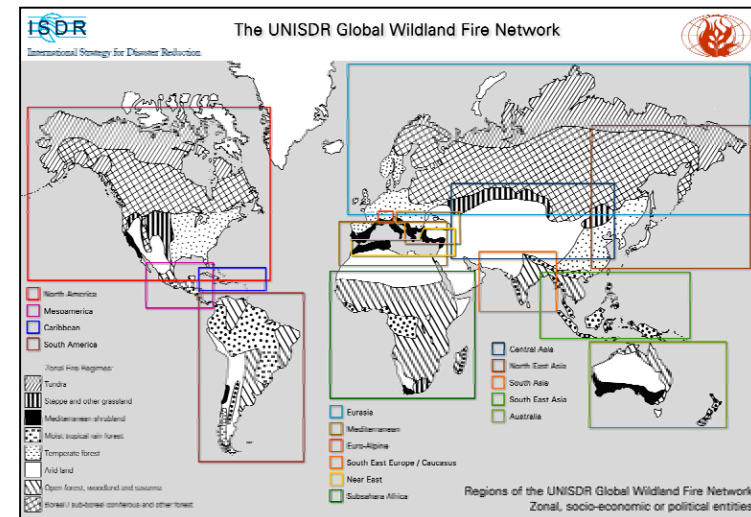
**Regional Wildland Fire Networks within the Global Wildland Fire Network**  
 North America – Mesoamerica – South America – Caribbean – Mediterranean  
 Southeast Europe / Caucasus – Subsahara Africa – South Asia – Southeast Asia  
 Australasia – Northeast Asia – Central Asia – Eurasia – Euro-Alpine



# Partners (I)

## Regional Networks

- Subsahara Africa
- South East Asia
- South Asia
- Central Asia
- North East Asia / Pan Asia Network Cluster
- Australasia
- Eurasia
- South East Europe / Caucasus
- Mediterranean
- Euro-Alpine
- South America
- North America
- Mesoamerica
- Caribbean



## Relevant Network outside GWFN:

- European Union Forest Fire Expert Team / EFFIS

## Partners (III)

### International Organizations

- UN International Strategy for Disaster Reduction (UNISDR)
- Food and Agriculture Organization (FAO)
- UN Specialized agencies: WMO, WHO, UNEP, OCHA, UNESCO
- UN Economic Commission for Europe (UNECE)
- United Nations University (UNU) / GFMC
- International Tropical Timber Organization (ITTO)
- Council of Europe (EUR-OPA)
- Organization for Security and Cooperation in Europe (OSCE)
- Environment and Security (ENVSEC) Initiative
- Green Cross International
- Global Observation of Forest and Land Cover Dynamics (GOFC / GOLD)

## **Objectives of Work 2011-2015 (I)**

**Implement the recommendations of the International Wildland Fire Conferences, notably the development of:**

- Common international principles or standards in fire management
- A Global Agreement and a set of Regional Agreements on Transboundary Cooperation in Fire Management
- Sharing resources in capacity building in fire management, including cooperation in wildfire emergency response
- International policies addressing global change and fire

## **Objectives of Work 2011-2015 (III)**

### **Emphasis to address:**

- Impacts of institutional reforms / reorganization on governance in fire management
- International financing schemes for supporting the fire management sector as a contributor in environmental protection
- Increasing impacts of interactions in land use / fire use, wildfires and climate change on natural and human-altered wetlands (peat bogs, mires, marshes), high-altitude fires, and society (human health and security)

## **Objectives of Work 2011-2015 (III)**

### **Strengthen intra-regional and inter-regional cooperation in fire management:**

- Building of Regional Fire Centers
  - Centers of Excellence for operating at the science-management-policy interfaces at regional neighborhood level

# Regional Fire Centers

- South East Europe / Caucasus:  
Based in Skopje, FYROM (since 2009)



New partnership with the Balkan Environment Center (BEC) / Aristotelion University of Thessaloniki and the National Observatory of Forest Fires



# Regional Fire Centers

- South East Europe / Caucasus:  
Based in Skopje, FYROM (since 2009)



Enhanced partnership with the Fire Management Training Center (Antalya, Turkey)

- Regional fire management training for SE Europe, South Caucasus, Near East and Middle East





# Use of Competency-based Training Materials for Firefighters: EuroFire Standards

**EuroFire**

<http://www.euro-fire.eu/>



The screenshot shows the EuroFire website interface. At the top, the EuroFire logo is prominently displayed in a red rounded rectangle. To its right, a small text link reads "site map / contact us / disclaimer / home". Below the logo, a blue horizontal bar contains a navigation menu with the following items: "About us", "Partners", "References", and "Links". On the left side of the page, a vertical blue sidebar lists the main sections: "Training Concepts", "Competency Standards", and "Training Modules". A red banner across the top of the main content area announces: "+++ 24 January 2013 - NEW LANGUAGE VERSIONS ADDED +++". Below this, the heading "Welcome to EuroFire" is followed by a paragraph describing the project as a 2-year initiative from October 2006 to December 2008, funded by the EU Leonardo da Vinci programme. It details the project's goal of developing, evaluating, producing, and distributing new European-wide, multi-lingual on-line training resources. Further text explains that the project researched and reviewed competency-based wildfire and prescribed fire training systems, including best practice examples from Europe and around the world. It also states that the training resources have been specifically developed to support firefighting personnel, the land-based sector, sectoral organisations and education and training institutions. The text continues to describe the outputs, which include competency standards, training modules, illustrations, and general guidance on a competency-based training system, designed for use by industry practitioners to update their knowledge, learn new skills, or increase their understanding of basic wildfire and prescribed fire management techniques. A final paragraph mentions that the outputs have been translated partially to Armenian (with completion soon), Azerbaijani (with completion soon), French, Georgian, German, and Russian, and provides a link to select a language. Below this text, a row of flags represents the supported languages: Armenian, Azerbaijani, French, Georgian, German, and Russian. At the bottom of the page, there is a Google Custom Search bar and a row of logos, including the European Union flag, the Leonardo da Vinci Programme logo, the CTIF logo, and several other organizational logos.

**EuroFire**

site map / contact us / disclaimer / home

About us | Partners | References | Links

Training Concepts  
Competency Standards  
Training Modules

+++ 24 January 2013 - NEW LANGUAGE VERSIONS ADDED +++

Welcome to **EuroFire**

**EuroFire** A 2 year project from October 2006 to December 2008 funded by the EU Leonardo da Vinci programme. The project brought together partners with international expertise and experience in wildfire and prescribed fire research, management and training to develop, evaluate, produce and distribute new European-wide, multi-lingual on-line training resources.

The **EuroFire** project researched and reviewed competency based wildfire and prescribed fire training systems, including best practice examples from Europe and around the world. This research informed the production of competency based basic training resources, for use in European countries.

The **EuroFire** training resources have been specifically developed to support firefighting personnel, the land-based sector, sectoral organisations and education and training institutions.

The **EuroFire** outputs include: competency standards, training modules, illustrations and general guidance on a competency based training system. Training resources that can be used by industry practitioners to update their knowledge, learn new skills or increase their understanding of basic wildfire and prescribed fire management techniques.

The EuroFire outputs have been translated partially to Armenian (will be completed soon), Azerbaijani (will be completed soon), French, Georgian, German and Russian. Please select below

Armenian Azerbaijani French Georgian German Russian

Google Custom Search Search

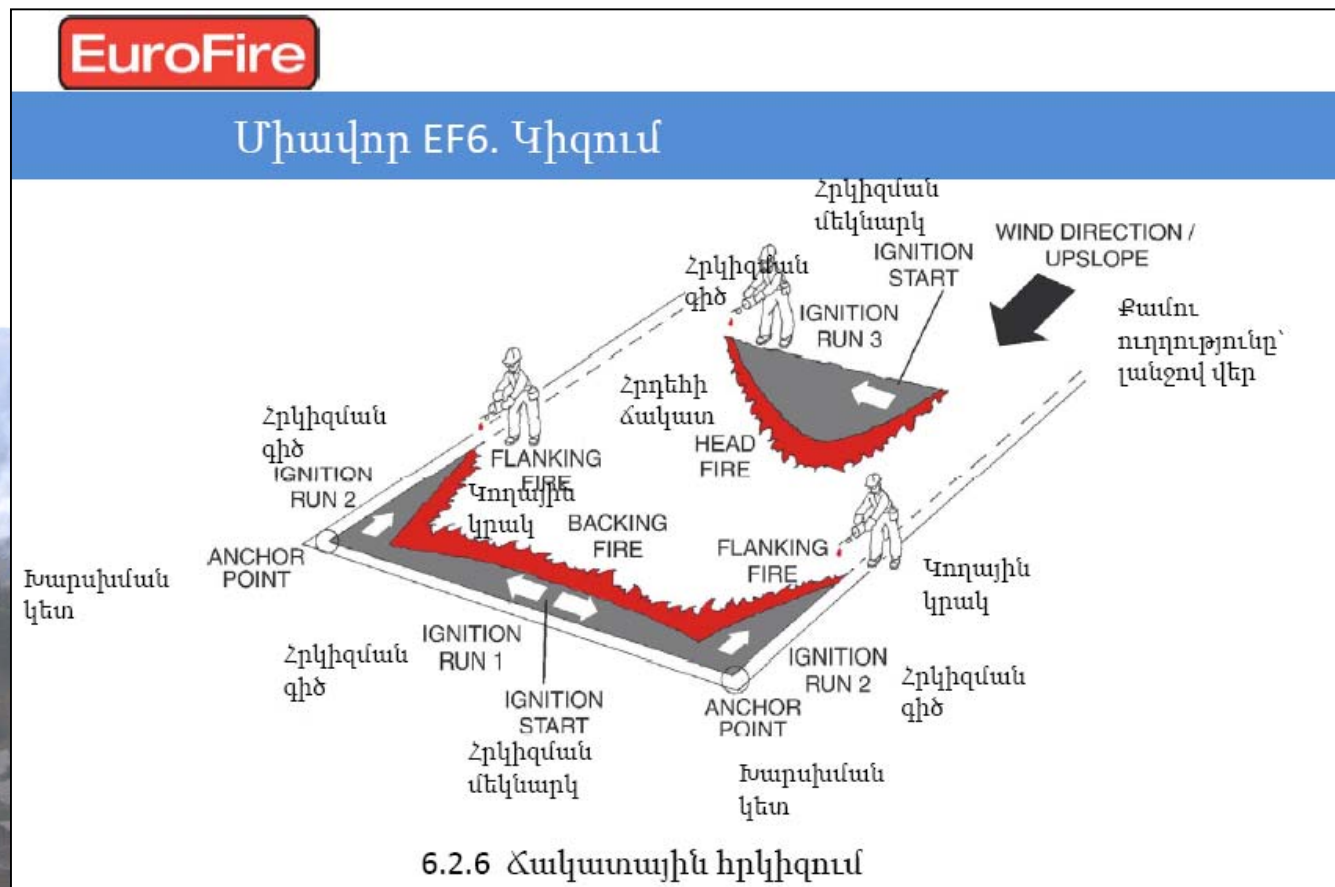
European Union Leonardo da Vinci Programme Training for the 21st Century CTIF



# Use of Competency-based Training Materials for Firefighters: EuroFire Standards

**EuroFire**

<http://www.euro-fire.eu/>



# Use of Competency-based Training Materials for Firefighters: EuroFire Standards

**EuroFire**

<http://www.euro-fire.eu/>



# Krasnoyarsk September 2012: First International Fire Management Week

## Prescribed burning Demonstration

Photos:

Andrey Zamakhin





# Regional Fire Centers

- Regional Eastern Europe Fire Monitoring Center (REEFMC)  
Регіонального Східноєвропейського  
Центру моніторингу пожеж:  
Based in Ukraine



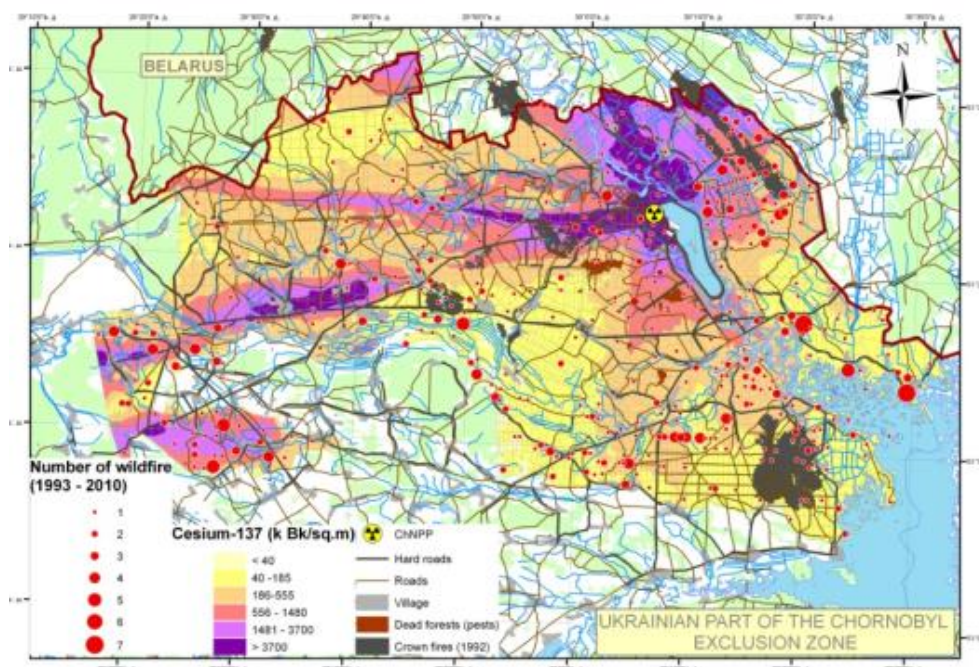
Inaugurated  
6 March 2013





# Regional Fire Centers

- Regional Eastern Europe Fire Monitoring Center (REEFMC)  
Регіонального Східноєвропейського  
Центру моніторингу пожеж:  
Based in Ukraine



# Recent experiences of inter-regional exchange

## Inter-regional Network Cooperation

- Pan-Asia: 4 Regional Networks interacting (NE Asia, SE Asia, South Asia and Central Asia) with participation of the UNECE / FAO ToS Forest Fire





# Advanced Regional Seminar in Wildland Fire Management Antalya, Turkey, 1-4 March 2010

Co-sponsored by OSCE, CoE, UNECE

Participating countries: From the South Caucasus, Near East, Balkans and Russia



## Beyond 2013 (I)

**Recommendation of ECE Timber Committee and the FAO European Forestry Commission (ECE/TIM/2012/11, item 33):**

***“Discontinue the ToS on Forest Fires, as the issue of fires is no longer addressed by the ECE/FAO programme of work and is better addressed at the global level and through other channels”***



## **Beyond 2013 (III)**

### **Draft Elements of the Joint Programme of Work of the ECE Timber Committee and the European Forestry Commission for 2014-2017**

**Item 4 introduces new elements to address emerging issues related to sustainable forest management. To some of them fire and fire effects are quite significant:**

- Forest health and disturbance-related issues**

- > Fire is a significant forest disturbance all over the UNECE region**

## Beyond 2013 (III)

➤ Linkages between Sustainable Forest Management and a green economy, including the contribution of forest products and services to the green economy, and the issue of decent green jobs and employment in the forest sector

**and**

➤ Enhanced emphasis on wood energy and payment for ecosystem services

> The TL recently submitted ToS FF / GFMC inputs to the Draft “Action Plan for the Forest Sector in Green Economy”– *the proposed items are highlighted in red-bold italics*):

## Beyond 2013 (IV)

**Pillar B.3.5** (Proposed: “Maintain and strengthen *wildfire early warning and* monitoring capacities, and *promotion of integrated fire* management approaches, *i.e. the targeted extraction of biomass for both renewable energy provision and reduction of wildfire hazard; and the integration of communities / private forest users in the achieving these goals at local level.*”)

**Pillar D.3.1** (Proposed: “Organize a regional forum on forests and human health to review the situation, *including the specific hazards and risks (e.g., air pollution from forest and other vegetation fires affecting human health and security)*, opportunities and challenges, and make recommendations for future work, at the international and national level.”)

## Beyond 2013 (V)

- **Interactions between forest policies and other sectors**, such as the effect of wood energy policies on land use and the effect of urbanization on forest extent and character

- This is an extremely important issue since **other sectoral policies are key for the success in fire management** and handling the consequences of fire, e.g. those sectoral responsibilities addressing the main causes of wildfires (= agriculture) or those addressing impacts of fire emissions on human health and climate change, i.e. the public health sector and “climate change” sector.

- Fires affecting the interface between forests / other vegetation and urban fringes / residential areas: **Human security !**

## **Beyond 2013 (VI)**

**If ToS Forest Fire to phase out end of 2013, we recommend.**

**Given the significance of impacts of forest fires and other wildland fires on the environment and society, including fires burning in the agricultural domain and impacting forests, it is recommended that**

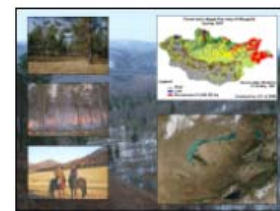
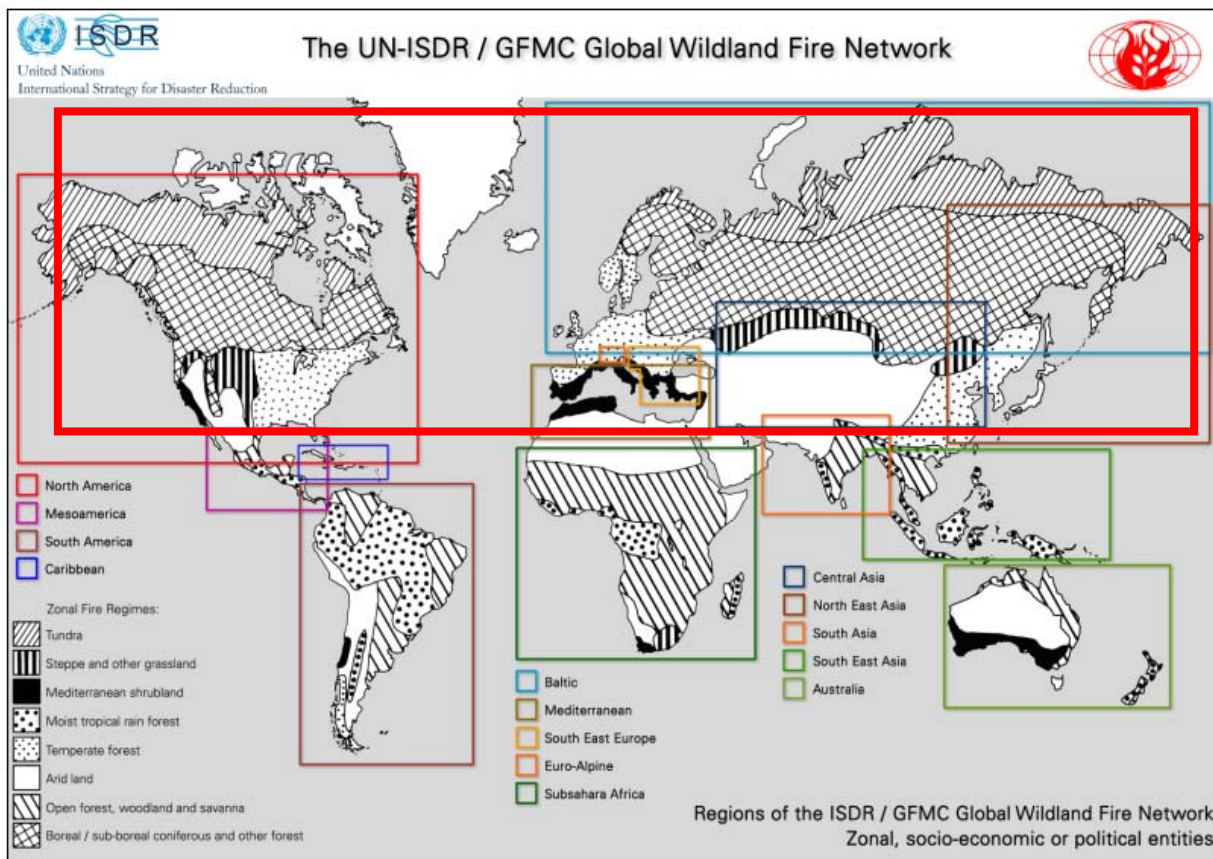
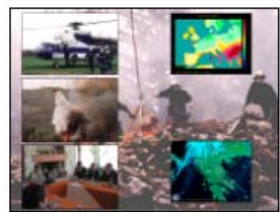
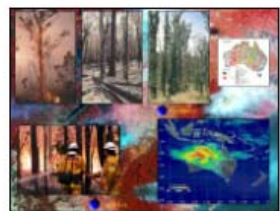
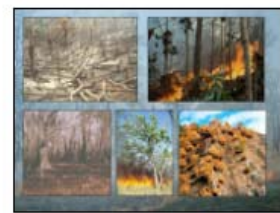
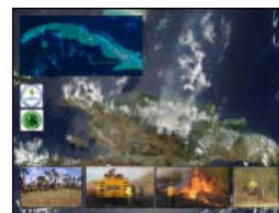
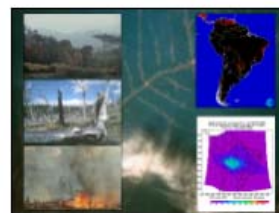
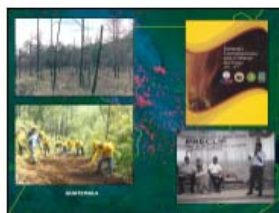
- the six Regional Wildland Fire Networks would maintain a serving function to the ECE Timber Committee and the FAO European Forestry Commission**



## Beyond 2013 (VII)

**Due to this high number of networks the GFMC in its function of Secretariat of the Global Wildland Fire Network would continue to serve as facilitator / coordinator for the inputs of the six Regional Wildland Fire Networks.**

***➤ It is suggested that UNECE Member States to maintain nominating focal points, but not to one large UNECE-embracing Team as before, but to one or more (in case of overlapping boundaries) Regional Wildland Fire Network(s).***



**Regional Wildland Fire Networks within the Global Wildland Fire Network**  
 North America – Mesoamerica – South America – Caribbean – Mediterranean  
 Southeast Europe / Caucasus – Subsahara Africa – South Asia – Southeast Asia  
 Australasia – Northeast Asia – Central Asia – Eurasia – Euro-Alpine

**Joint FAO/UNECE Working Party on Forest Statistics, Economics and Management  
Thirty-fifth Session, Geneva, Palais des Nations, 23-25 April 2013**



**Thanks for Your Attention**

**Спасибо**



**Johann Georg Goldammer**  
Global Fire Monitoring Center (GFMC)