

19 MAY 1970

STATE UNIVERSITY OF TIRANA  
TIRANA SEISMOLOGICAL STATION

P R E L I M I N A R Y  
S E I S M O L O G I C A L B U L L E T I N

Tirana 1970

STATE UNIVERSITY OF TIRANA  
TIRANA SEISMOLOGICAL STATION

1969

P R E L I M I N A R Y   S E I S M O L O G I C A L

B U L L E T I N

/ July - September 1969 /

STATE UNIVERSITY OF TIRANA  
TIRANA SEISMOLOGICAL STATION

PRELIMINARY SEISMOLOGICAL BULLETIN

from July 1, to September 30, 1969

| Location of station | Type of instrum. | Comp. | Ts sec | Tg sec | Ds   | Dg   | V    | Drumm speed mm/min |
|---------------------|------------------|-------|--------|--------|------|------|------|--------------------|
| +1° 20,8' N         |                  | Z     | 20     | 1,27   | 0,5  | 7,87 | 1050 | 30                 |
| 19° 52' E           | SSJ-1            | N     | 20     | 1,54   | 0,49 | 6,49 | 1050 | 30                 |
| <i>b</i> = 196,8 m  |                  | E     | 20     | 1,34   | 0,5  | 7,46 | 1000 | 30                 |

Ground condition: Tortonian sandstone

NOTE: Upward trace motion on the seismogramm corresponds to N,E and upward ground motion

m- magnitudes calculated from body waves

M- magnitudes calculated from surface waves

J U L Y 1 9 6 9

TIRANA (Tir)

Page 2

|     |     |      |                       |      |   |
|-----|-----|------|-----------------------|------|---|
| 2.  | Z   | e Pn | 07 57 21,5            | weak | BCIS: Nordeast of Rome, Italy   |
| 2.  | Z   | e Pg | 10 32 20,5            |      |   |
|     | NZ  | eiSg | 33 02,5               |      |   |
|     | NE  | e    | 26                    |      |   |
|     | Z   | i    | 36,5                  |      |   |
|     | Z   | i    | 34 19                 |      |   |
|     |     |      | D=320 km              |      | USCGS: H=10:31:22<br>39° 7 N 16° 7 E h=N Mb=4,3<br>Italy  |
| 3.  | Z   | e Pn | 09 42 56              |      |   |
|     | Z   | i Pg | 43 06                 |      |   |
|     | ZE  | i    | 24                    |      |   |
|     | E   | i Sn | 32                    |      |   |
|     | ZE  | i Sb | 42                    |      |   |
|     | NZ  | i Sg | 51                    |      |   |
|     | NEZ | i Lg | 44 01,5               |      |   |
|     | E   | Lm   | 44,1                  |      |   |
|     |     |      | D = 370 km            |      | A = 7 micron T = 2 sec.<br>BCIS: 09:42:05 38° ½ N 22° ¼ E<br>M <sub>L</sub> = 4,1 (Athens) Gulf of Corinth Greece   |
|     |     |      | M <sub>LH</sub> = 4,5 |      |   |
| 7.  | Z   | Lm   | 05 48,0               |      | USCGS: Mariana Islands  |
| 7.X | ZNE | i Pg | 18 12 46,5 DSE        |      | The shock was felt in dep. Tepelena (V + at Tepelena, V at Memaliaj, Buz, Krahas) IV at Permeti, Kelcyre, Benje, Mertinje (dep of Permeti) IV at Ballsh (dep of Fieri), IV at Berat (dep of Berati) BCIS: H=18:12:23 40° ¼ N 19° ½ M <sub>LH</sub> =3.5 (Skopje) Albania. |
|     | NE  | i Sg | 13 01,5               |      |   |
|     |     |      | D=125 km              |      |   |
|     |     |      | M <sub>LH</sub> =4,0  |      |   |

TIRANA (Tir)

July 1969

Page 3

|      |     |      |                         |  |   |
|------|-----|------|-------------------------|--|---|
| 8.   | ZNE | i Pn | 08 10 16,5 CNW          |  |   |
|      | Z   | i Pg | 29                      |  |   |
|      | Z   | i    | 33                      |  |   |
|      | NE  | i    | 46                      |  |   |
|      | NE  | i Sn | 58                      |  |   |
|      | EZ  | i Sg | 11 15,5                 |  |   |
|      | E   | Lm   | 12,9                    |  |   |
|      |     |      | D = 400 km              |  | A = 58 micron T = 4-5 sec   |
|      |     |      | M <sub>LH</sub> = 5¼-5½ |  | BCIS: H=08:09:15 37° 6 N 20° 3 E<br>M <sub>LV</sub> = 5,5 (Moxa); M <sub>LH</sub> = 5,5<br>(Strasb) M <sub>LH</sub> = 5,6 (Pruhon; Moxa)<br>M = 5,7 (Messina); M <sub>LH</sub> = 5,8 (Collm)<br>M <sub>LV</sub> = 5,9 (Wien H) M = 6,1 (Uppsala)<br>Ionian Islands, Greece. |
| 8.   | Z   | e    | 22 58 27                |  |   |
| 9. ✓ | ZNE | i Pg | 17 28 10,5 DSE          |  |   |
|      | ZNE | i Sg | 23                      |  |   |
|      | NE  | i    | 27                      |  |   |
|      | E   | Lm   | 28.8                    |  |   |
|      |     |      | D = 110 km              |  | A = 11 micron T = 1,5 sec.  |
|      |     |      | M <sub>LH</sub> = 4,2   |  | The shock was felt IV-V at Tepelena, Krahas, Buz, Progonat (dep of Tepelena); IV at Bskovec (dep of Fieri) III-IV at Permeti (dep of Permeti) BCIS: H=17:27:53 40° 3 N 19° 8 E<br>M <sub>LH</sub> = 3,7 (Skopje) M <sub>L</sub> = 3,7 (Athens)                              |
| 10   | Z   | e Pg | 02 47 22 weak           |  | From 02 <sup>h</sup> 00 <sup>m</sup> to 11 <sup>h</sup> 30 <sup>m</sup> , July 11.<br>The station was out of operation on account of trouble in the recording system.   |

| TIRANA (Tir) |          | July 1969             |  | Page 4 |
|--------------|----------|-----------------------|--|--------|
| 12.          | N e (Pg) | 00 20 37,5            | No record on Z component   |        |
|              | N i Sg   | 21 07,5               |  |        |
|              | N Lm     | 21.3                  |  |        |
|              |          | D = 310 km            | BCIS: H=00:19:36.38° 8 N 21° 5 E<br>Kremasta- Dam area, Greece   |        |
| 12.          | Z i P    | 13 13 04,5 D          |  |        |
|              | N e S    | 23 27,5               |  |        |
|              | NEZ Lm   | 54.2                  | A <sub>N</sub> = A <sub>Z</sub> = 5 micron A <sub>E</sub> = 6 micron<br>T <sub>N</sub> = T <sub>E</sub> = T <sub>Z</sub> = 15 sec.<br>USCGS: H=13:00:36,9 46° 5 N 153° 3 E<br>h=12 km Mb= 5,3 Ms= 5,3 Kurile Is-lands. |        |
|              |          | D = 83° 8             |  |        |
|              |          | M <sub>LH</sub> = 6.0 |  |        |
| 12.          | Z e P    | 19 29 04              |  |        |
|              | NZ Lm    | 20 10.9               | A <sub>N</sub> = 9 micron A <sub>Z</sub> = 6 micron<br>T <sub>N</sub> = T <sub>Z</sub> = 14 sec  |        |
| 16.          | Z i P    | 08 28 57,3 C          |  |        |
|              | N i S    | 38 58                 |  |        |
|              | NEZ Lm   | 09 02.0               | A <sub>E</sub> = 6 micron T <sub>E</sub> = 22 sec<br>D = 80° 2<br>M <sub>LH</sub> = 5.9<br>USCGS: H=08:16:53.3 52° 2 N 159° 0 E<br>h = 69 D Mb = 5.8 M = 6½ (Pas) 5.6-5.7<br>(Brk) Off east coast of Kamtchatka.       |        |
| 16.          | N e      | 11 58 16              |  |        |
| 17.          | NZ e Pg  | 22 20 55              |  |        |
|              | N i Sn   | 21 22                 |  |        |
|              | NZ i Sg  | 36                    |  |        |
|              |          | D=320 km              | Athens: H=22:19:55 39° 1 N 22° 3 E<br>M <sub>L</sub> = 3.4 Greece  |        |

| TIRANA (Tir) |           | July 1969  |   | Page 5 |
|--------------|-----------|------------|---|--------|
| 17.          | Z e Pn    | 23 02 16   |   |        |
|              | Z e Pg    | 31         |   |        |
|              | NE e Sn   | 03 02,5    |   |        |
|              | N i Sg    | 21         |   |        |
|              | N Lm      | 03.7       |   |        |
|              |           | D = 420 km | Athens: H=23:01:14 38° 9 N 23° 7 E<br>M <sub>L</sub> = 4,2 Ms = 4,5 Greece  |        |
| 18.          | Z i P     | 05 36 14 D |   |        |
|              | Z i       | 24,5       |   |        |
|              | Z i (PcP) | 37         |   |        |
|              | Z i       | 50         |   |        |
|              | Z i PPP   | 40 38      |   |        |
|              | N i S     | 05 45 35   |   |        |
|              | NE i PS   | 56         |   |        |
|              | E Lm      | 06 04.6    | A <sub>E</sub> = 210 micron T <sub>E</sub> = 24 sec<br>D = 72°<br>M <sub>LH</sub> = 7,2<br>USCGS: H=05:24:48 38° 3 N 119° 4 E h=N<br>Mb = 6,2 Ms = 7,3 M = 7 (Pas, Brk)<br>Northeastern China |        |
| 18.          | Z e Pn    | 21 01 40   |   |        |
|              | Z e Pg    | 52         |   |        |
|              | N i Sn    | 02 24      |   |        |
|              | NZ Lm     | 03.3       |   |        |
|              |           | D = 420 km | Athens: H=21:00:37 37° 5 N 19° 5 E<br>M <sub>L</sub> = 4,3 (reduced) Greece   |        |
| 19.          | Z i P     | 05 08 48 C |   |        |
|              | ZNE i PP  | 13 00      |   |        |
|              | E i SKS   | 19 27      |   |        |
|              | E Lm      | 51.6       | A = 10 micron T = 23 sec<br>D = 101° 5<br>M <sub>LH</sub> = 6 ¼<br>USCGS: H=04:54:54,1 17° 3 S 72° 5 W<br>h = 54 km Mb = 5,9 M = 5,7 (Pas) 5,9 (Brk)<br>Near Coast of Peru.                   |        |

| TIRANA (Tir) |     |       | July 1969    |   |  | Page 6 |
|--------------|-----|-------|--------------|---|--|--------|
| 20.          | NE  | e Sg  | 02 16 36     | Athens: Greece  |  |        |
| 21.          | Z   | e P   | 17 46 34     | BCIS: Mid-Atlantic ridge  |  |        |
| 21.          | NE  | e SKS | 22 30 32     | USCGS: Celebes Sea  |  |        |
| 23.          | Z   | e P   | 13 27 08     | USCGS: Near east coast of Honshu,<br>Japan  |  |        |
|              | Z   | Lm    | 14 09.0      |   |  |        |
| 23.          | N   | e Sn  | 22 36 26     | Athens: Greece  |  |        |
|              | N   | Lm    | 36.9         |   |  |        |
| 24.          | N   | i     | 00 42 40     | Athens: Greece  |  |        |
|              | N   | i Sg  | 43 18        |   |  |        |
| 24.          | Z   | e(P)  | 03 13 10     | USCGS: Huancayo, Peru   |  |        |
|              | N   | e(S)  | 25 02        |   |  |        |
| 24.          | N   | e(S)  | 13 05 18     | USCGS: Prince Edward Islands Region   |  |        |
|              | N   | e     | 06 10        |   |  |        |
| 24.          | ZNE | e P   | 23 23 22,5   | BCIS: H=23:21:20 34° 9 N 26° 0 E<br>h = 75 ± 25 km Crete Island Greece  |  |        |
|              | E   | e S   | 25 05        |   |  |        |
|              |     |       | D=9° 2       |   |  |        |
| 25.          | Z   | i PP  | 06 23 53 D   | USCGS: Argentina<br>From 08 <sup>h</sup> 00 <sup>m</sup> - 08 <sup>h</sup> 56 <sup>m</sup> , July 25, no<br>record of trouble in the recording system |  |        |
|              | Z   | i     | 29 18        |   |  |        |
| 25.          | ZNE | i P   | 23 01 37,2 D | USCGS: Eastern China  |  |        |
|              | N   | Lm    | 33.9         |   |  |        |
| 27.          | Z   | i PKP | 02 34 00     | USCGS: New Hebrides Islands   |  |        |

| TIRANA (Tir) |   |     | July 1969  |   |  |
|--------------|---|-----|------------|---|--|
| 27.          | Z | e P | 21 33 42   | USCGS: H=21:21:40,6 59° 4 N 145° 3 E<br>h=N Mb=5,3 Ms=5,3 M=5,5 (Pas)<br>5,4 (Brk) Gulf of Alaska |  |
|              | N | i S | 43 43      |   |  |
|              |   |     | D=79° 5    |   |  |
| 28.          | Z | e P | 13 15 53,7 | USCGS: Japan  |  |
| 31.          | Z | Lm  | 12 16,3    | USCGS: Aleutian Islands   |  |

|    |     |       |                       |                         |                     |                 |  |  |  |
|----|-----|-------|-----------------------|-------------------------|---------------------|-----------------|--|--|--|
| 1. | Z   | i P   | 23 56 08,5            |                         |                     |                 |  |  |  |
|    | N   | e S   | 00 06 24,5            |                         |                     |                 |  |  |  |
|    | N   | Lm    | 37.6                  | A = 10,5 micron         | T = 19 sec          |                 |  |  |  |
|    |     |       |                       | D = 83°                 |                     |                 |  |  |  |
|    |     |       | M <sub>LH</sub> = 6,2 | USCGS: H=23:43:44,9     | 45° 6 N 150° 9 E    |                 |  |  |  |
|    |     |       |                       | h = 38 km               | Mb = 5,6 Ms = 5,9   | Kurile Islands  |  |  |  |
| 2. | Z   | e     | 13 35 03,5            | very weak               |                     |                 |  |  |  |
| 3. | Z   | e Pg  | 04 56 47              |                         |                     |                 |  |  |  |
|    | NE  | i Sg  | 55                    |                         |                     |                 |  |  |  |
|    |     |       |                       | D = 65 km               | Albania             |                 |  |  |  |
| 3. | ZN  | e P   | 08 00 40              |                         |                     |                 |  |  |  |
|    | N   | Lm    | 35.3                  | USCGS: Kurile Islands   |                     |                 |  |  |  |
| 3. | ZN  | e Pn  | 09 31 28              | Athens: Greece          |                     |                 |  |  |  |
| 4. | ZE  | eiPg  | 13 43 56              | very weak               |                     |                 |  |  |  |
| 4. | ZE  | i     | 17 36 50,5            |                         |                     |                 |  |  |  |
|    | NE  | i     | 37 04,5               |                         |                     |                 |  |  |  |
|    | Z   | e PPP | 39 24,5               |                         |                     |                 |  |  |  |
|    | NEZ | i     | 42 22,5               |                         |                     |                 |  |  |  |
|    | NE  | i SKS | 43 08,5               |                         |                     |                 |  |  |  |
|    | N   | i(S)  | 35,5                  |                         |                     |                 |  |  |  |
|    | EZ  | i PS  | 46 25,5               |                         |                     |                 |  |  |  |
|    |     |       |                       | D = 105° 3              | USCGS: H=17:19:19,6 | 5° 7 S 125° 3 E |  |  |  |
|    |     |       |                       |                         | h = 521 km          | Banda Sea       |  |  |  |
| 4. | N   | e(S)  | 10 46 41,5            | USCGS: Aleutian Islands |                     |                 |  |  |  |

|              |             |       |              |                          |                     |                 |              |  |  |
|--------------|-------------|-------|--------------|--------------------------|---------------------|-----------------|--------------|--|--|
|              |             |       |              |                          |                     |                 |              |  |  |
| TIRANA (Tir) | August 1969 |       |              | Page 9                   |                     |                 |              |  |  |
| 5.           | Z           | e P   | 02 27 00     |                          |                     |                 |              |  |  |
|              | E           | i     | 37 35,5      |                          |                     |                 |              |  |  |
|              | E           | i     | 47,5         |                          |                     |                 |              |  |  |
|              | N           | e S   | 38 33,5      |                          |                     |                 |              |  |  |
|              | NE          | i     | 51,5         |                          |                     |                 |              |  |  |
|              | N           | i PS  | 40 17,5      |                          |                     |                 |              |  |  |
|              | N           | Lm    | 03 16.3      | A = 45 micron            | T = 21 sec.         |                 |              |  |  |
|              |             |       |              | D = 101° 3               |                     |                 |              |  |  |
|              |             |       |              | M <sub>LH</sub> = 7.0    | USCGS: H=02:13:09,6 | 1° 3 N 126° 2 E |              |  |  |
|              |             |       |              |                          | h=34 km             | Mb=5,3 Ms=5,3   | Molucca Pas- |  |  |
|              |             |       |              |                          | sage.               |                 |              |  |  |
| 5.           | Z           | e PKP | 16 51 16     |                          |                     |                 |              |  |  |
|              | Z           | e     | 53 15        | USCGS: New Irland Region |                     |                 |              |  |  |
| 6.           | Z           | i P   | 15 52 17,5 C | BCIS: Mid-Atlantic ridge |                     |                 |              |  |  |
| 7.           | Z           | e Pg  | 00 55 04,5   |                          |                     |                 |              |  |  |
|              | N           | e Sg  | 13,5         |                          |                     |                 |              |  |  |
|              |             |       |              | D = 80 km                |                     |                 |              |  |  |
| 7.           | NE          | e Sg  | 09 19 43     | weak                     |                     |                 |              |  |  |
| 7.           | Z           | e Pg  | 12 58 17,5   |                          |                     |                 |              |  |  |
|              | N           | e Sg  | 24,5         |                          |                     |                 |              |  |  |
|              |             |       |              | D = 60 km                |                     |                 |              |  |  |
| 8.           | Z           | i P   | 06 38 08,5   |                          |                     |                 |              |  |  |
|              | Z           | i     | 50,5         |                          |                     |                 |              |  |  |
|              | Z           | ipP   | 39 12,5      |                          |                     |                 |              |  |  |
|              | ZE          | iPP   | 49           |                          |                     |                 |              |  |  |
|              | Z           | i     | 40 44,5      |                          |                     |                 |              |  |  |
|              | NE          | i(S)  | 44 00        |                          |                     |                 |              |  |  |
|              |             |       |              | D = 40°                  | BCIS: H=06:31:10    | 36° 5 N 70° 5 E |              |  |  |
|              |             |       |              |                          | h = 320 ± 25 km     | Hindukush       |              |  |  |

8. Z e P 11 21 32  
N e SKS 32 07  
N i(S) 48

$D = 96^{\circ} 0$  USCGS: H=11:08:14,8 47° 7S 15° 8 W  
h=N Mb=5,9 Ms=6,0 South Atlantic ridge.

From 18<sup>h</sup>55<sup>m</sup>, August 8 till 10<sup>h</sup>53<sup>m</sup>  
August 9, no record on account of trouble in the clock system

9. ZNE i Pg 16 25 54 DNW  
ZNE i Sg 26 09  
N Lm 26,7

A = 46 micron T = 2 - 3 sec

$D = 130 \text{ km}$

$M_{LH} = 4\frac{3}{4}$

The shock was felt: in dep of Shkodra (V + at Shkodra, Renc; V at Nicaj, Shale, Luarez, Kuç, Zogaj; IV-V at Koplik) in dep. of Lezha: (V at Gjader, IV-V at Lezha, Ishull-Lezhe; IV at Kashnjet, Zejmen) in dep of Puka: (IV at Fushe Arrez, Korthipule; III-IV at Koman, Dardhe); III at Tirana. The shock was not felt in dep of Kukës and Tropoje.

BCIS: H=16:25:36 42° 3 N 19° 2 E  
h=50km± 7 km M=5 (Beograd)  $M_{LV} = 4,9$  (Wien H);  $M_{LH} = 4,1$  (Skopje);  $M_{LH} = 4$  (Pruhonice) Yugoslavia.

The shock was felt VI in region of Titograd, V in region of Kotori.

9. Z i Pg 17 01 22 DNW  
NE i Sg 38,5

$D = 140 \text{ km}$

M = 4½

BCIS: H=17:01:04 42° 3 N 19° 2 E  
h=50±25 km M=4,2 (Beograd)  $M_{LV} = 4,1$  (Wien H)  $M_{LH} = 3,5$  (Skopje); 3,4 (Pruhonice) Near Albania-Yugoslavia border region.

11. Z e Pn 13 56 41,5  
ZNE e Sn 57 46,5  
N Lm 14 00,6

$D = 670 \text{ km}$

$M_{LH} = 4,3$

A = 4 micron T = 8 sec

BCIS: H=13:55:09 43° 2 N 12° 2 E

Ombrie, Central Italy  $M_{LH} = 4,7$  (Roma)

11. Z i P 21 39 03 C USCGS: Kurile Islands

11. ZNE i P 21 39 58 CSW  $A_Z = 9 \text{ micron}$   $T_Z = 7,6$

$D_c = 83^{\circ} 4$

$m = 7,6$

USCGS: H=21:27:39,4 43° 5 N 147° 4 E

h=28 km Mb=7,1 Ms=7,8 M=7,6 (Brk)

7,8 (Pas) Ms=7,9 (Ath) Kurile Islands

12. Z e P 03 46 04,5

Z i 30

N i S 56 28,5

$D = 84^{\circ} 8$

USCGS: Kurile Islands

12. Z i P 05 06 03,5 C USCGS: Kurile Islands

12. Z i P 05 15 54,5 C A = 5,5 micron T = 5 sec

N i S 26 11,5

ZE i 25,5

$D = 83^{\circ} 4$

$m = 7,2$

USCGS: H=05:03:26,9 43° 6 N 148° E

h=N Mb=6,0 Ms=6,5 Kurile Islands

12. Z e P 09 38 06

N i S 48 25

$D = 83^{\circ} 6$

USCGS: H=09:25:38,7 43° 1 N 147° 6 E

h=N Mb= 5,3 Ms=5,4 Kurile Islands

12. Z e P 09 46 06 USCGS: Kurile Islands



|     |     |      |                         |     |  |
|-----|-----|------|-------------------------|-----|--|
| 12. | Z   | i P  | 11 33 49                | CSW |  |
|     | NE  | i S  | 44 11                   |     |  |
|     | ZNE | Lm   | 12 15,1                 |     | $A_N = 31$ micron; $A_E = 19$ micron;      |
|     |     |      | $D = 83^\circ 5$        |     | $A_Z = 59$ micron $T_N = T_Z = 17$ sec     |
|     |     |      | $M_{LH} = 6\frac{3}{4}$ |     | $T_E = 15$ sec.                            |
|     |     |      | $M_{LV} = 7,0$          |     | USCGS: H=11:21:21;6 43° 9 N 148° 7         |
|     |     |      |                         |     | h=29 Mb=5,4 Ms=6,3 M=6 (Brk)               |
|     |     |      |                         |     | Kurile Islands                             |
| 12. | Z   | e P  | 13 30 33                |     |  |
|     | N   | e S  | 40 56                   |     |  |
|     |     |      | $D = 85^\circ$          |     | USCGS: H=13:18:08,2 43° 5 N 148°           |
|     |     |      |                         |     | h=N Mb=5,6 Kurile Islands.                 |
| 12. | Z   | e P  | 21 28 36                |     | USCGS: Off coast of Hokkaido, Japan        |
| 12. | Z   | e(P) | 23 18 23                |     | USCGS: Near Kurile Islands Region          |
| 13. | Z   | e    | 02 19 35                |     |  |
| 13. | Z   | e P  | 03 41 18                |     | USCGS: Kurile Islands                      |
| 13. | Z   | e Pn | 04 06 57                |     |  |
|     | Z   | i    | 07 02,5 C               |     |  |
|     | E   | i Sn | 39                      |     |  |
|     | ZNE | i Lg | 52                      |     |  |
|     | N   | Lm   | 08,5                    |     | $A = 7,5$ micron $T = 3$ sec               |
|     |     |      | $D = 370$ km            |     | BCIS: H=04:06:02 38° 4N 21° 7 E            |
|     |     |      | $M_{LH} = 4,6$          |     | $M_L = 4,4$ (Athens) $M_{LV} = 4,1$ (Wien) |
|     |     |      |                         |     | Greece                                     |

|     |     |      |                  |      |  |
|-----|-----|------|------------------|------|--|
| 13. | Z   | i P  | 08 43 56         | C    |  |
|     | NE  | e S  | 54 12,5          |      |  |
|     | N   | Lm   | 09 24,1          |      | $A = 7,7$ micron $T = 17$ sec                  |
|     | Z   | Lm   | 24,6             |      | $A = 7,3$ micron $T = 16$ sec                  |
|     |     |      | $D = 83^\circ$   |      |  |
|     |     |      | $M_{LH} = 6,2$   |      | USCGS: H=08:31:32,2 44° N 147° 7 E             |
|     |     |      |                  |      | h=N Mb=5,6 Ms=5,6 M=5,6 (Brk)                  |
|     |     |      |                  |      | 5¼ - 5½ (Pal) 5½ - 5¼ (Gol)                    |
|     |     |      |                  |      | Kurile Islands                                 |
| 13. | Z   | e    | 17 19 52         |      |  |
|     | Z   | Lm   | 18 01,1          |      |  |
| 13. | N   | e Sg | 22 49 02         | weak | Athens: Greece                                 |
| 13. | Z   | i P  | 23 09 31         | C    |  |
|     | NE  | e S  | 19 51            |      |  |
|     | Z   | Lm   | 53,1             |      | $A = 13$ micron $T = 20$ sec.                  |
|     |     |      | $D = 83^\circ 2$ |      |  |
|     |     |      | $M_{LV} = 6,3$   |      | USCGS: Kurile Islands                          |
| 14. | Z   | i P  | 14 31 28         | C    |  |
|     | Z   | i    | 46               |      |  |
|     | Z   | i    | 32 03,5          |      |  |
|     | N   | i S  | 41 47            |      |  |
|     | NE  | e    | 51 38            |      |  |
|     | ZNE | Lm   | 15 13,3          |      | $A_N = 57$ micron; $A_E = 51$ micron           |
|     |     |      | $D = 83^\circ 6$ |      | $A_Z = 78$ mic; $T_E = 18$ sec; $T_Z = 15$ sec |
|     |     |      | $M_{LH} = 7,0$   |      | $T_N = 16$ sec.                                |
|     |     |      | $M_{LV} = 7,2$   |      | USCGS: H=14:19:01,6 43° 1 N 147° 5 E           |
|     |     |      |                  |      | h=N Mb=6,1 Ms=6,5 M=5½ (Pal);                  |
|     |     |      |                  |      | 6,4 (Brk) 6,5 (Pas) Kurile Islands             |
| 14. | ZNE | e Sn | 21 53 43         |      |  |
|     | N   | Lm   | 54,8             |      | USCGS: Turkey                                  |

TIRANA (Tir)

August 1969

Page 14

15. Z *iP* 04 44 28 C  
 Z *i pP* 40  
 N *iS* 54 50  
 Z *Lm* 05 26.8 A = 12 micron T = 15 sec.  
 D = 84° 2  
 M<sub>LV</sub> = 6,3 USCGS: H=04:32:00,4 43° 0 N 147° 9 E  
 h=N Mb=5,6 Ms= 5,5 Kurile Islands
15. Z *iP* 08 54 56,5 C  
 Z *e pP* 56 08,5  
 ZNE *i SKS* 09 05 05  
 ZNE *i* 57,5  
 ZNE *ie* 07 20  
 D = 100° 5 USCGS: H=08:41:54,9 21° 6 N 143° 0 E  
 h= 319 km Mb= 6,1 Mariana Islands
15. Z *e eP* 10 14 47,5  
 N *iS* 25 09,5  
 Z *Lm* 57,3  
 D = 83° 6 USCGS: Kurile Islands
16. Z *i iP* 15 27 55 C  
 NE *i iS* 38 15  
 Z *Lm* 16 07.4  
 D = 84° USCGS: H=15:15:32,7 43° 3 N 147° 6 E  
 h =60 km Mb=5,7 M=4.9-5.1 (Brk)  
 5½-5¼ (Pal) Kurile Islands
16. N *e(S)* 17 36 30
17. N *e Sg* 04 44 22,5 Athens: Greece

TIRANA (Tir)

August 1969

Page 15

17. Z *eP* 12 06 58  
 Z *e pP* 07 31  
 E *iS* 16 58  
 D = 81° USCGS: H=11:54:54,9 42° 7 N 141° 4 E  
 h= 130 km Mb= 5,6 Hokkaido, Japan.
17. Z *e Pn* 18 13 04 weak  
 Z *e Pg* 20 Athens: Greece
17. Z *eP* 20 26 48 USCGS: Kalifornia
17. Z *eP* 20 28 34  
 Z *e* 33 00  
 Z *e PPP* 34 46  
 E *Lm* 21 08.0 A = 60 micron T = 20 sec  
 D = 99°  
 M<sub>LH</sub> = 7,1 USCGS: H=20:14:58,9 25° 0 N 109° 5 W  
 h=N Mb=6,1 Ms=6,6 Gulf of Kalifornia
18. Z *e PKP<sub>1</sub>* 01 23 51  
 Z *i PKP<sub>2</sub>* 24 09  
 Z *i* 39  
 Z *i* 25 30  
 Z *i* 27 16  
 Z *i(PKS)* 26  
 Z *i PP* 47,5  
 Z *i* 28 22  
 Z *e(SKS)* 31 02  
 Z *i PcPPKP* 32 16  
 N *Lm* 02 33.0 A = 4 micron T = 22 sec.  
 D = 152° 5  
 M<sub>LH</sub> = 6,2 USCGS: H=01:04:04,7 56° 0 S 123° 4 W  
 h=N Mb=5,1 Ms=6,5 Eastern Island  
 Cordillere.

| TIRANA (Tir) |    | August 1969              |                | Page 16   |
|--------------|----|--------------------------|----------------|---|
| 18.          | Z  | <i>e PKP<sub>1</sub></i> | 03 15 23       |   |
|              | Z  | <i>i</i>                 | 34             | USCGS: Eastern Island Cordillere  |
| 18.          | Z  | <i>e P</i>               | 11 55 56       |   |
|              | N  | <i>e S</i>               | 12 06 17       |   |
|              |    |                          | $D = 84^\circ$ | USCGS: H=11:43:30,5 43° 8 N 148° 6 E<br>h=39 km Mb=5,4 Ms=5,1 Kurile Islands                            |
| 19.          | E  | <i>e(S)</i>              | 02 02 39       | USCGS: Sunda Strait   |
| 19.          | Z  | <i>i P</i>               | 09 02 19       | $A_{\max} = 3,2$ micron $T_{\max} = 10$ sec   |
|              | Z  | <i>i pP</i>              | 32,5           |   |
|              | Z  | <i>e</i>                 | 49,5           |   |
|              | NZ | <i>i S</i>               | 12 37,5        |   |
|              | Z  | <i>Lm</i>                | 43.5           | $A = 40$ micron $T = 15$ sec.   |
|              |    |                          | $D=83^\circ 5$ |   |
|              |    |                          | $M_{LV}=6,9$   |   |
|              |    |                          | $m=6,5$        | USCGS: H=08:49:54,8 43° 8 N 148° 2 E<br>h= 39 km Mb=5,7 Ms=5,8 M=6,1 (Brk)<br>M=6½ (Pal) Kurile Islands |
| 19.          | Z  | <i>e PP</i>              | 17 47 21,5     | USCGS: Juju Province, Argentina   |
| 20.          | Z  | <i>i P</i>               | 08 02 20 C     |   |
|              | Z  | <i>e pP</i>              | 48             |   |
|              | Z  | <i>i</i>                 | 59             |   |
|              | N  | <i>i S</i>               | 12 20          |   |
|              | N  | <i>i</i>                 | 31             |   |
|              |    |                          | $D = 82^\circ$ | USCGS: H=07:50:05,5 47° 9 N 153° 6 E<br>h= 73 km Kurile Islands   |
| 21.          | Z  | <i>e P</i>               | 00 41 02,5     |   |
|              | Z  | <i>Lm</i>                | 01 23,2        | USCGS: Kurile Islands   |

| TIRANA(Tir) |   | August 1969 |            | Page 17   |
|-------------|---|-------------|------------|---|
| 21.         | Z | <i>e P</i>  | 02 05 52,5 |   |
|             | Z | <i>Lm</i>   | 10.2       | BCIS: Off east of Crete Island  |
| 21.         | Z | <i>e P</i>  | 02 56 28   | USCGS: Kurile Islands   |
| 21.         | Z | <i>i P</i>  | 03 44 37 C |   |
|             | Z | <i>Lm</i>   | 04 27.2    | USCGS: Kurile Islands   |
| 21.         | Z | <i>i P</i>  | 13 36 25 C |   |
|             | Z | <i>i pP</i> | 37         |   |
|             | Z | <i>Lm</i>   | 14 17.3    | USCGS: Kurile Islands   |
| 21.         | Z | <i>Lm</i>   | 15 25.8    | USCGS: Kalifornia   |
| 22.         | Z | <i>e P</i>  | 04 52 53   |   |
|             | N | <i>e(S)</i> | 05 03 15   |   |
|             | Z | <i>Lm</i>   | 34.3       | USCGS: H=04:40:26,1 43° 1 N 148° 3 E<br>h=60 km Mb=4,8 Kurile Islands |
| 22.         | Z | <i>Lm</i>   | 11 04.6    | USCGS: Kalifornia   |
| 23.         | Z | <i>e P</i>  | 06 51 57   | USCGS: Off east coast of Honshu, Japan                                |
| 24.         | Z | <i>Lm</i>   | 22 57.9    | USCGS: near Honshu, Japan   |

26. ZNE *iPg* 02 15 45 DNE

V ZNE *iSg* 55,5

$D = 90 \text{ km}$

$M_{LH} = 4,6$

Macroseismic epicenter is situated in department of Peshkopi near village Kovashica e Shupenzenes:

$41^{\circ} 34' \text{ N } 20^{\circ} 24' \text{ E}$

$I_0 = VI\frac{1}{2} \text{ (MSK)}$

The shock was felt: in dep of Peshkopi: ( $VI\frac{1}{2}$  at Kovashica e Shupenzenes: VI + at Cerenec, Topojan, ZallDardhe, Brezhdan; VI at Erebare, Peshkopi, Llado merice; V-VI at Klenje) in dep of Kukesi (V+ at Kukes, Thirre, Xhuxhe, Bushtrice, Domen, BregManez; V at Tuci; IV at Qam, Shemeri); in dep of Puka (V+ at Gjegjan; V at Iballe, IV at Puka, Dardhe); in dep of Rresheni (V+ at Perlat); in dep of Burreli (V at Burreli, Bushkash Stojan); in dep of Librazhdi (IV at Hotoisht); in dep of Kruja (IV at Luz, Zalle; III-IV at Kruja) The shock was further reported IV at Tropoja, III-IV at Tirana, Elbasan; III at Pogradec.

BCIS: H=02 15.33  $41^{\circ} 5' \text{ N } 20^{\circ} 5' \text{ E}$

$M = 5,1$  (Beograd)  $M_{LV} = 4,8$  (Wien)

$M_L = 4,6$  (Athens)  $M_{LH} = 4,5$  (Pruhonicce)  $M_{LH} = 4,4$  (Skopje). Albania

The shock was felt V- VI at Debar, III in region of Titograd.

26. Z *ePg* 09 12 06

N *eSg* 12,5

$D = 55 \text{ km Albania}$

27. Z *Lm* 02 04.5 USCGS: Kurile Islands

27. Z *iP* 03 38 38,5 C

Z *iP* 57,5

Z *Lm* 04 19.9 USCGS: Kurile Islands

27. ZNE *iSKS* 13 45 55 USCGS: Southern Soumatra

28. E *Lm* 04 24.9 USCGS: Tadghik-Sinkiang border region

28. Z *iPKP<sub>1</sub>* 14 14 27

Z *i(PKP<sub>2</sub>)* 15 04 No record on NS component

Z *Lm* 15 39.9 USCGS: Kermadec Islands region

28. Z *Lm* 22 28.9 USCGS: Kurile Islands

30. E *eS* 07 34 25 No record on NS component Initial motion of P was lost during change of paper, on account of trouble in the recording system

Z *Lm* 08 05.8 USCGS: Kurile Islands

30. Z *iP* 08 40 31 No record on NS component USCGS: Kurile Islands From  $09^{\text{h}}10^{\text{m}}$  till  $10^{\text{h}}10^{\text{m}}$ , August 30, no record on account of trouble in the recording system.

31. E *iSKS* 13 28 11 USCGS: Southern Soumatra

31. Z *ePg* 21 10 39,5 Athens: Greece

S E P T E M B E R 1 9 6 9

TIRANA (Tir)

Page 20

|    |          |                      |                                    |
|----|----------|----------------------|------------------------------------|
| 1. | N e L    | 23 32.9              | USCGS: Western Iran                |
| 3. | N e P    | 16 33 20,5           | No record on Z component           |
|    | NE e S   | 44 06,5              |                                    |
|    | E Lm     | 17 09.8              | USCGS: South of Honshu, Japan      |
| 4. | ZNE i P  | 03 21 16,5 C         |                                    |
|    | NE e S   | 31 38,5              |                                    |
|    | N Lm     | 04 06.3              | A = 5,5 micron. T = 18 sec         |
|    |          | D=83°6               |                                    |
|    |          | M <sub>LH</sub> =6,1 | USCGS: H=03:08:52,0 46°6 N 153°5 E |
|    |          |                      | h=N Mb=5,4 Ms=5,7 Kurile Islands   |
| 4. | ZN e(Pg) | 07 44 20,5 weak      |                                    |
| 4. | N e      | 15 38 47,8 weak      |                                    |
| 4. | Z e P    | 17 22 35,5           |                                    |
|    | NE e(SS) | 25 52,5              |                                    |
|    | N e      | 28 26,5              | USCGS: Jordan-Syria region         |
| 4. | Z e P    | 19 27 31,8           | No record on NS component          |
|    | E e SS   | 29 18,8              |                                    |
|    | E i      | 38,8                 |                                    |
|    | E Lm     | 30.3                 | BCIS: Off east of Crete Island     |
| 4. | Z i P    | 21 24 59,2 C         | USCGS: Kurile Islands              |
| 5. | Z i P    | 11 54 40,5 C         | USCGS: Taiwan region, China        |
| 5. | E e      | 18 01 34             |                                    |

TIRANA (Tir)

September 1969

Page 21

|    |                      |                       |  |
|----|----------------------|-----------------------|--|
| 6. | ZE i P               | 14 36 00,5 CE         |  |
|    | Z i                  | 28,5                  |  |
|    | Z i PP               | 38,5                  |  |
|    | E i S                | 40 17,5               |  |
|    | E i                  | 24,5                  |  |
|    | N i SS               | 41 17,5               |  |
|    | E i                  | 42 30,5               |  |
|    | E Lm                 | 50.1                  | A = 10 micron T = 15 sec   |
|    |                      | D = 24°9              |  |
|    |                      | M <sub>LH</sub> = 5,4 | BCIS: H=14:30:35 36°9 N 12°0 W   |
|    |                      |                       | M <sub>PH</sub> =M <sub>PV<sub>i</sub></sub> = 6,3 (Coll); M <sub>PV<sub>k</sub></sub> = 6,1 |
|    |                      |                       | (Coll); M <sub>PV</sub> = 6,1 (Bens. Moxa) M <sub>LH</sub> = 6,0                             |
|    |                      |                       | (Srobarova) M <sub>LH</sub> = 5,8 (Coll); 5,7 (Moxa);  |
|    |                      |                       | M <sub>LV</sub> = 5,6 (Moxa) North Atlantic Ocean.   |
| 6. | Z e PKP <sub>1</sub> | 15 09 08,5 C          |  |
|    | ZNE i                | 12 35,5               | USCGS: Solomon Islands   |
| 6. | Z e PKP <sub>1</sub> | 17 27 15,5            |  |
|    | ZE i                 | 30 43,5               | USCGS: Solomon Islands   |
| 6. | Z i P                | 20 32 38,5 C          |  |
|    | E i S                | 34 14,5               |  |
|    |                      | D = 8°5               | BCIS: H=20:30:42 36°8 N 28°3 E   |
|    |                      |                       | h = 85 ± 15 km M <sub>PV</sub> = 5,4 (Moxa)  |
|    |                      |                       | M <sub>L</sub> = 4,5 (Athens) M <sub>LH</sub> = 3,9 (Skopje)                                 |
|    |                      |                       | Dodecanese Islands   |
| 7. | Z e(Pg)              | 09 41 26,5 weak       |  |
| 9. | ZNE e P              | 05 28 13              |  |
|    | NE i S               | 38 38                 |  |
|    | E Lm                 | 06 06.5               | A = 40 micron T = 14 sec   |
|    |                      | D = 84°9              |  |
|    |                      | M <sub>LH</sub> = 7,0 | USCGS: H=05:15:37,7 350,7 N 137°0 E  |
|    |                      |                       | h=29 km Mb=5,5 Ms=6(Pas) Honshu  |
|    |                      |                       | Japan.   |

| TIRANA (Tir) |         | September 1969 |         | Page 22                                      |
|--------------|---------|----------------|---------|--|
| 10.          | ZE i P  | 12 17          | 51,5 CW |  |
|              | NE e    | 21 09          |         |  |
|              | E Lm    | 24.7           |         | BCIS: Turkey                                 |
| 11.          | Z e Pg  | 00 05          | 16,5    |  |
|              | N i Sg  |                | 23      |  |
|              |         | D = 60 km      |         | Athens: H=00:05:06 40° 9 N 19° 4 E           |
|              |         | H=00:05:06,5   |         | Albania                                      |
| 11.          | Z e P   | 03 29          | 39,5    | USCGS: Ryukyu Islands                        |
| 11.          | Z e Pg  | 08 05          | 06,5    |  |
|              | NE i Sg |                | 24,5    |  |
|              |         | D = 160 km     |         | Athens: 39° 9 N 20° 3 E $M_L = 3,9$          |
| 12.          | Z i P   | 09 09          | 43 C    |  |
|              | Z i PP  | 13 09          |         |  |
|              | Z i PPP | 15 00          |         |  |
|              | NE i S  | 20 12          |         |  |
|              | NEZ Lm  | 55.0           |         | $A_N = 29,5$ micron; $A_E = 27,5$ micron;    |
|              |         | D=86° 4        |         | $A_Z = 34$ micron $T_N = T_E = T_Z = 18$ sec |
|              |         | $M_{LH} = 6,8$ |         | USCGS: H=08:57:07,3 51° 2 N 179° 2 W         |
|              |         | $M_{LV} = 6,9$ |         | h=48 km M=6,2 (Pas); 5,9-6,1 (Brk);          |
|              |         |                |         | 7 (Pal); 6,5 (Gol); 6,3 (CGS) Mb=6           |
|              |         |                |         | Ms=6,6 Andreanof Islands, Aleutian Islands   |
| 14.          | Z e PP  | 14 55          | 43,5    | BCIS: Sinkiang Province, China               |
| 14.          | ZE e P  | 16 23          | 08,5    |  |
|              | ZE i PP | 24 46,5        |         |  |
|              | E Lm    | 40             |         | A = 3.3 micron T = 20 sec                    |
|              |         | D=41° 3        |         | BCIS: H=16:15:25 39° 6 N 75° 0 E             |
|              |         | $M_{LH} = 5,3$ |         | $M_L = 5,8$ (Collm) Sinkiang Province China  |

| TIRANA (Tir) |          | September 1969 |       | Page 23   |
|--------------|----------|----------------|-------|---|
| 17.          | ZN i P   | 18 53          | 18 CN |   |
|              | ZN i PcP |                | 23,3  |   |
|              | NZ Lm    | 20 35.2        |       | $A_N = 44$ micron $A_Z = 30$ micron $T_N = T_Z =$ |
|              | E Lm     | D = 84° 1      |       | = 20 sec $A_E = 39,5$ micron $T_E = 20$ sec       |
|              |          | $M_{LH} = 6,4$ |       | USCGS: H=18:40:45,8 31° 1 N 131° 3 E              |
|              |          |                |       | h=8 km Mb=6,2 Ms=5,9 M=5½ (Brk)                   |
|              |          |                |       | Kyushu, Japan                                     |
| 19.          | Z e P    | 01 43          | 00    |   |
|              | NE e S   |                | 54 11 |   |
|              |          | D = 97° 2      |       | USCGS: H=01:29:37,4 6,1 N 125,4 E                 |
|              |          |                |       | h=95 km Mb = 5,7 Minandao, Philippine Islands     |
| 19.          | NE Lm    | 22 26.0        |       | Athens: Greece                                    |
| 20.          | NE e S   | 01 09 47       |       | USCGS: North Atlantic Ocean                       |
| 20.          | N e S    | 01 20 36       |       | USCGS: North Atlantic Ocean                       |
| 20.          | ZNE i P  | 05 16 03       | CSE   | $A_Z = 5$ micron $T_Z = 8$ sec                    |
|              | Z i(PP)  | 17 22          |       |   |
|              | E i S    | 21 44          |       |   |
|              | N i      | 54             |       |   |
|              | E Lm     | 32.6           |       | $A_E = 44,5$ micron $T_E = 17$ sec                |
|              |          | D=36° 6        |       |   |
|              |          | $M_{LH} = 6,3$ |       |   |
|              |          | m = 6½         |       | USCGS: H=05:08:57,6 58° 3 N 32° 2 W               |
|              |          |                |       | h = N Mb=5,6 Ms=6 M=6(Brk),                       |
|              |          |                |       | 6½-6½ (Gol) North Atlantic Ocean                  |
| 20.          | Z e P    | 15 45 53       |       |   |
|              | NE e     | 55 57          |       |   |

|     |     |       |                       |   |
|-----|-----|-------|-----------------------|---|
| 22. | Z   | e P   | 01 57 06,5            | No record on NS component                                       |
|     | E   | e S   | 02 07 55,5            |   |
|     |     |       | D = 77° 8             |   |
|     |     |       | M <sub>LH</sub> = 5,7 | USCGS: H=01:46:13,5 2° 9 N 95° 9 E                              |
|     |     |       |                       | h=N Mb=5,3 Ms=5,8 Off W. coast of Northern Soumatra.            |
| 22. | Z   | i P   | 13 57 51,2            |   |
|     | Z   | i     | 58 07,2               |   |
|     | NE  | i S   | 14 06 05,2            |   |
|     |     |       | D=61°                 | USCGS:H=13:47:52,2 5° 0 N 32° 6 W                               |
|     |     |       |                       | h=N Mb=5,7 Ms=5,4 Central Mid-Atlantic ridge                    |
| 22. | Z   | e P   | 22 12 08              | No record on NS component                                       |
|     | Z   | e S   | 20 08                 |   |
|     |     |       | D = 58° 1             | USCGS: H=22:02:08,3 0° 5 N 26° 2 W                              |
|     |     |       |                       | h=N Mb=4,8 Central Mid-Atlantic ridge                           |
| 23. | N   | Lm    | 23 30,1               | USCGS: Off coast Jalisco, Mexico                                |
| 24. | Z   | e P   | 04 06 01,5            |   |
|     | E   | i     | 14 18,5               |   |
|     | N   | i SSS | 30,5                  |   |
|     | N   | Lm    | 16,6                  | BCIS: North Atlantic ridge                                      |
| 24. | ZNE | i P   | 18 13 37 C            |   |
|     | Z   | i(pP) | 48                    |   |
|     | Z   | i     | 14 17                 |   |
|     | Z   | i     | 15 50                 |   |
|     | Z   | i PPP | 16 23                 |   |
|     | N   | i S   | 21 07                 |   |
|     | E   | i PS  | 22 11                 | A = 23,5 micron T = 16 sec                                      |
|     | N   | i SS  | 25 54                 |   |
|     | N   | Lm    | 39,9                  | A = 22 micron T = 17 sec  |
|     |     |       | D=61° 9               | USCGS:H=18:03:19 15° 2 N 45° 8 W h=N                            |
|     |     |       | M <sub>LH</sub> =6,4  | Mb=5,8 Ms=6,4 M=6,0(Brk) 6,2(Pas),6½ (Gol) North Atlantic ridge |

|     |    |        |                       |  |
|-----|----|--------|-----------------------|--|
| 25. | Z  | e Pn   | 11 46 42,5            |  |
|     | N  | e Sg   | 47 46,5               | BCIS: Ionian Sea   |
| 26. | N  | i S    | 05 05 58              | BCIS: Red Sea  |
| 26. | NE | ie     | 23 43 13,5            |  |
|     | NE | Lm     | 44,5                  |  |
| 27. | N  | e SKS  | 09 29 40              |  |
|     | NE | e SKSP | 10 34 05              | USCGS: South Shetland Islands  |
| 27. | E  | e      | 17 04 54              |  |
| 28. | E  | e      | 00 43 28,5            |  |
| 28. | E  | e      | 01 55 38,5            | No record on NS component  |
| 28. | Z  | e P    | 22 56 11,5            |  |
|     | Z  | i      | 32,5                  |  |
|     | E  | i      | 57 33,5               |  |
|     | NE | i Sn   | 46,5                  |  |
|     | NE | i      | 58 01,5               |  |
|     | NE | i Sb   | 18                    |  |
|     | NE | i Sg   | 37,5                  |  |
|     | N  | i      | 59 00                 |  |
|     | E  | i      | 17,5                  |  |
|     | NE | Lm     | 59,9                  | A <sub>N</sub> = 57 micron A <sub>E</sub> = 61 micron T <sub>N</sub> = 9 sec |
|     |    |        | D = 8° 2              | T <sub>E</sub> = 11 sec  |
|     |    |        | M <sub>LH</sub> = 5,6 | BCIS: H=22:54:09 34° 3 N 25° 1 E   |
|     |    |        |                       | M <sub>LV</sub> = 5,9 (Moxa); M <sub>PV</sub> = 5,7 (Bens);                  |
|     |    |        |                       | M <sub>LH</sub> = 5,7 (Moxa); M <sub>LV</sub> = 5,6 (Wien)                   |
|     |    |        |                       | M <sub>LH</sub> = 5,5 (Collm, Skopje) South of Crete Island.                 |

TIRANA (Tir)

September 1969

Page 26

|     |    |               |                    |  |
|-----|----|---------------|--------------------|--|
| 29. | Z  | <i>i P</i>    | 18 11 04           |  |
|     | E  | <i>e S</i>    | 21 23              |  |
|     |    |               | $D = 83^{\circ} 6$ | USCGS: H=17:58:38,8 43° 4 N 147° 7 E<br>h=32 km Mb = 5,4 Ms= 5,3 Kurile Islands                    |
| 29. | Z  | <i>e P</i>    | 20 15 06,4         |  |
|     | Z  | <i>i(PcP)</i> | 13,4               |  |
|     | Z  | <i>i PP</i>   | 17 52,4            |  |
|     | Z  | <i>i PPP</i>  | 19 36,4            |  |
|     | Z  | <i>i S</i>    | 24 34,6            |  |
|     | E  | <i>Lm</i>     | 45,8               | A = 65 micron T = 18 sec   |
|     |    |               | $D = 73^{\circ} 8$ |  |
|     |    |               | $M_{LH} = 6,9$     | USCGS: H=20:03:32,8 32° 9 S 19° 7 E<br>h=N Mb=5,9 Ms=6,3 M=6,1 (Brk) Repu-<br>blic of South Africa |
| 29. | NE | <i>i</i>      | 23 55 25,4         |  |
| 30. | Z  | <i>i PKP</i>  | 18 11 41           |  |
|     | E  | <i>i</i>      | 23 08              | USCGS: Kermadec Islands Region   |

December 1969

Koçiaj S. Sulstarova E.



15 JUN 1970

STATE UNIVERSITY OF TIRANA  
TIRANA SEISMOLOGICAL STATION

P R E L I M I N A R Y  
S E I S M O L O G I C A L B U L L E T I N

Tirana 1970

STATE UNIVERSITY OF TIRANA  
TIRANÁ SEISMOLOGICAL STATION

1969

P R E L I M I N A R Y S E I S M O L O G I C A L  
B U L L E T I N

/October-December 1969/

STATE UNIVERSITY OF TIRANA  
TIRANA SEISMOLOGICAL STATION

## PRELIMINARY SEISMOLOGICAL BULLETIN

from October 1, to December 31 1969

Constants / 1-19 October 1969/

| Location of station | Type of instrum. | Comp. | Ts sec | Tg sec | Ds   | Dg   | V    | Drum speed mm/min |
|---------------------|------------------|-------|--------|--------|------|------|------|-------------------|
| 41° 20' 8" N        |                  | Z     | 20     | 1,27   | 0,5  | 7,87 | 1050 | 30                |
| 19° 52' E           | SSI-1            | N     | 20     | 1,54   | 0,49 | 6,49 | 1050 | 30                |
| b=196,8 m           |                  | E     | 20     | 1,34   | 0,5  | 7,46 | 1000 | 30                |

Constants / 20.10.1969 - 31.12.1969/

|             |       |   |    |      |      |      |      |    |
|-------------|-------|---|----|------|------|------|------|----|
| 41° 20,8' N |       | Z | 20 | 1,27 | 0,5  | 7,87 | 1050 | 30 |
| 19° 52' E   | SSI-1 | N | 20 | 1,54 | 0,5  | 6,49 | 1050 | 30 |
| b=196,8 m   |       | E | 20 | 1,34 | 0,47 | 7,46 | 1000 | 30 |

Ground condition: Tortonian sandstone

NOTE: Upward trace motion on the seismogram corresponds to N, E

and upward ground motion

m-magnitudes calculated from body waves

M-magnitudes calculated from surface waves

OCTOBER 1969

Page 2

TIRANA(Tir)

1. Z e P 05 19 44  
E i 30 27  
NE i S 31 27  
N Lm 06 11.6

A=6,3 micron T=17 sec

D=102° 8

M<sub>LH</sub>=6.2

USCGS: H=05:05:43.2 11° 9 S 77° 1 W

Mb=5,9 Ms=6,2 h=4 km M=6.4 (Pas) 6.1 (Brk) Peru

1. N e Sb 11 14 53,5  
E e Sg 15 05,5

Athens: Greece

1. Z e P 17 24 43,0 D  
Z i PP 28 53,5  
E i 35 31,5  
N e S 36 14,5  
NE i PS 37 52,5

D=100° 8

USCGS: H=17:10:56,5 0° 8 N 85° 0 W h=N

Mb=5,5 Ms=5,9 M=6,1 (Pas) 6,0 (Brk)

Off coast of Ecuador

1. Z e PP 20 12 05  
Z e PPP 14 25  
NE e PS 21 19  
N i PPS 22 22  
N i SS 27 11  
N Lm 43.0

A= 5 micron T= 17 sec

D=107°

M<sub>LH</sub>= 6.1

USCGS: H=19:53:15,7 60° 8 S 19° 7 W h=N

Mb=5,6 Ms=6,0 Southeastern Atlantic Ocean

1. Z e P 20 37 25

USCGS: Turkey

TIRANA(Tir)

October 1969

Page 3

1. Z e Pb 23 32 33 No record on NS component  
Z e Pg 39  
E i Sn 33 09  
E i Sg 25  
Z i 43  
Z Lm 33.8 A=3,3 micron T=5 sec

D=410 km

M<sub>LH</sub>=4,1

Athens: H=23:31:25 38° 1 N 22° 3 E

M<sub>L</sub> = 3.7 Greece

2. Z e P 22 18 39 USCGS: Rat Islands, Aleutian Islands

2. Z e Pn 23 14 32,0  
Z e Pb 39,5  
ZNE i Pg 43,5  
N i Sn 15 14,5  
NE i Sb 22,5  
N i Sg 30,5

D=380 km

BCIS: H=23:13:41 38° 6 N 22° 6 E

M<sub>LH</sub>=4,7 (Skopje) M<sub>L</sub> = 3,7 (Athens) Greece

3. Z e 15 58 52,5  
E e(S) 16 02 22,5

USCGS: Southern Sumatra

5. Z e Pg 01 50 44 No record on NS component  
N e(Sg) 47,5  
D= 30 km

7. Z e P 05 10 56  
V i 11 54  
V i S 12 16  
NEZ i 58  
E Lm 13 52

A= 13 micron T = 12 sec

D=6° 9

M<sub>LH</sub>= 4,7

BCIS: H=05:09:13 39° 2 N 28° 4 E  
M<sub>LH</sub>=5,6(Sroharova); M<sub>L</sub>=5,0(Istanbul-K);  
M<sub>L</sub>=4,9(Athens); M<sub>L</sub>V=4,6(Wien) Turkey.

7. *V Lm* 14 50.7 USCGS: Iraq
7. The shock was lost during change of paper (18<sup>h</sup>50<sup>m</sup> - 19<sup>h</sup>00<sup>m</sup>)
7. *Z e Pg* 21 11 35,0  
*NE i Sg* 45,0  
*D = 90 km*
9. *N e S* 08 23 05 USCGS: Aleutian Islands
11. From 09<sup>h</sup>53<sup>m</sup> - 15<sup>h</sup>56<sup>m</sup>, no record on account of trouble in the recording system.
12. From 05<sup>h</sup>38<sup>m</sup> - 16<sup>h</sup>04<sup>m</sup>, no record on account of control of constants of station.
13. For the same reason the station was out of operation from 05<sup>h</sup>40<sup>m</sup> - 14<sup>h</sup>50<sup>m</sup>.
13. *NE e Pn* 00 15 43 No record on Z component  
*E e* 16 04  
*NE i Sn* 12  
*E i Sg* 15  
*D = 210 km*  
Athens: H=00:15:09 39° 6' N 20° 8' E  $M_L = 3,8$   
Greece
13. *N e(Pn)* 00 33 31 No record on Z component  
*NE i Sn* 58  
*NE i Sg* 34 03  
*D=210 km*  
Athens: H=00:32:56 39° 6' N 20° 7' E Greece

13. *E i Pn* 01 03 01 No record on Z component  
*E i Sn* 25  
*E i Sg* 29  
*E Lm* 04,0  
*D = 210 km*  
 $M_{LH} = 5.2$   
A= 130 micron T = 4 sec  
The shock was felt in dep of Saranda: (VI at Theollogo, Leshnice, Dhiver, Janicat, Melcan, Grazhdan; V-VI at Konispol, Shales; V at Saranda); in dep of Gjirokastra: (VI at Koshovice, Sotire, Kriore; V at Gjirokaste); in dep of Tepelena: (IV at Tepelena). The shock was further reported: III-IV at Fier, Vlore; III at Berat. The shock was not felt at Lushnje, Elbasan.  
BCIS: H=01:02:32 39° 8' N 20° 7' E h=N  
 $M_{LH}=6,1$  (Skopje);  $M_{LV}=6,0$  (Wien);  $M_{LH}=5,8$  (Wien)  $M_L=5,6$  (Athens); M=5,6 (Helwan);  $M_{LH}=5,4$  (Moxa) M=5,2 (Titograd). Region of Janina, Greece.
13. *E e* 01 42 43 Athens: Region of Janina, Greece
13. *E i Pg* 01 50 32  
*E i Sn* 50  
*E i Sg* 54 Athens: Region of Janina, Greece  
*D=210 km*
14. From 07<sup>h</sup>00<sup>m</sup> - 18<sup>h</sup>15<sup>m</sup> no record on account of control of constants.
15. From the same reason the station was out of operation from 05<sup>h</sup>20<sup>m</sup> - 14<sup>h</sup>30<sup>m</sup>
16. For the same reason the station was out of operation from 07<sup>h</sup>00<sup>m</sup> - 17<sup>h</sup>25<sup>m</sup>
16. *E e* 22 05 13

16. Z i Pg 22 56 08 C  
 E i Sg 31  
 D = 220 km Athens: H=22:55:40 39° 5 N 20° 9 E  $M_L = 4,0$   
 Thesprotia, Greece

17. Z i P 01 35 31,5 D  
 Z i 52  
 ZE iPcP 36 06 A = 6 micron T = 4 sec  
 Z i PP 37 56  
 Z i(pPP) 38 29  
 Z i PPP 39 28  
 NE i S 43 55 A = 6,5 micron T = 6-7 sec  
 NE i 44 09  
 E i 50  
 D = 64°  
 m = 6,6

USCGS: H=01:25:12,4 23° 1 N 94° 7 E  
 h=134 km Mb=6 Burma-India border region

17. From 06<sup>h</sup>06<sup>m</sup> - 16<sup>h</sup>40<sup>m</sup> no record on account of control of constants.

18. N e S 01 36 32 USCGS: Honshu, Japan  
 From 07<sup>h</sup>00<sup>m</sup>, October 18 till 10<sup>h</sup>15<sup>m</sup> October 19, the station was out of operation on account of control of constants.

20. Z i P 13 24 09 C  
 N i S 34 31  
 E i 38  
 D=84° 7 USCGS: H=13:11:37,0 10° 8 N 72° 5 W  
 h=40 km Mb=5,7 Ms= 5,5 M=5 1/4-5 1/2 (Gol)  
 Venezuela.

20. Z e 23 30 00,5

21. Z i P 21 06 25 C  
 Z i PP 09 47  
 N e S 16 56  
 ZN Lm 50.9  $A_N = 5$  micron  $A_Z = 5,2$  micron  $T_N = T_Z = 16$  sec  
 D=86°

$M_{LH} = M_{LV} = 6.0$  USCGS: H=20:53:47,5 51° 3 N 179° 2 W h=48km  
 Mb=5,9 Ms=5,4 M=6 (Pas), 5,9 (Pal) 5 1/4 (Gol)  
 Andreanov Islands. Aleutian Islands

22. Z i P 23 05 01,5 C  
 Z e PP 08 59,5  
 NE i PS 17 44,5  
 Z Lm 52,8 A = 5 micron T = 18 sec  
 D = 96° 2  
 $M_{LV} = 6.0$

USCGS: H=22:51:33,5 34° 8 N 121° 3 W  
 h=15 km Mb=5,9 Ms=5,2 M=5,3 (Pas) 5,6 (Brk)  
 5,9 (Pal) Off coast of California.

24. Z i P 00 58 54 USCGS: Fox Islands, Aleutian Islands

26. Z i PKP<sub>1</sub> 06 57 36 C  
 Z i PKP<sub>2</sub> 45  
 Z i 52  
 Z ipPKP<sub>1</sub> 8 18  
 D=152° 2 USCGS: H=06:38:03,4 16° 2 S 174° W h=127km  
 Mb= 5,8 M=6,7 (Pas) Tonga Islands

26. ZNE i Pn 15 37 54 CSE  
 Z i Pb 38 02  
 ZNE i Pg 10  
 ZNE i Sn 42  
 ZNE i Sb 50  
 ZNE i Sg 56  
 D = 440 km  
 BCIS: H=15:36:50 44° 9' N 17° 3' E M<sub>LH</sub> = 6,5  
 (Wien) M=6,4 (Uppsala); M<sub>LH</sub> = 6,3 (Bens. Moxa)  
 6,0 (Collm); M<sub>Lg</sub> = 5,9 (Bens) M<sub>L</sub> = 5½ (Athens)  
 M=5,7 (Praha); m=5,6 (Uppsala) M<sub>LH</sub> = 5,6  
 (Skopje); M=5,3 (Titograd)  
 Macroseismic epicenter: 44° 57' N 17° 05' E (by  
 Beograd) Banja-Luka, Yugoslavia.

26. Z e P 19 28 19  
 N e S 38 41,5  
 Z Lm 20 09,6  
 D = 85°  
 M<sub>LH</sub> = 5,9  
 A = 3,7 micron T = 15 sec  
 USCGS: H=19:15:51,2 43° 6' N 148° 2' E  
 h=37 km Mb= 5,0 Ms 5,3 Kurile Islands region

26. Z e P 21 52 39  
 Z i(sP) 53 00  
 Z i PP 56 33  
 Z i 37  
 N i S 22 03 41,5  
 N i 04 10  
 N i PS 05 14  
 N Lm 36,0  
 D = 94° 5  
 M<sub>LH</sub> = 6,7  
 A = 27 micron T = 22 sec.  
 USCGS: H=21:39:20,8 53° 4' S 23° 5' E  
 h = N Mb= 5,9 Ms = 6,1 South of Africa

27. Z i Pn 02 56 40,5 C  
 Z i Pb 50  
 Z i 57 03  
 NE i Sn 29  
 NE i Sb 39  
 NE i Sg 48  
 Z Lm 58,4  
 D = 460 km  
 M<sub>LV</sub> = 5,0  
 A = 21 micron T = 4 sec  
 BCIS: H=02:55:36 44° 9' N 16° 8' E  
 M<sub>LH</sub> = 5,4 (Wien); 5,0 (Collm); 4,9 (Moxa)  
 4,8 (Pruhonice); M= 4,8 (Praha). Yugoslavia.

27. ZNE i Pn 08 11 59 C  
 ZE i Pb 12 08  
 ZE i Pg 14,5  
 E i Sn 48,5  
 E i Sg 13 10,5  
 D = 450 km  
 BCIS: H=08:10:56 44° 8' N 17° 2' E  
 M<sub>LH</sub> = 6,9 (Wien); M<sub>L</sub> = 6¼ (Athens); M = 6,6  
 (Uppsala); M<sub>LH</sub> = 6,4 (Bens); M = 6,3 (Tito-  
 grad) M<sub>LH</sub> = 6,2 (Collm); 6,2 (Skopje); M<sub>Lg</sub> = 5,9  
 (Bens); m=5,9 (Uppsala); M<sub>LH</sub> = 5,7 (Pruhonice)  
 M= 5,7 (Praha) Yugoslavia, Banja Luka

27. Z i Pg 08 42 44,5  
 Z i Sg 43 04,5  
 Z i Lg 43,2  
 D = 180 km  
 M<sub>LV</sub> = 4,4  
 A = 15 micron T = 2 sec.  
 USCGS: H=08:42:17,5 39° 8' N 20° 5' E  
 h= 40 km Mb= 4,5 Greece-Albania border re-  
 gion.

27. Z e Pn 08 54 44,0  
 Z i Pg 58,0  
 D = 450 km  
 BCIS: H=08:53:42 44° 9' N 17° 2' E  
 M<sub>LH</sub> = 5,8 (Wien) M= 5,3 (Praha) M<sub>LH</sub> = 4,3  
 (Pruhonice) Yugoslavia.

TIRANA(Tir)

October 1969

Page 10

|     |                                |                         |   |
|-----|--------------------------------|-------------------------|---|
| 28. | <i>i</i>                       | 04 57 59,5              |   |
| 29. | ZNE <i>i</i> Pg                | 15 27 28,5 DSW          |   |
|     | ZE <i>i</i> Sg                 | 48,5                    |   |
|     |                                | $D = 180 \text{ km}$    | Athens: H=15:26:59 39° 6 N<br>20° 6 E $M_L = 4,1$ Greece  |
| 29. | Z <i>e</i> (P)                 | 18 17 41,5              |   |
| 30. | Z <i>e</i> Pg                  | 15 11 10                |   |
|     | N <i>e</i> Sn                  | 41                      |   |
|     | N <i>e</i> Sg                  | 52                      |   |
|     |                                | $D = 380 \text{ km}$    | Athens: H=15:10:00 37° 9 N 20° 2 E<br>$M_L = 3,8$   |
| 31. | NE <i>i</i> Sg                 | 06 35 29                |   |
| 31. | Z <i>i</i> P                   | 07 12 50 C              |   |
|     | Z <i>Lm</i>                    | 55,0                    | $A = 8 \text{ micron}$ T = 18 sec   |
|     |                                | $D_c = 85^\circ 7$      | USCGS: H=07:00:13,4 37° 1 N 142° E<br>h=40 km Mb= 5,0 Ms= 5,2 Off east coast<br>of Honshu, Japan        |
| 31. | Z <i>e</i> PKP <sub>1,07</sub> | 47 41                   | USCGS: Fiji Islands Region  |
| 31. | ZNE <i>i</i> P                 | 11 45 43,5 CSW          | $A_Z = 7 \text{ micron}$ $T_Z = 7,5 \text{ sec}$  |
|     | Z <i>ip</i> P                  | 59                      |   |
|     | Z <i>i</i> (sP)                | 46 14                   |   |
|     | Z <i>i</i> PP                  | 49 04                   |   |
|     | Z <i>i</i>                     | 20                      |   |
|     | Z <i>i</i>                     | 29                      |   |
|     | Z <i>i</i>                     | 50 35                   |   |
|     | N <i>i</i> (ScS)               | 56 06                   |   |
|     | E <i>i</i> S                   | 17                      |   |
|     | N <i>i</i> PS                  | 57 14                   |   |
|     | NZ <i>Lm</i>                   | 12 32,0                 | $A_N = 46 \text{ micron}$ $A_Z = 53 \text{ micron}$ $T_N = T_Z = 18$                                    |
|     |                                | $D = 86^\circ 2$        |   |
|     |                                | $M_{LH} = M_{LV} = 6,9$ |   |
|     |                                | $m = 7,0$               | USCGS: H=11:33:04,8 51° 3 N 179° W h=49<br>Mb=6,0 Ms= 6,3 M=5.9-6.1(Brk),6,5(Pas)<br>Andreanof Islands. |

TIRANA(Tir)

NOVEMBER 1969

Page 11

|    |                |                    |  |
|----|----------------|--------------------|--|
| 1. | Z <i>i</i>     | 11 22 34           |  |
|    | Z <i>i</i>     | 26 38              |  |
|    | ZNE <i>i</i>   | 29 33              |  |
|    | N <i>i</i>     | 33 51              |  |
|    | N <i>i</i>     | 34 46              |  |
|    | N <i>i</i>     | 35 19              |  |
|    | Z <i>Lm</i>    | 12 09.2            | $A = 46 \text{ micron}$ T = 18 sec   |
|    | N <i>Lm</i>    | 29.4               | $A = 150 \text{ micron}$ T = 30 sec  |
|    |                | $D_c = 99^\circ 7$ |  |
|    |                | $M_{LH} = 7,3$     | USCGS: H=11:08:20,9 23° 1 N 107° 9 W   |
|    |                | $M_{LV} = 7,0$     | h=N Mb=5,6 Ms= 6,6 6½(Pas) 6¼(Brk) Gulf<br>of California   |
| 2. | Z <i>Lm</i>    | 20 52,6            | USCGS: Java  |
| 4. | Z <i>e</i>     | 00 01 35,5         |  |
| 5. | Z <i>i</i> P   | 18 07 40 C         |  |
|    | Z <i>e</i> PP  | 11 38              |  |
|    | NE <i>i</i> PS | 20 31              |  |
|    | Z <i>Lm</i>    | 54,4               | $A = 14 \text{ micron}$ T = 18 sec   |
|    |                | $D = 97^\circ 7$   |  |
|    |                | $M_{LV} = 6,5$     | USCGS: H=17:54:13,6 34° 8 N 121° 2 W<br>h=N Mb=5,8 Ms=5,8 M=5,5 (Pas) 5,7(Brk)<br>Off east of California |
| 6. | N <i>e</i> P   | 20 32 57           | No record on Z component   |
|    | N <i>i</i> S   | 43 26              |  |
|    | N <i>Lm</i>    | 21 17.4            | $A = 6,5 \text{ micron}$ T = 16 sec  |
|    |                | $D = 85^\circ 8$   |  |
|    |                | $M_{LH} = 5,5$     | USCGS: H=20:20:18,5 51° 5 N 178° 9 W<br>h=36 km Mb=5,5 Ms=5,7 Andreanof Islands<br>Aleutian Islands      |



|    |                       |                        |   |
|----|-----------------------|------------------------|---|
| 7. | Z e Pn                | 01 46 45               |   |
|    | Z e Pg                | 54                     |   |
|    | ZN e Sn               | 47 17                  |   |
|    | ZNE i Sg              | 29                     |   |
|    |                       | D = 300 km             |   |
| 7. | Z e P                 | 12 54 53               |   |
|    | N i S                 | 13 02 21               |   |
|    | N Lm                  | 36,9                   | USCGS: H=12:45:35,3 2° 9 S 12° 0 W h=N<br>Mb=5,2 North of Ascension Island      |
| 7. | Z i P                 | 13 53 33               | USCGS: Ryukyu Islands   |
| 7. | ZNE i P               | 18 40 53,5 C           | A <sub>Zmax</sub> = 6 micron T <sub>Zmax</sub> = 5 sec                          |
|    | ZE i pP               | 41 19                  |   |
|    | Z i                   | 49                     |   |
|    | Z i                   | 57                     |   |
|    | ZE i PP               | 42 18                  | A = 22 micron T = 14 sec  |
|    | Z i PPP               | 37                     |   |
|    | Z i(PcP)              | 43 29                  |   |
|    | ZNE i S               | 46 20                  | A <sub>N</sub> = 11,5 micron T <sub>N</sub> = 9 sec                             |
|    | NE i sS               | 57                     |   |
|    | NE i SS               | 48 44                  |   |
|    | ZE i SSS              | 49 16                  | A <sub>Z</sub> = 57 micron T <sub>Z</sub> = 25 sec                              |
|    | NE i ScS              | 50 58                  |   |
|    | NE i                  | 51 19                  |   |
|    | Z Lm                  | 56,7                   | A = 56 micron T = 20 sec  |
|    |                       | D = 35° 5              |   |
|    |                       | m <sub>PZ</sub> = 6¼   | BCIS: H=18:34:07 28° N 60° 1 E h=105 ± 18                                       |
|    |                       | m <sub>PPZ</sub> = 6.4 | m=6,7 (Uppsala) M=6,6 (Roma) M=6,5 (Athens)                                     |
|    |                       | m <sub>SH</sub> = 6.6  | M <sub>LH</sub> = 6,1 (Pruhonice) M=6,0 (Uppsala) Iran                          |
| 8. | ZN e PKP <sub>1</sub> | 02 01 10               |   |
|    | Z i PP                | 04 22                  | USCGS: H=01:41:41,3 16° 2 S 167° 5 E h=23<br>Mb=5,7 Ms=5,5 New Hebrides Islands |
|    |                       | D = 142° 5             |   |

|     |                      |              |  |
|-----|----------------------|--------------|--|
| 8.  | Z Lm                 | 22 56.4      | strong microseisimes   |
| 9.  | Z iPKP <sub>1</sub>  | 09 27 01,5 C |  |
|     | Z ipPKP <sub>1</sub> | 36           |  |
|     | Z i PP               | 30 13,5      |  |
|     | Z i(pPP)             | 41,5         |  |
|     |                      | D = 142° 5   | USCGS: H=09:07:05,9 16° 3 S 167° 9 E<br>h = 185 km Mb= 5,3 New Hebrides Islands                                    |
| 9.  | Z i Pn               | 15 16 14,5   |  |
|     | NE i Sn              | 58,5         |  |
|     | ZNE e Sb             | 17 07,5      |  |
|     | ZE i Sg              | 15           |  |
|     |                      | D = 370 km   | Athens: H=15:15:16 38° 7 N 21° 8 E M <sub>L</sub> = 3,3<br>Greece  |
| 12. | Z e P                | 11 42 06     | USCGS: Hokkaido, Japan   |
| 12. | Z e P                | 19 21 38     |  |
|     | N e(S)               | 32 02        |  |
|     | Z Lm                 | 20 02,0      | USCGS: H=19:09:02 53° 0 N 168° 3 W h=58 km<br>Mb=5,4 M=5,7-5,9 (Brk) 5¼-6 (Pal) Fox Is-<br>lands, Aleutian Islands |
|     |                      | D = 84° 8    |  |
| 13. | Z e Pn               | 01 05 20     |  |
|     | Z e Pg               | 36           |  |
|     | E e Sn               | 06 06        |  |
|     | NZ Lm                | 06,7         |  |
|     |                      | D = 430 km   | Athens: H=01:04:15 40° 3 N 24° 8 E M <sub>L</sub> = 3,8<br>Greece  |
| 13. | Z e Pn               | 02 00 32,0   |  |
|     | N e Sn               | 01 10,0      |  |
|     | E i Sg               | 24           |  |
|     |                      | D = 360 km   | Athens: H=01:59:36 38° 7 N 21° 8 E M <sub>L</sub> = 3,1<br>Greece  |

13. Z Lm 08 57.0 USCGS: Near coast of Northern Chile
14. Z e Pn 08 49 01  
Z e Pg 12  
NE i Sg 52  
D = 350 km USCGS: H=06:48:04,4 40° 7 N 15° 7 E h=15 km  
Mb=4,7 Southern Italy
14. Z i PKP<sub>1</sub> 07 57 15 USCGS: Tonga Islands
14. Z i Pg 13 49 48,5  
NE i Sg 53  
D = 30 km  
Albania
15. N Lm 02 59.6 BCIS: Turkey
16. Z e(Pg) 07 55 35  
N e(Sg) 51  
E i Lg 58  
D=130 km Athens: H=07:55:01 40° 3 N 20° 6 E
16. Z e Pg 09 34 10  
N i 31 Athens: H=09:33:39 40° 2 N 20° 8 E M<sub>L</sub> = 4,
17. Z e Pg 00 50 08  
N i Sg 26  
D = 140 km Athens: H=00:49:30 40° 4 N 20° 5 E M<sub>L</sub> = 4
20. Z i P 23 58 33 C  
N e S 00 08 43  
D = 82° USCGS: H=23:46:11,6 56° ,6N 153° 2 W h=N  
Mb=5,1 Ms=5,5 M=5,3 (Gol) M<sub>L</sub> = 5,6 (CGS)  
Kodiak Island Region

21. ZNE i P 02 17 29 DSE  
Z i 34  
Z i 38,5 A = 26 micron T = 8 sec  
Z i 54  
Z i(PcP) 18 37  
Z i 19 13  
Z i PP 20 26  
Z i 41,5  
E i 54  
Z i PPP 22 14  
N i S 27 12 A = 26 micron T = 7 sec  
N i PS 58,5  
N i SS 32 14 A = 39 micron T = 18 sec  
N Lm 56,4 A = 100 micron T = 20 sec  
D = 77° USCGS: H=02:05:35,3 02° 1 N 94° 6 E h=20 km  
m<sub>SH</sub>=7.4 Mb=6,4 Ms=7,7 Off W. coast of Northern  
M<sub>LH</sub>=7.1 Soumatra
21. Z e(P) 08 25 03  
N e(S) 35 25  
Z Lm 09 06.9 USCGS: Kurile Islands
21. Z e P 09 09 43 USCGS: Kurile Islands
22. Z e Pn 20 35 53,0  
Z i Pg 36 14,0  
NZ i Sn 49  
E i 58  
NEZ i (Sg) 37 16,5  
D = 500 km USCGS: H=20:34:41,2 37° 8 N 23° 4 E h=61 km  
Mb=4,4 M<sub>L</sub>=3,8 (Athens) Greece

22. Z *i P* 23 21 25,5 C  
 Z *i PcP* 22 36,5  
 Z *i PP* 24 20,5 A = 18 micron T=8 sec  
 Z *i PPP* 26 09,5  
 N *e S* 31 07,5  
 D = 76° 6 USCGS: H=23:09:37,2 57° 8 N 163° 5 E h=N  
 $m_{PPP} = 7\frac{1}{4}$  Mb=6,3 Ms=7,3 M=7 (Brk); 7,1 (Pas); 7 $\frac{1}{4}$  (C)  
 Near East Coast of Kamchatka.

23. Z *ePKP*<sub>1</sub> 04 29 21 USCGS: Kermadec Islands

24. Z *i P* 17 30 41,5 D  
 Z *i(sP)* 31 22  
 Z *i PP* 32 18,5  
 Z *i PPP* 44,5  
 Z *i PcP* 46,5  
 Z *i* 33 01,5  
 NE *i* 39 50,5  
 N *e ScS* 41 01,5  
 D = 39° 8 BCIS: H=17:23:16 37° 2 N 71° 7 E h= 90±10  
 Hindukush.

24. Z *e P* 23 04 15  
 E *e S* 14 28  
 Z *Lm* 49,0  
 D = 82° 5 USCGS: H=22:51:50.1 56° 2 N 153° 6 W h=N  
 Mb=5,5 Ms=5,7 M=5,4 (Brk); 5,7 (Gol) M<sub>L</sub>=6,  
 (CGS) Kodiak Island Region

26. Z *Lm* 19 33,7 USCGS: South Sandwich Island region

30. Z *e P* 03 40 46 BCIS: Eastern Kazakh SSR.

1. Z *e Pn* 20 19 50  
 Z *i Pb* 20 08,5  
 Z *i Pg* 26,5  
 N *i* 21 07,5  
 N *i Sn* 18,5  
 E *i* 33,5  
 N *i* 37,5  
 E *i* 41,5  
 NE *i Sb* 47,5  
 N *i* 55,5  
 NE *i* 22 07,5

D = 7° 5 BCIS: H=20:17:58 34° 7 N 24° 1 E M<sub>L</sub> = 4,5  
 (Athens) South of Crete Island.

4. Z *i P* 09 02 53,5 D  
 NE *i S* 13 18,5  
 D = 84° 2

USCGS: H=08:50:21,6 40° 7 N 144° 7 E  
 Off East coast of Honshu, Japan

10. Z *i Pg* 10 05 35  
 N *i Sg* 45  
 D = 90 km  
 Albania

10. Z *i* 20 13 34  
 Z *i* 48  
 Z *i* 15 35  
 Z *i PP* 16 52  
 Z *i* 20 55

USCGS: New He brides Islands

12. E *e S* 01 35 53  
 NE *i* 36 22

USCGS: Off East Coast of Honshu Japan

12. N *e Sg* 17 24 09

Athens: Albania

13. Z *i* 03 29 56  
 NE *e S* 38 06

USCGS: Central Mid Atlantic Ridge

|     |            |                      |  |
|-----|------------|----------------------|--|
| 14. | Z e P      | 02 56 01             |  |
|     | Z e PP     | 03 00 13             |  |
|     | NEZ i SKS  | 06 33                |  |
|     | NEZ i      | 48                   |  |
|     | NEZ i SKKS | 07 18                |  |
|     | N i        | 23                   |  |
|     | Z Lm       | 44.8                 | A = 5 micron T = 24 sec                              |
|     |            | D = 101°             |  |
|     |            | M <sub>LV</sub> =6,0 | USCGS: H=02:42:09,4 2° 0 N 126° 9 E h=42             |
|     |            |                      | Mb=6,0 Ms=5,7 Molucca Passage                        |
| 14. | Z i P      | 18 45 42,5 D         |  |
|     | Z i        | 52,5                 |  |
|     | Z i        | 47 26,5              |  |
|     | NE i S     | 52 39,5              |  |
|     |            | D = 47° 5            | USCGS: H = 18:37:09,5 8° 2 N 58° 5 E h=N             |
|     |            |                      | Mb=6,0 Ms=5,6 Carlsberg Ridge                        |
| 16. | Z e Pn     | 11 48 05             | <i>strong microseismes</i>                           |
|     | Z i Pg     | 13                   |  |
|     | NE i       | 19                   |  |
|     | NE i Sn    | 35                   |  |
|     | E i Sg     | 40                   |  |
|     |            | D = 210 km           | BCIS: H=11:47:33 39° 5 N 20° 7 E M <sub>L</sub> =3,6 |
|     |            |                      | (Athens) Greece                                      |
| 18. | Z e Pg     | 07 14 18             | Athens: Greece                                       |
| 18. | Z i Pg     | 11 16 18             | No record on NS component                            |
|     | E i Sg     | 22                   |  |
|     |            | D = 50 km            |  |
|     |            | Albania              |  |
| 18. | Z e P      | 13 43 33             | No record on NS component                            |
|     | E i S      | 53 02                |  |
|     |            | D=79°                | USCGS: H=13:32:05 46° 3 N 142° 5 E h=33              |
|     |            |                      | Sakhalin Island, USSR                                |

|     |           |                      |  |
|-----|-----------|----------------------|--|
| 19. | ZNE i(Sn) | 23 55 31             |  |
|     | NE i Sg   | 39                   |  |
|     | Z Lm      | 56.6                 |  |
|     |           | D=230 km             | Athens: H=23:54:32 39° 1 N 22° 0 E M <sub>L</sub> =3,7 |
|     |           |                      | Greece   |
| 21. | ZN Lm     | 18 11.1              | BCIS: Rumania  |
| 22. | Z Lm      | 12 17.2              | USCGS: Aleutian Islands                                |
| 23. | Z i Pb    | 02 15 05             |  |
|     | NE i Sn   | 47                   |  |
|     | NE i Sg   | 16 02                | USCGS: Greece  |
| 23. | Z i P     | 13 34 52 C           |  |
|     | N i(S)    | 44 42                |  |
|     | N Lm      | 14 13.2              | A = 15 micron T= 16 sec                                |
|     |           | D=78°                |  |
|     |           | M <sub>LH</sub> =6,2 | USCGS: H=13:22:54,2 57° 4 N 163° 1 E h=N               |
|     |           |                      | Mb=5,4 Ms=5,5 Near Coast of Kamchatka                  |
| 23. | Z i P     | 14 20 44             |  |
|     | ZNE i SKS | 31 04                |  |
|     |           | D=89°                | USCGS: H=14:08:00,5 13° 8 N 120° 6 E                   |
|     |           |                      | h=118 km Mb=5,3 Mindoro, Philippine Islands            |
| 24. | Z e Pn    | 08 43 04 weak        |  |
| 25. | N Lm      | 02 17,2              | USCGS: Turkey  |
| 25. | Z e Pg    | 17 24 11 weak        |  |

25. Z *i P* 21 43 55,5 D  
 Z *i(PcP)* 44 15,5  
 Z *i PP* 46 41,5 A = 8 micron T = 10 sec  
 Z *i PPP* 48 23,5  
 Z *i* 49 27,0  
 N *i S* 53 22 A = 9 micron T = 8 sec  
 Z *Lm* 22 11.2 A = 55 micron T = 18 sec  
 D = 73°  
 $m_{PPZ} = 6.9$  USCGS: H=21:32:27,3 15° 8 N 59° 7 W  
 $m_{SH} = 6.9$  h=7,0 km Mb=6,4 Ms=7,2  $M_L = 7,5$  (Athens)  
 $LH = 6.9$  Leeward Islands.

27. Z *e Pn* 07 32 50  
 Z *e Pb* 57  
 Z *i Pg* 33 06  
 Z *i Sn* 35  
 NE *i Sb* 46  
 NEZ *i Sg* 54  
 D=420 km BCIS: H=07:31:52 39° 0 N 23° 7 E Ms=4,8  
 (Athens) Aegean Sea.

28. N *e S* 05 15 58 USCGS: Kurile Islands

28. ZN *i Pg* 22 02 44 DS  
 N *i Sg* 52  
 D = 70 km  
 $M_{LH} = 4\frac{1}{2}$

Macroseismic epicenter is situated near village Krutje (dep of Lushnje)

40° 49' N 19° 43' E  $I_0 = V+$

The shock was felt in dep of Lushnje: (V+at Kosova e Madhe, Karbunare, Krutje, Qeret; V at Gore, IV Kemishtaj, Ardenice, Kolonje, Kryekuq, Lushnje; III-IV at Cërme); in dep of Fieri: (V+at Strume, Suk i poshtem; V at Roskovec IV-V at Fier, Baltoz; IV at Ballsh, Levan, Libofshe, Sheqishte, Voribobe, Verri, Vajkan); in dep. of Berat: (V at Pobrat, Poshnje, Ciflik, Fier, Shegan, Syzeze; IV at Berat, Q Stalin, Ura Vajgurore, Pashalli); in dep of Elbasani: (IV-V at Gjocaj, Peqin); in dep of Durresi (III at Rogozhine, Gos; II at Kavaje); in dep of Gramshi: (III-IV at Gramsh, Sult); in dep of Vlora: (III-IV at Novosela; III at Vlora, Hoshtime); in dep of Tepelena: (III-IV at Krahes). The shock was not felt at Bogo (dep of Durresi) Nezhan, Paper (dep of Elbasani), Buz (dep of Tepelena).

BCIS: H=22:02:32 40° 75 N 19° 75 E  
 $M_{LH} = 3,7$  (Skopje).

TIRANA(Tir)

December 1969

Page 22

31. Z e P 05 38 47

V e Sn 40 25,5

NE i Sg 41 22,5

N Lm 42.7

ZE Lm 43.1

A=7 micron T = 9 sec

 A<sub>Z</sub>= 9 micron T<sub>Z</sub>= 11 sec

D=8° 5

 M<sub>LH</sub>=M<sub>LV</sub>=4¾

 BCIS: H=05:36:57 34° 0 N 25° 7 E M<sub>L</sub>=4,7

(Athens) South of Crete Island.

 From 13<sup>h</sup>40<sup>m</sup>, December 31 till 14<sup>h</sup>00<sup>m</sup>, January

4, 1970 the station was out of operation on account of trouble in the recording system.

March 1970

Koçiaj S. ( Sulstarova E. (