

SVEUČILIŠTE U ZAGREBU — PRIRODOSLOVNO-MATEMATIČKI FAKULTET
GEOFIZIČKI INSTITUT

UNIVERSITY OF ZAGREB — FACULTY OF SCIENCES
GEOPHYSICAL INSTITUTE

IZVJEŠĆE O POTRESIMA
SEISMOLOGICAL BULLETIN

Godina: 1964
Year:

ZAGREB 1965

*Kepic from ZAG
April 1964*



SVEUČILISTE U ZAGREBU — PRIRODOSLOVNO-MATEMATIČKI FAKULTET
GEOFIZIČKI INSTITUT

UNIVERSITY OF ZAGREB — FACULTY OF SCIENCES
GEOPHYSICAL INSTITUTE

IZVJEŠĆE O POTRESIMA
SEISMOLOGICAL BULLETIN

Godina: 1964
Year:

ZAGREB 1965

1 epic. from ZAG
April



REGISTRACIJE SEIZMOGRAFA
Records of Seismography

(lat. = 45°49'N, long. = 15°59'E, h=155 m)

Horizontal seismograph, Wiechert M = 1000 kg

Vertical " " M = 1300 kg

Horizontal " " M = 80 kg

Date	Phase	M G T			Per. sec.	A m p l i t u d e			D° D km	Remarks
		h	m	s		NE	NW	Z		
J A N U A R Y 1964										
1	eF	17	40	00						Interrupt. Kurile Islands.
6	e	00	40	18						
6	eP	23	57	11					77	Kamchatka. USCGS: 50,9 N, 157,3 E, h about 33 km, H=23:45:23,4.
	e(S)	24	07	11						
8	eS	16	30	06					120	Trace. Yugoslavia. BCIS: H=16:29:31. Ljubljana: 46°05'N, 14°36'E.
9	eP	18	44	05					80	Kurile Islands. USCGS: 45,5 N, 150,9 E, h about 40 km, H=18:31:52,4.
	e(S)		54	38						
12	eP	06	12	30					81	Aleuti Islands. USCGS: 53,2 N, 166,3 W, h about 33 km, H=06:00:13,2
14	eP	10	09	41						Zagreb II.
	eS			43						
15	eP	21	49	00						Interrupt. South of Honshu, Japan. USCGS: 29,1 N, 140,8 E, H=21:36:05,0, h about 70 km.
	eS		59	25						

Date	Phase	M G T h m s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
				NE	NW	Z		
18	eP eS ePS	12 17 05 27 29 28 16					Taiwan, 110 dead injured. USCGS: 23,1 N, 120,5 E, H=12:04:40, 0, h about 33 km. Moscow: 23,4 N, 120,8 E, H= 12:04:41.	
20	ePKP	17 28 05					Dilat. Loyalty Islands region.	
22	eP	16 09 25					Burma.	
23	e	00 22 42					New Hebrides Islands.	
26	eP̄ eS̄	08 17 53 18 10					Dilat.	
26	eP ePP e(S)	09 22 51 26 39 33 37					Southern Peru. USCGS: 16,3 S, 71,7 W, H= 09:09:33,9, h about 116 km.	
27	eP	01 22 00					Interrupt. Mid- Atlantic O.	
28	iP i i iPPP i M ₁ M ₂	14 16 47 17 29 50 19 04 27	4,3 4,1	45	32		Compr. Hindu Kush; felt: Northwestern Pa- kistan. USCGS: 36,5 N, 70,9 E, h about 207 km, H=14:09:17, 1.	
30	eP e e M	17 49 08 52 45 55 36	8,1		15	1640	Near southwest coast of Turkey. USCGS: 37,3 N, 29,9 E, h about 41 km, H=17: 45:54,6.	

F E B R U A R Y 1964

5	eP e(S)	11 42 46 53 26					Central Honshu, Japan, felt: Tokyo. USCGS: 36,5 N, 141,0 E, h about 46 km, H=11: 30:15,7.
---	------------	-------------------	--	--	--	--	---

Date	Phase	M G T h m s	Per. sec.	a m p l i t u d e			D ^o D km	Remarks
				NE	NW	Z		
6	eP iS iPS iPPS M ₁ M ₂ M ₃	13 19 25 29 27 46 30 13 14 01 02 08					Compr. Kodiak Island region. USCGS: 55,7 N, 155,8 W, h about 33 km, H=13:07:25, 2.	
12	e	20 52 00	16 16 15	63	84		Interruption. Admiral- tu Islands region.	
17	eP _n eS _n M _n	12 20 27 21 30 22	2,2	8		610	Switzerland; slight da- mage in Unterwalden. USCGS: 47,2 N, 8,5 E, h about 33 km, H=12: 19:02,9. BCIS: 46° 57' N, 8° 13' E, H=12:19:01.	
23	eP i(P) i iS i(S _n) i(S _p) i M ₁ M ₂	22 43 11 48 44 27 46 45 15 37 46 08 47 48	3,1 4,2		13	940	Compr. ? Aegean Sea; felt: Athens, Greece. USCGS: 39,2 N, 23,7 E, h about 33 km, H=22: 41:06,3.	
24	eP e(S _n)	23 32 51 35 11				1100	Aegean Sea. BCIS: 38,9 N, 23,9 E, h about 33 km, H=23:30:26. USCGS: 39,2 N, 23,8 E, h about 16 km, H=23: 30:24,6.	
27	eP̄	14 21 04					Trace.	
27	eP _n	15 21 32					Central Burma.	
29	e	16 08 16						

M A R C H 1964

2	e	19 52 27					Tonga Islands. H=105 km oca.
---	---	----------	--	--	--	--	---------------------------------

Date	Phase	M G T			Per. sec.	A m p l i t u d e			D° D km	Remarks
		h	m	s		NE	NW	Z		
X 5	iP i i i	18	47	09 11 12 16	0,0			12		Zagreb felt.
10	eP e	11	54	12 41						
14	ePn iP iS iS ⁿ M	02	38	44 39 06 55 18	6,0	59			600	Dilat. Switzerland. BCIS: 46° 57' N, 8° 17' E, H=02:37:22. USCGS: 47,1 N, 8,3 E, H=02:37:24,6, h about 33 km.
15	eP eS M	22	35	00 38 47	7,3	53			20	Interrupt. Atlantic. BCIS: 7,5 W, 36,0 N, H=22:30:28. USCGS: 36,2 N, 7,6 W, H=22: 30:26,0, h about 27 km.
18	eP _n e ePP eS	04	48	25 50 00 51 22 57 30					78	Dilat. Interrupt. USCGS: 52,5 N, 153,6 E, H=04:37:26,9, h about 400 km.
18	eP eS M ₁ M ₂ M ₂	16	43	43 44 01 45	0,5 0,5 0,5	223		67	110	Compr. Yugoslavia. BCIS: 45,5 N, 14,5 E, H=16:43:23.
19	ePKP	22	04	00						Interrupt. Samoa Isl.
21	e	04	00	00						Interrupt. Banda Sea.
28	eP eS	03	47	41 57 52						Compr. Alaska. USCGS: East of Anchorage, Alaska: 61,1 N, 148,7 W, H=03:36:10; depth- shallow fairs. 65 people known dead many injured, more than \$ 250 million damage in Alaska. Seismic Sea Waves: 30 ft. Kodiak and

Date	Phase	M G T			Per. sec.	A m p l i t u d e			D° D km	Remarks
		h	m	s		NE	NW	Z		
										Cordova, Alaska; 12 ft. Crescent City, Calif. (12 people known dead and major property damage); 8,0 ft. Oahu, Hawai, slight damage on Hawai. M=8,4 (pas), 8,6 (Pal.).
28	e	09	13	00						Interrupt. Rep. USCGS: H=09:01:02.
28	eP eS	10	47	32 57 20						Rep. USCGS: H=10:35:20.
28	eP	20	40	52						Rep. USCGS: H=20:29:08.
30	eP eS	02	30	10 40 00						Rep. USCGS: H=02:18:05. Interrupt.
30	eP eS	07	21	10 30 37				73,5		Rep. USCGS: 59,9 N, 145,7 W, H=07:09:34,0, h about 15 km.
30	eP _n eS	23	48	41 50 11						Yugoslavia. BCIS: 42 N, 20 3/4 E, H=23:47:27.
31	e	09	47,0							Rhodos.

A P R I L 1964

2	eP eS	01	23	44 33 40				77		Dilat. Sumatra. USCGS: 5,9 N, 95,7 E, H=01: 11:55, h= 132 km.
3	eP _n	04	24	51						Near west coast of Sumatra.
3	eP _n	22	45	18						Alaska. USCGS: H=22: 33:42,2.
4	eP eS	17	58	14 18 08 00				80		Alaska. USCGS: 56,3 N, 154,4 W, H=17:46:08,6. Interrupt.

Date	Phase	M G T			Per. sec.	A m p l i t u d e			D° D km	Remarks
		h	m	s		NE	NW	Z		
8	iP iS	13	52	49						Dilat.
8	eS _n	14	15	15						Crete; BCIS: 35,3 N, 24,3 E, H=14:12:33, h = 100 km.
11	eP iP _n iS iS _n M ₁ M ₂	16	02	47					950	Compr. Aegean Sea. BCIS: 40,0 N, 25,3 E, H=16:00:39. USCGS: 40,5 N, 25 E, H=16:00:42,8, h about 33 km.
			03	38	7,9	11	21			
			04	46	3,8					
			05	21						
11	e	23	11	22						
12	eP eS	01	36	27					77	Compr. Alaska. USCGS: 56,6 N, 152,2 W, H= 01:24:32,2.
			46	21						
12	e	08	02	46						
13	iP iS F	08	30	29					200	Compr. Northern Yugo- slavia; two killed and many injured; property damage. USCGS: 45,3 N, 18,8 E, H=08:30:03,6, h about 33 km. BCIS: 45,3 N, 18,2 E, H=08:30:05. Zagreb: 45° 18' N, 18° 06' E, H=08:30:00,4, h about 25 km. Mag.=4,6 (USCGS).
			55							
14	eP eS _n	06	37	11					730	USCGS: Tyrrhenian Sea, 39,0 N, 14,5 E, H=06: 35:30,1, h about 306 km.
			38	32						
15	eP eS	05	31	57						Diljgora.
			32	10						
15	eP eS	15	42	47					78	Alaska. USCGS: 56,5 N, 54,4 W, H=15:30:47,1.
			52	34						
15	e	20	57	41						

Date	Phase	M G T			Per. sec.	A m p l i t u d e			D° D km	Remarks
		h	m	s		NE	NW	Z		
15	eP i i iS	22	41	11					150	Dilj-gora; Northern Yugoslavia. h about 33 km.
				18						
				20						
				34						
16	eL	01	58	21						Japan.
16	e	12	08	58						Dilj-gora.
16	e	13	55	32						Dilj-gora.
16	eP eS	19	39	00					78	Interrupt. Alaska. USCGS: 56,4 N, 152,9 W, H=19:26: 57,4.
			48	51						
17	eP eS	05	01	25					77	Alaska. USCGS: 56,4 N, 152,9 W, H=04:49:30,5.
			11	25						
17	e	18	14	57						Dilj-gora.
18	iP iS	11	38	48						Zagreb I.
				49						
19	e	05	33	55						
19	e	11	35	24						Dilj-gora.
19	e	17	16	34						Dilj-gora.
20	eP _n	12	08	06						Anchorage, Alaska.
20	e	22	43	19						Dilj-gora.
21	e	23	21	19						
23	ePKP ePP eSKS	03	51	26					112	Aru Islands region. USCGS: 5,35 S, 134,0 E, H=03:32:50,3; felt: Darwin, Australia.
			52	24						
			04	49						
23	eP _n	14	28	00						Interrupt. Turkey. USCGS: H=14:23:43,2, 36,9 N, 37,9 E, h=57 km.
24	e	03	54	10						
24	ePKP	06	14	53						Compr. Near northwest coast of New Guinea. USCGS: 5,1 S, 144,2 E, H=05:56:10,1, h=106 km.

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
27	ePKP	07	04	35						Balleny Isl.
28	eP eS iS _n e	02	26	26 41 44 46				124		Dilat. Yugoslavia: Senj V.
29	eP _n i i i iS M ₁ M ₂	04	23	41 47 24 29 25 13 55 26	3,5 3,1	66	28			Compr. Aegean Sea. BCIS: 39,0 N, 24,3 E, H=04:21: 04. USCGS: 39,3 N, 23,7 E, H=04:21:06,7, h about 33 km.
29	eP _n eS _n M	17	02	09 04 49 05	3,7	13				Compr. Rep. BCIS: H=17: 00:02. USCGS: H=17:00: 02,9.

M A Y 1964

2	eP eS	16	33	11 43 14						
5	EP F	00	15	05 31						BEO ZAG
6	eP eS	15	38	41 48 26						
7	eP iS M ₁ M ₂	05	21	00 16	0,6 1,0	2	1	124		Interrupt. Yugoslavia: Senj V.
7	eP _n	05	54	42						Dilat. BCIS: 3,9 S, 34,9 E, H=05:45:30.
7	eP _n eS M ₁ M ₂ M ₃	08	10	16 29 20 27 45 45 51	15 14 11	66	138	92	79	Compr. USCGS: off coast of northern Honshu, Japan; 40,4 N, 139,0 E, H=07: 58:14,3, h about 33 km.
7	eP eS M ₁ M ₂	20	25	00 07 35 58 21 05	16 11	16	36	80		Interrupt. Off west of Honshu, Japan. USCGS: 40,5 N, 139,0 E, H=20:12: 49,3, h about 33 km.

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
12	e	18	38	34						
12	e F	05	45	35						
14	e	06	13	24						
14	e	17	04	00						Interrupt.
17	eP eS _n e _n	19	33	49 40 00 45 49				39,5		Atlantic, southwest of Azores. Interrupt. BCIS: 35,0 N, 35,0 W, H=19: 26:20.
19	eP eS	21	29	34 38				30		
19	eP eS	23	17	00 27 53						Interrupt.
21	EP F	07	30	53 31 24						ZAG
22	iP _g iS i M _{1,2}	08	51	43 53 56				80		Yugoslavia: Bilo-gora.
22	eP _g iS _g i M _{1,2}	12	09	05 10 12	0,0	11	8	80		Rep.
22	eP _g iS M _{1,2}	12	12	20 30	0,0	4	2	80		Rep. BCIS: H=12:08:51.
23	e	00	25	36						
23	e	23	27	30						
24	e	04	33	09						
24	eP eS	10	44	00 54 24						Interrupt.
25	eP iS i i	01	38	00 07 08 13				80		Interrupt. Yugoslavia: Bilo-gora. BCIS: 46,0 N, 17,0 E, H=01:37:50.

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
25	i M _{1,2}			14	0,3	36	65			
	e	19	56	50						
25	e	20	27	32						
26	eP	11	13	29						
	i eS	18 23	22 55							
30	eP	14	43	15						
	eS	53	38							
31	eP	00	52	50	24	80				
	eS M	01 30	02 54	54						

J U N E 1964

4	e	00	34	34						
4	eP	19	08	22						
4	eS	19	47	17						
6	iP	20	48	36	0,5	25	67	5	80	Yugoslavia, Bilogora.
	iP _n			38						
	i			41						
	i			44						
	i			45						
	iS			45						
	iS			48						
	i			49						
	M ₁			50						
	M ₂									
M ₃										
10	eP	22	30	11						
	eS	40	42							
12	e	07	54	11						
	eI	55	01							
13	eP	11	57	55						
	iS			58						

ZAG
ZAG

ZAG

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
14	eP _n	12	19	49	9,2	25			2000	Southeastern Turkey. BCIS: 38,0 N, 38,6 E, H=12:15:33. USCGS: 38,0 N, 38,5 E, h about 8 km; H=12:15:31,3; 1 killed, 15 injured; fissure.
	eS _n M _n	23 27	24							
15	eP _n	00	17	47						USCGS: Northern Sumatra; H=00:05:31,1.
16	eP	04	14	00	13 16	316	742			Interrupt.
	eS M ₁ M ₂	24 54	28							
16	e	07	27	20						
19	e	00	57	51						Turkey. BCIS: 40,8 N, 32,8 E, H=00:50:23.
22	e	00	37	16						
23	eP	01	38	43	24	81				Adriatic. BCIS: 43,5 N, 14,5 E, H=06:38:55.
	eS M	48 02	56							
23	eP	06	39	36					270	
	eS _n	40	27							
23	eP	10	17	40						ZAG
27	eS _g	10	01	35						ZAG
28	e	13	11	52						
28	eP _n	15	27	58						ZAG
28	e	17	17	10						
28	e	17	38	00						Interrupt.
30	iP	12	30	35						200
	iP _n			40						
	i			52						
	eS			31						
										Compr. BCIS: 47,7 N, 16,0 E, H=12:30:02. Interrupt.

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
12	e eM	01	57	47	20				460	
		02	30							
12	e	23	38	07	3,4					
17	eP _n e i e i eS eS M _{1,2} M ₃ e ₃	02	36	40 49 53 21 30 47 55	2,6 3,9	57	39	18	460	Comp. BCIS H=02:34:26 38,0°N; 23,5°E, h about 160 km 20 km E from Athenes, N of Islands Salamine.
		37								
		39								
		40								
		49	32							
17	eP	02	38	18	0,6					
17	e _z e e e	04	53	08 16 19 27 34						Yugoslavia, Sl. Brod felt.
18	eP e _z e e eS e e	03	43	09 14 16 20 44 08 45 09 26 42						BCIS H=03:40:09; 35,7°N, 26,4 E, h about 33 km NE from Islands Grète.
24	eP	07	03	04						Dilat.
24	eP e e eS	08	24	49 52 08 34,8						Compr.
24	e	12	48	18						Trace.
24	eP	13	37	28						Dilat.
24	eP F	17	15	00 18 45						Interrupt.
25	e e	19	49	51 52 25						

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
28	e e	18	59	44 54						
28	eP e eS e	21	50	13 42 38 48						

AUGUST 1964

2	eP	08	57	07						ZAG	
2	eP _n i i i(S _n)	10	41	23 31 42 15 27							BCIS H=10:40:26; 43,1°N, 13,0°E; h= surface.
3	e	07	57	13							
4	e	09	49	50							
4	e	10	00	55							
4	eP _n eS _n	16	36	29 46 47							
5	e	00	00	29							
5	eP	04	09	14						ZAG	
5	eS	10	43	43						ZAG	
5	eP _n eS _n	11	25	41 36 26							
5	eP _n	22	42	44							
13	e e	00	49	37 51 23							
17	e	00	23	41							BCIS 35,3°N, 26,1°E; H=00:17:41; h= surface SE from Islands Crete.
17	e	15	21	09							BCIS H=15:15:06 73°N; 1°E, h= surface, N

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D° D km	Remarks
						NE	NW	Z		
										Atlantic, Region Jan Mayen.
18	eP i(s)	00 35	34 03	27					31.0	BCIS H=00:33:51; 43 3/4 N; 17,0° E, h=surface.
24	e e e	21 46	45 16	17 40 16						
25	eP eS n	11 19	15 52	18						BCIS H=11:11:51; 36,0° N; 29,0° E, E from Islands Rhodos M=5,4 (Praha); 5,0 (Collomberg)
25	eP e M M ₂	13 14 23	56 03	09 30	13,6 15,0	46	42			
25	eP eS n	14 45	41 32	09						BCIS Repeticio, H=14: 37:35 E from Islands Rhodos.
27	eP eS n	19 39	35 48	33 48						BCIS Repeticio, H=19: 32:01; M=5 1/2 (Strasbourg), 5,4 (Prahonice) 4,9 (Collomberg).
28	eP eS n	12 11	08 17	24						
31	e e	19 40	39 48	27 48						

S E P T E M B E R 1964

4	eP eS n	03 47	38 55	35						
5	e e	02 14	13 43	08						
5	eP e eL	12 13	37 4	10 15 15						

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D° D km	Remarks
						NE	NW	Z		
5	eP i i i i n	21 10	09 28	49 36 50 00 30						BCIS H=21:08:44, 44,0° N; 11,5° E Cent. Italia M=4,7 (Roma).
5	e	21	23	51						
5	e	21	46	07						
5	e e	22	39	52 29						
10	e i	16	57	36 43						Yugoslavia Zagreb I.
12	eP e eS n	22	27	00 39 13						Interrupt.
13	eP eS n	22	55	00 24						Interrupt BCIS H=22: 53:30; 42,1° N, 20,5° E Yugoslavia-Albania 80 km W from Skopje.
15	eP i eS n	15	41	09 38 11						
16	eP e(S) n	22	33	00 29						
17	e(P) e e	15	09	09 00 43						BCIS: H=15:01,8 45° N, 32 W; Interrupt Atlantic.
18	eP eS n	00	12 16	36 45						BCIS: H=00:08:50; 36,0° N, 27 3/4 E Mediterrar- nean SE from Rhodos M=5,2 (Prahovige) BCIS: H=13:12:30 39 N, 31 W Atlantic.
18	e	13	19	28						
21	iP	01	16	52						Yugoslavia Zagreb I

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
24	eP iS	17	03	25 32						
25	e e	12	31 33	31 10						
25	e e	15	54 57	42 08						
26	e(P) eS _n	00 01	55 02	09 06						
28	e	05	14	51						
29	e	02	25	32						
29	eP e(S _n)	14	20 24	23 00					Interrupt.	
30	eP _n e e	04	45 47	17 11 42						

OCTOBER 1964

2	e	01	10	06						
2	eP _n e e e(S _n)	13	20 22 23	09 27 12 39						
5	eP e	23	00 02	37 13						
5	e	15	30	23						
6	e	14	32	21						
6	iP _n iS _n M _n	14	33 36 37	52 49	3,6		192		BCIS: H=14:31:20; 40,0° N, 28,0° E Anatolie felt Manyas, Turkey Mag.=6 3/4-7 (Uppsala) 19 killed, 26 injured;	
15	eP _n eS _n	20	38 49	50 10						

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
16	eP _n eS _n	07	11 22	56 10						
16	eP _n eS _n	08	30 40	42 51						
16	eP _n eS _n	09	30 40	16 42						
17	eP _n e	09	54 58	23 14						BCIS H=09:50:29; 34,7°N, 25,5°E, hanormale SE from Crete.
18	eP _n e	12	49 55	55 31						
21	eP _n e eS _n M ₁	23	19 23 28 53	40 45 (00)	13,6		23			Comp. Interrup.
23	eP _n eS _n	02	06 15	32 07						Comp.
25	iP _n i(S _n)	10	06 36	31 36						Comp?
27	eP _n iP _n iS _n M ₁ M ₂	19	46 47 10	42 47	3,1 2,4		142		45	Dilat. BCIS H=19:46:11, 47,7° N; 16,1° E Austria S from Wienerneustadt.
28	eP _n iS _n	00	42 43	20 47						Repet.
28	eP _n iS _n	21	01	46 47						Dilat. Local.
28	eP _n iS _n	23	00	16 42						Repet. BCIS: H=22:59:41
29	e	04	28	29						Repet. BCIS: H=04:28:03.
29	eP _n i iS _n	04	37 38	08 29 09						BCIS: H=04:35:55 43,1° N; 20,7° E Yugoslavia, Srbija.

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
N O V E M B E R 1964										
2	eP _n e i(S _n) i	23	00	38						BCIS: H=22:59:38 44,3° N; 11,4° E Italia, Apeninus.
				44						
				01						
				34						
				40						
7	e i	15	28	38						BCIS: H=15:28:05 46,7° N; 13,9° E Austria, E from Villach.
				49						
7	e i	15	43	08						Repet. H=15:42:42.
				26						
17	eP _n	08	34	34						Comp.
20	eP _n e(S _n)	23	44	10						Dilat.
				00						
				06						
				12						
24	eP _n eS _n	12	02	44						
				03						
				00						
24	eP _n eS _n	12	54	23						
				13						
				04						
				29						
!!!										

D E C E M B E R 1964

9	eP _n e iS _n M ₁	18	30	06						BCIS: H=18:28:37 41,0° N; 21,0° E Yugosla- via region Bitola, Comp.
				31						
				42						
				54						
					3,0				11	
9	eP _n e	19	07	54						Repet.
				08						
				30						
10	iP _n iS _n	09	54	34						Dilat. Local
				35						
10	eP _n eS _n	15	23	32						
				33						
				19						
15	e i	13	24	10						Local, trace.
				11						
20	e e	05	37	49						BCIS: H=05:37:12 47,7° N; 16,1° E Austria, region Wienerneustadt.
				38						
				13						

Date	Phase	M h	G m	T s	Per. sec.	A m p l i t u d e			D ^o D km	Remarks
						NE	NW	Z		
22	eP _n eS _n	04	43	40						BCIS: H=04:36:34; 28,1° N; 9,9° E; h=30 km, Iran
				49						
				25						
22	iP _n iS _n	13	19	26						Local.
				26						
23	e	00	11	52						BCIS: H=00:10:50 44 1/2° N, 1,10° E, Italia, S from Modena. Interrup.
23	e	21	06	00						Interrup.
28	eP _n eS _n	16	34	56						Comp.
				37						
				12						
30	e	03	11	05						BCIS: H=03:10:13 48,4° N, 17,2° E.
31	e	16	21	18						BCIS: H=16:18:03; 35,8° N, 25,6° E; h=100 km. Crète.

MAKROSEIZMIČKI IZVJEŠTAJ
IZ S.R. HRVATSKE
MACROSEISMICAL REPORT
FROM S.R. CROATIA

Br. Nb.	Dan Date	Sr.evr.vr. M E T	Kotar District	Mjesto Locality	M.C.S. Sc.	Bilješke-Remarks
---------	----------	------------------	----------------	-----------------	------------	------------------

O Ž U J A K - M A R C H 1964

1	5	19 47	Zagreb	Zagreb Remetinec Lukavec	II II IV	
2	18	17 44	Rijeka Koper Pula	Rijeka Piran Rovinj Pula Poreč Novigrad Pazin Buje Buzet	IV IV II III IV IV IV V V	Area of felt shaking about 3.000 km ² .

T R A V A N J - A P R I L 1964

3	13	09 30	Bjelovar	Čazma Darugar Mardevac Garešnica Grubišno Polje Koprivnica Vrbovec Osijek Beli Manastir Bakovo D.Miholjac Kutjevo Lev.Varoš Našice N.Gradiška Dvor Novska Čaglin Orahovica Osijek Fleternica Podr.Slatina Ruševo Semeljci Sibinj Sl.Brod Podvinje Bukovje Trnava Lapovci	IV V V V V V III VI VII VI VI VIII VII VI III V VII VI VII VII VI VII VII VII VIII VIII VIII VIII	Two killed and many injured; major property damage more than 20,000.000.000 Din. Area of felt shaking about 130.000 km ² . Fault on the land latitude about 3 cm.
---	----	-------	----------	---	--	---

Br. Nb.	Dan Date	Sr.evr.vr. M E T	Kotar District	Mjesto Locality	M.C.S. Sc.	Bilješke-Remarks
				Novi Hrkanovci	VIII	
				Stari Hrkanovci	VIII	
				Majer	VIII	
				Valjevo	VII	
				Vrpolje	VII	
				Vukovar	VII	
				Slav.Požega	VI	
				Gernik	VI	
				Podukavlje	VIII	
				Musić	VIII	
				Šakovačka Breznica	VIII	
				Garčin	VII	
				Drenovci	VI	
				Strašinci	VI	
			Sisak	Glina	IV	
				Ivanić grad	IV	
				Kostajnica	IV	
				Sisak	III	
			Split	Makarska	III	
			Varaždin	Ivanec	III	
				Ludbreg	III	
			Zagreb	Dugo Selo	IV	
				Zagreb	IV	
				Zelina	IV	
4	15	23 41	Osijek	Đakovo	V	From 13-15.IV. about 30 after-shock.
5	16	13 09	Osijek	Levanjska Varoš	IV	
6	28	03 26	Rijeka	Senj	V	
7	29	11 03	Split	Split	II	

S V I B A N J - M A Y 1964

8	3	20 25	Rijeka	Francikovac	V	
				Senj	VI	
9	7	06 21	Rijeka	Senj	IV	
10	7	23	Rijeka	Novi Vinodolski	III	
11	22	09 52	Bjelovar	Virje	III	
				Trojstvo	III	
				Novigrad Pod.	V	
				Križevci	III	

Br. Nb.	Dan Date	Sr.evr.vr. M E T	Kotar District	Mjesto Locality	M.C.S. Sc.	Bilješke-Remarks
				Koprivnica	V	
				Kapela	III	
12	25	02 38	Bjelovar	Virje	V	Area of felt shaking about 12.000 km ² .
				Trojstvo	IV	
				Sokolovac	V	
				Novigrad Pod.	V	
				Križevci	III	
				Koprivnički Bregi	VII	
				Koprivnica	VII	
				Kapela	V	
				Grubišno Polje	III	
				Đurđevac	IV	
			Zagreb	Čazma	IV	
			Varaždin	Bjelovar	IV	
				Zagreb	II	
				Ludbreg	IV	
13	29	17 50	Osijek	Slab.Brod	IV	

L I P A N J - J U N E 1964

14	6	21 49	Bjelovar	Sokolovac	V	
				Novigrad Pod.	VI	
				Koprivnica	IV	
				Kapela	III	
15	28	17 57	Osijek	Trnava	IV	
				Lev.Varoš	IV	

S R P A N J - J U L Y 1964

16	7	14 59	Split	Hvar	II	
				Trogir	IV	
				Supetar	III	
				Drniš	IV	
17	17	05 53	Osijek	Lev.Varoš	IV	
				Slav.Brod	V	
18	22	05 25	Osijek	Slav.Brod	III	

R U J A N - S E P T E M B E R 1964

19	21	02 17	Zagreb	Zagreb	III	
----	----	-------	--------	--------	-----	--

Br. Nb.	Dan Date	Sr.evr.vr. MET	Kotar District	Mjesto Locality	M.C.S. Sc.	Bilješke-Remarks
---------	----------	----------------	----------------	-----------------	------------	------------------

L I S T O P A D - O C T O B E R 1964

20	28	21 02	Zagreb	Zagreb	II	
----	----	-------	--------	--------	----	--

P R O S I N A C - D E C E M B E R 1964

21	26	07 45	Osljek	Levanjska Varoš IV Slav.Požega IV Slav.Brod III		
----	----	-------	--------	---	--	--