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U. S. DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

COAST AND GEODETIC SURVEY—WASHINGTON

H. Arnold Karo, Director

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National Oceanic and Atmospheric Administration

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1957

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

**Balboa Heights, C. Z. (BH)
The Panama Canal Co.
*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
*Eureka, Nev. (EUR)
Eureka Corporation Limited
Honolulu, T. H. (HONO)
*Hungry Horse, Mont. (HH)
Bureau of Reclamation
*Lincoln, Nebr. (LIN)
Nebraska Wesleyan University
**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 Coast and Geodetic Survey.
**Indicates a station operating on an independent basis.
Other stations are observatories of the 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 indicates 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 Coast and Geodetic Survey, except those from Balboa Heights and Burlington, 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.

STATION AND INSTRUMENTAL CONSTANTS FOR 1957

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°57'39"N. Long. 79°33'29"W.	W-A, N&E Mass 1.3 g Spg. LP (Series H) Spg. LP (Series H) Spg. SP (Series D-H)	Basalt 36 m.	N 1.0 E 1.0 N 20 E 20 Z 1.9	 20 20 1.9		1370 1370	14:1 18:1	60mm/min.	Beginning	N E
Boulder City, Nev. L. Hudlow In Chg.	Log cos 9.90806 Lat. 35°58'51"N. Long. 114°50'02"W.	B, film ZNE, Mass 100 lb.	Fractured monzonite. 776 m.	Z 1.4 N 1.4 E 1.4	0.45 0.45 0.45		12000 5000 5000	Near crit. crit. crit.	15mm/min.	Beginning	Up N E
Bozeman, Mont. A.J.M. Johnson In Chg.	Log cos 9.84437 Lat. 45°40'01"N. Long. 111°02'43"W.	McC-R, N&E Mass 10 kg W-L, Z	Alluvium glacial drift and lake de- posits 500' thick over gneiss and schist. 1490 m.	N 11.1 E 10.9 Z 1.1	 1.7		270 270	9:1 11:1 Near crit.	15mm/min. 60mm/min.	Beginning Beginning	N E Up
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. 100 m.	NE 12 NW 12			250 250	20:1 20:1	8mm/min.	End	SW NW
Butte, Mont. S. W. Nile In Chg.	Log cos 9.84167 Lat. 46°00.8' N. Long. 112°33.8' W.	W-A, N Mass 2 g W-L, NE B, paper, Z Mass 100 lb.	Rhyolite 30 m. thick resting on granite. 1758 m.	N 8.0 N 8.0 E 8.0 Z 1.15	 3.9 4.0 0.48		516	50:1 Near crit. Near crit. Near crit.	15mm/min. 30mm/min. 60mm/min.	Beginning Beginning .	S N W Up
Chicago, Ill. W. F. Schmidt In Chg.	Log cos 9.87251 Lat. 41°47.3' N. Long. 87°36.0' W.	McC-R, N&E Mass 2.5 kg.	Limestone 180 m.	N 10 E 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°50.2' W.	B, film, ZNE Mass 100 lb. W, N	Granitic schist. 159 m.	Z 1.5 N 1.5 E 1.5 N 9.3	0.45 0.45 0.45 16		12000	Near crit. Near crit. Near crit. Near crit.	15mm/min.	Beginning	Up N E N
College Outpost	Log cos 9.62781 Lat. 64°53'08"N. Long. 147°48'04"W.	B, paper, Z		Z 1.5	0.53		60000	Near crit.	60mm/min.		Up
Columbia, S. C. C. F. Mercer In Chg.	Log cos 9.91857 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.	Beginning	Up N E
Eureka, Nev. R.N. Breckenridge In Chg.	Log cos 9.88739 Lat. 39°30'09"N. Long. 115°59'42"W.	B, paper, Z Mass 100 lb.	Dolomite bedrock 6870 ft.	Z 1.2	0.51			Near crit.	60mm/min.	Beginning	Up

Station	Position	Instruments	Foundation and Elevation	T_o	T_g	T_s	V	ε	Paper Speed	Time Break Reference Point	Ground Motion Trace "Up"
*Honolulu, T. H.	Log cos 9.96926	M-S, N&E	Coral. 3 m.	N 12			124	20:1	30mm/min.	Beginning	N
M. L. Cleven	Lat. 21°18'13"N.	Mass 1 lb.		E 12			142	20:1			W
In Chg.	Long. 158°05'44"W.	HTL Z		Z 0.5	0.5				60mm/min.		Up
Hungry Horse, Mont.	Log cos 9.82255	B, film,	Argillaceous	Z 1.4	0.45		13000	Near crit.	15mm/min.	Beginning	Up
C. H. Spencer	Lat. 48°20'58"N.	ZNE. Mass	Limestone	N 1.4	0.45		5000	Near crit.			N
In Chg.	Long. 114°01'39"W.	100 lb.	(Belt series)	E 1.4	0.45		5000	Near crit.			E
			1100 m.								
Lincoln, Nebr.	Log cos 9.87884	McC-R, E.	Dakota sand-	E 8			200	10:1	15mm/min.	Beginning	E
C. L. Moore	Lat. 40°50.3' N.	Mass 2.5 kg.	stone. 366m.								
In Chg.	Long. 96°39.2' W.										
*Philadelphia, Pa.	Log cos 9.88452	W, N&E	Cape May	N 9.0	5.4	7.8	1400	15:1	20mm/min.	End	S
I. M. Levitt	Lat. 39°57'32"N.	Mass 500 g.	sand and	E 9.2	4.1	7.4	1400	15:1			E
In Chg.	Long. 75°10'30"W.		gravel. 5 m.								
Rapid City, S. Dak.	Log cos 9.85637	W-A, E	Shale.	E 6.2			590	10:1	15mm/min.	Beginning	E
E. L. Tullis	Lat. 44°04.6' N.	(dbl. refl.)	1045 m.								
In Chg.	Long. 103°12.0' W.	Mass 2 g									
		W-L, Z		Z	1.6	1.1			60mm/min.		Up
Salt Lake City, Utah	Log cos 9.87932	McC-R, N&E	Bonneville	N 9.9			335	15:1	15mm/min.	Beginning	N
A. M. Anderson	Lat. 40°45'55"N.	Mass 2.5 kg.	Lake beds.	E 10.0			335	15:1			W
In Chg.	Long. 111°50'54"W.	W-L, Z	1425 m.	Z 1.2	1.8			Near crit.	60mm/min.		Up
San Juan, P. R.	Log cos 9.97726	W, N&E	Limestone	N 9.9	25.5	11.0	1000	20:1	30mm/min.	Beginning	N
M. Vazquez	Lat. 18°22.9' N.	Mass 500 g.	80 m.	E 10.1	16.8	10.8	1000	20:1			W
In Chg.	Long. 66°07.1' W.	B, Z		Z 1.04	0.5	1.05	5000	Crit.	60mm/min.		Up
*Sitka, Alaska	Log cos 9.73544	W, N&E	Graywacke	N 7.5	16.5	8.2	1000	20:1	15mm/min.	Beginning	S
J. Bottum	Lat. 57°03'25"N.	Mass 500 g.	19 m.	E 7.5	13.2	8.2	1000	5.5:1			E
In Chg.	Long. 135°19'28"W.	W-L, Z		Z 1.12	1.5				60mm/min.		Up
*Tucson, Ariz.	Log cos 9.92725	W-A, N&E	Caliche or	N 8.0			466	crit.	30mm/min.	Beginning	S
R. L. White	Lat. 32°14.8' N.	Mass 2.3 g.	gravels 100-	E 8.0			457	crit.			E
In Chg.	Long. 110°50.1' W.	B, Z	300 m. thick.	Z 1.0	77.0			Near crit.	30mm/min.		Up
			770 m.		0.236				60mm/min.		Up
		B, E		E 1.6	0.5			Near crit.	30mm/min.		E
Ukiah, Calif.	Log cos 9.88968	McC-R, N&E	Alluvium	N 11.9			75	Near crit.	30mm/min.	Beginning	N
L. F. Cacuette	Lat. 39°08' N.	Mass 10 kg.	180 m. deep.	E 11.6			75				E
In Chg.	Long. 123°13' W.	W-L, Z	199 m.	Z 1.1	1.4				60mm/min.		Up
*Washington, D. C.	Log cos 9.89117	W-L, Z	Recent allu-	Z 1.5	1.7	1.5			30mm/min.	Beginning	Up
	Lat. 38°53'33"N.	Visible	vium on		Pen						
	Long. 77°01'59"W.	recorder	Schistose		0.5						
			granite. 0 m.								

*These stations operate visible recording seismographs of Coast and Geodetic Survey design 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 1957	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth, and Remarks
Jan.	h m s	° ′	° ′	
1	00 56 40*	53½ N.	159 E.	Kamchatka. h about 150 km.
1	03 25 05*	54½ N.	164 W.	Unimak Island, Aleutian Islands.
2	00 39 22*	53 N.	168½ W.	Fox Islands foreshock. Mag. 6-1/2 - 6-3/4.
2	02 17 35*	52½ N.	168 W.	Fox Islands foreshock. Mag. 6-3/4.
2	03 12 52*	53 N.	168 W.	Fox Islands foreshock. Mag. 7.
2	03 30 34*	52½ N.	168½ W.	Fox Islands foreshock.
2	03 41 08*	52½ N.	168½ W.	Do.
2	03 48 44*	53 N.	168 W.	Fox Islands, Aleutian Islands. Mag. 7 - 7-1/4.
2	04 03 26*	52½ N.	169 W.	Fox Islands aftershock.
2	10 49 32*	52½ N.	168 W.	Fox Islands aftershock. Mag. 6-1/2.
2	12 47 07*	53 N.	168 W.	Fox Islands aftershock.
2	14 16 32*	52½ N.	168½ W.	Do.
2	17 51 56*	53 N.	168 W.	Do.
3	00 41 02*	53 N.	168 W.	Do.
3	02 18 03**			Fiji Islands.
3	02 42 00*	20 S.	69 W.	Northern Chile. h about 100 km.
3	08 53 28**			Northern Honshu, Japan.
3	12 48 27*	44 N.	130 E.	Southern Manchuria. h about 600 km. Mag. 7.
3	13 43 29*	44 N.	130 E.	Manchuria aftershock. h about 600 km.
4	12 36 10*	7 N.	78 W.	Near coast of Colombia.
4	13 38 00**			Solomon Islands. h about 100 km.
4	15 51 25**			Solomon Islands.
5	01 12 16*	44½ N.	149½ E.	Kurile Islands.
5	12 36 14**			Andreanof Islands, Aleutian Islands.
5	17 15 15*	54 N.	165 W.	South of Unimak Island, Aleutian Islands.
6	00 18 23*	1/2 S.	20 W.	Mid-Atlantic Ocean.
6	01 36 58*	26 N.	126 E.	Ryukyu Islands.
6	05 15 06*	42 N.	142 E.	Near south coast of Hokkaido, Japan. h about 100 km.
6	20 23 37**			Near north coast of Mindanao, Philippine Islands.
7	16 45 02*	8½ N.	126 E.	Near east coast of Mindanao, Philippine Islands. h about 250 km.
8	01 20 15**			Sumatra foreshock.
8	05 22 26*	2 S.	99 E.	Off west coast of Sumatra.
8	17 29 36*	52½ N.	168 W.	Fox Islands aftershock.
9	01 38 50*	54 N.	169 W.	Komandorskie Islands.
9	06 15 37**			New Britain region.
9	07 52 56*	53 N.	167½ W.	Fox Islands aftershock. Mag. 6½.
9	09 23 40*	5 N.	83 W.	Off south coast of Panama.
9	09 56 23*	7½ N.	69½ W.	Venezuela.
9	10 27 45*	34½ N.	141 E.	Off east coast of Honshu, Japan.

Date 1957	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth, and Remarks
Jan.	h m s	° '	° '	
10	04 14 44*	6 N.	95½ E.	Northern Sumatra.
10	06 02 33*	14 S.	175½ W.	Samoa Islands region.
10	13 47 26**			Central Chile. h about 100 km.
11	23 31 50*	27 N.	127½ E.	Ryukyu Islands.
12	12 09 00**			South of Honshu, Japan.
13	11 38 15*	38½ N.	71 E.	Tadshik, S. S. R..
13	12 12 37*	16½ N.	146½ E.	Marianas Islands.
13	12 20 00*	32½ N.	142½ E.	About 200 miless off east coast of Honshu, Japan.
13	19 35 33*	39½ N.	118 W.	Fallon, Nevada. Mag. 4 (Berk).
14	00 28 38*	11 S.	163 E.	Solomon Islands.
14	05 36 03*	20 S.	69 W.	Tarapaca Province, Chile. h about 200 km.
14	09 49 10*	18½ S.	178 W.	Fiji Islands. h about 600 km.
14	14 20 17*	22 S.	179 W.	Fiji Islands region. h about 600 km.
15	04 09 15*	2 S.	76½ W.	Ecuador. h about 100 km.
15	11 58 40**			Michoacan, Mexico.
15	20 21 45*	6½ N.	127 E.	About 100 miles off east coast of Mindanao, Philippine Islands. h about 100 km.
15	21 40 26*	11 N.	86½ W.	Near coast of Nicaragua.
15	22 54 05**			Southern Catamarca Province, Argentina.
16	11 43 30**			Chagos Islands region.
16	20 36 07**			Tonga Islands.
17	07 23 43*	7½ S.	129½ E.	Banda Sea. h about 100 km.
17	11 26 17**			Flores Islands.
17	16 21 08*	21 N.	121 E.	Batan Island region.
17	22 26 10*	33 N.	137½ E.	Off south coast of Honshu, Japan. h about 350 km. Felt in central Honshu.
18	13 12 42**			Near coast of Guerrero, Mexico.
19	05 16 37*	21½ S.	179 W.	Fiji Islands region. h about 650 km. Mag. 6-1/2.
20	10 59 35**			About 300 miles off south coast of Honshu, Japan.
20	13 52 40*	29 N.	129½ E.	Northern Ryukyu Islands.
20	18 12 47*	36½ N.	71½ E.	Hindu Kush. h about 150 km.
21	10 01 46*	23 S.	70½ W.	Chile. Felt at Antofagasta and Pedro de Valdivia. h about 100 km.
21	12 59 20*	23½ S.	70½ W.	Chile. Felt at Antofagasta and Pedro de Valdivia. h about 150 km.
22	11 18 23*	4½ S.	28½ E.	Belgian Congo.
22	12 31 54*	11 S.	166½ E.	Santa Cruz Islands.
23	17 26 51*	37 N.	22½ E.	Near west coast of Greece.
23	17 40 19*	22 S.	175 W.	Tonga Islands.
23	22 04 39**			Georgia foreshock.
24	01 11 11*	6 S.	147 E.	Near east coast of New Guinea. h about 100 km.
24	02 04 40**			Marianas Islands.

Date 1957	Origin Time G. C. T.	Lat.		Long.		Region, Focal Depth, and Remarks
Jan.	h m s	° ′		° ′		
24	07 16 29*	12½	S.	78	W.	Near coast of Peru. Mag. 6-1/4.
24	14 59 37*	25½	N.	109½	W.	Southern Gulf of California.
24	15 49 23**					About 100 miles off west coast of Sumatra.
24	16 30 45*	25½	N.	110	W.	Gulf of California aftershock.
24	16 59 50*	25½	N.	109½	W.	Do.
24	19 25 16*	20	S.	176½	W.	Tonga Islands.
24	20 54 50*	33	N.	116½	W.	Imperial Valley, California. Felt in San Diego County. Mag. 4½.
25	03 36 47*	51½	N.	177	W.	Andreanof Islands, Aleutian Islands. Mag. 6½.
25	16 59 48*	49½	N.	156	E.	Northern Kurile Islands.
25	23 26 08**					About 100 miles off northeast coast of Greenland.
26	01 16 06*	48½	N.	122	W.	Washington. Felt in the Puget Sound area.
26	09 57 50*	11½	N.	125½	E.	Near east coast of Samar, Philippine Islands.
26	16 30 48*	42½	N.	42	E.	Georgia S. S. R.
27	14 03 22*	10	N.	126½	E.	Mindanao, Philippine Islands. Felt at Surigao.
28	05 23 25*	27	N.	130½	E.	Ryukyu Islands.
28	08 16 19*	15½	S.	173	W.	Samoa Islands region. Mag. 6½.
28	18 25 27*	22½	S.	71½	W.	Near coast of northern Chile. Felt at Pedro de Valdivia.
28	21 01 42*	38½	N.	69½	E.	Tadzhik S. S. R.
28	23 18 51*	49	N.	156	E.	Northern Kurile Islands.
28	23 59 46*	12	N.	86½	W.	Near coast of Nicaragua.
29	15 17 30*	43	N.	43	E.	Georgia aftershock.
29	15 46 35*	16	S.	176	W.	Fiji Islands region.
29	21 19 51*	36	N.	122½	W.	Near coast of southern California. Felt from Monterey to Paso Robles. Mag. 4-1/2 - 4-3/4.
30	09 46 05*	15	S.	173	W.	Samoa Islands region.
30	12 08 27*	65	N.	134	W.	Yukon, Canada.
30	15 29 00*	20½	S.	174	W.	Tonga Islands. Mag. 6 - 6¼.
30	16 54 40**					Samoa Islands.
31	00 47 00*	22	S.	66	W.	Southern Bolivia. h about 150 km.
31	15 34 40**					Kurile Islands.

Date and Station		Phase (GCT)
		h m s
Jan. 1		
COL	eP	01 01 26
EUR	eP	01 00 25
Jan. 1		
BC	iP	01 06 36
	iPcP	07 11
BUT	eP	01 05 55
COL	iP	01 02 27
	i	02 50
EUR	iP	01 06 14
HH	iP	01 05 38
	e	06 50
RC	iP	01 06 38
	e	06 59
SLC	eP	01 06 24
TUC	iP	01 07 10
	ePP	09 07
UK	eP	01 05 46
Jan. 1		
BUT	eP	01 10 44
	i	10 48
COL	iP	01 09 04
HH	iP	01 10 37
	e	11 27
Jan. 1		
EUR	eP	01 37 40
	i	38 13
Jan. 1		
BC	eP	03 32 29
	i	32 40
COL	eP	03 28 20
	iP	28 27
	i	28 33
	iS	31 16
	eL	32 03
EUR	iP	03 32 04
HH	iP	03 31 29
RC	eP	03 32 42
	e	32 53
TUC	eP	03 33 11
	i	33 21
Jan. 1		
HH	eP	03 34 21
	e	38 02
Jan. 1		
BC	iP	05 11 48
	i	12 39

Date and Station		Phase (GCT)
		h m s
EUR	iP	05 11 17
Jan. 1		
EUR	eP	06 21 09
TUC	eP	06 19 46
	e	25 25
Jan. 1		
EUR	iP	07 40 28
Jan. 1		
COL	eP	07 51 38
Jan. 1		
BC	iP	09 53 32
	iS	54 08
	iL	54 21
EUR	eP	09 53 51
	iS	54 40
	iL	55 01
Jan. 1		
EUR	iP	10 58 43
SLC	eP	10 58 58
TUC	iP	10 58 42
Jan. 1		
EUR	eP	12 49 49
TUC	eP	12 49 44
Jan. 1		
SJ	iP	15 42 42
	i	42 59
Jan. 1		
EUR	eP	17 43 52
Jan. 1		
EUR	iP	18 23 30
RC	eP	18 22 46
TUC	eP	18 22 35
	e	22 43
Jan. 1		
HH	eP	23 38 13
RC	i	23 37 10
Jan. 2		
BC	iP	00 47 07
	eS	53 21
	eL	55 24
BOZ	eP	00 46 37
	i	46 53
	eS	52 04
	eL	55 03
BUT	eP	00 46 28
	eS	52 14
	eL	55 06

Date and Station		Phase (GCT)
		h m s
CHI	e(P)	00 49 01
	iS	56 13
	eScS	58 25
	eL	01 00 29
COL	iP	00 43 10
	i	43 13
	iS	46 30
	iL	47 14
COLU	eP	00 49 45
	eS	58 09
	iS	58 12
	eScS	59 42
	eSS	01 02 10
	eL	05 24
EUR	iP	00 46 43
HONO	iP	00 45 51
	eS	51 12
	eL	53 52
HH	iP	00 46 11
	iPP	47 18
	e	48 48
	eS	51 40
	eL	54 21
RC	eP	00 47 23
	e	47 39
	iPcP	49 15
SLC	eP	00 46 56
	iPcP	48 43
	eS	52 52
	eL	56 12
SJ	iP	00 51 48
	i	52 12
	eS	01 02 06
	iS	02 12
	iPPS	03 13
	e	05 06
	eSS	07 44
	eL	13 04
SIT	iP	00 43 53
	i	44 19
	i	44 56
	iS	47 34
	iL	49 09
TUC	iP	00 47 47
	ePP	49 28
	iPP	49 36
	ePPP	50 16
	eS	54 31
	iSS	57 42
	eL	01 00 10
UK	eP	00 46 10
	ePP	47 21
	eS	51 37
	eL	54 04
WASH	e(P)	00 49 51

Date and Station		Phase (GCT)
		h m s
Jan. 2		
BC	e(P)	02 23 20
BUT	eP	02 22 47
COL	iP	02 19 23
EUR	iP	02 22 51
HH	eP	02 22 22
RC	eP	02 23 37
SLC	eP	02 23 09
TUC	e(P)	02 23 59
	e	24 07
	e	25 02
UK	eP	02 22 20
Jan. 2		
BC	eP	02 25 20D
	e	25 34
	eS	31 25
	eL	33 28
BOZ	eP	02 24 50D
	i	25 05
BUT	iP	02 24 42D
	i	24 57
	eS	30 24
	eL	33 23
CHI	e(P)	02 27 01
	iS	34 21
	eL	42 09
COL	iP	02 21 26C
	iS	24 27
COLU	iP	02 28 00C
	i	28 29
	iPcP	28 56
	ePPP	32 22
	iS	36 20
	iScS	37 56
	eSS	40 09
	eL	43 36
EUR	iP	02 25 01D
HONO	eP	02 24 04
	e(S)	29 08
	eL	31 24
HH	eP	02 24 25C
	eS	29 53
	eL	32 46
RC	e(P)	02 25 28C
	eP	25 37D
	ePP	27 37
	eS	32 03
	eL	37 15
SLC	eP	02 25 11D

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Date and Station		Phase (GCT)
		h m s
SLC	eS	02 31 13
	eL	34 20
SJ	iP	02 30 03D
	eS	40 24
	e	43 44
	eL	52 06
SIT	iP	02 22 08D
	eS	25 41
	iS	25 50
	iL	26 58
TUC	iP	02 26 02C
	i	26 15
	ePP	27 49
	ePPP	28 24
	iS	32 48
	i	33 07
	iSS	36 30
	iL	38 32
UK	eP	02 24 21D
	i	24 29
	ePP	25 29
	iPPP	26 09
	i(S)	29 24
	eS	29 46
	iS	29 55
	i	30 39
	eL	32 04
WASH	eP	02 27 56
Jan. 2		
BC	iP	03 20 35C
	i	21 30
BOZ	eP	03 20 08C
	i	20 32
BUT	eP	03 19 58D
	eL	29 38
COL	iP	03 16 40C
COLU	iP	03 23 17
EUR	iP	03 20 12
HONO	iP	03 19 20
HH	eP	03 19 40
	iPP	21 12
	eS	25 09
	iSS	27 31
	eL	28 22
RC	iP	03 20 54D
	i	22 07
	ePP	22 43
	e(S)	27 55
	eL	31 43
SLC	eP	03 20 26
SJ	eP	03 25 18D
SIT	eP	03 17 23

Date and Station		Phase (GCT)
		h m s
SIT	iP	03 17 26
	i	17 42
	i	18 05
TUC	eP	03 21 16C
	i	21 23
	ePcP	22 42
	eS	28 02
	iL	34 05
UK	eP	03 19 41D
Jan. 2		
BC	eP	03 38 17
BOZ	eP	03 37 47
BUT	eP	03 37 38
COL	iP	03 34 22
COLU	eP	03 40 56
HH	iP	03 37 21
	iPcP	39 58
RC	iP	03 38 34
	e	38 46
SLC	eP	03 38 06
SJ	eP	03 42 59
SIT	eP	03 35 00
TUC	iP	03 38 57
Jan. 2		
BC	iP	03 48 52
BOZ	eP	03 48 21
BUT	eP	03 48 13
COL	iP	03 44 56
COLU	eP	03 51 30
HH	eP	03 47 56
	ePcP	50 33
RC	eP	03 49 12
	e	49 17
SLC	eP	03 48 41
SJ	eP	03 53 34
SIT	iP	03 45 38
TUC	iP	03 49 32
	i	49 37
Jan. 2		
BC	iP	03 56 31D
	i(PP)	57 50
BUT	eP	03 55 52D
	iS	04 02 05

Date and Station		Phase (GCT)
		h m s
BUT	eL	04 06 26
COL	iP	03 52 33C
COLU	eP	03 59 09
	iP	59 11
HONO	eP	03 55 16
HH	eP	03 55 33
	iP	55 35
	ePP	57 01
	eS	04 01 17
	eL	03 22
RC	iP	03 56 48D
	ePP	58 40
	iS	04 03 13
	eL	07 23
SLC	eP	03 56 20D
	eS	04 02 28
	eL	05 25
SJ	eP	04 01 11C
	iS	11 32
	eSS	16 32
	eL	23 36
TUC	eP	03 57 10C
	i	57 12
	ePP	59 07
	iS	04 04 02
	iL	09 52
UK	eP	03 55 31C
	ePP	54 50
	eS	04 01 04
	iL	03 17
Jan. 2		
BC	e(P)	04 08 22
HH	eP	04 07 34
RC	e(P)	04 08 50
SLC	eP	04 06 33
SJ	eP	04 13 05
TUC	eP	04 09 02
	i	09 14
UK	eP	04 10 16
Jan. 2		
BC	eP	04 11 14
BOZ	iP	04 10 45
BUT	eP	04 10 35
	iPPP	12 31
COL	iP	04 07 19
COLU	iP	04 13 54
HONO	iP	04 10 08

Date and Station		Phase (GCT)
		h m s
HH	eP	04 10 19
	ePP	11 35
	ePcP	12 54
	eS	15 48
	eL	17 27
RC	iP	04 11 32
SLC	eP	04 11 05
SJ	iP	04 15 56
SIT	iP	04 08 03
TUC	eP	04 11 54
	e	12 42
	ePP	13 40
	ePPP	14 13
	e	17 50
	iS	18 35
	eL	23 14
Jan. 2		
COL	eP	05 28 06
Jan. 2		
COL	eP	05 34 29
Jan. 2		
SLC	eP	05 47 48
Jan. 2		
COL	iP	08 00 12
EUR	eP	08 03 46
HH	e(P)	08 03 14
	e	03 18
Jan. 2		
EUR	eP	08 26 53
Jan. 2		
BC	eP	10 57 16
BOZ	iP	10 56 45
	i	57 03
	eS	11 02 27
	eL	05 19
BUT	eP	10 56 36
	iS	11 02 20
	eL	05 20
CHI	eS	11 06 17
	eScS	08 37
	eL	13 45
COL	iP	10 53 20
	eS	56 30
	eL	57 14
COLU	iP	10 59 56
	eS	11 08 12
	eL	13 49
EUR	iP	10 56 51
	i	57 10

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Date and Station		Phase (GCT) h m s
HONO	eP	10 56 06
	eS	11 01 20
	eL	04 08
HH	iP	10 56 20
	ePP	57 42
	ePcP	58 57
RC	iP	10 57 32
	ePP	59 24
	eS	11 03 57
	e	04 27
	eL	09 33
SLC	eP	10 57 05
	ePP	58 36
	iPP	58 48
	eS	11 03 10
	eL	06 17
SJ	iP	11 01 58
	iS	12 16
	i	12 52
	eL	26 28
SIT	iP	10 54 02
	i	54 28
	i	54 55
	i	55 10
	iS	57 39
	eL	59 07
TUC	eP	10 57 55
	e	58 02
	eS	11 04 40
	eL	07 47
UK	iP	10 56 17
	eL	11 04 06
WASH	eP	10 59 55
	eS	11 07 30
	eL	12 33
Jan. 2		
BUT	eP	11 31 37
COL	eP	11 28 57
HH	eP	11 31 27
Jan. 2		
BC	eP	12 54 50
BOZ	iP	12 54 21
	i	54 33
BUT	eP	12 54 13
COL	iP	12 50 54
	eL	54 41
COLU	iP	12 57 30
EUR	iP	12 54 26
HH	iP	12 53 56
	e	54 13
	ePcP	56 32

Date and Station		Phase (GCT) h m s
RC	eP	12 55 08
	ePP	56 53
SLC	eP	12 54 41
SIT	iP	12 51 37
TUC	eP	12 55 30
	e	55 40
	i	56 36
Jan. 2		
COL	eP	14 12 56
EUR	eP	14 17 24
Jan. 2		
COL	iP	14 20 22
	i	20 33
	i	21 17
EUR	eP	14 23 51
HH	eP	14 23 21
	e	23 36
RC	e	14 25 26
Jan. 2		
BC	eP	17 59 40
BOZ	eP	17 59 11
COL	iP	17 55 43
	eL	59 34
EUR	iP	17 59 15
HH	eP	17 58 43
	ePcP	18 01 20
RC	eP	17 59 58
	ePcP	18 01 51
TUC	eP	18 00 20
Jan. 2		
COL	eP	19 15 35
EUR	iP	19 18 49
HH	eP	19 18 23
	e	18 25
RC	eP	19 19 13
Jan. 2		
EUR	iP	20 42 25
Jan. 2		
COL	iP	21 07 26
EUR	iP	21 10 55
Jan. 2		
EUR	eP	22 08 15
Jan. 2		
COLU	eP	22 31 40

Date and Station		Phase (GCT) h m s
Jan. 3		
BC	iP	00 48 45
BOZ	iP	00 48 16
	i	48 25
BUT	eP	00 48 08
	iPPP	49 56
	iPcP	50 32
	eS	54 17
COL	iP	00 44 48
	i	45 14
	e	45 44
	eS	47 56
	eL	48 52
COLU	iP	00 51 24
EUR	iP	00 48 18
HH	iP	00 47 48
	e	48 48
	ePP	49 22
	iPcP	50 26
	eS	53 12
	e	54 09
	eL	58 10
RC	iP	00 49 03
	i(S)	54 42
	eL	56 55
SLC	eP	00 48 35
SJ	eP	00 53 28
SIT	iP	00 45 41
TUC	iP	00 49 25
	e	49 37
	eS	56 09
	eL	01 03 46
Jan. 3		
COL	iP	01 25 45
Jan. 3		
COL	iP	02 30 38
EUR	eP	02 30 23
HH	eP	02 30 53
TUC	eP	02 30 27
Jan. 3		
BUT	eP	02 53 46
	epP	54 15
COLU	iP	02 51 55
EUR	eP	02 48 29
HH	iP	02 53 59
	epP	54 29
RC	eP	02 53 14
	ipP	53 42

Date and Station		Phase (GCT) h m s
RC	eP	02 53 14
	ipP	53 42
SJ	eP	02 49 15
	epP	49 42
TUC	eP	02 52 40
	ipP	53 09
Jan. 3		
HH	eP	03 34 22
Jan. 3		
COL	iP	07 48 25
EUR	eP	07 49 47
HH	iP	07 49 08
	e	49 26
RC	eP	07 49 02
	e	51 05
SLC	eP	07 49 33
Jan. 3		
SLC	eP	07 58 48
Jan. 3		
COL	iP	09 02 14
EUR	eP	09 05 15
HH	eP	09 04 50
RC	eP	09 05 31
TUC	eP	09 05 57
Jan. 3		
EUR	eP	11 53 16
HH	eP	11 52 46
Jan. 3		
BC	iP	12 59 45C
	ipP	13 01 45
	iSKS	09 07
	eL	15 42
	iSKPP'	28 53
BOZ	iP	12 59 16D
	epP	13 01 19
	isP	02 17
	iS	08 11
	isS	11 43
	eSS	13 19
	eL	15 12
BUT	iP	12 59 11C
	ipP	13 01 11
	i	01 57
	isP	02 10
	i	03 08
	iPPP	04 07
	i(sPP)	04 47
	iS	08 00
	iScS	08 18
	i	09 02

Date and Station		Phase (GCT) h m s
BUT	i	13 09 59
	isS	11 35
	isPS	12 20
	i	14 54
	iPKKP	18 01
	eL	20 05
	iSKPP'	29 05
CHI	eSKS	13 09 52
	iS	10 16
	eSP	11 20
	isS	13 56
	e	17 12
	eL	22 04
COL	iP	12 56 18C
	e	56 51
	epP	58 04
	esP	59 25
	e	13 00 04
	iScP	00 30
	iSPP	00 54
	iS	02 32
	e	03 06
	eScS	04 56
	isSS	05 42
	iL	13 04
	eP'P'	28 12
EUR	iP	12 59 28C
	ipP	13 01 27
	ePKKP	16 51
	eP'P'	25 19
	eSKPP'	28 16
	iSKPP'	28 41
	eP'P'P'	46 30
HONO	iP	12 57 56C
HH	iP	12 58 57C
	epP	13 00 57
	ePP	01 48
	iS	07 33
	iSP	08 11
	iSS	12 00
	eP'P'	25 35
	i	26 29
	iSKPP'	29 15
	eP'P'P'	45 37
RC	iP	12 59 42D
	epP	13 01 44
	e	02 30
	iS	08 49
	isS	12 32
	eP'P'	26 22
	iSKPP'	28 48
	eP'P'P'	48 43
SLC	iP	12 59 34D
	ipP	13 01 39
	isP	02 44
	i	03 22
	iS	08 47
	isS	12 24
	esSS	17 14
	eL	22 00
	eP'P'	28 16
	iP'P'	28 54

Date and Station		Phase (GCT) h m s
SIT	iP	12 57 20D
	ipP	59 13
	iPP	59 33
	iScP	13 01 12
TUC	iP	13 00 10C
	epP	02 15
	isP	03 12
	iPP	03 39
	ipPP	05 28
	ePPP	05 42
	e(PPP)	06 09
	iS	09 42
	esS	13 30
	isS	13 40
	eSSS	19 56
	eL	23 09
	iSKPP'	28 32
	eP'P'P'	46 47
UK	iP	12 59 07C
	epP	13 01 08
	isP	02 05
	iS	07 54
	iSP	08 28
	i	08 55
	esS	11 24
WASH	iP	13 00 45
	ipP	02 53
	iPP	04 44
	epPP	06 25
	epPPP	08 36
	eSKS	10 31
	iSKP	12 21
	iSKPP'	29 25
Jan. 3		
BC	iP	13 54 48
BOZ	iP	13 54 19
BUT	iP	13 54 14
COL	iP	13 51 20
	ipP	53 17
	iScP	55 32
	iS	57 35
EUR	iP	13 54 27
	iSKPP'	14 24 27
HH	iP	13 54 00
	epP	56 36
RC	iP	13 54 45
	epP	56 59
SLC	iP	13 54 37
SIT	iP	13 52 23
TUC	iP	13 55 13
	e	55 53
	epP	57 19
	ePP	58 45
	eSKPP'	14 23 42
UK	eP	13 54 10

Date and Station		Phase (GCT) h m s
Jan. 3		
COL	iP	14 38 33
Jan. 3		
COL	eP	15 56 08
	i	56 10
	i	56 41
EUR	e(P)	15 59 39
HH	eP	15 59 17
RC	eP	16 00 27
Jan. 3		
BC	e(P)	16 23 58
COL	eP	16 24 54
Jan. 3		
EUR	eP	18 14 44
Jan. 3		
COL	iP	18 42 37
EUR	eP	18 46 09
Jan. 3		
COL	eP	20 17 17
Jan. 3		
EUR	eP	21 26 16
Jan. 3		
BUT	eP	22 38 12
COL	iP	22 40 10
	i	40 31
EUR	eP	22 43 41
HH	e(P)	22 43 07
RC	eP	22 48 32
Jan. 4		
EUR	eP	00 19 05
HH	eP	00 17 51
	e	20 50
Jan. 4		
BC	e(P)	02 05 42
EUR	eP	02 07 34
TUC	eP	02 03 21
	e	03 30
	e(S)	03 58
	eL	04 14
Jan. 4		
COL	iP	02 44 10
Jan. 4		
HH	eP	03 32 40
Jan. 4		
EUR	iP	04 55 54

Date and Station		Phase (GCT) h m s
Jan. 4		
BUT	eP	10 27 49
Jan. 4		
BH	iP	12 36 48
	iS	37 48
BC	iP	12 44 41
BOZ	eP	12 45 10
BUT	eP	12 45 05
	epP	45 18
	ePP	46 42
COL	eP	12 47 57
	ipP	48 13
COLU	eP	12 42 14
EUR	eP	12 44 45
	ipP	45 03
	iPcP	46 23
HH	eP	12 45 21
	ipP	45 36
RC	eP	12 44 17
	ipP	44 32
SLC	eP	12 44 34
SJ	iP	12 40 04
	ipP	40 19
	i	43 22
TUC	eP	12 43 47
	ipP	44 04
Jan. 4		
BC	iP	13 51 03
	ipP	51 26
COL	iP	13 50 27
	ipP	50 54
	isP	51 03
EUR	iP	13 51 04
	ipP	51 26
Jan. 4		
COL	iP	16 03 49
EUR	iP	16 04 43
Jan. 4		
EUR	eP	18 29 41
HH	eP	18 29 23
	e	29 27
Jan. 4		
SIT	iP	20 57 47
	iS	58 09
	iL	58 11
Jan. 5		
COL	iP	01 19 53

Date and Station		Phase	(GCT) h m s
EUR	iP		01 23 02
	i		23 11
HH	iP		01 22 42
RC	eP		01 23 36
TUC	eP		01 24 00
Jan. 5 COL	iP		03 40 07
EUR	eP		03 39 58
	i		40 16
Jan. 5 BC	e(P)		08 43 22
HH	eP		08 44 00
Jan. 5 EUR	eP		09 18 41
Jan. 5 BC	eP		10 44 49
Jan. 5 BC	eP		12 44 44
COL	iP		12 40 51
	eS		44 46
EUR	eP		12 44 19
HH	iP		12 43 48
	e		43 58
RC	iP		12 44 57
TUC	eP		12 45 21
Jan. 5 COL	eP		14 39 34
Jan. 5 COL	iP		15 01 48
Jan. 5 EUR	iP		15 47 36
Jan. 5 COL	iP		16 46 55
EUR	eP		16 46 37
Jan. 5 EUR	iP		16 51 46
Jan. 5 COL	iP		17 08 28
Jan. 5 BC	iP		17 22 45
	i		22 56
COL	eP		17 18 40
	e		18 49
EUR	iP		17 22 19
HH	iP		17 21 46
	e		21 55
	ePcP		24 33
RC	iP		17 22 59
Jan. 5 COL	iP		18 59 43
Jan. 5 BC	eP		19 29 13
	e		29 22
	e		29 30
	eS		29 51
	iL		30 09
EUR	eP		19 30 10
	e		30 31
	i(S)		32 17
	iL		32 40
RC	eP		19 31 49
SLC	e(P)		19 30 28
	e		33 07
TUC	eP		19 28 52
	i		29 00
	eS		29 29
	iL		29 40
Jan. 6 BC	eP		00 03 24
	i		03 19
	i		03 56
	i		04 54
	iL		05 30
EUR	eP		00 04 17
	e		06 50
HH	eP		00 06 16
	e		06 31
RC	eP		00 05 51
	e		06 01
	eL		10 17
SLC	e(P)		00 04 38
	e		07 24
TUC	eP		00 03 00
	e		03 12
	eS		03 34
	iL		03 50
Jan. 6 BC	eP		00 31 40
EUR	eP		00 31 46
HH	e(P)		00 31 37
RC	eP		00 30 58
	ePP		34 17
TUC	eP		00 31 39
Jan. 6 COL	eP		01 20 00
Jan. 6 BUT	eP		01 50 02
COL	iP		01 47 37
EUR	iP		01 50 11
	ePP		53 22
HH	iP		01 49 52
Jan. 6 BC	e(P)		03 51 52
EUR	i(P')		03 54 08
Jan. 6 COL	eP		05 01 38
TUC	eP		05 02 19
Jan. 6 BC	iP		05 26 45
COL	iP		05 23 13
	ipP		23 27
	i		23 43
EUR	iP		05 26 27
	epP		26 45
HH	eP		05 25 59
	epP		26 20
RC	eP		05 26 48
TUC	eP		05 27 11
	epP		27 33
Jan. 6 TUC	eP		06 31 04
Jan. 6 COL	iP		07 06 56
EUR	iP		07 07 49
Jan. 6 BC	e(P)		12 11 17
EUR	eP		12 12 48
	i		15 14
TUC	eP		12 10 30
	iS		11 16
	eL		11 51
	iL		11 58
Jan. 6 COL	iP		15 57 07
EUR	eP		15 58 12
Jan. 6 HH	iP		19 00 16
	e		01 26
Jan. 6 HH	eP		19 21 33
Jan. 6 COL	iP		20 35 46
	e		36 29
Jan. 6 BC	iP		20 54 55
COL	iP		20 56 41
EUR	iP		20 55 02
HH	eP		20 55 38
RC	eP		20 53 59
TUC	iP		20 54 33
Jan. 6 BC	e(P)		21 40 23
	i		41 24
EUR	eP		21 38 44
	i		39 09
Jan. 6 HH	e(P)		22 49 17
Jan. 7 COL	eP		01 50 23
Jan. 7 TUC	e(P)		02 05 53
Jan. 7 BC	iP		02 35 22
COL	iP		02 31 33
EUR	eP		02 35 00
HH	eP		02 34 30
	e		34 42
RC	eP		02 35 28
	i		35 40
Jan. 7 COL	eP		05 28 23
	iP		28 26
	e		31 23
EUR	iP		05 31 58
RC	eP		05 32 38
Jan. 7 COL	iP		06 14 05
EUR	eP		06 13 33
TUC	eP		06 13 32
Jan. 7 COL	eP		09 51 06

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Date and Station		Phase (GCT)
		h m s
Jan. 7		
EUR	iP	11 08 19
TUC	eP	11 07 36
Jan. 7		
BC	e(P)	12 41 21
EUR	eP	12 40 18
	iP	40 36
	eS	41 16
	iS	41 36
	iL	41 39
UK	iP	12 39 20
	i	39 30
	iS	39 35
	eL	39 37
Jan. 7		
COL	eP	16 56 44
Jan. 7		
EUR	eP	19 05 21
HH	eP	19 08 42
Jan. 7		
COL	iP	23 13 55
	i	13 56
EUR	eP	23 17 24
HH	e(P)	23 16 52
	e	17 01
	e	17 09
	e	19 44
Jan. 8		
EUR	eP	00 48 28
UK	iP	00 47 15
	e	47 24
	i	47 28
	iS	48 02
	iL	48 08
Jan. 8		
COL	e(P)	01 34 18
EUR	eP'	01 39 33
	iPP	42 55
HH	eP'	01 39 27
	e	40 16
	ePP	41 22
TUC	e(P')	01 39 44
	e	39 54
Jan. 8		
BC	e(P)	03 25 13
	i(S)	26 05
	iL	26 15
EUR	eP	03 25 23
	eS	27 04
	eL	27 32

Date and Station		Phase (GCT)
		h m s
TUC	eP	03 24 11
	e	24 21
	eS	24 52
	eL	25 03
Jan. 8		
COL	eP	03 47 00
Jan. 8		
COL	ePP	05 40 14
COLU	iP'	05 42 13
EUR	eP	05 41 42
	ePP	43 45
	iPKS	45 05
HH	eP	05 41 30
	e	42 34
	ePP	43 11
RC	eP'	05 41 38
	ePP	44 18
SLC	eP'	05 41 34
	ePP	44 11
TUC	eP'	05 41 53
	iPKS	45 30
	e	46 10
Jan. 8		
COL	eP	10 24 13
	iP	24 14
	epP	24 56
EUR	eP	10 23 45
	ipP	24 25
TUC	iP	10 23 41
	epP	24 21
Jan. 8		
BC	iP	11 28 19
	iS	29 25
	iL	29 40
EUR	eP	11 28 54
	eS	30 21
	eL	30 48
RC	e(P)	11 29 23
	eL	31 41
TUC	eP	11 27 37
	e	27 49
	eS	28 05
	iL	28 27
Jan. 8		
COL	e(P)	12 01 21
	i	02 02
Jan. 8		
HH	eP	13 48 57
	e	49 21
Jan. 8		
BC	eP	17 37 10

Date and Station		Phase (GCT)
		h m s
BUT	e(P)	17 36 51
COL	iP	17 33 26
	eL	36 58
EUR	eP	17 36 57
	i	37 08
HH	eP	17 36 26
	ePcP	39 02
RC	eP	17 37 41
	e	37 49
SLC	e(P)	17 37 09
	i	37 27
SJ	eP	17 42 04
TUC	eP	17 38 07
Jan. 8		
COL	iP	18 08 12
	i	08 24
EUR	eP	18 11 36
HH	eP	18 11 13
	e	15 32
Jan. 8		
HH	e(P)	18 51 23
Jan. 8		
COL	iP	20 18 36
EUR	iP	20 22 03
	ipP	22 20
HH	iP	20 21 32
	e	24 08
TUC	e(P)	20 26 11
Jan. 8		
EUR	eP	20 46 07
HH	eP	21 48 58
TUC	iP	20 44 28
Jan. 8		
HH	eP	22 10 46
	e	11 40
Jan. 8		
EUR	eP	22 17 15
HH	eP	22 17 08
	e	17 15
	e	23 24
Jan. 8		
HH	eP	23 23 29
Jan. 9		
BC	iP	01 47 11

Date and Station		Phase (GCT)
		h m s
COL	iP	01 44 01
	e	44 12
EUR	eP	01 47 49
HH	iP	01 47 13
	i	47 18
RC	iP	01 48 18
SLC	eP	01 48 00
TUC	eP	01 48 47
Jan. 9		
EUR	eP	02 21 12
Jan. 9		
EUR	eP	02 45 22
HH	iP	02 45 09
Jan. 9		
EUR	eP	03 30 20
Jan. 9		
EUR	eP	04 21 24
Jan. 9		
COL	eP	05 58 10
EUR	eP	06 01 37
Jan. 9		
COL	iP	06 28 12
	i	29 03
EUR	eP	06 29 20
HH	eP	06 29 39
SJ	eP'	06 35 16
Jan. 9		
EUR	eP	07 18 45
	e	20 49
Jan. 9		
BH	iP	08 05 36
	iS	15 31
BC	iP	08 00 36
	i	00 46
	iS	06 44
	eL	09 47
BOZ	e(P)	08 00 07
	eS	05 48
	eL	08 44
BUT	eP	07 59 57
	iP	59 59
	ePcP	08 02 17
	eS	05 31
	i	06 03
	iScP	06 26
	eL	09 12
CHI	eS	08 09 32
	e(ScS)	12 00
	eL	17 16

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Date and Station		Phase	(GCT) h m s
CHI		iL	08 18 24
COL		eP	07 56 39
		iP	56 44
		i	57 25
		i	58 29
		iS	59 46
		iL	08 00 42
COLU		iP	08 03 19
EUR		eP	08 00 11
		i	00 29
HH		eP.	07 59 39
		i	59 43
		i	59 52
		ePcP	08 02 18
		eS	04 49
		eL	06 06
RC		eP	08 01 55
		e	07 38
		e(S)	08 29
		eL	10 28
SLC		eP	08 00 26
		eS	06 27
		eL	09 26
SJ		eP	08 05 19
SIT		iP	07 57 21
		eS	08 00 46
		iS	00 52
		iL	02 07
TUC		iP	08 01 16
		i	02 08
		e(S)	08 24
		eL	11 24
UK		eP	07 59 37
		eL	08 07 20
WASH		eP	08 03 10
		eS	09 31
		eL	15 20
Jan. 9			
EUR		eP	08 49 34
HH		eP	08 47 25
		e	49 12
Jan. 9			
HH		eP	09 24 57
		iS	26 26
EUR		eP	09 32 03
HH		eP	09 32 43
RC		eP	09 31 42
SJ		iP	09 28 25
TUC		eP	09 30 58
Jan. 9			
EUR		eP	10 05 30
RC		eP	10 04 56
SJ		eP	09 59 08
		iS	10 01 10
		iL	01 20
Jan. 9			
COL		e(P)	10 24 29
		e	25 05
		e	26 47
EUR		eP	10 24 39
		e	25 14
HH		eP	10 24 30
RC		e(P)	10 23 40
		e	23 54
TUC		eP	10 24 13
Jan. 9			
BC		eP	10 40 14
BOZ		eP	10 39 40
BUT		eP	10 39 34
COL		iP	10 36 49
EUR		iP	10 39 44
		i	39 55
HH		iP	10 39 22
		e	39 33
		e	40 18
RC		eP	10 40 09
TUC		iP	10 40 24
Jan. 9			
HH		eP	13 32 52
Jan. 9			
HH		eP	14 50 28
Jan. 9			
EUR		eP	15 08 41
Jan. 9			
COL		eP	18 44 05
EUR		eP	18 41 20
HH		eP	18 41 55
SJ		eP	18 37 06
TUC		eP	18 40 23
Jan. 9			
COL		iP	19 48 24
Jan. 9			
EUR		eP	22 25 41
HH		eP	22 25 36
RC		e(P)	22 28 47
TUC		i(P)	22 28 47
Jan. 10			
HH		eP	00 40 08
		e	40 18
Jan. 10			
HH		eP	01 20 12
Jan. 10			
COL		eP	04 29 28
		eL	05 07 25
EUR		eP'	04 33 51
Jan. 10			
BC		eP	06 14 34
BOZ		iP	06 15 13
COL		iP	06 15 01
EUR		iP	06 14 36
HH		eP	06 15 09
SLC		eP	06 15 00
TUC		eP	06 14 38
		i	14 43
Jan. 10			
COL		iP	08 23 29
EUR		iP	08 23 05
HH		eP	08 23 32
		i	30 51
SLC		eP	08 23 26
TUC		eP	08 23 06
Jan. 10			
COL		eP	08 28 37
Jan. 10			
EUR		eP	11 34 17
TUC		eP	11 32 41
Jan. 10			
BC		iP	13 59 13
BOZ		eP	13 59 45
COL		eP'	14 06 05
EUR		iP	13 59 32
		ipP	59 53
HH		iP	14 00 03
		ipP	00 19
RC		iP	13 59 23
		e	59 36
SLC		eP	13 59 27
SJ		eP	13 55 56
TUC		iP	13 58 45
		epP	59 04
Jan. 11			
EUR		eP	04 19 39
Jan. 11			
EUR		eP	04 34 25
Jan. 11			
EUR		iP	06 35 22
HH		eP	06 34 53
Jan. 11			
COL		eP	07 29 13
Jan. 11			
COL		eP	09 00 40
EUR		eP	09 03 26
HH		eP	09 03 04
Jan. 11			
BUT		eP	13 46 24
Jan. 11			
EUR		eP	18 03 26
Jan. 11			
SJ		e(P)	20 10 28
Jan. 11			
COL		iP	23 01 01
Jan. 11			
BC		iP	23 45 11
BOZ		iP	23 44 54
COL		iP	23 42 23
EUR		iP	23 44 58
HH		iP	23 44 38
Jan. 12			
HH		eP	04 05 14
Jan. 12			
HH		eP	08 29 11
Jan. 12			
COL		eP	12 18 28
EUR		eP	12 21 09
HH		iP	12 20 50
RC		eP	12 21 37

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Date and Station		Phase (GCT)
		h m s
SLC	eP	12 21 19
TUC	eP	12 21 47
	e	24 38
Jan. 12 COL	eP	13 18 45
Jan. 12 BC	eP	13 37 00
	iP	37 08
	es	37 50
	iS	38 01
	iL	38 14
EUR	iP	13 36 23
SLC	eP	13 37 33
Jan. 12 COL	eP	15 03 36
EUR	eP	15 07 20
	ipP	07 47
Jan. 12 HH	eP	16 22 12
Jan. 12 COL	iP	19 11 39
Jan. 12 EUR	eP	19 57 34
Jan. 12 EUR	eP	22 19 24
Jan. 12 COL	iP	22 32 11
EUR	eP	22 31 37
HH	eP	22 31 00
TUC	eP	22 31 35
Jan. 12 EUR	eP	23 16 07
	e	16 44
	eS	17 05
	iL	17 15
HH	eP	23 15 27
Jan. 13 EUR	eP	01 15 59
Jan. 13 EUR	eP	02 13 12
Jan. 13 COL	eP	02 20 46
EUR	eP	02 20 26
TUC	iP	02 20 25
Jan. 13 EUR	eP	05 05 49

Date and Station		Phase (GCT)
		h m s
Jan. 13 HH	eP	05 51 16
	e	51 30
Jan. 13 EUR	eP	11 47 31
TUC	eP	11 47 38
Jan. 13 COL	iP	11 49 41
HH	eP	11 51 32
Jan. 13 COL	iP	12 23 22
EUR	eP	12 25 18
HH	iP	12 25 13
Jan. 13 BC	iP	12 32 14
BUT	e(P)	12 31 55
COL	eP	12 29 13
EUR	eP	12 32 00
	i	32 58
HH	iP	12 31 40
RC	eP	12 32 27
SLC	eP	12 32 11
TUC	eP	12 32 40
Jan. 13 BC	iP	19 36 48
	iS	37 44
	iL	38 32
BUT	e(P)	19 38 00
	eL	39 39
EUR	iP	19 36 00
HH	e(P)	19 38 15
	eL	40 30
TUC	e(P)	19 38 22
	eL	40 21
Jan. 13 EUR	iP	23 01 01
Jan. 14 HH	eP	00 27 13
Jan. 14 BC	eP	00 41 42
COL	iP	00 41 11
	i	42 25
EUR	iP	00 41 42
	i	42 02

Date and Station		Phase (GCT)
		h m s
HH	eP	00 41 57
TUC	e(P)	00 42 50
	e	43 27
Jan. 14 BC	iP	05 47 03
BUT	eP	05 47 44
	e	48 56
COL	ePP	05 54 00
COLU	eP	05 45 19
EUR	iP	05 47 23
	i	47 40
HH	iP	05 47 52
RC	iP	05 47 05
SLC	eP	05 47 14
SJ	eP	05 43 08
TUC	iP	05 46 31
	ePcP	47 12
Jan. 14 EUR	eP	06 50 15
Jan. 14 TUC	eP	08 16 45
Jan. 14 COL	eP	08 47 04
EUR	eP	08 46 31
TUC	eP	08 46 27
Jan. 14 BC	eP	10 00 26
COL	iP	10 00 54
	epP	03 03
EUR	iP	10 00 32
	epP	02 36
HH	eP	10 00 59
TUC	eP	10 00 31
	i	00 50
Jan. 14 EUR	eP	10 30 00
Jan. 14 HH	eP	11 03 21
Jan. 14 EUR	eP	12 57 42
HH	eP	12 57 33
TUC	eP	12 57 16

Date and Station		Phase (GCT)
		h m s
Jan. 14 EUR	eP	13 11 43
Jan. 14 BC	iP	14 31 52
	iPcP	32 02
	epP	34 01
COL	iP	14 32 19
	ipP	34 28
EUR	iP	14 31 57
	ipP	34 06
HH	eP	14 32 24
	ipP	34 36
	ePP	36 09
RC	epP	14 35 00
SLC	iP	14 32 12
TUC	iP	14 31 56
	ipP	34 07
Jan. 14 EUR	eP	17 16 41
Jan. 14 EUR	eP	20 30 45
Jan. 14 BC	e(P)	20 34 25
EUR	iP	20 34 43
Jan. 14 EUR	iP	21 18 43
Jan. 14 BC	eP	23 06 27
COL	e(P)	23 06 41
	e	07 02
EUR	eP	23 05 35
	i	06 33
TUC	eP	23 05 49
	e	06 12
	i	06 29
Jan. 14 EUR	eP	23 10 03
Jan. 15 COL	iP	01 10 39
	e	11 49
	i	12 29
EUR	eP	01 11 45
Jan. 15 BH	iP	04 11 53
	iS	14 05
BC	iP	04 18 19
	i	18 34

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Date and Station		Phase	(GCT) h m s
Jan. 15			
BOZ		eP	04 18 48
BUT		eP	04 19 01
		e	19 11
		isP	19 42
COL		eP	04 21 36
		epP	21 55
COLU		iP	04 16 11
EUR		iP	04 18 40
		i	18 55
		isP	19 17
		e(sS)	26 44
HH		eP	04 19 13
		ipP	19 28
		isP	19 46
RC		iP	04 18 17
		epP	18 35
		esP	18 57
SLC		eP	04 18 28
SJ		iP	04 14 12
		ipP	14 37
		i	15 10
		i(sS)	18 36
		i	21 01
TUC		iP	04 17 41
		i	17 56
Jan. 15			
EUR		eP	05 28 34
Jan. 15			
BC		eP	09 07 31
COL		eP	09 03 31
		iP	03 35
		i	04 19
EUR		eP	09 07 01
HH		eP	09 06 29
		i	06 47
		e	09 10
RC		eP	09 05 53
TUC		eP	09 08 07
Jan. 15			
BC		iP	12 03 28
EUR		iP	12 04 00
HH		eP	12 05 00
		e	05 27
TUC		eP	12 02 34
		eL	08 05
Jan. 15			
COL		iP	17 38 17

Date and Station		Phase	(GCT) h m s
Jan. 15			
EUR		eP	18 41 32
		e	42 35
Jan. 15			
COL		eP	18 50 44
EUR		eP	18 54 08
Jan. 15			
COL		iP	20 20 17
HH		eP	20 22 21
Jan. 15			
COL		iP	20 33 59
EUR		e(P')	20 39 28
		ePP	40 01
		ePKKP	51 43
Jan. 15			
BH		iP	21 42 08
		iS	43 40
BC		eP	21 47 27
COL		iP	21 51 23
		iPcP	51 49
COLU		iP	21 45 37
EUR		iP	21 47 53
		iPcP	50 03
HH		eP	21 48 22
		ePcP	50 18
RC		eP	21 47 40
SJ		iP	21 45 12
Jan. 15			
BC		iP	23 06 25
EUR		iP	23 06 32
		i	06 49
HH		iP	23 07 01
RC		iP	23 06 21
SJ		eP	23 02 40
TUC		eP	23 05 47
Jan. 16			
HH		eP	01 58 15
Jan. 16			
HH		e(P)	04 26 47
Jan. 16			
COL		iP	05 11 17
		i	12 15
Jan. 16			
COL		eP	06 04 58

Date and Station		Phase	(GCT) h m s
Jan. 16			
EUR		eP	06 34 37
Jan. 16			
EUR		eP	09 08 21
Jan. 16			
COL		e(P)	09 28 54
Jan. 16			
BUT		eP	11 26 31
		iP	26 32
		iS	26 54
		iL	26 58
EUR		eP	11 27 15
		eS	28 09
		eL	28 15
HH		e(P)	11 26 49
		e	27 00
		eS	27 25
		eL	27 51
Jan. 16			
BC		eP'	12 03 36
EUR		iP'	12 03 24
		ePP	06 56
HH		eP'	12 03 11
		ePP	06 00
RC		eP'	12 03 08
		e	03 15
		ePP	06 34
SLC		eP'	12 03 22
TUC		eP'	12 03 33
UK		eP'	12 03 28
Jan. 16			
COL		iP	19 12 15
Jan. 16			
BUT		eP	19 35 35
COL		eP	19 36 51
EUR		iP	19 35 26
HH		eP	19 35 33
		i	35 38
SLC		eP	19 35 24
Jan. 16			
BC		iP	20 48 31
		i	48 39
COL		iP	20 49 08
		ipP	49 30
EUR		eP	20 48 38
		ipP	48 59
HH		eP	20 49 07

Date and Station		Phase	(GCT) h m s
TUC		eP	20 48 36
Jan. 16			
COL		eP	22 27 55
EUR		eP	22 29 24
		e	29 42
		i	30 54
HH		eP	22 31 03
RC		eP	22 29 36
TUC		e(P)	22 29 50
Jan. 17			
EUR		eP	00 48 54
Jan. 17			
EUR		eP	01 14 00
Jan. 17			
COL		eP	02 07 39
EUR		eP	02 11 11
Jan. 17			
EUR		eP	04 10 01
Jan. 17			
EUR		eP	04 12 41
HH		eP	04 12 50
RC		e(P)	04 12 12
		i	13 44
Jan. 17			
HH		eP	06 40 54
		e	41 32
Jan. 17			
COL		eP	06 49 11
Jan. 17			
COL		iP	07 36 51
COLU		eP'	07 43 09
EUR		eP'	07 42 17
		ePKKP	53 03
HH		e(P)	07 39 51
		e	40 30
RC		e(P)	07 40 49
SJ		iPP	07 44 21
Jan. 17			
HH		eP	08 04 57
Jan. 17			
COL		iP	10 07 05
EUR		eP	10 10 44

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Date and Station		Phase (GCT)
		h m s
Jan. 17		
COL	eP	10 18 50
EUR	eP	10 22 21
Jan. 17		
COL	eP	10 26 06
HH	eP	10 29 24
Jan. 17		
COL	ePP	11 44 25
Jan. 17		
COL	iP	12 56 29
EUR	eP	13 03 12
	e	03 34
HH	eP	13 03 20
	i	03 42
SLC	eP	13 03 05
Jan. 17		
EUR	eP	13 10 38
Jan. 17		
EUR	eP	14 35 32
Jan. 17		
COL	eP	16 32 32
Jan. 17		
BC	iP	16 53 56
EUR	eP	16 54 39
	i	54 57
	eS	55 43
	eL	56 00
Jan. 17		
COL	eP	19 17 33
Jan. 17		
COL	iP	18 59 04
EUR	eP	19 02 44
Jan. 17		
EUR	eP	20 35 32
Jan. 17		
BOZ	iP	22 38 22
BUT	iP	22 38 17
	ipP	39 38
COL	iP	22 35 40
EUR	iP	22 38 27
	i	38 47
	ipP	39 49
	iPP	41 34
	epPP	42 48
HH	iP	22 38 06
	epP	39 26
	i	39 47

Date and Station		Phase (GCT)
		h m s
HH	eS	22 47 23
	i	47 29
	iS	47 44
	eSKPP'	23 08 52
RC	iP	22 38 50
	e(PcP)	39 13
	e(S)	48 25
SLC	iP	22 38 37
	epP	39 56
	eS	48 22
UK	iP	22 38 03
Jan. 18		
RC	eP	00 24 29
Jan. 18		
COL	iP	05 45 04
	i	45 36
EUR	eP	05 46 08
Jan. 18		
EUR	eP	06 08 16
Jan. 18		
COL	iP	06 08 45
EUR	iP	06 11 04
HH	iP	06 11 12
SLC	eP	06 10 58
Jan. 18		
EUR	eP	06 38 44
Jan. 18		
COL	eP	09 21 00
Jan. 18		
COL	iP	11 57 45
EUR	eP	11 58 49
Jan. 18		
TUC	iP	12 25 29
	e	27 13
Jan. 18		
BC	iP	13 17 37
	iS	20 11
	iL	24 29
BUT	eP	13 18 49
COL	iP	13 22 23
EUR	iP	13 18 08
	eL	25 47
HH	eP	13 19 10
RC	eP	13 18 18
	e	19 02
	eL	26 47

Date and Station		Phase (GCT)
		h m s
TUC	eP	13 16 40
	eL	21 27
Jan. 18		
HH	eP	16 20 15
Jan. 18		
COL	eP	17 17 33
Jan. 18		
EUR	eP	21 47 00
HH	e(P)	21 49 15
	e	49 57
TUC	eP	21 50 31
Jan. 19		
COL	eP	03 34 57
EUR	eP	03 37 57
Jan. 19		
EUR	eP	03 55 43
Jan. 19		
EUR	eP	04 50 45
RC	eP	04 49 00
Jan. 19		
EUR	eP	05 05 11
Jan. 19		
BC	iP	05 28 04
	iPcP	28 16
	ipP	30 14
	isP	31 17
BUT	iP	05 28 35
	i	29 05
COL	iP	05 28 29
	epP	30 45
	eS	38 22
EUR	iP	05 28 08
	ipP	30 22
	esP	31 08
	e	32 28
	esPP	54 26
HH	iP	05 28 36
	ipP	30 51
	iPP	32 20
	ePKKP	47 03
RC	e(pP)	05 31 13
	ePP	32 56
SLC	iP	05 28 24
	ipP	30 41
TUC	iP	05 28 09
	iPcP	28 26
	epP	30 26
	esP	31 23
	e	31 40

Date and Station		Phase (GCT)
		h m s
TUC	epPP	05 33 31
	e	36 45
	eS	37 48
	iS	37 50
	ePKKP	46 19
	eSKPP'	57 13
Jan. 19		
EUR	eP	05 56 41
Jan. 19		
COL	iP	11 23 00
Jan. 19		
EUR	eP	11 41 14
HH	eP	11 40 46
RC	eP	11 41 36
Jan. 19		
EUR	eP	14 28 13
HH	eP	14 28 52
SJ	eP	14 24 25
Jan. 19		
TUC	eP	14 41 15
Jan. 19		
EUR	eP	18 20 29
Jan. 19		
COL	e(P)	18 39 40
EUR	eP	18 40 42
	epP	40 57
Jan. 19		
EUR	eP	20 46 01
Jan. 19		
HH	eP	21 38 53
Jan. 20		
EUR	eP	08 08 05
Jan. 20		
COL	eP	09 45 39
HH	eP	09 47 58
Jan. 20		
BUT	iP	11 11 42
COL	iP	11 09 02
EUR	iP	11 11 44
	e	12 25
HH	iP	11 11 25
RC	eP	11 12 10
Jan. 20		
EUR	eP	13 23 09

Date and Station		Phase	(GCT) h m s
Jan. 20			
BUT		iP	14 05 26
COL		iP	14 02 55
		iPcP	03 53
EUR		iP	14 05 36
		i	06 22
		ePP	09 00
HH		iP	14 05 15
RC		eP	14 05 56
TUC		iP	14 06 12
Jan. 20			
COL		eP	17 43 45
Jan. 20			
BUT		eP	18 26 14
COL		iP	18 24 14
		ipP	25 00
EUR		eP	18 27 17
		eP'	30 24
HH		eP	18 26 10
		epP	26 51
RC		e(P)	18 26 21
		epP	27 10
		eP'	30 18
Jan. 20			
EUR		eP	18 38 43
Jan. 20			
EUR		eP	20 21 53
Jan. 21			
COL		iP	04 38 17
Jan. 21			
COL		eP	09 36 35
EUR		eP	09 41 35
TUC		eP	09 41 37
Jan. 21			
BC		iP	10 13 12
		ipP	13 29
BUT		iP	10 13 42
		ipP	14 00
		isP	14 07
EUR		eP	10 13 25
		ipP	13 42
		isP	13 49
HH		iP	10 13 54
		ipP	14 12
		isP	14 20
RC		iP	10 13 11
		epP	13 27
RC		isP	10 13 35
SJ		iP	10 09 34
TUC		eP	10 12 35
		ipP	12 51
Jan. 21			
BC		iP	13 10 38
		ipP	11 10
BUT		iP	13 11 13
		ipP	11 46
EUR		iP	13 10 55
		ipP	11 29
		esP	11 45
HH		iP	13 11 25
		ipP	11 49
RC		iP	13 10 42
		ipP	11 14
TUC		iP	13 10 07
		ipP	10 39
Jan. 21			
COL		eP	16 03 13
EUR		eP	16 02 32
Jan. 21			
EUR		eP	20 20 27
Jan. 21			
HH		e(P)	22 28 23
		e	29 19
		i	30 43
RC		eP	22 27 31
		e	28 04
Jan. 21			
COL		eP	23 23 15
Jan. 22			
EUR		eP	01 13 13
Jan. 22			
COL		eP	01 43 01
Jan. 22			
COL		eP	02 44 37
Jan. 22			
COL		eP	03 25 44
Jan. 22			
COL		iP	05 48 47
EUR		eP	05 48 14
		iP	48 17
		ipP	48 32
HH		eP	05 48 48
SLC		eP	05 48 34
TUC		eP	05 48 14
Jan. 22			
EUR		eP	05 53 17
Jan. 22			
COL		e(P)	06 40 26
EUR		iP	06 42 55
HH		eP	06 42 39
Jan. 22			
EUR		eP	08 09 58
TUC		eP	08 09 58
Jan. 22			
BH		iP	10 35 20
		iS	36 05
EUR		eP	10 42 35
Jan. 22			
EUR		eP	11 23 22
TUC		eP	11 21 51
Jan. 22			
BC		eP'	11 37 48
BUT		eP'	11 37 34
		ePP	39 34
COL		eP'	11 37 20
		i(PP)	38 38
EUR		eP'	11 37 45
		i	37 57
		i	38 15
		iPP	40 01
		e(PKS)	41 31
HH		eP'	11 37 31
		ePP	40 14
RC		eP'	11 37 24
		ePP	39 14
SLC		eP'	11 37 38
TUC		iP'	11 37 48
		ePP	40 33
Jan. 22			
BC		eP	12 44 46
		i	45 14
BUT		eP	12 45 10
		i	45 38
COL		iP	12 44 21
EUR		iP	12 44 48
		i	44 58
		i	45 21
		ePP	48 14
HH		eP	12 45 08
SLC		eP	12 45 04
TUC		eP	12 45 02
		i	45 07
		eL	13 41 27
Jan. 22			
EUR		eP	16 29 42
Jan. 22			
EUR		eP	19 04 40
Jan. 22			
HH		eP	20 35 24
Jan. 22			
EUR		eP	20 51 50
HH		eP	20 51 44
Jan. 23			
HH		eP	00 45 46
Jan. 23			
COL		eP	09 26(18)
Jan. 23			
EUR		eP	13 06 58
Jan. 23			
HH		eP	14 51 26
Jan. 23			
COL		e(P)	16 45 04
Jan. 23			
COL		iP	17 38 54
EUR		eP	17 40 16
HH		iP	17 39 38
RC		iP	17 39 32
Jan. 23			
COL		iP	17 53 17
		i	53 29
EUR		eP	17 52 42
		i	52 54
HH		eP	17 53 15
		i	53 28
RC		eP	17 53 48
TUC		i(P)	17 52 52
		eL	18 18 52
UK		eP	17 52 32
		e	53 01
Jan. 23			
COL		e(P)	22 16 13
HH		eP	22 17 31

Date and Station		Phase (GCT) h m s
Jan. 23		
HH	eP	23 10 33
Jan. 24		
BUT	eP'	01 29 29
	e	31 14
COL	iP	01 23 41
	i	23 57
	ipP	24 12
COLU	iP'	01 30 12
EUR	iP	01 24 49
	ipP	25 18
	e	28 42
	i	29 43
	ePKKP	41 13
	eP'P'	49 28
HH	iP	01 24 55
	epP	25 24
	ePP	29 09
	ePKKP	41 08
RC	eP'	01 29 34
	ePP	30 13
	i	30 33
	ePKKP	40 44
SLC	eP	01 25 03
SJ	iP'	01 30 44
	ipP'	31 16
TUC	eP'	01 30 09
	ePKKP	41 18
UK	iP	01 24 25
	epP	25 21
	ePP	28 37
Jan. 24		
BC	iP	02 17 22
BUT	eP	02 17 13
COL	iP	02 15 07
EUR	iP	02 17 12
	i	17 19
	i	17 43
HH	iP	02 17 04
	e	17 36
RC	iP	02 17 45
	e	18 16
SLC	eP	02 17 25
TUC	eP	02 17 44
	e	18 17
Jan. 24		
EUR	eP	02 58 15
Jan. 24		
COL	eP	03 45 22

Date and Station		Phase (GCT) h m s
Jan. 24		
HH	eP	05 58 36
	e	58 49
Jan. 24		
BH	iP	07 21 23
	iS	25 21
BC	eP	07 26 37
	i	27 14
BUT	eP	07 27 20
COL	iP	07 29 44
	ePP	33 27
COLU	iP	07 24 58
	i	25 08
EUR	iP	07 26 39
	i	27 26
	eP'P'	56 05
HH	eP	07 27 37
	eP'P'	55 47
RC	iP	07 26 46
	ePcP	27 44
	e	28 09
SLC	eP	07 26 52
	eL	50 35
SJ	iP	07 23 05
TUC	iP	07 26 03
	e	26 10
	eL	43 52
UK	eP	07 27 26
Jan. 24		
EUR	eP	11 58 19
Jan. 24		
COL	iP	12 59 01
Jan. 24		
BC	iP	15 02 24
	eS	04 44
	iL	05 46
BUT	eP	15 04 20
	i	04 32
COL	iP	15 08 08
EUR	iP	15 03 14
	eS	05 59
	eL	06 53
HH	iP	15 04 45
	i	05 44
RC	eP	15 04 08
	e	05 34
	e(S)	07 25
	eL	08 35
	iL	10 05

Date and Station		Phase (GCT) h m s
SLC	eP	15 03 17
	e	05 07
	eS	06 08
	eL	06 31
SJ	iP	15 07 23
	i	07 30
TUC	eP	15 01 18
	e	01 26
	i	01 55
	e(S)	02 08
	eL	03 02
UK	eP	15 03 52
	e	04 14
	eL	08 37
Jan. 24		
COL	iP'	16 07 06
EUR	eP'	16 08 35
HH	eP'	16 08 23
	e	08 32
RC	eP	16 08 57
Jan. 24		
BC	iP	16 33 30
	eS	35 47
	eL	36 40
BUT	eP	16 35 36
COL	iP	16 39 14
EUR	iP	16 34 20
	eS	37 08
	eL	37 35
HH	eP	16 35 55
RC	eP	16 35 20
	eL	40 54
SLC	eP	16 34 24
	eL	38 26
TUC	eP	16 32 27
	e	32 54
	eS	33 44
	iL	34 12
Jan. 24		
BC	iP	17 02 38
	eS	05 01
	eL	06 16
BUT	iP	17 04 40
COL	eP	17 08 21
	i	08 23
	i	08 51
EUR	iP	17 03 28
	eS	06 15
	eL	06 41

Date and Station		Phase (GCT) h m s
HH	iP	17 04 59
RC	eP	17 04 22
	i	04 28
	eL	10 12
SLC	eP	17 03 36
	eL	08 04
SJ	iP	17 07 36
TUC	eP	17 01 38
	e	02 05
	eS	03 04
	iL	03 20
UK	iP	17 04 08
	eL	08 50
Jan. 24		
HH	eP	18 13 18
	i	13 21
	e	15 51
Jan. 24		
EUR	eP	19 33 24
Jan. 24		
COL	iP	19 38 07
	i	38 11
EUR	iP	19 37 36
TUC	eP	19 37 35
	eL	20 04 56
Jan. 24		
BC	iP	20 55 38
	i	55 47
	iS	56 13
	iL	57 07
EUR	eP	20 56 24
HH	eP	20 58 33
	e	58 42
TUC	eP	20 56 05
	i	56 20
	e(S)	57 02
	iL	57 20
Jan. 25		
EUR	eP	02 03 18
Jan. 25		
BH	iP	03 49 40
	iS	59 58
BC	iP	03 45 16
BOZ	iP	03 44 48
	i	45 25
BUT	iP	03 44 40
	i	45 08
	i	46 33
	i	50 21

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Date and Station		Phase (GCT) h m s
BUT	eS	03 50 35
	eL	54 51
CHI	eP	03 46 47
	eS	54 43
	e	58 15
	eL	04 04 31
COL	iP	03 41 24
	i	41 42
	i	43 06
	iS	45 10
	iL	46 58
	iScP	49 08
	iScS	52 52
	i	53 33
COLU	iP	03 47 48
	i	48 14
	iS	56 39
	i	57 41
	eL	04 03 28
EUR	iP	03 44 54
HONO	iP	03 43 33
HH	iP	03 44 24
	iPcP	46 32
	iS	50 18
	eL	54 24
RC	iP	03 45 32
	ePP	47 10
	eS	52 28
	i	54 20
	eScS	55 21
	eL	04 00 18
SLC	iP	03 45 08
	eS	51 44
	eL	55 01
SJ	iP	03 49 41
	i	50 03
SIT	iP	03 42 13
	i	42 47
	iPP	43 04
	i	44 26
	e(PcP)	44 50
	iPcP	45 22
	iS	46 21
	iL	47 57
TUC	iP	03 45 55
	eS	53 12
	eL	58 20
UK	iP	03 44 20
	e(S)	50 18
	eL	53 34
Jan. 25		
COL	iP	04 15 39
EUR	e(P)	04 15 58
	iP	16 09

Date and Station		Phase (GCT) h m s
HH	eP	04 16 18
RC	eP	04 15 44
TUC	eP	04 16 10
Jan. 25		
COL	iP	04 25 05
Jan. 25		
COL	eP	04 45 51
EUR	iP	04 49 26
TUC	eP	04 50 45
Jan. 25		
EUR	eP	07 22 58
TUC	eP	07 23 50
Jan. 25		
COL	iP	09 10 21
	i	10 32
EUR	eP	09 09 49
TUC	eP	09 09 48
Jan. 25		
COL	iP	13 55 39
Jan. 25		
EUR	iP	15 25 31
Jan. 25		
BC	iP	17 10 23
BUT	eP	17 09 46
COL	iP	17 06 27
	i	06 54
EUR	iP	17 10 03
HH	eP	17 09 31
	e	09 43
RC	iP	17 10 28
	e	10 40
TUC	eP	17 11 09
Jan. 25		
EUR	iP	18 54 33
	e	55 25
Jan. 25		
COL	iP	19 35 27
EUR	eP	19 36 39
HH	eP	19 36 46
Jan. 25		
EUR	eP	22 47 56
HH	eP	22 47 42

Date and Station		Phase (GCT) h m s
Jan. 25		
COL	iP	23 24 40
Jan. 25		
COL	iP	23 32 46
EUR	eP	23 35 39
TUC	eP	23 36 24
Jan. 26		
BUT	eP	01 17 54
	eS	19 23
	eL	19 43
COL	iP	01 20 55
EUR	iP	01 18 33
	i	18 47
	eL	21 36
HH	eP	01 17 33
	e	17 59
	e(S)	18 27
	eL	18 46
RC	eP	01 19 28
	eL	23 35
TUC	iP	01 20 21
Jan. 26		
EUR	eP	02 16 24
Jan. 26		
EUR	eP	08 38 40
Jan. 26		
COL	iP	09 09 51
	i	10 07
EUR	eP'	09 16 10
Jan. 26		
BUT	eP	10 06 55
EUR	iP	10 06 36
HH	eP	10 07 15
RC	iP	10 06 27
	e	09 38
TUC	eP	10 05 48
Jan. 26		
COL	iP	10 55 44
EUR	eP	10 52 19
RC	eP	10 51 53
	e	52 24
TUC	eP	10 51 19
	i	51 51
Jan. 26		
EUR	eP	16 11 37

Date and Station		Phase (GCT) h m s
Jan. 26		
COL	iP	16 42 17
EUR	eP	16 44 19
HH	iP	16 43 36
RC	iP	16 43 42
Jan. 26		
COL	iP	16 44 41
EUR	eP	16 48 09
Jan. 26		
EUR	eP	17 20 34
Jan. 27		
COL	iP	02 06 49
Jan. 27		
EUR	eP	02 26 16
Jan. 27		
EUR	eP	08 36 47
Jan. 27		
EUR	iP	10 52 33
Jan. 27		
COL	iP	11 17 19
Jan. 27		
BH	eP'	14 23 08
COL	iP	14 15 30
	i	17 32
EUR	eP'	14 22 25
RC	eP'	14 22 31
SJ	eP'	14 23 17
Jan. 27		
BUT	eP	16 34 08
Jan. 27		
EUR	eP	18 51 26
	e	52 17
RC	e(P)	18 53 49
Jan. 27		
EUR	eP	19 16 59
Jan. 28		
BC	eP	05 36 39
BUT	iP	05 36 17
	i	36 42
COL	iP	05 33 50
EUR	iP	05 36 25
HH	eP	05 36 06
	iP	36 08

Date and Station		Phase (GCT)
		h m s
RC	eP	05 36 48
	ePP	40 40
SLC	eP	05 36 53
Jan. 28		
BH	iP	05 56 27
	iS	57 16
HH	eP	06 04 08
Jan. 28		
EUR	eP	07 06 12
Jan. 28		
BC	iP	08 28 05
	iPP	30 52
	e(S)	37 12
	eL	41 16
BOZ	iP	08 28 48
BUT	iP	08 28 42
	i	29 07
	ePP	31 49
COL	iP	08 28 43
EUR	iP	08 28 13
HH	iP	08 28 43
	ePP	31 49
RC	iP	08 29 08
SLC	eP	08 28 49
	e	29 17
TUC	iP	08 28 12
	e(PP)	30 38
	eL	49 30
Jan. 28		
COL	eP	08 42 48
	eL	53 41
EUR	eP	08 46 14
HH	eP	08 46 34
Jan. 28		
COL	iP	11 28 21
EUR	eP	11 27 57
TUC	iP	11 27 59
Jan. 28		
BC	iP	18 36 53
	e	37 21
BUT	eP	18 37 28
EUR	iP	18 37 11
HH	iP	18 37 40
	e	38 11

Date and Station		Phase (GCT)
		h m s
RC	iP	18 36 57
	i	37 28
TUC	iP	18 36 22
	i	36 52
Jan. 28		
COL	eP	21 13 11
	ipP	13 37
	e	14 15
Jan. 28		
COL	iP	21 17 14
Jan. 28		
BC	eP	23 29 27
COL	iP	23 25 29
EUR	iP	23 29 03
HH	eP	23 28 31
RC	eP	23 29 30
TUC	eP	23 29 56
Jan. 28		
COL	eP	23 56 22
	iP	56 23
Jan. 29		
BH	iP	00 01 32
	iS	02 59
BC	eP	00 06 45
	e(PcP)	08 41
COL	eP	00 10 42
	ePcP	11 13
COLU	iP	00 04 55
EUR	eP	00 07 09
HH	eP	00 07 51
	ePcP	09 37
RC	eP	00 06 56
TUC	eP	00 06 03
Jan. 29		
EUR	eP	02 25 31
Jan. 29		
COL	eP	02 49 19
	eS	50 38
	iS	50 51
	iL	52 03
HH	eP	02 51 10
Jan. 29		
COL	eP	03 28 43
	e	29 11
EUR	eP	03 28 10

Date and Station		Phase (GCT)
		h m s
HH	eP	03 28 41
Jan. 29		
HH	eP	06 49 43
RC	e(P)	06 49 33
	e	49 47
SLC	eP	06 47 33
	i	48 02
Jan. 29		
HH	eP	09 11 34
	e	13 44
Jan. 29		
EUR	eP	10 50 41
Jan. 29		
EUR	eP	12 17 40
Jan. 29		
COL	iP	15 29 01
EUR	eP	15 31 02
HH	iP	15 30 19
RC	iP	15 30 26
	ePP	34 20
Jan. 29		
COL	iP	15 32 54
EUR	eP	15 34 52
HH	iP	15 34 13
Jan. 29		
BC	eP	15 58 28
BUT	eP	15 59 11
COL	iP	15 59 02
EUR	eP	15 58 36
	i	59 06
TUC	eP	15 58 41
	eL	16 20 38
Jan. 29		
EUR	eP	18 35 42
Jan. 29		
HH	eP	19 57 31
Jan. 29		
BC	eP	21 21 23
	i	21 52
	e(S)	22 33
	iL	23 02
BUT	eP	21 23 04
	eL	26 34
COL	eP	21 26 31
EUR	eP	21 21 26

Date and Station		Phase (GCT)
		h m s
HH	iP	21 23 14
	eS	25 44
	eL	27 14
RC	eP	21 23 53
SLC	e(P)	21 22 20
	eS	23 50
	eL	24 18
TUC	eP	21 22 23
	e	23 14
	eS	24 27
	eL	25 11
UK	iP	21 20 46
	i	21 07
	i(S)	21 22
	i	21 36
	iL	21 49
Jan. 29		
EUR	eP	21 32 09
Jan. 29		
EUR	iP	23 20 06
Jan. 30		
EUR	eP	08 53 46
Jan. 30		
COL	eP	08 55 24
EUR	eP	08 55 50
Jan. 30		
BC	eP	09 57 51
BUT	eP	09 58 31
COL	iP	09 58 30
EUR	eP	09 57 55
HH	eP	09 58 31
	i	58 42
Jan. 30		
EUR	eP	11 01 28
Jan. 30		
BUT	eP	12 13 28
	eL	18 59
COL	iP	12 09 57
	i	10 31
	iS	11 08
	iL	11 20
EUR	eP	12 14 19
HH	eP	12 13 01
	iP	13 03
	eS	16 30
	eL	18 52
RC	eP	12 14 12

Date and Station		Phase (GCT)
		h m s
TUC	eP	12 15 31
Jan. 30		
BUT	eP	13 37 44
COL	iP	13 33 00
EUR	eP	13 38 07
	e	38 27
HH	eP	13 37 10
	e	37 20
Jan. 30		
EUR	eP.	15 24 17
Jan. 30		
EUR	iP	15 32 39
Jan. 30		
BC	iP	15 41 09
	i	41 53
BUT	eP	15 41 35
COL	iP	15 41 47
EUR	iP	15 41 15
HH	eP	15 41 44
	i	41 47
RC	eP	15 42 09
	eL	16 16 23
SLC	eP	15 41 33
TUC	iP	15 41 13
	e	41 48
	eL	16 07 52
Jan. 30		
COL	iP	15 47 48
EUR	eP	15 47 13
Jan. 30		
BC	eP	17 06 19
	i	06 36
BUT	eP	17 06 55
COL	iP	17 06 57
EUR	iP	17 06 25
	i	06 44
HH	iP	17 06 57
RC	eP	17 07 22
	e	07 37
SLC	eP	17 07 04
TUC	eP	17 06 25
Jan. 30		
EUR	eP	23 48 36

Date and Station		Phase (GCT)
		h m s
Jan. 31		
EUR	eP	00 41 19
Jan. 31		
BC	iP	00 58 22
	i	58 37
	ipP	58 57
BUT	iP	00 58 58
	ipP	59 27
EUR	iP	00 58 41
	ipP	59 16
HH	iP	00 59 10
	i(pP)	59 35
RC	iP	00 58 25
	ipP	58 54
SLC	eP	00 58 33
SJ	iP	00 54 28
	ipP	54 52
TUC	iP	00 57 51
	epP	58 27
Jan. 31		
COL	iP	04 11 24
Jan. 31		
EUR	eP	07 19 15
Jan. 31		
COL	iP	08 05 03
EUR	eP	08 08 15
	ipP	08 34
Jan. 31		
EUR	eP	11 36 39
Jan. 31		
COL	iP	15 41 54
EUR	iP	15 45 21
HH	eP	15 44 51
RC	eP	15 45 47
	ePP	48 24
Jan. 31		
EUR	eP	17 08 01
Jan. 31		
COL	eP	20 28 42
EUR	iP	20 28 15
Jan. 31		
EUR	eP	21 01 30
HH	eP	21 01 23
Jan. 31		
COL	eP	22 24 25

Date and Station		Phase (GCT)
		h m s
HH	eP	22 23 39
Jan. 31		
COL	iP	23 45 09

Date and Station		Phase (GCT)
		h m s

Local and Minor Earthquakes		Local and Minor Earthquakes		Local and Minor Earthquakes		Local and Minor Earthquakes	
Station and Date	hour	Station and Date	hour	Station and Date	hour	Station and Date	hour
BUT		EUR		TUC		UK	
Jan.		Jan.		Jan.		Jan	
29	06.8	25	15.2	8	02.9	26	03.6
		27	23.1		02.9	28	17.6
COL		29	15.4		03.6		
Jan.		31	07.1		09.3		
1	16.5				11.8		
3	12.2	HONO			13.5		
	12.2	Jan.		10	01.9		
	20.7	3	01.5		04.5		
4	04.9				08.2		
	05.0	SLC		11	01.3		
	09.8	Jan.			02.4		
	16.7	3	02.0		02.5		
5	21.4	12	00.7		06.5		
6	20.4	15	00.1		09.7		
7	00.5				17.3		
	12.9	SJ		12	02.1		
8	12.8	Jan.			21.0		
	13.9	1	01.8	13	06.3		
9	17.6		15.8		14.7		
	20.0	4	14.5		20.2		
10	18.9	7	18.5	14	07.0		
11	02.8	8	10.2	15	11.0		
	04.4	16	12.9		11.7		
12	07.5		13.5		23.4		
	18.2		18.9	16	01.3		
13	04.8		21.6		07.3		
	13.4	21	20.2		07.5		
	13.5		22.5		08.0		
	13.6		23.4		17.0		
16	23.5			17	04.3		
19	11.2	TUC			08.1		
	11.2	Jan.			08.6		
	17.0	1	08.9		10.2		
20	00.7		09.9	18	09.7		
	14.9	2	05.3	19	02.8		
21	05.8		07.3		04.5		
	14.7	3	02.2		08.2		
25	12.2		17.7		10.1		
30	07.0		21.1		11.5		
31	10.4		22.2	20	11.6		
	11.0	4	01.6		14.5		
			01.7		18.6		
EUR			02.7		21.8		
Jan.			02.9	21	03.0		
1	01.0		07.6	23	12.1		
	09.6		09.2	25	01.0		
4	00.7		09.7		02.6		
	01.2	5	00.2		03.2		
	14.7		03.1	26	07.8		
	23.5		08.7		11.1		
	23.6		19.6	28	13.1		
5	10.7	6	00.2	29	02.4		
6	21.6		00.3	30	14.1		
7	13.8		00.5		16.1		
9	17.5		00.7	31	00.8		
10	03.6		00.9		14.4		
	15.8		01.3				
12	21.0		02.2	UK			
	23.1		02.8	Jan.			
17	19.9		03.8	6	19.1		
20	02.4		06.3	15	22.2		
21	03.0		15.6	16	13.2		
	04.0		18.0		21.5		
22	16.6		18.4	21	04.2		
23	08.2	7	02.0		20.1		
	08.2		16.1	23	17.1		