PRELIMINARY REPORT

May, 24, 2014 Gökçeada Offshore (Aegean Sea) Earthquake Mw=6.5



An earthquake with magnitude Mw=6.5 occurred at local time 12:25 on May, 24, 2014. Epicenteral coordinates of the earthquake was determined as 40.2108 N, 25.3073 E. The magnitude of earthquake was identified by AFAD Turkey Earthquake Data Centre (AFAD-TDVM) (<u>http://tdvm.afad.gov.tr/WebPortal/welcome.jsf</u>). After this earthquake, 405 aftershocks were determined with magnitude range 1.1-5.3 in first 48 hours. (Fig.1, 2 Graph 1,2).

This earthquake was also felt in Çanakkale, Edirne, İstanbul, İzmir, all Aegean and Marmara Regions and part of Greece. After the earthquakes, according to studies that was performed by AFAD, in some buildings there are slight damage have been identified.

Focal Mechanism Solutions performed by considering moment tensor solution of Mw=6.5 earthquake is emerged from strike slip faulting (Fig. 3). The fault which caused earthquake is thought to be a branch of North Anatolian Fault Zone in the Aegean Sea. Focal mechanism solutions support to this idea.

Instrumental period earthquakes that occurred in the last century are given as; 1912 M=7.2, M=6.3, M=6.8 Şarköy Mürefte, 1953 M=7.2 Yenice-Gönen, 1972 M=5.0 Ezine, 1975 M=5.5 Gelibolu, 1983 M=5.5 Biga earthquakes, 29 December 2008 Northeast of Gökçeada earthquake M=5.1 and 08 January 2013 Aegean Sea Earthquake MI=6.2

May 24, 2014 Aegean Sea Earthquake was recorded by accelerometers at more than 200 different locations within National Strong Ground Motion Observation Network operated by Earthquake Department at Disaster and Emergency Management Presidency of Turkey. The first results which obtained from 135 stations are given Table 1, Fig.4, 5. for the other results, users can be reach from <u>http://kyh.deprem.gov.tr/ftpt.htm</u>. Peak ground acceleration values recorded at Gökçeada station as **176.59 gal in EW direction**.

After the earthquake seismic intensity values have been created by the help of the AFAD-RED Software (Fig.6,7,8).



Earthquake activity of Turkey has been observed in AFAD Turkey Earthquake Data Center (AFAD-TDVM) Ankara 7 days/24 hours with **750 seismic stations.** Obtained results are shared with public, press and relevant authorized.

For your information.



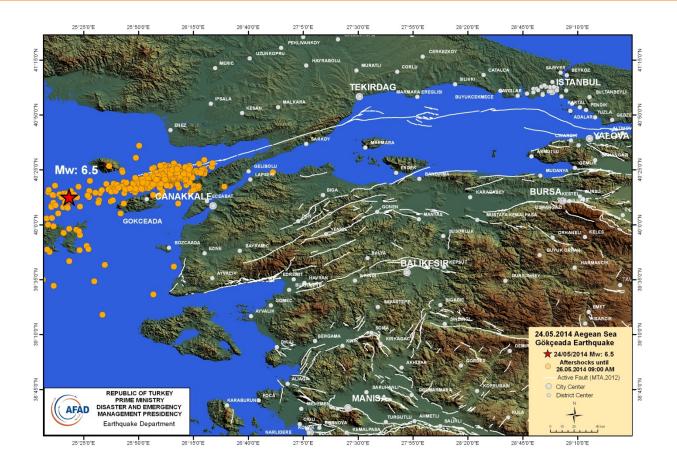
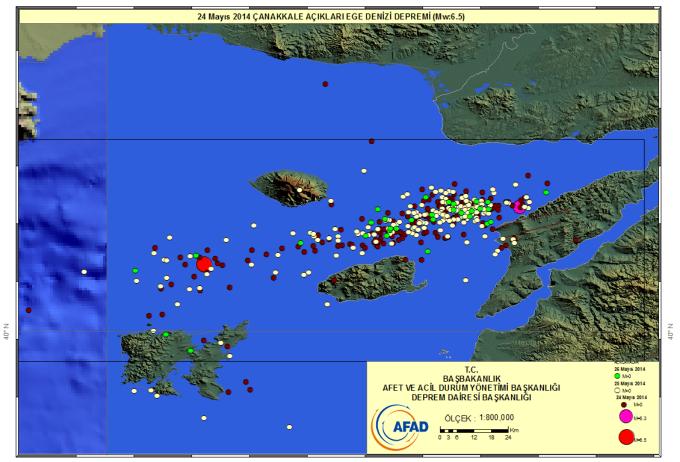


Fig. 1. 24/05/2014 Aegean Sea earthquake and aftershocks (Mw=6.5)

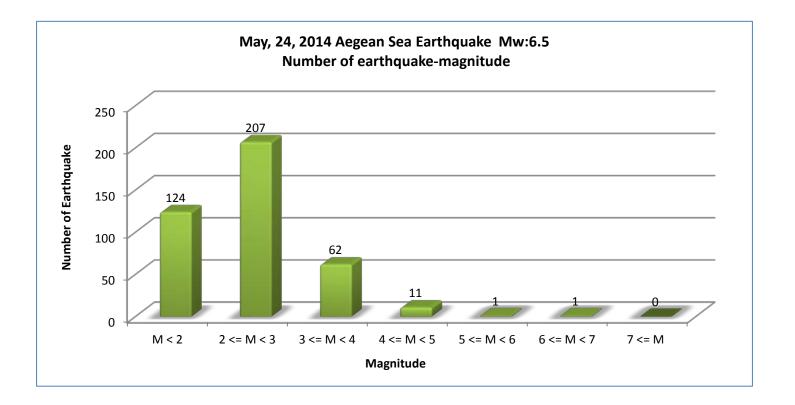






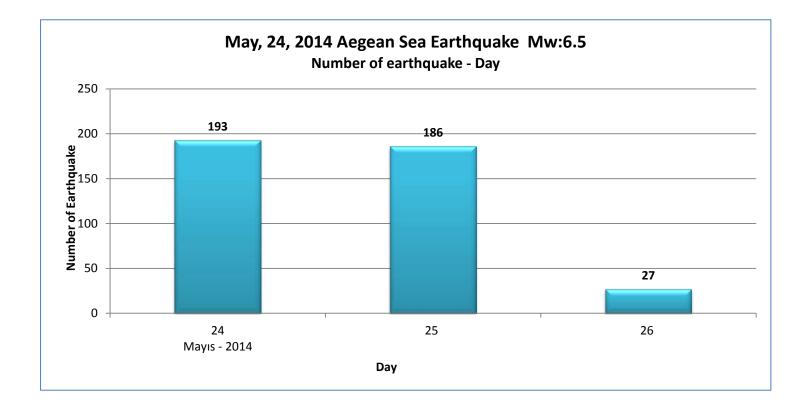
^{25'E}Fig. 2. Distribution of daily aftershocks activity (Mw=6.5)





Graph 1. Number of earthquake-magnitude graph





Graph 2. Number of earthquake-day graph



Disaster and Emergency Management Presidency | Afet ve Acil Durum Yönetimi Başkanlığı Earthquake Departmant | Deprem Dairesi



Origin Time:

20140524 09:25:00.0

Lat: 40.2108 Lon: 25.3073

Epicenter (DDA):

Depth= 10.02

| AFAD-DDA | Moment Tensor Cozumu Mw=6.5 Strike=167 ; 76 Rake=9 ; 177 Dip=87 ; 81 Pdc=82 Pclvd=18 Piso=0

Pdc=82 Pclvd=18 Piso=0 Variance=6.855e+010 VarRed=3.723e+001 Var/Pdc=8.371e+008

Quality=1

Fig. 3. Moment Tensor Solution (Mw=6.5) with Seisan

Station(0): BAYC .data R=121.0km AZI=120.0 W=1.000 Zcor=42 Station(1): YAKE_.data R=262.0km AZI=138.0 W=2.165 Zcor=46 Station(2): AKHS_.data R=265.0km AZI=126.0 W=2.190 Zcor=34 Station(3): ELBA_.data R=278.0km AZI=69.0 W=2.298 Zcor=56 Station(4): DURS_.data R=280.0km AZI=105.0 W=2.314 Zcor=36 Station(5): BUYM_.data R=327.0km AZI=78.0 W=2.702 Zcor=43 Station(6): IGDM_.data R=329.0km AZI=89.0 W=2.719 Zcor=48 Station(7): HARE_.data R=370.0km AZI=125.0 W=3.058 Zcor=31 Station(8): SULE_.data R=388.0km AZI=129.0 W=3.207 Zcor=33 Station(9): BDRM_.data R=403.0km AZI=152.0 W=3.331 Zcor=38 Station(10):AFYO_.data R=459.0km AZI=110.0 W=3.793 Zcor=26 Station(11):SAHE .data R=472.0km AZI=81.0 W=3.901 Zcor=27 Station(12):BOLV .data R=514.0km AZI=108.0 W=4.248 Zcor=19 Mxx=306414.832 Mxy=556570.116 Mxz=62835.756 Myy=-257169.615 Myz=85575.280 Mzz=-49245.217

Station Information

Mo=6.32118e+025



		STATION	Lat Lon	Lon	Lon Altitude	Type of Acc	Accele	eration (gal)	Values	Distance R _{epi} (km)	Velocity	
No	CITY	TOWN	CODE			(m)	Acc	NS	EW	UD	Kepi(KM)	V _{\$30} (m/sec)
1	Çanakkale	GOKCEADA	<u>1711</u>	40.19082	25.90783	78	GMSPlus	171.44	176.6	131.99	51	
2	Çanakkale	BOZCAADA	1708	39.8419	26.0528	195	CMG-5TD	25.66	31.48	12.05	76	
3	Edirne	ENEZ	2201	40.72448	26.08731	15	CMG-5TD	96.56	111.65	49.89	87	
4	Çanakkale	MERKEZ	<u>1701</u>	40.14145	26.39948	1	CMG-5TD	141.04	121.26	44.88	93	192
5	Çanakkale	MERKEZ_2	1713	40.16216	26.41166	53	GMSPlus	94.39	97.47	46.22	94	
6	Çanakkale	KEPEZ	1714	40.11291	26.42205	128	GMSPlus	45.32	51.12	50.35	95	
7	Çanakkale	EZINE	1704	39.77388	26.34563	68	GMSPlus	37.41	27.49	16.76	101	403
8	Çanakkale	AYVACIK	1716	39.59965	26.40761	256	GMSPlus	55.5	56.33	28.26	116	
9	Çanakkale	GELIBOLU	<u>1710</u>	40.42334	26.66715	40	CMG-5TD	123.15	94.4	44.98	118	286
10	Edirne	KESAN	2203	40.8681	26.6319	55	GMSPlus	81.95	48.3	29.01	133	
11	Tekirdağ	SARKOY	5904	40.61485	27.12256	10	CMG-5TD	75.29	86.32	34.7	160	225
12	Balıkesir	EDREMIT	1013	39.58952	27.01924	22	CMG-5TD	46.94	38.89	24.74	162	223
13	Balıkesir	BURHANIYE	1019	39.49815	26.97546	55	GMSPlus	31.63	25.63	10.78	164	
14	Çanakkale	BIGA	1703	40.23182	27.26288	24	CMG-5TD	36.32	30.04	16.54	166	304
15	Çanakkale	YENICE	1707	39.92916	27.25908	275	GMSPlus	41.49	49.37	22.06	169	324
16	Çanakkale	KARABIGA	1712	40.40396	27.30349	6	GMSPlus	40.75	47.7	15.33	170	683
17	İzmir	DIKILI	3503	39.0739	26.88834	3	CMG-5TD	41.55	24.08	9.05	186	193
18	Edirne	MERKEZ	2202	41.67049	26.58585	67	CMG-5TD	27.49	29.02	11.63	194	
19	İzmir	BERGAMA	3537	39.10957	27.17064	52	GMSPlus	9.65	10.87	5.22	202	
20	Tekirdağ	MERKEZ_3	5910	40.98109	27.48608	49	GMSPlus	77.88	107.3	19.13	202	



												1
21	İzmir	KARABURUN	<u>3527</u>	38.63903	26.51277	60	CMG-5TD	11.94	6.64	7.35	204	
22	Tekirdağ	MERKEZ_2	<u>5908</u>	40.98205	27.54794	64	GMSPlus	45.96	39.6	15.45	207	
23	Kırklareli	LULEBURGAZ	<u>3902</u>	41.35705	27.32483	47	GMSPlus	45.27	43.5	11.95	211	
24	İzmir	ALIAGA	<u>3535</u>	38.79629	26.96323	17	GMSPlus	6.1	8.77	2.73	213	
25	İzmir	KINIK	<u>3508</u>	39.0883	27.37472	71	GMSPlus	8.29	8.49	2.31	218	558
26	Balıkesir	SAVASTEPE	<u>1016</u>	39.38041	27.65438	284	CMG-5TD	12.52	15.48	6.59	222	
27	Balıkesir	MERKEZ	<u>1003</u>	39.65499	27.86204	158	CMG-5TD	24.23	29.44	9.69	227	460
28	Balıkesir	MERKEZ_2	<u>1017</u>	39.64966	27.85715	262	CMG-5TD	30.5	22.21	13.13	227	662
29	Tekirdağ	CORLU	<u>5907</u>	41.1418	27.77633	166	GMSPlus	25.68	25.95	21.16	231	
30	İzmir	CESME	<u>3528</u>	38.30393	26.37256	17	CMG-5TD	3.49	4.92	1.8	232	
31	Kırklareli	MERKEZ	<u>3901</u>	41.73774	27.21509	218	CMG-5TD	13.59	12.39	6.74	232	
32	Tekirdağ	MARMARA EREGLISI	<u>5906</u>	40.97338	27.93164	64	GMSPlus	36.37	46.97	15.12	236	325
33	İzmir	URLA	3523	38.3282	26.7706	76	CMG-5TD	4.47	5.82	2.67	245	414
34	Balıkesir	SUSURLUK	1020	39.91714	28.16411	53	GMSPlus	50.98	43.33	15.21	246	
35	İzmir	GUZELBAHCE	3516	38.3706	26.8907	17	CMG-5TD	3.3	3.93	1.51	247	460
36	İzmir	YAMANLAR	<u>3524</u>	38.4969	27.1073	64	CMG-5TD	4.11	4.41	2.12	247	459
37	İzmir	BOSTANLI	<u>3515</u>	38.4649	27.094	4	CMG-5TD	10.26	6.63	3.01	249	171
38	İzmir	BALCOVA	<u>3510</u>	38.409	27.043	3	CMG-5TD	7.05	5.52	1.74	251	313
39	İzmir	BAYRAKLI	3514	38.4762	27.1581	197	CMG-5TD	3.32	4.34	2.13	251	836
40	İzmir	KARSIYAKA	<u>3519</u>	38.4525	27.1112	10	CMG-5TD	12.69	10.62	4.17	251	131



41	İzmir	MERKEZ	<u>3513</u>	38.4584	27.1671	2	CMG-5TD	11.58	15.77	4.61	253	196
42	Manisa	MERKEZ	<u>4501</u>	38.61259	27.38138	106	CMG-5TD	5.04	6.13	3.65	253	340
43	İzmir	GUZELYALI	<u>3506</u>	38.39443	27.08211	26	CMG-5TD	2.3	1.6	1.12	254	771
44	İzmir	KONAK	<u>3518</u>	38.4312	27.1435	7	CMG-5TD	6.49	13.26	2.68	254	298
45	İzmir	MANAVKUYU	<u>3520</u>	38.478	27.2111	184	CMG-5TD	3.87	3.86	2.6	254	875
46	İzmir	BORNOVA	<u>3530</u>	38.45302	27.22444	35	CMG-5TD	8.13	9.58	2.28	257	270
47	İzmir	ÇAMDİBİ	3522	38.4357	27.1987	68	CMG-5TD	7.04	7.66	3.14	257	249
48	İzmir	BUCA	<u>3512</u>	38.4009	27.1516	79	CMG-5TD	3.27	2.79	1.68	258	468
49	İzmir	YESILYURT	<u>3525</u>	38.3723	27.1084	106	CMG-5TD	3.86	3.26	1.49	258	745
50	Balıkesir	BIGADIC	1008	39.39786	28.12733	148	GMSPlus	16.28	16.12	4.55	259	300
51	Bursa	KARACABEY	<u>1633</u>	40.21397	28.36262	59	GMSPlus	15.31	17.73	9.63	259	
52	Manisa	AKHISAR	<u>4502</u>	38.91121	27.82326	94	CMG-5TD	14.4	11.56	5.27	261	292
53	İzmir	PINARBASI	<u>3511</u>	38.4213	27.2563	76	CMG-5TD	2.64	3.37	2.18	262	827
54	Bursa	MUSTAFAKEMALPASA	<u>1614</u>	40.03471	28.39392	41	CMG-5TD	14.96	23.77	10.66	264	265
55	İstanbul	SILIVRI	3408	41.07339	28.25569	31	CMG-5TD	9.29	8.67	5.29	265	639
56	İstanbul	BUYUKCEKMECE	3412	41.02058	28.57821	13	GMSPlus	12.79	12.47	5.85	289	
57	Manisa	GORDES	<u>4505</u>	38.93984	28.28364	670	CMG-5TD	8.9	5.57	4.15	294	629
58	Yalova	ARMUTLU	<u>7706</u>	40.51305	28.82662	6	GMSPlus	15.06	13.15	3.29	299	
59	İstanbul	K.CEKMECE	<u>3415</u>	41.02729	28.75848	67	GMSPlus	21.36	21.5	10.03	303	283



60	İstanbul	YESILKOY	<u>3416</u>	40.97466	28.83635	30	GMSPlus	8.45	9.54	3.7	308	
61	Bursa	NILUFER	<u>1621</u>	40.22686	28.97558	119	GMSPlus	8.8	10.07	4.84	311	
62	Manisa	SALIHLI	<u>4506</u>	38.48311	28.12347	111	CMG-5TD	6.37	7.08	2.7	311	273
63	Bursa	OSMANGAZI	<u>1626</u>	40.2403	28.98243	162	CMG-5TD	16.01	22.12	7.35	312	448
64	Manisa	DEMIRCI	<u>4504</u>	39.03503	28.64812	853	CMG-5TD	25.08	15.68	8.96	317	336
65	Bursa	OSMANGAZI	<u>1624</u>	40.177	29.0567	366	CMG-5TD	4.48	3.91	2.88	319	
66	Bursa	OSMANGAZI	<u>1627</u>	40.22566	29.07518	91	GMSPlus	15.26	15.49	8.84	320	249
67	İstanbul	FATIH	<u>3411</u>	41.01187	28.97605	34	GMSPlus	7.7	4.49	2.07	320	
68	Bursa	DEMIRTAS	<u>1628</u>	40.27343	29.09589	143	GMSPlus	8.48	9.82	3.34	321	488
69	Bursa	OSMANGAZI	<u>1625</u>	40.26296	29.09909	106	CMG-5TD	9.34	11.14	3.95	322	394
70	Yalova	CINARCIK	7707	40.6381	29.0788	59	GMSPlus	9.24	8.77	3.67	322	
71	Bursa	KURTUL	<u>1630</u>	40.36298	29.12207	74	GMSPlus	16.36	18.41	4.25	324	301
72	İstanbul	BESIKTAS	<u>3407</u>	41.0582	29.00951	130	CMG-5TD	4.68	3.96	2.71	324	595
73	Bursa	YILDIRIM	<u>1620</u>	40.1824	29.1296	193	GMSPlus	7.73	7.01	3.63	325	459
74	Bursa	GEMLIK	<u>1629</u>	40.42539	29.16658	2	GMSPlus	16.3	22	13.06	328	229
75	Bursa	UMURBEY	<u>1632</u>	40.41049	29.17928	194	GMSPlus	13.6	10.25	4.25	329	366
76	Bursa	KELES	<u>1613</u>	39.91509	29.23167	1060	CMG-5TD	15.24	16.62	4.25	336	412
77	Yalova	MERKEZ	<u>7708</u>	40.65756	29.24725	2	GMSPlus	10.93	12.61	5.08	336	196
78	Yalova	SOGUCAK	7710	40.58997	29.2668	219	GMSPlus	4.76	7.97	2.75	337	358
79	Bursa	ORHANGAZI	<u>1619</u>	40.42236	29.2907	132	GMSPlus	12	12.11	6.27	338	348
80	Bursa	ORHANGAZI	<u>1631</u>	40.49411	29.2993	120	GMSPlus	8.64	6.44	2.34	339	



81	Yalova	SUGOREN	<u>7709</u>	40.56416	29.30603	343	GMSPlus	7.91	8.44	5.42	340	375
82	İstanbul	SULTANBEYLI	<u>3417</u>	40.95471	29.25627	224	GMSPlus	2.15	1.97	1.99	342	
83	Yalova	CIFTLIKKOY	<u>7711</u>	40.65942	29.32709	12	GMSPlus	8.96	8.34	4.23	343	
84	Manisa	ALASEHIR	<u>4503</u>	38.35546	28.51425	200	CMG-5TD	2.38	2.71	1.51	348	358
85	Bursa	INEGOL	<u>1610</u>	40.06708	29.50882	304	CMG-5TD	20.26	18.7	6.4	358	252
86	Yalova	ALTINOVA	<u>7712</u>	40.69286	29.50883	4	GMSPlus	6.63	5.75	2.79	358	
87	Kocaeli	DILOVASI	<u>4119</u>	40.77286	29.52061	73	CMG-5TD	2.45	3.03	1.67	360	
88	Kocaeli	KARAMURSEL	<u>4111</u>	40.6844	29.5888	30	CMG-5TD	5.41	6.64	3.14	365	300
89	Kocaeli	HEREKE	<u>4124</u>	40.78308	29.60625	65	CMG-5TD	3.01	2.93	2.12	368	
90	Bursa	IZNIK	<u>1611</u>	40.42923	29.71682	95	CMG-5TD	8.46	9.83	4.36	374	251
91	İstanbul	SILE	<u>3410</u>	41.17189	29.60816	50	CMG-5TD	7.37	6.06	4.85	376	
92	Kocaeli	KORFEZ	<u>4113</u>	40.7768	29.7335	33	CMG-5TD	1.75	2.43	1.25	378	300
93	Kütahya	GEDIZ	<u>4304</u>	38.99478	29.4004	735	CMG-5TD	6.47	7.44	2.38	379	343
94	Kocaeli	KORFEZ	<u>4115</u>	40.74328	29.78015	7	CMG-5TD	4.43	4.35	2.61	381	
95	Kocaeli	BASISKELE	<u>4116</u>	40.71956	29.86583	3	CMG-5TD	9.21	9.29	3.83	388	
96	Kocaeli	KOZLUK	<u>4127</u>	40.76087	29.90473	3	CMG-5TD	3.15	3.96	2.3	392	
97	Kocaeli	KOZLUK	<u>4125</u>	40.7665	29.91721	77	CMG-5TD	1.64	2.19	0.83	393	826
98	Kocaeli	MERKEZ	<u>4126</u>	40.76252	29.91485	4	CMG-5TD	5.41	5.35	3.14	393	



99	Kocaeli	BASISKELE	<u>4105</u>	40.67441	29.96935	177	CMG-5TD	4.82	5.89	3.57	397	289
100	Kocaeli	KULLAR	<u>4121</u>	40.72277	29.96985	39	CMG-5TD	5.83	6.28	3.33	397	
101	Muğla	BODRUM_2	<u>4813</u>	37.0653	27.4442	368	CMG-5TD	0.52	0.68	0.28	398	
102	Kocaeli	KARTEPE	<u>4117</u>	40.66989	30.02665	100	CMG-5TD	4.09	3.71	2.12	401	
103	Muğla	BODRUM	4809	37.03304	27.43997	25	CMG-5TD	0.37	0.67	0.31	401	747
104	Kocaeli	MERKEZ	<u>4120</u>	40.76761	30.02737	12	CMG-5TD	5.48	4.94	1.89	402	
105	Kocaeli	KARTEPE	<u>4118</u>	40.72163	30.07805	57	CMG-5TD	9.04	10.03	4.4	406	
106	Eskişehir	INONU	2607	39.81749	30.146	832	CMG-5TD	5.51	6.93	3.88	416	265
107	Kocaeli	KANDIRA	<u>4110</u>	41.0691	30.1525	37	CMG-5TD	2.06	1.07	0.98	417	380
108	Sakarya	GEYVE	<u>5404</u>	40.51912	30.29315	82	GMSPlus	5.39	5.28	2.83	423	
109	Denizli	MERKEZ_KINIKLI	<u>2011</u>	37.73719	29.1006	482	CMG-5TD	0.5	0.49	0.34	432	
110	Eskişehir	MERKEZ	2612	39.77133	30.4017	836	CMG-5TD	3.97	2.5	1.7	438	
111	Eskişehir	EMIRCE KOYU	2603	39.88012	30.45341	967	CMG-5TD	1.71	1.5	1.18	441	630
112	Eskişehir	YUNUSEMRE	2602	39.78929	30.49728	804	CMG-5TD	5.51	4.44	1.68	446	328
113	Eskişehir	DUMLUPINAR	2606	39.74866	30.49579	833	CMG-5TD	4.18	4.01	1.94	447	348
114	Eskişehir	KIRMIZITOPRAK	2604	39.77329	30.51008	770	CMG-5TD	4.79	4.71	1.48	447	296
115	Eskişehir	AU 2 EYLUL KAMP.	2601	39.81367	30.52844	789	CMG-5TD	7.97	4.47	2.17	448	237



116	Eskişehir	MERKEZ	<u>2613</u>	39.79357	30.5397	787	CMG-5TD	3.99	4.09	2.02	449	
117	Eskişehir	MERKEZ	<u>2614</u>	39.75347	30.55575	854	CMG-5TD	4.12	5.6	4.86	452	
118	Eskişehir	MERKEZ	<u>2616</u>	39.7063	30.61889	917	CMG-5TD	4.12	2.16	1.58	458	
119	Eskişehir	MERKEZ	<u>2615</u>	39.74031	30.65213	815	CMG-5TD	4.65	6.68	3.03	460	
120	Muğla	KOYCEGIZ	<u>4811</u>	36.96968	28.68675	17	CMG-5TD	0.84	0.84	0.57	469	372
121	Afyon	DINAR	<u>302</u>	38.0599	30.15373	862	CMG-5TD	3.21	3.26	1.56	487	198
122	Düzce	AYDINPINAR	8106	40.76705	31.11238	143	CMG-5TD	3.26	4.3	2.35	493	
123	Düzce	DUZCE_MERKEZ	8107	40.83864	31.11286	143	CMG-5TD	3.72	3.64	1.76	493	
124	Düzce	KONURALP	8105	40.90278	31.15198	195	CMG-5TD	1.28	1.12	0.94	497	
125	Düzce	DUZCE_MERKEZ	8102	40.8342	31.1644	160	CMG-5TD	3.71	3.8	2.16	498	
126	Düzce	BEYCILER	8104	40.86109	31.18043	152	CMG-5TD	2.77	2.13	1.54	499	
127	Bolu	MUDURNU	<u>1408</u>	40.46843	31.20994	831	CMG-5TD	1.26	0.72	0.62	500	355
128	Düzce	DUZCE_MERKEZ	8108	40.86128	31.23002	250	CMG-5TD	1.14	0.77	0.82	503	
129	Burdur	TEFENNI	<u>1505</u>	37.31607	29.779	1153	CMG-5TD	0.54	0.51	0.4	510	367
130	Eskişehir	KAYMAZ	2608	39.5197	31.18299	985	CMG-5TD	1.18	0.89	0.87	510	480
131	Bolu	MERKEZ	<u>1401</u>	40.74567	31.60732	746	CMG-5TD	2.51	3.02	0.91	534	294
132	Bolu	MERKEZ	<u>1401</u>	40.74567	31.60732	746	CMG-5TD	2.51	3.02	0.91	534	294
133	Antalya	KORKUTELI	<u>707</u>	37.0007	30.35028	1303	CMG-5TD	0.39	0.39	0.29	573	
134	Bolu	MENGEN	<u>1405</u>	40.93811	32.07602	623	CMG-5TD	1.11	0.83	0.72	574	365
135	Bolu	GEREDE	<u>1402</u>	40.79248	32.20593	1305	CMG-5TD	0.78	0.58	0.36	584	445



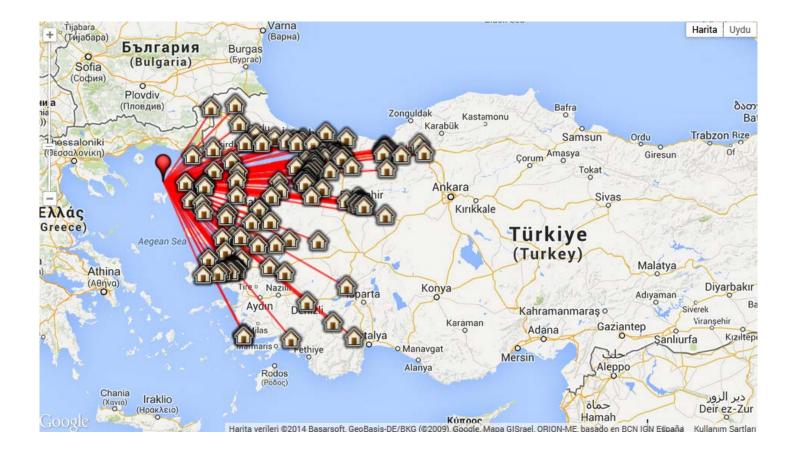


Fig. 4. Distribution of accelerometer recorded during the Aegean Sea Earthquake



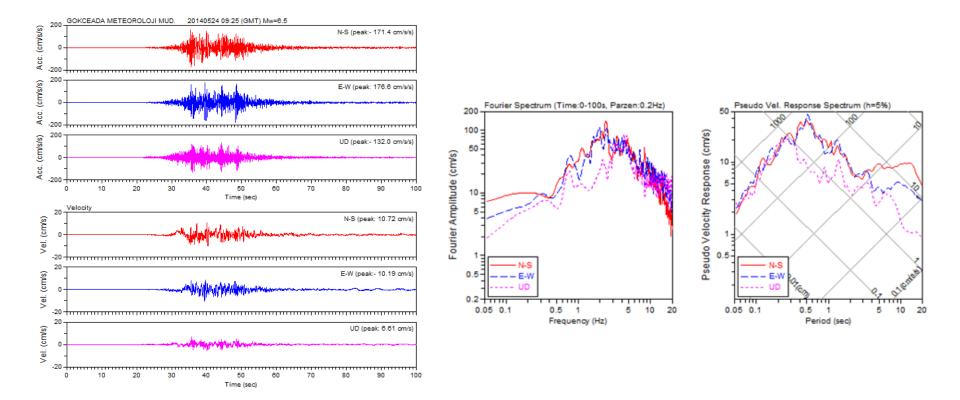


Fig. 5. Wave forms of PGA, PGV and Fourier&Response Spectrum computed from 1711 Station.



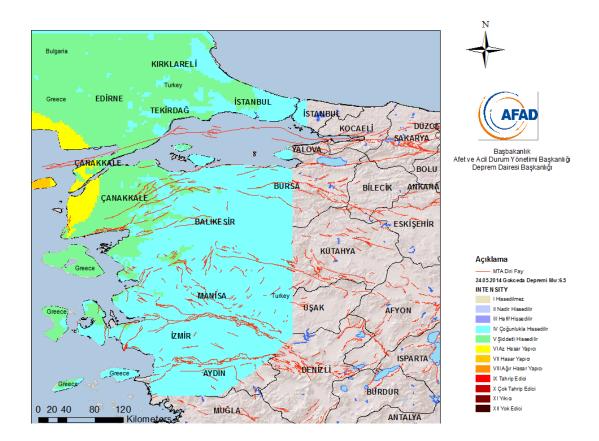


Figure 6: Seismic Intensity map which is created by AFAD-RED (Rapid Earthquake Damage) as automatically



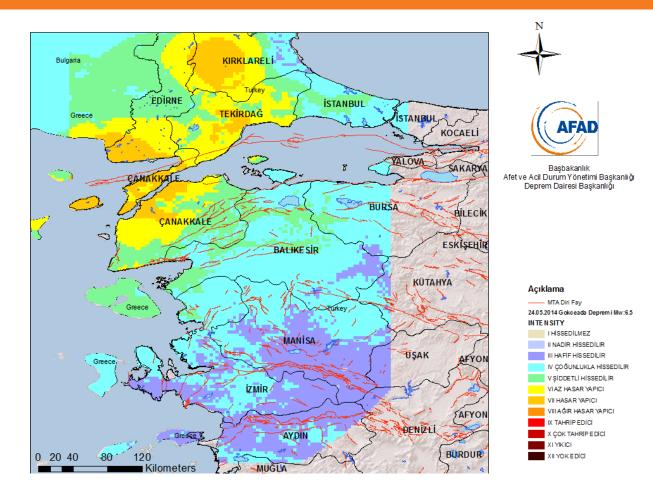


Figure 7: Seismic Intensity map which is created by AFAD-RED with strong motion data



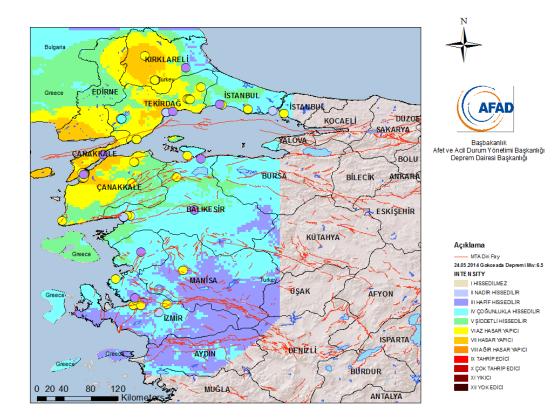


Figure 8: AFAD-RED mobile application results



REFERENCES

- Emre,Ö., Duman, T.Y., Özalp, S., Elmacı, H., Olgun, Ş ve Şaroğlu, F. (2013) Turkey Active Fault Map, Mineral Research and Exploration General Directorate Special Issue Series-30, Ankara-Turkey
- T.C. Prime Ministry, AFAD Disaster and Emergency Management Presidency www.afad.gov.tr
- Intensity Equations : Wald et al, 1999 [PGA/PGV]
- GA Attenuation Relationships : Boore, et al, 1997 [10 < R < 100 km; 5.5 < Mw < 7.5] Sadigh, et al ,1997 [10 < R < 300 km; 4.0 < Mw < 8.0] Ambraseys, et al, 1996 [10 < R < 40 km; 4.0 < Mw < 7.5]
- PGV Attenuation Relationships : Boore, et al, 1997 & HAZUS PGV Equation Sadigh, et al ,1997 & HAZUS PGV Equation Ambraseys, et al, 1996 & HAZUS PGV Equation

