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Advance Publication of Wildland Fire Statistics for Russia 1992-2007

This advance publication is serving the increasing demands for statistical data on forest fires and fires burning other vegetated lands in the Russian Federation. Please see the sources and explanation of different datasets in the footnotes of the table.

Table 1. Comparative fire statistics for total vegetated area and forest area burned in the Russian Federation in the period 1996 to 2005, based on agency reports and remote sensing.

Year	Agency Reports based on Ground and Aerial Observations [1]			Satellite-Derived Data (NOAA AVHRR) Based on Fire Counts and Derived Area Burned [2]			
	Number of Fires Reported	Total Area Burned (ha)	Forest Area Burned (ha)	Total Number of Fires (events investigated)	Total Area Burned (ha)	Number of Forest Fires	Forest Area Burned (ha)
1992	17 617	885 541	497 819				
1993	14 478	1 098 889	719 352				
1994	14 783	644 737	488 430				
1995	17 615	412 029	322 710				
1996	22 623	2 209 654	1 789 583	7 006	4 723 430	3 544	3 164 410
1997	23 090	861 148	643 969	3 402	3 546 870	1 580	2 376 490
1998	15 931	3 000 569	2 365 017	6 046	8 977 640	2 808	6 015 260
1999	18 138	711 799	533 150	7 835	4 566 080	3 639	3 059 220
2000	13 447	1 117 799	898 911	7 982	6 147 300	3 440	4 118 490
2001	14 561	1 220 305	792 357	6 335	5 212 800	3 050	3 490 560
2002	19 066	1 856 730	1 204 757	10 178	10 626 170	4 462	7 130 340
2003	21 699	2 634 722	2 071 057	15 707	17 937 800	8 852	14 510 230
2004	16 729	532 184	424 404	7 862	4 445 530	3 411	3 080 300
2005	10 923	963 000	706 900	19 526	9 288 550	7 114	5 180 400
2006	14 930	1 842 114	1 179 766	21 744	13 105 264	10 468	8 490 840
2007	9 776	1 082 517		23 024	9 975 250	10 069	6 468 880

Note: Starting in 2007 *Avialesookhrana* is providing only total area burned data

[1] Agency data provided by the Aerial Forest Protection Service *Avialesookhrana* of Russia for the fire-protected forest land under the jurisdiction of the Federal Forest Agency (Federal Forest Fund). In the average these statistical data represent ca. 90% of fires recorded statistically. The remainder of ca. 10% is data collected within the responsibility and jurisdiction of other agencies, e.g. the National Park Service.

[2] Satellite data provided by the Sukachev Institute of Forest, Remote Sensing Laboratory, Russian Academy of Sciences, Siberian Branch, Krasnoyarsk, Russian Federation, courtesy A. Sukhinin. The Krasnoyarsk satellite receiving station is covering the Russian Federation between the Ural Mountains in the West and Sakhalin Island in the East and recording fires and area burned independent of landownership. Compared to the data published in 2006 (Goldammer, 2006), this table includes updated and corrected data of burned areas based on a revision of the NOAA AVHRR database, using Landsat-7-ETM images. It was found that non-corrected NOAA data provide area burned exceeding 27% in comparison with Landsat data. The recalculation of data derived from active fire data involved the application of sub-pixel multi spectral methods for estimating the area of small fires and for correcting the areas of large fires. The daily geoposition of each fire line (fire edge) of fires, which continued several days, was corrected. In conclusion it is stated that due to low spatial resolution of AVHRR and the non-precise geolocation of AVHRR-derived fire sites a systematic

mistake led to an overestimate of the burnt area as published earlier (Goldammer, et al. 2005). Values of burnt areas have been corrected for the Siberian Federal District, Yakutia and Far East. The number of fires was also corrected by combining separate single active fire signals with the nearest cluster of recorded

The following maps show examples of regular updates of fire information in the Russian Federation by the Global Fire Monitoring Center (GFMC). The examples are taken from the daily SITREP of 7 May 2007: http://www.fire.uni-freiburg.de/GFMCnew/2007/05/0507/20070507_ru.htm.

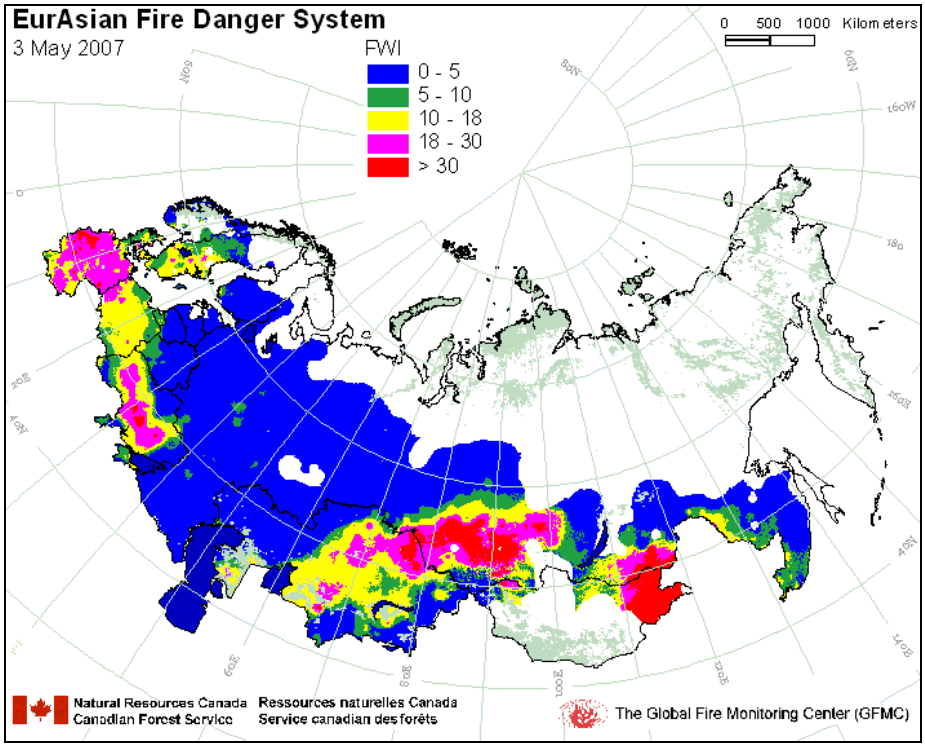

Figure 1. The Eurasian Fire Weather Information System is based on the Canadian Forest Fire Danger Rating System (CFFDRS) produced by the Canadian Forest Service and accessible through the Global Fire Monitoring Center (GFMC). This map shows a typical daily forecast of the Fire Weather Index (FWI) for 3 May 2007.
Source: GFMC (http://www.fire.uni-freiburg.de/fwf/eurasia1.htm)

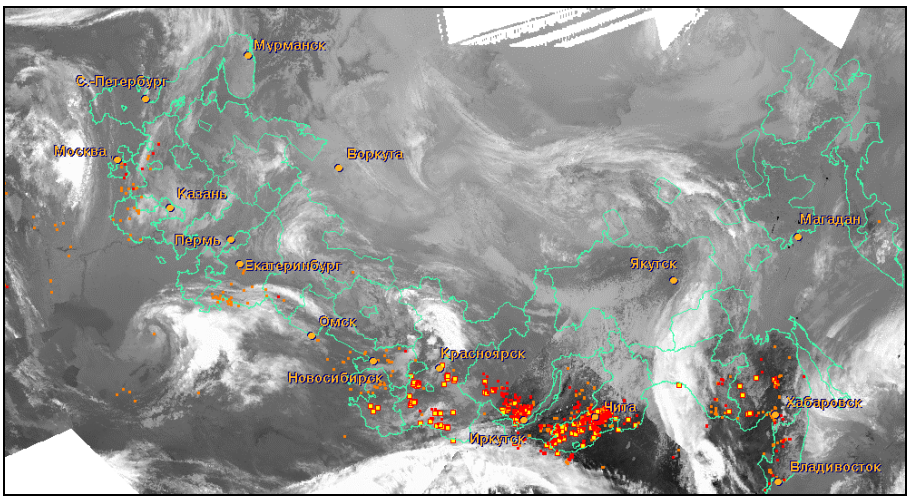

Figure 2. This satellite (NOAA 12&14 AVHRR) composite of 7 May 2007 (04:00 GMT) is an example of daily satellite images published by *Avialesookhrana*. The red squares indicate locations of active fires depicted by the MODIS sensors.

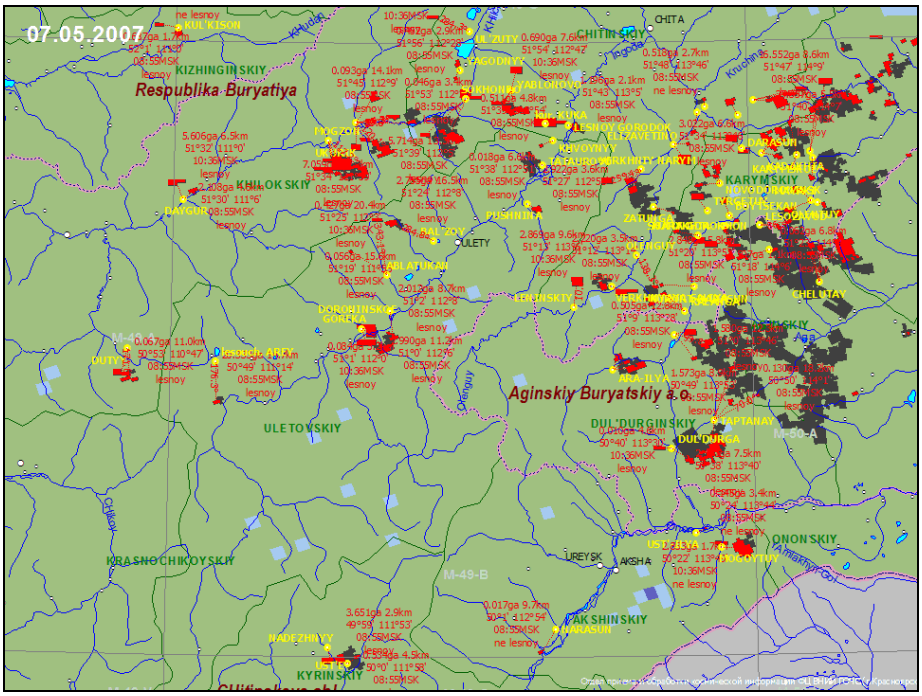

Figure 3. Example of a detailed fire maps produced by the Fire Laboratory of the Sukachev Institute of Forest, Krasnoyarsk, in collaboration with the Emergency Situation Monitoring and Forecasting Agency, Krasnoyarsk. The maps are produced on the base of satellite data (classification by the NOAA AVHRR). They show the fire locations (by latitude and longitude) and the area affected by fire (red signature = active fires of the day; black = area burned during previous days, size in ha). The red arrow at each fire location points to the nearest populated place. The active fires are derived from the MODIS sensors.

References

Goldammer, J.G., A. Sukhinin, and I. Csiszar. 2005. The Current Fire Situation in the Russian Federation: Implications for Enhancing International and Regional Cooperation in the UN Framework and the Global Programs on Fire Monitoring and Assessment. Int. Forest Fire News No. 32, 13-42. http://www.fire.uni-freiburg.de/iffn/iffn_32/05-Goldammer.pdf

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