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1957

SEISMOLOGICAL BULLETIN

December, 1956

MSI - 192

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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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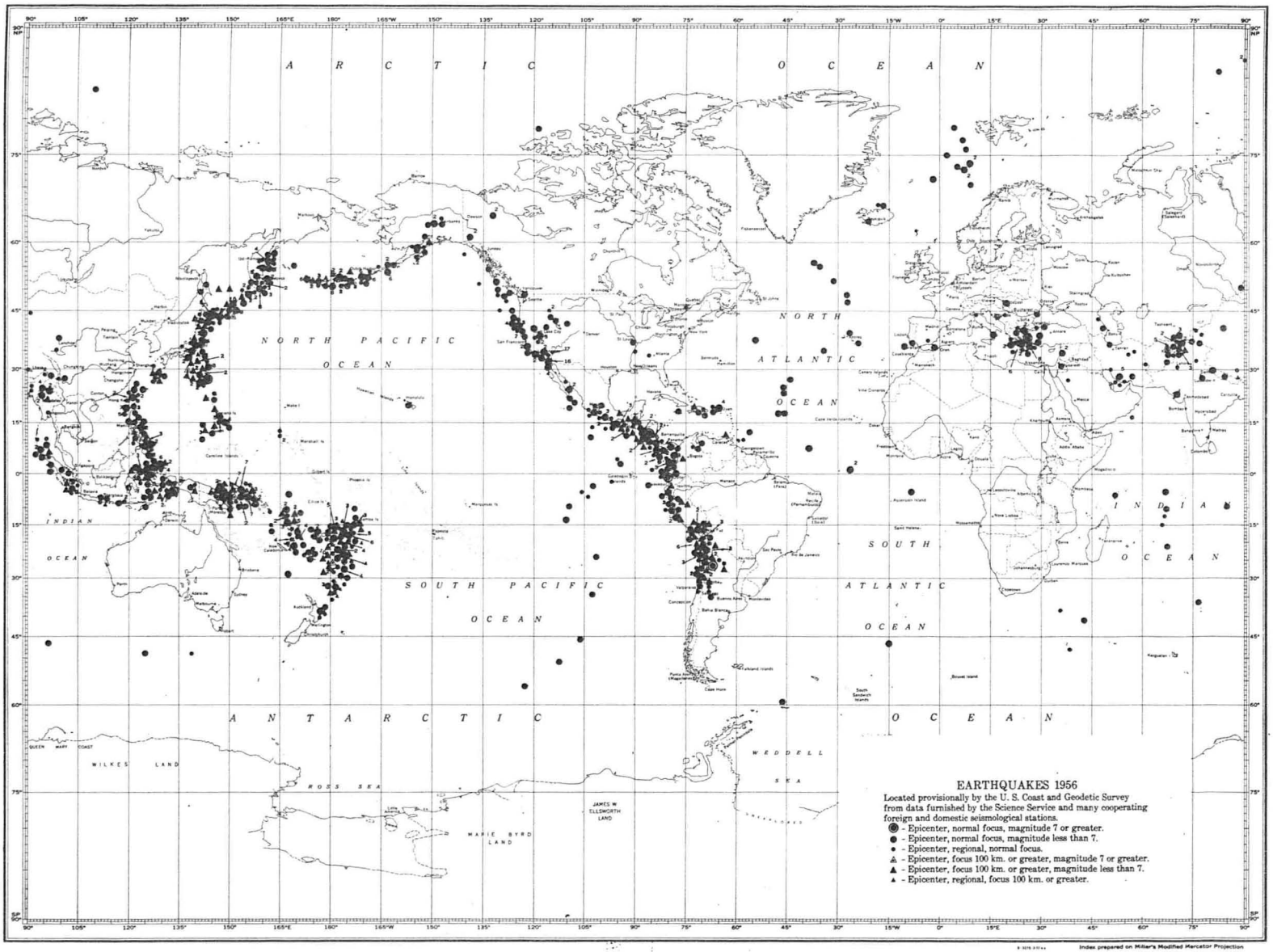
ARCTIC OCEAN
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
ANTARCTIC OCEAN
WILKES LAND
ROSS SEA
MARIE BYRD LAND
JAMES W. ELLSWORTH LAND
WEDDELL SEA
EARTHQUAKES 1956
Located provisionally by the U. S. Coast and Geodetic Survey from data furnished by the Science Service and many cooperating foreign and domestic seismological stations.
- Epicenter, normal focus, magnitude 7 or greater.
- Epicenter, normal focus, magnitude less than 7.
- Epicenter, regional, normal focus.
- Epicenter, focus 100 km. or greater, magnitude 7 or greater.
- Epicenter, focus 100 km. or greater, magnitude less than 7.
- Epicenter, regional, focus 100 km. or greater.
Index prepared on Miller's Modified Mercator Projection

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.

Date 1956	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth, and Remarks
Dec.	h m s	° ′	° ′	
1	07 43 51*	22 S.	169 E.	Loyalty Islands.
1	21 24 54*	17½ S.	72½ W.	Off coast of southern Peru.
2	01 45 48*	18½ N.	69 W.	Near east coast of Dominican Republic.
2	02 59 56*	52½ N.	169 W.	Fox Islands foreshock.
2	05 53 45*	27½ N.	137½ E.	Bonin Islands region. h about 300 km.
2	16 33 36*	17 S.	173½ W.	Tonga Islands.
3	07 12 44*	53 N.	169 W.	Fox Islands foreshock.
3	07 20 08*	53 N.	169 W.	Fox Islands, Aleutian Islands. Mag. 6-1/2 - 6-3/4.
3	07 44 55*	52½ N.	169 W.	Fox Islands aftershock.
3	20 56 40**			Do.
4	08 44 28*	50 N.	156 E.	Kurile Islands.
4	08 50 25**			Kurile Islands aftershock.
4	10 07 54*	45½ S.	106 W.	South Pacific Ocean. Mag. 6-3/4.
4	10 42 10*	53 N.	169 W.	Fox Islands aftershock.
4	13 21 07**			Samoa Islands. Felt at Apia.
4	20 59 52*	26 N.	127 E.	Ryukyu Islands. h about 100 km.
4	23 01 35*	15 N.	92 W.	Guatemala. Felt in western El Salvador. h about 150 km. Mag. 6.
5	01 47 56**			Near coast of southern Peru.
5	05 24 27**			Near coast of Colima, Mexico.
7	11 21 37**			Near west coast of Luzon, Philippine Islands. Felt at Manila and Olongapo.
7	14 30 33**			Southeastern Sumatra. h about 100 km.
8	16 10 27*	51 N.	179½ W.	Andreanof Islands, Aleutian Islands. Mag. 6-1/2.
9	00 10 45*	0	125½ E.	Molucca Passage.
9	05 19 06*	53 N.	169 W.	Fox Islands aftershock.
9	11 28 29*	6 S.	152 E.	New Britain. h about 100 km.
9	17 00 45**			Off east coast of Kamchatka.
10	08 13 30**			Bonin Islands.
10	08 30 45*	51 N.	179½ W.	Andreanof Islands aftershock.
10	16 48 21*	5 S.	152 E.	New Britain. Felt at Rabaul. h about 60 km.
10	23 15 00**			Argentina-Chile border.
11	06 30 58*	50 N.	156 E.	Northern Kurile Islands.
12	10 20 26*	13½ N.	144½ E.	Marianas Islands. h about 200 km.
12	20 53 15**			Formosa. h about 150 km.
13	13 15 37*	31 N.	115 W.	Baja California. Mag. 5-3/4 - 6.
13	14 52 02*	2 N.	126½ E.	Molucca Passage.
13	19 34 24*	12 N.	143 E.	Marianas Islands.
15	09 03 30**			About 300 miles north of Galapagos Islands.

Date 1956	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth, and Remarks
Dec.	h m s	° ′	° ′	
15	13 50 56*	2½ N.	128½ E.	Halmahera. h about 150 km.
15	17 24 24*	13 S.	167½ E.	New Hebrides Islands. h about 150 km. Mag. 6-6¼.
15	23 12 55*	6½ N.	78 W.	Colombia foreshock.
15	23 41 28**			Colombia foreshock.
16	01 41 52*	6½ N.	78 W.	Near west coast of Colombia. Felt at Balboa Heights. Mag. 6½.
16	22 06 45**			Kermadec Islands.
18	02 14 12**			Bonin Islands.
18	02 31 00*	25½ S.	68½ W.	Chile-Argentina border. Felt at Antofagasta and Copiapo, Chile. Mag. 7-7¼.
18	12 14 13*	53½ N.	164 W.	Unimak Island region.
18	17 53 00*	30½ N.	35½ E.	Israel-Jordan border region. Minor damage at Haifa, Israel. Felt at Jerusalem and Tel Aviv, Israel, and Ksara, Lebanon.
18	19 20 06*	36 S.	77 E.	South Indian Ocean.
18	21 12 49*	34½ N.	139 E.	Near south coast of Honshu, Japan. Felt at Tokyo. h about 100 km.
19	01 18 10*	51½ N.	157 E.	Southern Kamchatka.
19	04 36 20*	29 N.	139½ E.	Bonin Islands region. h about 450 km.
20	10 59 56*	27 S.	176 W.	Kermadec Islands. Mag. 6½.
20	19 47 51*	46 N.	150 E.	Kurile Islands.
20	21 13 40*	4½ S.	101½ E.	Near west coast of Sumatra.
20	23 57 36*	54 N.	161½ E.	Kamchatka.
21	03 27 41*	27 N.	96½ E.	Burma-India border.
21	08 58 53*	51 N.	131 W.	Queen Charlotte Islands. Mag. 6-3/4.
21	10 31 23**			About 300 miles off south coast of Honshu, Japan.
21	18 11 07*	34 N.	140 E.	Near south coast of Honshu, Japan.
21	20 10 06*	34 N.	139 E.	Do.
22	22 38 12*	29½ S.	177 W.	Kermadec Islands.
22	23 12 35*	33½ N.	139 E.	Honshu aftershock.
23	08 37 26*	22 N.	144½ E.	Marianas Islands region. h about 100 km. Mag. 6½.
24	04 34 20**			Costa Rica-Nicaragua border region.
24	18 38 53*	10 N.	127 E.	Near east coast of Mindanao, Philippine Islands. Felt at Hinatuan, Mambajao, and Surigao.
25	02 58 48*	48½ N.	28 W.	North Atlantic Ocean.
25	04 29 49*	20 S.	176 W.	Tonga Islands. h about 200 km.
25	09 33 37*	48½ N.	28 W.	North Atlantic Ocean. Mag. 6½.
26	07 34 18*	9½ S.	112 E.	Off south coast of Java.
26	07 46 24*	10 S.	166 E.	Santa Cruz Islands. Mag. 6.
27	00 14 15*	24 S.	177 W.	Tonga Islands region. h about 300 km. Mag. 7-7¼.
27	10 08 15*	37 N.	29 E.	Western Turkey.
27	21 31 28*	7½ N.	126 E.	Mindanao, Philippine Islands. Felt at Davao, Hinatuan, Mambajao, and Surigao.

Date 1956	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth, and Remarks
Dec.	h m s	° ′	° ′	
28	02 23 51*	37½ N.	70½ E.	Northern Afghanistan.
28	13 41 08*	5½ N.	126 E.	Near south coast of Mindanao, Philippine Islands.
28	14 24 40*	39 S.	177½ E.	Near coast of North Islands, New Zealand. Moderate damage in Gisborne and vicinity. h about 150 km. Mag. 6¼.
28	19 21 30*	21 N.	109 W.	Off south coast of Baja California.
28	21 12 02*	15½ S.	176 W.	Fiji Islands region.
29	03 40 21*	5½ S.	151½ E.	New Britain. Felt at Rabaul. h about 60 km.
29	06 51 08*	5½ S.	151½ E.	Do.
29	09 37 47**			Near south coast of Kamchatka.
29	19 27 16*	21 S.	180	Fiji Islands. h about 600 km.
29	19 51 49**			Near south coast of Java. h about 150 km.
29	20 22 12*	21 S.	175½ W.	Tonga Islands. Mag. 6¼ - 6½.
30	18 24 30**			Greece.
30	21 59 06*	24 N.	94½ E.	India-Burma border.
31	04 42 29*	72 N.	16½ E.	Off north coast of Norway.
31	09 03 40*	31 N.	114 W.	Northern Gulf of California.
31	17 36 15**			Nevada foreshock. Mag. 3-3/4 - 4 (Berk).
31	17 37 46*	38½ N.	119 W.	Nevada foreshock. Minor damage at Hawthorne. Mag. 5 - 5¼ (Berk).
31	17 39 28*	39 N.	119 W.	Western Nevada. Minor damage at Hawthorne. Mag. 5.4 (Berk).

Date and Station		Phase (GCT) h m s
Dec. 1		
EUR	eP	00 04 44
Dec. 1		
EUR	eP	00 35 11
Dec. 1		
EUR	eP	06 46 32
Dec. 1		
BC	iP	07 57 01
	i	57 20
COL	iP	07 57 01
EUR	eP	07 57 05
	i	57 17
TUC	eP	07 57 09
UK	eP	07 56 39
Dec. 1		
EUR	eP	08 55 00
Dec. 1		
EUR	eP	09 37 30
Dec. 1		
EUR	eP	09 51 40
Dec. 1		
EUR	eP	11 06 00
Dec. 1		
BC	eP	12 00 15
EUR	eP	12 00 50
TUC	eP	11 59 24
Dec. 1		
EUR	eP	12 38 49
Dec. 1		
BC	e(P)	14 12 29
	e	13 09
	i	13 39
	eL	14 54
EUR	eP	14 12 49
	i	13 10
	i	13 36
	iS	13 49
	iL	14 06
UK	eP	14 12 07
	e	12 19
	eS	12 38
	eL	12 50
Dec. 1		
BH	iP	14 31 27
	iS	32 17
Dec. 1		
BC	e(P)	16 45 21
EUR	eP	16 45 54
TUC	eP	16 44 30
Dec. 1		
HH	e(P)	18 56 08
Dec. 1		
COL	iP	19 53 05
Dec. 1		
EUR	eP	20 58 06
Dec. 1		
BC	iP	21 35 49
	e	36 06
BUT	e(P)	21 36 15
	i	36 27
	i	37 02
COLU	iP	21 34 05
EUR	eP	21 36 09
	i	36 34
HH	iP	21 36 42
SLC	eP	21 36 01
SJ	iP	21 31 58
	iPP	33 18
TUC	iP	21 35 15
	eL	58 53
Dec. 2		
BC	iP	01 54 01
BUT	eP	01 54 10
EUR	iP	01 54 14
HH	eP	01 54 24
	e	54 47
SLC	eP	01 53 52
SJ	iP	01 46 27
TUC	eP	01 53 29
Dec. 2		
BUT	eP	02 19 45
HH	eP	02 19 35
	e	31 23
Dec. 2		
COL	iP	02 28 08
EUR	eP	02 31 49
RC	eP	02 32 31
Dec. 2		
BUT	eP	03 07 14
	i	07 18
	iPP	08 06
COL	iP	03 03 49
	i	04 02
	i	04 19
	i	04 33
	iS	06 59
	iL	07 04
COLU	eP	03 10 20
	iPcP	10 35
EUR	iP	03 07 18
	i	07 34
HH	iP	03 06 47
	i	06 55
	e(PcP)	09 27
RC	eP	03 07 59
	iP	08 00
SLC	eP	03 07 39
SJ	eP	03 12 24
	i	12 36
TUC	eP	03 08 23
	e	08 37
	e	21 40
	eL	25 36
UK	eP	03 06 43
	e	06 49
Dec. 2		
EUR	eP	03 13 18
HH	e(P)	03 13 33
Dec. 2		
COL	eP	05 30 00
EUR	eP	05 30 51
Dec. 2		
BUT	eP	06 05 44
COL	iP	06 03 19
EUR	eP	06 05 50
HH	iP	06 05 34
	e	05 42
RC	iP	06 06 18
SLC	eP	06 06 00
TUC	eP	06 06 26
Dec. 2		
BUT	eP	07 00 45
Dec. 2		
BUT	eP	10 33 38
Dec. 2		
EUR	eP	14 06 23
Dec. 2		
SJ	eP	14 35 02
Dec. 2		
HH	eP	14 44 08
Dec. 2		
BC	iP	16 25 00
BUT	e(P)	16 26 24
COL	iP	16 29 39
EUR	eP	16 25 32
HH	e(P)	16 26 46
	e	26 49
RC	eP	16 26 10
	e	26 13
TUC	iP	16 24 19
	e	24 31
	e	27 04
	eL	30 12
Dec. 2		
BUT	eP	16 46 04
COL	iP	16 46 07
EUR	eP	16 45 34
HH	eP	16 46 07
	e	46 26
TUC	eP	16 45 32
Dec. 2		
HH	iP	19 54 07
RC	eP	19 54 03
Dec. 2		
COL	e(P)	20 44 52
Dec. 2		
BH	iP	22 22 20
	iS	22 33
Dec. 2		
HH	e(P)	22 45 39
Dec. 3		
EUR	eP	01 45 23
Dec. 3		
BC	e(P')	04 05 10
	i	05 25
EUR	eP'	04 05 14
	i	05 58
HH	eP'	04 05 23
	e	06 09
RC	eP'	04 05 06
	e	05 14

Date and Station		Phase (GCT) h m s
TUC	eP'	04 05 05
Dec. 3		
EUR	eP	05 29 07
TUC	eP	05 28 19
Dec. 3		
BC	eP	07 20 32
BUT	eP	07 20 00
COL	iP	07 16 32
	eL	20 43
COLU	e(P)	07 23 13
EUR	eP	07 20 04
HH	eP	07 19 32
SIT	eP	07 17 18
TUC	eP	07 21 08
	e	21 19
UK	eP	07 19 31
Dec. 3		
BC	eP	07 27 50
	i	28 19
BUT	eP	07 27 13
	i	27 34
	ePcP	29 29
	eS	32 57
	eL	35 41
COL	iP	07 23 57
	i	25 05
	eS	26 48
	eL	27 07
COLU	iP	07 30 32
	eS	38 55
	eScS	40 21
	eL	46 26
EUR	eP	07 27 27
	i	27 49
	e	58 16
	eP'P'	59 55
	iP'P'	08 00 04
HH	iP	07 26 56
	e	27 38
	e(PP)	28 27
	eL	36 17
RC	eP	07 28 17
	ePP	30 10
	eL	43 12
SLC	eP	07 27 41
	i	27 59
	e(PP)	29 27
SJ	iP	07 32 33
	i	32 42

Date and Station		Phase (GCT) h m s
SIT	i(P)	07 24 40
	iS	28 24
	eL	31 10
TUC	eP	07 28 32
	eS	35 16
	eL	39 10
UK	eP	07 26 52
WASH	eP	07 30 21
	eS	38 20
	eL	49 50
Dec. 3		
COL	eP	07 48 05
EUR	eP	07 51 28
Dec. 3		
BC	eP	07 52 38
	i	53 01
	i	55 15
BUT	eP	07 52 03
	i	52 38
COL	iP	07 48 47
	i	48 53
	i	49 00
	i	49 31
	i(S)	51 00
	iL	53 27
COLU	iP	07 55 20
	ePP	57 34
EUR	iP	07 52 16
	i(PcP)	54 32
	i	55 00
HH	iP	07 51 45
	ePcP	54 02
	e(S)	56 32
	eL	59 38
SLC	eP	07 52 31
	e(PP)	54 15
SJ	eP	07 57 19
SIT	iP	07 49 28
	i	49 55
	i	51 45
TUC	eP	07 53 20
	ePPP	55 58
UK	eP	07 51 40
	ePcP	54 07
Dec. 3		
COL	iP	07 51 00
Dec. 3		
SJ	eP	07 59 35
Dec. 3		
COL	iP	07 56 33

Date and Station		Phase (GCT) h m s
EUR	eP	08 02 23
SLC	eP	08 00 18
SIT	iP	07 58 48
	i	08 06 28
TUC	e(P)	08 01 16
Dec. 3		
COL	iP	08 06 41
EUR	eP	08 10 11
HH	eP	08 09 39
Dec. 3		
BC	eP	10 40 24
COL	iP	10 36 23
EUR	eP	10 39 52
HH	eP	10 39 24
	e	39 39
TUC	e(P)	10 40 57
Dec. 3		
COL	iP	15 28 04
EUR	eP	15 31 31
Dec. 3		
COL	eP	17 08 08
	e	08 37
EUR	eP	17 09 30
Dec. 3		
BC	eP	21 04 28
COL	iP	21 00 30
EUR	eP	21 04 01
	i	04 13
HH	eP	21 03 35
Dec. 3		
COL	iP	22 15 03
	i	15 14
EUR	iP	22 18 51
	i	19 03
HH	eP	22 19 29
Dec. 4		
EUR	e(P)	03 25 25
	eP	25 37
Dec. 4		
COL	eP	04 54 54
EUR	eP	04 59 37
Dec. 4		
BC	iP	08 54 57

Date and Station		Phase (GCT) h m s
BC	i	08 55 26
BUT	eP	08 54 20
COL	iP	08 50 58
	ipP	51 11
EUR	eP	08 54 36
	ipP	54 55
HH	iP	08 54 04
	e	54 25
RC	iP	08 55 02
SLC	i(P)	08 54 47
TUC	eP	08 55 29
Dec. 4		
COL	iP	08 56 58
EUR	iP	09 00 35
	i	00 50
HH	eP	09 00 03
RC	eP	09 01 01
TUC	eP	09 01 28
Dec. 4		
BC	iP	10 20 13
	i	20 30
	i	21 56
BUT	eP	10 21 02
COLU	iP	10 20 19
	eS	30 33
	iS	30 39
	ePPS	31 28
	eL	11 08 10
EUR	iP	10 20 33
	i	20 56
HH	eP	10 21 13
	e	21 42
RC	iP	10 20 53
SLC	eP	10 20 36
	i	21 04
SJ	iP	10 19 27
TUC	iP	10 19 53
	e	27 21
UK	iP	10 20 35
WASH	iP	10 20 49
Dec. 4		
EUR	eP	10 38 30

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Date and Station		Phase (GCT) h m s
Dec. 4		
BC	iP	10 49 55
	i	50 21
BUT	eP	10 49 17
COL	iP	10 46 00
COLU	eP	10 52 32
EUR	eP	10 49 41
HH	eP	10 48 57
	i	49 15
RC	eP	10 50 09
SLC	eP	10 49 45
	i	50 06
	ePcP	51 28
SJ	iP	10 54 36
TUC	eP	10 50 54
UK	e(P)	10 49 18
WASH	eP	10 52 23
Dec. 4		
COL	iP	10 56 44
	e	57 19
	e	57 47
	eS	59 23
	e	59 42
	eL	11 00 12
EUR	eP	11 00 29
Dec. 4		
EUR	eP	11 03 36
Dec. 4		
BC	eP	11 33 57
	i	34 06
	i	34 32
EUR	eP	11 33 35
Dec. 4		
COL	iP	12 03 10
EUR	eP	12 06 37
	i	06 54
TUC	eP	12 08 00
Dec. 4		
EUR	eP	13 00 45
Dec. 4		
BUT	iP	13 33 31
COL	iP	13 33 31
	ipP	33 49
EUR	eP	13 32 44
	ipP	33 00

Date and Station		Phase (GCT) h m s
HH	iP	13 33 32
SLC	eP	13 33 19
TUC	eP	13 31 29
	i	33 00
Dec. 4		
EUR	eP	14 13 22
TUC	e(P)	14 13 34
Dec. 4		
EUR	eP	14 45 37
Dec. 4		
EUR	eP	18 00 47
Dec. 4		
BUT	eP	21 12 46
COL	eP	21 10 21
EUR	iP	21 12 56
HH	iP	21 12 36
Dec. 4		
TUC	e(P)	22 23 05
	e	34 15
Dec. 4		
COL	iP	22 31 02
EUR	iP	22 31 24
	i	32 28
Dec. 4		
BC	iP	23 07 28
	i	07 43
	i(PP)	08 50
	eScP	14 09
	eL	17 17
BUT	eP	23 08 24
	ipP	09 01
	iPP	09 57
	eScP	14 30
	iScP	14 33
	i	15 13
	e	17 05
	eL	17 34
	i	18 36
COL	iP	23 11 44
	ipP	12 25
	i	13.01
	iScP	16 22
	eL	33 16
COLU	iP	23 06 16
	i(pP)	07 04
	i	08 50
	iS	10 14
	ePcP	10 31
	iL	10 49
EUR	iP	23 07 55
	isP	08 40
	iScP	14 20

Date and Station		Phase (GCT) h m s
EUR	iPcS	23 14 42
HH	iP	23 08 44
	e	09 28
	iPcP	10 58
	iScP	14 41
	iScS	18 46
PHIL	eP	23 07 27
	eS	12 12
	isS	13 30
	eL	15 48
RC	iP	23 07 40
	ePP	08 40
	ePcP	10 40
	eL	14 08
SLC	eP	23 07 43
	iP	07 44
	ipP	08 13
	e(PP)	09 20
	iPcP	10 39
	esS	13 22
	iScP	14 16
	eL	16 15
SJ	eP	23 06 58
	ipP	07 14
	iPcP	10 23
TUC	eP	23 06 43
	e	07 26
	iS	11 08
	e(ScP)	14 12
	e(PcS)	14 32
	eScS	17 14
WASH	eP	23 07 16
	i	07 38
	ePcP	10 25
	e(S)	11 50
	iL	14 06
Dec. 5		
COLU	eP	01 12 03
Dec. 5		
EUR	iP	01 59 07
HH	eP	01 59 39
	e	59 54
RC	eP	01 58 51
TUC	eP	01 58 13
Dec. 5		
EUR	eP	02 35 28
Dec. 5		
BC	eP	05 28 55
EUR	iP	05 29 29
HH	e(P)	05 30 41
TUC	eP	05 28 04
	e(S)	30 16
	eL	31 20

Date and Station		Phase (GCT) h m s
Dec. 5		
COL	iP	12 21 02
Dec. 5		
EUR	iP	14 04 14
Dec. 5		
EUR	iP	15 56 14
TUC	eP	15 55 15
	e	55 19
Dec. 5		
BC	eP	18 06 18
	i	06 30
BUT	eP	18 09 27
EUR	iP	18 05 44
TUC	eP	18 08 06
	e	10 07
Dec. 5		
COL	eP	18 07 09
HH	eP	18 10 20
	i	10 25
Dec. 5		
COL	iP	22 22 01
Dec. 6		
EUR	eP	01 47 37
Dec. 6		
COL	eP	01 59 31
EUR	iP	01 59 00
	i	59 13
Dec. 6		
EUR	eP	05 16 18
Dec. 6		
BC	e(P)	05 48(40)
	i	48(58)
EUR	iP	05 47 53
HH	e(P)	05 50 27
	e	52 27
SLC	e(P)	05 50 14
TUC	e(P)	05 50 15
Dec. 6		
EUR	iP	12 08 42
Dec. 6		
HH	eP	12 17 20
	e	17 25
Dec. 6		
COL	eP	12 50 10
EUR	eP	12 49 40

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Date and Station		Phase (GCT) h m s
Dec. 6		
COL	iP	13 50 56
Dec. 6		
COL	iP	20 26 38
Dec. 6		
COL	eP	22 57 17
Dec. 7		
EUR	iP	04 23 23
HH	eP	04 25 53
	e	27 44
	e	27 48
SLC	e(P)	04 24 17
	i	24 29
	eS	25 16
	eL	25 26
TUC	e(P)	04 25 53
	eL	28 07
Dec. 7		
HH	eP	06 58 33
Dec. 7		
EUR	iP	07 13 18
Dec. 7		
COL	iP	11 32 06
Dec. 7		
COL	iP	11 33 30
Dec. 7		
EUR	eP	11 40 09
Dec. 7		
HH	eP	12 05 24
Dec. 7		
COL	eP'	14 48 19
EUR	iP'	14 49 35
	iPKS	52 52
HH	iP'	14 49 25
	eSKS	55 54
RC	e(P')	14 48 05
Dec. 7		
COL	eP	15 05 30
EUR	eP	15 05 09
Dec. 7		
EUR	eP'	18 37 00
	iPKS	40 23
HH	e(P')	18 36 50
Dec. 7		
HH	eP	20 02 46
Dec. 7		
HH	eP	20 40 05

Date and Station		Phase (GCT) h m s
Dec. 8		
EUR	iP	03 41 08
	ipP	41 55
HH	iP	03 41 36
RC	iP	03 40 56
SJ	e(P)	03 37 14
TUC	eP	03 40 22
Dec. 8		
EUR	eP	05 58 34
	e	06 03 43
HH	eP	05 59 25
Dec. 8		
EUR	iP	14 11 27
RC	eP	14 13 15
SLC	eP	14 11 26
	iP	11 30
	e(S)	12 20
	iS	12 29
	eL	12 34
TUC	eP	14 12 19
	e	12 30
	eS	13 17
	iL	13 48
Dec. 8		
EUR	iP	16 18 07
Dec. 8		
BOZ	iP	16 18 37
	iS	25 02
	i(ScS)	28 34
	eL	29 36
BUT	eP	16 18 27
	i	18 44
	iPPP	20 54
	iS	24 52
	iL	28 16
COL	eP	16 15 14
	iP	15 15
	e(PP)	15 45
	e	16 44
	eS	18 30
	iL	19 05
COLU	iP	16 21 33
	iPcP	21 55
	e	27 37
	eS	30 35
	iS	30 36
	i(ScS)	31 15
	eSSS	38 30
	eL	40 14
EUR	iP	16 18 41
	iPPP	20 58

Date and Station		Phase (GCT) h m s
HH	iP	16 18 11
	eS	24 03
	e	30 19
	i	31 12
PHIL	eP	16 21 29
	iS	30 18
	iScS	31 23
	eSS	35 45
	eL	38 18
RC	iP	16 19 19
	ePP	21 16
	e	25 23
	iS	26 24
	eL	33 20
SLC	eP	16 18 55
	iP	18 56
	i	19 19
	i	19 33
	e	21 43
	iS	25 42
	eL	29 26
SJ	iP	16 23 25
TUC	eP	16 19 41
	i	19 43
	eS	27 04
	iS	27 07
	eScS	30 55
UK	eP	16 18 10
	e	19 16
	eS	24 17
	eL	27 15
WASH	iP	16 21 23
	e	22 39
	ePP	23 25
	e	26 39
	eScS	31 31
	eL	40 23
Dec. 8		
BUT	eP	16 24 11
EUR	iP	16 24 48
HH	eP	16 24 15
	i	24 28
SLC	eP	16 24 59
SJ	iP	16 29 29
TUC	iP	16 25 46
Dec. 8		
EUR	eP	16 31 42
Dec. 8		
EUR	eP	17 08 45
HH	eP	17 08 16
RC	eP	17 09 23

Date and Station		Phase (GCT) h m s
Dec. 8		
HH	eP	18 27 39
Dec. 8		
COL	eP	18 44 21
Dec. 8		
COL	eP	20 42 35
Dec. 9		
COL	iP	00 23 45
EUR	eP'	00 29 25
Dec. 9		
EUR	eP	01 25 05
Dec. 9		
COL	iP	01 55 28
Dec. 9		
COL	eP	03 17 41
Dec. 9		
COL	iP	03 42 47
EUR	iP	03 42 41
	i	43 00
Dec. 9		
COL	iP	05 23 00
	eL	27 18
EUR	eP	05 26 29
	i	26 42
HH	eP	05 25 55
	ePcP	28 31
RC	eP	05 27 07
Dec. 9		
EUR	iP	08 07 49
Dec. 9		
EUR	eP	09 15 15
Dec. 9		
EUR	eP	09 29 27
Dec. 9		
COL	iP	10 08 25
EUR	eP	10 11 52
Dec. 9		
COL	iP	10 21 45
	e	22 35
Dec. 9		
COL	iP	11 40 48
	epP	41 14
	esP	41 37
EUR	eP	11 41 45
Dec. 9		
COL	eP	12 54 23

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

Date and Station		Phase (GCT) h m s
TUC	iL	13 17 44
UK	e(P)	13 18 33
	eS	19 40
	eL	20 28
Dec. 13		
BC	eP	14 44 41
	e(S)	46 17
	iL	47 00
EUR	iP	14 45 28
	iL	48 56
HH	eP	14 47 28
TUC	eP	14 43 40
	e	43 57
	eS	44 37
	iL	44 48
Dec. 13		
BC	eP'	15 10 44
COL	iP	15 04 47
EUR	eP'	15 10 38
	ePP	11 07
HH	eP'	15 10 35
RC	eP'	15 10 51
	e	11 29
	e	12 18
Dec. 13		
EUR	eP	15 21 46
SJ	eP	15 12 30
Dec. 13		
BC	iP	19 47 41
BUT	eP	19 47 34
COL	iP	19 45 41
	i	45 55
	i	46 06
EUR	iP	19 47 33
	e	47 49
	e	47 59
	iPP	51 08
HH	eP	19 47 27
	i	47 42
RC	eP	19 48 07
SLC	eP	19 47 44
Dec. 13		
BC	iP	21 21 57
	i(S)	22 22
	iL	22 29
EUR	iP	21 21 51

Date and Station		Phase (GCT) h m s
Dec. 13		
HH	eP	22 06 40
RC	eP	22 05 41
TUC	eP	22 06 20
Dec. 13		
COL	eP	22 25 21
Dec. 13		
EUR	eP	23 13 27
Dec. 14		
HH	eP	01 40 40
Dec. 14		
HH	eP	03 40 38
TUC	iP	03 36 50
Dec. 14		
EUR	iP	07 33 01
	eL	34 01
Dec. 14		
BC	eP'	15 24 55
COL	iP'	15 24 30
	i	24 54
	e	26 11
EUR	iP'	15 24 55
	i	25 39
HH	eP'	15 24 57
RC	eP'	15 24 39
	i	24 45
SLC	eP'	15 25 24
TUC	eP'	15 24 52
Dec. 14		
EUR	eP	17 42 23
HH	eP	17 42 31
RC	eP	17 42 47
Dec. 14		
EUR	eP	18 25 15
HH	eP	18 25 20
RC	eP	18 25 35
Dec. 14		
COL	iP	19 38 15
	ipP	38 35
	e	39 08
EUR	eP	19 37 46
	ipP	38 05
HH	eP	19 38 36
TUC	eP	19 37 45

Date and Station		Phase (GCT) h m s
Dec. 14		
BC	iP	20 00 12
COL	iP	19 59 54
	ipP	20 00 02
EUR	iP	20 00 11
	i	00 19
	ipP	00 37
Dec. 14		
HH	iP	21 59 59
	iS	22 00 30
	eL	00 35
Dec. 15		
EUR	eP	03 00 55
Dec. 15		
COL	iP	07 01 18
	i	01 34
	e	02 04
Dec. 15		
COL	iP	07 35 56
Dec. 15		
EUR	eP	07 59 59
Dec. 15		
BC	iP	09 10 37
COLU	iP	09 09 49
EUR	iP	09 11 06
HH	eP	09 11 59
RC	eP	09 11 07
	e	11 11
SLC	eP	09 11 01
TUC	iP	09 09 53
Dec. 15		
EUR	eP	10 12 40
SLC	eP	10 12 22
TUC	eP	10 11 31
	e	11 40
	e	14 29
Dec. 15		
HH	eP	11 42 48
	i	42 53
Dec. 15		
COL	eP	14 03 19
	ipP	03 58
	iaP	04 15
EUR	eP'	14 08 48
	epP'	09 29
HH	eP'	14 09 09
	e	09 36

Date and Station		Phase (GCT) h m s
Dec. 15		
EUR	eP	16 14 01
Dec. 15		
BC	iP	17 37 04
	ipP	37 43
	iPP	40 31
	epPP	41 14
BUT	eP	17 38 05
COL	iP	17 36 45
	ipP	37 24
	i	38 16
EUR	iP	17 37 06
	ipP	37 44
	ePKKP	54 48
	eP'P'	18 02 55
HH	iP	17 37 24
	ipP	38 02
	e(PKKP)	54 38
RC	eP	17 38 32
	ePP	42 32
	e	44 10
SLC	eP	17 37 21
	ipP	38 00
TUC	iP	17 37 16
	ipP	37 54
	ePKKP	54 44
UK	iP	17 36 39
	ipP	37 17
Dec. 15		
HH	eP	18 02 43
	e	02 49
	e	03 21
Dec. 15		
COL	iP	20 18 44
TUC	eP	20 18 25
Dec. 15		
HH	eP	21 25 37
Dec. 15		
BH	iP	23 13 45
	iS	14 41
BC	eP	23 21 15
EUR	iP	23 21 35
HH	iP	23 22 07
	ePcP	23 18
RC	eP	23 21 03
SJ	iP	23 16 52
TUC	eP	23 20 36

Date and Station		Phase (GCT) h m s
Dec. 15		
BH	iP	23 42 35
	iS	43 12
EUR	eP	23 50 06
HH	eP	23 50 38
Dec. 15		
COL	iP	23 58 43
Dec. 16		
EUR	iP	00 02 14
Dec. 16		
EUR	iP	00 03 04
Dec. 16		
BC	iP	00 03 57
COL	iP	00 00 02
EUR	iP	00 03 34
HH	eP	00 03 06
TUC	eP	00 04 33
Dec. 16		
BH	iP	01 42 40
	iS	43 25
Felt: Intensity III		
BC	iP	01 50 12
	aPcP	51 51
	i	53 21
	aS	56 45
	aL	02 00 07
BOZ	eP	01 50 37
BUT	iP	01 50 47
	iPcP	51 54
	aPP	52 52
	iS	57 58
	aL	02 03 16
COL	iP	01 53 40
	i	54 16
	i	54 45
	iPP	56 30
	iS	02 03 20
	e	04 54
	eL	17 29
COLU	iP	01 47 43
EUR	iP	01 50 33
	i	50 49
	i	51 16
	i	52 27
	iPP	53 08
HH	iP	01 51 05
	aPP	52 59
PHIL	eP	01 48 40
	i	49 14

Date and Station		Phase (GCT) h m s
PHIL	iS	01 54 05
	i	56 24
	eL	58 33
RC	iP	01 50 00
SLC	iP	01 50 18
	i	50 43
	iPcP	51 58
	eS	57 06
	e	57 52
	eScS	02 00 18
	eL	01 16
SJ	iP	01 45 44
	iS	48 59
	iL	49 46
TUC	iP	01 49 32
	e	50 50
	iPP	51 12
	iPcP	51 16
	e	53 07
	e	54 29
	iS	55 46
	eL	02 02 52
UK	eP	01 51 07
	i	51 12
WASH	iP	01 48 34
	iPP	49 34
	e(S)	54 36
	eL	59 06
Dec. 16		
EUR	eP	02 30 14
Dec. 16		
BC	iP	06 44 41
EUR	eP	06 41 36
	e	44 34
HH	eP	06 41 29
RC	eP	06 44 52
SLC	eP	06 44 40
TUC	eP	06 44 57
Dec. 16		
BC	eP	12 27 00
COL	eP	12 27 17
EUR	eP	12 27 07
HH	e(P)	12 27 54
TUC	e(P)	12 27 08
Dec. 16		
EUR	eP	12 40 46
Dec. 16		
BC	eP	14 28 57
	e	29 02
	iL	30 08

Date and Station		Phase (GCT) h m s
EUR	eP	14 29 33
	e(S)	31 37
	eL	32 13
Dec. 16		
HH	eP	16 51 35
Dec. 16		
COLU	eP	18 41 51
	i	42 18
Dec. 16		
EUR	iP	18 54 31
HH	eP	18 54 00
Dec. 16		
EUR	eP	19 06 13
HH	eP	19 05 12
	e	08 59
Dec. 16		
COLU	iP	20 01 42
Dec. 16		
BC	iP	22 19 32
	e	20 09
COL	eP	22 20 04
EUR	eP	22 19 38
	i	19 54
HH	eP	22 19 20
TUC	iP	22 19 34
	e	19 50
Dec. 16		
BC	e(P)	23 03 14
EUR	eP	23 03 40
Dec. 16		
EUR	eP	23 28 42
Dec. 17		
HH	eP	00 11 03
	e	11 23
Dec. 17		
HH	eP	01 25 26
Dec. 17		
EUR	eP	02 25 59
Dec. 17		
RC	eP	02 46 45
Dec. 17		
RC	eP	04 08 27
Dec. 17		
EUR	eP	06 37 21
Dec. 17		
EUR	eP	06 38 20

Date and Station		Phase (GCT) h m s
Dec. 17		
COL	eP	08 04 16
Dec. 17		
COL	e(P)	10 25 20
EUR	eP	10 22 03
HH	eP	10 22 41
Dec. 17		
EUR	eP	15 39 05
Dec. 17		
EUR	eP	21 46 05
Dec. 17		
TUC	iP	23 02 34
Dec. 17		
EUR	iP	23 09 59
	iL	10 25
Dec. 18		
COL	iP	00 08 26
	i	08 38
EUR	iP	00 12 15
HH	eP	00 12 53
TUC	eP	00 13 11
Dec. 18		
COL	eP	02 24 08
EUR	iP	02 26 33
HH	eP	02 26 18
	i	26 22
	e	26 52
	e	27 23
RC	eP	02 27 05
SLC	eP	02 26 46
TUC	e(P)	02 27 20
Dec. 18		
BH	eP	02 38 05
	eS	43 38
BC	iP	02 42 43C
	i	42 57
	i	44 00
	eS	52 19
	eScS	53 16
	eL	54 07
BOZ	iP	02 43 16
	i	43 30
	iS	53 17
	iL	03 04 05
BUT	iP	02 43 20C
	i	43 35
	i	45 33

Date and Station		Phase (GCT) h m s
BUT	iPP	02 47 01
	iS	53 26
	iPS	54 27
	i	55 55
	eSS	58 41
	eL	03 04 46
CHI	iP	02 42 03
	ePPP	46 23
	iS	51 03
	iSS	55 31
	iL	59 31
COL	eP	02 45 22C
	i	45 24C
	i	45 38
	i	46 00
	i(P')	49 40
	iPP	50 00
	i	50 09
	e(PPP)	52 55
	iS	57 21
	e	58 40
	ePKKP	03 00 06
	eSS	03 50
	e(SSS)	08 21
	eL	14 32
COLU	iP	02 41 12C
	i	41 25
	iPcP	42 11
	e	42 25
	ePP	43 22
	ePPP	45 17
	iS	49 20
	i(ScS)	50 49
	eSS	53 50
	iL	55 49
EUR	iP	02 43 02C
	ePKKP	03 01 31
	iP'P'	10 00
	eSKPP'	14 02
	eP'P'P'	30 05
HH	iP	02 43 31C
	i	43 33
	e(PP)	47 24
	i(PPP)	49 25
	eS	53 52
	ePKKP	03 01 52
	eP'P'	09 58
PHIL	iP	02 41 48
	e	42 08
	e(PP)	44 40
	ePPP	46 14
	iS	50 23
	eSS	54 46
	eL	58 12
RC	iP	02 42 51D
	eS	52 24
	eL	57 25
	eP'P'	03 10 12
SLC	eP	02 42 56D
	i	42 57
	i	43 12
SLC	i	02 43 28
	iS	52 42
	iScS	53 36
	eSS	57 36
	eL	03 05 59
	eP'P'	10 16
SJ	iP	02 39 09C
	ePcP	40 48
	eS	45 50
	iL	48 58
TUC	iP	02 42 15C
	i	42 28
	iPP	45 08
	iS	51 21
	iSS	56 36
	iL	59 38
	eP'P'	03 10 24
	iP'P'	10 30
UK	iP	02 43 22D
	i	43 34
	ePP	46 44
	eS	53 32
	eSSS	03 02 35
	eL	05 21
	iL	10 13
WASH	iP	02 41 42C
	ePP	43 56
	iS	50 22
	eSS	54 36
	eL	03 00 37
Dec. 18		
EUR	iP	03 36 48
HH	eP	03 36 33
	e	36 45
RC	eP	03 37 19
Dec. 18		
EUR	eP	06 57 21
SLC	eP	06 56 26
Dec. 18		
BC	iP	08 58 26
	e	58 41
EUR	iP	08 57 50
TUC	eP	08 59 32
Dec. 18		
EUR	eP	11 47 37
Dec. 18		
BC	e(P)	12 21 59
COL	eP	12 17 32
	i	17 39
	iL	20 50
EUR	eP	12 21 06
	i	21 20
HH	eP	12 20 42
	e(PcP)	23 24
RC	eP	12 21 46
Dec. 18		
EUR	eP	12 32 26
	i	33 30
Dec. 18		
EUR	eP	13 39 51
Dec. 18		
HH	eP	17 13 01
Dec. 18		
COL	iP	18 05 33
HH	eP	18 06 32
	e	06 38
	ePP	10 22
Dec. 18		
BC	eP	19 40 17
	e(PKS)	45 23
COL	iP	19 39 37
	iPP	42 36
COLU	eP	19 39 57
	e(PKS)	44 49
EUR	iP	19 40 17
	i	41 29
	e(PKS)	45 18
HH	iP	19 40 12
	e(PKS)	44 58
RC	eP	19 40 18
	i	41 41
	i(PKS)	45 34
	e(PcPP')	49 40
SLC	eP	19 40 19
	e	41 40
TUC	eP	19 40 19
	e(PP)	46 14
	e(PcPP')	49 37
	i	51 22
	i(SKKS)	52 37
	eL	20 43 09
Dec. 18		
BC	iP	21 25 02
	i	25 18
	ePP	28 07
COL	iP	21 21 50
	ipP	22 30
EUR	iP	21 24 47
	i	25 07
HH	iP	21 24 25
	esP	25 08
RC	iP	21 25 11
SLC	eP	21 24 58
TUC	eP	21 25 28
	epP	25 57
	isP	26 11
Dec. 18		
HH	eP	22 05 27
Dec. 19		
BC	iP	01 28 31
	i	28 43
	iPP	30 45
BUT	eP	01 27 53
COL	iP	01 24 30
	i	24 43
	iPP	25 23
COLU	iP	01 30 25
	i	30 40
EUR	iP	01 28 11
	i	28 24
	eP'P'	57 35
HH	iP	01 27 36
	e	27 50
	e(PcP)	28 03
	e	31 40
RC	iP	01 28 36
	i	28 50
SLC	iP	01 28 20
	i	28 34
TUC	iP	01 29 03
	i	29 17
UK	eP	01 27 42
	i	27 55
Dec. 19		
COL	eP	03 04 29
Dec. 19		
BC	iP	04 48 08
	e	49 05
	iPP	51 31
BUT	eP	04 47 48
	epP	49 27
COL	iP	04 45 21
	iPcP	46 14
	iPP	47 33
EUR	iP	04 47 55
	ipP	49 31
HH	iP	04 47 38
	esP	50 04
	e(S)	56 59
RC	iP	04 48 21

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

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Date and Station		Phase (GCT)
		h m s
PHIL	i	09 14 45
	eL	15 13
RC	iP	09 03 28D
	eS	07 13
	iS	07 18
	iL	09 12
SLC	iP	09 02 52D
	i	03 15
	iS	06 05
	iL	07 39
SJ	eP	09 09 02D
	i(PP)	11 48
	iS	17 16
	i	18 36
	iL	23 36
SIT	iP	09 00 26D
	i	00 42
	iS	01 34
	iL	01 55
TUC	iP	09 04 13C
	e	06 44
	iS	08 37
	eL	08 54
UK	iP	09 02 08C
	eS	04 41
	iS	04 51
	eL	06 09
WASH	iP	09 06 21C
	iPP	07 54
	eS	12 43
	eL	16 14
Dec. 21		
BUT	eP	10 11 28
HH	eP	10 10 20
	e	13 30
	e	13 42
Dec. 21		
BUT	eP	10 15 00
Dec. 21		
COL	iP	10 40 53
EUR	eP	10 43 39
HH	eP	10 43 17
	e	43 22
RC	e(P)	10 44 20
Dec. 21		
COL	eP	11 23 26
EUR	eP	11 18 33
HH	eP	11 20 26
	e	20 54
	e	21 22
RC	eP	11 19 25

Date and Station		Phase (GCT)
		h m s
Dec. 21		
EUR	eP	11 47 39
HH	eP	11 47 17
Dec. 21		
EUR	eP	12 39 01
Dec. 21		
EUR	eP	14 00 27
HH	eP	14 02 30
	e	02 49
Dec. 21		
BUT	eP	16 32 50
HH	eP	16 33 34
RC	eP	16 33 54
SLC	eP	16 33 25
Dec. 21		
EUR	eP	16 54 53
HH	eP	16 56 51
RC	eP	16 56 14
	e	57 18
Dec. 21		
EUR	e(P)	17 02 53
	eP	03 03
HH	eP	17 02 30
Dec. 21		
BC	eP	18 23 25
BUT	eP	18 23 01
COL	iP	18 20 19
EUR	iP	18 23 11
	i	23 19
	i	23 26
HH	iP	18 22 49
	i	22 58
RC	eP	18 23 35
	e	23 57
Dec. 21		
HH	eP	19 41 52
Dec. 21		
BC	eP	20 22 25
BUT	eP	20 22 02
COL	iP	20 19 20
	i	19 27
	i	19 40
EUR	iP	20 22 10
	i	22 21
	i	22 27

Date and Station		Phase (GCT)
		h m s
HH	iP	20 21 49
	i	22 00
	i	22 32
RC	iP	20 22 35
	e	22 42
SLC	e(P)	20 23 21
TUC	eP	20 22 58
	e	23 24
Dec. 21		
COL	eP	20 55 27
	e	55 59
EUR	iP	20 55 12
HH	eP	20 54 10
	e	54 31
	e	56 44
	eL	57 18
RC	eP	20 56 04
Dec. 21		
EUR	eP	21 12 27
Dec. 21		
TUC	eP	22 49 25
Dec. 22		
EUR	eP	02 03 18
Dec. 22		
COL	iP	03 32 53
EUR	eP	03 32 27
HH	e(P)	03 31 28
	e	31 35
	e	31 45
	eL	34 36
RC	eP	03 33 15
TUC	eP	03 33 58
Dec. 22		
EUR	eP	04 25 16
	eL	27 08
Dec. 22		
COL	iP	04 59 13
Dec. 22		
BC	iP	05 19 02
	iS	20 09
	iL	20 48
EUR	eP	05 19 53
	eS	21 22
	eL	21 38
Dec. 22		
EUR	eP	06 11 57
Dec. 22		
BC	eP	06 55 57

Date and Station		Phase (GCT)
		h m s
BC	e	06 55 24
Dec. 22		
EUR	eP	08 44 58
HH	eP	08 44 29
Dec. 22		
COL	e(P)	11 36 59
Dec. 22		
BC	iP	11 47 06
	iS	47 43
	iL	48 06
EUR	eP	11 47 54
	eS	48 52
	eL	49 14
Dec. 22		
HH	eP	12 43 48
	i	43 57
Dec. 22		
UK	iP	13 32 01
	iS	32 05
	iL	32 07
Dec. 22		
EUR	eP	15 48 17
HH	eP	15 49 54
TUC	eP	15 46 25
	e	46 53
	eL	48 22
Dec. 22		
HH	eP	18 22 09
Dec. 22		
COL	eP	20 13 13
HH	eP	20 15 44
Dec. 22		
EUR	eP	20 43 29
Dec. 22		
HH	e(P)	21 53 41
	e	53 45
Dec. 22		
HH	e(P)	22 27 44
Dec. 22		
BC	iP	22 51 05
	i	51 15
	i	51 41
COL	iP	22 51 45
EUR	iP	22 51 12
HH	e(P)	22 51 47
	e	52 20
	ePP	55 49
	iPKKP	23 08 26

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

Date and Station		Phase (GCT)
		h m s
HH	eP	08 01 13
Dec. 25		
HH	eP	08 15 30
Dec. 25		
HH	eP	09 02 07
Dec. 25		
BH	iP	09 43 37
	iS	51 39
BC	iP	09 43 59
	iPcP	44 21
	e(S)	52 37
	eS	52 42
	eL	57 31
BUT	iP	09 43 06
	iPcP	43 50
	i	44 49
	iPP	45 19
CHI	eP	09 41 24
	iPP	43 04
	ePcS	47 12
	eS	47 40
	eL	51 04
COL	iP	09 43 27
	i	43 34
	ePP	45 25
	eS	51 26
	eSS	55 40
	eL	58 12
COLU	iP	09 41 26
EUR	iP	09 43 49
	e(S)	52 29
	eP'P'	10 13 17
HH	iP	09 43 01
RC	iP	09 42 33
	ePP	44 30
	iS	49 50
	eSS	52 52
	eL	53 42
SLC	eP	09 43 25
	i(PcP)	44 26
	iPP	45 38
	eS	51 23
	eL	10 01 57
SJ	iP	09 41 40
	eS	48 10
	eL	51 28
TUC	iP	09 43 59
	iPP	46 09
	iS	52 34
	iL	10 02 54
UK	eP	09 44 19
	i	44 21
	eL	10 06 14

Date and Station		Phase (GCT)
		h m s
WASH	eP	09 40 37
	eS	46 05
	iL	51 08
Dec. 25		
COL	eP	11 42 58
Dec. 25		
EUR	eP	13 49 30
TUC	eP	13 49 26
	i	49 39
Dec. 25		
HH	eP	13 57 55
	iS	58 25
	eL	58 37
Dec. 25		
COL	eP	15 16 32
UK	eP	15 18 34
	i	18 44
Dec. 25		
HH	eP	15 48 13
TUC	e(P)	15 46 40
	e	47 40
Dec. 25		
EUR	eP	17 44 10
Dec. 25		
EUR	eP	19 17 50
Dec. 25		
BH	eP	23 50 19
	eS	50 42
HH	eP	23 57 38
Dec. 26		
EUR	iP	01 20 29
Dec. 26		
EUR	eP	01 50 56
HH	eP	01 50 08
Dec. 26		
BUT	eP	05 35 37
EUR	iP	05 36 11
HH	iP	05 35 15
	e	35 26
RC	eP	05 36 29
Dec. 26		
HH	eP	07 35 52
Dec. 26		
BUT	eP'	07 53 28
COL	eP'	07 52 33
EUR	eP'	07 53 29

Date and Station		Phase (GCT)
		h m s
HH	iP'	07 53 24
	e	53 48
Dec. 26		
BC	iP	07 59 12
	i	59 33
	i	08 00 22
BUT	eP	07 59 33
	e	08 00 26
COL	iP	07 58 49
EUR	iP	07 59 13
	ePP	08 02 48
HH	eP	07 59 30
RC	eP	07 57 13
	e(PP)	08 00 01
SLC	iP	07 59 31
TUC	iP	07 59 26
	e(PP)	08 03 19
	eL	26 43
UK	eP	07 58 47
Dec. 26		
EUR	eP	11 28 13
Dec. 26		
BUT	eP	14 32 23
Dec. 26		
COL	eP	16 52 53
	i	53 21
EUR	eP	16 56 11
HH	eP	16 55 45
Dec. 26		
HH	e(P)	17 46 58
Dec. 26		
EUR	iP	18 12 33
Dec. 26		
BC	iP	19 12 40
	i	12 44
	i	12 51
COL	iP	19 17 02
	i	17 35
EUR	iP	19 13 11
HH	iP	19 13 58
	i	14 10
RC	eP	19 12 55
TUC	eP	19 11 59
	e	12 06
	eL	21 53

Date and Station		Phase (GCT)
		h m s
Dec. 26		
COL	iP	20 12 36
Dec. 26		
BC	eP	23 51 46
	i	52 40
EUR	eP	23 51 19
	i	51 26
RC	eP	23 53 02
	e	54 42
Dec. 27		
BH	iP	00 28 30
	iS	33 12
BC	iP	00 26 16D
	i	26 30
	ipP	27 23
	i	28 14
	i(S)	36 25
	isS	38 19
	esSS	43 49
	eL	44 25
BOZ	e(P)	00 26 57
	eS	37 11
	ePS	39 07
	eSS	43 39
	eL	50 19
BUT	iP	00 26 51C
	ipP	28 03
	iPP	30 58
	iSKKS	37 06
	iS	37 40
	isS	39 18
	i(SS)	43 02
	ePKKP	44 29
	eL	50 42
CHI	e(P')	00 31 14
	eSKS	38 18
	eS	39 30
	ePS	41 02
	esS	41 18
	eSS	46 26
	e	51 22
	eL	58 02
COL	iP	00 26 51C
	e	27 35
	ipP	28 06
	i	29 00
	i	29 31
	ePP	30 24
	cpPP	31 40
	esPP	32 06
	ePPP	32 46
	e(pPPP)	33 14
	iSKS	36 56
	iS	37 32
	i	40 59
	iSS	43 54
	iPKKP	44 24
	eSSS	46 45
	iP'P'	52 27

Date and Station	Phase	(GCT) h m s
COL	eL	00 53 45
	eP'P'P'	01 12 48
EUR	iP	00 26 22D
	iS	36 35
	ePKKP	44 20
	iPKKP	45 25
	iP'P'	52 38
HONO	iP	00 22 30D
	eS	29 10
	eL	33 30

Tp = 4.2 sec. A = 2.5mm.
TS = 13.0 sec. A=16.8mm.
TL = 13.5 sec.Amax.=8.5mm.

Date and Station	Phase	(GCT) h m s
HH	iP	00 26 53C
	epP	28 03
	isP	28 43
	e	30 03
	ePP	30 43
	iSKS	37 07
	i	37 11
	ePKKP	44 24
	eP'P'	52 31
RC	iP	00 27 13C
	ipP	28 35
	e(PP)	31 25
	iSKS	37 26
	eSKKS	37 33
	iPS	39 36
	e(PKKP)	43 28
	ePKKP	44 11
	eSSS	48 38
	eP'P'	52 46
SLC	eP	00 26 34D
	iP	26 40
	i(pP)	28 03
	iPP	30 11
	eS	36 57
	eP'P'	52 35
SJ	iP'	00 32 29
	iPP	33 38
	epPP	34 42
	eSKS	38 56
	iS	41 10
	esS	43 00
	ipPS	44 28
	ePPS	44 57
	iSKKP	46 10
	eSS	49 58
	eL	01 03 54
SIT	iP	00 26 38
	i	27 03
	iPP	30 26
	iS	36 45
	iPS	38 24
	iSS	42 44
	iSSS	45 27
	eL	51 29
TUC	iP	00 26 21D
	epP	27 40
	esP	28 03

Date and Station	Phase	(GCT) h m s
TUC	epPP	00 30 56
	iS	36 30
	iSP	37 05
	esS	38 32
	iSS	42 02
	ePKKP	44 39
	eL	49 20
	eP'P'	52 28
	iP'P'	52 48
UK	iP	00 26 01D
	e	26 25
	i(pP)	27 22
	ePP	29 11
	e(S)	35 55
	eL	47 16
	eP'P'	52 59
WASH	ePP	00 33 04C
	ipPP	34 02
	isPP	34 29
	ePPP	35 43
	epPPP	36 53
	iPS	42 27
Dec. 27		
SJ	iP	00 43 03
	i	43 34
	i	46 54
Dec. 27		
EUR	eP	02 15 35
HH	eP	02 16 33
Dec. 27		
COL	iP	03 05 27
Dec. 27		
BC	iP	06 10 53
Dec. 27		
BC	iP	06 25 36
Dec. 27		
HH	iP	08 02 01
Dec. 27		
COL	iP	09 07 44
EUR	iP	09 11 19
Dec. 27		
COL	eP	10 20 18
HH	eP	10 21 09
RC	eP	10 21 06
Dec. 27		
COL	eP	13 52 05
Dec. 27		
BC	i(P)	14 20 47
COL	iP	14 23 02
	e	25 28
	i	25 44

Date and Station	Phase	(GCT) h m s
EUR	iP	14 20 53
Dec. 27		
BC	e(P')	21 48 20
COL	iP	21 43 48
EUR	e(P')	21 49 05
	ePP	50 11
HH	eP	21 45 41
	ePP	49 32
Dec. 28		
COL	iP	02 35 24
Dec. 28		
BC	eP	04 35 33
	i	36 34
EUR	eP	04 36 21
Dec. 28		
EUR	eP	04 38 21
SLC	eP	04 39 01
	e	43 09
Dec. 28		
EUR	eP	06 19 51
HH	eP	06 19 23
	e	19 36
Dec. 28		
BC	iP	09 55 19
	iS	55 47
	iL	55 57
EUR	eP	09 59 29
	i	57 34
Dec. 28		
COL	eP	13 53 37
	e	54 24
Dec. 28		
BC	eP	14 38 02
	ipP	38 38
	e	40 43
	ePP	41 55
	epPP	42 33
BUT	ePP	14 42 58
	ipPP	43 35
COL	e(P)	14 39 22
	eP'	42 41
	i(PP)	43 19
	eSKKS	49 56
	eSSS	15 03 12
	eL	09 40
EUR	iP	14 38 09
	ipP	38 47
	ePP	41 55
	ipPP	42 46
	ePKKP	55 07

Date and Station	Phase	(GCT) h m s
HH	eP'	14 42 31
	ePP	43 01
	e(pPP)	43 40
TUC	eP	14 38 03
	ipP	38 40
	ePP	41 56
	ipPP	42 33
	eS	49 20
	isS	50 14
	iPS	50 30
	e	52 46
	eSS	55 23
	eL	58 32
UK	eP	14 37 51
	ipP	38 28
	e(PP)	42 11
	eL	15 05 22
Dec. 28		
HH	eP	14 54 35
Dec. 28		
HH	eP	16 05 47
Dec. 28		
HH	eP	18 17 12
	e	17 35
Dec. 28		
BC	iP	19 25 19
	eS	28 25
	eL	31 19
BOZ	iP	19 26 56
	eS	31 06
	eL	34 03
BUT	iP	19 27 01
	i	27 21
	iS	31 33
	eL	33 38
CHI	eS	19 32 02
	eL	32 26
COL	eP	19 30 32
	e	31 12
	ePcP	31 47
	eL	47 09
EUR	iP	19 25 02
HH	iP	19 27 22
	i	27 34
	eL	35 13
RC	iP	19 26 44
	eL	33 56
SLC	iP	19 26 07
	i	27 27
	eS	30 03
	eL	31 09
SJ	iP	19 29 12

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Date and Station		Phase (GCT) h m s
TUC	iP	19 24 18
	e	24 47
	eS	26 34
	eL	27 08
UK	iP	19 26 28
	eS	30 42
	eL	32 09
Dec. 28		
COL	iP	21 24 29
EUR	iP	21 24 04
HH	eP	21 24 36
RC	e(P)	21 25 19
SLC	eP	21 24 24
TUC	eP	21 24 10
UK	eP	21 23 38
Dec. 28		
HH	eP	22 20 15
	e	20 21
Dec. 29		
HH	eP	00 08 42
Dec. 29		
EUR	eP	01 56 38
RC	eP	01 57 23
TUC	eP	01 54 55
Dec. 29		
COL	eP	03 52 43
	ipP	53 02
	i	53 21
EUR	eP	03 53 44
HH	eP	03 53 51
	epP	54 10
Dec. 29		
COL	iP	05 23 00
EUR	eP	05 22 24
HH	eP	05 22 59
Dec. 29		
COL	iP	07 03 39
	e	04 00
	e	04 33
EUR	eP	07 04 38
HH	eP	07 04 46
Dec. 29		
COL	iP	09 43 29
EUR	eP	09 47 07

Date and Station		Phase (GCT) h m s
HH	eP	09 46 34
RC	eP	09 47 33
SLC	eP	09 47 17
TUC	eP	09 48 01
UK	eP	09 46 38
Dec. 29		
EUR	iP	09 44 21
UK	eP	09 43 10
	e	43 16
	e	43 22
	eS	43 37
	i	43 47
	e	44 02
	eL	44 12
Dec. 29		
HH	e(P)	10 38 49
Dec. 29		
EUR	eP	11 37 30
TUC	eP	11 38 30
	e	40 14
Dec. 29		
BUT	eP	12 04 33
	i	04 52
Dec. 29		
RC	e(P)	16 25 50
Dec. 29		
HH	eP	18 37 45
Dec. 29		
COL	iP	19 39 14
	ipP	41 23
EUR	iP	19 38 53
	ipP	41 03
HH	epP	19 41 34
	e	41 45
	ePP	43 08
RC	eP	19 41 52
TUC	iP	19 38 53
	ipP	41 05
UK	eP	19 38 31
Dec. 29		
COL	eP'	20 09 49
EUR	eP'	20 10 46
HH	eP'	20 10 40
Dec. 29		
BC	eP	20 34 30
BUT	eP	20 35 05

Date and Station		Phase (GCT) h m s
COL	iP	20 35 08
	e	36 07
	eSKS	45 42
	iS	45 58
	eL	57 20
EUR	iP	20 34 35
HH	eP	20 35 08
RC	eP	20 35 32
	e	35 39
	ePP	39 19
TUC	iP	20 34 34
	eL	56 44
UK	eP	20 34 14
	eL	57 07
Dec. 29		
BH	iP	20 46 32
	iS	55 10
HH	eP	20 53 37
Dec. 30		
BC	e(P)	00 19 59
EUR	eP	00 18 34
	eS	19 15
	iL	19 27
RC	e(P)	00 21 58
Dec. 30		
HH	e(P)	00 37 10
Dec. 30		
COL	eP	06 58 37
EUR	eP	06 57 25
	e	59 50
TUC	eP	06 57 17
	e	59 36
Dec. 30		
COL	iP	09 12 33
HH	eP	09 11 46
Dec. 30		
BUT	eP	09 50 32
COL	eP	09 47 56
	epP	48 31
EUR	iP	09 50 39
HH	iP	09 50 20
	e	50 39
Dec. 30		
BOZ	eP	18 37 02
	e	37 41
BUT	e(P)	18 36 47
	iS	37 06

Date and Station		Phase (GCT) h m s
BUT	iL	18 37 16
COL	eP	18 36 19
EUR	eP	18 37 34
	e	38 51
HH	eP	18 37 03
RC	eP	18 36 58
Dec. 30		
COL	iP	19 26 33
EUR	eP	19 30 09
Dec. 30		
COL	iP	22 11 17
	i	12 34
	iPP	14 26
EUR	eP'	22 17 41
	ePKKP	28 42
HH	eP'	22 17 21
	e	17 30
TUC	eP'	22 18 01
Dec. 30		
HH	eP	23 58 25
	e	58 27
Dec. 31		
HH	eP	00 24 27
Dec. 31		
COL	eP	00 29 36
Dec. 31		
EUR	eP	00 48 27
	i	50 23
HH	eP	00 48 09
	e	48 20
	e	51 24
	i	51 26
Dec. 31		
TUC	eP	01 40 13
Dec. 31		
TUC	eP	03 09 27
Dec. 31		
TUC	eP	03 32 02
	e	32 10
Dec. 31		
COL	eP	04 23 06
Dec. 31		
EUR	eP	04 33 07
Dec. 31		
EUR	iP	00 50 51
Dec. 31		
COL	iP	04 50 34

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Date and Station		Phase	(GCT) h m s
COL		e	04 52 21
EUR		iP	00 53 06
HH		eP	04 52 03
TUC		eP	04 53 44
Dec. 31			
BC		eP	05 11 16
EUR		iP	05 11 52
TUC		eP	05 10 17
Dec. 31			
COL		iP	06 07 23
Dec. 31			
COL		iP	06 07 23
HH		eP	06 09 41
Dec. 31			
COL		iP	08 28 01
EUR		iP	08 31 34
Dec. 31			
BC		iP	09 05 03
		i	05 50
		iL	07 56
BUT		eP	09 07 24
COL		iP	09 11 20
EUR		iP	09 05 54
		e(S)	07 45
		eL	08 20
HH		eP	09 07 52
RC		eP	09 07 29
SLC		eP	09 06 18
TUC		eP	09 04 30
		i	04 37
		i	04 45
		eS	05 07
		eL	05 22
Dec. 31			
BUT		eP	15 17 36
EUR		iP	15 14 55
		eS	15 14
		iS	15 19
		iL	15 24
Dec. 31			
SJ		eP	16 36 54
Dec. 31			
COL		iP	16 18 59
EUR		iP	16 22 12

Date and Station		Phase	(GCT) h m s
Dec. 31			
TUC		eP	17 12 48
		e	14 12
Dec. 31			
BC		iP	17 37 17
Dec. 31			
BC		i(P)	17 38 47
BOZ		e(P)	17 40 10
		eL	42 15
BUT		iP	17 40 02
		i	40 35
		eL	42 09
COL		eP	17 44 12
EUR		iP	17 37 53
HH		eP	17 40 23
RC		eP	17 40 53
		e	41 10
		eL	44 42
SLC		eP	17 39 19
		i	39 36
		iL	40 40
TUC		eP	17 39 58
		i	42 38
		i	43 26
		i	44 10
UK		eP	17 38 40
		e	38 46
		i	38 51
		iS	39 18
		eL	39 28
Dec. 31			
BUT		iP	17 41 42
		e(S)	43 35
		iL	43 56
COL		iP	17 45 47
HH		e(P)	17 41 58
		eL	45 11
TUC		i(P)	17 40 51
Dec. 31			
COLU		iP	21 22 41
Dec. 31			
EUR		eP	21 46 15
HH		eP	21 45 50
Dec. 31			
EUR		iP	22 05 26
HH		eP	22 04 56
Dec. 31			
COL		iP	23 43 11

Local and Minor Earthquakes	
day	hour
COL	
Dec.	
2	01.6
	02.1
	08.9
4	18.6
5	11.2
	22.4
6	07.5
	10.8
	12.9
7	08.9
	13.5
10	14.6
13	07.8
15	11.8
16	04.6
17	09.1
	10.1
18	01.0
	02.1
19	21.8
	23.5
22	19.1
23	12.2
26	05.5
	05.9
27	07.6
28	05.7
29	13.8
31	16.4
EUR	
Dec.	
2	14.8
3	14.8
7	09.2
8	04.6
	16.1
9	23.4
11	01.6
	05.0
12	20.6
13	22.4
18	03.4
22	01.2
	23.2
23	20.9
29	09.5
	13.8
	23.5
31	09.7
	17.8
SJ	
Dec.	
5	06.9
6	11.1
12	18.1
13	10.4
20	02.3
21	08.6
29	05.5
31	02.4
TUC	
Dec.	
1	00.6
	08.9

Local and Minor Earthquakes	
day	hour
TUC	
Dec.	
1	11.0
	11.6
2	09.7
3	06.4
4	03.4
	11.5
	11.8
5	04.5
	05.9
	11.0
	14.1
7	23.8
8	00.9
11	12.9
12	20.4
13	01.7
	12.9
	13.6
	13.7
14	11.3
15	10.5
16	14.5
17	01.4
19	04.5
	04.7
22	04.4
	04.8
	05.3
	05.5
	06.9
	11.9
	22.1
27	02.2
	06.2
	06.4
28	04.5
	04.6
	09.9
30	04.2
	18.3
31	00.7
	03.9
	09.2
	09.5
	09.7
	09.8
	10.0
	10.4
	12.4
UK	
Dec.	
7	03.0
29	13.6

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