

PRELIMINARY REPORT

April, 16, 2015

Crete Island Offshore Earthquake

Mw=5.9

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REPUBLIC OF TUKEY
PRIME MINISTRY
DISASTER AND EMERGENCY MANAGEMENT
PRESIDENCY
EARTHQUAKE DEPARTMENT

Crete Island Offshore Earthquake (Mw=5.9)

An earthquake with magnitude Mw=5.9 occurred at local time 21:07 on April, 16, 2015. Epicentral coordinates of the earthquake was determined as 34.8643 N - 26.7275 E. The magnitude of earthquake was identified by AFAD Turkey Earthquake Data Center. After this earthquake, 94 aftershocks were determined with magnitude range 1.7- 5.2 in first 4 days. (Fig.1, Graph 1).

This earthquake was also felt in Crete Island and coast of Muğla in Turkey. It didn't caused loss of life and damage.

Focal Mechanism Solutions performed by considering first motion direction of P wave of Mw=5.9 earthquake is emerged from strike slip faulting (Fig.2). The fault which caused earthquake is thought to be a Aegean and Cyprus Arc in the Mediterranean Sea.

Instrumental period earthquakes that occurred in the last century are given as; 04.04.1911 MS:7.1, 01.08.1923 MS=6.8, 26.06.1926 MS:7.7, 29.02.1940 MS=6.0, 30.08.1947 MS=6.4, 09.02.1948 MS:7.2, 24.07.1948 MS=6.4, 17.12.1952 MS=6.4, 14.05.1959 MS=6.1, 09.04.1965 MS=6.1, 12.06.1969 MS=6.0, 04.05.1972 MS=6.3, 23.05.1994 MS=6.0, 17.03.2004 Mw=6.0, 01.07.2009 Mw=6.4

April 16, 2015 Crete Island Offshore Earthquake was recorded by accelerometers at 40 different locations within Turkey Strong Ground Motion Observation Network operated by Earthquake Department at Disaster and Emergency Management Presidency of Turkey. Peak ground acceleration values recorded at Muğla-Ula station (4 gal in NS direction) (Table 1, Fig.3).

Seismic intensity values that can be created by April, 16, 2015 earthquake in the earthquake-hit area and its vicinity are estimated and the maps showing the spatial distribution of these values are prepared (Fig.4).



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Earthquake activity of this region (and all of Turkey) has been observed in Disaster and Emergency Management Presidency, Earthquake Department Data Center Ankara 7 days/24 hours with 230 Seismic station and 546 accelerometer. Obtained results are shared with public, press and relevant authorized.

For your information.



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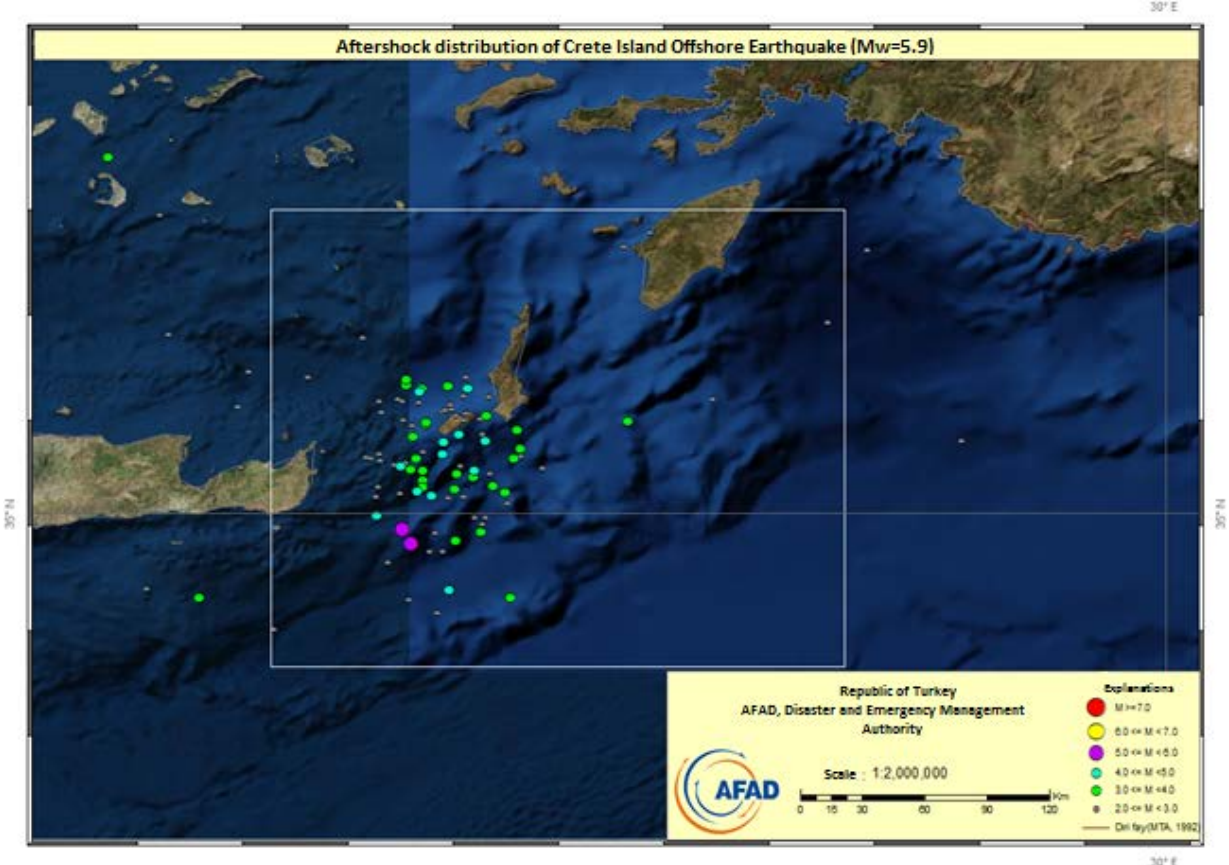
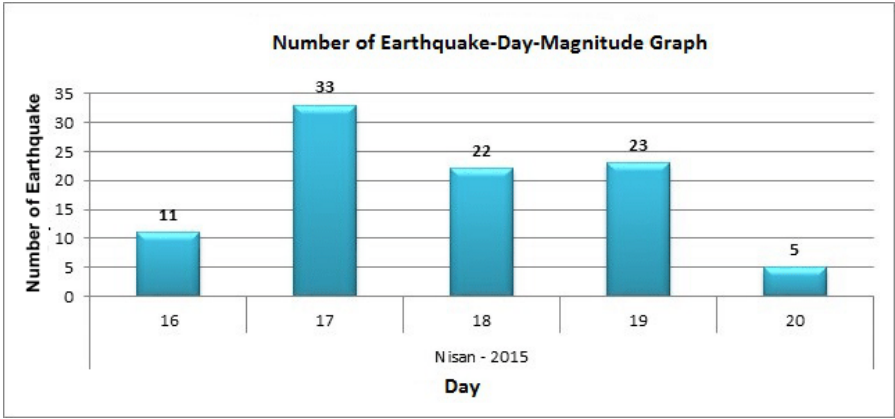
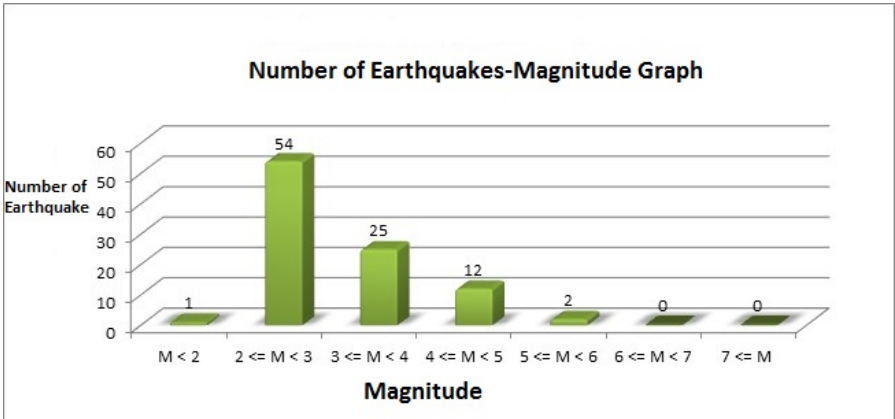


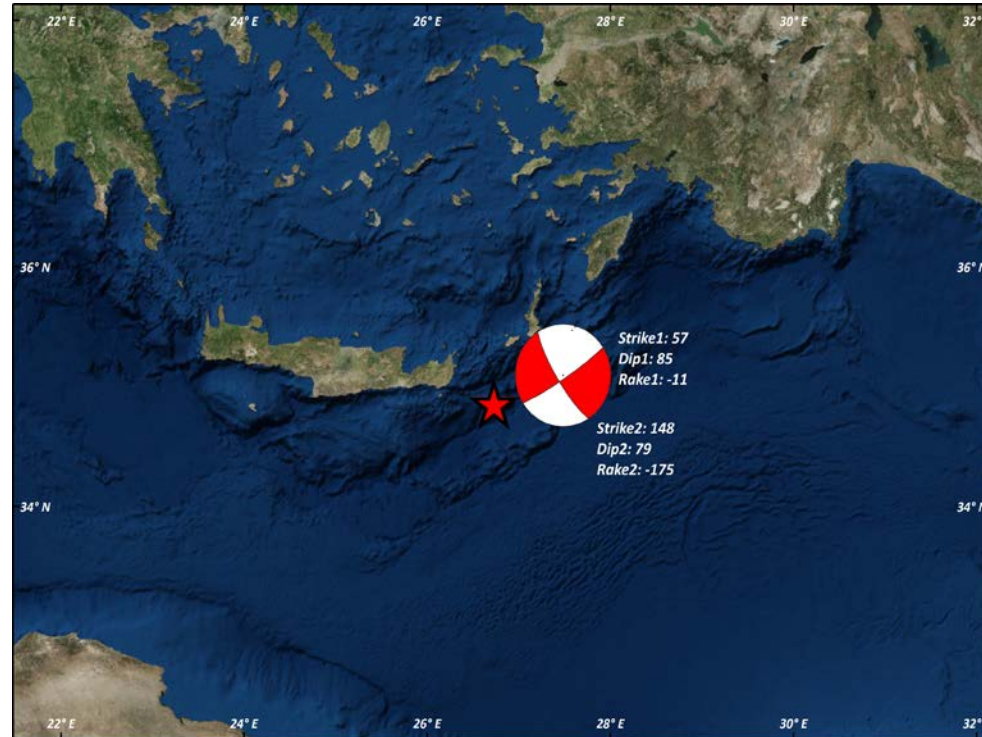
Fig. 1. 16/04/2015 Crete Island Offshore earthquake and aftershocks (Mw=5.9)

Crete Island Offshore Earthquake (Mw=5.9)



Graph 1. Distribution of aftershocks in first 4 days

Crete Island Offshore Earthquake (Mw=5.9)



(According to P wave first motion)

Fig. 2. Focal Mechanism Solutions of Crete Island Offshore earthquake



Crete Island Offshore Earthquake (Mw=5.9)

STATION				Lat	Lon	Altitude (m)	Type of Acc	Acceleration Values (gal)			Distance R _{ep} (km)	Share Wave Velocity V _{S30} (m/sec)
No	CITY	TOWN	CODE					NS	EW	UD		
1	Muğla	DATCA	4812	36.71225	27.68801	25	GMSplus	0.83	0.79	0.63	223	
2	Muğla	BOZBURUN	4815	36.6886	28.046	10	GMSplus	1.11	1.37	0.93	234	
3	Muğla	MARMARIS	4810	36.83942	28.24483	19	CMG-5TD	1.42	0.98	0.6	258	393
4	Muğla	OREN	4819	37.0313	27.9712	10	GMSplus	3.06	2.62	1.64	265	
5	Muğla	GULLUK	4817	37.2401	27.6031	10	GMSplus	0.31	0.29	0.21	275	
6	Aydın	DIDIM	918	37.3697	27.2643	47	GMSplus	0.6	0.54	0.59	283	
7	Antalya	KALKAN	716	36.2685	29.4128	78	GMSplus	0.47	0.54	0.31	287	
8	Muğla	MILAS	4806	37.30253	27.78054	52	GMSplus	1.02	0.94	0.45	287	323
9	Muğla	YERKESIK	4808	37.13378	28.28421	661	GMSplus	0.85	0.52	0.35	288	
10	Muğla	FETHIYE	4803	36.62639	29.12399	3	CMG-5TD	3.11	2.61	1.28	290	248
11	Muğla	ULA	4821	37.1055	28.4139	615	GMSplus	4.25	3.59	2.31	291	
12	Muğla	YATAGAN	4807	37.33967	28.13692	684	GMSplus	0.6	0.68	0.34	302	696
13	Aydın	SARIKEMER	920	37.5604	27.3749	58	GMSplus	0.19	0.19	0.11	305	
14	Muğla	SEYDIKEMER	4820	36.6485	29.3543	139	GMSplus	0.43	0.32	0.31	307	
15	Aydın	KARPUZLU	919	37.5595	27.8355	108	GMSplus	0.44	0.28	0.24	315	
16	Muğla	KAVAKLIDERE	4818	37.444	28.3575	897	GMSplus	0.4	0.44	0.26	321	
17	Denizli	BEYAGAC	2018	37.233	28.8948	705	GMSplus	1.68	1.92	0.9	326	
18	Aydın	CINE	917	37.6052	28.0584	81	GMSplus	0.5	0.61	0.38	327	
19	Aydın	SOKE	911	37.76209	27.39092	67	GMSplus	0.57	0.59	0.42	327	
20	Aydın	KUSADASI	905	37.85997	27.26501	24	CMG-5TD	0.32	0.23	0.19	336	369

Table 1. Acceleration values of Crete Island Offshore earthquake



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21	Denizli	CAMELI	2014	37.07411	29.34636	1297	GMSplus	1.16	1.19	0.66	338	344
22	Denizli	KALE	2019	37.442	28.8438	1055	GMSplus	0.53	0.66	0.43	342	
23	Aydın	MERKEZ	910	37.84548	27.79956	65	CMG-5TD	0.78	0.87	0.43	345	271
24	Antalya	FINIKE	712	36.30219	30.14804	1	GMSplus	0.6	0.54	0.32	346	299
25	Aydın	KOSK	916	37.85716	28.05025	81	GMSplus	0.38	0.42	0.26	352	371
26	Antalya	KUMLUCA	708	36.37484	30.29203	36	CMG-5TD	0.47	0.53	0.23	361	
27	Denizli	TAVAS	2020	37.5711	29.0694	958	GMSplus	0.43	0.49	0.29	365	
28	Denizli	ACIPAYAM	2017	37.4335	29.3502	906	GMSplus	1.28	1.08	0.59	368	
29	Aydın	KUYUCAK	913	37.91152	28.46544	93	GMSplus	0.79	0.84	0.46	372	301
30	Aydın	BUHARKENT	912	37.97385	28.74603	212	GMSplus	0.5	0.5	0.34	388	390
31	Denizli	SARAYKOY	2015	37.93252	28.92294	157	GMSplus	1.1	1.06	0.59	392	232
32	Denizli	HONAZ	2016	37.80441	29.24003	368	GMSplus	0.51	0.77	0.43	394	
33	İzmir	BALCOVA	3510	38.409	27.043	3	CMG-5TD	0.24	0.29	0.16	395	313
34	İzmir	PINARBASI	3511	38.4213	27.2563	76	CMG-5TD	0.13	0.16	0.11	398	827
35	Denizli	BULDAN	2013	38.04483	28.83359	621	GMSplus	0.33	0.34	0.27	399	345
36	İzmir	MAVISEHIR	3521	38.46792	27.07636	1	CMG-5TD	0.81	0.94	0.23	402	145
37	İzmir	MANAVKUYU	3520	38.478	27.2111	184	CMG-5TD	0.15	0.15	0.11	404	875
38	İzmir	MENEMEN	3526	38.57823	26.97953	6	CMG-5TD	0.38	0.44	0.17	414	
39	Denizli	CARDAK	2005	37.82446	29.66813	863	GMSplus	0.48	0.25	0.28	418	395
40	Burdur	KOZLUCA	1507	37.4942	30.1336	1119	GMSplus	0.55	0.59	0.35	419	

Table 1. Acceleration values of Crete Island Offshore earthquake



AEGEAN SEA EARTHQUAKE (MI=6.2)

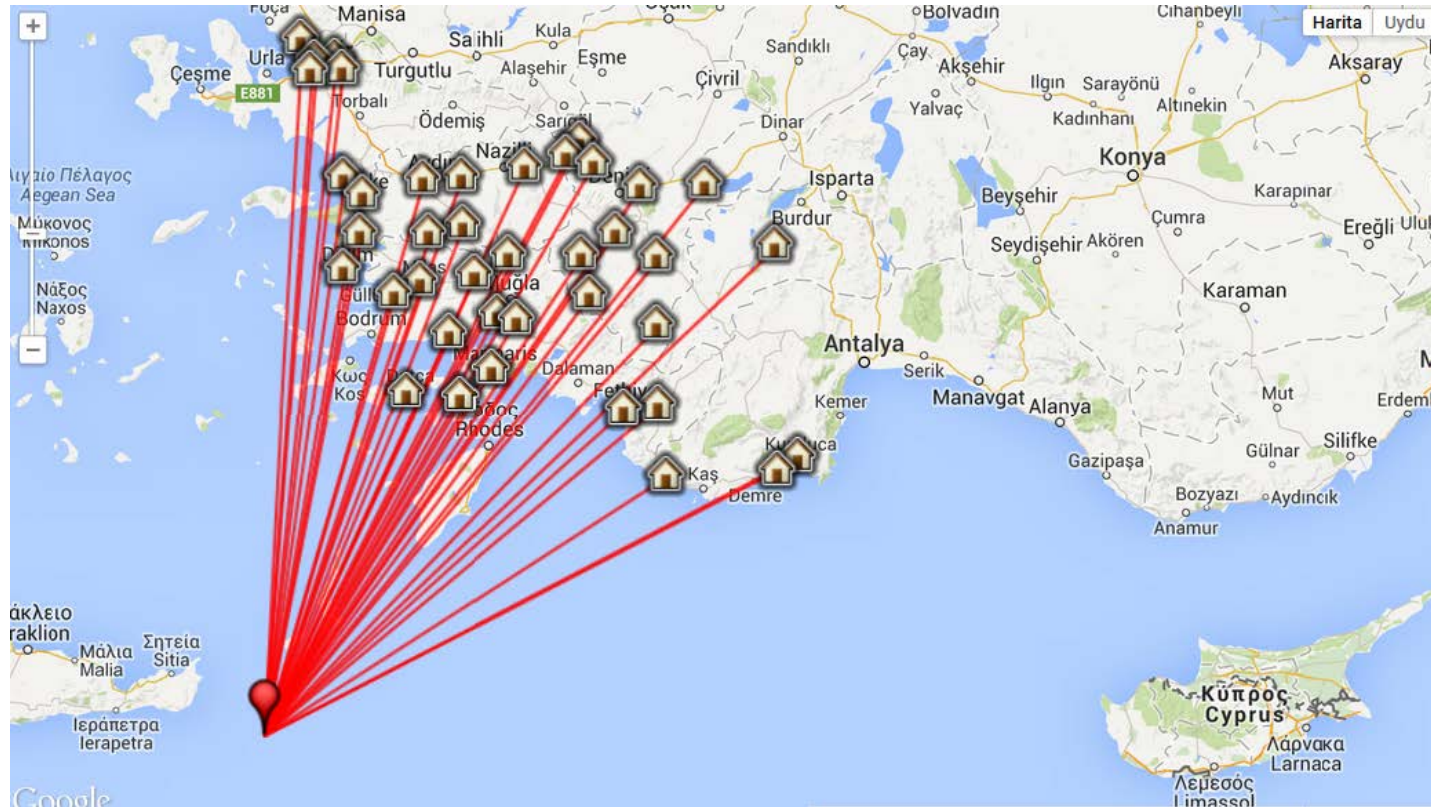


Fig. 3. Distribution of accelerometer recorded during the Crete Island Offshore Earthquake



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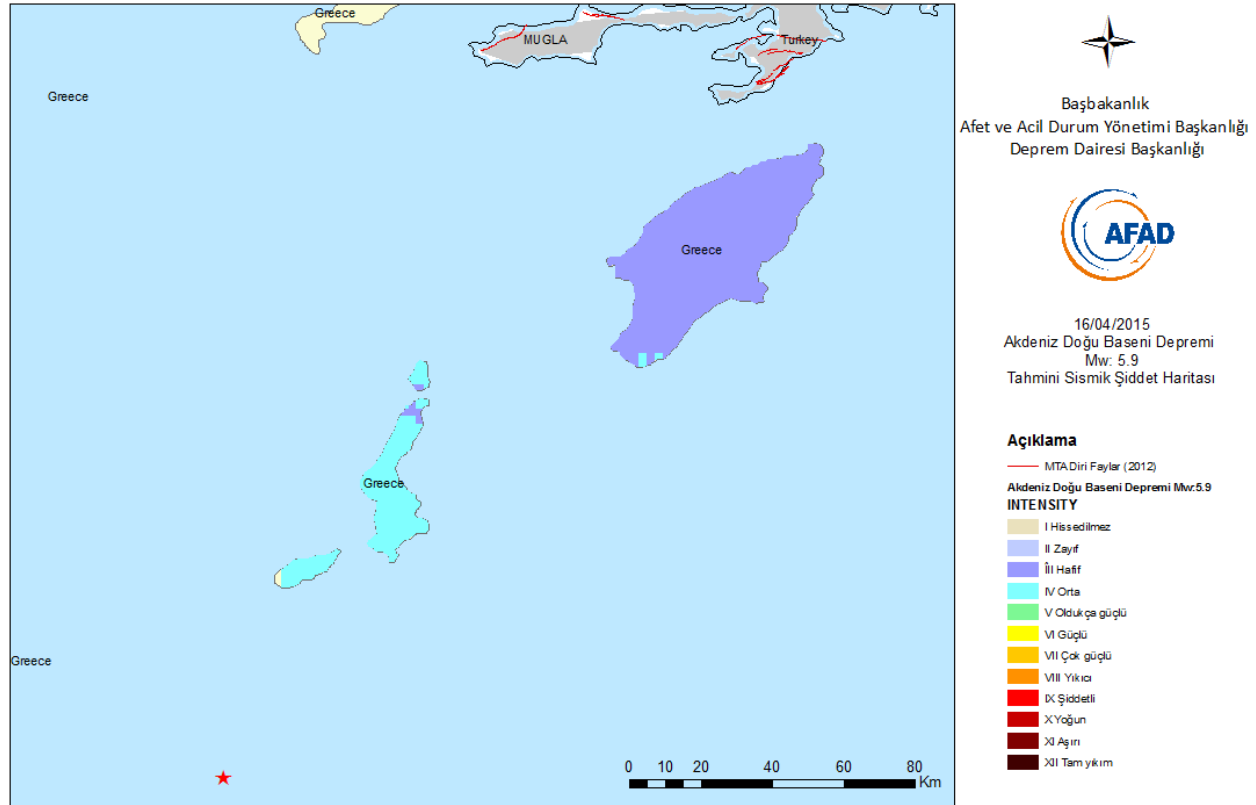


Fig.4. Seismic Intensity Map of Crete Island Earthquake (Mw=5.9)



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