Forest fires in Ukraine: management and policy

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Freiburg - 2008

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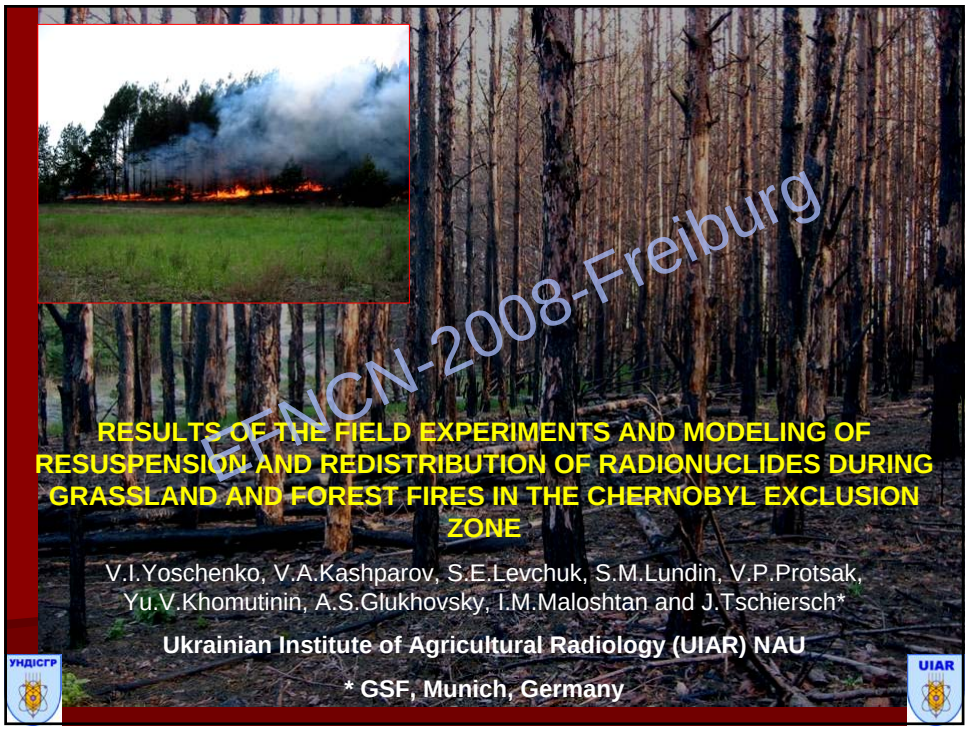

RESULTS OF THE FIELD EXPERIMENTS AND MODELING OF RESUSPENSION AND REDISTRIBUTION OF RADIONUCLIDES DURING GRASSLAND AND FOREST FIRES IN THE CHERNOBYL EXCLUSION ZONE

V.I.Yoschenko, V.A.Kashparov, S.E.Levchuk, S.M.Lundin, V.P.Protsak, Yu.V.Khomutinin, A.S.Glukhovsky, I.M.Maloshtan and J.Tschiersch*

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Capital – Kyiv, population ~ 4 million

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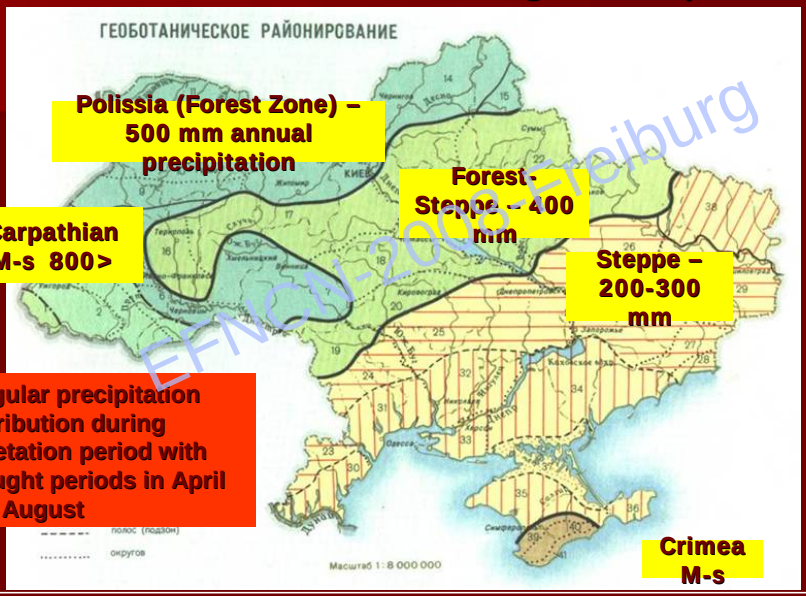
Geo-botanical zoning and precip.



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Historical aspects as a precondition of current wildfires situation

Forest cover in Ukraine in the past and at the present moment, %

Natural Zone	Forest cover in the XIX c.	Present forest cover	Optimum
Ukraine	44,4	15,6	20-22
Forest zone (Polissia)	72,8	26,8	32,0
Forest Steppe	52,0	13,0	18,0
Steppe	20,0	5,3	9,0
The Carpathian M-s	76,0	42,0	45,0
The Crimea M-s	14,2	10,4	19

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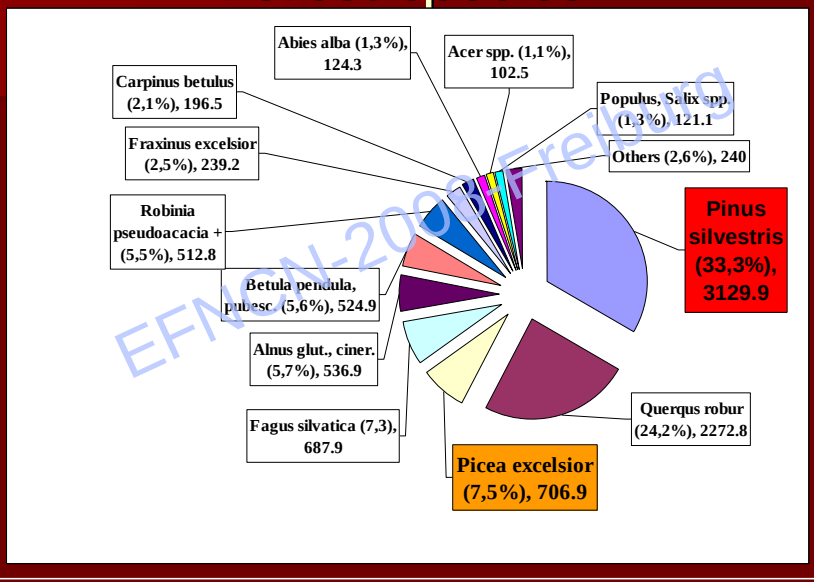
Forest species



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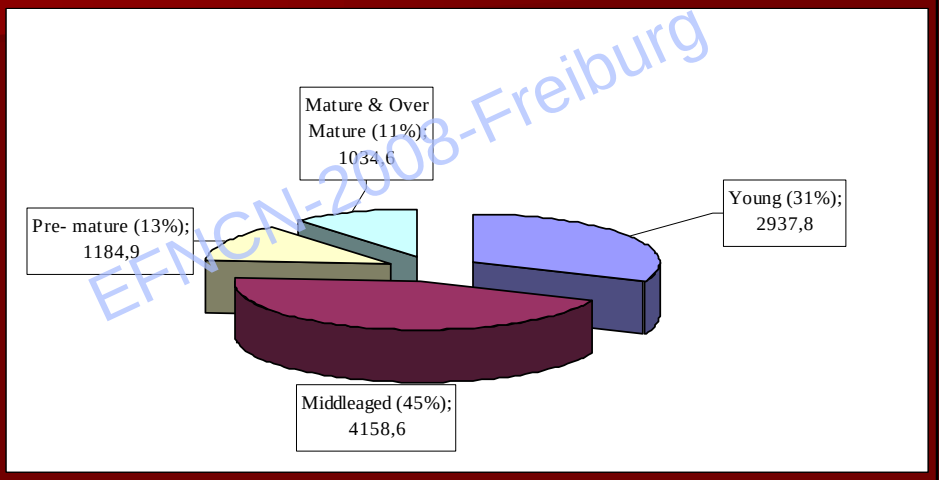
Age structure of forests and wildfires risks



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Old Growth Scotch Pine forest (post fire succession, 160 y.o.)

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Mixed Natural Scotch Pine – Common Oak forest (120 y.o.)

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Main features and conditions of FM in Ukraine

- Five natural-climatic zones with different conditions and species
- Low percentage of forest lands (15,6%)
- Forests are state owned
- High and irregular share of forest plantations on the territory (near 50%)
- High density of population (total - 47,6 millions)

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State Forestry Committee system (68% of forests)

- 24 Regional (oblast) Forestry Administration
- 233 Forest enterprises
- 23 Game management enterprises
- 6 Natural reserves
- 3 National parks

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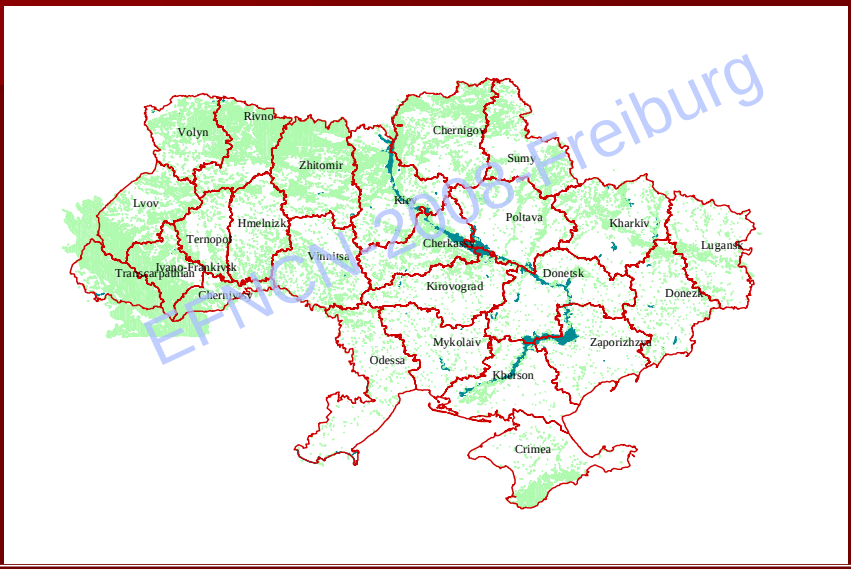
24 Regional (oblast) Forest Administrations



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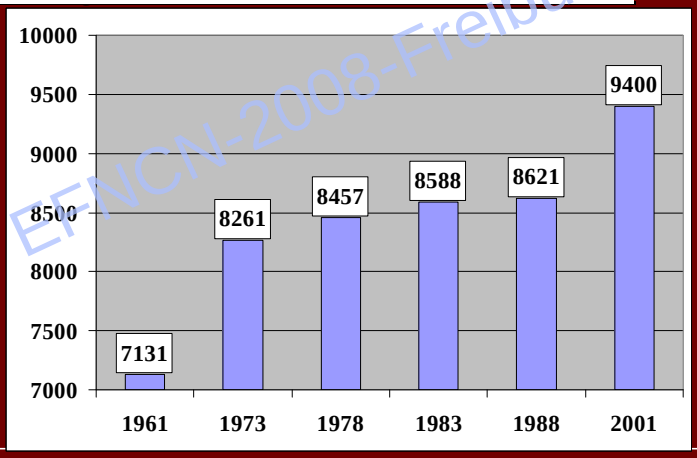
Creation Scotch Pine plantations in 60-70-s determined fire risks today

Changes in area of forests, thousand ha



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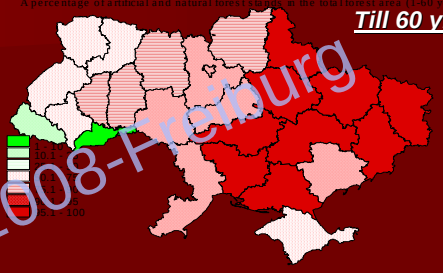
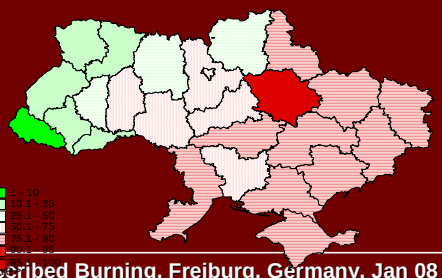
Share of plantation with high fire risk

(Savuschik, 2001)

Till 60 y.o.



More 61 y.o.



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Scotch Pine Plantation in the Steppe

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Scotch Pine plantation in the Steppe after fire (Kinsburska spit)

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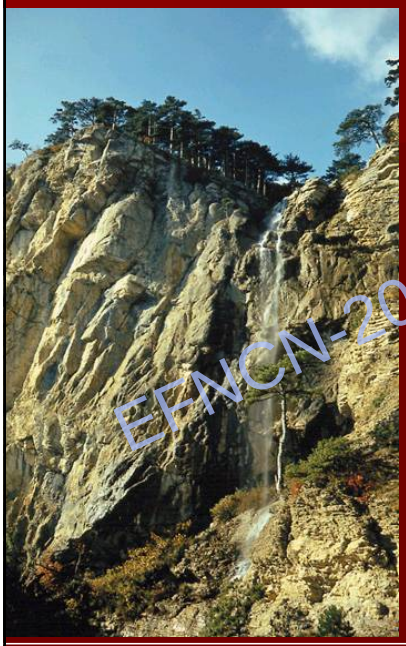
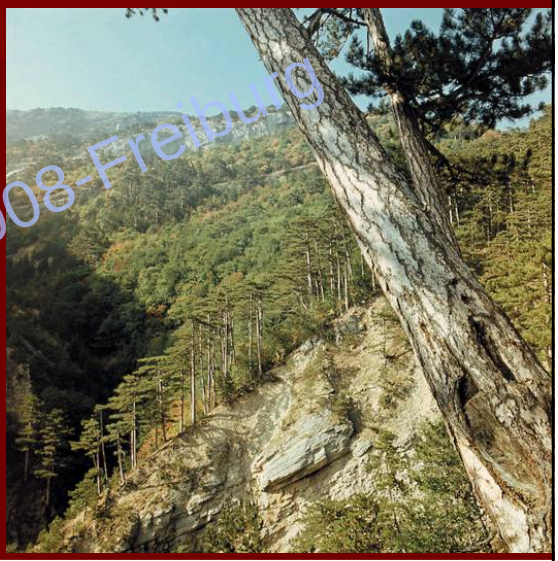
Crimean M-s

Crimean Pine Forest





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Scotch Pine in Crimea

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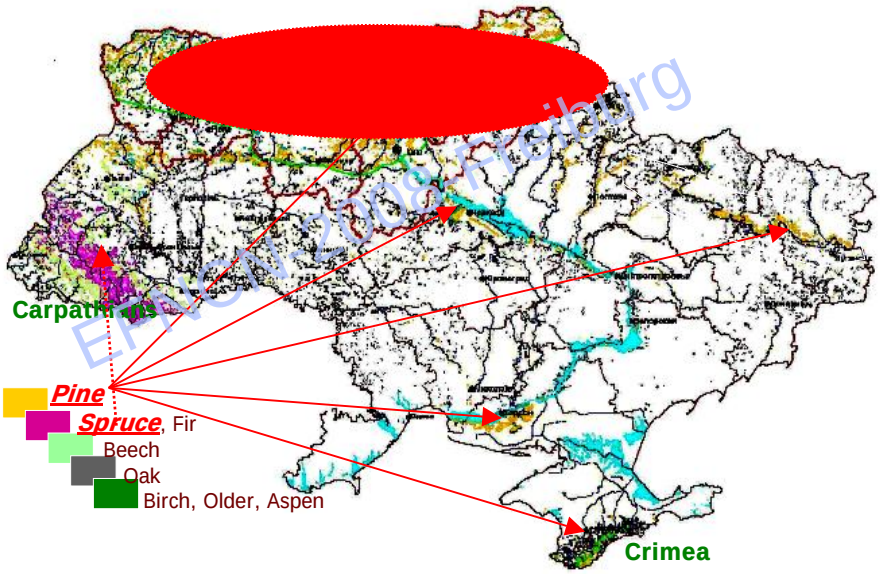
Fire-prone forests of Ukraine



Institutional structure and wildfire policy

Fire policy at the moment

Due to:

- Low percentage of forest lands (especially in the South-East)
- Contamination of forests
- High population density
- Lack of forest resources

At the moment the use of prescribed fire is prohibited in forests!

Fire policy changing prospects (1):

Due to:

1. Decreasing of labor force in State Forest Enterprises
2. Requirements of Forest certification (FSC) to increase biodiversity and implement nature-oriented silviculture

Fire policy changing prospects (2):

Options for the future:

1. Implementation of prescribed burning
2. Implementation of prescribed fire in forest reserves
3. Increasing private property and prescribed burning in forests

Wildfires crisis regions

- Scotch Pine young and middle-aged plantations **in the Steppe zone** with an area of more than 400 000 ha (Kherson, Dnipropetrovsk, Lugansk)
- **Natural forests of Crimean Pine** (45 000 ha Mountain forests of Crimean peninsula)
- **Chernobyl Exclusion Zone** (260 000 ha)

Crimea August 2007 large fire

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Crimea August 2007 1000 ha fire

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EFNCN-2008-Freiburg
Kherson Fire in August 2007: 7000 ha
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Kherson Fire Reforestation October 07
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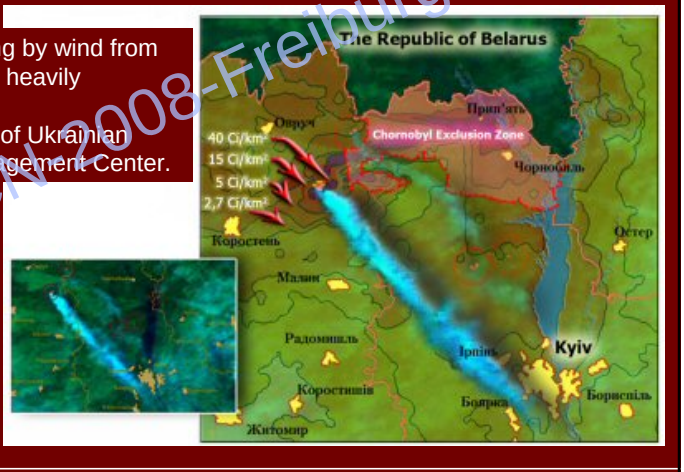
Ecological and Social Threats from Wildfires in Chernobyl Contaminated Forests

Example of smoke blowing by wind from forest fire outside of most heavily contaminated forests.
Image and map courtesy of Ukrainian Land and Resource Management Center.



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Big areas of SP contaminated forests are dying after insect attack and has high fire risk

Locus of Ocneria Dispair and Fomitopsis annosa Karst.

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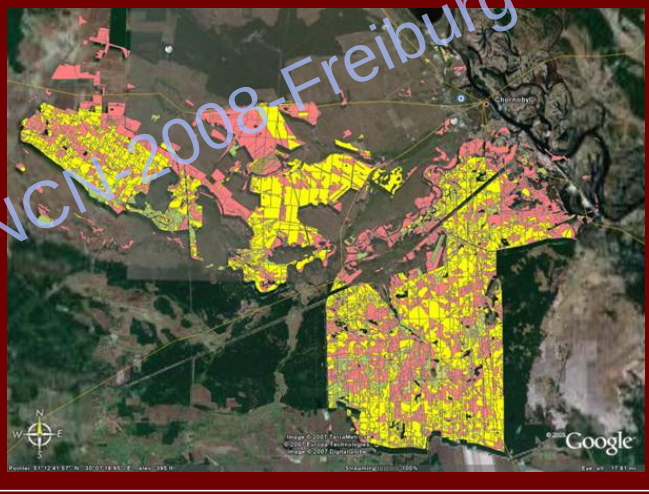
Leliv - near 1000 ha died forests 8 km south from Chernobyl NPP

Ocneria Dispair

Google Earth image of Chernobyl Area

Google Earth image showing Ukraine Fire Risk Classification on Chernobyl landscape. Area to right of classified area which appears to be a large open area from burns 1992.



Chernobyl Fire Risk Assessment Project

- January 31st-Feb2nd 2007 - Chernobyl Pilot Project - Initial work done a Yale University to investigate the potential fire risk of radioactive forests.
- July 26-27 2007 - International Meeting on "Reduction of Risk from Catastrophic Wildfires in the Chernobyl Irradiated Forests, National Agricultural University of Ukraine, Kiev, Ukraine
- Statement of the International Meeting on "Reducing Risk of Disaster from Catastrophic Wildfires in the Chernobyl Irradiated Forests" is available on GFMC web-page

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Chernobyl Fire Risk Assessment Conference

26-27 July 2007 - National Agricultural University of Ukraine, Kiev, Ukraine

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Yale Environment Magazine

Fire and the Nuclear Forest

By Richard Conniff

In the fall of 2004 in the classroom of Marc Hall on the Yale campus, a forester from Alaska gave a talk about the worst fire season in his state's history. Driven by record-breaking temperatures and drought, intense fires had raged across 6.5 million acres of forest, easily triple what Alaska expected even in a bad year. Despite the latest fire-fighting technology, the fires burned too big and too hot to control. At one point, a change of wind direction blanketed the city of Fairbanks in smoke, reducing visibility at times to a quarter-mile. Air quality was rated very unhealthy or hazardous for 10 days straight, forcing people to stay indoors or even evacuate the city. NASA later reported that the smoke plume had worsened air quality as far away as Houston.

In the audience that day at Yale was an associate professor from the National Agricultural University of Ukraine named Sergiy Zibtsev, who was visiting from Kiev as a Fulbright scholar. As the speaker's photos played across the screen, he contemplated the catastrophic scale of the fires and wondered, "What if it happened at Chernobyl?"

A 50-year-old Scotch pine plantation five miles from the Chernobyl nuclear power plant. The stand has been devastated by insects and is now at an extremely high risk for fire.

Zibtsev, a tall, almost ectoplasmically thin 40-year-old, with a slight stoop and thick hair just starting to go grey, knew the forests around the Chernobyl Nuclear Power Plant as well as anyone. Kiev, where he teaches at the Institute of Forestry and Landscape Architecture, is a two-hour drive to the south. Starting in 1993, he'd spent five summers working four hours a day in the so-called exclusion zone, a fenced-off area of almost 650,000 acres around the power plant. The human population there had been hastily evacuated after the April 26, 1986, explosion at nuclear reactor number four. What

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Conclusions

- In general situation with wildfire control in Ukraine is satisfied except crisis region like Chernobyl or the South-East region
- In crisis region desirable development of bilateral/multilateral cooperation in framework of the UNISDR Global Wildland Fire Network / Regional South East Europe / Caucasus Wildland Fire Network (RSEEWFN) etc.: In the Chernobyl case - with Russia and Byelorussia. In the South-East case - with Turkey and Balkan countries
- Ukraine should be involved in Fire Paradox and others EU projects

Thank you!

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