



**SEISMOLOGICAL SERIES**  
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**1963-4**

**CANADIAN  
EARTHQUAKES - 1963**

**W.G. Milne and W.E.T. Smith**

**OTTAWA, CANADA**

Department of Energy, Mines and Resources

**OBSERVATORIES BRANCH**

**1966**

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### INTRODUCTION

This list of earthquakes in Canada is a continuation of the lists of previous years. The program, as outlined by the authors in Canadian Earthquakes, 1960 (1960-2 of this series), brings into one publication the annual list of earthquakes in Canada. In this manner data is supplied to those who are interested in the distribution and the frequency of the earthquake epicentres. At irregular intervals, papers will be presented in the publications or contributions of the Dominion Observatory describing specific events or reporting on seismicity studies in more detail. One such paper describing the seismicity of Western Canada has recently appeared as No. 13 in Vol. 5 of the contributions.

In the previous paper of this series (Canadian Earthquakes - 1962) the authors reported on a departmental committee on seismic regionalization. The ultimate purpose of this committee is to produce a seismic regionalization map of Canada from the data supplied by the many disciplines represented thereon. From this regionalization map, Canada can be divided into seismic zones within which certain building standards are desired in order to minimize damage from possible earthquakes. Parallel to this departmental committee, an associate committee for earthquake engineering has been formed by the National Research Council of Canada. Two of this committee's functions are to make suggestions concerning the seismic zoning map, and to supply the engineering information from which the National Building Code is formulated.

For the purpose of listing Canadian earthquakes, Canada has been arbitrarily divided into four regions. The most northerly is the Arctic region, comprising that part of Canada north of the 60th parallel. The three remaining regions south of the 60th parallel are: a western region lying west of the 113th meridian, an eastern region lying east of the 85th meridian, and a central region lying between the 85th and the 113th meridians. Papers, in which seismicity is discussed must often cut across these boundaries of convenience.

During 1963 no earthquakes are known to have occurred in the central region. Earthquakes of the remaining regions are listed in Tables I, II and III, and the epicentres are plotted on the corresponding Figures 1, 2 and 3. In each of these maps, the symbol representing an earthquake is related to its magnitude as indicated by a diagram in the legend.

### NETWORK CHANGES

Detailed notes regarding changes in instrumental constants, calibrations, etc., can be found in the Seismological Bulletins 1963-1 of this series. Standard instruments began operation at the stations listed below on the dates given:

Coppermine, Northwest Territories - April 8;  
Edmonton, Alberta - April 20;  
Frobisher, Northwest Territories - August 21.

## ACKNOWLEDGMENTS

The co-operation of Rev. M. Buist, S. J., of Jean-de-Brebeuf College in supplying records from the Montreal station on a routine basis is gratefully acknowledged.

Beginning June 1, 1963, Weston Observatory published a weekly bulletin identifying the local seismic events recorded on the New England seismic network. This bulletin was very helpful in the task of eliminating extraneous events from the earthquake list for the eastern region.

Mr. Tsarjo of Indonesia assisted in reading the records of Arctic and eastern stations during the last quarter of the year as part of a study program.

## EASTERN REGION

(East of 85°W)

Twenty-three small disturbances, 10 of which were felt, originated in this region during 1963. They are listed in Table I. All but 4 were located and their epicentres are plotted in Figure 1. No numbers have, as yet, been assigned to these. The epicentral co-ordinates include uncertainties. It should be clearly understood that these are not "probable errors" or any other statistical evaluations. They were assigned by the writer (Smith) after consideration of the number and quality of the seismic traces, the positions of the epicentres relative to the recording stations, etc., and are an indication of his confidence in the precision of the determinations. When both uncertainties in the co-ordinates are judged to amount to less than  $\pm 20'$  of arc, the epicentre is plotted in Figure 1 as a filled circle; otherwise the circle is left open.

TABLE I

EARTHQUAKES IN EASTERN CANADA  
AND ADJACENT AREAS

(Universal time is used throughout)

(M = magnitude)

January 30	14:50. 44°0' N, 75°9' W. M = 3.0. The <u>Daily Times</u> of Watertown, N. Y., reported that a shock was felt "sharply over all of the city." The seismographs at both Montreal and Ottawa were out of operation at the time of the shock.
February 2	02:59:43. M = 2.7. 183 miles from London, Ont., - probably to the south or west as it was not recorded at Ottawa.
February 16	08:00:17. 44°53' N $\pm$ 5', 73°41' W $\pm$ 8'. M = 2.6. About 15 miles southwest of Rouses Point, N. Y.
February 27	06:00. 43°12' N, 79°34' W. M = 3.0. Grimsby, Ont. Newspaper reports said that residents "came spilling outside" to investigate and that the burglar alarm at the bank was tripped. London station was out of operation for the day, however the shock left a "record" at McMaster University where it caused an irregularity in a graph-line depicting the regular compression of a muskeg sample.
March 2	20:24:32. 41°31' N $\pm$ 30', 75°46' W $\pm$ 40'. M = 3.4. A few miles north of Scranton, Penn.
March 7	14:59:28. M = 3.4. About 270 miles from London, Ont. Ottawa records were being changed at the time.

March 12	07:06:08. 57°0' N $\pm$ 1:0, 60°0' W $\pm$ 2:0. M = 3.8. About 50 miles off the coast of Labrador, Nfld.
April 4	08:53:06. 53°4' N $\pm$ 0:5, 59°7' W $\pm$ 1:0. M = 3.5. About 30 miles east of Goose Bay, Labrador, Nfld.
May 19	19:14:18. 43°30' N $\pm$ 12', 75°14' W $\pm$ 15'. M = 3.5. About 20 miles north of Rome, N.Y. Felt around Lyons Falls, N.Y.
July 1	19:59:12. 42°34' N $\pm$ 10', 73°45' W $\pm$ 15'. M = 3.3. Near Albany, N. Y.
August 1	06:34:16. 46°48' N $\pm$ 10', 66°30' W $\pm$ 12'. M = 3.0. Depth about 20 km. About 25 miles north of Boiestown, N.B.
August 15	14:08:06. 45°00' N $\pm$ 10', 74°52' W $\pm$ 10'. M = 2.0. In the St. Lawrence River between Massena, N.Y., and Long Sault, Ont. Felt at Harrisons Corners, 13 miles north and a little west of Cornwall. Also 4 1/2 miles north of Ingleside, Ont.
August 26	02:41:02. 45°54' N $\pm$ 8', 74°53' W = 10'. M = 2.2. About 3 miles east of Namur, Que.
August 26	16:29:35. 45°10' N $\pm$ 8', 73°57' W $\pm$ 10'. M = 3.5. About 5 miles NE of Léry, Que. Felt lightly at Montreal and Chateauguay, Que.
September 19	18:47:50. M = 3.8. Depth about 22 km. 360 miles from Montreal, Que.
October 15	12:07:57. M = 3.0. Foreshock of earthquake at 13:59:53.
October 15	12:29:02. M = 4.4. Foreshock of earthquake at 13:59:53.
October 15	13:59:53. 46°10' N $\pm$ 10', 77°35' W $\pm$ 12'. M = 4.5. Depth about 14 km. About 10 miles from Deep River, Ont. An appeal for information about this shock was made by the news media. Nine letters and a few local telephone calls were received in reply. These indicated that the earthquake and both foreshocks were felt sharply at Ralphton, Ont., Rapides-des-Joachims, Que., Deep River, Ont., etc., near the epicentre and that the main disturbance was felt along the Ottawa Valley including Pembroke, Westmeath and Arnprior and even by a few persons at Ottawa who observed objects swinging.

- October 16 15:31:01. 42°4 N, 70°7 W. M = 4.7. (OTT), M = 4.2. (PAL).  
Depth about 25 km. North coast of Massachusetts. Felt in three  
states. Slight damage at Somerville, Mass.
- October 17 05:13:41. M = 3.0. Depth about 15 km. Aftershock of earthquake  
at 13:59:53 on October 15.
- October 19 06:29:34. 50°0 N ± 0°5, 67°8 W ± 0°1. Toulmoustouc River area,  
Que. Or 50°0 N ± 0°5, 65°0 W ± 0°1. Mouth of St. Lawrence  
River about 20 miles west of Anticosti Island. M = 2.9. (not  
plotted).
- October 25 08:49:39. 51°4N ± 0°5, 61°9 W ± 0.8. M = 3.3. About 80 miles  
north of Natashquan, Que.
- December 4 21:32:35. 43°6 N, 71°6 W. M = 3.7 (CGS), 3.4 (OTT). New  
Hampshire, USA. Slight damage at Laconia.



## ARCTIC REGION

(North of 60° N)

The only major earthquake, in the region during the year, occurred on September 4. One hundred and forty shocks are listed in Table II. This number does not include 39 aftershocks of the earthquake on September 4, but does include 2 swarms of small shocks centred about 87 miles north of Mould Bay. These were apparently centred just off the north coast of Prince Patrick Island. The largest of the first swarm of 11 on January 4 was of magnitude 3.2. The largest shock in the second swarm of 23 on October 18 was of magnitude 3.4. Fifty-seven of the earthquakes listed in Table II could not be located as they were recorded at only one station. The remainder are plotted in Figure 2. Uncertainties were assigned to the epicentral coordinates in the same manner as for the eastern region.

TABLE II

## EARTHQUAKES IN THE CANADIAN ARCTIC

(Universal time is used throughout)

(M = magnitude)

January 4	11:14:21. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.5. Foreshock of the earthquake at 12:43:01.
January 4	11:18:02. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.0. Foreshock of the earthquake at 12:43:01.
January 4	11:21:51. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.0. Foreshock of the earthquake at 12:43:01.
January 4	11:54:27. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.2. Foreshock of the earthquake at 12:43:01.
January 4	12:13:11. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.0. Foreshock of the earthquake at 12:43:01.
January 4	12:27:22. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 2.2. Foreshock of the earthquake at 12:43:01.
January 4	12:43:01. 77° 5' N $\pm$ 0:2, 118° 1' W $\pm$ 1:0. M = 3.2. Off the coast of Prince Patrick Island near Cape Leopold M <sup>t</sup> Clintock, N. W. T. There were 6 foreshocks and 4 aftershocks ranging in magnitude from 1.9 to 2.5. In addition, Mould Bay recorded about 2 dozen tiny disturbances apparently associated with this epicentre. Of these, about half were foreshocks and the remainder aftershocks.

- January 4 12:55:45.  $77^{\circ}5' N \pm 0^{\circ}2$ ,  $118^{\circ}1' W \pm 1^{\circ}0$ .  $M = 2.0$ . Aftershock of the earthquake at 12:43:01.
- January 4 13:23:21.  $77^{\circ}5' N \pm 0^{\circ}2$ ,  $118^{\circ}1' W \pm 1^{\circ}0$ .  $M = 2.0$ . Aftershock of the earthquake at 12:43:01.
- January 4 16:24:41.  $77^{\circ}5' N \pm 0^{\circ}2$ ,  $118^{\circ}1' W \pm 1^{\circ}0$ .  $M = 1.9$ . Aftershock of the earthquake at 12:43:01.
- January 4 18:16:37.  $M = 2.1$ . 97 miles from Alert, N. W. T.
- January 4 18:55:52.  $77^{\circ}5' N \pm 0^{\circ}2$ ,  $118^{\circ}1' W \pm 1^{\circ}0$ .  $M = 2.1$ . Aftershock of the earthquake at 12:43:01.
- January 11 07:18:09.  $M = 2.1$ . 36 miles from Resolute, N. W. T.
- January 15 23:59:01.  $76^{\circ}9' N \pm 1^{\circ}0$ ,  $117^{\circ}5' W \pm 2^{\circ}0$ .  $M = 3.8$ . Prince Patrick Island, N. W. T.
- January 16 14:59:22.  $M = 1.5$ . 46 miles from Resolute, N. W. T.
- January 26 06:22:02. Depth 20 km.  $M = 2.4$ . 150 miles from Resolute, N. W. T.
- January 27 18:01:40. 61 miles from Yellowknife, N. W. T.
- February 2 18:36:12.  $67^{\circ}50' N \pm 1^{\circ}0$ ,  $91^{\circ}00' W \pm 2^{\circ}0$ .  $M = 4.6$ . About 32 miles southwest of Pelly Bay, N. W. T.
- February 5 22:33:45.  $M = 1.2$ . 30 miles from Resolute, N. W. T.
- February 6 02:00:53.  $M = 2.4$ . 127 miles from Yellowknife, N. W. T.
- February 27 01:50:20.  $80^{\circ}9' N \pm 0^{\circ}6$ ,  $65^{\circ}8' W \pm 2^{\circ}2$ .  $M = 3.7$ . Near Hare Fiord, Ellesmere Island, N. W. T.
- March 1 21:54:50. Depth 30 km.  $M = 1.8$ . 99 miles from Resolute, N. W. T.
- March 5 15:21:54.  $M = 2.4$ . 153 miles from Resolute, N. W. T.
- March 6 01:50:39.  $M = 2.2$ . 67 miles from Yellowknife, N. W. T.

March 8	00:14:16. 76°36' N + 15', 94°20' W + 1:0. Depth 33 km (USCGS) M = 5.7. Grinnell Peninsula, Devon Island, N. W. T. Followed by 3 aftershocks.
March 8	01:44:30. 76°36' N + 15', 94°20' W + 1:0. Depth 32 km. M = 2.5. Aftershock of the earthquake at 00:14:16.
March 8	12:59:01. 76°36' N + 15', 94°20' W + 1:0. Depth 32 km. M = 2.4. Aftershock of the earthquake at 00:14:16.
March 8	14:00:00. 76°36' N + 15', 94°20' W + 1:0. Depth 32 km. M = 2.2. Aftershock of the earthquake at 00:14:16.
March 8	18:07:40. M = 1.9. 86 miles from Alert, N. W. T.
March 12	20:04:24. 65°40' N + 1:0, 132°00' W + 3:0. M = 4.3. About 200 miles west of Norman Wells, N. W. T.
March 15	06:54:50. M = 1.7. 89 miles from Mould Bay, N. W. T.
March 21	09:20:58. 81°18' N + 15', 103°15' W + 1:5. M = 4.1. About 125 miles north of Ellef Ringnes Island, N. W. T.
March 22	23:25:49. 80° N, 92° W. M = 3.3. Axel Heiberg Island, N. W. T. This epicentre is subject to considerable uncertainty as primary phases were not recorded.
March 23	04:26:10. M = 1.9. 56 miles from Mould Bay, N. W. T.
March 26	19:25:44. M = 1.9. 46 miles from Alert, N. W. T.
March 31	11:37:11. M = 2.2. 122 miles from Resolute, N. W. T.
April 3	05:36:02. M = 2.3. 107 miles from Alert, N. W. T.
April 3	20:55:11. Depth about 30 km. M = 3.0. 165 miles from Resolute, N. W. T.
April 4	22:41:09. 81°25' N + 18', 86°20' W + 1:5. M = 3.2. In the western part of Ellesmere Island, N. W. T.
April 6	02:14:04. M = 1.8. 43 miles from Mould Bay, N. W. T.
April 6	08:51:31. Depth 30 km. M = 2.3. 127 miles from Resolute, N. W. T.

- April 6 08:59:39. Depth 30 km.  $M = 2.0$ . 127 miles from Resolute, N. W. T. Aftershock of the previous earthquake.
- April 12 19:16:39.  $73^{\circ}20' N \pm 18'$ ,  $96^{\circ}50' W \pm 1^{\circ}0'$ .  $M = 3.8$ . In Peel Sound, N. W. T.
- April 16 21:24:34.  $71^{\circ}5' N \pm 0^{\circ}4'$ ,  $74^{\circ}7' W \pm 1^{\circ}0'$ .  $M = 4.2$ . Near Cambridge Fiord, Baffin Island, N. W. T.
- April 21 13:42:09.  $M = 2.2$ . 102 miles from Resolute, N. W. T.
- April 22 09:50:03.  $67^{\circ}02' N \pm 17'$ ,  $135^{\circ}00' W \pm 30'$ .  $M = 3.8$ . About 25 miles south of Fort McPherson on the Yukon -- Northwest Territories border.
- May 2 03:05:29.  $M = 1.9$ . 81 miles from Resolute, N. W. T.
- May 3 02:13:26.  $M = 2.4$ . 209 miles from Resolute, N. W. T.
- May 3 21:21:11.  $71^{\circ}24' N \pm 18'$ ,  $86^{\circ}30' W \pm 40'$ .  $M = 4.0$ . Brodeur Peninsula, Baffin Island, N. W. T.
- May 4 17:45:01.  $M = 1.8$ . 41 miles from Resolute, N. W. T.
- May 8 12:59:13.  $M = 3.4$ . 233 miles from Resolute, N. W. T.
- May 8 15:43:47.  $M = 2.8$ . 127 miles from Alert, N. W. T.
- May 16 15:13:12.  $81^{\circ}30' N \pm 15'$ ,  $86^{\circ}30' W \pm 1^{\circ}0'$ .  $M = 3.7$ . About 30 miles north of Otto Fiord, Ellesmere Island, N. W. T.
- May 25 15:22:55.  $M = 2.3$ . 102 miles from Resolute, N. W. T.
- May 26 12:18:03.  $M = 2.1$ . 71 miles from Resolute, N. W. T.
- May 29 17:09:38.  $75^{\circ}05' N \pm 12'$ ,  $93^{\circ}40' W \pm 50'$ .  $M = 3.1$ . About 28 miles northeast of Resolute, N. W. T.
- June 2 16:10:31.  $M = 2.8$ . 70 miles from Resolute, N. W. T.
- June 5 01:31:37.  $66^{\circ}30' N \pm 18'$ ,  $110^{\circ}0' W \pm 1^{\circ}0'$ . About 60 miles west of Bathurst Inlet, N. W. T. Or  $66^{\circ}30' N \pm 18'$ ,  $120^{\circ}0' W \pm 1^{\circ}0'$ . On the north shore of Great Bear Lake, N. W. T.  $M = 3.1$ . (Not plotted).
- June 13 22:21:46.  $66^{\circ}0' N \pm 0^{\circ}2'$ ,  $135^{\circ}0' W \pm 0^{\circ}7'$ .  $M = 4.6$ . About 150 miles south of Aklavik, N. W. T.

June 15	11:43:28. M = 1.5. 74 miles from Resolute, N. W. T.
June 17	18:32:14. 60° 5' N, 140° 8' W. M = 5.4. Near Mt. Logan, Y. T.
June 27	07:08:02. 60° 5' N, 140° 7' W. (USCGS). M = 4.6 (CGS). Depth 29 km: Yukon Territories. (This shock missed the second quarter Bulletin.)
July 6	10:26:21. 66° 2' N ± 0° 7', 133° 6' W ± 2° 0'. M = 4.5. About 75 miles SSE of Fort McPherson, N. W. T.
July 7	18:28:01. 74° 20' N ± 16', 95° 20' W ± 1° 0'. M = 4.0. Barrow Strait, N. W. T.
July 9	10:56:59. 75° 9' N ± 0° 6', 107° 3' W ± 0° 7'. Depth 24 km. M = 2.9. Melville Island, N. W. T.
July 12	15:23:11. M = 2.4. 61 miles from Resolute, N. W. T.
July 15	08:36:41. 61° 7' N, 134° 9' W. M = 4.2. (CGS). Yukon Territory.
July 15	16:42:35. 62° 0' N, 134° 4' W. M = 3.8. (CGS). Aftershock of previous earthquake.
July 20	00:11:35. 65° 2' N, 133° 7' W. M = 4.6. (CGS). Yukon Territories.
July 21	08:14:44. M = 2.7. 97 miles from Alert, N. W. T.
July 27	02:33:27. M = 2.1. 53 miles from Resolute, N. W. T.
July 29	13:32:50. M = 3.7. 434 miles from Resolute, N. W. T.
August 5	03:46:57. M = 1.4. 25 miles from Resolute, N. W. T.
August 19	02:21:59. M = 1.9. 56 miles from Alert, N. W. T.
August 19	15:26:02. M = 2.0. 107 miles from Mould Bay, N. W. T.
August 21	22:40:41. M = 1.3. 10 miles from Resolute, N. W. T.
August 24	09:12:23. M = 2.6. 53 miles from Resolute, N. W. T.
August 28	15:10:02. 69° 50' N ± 19', 73° 05' W ± 50. M = 6.0. About 90 miles west of Clyde Inlet, N. W. T.
August 30	05:28:37. M = 2.1. 70 miles from Resolute, N. W. T.

September 4 13:32:12. 71:4 N, 73:3 W. M = 5.9. (CGS). 6.25-6.5 (PAS). 6 (BRK). Near the coast of Baffin Island, N.W.T. This earthquake was followed by 42 aftershocks by the end of the year. Three of these are given a place in the list as they were large enough to be located by USCGS. The remainder follow:

September 4	13:56:21	M = 4.5.
September 4	14:05:13	M = 5.0.
September 4	14:21:21	M = 4.8.
September 4	15:06:21	M = 4.7.
September 4	15:14:25	M = 4.5.
September 4	15:26:17	M = 5.1.
September 4	19:57:38	M = 5.1.
September 4	22:15:06	M = 5.0.
September 4	23:03:23	M = 5.0.
September 5	14:45:23	M = 4.0.
September 5	22:26:28	M = 4.8.
September 6	05:55:55	M = 4.6.
September 7	03:03:47	M = 5.0.
September 8	15:38:39	M = 4.8.
September 9	22:23:17	M = 4.6.
September 21	21:51:24	M = 4.1.
September 22	11:39:24	M = 4.4.
September 24	16:52:42	M = 4.3.
September 25	00:45	M = 4.2.
September 29	13:52:44	M = 4.1.
October 1	02:26:33	M = 4.1.
October 9	04:06:59	M = 4.0.
October 9	08:00:31	M = 3.6.
October 12	02:46:48	M = 5.0.
October 14	04:03:47	M = 4.1.
October 14	10:15:36	M = 4.2.
October 18	19:32:31	M = 4.8.
October 22	08:32:04	M = 4.0.
October 25	20:32:24	M = 4.4.
November 5	16:07:17	M = 4.0.
November 26	16:20:13	M = 4.3.
December 1	16:23:53	M = 4.7.
December 5	05:18:22	M = 4.2.
December 7	00:26:33	M = 4.3.
December 15	01:26:02	M = 4.5.
December 15	03:50:53	M = 4.4.
December 15	05:17:53	M = 4.5.
December 17	03:17:06	M = 4.5.
December 19	15:14:30	M = 4.5.

It is felt that the  $M_L$  magnitudes found from the Frobisher east-west component are, in general, too large. This is believed to be caused by an unknown rise in sensitivity due to a failure in the attenuator circuit.

September 4	21:20:19. 71°5' N, 72°8' W. $M = 4.1$ . (CGS), 5.7 (OTT). Aftershock of earthquake at 13:32:12 on September 4.
September 4	21:41:01. 71°6' N, 73°5' W. $M = 4.4$ (CGS), 5.8 (OTT). Aftershock of earthquake at 13:32:12 on September 4.
September 6	01:46:13. 71°5' N, 73°0' W. $M = 4.4$ (CGS), 5.8 (OTT). Aftershock of earthquake at 13:32:12 on September 4.
September 7	08:10:53. $M = 0.8$ . 10 miles from Resolute, N. W. T.
September 11	04:20:31. 372 miles from Yellowknife, N. W. T.
September 13	12:13:19. $M = 1.8$ . 15 miles from Resolute, N. W. T.
September 18	18:36:14. $M = 4.8$ . Foreshock of following event.
September 18	22:31:27. 68°30' N + 19', 70°05' W + 45'. $M = 5.1$ . About 100 miles south of Clyde Inlet, N. W. T.
September 25	10:45:31. 72°45' N + 1°0', 106°20' W + 2°0'. $M = 3.3$ . Depth 12 km. Victoria Island, N. W. T.
October 1	06:45:35. 63°40' N + 1°0', 79°35' W + 1°7' Foxe Channel, N. W. T. Or 67°50' N + 1°0', 62°15' W + 1°7' Just off coast of Baffin Island, N. W. T. $M = 4.7$ . (Not plotted.)
October 2	02:09:47. $M = 1.5$ . 81 miles from Resolute, N. W. T.
October 6	08:04:09. $M = 1.1$ . 28 miles from Resolute, N. W. T.
October 7	12:06:47. $M = 1.9$ . 92 miles from Alert, N. W. T.
October 13	01:37:01. 81°0' N + 0°5', 94°0' W + 1°5'. $M = 4.0$ . North coast of Axel Heiberg Island, N. W. T.
October 15	07:26:11. 60°1' N, 134°7' W. $M = 4.3$ (CGS) Yukon Territory.
October 17	16:49:48. 75°10' N + 19', 74°10' W + 1°0'. $M = 3.6$ . About 100 miles east of Devon Island, N. W. T.

October 18	07:09:29. M = 3.0. Foreshock of earthquake at 08:07:03.
October 18	07:11:36. M = 1.6. Foreshock of earthquake at 08:07:03.
October 18	07:12:47. M = 2.1. Foreshock of earthquake at 08:07:03.
October 18	07:14:21. M = 1.6. Foreshock of earthquake at 08:07:03.
October 18	07:15:29. M = 1.6. Foreshock of earthquake at 08:07:03.
October 18	07:24:06. M = 1.9. Foreshock of earthquake at 08:07:03.
October 18	08:07:03. 77°5 N, 118°1 W. M = 3.4. Off the north coast of Prince Patrick Island, N.W.T. This is the main shock of a swarm having 6 foreshocks and 16 aftershocks during the day.
October 18	08:10:23. M = 1.8. Aftershock of earthquake at 08:07:03.
October 18	08:11:43. M = 1.8. Aftershock of earthquake at 08:07:03.
October 18	08:14:40. M = 1.5. Aftershock of earthquake at 08:07:03.
October 18	08:19:04. M = 1.7. Aftershock of earthquake at 08:07:03.
October 18	08:22:05. M = 2.0. Aftershock of earthquake at 08:07:03.
October 18	08:29:31. M = 1.4. Aftershock of earthquake at 08:07:03.
October 18	08:38:27. M = 1.6. Aftershock of earthquake at 08:07:03.
October 18	08:39:41. M = 1.9. Aftershock of earthquake at 08:07:03.
October 18	08:54:23. M = 1.5. Aftershock of earthquake at 08:07:03.
October 18	09:30:44. M = 1.8. Aftershock of earthquake at 08:07:03.
October 18	10:47:51. M = 1.9. Aftershock of earthquake at 08:07:03.
October 18	10:53:49. M = 2.2. Aftershock of earthquake at 08:07:03.
October 18	11:04:43. M = 1.4. Aftershock of earthquake at 08:07:03.
October 18	11:06:28. M = 2.2. Aftershock of earthquake at 08:07:03.
October 18	12:43:26. M = 1.6. Aftershock of earthquake at 08:07:03.



October 18	13:46:12. $76^{\circ}20' N \pm 30'$ , $75^{\circ}00' W \pm 1^{\circ}0'$ . $M = 3.5$ . About 100 miles from Devon Island, N. W. T.
October 18	22:41:35. $M = 1.6$ . Aftershock of earthquake at 08:07:03.
October 19	18:03:47. $M = 2.2$ . 95 miles from Mould Bay, N. W. T.
October 23	13:33:43. $M = 2.1$ . 89 miles from Mould Bay, N. W. T.
October 27	00:16:20. $M = 2.4$ . 100 miles from Resolute, N. W. T.
October 27	00:56:59. $M = 2.2$ . 148 miles from Resolute, N. W. T.
October 31	20:52:28. $M = 1.8$ . Foreshock of earthquake at 21:11:33.
October 31	21:11:33. $77^{\circ}4' N \pm 0.3$ , $118^{\circ}7' W \pm 1.0$ . $M = 3.2$ . Near Cape Andreasen, Prince Patrick Island, N. W. T. One foreshock and 3 aftershocks.
October 31	22:07:33. $M = 2.2$ . Aftershock of earthquake at 21:11:33.
October 31	22:50:26. $M = 3.0$ . Aftershock of earthquake at 21:11:33.
November 1	04:47:27. $M = 2.4$ . Aftershock of earthquake at 21:11:33 on October 31.
November 5	04:24:29. $M = 1.6$ . 71 miles from Alert, N. W. T.
November 7	15:23:02. $M = 1.5$ . 30 miles from Resolute, N. W. T.
November 13	03:57:05. $M = 0.9$ . 36 miles from Resolute, N. W. T.
November 14	06:26:07. $63^{\circ}4' N \pm 0^{\circ}5'$ , $130^{\circ}0' W \pm 1^{\circ}0'$ . $M = 4.0$ on the Yukon-N. W. T. border.
December 4	06:29:56. $M = 3.8$ . 510 miles from Coppermine, N. W. T.
December 4	06:49:29. $76^{\circ}40' N \pm 45'$ , $119^{\circ}30' W \pm 1^{\circ}0'$ . $M = 4.1$ . Prince Patrick Island, N. W. T.
December 5	03:21:56. $M = 4.0$ . 510 miles from Coppermine, N. W. T.
December 9	09:16:39. $72^{\circ}20' N \pm 30'$ , $91^{\circ}20' W \pm 30'$ . $M = 4.4$ . Prince Regent Inlet, N. W. T.
December 9	15:01:09. $M = 4.4$ . 510 miles from Frobisher, N. W. T.

- December 26 06:20:31.  $70^{\circ}0' N \pm 50'$ ,  $111^{\circ}0' W \pm 1^{\circ}5'$ .  $M = 3.2$ . About 37 miles southeast of Prince Albert Sound, N. W. T.
- December 29 04:14:10.  $M = 4.6$ . 513 miles from Frobisher, N. W. T.

## WESTERN REGION

(West of 113° W, South of 60° N)

In 1963, earthquakes of the western region have been assigned the numbers listed in Table III. Disturbances of magnitude 2 or less, which were recorded at one station only, have been omitted following a policy initiated in Canadian Earthquakes 1961. Known epicentres are plotted as circles on the map (Figure 3). The character of the circle is a qualitative indication of the precision of the epicentral determination - closed circles for epicentres where the data fit well and open circles for more doubtful locations.

Only 3 earthquakes were felt in western Canada in 1963. One of these occurred on June 12 near Victoria, and the other 2 on December 2 near the Queen Charlotte Islands. No damage from either area has been reported.

The station at Port Hardy, B. C. came into operation late in December 1962. This list contains many new events which seem to be centred west of Port Hardy near longitude 129° W. Included in the list this year are several events of magnitude near 4 which occurred about September 1st. The Port Hardy station alone recorded many small earthquakes apparently associated with these moderate earthquakes. They are listed in Tables IV and V for two separated groups of larger earthquakes. This group of epicentres does not yet seem to form any obvious pattern, although they are associated with previous earthquakes west of Vancouver Island rather than with those near the coast.

TABLE III

## Earthquakes in Western Canada and Adjacent Areas

(Universal time is used throughout)

(M = magnitude)

January 2 1916	05:39:43. M = 2.0. 93 miles from Port Hardy, B. C.
January 4 1917	08:29:02. M = 2.0. 144 miles from Port Hardy, B. C.
January 6 1918	06:01:17. M = 2.0. 108 miles from Port Hardy, B. C.
January 7 1919	03:27:43 M = 2.0. 145 miles from Penticton, B. C., and 92 miles from Banff, Alta.
January 7 1920	18:59:21. M = 2.0. 100 miles from Port Hardy, B. C.

January 7 1921	19:08:17. M = 2.0. 108 miles from Port Hardy, B.C.
January 9 1922	16:59:33. M = 2.0. 135 miles from Port Hardy, B.C.
January 9 1923	23:49:30. M = 2.0. 43 miles from Port Hardy, B.C.
January 10 1924	08:58:34. M = 2.0. 38 miles from Port Hardy, B.C.
January 11 1925	23:21:07. M = 2.0. 142 miles from Penticton, B.C.
January 12 1926	14:43:10. M = 2.6. 196 miles from Penticton, B.C.
January 16 1927	06:43:13. 48°16' N, 122°48' W. M = 2.3. Near Whidby Island, U.S.A.
January 18 1928	16:13:05. M = 2.0. 196 miles from Penticton, B.C.
January 18 1929	20:49:12. M = 2.9. 200 miles from Penticton, B.C.
January 18 1930	21:24:28. M = 2.0. 144 miles from Port Hardy, B.C.
January 19 1931	05:57:21. M = 3.5. Epicentre probably in Queen Charlotte Sound.
January 20 1932	10:56:48. 50°3' N, 129°6' W. M = 3.9. West of Vancouver Island.
January 20 1933	19:19:08. M = 2.0. 105 miles from Port Hardy, B.C.
January 22 1934	04:13:46. 48°53' N, 122°13' W. M = 2.2. Northeast of Bellingham, Washington, U.S.A.
January 31 1935	00:27:33. 50°36' N, 129°45' W. M = 2.5. West of Vancouver Island.

January 31 1936	22:54:08. M = 2.0. 64 miles from Port Hardy, B. C.
February 16 1937	04:06:44. 49° 6' N, 127° 1' W. M = 2.8. West of Estevan Point
February 22 1938	23:19:57. 58° 8' N, 137° 1' W. Southeastern Alaska. USCGS epicentre.
February 23 1939	06:19:17. 49° 29' N, 123° 37' W. M = 2.3. Sechart Peninsula.
March 4 1940	06:08:23. 49° 6' N, 114° 8' W. M = 2.3. Crowsnest Pass area of British Columbia.
March 4 1941	10:40:59. M = 2.0. 115 miles from Port Hardy, B. C.
March 9 1942	06:54:50. M = 2.0. 109 miles from Port Hardy, B. C.
March 10 1943	06:21:29. 49° 6' N, 127° 6' W. M = 2.4. West of Vancouver Island.
March 15 1944	23:06:02. M = 2.3. 166 miles from Penticton.
March 21 1945	18:19:19. 50° 05' N, 129° 45' W. M = 3.9. West of Vancouver Island.
March 23 1946	22:38:28. 48° 12' N, 124° 36' W. M = 2.1. Western Washington, U. S. A.
March 27 1947	09:11:45. 50° 38' N, 129° 47' W. M = 4.1. West of Vancouver Island. See Table IV for list of small related events.
March 27 1948	22:48:26. M = 2.2. 118 miles from Port Hardy, B. C.
March 28 1949	10:25:53. 48° 8' N, 122° 0' W. M = 1.9. North central Washington, U. S. A.
March 29 1950	17:14:31. 48° 0' N, 120° 4' W. M = 2.4. Northwest of Chelan, Washington, U. S. A.
March 30 1951	00:34:46. 50° 38' N, 129° 30' W. M = 4.1. West of Scott Islands.

March 30 02:57:45. 48°52' N, 122°23' W. M = 2.3. Northeast of Bellingham,  
1952 Washington, U. S. A.

March 30 20:44:09. M = 2.2. 120 miles from Port Hardy, B. C.  
1953

March 30 23:58:32. 50°2' N, 127°5' W. M = 2.3. Checleset Bay on the west  
1954 coast of Vancouver Island.

April 4 04:48:36. M = 1.9. 105 miles from Port Hardy, B. C.  
1955

April 5 09:27:16. 49°6' N, 126°5' W. M = 3.0. In Nootka Sound.  
1956

April 6 01:04:37. 48°9' N, 115°4' W. M = 2.7. Northern Montana, U. S. A.  
1957

April 7 21:16:18. 49°45' N, 123°40' W. M = 2.8. Jervis Inlet.  
1958

April 16 14:18:39. 47°55' N, 129°18' W. M = 3.6. West of Vancouver  
1959 Island.

April 16 16:54:16. 48°1' N, 128°6' W. M = 3.8. USCGS epicentre west of  
1960 Vancouver Island.

April 20 13:25:42. 50°8' N, 129°6' W. M = 3.5. West of Vancouver Island.  
1961

April 23 12:58:06. 50°6' N, 129°2' W. M = 3.7. West of Vancouver Island.  
1962

May 6 14:33:33. 49°04' N, 122°15' W. M = 2.3. East of Abbotsford, B. C.  
1963

May 9 05:08:20. 48°56' N, 123°03' W. M = 2.0. Gulf Islands area.  
1964

May 11 19:07:05. 49°43' N, 126°26' W. M = 2.5. Nootka Sound area.  
1965

May 16 19:01:25. 48°41' N, 123°09' W. M = 1.9. Gulf Islands area.  
1966

May 18 1967	14:04:01. 48°44' N, 121°59' W. M = 2.0. Near Mount Baker, Washington, U.S.A.
May 21 1968	17:49:00. M = 2.8. Epicentre is 51 miles from Victoria and 110 miles from Alberni.
May 24 1969	07:33:06. 58°2' N, 136°8' W. Southeastern Alaska, USCGS epicentre.
June 4 1970	05:27:10. 49°09' N, 120°29' W. M = 2.1. Near Huntington, B.C.
June 5 1971	04:45:12. M = 2.2. Epicentre is 49 miles from Victoria, and 150 miles from Penticton.
June 5 1972	15:53:09. M = 2.3. 133 miles from Penticton.
June 7 1973	13:55:56. 54°5' N, 117°8' W. M = 4.1. Western Alberta.
June 10 1974	16:19:52. 48°0' N, 122°8' W. M = 2.8. In the Puget Sound basin, U.S.A.
June 12 1975	05:15:07. 48°40' N, 123°16' W. M = 2.5. Near Sidney, B.C. Felt with intensity III to IV at Sidney, Victoria, Langford and Alberta Head. No damage reported.
June 14 1976	23:37:48. 50°39' N, 129°19' W. M = 3.9. West of Vancouver Island.
June 16 1977	09:19:55. 50°30' N, 129°30' W. M = 4.3. West of Vancouver Island.
June 23 1978	06:29:35. M = 2.0. 117 miles from Port Hardy.
June 23 1979	07:08:40. M = 2.0. 128 miles from Port Hardy.
June 23 1980	12:42:17. M = 2.0. 120 miles from Port Hardy.
June 23 1981	13:08:16. M = 2.0. 113 miles from Port Hardy.

June 23 1982	13:11:45. 51° 3 N, 129° 8 N. M = 4.0. West of Vancouver Island.
June 24 1983	10:17:24. 51° 0 N, 130° 0 W. M = 4.1. West of Vancouver Island.
June 24 1984	14:18:31. 59° 1 N, 136° 8 W. M = 4.2. southeastern Alaska ; felt at Juneau.
June 24 1985	18:14:16. 49° 36' N, 127° 05' W. M = 3.2. West of Vancouver Island.
July 1 1986	13:54:40. M = 2.4. 106 miles from Port Hardy.
July 2 1987	03:40:08. 51° 3 N, 117° 6 W. M = 2.6. Near Glacier.
July 3 1988	17:48:36. M = 2.5. 106 miles from Port Hardy.
July 4 1989	01:07:50. M = 2.4. 140 miles from Penticton.
July 5 1990	20:30:34. M = 2.0. 51 miles from Penticton.
July 8 1991	00:15:06. 57° 0 N, 134° 5 W. M = 3.7. Southeastern Alaska, felt at Sitka.
July 10 1992	23:06:33. M = 1.9. 41 miles from Penticton.
July 12 1993	06:54:41. M = 2.8. 109 miles from Penticton.
July 12 1994	12:23:24. 50° 40' N, 129° 55' W. M = 4.6. West of Vancouver Island.
July 12 1995	12:52:35. 50° 35' N, 130° 00' W. M = 4.5. West of Vancouver Island.
July 12 1996	14:03:38. 50° 3 N, 129° 6 W. M = 4.8 West of Vancouver Island.



July 12 1997	15:24:13. M = 2.4. 93 miles from Port Hardy.
July 12 1998	16:08:13. M = 2.3. 80 miles from Port Hardy.
July 13 1999	00:02:25. M = 3.0. 171 miles from Penticton.
July 13 2000	03:16:53. 49°45' N, 124°00' W. M = 3.1 Sechelt Peninsula.
July 15 2001	18:46:43. M = 2.9. 176 miles from Penticton.
July 18 2002	00:04:05. 49°15' N, 128°45'. M = 4.6. West of Vancouver Island.
July 19 2003	20:20:17. M = 2.5. 61 miles from Penticton.
July 20 2004	08:54:24. 49°00' N, 128°40' W. M = 3.0. West of Vancouver Island.
July 23 2005	19:12:47. M = 2.3. 123 miles from Penticton.
July 25 2006	14:28:06. M = 2.4. 174 miles from Penticton.
July 26 2007	08:45:02. M = 3.6. 184 miles from Penticton.
July 30 2008	22:40:42. M = 2.5. 97 miles from Port Hardy.
August 2 2009	08:28:38. 48°5' N, 122°0' W. M = 1.6. Northwest Washington, U. S. A.
August 3 2010	22:12:37. M = 2.0. 87 miles from Penticton.
August 4 2011	04:17:27. M = 2.2. 102 miles from Penticton.

August 6 2012	12:46:16. M = 2.2. 103 miles from Port Hardy.
August 10 2013	23:43:37. 49°35' N, 115°25' W. M = 2.0. Near Cranbrook, B.C.
August 12 2014	14:07:15. 47°2' N, 120°9' W. M = 2.1. Northwestern Washington, U. S. A.
August 13 2015	15:03:58. 47°3' N, 121°6' W. M = 2.6. Northwestern Washington, U. S. A.
August 18 2016	00:24:26. 47°5' N, 122°6' W. M = 3.2. Northwestern Washington, U. S. A.
August 20 2017	06:09:01. M = 2.2. 125 miles from Port Hardy.
August 21 2018	12:38:04. M = 2.2. 109 miles from Port Hardy.
August 21 2019	13:58:48. M = 2.0. 55 miles from Port Hardy.
August 22 2020	20:36:56. M = 2.3. 107 miles from Port Hardy.
August 23 2021	15:22:04. M = 2.1. 78 miles from Port Hardy
August 26 2022	09:20:43. 48°0' N, 123°0' W. M = 3.1. Northern Washington, U. S. A.
August 27 2023	16:57:34. M = 2.5. 152 miles from Penticton.
August 27 2024	22:22:47. M = 2.7. 189 miles from Penticton.
August 30 2025	13:47:30. M = 2.6. 98 miles from Port Hardy.
August 30 2026	19:10:03. M = 2.6. 98 miles from Port Hardy.

August 30 2027	23:49:46. M = 2.8. 98 miles from Port Hardy, and 308 miles from Alberni.
August 31 2028	12:23:25. M = 3.0. 178 miles from Penticton.
September 1 2029	07:01:31. 50:4 N, 129:5 W. M = 3.2. This is one of a series of earthquakes west of Port Hardy. In this table the events to which a definite epicentre has been assigned are listed. In Table V the small events, obviously foreshocks or aftershocks of this series, are listed.
September 1 2030	15:23:55. 50:7 N, 129:4 W. M = 4.0. West of Port Hardy.
September 1 2031	19:22:47. 50:5 N, 129:5 W. M = 2.8. West of Port Hardy.
September 1 2032	22:07:28. 51:4 N, 129:6 W. M = 2.7. West of Port Hardy.
September 1 2033	23:55:42. 51:6 N, 129:1 W. M = 2.7. West of Port Hardy.
September 2 2034	03:46:15. 51:5 N, 129:0 W. M = 4.2. West of Port Hardy.
September 2 2035	13:22:31. 50:7 N, 129:7 W. M = 3.8. West of Port Hardy.
September 2 2036	13:27:35. 50:3 N, 129:2 W. M = 4.6. West of Port Hardy.
September 2 2037	13:32:27. 50:4 N, 129:1 W. M = 4.4. West of Port Hardy.
September 2 2038	14:12:48. 52:0 N, 129:5 W. M = 4.2. West of Port Hardy.
September 3 2039	19:31:33. 50:5 N, 129:5 W. M = 4.0. West of Port Hardy.
September 4 2040	19:21:12. M = 2.5. 150 miles from Penticton.

September 5 2041	11:36:32. 50° 3 N, 129° 1 W. M = 4.2. West of Port Hardy.
September 5 2042	22:13:16. M = 2.6. Probably central Washington, U.S.A.
September 6 2043	20:31:46. 50° 1 N, 129° 5 W. M = 4.4. West of Port Hardy.
September 8 2044	15:53:32. 48° 5 N, 123° 0 W. M = 2.5. Olympic Mountains, U.S.A.
September 8 2045	16:27:37. 50° 4 N, 128° 1 W. M = 2.9. Quatsino Sound area.
September 9 2046	07:27:52. 49° 6 N, 130° 4 W. M = 2.8. West of Port Hardy.
September 11 2047	19:13:49. 48° 4 N, 130° 1 W. M = 2.8. West of Vancouver Island.
September 13 2048	03:42:19. 48° 7 N, 123° 2 W. M = 1.5. Between southeastern Vancouver Island and Washington, U.S.A.
September 17 2049	00:22:57. 50° 2 N, 129° 2 W. M = 4.0. West of Port Hardy.
September 18 2050	12:12:00. M = 2.1. 57 miles from Port Hardy.
September 18 2051	18:15:56. 52° 5 N, 115° 5 W. M = 2.6. North of Banff.
September 20 2052	17:15:22. 50° 4 N, 129° 5 W. M = 3.3. West of Vancouver Island.
September 21 2053	00:59:51. M = 2.1. 95 miles from Port Hardy.
September 22 2054	13:35:21. 50° 5 N, 129° W. M = 2.8. West of Vancouver Island.
September 29 2055	22:36:16. M = 2.1. 175 miles from Victoria.

October 4 2056	07:14:53. 47° 5' N, 130° 5' W. M = 4.4. West of Washington, U. S. A.
October 5 2057	11:55:56. 48° 1' N, 128° 1' W. M = 4.3. West of Vancouver Island.
October 5 2058	18:40:46. 50° 9' N, 131° 1' W. M = 3.9. West of Vancouver Island.
October 14 2059	05:35:43. 48° 7' N, 124° 6' W. M = 2.0. Southern Vancouver Island.
October 15 2060	07:26:09. 59° 0' N, 136° 8' W. M = 4.3. Southern Alaska; felt at Juneau.
October 17 2061	15:51:13. 48° 5' N, 125° 4' W. M = 1.6. West of Vancouver Island.
October 19 2062	07:00:25. 58° 7' N, 137° 4' W. M = 3.9. Southern Alaska.
November 2 2063	00:30:25. M = 2.3. 32 miles from Victoria.
November 7 2064	05:02:45. M = 2.5. 113 miles from Port Hardy.
November 17 2065	06:02:54. M = 2.0. 77 miles from Victoria.
November 19 2066	08:06:33. 59° 7' N, 140° 8' W. M = 4.2. Yakutat Bay, Alaska.
November 20 2067	01:13:49. 53° 4' N, 130° 6' W. M = 4.0. West of Banks Island.
December 2 2068	06:52:20. 54° 4' N, 132° 9' W. M = 4.7. North of Queen Charlotte Islands. Felt at Tlell.
December 2 2069	06:57:20. 54° 4' N, 132° 9' W. M = 4.5. North of Queen Charlotte Islands. Felt at Tlell.
December 3 2070	21:31:01. M = 2.1. 78 miles from Victoria.

December 8 2071	13:24:02. 49° 3 N, 125° 9 W. M = 2.7. Clayoquot Sound.
December 15 2072	15:44:22. 50° 3 N, 129° 1 W. M = 4.0. West of Vancouver Island.
December 20 2073	19:11:06. 49° 6 N, 124° 2 W. M = 2.4. Tenada Island, B.C.
December 22 2074	02:54:08. 48° 5 N, 120° 1 W. M = 3.7. North central Washington, U.S. A.

TABLE IV

The following list of earthquakes are apparently foreshocks or aftershocks of number 1947 which occurred west of Vancouver Island at 50°38' N, 129°47' W at 09:11:45 U. T. on March 27. The magnitude of the main shock was 4.1.

<u>Time</u>	<u>Magnitude</u>	<u>Time</u>	<u>Magnitude</u>
01 41 12	1.7	08 06 29	2.1
03 25 14	1.9	09 05 21	2.1
03 26 08	2.2	09 53 00	2.1
04 34 23	2.3	10 26 03	1.7
04 37 56	1.9	11 30 50	2.1
04 42 47	1.7	12 21 16	2.1
05 26 52	2.0	12 39 21	1.7
06 34 43	2.7	15 00 48	2.2
06 46 38	1.9	15 52 34	2.1

A list of small aftershocks or foreshocks in a small area west of Port Hardy follows. The list begins with August 31st although there are some events previous to this date.

<u>Date</u>	<u>Time</u>	<u>Magnitude</u>	<u>Distance from Port Hardy</u> (Miles)
August 31	03:22:58	2.6	95
31	12:12:25	2.0	95
31	12:38:34	2.0	96
31	13:30:05	2.0	96
31	14:42:27	2.0	95
31	16:12:34	2.0	96
31	18:45:33	2.2	94
31	19:20:45	2.0	94
31	19:47:16	2.3	97
31	20:34:49	2.2	92
31	20:52:49	2.0	96
31	20:54:08	2.0	93

<u>Date</u>	<u>Time</u>	<u>Magnitude</u>	<u>Distance from Port Hardy</u> (Miles)
August 31	21:01:25	2.3	96
Sept. 1	06:59:41	2.3	93
1	07:06:16	2.5	93
1	07:13:52	2.9	86
1	07:32:11	2.3	93
1	08:19:07	2.0	102
1	14:50:13	2.6	95
1	15:14:41	2.1	96
1	15:28:15	2.3	87
1	16:45:11	2.5	95
1	18:02:59	2.7	96
1	18:20:24	2.0	97
1	18:47:17	2.1	142
1	19:05:38	2.0	95
1	20:08:36	2.0	92
1	20:29:39	2.0	95
1	20:41:40	2.0	96
1	22:03:34	2.0	97
1	22:04:35	2.0	97
2	01:36:44	2.9	98
2	01:49:19	2.0	97
2	02:02:51	2.0	98
2	02:08:10	2.0	96
2	03:44:41	2.0	100
2	03:48:37	2.8	100
2	03:51:13	2.5	97
2	04:07:20	2.0	97
2	04:16:10	2.0	97
2	13:55:58	4.0	97
2	14:02:16	2.0	96
2	14:24:43	3.3	97
2	16:32:18	2.0	94
2	16:38:41	2.0	96
2	18:10:20	2.0	102
2	19:12:58	2.0	95
2	19:30:27	2.0	93
3	00:35:53	2.0	97
3	02:21:13	2.0	95
3	02:45:07	2.0	100
3	03:28:57	2.0	90
3	04:27:20	2.0	97
3	06:56:31	2.0	96
3	15:29:48	2.0	97



<u>Date</u>	<u>Time</u>	<u>Magnitude</u>	<u>Distance from Port Hardy</u> (Miles)
Sept. 3	17:05:39	2.0	97
3	17:22:34	2.0	100
3	20:50:37	2.0	103
3	21:06:18	2.0	95
4	00:31:39	2.0	94
5	12:01:22	2.0	95
5	12:14:32	2.0	94
5	14:19:33	2.0	95
6	16:14:29	2.0	115
6	20:41:08	2.0	78
6	21:31:44	2.0	78
6	23:57:06	2.0	89
7	18:14:04	2.0	79
8	01:14:13	2.0	94
9	05:18:32	2.8	97
10	13:57:45	2.0	95