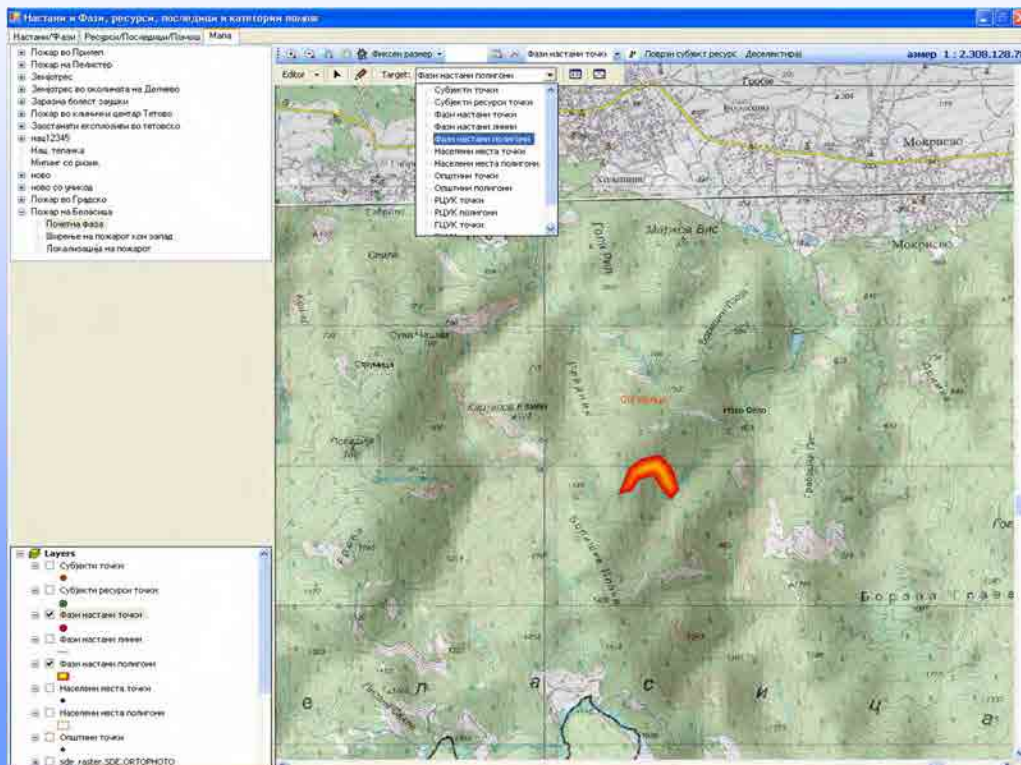
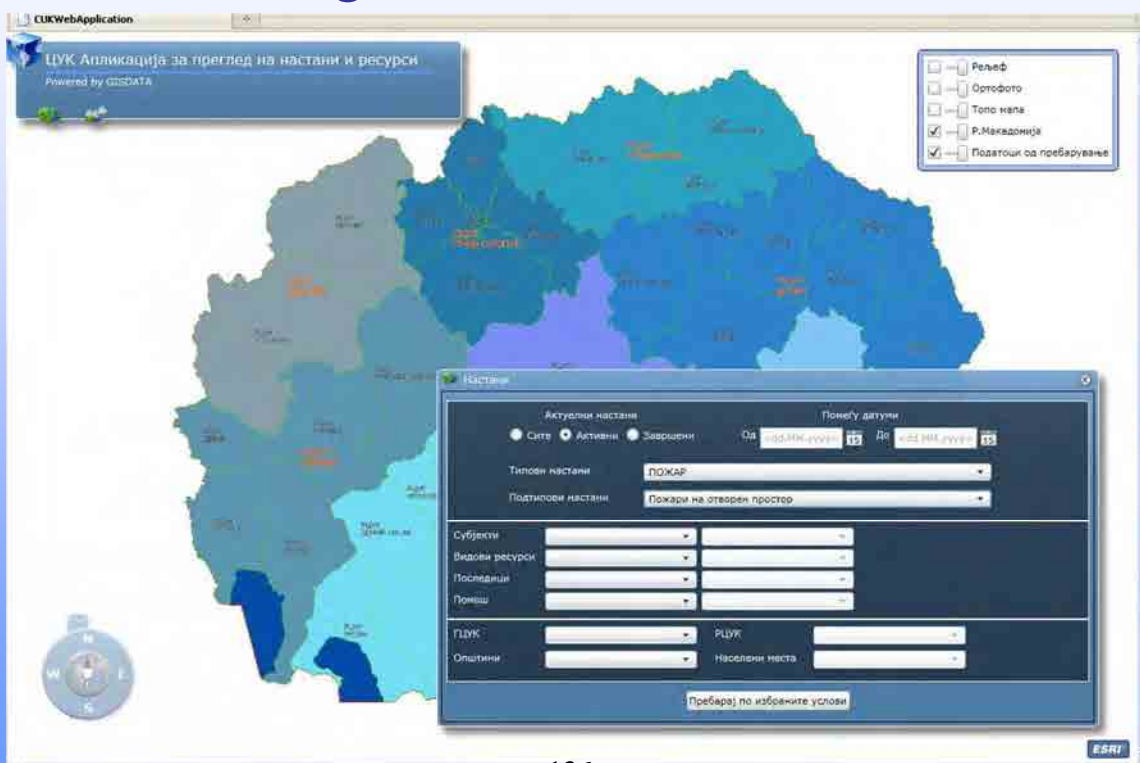


Adding the spatial component



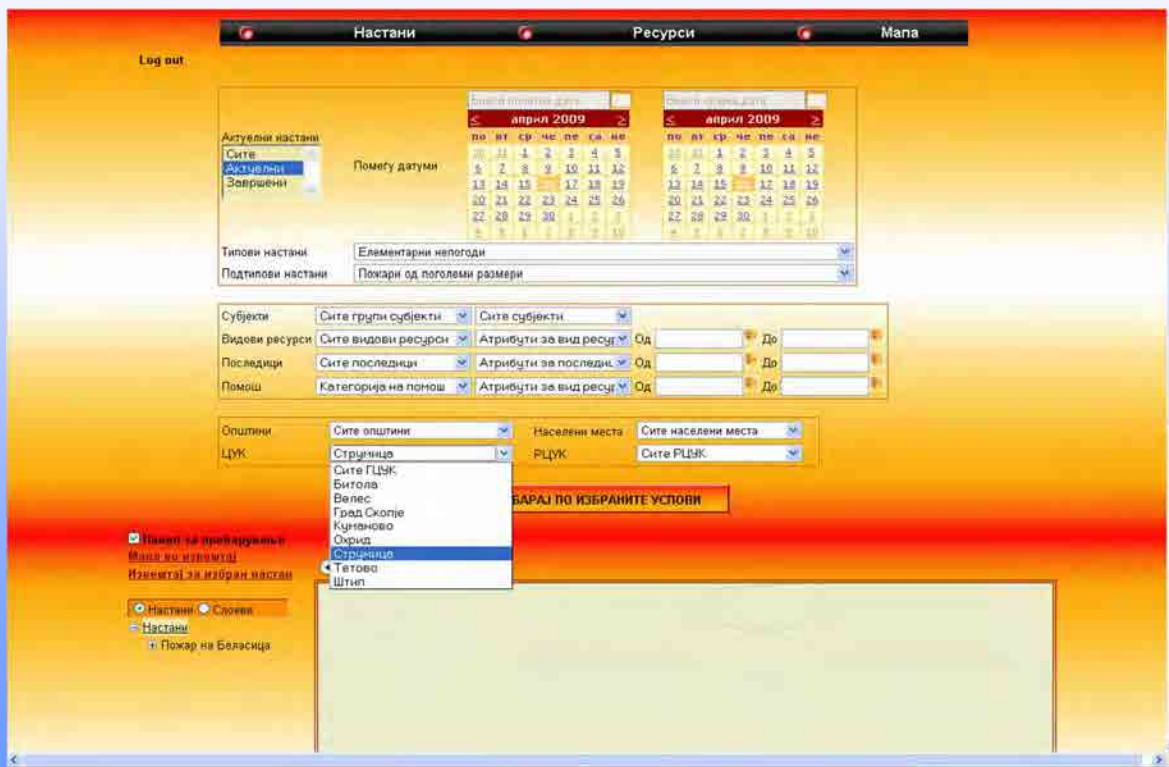
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Searching events with web viewer



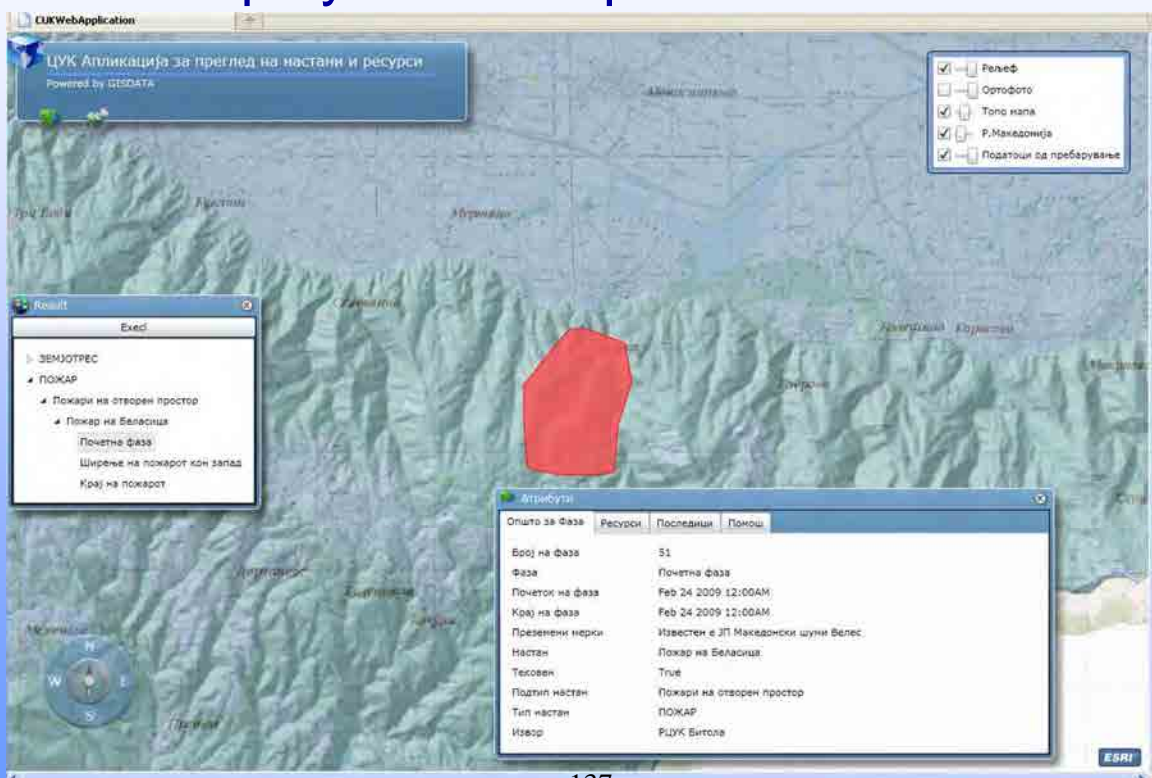
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Searching events with web viewer

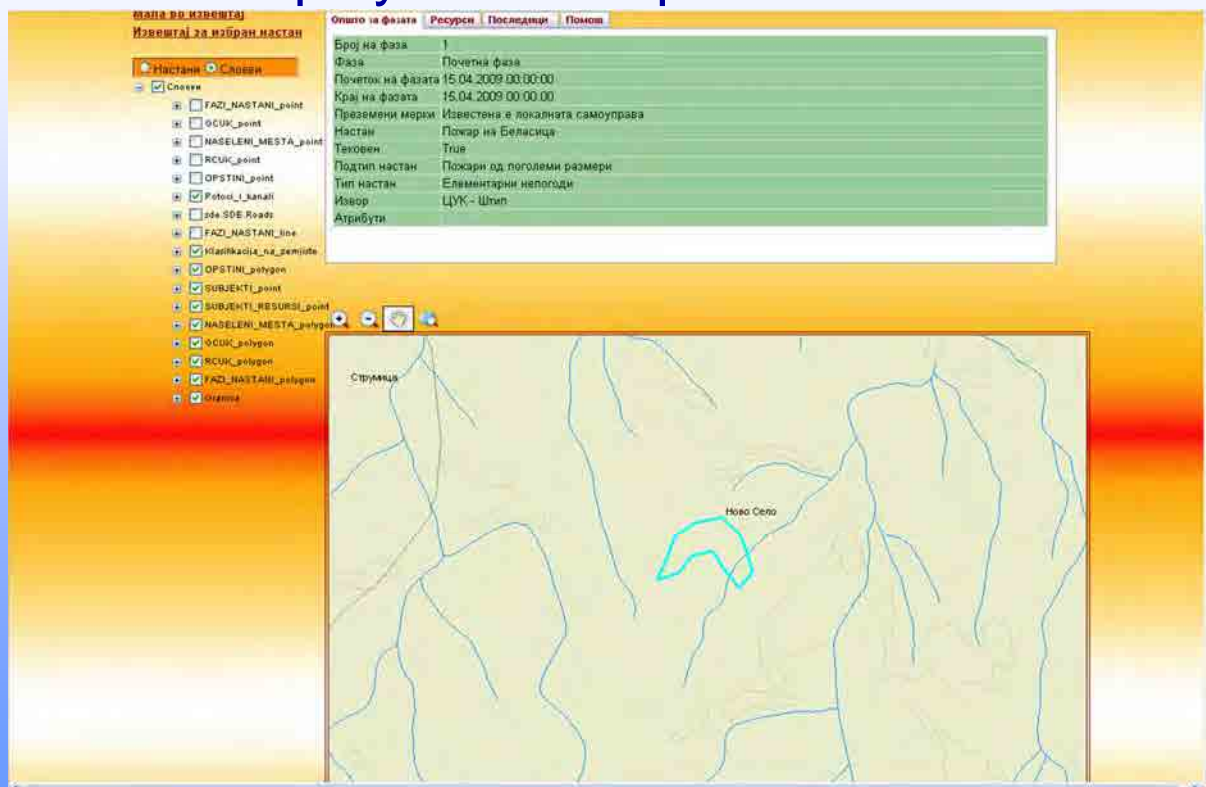


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Display of the requested event

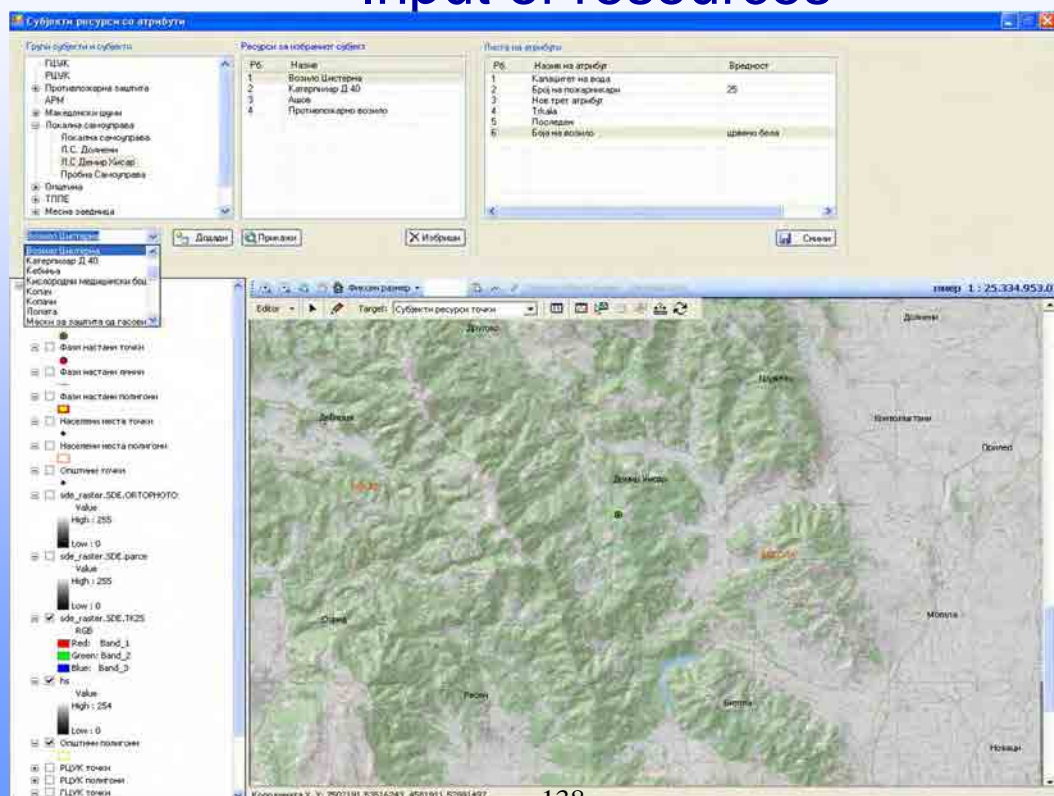


Display of the requested event



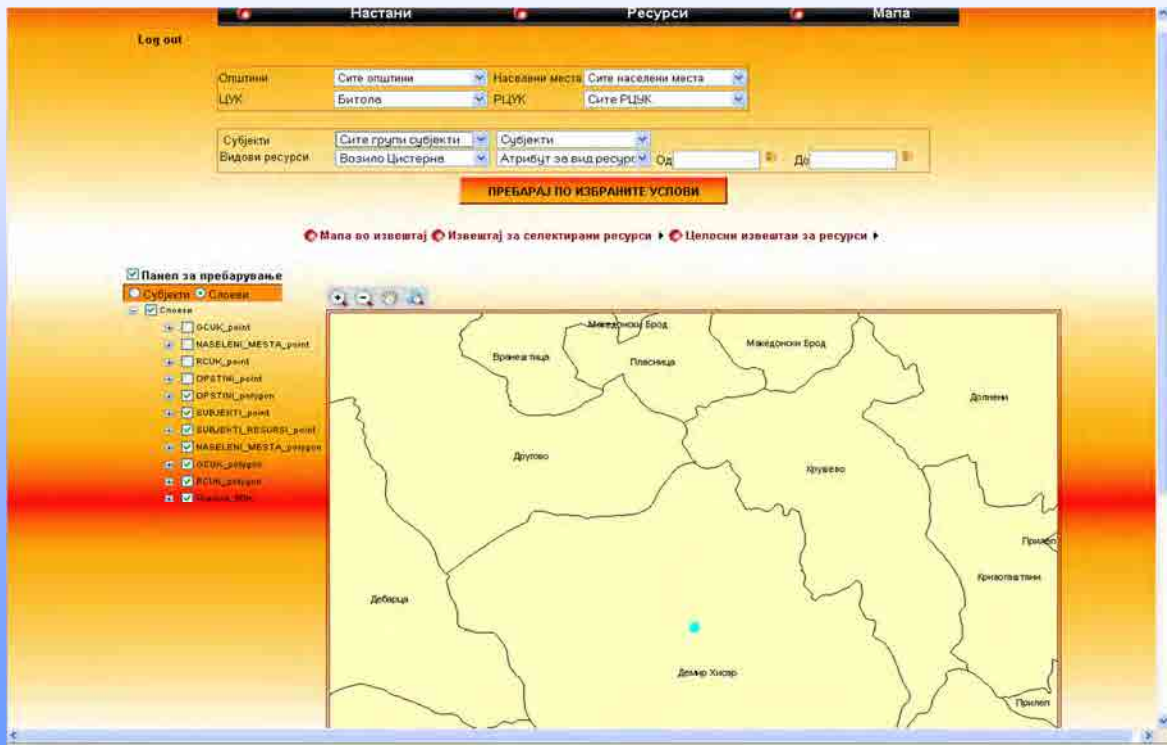
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Input of resources



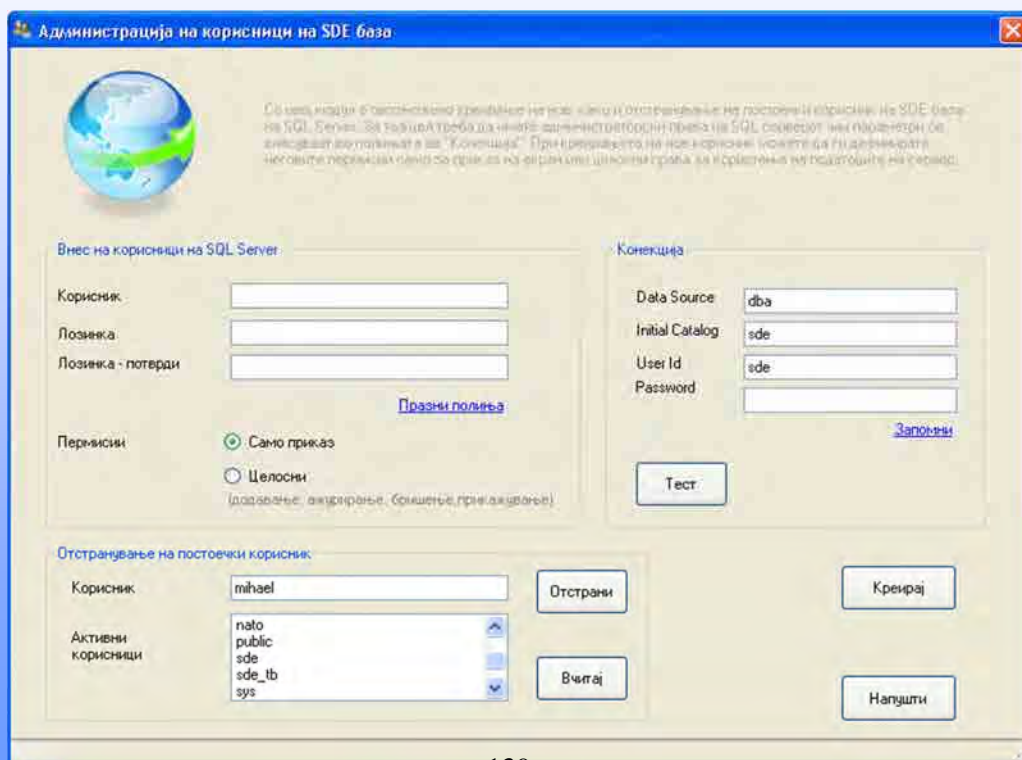
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Searching for resources

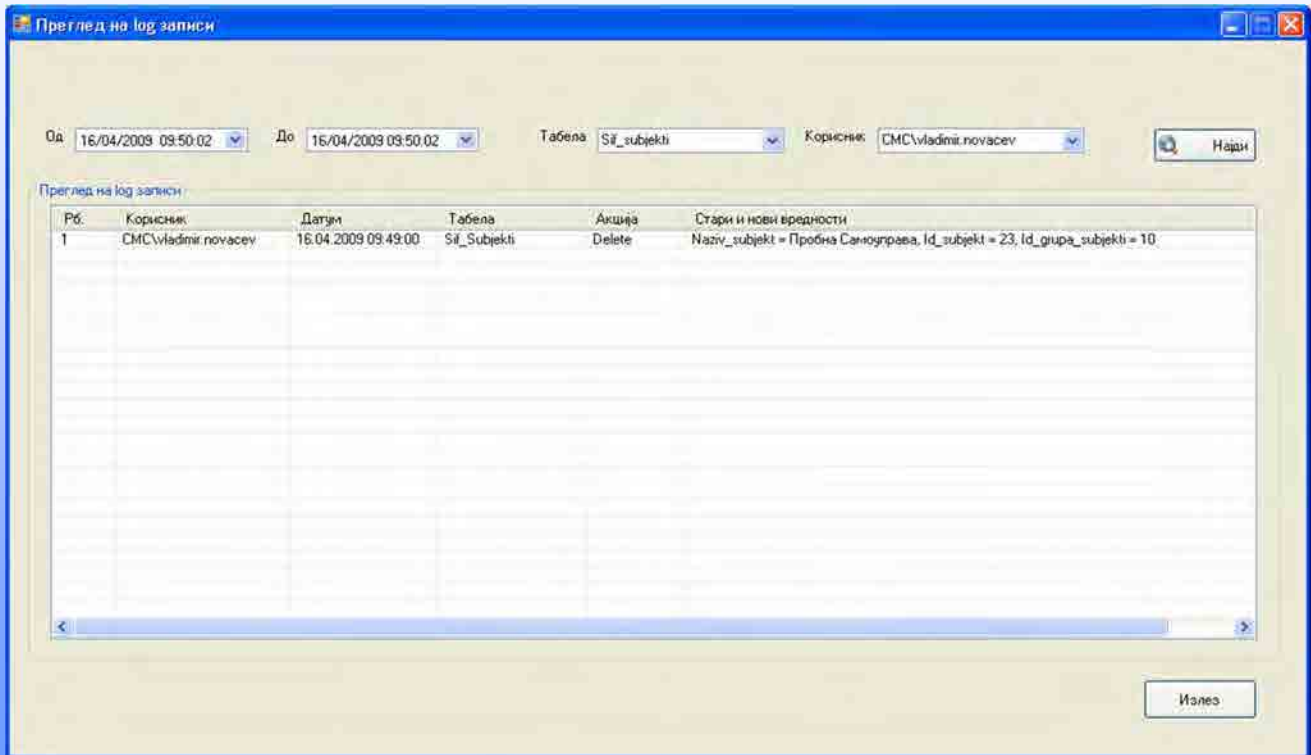


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User administration



Logs



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Future Plans

- Using GIS platform for assessment of possible events development on the basis of given parameters
- Creating of hazard maps
- Publication and geographic preview of non-sensitive data for the emerged events through the CMC website (GIS Web Portal)

- Integration of GIS into the future Emergency Call System (E-112) of the Republic of Macedonia, for the support of the operators (call-takers) and coordinators of the emergency services through:
 - Automatic identification of the callers number and presentation of the callers location
 - Using the data for the resources and roads, for determination of optimal routes for approaching of some location, so the rescue resources can be optimally and quickly deployed



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Conclusion

GIS in the CMC is used for tracking of resources and potentially dangerous events.

It's an efficient operational and analytical tool used in the decision making support .

**Thank You
for Your Attention.**

Section for IT, TK & PAS Support

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Institute of Earthquake Engineering
and Engineering Seismology (IZIIS)
University "Ss. Cyril and Methodius"
<http://www.iziis.edu.mk>

Department:
Risk, Disaster Management
& Strategic Planning



Dr. Zoran Milutinovic
Professor
& Head of Department
grad. civil eng.

P.O. Box 101, 1000 Skopje
Republic of Macedonia
Tel: +389-2-3107-747, 3107-701
Fax: +389-2-3112-163
e-mail: zoran@pluto.iziis.ukim.edu.mk
milutin@iziis.edu.mk

Report IZIIS 95-83

SECOND PHASE OF STUDY FOR DISASTER PREPAREDNESS PLAN

DISASTER PREPAREDNESS PLAN FOR ORGANIZATION OF THE ACTIVITIES OF RED CROSS OF THE REPUBLIC OF MACEDONIA

Part 1 : Earthquakes

Part 2 : Landslides

Part 3 : Floods

Part 4 : Wild Fires

Part 5 : Man-made Disasters

Part 6 : Disaster Preparedness Elements for Western Macedonia

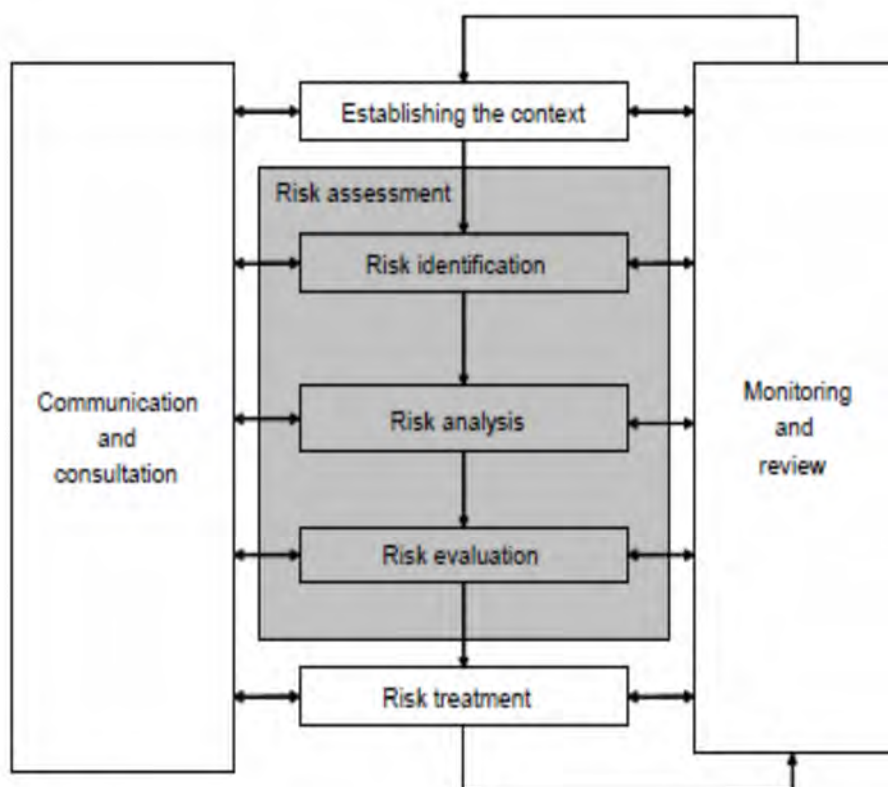


Table 3. Burnt Area (ha) by municipalities (1989-2000). Source: MIA

Municipality	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Berovo	3.0	101.9	0.0	53.0	129.9	1.6	21.0	23.0	43.4	123.6	0.2	605.1	1105.6
Bitola	12.6	1124.6	0.1	106.1	242.0	300.6	2.4	39.2	2057.1	651.0	125.0	11470.0	16130.5
Brod	67.0	282.9	5.0	450.5	232.6	2601.0	5.2	13.3	150.0	41.0	87.6	1854.7	5790.7
Valandovo	3.5	35.0	26.0	106.0	2075.2	35.1	70.2	0.0	24.0	55.6	125.0	3952.0	6507.6
Vinica	0.2	49.5	17.3	8.0	10.1	0.0	0.0	0.0	10.0	16.0	4.0	12.0	127.1
Gevgelija	1299.7	87.7	121.1	2417.1	660.9	51.0	5.5	40.0	56.5	153.1	236.2	866.0	5994.8
Gostivar	38.3	16.1	3.0	30.0	84.0	85.0	1.1	5.0	41.2	48.6	7.0	159.4	518.8
Debar	3.6	0.0	0.0	3.0	52.5	38.5	1.0	20.0	4.0	0.0	7.0	20.0	149.6
Delevo	0.3	40.5	0.0	100.0	39.4	10.6	0.0	0.0	0.0	34.0	0.5	118.0	343.4
Demir Hisar	0.6	13.0	0.0	28.0	15.0	58.5	0.0	0.5	14.4	6.0	3.5	239.8	379.3
Kavadarci	7.3	111.0	16.0	0.0	333.0	414.1	0.0	2.0	0.0	0.3	11.5	123.1	1018.2
Kicevo	30.6	32.0	0.0	20.5	16.0	15.0	1.0	150.0	20.0	9.3	0.7	163.7	458.8
Kocani	18.0	98.2	250.0	55.9	1059.2	798.3	0.0	32.0	0.0	21.0	24.0	0.0	2356.7
Kratovo	2.0	141.7	0.0	16.7	14.8	39.3	15.0	2.5	28.5	20.0	127.5	276.7	684.8
Kriva Palanka	24.1	87.2	0.2	233.3	62.5	11.5	0.0	2.0	3.8	66.8	37.2	406.6	935.1
Krusevo	34.0	11.3	10.0	0.0	10.0	26.7	8.6	0.2	16.0	10.5	30.7	171.3	329.2
Kumanovo	112.6	1400.4	56.3	976.8	733.6	781.4	66.4	480.5	987.3	622.5	676.5	3632.7	10527.0
Negotino	16.0	160.5	2.5	3034.0	1571.0	4.0	0.0	20.0	270.0	50.0	94.0	1221.5	6443.5
Ohrid	18.7	34.5	2.9	172.2	888.0	8.0	0.0	5.1	29.0	38.0	37.0	0.0	1233.4
Prilep	29.0	197.6	22.5	366.6	1085.7	785.1	5.0	115.3	430.1	70.0	521.3	3265.7	6893.9
Probistip	7.3	439.2	36.0	39.2	259.0	271.1	0.4	0.8	43.8	4.5	56.0	428.2	1585.5
Radovis	34.2	53.1	0.0	15.0	763.4	79.7	1.8	15.0	65.1	10.3	52.0	837.0	1926.5
Resen	15.5	343.0	10.1	19.2	463.9	42.0	1.0	11.6	14.2	23.0	13.1	148.0	1104.8
Sveti Nikole	3.9	16.5	10.1	51.5	1018.2	71.9	0.7	21.2	0.9	159.5	286.5	667.0	2307.8
Skopje	7.5	674.4	12.4	2741.5	282.7	1041.4	57.7	1009.4	1404.0	501.6	431.0	10543.7	18707.3
Struga	0.0	0.6	0.1	1.2	30.1	6.7	1.0	30.0	0.1	0.0	47.5	118.0	255.3
Strumica	3.3	119.4	1.5	147.0	300.3	44.1	0.2	1.5	30.1	36.1	0.0	0.0	683.4
Tetovo	12.2	20.6	2.0	5.2	44.8	8.4	0.1	2.8	78.6	13.0	3.0	151.4	342.1
Veles	4.3	1447.3	297.3	254.0	5792.2	821.8	49.1	144.1	1092.1	7.2	1011.1	10056.2	20976.7
Stip	1.6	104.8	95.1	31.0	236.6	545.3	9.0	4.7	118.8	20.0	135.0	1116.7	2418.7
TOTAL	1810.9	7244.3	997.7	11482.5	18526.4	8997.7	323.3	2191.7	7032.8	2812.4	4191.6	52624.5	118235.9

Table 4. Number of Fires by vegetation cover and land use (1989-2000). Source: MIA.

Land Use	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total	Average
Deciduous	33	65	9	57	111	68	9	15	26	26	256	395	1070	89.2
Coniferous	11	43	6	32	50	23	3	18	36	20	34	133	409	34.1
Mixed	31	73	11	98	141	65	9	40	78	73	82	454	1155	96.3
Scrub forests	9	37	4	26	43	14	0	5	10	11			159	13.3
Other	11	23	8	22	45	25	3	12	24	21	80	205	479	39.9
Total-Forests	95	241	38	235	390	195	24	90	174	151	452	1187	3272	272.7
(%)	45.67	39.06	23.17	52.34	38.42	30.76	12.83	17.54	21.17	42.30	30.60	31.04	31.87	
Stubble fields	9	55	11	26	93	73	25	71	115	41	322	769	1610	134.2
Grain fields	1	20	5	6	33	66	28	23	69	31	17	59	358	29.8
Orchards	4	28	7	27	30	16	3	13	20	16	17	75	256	21.3
Vineyards	1	18	4	6	22	17	2	13	21	17	0	0	121	10.1
Meadows	6	19	7	46	84	43	2	13	38	6	0	0	264	22.0
Total-Agr. Land	21	140	34	111	262	215	60	133	263	111	356	903	2609	217.4
(%)	10.10	22.69	20.73	24.72	25.81	33.91	32.09	25.93	32.00	31.09	24.10	23.61	25.41	
Dumps	6	16	15	7	41	31	26	22	32	15	116	261	588	49.0
Other Lands	86	220	77	96	322	193	77	268	353	80	553	1473	3798	316.5
Total	92	236	92	103	363	224	103	290	385	95	669	1734	4386	365.5
(%)	44.23	38.25	56.10	22.94	35.76	35.33	55.08	56.53	46.84	26.61	45.29	45.35	42.72	
Grand Total	208	617	164	449	1015	634	187	513	822	357	1477	3824	10267	855.6

Table 5. Burnt area (ha) by vegetation cover land use. Source: MIA.

Land Use	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total	Average
Deciduous	172.2	1987.6	49.5	904.4	6034.3	1486.3	47.5	54.3	271.0	160.9	1062.2	16182.9	28413.1	1019.2
Coniferous	40.5	1260.6	5.7	208.2	1368.2	2523.1	1.3	100.6	1299.7	156.7	332.1	1660.5	8957.2	746.4
Mixed	118.8	876.4	35.9	7632.9	4446.8	1471.8	5.4	429.8	652.7	1282.1	343.2	17345.4	34641.2	2886.8
Scrub forests	1258.8	1214.0	345.0	359.6	462.9	174.3	0.0	85.0	1138.3	21.5			5059.4	421.6
Other	43.1	421.8	7.7	285.1	2111.6	146.2	51.2	316.4	212.1	268.0	254.5	2739.7	6857.4	571.5
Total-Forests	1633.3	5760.4	443.8	9390.2	14423.8	5801.7	105.4	986.2	3573.9	1889.1	1992	37928.5	83928.3	6994.0
(%)	90.19	79.52	44.49	81.78	77.86	64.48	32.57	45.00	50.82	67.18	47.31	71.02	70.51	
Stubble fields	112.2	480.6	228.4	137.5	572.8	540.4	93.6	718.1	949.6	371.5	854	4858.4	9917.1	826.4
Grain fields	2.0	126.2	56.3	35.6	810.7	557.6	78.0	48.9	308.4	121.6	60.8	293.1	2499.2	208.3
Orchards	2.9	63.0	4.2	35.0	69.3	63.2	4.2	13.4	75.7	49.5	52.8	130.7	563.9	47.0
Vineyards	6.0	12.4	17.2	203.6	287.8	360.9	1.1	156.4	74.0	81.4	0	0	1200.8	100.1
Meadows	19.5	160.7	31.7	806.9	1061.8	595.9	1.3	147.6	869.6	119.0	0	0	3814	317.8
Total-Agr. Land	142.6	842.9	337.8	1218.7	2802.5	2117.9	178.2	1084.4	2277.1	742.9	967.6	5282.2	17995.0	1499.8
(%)	7.87	11.64	33.86	10.61	15.13	23.54	55.07	49.48	32.38	26.42	22.98	9.89	15.12	
Dumps	1.0	1.0	1.0	17.0	2.0	4.0	26.0	3.0	9.0	0.0	3.5	11.5	75.5	6.6
Other Lands	34.0	640.0	215.0	857.0	1298.0	1074.0	14.0	118.0	1172.0	180.0	1251	10180	17033	11419.4
Total	35.0	641.0	216.0	874.0	1300.0	1078.0	40.0	121.0	1181.0	180.0	1251.0	10191.5	17108.5	1425.7
(%)	1.93	8.85	21.65	7.61	7.02	11.98	12.36	5.52	16.79	6.40	29.71	19.08	14.37	
Grand Total	1811.0	7244.3	997.6	11482.9	18526.3	8997.5	323.6	2191.5	7032.0	2812.0	4214	53402.2	119031.8	9919.6

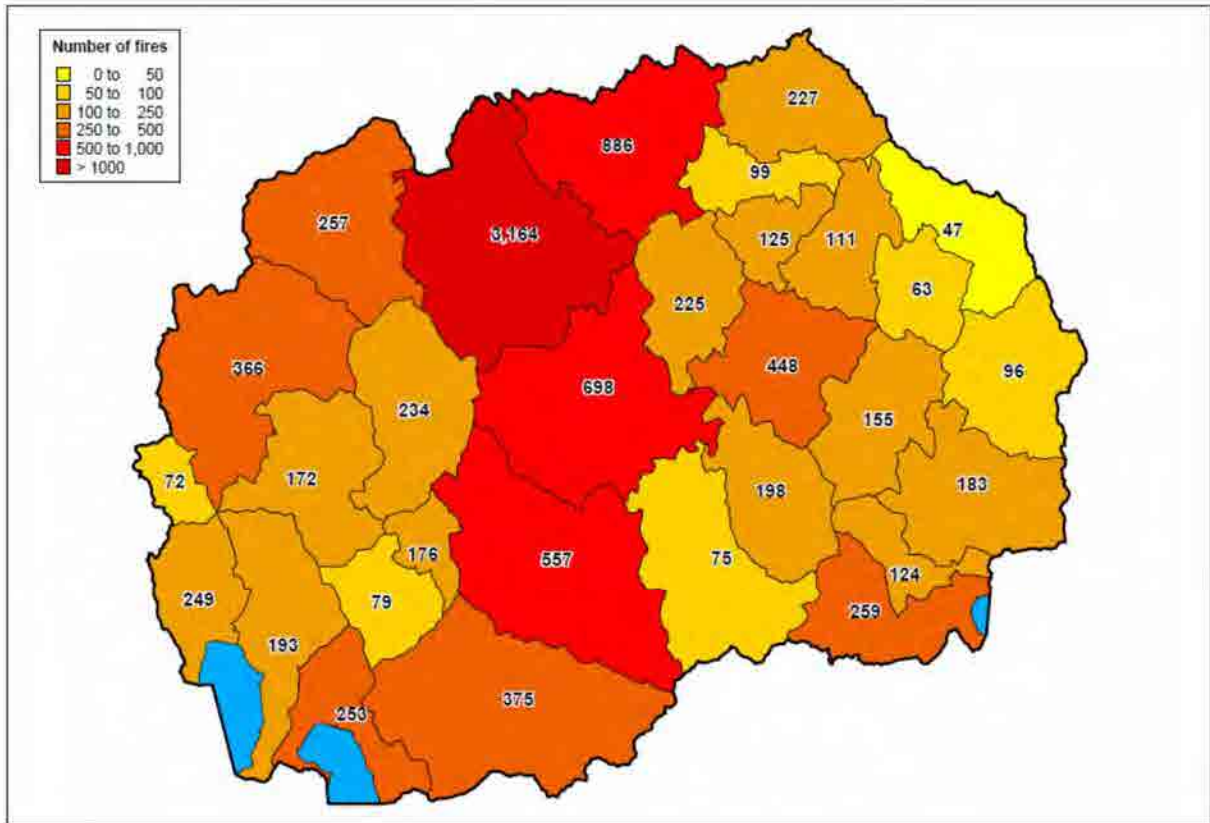
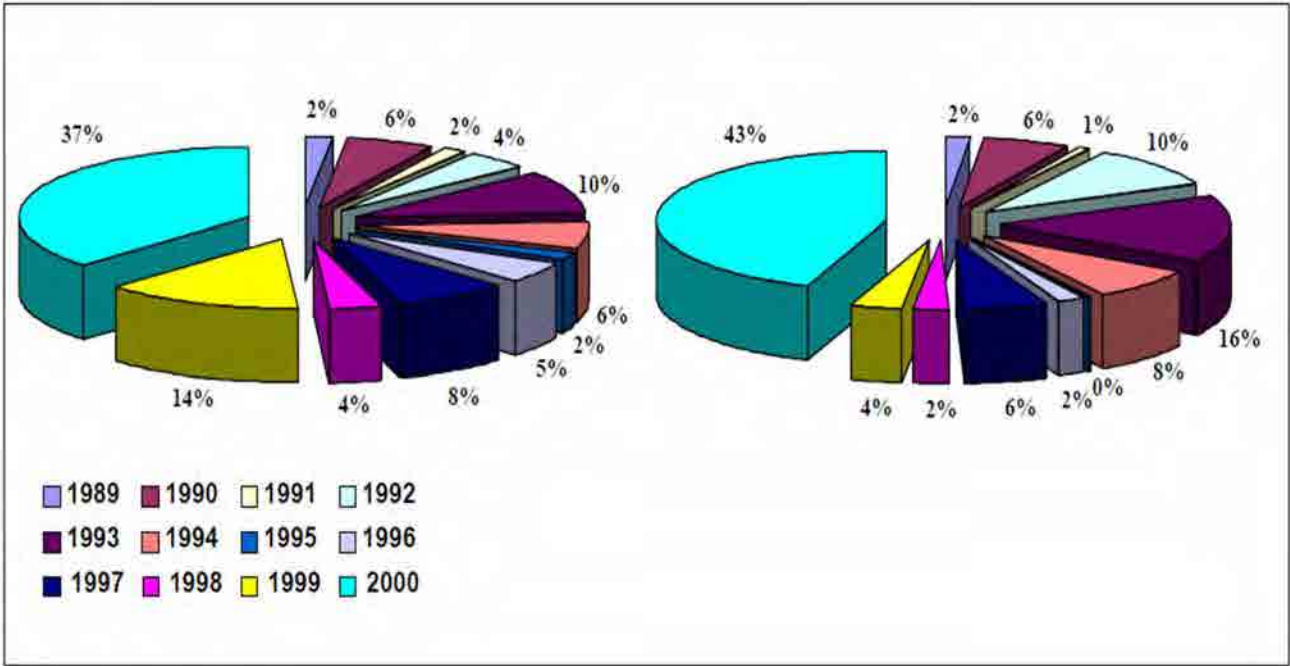


Figure 2. Number of fires by municipalities 1989-2000. Source: MIA.

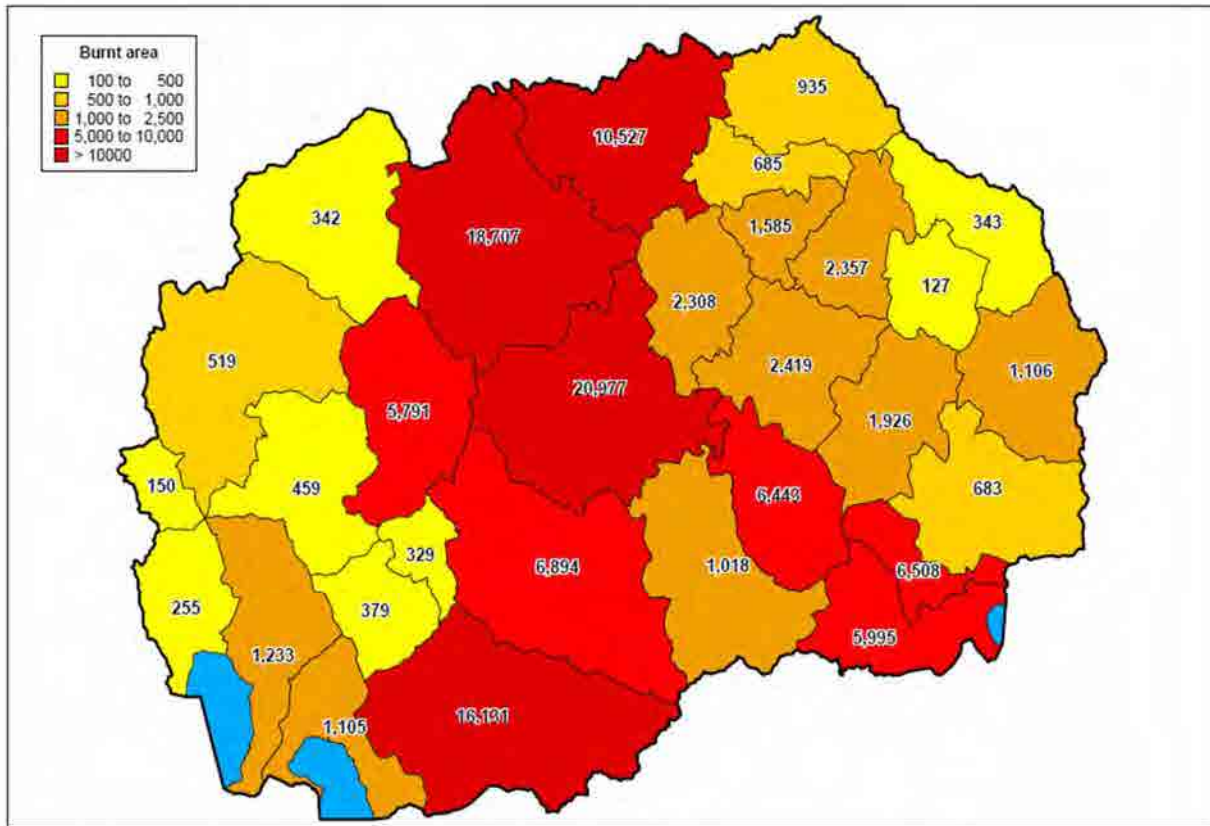
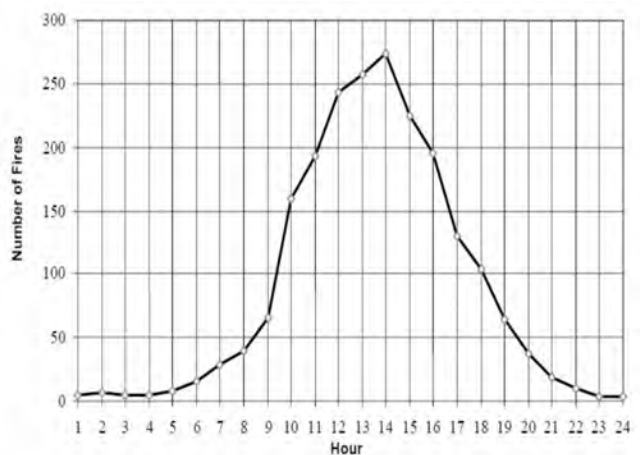
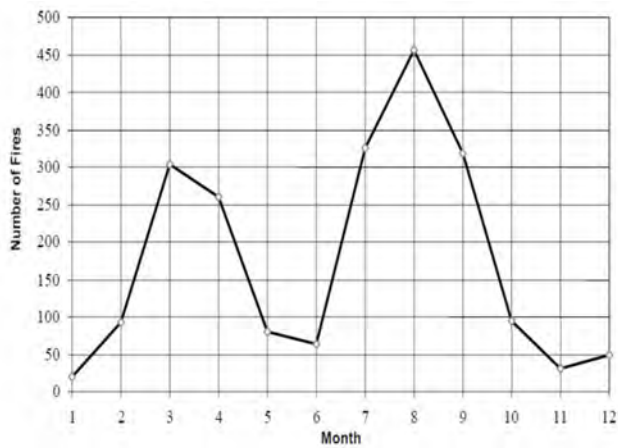


Figure 3. Burnt area (ha) by municipalities 1989-2000. Source: MIA.





United Nations
Economic Commission for Europe



Food and Agriculture Organization
of the United Nations



**INTERNATIONAL
FOREST FIRE
NEWS
No. 28**



UNITED NATIONS

International Forest Fire News (IFFN) No. 28
(January – June 2003) p. 92-102

National Report of Macedonia: Review of Forest and Range Fires

Milutinovic, Z. & T. Todorchevski

http://www.fire.uni-freiburg.de/iffn/iffn_28/macedonia.pdf

MACEDONIAN - U.S. JOINT BOARD ON SCIENTIFIC AND TECHNOLOGICAL COOPERATION

**PROEKT: FORMULIRANJE NA MODELI NA GORLI V MATERIJAL ZA
PREDVI DUVANJE NA ODNESUVANETO NA PO@ARITE NA
OTVOREN PROSTOR I OCENKA NA RIZIKOT VO REPUBLIKA
MAKEDONIJA**

**Project Title: DETERMINATION OF FUEL MODELS FOR PREDICTING FIRE
BEHAVIOR AND ASSESSING FIRE DANGER IN THE REPUBLIC OF
MACEDONIA**

CODE: NIST/118

Prof. d-r Zoran MILUTINOVIC, UKIM-IZIIS

Patricia L. ANDREWS, Research Physical Scientist

USDA Forest Service, Intermountain Fire Science Laboratory

P.O. Box 8089, Missoula,

MT 59807, USA

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