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SEISMOLOGICAL BULLETIN

January, 1954

MSI - 157

U. S. DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY -- WASHINGTON

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National Oceanic and Atmospheric Administration

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SEISMOLOGICAL BULLETIN

The Seismological Bulletin beginning with this number will henceforth be published monthly. The future publication schedule is to prepare, reproduce, and distribute each bulletin before the conclusion of the following month.

The publication backlog of the quarterly Seismological Bulletin is gradually being reduced. The numbers for 1947 and 1948 without lists of earthquake locations will be distributed this year. The numbers for 1951, 1952, and 1953 are being prepared as time permits. The first two quarterly reports for 1951 will probably be distributed within six months. In spite of the publication backlog all of the seismograms have been interpreted and individual earthquake readings are available upon request.

DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

U. S. COAST AND GEODETIC SURVEY

R. F. A. Studds, Director

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

January 1954

MSI-157

Contents

List of stations..... 1
Station instrumental constants..... 2
Provisional epicenters..... 5
Seismogram interpretations..... 7
Local and minor earthquakes..... 21

Issued by the U. S. Coast and Geodetic Survey
Washington 25, D. C.

The instrumental results of the following stations are tabulated in this report.

**Balboa Heights, C. Z. (BH)
The Panama Canal
*Boulder City, Nev. (BC)
Bureau of Reclamation
*Bozeman, Mont. (BOZ)
Montana State College
**Burlington, Vt. (BUR)
University of Vermont
*Butte, Mont. (BUT)
Montana School of Mines
*Chicago, Ill. (CHI)
University of Chicago and U. S. Weather Bureau
College, Alaska (COL)
*Columbia, S. C. (COLU)
University of South Carolina
Honolulu, T. H. (HONO)
*Hungry Horse, Mont. (HH)
Bureau of Reclamation
*Lincoln, Nebr. (LIN)
Nebraska Wesleyan University
**Logan, Utah (LOG)
Utah State Agricultural College
*Montezuma, Chile (MONT)
Smithsonian Institution
Nelson, Nev. (NEL)
**New Kensington, Pa. (NK)
Private station, Fred Keller, Sr.
**Philadelphia, Pa. (PHIL)
The Franklin Institute
**Rapid City, S. Dak. (RC)
South Dakota State School of Mines
*Salt Lake City, Utah (SLC)
University of Utah
San Juan, Puerto Rico (SJ)
Sitka, Alaska (SIT)
Tucson, Ariz. (TUC)
Ukiah, Calif. (UK)
International Latitude Observatory
Washington, D. C. (WASH)

*Indicates a station maintained by a local institution in cooperation with the U. S. Coast and Geodetic Survey.
**Indicates a station operating on an independent basis.
Other stations are observatories of the U. S. Coast and Geodetic Survey.

All seismogram interpretations are made or revised at Washington except those for Balboa Heights. All magnitude determinations are by Pasadena unless otherwise stated. Minor earthquakes are listed at the end of the bulletin.

One asterisk (*) following an origin time indicates probable error of one-tenth minute. Two asterisks (**) following an origin time indicate probable error of one-quarter minute. All origin times and locations are determined from P data only. For Pasadena epicenters the time is given in one-tenth minute.

All seismograms are on file in the U. S. Coast and Geodetic Survey, except those from Balboa Heights, Burlington, Logan, and New Kensington which may be obtained on loan by addressing the Seismograph Station Director: - Meteorological and Hydrographic Office, Panama Canal Company, Balboa Heights, Canal Zone; University of Vermont, Burlington, Vermont; Utah State Agricultural College, Logan, Utah; 508 Pershing Drive, New Kensington, Pennsylvania.

STATION AND INSTRUMENTAL CONSTANTS FOR 1954

Station	Position	Instruments	Foundation and elevation	T_o	T_g	T_s	V	ϵ	Paper Speed	Time Break Reference Point	Ground Motion Trace "up"
Balboa Heights, C. Z. W. H. Esslinger, In Chg.	Log cos 9.99467 Lat. 8°57'33"N. Long. 79°33'29"W.	W-A, NS&EW Mass 1.3g	Basalt 36m.	NS 1.0 EW 1.0			1370 1370	14:1 18:1	60 mm/min.	Beginning.	N E
Boulder City, Nev. F. Werner, In Chg.	Log cos 9.90806 Lat. 35°58'51"N. Long. 114°50'02"W.	B, film, ZNE Mass 100 lb.	Fractured monzonite. 776m.	Z 1.4 N 1.4 E 1.4	.45 .45 .45		12000 5000 5000	Near crit. crit. crit.	15mm/min.	Beginning.	Up N E
Bozeman, Mont. A. J. M. Johnson, In Chg.	Log cos 9.88437 Lat. 45°40'01"N. Long. 111°02'43"W.	McC-R, NS&EW Mass 10kg.	Alluvium, glacial drift, and lake deposits 500' thick over gneiss and schist. 1490m.	NS 11.1 EW 10.9			270 270	13:1 12:1	15mm/min.	Beginning.	N E
*Burlington, Vt. E. C. Jacobs, In Chg.	Log cos 9.85339 Lat. 44°28.8' N. Long. 73°11.8' W.	M-S, NE&NW Mass 1 lb.	Glacial hardpan. 100m.	NE 12 NW 12			250 250	20:1 20:1	8mm/min.	End.	SW NW
Butte, Mont. Stephen Nile, In Chg.	Log cos 9.84167 Lat. 46°00.8' N. Long. 112°33.8' W.	W-A, NS Mass 2g. B, paper Z Mass 100 lb.	Rhyolite 30m. thick resting on granite. 1758m.	NS 7.1 Z 1	 .5		570	16:1 Near crit.	15mm/min. 60mm/min.	Beginning. Beginning.	S Up
Chicago, Ill. M. F. Schmidt, In Chg.	Log cos 9.87251 Lat. 41°47.3' N. Long. 87°36.0' W.	McC-R, NS&EW Mass 2.5kg.	Limestone. 180m.	NS 10 EW 10			335 335	15:1 15:1	15mm/min.	End.	N W
*College, Alaska C. J. Beers In Chg.	Log cos 9.62825 Lat. 64°51.6' N. Long. 147°50.4' W.	B, film, ZNE Mass 100 lb. W, NS	Granitic schist. 159m.	Z 1.5 N 1.5 E 1.5 NS 9.3	.45 .45 .45 16		12000	Near crit. Near crit. Near crit. Near crit.	15mm/min.	Beginning	Up N E N
College Outpost	2.7 mi. NE of College.	B, paper, Z		Z 1.5	.53		6000	Near crit.	60mm/min.		Up
Columbia, S. C. C. F. Mercer, In Chg.	Log cos 9.91957 Lat. 34°00' N. Long. 81°02' W.	W-L, ZNE	Consolidated sand 150' thick over granite. 94m.	Z 1.1 N 8.0 E 8.0	1.6 4.1 4.1		15000 2000 2000	Near crit. Near crit. Near crit.	60mm/min. 30mm/min. 30mm/min.	Beginning	Up N E
*Honolulu, T. H. R. L. White In Chg.	Log cos 9.96926 Lat. 21°18'13"N. Long. 158°05'44"W.	M-S, NS&EW Mass 1 lb. N-L, EW Spg. Z	Coral. 3m.	NS 12 EW 12 EW 1.2 Z 1.65	 1.6		124 142 4800	20:1 20:1 8:1 crit.	30mm/min. 60mm/min.	Beginning	N W W Up

Station	Position	Instruments	Foundation and elevation	T_o	T_g	T_s	V	ζ	Paper Speed	Time Break Reference Point	Ground Motion Trace "up"
Hungry Horse, Mont. C. H. Spencer, In Chg.	Log cos 9.82255 Lat. 48°20'58"N. Long. 114°01'39"W.	B, film, ZNE Mass 100 lb.	Argillaceous limestone (Belt Series). 1100m.	Z 1.4 N 1.4 E 1.4	.45 .45 .45		13000 5000 5000	Near crit. Near crit. Near crit.	15 mm/min.	Beginning	Up N E
Lincoln, Nebr. W. French Jr. In Chg.	Log cos 9.87886 Lat. 40°50.3' N. Long. 96°39.2' W.	McC-R, EW Mass 2.5 kg.	Dakota sandstone. 366m.	EW 8			200	10:1	15mm/min.	Beginning	E
Logan, Utah J. Stewart Williams In Chg.	Log cos 9.87283 Lat. 41°44.5' N. Long. 111°48.8' W.	W-A, NS&EW (dbl. refl.) Mass 2g. Spg, Z	Bonneville lake beds. 1455m.	NS 12 EW 7.3 Z 1.9	 2.2		700 700	10:1 10:1 Near crit.	15mm/min. 60mm/min.	Beginning	S E Up
Montezuma, Chile. J. A. Pora, In Chg.	Log cos 9.96525 Lat. 22°38' S. Long. 68°50' W.	W-L, Z	Sandstone 1350m.	Z 1.2	0.5		10000	Near crit.	60mm/min.	Beginning	Up
Nelson, Nev. F. Werner, In Chg.	Log cos 9.90955 Lat. 35°42½' N. Long. 114°49½' W.	B, paper, Z Mass 100 lb.	Volcanic rock 1200m.	Z 1.5	.45		100000	Near crit.	60mm/min.	Beginning	Up
New Kensington, Pa. F. Keller Sr., In Chg.	Log cos 9.88066 Lat. 40°33'35"N. Long. 79°45'15"W.	W, electronic EW Mass 500g.	Shale 251m.	EW 10	13		1000	6:1	1"/min.	Beginning	E
Philadelphia, Pa. I. M. Levitt, In Chg.	Log cos 9.88452 Lat. 39°57'32"N. Long. 75°10'30"W.	W, NS&EW Mass 500g.	Cape May sand and gravel. 5m.	NS 9.0 EW 9.0	9.4 9.4	7.9 7.1	1400 1400	22:1 34:1	20mm/min.	End.	S E
Rapid City, S. Dak. E. L. Tullis, In Chg.	Log cos 9.85637 Lat. 44°04.6' N. Long. 103°12.0' W.	W-A, EW (dbl. refl.) Mass 2g.	Shale. 1045m.	EW 6			590	20:1	15mm/min.	Beginning	E
Salt Lake City, Utah A. M. Anderson, In Chg.	Log cos 9.87932 Lat. 40°45'55"N. Long. 111°50'54"W.	McC-R, NS&EW Mass 2.5kg.	Bonneville lake beds. 1425m.	NS 9.7 EW 10.0			335 335	10:1 10:1	15mm/min.	Beginning	N W
San Juan, Puerto Rico Paul Ledig, In Chg.	Log cos 9.97726 Lat. 18°22.9' N. Long. 66°07.1' W.	W, NS&EW Mass 500g. B, Z	Limestone. 80m.	NS 9.9 EW 10.1 Z 1.04	25.5 16.8 0.5	11.0 10.8	1280 1280	20:1 20:1 crit.	30mm/min. 60mm/min.	Beginning	N E Up
*Sitka, Alaska T. Skillman, In Chg.	Log cos 9.73544 Lat. 57°03'25"N. Long. 135°19'28"W.	W, NS&EW Mass 500g.	Graywacke. 19m.	NS 7.3 EW 7.4	16.9 13.3	8.6 8.3	1000 1000	13:1 14:1	15mm/min.	Beginning	N W

Station	Position	Instruments	Foundation and elevation	T_o	T_g	T_s	V	ϵ	Paper Speed	Time Break Reference Point	Ground Motion Trace "up"
*Tucson, Ariz.	Log cos 9.92725	W-A, NS&EW	Caliche or	NS 8.0			466	crit.	30mm/min.	Beginning.	S
M. L. Cleven,	Lat. 32°14.8' N.	Mass 2.3g.	gravels 100-300m.	EW 8.0			457	crit.			E
In Chg.	Long. 110°50.1' W.	B, Z	thick. 770m.	Z 1.0	77.0			Near crit.	30mm/min.		Up
					0.276				60mm/min.		Up
		B, paper, E		E 1.8	0.5			Near crit.	30mm/min.	Beginning.	E
Ukiah, Calif.	Log cos 9.83968	McC-R, NS&EW	Alluvium 180m.	NS 11.9			75	Near crit.	30mm/min.	Beginning.	N
L. F. Caouette,	Lat. 39°08' N.	Mass 10kg.	deep. 199m.	EW 11.6			75				E
In Chg.	Long. 123°13' W.										
*Washington, D. C.	Log cos 9.89117	W-L, Z	Recent alluvium	Z 1.5	1.7	1.5			30mm/min.	Beginning.	Up
	Lat. 38°53'33"N.	Visible re-	on schistose		Pen						
	Long. 77°01'59"W.	corder	granite. 0m.		0.5						

*These stations operate visible recording seismographs similar to the one at Washington.

B - Benioff, W - Wenner, McC-R - McComb-Romberg, W-A - Wood-Anderson, M-S - Milne-Shaw, N-L - Neumann-Labarre, Spg - Sprengnether, W-L - Wilson-Lamison.

Date 1954	Origin Time G. C. T.	Lat.		Long.		Region, Focal Depth, and Remarks
Jan.	h m s	° '		° '		
1	13 04 17*	8½	S.	124	E.	Sawoe Sea. h about 100 km. Mag. about 6-1/2.
2	13 52 27*	43	N.	147	E.	Off east coast of Hokkaido, Japan.
2	20 17 25*	54	N.	165	W.	Fox Islands, Aleutian Islands.
3	09 48 33*	43	N.	125	W.	Off Coast of Oregon.
3	11 14 52*	43	N.	125	W.	Do.
3	17 30 31*	43½	N.	145	E.	Near east coast of Hokkaido, Japan.
4	11 16 29*	9	N.	85	W.	Near coast of Costa Rica.
4	12 08 49**					Bouvet Island region. South Atlantic Ocean.
5	03 18 00*	43	N.	147	E.	Off east coast of Hokkaido, Japan.
5	07 18 10*	76	N.	6	E.	Spitzbergen foreshock.
6	15 53 59*	76	N.	7	E.	Southwest of Spitzbergen.
7	04 08 24*	25	S.	179½	E.	South of Fiji Islands.
7	06 48 50**					About 500 miles south of Fiji Islands.
8	04 13 45**					Near north coast of Honshu, Japan.
9	01 43 15*	5½	N.	83	W.	South of Panama.
9	08 06 30*	34½	N.	141	E.	Off coast of Honshu, Japan.
10	08 59 58*	65½	N.	136½	W.	Yukon, Canada.
11	17 09 02*	23	N.	126	E.	Ryukyu Islands region.
12	14 16 22*	49	S.	165	E.	New Zealand foreshock. Mag. 6-3/4 - 7.
12	14 20 26*	49	S.	165	E.	New Zealand foreshock.
12	23 33 46.5	35.0	N.	119.1	W.	Near Wheeler Ridge, Calif. Minor property damage. Mag. 5.9
13	00 13 06*	49	S.	165	E.	Off coast of South Island, New Zealand. Mag. 7-1/4.
14	02 11 25**					Celebes Sea.
14	19 37 38**					Fox Islands, Aleutian Islands. Depth slightly greater than than normal.
15	03 24 03**					Kermadec Islands.
15	23 30 32*	19½	S.	174	W.	Tonga Islands. Depth slightly greater than normal.
16	22 45 27*	49	N.	129½	W.	Off coast of Vancouver Island, British Columbia.
17	03 03 20**					Tonga Islands.
17	03 03 57*	34	N.	141	E.	Off coast of Honshu, Japan.
17	11 46 10*	36	N.	139½	E.	Central Honshu, Japan. Felt at Tokyo. h about 60 km.
17	17 39 33*	16½	S.	36	E.	Mozambique.
17	20 43 43*	52	N.	178½	E.	Rat Islands, Aleutian Islands. h about 150 km.
18	09 39 58**					New Hebrides Islands.
18	10 47 07**					Banda Sea.

Date 1954	Origin Time G. C. T.	Lat.		Long.		Region, Focal Depth, and Remarks
Jan.	h m s	° '		° '		
18	14 16 05**					Near west coast of Greece. Felt.
18	14 45 10*	52½	N.	159	E.	Near east coast of Kamchatka.
19	21 16 40*	14	S.	175½	W.	Samoa Islands region.
20	04 16 25*	8½	N.	103½	W.	Pacific Ocean, south of Mexico. Mag. 6
20	13 50 14*	21	S.	176½	W.	Tonga Islands. h about 200 km.
20	20 50 01*	41½	N.	105½	W.	Southeastern Wyoming. Felt in Laramie.
21	23 24 26**					Fiji Islands. h about 600 km.
22	11 16 07*	54	N.	163	W.	Near Unimak Island, Alaska.
22	11 39 09*	6	S.	151½	E.	New Britain.
22	21 23 04*	20	S.	169	E.	Loyalty Islands. h about 100 km.
23	16 06 30*	37½	N.	72½	E.	Tadzhik, S. S. R.
23	17 11 54*	37½	N.	72½	E.	Do.
24	13 32 47**					Near west coast of Greece.
25	03 29 28**					Near Negros, P. I.
25	16 03 45*	33	N.	40	W.	North Atlantic Ocean.
26	08 58 59*	6½	S.	152	E.	Near coast of New Britain.
27	10 30 00*	56½	N.	157	W.	Near coast of Alaska Peninsula. Depth slightly greater than normal.
27	14 19 47*	35½	N.	118½	W.	Southern California. Felt at Tehachapi. Mag. 5
27	18 16 07**					Near coast of Guerrero, Mexico. Felt at Chilapa. h about 60 km.
28	22 14 54**					Near coast of Guerrero, Mexico. Felt at Acapulco. h about 60 km.
29	08 00 14*	8½	S.	159	E.	Solomon Islands. h about 100 km.
30	18 27 44*	54	N.	163	W.	Near Unimak Island, Alaska.
31	11 43 27*	52	N.	160	E.	Off east coast of Kamchatka.
31	14 03 10*	21	S.	179½	E.	Fiji Islands region. h about 600 km.

Date and Station	Phase	(GCT) h m s
Jan. 1		
NEL	i(P)	00 30 07.2
Jan. 1		
BC	i(P)	00 47 00.6
COL	eP	00 42 43
HH	iP	00 46 11
NEL	iP	00 47 02.3
Jan. 1		
BC	i(P)	02 33 25.1
COL	iP	02 33 59
HH	iP	02 34 01
NEL	iP	02 33 24.6
TUC	e(P)	02 33 30
Jan. 1		
COL	iP	02 55 25
	e	55 54
NEL	e(P)	02 59 30
Jan. 1		
HH	e(P)	05 50 50
Jan. 1		
BC	e(P)	08 56 13
Jan. 1		
NEL	iP	11 50 17.1
Jan. 1		
BC	iP'	13 23 05.1
	i	23 10.9
	ipP'	23 29.8
	i	26 33.6
	ePKKP	33 14
BUT	iP	13 23 01
	e	23 31
	e	26 31
	eSKS	29 43
	ePKKP	33 14
COL	eP	13 17 43
	i	17 49
	epP	18 05
	ePP	21 42
	ePPP	23 43
	ePKKP	34 23
HH	eP	13 19 33
	iP'	22 57
	iPP	24 13
	i	26 26
	ePKKP	33 25
	i	46 26
NEL	iP'	13 23 05.4
	ipP'	23 30.4
	i	26 33.4
	iPKKP	33 17.2
SJ	iP'	13 24 16
	i	25 19
	ePP	29 26
TUC	eP'	13 23 12
	epP'	23 35
	e	25 32
	i	26 41
	e	27 10
	ePKKP	32 54
WASH	iP'	13 23 49
	iPP	27 21
Jan. 1		
BC	e(P)	13 44 55
COL	iP	13 40 29
HH	iP	13 43 38
NEL	iP	13 44 57.0
TUC	eP	13 45 20
Jan. 1		
COL	i(P)	14 28 52
Jan. 1		
COL	iP	15 33 39
Jan. 1		
COL	eP	16 15 35
Jan. 1		
BUT	eP	17 18 50
HH	eP	17 18 54
NEL	iP	17 18 34.6
TUC	e(P)	17 19 36
Jan. 1		
NEL	e(P)	18 22 01
Jan. 1		
NEL	e(P)	18 36 04
Jan. 1		
NEL	e(P)	19 05 54
Jan. 1		
BC	e(P)	20 22 16.7
Jan. 1		
BC	iP	20 36 29.0
	i(pP)	36 50.2
BUT	e(P)	20 37 27
COL	iP	20 40 53
	ipP	41 13
HH	eP	20 37 46
NEL	iP	20 36 26.9
	ipP	36 48.5
TUC	eP	20 35 43
Jan. 1		
BC	e(P)	21 21 34
	e(PP)	24 05
NEL	eP	21 21 57
	e(PP)	24 06
Jan. 1		
COL	iP	21 31 30
HH	e(P)	21 30 41
Jan. 1		
NEL	e(P)	22 57 06
Jan. 2		
COL	eP	01 18 02
Jan. 2		
BUT	eP	01 26 23
COL	iP	01 25 26
HH	iP	01 26 17
	e	26 48
	ePP	30 01
NEL	i	01 29 57.9
	ePP	30 55
	i	36 38.9
Jan. 2		
HH	i(P)	02 21 29
Jan. 2		
HH	e(P)	03 43 59
TUC	e(P)	03 45 31
Jan. 2		
BC	e(P)	04 00 52
NEL	e(P)	04 00 57
TUC	e(P)	04 00 18
Jan. 2		
TUC	e(P)	05 13 16
NEL	e(P)	05 13 46
Jan. 2		
HH	e(P)	07 43 31
Jan. 2		
TUC	e(P)	08 16 44
Jan. 2		
NEL	e(P)	09 50 13
Jan. 2		
COL	iP	10 37 37
Jan. 2		
BC	i(P)	11 20 40.6
COL	iP	11 21 11
HH	i(P)	11 21 15
NEL	iP	11 20 39.5
TUC	e(P)	11 20 45
Jan. 2		
BC	i(P)	14 03 54.0
BUT	eP	14 03 22
	e	03 32
COL	iP	14 00 23
HH	iP	14 03 09
	i	03 19
NEL	eP	14 03 54
	i	04 04.5
	i	04 37.8
	ePP	06 38
TUC	e(P)	14 04 22
Jan. 2		
COL	e(P)	14 21 10
Jan. 2		
COL	eP	15 20 25
Jan. 2		
NEL	i(P)	15 59 33.7
Jan. 2		
COL	iP	16 39 10
Jan. 2		
COL	iP	17 15 40
Jan. 2		
COL	iP	17 35 27
Jan. 2		
COL	iP	19 01 27
HH	e(P)	19 02 45
Jan. 2		
COL	iP	19 30 01
Jan. 2		
BC	eP	20 24 54
	iP	25 00.4
	e	34 57
COL	iP	20 20 48
	i	20 55
HH	iP	20 23 54.5
	i	24 03
	ePP	25 18
	i	26 42
	i	26 56

Date and Station		Phase (GCT)
		h m s
NEL	iP	20 24 56.7
	i	25 26.0
	i(PcP)	27 03.7
	i	27 19.2
	i(ScP)	30 48.0
SJ	iP	20 29 40
Jan. 2 COL	iP	21 42 18
HH	e(P)	21 45 31
NEL	eP	21 44 16
Jan. 2 COL	iP	22 16 31
Jan. 2 COL	iP	23 14 38
Jan. 2 BC	e(P)	23 49 48
NEL	e(P)	23 49 50
Jan. 2 NEL	e(P)	23 53 37
Jan. 3 COL	e(P)	00 44 49
NEL	e(P)	00 45 56
	e	47 21
Jan. 3 BC	e(P)	01 04 28
NEL	iP	01 04 25.6
Jan. 3 HH	e(P)	02 40 06
NEL	e(P)	02 41 42
Jan. 3 COL	iP	03 33 19
Jan. 3 BUT	e(P)	05 27 52
	e	29 52
Jan. 3 BC	eP	06 06 46
COL	e(P)	06 14 51
HH	eP	06 06 29
	iP	06 31
NEL	iP	06 06 47.7
TUC	e(P)	06 07 48
Jan. 3 COL	eP	08 02 41
HH	e(P)	08 03 55
	e	04 19

Date and Station		Phase (GCT)
		h m s
Jan. 3 NEL	i(P)	08 21 07.0
Jan. 3 BC	e(P)	09 51 10
HH	iP	09 50 55
NEL	iP	09 51 16.1
TUC	e(P)	09 52 19
Jan. 3 BC	e(P)	11 17 28
BUT	eP	11 17 22
HH	eP	11 17 13
	iP	17 14
NEL	iP	11 17 29.9
TUC	eP	11 18 31
Jan. 3 NEL	e(P)	13 17 04
Jan. 3 COL	iP	14 39 26
Jan. 3 COL	eP	15 20 18
Jan. 3 COL	iP	16 27 22
Jan. 3 BC	iP	17 42 03.2
BUT	iP	17 41 31
COL	iP	17 38 27
HH	iP	17 41 17
NEL	iP	17 42 04.6
Jan. 3 BUT	e(P)	18 29 37
Jan. 3 COL	iP	18 39 19
Jan. 3 COL	eP	18 44 20
Jan. 3 COL	iP	19 26 45
Jan. 3 BUT	e	20 01 30
Jan. 3 BUT	e(P)	22 18 42
Jan. 3 NEL	e(P)	23 53 24

Date and Station		Phase (GCT)
		h m s
Jan. 3 NEL	e(P)	23 56 30
Jan. 4 NEL	e(P)	01 05 11
Jan. 4 NEL	e(P)	04 43 33
Jan. 4 COL	iP	08 11 48
Jan. 4 NEL	e(P)	08 44 17
Jan. 4 NEL	e(P)	09 13 19
Jan. 4 COL	iP	09 58 04
Jan. 4 COL	iP	10 34 32
Jan. 4 BC	eP	11 23 55
	i	24 00.8
BUT	eP	11 24 53
	ePP	26 34
COL	eP	11 27 46
	epP	28 15
HH	eP	11 25 01
	i	26 41
NEL	iP	11 23 53.9
	i	24 00.7
	i(PcP)	26 14.7
SJ	iP	11 21 08
TUC	e(P)	11 23 12
Jan. 4 BUT	eP	11 47 06
	e	48 58
HH	e(P)	11 49 42
Jan. 4 BC	e(P')	12 28 10
	i	28 24
	e	30 55
BUT	e(P')	12 28 17
	i	28 22
	i	28 36
COL	e(P')	12 28 54
HH	i(P')	12 28 20
	e	32 10
NEL	e(P')	12 28 08
TUC	e(P')	12 28 02

Date and Station		Phase (GCT)
		h m s
Jan. 4 NEL	e(P)	13 47 04
Jan. 4 COL	iP	14 18 13
Jan. 4 BUT	eP	14 47 13
COL	eP	14 40 18
HH	iP	14 47 05
NEL	e(P)	14 44 03
Jan. 4 NEL	e(P)	17 01 52
Jan. 4 COL	e(P)	17 42 41
Jan. 4 COL	eP	18 10 15
Jan. 4 HH	e(P)	19 39 20
Jan. 4 NEL	e(P)	21 30 54
Jan. 4 COL	i(P)	21 44 32
NEL	e(P)	21 42 20
	e	43 10
Jan. 4 COL	iP	21 51 46
HH	e(P)	21 49 07
NEL	e(P)	21 49 09
Jan. 4 COL	eP	23 48 14
Jan. 5 COL	iP	02 01 57
HH	iP	02 01 08
NEL	iP	02 00 51.4
Jan. 5 COL	iP	02 26 11
BC	iP	02 30 10.9
NEL	iP	02 30 12.4
Jan. 5 BC	iP	03 09 53.8
COL	iP	03 06 27
	i	06 34
HH	iP	03 09 09

B-4297-4.

Date and Station	Phase	(GCT) h m s
NEL	iP	03 09 55.3
Jan. 5 BC	e(P)	03 29 27
COL	iP	03 25 55
HH	iP	03 28 41
	i	28 51
NEL	e(P)	03 29 26
	i	29 37.7
Jan. 5 COL	iP	05 47 13
Jan. 5 BUT	e(P)	06 00 55
COL	e(P)	06 07 18
HH	e(P)	06 00 33
Jan. 5 COL	e(P)	06 52 50
HH	e(P)	06 55 13
Jan. 5 HH	e(P)	07 16 37
NEL	e(P)	07 12 22
Jan. 5 BC	e(P)	07 28 34
BUT	iP	07 27 22
	i	27 28
COL	iP	07 25 32
HH	iP	07 27 06
NEL	eP	07 28 35
	i	28 41.4
TUC	e(P)	07 28 52
Jan. 5 COL	e(P)	09 38 45
Jan. 5 COL	iP	10 25 23
Jan. 5 COL	e(P)	12 51 10
Jan. 5 COL	eP	13 42 19
Jan. 5 HH	e(P)	19 43 35
Jan. 5 NEL	e(P)	21 11 28
Jan. 5 COL	iP	22 12 17

Date and Station	Phase	(GCT) h m s
Jan. 5 COL	e(P)	22 22 07
NEL	e(P)	22 24 00
Jan. 5 SJ	e(P)	23 00 38
Jan. 5 NEL	e(P)	23 46 18
Jan. 6 COL	e(P)	01 30 37
Jan. 6 BUT	e(P)	02 13 44
Jan. 6 COL	iP	02 55 44
HH	e(P)	02 53 52
NEL	e(P)	02 53 16
Jan. 6 COL	iP	05 16 21
Jan. 6 BUT	e(P)	05 27 56
Jan. 6 COL	eP	05 57 38
Jan. 6 NEL	e(P)	06 31 28
Jan. 6 COL	iP	07 45 03
HH	e(P)	07 46 46
NEL	e(P)	07 49 16
Jan. 6 COL	eP	09 37 14
Jan. 6 HH	e(P)	10 30 13
Jan. 6 HH	e(P)	10 45 26
Jan. 6 HH	e(P)	10 51 13
Jan. 6 NEL	e(P)	15 29 32
Jan. 6 COL	e(P)	15 56 22
Jan. 6 BC	iP	16 04 23.1
	i	04 28.9
	eP'P'	33 38
BUT	i(P)	16 03 10
	i	03 15

Date and Station	Phase	(GCT) h m s
COL	iP	16 01 20
	i	01 25
HH	iP	16 02 55
	ePcP	04 14
NEL	iP	16 04 24.9
	i	04 29.7
	iPcP	05 10.5
	ePP	06 45
	eP'P'	33 26
SJ	e(P)	16 05 07
TUC	eP	16 04 42
	i	04 47
	ePP	07 09
	e	30 39
Jan. 6 COL	eP	17 42 18
HH	eP	17 45 13
Jan. 6 COL	iP	19 45 51
Jan. 6 COL	e(P)	20 42 45
Jan. 7 BUT	i(P)	01 15 59
COL	iP	01 14 47
Jan. 7 COL	e(P)	02 30 18
HH	e(P)	02 21 16
NEL	e(P)	02 24 17
Jan. 7 COL	iP	03 55 59
Jan. 7 BC	e(P)	04 09 42
COL	eP	04 06 33
NEL	iP	04 08 39.8
TUC	e(P)	04 07 52
Jan. 7 BC	iP	04 21 12.3
	e	21 21
COL	eP	04 21 43
HH	e(P)	04 21 48
NEL	iP	04 21 11.8
	e	22 19
	e	22 56
	e(PP)	24 43
TUC	iP	04 21 14.5

Date and Station	Phase	(GCT) h m s
Jan. 7 BC	eP	04 24 59
Jan. 7 COL	iP	05 55 00
HH	e(P)	05 55 01
NEL	e(P)	05 54 29
Jan. 7 BC	eP	07 01 34
BUT	e(P)	07 02 10
	i	02 15
	i	02 21
COL	iP	07 02 10
HH	eP	07 02 12
NEL	iP	07 01 32.8
	i	01 44.0
	i	01 57.8
	i	02 17.8
	e(PP)	04 22.
TUC	eP	07 01 40
Jan. 7 COL	iP	07 09 15
	ipP	09 30
Jan. 7 WASH	eL	07 26 48
Jan. 7 COL	eP	07 47 58
HH	eP	07 48 51
NEL	eP	07 48 30
Jan. 7 HH	e(P)	09 47 38
Jan. 7 BC	eP	09 58 12
HH	e(P)	09 57 22
NEL	e(P)	09 58 05
	e	10 02 03
Jan. 7 COL	eP	10 35 28
HH	i(P)	10 30 31
Jan. 7 COL	eP	11 39 06
Jan. 7 COL	iP	12 06 54
Jan. 7 HH	e(P)	13 01 53

Date and Station		Phase (GCT) h m s
Jan. 7		
COL	iP	13 34 27
Jan. 7		
BC	iP	13 49 38.1
BUT	iP	13 49 02
COL	iP	13 45 59
HH	iP	13 48 48
NEL	iP	13 49 38.8
Jan. 7		
COL	iP	18 24 57
HH	iP	18 27 40
NEL	iP	18 28 26.9
	i	28 33.9
Jan. 7		
HH	e(P)	18 41 23
Jan. 7		
HH	iP	21 42 13.5
NEL	e(P)	21 42 30
Jan. 7		
HH	e(P)	23 12 09
Jan. 7		
HH	eP	23 23 18
Jan. 7		
COL	eP	23 57 19
Jan. 8		
COL	eP	03 30 34
Jan. 8		
BC	iP	04 25 41.4
BUT	i(P)	04 25 11
COL	iP	04 22 17
	i	22 30
HH	iP	04 24 58
	e	25 23
TUC	e(P)	04 26 08
Jan. 8		
BC	i(P)	05 25 49.4
HH	iP	05 26 22
TUC	e(P)	05 25 56
Jan. 8		
COL	eP	07 10 17
HH	e(P)	07 09 44

Date and Station		Phase (GCT) h m s
Jan. 8		
COL	iP	08 19 41
Jan. 8		
HH	e(P)	08 47 03
Jan. 8		
SJ	e(P)	08 56 03
Jan. 8		
COL	iP	09 10 08
HH	e(P)	09 14 32
Jan. 8		
COL	e(P)	12 55 54
HH	e(P)	12 55 16
Jan. 8		
COL	iP	13 14 47
HH	e(P)	13 17 53
Jan. 8		
COL	iP	14 16 26
Jan. 8		
COL	iP	14 30 29
Jan. 8		
COL	iP	23 31 54
	i	32 07
Jan. 9		
BC	e(P)	00 40 45
BUT	eP	00 41 30
HH	eP	00 41 32
TUC	e(P)	00 40 18
Jan. 9		
BC	e(P)	01 51 14
BUT	eP	01 51 57
COL	iP	01 54 57
COLU	eP	01 49 14
	eL	54 50
HH	iP	01 52 16
SJ	iP	01 47 58
TUC	eP	01 50 33
Jan. 9		
BC	eP	02 58 24
COL	iP	03 02 21
HH	eP	02 59 27
	i	03 01 16

Date and Station		Phase (GCT) h m s
Jan. 9		
COL	iP	04 59 12
Jan. 9		
COL	eP	05 57 54
Jan. 9		
HH	e(P)	07 06 54
Jan. 9		
BC	eP	08 18 43
BUT	iP	08 18 16
	e	18 30
COL	iP	08 15 32
HH	iP	08 18 05
	e	18 30
TUC	e(P)	08 19 07
Jan. 9		
HH	e(P)	11 30 53
Jan. 9		
SJ	iP	12 04 15
	i(S)	04 42
HH	eP	12 12 14
Jan. 9		
HH	iP	16 35 59
Jan. 9		
BC	e(P)	17 27 50
Jan. 9		
COL	iP	19 45 31
Jan. 10		
NEL	eP	00 33 41
Jan. 10		
COL	iP	03 36 56
Jan. 10		
HH	iP	04 41 41
NEL	eP	04 42 55
Jan. 10		
COL	iP	07 01 15
Jan. 10		
HH	eP	07 42 35
NEL	iP	07 41 32.3
	iPP	43 35
TUC	eP	07 40 51
	ePP	42 54
Jan. 10		
COL	iP	08 36 55

Date and Station		Phase (GCT) h m s
Jan. 10		
BUT	iP	09 05 10
	eL	12 25
COL	iP	09 01 11
HH	iP	09 04 43
	i	05 34
	eL	10 09
NEL	eP	09 06 27
TUC	eP	09 07 09
Jan. 10		
COL	e(P)	09 39 01
Jan. 10		
COL	eP	10 58 35
Jan. 10		
COL	iP	11 02 24
HH	iP	11 06 10
NEL	eP	11 07 28
Jan. 10		
HH	iP	13 07 01
NEL	iP	13 07 13.5
Jan. 10		
COL	iP	13 33 30
Jan. 10		
BC	i(P)	13 53 24
COL	eP	13 49 58
Jan. 10		
NEL	eP	15 14 20
Jan. 10		
BC	e(P)	15 21 28
NEL	iP	15 21 26.5
Jan. 10		
COL	eP	16 35 40
Jan. 10		
COL	eP	18 27 01
HH	eP	18 29 29
Jan. 10		
COL	iP	18 43 57
	i	44 15
HH	eP	18 42 07
Jan. 10		
BC	iP	20 20 05.0
BUT	iP	20 20 41
	e	21 24

B-4297-4

Date and Station	Phase	Phase (GCT) h m s
HH	iP	20 20 51
NEL	iP	20 20 02.8
Jan. 10		
HH	e(P)	21 29 34
Jan. 10		
HH	e(P)	21 55 16
Jan. 10		
COL	eP	22 46 59
Jan. 11		
HH	e(P)	02 38 06
Jan. 11		
COL	eP	04 21 32
Jan. 11		
HH	e(P)	04 51 46
Jan. 11		
COL	eP	05 53 22
Jan. 11		
COL	eP	06 07 23
Jan. 11		
COL	eP	06 16 15
Jan. 11		
COL	eP	06 29 48
Jan. 11		
COL	iP	06 39 25
Jan. 11		
BC	eP	06 45 21
HH	eP	06 43 59
NEL	eP	06 45 26
Jan. 11		
COL	iP	06 59 33
Jan. 11		
COL	iP	07 09 47
	e	09 58
Jan. 11		
BC	eP	07 23 12
COL	eP	07 22 23
NEL	eP	07 23 05
Jan. 11		
COL	eP	08 22 24
Jan. 11		
COL	iP	09 40 11
	i	40 26
NEL	eP	09 40 57
Jan. 11		
COL	eP	10 01 12
Jan. 11		
COL	eP	10 08 00
	i	10 10
HH	eP	10 10 27
Jan. 11		
COL	iP	10 46 56
Jan. 11		
NEL	eP	11 37 46
Jan. 11		
COL	eP	12 38 02
	iP	38 03
Jan. 11		
BC	eP	13 44 18
BUT	eP	13 43 49
	e	43 26
COL	iP	13 40 35
HH	eP	13 43 19
NEL	eP	13 44 16
Jan. 11		
HH	eP	14 05 59
Jan. 11		
HH	eP	15 45 36
	i	45 42
Jan. 11		
BC	eP	16 12 37
COL	iP	16 06 33
HH	eP	16 11 07
Jan. 11		
NEL	e(P)	16 38 46
Jan. 11		
TUC	e(P)	16 51 05
Jan. 11		
BC	eP	17 22 44
	e	22 58
BUT	eP	17 22 22
	i	22 38
COL	iP	17 20 05
	i	20 17
HH	iP	17 22 11.5
	ePP	26 04
	ePKKP	39 32
NEL	iP	17 22 44.6
	i	22 57.7
	iPP	27 01.1
Jan. 11		
HH	e(P)	18 37 15
Jan. 11		
NEL	e(P)	19 09 14
Jan. 11		
NEL	iP	20 20 51.5
Jan. 11		
NEL	e(P)	20 44 27
Jan. 11		
NEL	e(P)	20 59 38
Jan. 11		
NEL	e(P)	21 46 54
Jan. 11		
BC	eP'	23 04 26
HH	eP'	23 03 52
NEL	iP'	23 04 17.2
	i	04 27.4
Jan. 12		
COL	e(P)	03 17 32
Jan. 12		
COL	eP	03 45 36
Jan. 12		
NEL	e(P)	05 00 35
Jan. 12		
COL	eP	05 32 33
Jan. 12		
NEL	e(P)	07 15 25
Jan. 12		
COL	eP	08 27 08
Jan. 12		
COL	eP	09 10 50
Jan. 12		
NEL	e(P)	10 40 58
Jan. 12		
HH	e(P)	11 08 23
Jan. 12		
HH	e(P)	13 51 02
Jan. 12		
COL	iP	13 58 32
HH	eP	13 58 07
Jan. 12		
NEL	e(P)	14 27 58
Jan. 12		
BC	eP'	14 35 18
	ePKKP	46 16
BUT	eP'	14 35 14
	ePP	36 43
	ePS	46 19
COL	iP'	14 35 12
	i	35 21
	ePP	36 30
	e(SKS)	42 51
	ePKKP	45 29
HH	iP'	14 35 15.5
	ePKKP	45 33
	eP'P'	53 18
NEL	eP'	14 34 58
	e	35 16
	ePP	35 33
	e(SKS)	41 19
	iPKKP	46 05
SLC	ePP	14(36-32)
	eSKS	(42-24)
	eL	15(04-20)
TUC	eP'	14 35 01
Jan. 12		
BC	eP'	14 39 01
	ePKKP	50 10
BUT	eP'	14 39 15
	ePP	40 42
	ePKKP	49 18
	ePS	50 27
	e(SS)	58 12
	eSSS	15 01 22
	eL	09 03
COL	iP'	14 39 12
	i	39 26
	i	39 37
	iPP	40 33
	e	44 24
	ePKKP	49 09
COLU	eP'	14 39 17
HONO	eL	15 00 26
HH	iP'	14 39 15
	ePKKP	49 19
NEL	eP'	14 39 01
	i	39 32
	iPP	39 47
	ePKKP	50 02
SLC	ePP	14(40-36)
	eSKS	(46-16)
	eSKKS	(47-18)
	ePS	(50-14)
	eSS	(55-00)
	eSSS	15(00-30)
	eL	(08-06)
SJ	eP'	14 39 27

Date and Station		Phase (GCT) h m s
TUC	eP'	14 39 02
	eSKS	45 28
	ePS	49 16
	eSS	54 52
Jan. 12		
COL	eP	14 56 21
Jan. 12		
COL	eP	15 36 49
Jan. 12		
BC	eP	16 39 29
	ipP	39 39
COL	iP	16 43 53
HH	eP	16 40 47
NEL	iP	16 39 26.6
	ipP	39 36.0
TUC	eP	16 38 42
Jan. 12		
HH	eP	18 57 48
NEL	iP	18 58 58.5
Jan. 12		
HH	eP	19 33 27
Jan. 12		
COL	eP	19 56 41
Jan. 12		
NLL	e(P)	20 42 16
Jan. 12		
HH	eP	22 04 58
Jan. 12		
NEL	e(P)	22 24 26
Jan. 12		
HH	eP	23 13 04
Jan. 12		
BC	iP	23 28 22
NEL	iP	23 28 19.8
TUC	eP	23 27 36
	eS	32 44
Jan. 12		
BOZ	eP	23 36 48
	e	37 15
	eS	39 17
	iL	40 20
BUT	iP	23 36 46
	iPP	37 22
	iS	39 49
	iL	40 06
CHI	eP	23 43 34
	eS	46 46
	iL	47 30

Date and Station		Phase (GCT) h m s
COL	iP	23 40 39
	iPcP	43 12
COLU	eP	23 40 17
	e(S)	45 19
	iL	50 05
HH	iP	23 37 08
	eS	39 42
LIN	iP	23 38 12
	e	39 07
	eS	41 36
	eL	43 20
LOG	iP	23 36 05
	eL	38 26
NEL	iP	23 34 42.2
SLC	eP	23 35(40)
	e(S)	37(20)
	eL	37(44)
SJ	iP	23 42 40
TUC	eP	23 35 35
	iP	35 39
	i	35 52
	iS	36 58
	i	37 16
	iL	37 30
WASH	iP	23 40 32
	iL	51 28
Jan. 13		
HH	i(P)	00 12 21
Jan. 13		
BC	eP'	00 31 46
	ePP	33 12
BOZ	ePP	00 33 17
	eSKS	39 15
	ePS	43 23
	ePPS	44 37
	eSS	50 11
	eSSS	54 23
	eL	01 03 01
BUT		
	eP'	00 32 05
	ePP	33 18
	i	33 57
	ePKKP	42 27
	ePS	43 15
	eSSS	53 23
CHI	ePP	00 34 42
	ePKS	35 42
	eSKS	39 36
	ePS	44 45
	ePPS	46 30
	eSS	52 22
	e(SSS)	58 24
	eL	01 08 02

Date and Station		Phase (GCT) h m s
COL	iP'	00 31 59
	iPP	33 17
	eSKKS	40 23
	iPKKP	42 23
	i	46 09
COLU	iP'	00 31 27
	iPP	35 48
	eSKSP	44 51
	eSS	51 56
	e(SSS)	01 00 04
	eL	10 40
HONO	eL	00 48 33
T_L=18 sec. A_{max}=5 mm.		
HH	iP	00 32 02
	iPP	34 16
	i	35 48
	eSKKS	40 34
	ePKKP	42 12
	i	46 00
	eP'F'	51 06
LOG	eP'	00 32 45
	ePP	33 29
	e	36 18
NEL	ePP	00 32 13
	i	33 08
	eSKKS	39 28
SLC	e(PP)	00 33(17)
	eSKS	38(38)
	ePS	42(36)
	ePPS	43(42)
	eSSS	53(30)
	eL	01 00(24)
SJ	eP'	00 31 26
TUC	ePP	00 32 19
	eSKS	38 29
	ePS	42 02
	ePPS	42 51
	eSS	47 40
	eSSS	52 05
	eL	58 21
WASH	iP'	00 32 16
	iPP	36 13
	eL	01 23 12
Jan. 13		
COL	iP	00 37 13
BC	eP	00 42 46
LOG	eP	00 42 34
	e	46 34
NEL	eP	00 42 56
	i	43 07.2
Jan. 13		
NEL	e(P)	01 03 20

Date and Station		Phase (GCT) h m s
Jan. 13		
BUT	e(P)	01 51 48
HH	eP	01 48 55
LOG	e(P)	01 47 48
	e	50 18
Jan. 13		
COL	eP	02 16 13
NEL	i(P)	02 16 04.2
	e	16 45
Jan. 13		
COL	iP	03 24 23
	i	24 32
	e	25 25
HH	eP	03 25 01
Jan. 13		
COL	eP	06 55 47
	iP	55 50
Jan. 13		
NEL	e(P)	07 17 02
Jan. 13		
COL	eP	09 32 25
Jan. 13		
COL	iP	09 34 36
HH	eP	09 37 05
NEL	iP	09 37 56.8
Jan. 13		
COL	iP	09 43 03
Jan. 13		
NEL	e(P)	09 58 59
Jan. 13		
HH	e(P)	10 23 37
Jan. 13		
COL	eP	10 46 08
Jan. 13		
COL	eP	10 48 02
Jan. 13		
NEL	e(P)	12 13 32
Jan. 13		
NEL	e(P)	13 59 25
Jan. 13		
COL	iP	14 14 44
	e	16 39
NEL	i(P)	14 18 59.9
Jan. 14		
BC	eP'	02 30 03
	ePKKP	41 13

8.4297-4.

Date and Station		Phase (GCT) h m s
COL	iP	02 24 05
	ipP	24 13
	i	24 23
	iPP	27 17
HH	eP	02 25 44
	eP'	29 15
	ePKKP	41 40
NEL	eP	02 26 05
	e	26 18
	eP'	29 54
	i	30 14
	ePKKP	41 12
SJ	iP'	02 31 47
	i	31 55
WASH	iP'	02 30 56
Jan. 14 COL	iP	03 19 36
Jan. 14 HH	eP	04 08 12
Jan. 14 NEL	e(P)	06 47 [illegible]
Jan. 14 COL	eP	08 20 46
HH	eP	08 21 31
NEL	eP	08 21 07
Jan. 14 COL	eP	12 14 45
Jan. 14 NEL	e(P)	12 22 11
Jan. 14 NEL	e(P)	13 47 39
Jan. 14 BC	eP	15 19 14
	i	19 23
HH	eP	15 20 05
	e	20 25
NEL	iP	15 19 13
	i	19 21
	i	20 31
SJ	iP	15 16 03
Jan. 14 NEL	e(P)	17 15 53
Jan. 14 NEL	e(P)	18 16 35
Jan. 14 NEL	e(P)	19 42 04
	e	42 35

Date and Station		Phase (GCT) h m s
Jan. 14 BC	iP	19 45 12.0
COL	eP	19 41 13
	iP	41 16
HH	iP	19 44 14
NEL	iP	19 45 13.7
	ipP	45 21.9
	i	45 30.9
	ePP	46 39
	eS	51 03
SJ	e(P)	19 50 02
TUC	eP	19 45 52
	epP	46 03
Jan. 14 NEL	e(P)	21 34 40
Jan. 14 COL	eP	22 41 40
Jan. 15 HH	e(P)	00 46 07
Jan. 15 BC	iP	03 36 55.2
	i	37 17.0
	ePP	40 26
COL	iP	03 37 36
NEL	iP	03 36 55.4
	i	37 14.1
	ePP	40 07
TUC	eP	03 36 57
	e	37 28
Jan. 15 NEL	e(P)	03 54 38
Jan. 15 NEL	e(P)	04 02 48
Jan. 15 NEL	e(P)	04 45 18
Jan. 15 HH	e(P)	05 59 06
Jan. 15 NEL	e(P)	06 53 37
	e	53 46
Jan. 15 COL	eP	07 54 55
Jan. 15 COL	eP	09 29 31
Jan. 15 COL	iP	10 38 49

Date and Station		Phase (GCT) h m s
Jan. 15 TUC	eP	13 23 31
Jan. 15 COL	iP	13 46 26
NEL	iP	13 45 51.2
Jan. 15 BC	eP	14 12 02
COL	iP	14 15 59
HH	iP	14 13 05.5
	i	14 54
NEL	iP	14 11 58.2
	i	14 29
TUC	eP	14 11 18
Jan. 15 COL	eP	15 20 40
Jan. 15 BUT	iP	19 26 41
COL	iP	19 24 22
	ipP	24 52
HH	iP	19 26 32
NEL	iP	19 31 03.4
	e	31 32
Jan. 15 HH	e(P)	21 33 33
Jan. 15 BC	iP	21 43 16.9
NEL	iP	21 43 22.5
Jan. 15 BC	iP	21 51 55.7
	i	52 24
Jan. 15 COL	iP	22 08 05
Jan. 15 BC	iP	23 42 37.8
BUT	iP	23 43 14
	ePP	46 30
COL	iP	23 43 17
	ipP	43 32
HH	iP	23 43 15.5
	ipP	43 41
	ePP	46 32
LOG	iP	23 43 07
	ipP	43 23
NEL	iP	23 42 36.5
	i	42 43.5
	iPP	45 28

Date and Station		Phase (GCT) h m s
TUC	iP	23 42 42
	ipP	42 57
	eL	00 06 24
Jan. 16 COL	iP	00 07 05
HH	iP	00 12 39
Jan. 16 COL	iP	00 29 54
Jan. 16 HH	e(P)	03 43 41
Jan. 16 COL	iP	04 06 29
Felt locally.		
Jan. 16 COL	iP	04 13 38
HH	eP	04 11 34
NEL	eP	04 13 15
Jan. 16 BUT	e(P)	04 20 22
HH	e(P)	04 19 01
Jan. 16 NEL	iP	05 44 59.1
Jan. 16 COL	e(P)	06 02 32
Jan. 16 COL	iP	06 27 55
Jan. 16 BC	e(P)	09 34 33
NEL	eP	09 34 05
	e	34 51
Jan. 16 HH	e(P)	10 52 32
Jan. 16 BUT	iP	14 24 55
	e	25 30
COL	iP	14 22 37
HH	iP	14 24 45
NEL	iP	14 25 10.9
	i	25 46.9
Jan. 16 COL	iP	14 39 33
Jan. 16 COL	eP	17 00 21
Jan. 16 NEL	e(P)	18 40 45

Date and Station		Phase (GCT) h m s
Jan. 16		
COL	eP	20 03 27
Jan. 16		
COL	eP	20 21 16
	epP	21 31
Jan. 16		
BC	eP	22 49 30
	iP	49 37
BUT	eP	22 48 20
	i	48 42
	eS	50 38
	eL	51 26
COL	iP	22 49 45
COLU	eP	22 53 12
	eL	23 06 05
HONO	eL	23 00 54
HH	iP	22 47 58
	eS	49 25
	eL	50 12
LOG	eP	22 49 00
	eL	55 12
NEL	iP	22 49 31.6
	iL	53 49.6
RC	iP	22 49 47
	e	50 24
	eS	53 39
	e	54 06
	eL	54 35
TUC	eP	22 50 24
	iPP	50 55
	eS	54 36
	eL	57 18
WASH	iP	22 52 56
	ePP	53 55
	eL	23 06 26
Jan. 16		
COL	iP	23 00 00
Jan. 16		
COL	iP	23 01 11
	i	01 18
Jan. 17		
COL	eP	00 09 40
	e	10 06
Jan. 17		
HH	e(P)	00 31 57
Jan. 17		
BC	eP	03 15 25
COL	eP	03 16 02
LOG	e(P)	03 15 57

Date and Station		Phase (GCT) h m s
NEL	iP	03 15 22.9
TUC	eP	03 15 27
	e(P'P')	43 26
Jan. 17		
BC	e(P)	03 16 12
BUT	iP	03 15 48
COL	eP	03 13 07
	e	13 17
	e	13 24
HH	iP	03 15 35
NEL	iP	03 16 11.9
Jan. 17		
COL	iP	04 51 28
	ipP	51 49
Jan. 17		
COL	eP	04 57 24
Jan. 17		
COL	iP	05 28 35
HH	iP	05 30 45
Jan. 17		
BC	eP	06 07 50
HH	iP	06 08 36
NEL	iP	06 07 49.5
	epP	08 23
Jan. 17		
COL	iP	06 44 33
Jan. 17		
COL	e(P)	07 00 25
Jan. 17		
COL	iP	08 57 43
HH	e(P)	08 59 33
NEL	i(P)	08 59 34.4
Jan. 17		
COL	eP	09 15 03
Jan. 17		
NEL	e(P)	11 17 58
	e	18 10
Jan. 17		
BC	iP	11 58 20.2
BUT	iP	11 57 53
	ipP	58 09
COL	iP	11 55 07
	ipP	55 37

Date and Station		Phase (GCT) h m s
HH	iP	11 57 40
	ipP	57 54
LOG	eP	11 58 12
NEL	iP	11 58 20.7
	i	58 30.7
	ipP	58 42
TUC	iP	11 58 44.5
	ipP	58 59
Jan. 17		
COL	iP	12 32 53
	e	32 11
Jan. 17		
BC	eP	16 18 38
NEL	eP	16 18 37
Jan. 17		
COL	e(P)	16 42 13
Jan. 17		
BC	iP'	17 59 21.3
	i	59 31.8
COL	eP'	17 58 46
	ePP	18 00 56
HH	eP'	17 58 59
	iP'	59 06
	i	59 14
	ePP	18 02 11
NEL	iP'	17 59 21.5
	i	59 39.5
	i	18 00 07.7
	i	18 00 19.0
TUC	iP	17 59 18.5
	i	59 26.5
	eL	19 00 13
Jan. 17		
COL	eP	19 41 48
Jan. 17		
BC	iP	20 52 19.7
	ipP	52 43.7
	isP	53 00.2
BUT	eP	20 51 41
	e	52 40
	ePP	53 26
COL	iP	20 48 25
	ipP	48 47
HH	iP	20 51 24
	i	51 39
	ipP	51 50
	esPP	53 44
	iScP	56 59
NEL	iP	20 52 20.2
	ipP	52 44.7

Date and Station		Phase (GCT) h m s
NEL	isP	20 52 57.7
	iPcP	53 43.2
	iPP	54 09.2
	iScP	57 27.1
	i	58 13.2
SJ	eP	20 56 32
	epP	56 58
TUC	eP	20 52 56
	ipP	53 20
	isP	53 37
Jan. 17		
COL	eP	21 38 14
Jan. 17		
COL	iP	23 07 47
NEL	iP	23 15 30.5
Jan. 17		
BUT	eP	23 18 46
	e	19 21
HH	eP	23 18 28
	i	22 19
	i	25 40
NEL	iP	23 22 39.3
Jan. 17		
BC	iP	23 25 45.5
NEL	iP	23 25 46.3
Jan. 17		
BC	iP	23 32 56.5
	i	33 23.5
BUT	iP	23 33 32
	i	33 36
	ipP	33 59
COLU	e(P)	23 31 35
HH	iP	23 33 44
	ipP	34 11
NEL	iP	23 32 55.3
	i	33 08.6
	ipP	33 21.3
SJ	eP	23 28 57
TUC	eP	23 32 24
Jan. 18		
COL	eP	00 13 50
Jan. 18		
BUT	eP	01 00 32
	iP	00 37
	i(S)	01 11
	iL	01 14
HH	iP	01 00 41
	i	00 49

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Date and Station	Phase	(GCT) h m s
HH	i(S)	01 01 20
	iL	01 31
NEL	e(P)	01 03 18
Jan. 18 NEL	e(P)	01 30 11
Jan. 18 HH	e(P)	02 46 15
NEL	iP	02 46 28.4
	e(pP)	46 55
Jan. 18 NEL	i(P)	02 49 44.4
Jan. 18 NEL	e(P)	03 55 35
Jan. 18 NEL	e(P)	04 00 41
Jan. 18 COL	iP	05 48 20
Jan. 18 BC	e(P)	06 46 22
NEL	e(P)	06 46 41
Jan. 18 COL	eP	08 10 27
Jan. 18 BC	eP	08 22 11
COL	iP	08 22 39
HH	e(P)	08 22 45
NEL	iP	08 22 11.4
	e	23 52
TUC	eP	08 22 19
Jan. 18 COL	iP	08 43 23
	i	43 53
Jan. 18 NEL	e(P)	09 40 16
Jan. 18 BC	iP	09 52 58.9
COL	iP	09 52 53
HH	e(P)	09 53 21
NEL	iP	09 52 58.2
TUC	eP	09 53 07
Jan. 18 COL	iP	10 37 57
Jan. 18 BC	ePP	11 06 45
COL	eP	11 00 20
	iP	00 22
COLU	eP'	11 06 41
HH	e(P)	11 02 06
	iP'	05 44
	e	08 24
	e(PKKP)	16 26
NEL	iP'	11 05 50.8
	e(PP)	06 30
	ePKKP	16 37
SJ	iP'	11 07 08
	i	07 51
	e	08 20
TUC	eP'	11 05 58
	ePKKP	16 19
WASH	iP'	11 06 38
Jan. 18 NEL	e(P)	11 38 56
Jan. 18 COL	iP	14 28 06
HH	iP	14 28 49
Jan. 18 BC	iP	14 55 22.6
COL	iP	14 51 12
	ePcP	54 16
HH	iP	14 54 23
	iPcP	55 37
	i(PP)	56 45
NEL	iP	14 55 23.6
	iPcP	56 08.9
	e	56 35
	iPP	57 21.9
	i	57 43.9
	i	57 50.9
TUC	eP	14 55 55
Jan. 18 HH	eP	16 53 15
Jan. 18 HH	eP	17 35 21
Jan. 18 COL	eP	19 21 28
HH	eP	19 21 19
Jan. 18 NEL	e(P)	21 58 32
Jan. 18 BC	e(P)	22 26 14
HH	e(P)	22 26 12
NEL	e(P)	22 26 18
	e	26 48
Jan. 18 COL	iP	23 29 26
TUC	iP	23 26 02
	e	27 16
Jan. 19 NEL	e(P)	01 41 33
Jan. 19 NEL	e(P)	02 33 43
Jan. 19 HH	e(P)	03 33 08
Jan. 19 HH	e(P)	03 45 45
Jan. 19 COL	iP	04 39 53
NEL	iP	04 44 12.7
Jan. 19 BC	eP	09 16 30
COL	eP	09 12 38
	iP	12 47
HH	eP	09 15 41
NEL	iP	09 16 31.6
Jan. 19 NEL	e(P)	10 42 55
Jan. 19 NEL	eP	11 27 54
Jan. 19 COL	iP	13 42 28
HH	e(P)	13 42 48
NEL	e(P)	13 42 24
Jan. 19 COL	iP	15 48 21
Jan. 19 NEL	e(P)	16 10 56
Jan. 19 HH	e(P)	19 28 06
Jan. 19 HH	e(P)	19 37 22
Jan. 19 NEL	e(P)	20 00 28
Jan. 19 BC	eP	21 28 27
	e	28 36
BUT	e(P)	21 29 10
	i	29 49
COL	iP	21 28 59
HH	eP	21 29 06
LOG	eP	21 28 59
NEL	iP	21 28 27.7
	i	28 37.8
	i	28 46.9
	i	29 03.9
	ePP	31 18
TUC	eP	21 28 36
Jan. 19 COL	eP	21 43 38
Jan. 19 NEL	e(P)	23 00 44
Jan. 19 HH	e(P)	23 24 06
Jan. 20 BC	e(P)	00 51 12
Jan. 20 COL	iP	00 52 35
	ipP	52 43
	isP	52 48
	i	53 48
	i	53 55
	i	54 13
HH	eP	00 50 58
	e	52 13
LOG	e(P)	00 52 06
NEL	iP	00 51 14.7
	iPP	52 28.7
	i	52 34.3
TUC	e(P)	00 52 06
Jan. 20 COL	eP	01 12 16
	i	12 31
Jan. 20 NEL	i(P)	01 21 21.3
Jan. 20 BC	e(P)	02 01 13
Jan. 20 NEL	iP	02 42 37.7
Jan. 20 HH	e(P)	04 24 06
Jan. 20 BC	iP	04 22 36.6
	i	22 52.2
	i	23 08.9

Date and Station		Phase (GCT)
		h m s
BC	iPP	04 23 33.4
BUT	iP	04 23 53
	i	24 04
	i	24 25
COL	iP	04 27 07
COLU	eP	04 23 05
	eFP	24 16
	iS	28 27
	eL	30 24
HH	iP	04 24 14
	iPP	25 56
LOG	eP	04 23 20
	eL	34 54
NEL	iP	04 22 34.1
RC	eP	04 23 32
	eS	29 09
	eL	31 26
SJ	eP	04 23 44
TUC	iP	04 21 54
	i	21 59
	i(S)	26 31
	e(S)	26 29
	eL	27 21
WASH	eP	04 23 53
	eL	38 33
Jan. 20		
COL	iP	04 43 41
Jan. 20		
NEL	e(P)	05 38 46
Jan. 20		
COL	eP	07 15 12
HH	eP	07 17 41
Jan. 20		
COL	iP	07 54 24
HH	e(P)	07 54 25
Jan. 20		
BC	eP	08 57 49
	e	57 58
BUT	e(P)	08 58 27
COL	iP	08 58 29
	i(PcP)	58 41
HH	e(P)	08 58 34
LOG	eP	08 58 20
NEL	eP	08 57 49
	i(pP)	58 21.5

Date and Station		Phase (GCT)
		h m s
TUC	e(P)	08 57 55
Jan. 20		
BC	eP	09 33 17
COL	i(P)	09 30 59
HH	e(P)	09 34 31
NEL	iP	09 33 21.3
SJ	eP	09 30 07
TUC	e(P)	09 32 53
Jan. 20		
COL	e(P)	09 45 33
NEL	e(P)	09 50 50
Jan. 20		
NEL	e(P)	12 04 45
Jan. 20		
COL	iP	13 55 50
HH	eP	13 58 19
NEL	iP	13 59 55
Jan. 20		
BC	iP	14 02 13.7
	i	02 17.9
	ipP	03 02.1
	i(S)	12 12.4
BUT	iP	14 02 47
	i	03 00
	i(pP)	03 51
COL	iP	14 02 48
	ipP	03 41
	iS	13 15
HH	iP	14 02 49
	ipP	03 42
	i	03 52
	ePKKP	20 30
	eP'P'	28 39
LOG	eP	14 02 43
	epP	03 31
	esP	03 49
NEL	iP	14 02 12.1
	ipP	03 00.8
TUC	eP	14 02 19
	iP	02 20
	i	02 23
	ipP	03 07
Jan. 20		
BC	e(P)	14 29 50
Jan. 20		
BC	eP	14 50 59

Date and Station		Phase (GCT)
		h m s
COL	iP	14 44 45
HH	iP	14 49 34
NEL	iP	14 51 01.1
Jan. 20		
BC	e(P)	16 27 53
HH	iP	16 28 22
LOG	eP	16 28 54
NEL	iP	16 27 58.0
	ipP	28 04.3
	iPP	29 14.5
	e	31 15
WASH	eP	16 27 58
Jan. 20		
COL	iP	16 34 06
	i	34 13
HH	e(P)	16 35 40
SJ	iP	16 41 20
Jan. 20		
BC	eP	20 52 19
	i	52 41
	eL	54 29
BUT	e(P)	20 52 08
	i(P)	52 09
	e(S)	53 11
	eL	53 35
COLU	eL	21 01 07
HH	eP	20 52 18
	i	52 51
	eS	53 48
LOG	eP	20 51 14
	e(S)	52 01
	iL	52 21
NEL	eP	20 52 20
	i	52 44
RC	e(P)	20 51 06
	eL	51 34
TUC	e(P)	20 53 00
	eL	54 57
WASH	eL	21 01 39
Jan. 20		
COL	e(P)	23 05 42
Jan. 21		
BC	e(P)	02 52 20
NEL	iP	02 52 18.9

Date and Station		Phase (GCT)
		h m s
Jan. 21		
NEL	eP	04 58 01
Jan. 21		
COL	e(P)	08 44 30
Jan. 21		
HH	e(P)	09 17 00
NEL	e(P)	09 15 56
Jan. 21		
BC	eP	09 24 06
	e	27 38
COL	eP	09 29 43
HH	iP	09 26 24
NEL	iP	09 24 32.0
	i	24 09.0
	e	27 41
Jan. 21		
COL	eP	11 02 06
Jan. 21		
BC	e(P)	11 34 22
NEL	iP	11 34 30.7
Jan. 21		
HH	iP	11 53 51
Jan. 21		
BC	e(P)	13 15 56
HH	e(P)	13 14 05
NEL	e(P)	13 15 57
Jan. 21		
NEL	i(P)	14 39 41.6
Jan. 21		
BC	e(P)	17 20 46
NEL	iP	17 20 40.3
	i	20 43.1
Jan. 21		
COL	iP	18 56 48
Jan. 21		
COL	iP	18 58 43
Jan. 21		
NEL	e(P)	20 59 45
Jan. 21		
BC	e(P)	23 37 40
COL	iP	23 36 04
	ipP	38 09
HH	e(P)	23 36 13

Date and Station	Phase	Phase (GCT) h m s
NEL	iP	23 35 41.3
	ipP	37 41.5
TUC	e(P)	23 35 46
Jan. 22		
COL	iP	01 24 26
HH	eP	01 26 43
	i	28 59
NEL	e(P)	01 27 13
	e	29 52
Jan. 22		
BC	e(P)	01 30 03
HH	iP	01 31 39
Jan. 22		
COL	iP	05 56 24
HH	e(P)	05 58 47
Jan. 22		
BUT	iP	06 01 28
HH	iP	06 01 38.5
NEL	e(P)	06 00 15
	i	00 52.9
TUC	e(P)	06 00 23
Jan. 22		
NEL	e(P)	06 27 11
	e	30 28
Jan. 22		
COL	eP	06 39 07
Jan. 22		
HH	e(P)	06 50 12
Jan. 22		
HH	e(P)	08 18 15
Jan. 22		
HH	e(P)	10 40 21
Jan. 22		
BC	eP	11 23 22
	i	23 31.5
	ipP	23 34.2
	i(S)	29 22.6
Jan. 22		
BUT	e(P)	11 23 17
	ePP	23 59
COL	iP	11 19 16
	ipP	19 25
	i	19 44
COLU	e(P)	11 26 25
HH	iP	11 22 21
NEL	iP	11 23 23.2
	ipP	23 36.2
	isP	23 41.2
	i	23 53.2
	i(S)	29 22.2
	e	29 48
SJ	eP	11 28 10
TUC	eP	11 24 02
Jan. 22		
HH	iP	11 25 15
	e	28 57
Jan. 22		
HH	e(P)	11 32 45
Jan. 22		
COL	iP	11 46 10
	epP	46 31
Jan. 22		
BC	eP	11 52 43
	ePP	56 42
	e	56 55
COL	iP	11 51 38
HH	eP	11 52 45
NEL	iP	11 52 43.7
	i	52 53.3
	i	53 03.3
Jan. 22		
COL	iP	12 11 31
	i	11 40
	i	11 44
Jan. 22		
COL	eP	12 38 05
Jan. 22		
COL	eP	12 49 12
Jan. 22		
HH	e(P)	13 05 01
Jan. 22		
HH	e(P)	13 38 10
Jan. 22		
COL	eP	16 44 19
Jan. 22		
COL	iP	17 48 32
HH	e(P)	17 48 31
NEL	eP	17 47 51
Jan. 22		
HH	e(P)	18 12 13
Jan. 22		
COL	iP	21 00 46
Jan. 22		
BC	iP	21 36 00
	ipP	36 25
COL	i(P)	21 35 41
HH	e(P)	21 36 26
	ipP	36 53
	i(PP)	40 44
	iPKKP	53 11
	i	53 43
	eP'P'	22 01 25
LOG	e(P)	21 37 07
	ePP	40 09
NEL	iP	21 36 00.9
	ipP	36 25.9
	ePP	39 56
	e(pPP)	40 30
TUC	iP	21 36 08
	ipP	36 33
Jan. 22		
COL	eP	21 45 49
Jan. 22		
BUT	iP	23 34 15
	i	34 32
	e	38 57
COL	eP	23 38 14
HH	iP	23 34 43
LOG	eP	23 33 21
	e	36 23
NEL	iP	23 31 48
TUC	eP	23 31 31.5
	iP	31 32
	i	31 38
	i	31 44
	iS	32 16
	i	32 25
	iL	32 36
Jan. 22		
TUC	eP	23 45 20
	i	45 27
	i	45 30
	i	45 38
	i	46 02
	iL	46 15
Jan. 23		
HH	e(P)	00 33 27
	i	33 33
Jan. 23		
HH	i(P)	01 05 40
Jan. 23		
HH	eP	01 54 36
Jan. 23		
HH	e(P)	02 59 09
Jan. 23		
HH	e(P)	03 19 00
Jan. 23		
HH	e(P)	05 42 10
Jan. 23		
HH	e(P)	06 16 26
Jan. 23		
COL	eP	10 25 53
Jan. 23		
HH	e(P)	10 47 48
Jan. 23		
COL	eP	11 00 17
Jan. 23		
BC	e(P)	11 20 47
Jan. 23		
COL	iP	11 48 53
NEL	eP	11 45 13
Jan. 23		
COL	eP	14 03 18
Jan. 23		
COL	eP	16 17 16
Jan. 23		
COL	iP	16 18 02
	iPP	20 46
HH	eP	16 19 51
	ePP	23 41
NEL	e(P)	16 20 50
Jan. 23		
COL	iP	17 23 28
	i	23 36
	i	24 04
Jan. 23		
COL	iP	17 32 50
Jan. 23		
COL	eP	19 33 18
Jan. 23		
BC	e(P)	21 17 21
Jan. 23		
COL	iP	22 15 03
Jan. 24		
BUT	e(P)	01 59 13
HH	e(P)	01 58 51
	eL	02 00 26

Date and Station	Phase	(GCT) h m s
NEL	e(P)	01 57 21
	i	57 50.7
Jan. 24 COL	iP	04 33 40
Jan. 24 BUT	e(P)	05 42 07
COL	eP	05 42 10
Jan. 24 COL	iP	07 54 47
	i	54 55
	i	55 13
Jan. 24 COL	iP	12 38 20
Jan. 24 BUT	eP	13 45 38
COL	iP	13 44 49
HH	e(P)	13 45 41
Jan. 24 COL	eP	13 54 09
Jan. 24 COL	eP	18 35 45
HH	iP	18 38 16
	e	38 33
Jan. 24 COL	iP	19 58 55
	i	59 25
	e	20 17 10
HH	i(P)	20 04 09
Jan. 24 COL	iP	21 10 48
HH	e(P)	21 12 37
Jan. 24 COL	eP	21 30 34
Jan. 24 COL	eP	21 35 10
Jan. 25 COL	iP	00 02 24
HH	e(P)	00 04 21
NEL	i(P)	00 04 25
Jan. 25 COL	eP	02 35 33
HH	e(P)	02 36 15
Jan. 25 COL	iP	03 41 47
SH	eP'	03 49 25
Jan. 25 COL	iP	07 55 54
Jan. 25 COL	eP	09 09 35
HH	eP	09 11 35
Jan. 25 COL	iP	11 46 11
Jan. 25 BC	iP	12 17 01.5
BUT	iP	12 16 53
COL	eP	12 15 00
HH	iP	12 16 45.5
NEL	iP	12 17 01.5
	i	17 07.7
	epP	17 24
Jan. 25 COL	eP	12 47 13
Jan. 25 COL	iP	14 40 33
Jan. 25 HH	e(P)	15 33 41
Jan. 25 BC	iP	16 13 54.5
	i	14 03.8
COL	eP	16 14 44
HH	iP	16 13 24.5
NEL	iP	16 13 56.0
	i	14 01.0
TUC	e(P)	16 13 54
Jan. 25 HH	e(P)	16 18 47
Jan. 25 HH	e(P)	16 28 24
Jan. 25 COL	iP	17 20 56
Jan. 25 HH	iP	18 03 45.5
Jan. 25 HH	iP	18 25 47.5
Jan. 25 NEL	e(P)	18 38 48
Jan. 25 BC	iP	19 30 48.4
COL	eP	19 31 34
HH	eP	19 30 17
NEL	iP	19 30 48.2
	i	30 56.0
Jan. 25 NEL	e(P)	20 15 37
Jan. 25 HH	e(P)	21 35 38
Jan. 25 COL	iP	23 26 25
Jan. 26 BC	i(P)	00 42 36.2
Jan. 26 HH	eP	04 47 38
NEL	e(P)	04 46 34
Jan. 26 HH	eP	05 33 12
Jan. 26 COL	iP	05 58 32
Jan. 26 NEL	e(P)	07 57 14
Jan. 26 BC	e(P)	08 14 16
COL	iP	08 13 10
	i(pP)	13 19
HH	e(P)	08 14 15
NEL	iP	08 14 25
	i(pP)	14 34.5
Jan. 26 BC	eP	09 12 29
COL	iP	09 11 31
HH	e(P)	09 12 36
NEL	iP	09 12 30.8
Jan. 26 HH	eP	09 30 07
Jan. 26 COL	eP	11 14 17
Jan. 26 HH	i(P)	12 56 13
Jan. 26 NEL	e(P)	13 36 38
Jan. 26 BC	e(P)	13 59 33
NEL	e(P)	13 59 45
Jan. 26 BC	eP	14 11 41
BUT	eP	14 12 18
	e(pP)	12 31
COL	iP	14 12 20
	ipP	12 40
	e	16 50
HH	e(P)	14 12 15
NEL	eP	14 11 40
	ipP	12 02.1
	i	12 12.1
	ePP	14 32
PHIL	eL	14 56 14
TUC	eP	14 11 42
	eL	37 31
Jan. 26 BC	eP	20 32 25
COL	iP	20 32 52
NEL	eP	20 32 24
Jan. 26 COL	iP	22 13 52
Jan. 26 BC	eP	22 36 38
COL	eP	22 32 35
HH	eP	22 36 03
NEL	iP	22 36 40.4
	e	44 33
Jan. 26 COL	iP	22 40 29
HH	eP	22 43 23
Jan. 26 COL	iP	23 02 10
Jan. 27 BC	e(P)	00 17 36
HH	eP	00 20 11
LOG	e(P)	00 22 55
NEL	eP	00 17 16
TUC	eP	00 16 40
	i	16 52
	i	17 08
	iS	17 36
	i	17 50
	iL	18 12
Jan. 27 BC	eP	02 03 47

8-4297-4+

Date and Station	Phase	Phase (GCT) h m s
COL	eP	01 59 38
HH	eP	02 02 35
NEL	eP	02 03 45
Jan. 27		
HH	eP	02 21 24
NEL	e(P)	02 21 40
Jan. 27		
NEL	e(P)	02 25 00
Jan. 27		
BC	eP	02 29 37
BUT	eP	02 30 21
	i	30 24
COL	iP	02 30 17
HH	e(P)	02 30 11
LOG	eP	02 30 07
NEL	eP	02 29 35
	i	29 45.6
	i	29 52.6
	ePP	32 22
TUC	eP	02 29 40
Jan. 27		
BC	eP	02 47 53
COL	iP	02 48 48
NEL	eP	02 48 06
Jan. 27		
BC	eP	02 54 03
	iP	54 05.2
	i	54 17.5
	e(PP)	57 02
BUT	eP	02 54 43
COL	eP	02 54 38
	iP	54 46
	i	55 06
HH	eP	02 54 42
LOG	eP	02 54 36
NEL	eP	02 54 03
	iP	54 04.6
	i	54 08.6
	i	54 20.4
	iPP	56 59.0
PHIL	eL	03 15 16
TUC	eP	02 54 09
Jan. 27		
BC	eP	03 14 57
NEL	eP	03 14 55
TUC	eP	03 14 50
Jan. 27		
COL	eP	07 55 33
NEL	e(P)	07 59 50
Jan. 27		
HH	e(P)	08 31 35
Jan. 27		
BC	iP	10 36 56.2
BUT	iP	10 36 05
	ipP	36 23
COL	iP	10 32 17
HH	iP	10 35 44
	ipP	36 02
	iaP	36 13
	ePP	36 53
	i(ScP)	42 40
	i(PcS)	42 44
LOG	eP	10 36 36
NEL	iP	10 36 58.9
	ipP	37 15.4
	iaP	37 24.1
TUC	iP	10 37 37
Jan. 27		
BUT	eP	11 23 41
	e	24 40
HH	e(P)	11 24 16
	i	25 46
LOG	e(P)	11 23 12
	eL	23 31
Jan. 27		
BC	iP	14 20 38
	i	20 48
BUT	e	14 23 03
	i	23 40
	eL	25 40
CHI	eL	14 33 17
COL	iP	14 26 41
	e	28 22
	iPcP	29 14
HH	eP	14 23 06
	eL	26 04
LOG	eP	14 21 59
	e	22 22
	e	22 32
	eL	24 22
NEL	iP	14 20 37.3
PHIL	eL	14 38 18
RC	eP	14 23 25
	eL	27 29
SLC	e	14 21 42
	e(S)	23 36
	eL	23 49
TUC	eP	14 21 32
	i	21 49
	i	22 03
	i	22 12
	i	22 36
	iS	22 58
	iL	23 29
Jan. 27		
COL	eP	16 19 57
Jan. 27		
BC	iP	18 21 17.9
	ipP	21 27.4
	i	21 38.9
	e	28 38
BUT	iP	18 22 26
	i(pP)	22 41
COL	iP	18 25 59
	ipP	25 11
COLU	iP	18 21 22
	epP	21 33
	i	21 44
HH	iP	18 22 48
LOG	eP	18 21 53
NEL	iP	18 21 15.1
	ipP	21 26
	i	21 32.6
	iPP	21 54.8
	i	22 02.6
	eScP	28 29
	ePcS	28 43
	e	29 13
RC	eP	18 21 54
	eL	30 46
TUC	iP	18 20 24
	e	20 42
	i	20 46
	eS	23 22
	eL	25 41
WASH	eP	18 22 12
Jan. 27		
COL	iP	20 22 39
Jan. 27		
HH	e(P)	21 06 04
Jan. 27		
BUT	iP	22 41 05
Jan. 28		
BC	eP	00 05 01
NEL	eP	00 05 02
Jan. 28		
NEL	e(P)	00 27 41
Jan. 28		
BC	e(P)	02 24 20
NEL	iP	02 24 24.6
	i	24 26.1
Jan. 28		
BC	e(P)	04 52 54
HH	iP	04 54 09
NEL	iP	04 53 39.3
Jan. 28		
NEL	e(P)	04 58 58
Jan. 28		
COL	eP	06 29 00
Jan. 28		
HH	iP	06 35 32
Jan. 28		
BC	e(P)	07 17 33
	i	18 48.2
HH	eP	07 17 35
NEL	eP	07 17 34
	i	17 42.2
	i	17 49.2
	i	18 07.5
Jan. 28		
COL	iP	07 38 38
Jan. 28		
COL	iP	08 19 13
	ipP	19 19
Jan. 28		
COL	eP	10 43 11
Jan. 28		
BC	iP	11 20 58.1
HH	e(P)	11 20 06
	e	24 13
NEL	iP	11 19 58.5
TUC	eP	11 20 06
Jan. 28		
COL	iP	12 19 54
Jan. 28		
COL	iP	12 27 13
	i(pP)	27 44
NEL	e(P)	12 24 25

Date and Station	Phase	Phase (GCT) h m s
Jan. 28		
NEL	e(P)	12 40 31
Jan. 28		
NEL	iP	13 31 28.5
Jan. 28		
NEL	e(P)	13 56 35
Jan. 28		
HH	e(P)	15 46 34
Jan. 28		
HH	eP	18 45 52
	i	46 03
NEL	eP	18 45 06
	e	46 54
SJ	eP	18 41 28
	iP	41 30
Jan. 28		
COL	iP	19 45 44
	e	46 37
Jan. 28		
BC	iP	22 20 06.2
	ipP	20 15.1
	iPP	20 37.6
	eScP	27 06
BUT	eP	22 21 15
	ipP	21 24
	i	21 50
	iPP	22 23
COL	iP	22 24 46
	ipP	24 56
COLU	iP	22 20 11
	ipP	20 21
	eS	24 26
HH	iP	22 21 36
	ipP	21 46
	isP	21 53
NEL	iP	22 20 04.0
	ipP	20 13.5
	isP	20 30.5
	iPP	20 50.0
	eL	26 10
	i(ScP)	26 59.5
	i(PcS)	27 12.5
RC	eP	22 21 03
	e	25 20
	eL	27 30
SLC	e	22 22 09
	eL	28 27
SJ	e(P)	22 21 24
TUC	eP	22 19 12
	ipP	19 24
	iS	22 50
	iL	24 01

Date and Station	Phase	Phase (GCT) h m s
Jan. 28		
BUT	eP	22 54 21
	e	54 31
Jan. 28		
COL	e(P')	23 50 30
HH	iP'	23 51 31
	i	51 57
	e	52 26
NEL	iP'	23 51 41.6
	i	52 08.6
Jan. 28		
BC	i(P)	23 54 42.0
NEL	e(P)	23 54 50
TUC	eP	23 55 04
	e	55 51
Jan. 28		
COL	iP	23 55 52
Jan. 29		
BC	eP	01 48 16
NEL	iP	01 48 14.7
Jan. 29		
HH	e(P)	03 57 23
Jan. 29		
SJ	e(P)	04 45 16
Jan. 29		
COL	iP	05 12 51
Jan. 29		
HH	e(P)	05 40 06
	e	40 44
Jan. 29		
BUT	eP	07 01 09
Jan. 29		
COL	eP	07 30 30
Jan. 29		
COL	iP	07 51 52
Jan. 29		
BC	iP	08 13 17.6
	ipP	13 39.6
	isP	13 55.1
BUT	eP	08 13 31
	e	14 11
	e	14 29
COL	iP	08 12 33
	ipP	12 51
	isP	13 07
HH	eP	08 13 27
	epP	14 05
	esP	14 18
	e	16 17

Date and Station	Phase	Phase (GCT) h m s
Nel	iP	08 13 16.6
	ipP	13 36.1
	iPP	16 54.7
SJ	eP'	08 19 26
TUC	eP	08 13 30
Jan. 29		
COL	iP	09 33 22
Jan. 29		
BC	iP	10 54 52.9
	i	54 57.9
COL	iP	10 56 29
HH	eP	10 54 52
NEL	iP	10 54 52.3
	i	54 57.3
	i	55 04.3
TUC	eP	10 54 29
Jan. 29		
HH	e(P)	12 01 13
Jan. 29		
COL	eP	14 02 07
Jan. 29		
COL	eP	15 26 27
HH	eP	15 28 56
	e	29 13
Jan. 29		
SJ	e(P)	16 07 13
Jan. 29		
BC	e(P)	16 20 37.2
Jan. 29		
COL	iP	19 46 24
Jan. 29		
COL	iP	20 57 29
HH	e(P)	20 57 37
	e	57 45
Jan. 29		
BC	iP	21 12 16.9
BUT	iP	21 12 50
HH	iP	21 13 02
NEL	iP	21 12 14.3
	e	12 25
	e	12 36
	e	13 01
Jan. 29		
HH	e(P)	21 38 58

Date and Station	Phase	Phase (GCT) h m s
Jan. 29		
HH	e(P)	23 32 59
Jan. 30		
HH	i(P)	00 55 50
NEL	e(P)	00 56 00
	e	56 27
Jan. 30		
HH	iP	02 41 35.5
Jan. 30		
COL	eP	03 11 09
HH	e(P)	03 08.11
NEL	iP	03 07 16.0
	e	07 39
SJ	iP	03 02 47
TUC	eP	03 06 41
Jan. 30		
HH	iP	04 08 27
Jan. 30		
COL	iP	06 40 20
Jan. 30		
COL	eP	08 02 02
HH	e(P)	08 04 19
Jan. 30		
HH	eP	08.52 15
Jan. 30		
HH	e(P)	08 57 18
Jan. 30		
HH	e(P)	12 57 19
Jan. 30		
BC	e(P)	18 35 01
BUT	eP	18 34 30
COL	eP	18 31 01
HH	iP	18 34 04
	i	34 24
	ePP	35 07
	i	35 41
	e	37 00
	i	40 41
NEL	iP	18 35 05
TUC	eP	18 35 45
Jan. 30		
HH	e(P)	20 30 25
Jan. 30		
COL	iP	21 55 41

Date and Station	Phase	(GCT) h m s
Jan. 30		
HH	e(P)	22 46 02
Jan. 30		
BC	e(P)	23 36 12
COL	iP	23 36 16
	ipP	36 22
HH	e(P)	23 36 47
NEL	eP	23 36 16
TUC	e(P)	23 36 24
Jan. 31		
HH	e(P)	00 13 00
Jan. 31		
NEL	iP	00 32 53
Jan. 31		
COL	eP	01 59 37
Jan. 31		
BC	e(P)	03 33 37
NEL	eP	03 33 38
Jan. 31		
COL	eP	04 25 40
	e	26 02
Jan. 31		
HH	eP	08 14 00
Jan. 31		
HH	e(P)	10 46 19
Jan. 31		
HH	e(P)	10 52 03
Jan. 31		
BC	eP	11 53 38
BUT	e(P)	11 52 57
	e	54 28
COL	eP	11 49 30
	iP	49 35
COLU	eL	12 24 16
HH	eP	11 52 39
	e	54 11
NEL	eP	11 53 39
PHIL	eL	12 23 38
SLC	eL	12 18 34
TUC	eP	11 54 09
Jan. 31		
BC	iP	14 14 41.7
BUT	eP	14 15 20
	e	17 26

Date and Station	Phase	(GCT) h m s
COL	iP	14 15 07
HH	eP	14 15 15
	e	17 28
NEL	iP	14 14 40.8
	i	16 51.8
TUC	eP	14 14 46
	iP	14 48
Jan. 31		
COL	iP	17 04 05
Jan. 31		
HH	i(P)	18 14 22
Jan. 31		
BC	e(P)	19 25 12
COL	eP	19 30 29
Jan. 31		
NEL	e(P)	21 08 45
Jan. 31		
NEL	e(P)	21 39 23
Jan. 31		
COL	e(P)	23 23 13

Local and Minor Earthquakes

day	hour
BUT	
Jan.	
24	09.4
	20.6
25	23.4
28	02.7
	10.9
	23.7
29	03.6
	05.9
	06.2
	06.8
	07.3
	07.9
	08.9
COL	
Jan.	
1	20.0
5	10.4
	22.2
6	05.3
	11.2
7	04.4
	19.7
	20.4
	23.2
	23.3
8	03.6
	03.8
	03.9
	09.2
8	14.3
	19.0
9	04.6
	08.7
	09.0
	11.0
	11.9
	12.5
	12.9
	13.2
10	19.6
11	04.5
	06.7
	10.6
	13.0
	14.5
	16.1
	23.0
12	10.4
13	06.3
	15.3
	22.5
14	04.1
15	08.0
	20.5
16	04.7
	04.9
	07.4
	14.2
	15.0
17	12.2
	23.1
	23.3
18	01.9
	09.3
	09.6
19	12.0
20	22.0
	22.3
21	02.8
	05.2
	08.2
	18.9
	18.9
	19.0
22	01.4
	02.3
	14.7
	20.9
	21.0
23	09.6
24	06.5
	11.8
25	05.5
26	06.0
27	05.2
	10.5
	18.4
30	18.5
	21.1
31	10.5
	14.3
SJ	
Jan.	
3	10.4
7	03.2
21	22.7
21	22.7
	22.7
	22.7
22	07.9
	11.3
	18.6
23	04.7
	08.3
24	14.5
29	00.4
31	00.4
TUC	
Jan.	
2	20.4
3	13.6
	16.4
4	23.5
9	02.9
	04.4
10	14.3
11	11.5
	13.9
	14.0
12	10.6
13	01.8
	03.6
	08.4
	19.2
15	08.7
18	11.2
	21.7
19	06.2
	12.2
20	10.3
	20.9
21	09.4
	10.8
22	22.0
23	04.9
	05.8
	11.3
25	23.0
26	00.5
27	10.7
28	12.2
	20.7