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Damascus University Seismological Station

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ABSTRACT

In this paper we describe the logistics, the technical, and the recordings of the Damascus University Seismological Station (DUSS). In addition to the detailed noise study for the station site, we presented the step by step development of the station instrumentations, as well as the response curves for the station seismometers, and an example of the data exchange bulletin of station readings format.

Key Words: Seismology, Seismological Networks.

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(Simpson, D. W., et al. 1987)

(SNSN bulletin (Kovach, L.R., Healy, H. J., 1990)

(Bou- (Al-Amri, M., et al. 1999) 1996)

. Rabee, Firyal. 1999)

M = 7.3 (Magnitude) 1980

.M = 6.6 1982

«Program for Assessment and Mitigation of Earthquake Risk in the Arab Region (PAMERAR)»

.(Hafidh, A., et al 1984 / 85)

1994

.(Sbeinati,R,M., et al 1997)

.1998

(Seismotectonics of Syria)**2**

(Dead Sea Fault System (DSFS))

.(Brew et al. 1997)

(East Anatolian Fault (EAF))

(Brew et al., 1997)

(1)
 (M≥6.5)

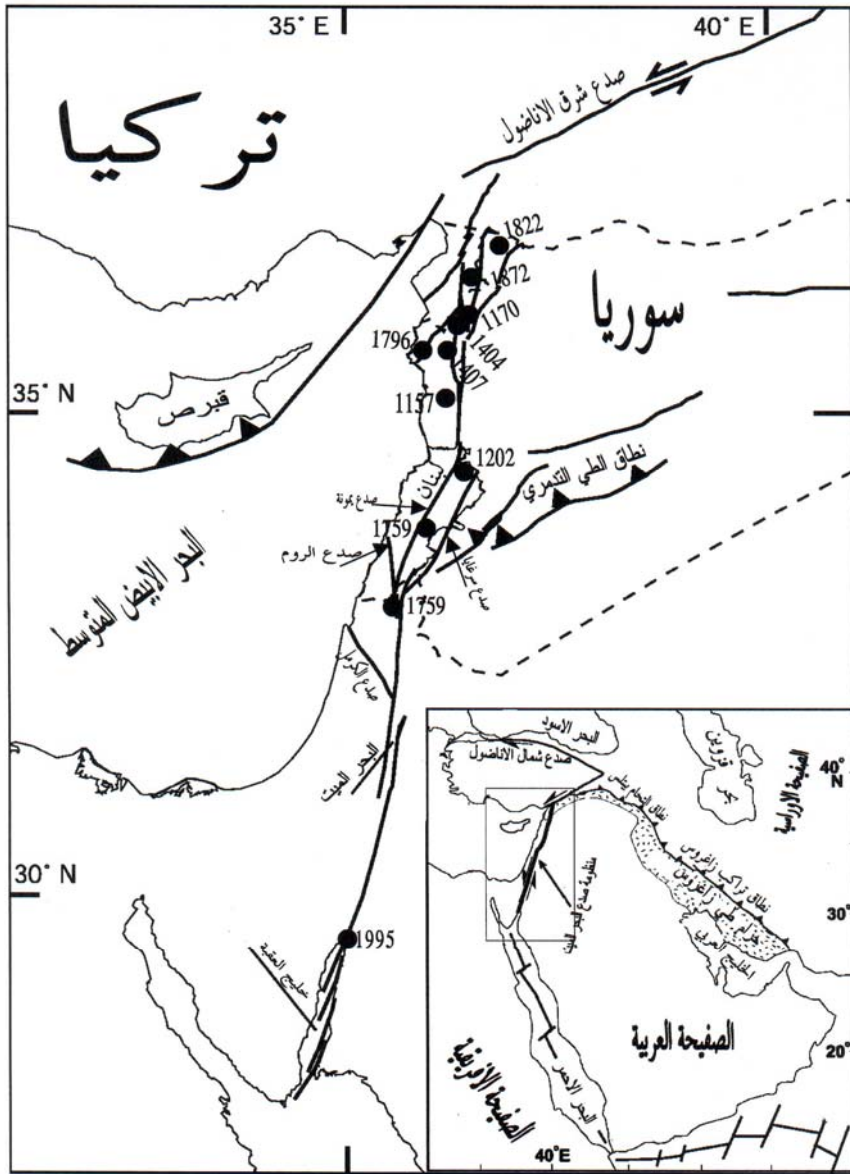
1988
 1896 1879 278

Ambrasesys & Barazangi
 1872 1157 1989

1759 (Intensity)
 Daoud (1995)

(Mohamad, R. Ms=7.3 (1)
 () 1872 (M≥6.5)
 1995 22
 .(et al. 2000

International) (2)
 .(3) (Seismological Center (ISC)



(1)

Ambtasey and Barazangi, 1989

.1995

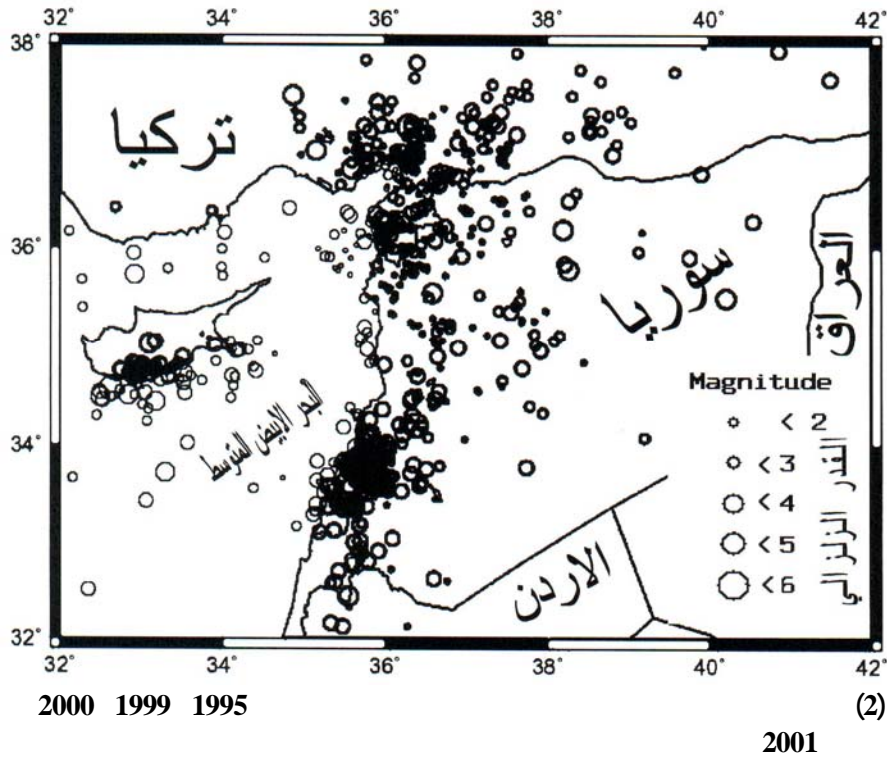
(3) (2)

(3 2)

(1)

25 5

(1)



3

1 3

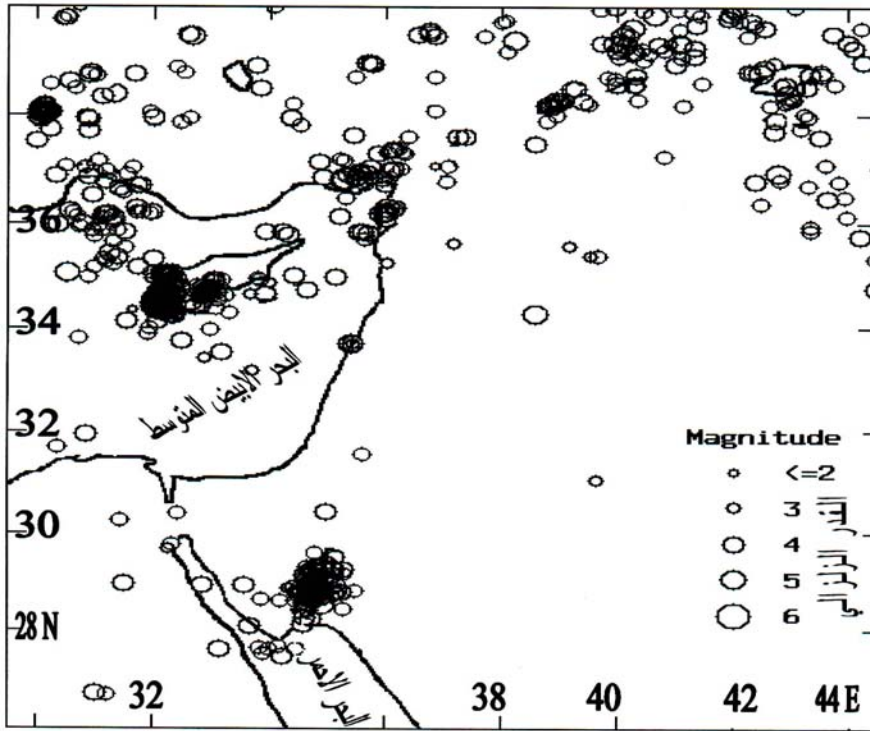
1962

()

)

.Kirnos

(



1995/01/01
.ISC

(3)
2001/03/30

1992

(Seismometers)

(PS-2 Drum)

()

(Seismometers)

« » 2 3

5

25

()

.Willmore(1979)

(1)

(1)

()	() (Hardpan, Hard Clay, etc.)			
	C	B	A	
	() 85	1	50	
() 93	1	25	150	-2
() 23	5	15	30	-3
() 20	1	10	20	-4
() 10	5	20	20	-5
0.7 ()	1	10	20	-6
() 4	1	3	6	-7
1.5 ()	1	6	15	-8 (balanced industrial machinery)
2 (-)	0.5	1	6	-9
() 0.0	0.05	0.1	0.3	-10

1 200000 :A
1 50000 150000 :B
1 25000 :C
(Willmore (1979))

25000 C

(1)

88 dB

1000
10 0.25 60dB
(1) 88 dB
PS-2
(Kinematics) SS1
(4b) (4a) (4)
(Gain) 1
36dB
.1995 (5)
1995
(5b)
.54dB 6
(5a) 66dB (0.25)
(5c)
1995

(5a)

66 dB

(5d)

5 4

(5d)

(54dB)

(5c)

Willmore

:

(5)

.(1979)

60dB

66dB

(1)

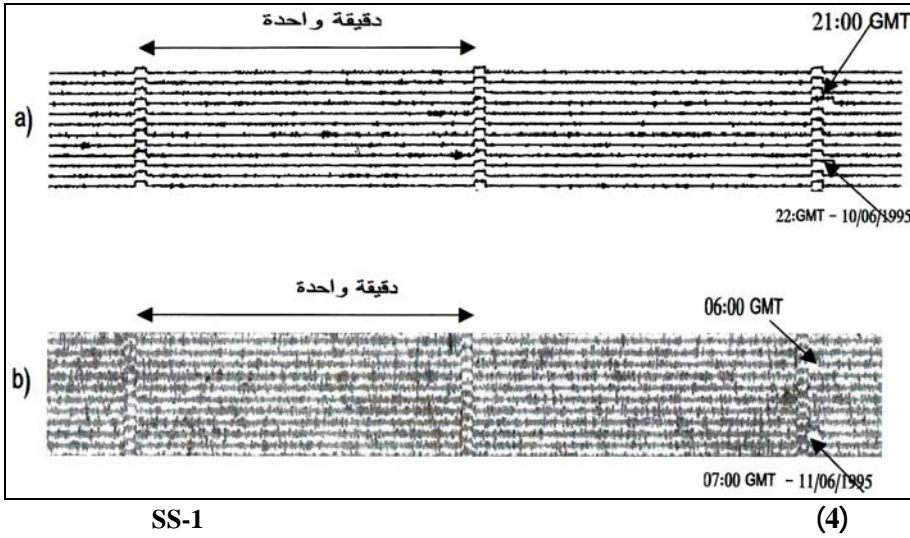
B

66dB

)

(

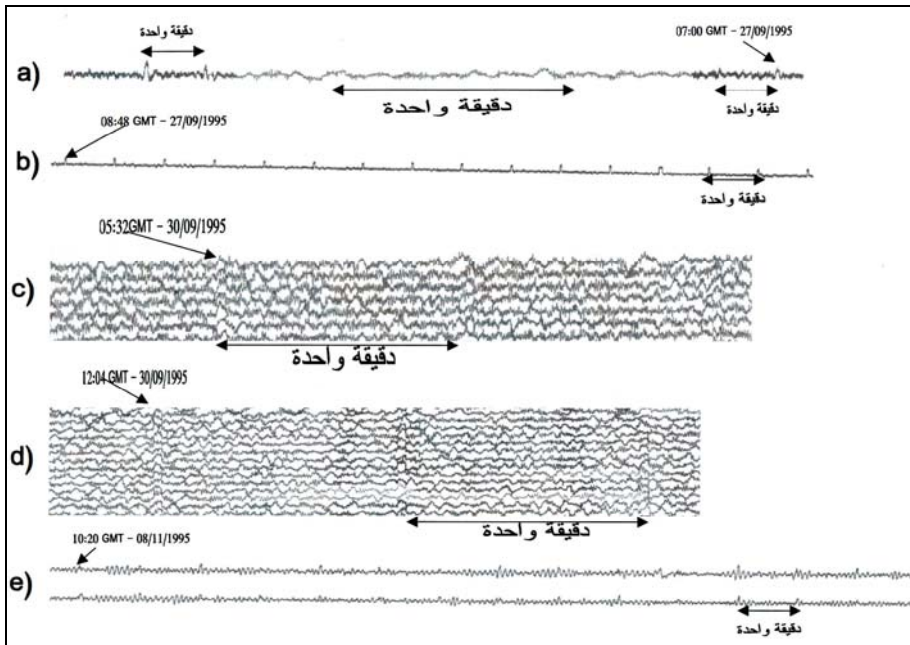
1995



.36dB

(a)

(b)



a) 66 dB; b) 54 dB; c) 66dB; d) 66 dB; e) 54 dB

«

»

3 3

.(Role)

Willmore (1973)

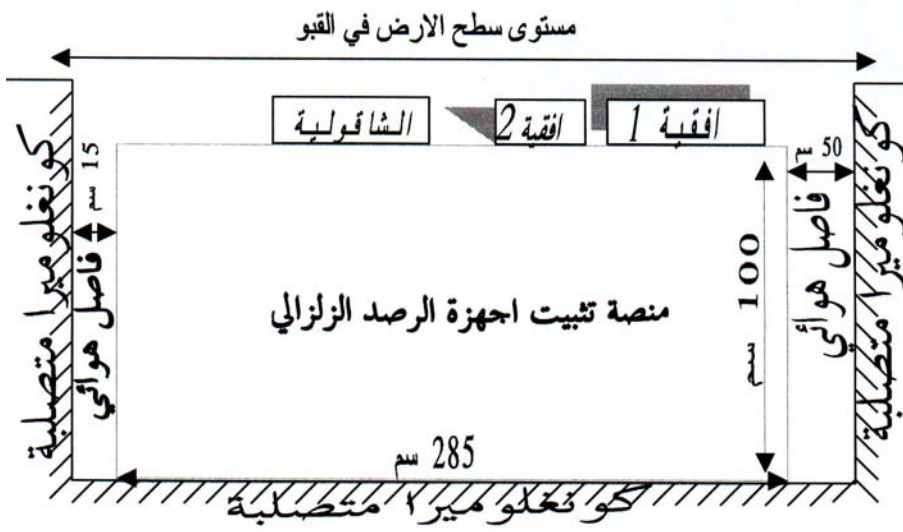
Bribach (1994)
(6)

36 17 08 E

766

33 30 37 N

.1998



(6)

. (2 1) .

« » 4 3

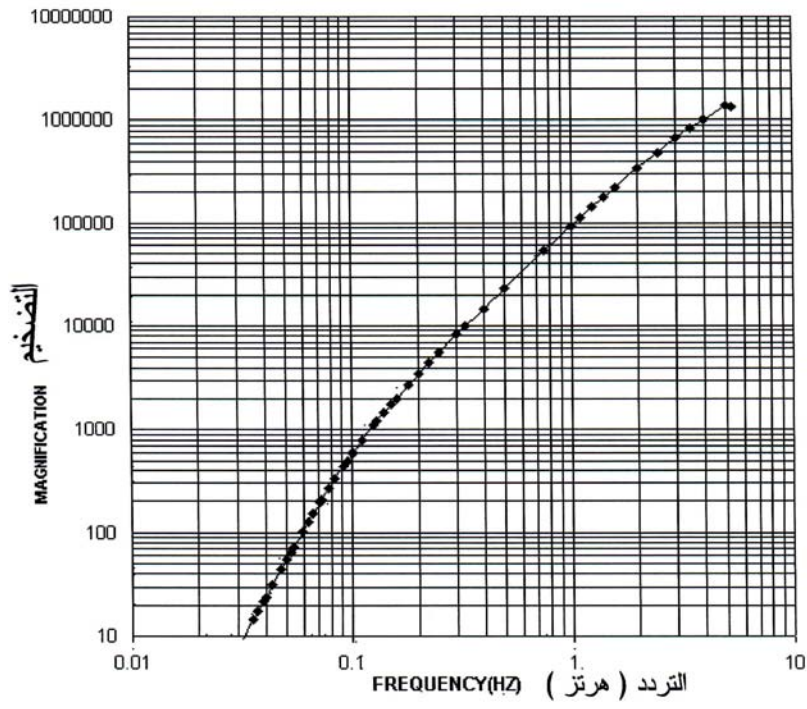
1999

(Sprengnether)

.(Hall Spare)

1999

(7)



()

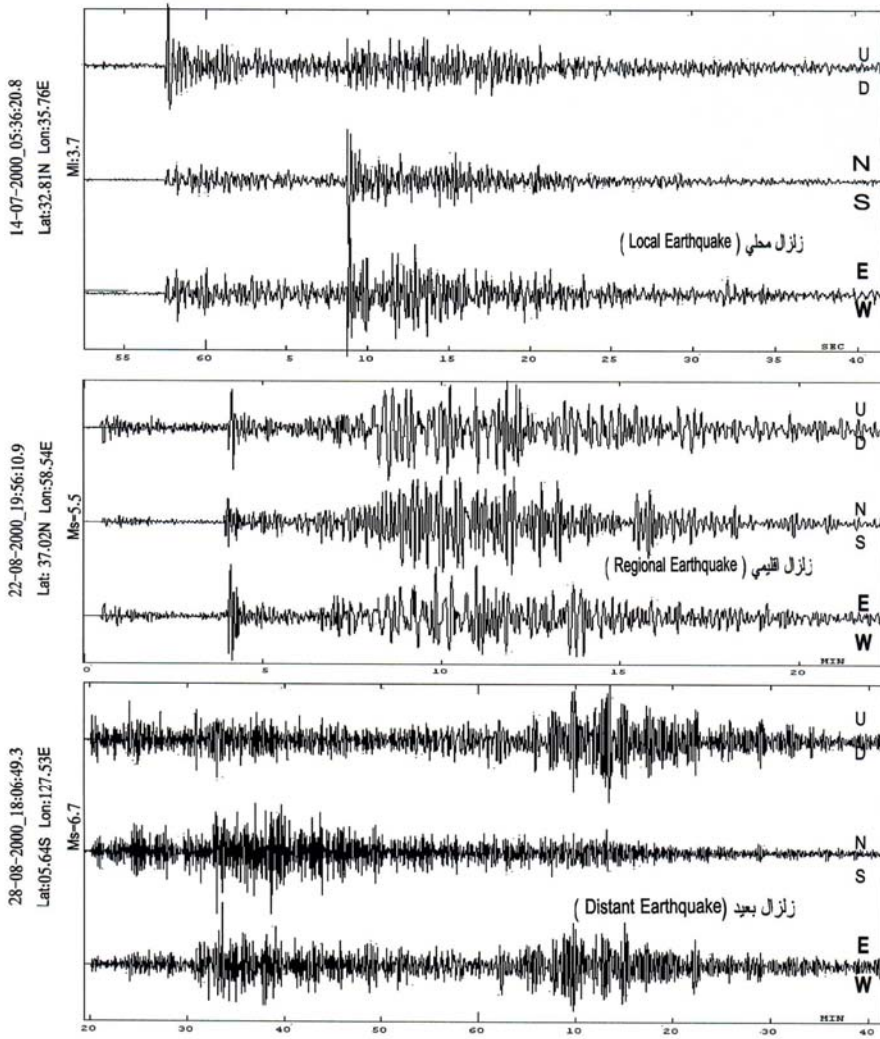
(7)

(1)

(8)
 . (Local) (Regional) (Distant)

•

•



(8)

«(Daoud,M.,2002) :Lon :Lat : »

International Association of Seismology and Physics of) S P
(SeisGram) (the Earth Interior (IASPEI)

(Magnitude)

(7)

(Internet)

2000

(Havskove1997)

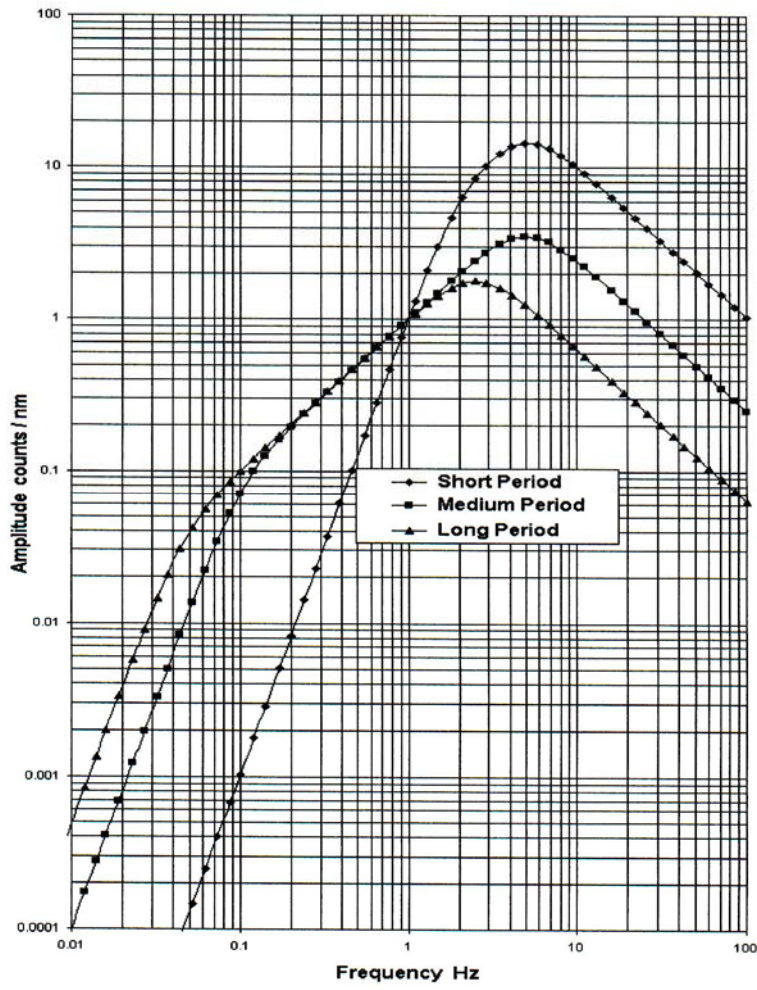
(9)

.(SEISMOLOGICAL OBSERVATORY)

.Bribach (1994)

(2)

(12bit Analog to Digital Converter A/D)



(9)

Medium Period

«Long Period

Short Period

»

(2)

	Gc (V/m/sec)		()		
* J.Bribach (1994)	* Y=141.5	* X=Y=Z=0.707	** 0.5	Short Period	HALL SPARE
	* Z=285				
	** * X=7.6 * Y=7.6 * Z=2.2	* X=Y=Z=0.71	*** 10	Medium Period	KIRNOS
X= E-W Component (- :) Y=N-S Component (- :) Z= Up- Down (:)					
***	** X=Y=Z=89	* X=0.707 * Y=Z=0.704	*** 22	Long Period	SPRENGN- ETHER

5

(Havskove et al 2001)

.(Havskove 1997) 1993

0.1

(9)

2

(Willmore 1979)

(10)

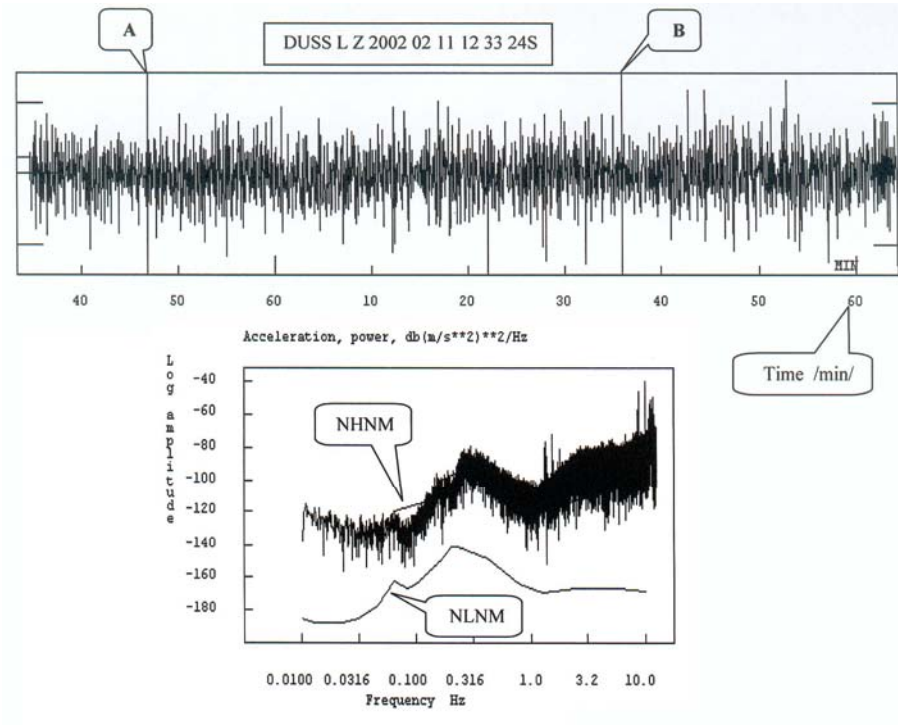
(11)

0.5 0.2

(Willmore 1979)

2

(Willmore 1979)



(10)

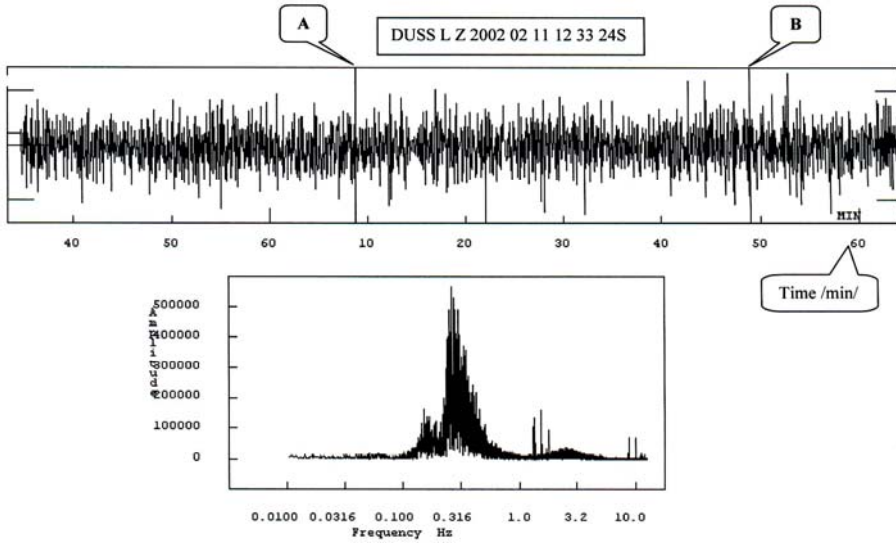
.2002

:NLNM, NHNM .
:DUSS .(1993)

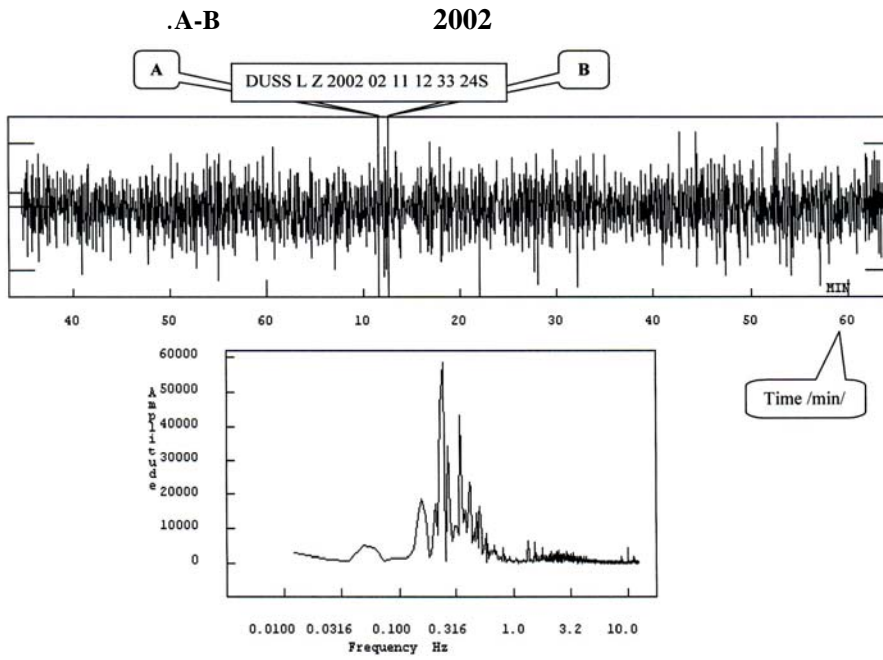
:A, B

:Z

:L .



(11)



(12)

.A-B

2002

A, B

(11)

(12)

(13)

1

(10)

1

(14)

(14 12

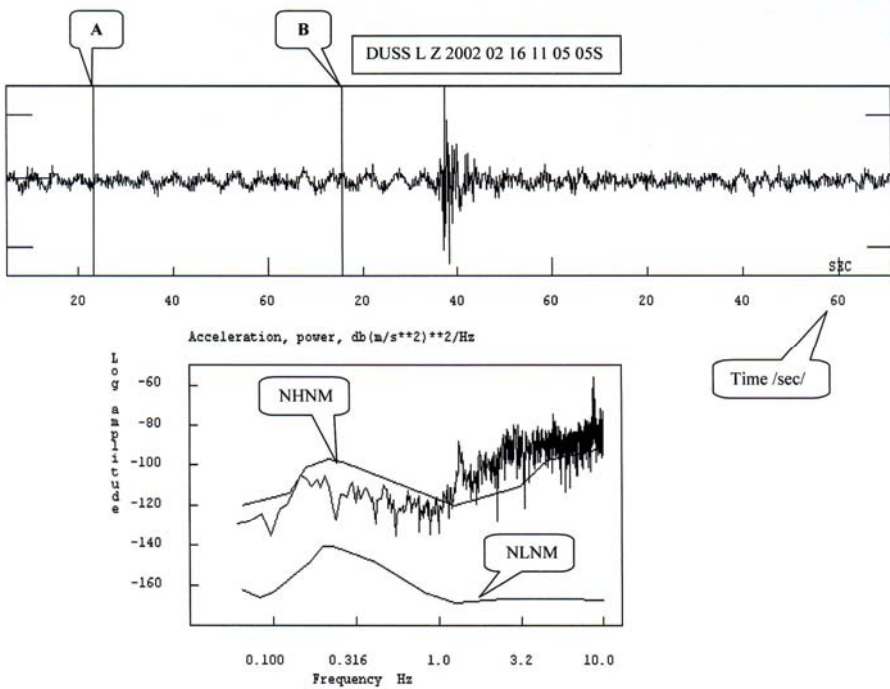
)

0.5

0.2

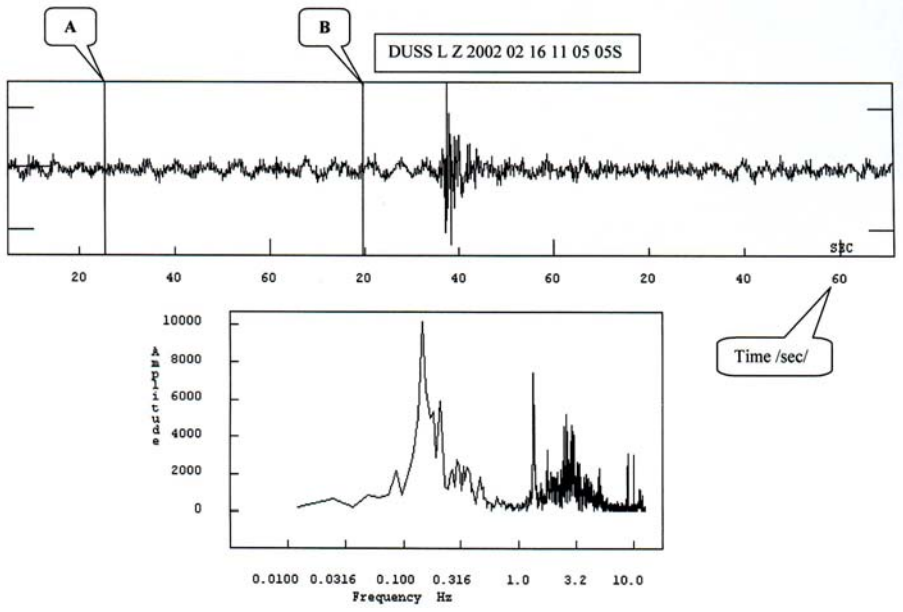
2

(14)



(13)

.A-B



(14)

.A-B

2002

(15)

0.2

(16)

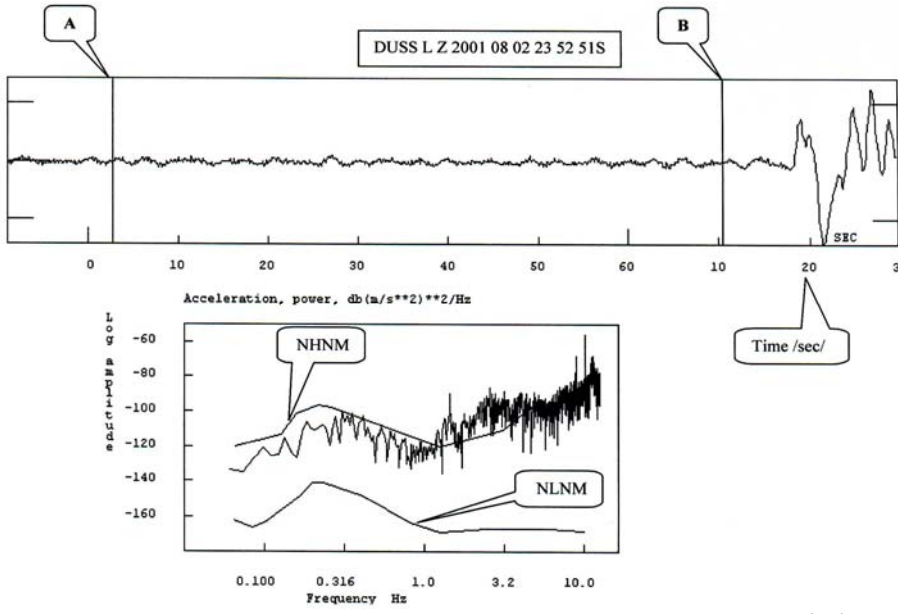
0.3

(0.2)

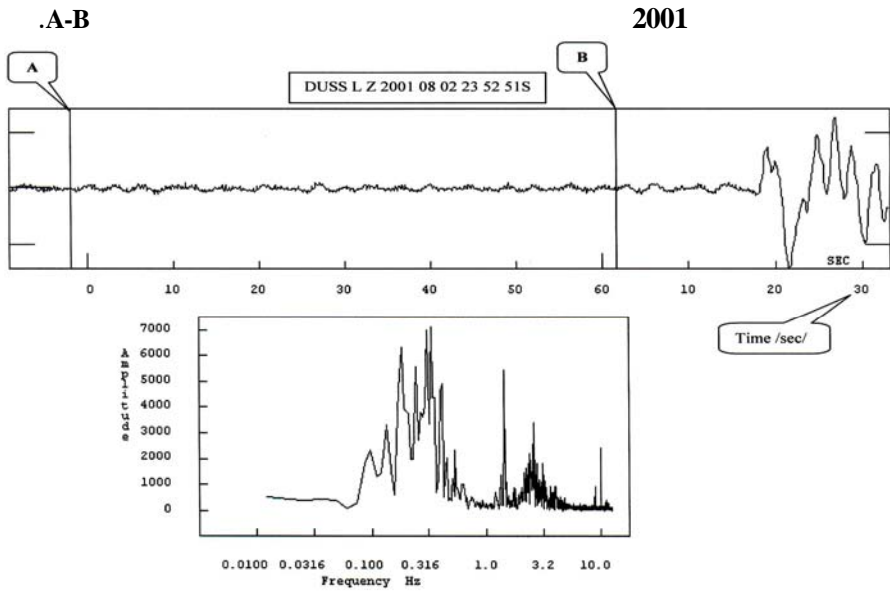
0.1

0.3

.(Willmore 79)



(15)



(16)

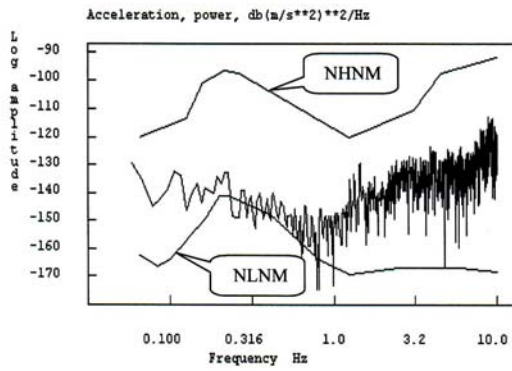
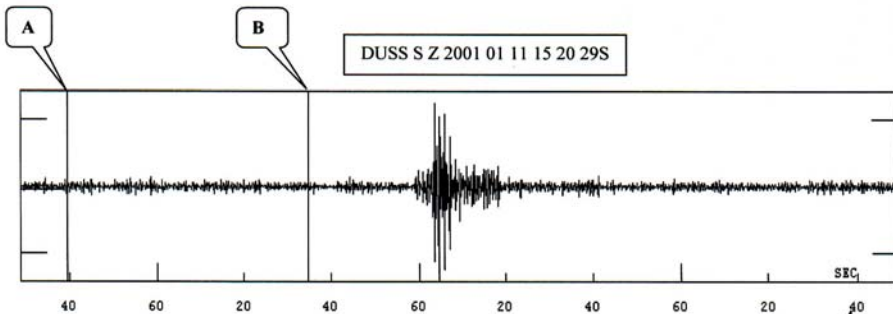
.A-B 2001

(17)

1
2

(18)

4



Time /sec/

.A-B

2001

(17)

60dB

.73 dB
15Vs/m

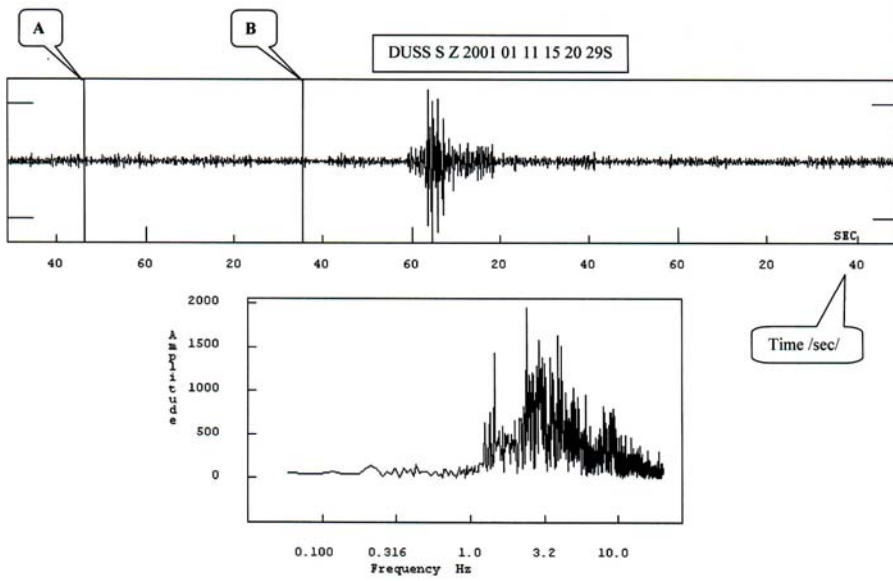
1995

.85dB (17)
36dB

SS-1

345 Vs/m 1995

141 Vs/m



.A-B

2001

(18)

6

2001
(UNIFORM TIME CODE.UTC)

(Daoud, M. 2002) 2002

2001

2000

(INTERNATIONAL SEISMOLOGICAL CENTER.

)

(19)

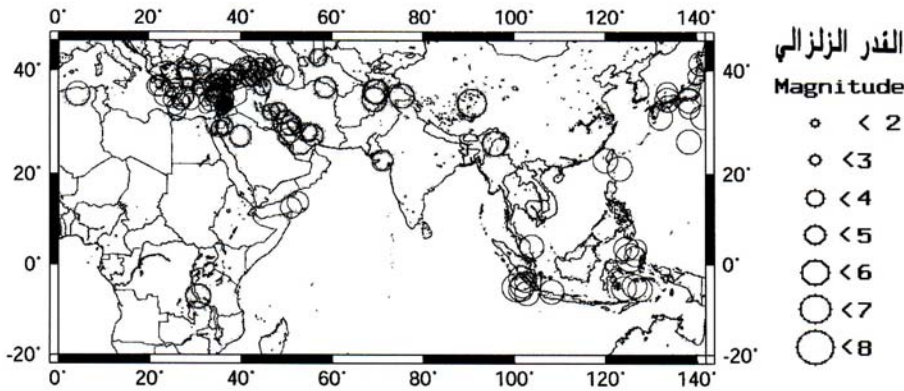
(ISC))

(20)

(Format Nordic

September 1 2001 Hour: 22:38 55.4 Lat: 32.41N Lon: 46.73E Depth: 15 Agency: DUSS Regional															
Magnitudes: 4.9MS DUSS Rms: 0.0 secs															
STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DUSS	LZ	1451	323	IP		2241	53.85	0.0							1.0
DUSS	LN	1451	323	IP		2241	53.85								
DUSS	LE	1451	323	IP		2241	53.85								
DUSS	LZ	1451	323	E		2241	54.63				138		0	19.9	
DUSS	LN	1451	323	ES		2244	5.90	0.0							1.0
DUSS	LZ	1451	323	ES		2244	5.90								
DUSS	LE	1451	323	ES		2244	5.90								
DUSS	LZ	1451	323	I		2246	59.45			6667	16.6				

(19)

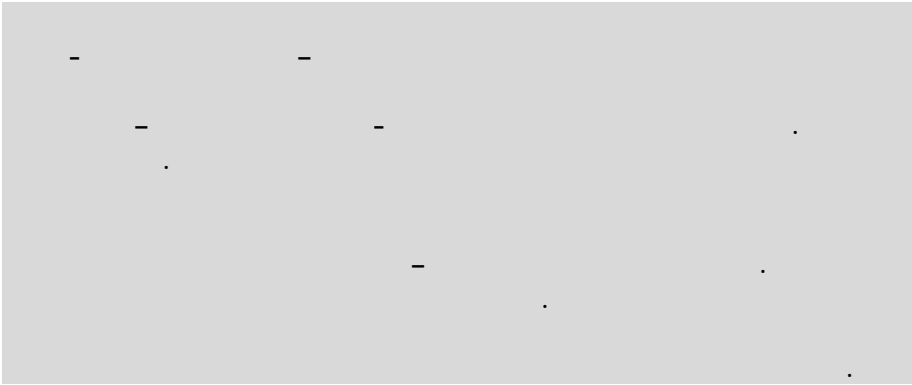


(20)

2001/12/31 2000/03/1

7

10 0.025



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