B.U. KANDILLI OBSERVATORY and EARTHQUAKE RESEARCH INSTITUTE

8 March 2010 BASYURT-KARAKOCAN (ELAZIG) EARTHQUAKE PRELIMINARY REPORT

A strong earthquake occured with a magnitude of Ml=6.0 in Basyurt-Karakocan region of Elazıg at local time 04:32. The earthquake was at shallow depth (5 km.), it was strongly felt in Basyurt-Karakocan and Elazıg and it was felt in Giresun, Erzurum, Erzincan, Batman region.

The number of aftershock earthquakes until 14:00h were:

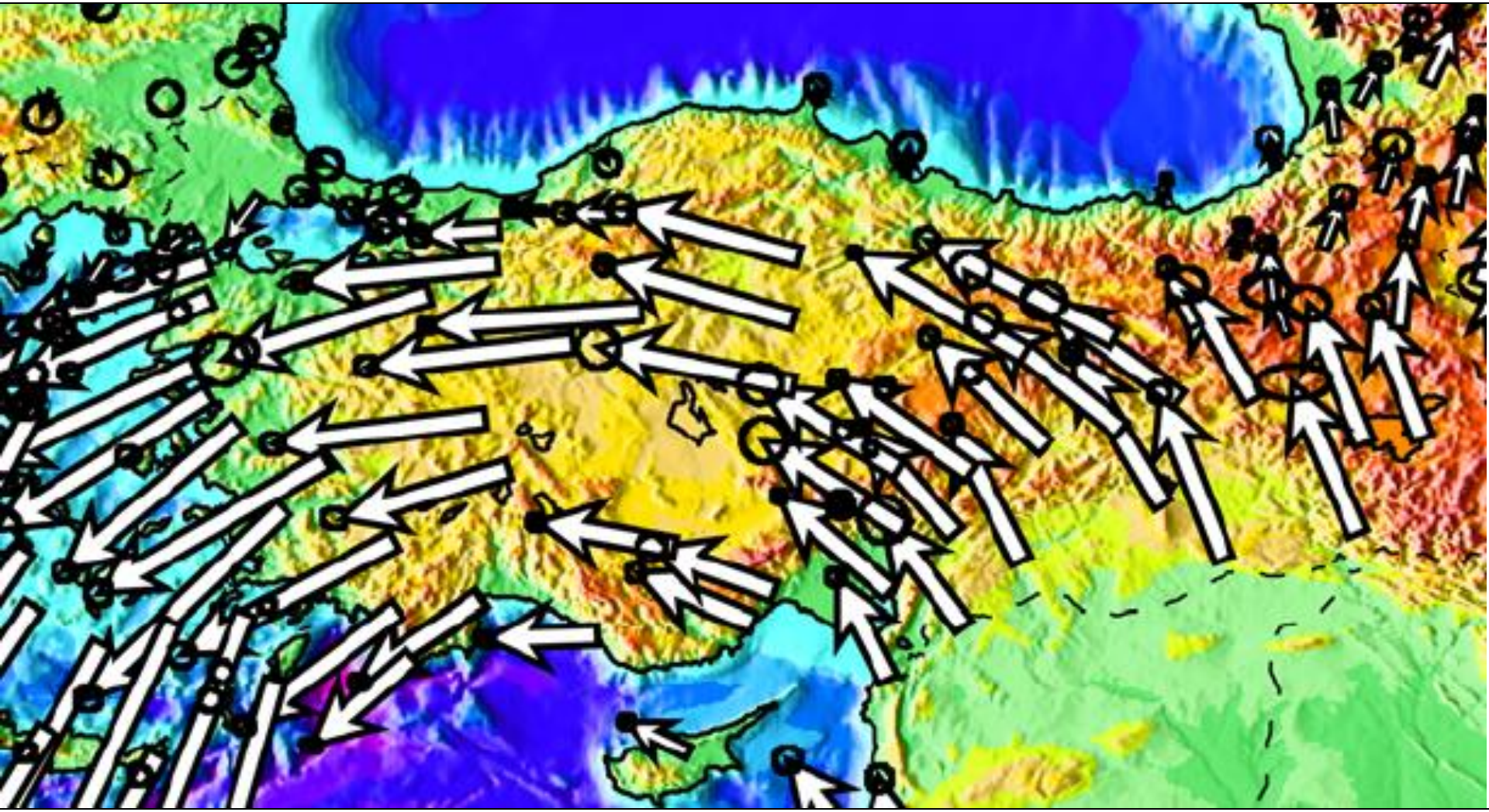
2.0<M<3.0 = 1000

3.0<M<4.0 = 72

4.0<M<5.0 = 5

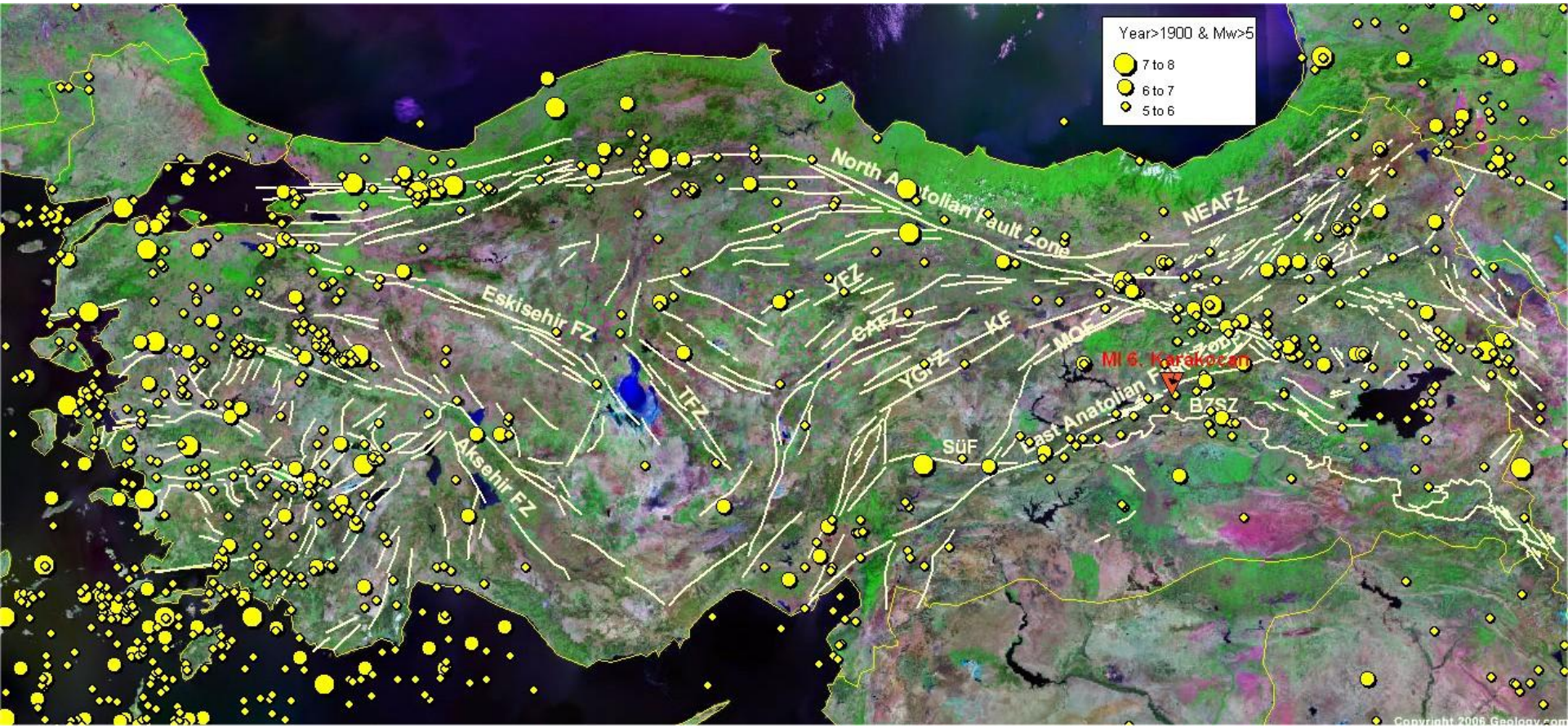
M>5.0= 3

North Anatolian Fault Systems are of right lateral, East Anatolian Fault Systems are left lateral continental strike-slip transform faults. In the northern edge EAFS, starts from the triple junction of NAFS and Karlıova. The southern edge ends in Antakya region and connected to Dead Sea Fault. The recent GPS measurements show that the slip rate of EAFS is 10 mm per year. The slip rate on NAFS is approximately 25mm per year. Historical and instrumental records show that EAFS caused destructive eartquakes in the past. It is presumed that the earthquake occurred on NE-SW extended strike-slip East Anatolian Fault System.

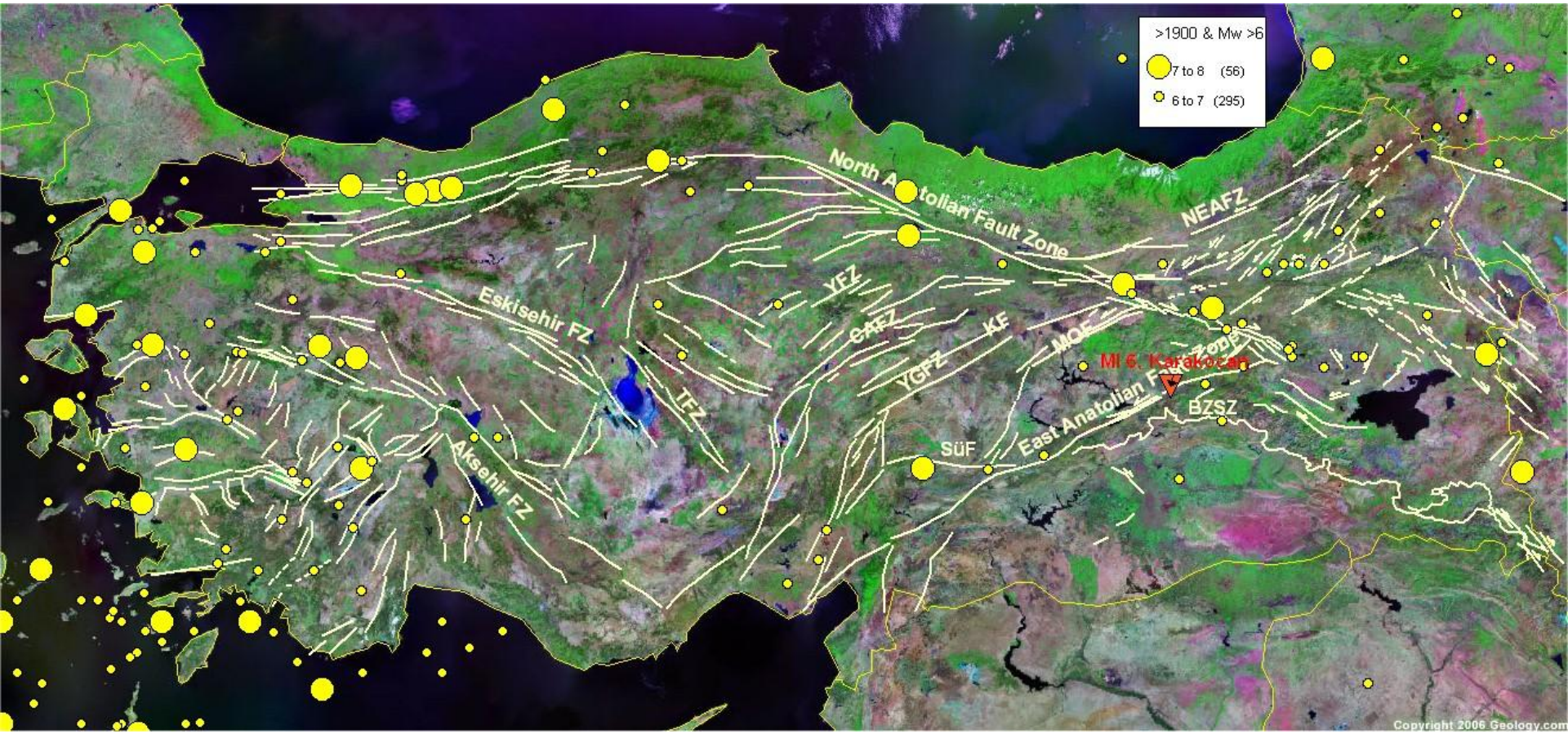


TECTONIC MOVEMENTS

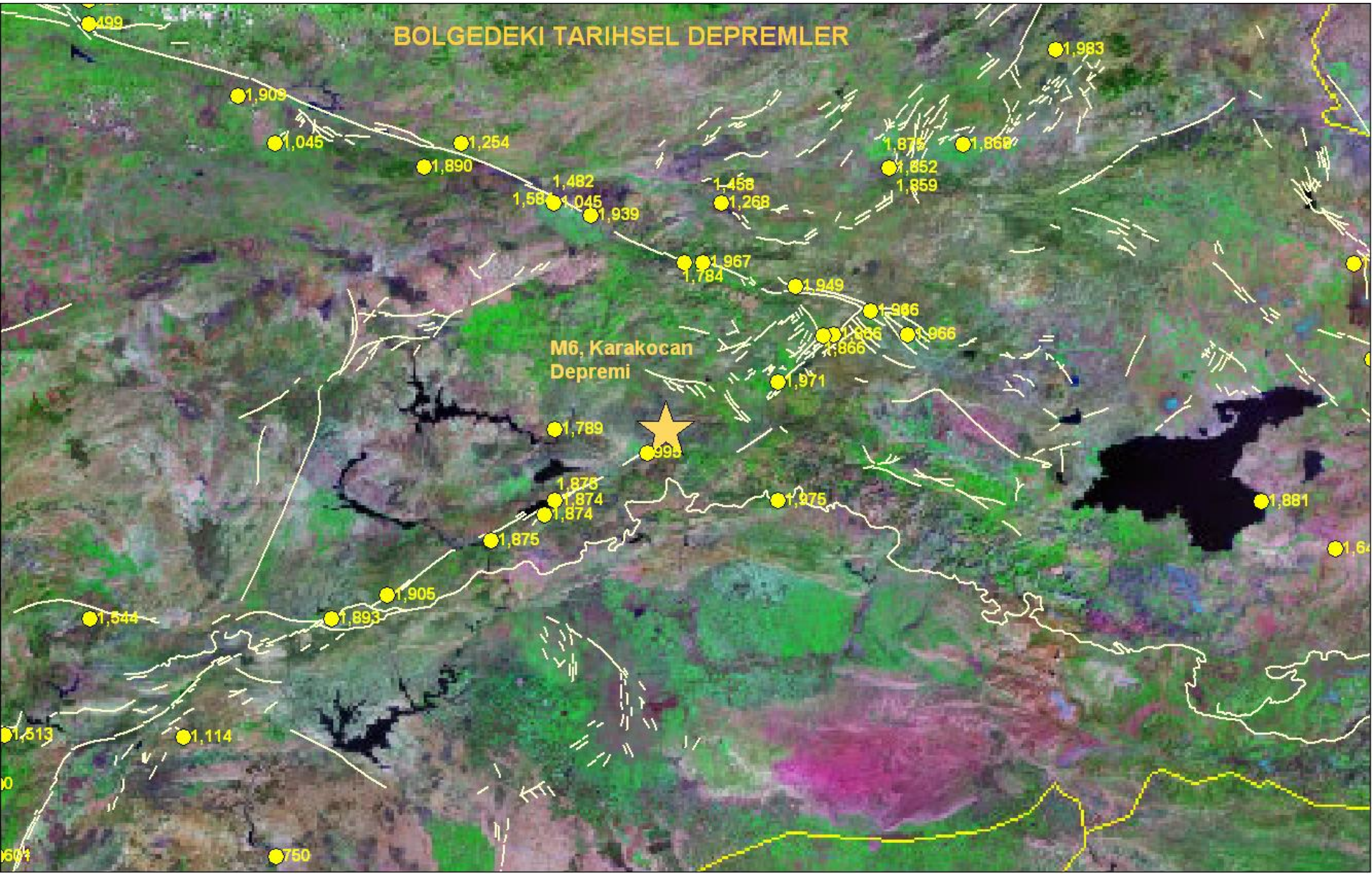
Earthquakes with Magnitude of 5 and greater than 5 during 1900-2000 Years



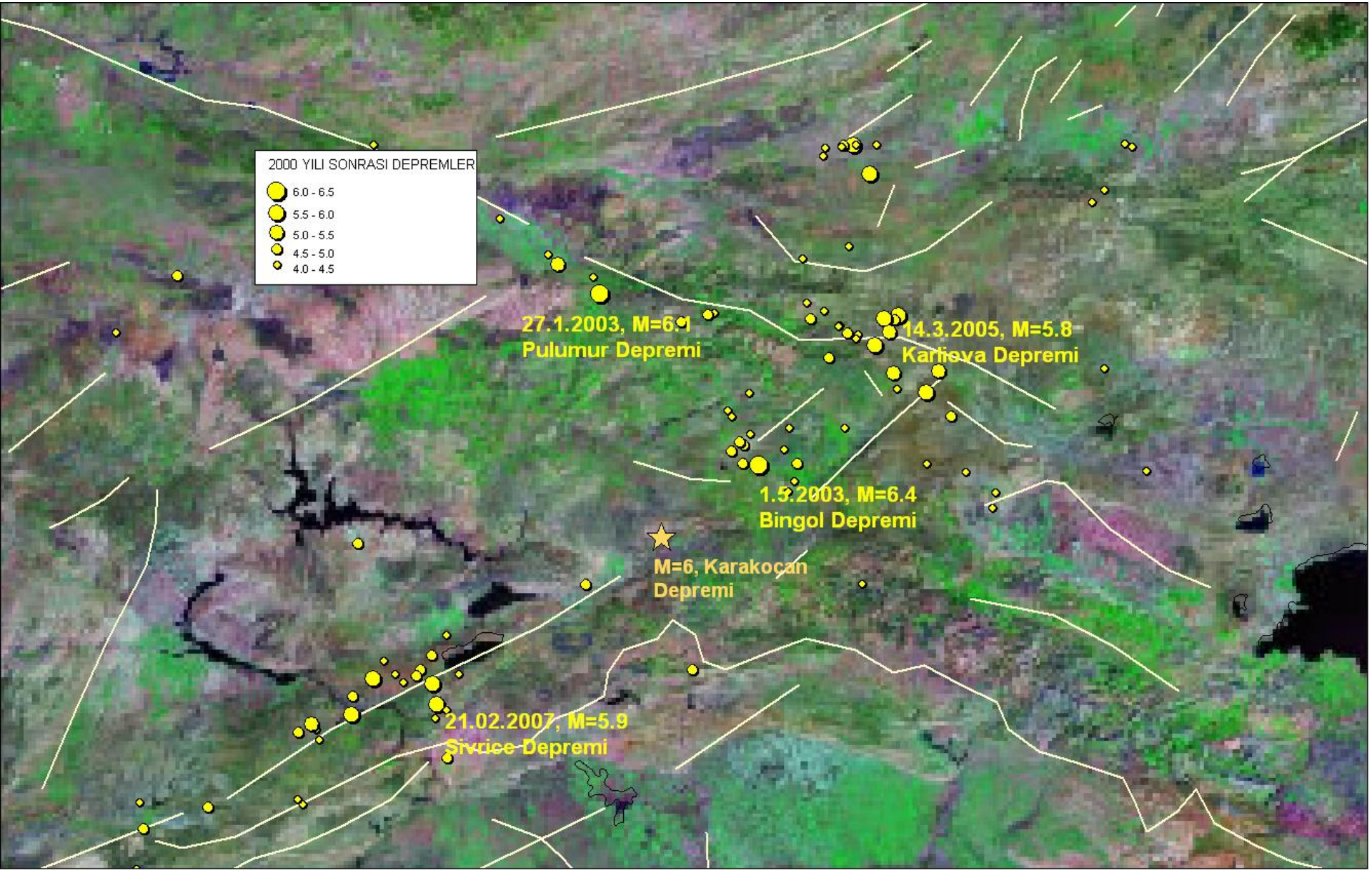
Earthquakes with Magnitude of 6 and greater than 6 during 1900-2000 Years

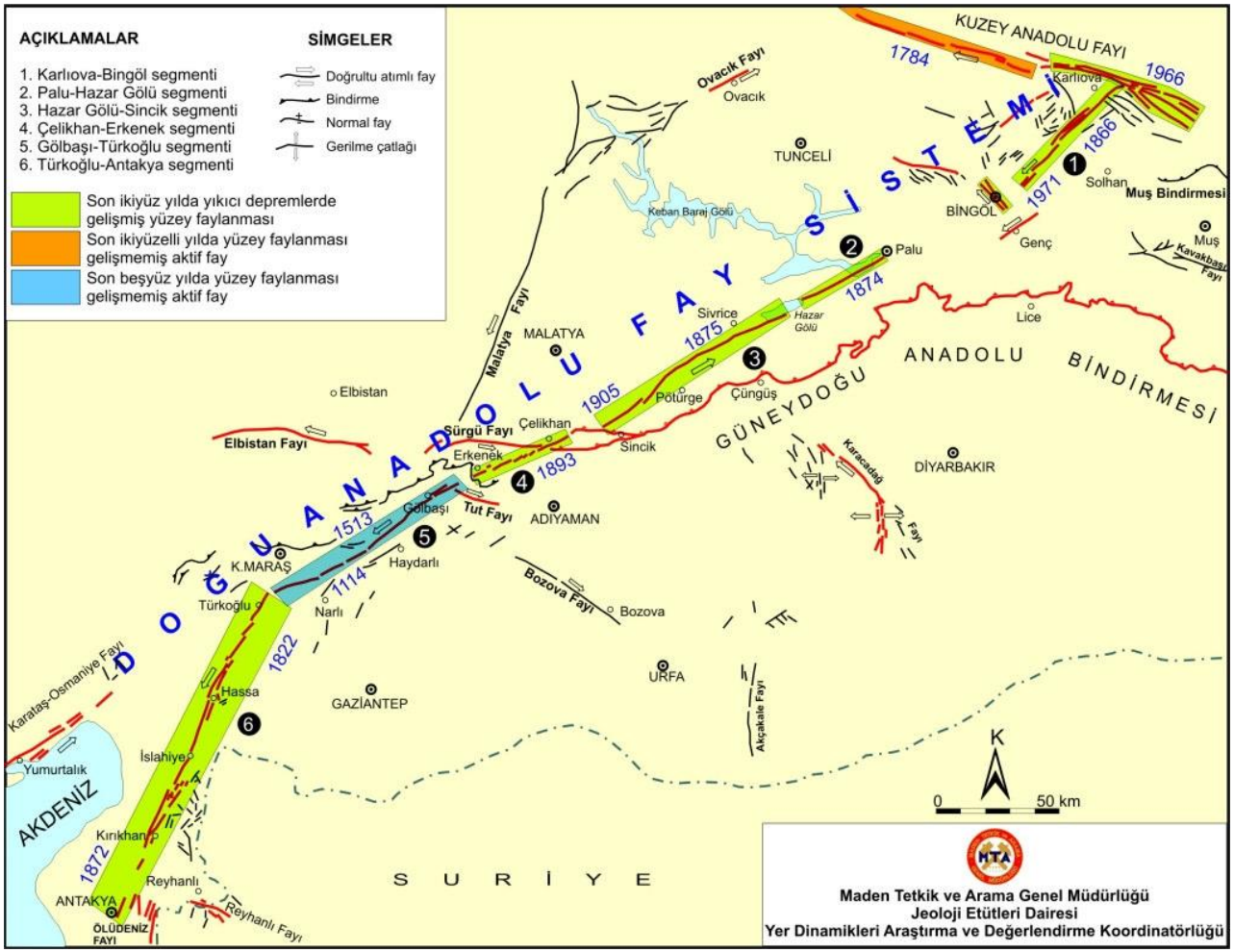


Historical Earthquakes in the Region

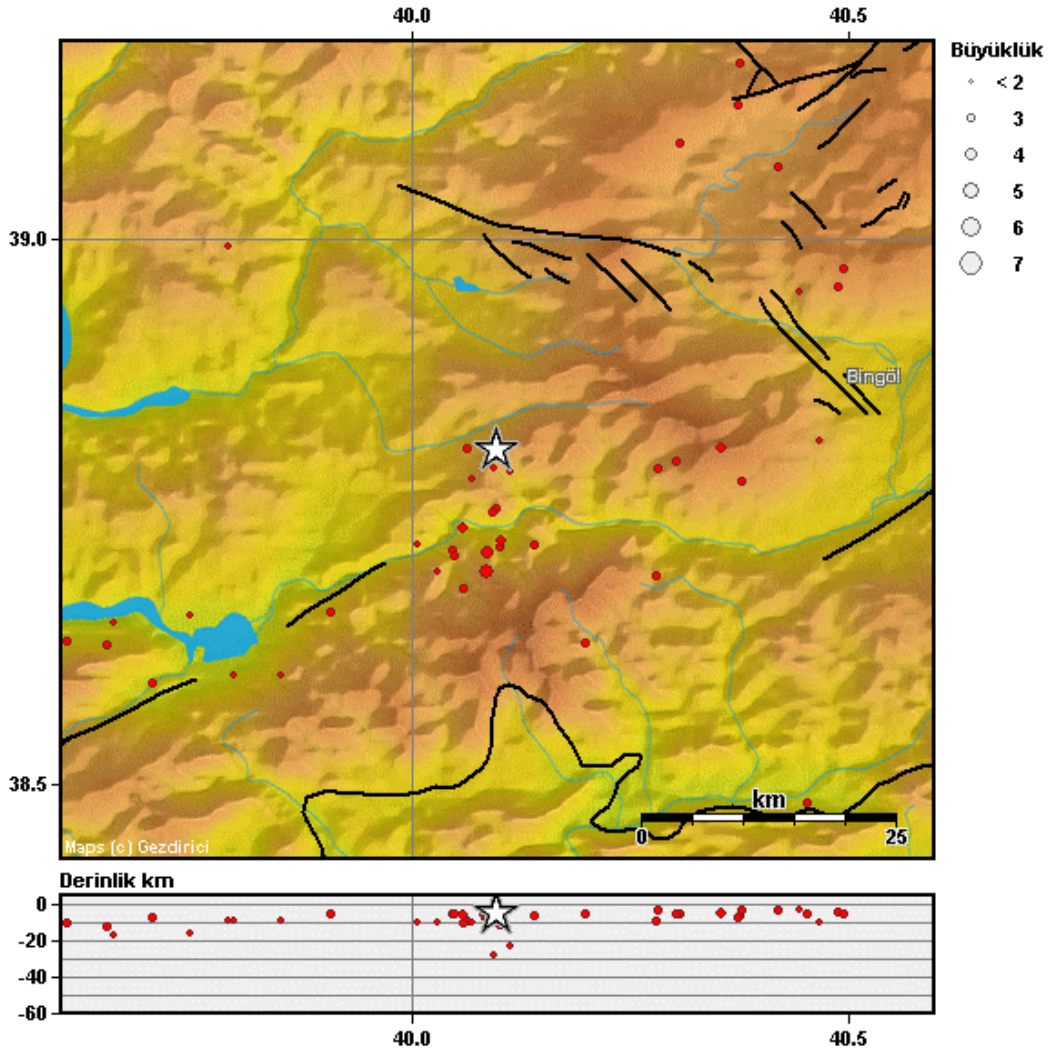


Earthquakes after year 2000





*The main segments of East Anatolian Fault System and surface ruptures formed after the occurence of large earthquakes between 1822-1971 years. (Revised from Şaroğlu et al., 1992).*There are many active faults connected to and seperated from EAFS.



BAŞYURT-KARAKOÇAN (ELAZIĞ)

08.03.2010 04:32:31 38.807K 40.100D Derinlik:5.0km Büyüklük:6.0

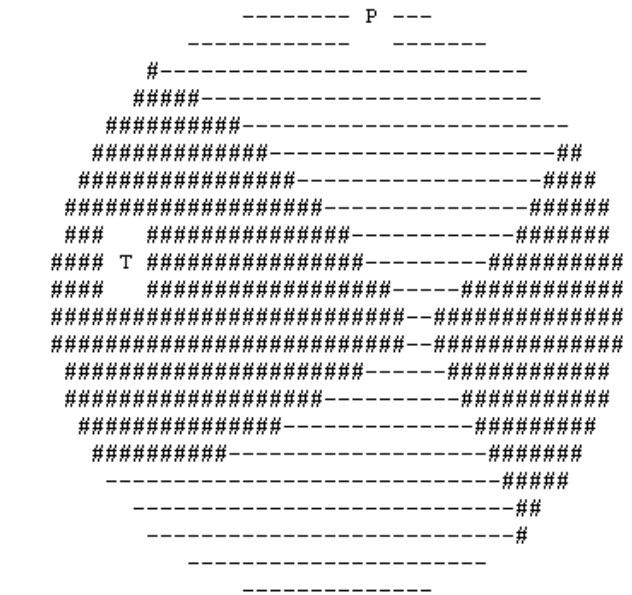
Son 1 yıllık depremsellik.

B.Ü. Kandilli Rasathanesi ve Deprem Araştırma Enstitüsü
Güncelleme: 08.03.2010 04:48:49
URL: http://www.koeri.boun.edu.tr/sismo/map/tr/20100308043231.gif

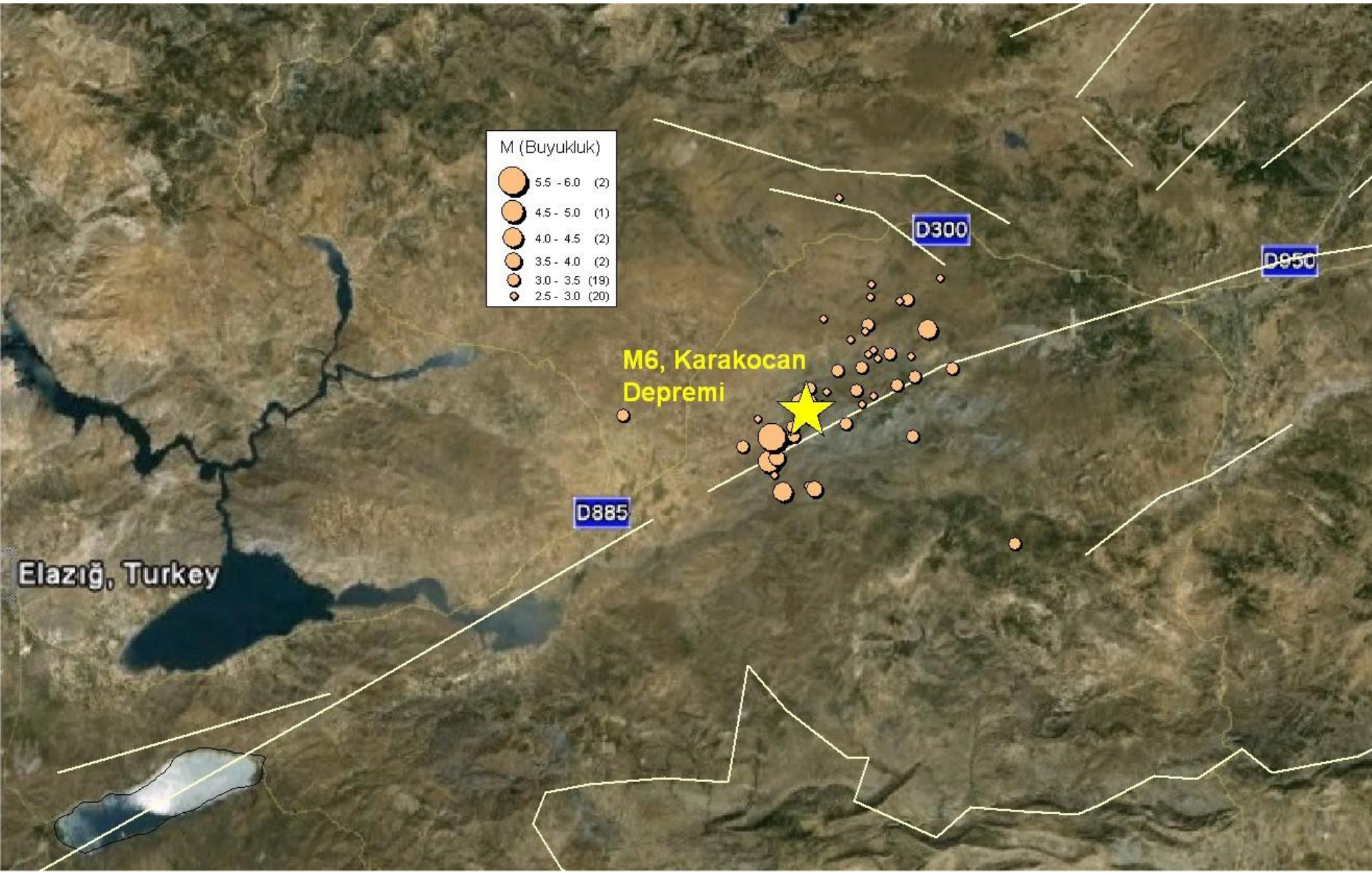
The epicentral distance of the earthquake from nearest populated places

Okçular: 3.6 km.
Yukarıkanatlı: 5.4 km.
Kayalık: 12.8 km.
Başyurt: 11 km.
Karakoçan: 17 km.

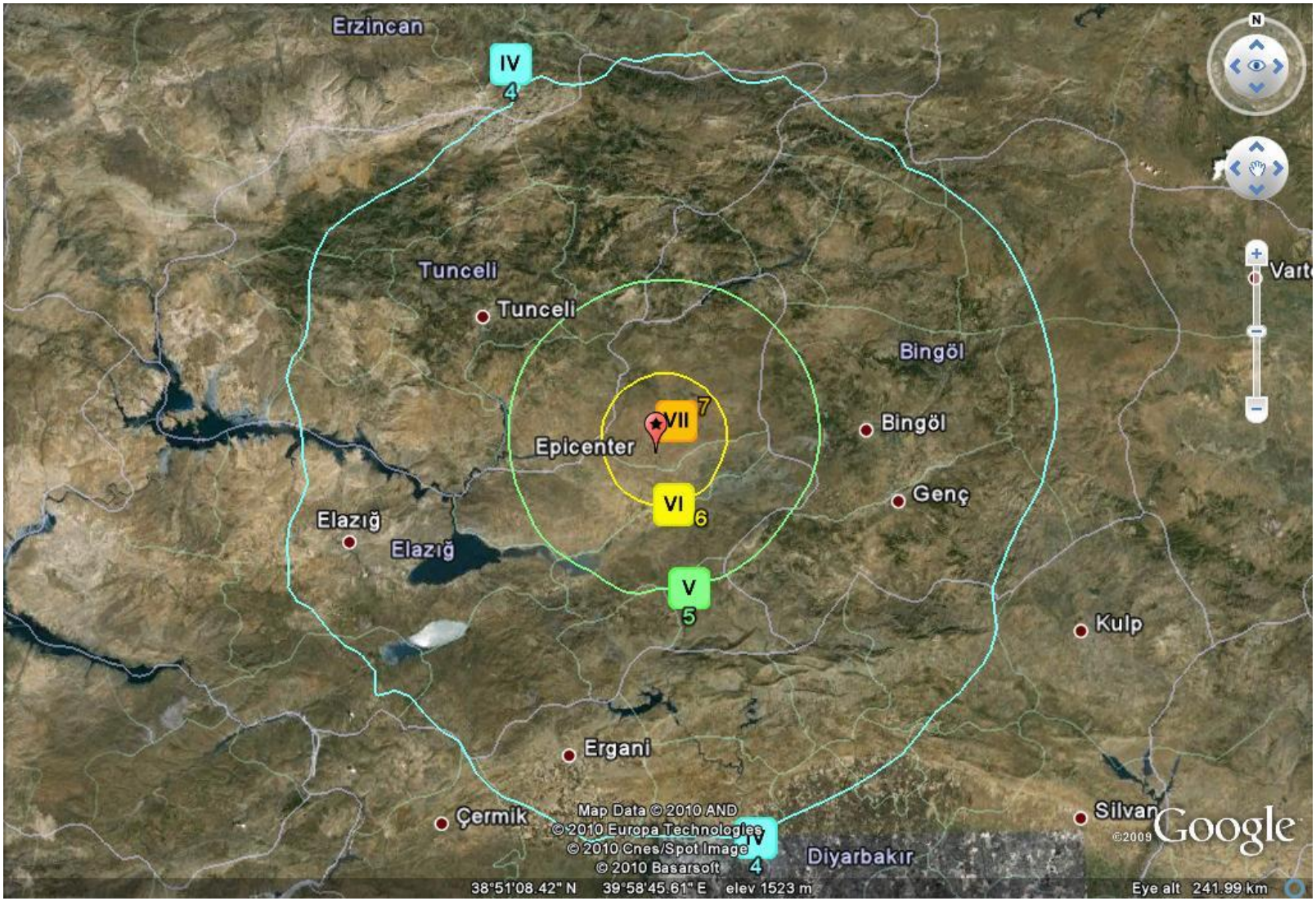
FAULT MECHANISM SOLUTION



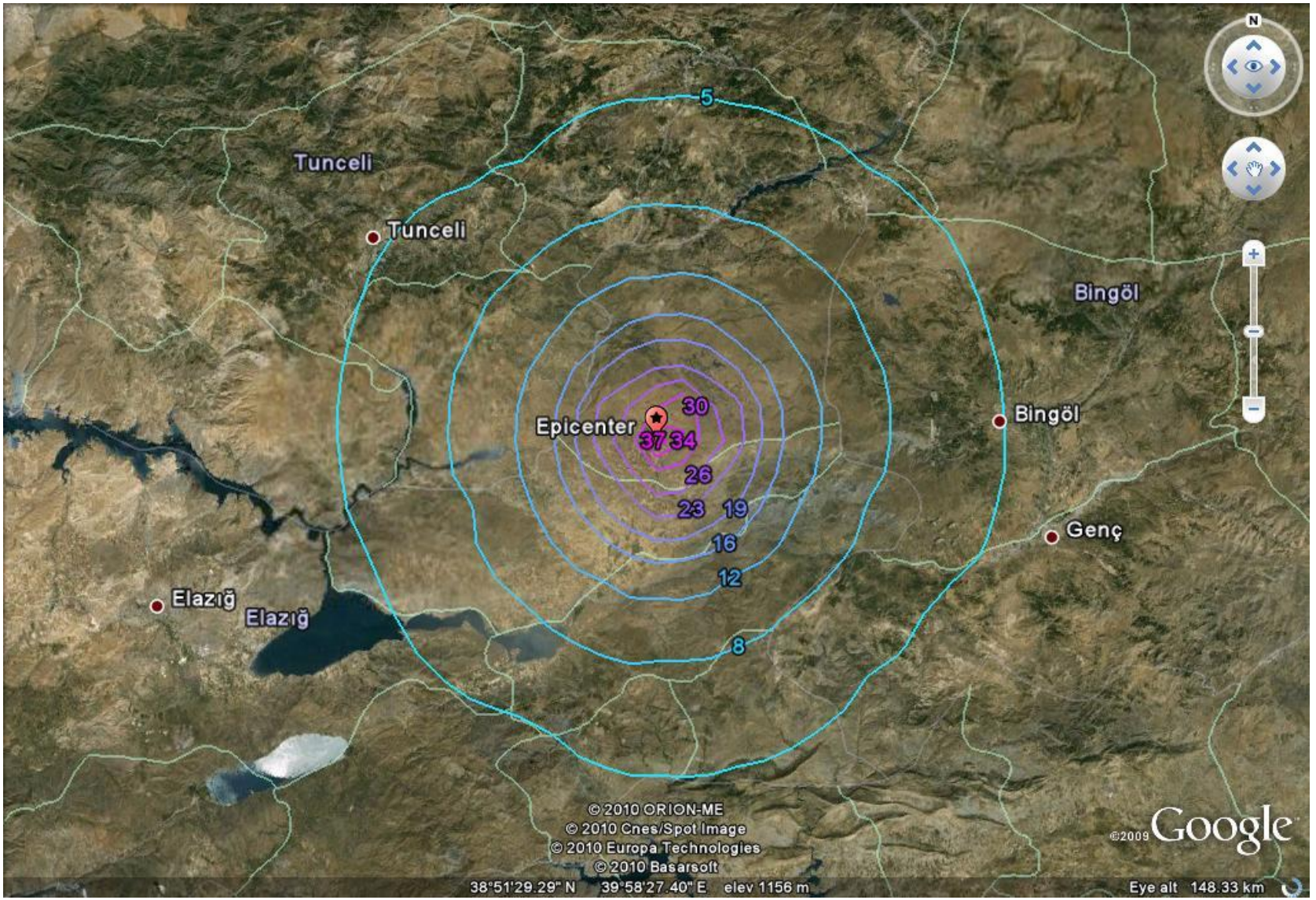
8 March 2010 Aftershocks of Karakocan Earthquake



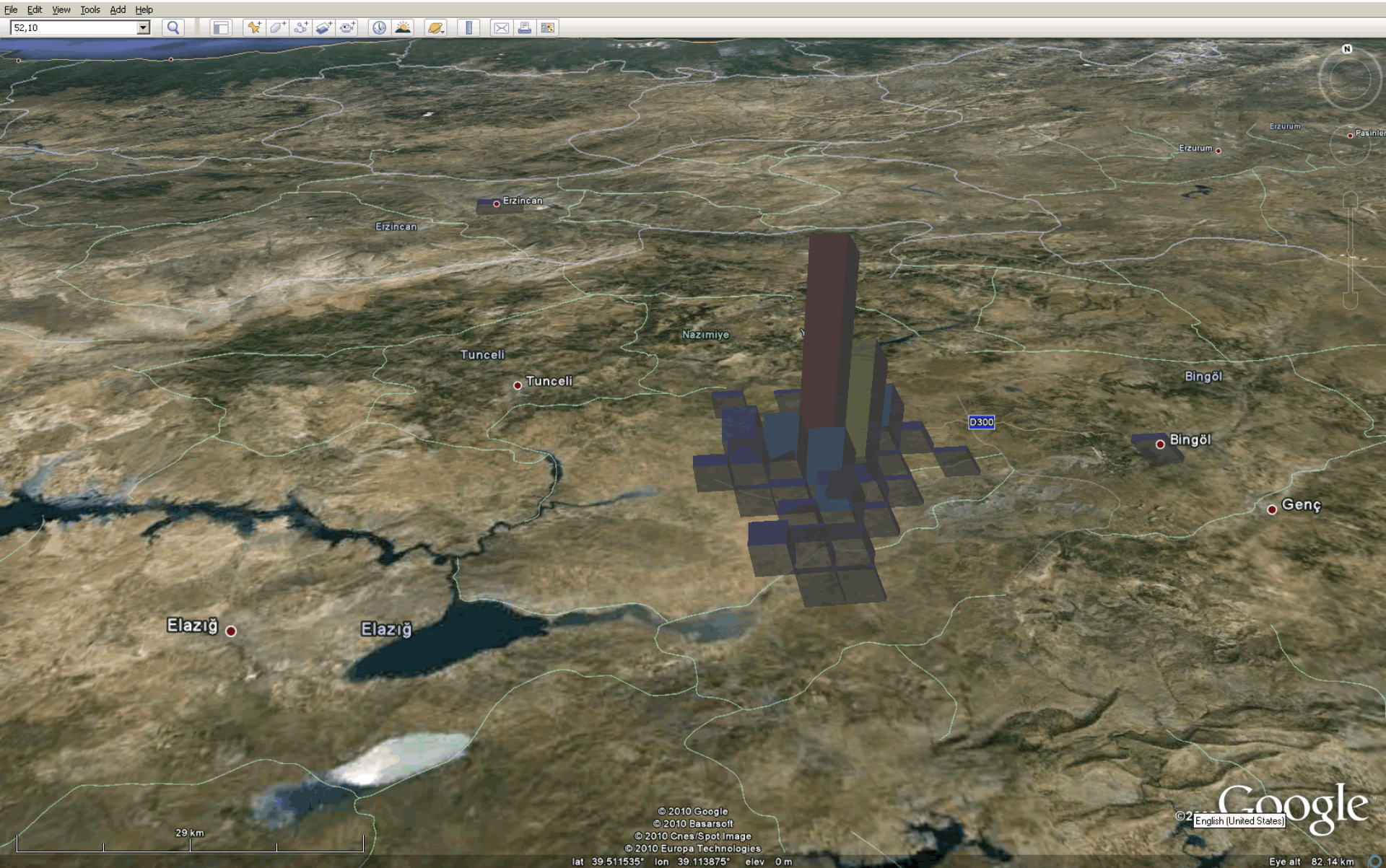
PREDICTED INTENSITY MAP



PREDICTED PEAK ACCELERATION MAP



The Predicted distribution of Heavy Damaged Buildings in the Region (06:30)



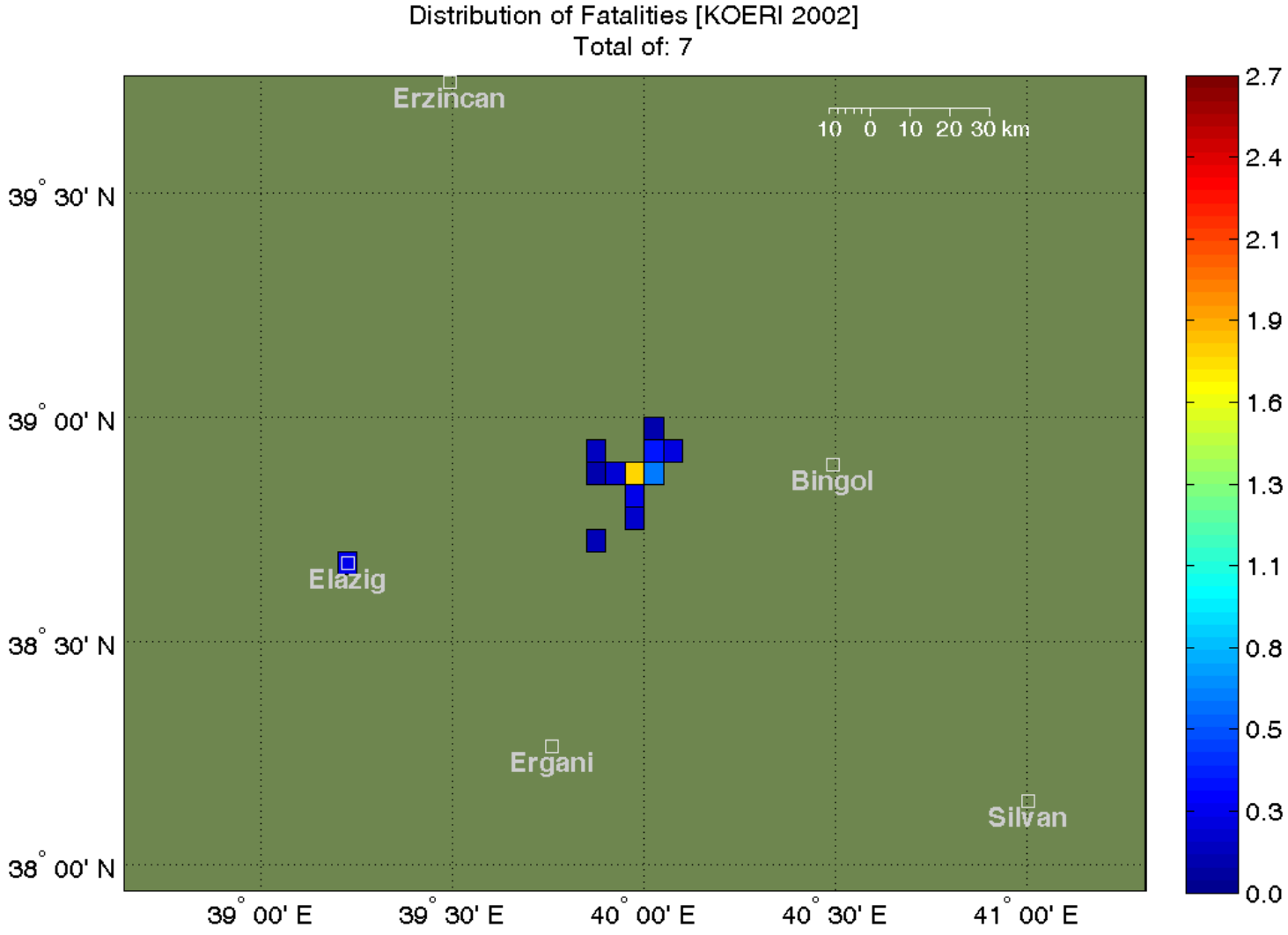
At local time 06:30 a.m. predicted loss estimation by KOERI

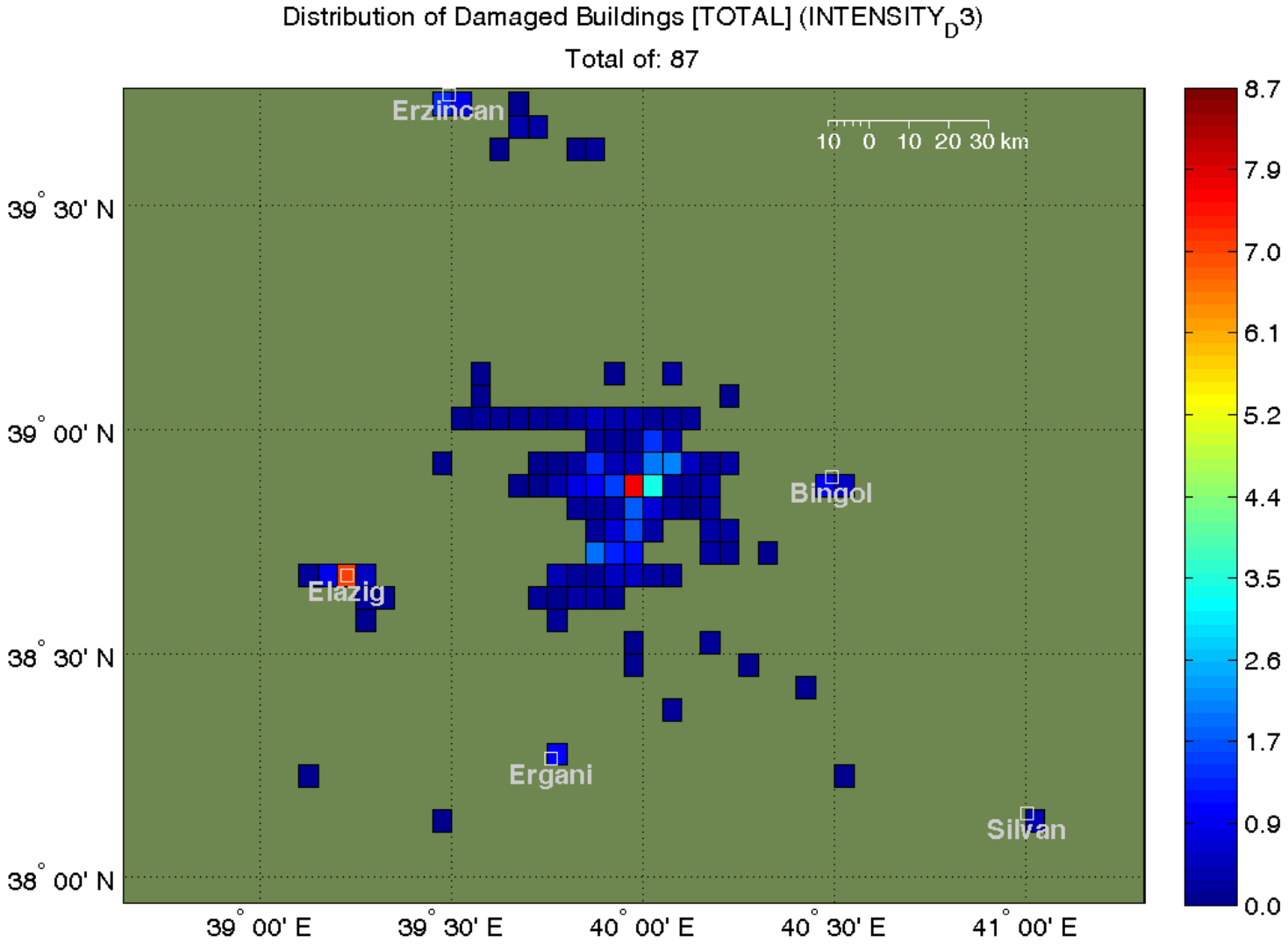
Predicted Fatalities: 7 – 20

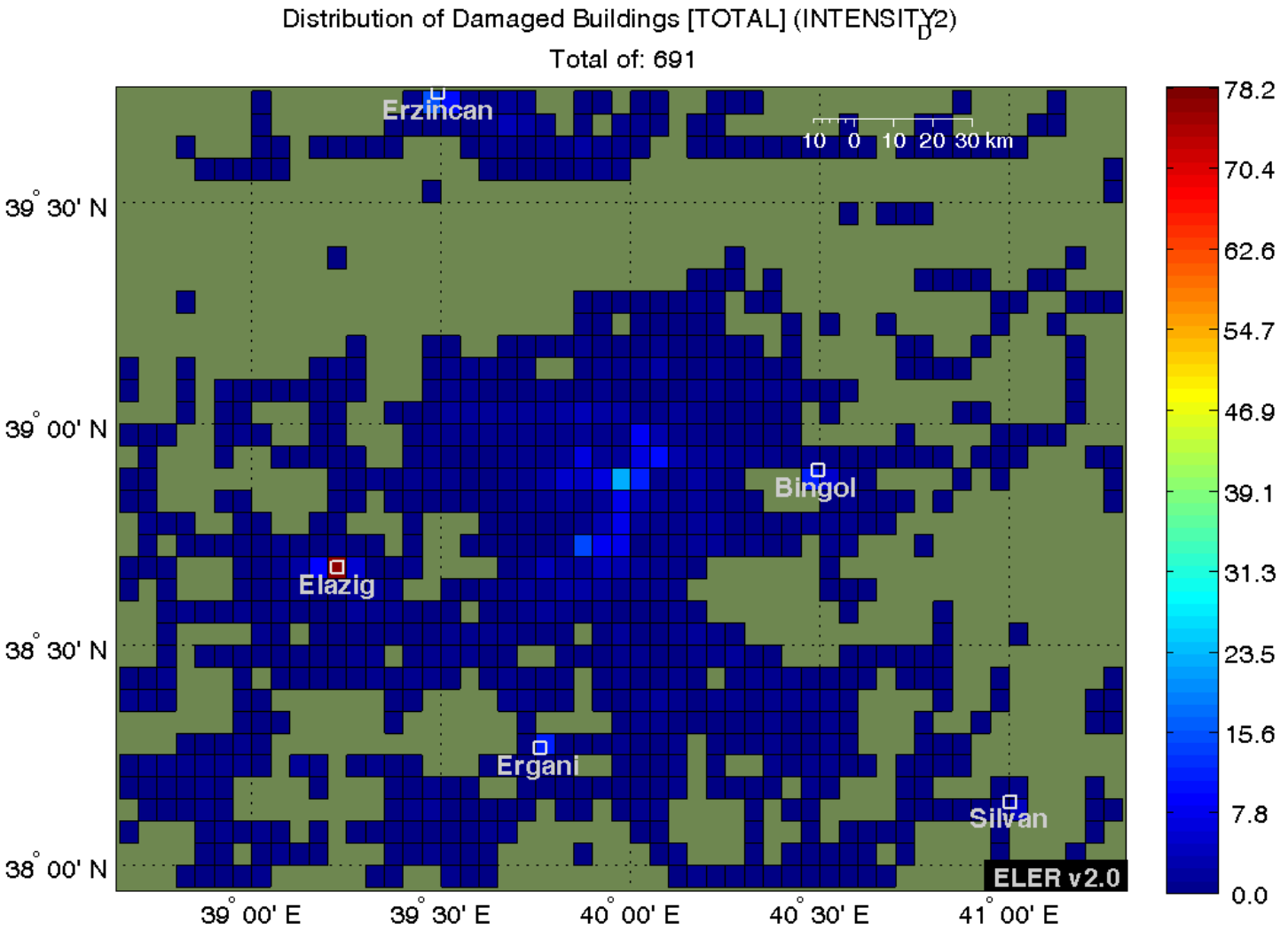
Predicted distribution of heavy damaged buildings : 7 – 20

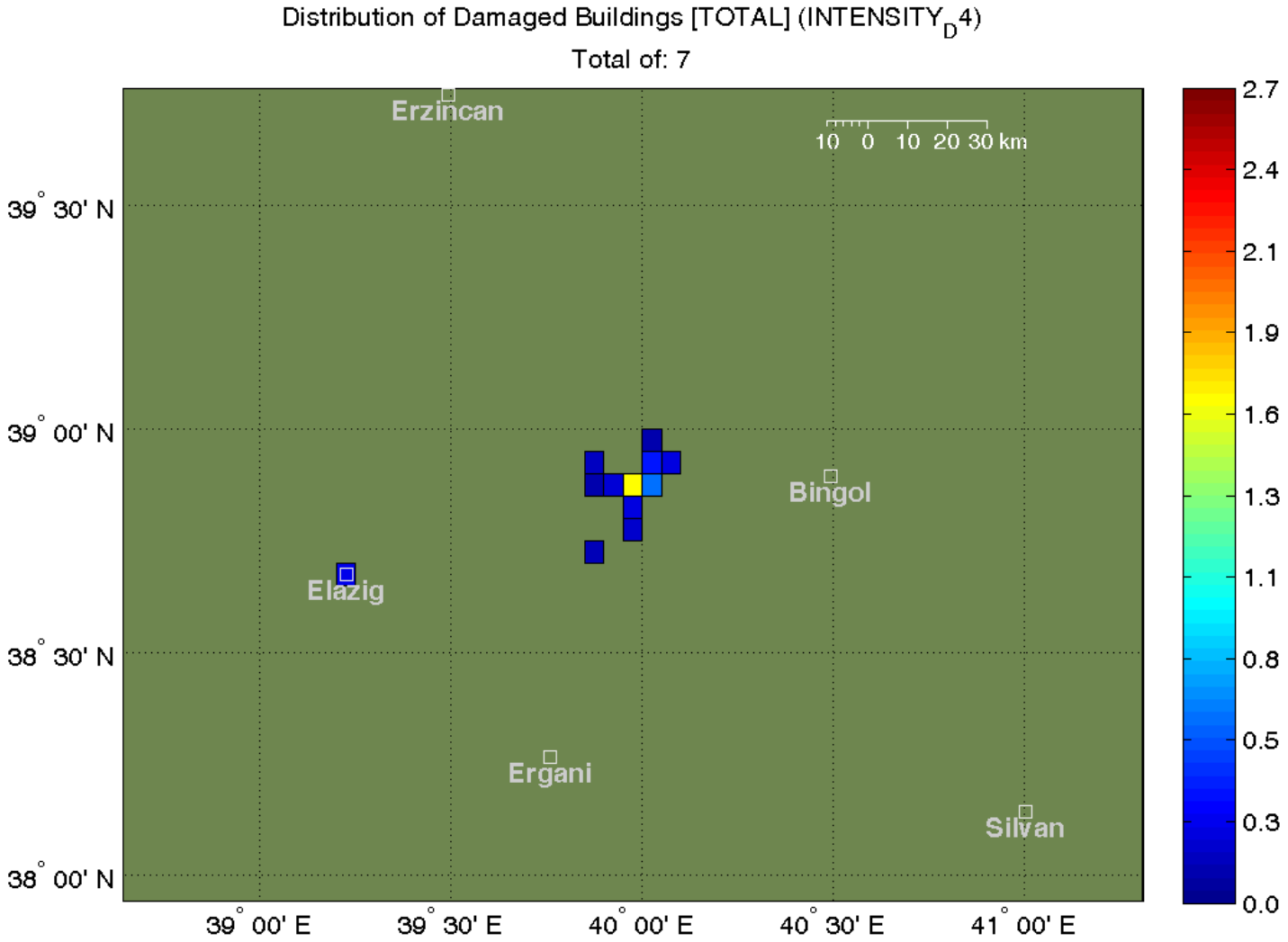
Predicted distribution of medium damaged buildings : 87 – 200

Predicted distribution of low damaged buildings : 691 - 1100


Distribution of Fatalities [KOERI 2002]
Total of: 7
Erzincan
10 0 10 20 30 km
39° 30' N
39° 00' N
38° 30' N
38° 00' N
Bingol
Elazig
Ergani
Silvan
39° 00' E
39° 30' E
40° 00' E
40° 30' E
41° 00' E
2.7
2.4
2.1
1.9
1.6
1.3
1.1
0.8
0.5
0.3
0.0


Distribution of Damaged Buildings [TOTAL] (INTENSITY_D3)
Total of: 87
Erzincan
Bingol
Elazig
Ergani
Silvan
10 0 10 20 30 km
39° 30' N
39° 00' N
38° 30' N
38° 00' N
39° 00' E
39° 30' E
40° 00' E
40° 30' E
41° 00' E
8.7
7.9
7.0
6.1
5.2
4.4
3.5
2.6
1.7
0.9
0.0


Distribution of Damaged Buildings [TOTAL] (INTENSITY2)
Total of: 691
Erzincan
Bingol
Elazig
Ergani
Silvan
10 0 10 20 30 km
39° 30' N
39° 00' N
38° 30' N
38° 00' N
39° 00' E
39° 30' E
40° 00' E
40° 30' E
41° 00' E
78.2
70.4
62.6
54.7
46.9
39.1
31.3
23.5
15.6
7.8
0.0
ELER v2.0


Distribution of Damaged Buildings [TOTAL] (INTENSITY_D4)
Total of: 7
Erzincan
Bingol
Elazig
Ergani
Silvan
10 0 10 20 30 km
39° 30' N
39° 00' N
38° 30' N
38° 00' N
39° 00' E
39° 30' E
40° 00' E
40° 30' E
41° 00' E
2.7
2.4
2.1
1.9
1.6
1.3
1.1
0.8
0.5
0.3
0.0