

Heat, Drought and Wild land Fires in Eurasia in 2003

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During the Northern Hemispheric Summer of 2003 Eurasia (Europe and the Russian Federation) was affected by heat and drought episodes of different intensities and duration. The combination of wild land fire danger (determined by weather), fire risk (ignition probability) and fire hazard (availability of fuels) determined occurrence and severity of wild land fires. Examples of countries in three regions are given in which the combination of these three factors resulted in quite different fire seasons.

In the Russian Federation Southeast of Lake Baikal the extreme drought between 2002 and 2003 provided the conditions for large-scale fires caused by economically motivated arson and the consequences of weakened institutional capabilities to manage wildfires. At the end of the fire season more than 20 million ha of forest and other land were affected in the Transbaikalian region.

In the five southern European countries (France, Greece, Italy, Portugal, Spain) the total area burned in 2003 was comparable to five fire seasons within the last two decades. However, Portugal experienced wildfires of extreme intensities in plantation forests and other land subjected to land-use change and alterations of fuel complexes. With a total area burned of 420,000 ha more than eight percent of the forest estate was destroyed by wildfires, which also burnt 2500 houses and buildings in the country – for a total economic cost of €1 billion. France experienced an extreme fire season, especially in the 15 Départements of South-Eastern France (including Corsica) where more than 61,000 ha land were affected by wildfires. In July 2003 more than 20,000 tourists had to be evacuated from recreation sites endangered by wildfires. Despite high fire danger the total area burned in Spain was relatively low as compared to similar drought conditions in earlier years.

In Central and Western Europe the fire situation was dependent on the preparedness of the fire services. Extreme fire danger in Germany did not result in large or extremely dangerous fires. With a total area burned of 1300 ha the year 2003 resulted in similar or less area burned as compared to four years of the last decade (1992: 4908 ha; 1993 – 1493 ha; 1994 – 1114 ha; 1996 – 1381 ha). Similar to previous years the average fire size was 0.5 ha. Despite the average low meteorological fire danger conditions prevailing in Germany in 2004 the actual wildfire hazard has been increased as a consequence of mortality of forest vegetation due to heat-stress in 2003, resulting in high loads of available fuels. In the United Kingdom, however, severe drought conditions resulted in high-intensity wildfires which were difficult to control.

By evaluating the 2003 wild land fire season in three Eurasian regions it must be stated that drought alone does not determine the occurrence, extent and damages of wildfires. The intensity (energy release, degree of controllability of a fire), the severity (ecological impact of wildfires, including resulting secondary disasters such as erosion, runoff, landslides and flooding) and economic damages of fires depend on ignition sources, values at risk and vulnerability at the interface between vegetation complexes and other land-use systems.