

GOFC-Fire Implementation Team Meeting
 Frascati, Italy
 23-25 March 2010



The Global Wildland Fire Network: Status in early 2010

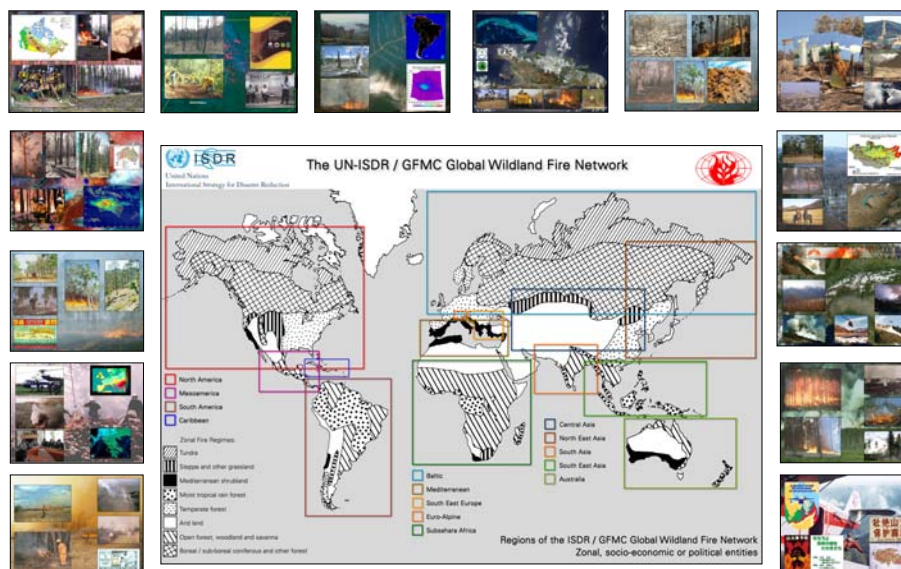
Johann Georg Goldammer
 Global Fire Monitoring Center (GFMC)
 and
 Don Cahoon and Brian Stocks



United Nations
 International Strategy for Disaster Reduction



The Global Fire Monitoring Center (GFMC)



The 14 Regions of the UNISDR Global Wildland Fire Network
 North America – Mesoamerica – South America – Caribbean – Mediterranean
 Southeast Europe / Caucasus – Sub Sahara Africa – South Asia – Southeast Asia
 Australasia – Northeast Asia – Central Asia – Baltic – Euro-Alpine

Regional Wildland Fire Networks (I)

Regional Sub Sahara Africa Wildland Fire Network “AfriFireNet” (I)

Founded: July 2002

Partnering with SAFNet
since 2002



Regional Wildland Fire Networks (I)

Regional Sub Sahara Africa Wildland Fire Network “AfriFireNet” (II)

Recent developments:

SADC Initiative 2009-2010
Aimed at establishment of
a regional fire management
programme and facility
(Maputo Workshop Jan. '10)

Development of bilateral
agreements on cooperation
in wildland fire management
(SAF, US, NZ, AUS)



Regional Wildland Fire Networks (I)

Regional Sub Sahara Africa Wildland Fire Network “AfriFireNet” (III)

Planned:

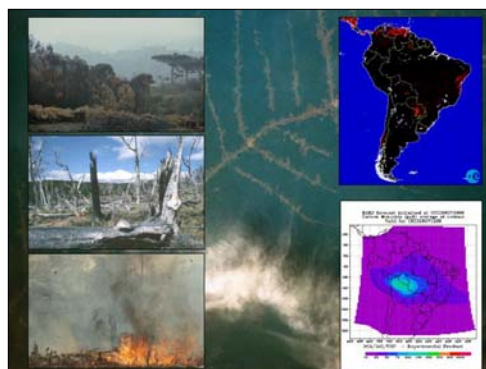
Creation of a sub-regional
Network in West Africa
through WARN



Regional Wildland Fire Networks (II)

Regional South America Wildland Fire Network (I)

Agreement on Regional
Strategy for Cooperation
in Fire Management
(supported FAO and
facilitated by GFMC)

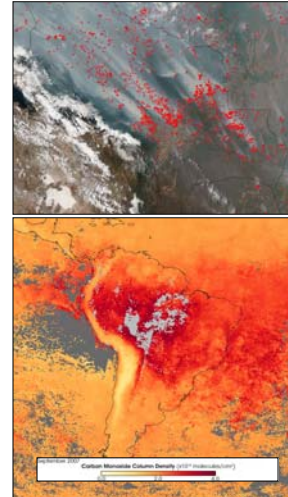


Regional Wildland Fire Networks (II)

Regional South America Wildland Fire Network (II)

Increasing bilateral
 agreements, e.g.
 Brazil-Bolivia to address
 transboundary fire issues

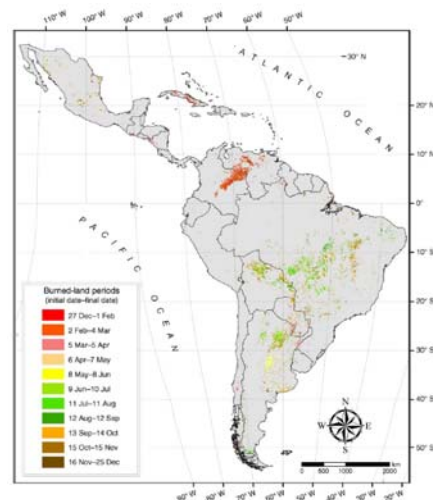
> Sistema de Alerta e Monitoramento
 de Incendios Florestais



Regional Wildland Fire Networks (II)

Regional South America Wildland Fire Network (III)

Cooperation within the
 Latin American Region through
 RedLaTIF



Regional Wildland Fire Networks (III)

Regional Caribbean Wildland Fire Network (I)

FAO / GFMC supported the development of a Regional Strategy for Cooperation in Wildland Fire Management



Regional Wildland Fire Networks (III)

Regional Caribbean Wildland Fire Network (II)

Increasing use of remote sensing data for post-fire evaluation

Cooperation with RedLaTIF



Regional Wildland Fire Networks (IV)

Regional Mesoamerica Wildland Fire Network (I)

Mesoamerica Regional Agreement

Signed: July 2002

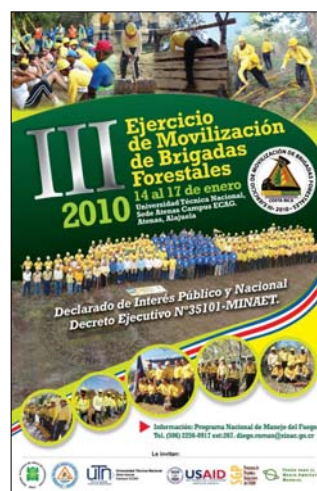
Estrategia Centroamericana
 para el Manejo del Fuego,
 2005-2015



Regional Wildland Fire Networks (IV)

Regional Mesoamerica Wildland Fire Network (II)

Well-developed activities
 on capacity building on the
 ground and use of CONABIO
 r/s information and cooperation
 within RedLaTIF



Regional Wildland Fire Networks (V)

Regional North America Wildland Fire Network (I)

FAO North American Forestry Commission (NAFC)
Fire Management Working Group (established 1962)

Regional Partner of the
Global Wildland Fire
Network since 2004



Regional Wildland Fire Networks (V)

Regional North America Wildland Fire Network (II)

Operational tools complementary to remote sensing of active fires:

- UAV / UAS
- Automated fire detection
(ground-based)



Regional Wildland Fire Networks (VI)

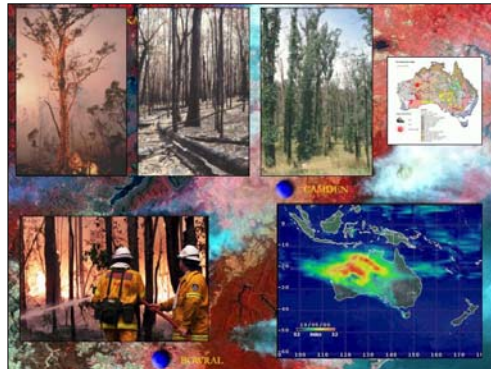
Regional Australasia Wildland Fire Network (I)

Australasian Fire Authorities Council (AFAC)

Since 1993: Australia, New Zealand
Pacific Region

AFAC Decision of
7 October 2004:

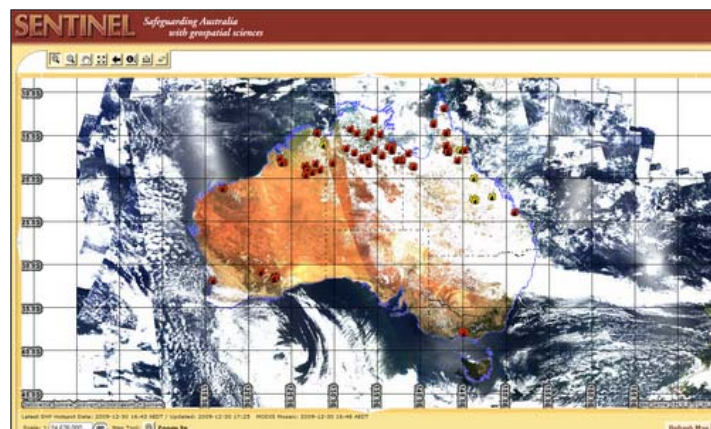
AFAC Regional Partner
in the Global Wildland Fire
Network



Regional Wildland Fire Networks (VI)

Regional Australasia Wildland Fire Network (II)

Regional and national r/s fire monitoring capacities in place



Regional Wildland Fire Networks (VI)

Regional Australasia Wildland Fire Network (III)

Regional and national r/s fire monitoring capacities in place

Example Landgate Fire Watch – 24 March 2010



Pan-Asia Wildland Fire Network

A new initiative (2009) brought together all four Asian Regional Wildland Fire Networks to a network cluster

South Asia



NE Asia



Central Asia



SE Asia



Regional Wildland Fire Networks (VII)

Regional South East Asia Wildland Fire Network (ASEAN) (I)

ASEAN Agreement on Transboundary Haze Pollution

Signed: June 2001

In Force: Nov 2003

Conference on Promoting
Partnerships for the implementation
of the ASEAN Agreement

Hanoi, Viet Nam

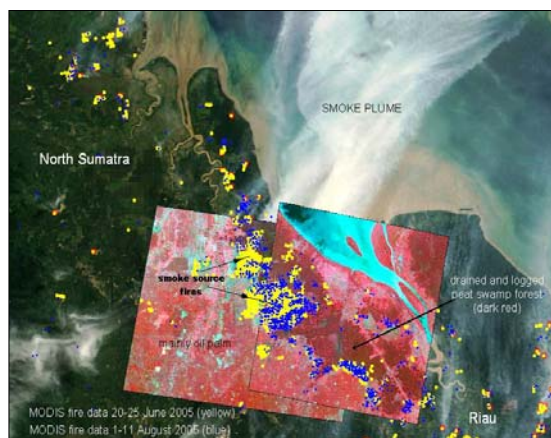
May 2006: Joining the
Global Wildland Fire Network



Regional Wildland Fire Networks (VII)

Regional South East Asia Wildland Fire Network (ASEAN) (II)

ASEAN Fire Monitoring



Southeast Asia: Hotspot Indonesia

- The third dimension: Depth of burn

Photos: B. Sanders



Increase of wildfires also in
newly established plantations



Photos: B. Sanders

Regional Wildland Fire Networks (VIII)

Regional South Asia Wildland Fire Network (I)

Founded in 2004

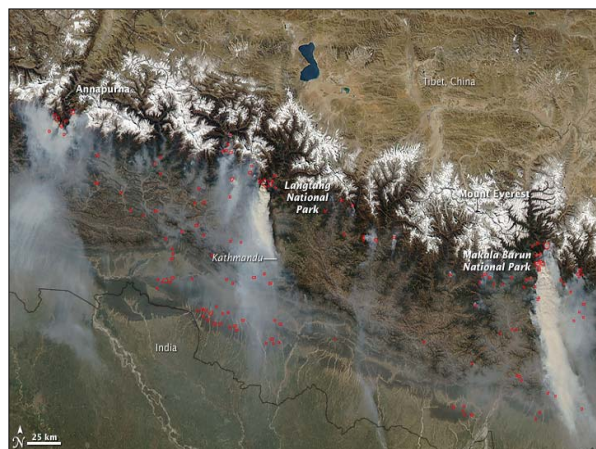
Nepal (coordinator)
India
Bhutan (co-coordinator)
Sri Lanka
Pakistan

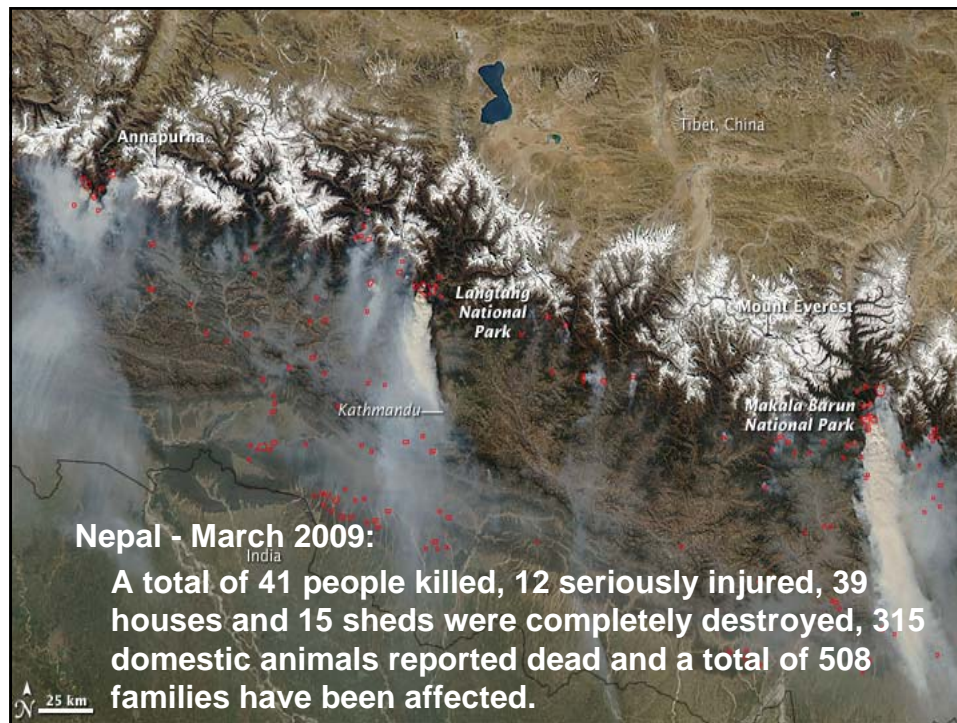


Regional Wildland Fire Networks (VIII)

Regional South Asia Wildland Fire Network (II)

Extreme fires in the
Himalayas in 2009

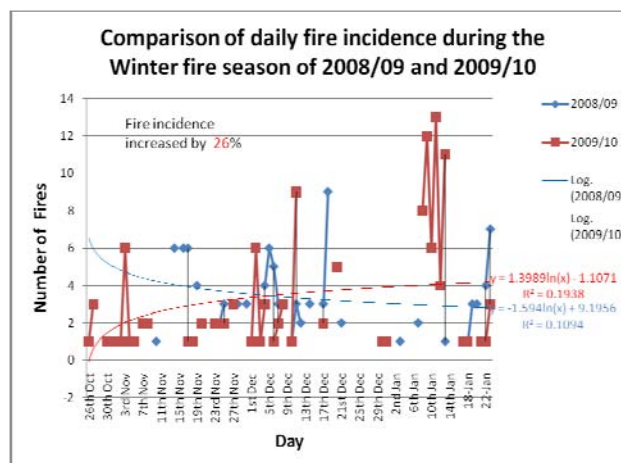




Regional Wildland Fire Networks (VIII)

Regional South Asia Wildland Fire Network (II)

First attempts to
 evaluate MODIS
 products









Regional Wildland Fire Networks (IX)

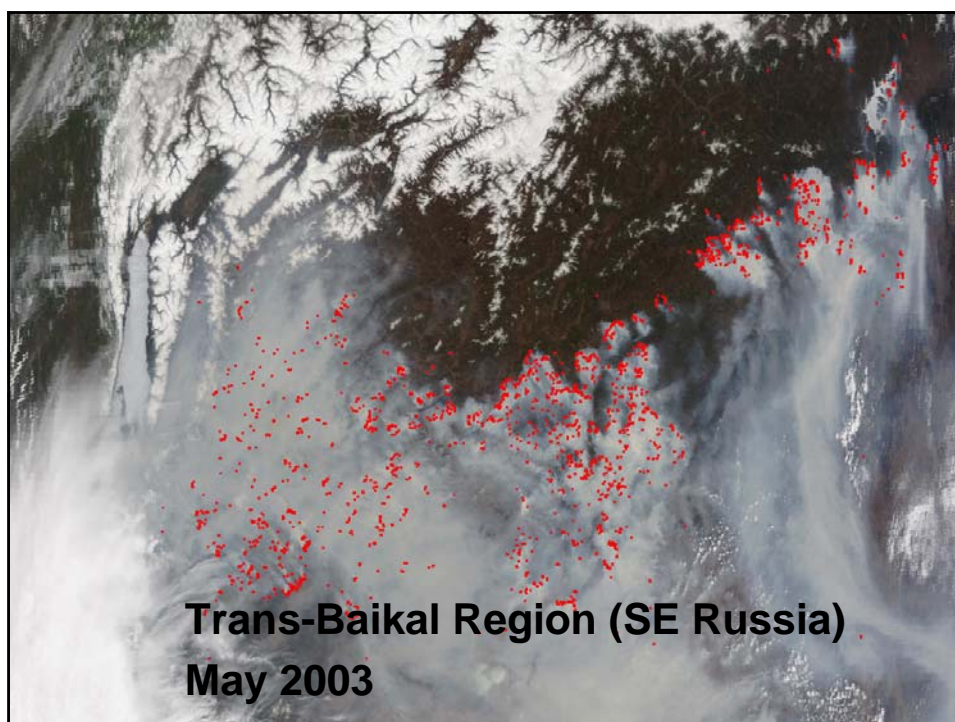
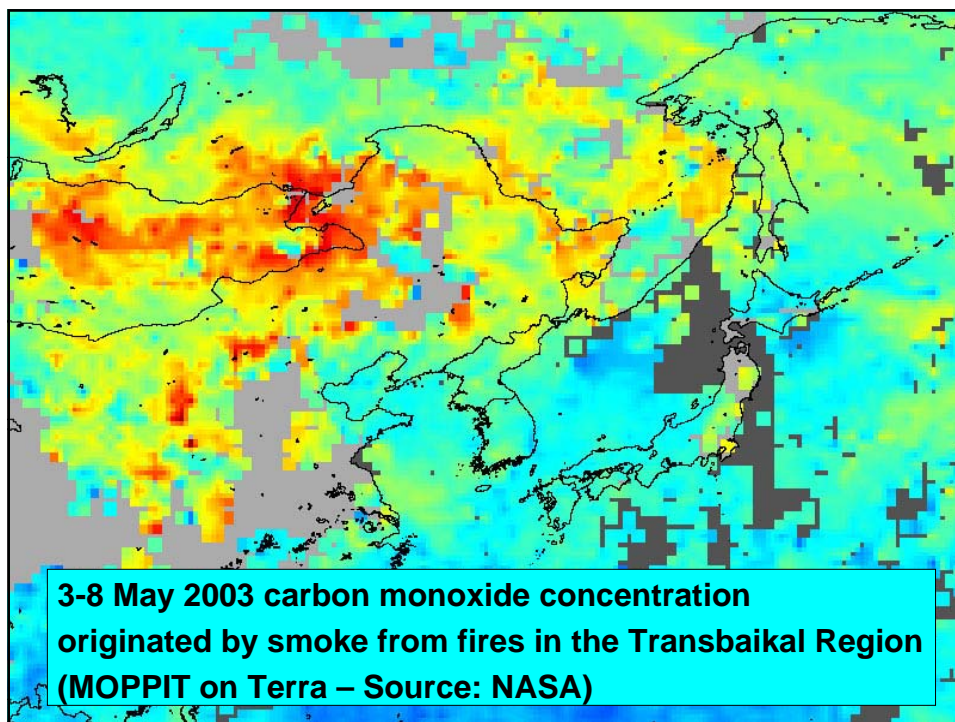
Regional North East Asia Wildland Fire Network (I)

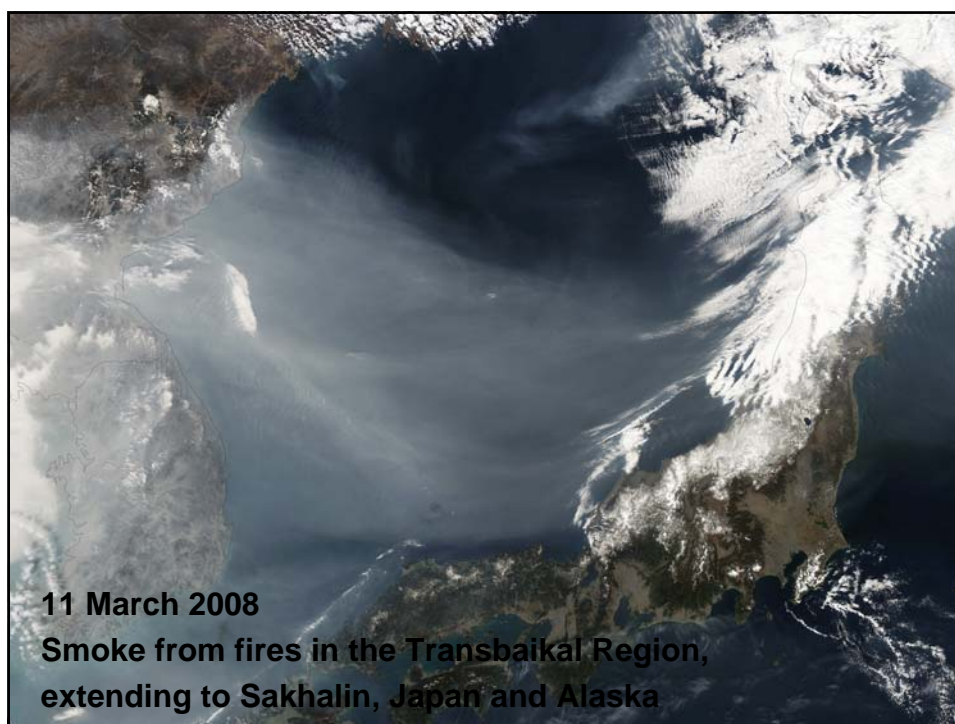
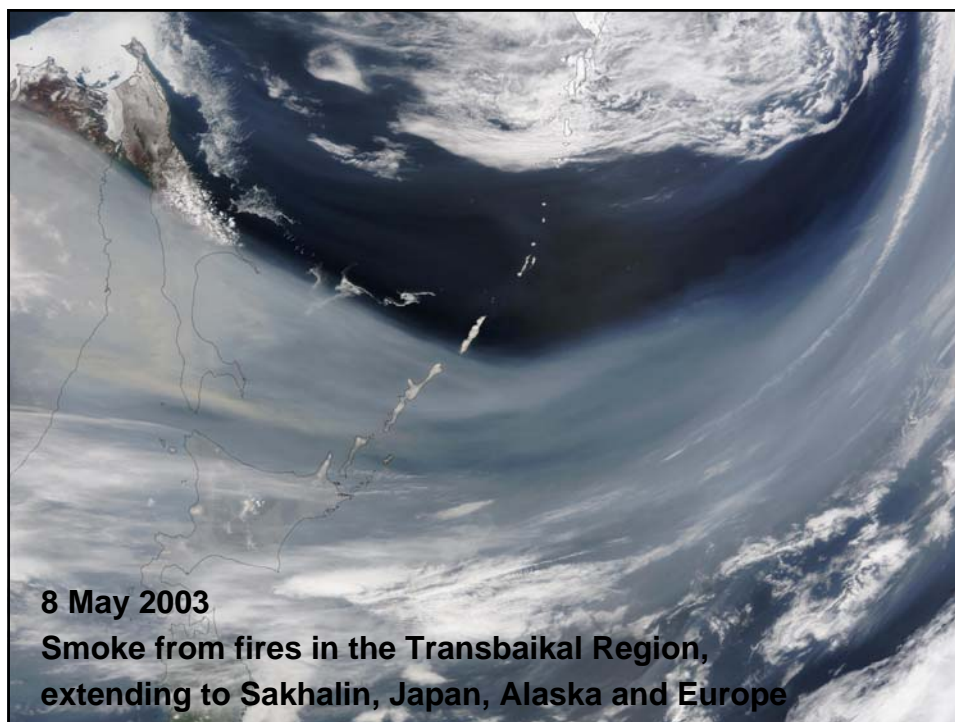
Founded: March 2004
Host: Korea Forest
Service (with UNISDR)

Members:

South Korea
Japan
China
Russia (Far East)









Regional Wildland Fire Networks (X)

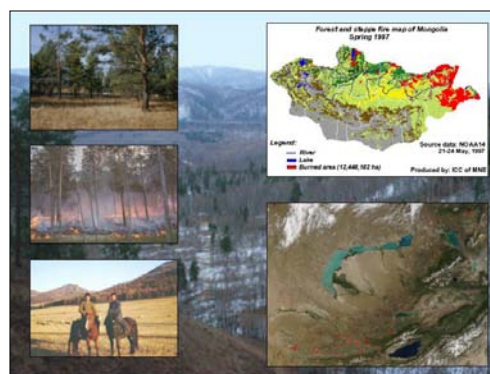
Regional Central Asia Wildland Fire Network (I)

Initiator: UN-ECE Team of Specialists on Forest Fire

Endorsed at the
Central Asia Forestry Congress
Bishkek, Kyrgyzstan, 2004

Regional Network Consultations

- Irkutsk, 2005
- Ulaanbaatar 2008
- Irkutsk 2010

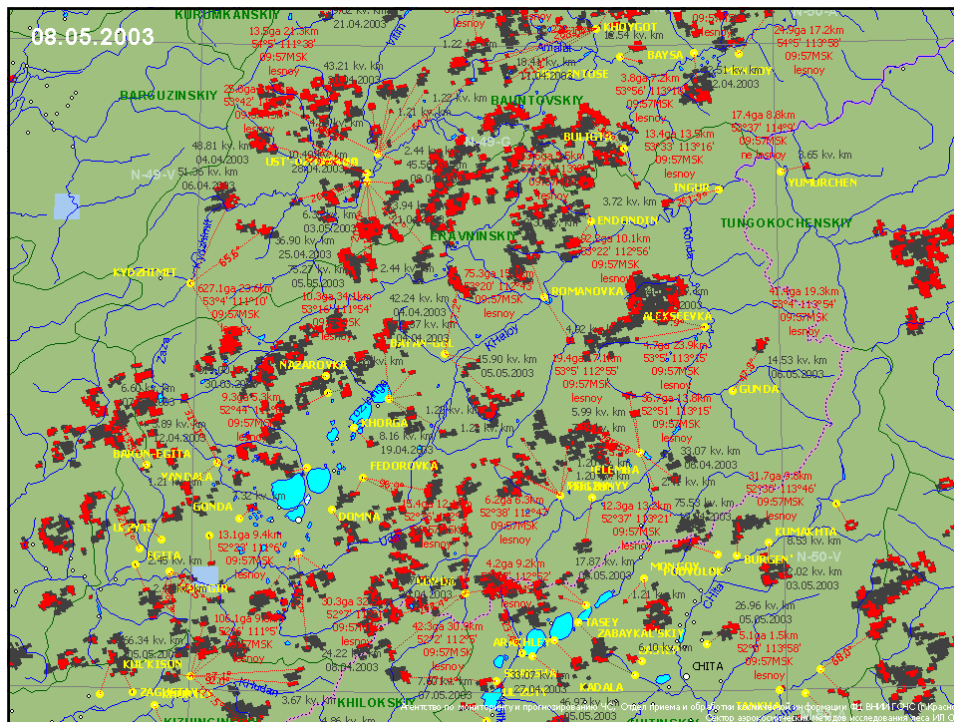
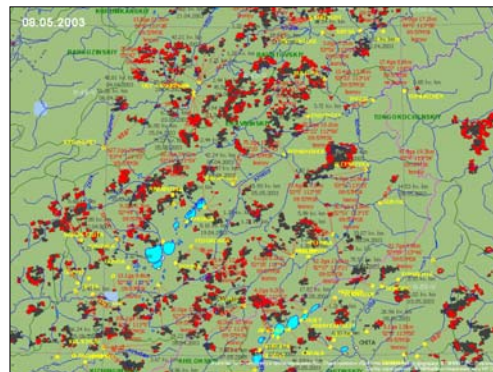


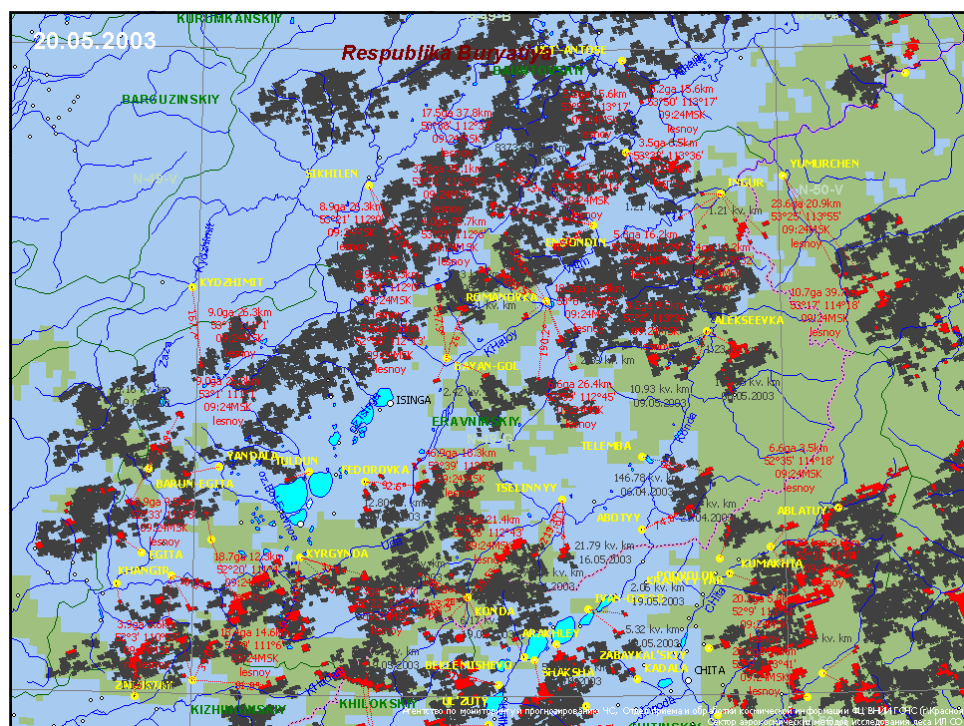
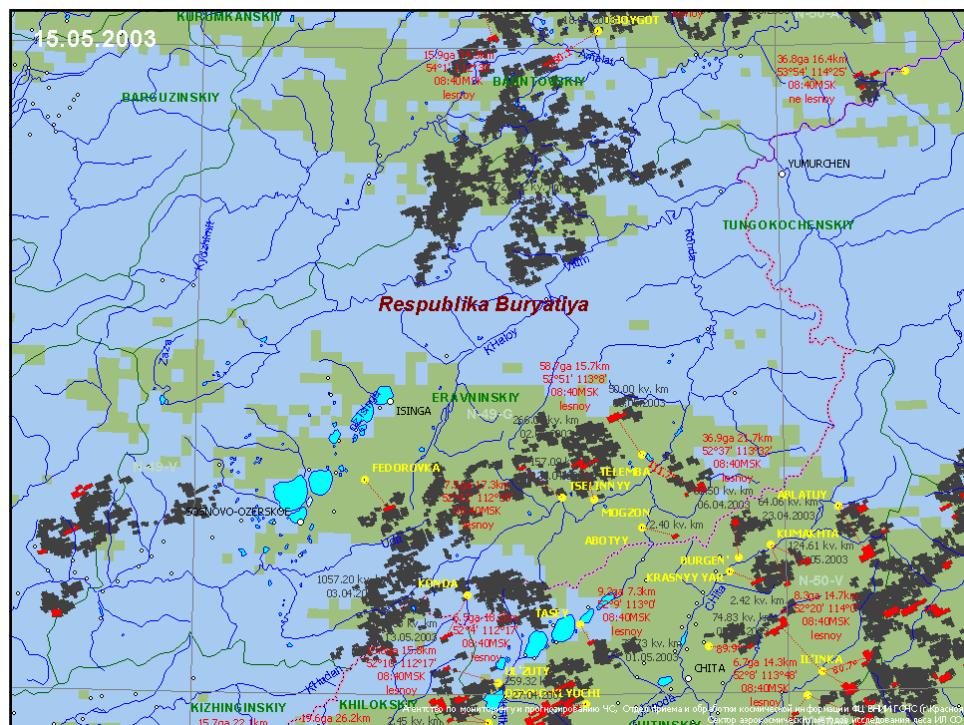
Regional Wildland Fire Networks (X)

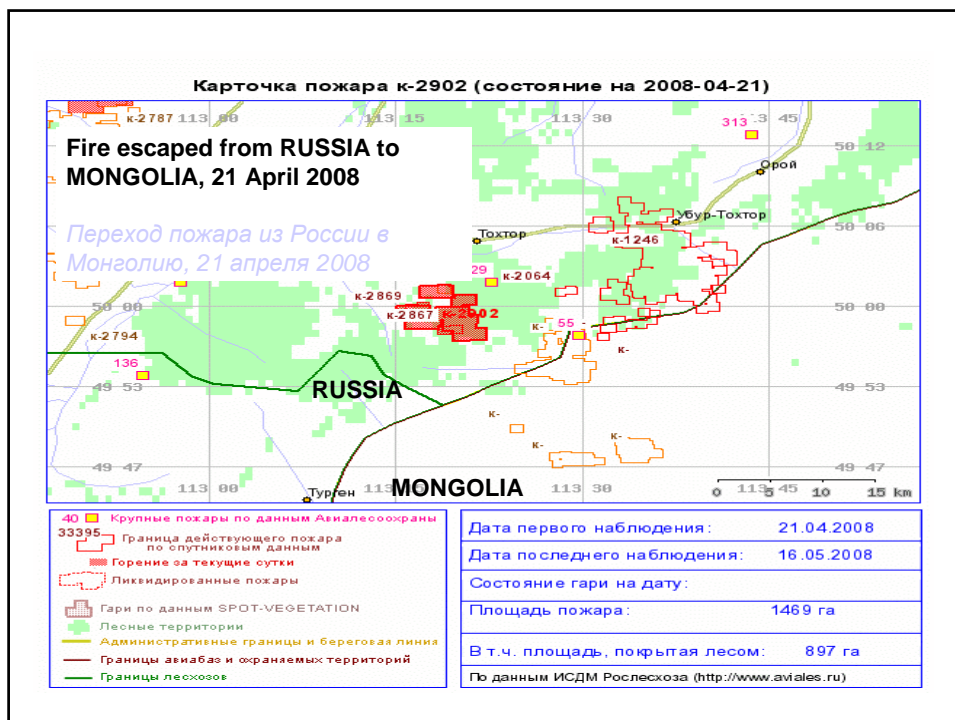
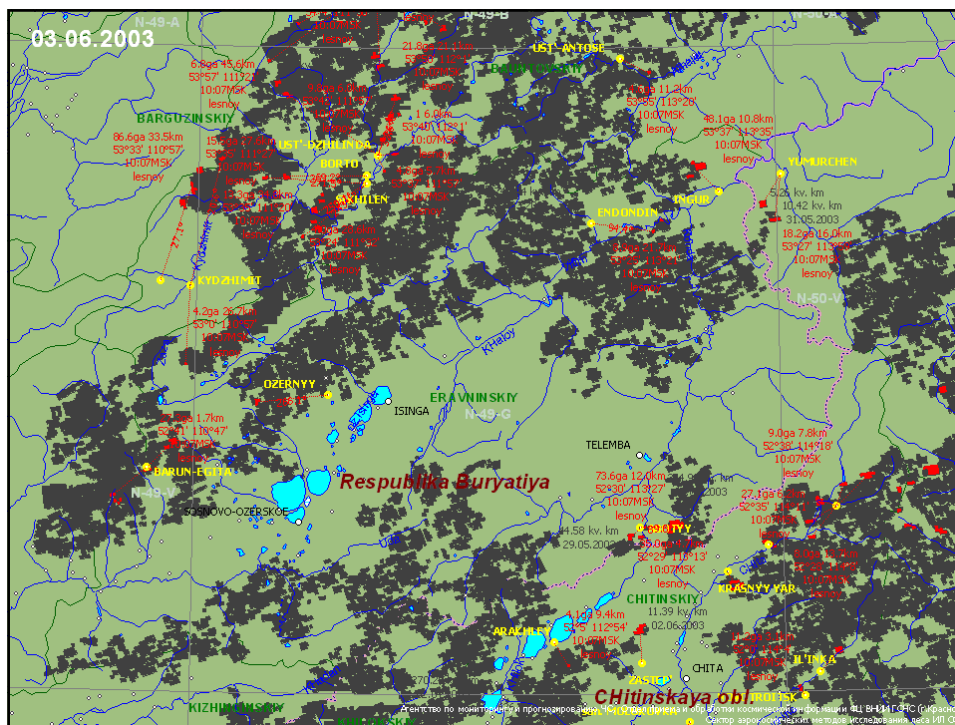
Regional Central Asia Wildland Fire Network (II)

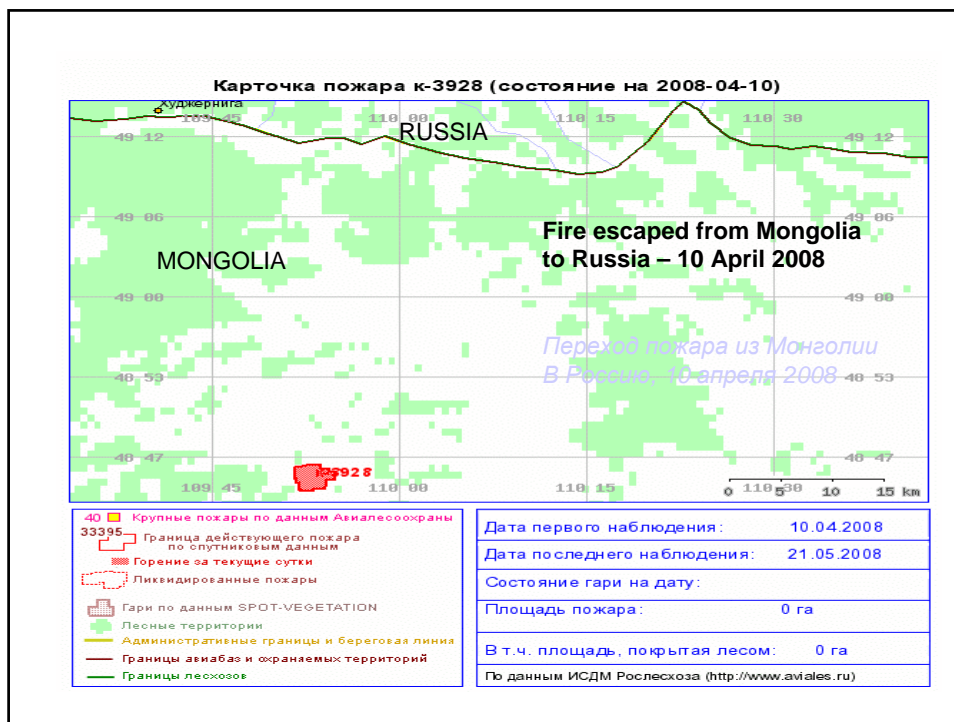
Advanced real-time fire
monitoring system installed
in Russia

Source: Sukachev
Institute for Forest
(Krasnoyarsk) / GFMC









Regional Wildland Fire Networks (XI)

Regional Southeast Europe / Caucasus Wildland Fire Network (I)

UN-ECE Region: Team of Specialists on Forest Fire

Founded: 2002

Regional Consultation
and Conference on
Cooperation in Fire
Management in
Eastern Mediterranean,
Balkans, Near East
and Central Asia

Antalya, Turkey, 2004



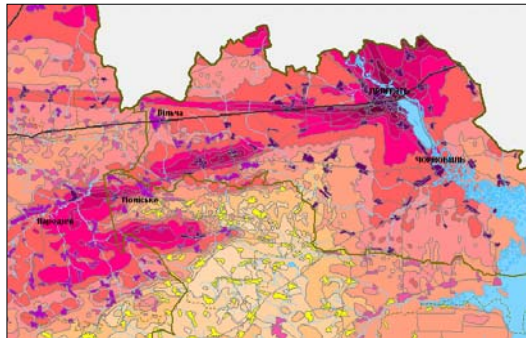
Regional Wildland Fire Networks (XI)

Regional Southeast Europe / Caucasus Wildland Fire Network (II)

Main issues addressed: Consequences and management of fires burning on terrain contaminated by radioactivity, unexploded ordnance (UXO) and land mines

Chernobyl failure
 impact area

¹³⁷Cs contamination in 2006



Regional Wildland Fire Networks (XI)

Regional Southeast Europe / Caucasus Wildland Fire Network (III)

Main issues addressed: Consequences and management of fires burning on terrain contaminated by radioactivity, unexploded ordnance (UXO) and land mines

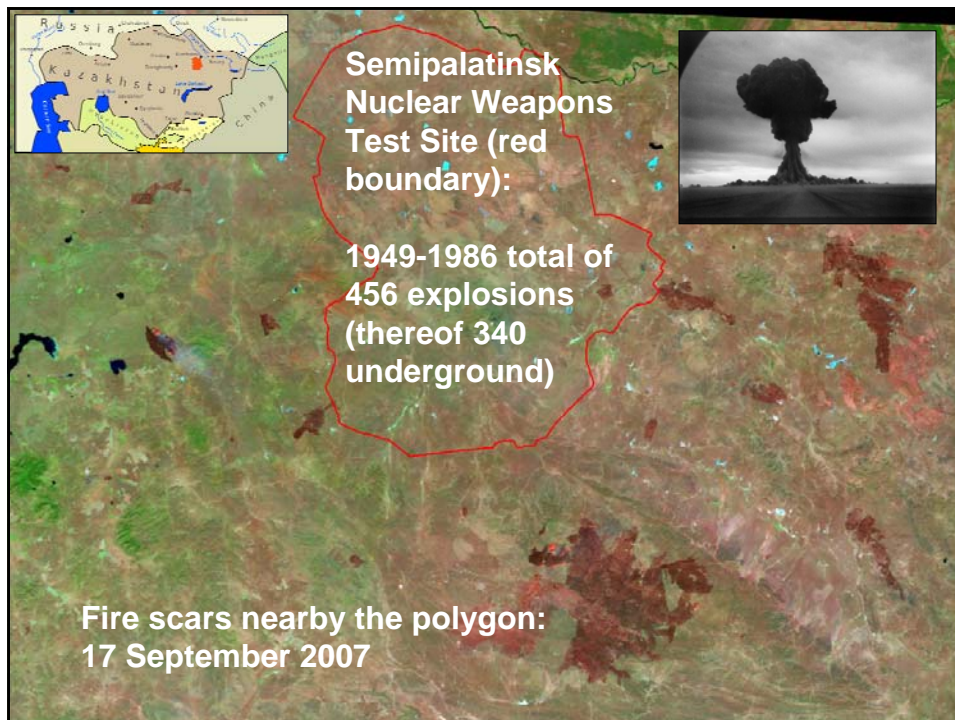
Chernobyl failure
 impact area

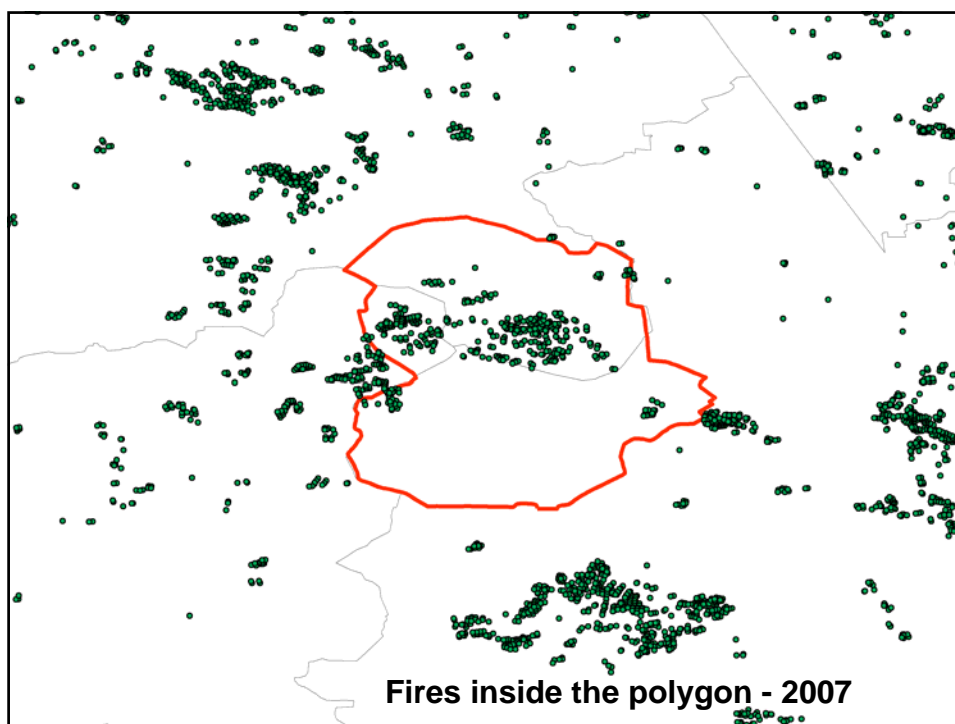
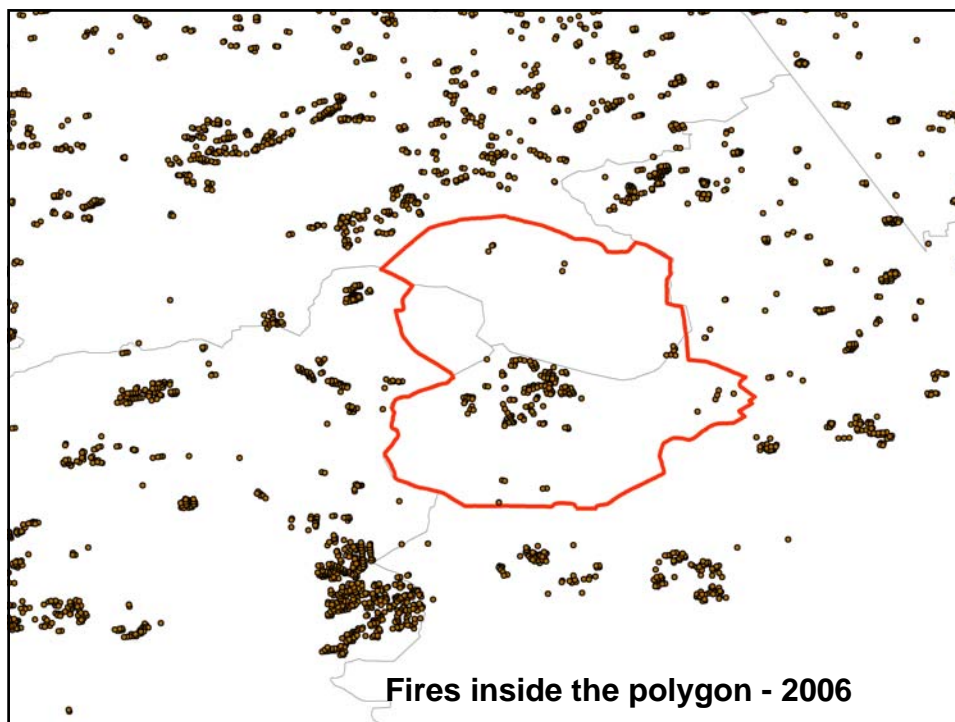
Contaminated smoke plume (May 2003)

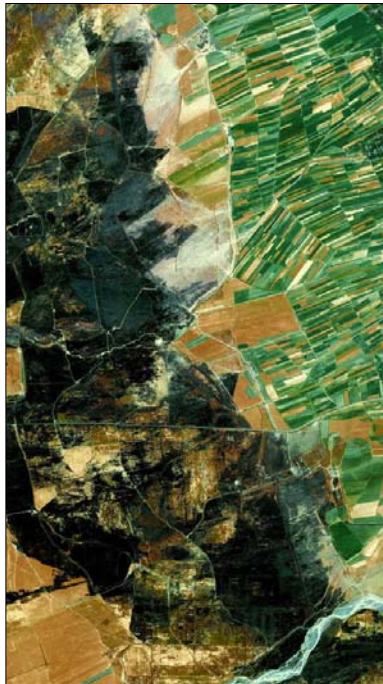


Consequences of the Chernobyl reactor failure of 1986

The Chernobyl
firefighters
scrap yard







Caucasus Fires
June 2006



Caucasus Fires
June 2008





**Caucasus Fires: Conflict
around Nagorny Karabakh**
June 2006

Regional Wildland Fire Networks (XII)

Regional Baltic Wildland Fire Network

Core Activity Region within the UN-ECE Region (FAO / ECE Team of Specialists on Forest Fire)

Active since the
early 1990s

Established by the
UN-ECE/FAO Team of
Specialists on Forest Fire



Reconstructing Post-1979 Forest Fire Activity in Russia: NOAA AVHRR Analysis

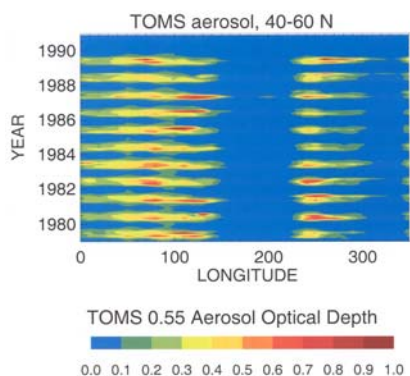
Don Cahoon and Brian Stocks



With strong support from:
Canadian Forest Service
NASA
Russian Academy of Sciences

Reconstructing Russian Area Burned

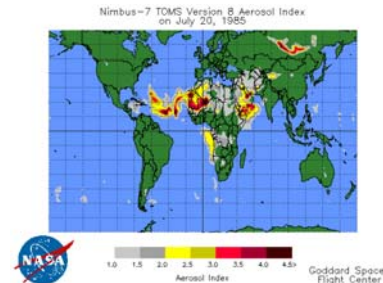
- Reconstruction of fire weather and area burned in post-1980 Russia is critical to predicting potential climate change and carbon budget impacts
- Fire data since 1995 (after satellite coverage/mapping commenced) is reliable
- Official fire records for the 1980-1995 period unreliable and inaccurate



Reconstructing Russian AB (2)

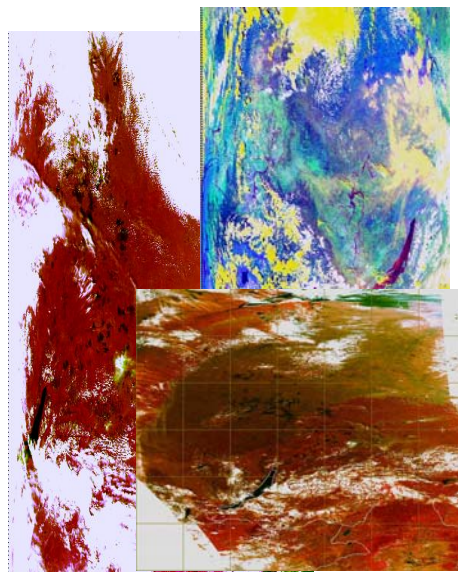
- Lower resolution satellite imagery (e.g., NOAA AVHRR GAC data) collected by NASA and CFS fire scientists for the 1980s/early 1990s, but never analyzed
- Search for Russian satellite data products for the 1980s (Isaev image)
- Use this satellite data, along with fire danger records, to build an historical baseline of Russian fire activity that can be used for projecting future fire regimes under a changing climate

Large Russian fire locations from official records (sizes underestimated)

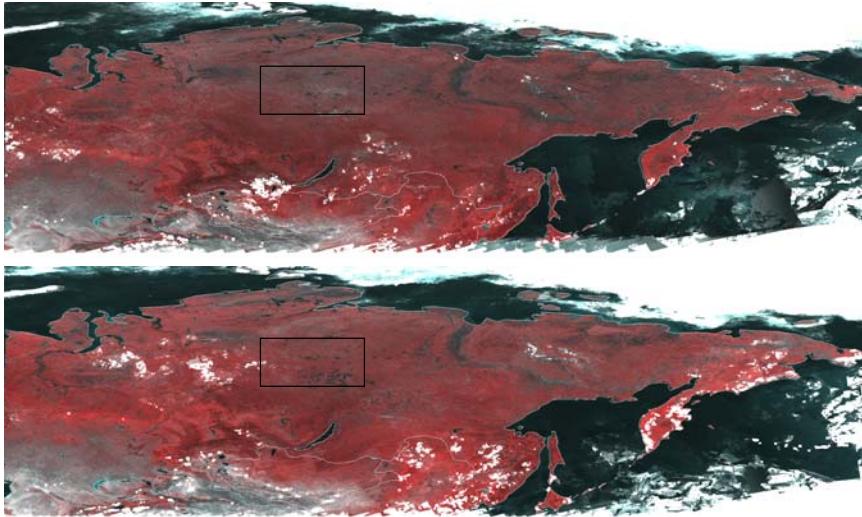


Reconstructing Russian AB (3)

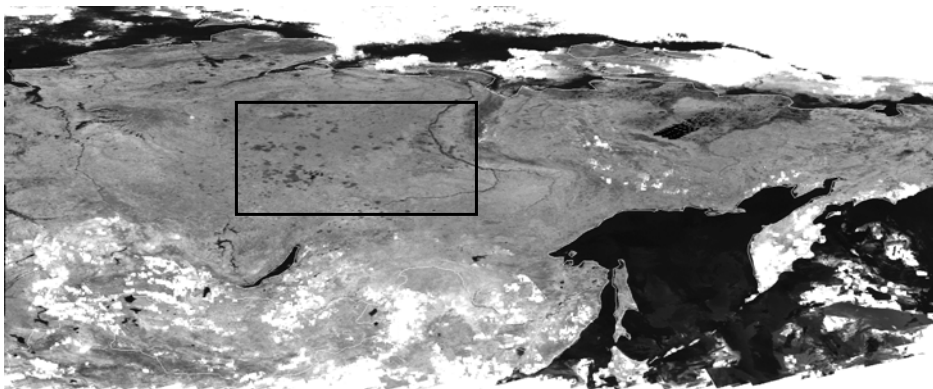
- Current CC projections indicate more frequent and severe boreal fires – C and forest resource impacts
- Accurate estimations of future fire activity in Russia are essential for determining climate change impacts and developing adaptation strategies
- Key is a baseline of observed fire danger/area burned statistics



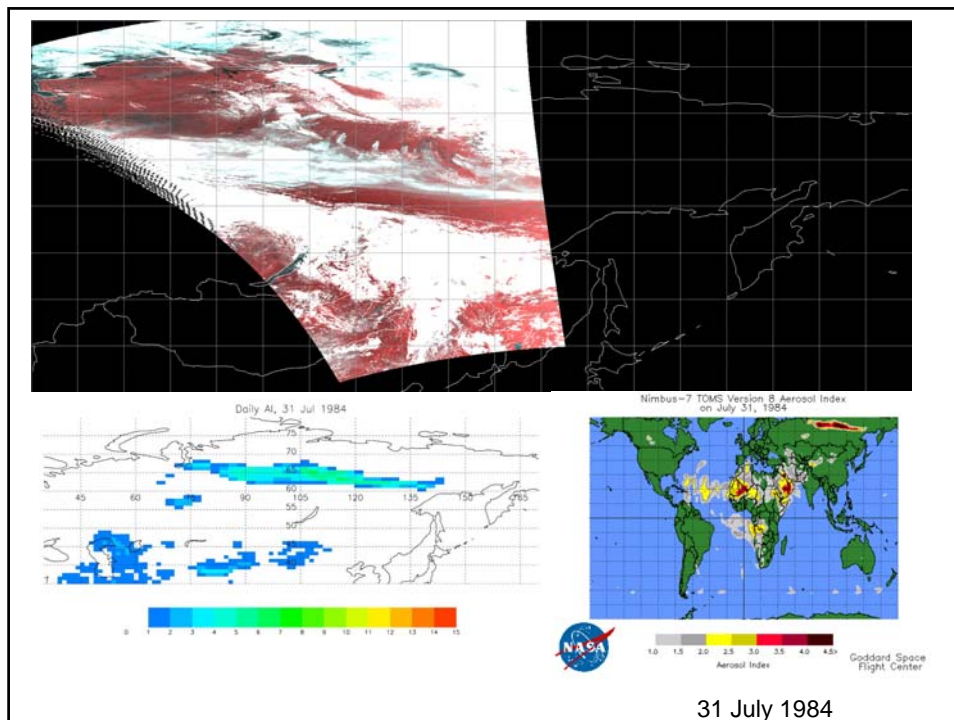
Composites August 1984 & 1985



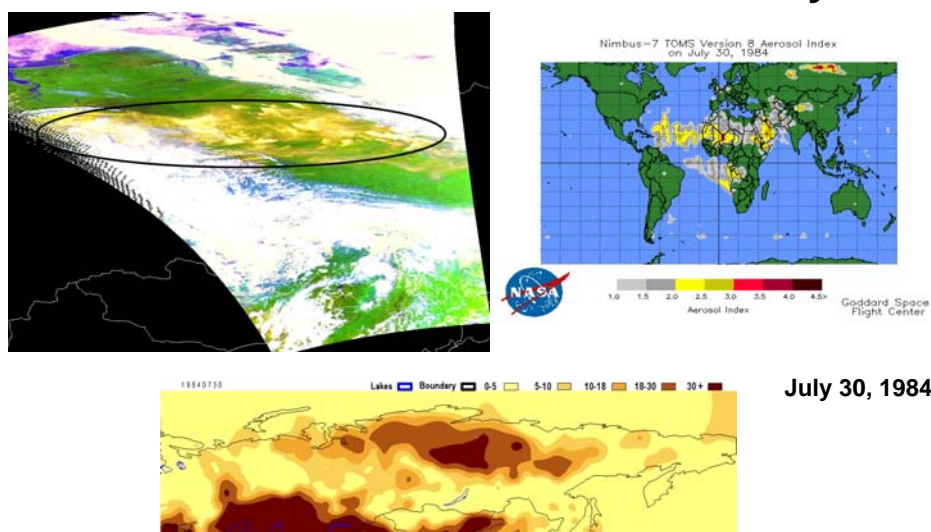
1985 Composite



Hundreds of images overlaid, cloud and smoke filter applied



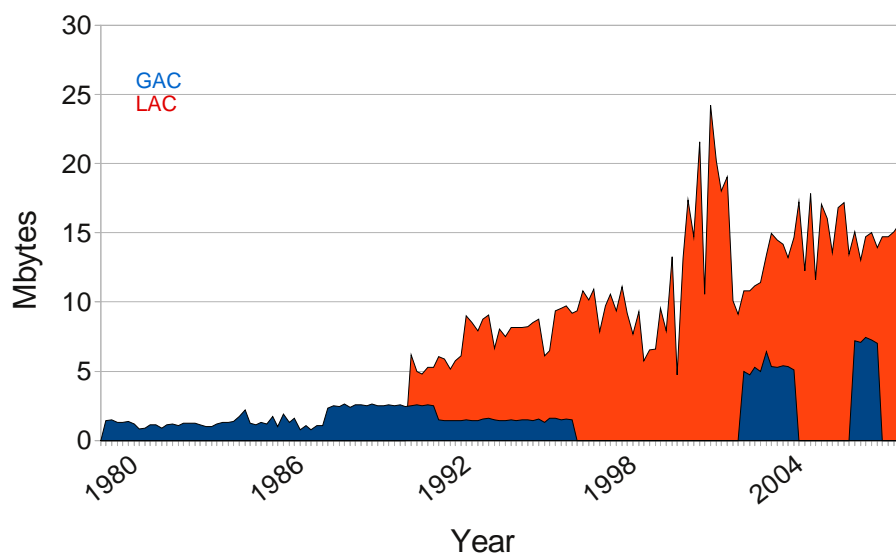
Using AVHRR, TOMS AI and CFFDRS to Reconstruct Russian Fire Activity



Processing Status - Level 1

- AVHRR archive completed (GAC and LAC)
 - Coverage for eastern Russia (Urals to Alaska)
 - 1979 to 2009 (30 fire seasons)
 - GAC: 1979-1995, 2002, 2003, 2006
 - LAC: 1995-2009
- Archive Statistics
 - LAC: 39,839 files using 1.2 Tbytes of disk space
 - GAC: 19,591 files using 0.2 Tbytes of disk space
 - 230 GAC scenes per month on average
 - Over 400 scenes per month typical for LAC

AVHRR Archive Monthly
File Size Distribution



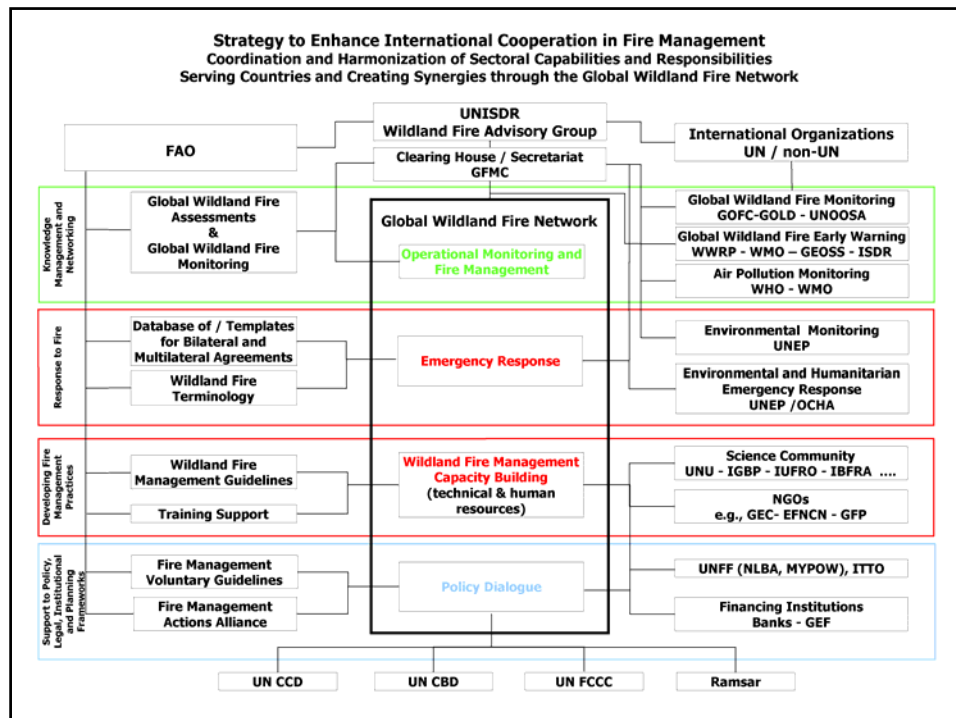
Advertisement

The next global forum of the fire science and fire management community:

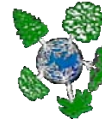
The 5th International Wildland Fire Conference
 (WildFire 2011) South Africa, May 2011



www.wildfire2011.org



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23-25 March 2010**



Thanks for Your Attention



United Nations
International Strategy for Disaster Reduction



The Global Fire Monitoring Center (GFMC)