

*April-June Copied*  
2524

MANILA OBSERVATORY  
 Mirador, Baguio City  
 Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"

Long. E. 120° 34' 47"

Alt. 1507 meters

Instruments (All Sprengometers)

Hard Limestone Bedrock

Type	Component	Period		Magnification (Dynamic)	
		Seism.	Galv.	Synchronous	
Photographic	Z	1.41 sec	1.37 sec	Circa	3367
	E-W	10.90 "	11.70 "		2000
	N-S	1.84 "	1.57 "		2451
Photoelectric	N-S	11.80 sec	12.00 sec		1000
	E-W	1.54 "	1.49 "		3000

APRIL 1960

Date	Time (GMT)	Phase	Remarks
241)	1 X 18 - 17 - 28	eP	Very small. } $\Delta g = 110$ km.
242)	18 - 37 - 02	ePg	
	15	iSg	
243)	2 X 20 - 56 - 40	ePb	Very small. } $\Delta b = 300$ km.
	57 - 14	iSb	
244)	X 22 - 49 - 47	iPb	Very small. } $\Delta b = 185$ km.
	50 - 08	iSb	
245)	3 ✓ 05 - 14 - 38	iPg	Very small. } $\Delta g = 50$ km.
	44	iSg	
246)	✓ 05 - 17 - 50	iPg	Very small. } $\Delta g = 85$ km.
	18 - 06	iSg	
247)	4 ✓ 08 - 04 - 52	eiP	Distant. } $\Delta = 5945$ km.
	12 - 29	iS	
248)	X 08 - 27 - 25	ePb	Very small. } $\Delta b = 175$ km.
	45	iSb	
249)	X 09 - 03 - 50	iPg	Very small. } $\Delta g = 58$ km.
	57	iSg	
250)	X 09 - 06 - 18	ePg	Very small. } $\Delta g = 50$ km.
	24	iSg	
251)	X 11 - 23 - 59	ePb	Very small. } $\Delta b = 540$ km. = $4.9^\circ$ .
	25 - 00	iSb	
252)	X 18 - 52 - 48	iPb	Small. } $\Delta b = 190$ km.
	53 - 10	iSb	
253)	X 20 - 52 - 48	iPb	Small. } $\Delta b = 190$ km.
	53 - 10	iSb	
254)	✓ 23 - 19 - 02	iPb	Small. } $\Delta b = 190$ km.
	24	iSb	
255)	5 X 01 - 36 - 43	ePb	Very small. } $\Delta b = 265$
	37 - 18	iSb	

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Date	Time (GMT)	Phase	Remarks
256)	6 × 05 - 04 - 46	iPb	} Very small. $\Delta b = 245$ km.
	05 - 14	eSb	
257)	× 08 - 28 - 50	ePb	} Very small. $\Delta b = 220$ km.
	29 - 15	iSb	
258)	× 12 - 07 - 59	ePg	} Very small. $\Delta g = 40$ km.
	08 - 04	iSg	
259)	7 ✓ 13 - 57 - 57	iPg	} Very small. $\Delta g = 58$ km.
	58 - 04	iSg	
260)	8 × 00 - 06 - 57	iP	Distant.
261)	× 01 - 41 - 31	iPg	} Very small. $\Delta g = 100$ km.
	43	iSg	
262)	× 22 - 48 - 09	iPb	} Very small. $\Delta b = 220$ km.
	34	iSb	
263)	9 × 01 - 29 - 24	ePg	} Very small. $\Delta g = 75$ km.
	33	iSg	
264)	× 17 - 05 - 35	eP	Distant.

April 10 - 16 Frequent power failures. Some were over one hour.

265)	10 × 01 - 30 - 23	iP	Very small.
266)	× 07 - 08 - 23	ePg	} Very small. $\Delta g = 35$ km.
	27	iSg	
267)	× 08 - 02 - 13	ePg	} Very small. $\Delta g = 93$ km.
	24	iSg	
268)	11 × 09 - 28 - 12	iPg	} Very small. $\Delta g = 35$ km.
	16	iSg	
12	× No Quakes Recorded.		
269)	13 ✓ 08 - 12 - 00	eP	Teleseismic.
270)	× 09 - 21 - 31	ePb	} Very small. $\Delta b = 318$ km.
	22 - 07	eSb	
271)	14 × 09 - 03 - 20	iPg	} Very small. $\Delta g = 100$ km.
	32	iSg	
272)	× 14 - 59 - 20	iPb	} Very small. $\Delta b = 318$ km.
	56	iSb	
273)	× 16 - 31 - 48	ePg	} Very small. $\Delta g = 68$ km.
	56	iSg	
274)	15 × 03 - 50 - 00	eP	Teleseismic.
275)	✓ 11 - 45 - 04	eP	} Distant. $\Delta = 3190$ km. = $28.7^\circ$ .
	✓ 50 - 00	iS	
276)	✓ 22 - 14 - 35	iP	} Distant. $\Delta = 5945$ km. = $53.5^\circ$ .
	✓ 22 - 12	iS	
277)	16 × 22 - 27 - 30	ePg	} Very small. $\Delta g = 114$ km.
	44	iSg	

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<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
17	×	No Quakes Recorded.	
278)	18	×	04 - 58 - 01 ePb } Very small. $\Delta b = 620 \text{ km.} = 5.6^\circ$ .
			59 - 11 iSb }
279)		×	06 - 07 - 21 ePb } Very small. $\Delta b = 155 \text{ km.}$
			39 iSb }
280)		×	07 - 49 - 30 ePb } Very small. $\Delta b = 210 \text{ km.}$
			54 iSb }
281)		✓	08 - 11 - 26 iP } Distant. $\Delta = 2110 \text{ km.} = 19.0^\circ$ .
			15 - 00 iS }
282)		×	11 - 29 - 00 iPg } Very small. $\Delta g = 100 \text{ km.}$
			12 iSg }
283)		×	23 - 31 - 19 ePg } Very small. $\Delta g = 40 \text{ km.}$
			32 - 24 eSg }
284)	19	×	22 - 06 - 27 ePb } Very small. $\Delta b = 300 \text{ km.}$
			07 - 01 iSb }
20	×	No Quakes Recorded.	
285)	21	×	04 - 49 - 35 ePg } Very small. $\Delta g = 68 \text{ km.}$
			43 iSg }
286)		×	11 - 54 - 04 ePb } Very small.
			34 iSb }
287)	22	×	18 - 48 - 40 ePb } Distant. $\Delta = 710 \text{ km.} = 6.4^\circ$ .
			50 - 00 iSb }
288)		✓	20 - 37 - 39 iP } Distant.
23	×	No Quakes Recorded.	
289)	24	×	03 - 18 - 36 ePg } Very small. $\Delta g = 114 \text{ km.}$
			50 iSg }
290)		✓	03 - 26 - 53 iP } Distant.
291)		×	11 - 31 - 30 ePg } Very small. $\Delta g = 35 \text{ km.}$
			34 iSg }
292)		✓	12 - 24 - 52 iP } Distant.
293)	25	×	08 - 02 - 02 iP } Very small.
294)		×	14 - 43 - 00 ePg } Very small. $\Delta g = 35 \text{ km.}$
			04 iSg }
295)		×	17 - 34 - 28 iP } Very small.
296)	26	×	16 - 22 - 06 ePb } Very small.
			44 iSb }
297)		×	20 - 21 - 12 ePb } Very small. $\Delta b = 765 \text{ km.} = 6.8^\circ$ .
			22 - 38 iSb }
298)		×	23 - 07 - 22 ePb } Very small. $\Delta b = 140 \text{ km.}$
			38 iSb }
299)	27	×	12 - 31 - 54 ePg } Very small. $\Delta g = 58 \text{ km.}$
			32 - 01 iSg }

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Date	Time (GMT)	Phase	Remarks
300)	27 × 17 - 09 - 55	ePg	} Very small. $\Delta g = 35$ km.
	59	iSg	
301)	× 17 - 19 - 00	eP	} Teleseismic.
302)	28 × 03 - 15 - 00	eP	} Distant. $\Delta = 3245$ km. = $29.2^\circ$ .
	20 - 00	iS	
303)	× 05 - 39 - 06	ePb	} Very small. $\Delta b = 165$ km.
	25	eSb	
304)	29 × 03 - 34 - 07	ePg	} Very small. $\Delta g = 40$ km.
	12	iSg	
305)	× 09 - 20 - 07	eP	} Very small.
306)	✓ 09 - 58 - 26	eP	} Distant.
307)	✓ 10 - 10 - 10	iPg	} Very small. $\Delta g = 50$ km.
	16	iSg	
308)	× 10 - 49 - 12	ePb	} Very small. $\Delta b = 140$ km.
	28	iSb	
309)	× 11 - 34 - 46	eP	} Very small.
310)	✓ 13 - 37 - 15	iP	} Distant. $\Delta = 1835$ km. = $16.5^\circ$ .
	40 - 26	iS	
311)	× 18 - 59 - 40	ePb	} Very small. $\Delta b = 155$ km.
	58	iSb	
312)	✓ 19 - 36 - 11	iP	} Distant. $\Delta = 1780$ km. = $16.0^\circ$ .
	39 - 17	iS	
313)	✓ 20 - 48 - 27	iP	} Distant. $\Delta = 1810$ km. = $16.3^\circ$ .
	51 - 36	iS	
314)	30 × 00 - 24 - 10	iPg	} Very small. $\Delta g = 68$ km.
	18	eSg	
313)	✓ 04 - 05 - 30	iP	} Distant. $\Delta = 1820$ km. = $16.4^\circ$ .
	08 - 40	iS	
316)	× 08 - 45 - 02	ePb	} Very small. $\Delta b = 230$ km.
	28	iSb	
317)	× 10 - 45 - 22	iPg	} Very small. $\Delta g = 75$ km.
	31	iSg	
318)	× 13 - 15 - 27	iP	} Very small.
319)	× 14 - 25 - 14	eP	} Distant. $\Delta = 1780$ km. = $16.0^\circ$ .
	28 - 20	eS	
320)	× 20 - 49 - 05	iPb	} Small. $\Delta b = 255$ km.
	34	iSb	
321)	× 21 - 57 - 27	iP	} Very small.
322)	✓ 22 - 14 - 29	eP	} Distant. $\Delta = 1965$ km. = $17.7^\circ$ .
	17 - 52	iS	
323)	× 23 - 13 - 10	ePb	} Very small. $\Delta b = 283$ km.
	42	iSb	

MANILA OBSERVATORY  
Mirador, Baguio City  
Philippines

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MONTHLY SEISMOLOGICAL BULLETIN

Lat. N.  $16^{\circ} 24' 39''$

Long. E.  $120^{\circ} 34' 47''$

Alt. 1507 meters

Instruments (All Sprengnethers)

Hard Limestone Bedrock

Type	Component	Period		Magnification (Dynamic)
		Seism.	Galv.	Synchronous
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	Visual recording	E-W	1.54 "	1.49 "

M A Y 1960

Date	Time (GMT)	Phase	Remarks
324)	1 x 04 - 01 - 21	iP	Very small. Distant.
325)	x 04 - 15 - 48	eP	
326)	x 12 - 29 - 07	iPg	
		iSg	Very small. $\Delta g = 110$ km.
327)	x 22 - 16 - 50	iPb	
		eSb	Very small. $\Delta b = 148$ km.
328)	2 x 04 - 39 - 50	eP	Very small.
329)	x 05 - 15 - 44	eP	
330)	x 05 - 23 - 26	ePb	Very small. $\Delta b = 570$ km. = $5.1^{\circ}$ .
		iSb	
331)	x 06 - 46 - 05	ePb	Very small. $\Delta b = 580$ km. = $5.2^{\circ}$ .
		iSb	
332)	x 08 - 34 - 58	ePb	Very small. $\Delta b = 560$ km. = $5.0^{\circ}$ .
		iSb	
333)	x 10 - 41 - 27	eP	Distant. $\Delta = 1600$ km. = $14.4^{\circ}$ .
		iS	
334)	x 11 - 49 - 25	iP	Distant. $\Delta = 2310$ km. = $20.8^{\circ}$ .
		eS	
335)	x 12 - 14 - 11	ePv	Distant.
336)	x 14 - 42 - 23	iPb	
		iSb	Distant. $\Delta b = 1060$ km. = $9.5^{\circ}$ .
337)	3 x 03 - 55 - 58	ePb	Very small. $\Delta b = 130$ km.
		iSb	
338)	x 08 - 00 - 25	iP	Distant. $\Delta = 5435$ km. = $48.9^{\circ}$ .
		iS	
339)	x 12 - 02 - 02	ePb	Very small. $\Delta b = 380$ km.
		iSb	

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
340)	3 ✓	13 - 26 - 04	eIP	Distant. $\Delta = 1845$ km. = $16.6^\circ$
		29 - 16	iS	
341)	✓	22 - 27 - 42	iP	Distant. $\Delta = 2380$ km. = $21.4^\circ$
		32 - 38	iS	
342)	4 ✗	10 - 59 - 54	eP	Very small. Very small. Power failure 02:01 to 05:01.
→		18 - 30 - 36	eP	
343)	5 ✗	03 - 59 - 32	ePg	Very small. $\Delta g = 58$ km.
		39	iSg	
344)	✗	06 - 11 - 48	iPb	Very small. $\Delta b = 318$ km.
		12 - 24	iSb	
345)	✗	06 - 27 - 02	ePb	Very small. $\Delta b = 300$ km.
		36	iSb	
346)	✗	20 - 18 - 15	ePb	Very small. $\Delta b = 415$ km.
		19 - 02	iSb	
347)	6 ✗	06 - 09 - 44	iPg	Very small. $\Delta g = 68$ km.
		52	iSg	
348)	✗	07 - 52 - 01	ePb	Very small. $\Delta b = 335$ km.
		39	iSb	
349)	7 ✗	04 - 12 - 32	iPg	Very small. $\Delta g = 93$ km.
		43	iSg	
350)	8 ✗	05 - 26 - 07	ePb	Very small. $\Delta b = 148$ km.
		24	iSb	
351)	✗	12 - 12 - 49	iPb	Very small. $\Delta b = 110$ km.
		13 - 02	iSb	
352)	✗	23 - 22 - 31	ePg	Very small. $\Delta g = 100$ km.
		43	iSg	
353)	9 ✓	00 - 15 - 08	iP	Very small. Very small. $\Delta g = 110$ km.
	✗	20 - 48 - 08	ePg	
		21	iSg	
355)	10 ✗	01 - 21 - 15	iPb	Very small. $\Delta b = 265$ km.
		45	iSb	
356)	✗	01 - 47 - 08	ePg	Very small. $\Delta g = 110$ km.
		21	iSg	
357)	11 ✗	01 - 29 - 14	iPb	Very small.. $\Delta b = 140$ km.
		30	iSb	
358)	✗	02 - 01 - 36	ePb	Very small. $\Delta b = 283$ km.
		02 - 08	iSb	
359)	✓	18 - 41 - 03	iP	Distant. $\Delta = 2455$ km. = $22.1^\circ$
		45 - 05	iS	
360)	12 ✓	22 - 52 - 22	iP	Distant.

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	Date	Time (GMT)	Phase	Remarks
361)	13 ✓	16 - 18 - 26 27 - 32	iP eS	} Distant. $\Delta = 7600$ km. = $68.4^\circ$ .
362)	14 ✗	11 - 40 - 08 18	iPg eSg	} Small. $\Delta g = 85$ km. Felt in Baguio, Int. I; Lubuoc, Pangasinan, Int. IV; Villaviecosa, Abra, Int. I.
363)	✗	13 - 22 - 12 32	iPb iSb	} Very small. $\Delta b = 190$ km.
364)	✗	13 - 24 - 44 25 - 14	ePb iSb	} Very small. $\Delta b = 265$ km.
365)	✓	22 - 28 - 32	eP	} Very small.
366)	15 ✓	13 - 32 - 19 33 - 47	ePb iSb	} Very small. $\Delta b = 785$ km. = $7.0^\circ$ .
367)	✗	19 - 28 - 30	eP	} Very small.
16	✗	No Quakes Recorded.		
368)	17 ✗	04 - 49 - 42 48	ePg iSg	} Very small. $\Delta g = 50$ km.
369)	✗	13 - 47 - 40 58	iPb eSb	} Very small. $\Delta b = 155$ km.
370)	✗	17 - 16 - 26	iP	} Very small.
371)	18 ✓	06 - 38 - 44 41 - 45	iP iS	} Distant. $\Delta = 1720$ km. = $15.5^\circ$ .
372)	✗	07 - 00 - 05	iP	} Very small.
373)	✗	18 - 12 - 38	eP	} Distant.
374)	19 ✓	02 - 15 - 26 22 - 17	iP iS	} Distant. $\Delta = 5110$ km. = $46.0^\circ$ .
375)		10 - 22 - 26	eP	} Distant.
376)	✗	10 - 52 - 49 53 - 20	ePb iSb	} Small. $\Delta b = 275$ km.
377)	✗	20 - 48 - 05 23	iPb iSb	} Very small. $\Delta b = 155$ km.
378)	20 ✓	11 - 23 - 05	iP	} Distant.
379)	21 ✓	08 - 17 - 30 41	iP eS	} Small. $\Delta g = 93$ km. Felt in Baguio, Int. I; Clark Air Base, Int. I; Manila, Int. I; Operated pendulum of strong motion seismograph. No Record made.
380)	✓	10 - 22 - 47	iP'	} Distant. Chile Quake.
381)	✗	12 - 18 - 56 19 - 10	iPg iSg	} Very small. $\Delta g = 114$ km.
382)	✗	12 - 43 - 28 47	ePb iSb	} Very small. $\Delta b = 165$ km.

Monthly Seismological Bulletin for May 1960 -- page 4

	Date	Time (GMT)	Phase	Remarks
383)	21	X 17 - 27 - 35 45	iPg iSg	} Small. $\Delta g = 85$ km.
384)	22	X 01 - 00 - 11 27	iPb iSb	} Very small. $\Delta b = 140$ km.
385)		✓ 10 - 50 - 50	eP	Distant. Chile quake.
386)		X 10 - 57 - 13 53	iPb iSb	} Small. $\Delta b = 355$ km. Babuyan Islands.
387)		✓ 19 - 15 - 54	iP	Distant. Chile quake.
388)		X 19 - 30 - 45 31 - 50	iPb iSb	} Small. $\Delta b = 580$ km. = $5.2^{\circ}$ .
389)		X 22 - 27 - 36 58	ePb iSb	} Very small. $\Delta b = 190$ km.
390)	23	X 02 - 38 - 00 33	ePb iSb	} Very small. $\Delta b = 290$ km.
391)		✓ 03 - 06 - 12 58	ePb iSb	} Very small. $\Delta b = 405$ km.
392)		✓ 03 - 16 - 10	iP	Distant.
393)		✓ 07 - 28 - 58	iP	Distant.
394)		✓ 10 - 57 - 54	iP	Very small.
395)		X 12 - 59 - 45 58	ePg iSg	} Very small. $\Delta g = 110$ km.
396)	24	X 03 - 55 - 30	eP	Very small.
397)		X 06 - 33 - 18 36 - 17	eP iS	} Distant. $\Delta = 1700$ km. = $15.3^{\circ}$ .
398)		✓ 14 - 58 - 15 X 15 - 06 - 49	eP iS	} Distant. $\Delta = 6945$ km. = $62.5^{\circ}$ .
399)		✓ 20 - 52 - 21	iP	Very small.
400)	25	✓ 08 - 54 - 23	eP	Distant. Chile quake
401)		✓ 13 - 42 - 34 45 - 57	eP iS	} Distant. $\Delta = 1965$ km. = $17.7^{\circ}$
402)		X 14 - 31 - 51 35 - 25	eP iS	} Distant. $\Delta = 2100$ km. = $18.9^{\circ}$ .
403)		✓ 15 - 09 - 33	iP	Very small.
404)		X 21 - 53 - 28 47	iPb eSb	} Very small. $\Delta b = 165$ km.
405)	26	X 04 - 01 - 24	iP	Very small.
406)		X 04 - 05 - 17 28	iPg iSg	} Very small. $\Delta g = 93$ km.
407)		✓ 05 - 24 - 00	eP	Teleseismic.
408)		X 12 - 34 - 04 35 - 11	ePb iSb	} Very small. $\Delta b = 595$ km. = $5.3^{\circ}$ .
409)		✓ 20 - 11 - 12 33	iPb iSb	} Very small. $\Delta b = 185$ km.



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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
410)	27	20 - 17 - 13	iP	} Distant. $\Delta = 4680$ km. = $42.1^\circ$ .
		23 - 40	eS	
411)		22 - 27 - 00	eF	} Telesismic.
	28	No Quakes Recorded.		
412)	29	07 - 59 - 40	eP	} Distant. Chile Quake.
413)		08 - 22 - 20	eP	
		24 - 20	eS	} Distant. $\Delta b = 1075$ km. = $9.6^\circ$ .
414)		09 - 24 - 02	ePg	
		13	iSg	} Very small. $\Delta g = 93$ km.
415)		14 - 14 - 05	ePb	
		23	iSb	} Very small. $\Delta b = 155$ km.
416)		20 - 01 - 29	iP	
				} Distant.
417)	30	13 - 58 - 32	ePb	} Very small. $\Delta b = 425$ km.
		59 - 10	iSb	
418)		15 - 27 - 58	iP	} Very small.
419)		16 - 06 - 30	iPg	
		36	iSg	} Small. $\Delta g = 50$ km. = Felt in Baguio, Int. I; Baler, Int. III; Quezon City, Int. III; Manila, Int. III; Casiguran, Int. II. Operated starting pendulum of strong motion seismograph. No record made.
420)	31	11 - 21 - 59	iP	} Distant.
421)		13 - 18 - 59	iP	
		25 - 18	iS	} Distant. $\Delta = 4535$ km. = $40.8^\circ$ .
422)		21 - 05 - 16	iP	
		08 - 00	iS	} Distant. $\Delta = 1545$ km. = $13.9^\circ$ .
423)		21 - 55 - 28	ePb	
		43	iSb	} Very small. $\Delta b = 130$ km.
424)		23 - 53 - 36	ePg	
		42	iSg	} Very small. $\Delta g = 50$ km.

\* \* \*

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Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39" Long. E. 120° 31' 47" Alt. 1507 meters

Instruments (All Sprengnethers) Hard Limestone Bedrock

Type	Component	Period		Magnification (Dynamic)
		Seism.	Galv.	Synchronous
Photographic	Z	1.41 sec.	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	E-W	1.54 "	1.49 "	3000

JUNE 1960

Date	Time (GMT)	Phase	Remarks
425)	1 X 07 - 25 - 42	iPg	} Very small. $\Delta g = 85$ km.
	52	iSg	
426)	X 09 - 17 - 10	ePg	} Very small. $\Delta g = 93$ km.
	21	iSg	
427)	X 09 - 19 - 50	ePb	} Very small. $\Delta b = 148$ km.
	20 - 07	iSb	
428)	X 15 - 40 - 29	ePb	} Very small. $\Delta b = 805$ km. = $7.2^\circ$ .
	41 - 59	eSb	
429)	X 20 - 12 - 12	iPb	} Very small. $\Delta b = 165$ km.
	31	iSb	
430)	X 20 - 18 - 19	ePb	} Very small. $\Delta b = 140$ km.
	35	iSb	
431)	X 21 - 35 - 27	ePb	} Very small. $\Delta b = 155$ km.
	45	iSb	
432)	2 X 01 - 57 - 47	iPg	} Very small. $\Delta g = 50$ km.
	53	iSg	
433)	✓ 06 - 17 - 47	iP	Distant.
434)	X 07 - 09 - 09	ePb	} Very small. $\Delta b = 140$ km.
	25	iSb	
435)	✓ 07 - 54 - 29	iP	} Distant. $\Delta = 4035$ km. = $36.3^\circ$ .
	08 - 00 - 19	iS	
436)	3 X 09 - 09 - 53	ePg	} Very small. $\Delta g = 40$ km.
	58	iSg	
437)	X 10 - 14 - 36	eP	Very small.
438)	X 11 - 34 - 48	ePg	} Very small. $\Delta g = 35$ km.
	58	iSg	
439)	X 13 - 12 - 00	eP	Teleseismic.
440)	✓ 16 - 28 - 00	eP	Teleseismic.

## Seismic Bulletin for June 1960 — page 2

	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
441)	4 X	16 - 39 - 31	eP	Very small.
442)	5 X	03 - 24 - 17	ePb	} Very small. $\Delta b = 155$ km.
		25 - 05	iSb	
443)	X	15 - 56 - 13	ePb	} Small. $\Delta b = 945$ km. = $8.5^\circ$ .
		57 - 59	iSb	
444)	6 ✓	06 - 15 - 35	iP*	Distant. Chile Quake.
445)	X	07 - 11 - 49	ePb	} Very small. $\Delta b = 318$ km.
		12 - 25	iSb	
446)	X	14 - 07 - 45	ePg	} Very small. $\Delta g = 63$ km.
		53	iSg	
	7 X	No Quakes Recorded.		
447)	8 X	05 - 15 - 22	iP	Distant. $\Delta = 1195$ km. = $10.7^\circ$ .
448)	9 X	09 - 53 - 21	iP	} Very small.
449)	✓	11 - 33 - 55	iP	
		✓ 41 - 57	iS	} Distant. $\Delta = 6380$ km. = $57.4^\circ$ .
450)	10 X	01 - 31 - 15	ePb	} Very small. $\Delta b = 140$ km.
		31	iSb	
451)	X	08 - 53 - 07	ePb	} Very small. $\Delta b = 220$ km.
		32	iSb	
452)	X	08 - 55 - 39	ePb	} Very small. $\Delta b = 190$ km.
		56 - 01	iSb	
453)	✓	12 - 04 - 37	iP	} Distant. $\Delta = 2620$ km. = $23.6^\circ$ .
		✓ 08 - 53	iS	
454)	✓	21 - 23 - 34	eP	} Distant. $\Delta = 8045$ km. = $72.4^\circ$ .
		✓ 33 - 02	iS	
455)	11 ✓	00 - 56 - 00	eP	Teleseismic.
456)	X	08 - 39 - 10	ePb	} Very small. $\Delta b = 190$ km.
		32	iSb	
457)	X	10 - 23 - 54	ePb	} Very small. $\Delta b = 230$ km.
		24 - 20	iSb	
458)	X	13 - 27 - 12	eP	} Very small.
459)	✓	15 - 21 - 51	iP	
		✓ 28 - 08	iS	} Distant. $\Delta = 4490$ km. = $40.4^\circ$ .
460)	✓	16 - 45 - 25	iP	} Distant. $\Delta = 4455$ km. = $40.1^\circ$ .
		✓ 51 - 40	iS	
	12 X	No Quakes Recorded.		
461)	13 X	04 - 33 - 50	ePb	} Very small. $\Delta b = 200$ km.
		24 - 13	iSb	
462)	✓	06 - 06 - 53	iP	} Distant.
463)	X	10 - 02 - 43	iPb	
		03 - 03	iSb	} Very small. $\Delta b = 130$ km.

## Seismic Bulletin for June 1960 -- page 3

	<u>Date</u>		<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
464)	13	X	11 - 58 - 11	iP	Very small.
465)		X	18 - 20 - 38	iPb	Very small. $\Delta b = 945 \text{ km.} = 8.5^\circ$ .
			22 - 24	iSb	
466)		X	18 - 31 - 12	ePb	Very small. $\Delta b = 155 \text{ km.}$
			30	iSb	
467)	14	✓	23 - 45 - 57	iP	Distant.
468)	15	X	01 - 16 - 49	ePb	Very small. $\Delta b = 130 \text{ km.}$
			17 - 04	iSb	
469)		✓	15 - 43 - 02	iP	Very small. $\Delta = 3245 \text{ km.} = 29.2^\circ$ .
			48 - 02	iS	
470)		X	22 - 09 - 46	ePg	Very small. $\Delta g = 100 \text{ km.}$
			58	iSg	
471)		✓	23 - 32 - 28	iP	Distant. $\Delta = 2400 \text{ km.} = 21.6^\circ$ .
			36 - 26	iS	
472)	16	X	03 - 29 - 36	iP	Distant. $\Delta = 2580 \text{ km.} = 23.2^\circ$ .
			33 - 48	iS	
473)		X	03 - 56 - 56	iPb	Very small. $\Delta b = 200 \text{ km.}$
			57 - 19	iSb	
474)		✓	06 - 39 - 29	iPb	Distant. $\Delta b = 755 \text{ km.} = 6.8^\circ$ .
			40 - 54	iSb	
475)		X	09 - 58 - 32	ePg	Very small. $\Delta g = 35 \text{ km.}$
			36	iSg	
476)		✓	10 - 29 - 44	eP	Distant.
477)	17	X	22 - 05 - 40	ePb	Very small.
			56	iSb	
	18	X	No Quakes Recorded.		
478)	19	X	09 - 21 - 11	iPb	Very small. $\Delta b = 140 \text{ km.}$
			27	iSb	
479)		✓	17 - 22 - 38	iP	Distant. $\Delta = 2535 \text{ km.} = 22.8^\circ$ .
			26 - 47	iS	
480)		X	23 - 35 - 34	ePb	Very small. $\Delta b = 300 \text{ km.}$
			36 - 08	iSb	
481)	20	X	00 - 46 - 30	ePb	Very small. $\Delta b = 220 \text{ km.}$
			55	iSb	
482)		✓	02 - 21 - 04	eP	Distant.
482)		X	03 - 26 - 32	iP	Distant. $\Delta = 2400 \text{ km.} = 21.6^\circ$ .
			30 - 30	eS	
484)		X	11 - 56 - 26	ePg	Very small. $\Delta g = 58 \text{ km.}$
			33	iSg	
485)		X	12 - 10 - 00	eP	Very small.
486)		✓	13 - 19 - 36	iP	Distant.
487)		X	19 - 09 - 17	iP	Very small. $\Delta b = 345 \text{ km.}$
			56	iS	

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	<u>Date</u>		<u>Time (GMT)</u>	<u>Phasa</u>	<u>Remarks</u>
488)	20	×	21 - 48 - 53 49 - 08	ePb iSb	} Very small. $\Delta b = 130$ km.
489)	21	×	04 - 58 - 48 59 - 11	ePb iSb	} Very small. $\Delta b = 200$ km.
490)		×	10 - 16 - 56 17 - 12	ePb iSb	} Very small. $\Delta b = 140$ km.
491)		×	12 - 47 - 06 49 - 54	eP iS	} Distant. $\Delta = 1590$ km. = $14.3^\circ$ .
492)	22	✓	16 - <del>22</del> - 18	iP	} Very small.
493)	23	×	12 - 13 - 44 17 - 56	iP eS	} Distant. $\Delta = 2580$ km. = $23.2^\circ$ .
494)	24	×	13 - 45 - 22 39	iPb iSb	} Very small. $\Delta b = 148$ km.
495)	25	✓	14 - <del>53</del> - 34	iP	} Distant.
496)		×	21 - 29 - 40	iP	} Distant.
497)	26	×	05 - 47 - 40 48 - 23	ePb iSb	} Very small. $\Delta b = 380$ km.
498)		×	08 - 32 - 02 17	ePb iSb	} Very small. $\Delta b = 130$ km.
499)		×	08 - 48 - 56 49 - 12	iPb iSb	} Very small. $\Delta b = 140$ km.
	27	×	No Quakes Recorded.		
500)	28	×	14 - 26 - 25 45	ePb iSb	} Very small. $\Delta b = 175$ km.
501)	29	×	05 - 19 - 11 17	iPg iSg	} Very small. $\Delta g = 50$ km.
502)		✓	05 - <del>22</del> - 39	iP	} Very small.
503)		×	15 - 02 - 40 46	eP iS	} Very small. $\Delta g = 50$ km.
504)	30	×	12 - 59 - 16 20	ePg iSg	} Very small. $\Delta g = 35$ km.
505)		×	14 - 27 - 08 29	iPb iSb	} Very small. $\Delta b = 185$ km.

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July-Sept. Copied

MANILA OBSERVATORY  
Mirador, Baguio City  
Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"

Long. E. 120° 34' 47"

Alt. 1507 meters

Instruments (All Sprengnethers)

Hard Limestone Becrock

Type	Component	Period		Magnification (Dynamic)
		Seism.	Galv.	Synchronous
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	E-W	1.54 "	1.49 "	3000

JULY 1960

Date	Time (GMT)	Phase	Remarks
506)	1 X 18 - 46 - 00	eP	Teleseismic.
507)	2 ✓ 12 - 18 - 16	iP	Distant.
508)	3 ✓ 20 - 30 - 53	iP	Distant. $\Delta = 6665$ km. = $60.0^\circ$ .
	39 - 12	iS	
509)	4 ✓ 04 - 41 - 26	eP	Distant. $\Delta = 9600$ km. = $86.4^\circ$ .
	52 - 04	iS	
5	X No Quakes Recorded.		
510)	6 ✓ 05 - 25 - 10	iP	Distant.
511)	X 14 - 46 - 19	eP	Distant. $\Delta = 1765$ km. = $15.9^\circ$ .
	49 - 24	iS	
512)	X 20 - 20 - 53	ePg	Very small. $\Delta g = 75$ km.
	21 - 02	iSg	
513)	X 23 - 22 - 13	eP	Distant.
514)	7 X 14 - 30 - 30	ePb	Very small. $\Delta b = 415$ km.
	31 - 17	iSb	
515)	X 14 - 36 - 37	ePb	Very small. $\Delta b = 140$ km.
	48	iSb	
516)	X 16 - 08 - 44	ePg	Very small. $\Delta g = 100$ km.
	56	iSg	
517)	X 20 - 08 - 10	eP	Very small.
518)	8 X 03 - 19 - 20	ePb	Very small. $\Delta b = 175$ km.
	40	eSb	
519)	✓ 12 - 55 - 17	iP	Distant. $\Delta = 1845$ km. = $16.6^\circ$ .
	58 - 29	iS	

Seismic Bulletin for July 1960 - page 2

	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
520)	8	14 - 50 - 10 54 - 26	iP iS	Distant. $\Delta = 2620 \text{ km.} = 23.6^\circ$ .
521)	9	00 - 45 - 01 47 - 04	eP iS	Distant. $\Delta = 1100 \text{ km.} = 9.9^\circ$ .
522)		10 - 05 - 11	eP	Very small.
523)		20 - 28 - 38	iP	Very small.
524)		21 - 16 - 43 17 - 00	ePb iSb	Very small. $\Delta b = 148 \text{ km.}$
525)		23 - 49 - 34 51	ePb iSb	Very small. $\Delta b = 148 \text{ km.}$
526)	10	00 - 11 - 09 16 - 11	iP iS	Distant. $\Delta = 3280 \text{ km.} = 29.5^\circ$ .
527)		02 - 51 - 17	eP	Very small.
528)		13 - 12 - 10 36	ePb iSb	Very small. $\Delta b = 230 \text{ km.}$
529)	11	12 - 06 - 49 16 - 30	iP iS	Distant. $\Delta = 8320 \text{ km.} = 74.9^\circ$ .
530)		16 - 15 - 30 46	ePb iSb	Very small. $\Delta b = 140 \text{ km.}$
531)		17 - 34 - 50 35 - 22	iPb iSb	Very small. $\Delta b = 283 \text{ km.}$
532)	12	09 - 52 - 59 53 - 09	iPg iSg	Very small. $\Delta g = 85 \text{ km.}$
533)	13	00 - 41 - 44	eP	Very small.
534)		05 - 29 - 59 30 - 12	ePg iSg	Very small. $\Delta g = 110 \text{ km.}$
535)		15 - 10 - 04 21	iPb eSb	Very small. $\Delta b = 148 \text{ km.}$
536)		15 - 33 - 25 34 - 06	ePb iSb	Small. $\Delta b = 362 \text{ km.}$
537)		18 - 34 - 07 17	ePg iSg	Very small. $\Delta g = 85 \text{ km.}$
538)		20 - 33 - 16 37 - 28	eP iS	Distant. $\Delta = 2580 \text{ km.} = 23.2^\circ$ .
539)	14	01 - 21 - 02 16	iPg iSg	Very small. $\Delta g = 114 \text{ km.}$
540)		02 - 09 - 30 12 - 30	eP iS	Distant. $\Delta = 1500 \text{ km.} = 13.5^\circ$ .
541)		10 - 30 - 20 32 - 46	iP iS	Distant. $\Delta = 1355 \text{ km.} = 12.2^\circ$ .
542)		15 - 25 - 22	iP	Distant.
543)		20 - 22 - 53	eP	Distant.

Seismic Bulletin for July 1960 - page 3

	Date	Time (GMT)	Phase	Remarks
544)	15	X 01 - 44 - 00	ePb	} Very small. $\Delta b = 370$ km.
		42	iSb	
545)		X 22 - 49 - 31	ePb	} Very small. $\Delta b = 175$ km.
		51	iSb	
546)	16	✓ 17 - 22 - 17	iP	Distant.
547)	17	X 00 - 06 - 52	iPb	} Very small. $\Delta b = 370$ km.
		07 - 34	iSb	
548)		X 00 - 48 - 38	ePb	} Very small. $\Delta b = 165$ km.
		57	iSb	
549)		X 02 - 16 - 50	iPb	} Distant. $\Delta b = 1015$ km. = $9.1^\circ$ .
		18 - 44	iSb	
550)		X 05 - 42 - 00	eP	Teleseismic.
551)		X 07 - 26 - 10	ePg	} Very small. $\Delta g = 58$ km.
		17	iSg	
552)		X 08 - 49 - 04	iP	Very small.
553)		X 19 - 03 - 24	ePg	} Very small. $\Delta g = 114$ km.
		38	iSg	
554)	18	✓ 00 - 59 - 50	eP	} Distant. $\Delta = 6930$ km. = $62.8^\circ$ .
		X 01 - 08 - 26	iS	
555)		✓ 01 - 50 - 34	eP	} Distant. $\Delta = 4010$ km. = $36.1^\circ$ .
		56 - 22	iS	
556)	19	X 19 - 18 - 22	ePb	} Very small. $\Delta b = 175$ km.
		42	iSb	
557)	20	✓ 09 - 38 - 49	iP	Distant.
558)		✓ 21 - 09 - 21	iP	} Distant. $\Delta = 6434$ km. = $57.9^\circ$ .
		17 - 26	iS	
21	X	No Quakes Recorded.		
22	X	No Quakes Recorded.		
559)	23	X 06 - 14 - 02	iP	Very small.
560)		✓ 07 - 41 - 56	iP	Very small.
561)	24	X 08 - 11 - 52	eP	Distant.
562)		X 09 - 41 - 24	ePb	} Very small. $\Delta b = 245$ km.
		48	iSb	
563)		✓ 09 - 58 - 05	iP	} Distant. $\Delta = 5545$ km. = $49.9^\circ$ .
		X 10 - 05 - 20	eS	
564)	25	X 02 - 01 - 44	ePb	} Very small. $\Delta b = 405$ km.
		02 - 30	iSb	
565)		✓ 03 - 50 - 06	eP	} Distant. $\Delta = 5190$ km. = $49.4^\circ$ .
		57 - 18	iS	
566)		✓ 11 - 20 - 29	iP	} Distant. $\Delta 4980$ km. = $44.3^\circ$ .
		27 - 12	iS	



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	Date	Time (GMT)	Phase	Remarks
567)	25	X 21 - 48 - 56	iP	Distant.
568)	26	X 08 - 49 - 48	ePb	} Very small. $\Delta b = 345$ km.
		45 - 27	iSb	
569)		X 12 - 17 - 16	ePg	} Very small. $\Delta g = 40$ km.
		21	iSg	
570)		X 19 - 51 - 52	eib	} Very small. $\Delta b = 165$ km.
		52 - 11	iSb	
571)		X 20 - 59 - 15	ePb	} Very small. $\Delta b = 165$ km.
		34	iSb	
572)	27	X 03 - 27 - 46	eP	} Distant. $\Delta = 1280$ km. = $11.5^\circ$ .
		30 - 05	iS	
573)		X 06 - 51 - 23	ePb	} Very small. $\Delta b = 165$ km.
		42	iSb	
574)		✓ 09 - 02 - 05	eP	} Distant. $\Delta = 3555$ km. = $32.0^\circ$ .
		07 - 24	iS	
575)		✓ 10 - 24 - 38	eP	Distant.
576)	28	X 17 - 14 - 36	eib	} Very small. $\Delta b = 283$ km.
		15 - 08	iSb	
577)		X 17 - 47 - 46	ePg	} Very small. $\Delta g = 40$ km.
		51	iSg	
578)	29	✓ 00 - 34 - 21	iP	Distant.
579)		✓ 10 - 59 - 00	eP	Distant.
580)		X 15 - 02 - 00	eP	Distant.
581)		✓ 17 - 37 - 50	iP	} Distant. $\Delta = 3090$ km. = $27.8^\circ$ .
		42 - 40	iS	
582)	30	X 07 - 34 - 08	ePb	} Distant. $\Delta b = 855$ km. = $7.7^\circ$ .
		35 - 44	iSb	
583)		X 10 - 34 - 10	ePb	} Very small. $\Delta b = 300$ km.
		44	iSb	
584)		X 14 - 35 - 00	eP	T Teleseismic.
585)	31	✓ 03 - 02 - 58	iP	} Distant. $\Delta = 3855$ km. = $34.7^\circ$ .
		08 - 36	iS	
586)		✓ 07 - 11 - 52	eP	Distant.
587)		✓ 15 - 14 - 44	iP	Very small.
588)		X 18 - 53 - 00	eP	Teleseismic.

MANTLA OBSERVATORY  
 Mirador, Baguio City  
 Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"      Long. E. 120° 34' 47"      Alt. 1507 meters

Instruments (All Sprengnethers)      Hard Limestone Bedrock

<u>Type</u>	<u>Component</u>	<u>Period</u>		<u>Magnification (Dynamic)</u> <u>Synchronous</u>
		<u>Seism.</u>	<u>Galv.</u>	
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	E-W	1.54 "	1.49 "	3000

AUGUST 1960

<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
589)	1 × 12 - 18 - 58	ePg	} Very small. $\Delta$ g = 100 km.
	19 - 10	iSg	
590)	× 16 - 30 - 52	ePb	} Very small. $\Delta$ b = 535 km.
	31 - 52	iSb	
591)	× 21 - 35 - 30	iPb	} Small. $\Delta$ b = 585 km. = 5.2°. Felt at Borongan, Int. III; Tacloban, Int. III; Catbalogan, Int. I.
	36 - 36	iSb	
592)	2 × 00 - 02 - 00	ePb	} Very small. $\Delta$ b = 210 km.
	24	iSb	
593)	× 00 - 39 - 02	ePb	} Very small. $\Delta$ b = 290 km.
	35	eSb	
594)	× 04 - 47 - 40	iP	Distant.
595)	× 07 - 00 - 01	eP	Very small.
	3 × No Quakes Recorded.		
596)	4 ✓ 07 - 44 - 43	iP	} Distant. $\Delta$ = 6280 km. = 56.5°.
	52 - 39	iS	
	5 × No Quakes Recorded.		
	6 × No Quakes Recorded.		
	7 × No Quakes Recorded.		
	8 × No Quakes Recorded.		

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	Date	Time (GAT)	Phase	Remarks
597)	9	07 - 20 - 33	iPb	} Very small. $\Delta b = 255$ km.
		21 - 02	iSb	
598)		08 - 08 - 00	eP	} Distant.
599)		16 - 57 - 00	eP	
600)		23 - 46 - 06	iP	} Very small.
10	X	No Quakes Recorded.		
601)	11	01 - 11 - 34	ePb	} Very small. $\Delta b = 283$ km.
		12 - 06	iSb	
602)		02 - 57 - 08	iP	} Distant. $\Delta = 1955$ km. = $17.6^\circ$ .
		03 - 00 - 30	iS	
603)		04 - 52 - 44	ePb	} Distant. $\Delta b = 910$ km. = $8.2^\circ$ .
		54 - 26	iSb	
604)	12	13 - 18 - 11	eP	} Distant.
605)	13	07 - 17 - 14	iP	} Distant. $\Delta = 3200$ km. = $28.8^\circ$ .
		22 - 11	iS	
606)		14 - 34 - 44	iP	} Distant.
607)	14	23 - 47 - 30	aPb	} Very small. $\Delta b = 155$ km.
		48	iSb	
15	X	No Quakes Recorded.		
608)	16	03 - 05 - 26	iPg	} Very small. $\Delta g = 35$ km. Felt in Baguio, Int. I.
		40	iSg	
609)		03 - 20 - 56	iP	} Very small.
610)		22 - 33 - 22	eP	
611)	17	20 - 13 - 18	ePb	} Very small. $\Delta b = 175$ km.
		38	iSb	
612)		20 - 22 - 32	ePb	} Very small. $\Delta b = 283$ km.
		23 04	iSb	
613)	18	04 - 44 - 54	ePg	} Very small. $\Delta g = 50$ km.
		45 - 00	iSg	
614)		08 - 11 - 20	ePb	} Very small. $\Delta b = 140$ km.
		36	eSb	
615)	19	08 - 12 - 10	ePb	} Very small. $\Delta b = 620$ km. = $5.6^\circ$ .
		13 - 20	iSb	
616)		12 - 46 - 00	iP	} Distant. $\Delta = 1955$ km. = $17.6^\circ$ .
		49 - 22	iS	
617)	20	09 - 37 - 56	ePg	} Very small. $\Delta g = 35$ km.
		38 - 00	iSg	
618)		22 - 26 - 31	eP	} Distant. $\Delta = 1455$ km. = $13.1^\circ$ .
		29 - 07	iS	

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Monthly Seismological Bulletin for August 1960 --- page 3

	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
617)	21	✓ 12 - 52 - 29 54 - 55	iP iS	} Distant. $\Delta = 1355 \text{ km.} = 12.2^\circ$ . Felt in Hinatuan, Int. II; Davao, Int. I.
620)	22	✗ 19 - 27 - 13 39	ePb i3b	} Very small. $\Delta b = 230 \text{ km.}$
621)	23	✓ 22 - 56 - 03 23 - 05 - 06	iP iS	} Distant. $\Delta = 7420 \text{ km.} = 66.8^\circ$ .
622)	24	✓ 01 - 53 - 16 02 - 00 - 35	iP iS	} Distant. $\Delta = 5610 \text{ km.} = 50.5^\circ$ .
	25	✗ No Quakes Recorded.		
623)	26	✗ 12 - 56 - 54 58 - 30	ePb eSb	} Very small. $\Delta b = 355 \text{ km.} = 7.7^\circ$ .
624)		✓ 18 - 37 - 38 46	iPg i3g	} Very small. $\Delta g = 68 \text{ km.}$
625)	27	✓ 13 - 23 - 57 30 - 09	iP iS	} Distant. $\Delta = 4400 \text{ km.} = 39.6^\circ$ .
626)	28	✗ 10 - 35 - 41	ePg	} Very small. $\Delta g = 50 \text{ km.}$
627)	29	✗ 21 - 17 - 00 05	ePg i3g	} Very small. $\Delta g = 40 \text{ km.}$
628)		✗ 22 - 58 - 56 59 - 15	ePb i3b	} Very small. $\Delta b = 165 \text{ km.}$
629)	30	✗ 00 - 38 - 50 56	ePg i3g	} Very small. $\Delta g = 50 \text{ km.}$
630)		✗ 02 - 37 - 48 38 - 01	iPg eSg	} Very small. $\Delta g = 110 \text{ km.}$
631)		✗ 10 - 16 - 43 53	iPg i3g	} Very small. $\Delta g = 85 \text{ km.}$
632)	31	✗ 17 - 22 - 38 23 - 13	iPb i3b	} Small. $\Delta b = 310 \text{ km.}$ Felt in Manila, Int. II.
633)		✗ 18 - 19 - 29 38	ePg i3g	} Very small. $\Delta g = 75 \text{ km.}$

\* \* \* \* \*

MANILA OBSERVATORY  
Mirador, Baguio City  
Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"                      Long. E. 120° 34' 47"                      Alt. 1507 meters

Instruments (All Sprengnethers)                      Hard Limestone Bedrock

<u>Type</u>	<u>Component</u>	<u>Period</u>		<u>Magnification (Dynamic)</u> <u>Synchronous</u>
		<u>Seism.</u>	<u>Galv.</u>	
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	
	N-S	1.84 "	1.57 "	
Photoelectric	N-S	11.80 "	12.00 "	1000
	E-W	1.54 "	1.49 "	3000

SEPTEMBER 1960  
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<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
634) 01	09 - 38 - 00	iP	Distant. $\Delta = 6280$ km. = $56.5^\circ$ .
	45 - 56	iS	
635)	10 - 44 - 46	iP	Distant. $\Delta = 6300$ km. = $56.7^\circ$ .
	52 - 44	eS	
636)	15 - 48 - 52	eP	Distant. $\Delta = 8135$ km. = $73.2^\circ$ .
	58 - 25	iS	
637)	16 - 58 - 10	eP	Distant.
638)	20 - 12 - 56	eP	Distant.
639) 02	13 - 51 - 26	iP	Distant. $\Delta = 2700$ km. = $24.3^\circ$ .
	55 - 48	iS	
640)	22 - 13 - 20	iP	Distant. $\Delta = 6790$ km. = $61.1^\circ$ .
	21 - 46	iS	
641) 03	01 - 34 - 20	ePb	Very small. $\Delta b = 300$ km.
	54	iSb	
642)	11 - 06 - 10	ePb	Very small. $\Delta b = 148$ km.
	27	iSb	
643)	12 - 02 - 54	ePb	Very small. $\Delta b = 300$ km.
	03 - 28	iSb	
644)	12 - 48 - 31	iP	Distant. $\Delta = 3820$ km. = $34.4^\circ$ .
	54 - 12	iS	
645)	23 - 53 - 36	iP	Distant. $\Delta = 3945$ km. = $35.5^\circ$ .
	59 - 20	iS	
04	No Quakes Recorded.		

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
646)	05 ✗	02 - 43 - 55 44 - 29	ePb iSb	} Very small. $\Delta b = 300$ km.
647)	06 ✗	01 - 29 - 22 43	iPb iSb	} Very small. $\Delta b = 185$ km.
648)	✓	14 - 13 - 06	eP	Very small.
649)	✗	19 - 34 - 56 35 - 16	iPb iSb	} Very small. $\Delta b = 155$ km.
650)	✗	21 - 01 - 57 02 - 35	iPb iSb	} Very small. $\Delta b = 335$ km.
651)	✗	21 - 34 - 18 56	ePb iSb	} Very small. $\Delta b = 335$ km.
652)	✗	23 - 13 - 42 14 - 19	ePb iSb	} Very small. $\Delta b = 325$ km.
653)	07 ✗	03 - 54 - 00	iP	Distant.
654)	08 ✓	11 - 10 - 38 13 - 16	iP iS	} Distant. $\Delta = 1480$ km. = $13.4^\circ$ .
655)	09 ✗	08 - 47 - 42 59	iPb iSb	} Very small. $\Delta b = 148$ km.
656)	✗	18 - 53 - 32 54 - 03	iPb iSb	} Very small. $\Delta b = 275$ km.
657)	10 ✗	04 - 19 - 58 20 - 22	ePb iSb	} Very small. $\Delta b = 210$ km.
658)	✗	10 - 20 - 54 21 - 29	ePb iSb	} Very small. $\Delta b = 310$ km.
659)	✓	10 - 47 - 37	eP	Distant.
660)	✗	12 - 36 - 02 19	ePb iSb	} Very small. $\Delta b = 148$ km.
661)	✗	15 - 59 - 00	eP	Teleseismic.
662)	✗	23 - 26 - 58 27 - 11	ePg iSg	} Very small. $\Delta g = 110$ km.
663)	11 ✗	10 - 16 - 23	iP	Very small.
664)	12 ✗	06 - 37 - 26	iP	Very small.
665)	✓	12 - 20 - 18 22 - 54	eP iS	} Distant. $\Delta = 1455$ km. = $13.1^\circ$ .
666)	✓	16 - 06 - 34 48	iPg iSg	} Very small. $\Delta g = 114$ km.
667)	✗	20 - 27 - 31 40	iPg iSg	} Very small. $\Delta g = 75$ km.
668)	13 ✓	03 - 13 - 24 16 - 48	eP iS	} Distant. $\Delta = 1980$ km. = $17.8^\circ$ .
669)	✗	04 - 01 - 54 02 - 40	ePb eSb	} Very small. $\Delta b = 405$ km.
670)	✗	16 - 18 - 40 19 - 14	ePb iSb	} Very small. $\Delta b = 300$ km.

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
671)	14 ✓	00 - 34 - 54	iPb	} Moderate. $\Delta b = 185$ km. Felt in Baguio, Int. I; Manila, Int. IV.
		35 - 15	iSb	
672)	✓	03 - 54 - 00	eP	} Very small.
673)	✗	06 - 10 - 46	iPb	} Very small. $\Delta b = 220$ km.
		11 - 11	iSb	
674)	15 ✗	13 - 40 - 09	ePb	} Very small. $\Delta b = 265$ km.
		39	iSb	
675)	✗	14 - 54 - 33	ePb	} Very small. $\Delta b = 165$ km.
		52	iSb	
676)	✗	15 - 55 - 03	ePg	} Very small. $\Delta g = 100$ km.
		15	iSg	
677)	✗	16 - 12 - 09	ePb	} Very small. $\Delta b = 370$ km.
		51	iSb	
678)	✓	18 - 02 - 10	iP	} Distant. $\Delta = 2165$ km. = $19.5^\circ$ .
		05 - 49	iS	
679)	✗	19 - 33 - 45	ePb	} Very small. $\Delta b = 165$ km.
		34 - 04	iSb	
680)	16 ✗	12 - 30 - 03	eP	} Distant.
681)	✗	14 - 07 - 58	eP	} Distant.
682)	17 ✗	08 - 00 - 54	eP	} Distant. $\Delta = 4665$ km. = $42.0^\circ$ .
		✓ 07 - 20	iS	
683)	✗	12 - 58 - 21	iP	} Distant.
684)	✗	13 - 15 - 47	ePg	} Very small. $\Delta g = 114$ km.
		16 - 01	iSg	
685)	✗	17 - 20 - 15	eP	} Teleseismic.
686)	✗	22 - 23 - 21	ePb	} Very small. $\Delta b = 210$ km.
		45	iSb	
687)	18 ✗	00 - 53 - 53	ePb	} Very small. $\Delta b = 200$ km.
		54 - 16	iSb	
688)	✓	09 - 45 - 47	iP	} Distant. $\Delta = 2500$ km. = $22.5^\circ$ .
		49 - 53	iS	
689)	✗	12 - 42 - 09	ePb	} Very small. $\Delta b = 370$ km.
		51	iSb	
690)	19 ✓	03 - 39 - 50	iPb	} Small. $\Delta b = 165$ km.
		40 - 09	iSb	
691)	✓	03 - 59 - 09	iP	} Small.
692)	✗	04 - 24 - 23	ePb	} Very small.
		43	eSb	
693)	20 ✗	22 - 16 - 02	eP	} Very small.
694)	21 ✗	08 - 25 - 42	ePb	} Very small. $\Delta b = 185$ km.
		26 - 03	iSb	
695)	✗	10 - 26 - 46	iPb	} Very small. $\Delta b = 300$ km.
		27 - 20	iSb	

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	<u>Date</u>		<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
696)	21	✓	16 - 10 - 47 12 - 45	ePb iSb	} Distant. $\Delta b = 1055 \text{ km.} = 9.5^\circ$ .
697)	22	✗	05 - 32 - 59 33 - 23	ePb eSb	} Very small. $\Delta b = 210 \text{ km.}$
698)		✓	05 - 55 - 00	eP	Teleseismic.
699)		✗	06 - 23 - 13 22	ePg iSg	} Very small. $\Delta g = 75 \text{ km.}$
700)		✗	07 - 58 - 39 59 - 11	iPb iSb	} Very small. $\Delta b = 283 \text{ km.}$
701)		✓	09 - 18 - 19 23 - 15	eP iS	} Distant. $\Delta = 8000 \text{ km.} = 72.0^\circ$ .
702)	23	✗	11 - 32 - 39 53	iPg iSg	} Very small. $\Delta g = 114 \text{ km.}$
	24	✗	No Quakes Recorded.		
	25	✗	No Quakes Recorded.		
	26	✗	No Quakes Recorded.		
703)	27	✗	06 - 59 - 50	ePg	} Very small.. $\Delta g = 93 \text{ km.}$
		✗	07 - 00 - 01	eSg	
704)		✗	07 - 22 - 45 26 - 52	iP iS	} Distant. $\Delta = 2510 \text{ km.} = 22.6^\circ$ .
705)		✓	18 - 41 - 07 21	iPg iSg	} Very small. $\Delta g = 114 \text{ km.}$
706)	28	✓	05 - 40 - 00	eP	Teleseismic.
707)		✗	08 - 19 - 31	eP	Very small.
708)		✗	12 - 16 - 31 17 - 13	ePb eSb	} Very small. $\Delta b = 370 \text{ km.}$
709)	29	✓	11 - 23 - 27 27 - 09	iP iS	} Distant. $\Delta = 2200 \text{ km.} = 19.8^\circ$ .
710)		✗	16 - 06 - 51 07 - 01	eP iS	} Very small. $\Delta g = 85 \text{ km.}$
711)	30	✗	10 - 09 - 49 59	eP iS	} Very small. $\Delta g = 85 \text{ km.}$
712)		✗	17 - 47 - 21 40	iPb eSb	} Very small. $\Delta b = 165 \text{ km.}$
713)		✗	22 - 26 - 48 27 - 24	ePb eSb	} Very small. $\Delta b = 318 \text{ km.}$

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No 254

MANILA OBSERVATORY  
Mirador, Baguio City  
Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"      Long. E. 120° 34' 47"      Alt. 1507 meters

Instruments (All Sprengnethers)

Hard Limestone Bedrock

<u>Type</u>	<u>Component</u>	<u>Period</u>		<u>Magnification (Dynamic)</u>
		<u>Seism.</u>	<u>Galv.</u>	<u>Synchronous</u>
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	E-W	1.54 "	1.49 "	3000

OCTOBER 1960

<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
714)	01 X 03 - 06 - 20	eP	} Very small. Very small. $\Delta b = 1090 \text{ km.} = 9.8^\circ$ . Distant. $\Delta = 6790 \text{ km.} = 61.1^\circ$ . Very small. $\Delta g = 58 \text{ km.}$
715)	X 06 - 29 - 48	ePb	
	31 - 50	iSb	
716)	✓ 16 - 21 - 30	eP	
	29 - 56	iS	
717)	X 18 - 54 - 25	iPg	} Very small. $\Delta g = 58 \text{ km.}$
	32	eSg	
02	X No Quakes Recorded.		
718)	03 X 08 - 41 - 47	iPb	} Very small. $\Delta b = 275 \text{ km.}$
	42 - 18	iSb	
719)	X 11 - 53 - 49	eF	} Very small. Distant.
720)	19 - 56 - 38	eP	
721)	04 ✓ 09 - 58 - 52	iP	} Distant. $\Delta = 4510 \text{ km.} = 40.6^\circ$ .
	10 - 05 - 10	iS	
05	X No Quakes Recorded.		
722)	06 X 00 - 41 - 58	iPb	} Very small. $\Delta b = 265 \text{ km.}$
	42 - 28	eSb	
723)	X 13 - 39 - 25	ePg	} Very small. $\Delta g = 35 \text{ km.}$
	29	iSg	
724)	07 ✓ 15 - 24 - 02	iP	} Distant. $\Delta = 2690 \text{ km.} = 24.2^\circ$ .
	28 - 23	iS	
725)	08 ✓ 05 - 57 - 41	eP	} Distant.
726)	09 ✓ 09 - 06 - 43	eP	} Distant. $\Delta = 2980 \text{ km.} = 26.8^\circ$ .
	11 - 25	iS	
727)	X 19 - 24 - 48	ePb	} Very small. $\Delta b = 675 \text{ km.} = 6.0^\circ$ . Felt at Tacloban, Int. III; Borongan, Int. II.
	26 - 04	iSb	

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
728)	09	20 - 32 - 28	eP	Very small. $\Delta b = 335$ km.
729)		21 - 40 - 22	ePb	
		41 - 00	eSb	
	10	No Quakes Recorded.		
730)	11	17 - 31 - 15	ePg	Very small. $\Delta g = 114$ km.
		29	iSg	
731)	12	10 - 32 - 23	ePg	Very small. $\Delta g = 35$ km.
		27	iSg	
732)		15 - 34 - 15	ePg	Very small. $\Delta g = 100$ km.
		24	iSg	
733)	13	10 - 43 - 31	ePb	Very small. $\Delta b = 210$ km.
		55	iSb	
734)		15 - 01 - 24	iP	Distant. $\Delta = 2555$ km. = $23.0^\circ$ .
		05 - 39	iS	
735)	14	15 - 31 - 51	ePb	Very small. $\Delta b = 210$ km.
		32 - 15	eSb	
736)		21 - 29 - 41	eP	Distant.
737)	15	11 - 31 - 47	ePb	Very small. $\Delta b = 660$ km. = $5.9^\circ$ .
		33 - 01	iSb	
	16	No Quakes Recorded.		
738)	17	14 - 44 - 16	ePb	Very small. $\Delta b = 480$ km.
		45 - 10	iSb	
739)	18	10 - 35 - 40	ePb	Very small. $\Delta b = 140$ km.
		56	iSb	
740)	19	14 - 00 - 59	ePb	Very small. $\Delta b = 155$ km.
		01 - 17	iSb	
741)	20	02 - 09 - 57	ePg	Very small. $\Delta g = 75$ km.
		10 - 06	iSg	
742)		11 - 15 - 04	iP	Distant. $\Delta = 5680$ km. = $51.1^\circ$ .
		22 - 27	iS	
743)	21	01 - 04 - 56	ePb	Very small. $\Delta b = 245$ km.
		05 - 24	iSb	
744)		20 - 03 - 30	ePb	Very small. $\Delta b = 165$ km.
		49	eSb	
745)	22	08 - 30 - 34	iP	Distant. $\Delta = 5200$ km. = $46.8^\circ$ .
		37 - 30	iS	
746)	23	10 - 12 - 04	ePg	Very small. $\Delta g = 85$ km.
		14	iSg	
747)		13 - 16 - 45	ePb	Very small. $\Delta b = 175$ km.
		17 - 05	iSb	

Monthly Seismological Bulletin - October 1960 - Page 3

	Date	Time (GMT)	Phase	Remarks
748)	23	20 - 50 - 55 51 - 11	ePb iSb	} Very small. $\Delta b = 140$ km.
749)	24	08 - 21 - 31	iP	
750)		15 - 38 - 39 57	ePb iSb	} Very small. $\Delta b = 155$ km.
751)	25	No Quakes Recorded.		
751)	26	19 - 02 - 39 54	ePb ePb	} Very small. $\Delta b = 130$ km.
752)		22 - 25 - 41 26 - 43	ePb iSb	
753)	27	10 - 51 - 52 16	iPb iSb	} Small. $\Delta b = 210$ km. Felt in Baguio, Int. I; Casiguran, Int. I. Operated starting pendulum only of strong motion seismograph. No record made.
754)		11 - 11 - 45 59	ePg iSg	
755)		12 - 42 - 25 37	ePg iSg	} Very small. $\Delta g = 100$ km.
756)		12 - 55 - 01 17	iPb iSb	
757)		13 - 19 - 06 21	iPb iSb	} Very small. $\Delta b = 130$ km.
758)		14 - 12 - 47 13 - 01	ePg eSg	
759)		14 - 21 - 31 45	ePg eSg	} Very small. $\Delta g = 114$ km.
760)		14 - 27 - 55 28 - 05	ePg iSg	
761)		15 - 26 - 03 17	iPg iSg	} Very small. $\Delta g = 114$ km.
762)		17 - 21 - 11 23	ePg iSg	
763)		19 - 14 - 49 59	ePg iSg	} Very small. $\Delta g = 85$ km.
764)		19 - 40 - 49 41 - 05	ePb iSb	
765)		22 - 38 - 51	iP	} Very small.
766)	28	05 - 12 - 00	eP	
767)		13 - 26 - 32 33 - 08	iP iS	} Distant. $\Delta = 4845$ km. = $43.6^\circ$ .
768)		22 - 34 - 54 40 - 00	eP iS	
769)	29	05 - 49 - 48 55	iPg eSg	} Very small. $\Delta g = 58$ km.
770)		17 - 10 - 13 41	iPb eSb	

Monthly Seismological Bulletin -- October 1960 - Page 4

<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
771)	29 <del>x</del> 17 - 12 - 58 13 - 30	iFb iSb	} Small. $\Delta b = 283$ km.
772)	30 <del>✓</del> 12 - <del>34</del> - 42	eP	
773)	<del>✓</del> 15 - <del>55</del> - 08	eP	} Distant. $\Delta = 2020$ km. = $18.2^\circ$ .
	<del>✓</del> 58 - 35	iS	
774)	<del>✓</del> 21 - <del>52</del> - 53	iP	Distant.
775)	31 <del>x</del> 06 - 43 - 46	eFb	} Small. $\Delta b = 965$ km. = $8.6^\circ$ .
	45 - 34	iSb	
776)	<del>x</del> 14 - 35 - 55	eFb	} Very small. $\Delta b = 130$ km.
	36 - 10	eSb	
777)	<del>x</del> 23 - 20 - 26	iFb	} Very small. $\Delta b = 190$ km.
	48	iSb	
778)	<del>x</del> 23 - 34 - 57	ePg	} Very small. $\Delta g = 100$ km.
	35 - 09	iSg	

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MANILA OBSERVATORY  
Mirador, Baguio City  
Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16° 24' 39"      Long. E. 120° 34' 47"      Alt. 1507 meters

Instruments (All Sprengnethers)

Hard Limestone Bedrock

<u>Type</u>	<u>Component</u>	<u>Period</u>		<u>Magnification (Dynamic)</u> <u>Synchronous</u>
		<u>Seism.</u>	<u>Galv.</u>	
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
	Visual recording	E-W	1.54 "	3000

NOVEMBER 1960  
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<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
779)	1 X 05 - 38 - 55	ePg	} Very small. $\Delta g = 110$ km.
	39 - 08	iSg	
780)	✓ 09 - 05 - 45	iP'	Distant. Chile Quake.
781)	X 19 - 14 - 14	ePg	} Very small. $\Delta g = 75$ km.
	23	iSg	
782)	2 X 06 - 02 - 12	ePb	} Very small. $\Delta b = 155$ km.
	30	iSb	
783)	X 12 - 56 - 53	ePg	} Very small. $\Delta g = 35$ km.
	57	iSg	
784)	✓ 17 - 23 - 57	iP	} Distant. $\Delta = 5635$ km. = 50.7°.
	31 - 18	iS	
785)	X 20 - 47 - 57	ePb	} Very small. $\Delta b = 148$ km.
	48 - 44	iSb	
786)	3 X 11 - 41 - 11	ePb	} Very small. $\Delta b = 148$ km.
	28	iSb	
787)	X 23 - 11 - 18	ePb	} Very small. $\Delta b = 245$ km.
	46	iSb	
788)	4 X 14 - 26 - 16	iP	Very small.
789)	X 20 - 06 - 43	ePb	} Very small. $\Delta b = 390$ km.
	07 - 27	eSb	
	5 X No Quakes Recorded.		
790)	6 X 03 - 20 - 20	ePb	} Very small. $\Delta b = 300$ km.
	54	iSb	

## Monthly Seismological Bulletin - November 1960 - page 2

	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
791)	6 ✓	04 - 46 - 55 53 - 50	iP iS	} Distant. $\Delta = 5190$ km. = $46.7^\circ$ .
792)	✗	06 - 40 - 33 50	iPb iSb	} Small. $\Delta b = 148$ km.
793)	✓	22 - 20 - 52 29 - 40	eP eS	} Distant. $\Delta = 7190$ km. = $64.7^\circ$ .
794)	7 ✗	03 - 40 - 46 41 - 06	ePb iSb	} Very small. $\Delta = 175$ km.
795)	✓	13 - 27 - 29	iP	} Distant.
796)	8 ✗	10 - 28 - 46 29 - 00	iPg eSg	} Very small. $\Delta g = 114$ km.
797)	9 ✓	03 - 37 - 08	iP'	} Distant. Sandwich Island Quake.
798)	✓	10 - 48 - 42 52 - 50	iP iS	} Distant. $\Delta = 2520$ km. = $22.7^\circ$ .
799)	10 ✗	00 - 34 - 32 35 - 18	ePb iSb	} Very small. $\Delta b = 405$ km.
800)	✗	06 - 24 - 19 30	ePg iSg	} Very small. $\Delta g = 93$ km.
801)	✗	06 - 27 - 20 30	ePg iSg	} Very small. $\Delta g = 85$ km.
802)	✓	14 - 50 - 27 55 - 26	iP iS	} Distant. $\Delta = 3235$ km. = $29.1^\circ$ .
803)	✗	18 - 31 - 56 32 - 07	ePg iSg	} Very small. $\Delta g = 93$ km.
11	✗	No Quakes Recorded.		
804)	12 ✗	01 - 48 - 57	eP	} Very small.
805)	✗	18 - 48 - 39	eP	} Very small.
806)	✗	19 - 07 - 49 59	iPg iSg	} Very small. $\Delta g = 85$ km.
807)	✗	20 - 48 - 16 49 - 27	eP iS	} Very small. $\Delta b = 630$ km. = $5.7^\circ$ .
808)	13 ✗	03 - 13 - 19 38	ePb iSb	} Very small. $\Delta b = 165$ km.
809)	✓	06 - 40 - 55 44 - 03	iP iS	} Distant. $\Delta = 1800$ km. = $16.2^\circ$ .
810)	✓	09 - 31 - 14 40 - 04	iP iS	} Distant. $\Delta = 7180$ km. = $64.6^\circ$ .
811)	14 ✗	04 - 34 - 36 44	iPg iSg	} Very small. $\Delta g = 68$ km.
812)	✗	04 - 39 - 24 31	iPg iSg	} Very small. $\Delta g = 58$ km.
813)	✗	15 - 12 - 45	eP	} Very small.

Monthly Seismological Bulletin - November 1960 - page 3

	Date	Time (GMT)	Phase	Remarks
814)	14	21 - 05 - 25	ePb	} Very small. $\Delta b = 148$ km.
		42	iSb	
815)		22 - 09 - 04	ePb	} Very small. $\Delta b = 190$ km.
		26	iSb	
816)	15	05 - 26 - 08	eP	Very small.
817)		07 - 06 - 49	iP	Very small.
818)		09 - 11 - 29	iP	Very small.
819)		18 - 59 - 06	ePg	} Very small. $\Delta g = 35$ km.
		10	iSg	
820)	16	04 - 30 - 38	ePg	} Very small. $\Delta g = 85$ km.
		48	iSg	
821)		08 - 35 - 20	ePg	} Very small. $\Delta g = 40$ km.
		25	iSg	
822)		22 - 52 - 43	ePg	} Very small. $\Delta g = 58$ km.
		50	iSg	
823)	17	03 - 47 - 03	eP	Very small.
824)		05 - 30 - 16	iP	} Distant. $\Delta = 1920$ km. = $17.3^\circ$ .
		33 - 35	iS	
825)		21 - 17 - 49	ePb	} Very small. $\Delta b = 148$ km.
		18 - 06	iSb	
18	X	No Quakes Recorded.		
826)	19	12 - 21 - 04	iP	} Distant. $\Delta = 2180$ km. = $19.6^\circ$ .
		24 - 44	iS	
827)	20	07 - 19 - 30	ePb	} Very small. $\Delta b = 235$ km.
		57	iSb	
828)		22 - 22 - 06	eP'	Distant. Peru Quake.
829)	21	13 - 08 - 34	iPb	} Very small. $\Delta b = 235$ km.
		09 - 01	iSb	
830)	22	03 - 43 - 45	iP	Distant.
831)		06 - 34 - 12	iP	Distant.
832)		12 - 37 - 13	ePg	} Very small. $\Delta g = 68$ km.
		21	iSg	
833)		12 - 48 - 51	eP'	Distant. Chile Quake.
834)		19 - 08 - 47	ePb	} Very small. $\Delta b = 130$ km.
		09 - 02	iSb	
835)		23 - 42 - 22	ePb	} Very small. $\Delta g = 58$ km.
		29	iSg	
836)	23	04 - 23 - 56	iP	Very small.
837)		04 - 26 - 26	iPb	} Very small. $\Delta b = 318$ km.
		27 - 02	eSb	
838)		14 - 24 - 01	eP	} Distant. $\Delta = 7510$ km. = $67.6^\circ$ .
		33 - 03	iS	

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
839)	23 ✓	16 - 55 - 21	iP	Distant. $\Delta = 1445 \text{ km.} = 13.0^\circ$ .
		57 - 55	iS	
840)	✗	23 - 16 - 22	iPb	Small. $\Delta b = 670 \text{ km.} = 6.0^\circ$ .
		17 - 37	iSb	
841)	24 ✓	04 - 57 - 31	iP	Distant. $\Delta = 3535 \text{ km.} = 31.8^\circ$ .
	✗	05 - 02 - 49	iS	
842)	✓	07 - 04 - 15	iP	Distant. $\Delta = 8200 \text{ km.} = 73.8^\circ$ .
	✓	13 - 51	iS	
843)	✗	11 - 27 - 20	iPg	Very small. $\Delta g = 85 \text{ km.}$
		30	iSg	
844)	✗	19 - 18 - 24	iPb	Very small. $\Delta b = 200 \text{ km.}$
		47	eSb	
845)	25 ✗	09 - 34 - 48	eP	Very small. $\Delta b = 640 \text{ km.} = 5.8^\circ$ .
		36 - 00	iS	
846)	✗	09 - 59 - 54	ePb	Very small. $\Delta b = 190 \text{ km.}$
	✗	10 - 00 - 16	iSb	
847)	✗	19 - 52 - 22	ePg	Very small. $\Delta g = 110 \text{ km.}$
		35	iSg	
848)	✓	21 - 59 - 54	iP	Distant. $\Delta = 2865 \text{ km.} = 25.8^\circ$ .
	✗	22 - 04 - 28	iS	
849)	26 ✗	00 - 04 - 58	ePb	Very small. $\Delta b = 265 \text{ km.}$
		05 - 28	iSb	
850)	27 ✗	02 - 59 - 53	ePg	Very small. $\Delta g = 35 \text{ km.}$
		57	iSg	
851)	✗	16 - 47 - 51	ePg	Very small. $\Delta g = 114 \text{ km.}$
		48 - 05	iSg	
852)	28 ✗	02 - 03 - 31	eP	Very small.
853)	✗	02 - 08 - 27	ePb	
		44	iSb	
854)	✗	02 - 47 - 12	ePg	Very small. $\Delta g = 93 \text{ km.}$
		23	iSg	
855)	✗	18 - 04 - 31	iPg	Very small. $\Delta g = 114 \text{ km.}$
		45	eSg	
856)	✗	22 - 12 - 30	ePg	Very small. $\Delta = 93 \text{ km.}$
		41	iSg	
29	✗	No Quakes Recorded.		
30	✗	No Quakes Recorded.		



MANILA OBSERVATORY  
 Mirador, Baguio City  
 Philippines

MONTHLY SEISMOLOGICAL BULLETIN

Lat. N. 16°24' 39"      Long. E. 120°34' 47"      Alt. 1507 meters

Instruments (All Sprengnethers)      Hard Limestone Bedrock

<u>Type</u>	<u>Component</u>	<u>Period</u>		<u>Magnification (Dynamic)</u> Synchronous
		<u>Seism.</u>	<u>Galv.</u>	
Photographic	Z	1.41 sec	1.37 sec	Circa 3367
	E-W	10.90 "	11.70 "	2000
	N-S	1.84 "	1.57 "	2451
Photoelectric	N-S	11.80 "	12.00 "	1000
Visual recording	E-W	1.54 "	1.49 "	3000

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 DECEMBER 1960  
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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
857)	01	09 - 43 - 48	eP	Very small.
858)	×	10 - 49 - 42	ePb	Very small. $\Delta$ b = 283 km.
		50 - 14	iSb	
859)	×	11 - 46 - 06	ePb	Very small. $\Delta$ b = 1055 km. = 9.5°.
		48 - 04	iSb	
860)	×	15 - 08 - 16	iPb	Very small. $\Delta$ b = 283 km.
		48	iSb	
861)	×	15 - 47 - 05	ePb	Very small. $\Delta$ b = 245 km.
		33	iSb	
862)	×	16 - 13 - 08	iPb	Very small. $\Delta$ b = 283 km.
		40	iSb	
863)	×	19 - 10 - 02	iPb	Very small. $\Delta$ b = 265 km.
		30	iSb	
864)	×	19 - 25 - 06	ePb	Very small. $\Delta$ b = 245 km.
		34	iSb	
865)	×	20 - 41 - 32	ePb	Very small. $\Delta$ b = 283 km.
		42 - 04	iSb	
866)	02	09 - 31 - 00	P'	Distant. Chile.
867)	03	04 - 30 - 26	iP	Distant. $\Delta$ = 3490 km.
		35 - 41	iS	
868)	×	06 - 48 - 10	ePb	Very small. $\Delta$ b = 165 km.
		29	iSc	
869)	✓	07 - 17 - 47	iPb	Very small. $\Delta$ b = 230 km.
		18 - 13	iSb	
870)	×	07 - 38 - 01	ePb	Very small. $\Delta$ b = 175 km.
		21	iSb	

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
871)	03 X	09 - 13 - 35 14 - 47	eP iS	} Small. $\Delta b = 640 \text{ km.} = 5.8^\circ$ .
872)	04 X	15 - 50 - 58	iP	} Very small.
873)	05 X	03 - 54 - 55 55 - 25	iPb iSb	} Very small. $\Delta b = 265 \text{ km.}$
874)	X	05 - 12 - 01 29	ePb eSb	} Very small. $\Delta b = 245 \text{ km.}$
875)	X	09 - 21 - 39 22 - 09	ePb iSb	} Very small. $\Delta b = 265 \text{ km.}$
876)	X	12 - 24 - 01 21	ePb iSb	} Very small. $\Delta b = 175 \text{ km.}$
877)	06 ✓	09 - 15 - 53 16 - 31	iPb iSb	} Very small. $\Delta b = 335 \text{ km.}$
878)	X	18 - 21 - 19 22 - 53	ePb iSb	} Small. $\Delta b = 840 \text{ km.} = 7.6^\circ$ .
879)	X	23 - 55 - 09 20	ePb iSb	} Very small. $\Delta b = 175 \text{ km.}$
880)	07 X	12 - 09 - 09 23	ePg iSg	} Very small. $\Delta g = 114 \text{ km.}$
881)	X	10 - 04 - 59 06 - 47	ePb iSb	} Small. $\Delta b = 965 \text{ km.} = 8.6^\circ$
882)	X	15 - 39 - 50 40 - 48	ePb iSb	} Small. $\Delta b = 515 \text{ km.}$
883)	09 X	00 - 27 - 40 55	ePb iSb	} Very small. $\Delta b = 130 \text{ km.}$
884)	X	18 - 08 - 11 23	iPb iSb	} Very small. $\Delta b = 190 \text{ km.}$
885)	10 X	04 - 35 - 35	eP	} Very small.
886)	X	05 - 38 - 03 39 - 23	ePb iSb	} Very small. $\Delta b = 710 \text{ km.} = 5.4^\circ$ .
887)	X	05 - 44 - 29 51	ePb eSb	} Very small. $\Delta b = 190 \text{ km.}$
888)	X	06 - 30 - 11 43	iPb iSb	} Small. $\Delta b = 283 \text{ km.}$
889)	X	06 - 55 - 39 56 - 11	ePb iSb	} Very small. $\Delta b = 283 \text{ km.}$
890)	X	07 - 39 - 01 10	ePg iSg	} Very small. $\Delta g = 75 \text{ km.}$
891)	X	10 - 44 - 09 30	ePb iSb	} Very small. $\Delta b = 185 \text{ km.}$
892)	X	11 - 42 - 34 39	ePg iSg	} Very small. $\Delta g = 40 \text{ km.}$
893)	✓	13 - 59 - 39 14 - 01 - 29	iP iS	} Distant. $\Delta = 1610 \text{ km.} = 14.5^\circ$ .

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
894)	11 ✓	03 - 21 - 57	eP	Distant. $\Delta = 1765$ km. = $15.9^\circ$ .
		25 - 02	iS	
895)	✗	13 - 08 - 06	ePb	Very small. $\Delta b = 190$ km.
		28	iSb	
896)	✓	19 - 02 - 38	iP	Distant. $\Delta = 6200$ km. = $55.8^\circ$ .
		10 - 30	iS	
897)	✗	21 - 15 - 59	ePg	Very small.
		16 - 09	iSg	
898)	✗	21 - 43 - 15	iPb	Very small. $\Delta b = 165$ km.
		34	iSb	
	12 ✗	No Quakes Recorded.		
899)	13 ✓	07 - 48 - 37	eP	Distant. $\Delta = 7695$ km. = $68.8^\circ$ .
		57 - 45	iS	
900)	✓	10 - 10 - 33	iP	Distant. $\Delta = 2700$ km. = $24.3^\circ$ .
		14 - 55	iS	
901)	14 ✓	01 - 06 - 34	iP	Distant. $\Delta = 5700$ km. = $51.3^\circ$ .
		13 - 53	iS	
902)	✗	13 - 10 - 11	ePb	Very small. $\Delta b = 210$ km.
		35	iSb	
903)	✓	23 - 54 - 54	iP	Distant. $\Delta = 1580$ km. = $14.2^\circ$ .
		57 - 41	iS	
904)	15 ✗	12 - 10 - 30	ePb	Small. $\Delta b = 355$ km.
		11 - 10	iSb	
905)	✗	13 - 49 - 30	ePb	Very small. $\Delta b = 245$ km.
		58	iSb	
906)	✗	14 - 01 - 48	ePb	Very small. $\Delta b = 425$ km.
		02 - 36	iSb	
907)	✗	18 - 42 - 52	eP	Very small.
908)	✗	18 - 57 - 40	ePb	
		58 - 16	iSb	
909)	16 ✗	20 - 26 - 54	ePb	Very small. $\Delta b = 140$ km.
		27 - 10	iSb	
910)	17 ✗	02 - 03 - 54	ePb	Very small. $\Delta b = 190$ km.
		04 - 16	iSb	
911)	✗	04 - 28 - 34	ePb	Very small. $\Delta b = 155$ km.
		52	iSb	
912)	✗	07 - 02 - 30	iPg	Very small. $\Delta g = 114$ km.
		44	iSg	
913)	✗	07 - 08 - 22	ePg	Very small. $\Delta g = 85$ km.
		32	iSg	
914)	✓	10 - 42 - 21	iPb	Very small. $\Delta b = 450$ km.
		43 - 12	iSb	
915)	✗	13 - 29 - 51	iPb	Very small. $\Delta b = 245$ km.
		30 - 19	iSb	

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
916)	18 ✓	07 - 40 - 45	ePb	} Very small. $\Delta b = 155$ km.
		41 - 03	iSb	
917)	✓	15 - 09 - 43	ePb	} Very small. $\Delta b = 230$ km.
		10 - 09	iSb	
918)	✓	18 - 23 - 01	iPb	} Distant. $\Delta b = 1145$ km. = $10.3^\circ$ .
		✓ 09	iSb	
919)	19 ✗	19 - 04 - 21	iPb	} Very small. $\Delta b = 155$ km.
		39	iSb	
920)	✗	22 - 11 - 35	ePb	} Very small. $\Delta b = 220$ km.
		12 - 00	iSb	
921)	20 ✗	08 - 30 - 03	iPb	} Very small. $\Delta b = 290$ km.
		36	iSb	
922)	21 ✗	20 - 58 - 31	iP	} Distant. $\Delta = 2455$ km. = $22.2^\circ$ .
		21 - 02 - 33	iS	
923)	22 ✓	03 - 08 - 01	eP	} Distant. $\Delta = 3435$ km. = $30.9^\circ$ .
		13 - 13	iS	
924)	✓	21 - 09 - 50	iP	} Distant. $\Delta = 3945$ km. = $35.5^\circ$ .
		15 - 34	iS	
925)	23 ✓	09 - 47 - 22	iPg	} Very small. $\Delta g = 58$ km.
		✓ 29	iSg	
926)	✓	10 - 50 - 14	iP	} Distant. $\Delta = 1235$ km. = $11.1^\circ$ .
		52 - 29	iS	
927)	✗	12 - 00 - 00	ePg	} Very small. $\Delta g = 75$ km.
		09	iSg	
928)	✗	15 - 49 - 07	iP	} Very small.
929)	✗	19 - 31 - 06	iPg	
		16	iSg	} Small. $\Delta g = 85$ km.
930)	✗	20 - 12 - 22	ePg	
		34	iSg	} Very small. $\Delta g = 100$ km.
931)	✗	21 - 07 - 44	ePg	
		53	iSg	} Very small. $\Delta g = 75$ km.
932)	✗	21 - 22 - 51	ePg	
		56	iSg	} Very small. $\Delta g = 40$ km.
933)	✗	21 - 24 - 56	ePg	
		25 - 05	iSg	} Very small. $\Delta g = 75$ km.
934)	✗	21 - 36 - 09	ePg	
		17	iSg	} Very small. $\Delta g = 68$ km.
935)	✗	22 - 37 - 42	ePg	
		46	iSg	} Very small. $\Delta g = 35$ km.
936)	✗	22 - 39 - 08	ePg	
		72	iSg	} Very small. $\Delta g = 114$ km.
937)	✗	23 - 43 - 42	ePg	
		54	iSg	} Very small. $\Delta g = 100$ km.

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	<u>Date</u>	<u>Time (GMT)</u>	<u>Phase</u>	<u>Remarks</u>
938)	24	01 - 55 - 15	iPb	} Very small. $\Delta$ b = 220 km.
		40	iSb	
939)		12 - 51 - 23	iPb	} Very small. $\Delta$ b = 148 km.
		40	iSg	
940)	25	05 - 26 - 05	eP	} Distant. $\Delta$ = 2690 km. = 24.2°.
		30 - 26	iS	
941)		11 - 11 - 42	eP	} Distant. $\Delta$ = 1135 km. = 10.2°.
		13 - 54	iS	
942)	26	01 - 49 - 44	iP	} Distant. $\Delta$ = 2465 km. = 22.2°.
		53 - 47	iS	
943)	27	15 - 57 - 15	ePb	} Very small. $\Delta$ b = 200 km.
		38	iSb	
944)	28	00 - 23 - 09	ePb	} Very small. $\Delta$ b = 140 km.
		25	iSb	
945)		05 - 12 - 37	ePb	} Very small. $\Delta$ b = 140 km.
		53	eSb	
946)		08 - 58 - 11	ePg	} Very small. $\Delta$ g = 100 km.
		23	iSg	
947)		11 - 56 - 31	iPb	} Very small. $\Delta$ b = 140 km.
		47	iSb	
948)	29	06 - 13 - 38	eP	} Distant.
949)		06 - 38 - 34	ePb	
		52	iSg	
950)		07 - 06 - 56	eP	} Very small.
951)		07 - 03 - 02	iPg	
		12	iSg	
952)		19 - 55 - 12	iP	} Very small.
953)	30	08 - 06 - 03	iPb	} Very small. $\Delta$ b = 310 km.
		38	iSb	
954)	31	05 - 51 - 43	ePb	} Very small. $\Delta$ b = 265 km.
		52 - 13	iSb	
955)		08 - 52 - 01	ePb	} Small. $\Delta$ b = 360 km.
		35	iSb	
956)		18 - 27 - 48	eP	} Very small.