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COAST & GEODETIC SURVEY
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SEISMOLOGICAL BULLETIN

December, 1960

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U. S. DEPARTMENT OF COMMERCE

Luther H. Hodges, Secretary

COAST AND GEODETIC SURVEY—WASHINGTON

H. Arnold Karo, Director

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National Oceanic and Atmospheric Administration

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1960

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

**Balboa Heights, C. Z. (BHP)
The Panama Canal Co.
*Boulder City, Nev. (BCN)
Bureau of Reclamation
*Bozeman, Mont. BOZ)
Montana State College
*Butte, Mont. (BUT)
Montana School of Mines
*Chicago, Ill. (CHI)
University of Chicago and
U. S. Weather Bureau
College, Alaska (COL)
*Columbia, S. C. (CSC)
University of South Carolina
*Eureka, Nev. (EUR)
Eureka Corporation Limited
*Flaming Gorge, Utah (FGU)
Bureau of Reclamation
*Glen Canyon, Ariz. (GCA)
Bureau of Reclamation
Guam, M. I. (GUA)
Honolulu, Hawaii (HON)
*Hungry Horse, Mont. (HHM)
Bureau of Reclamation
Kipapa, Hawaii (KIP)
*Lincoln, Nebr. (LIN)
Nebraska Wesleyan University
**Philadelphia, Pa. (PHI)
The Franklin Institute
**Rapid City, S. D. (RCD)
South Dakota State School of Mines
*Salt Lake City, Utah (SLC)
University of Utah
San Juan, Puerto Rico (SJP)
Sitka, Alaska (SIT)
*Thule, Greenland (THU)
U. S. Army Ionosphere Station
Tucson, Ariz. (TUC)
Tucson, Ariz. Telemeter (TUT)
Ukiah, Calif. (UKI)
International Latitude Observatory
Washington, D. C. (WAS)

*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. Beginning January 1, 1959 the data from the horizontal components of the seismographs at all stations except College, Honolulu, and Tucson will not be published for earthquakes occurring outside the United States. The horizontal instruments will continue in operation and the seismograms for the local and regional earthquake will be scaled and the data published.

All magnitude determinations are by Pasadena unless otherwise stated. Minor earthquakes are listed at the end of the bulletin.

All coordinates of epicenters, origin times and focal depths have been calculated with the use of an electronic computer. The epicenters quoted in this Bulletin are those previously reported on the Preliminary Determination of epicenter cards with some refinement and minor additions.

All seismograms are on file in the Coast and Geodetic Survey, except those from Balboa Heights, which may be obtained on loan by addressing the Seismograph Station Director, Meteorological and Hydrographic Office, Panama Canal Company, Balboa Heights, Canal Zone.

Date 1960	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth and Remarks
Dec.	h m s	°	°	
1	04 02 30.4	38.6°N.	30.9 E.	Western Turkey. h about 19 km.
1	08 42 26.5	32.5 S.	113.1 W.	Eastern Island region. h about 25 km.
1	09 38 16.7	6.9 S.	128.9 E.	Banda Sea. h about 32 km.
1	10 11 46.1	5.7 S.	146.0 E.	Near east coast of New Guinea. Felt. h about 57 km.
1	10 40 30.0	24.4 S.	176.2 W.	Tonga Islands. h about 25 km.
1	20 49 45.5	49.0 N.	129.3 W.	Near coast of Vancouver Island. h about 15 km. Mag. 6 (Berk).
1	20 49 50.4	4.5 S.	154.0 E.	Solomon Islands region. h about 117 km.
1	21 49 34.8	49.1 N.	129.1 W.	Near Coast of Vancouver Islands. h about 22 km.
2	04 02 42.0	52.6 N.	168.2 W.	Fox Islands, Aleutian Islands. h about 70 km.
2	09 10 39.1	24.6 S.	69.7 W.	Near coast of Chile. Felt at Antofagasta. h about 19 km. Mag. 6¾.
2	09 37 36.1	23.4 S.	69.5 W.	Near coast of Chile. h about 46 km. Mag. 6¾.
2	17 43 08.3	25.7 N.	129.1 E.	Ryukyu Islands. h about 21 km.
2	19 31 26.2	38.7 N.	40.3 E.	Eastern Turkey. h about 127 km.
2	19 41 06.3	41.8 S.	88.3 E.	South Indian Ocean. h about 45 km.
2	22 29 59.8	24.4 S.	69.6 W.	Northern Chile, Felt at Antofagasta. h about 45 km.
3	04 24 18.9	42.9 N.	104.4 E.	Outer Mongolia. h about 60 km. Mag 7.
3	04 55 08.6	15.3 N.	100.5 W.	Off coast of Guerrero, Mexico. h about 30 km.
3	07 07 42.6	52.7 N.	177.4 W.	Andrean of Islands, Aleutian Islands. Felt on Adak. h about 160 km.
3	09 12 19.0	21.2 N.	121.1 E.	Off south coast of Formosa. h about 35 km.
3	17 56 31.1	43.1 N.	104.4 E.	Outer Mongolia. h about 51 km.
3	20 21 01.3	76.8 N.	131.1 E.	Laptev Sea. h about 28 km.
3	21 47 26.0	4.3 S.	151.9 E.	New Ireland region. h about 174 km.
4	03 43 00.2	24.3 S	69.6 W.	Northern Chile. h about 51 km.
4	13 28 05.4	5.6 S.	148.8 E.	New Britain region. h about 217 km.
4	15 47 20.3	0.9 N.	120.4 E.	Northern Celebes. h about 21 km.
4	16 20 36.1	32.7 N.	141.7 E.	Off coast of Honshu, Japan. h about 108 km.
4	18 30 20.4	12.9 N.	88.6 W.	Near coast of El Salvador. Felt on El Salvador. h about 56 km.
4	21 44 32.9	23.8 N.	44.8 W.	North Atlantic Ocean. h about 43 km.
4	22 14 33.6	43.3 N.	104.0 E.	Outer Mongolia. h about 39 km.
4	23 55 39.3	21.2 S.	179.0 W.	Fiji Islands region. h about 633 km.
5	08 38 44.8	43.3 N.	104.3 E.	Outer Mongolia. h about 24 km.
5	17 49 41.2	54.9 N.	161.4 E.	Near east coast of Kamchatka. h about 19 km.
5	18 07 30.2	54.5 N.	161.5 E.	Near east coast of Kamchatka. h about 40 km.
5	21 21 51.7	35.9 N.	6.5 W.	Straits of Gibraltar. h about 66 km.
5	23 46 29.8	43.4 N.	103.8 E.	Outer Mongolia. h about 61 km.

Date 1960	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth and Remarks
Dec.	h m s	°	°	
6	03 35 30.6	43.1 N.	104.5 E.	Outer Mongolia. h about 55 km.
6	03 59 52.6	43.1 N.	104.1 E.	Outer Mongolia. h about 68 km.
6	08 56 08.4	8.2 N.	82.6 W.	Near coast of Panama. h about 25 km.
6	08 56 09.4	21.4 S.	69.2 W.	Northern Chile. Felt at Antofagasta. h about 28 km. Mag. 5¼-5½ (Pal).
6	12 17 38.7	20.6 S.	178.8 W.	Fiji Islands region. h about 616 km.
6	18 19 36.3	11.6 N.	125.5 E.	Samar, Philippine Islands. Felt on Samar. h about 25 km.
6	21 34 09.3	2.6 S.	101.5 E.	Sumatra. h about 54 km.
7	02 59 31.0	36.0 S.	179.3 W.	North Island, New Zealand region. h about 25 km.
7	07 42 37.9	62.7 N.	151.5 W.	South Central Alaska. Kelt at Summit. h about 36 km.
7	16 19 09.2	1.2 N.	121.8 E.	Celebes Sea. h about 40 km.
7	20 17 13.0	43.5 N.	102.5 E.	Outer Mongolia. h about 75 km.
8	01 01 12.2	36.0 S.	179.1 W.	North Island, New Zealand region. h about 25 km.
8	01 24 15.7	21.7 S.	179.4 W.	Fiji Island region. h about 600 km.
8	07 54 11.3	24.6 S.	176.5 W.	Tonga Islands. h about 25 km.
8	09 21 12.1	29.7 N.	113.5 W.	Baja California. h about 39 km.
8	10 01 06.4	7.3	126.3 E.	Mindanao, Philippine Islands. h about 39 km.
8	11 20 07.8	31.8 S.	68.9 W.	San Juan Province, Argentina. Felt at Santiago, Chile h about 140 km.
8	14 32 45.8	30.4 S.	178.2 W.	Kermadec Islands region. h about 70 km.
8	19 12 05.5	10.1 N.	125.8 E.	Leyte, Philippine Islands. h about 29 km.
8	21 36 22.8	6.0 S.	129.9 E.	Banda Sea. h about 23 km.
9	00 36 29.8	20.7 S.	176.2 W.	Tonga Islands. h about 200 km.
9	05 59 44.5	26.9 N.	116.0 W.	Baja California. h about 25 km.
9	21 24 55.2	71.7 N.	2.7 W.	Jan Mayen Island region. h about 25 km.
10	06 29 33.4	19.1 N.	119.5 E.	Near north coast of Luzon, Philippine Islands. h about 61 km.
10	13 32 21.6	15.0 S.	173.0 W.	Samoa Islands region. Felt at Apia. h about 36 km.
10	13 55 16.5	1.5 N.	124.3 E	Celebes Sea. h about 292 km.
11	00 01 07.6	22.3 S.	171.5 E.	Loyalty Island region. h about 90 km.
11	01 07 52.8	37.0 N.	84.5 E.	Sinkiang Province, China. h about 77 km.
11	03 18 10.9	1.6 N.	126.4 E.	Molucca Passage. h about 52 km.
11	18 53 03.2	15.7 S.	167.0 E.	New Hebrides Islands region. h about 57 km. Mag. 6¼-6½.
11	18 58 37.4	49.1 N.	129.8 W.	Vancouver Island region. h about 25 km.
12	04 18 29.4	10.6 S.	165.3 E.	Santa Cruz Islands region. h about 90 km.
12	10 04 00.2	28.5 S.	167.4 E.	Near Norfolk Island. h about 45 km.
13	07 36 16.4	52.7 S.	159.1 E.	Macquarie Islands. h about 25 km. Mag. 7¼.
13	09 03 09.2	21.9 S.	175.5 W.	Tonga Islands. h about 84 km.

Date 1960	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth and Remarks
Dec.	h m s	°	°	
13	10 05 24.3	27.9 N.	142.4 E.	Bonin Islands region. h about 28 km.
14	00 20 52.7	10.8 S.	165.3 E.	Santa Cruz Islands. h about 51 km.
14	00 57 25.0	10.9 S.	165.4 E.	Santa Cruz Islands. h about 65 km.
14	04 02 02.1	26.8 N.	130.3 E.	Ryukyu Islands region. h about 25 km.
14	08 13 47.9	33.1 S.	179.7 W.	Kermadec Islands region. h about 25 km.
14	13 11 33.0	5.3 S.	151.3 E.	New Britain. Felt at Rabaul. h about 67 km.
14	14 23 25.7	52.1 S.	160.7 E.	Macquarie Islands region. h about 77 km.
14	23 51 31.5	3.0 N.	126.3 E.	Molucca Passage. h about 78 km. Mag. 6¾.
15	05 40 24.5	38.1 N.	121.6 W.	Contra Costa County, California. Felt in Alameda, Contra Costa, San Mateo and Soland Counties. h about 25 km. Mag. 3.9 (Berk).
15	12 09 54.5	12.8 N.	122.2 E.	Luzon, Philippine Islands. h about 170 km.
15	18 33 38.0	18.0 S.	178.4 W.	Fiji Islands. h about 614 km.
15	23 24 35.8	12.3 N.	87.8 W.	Near coast of Nicaragua. h about 39 km.
16	01 20 02.2	51.3 N.	170.6 W.	Fox Islands, Aleutian Islands. h about 32 km.
16	05 08 43.3	4.3 S.	139.4 E.	New Guinea. h about 100 km.
16	08 52 17.3	16.4 S.	178.0 E.	Fiji Islands region. h about 44 km.
16	16 49 15.9	14.7 N.	42.9 E.	Near coast of Eritrea. h about 29 km.
16	18 21 31.7	44.0 N.	28.9 W.	North Atlantic Ocean. h about 21 km.
17	02 04 31.7	50.8 N.	175.2 W.	Andreanof Islands, Aleutian Islands. h about 40 km.
17	07 38 31.1	15.2 S.	73.5 W.	Southern Peru. Felt at Arequipa. h about 28 km.
17	10 37 17.8	6.4 S.	109.4 E.	Java Sea. h about 297 km.
17	13 14 32.0	44.7 N.	30.9 W.	North of Azores. h about 25 km.
17	13 25 11.1	11.4 N.	141.4 E.	Mariana Islands region. h about 24 km.
17	16 05 51.3	22.5 S.	173.0 E.	New Hebrides Islands region. h about 100 km.
17	16 44 44.6	47.4 N.	153.7 E.	Kurile Islands. h about 19 km.
17	18 05 37.0	39.7 N.	29.7 W.	Azores. h about 33 km.
18	05 11 21.9	14.9 S.	167.6 E.	New Hebrides Islands. h about 93 km.
18	07 35 59.8	37.5 N.	143.4 E.	Off east coast of Honshu, Japan. Felt. h about 72 km.
18	18 20 43.3	8.6 N.	125.9 E.	Mindanao, Philippine Islands. h about 36 km.
18	19 29 07.9	24.5 S.	67.5 W.	Northern Chile - Argentina Border. h about 218 km.
18	20 54 34.4	5.4 S.	152.7 E.	New Britain region. h about 62 km.
19	00 01 31.4	36.6 N.	71.6 E.	Hindu Kush. h about 25 km.
19	06 59 52.5	21.1 S.	169.4 E.	Loyalty Islands region. h about 21 km.
19	09 40 45.7	21.0 S.	169.4 E.	Loyalty Islands region. h about 25 km.
19	10 00 42.2	8.3 N.	39.5 W.	Atlantic Ocean. h about 25 km.

Date 1960	Origin Time G. C. T.	Lat.	Long.	Region, Focal Depth and Remarks
Dec.	h m s	°	°	
19	13 00 09.8	10.8 S.	166.9 E.	Santa Cruz Islands. h about 96 km.
19	13 22 01.3	24.5 S.	69.6 W.	Northern Chile. Felt at Antofagasta. h about 17 km.
19	18 59 40.8	11.4 N.	141.2 E.	Mariana Islands. h about 77 km.
19	22 13 58.8	12.7 S.	166.8 E.	New Hebrides Islands. h about 66 km.
19	22 46 23.7	12.2 S.	166.0 E.	New Hebrides Islands. h about 25 km.
20	06 04 29.7	25.2 N.	122.7 E.	Near north coast of Formosa. h about 19 km.
20	11 42 04.8	21.2 S.	179.2 W.	Fiji Islands. h about 659 km.
20	22 20 03.7	4.3 S.	152.1 E.	New Ireland region. h about 154 km.
21	14 39 48.0	61.5 N.	152.9 W.	South-central Alaska. Felt at Cooper Lake Project and Summit. h about 125 km. Mag. 5¾.
21	20 53 51.8	11.3 N.	141.3 E.	Mariana Islands region. h about 72 km.
21	22 29 54.9	62.7 S.	167.1 E.	North of Balleny Islands. h about 29 km.
21	23 55 07.0	3.8 S.	103.1 E.	Southwestern Sumatra. h about 164 km.
22	02 25 29.3	30.0 S.	179.6 W.	Kermadec Islands region. h about 379 km.
22	03 02 20.6	9.8 N.	94.1 E.	Nicobar Islands. h about 36 km.
22	03 47 21.7	16.2 S.	72.9 W.	Near coast of southern Peru. Felt at Arequipa. h about 147 km.
22	06 31 21.5	31.0 S.	177.1 W.	Kermadec Islands region. h about 46 km.
22	11 41 06.0	43.3 N.	126.2 W.	Off coast of northern California. h about 51 km.
22	12 21 28.2	30.7 S.	72.3 W.	Near coast of Chile. h about 61 km.
22	14 12 18.7	28.0 S.	176.1 W.	Kermadec Islands region. h about 60 km.
22	14 27 40.3	53.9 N.	168.1 W.	Fox Islands, Aleutian Islands. h about 57 km.
22	21 02 41.2	6.9 S.	155.3 E.	Solomon Islands. h about 469 km.
23	06 07 01.1	14.4 N.	92.2 W.	Guatemala-Mexico border. h about 48 km.
23	09 41 38.7	3.5 S.	101.8 E.	Near coast of Sumatra. h about 139 km.
23	10 47 57.9	8.3 N.	125.7 E.	Mindanao, Philippine Islands. Felt. h about 67 km.
23	14 34 37.9	4.8 S.	75.6 W.	Northern Peru. h about 82 km.
23	15 47 04.9	8.9 N.	125.7 E.	Mindanao, Philippine Islands. Felt. h about 120 km.
23	16 14 14.9	10.5 S.	163.8 E.	Santa Cruz Islands. h about 25 km.
23	19 06 58.4	28.0 S.	176.8 W.	Kermadec Islands. h about 172 km.
23	19 30 41.6	15.7 N.	121.7 E.	Near east coast of Luzon, Philippine Islands. h about 49 km.
24	03 55 32.6	17.4 S.	66.5 E	Indian Ocean. h about 79 km.
24	16 42 11.9	38.7 S.	143.6 E.	Victoria, Australia. Felt. h about 36 km.
24	21 35 40.9	39.4 S.	74.1 W.	Near coast of Chile. h about 31 km.
24	23 18 27.9	3.7 S.	78.0 W.	Peru-Ecuador border. h about 23 km.
25	05 20 59.7	28.1 N.	142.9 E.	Bonin Islands. h about 25 km.

Date 1960	Origin Time G. C. T.	Lat.	Long.	
Dec.	h m s	°	°	
25	05 49 54.2	10.9 S.	164.8 E.	Santa Cruz Islands region. h about 40 km.
25	11 11 50.0	8.0 S.	82.5 W.	Off coast of Peru. h about 50 km.
25	20 27 34.1	54.8 N.	161.6 E.	Near east coast of Kamchatka. h about 37 km.
26	00 56 16.6	23.8 S.	176.9 W.	Tonga Islands region. h about 59 km.
26	01 44 49.0	34.0 N.	136.2 E.	Near south coast of Honshu, Japan. h about 113 km.
26	04 32 30.1	57.6 S.	26.2 W.	Sandwich Islands. h about 25 km. Mag 5¼ (Pal).
26	05 36 38.3	8.7 N.	82.4 W.	Costa Rica-Panama border. h about 25 km.
26	13 43 12.9	49.6 S.	164.3 E.	South of South Island, New Zealand. h about 37 km.
27	10 35 27.4	41.5 N.	125.0 W.	Off coast of northernCalifornia. Felt in Del Norte and Humboldt. h about 61 km. Mag. 5.4 (Berk).
27	11 08 47.9	41.6 N.	124.8 W.	Off coast of northern California. h about 25 km. Mag. 4¼ (Berk).
27	18 09 41.6	13.8 S.	74.3 W.	Near coast of Peru. h about 82 km.
28	05 39 41.9	35.0 N.	22.3 E.	Near coast of Greece. h about 25 km.
28	19 45 19.0	58.2 N.	155.3 W.	Kodiak Island, Alaska. h about 32 km.
29	06 02 13.9	18.5 S.	174.7 W.	Tonga Islands. h about 104 km.
29	10 36 38.1	45.0 S.	75.6 W.	Near coast of southern Chile. h about 17 km. Mag. 6½-6¾.
29	11 04 20.4	10.2 S.	75.9 W.	Peru. h about 35 km.
29	13 42 34.6	5.5 S.	146.1 E.	Near north coast of New Guinea. h about 57 km.
29	18 19 41.6	35.5 N.	22.6 E.	Near Crete, Mediterranean Sea. h about 54 km.
29	19 01 38.1	18.9 S.	69.4 W.	Northern Chile. Felt at Arequipa. h about 39 km.
29	19 50 15.5	7.9 N.	141.3 E.	Mariana Islands region. h about 25 km.
30	05 29 28.6	9.7 S.	121.0 E.	Sawoc Sea. h about 53 km.
30	11 03 36.8	17.0 S.	70.0 W.	Southern Peru. h about 47 km.
30	21 33 24.3	36.3 N.	71.0 E.	Hindu Kush. h about 200 km.
31.	00 08 12.1	30.1 S.	177.9 W.	Kermadec Islands region. h about 70 km.
31	16 05 30.0	8.6 S.	119.7 E.	Flores Sea. h about 45 km.
31	18 08 07.9	44.1 S.	75.4 W.	Near coast of southern Chile. h about 25 km. Mag. 6½-6¾.
31	19 59 08.3	6.6 S.	129.1 E.	Banda Sea. h about 112 km.
31	21 06 03.8	5.3 S.	151.2 E.	New Britain. h about 158 km.

Date and Station	Phase	(GCT) h m s
Dec. 1		
FGU	eP	01 06 13
Dec. 1		
FGU	eP	01 32 23
Dec. 1		
FGU	iP	03 19 09
Dec. 1		
CSC	eP	04 06 37
Dec. 1		
TUC	eP	04 11 38
Dec. 1		
HHM	eP	04 15 21
Dec. 1		
BCN	eP	05 40 57
EUR	eP	05 40 45
GCA	eP	05 41 42
	e	41 55
Dec. 1		
FGU	eP	05 53 52
HHM	e(P)	05 52 34
Dec. 1		
COL	eP	06 02 02
Dec. 1		
COL	eP	06 13 01
	e	06 16 47
Dec. 1		
BCN	eP	08 53 29
BUT	eP	08 54 27
EUR	iP	08 53 51
FGU	eP	08 53 59
GCA	eP	08 53 36
HHM	iP	08 54 41
SLC	eP	08 53 57
TUC	iP	08 53 07
TUT	eP	08 53 07
Dec. 1.		
GCA	eP	09 22 17
	i	22 18
	e	22 26
	i	23 24
	iS	26 26
	eL	34 00
Dec. 1		
EUR	eP	10 25 26
	ePP	29 28
FGU	eP	10 26 07
	ePP	30 08
GCA	ePP	10 28 35
HHM	eP	10 25 31
	ePP	29 28
SJP	iP'	10 31 22
	i	31 56
Dec. 1		
BCN	eP	10 52 58
BUT	eP	10 53 32
EUR	eP	10 53 04
FGU	eP	10 53 29
GCA	eP	10 53 11
HHM	e(P)	10 53 41
TUC	eP	10 53 03
	e	53 20
	eL	11 23 07
TUT	e(P)	10 53 01
Dec. 1		
HHM	e(P)	11 58 12
Dec. 1		
COL	iP	13 21 34
Dec. 1		
HHM	iP	13 36 38
Dec. 1		
EUR	eP	14 27 00
Dec. 1		
COL	iP	16 23 44
Dec. 1		
COL	iP	16 50 05
Dec. 1		
BCN	eP	19 53 44
GCA	e(P)	19 54 05
TUT	eP	19 54 03
	eS	55 00
Dec. 1		
COL	iP	19 58 58
	iS	59 18
Dec. 1		
COL	iP	20 49 24
EUR	eP	20 48 17
FGU	eS	20 51 27
TUC	e(P)	20 50 03
TUT	eP	20 49 57
Dec. 1		
BCN	eP	20 53 43
BOZ	eP	20 52 50
	eS	55 29
BUT	eP	20 52 34
	eL	56 09
COL	iP	20 54 06
CSC	eP	20 57 10
	eS	21 03 02
EUR	iP	20 53 01
FGU	eP	20 53 35
	i	53 37
	eS	56 13
	eL	21 02 32
GCA	eP	20 53 55
	i	54 01
	eS	56 39
	eL	21 02 34
HHM	iP	20 52 11
	i	53 48
SLC	iP	20 53 18
	eS	56 12
	eL	57 52
SJP	eP	20 59 46
SIT	eP	20 52 04
	eL	54 10
TUC	iP	20 54 40
	i	55 13
	iL	59 03
TUT	eP	20 54 41
WAS	eP	20 56 51
	eS	21 03 02
Dec. 1		
BCN	eP	21 53 36
BOZ	eP	21 52 39
	eL	57 06
BUT	eP	21 52 25
	eL	56 00
COL	iP	21 53 54
EUR	iP	21 52 52
FGU	eP	21 53 24
	i	53 28
	e	56 02
GCA	eP	21 53 46
	i	53 50
HHM	iP	21 52 02
SLC	iP	21 53 11
	eL	58 00
SJP	eP	21 59 34
TUC	eP	21 54 31
	eL	22 00 30
TUT	eP	21 54 28
	eL	22 02 38
Dec. 1		
BCN	eP	22 09 30
COL	iP	22 09 50
FGU	eP	22 09 17
	e	16 01
	eL	32 00
GCA	eP	22 09 38
	i	09 44
TUC	eP	22 10 36
TUT	e(P)	22 10 24
Dec. 1		
BCN	eP	22 34 47
COL	iP	22 33 35
SLC	eP	22 34 04
Dec. 1		
COL	iP	22 37 02
EUR	eP	22 37 07
TUC	eP	22 38 45
TUT	eP	22 38 45
Dec. 1		
TUT	e(P)	22 51 24
Dec. 1		
HHM	eP	22 57 22
Dec. 2		
COL	eP	02 17 58
Dec.2		
COL	iP	03 18 31
Dec. 2		
COL	eP	04 06 24
	e(pP)	06 35
EUR	iP	04 09 54
FGU	eP	04 10 19
GCA	eP,	04 10 21
HHM	iP	04 09 23
	iPcP	11 59

Date and Station		Phase (GCT)	
		h m s	
SJP	iP	04 15 01	
TUC	eP	04 11 00	
Dec. 2			
GCA	eP	04 19 41	
	i	19 43	
Dec. 1			
BCN	eP	04 50 58	
COL	iP	04 49 56	
	e	50 27	
EUR	iP	04 50 55	
	i	51 02	
FGU	eP	04 51 18	
HHM	eP	04 51 09	
Dec. 2			
GCA	eP	06 34 15	
	e	34 45	
TUC	eP	06 34 33	
Dec. 2			
BOZ	e(P)	07 50 31	
Dec. 2			
EUR	eP	08 17 01	
	i	18 03	
Dec. 2			
COL	eP	08 29 33	
Dec. 2			
BHP	eP	09 17 25	
	i	09 17 39	
	ePP	09 18 50	
BCN	eP	09 22 14	
	eS	31 59	
BOZ	iP	09 22 46	
	e	23 13	D
BUT	eP	09 22 50	
	e	33 00	
COL	iP	09 24 58	D
CSC	iP	09 20 42	D
	eS	28 40	
EUR	iP	09 22 35	C
FGU	eP	09 22 21	
	iS	32 03	
GUA	eP	09 57 08	
HON	eP	09 24 32	
	eS	37 02	
	eSS	42 28	
	eL	55 07	

Date and Station		Phase (GCT)	
		h m s	
HHM	iP	09 23 04	D
	ePP	26 33	
	eS	33 17	
	eP'P'	49 46	
SLC	iP	09 22 28	C
	eS	32 11	
	eSS	37 11	
	eL	44 49	
SJP	eP	09 18 37	C
	i	18 47	
	iPP	20 15	
	i	20 34	
	iS	24 42	
	i	25 53	
SIT	e(P')	09 29 24	
	e	34 15	
	ePKKP	42 40	
	eL	51 57	
THU	eP	09 24 32	
	ePP	28 47	
TUC	iP	09 21 44	D
	i	21 52	
	iS	30 54	
	i	31 01	
	iSS	35 21	
	iL	39 32	
TUT	eP	09 21 45	D
Dec. 2			
BHP	iP	09 44 26	
BCN	eL	09 49 09	
	eS	59 38	
	eP'P'	10 16 40	
BOZ	iP	09 49 37	C
BUT	eP	09 49 45	
CSC	iP	09 47 35	C
EUR	iP	09 49 28	C
FGU	iP	09 49 16	
	eS	09 58 48	
GCA	iP	09 49 06	C
	e	50 40	
	ePP	51 37	
	eS	58 32	
HHM	iP	09 49 59	C
	ePP	53 24	
	eP'P'	10 16 39	
SLC	iP	09 49 22	C
	eS	58 37	
	eSS	10 02 21	
SJP	eP	09 45 33	
	i	45 45	
	iPP	47 13	

Date and Station		Phase (GCT)	
		h m s	
TUC	iP	09 48 38	C
	i	54 08	
	iS	57 42	
	iP'P'	17 02	
TUT	eP	09 48 39	
	eP'P'	10 16 55	
WAS	iP	09 48 07	C
Dec. 2			
EUR	eP	14 41 41	
HHM	i(P)	14 42 13	
Dec. 2			
COL	iP	16 23 01	
EUR	iP	16 26 56	
	i	27 08	
Dec. 2			
EUR	iP	17 07 21	
	i	07 42	
	i	09 08	
Dec. 2			
EUR	iP	17 45 05	
Dec. 2			
COL	eP	17 53 46	
	e	53 56	
EUR	eP	17 56 19	
HHM	iP	17 55 59	
	i	56 12	
Dec. 2			
COL	eP	19 42 58	
	e	43 09	
HHM	eP	19 44 20	
Dec. 2			
EUR	eP'	20 01 09	
	i	01 52	
FGU	iP'	20 01 12	
	i	02 14	
	e	06 58	
HHM	iP'	20 01 58	
TUT	eP'	20 01 10	
Dec. 2			
EUR	iP	21 27 53	
Dec. 2			
COL	eP	22 42 47	
Dec. 2			
COL	eP'	22 49 29	
EUR	iP	22 41 52	

Date and Station		Phase (GCT)	
		h m s	
FGU	iP	22 41 40	
GCA	iP	22 39 29	
HHM	iP	22 42 23	
SJP	iP	22 37 58	
TUC	iP	22 41 03	
TUT	eP	22 41 03	
Dec. 3			
COL	eP	02 44 31	
EUR	eP	02 44 02	
Dec. 3			
FGU	iP	03 10 34	
Dec. 3			
EUR	eP	03 57 55	
HHM	eP	03 56 52	
Dec. 3			
EUR	iP	04 29 48	
Dec. 3			
BCN	eP	04 37 33	C
	eS	48 18	
BOZ	eP	04 36 59	C
BUT	eP	04 36 55	C
COL	iP	04 34 13	D
	iS	41 56	
	eL	46 35	
EUR	iP	04 37 18	C
	i	37 39	
	iPP	40 54	
FGU	eP	04 37 20	
	i	37 21	
	iPP	40 48	
	ePPP	42 32	
	eS	48 17	
GCA	iP	04 37 25	C
	ePP	41 11	
	ePPP	42 49	
	e	54 39	
	eL	05 00 19	
HON	iP	04 36 32	C
	iS	47 30	
	eSS	52 12	
	eL	05 00 52	
HHM	iP	04 36 41	C
	eS	46 26	
	eL	05 01 59	

Date and Station	Phase	(GCT) h m s
SLC	iP	04 37 18 C
	e	38 02
	eS	48 17
	eL	05 10 09
SIT	eP	04 35 16 C
THU	iP	04 34 27 D
	i	35 42
	e	35 07
	ePP	36 45
	eS	42 36
TUC	iP	04 37 57 D
	ePP	41 43
	i	42 02
	eL	56 54
TUT	eP	04 37 56 D
Dec. 3		
HHM	iP	04 49 06
Dec. 3		
HHM	eP	04 58 37
Dec. 3		
BCN	eP	05 00 24
EUR	iP	05 00 57
FGU	eP	05 00 45
	i	00 47
	eL	08 44
HHM	iP	05 01 59
TUC	eP	04 59 29
	e	05 00 37
	eL	04 32
TUT	eP	04 59 30
Dec. 3		
EUR	iP	05 23 50
Dec. 3		
COL	eP	06 01 02
HHM	iP	06 03 30
Dec. 3		
HHM	iP	06 16 10
Dec. 3		
BCN	eP	07 16 04
	eS	21 11
BOZ	iP	07 15 33
	epP	16 12
	eS	20 56
BUT	eP	07 15 25
	epP	16 07
COL	iP	07 12 08
	eScS	23 18
CSC	eP	07 19 15
EUR	iP	07 15 41
	ipP	16 19
	iS	20 58
FGU	iP	07 16 08
	ipP	16 40
	iS	21 10
	iScS	25 38
GCA	iP	07 16 14
	iS	21 17
HON	iP	07 14 29
HHM	iP	07 15 08
	ipP	15 50
	isP	16 12
	iPcP	17 14
	iPPP	17 57
	iScP	20 43
	eScS	24 54
SLC	eP	07 15 53
	epP	16 31
	eS	21 06
SJP	iP	07 20 25
	i	21 13
	iS	21 33
SIT	eP	07 12 56
	epP	13 35
	iPP	13 41
	iS	19 51
THU	eP	07 15 44
	epP	16 04
TUC	iP	07 16 40
	ipP	17 20
	iS	21 32
TUT	iP	07 16 42
	ipP	17 21
Dec. 3		
FGU	iP	07 53 44
Dec. 3		
COL	iP	08 02 50
EUR	iP	08 05 55
FGU	eP	05 58
Dec. 3		
FGU	iP	08 08 25
EUR	eP	08 08 41
HHM	e(P)	08 09 25
TUC	eP	08 07 39
Dec. 3		
COL	iP	09 23 39
HHM	eP	09 25 46
Dec. 3		
COL	eP	11 31 58
HHM	iP	11 34 25
Dec. 3		
COL	eP	14 14 46
EUR	iP	14 14 15
GCA	eP	14 14 10
Dec. 3		
COL	eP	14 29 29
EUR	eP	14 28 00
	i	28 54
HHM	e(P)	14 28 30
Dec. 3		
HHM	iP	14 42 40
Dec. 3		
HHM	e(P)	16 17 42
Dec. 3		
COL	iP	17 13 40
Dec. 3		
GCA	eP	17 17 09
	i	18 06
TUC	iP	17 16 17
	iS	16 38
	iL	16 39
Dec. 3		
BOZ	eP	18 09 11
COL	iP	18 06 26
EUR	iP	18 09 31
FGU	iP	18 09 34
GCA	e(P)	18 09 13
	e	09 46
HHM	iP	18 08 54
THU	eP	18 06 40
Dec. 3		
FGU	iP	20 07 20
	i	07 43
Dec. 3		
BCN	eP	20 31 13
BOZ	iP	20 30 12
BUT	eP	20 30 06
COL	iP	20 26 40
	iPP	27 39
	i	28 46
EUR	iP	20 30 49
FGU	iP	20 30 46
GCA	iP	20 31 11
HHM	iP	20 29 47
	i	29 54
SLC	eP	20 30 44
THU	eP	20 26 41
TUC	eP	20 31 41
	ePcP	32 07
TUT	eP	20 31 41
Dec. 3		
HHM	iP	21 22 36
Dec. 3		
COL	eP	21 59 26
EUR	iP	22 00 31
HHM	iP	22 00 36
Dec. 3		
EUR	iP	22 28 09
HHM	iP	22 28 00
Dec. 3		
TUT	eP	22 52 41
Dec. 4		
FGU	eP	00 50 17
Dec. 4		
COL	iP	02 25 35
HHM	iP	02 28 03
Dec. 4		
EUR	eP	03 54 50
FGU	eP	03 54 38
HHM	eP	03 55 22
SJP	i(P)	03 50 57
Dec. 4		
HHM	iP	04 27 52
Dec. 4		
GCA	e(P)	05 36 08
Dec. 4		
GCA	eP	06 16 44
Dec. 4		
HHM	e(P)	06 51 13
Dec. 4		
BOZ	iP	08 08 51
	eS	09 23
	eL	09 47

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Date and Station		Phase (GCT) h m s
BUT	iP	08 09 04
EUR	eP	08 10 17
	i	10 27
	i	11 55
Dec. 4 FGU	eP	08 09 37
	i	09 45
	iS	10 40
GCA	e(P)	08 10 05
	eP	10 31
HHM	iP	08 09 40
	iS	10 39
	iL	10 45
Dec. 4 SLC	eP	08 09 40
Dec. 4 FGU	eP	09 37 29
Dec. 4 COL	iP	12 30 46
Dec. 4 COL	iP	13 40 17
	ipP	40 59
EUR	eP	13 41 21
HHM	e(P)	13 41 26
Dec. 4 COL	eP	14 26 08
HHM	eP	14 28 28
FGU	eP	14 29 01
Dec. 4 COL	eP	16 00 24
Dec. 4 COL	eP	16 08 41
EUR	iP	16 06 03
Dec. 4 EUR	iP	16 12 01
HHM	i(P)	16 12 41
Dec. 4 BOZ	iP	16 32 30
BUT	eP	16 32 23
COL	iP	16 29 48
EUR	iP	16 32 32
FGU	iP	16 33 49
	ipP	34 06

Date and Station		Phase (GCT) h m s
GCA	eP	16 32 54
	ipP	33 13
GUA	iP	16 25 02
HHM	iP	16 32 11
SLC	eP	16 32 43
TUC	eP	16 33 11
TUT	eP	16 33 11
Dec. 4 COL	iP	18 19 08
Dec. 4 BOZ	iP	18 37 36
COL	eP	18 41 00
EUR	eP	18 37 20
FGU	iP	18 36 57
GCA	eP	18 36 31
	e	36 43
HHM	eP	18 38 03
TUC	eP	18 36 16
TUT	e(P)	18 36 15
Dec. 4 GCA	iP	20 27 08
Dec. 4 HHM	iP	21 32 41
Dec. 4 COL	iP	21 56 07
	e	57 54
EUR	iP	21 54 46
FGU	iP	21 54 10
GCA	eP	21 54 25
HHM	eP	21 54 09
TUC	eP	21 54 26
TUT	eP	21 54 24
Dec. 4 COL	iP	22 24 30
EUR	iP	22 27 33
HHM	iP	22 26 57
Dec. 4 COL	iP	23 46 44

Date and Station		Phase (GCT) h m s
Dec. 5 COL	iP	00 07 31
	ipP	00 09 53
EUR	iP	00 07 12
	epP	09 23
	SPP	14 35
FGU	iP	00 07 35
	epP	09 49
GCA	iP	00 07 21
	epP	09 33
HHM	eP	00 07 39
TUC	eP	00 07 31
TUT	eP	00 07 13
Dec. 5 BOZ	eP	08 51 28
BUT	eP	08 51 23
COL	iP	08 48 43
EUR	iP	08 51 47
FGU	iP	08 52 50
GCA	eP	08 52 03
HHM	iP	08 51 10
Dec. 5 FGU	eP	08 19 26
Dec. 5 EUR	iP	12 13 21
FGU	iP	12 13 34
GCA	iP	12 13 03
HHM	i(P)	12 13 52
TUT	e(P)	12 12 14
Dec. 4 EUR	iP	12 33 37
Dec. 5 EUR	eP	13 02 44
GCA	iP	13 02 25
	e	04 27
TUT	e(P)	13 02 15
Dec. 5 EUR	iP	17 59 16
	i	59 27
FGU	eP	17 59 31

Date and Station		Phase (GCT) h m s
GCA	eP	17 59 11
	ePcP	59 49
HHM	iP	17 58 37
THU	eP	17 58 03
TUT	eP	18 00 12
Dec. 5 BCN	eP	18 17 23
BOZ	iP	18 16 49
COL	iP	18 13 09
EUR	iP	18 17 02
FGU	iP	18 17 19
GCA	iP	18 17 31
	e(PP)	19 00
HHM	iP	18 16 23
SLC	eP	18 17 11
THU	eP	18 15 48
	e	16 58
TUC	iP	18 18 09
TUT	eP	18 17 59
Dec. 5 BOZ	iP	21 33 24
COL	iP	21 33 31
CSC	eP	21 31 48
EUR	iP	21 34 01
FGU	iP	21 33 33
	i(SP)	34 10
GCA	eP	21 33 54
HHM	iP	21 33 23
	i(PcP)	33 40
SLC	eP	21 33 42
SJP	i(P)	21 31 18
TUT	eP	21 34 07
Dec. 5 COL	iP	22 06 43
EUR	iP	22 10 16
	i	10 34
GCA	e(P)	22 10 43

Date and Station		Phase	(GCT) h m s
Dec. 5			
EUR	eP		22 42 17
Dec. 5			
COL	eP		23 31 15
Dec. 5			
COL	iP		23 56 23
EUR	eP		23 59 26
FGU	eP		23 59 30
HHM	iP		23 58 51
Dec. 6			
FGU	iP		00 12 58
Dec. 6			
GCA	eP		00 38 11
	e		40 13
TUC	e(P)		00 37 08
	i		37 53
	iL		38 06
TUT	eP		00 37 18
Dec. 6			
FGU	eP		00 42 14
Dec. 6			
BOZ	iP		01 34 52
FGU	e(P)		01 32 27
	i		33 54
	i		34 32
HHM	i(P)		01 33 37
	iL		36 06
Dec. 6			
BOZ	e(P)		03 48 10
COL	iP		45 25
EUR	iP		03 48 29
FGU	iP		03 48 32
HHM	iP		03 47 52
Dec. 6			
EUR	iP		03 46 52
FGU	e(P)		03 47 16
GCA	eP		03 46 51
	e		48 52
TUC	eP		03 46 50
TUT	eP		03 46 50
Dec. 6			
COL	eP		04 09 39
	e(ScP)		04 14 04
EUR	iP		04 12 49
FGU	eP		04 12 52
HHM	eP		04 12 13
Dec. 6			
COL	iP		04 32 58
Dec. 6			
COL	eP		06 10 44
EUR	eP		06 14 11
FGU	e(P)		06 15 45
HHM	e(P)		06 13 55
Dec. 6			
COL	eP		08 19 58
EUR	eP		08 23 29
Dec. 6			
BHP	iP		08 57 01
	iS		57 51
BCN	eP		09 03 46
BOZ	iP		09 04 21
BUT	eP		09 04 28
COL	eP		09 07 32
	ePP		09 52
	iPPP		10 28
CSC	eP		09 01 40
EUR	iP		09 04 08
FGU	eP		09 04 45
	i		04 46
	i		05 01
	i		05 31
	i		11 14
	iL		17 13
GCA	eP		09 03 35
	e		05 06
GUA	iP'		09 15 50
HHM	iP		09 04 46
SLC	eP		09 03 55
SJP	iP		09 00 33
THU	iP		09 07 10
TUC	iP		09 03 07
	e(PcP)		35 29
	i		35 38
TUT	eP		09 03 05
WAS	eP		09 02 24
Dec. 6			
BCN	eP		09 07 31
	eS		16 48
BOZ	iP		09 08 02
	e(PcP)		08 17
	e		14 30
	eS		17 25
BUT	eP		09 08 07
	e		13 29
CSC	eP		09 05 50
	eS		13 30
EUR	iP		09 07 50
	iP'P'		35 19
FGU	iP		09 07 35
GCA	iP		09 07 25
	e		10 41
	eS		16 37
	eP'P'		35 25
HHM	iP		09 08 20
	iPP		11 22
SLC	iP		09 07 42
	e		07 56
	e		08 28
	eS		17 09
SJP	iP		09 03 40
	iPP		05 18
	iPPP		05 33
	iS		09 59
THU	iP		09 09 46
	e		09 58
	ePP		14 47
TUC	iP		09 07 01
TUT	iP		09 07 01
	ePP		09 33
	eP'P'		35 30
WAS	iP		09 06 20
	e(PP)		09 40
	e		13 34
	eP'P'		35 28
Dec. 6			
EUR	eP		10 14 36
Dec. 6			
EUR	iP		10 20 40
FGU	eP		10 20 35
GCA	e(P)		10 21 00
	e		21 37
Dec. 6			
TUC	eP		10 25 20
	i		25 29
	iS		26 12
	iL		26 18
Dec. 6			
EUR	iP		10 39 38
Dec. 6			
EUR	iP		12 29 10
FGU	iP		12 29 34
GCA	iP		12 29 19
HHM	iP		12 29 37
TUC	iP		12 29 11
Dec. 6			
HHM	e(P)		16 58 02
Dec. 6			
COL	eP		18 31 34
EUR	eP		18 33 10
TUT	e(P)		21 34 32
Dec. 6			
COL	e(P)		21 43 15
Dec. 6			
EUR	iP'		21 53 18
	e(PP)		56 58
FGU	eP'		21 53 19
HHM	eP'		21 53 07
Dec. 6			
TUT	e(P)		22 52 07
Dec. 6			
SLC	eP		23 38 57
	eS		39 27
Dec. 6			
EUR	eP		23 44 56
FGU	eP		23 44 32
	i		45 16
Dec. 7			
HHM	iP		03 17 41
Dec. 7			
COL	eP		04 09 04
Dec. 7			
TUT	e(P)		06 51 39
	e(S)		53 24
Dec. 7			
COL	iP		07 43 21
	iS		43 44

Date and Station		Phase (GCT) h m s
EUR	iP	07 48 59
	i	49 19
	i(PP)	49 28
FGU	iP	07 49 11
HHM	iP	07 48 00
	iPP	48 29
Dec. 7 COL	eP	09 06 59
Dec. 7 COL	eP	16 03 08
Dec. 7 COL	eP	16 41 29
EUR	iP	16 41 29
Dec. 7 COL	iP	20 27 06
EUR	eP	20 30 10
HHM	iP	20 29 33
Dec. 7 GCA	eP	22 10 00
	e	12 49
TUC	eP	22 08 53
	i	08 59
TUT	e(P)	22 08 49
Dec. 7 COL	iP	22 20 40
EUR	eP	22 24 54
HHM	eP	22 24 04
Dec. 7 HHM	iP	22 39 58
Dec. 7 TUT	eP	22 55 28
Dec. 7 EUR	iP	23 00 00
Dec. 7 EUR	iP	23 40 41
Dec. 7 EUR	iP	23 46 16
	i	46 21
Dec. 8 FGU	eP	00 12 54
Dec. 8 COL	iP	01 04 24
Dec. 8 EUR	eP	01 14 34
TUC	eP	01 14 38
	e	15 20

Date and Station		Phase (GCT) h m s
Dec. 8 EUR	iP	01 35 50
	epP	38 04
GCA	iP	01 35 57
	epP	38 07
HHM	iP	01 36 16
TUC	iP	01 35 50
	epP	38 01
TUT	eP	01 35 51
Dec. 8 COL	iP	01 36 08
	ipP	38 25
	iPP	39 01
	i(SPP)	43 09
TUT	e(P)	02 25 10
	eS	26 03
Dec. 8 FGU	iP	02 36 13
	e	38 24
Dec. 8 TUT	e(P)	05 30 11
Dec. 8 TUC	e(P)	07 43 40
	e	44 19
Dec. 8 EUR	eP	08 06 57
GCA	e(P)	08 06 40
Dec. 8 BCN	eP	09 22 46
BOZ	e(P)	09 24 58
EUR	eP	09 23 33
	L	26 46
FGU	eP	09 24 57
	e	26 29
	eS	27 31
	iL	28 18
GCA	eP	09 22 57
	i	23 33
	iS	25 10
	eL	29 41
HHM	eP	09 25 28
TUC	eP	09 22 02
	i	22 10
	iS	22 19
	iL	23 09
TUT	e(P)	09 22 02
Dec. 8 COL	e(P)	09 39 22

Date and Station		Phase (GCT) h m s
Dec. 8 Col	eP	10 13 26
Dec. 8 BOZ	iP	11 32 38
BUT	eP	11 32 42
	epP	33 14
CSC	eP	11 30 48
EUR	iP	11 32 25
	ipP	32 55
	esSS	49 07
	i(PKKP)	50 45
GCA	iP	11 32 04
	ipP	32 35
HHM	iP	11 32 54
	ipP	33 25
	ePKKP	50 28
SJP	iP	11 28 53
	ipP	29 23
	iPcP	30 11
TUT	eP	11 31 40
Dec. 8 FGU	iP	12 32 14
TUC	iP	12 31 40
	e	32 12
	e	33 01
Dec. 8 EUR	iP	12 47 51
	i	48 13
	L	49 20
Dec. 8 COL	iP	13 30 14
Dec. 8 COL	eP	14 09 07
Dec. 8 EUR	iP	14 45 43
	i	45 59
TUT	eP	14 45 40
Dec. 8 COL	eP	17 27 55
	i	30 10
Dec. 8 COL	eP	17 35 02
Dec. 8 EUR	iP	18 34 35
Dec. 8 TUT	eP	19 05 19
Dec. 8 CSC	eP	20 15 35

Date and Station		Phase (GCT) h m s
Dec. 8 FGU	eP	20 49 48
Dec. 8 FGU	eP	22 58 43
Dec. 8 TUT	e(P)	23 17 41
	eS	18 40
Dec. 8 COL	iP	23 19 29
Dec. 9 BCN	eP	00 25 55
EUR	iP	00 26 41
Dec. 9 COL	eP	00 48 56
	ipP	49 47
	e	50 14
EUR	iP	00 48 29
FGU	eP	00 49 54
	epP	50 45
TUC	eP	00 48 28
TUT	eP	00 48 28
Dec. 9 EUR	eP	01 28 44
FGU	eP	01 29 08
	e	32 38
	e	33 38
GCA	eP	01 28 10
	i	28 43
	i	30 45
TUC	eP	01 27 09
	i	27 23
	iL	28 16
TUT	eP	01 27 11
Dec. 9 BCN	eP	04 00 53
BOZ	eP	04 03 10
EUR	eP	04 01 42
	L	05 02
FGU	eP	04 03 06
	e	04 03
	e	05 34
GCA	e(P)	04 00 42
	e	01 06
	i	03 50
	e	06 10

Date and Station		Phase (GCT) h m s
TUC	eP	04 00 11
	i	01 24
	iL	02 19
TUT	eP	04 00 11
Dec. 9 EUR	eP	04 30 21
Dec.9 FGU	eP	05 16 29
Dec. 9 BOZ	eP	06 04 11
COL	iP	06 08 05
EUR	iP	06 02 41
	iS	05 56
FGU	eP	06 03 09
	e	04 02
	eS	06 35
GCA	eP	06 02 07
	i	02 53
	iS	04 21
HHM	eP	06 04 34
TUC	iP	06 01 10
	i	01 24
	iS	02 17
TUT	eP	06 01 11
Dec. 9 EUR	eP	07 17 09
	i	17 25
FGU	eP	07 17 58
Dec. 9 COL	iP	07 13 58
Dec. 9 EUR	iP	14 08 59
Dec. 9 EUR	iP	16 13 53
Dec. 9 EUR	iP	16 12 14
Dec. 9 EUR	iP	17 16 59
HHM	iP	17 17 28
TUT	eP	17 16 11
Dec. 9 COL	eP	17 26 55
Dec. 9 COL	iP	18 25 49

Date and Station		Phase (GCT) h m s
Dec. 9 TUC	eP	19 22 04
	e	22 59
Dec. 9 BCN	e(P)	21 05 43
TUC	e(P)	21 04 33
	i	04 37
TUT	eP	21 04 25
	eS	05 33
Dec. 9 COL	iP	21 32 44
	i	33 21
EUR	iP	21 35 01
HHM	e(P)	21 33 55
THU	eP	21 28 56
Dec. 9 TUT	eP	22 01 04
Dec. 9 BCN	eP	22 10 16
EUR	eP	22 11 05
TUC	eP	22 09 36
	i	09 50
TUT	eP	22 09 37
	eS	10 46
Dec. 9 TUT	e(P)	22 33 03
	eS	34 06
Dec. 9 COL	iP	23 38 50
Dec. 10 BCN	eP	00 01 32
EUR	eP	00 01 41
TUC	eP	00 00 11
	i	00 24
	eL	01 16
TUT	eP	00 00 12
	eS	01 20
Dec. 10 COL	iP	02 04 44
Dec. 10 COL	eP	04 30 03
EUR	iP	04 33 24
Dec. 10 EUR	iP	05 41 26

Date and Station		Phase (GCT) h m s
TUC	eP	05 40 43
	e	40 49
Dec. 10 EUR	eP	06 15 22
SJP	iP	06 11 01
TUC	eP	06 14 23
TUT	eP	06 14 21
Dec. 10 COL	iP	06 41 06
HHM	eP	06 43 06
Dec. 10 BCN	eP	07 31 36
EUR	iP	07 32 29
TUC	eP	07 30 56
	i(s)	31 10
	eL	32 02
TUT	eP	07 30 59
	e(S)	32 06
Dec. 10 TUT	e(P)	08 17 07
Dec. 10 COL	eP	09 44 48
Dec. 10 TUT	e(P)	10 45 47
Dec. 10 COL	eP	10 59 28
Dec. 10 BCN	e(P)	12 30 51
TUT	eP	12 29 35
	eS	30 44
Dec. 10 BCN	eP	13 43 41
BOZ	eP	13 44 54
COL	eP	13 47 51
EUR	iP	13 44 09
	i	44 19
HHM	eP	13 44 42
SLC	eP	13 44 28
TUC	e(P)	13 44 08
	e	44 17
TUT	eP	13 44 09

Date and Station		Phase (GCT) h m s
Dec. 10 COL	iP	13 44 40
Dec. 10 COL	e(P)	13 53 06
Dec. 10 COL	eP	14 07 37
Dec. 10 COL	eP	16 59 39
Dec. 10 COL	iP	17 12 13
Dec. 10 COL	eP	18 07 26
Dec. 10 TUC	eP	19 54 21
Dec. 10 COL	iP	19 49 47
Dec. 10 TUC	e(P)	20 01 24
Dec. 10 TUC	e(P)	20 54 21
Dec. 10 COL	eP	21 36 23
Dec. 10 TUC	eP	22 06 43
	eL	08 07
TUT	eP	22 06 45
Dec. 10 TUT	eP	22 16 06
	eS	17 33
Dec. 10 BCN	e(P)	22 26 29
	e	29 03
EUR	eP	22 27 17
	e	30 58
FGU	eP	22 28 33
	i	31 24
	e	35 32
GCA	eP	22 26 39
	e	29 17
HHM	eP	22 29 04
TUC	eP	22 25 30
	i	25 52
	iL	26 49
TUT	e(P)	22 25 26
	e(S)	26 48

Date and Station		Phase (GCT) h m s
Dec. 10		
BCN	eP	22 41 02
	e	45 58
EUR	iP	22 41 19
	e(PP)	44 20
	e	48 27
GCA	eP	22 40 49
TUC	eP	22 40 01
	i	40 05
Dec. 10		
TUC	eP	22 42 31
	eL	44 00
Dec. 10		
HHM	e(P)	22 46 05
Dec. 10		
COL	eP	23 14 32
Dec. 10		
SLC	iP	23 44 16
	eS	44 42
	eL	45 12
Dec. 10		
Col	iP	23 56 45
Dec. 10		
GCA	e(P)	23 58 11
	e	58 21
Dec. 11		
TUT	e(P)	00 00 25
Dec. 11		
BCN	eP	00 14 02
	e(sPP)	19 11
COL	iP	00 14 07
	ipP	14 31
EUR	iP	00 14 06
	ipP	14 30
	ePP	18 10
	e(sSS)	30 25
FGU	eP	00 14 28
	ePP	18 38
	ePPP	21 16
	e	22 36
GCA	eP	00 14 15
	e	20 27
HHM	eP	00 14 29
	e	15 18
TUC	iP	00 14 09
	epP	14 34
	e	16 40
	ePP	18 08
TUT	eP	00 14 09
Dec. 11		
COL	iP	01 19 02

Date and Station		Phase (GCT) h m s
Dec. 11		
COL	eP	01 21 37
Dec. 11		
FGU	eP	02 46 04
Dec. 11		
BCN	eP	03 20 03
EUR	eP	03 20 50
FGU	e(P)	03 21 22
	i	25 46
GCA	eP	03 20 13
	e	20 52
	e(S)	22 25
	e	24 08
TUC	iP	03 19 18
	i	19 32
	i(S)	20 23
TUT	eP	03 19 19
	eS	20 28
Dec. 11		
COL	eP	03 30 50
EUR	eP	03 32 41
TUT	eP	03 31 00
Dec. 11		
EUR	eP'	03 36 41
FGU	eP'	03 37 49
HHM	eP'	03 36 33
SJP	eP'	03 38 08
	e	38 39
Dec. 11		
COL	iP	05 04 33
Dec. 11		
COL	iP	07 10 42
EUR	iP	07 14 02
	e	16 15
HHM	eP	07 13 32
TUC	eP	07 15 04
Dec. 11		
COL	eP	07 50 06
Dec. 11		
COL	eP	08 53 03
	e	54 34
Dec. 11		
COL	eP	11 29 19
Dec. 11		
COL	eP	11 34 43

Date and Station		Phase (GCT) h m s
Dec. 11		
COL	iP	13 11 04
Dec. 11		
COL	iP	13 23 51
Dec. 11		
EUR	iP	14 34 31
TUC	eP	14 34 26
Dec. 11		
COL	eP	15 08 46
Dec. 11		
EUR	iP	17 40 57
HHM	iP	17 40 36
Dec. 11		
COL	iP	18 07 23
Dec. 11		
BCN	e(P)	19 02 26
BOZ	eP	19 01 41
BUT	eP	19 01 24
COL	iP	19 02 53
	iS	06 33
EUR	iP	19 01 52
FGU	eP	19 02 26
	i	02 32
HHM	iP	19 01 03
SLC	eP	19 02 10
TUC	eP	19 03 31
	i	03 34
TUT	eP	19 03 28
Dec. 11		
BCN	eP	19 06 01
COL	iP	19 05 44
	i	06 28
	iPP	10 50
	i(PPP)	12 09
EUR	iP	19 06 00
	ePP	09 17
	e	11 05
FGU	eP	19 07 25
HHM	i(P)	19 06 23
SJP	iP'	19 12 08
TUC	eP	19 06 10
	eL	35 42
TUT	eP	19 06 09
	e(PPP)	12 22

Date and Station		Phase (GCT) h m s
Dec. 11		
COL	eP	20 44 41
Dec. 11		
TUT	eP	22 02 39
Dec. 11		
SLC	e(P)	22 35 16
Dec. 12		
COL	iP	01 57 31
	iS	58 27
Dec. 12		
GCA	e(P)	04 01 23
	e	01 28
Dec. 12		
COL	iP	04 30 48
	i	31 01
EUR	iP	04 31 14
FGU	eP	04 31 37
HHM	eP	04 31 30
SLC	e(P)	04 31 31
TUC	eP	04 31 26
TUT	eP	04 31 27
Dec. 12		
EUR	iP	05 54 28
Dec. 12		
EUR	iP	07 22 16
HHM	eP	07 22 47
Dec. 12		
COL	eP	11 04 36
GCA	e(P)	11 04 27
	e	04 42
Dec. 12		
COL	iP	11 30 43
	i	30 58
EUR	iP	11 34 13
	i	34 43
FGU	eP	11 34 29
	i	34 59
HHM	eP	11 33 35
SLC	e(P)	11 34 51
Dec. 12		
COL	iP	13 49 35
EUR	iP	13 53 13
Dec. 12		
COL	iP	18 11 55
	iS	12 13

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Date and Station		Phase	h m s	
Dec. 12				
COL		eP	20 32 32	
Dec. 12				
COL		eP	23 21 19	
Dec. 13				
COL		e(P)	04 28 58	
HHM		eP	04 33 20	
Dec. 13				
HHM		iP	06 18 36	
Dec. 13				
BCN		eP'	07 55 01	C
		ePS	08 07 39	
BOZ		eP'	07 55 18	C
		e	55 37	
		e(PKKP)	08 05 41	
BUT		eP'	07 55 31	C
COL		eP'	07 55 13	C
		i	55 38	
		iPP	56 47	
		iPKKP	08 05 31	
		i(PFS)	09 32	
		i(SS)	12 30	
		eL	27 03	
GCA		eP'	07 55 06	C
		e	55 18	
		i	56 11	
		e(PP)	58 13	
GUA		eP	07 47 32	
HON		eP	07 49 00	
		e	52 20	
		ePPP	54 16	
		eS	59 06	
		e(SS)	08 05 00	
HHM		eP'	07 55 11	C
		i	55 37	
		iPP	57 29	
		e(PS)	08 08 15	
KIP		eP	07 48 57	
SLC		eP'	07 55 33	C
		ePKKP	09 05 28	
		ePFS	09 28	
		e(P'P')	14 25	
		eL	24 53	
SJP		e(P')	07 55 30	D
		i	55 49	
SIT		e(P')	07 55 33	
		e	55 41	
		eL	08 23 25	
THU		eP'	07 56 03	
		e	56 11	
		i	56 27	
TUC		eP'	07 56 06	C
		i	56 12	
		e	08 01 41	
		ePFS	10 11	
		eL	26 04	
TUT		eP'	07 54 49	C
		ePKKP	08 05 48	
Dec. 13				
SLC		iP	09 00 44	
Dec. 13				
BCN		eP	09 15 21	
BOZ		iP	09 16 00	
COL		iP	09 15 57	
		epP	16 20	
		ePP	19 39	
		ePPP	21 02	
		e(S)	26 47	
FGU		iP	09 15 21	
GCA		iP	09 15 35	
HHM		eP	09 15 58	
		ipP	16 16	
TUC		iP	09 15 25	
TUT		eP	09 15 25	
Dec. 13				
COL		eP	09 57 40	
Dec. 13				
BCN		eP	10 17 53	
BOZ		eP	10 17 41	
BUT		eP	10 17 33	
COL		iP	10 15 09	
		i	15 44	
		ePP	16 55	
FGU		iP	10 17 28	
GCA		eP	10 17 59	
HHM		iP	10 17 23	
		i	17 50	
SLC		eP	10 17 51	
THU		eP	10 17 01	
TUC		eP	10 18 18	
		i	18 24	
TUT		e(P)	10 18 17	
Dec. 13				
HHM		eP	11 01 28	
Dec. 13				
COL		eP	11 30 40	
Dec. 13				
COL		iP	11 40 28	
Dec. 13				
TUT		e(P)	12 40 11	
Dec. 13				
TUT		eP	13 46 22	
Dec. 13				
COL		iP	17 55 05	
Dec. 13				
TUT		eP	18 04 47	
Dec. 13				
FGU		eP	18 33 03	
		e	33 38	
Dec. 13				
EUR		eP	20 11 15	
Dec. 13				
TUT		eP	20 04 45	
Dec. 13				
FGU		eP	23 21 45	
Dec. 14				
COL		eP	00 29 38	
Dec. 14				
BCN		e(P)	00 33 42	
COL		eP	00 33 16	
		i	33 40	
EUR		iP	00 33 42	
FGU		eP	00 34 06	
TUC		eP	00 33 55	
TUT		eP	00 33 54	
Dec. 14				
BCN		eP	01 10 14	
BOZ		eP	01 10 38	
BUT		eP	01 10 29	
COL		iP	01 09 47	
		ipP	10 06	
		e(SP)	10 19	
EUR		iP	01 10 13	
FGU		eP	01 10 38	
GCA		e(P)	01 10 00	
		e	10 27	
HHM		iP	01 10 30	
SJP		eP'	01 16 31	
SLC		iP	01 10 29	
TUC		iP	01 10 25	
		eS	22 28	
		eL	38 06	
TUT		eP	01 10 24	
Dec. 14				
EUR		iP	01 57 48	
Dec. 14				
EUR		iP	02 03 43	
FGU		eP	02 03 49	
Dec. 14				
BOZ		eP	02 12 46	
Dec. 14				
COL		iP	03 42 29	
		eS	43 06	
HHM		eP	03 46 53	
Dec. 14				
COL		eP	04 12 30	
EUR		iP	04 15 03	
FGU		eP	04 15 15	
HHM		eP	04 14 42	
Dec 14				
GUA		iP	06 38 51	
		iS	38 59	
Dec. 14				
EUR		iP	06 49 23	
		i	51 19	
Dec. 14				
EUR		eP	07 12 51	
Dec. 14				
EUR		eP	07 19 22	
Dec. 14				
COL		eP	07 46 02	
Dec. 14				
EUR		iP	08 15 47	
Dec. 14				
EUR		iP	08 26 34	
TUC		eP	08 26 30	
TUT		eP	08 26 30	
Dec. 14				
FGU		eP	08 45 30	
Dec. 14				
EUR		iP	10 53 48	
HHM		eP	10 53 44	

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Date and Station	Phase	(GCT) h m s
Dec. 14		
COL	eP	12 06 42
Dec. 14		
EUR	iP	13 24 52
Dec. 14		
HHM	e(P)	14 32 08
Dec. 14		
COL	eP'	14 42 19
EUR	eP'	14 42 07
HHM	e(P')	14 41 46
Dec. 14		
EUR	iP	18 02 22
Dec. 14		
COL	eP	18 12 29
Dec. 14		
EUR	iP	18 55 28
Dec. 14		
SLC	eP	23 54 01
Dec. 15		
BHP	iP'	00 11 12
BCN	eP	00 06 00
	e(P')	09 11
BOZ	eP	00 05 54
	e(P')	09 56
	ePKKP	21 11
BUT	eP	00 05 47
COL	iP	00 04 00 D
	i(S)	14 05
CSC	eP'	00 10 35
EUR	iP	00 05 50 D
	e(P')	09 18
	ePKKP	21 22
	eL	37 31
GCA	eP	00 06 09
	e(P')	09 45
	e	10 02
HHM	iP	00 05 41 D
	i(P')	09 03
	i	10 03
	i(PP)	10 30
	iPKKP	21 08
SLC	e(P')	00 09 56
SJP	iP'	00 11 19 D
	ipP	11 43
	i(PP)	12 37
	ePPP	15 19
	e(pPPP)	16 25
TUC	eP	00 05 30 D
	iP'	11 07
	iPKKP	20 42
	eL	38 26
TUT	e(P)	00 06 21 D
	e(eP)	07 05
	eP'	09 51
	ePP	11 07
	ePPP	13 31
	eSKS	17 08
	ePKKP	20 43
Dec. 15		
BCN	e(P)	05 42 10
	eS	43 48
EUR	iP	05 41 38
	i	41 44
	iS	42 00
	iL	42 55
GCA	e(P)	05 42 21
	e(S)	44 58
HHM	e(P)	05 43 21
Dec. 15		
COL	eP	05 52 54
Dec. 15		
EUR	iP	08 03 13
Dec. 15		
EUR	eP	08 29 45
	i	30 51
Dec. 15		
COL	eP	10 27 09
Dec. 15		
COL	eP	10 31 05
Dec. 15		
COL	iP	12 21 42
	i(pP)	22 15
Dec. 15		
COL	eP	12 41 38
Dec. 15		
HHM	iP	12 53 54
Dec. 15		
COL	iP	14 15 01
Dec. 15		
EUR	iP	14 45 50
Dec. 15		
EUR	iP	15 55 34
Dec. 15		
COL	iP	16 28 35
Dec. 15		
HHM	iP	16 54 48
Dec. 15		
BCN	eP	17 46 18
EUR	eP	17 45 59
SLC	eP	17 49 19
TUT	eP	17 47 02
Dec. 15		
BCN	e(P)	18 44 54
COL	iP	18 45 35
EUR	iP	18 44 59
GCA	iP	18 45 09
HHM	iP	18 45 26
TUC	iP	18 44 01
TUT	eP	18 44 01
Dec. 15		
COL	iP	19 08 00
EUR	iP	19 10 03
HHM	iP	19 09 28
Dec. 15		
COL	eP	19 13 24
Dec. 15		
EUR	iP	19 29 16
TUC	eP	19 29 15
Dec. 15		
COL	eP	21 26 26
Dec. 15		
EUR	eP	23 29 04
Dec. 15		
COL	eP	23 35 38
EUR	iP	23 31 44
GCA	e(P)	23 31 00
	e	31 06
HHM	e(P)	23 32 29
TUC	eP	23 30 36
	eL	50 06
TUT	eP	23 30 35
Dec. 16		
SLC	iP	01 23 30
	e(S)	23 33
Dec. 16		
BCN	eP	01 27 56
EUR	iP	01 27 32
	ePcP	29 40
GCA	iP	01 28 07
HHM	iP	01 27 04
	iPcP	29 30
SJP	i(P)	01 32 36
THU	eP	01 28 09
	e	28 22
TUC	iP	01 28 35
	e	28 46
TUT	eP	01 28 36
Dec. 16		
EUR	iP	06 37 39
GCA	eP	06 37 08
TUC	eP	06 36 44
Dec. 16		
EUR	iP	07 02 59
GCA	eP	07 02 27
TUC	eP	07 02 04
Dec. 16		
BCN	eP	09 04 38
EUR	iP	09 04 41
GCA	iP	09 04 53
HHM	iP	09 05 08
SLC	eP	09 04 59
TUC	iP	09 04 45
TUT	eP	09 04 47
Dec. 16		
EUR	iP	10 26 50
	e	28 40
GCA	eP	10 26 25
	e	26 59
TUC	eP	10 26 50
Dec. 16		
EUR	iP	13 15 11
HHM	eP	13 14 29
TUC	eP	13 15 17
TUT	eP	13 15 17
Dec. 16		
HHM	iP	18 20 39

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Date and Station	Phase	Phase (GCT) h m s
Dec. 16		
BCN	eP	18 32 04
BOZ	eP	18 31 11
BUT	eP	18 31 15
COL	eP	18 31 50
EUR	iP	18 31 55
GCA	eP	18 31 46
HHM	iP	18 31 13
THU	eP	18 28 40
TUC	eP	18 32 01
TUT	eP	18 32 00
Dec. 16		
TUC	iP	19 02 03
TUT	eP	19 02 04
Dec. 16		
COL	iP	21 01 43
Dec. 16		
COL	eP	21 09 26
Dec. 16		
COL	eP	23 07 42
Dec. 16		
SLC	eP	23 35 47
	e(S)	36 22
Dec. 16		
CSC	eP	23 44 39
Dec. 17		
COL	eP	00 30 34
Dec. 17		
GCA	eP	01 34 29
	e	35 51
Dec. 17		
BCN	eP	02 12 45
COL	eP	02 09 04
EUR	iP	02 12 22
GCA	eP	02 12 56
HHM	iP	02 11 55
RCD	eP	02 13 03
SJP	eP	02 17 15
THU	eP	02 12 46
TUC	iP	02 13 22
TUT	eP	02 13 22

Date and Station	Phase	Phase (GCT) h m s
Dec. 17		
TUT	eP	05 52 21
Dec. 17		
EUR	eP	05 58 15
Dec. 17		
COL	iP	06 53 32
Dec. 17		
BHP	iP	07 44 00
BCN	eP	07 49 09
BOZ	eP	07 49 43
BUT	eP	07 49 46
COL	iP	07 52 02
CSC	eP	07 42 23
EUR	iP	07 49 29
GCA	eP	07 49 02
HHM	iP	07 50 01
RCD	iP	07 49 04
SLC	eP	07 49 20
SJP	eP	07 45 17
	i(PP)	46 09
	e	47 28
	ePcP	47 51
THU	eP	07 51 38
TUC	iP	07 48 35
TUT	eP	07 48 35
Dec. 17		
EUR	eP	08 28 51
GCA	eP	08 28 40
HHM	e(P)	08 28 13
Dec. 17		
GCA	eP	09 21 39
HHM	e(P)	09 21 12
TUC	eP	09 21 55
Dec. 17		
EUR	eP	09 28 49
GCA	eP	09 28 32
Dec. 17		
EUR	iP	10 30 38
GCA	eP	10 30 26
HHM	e(P)	10 30 06

Date and Station	Phase	Phase (GCT) h m s
TUC	eP	10 30 28
Dec. 17		
BOZ	eP'	10 55 51
	epP'	56 56
BUT	eP'	10 55 48
	e(PP)	58 39
	e(SKKP)	11 08 36
COL	iP	10 50 37
CSC	eP'	10 56 33
	epP'	57 42
EUR	eP	10 55 37
	i	55 51
	ipP'	10 56 58
FGU	eP'	10 55 43
	i	55 58
	i(PP)	58 04
	i(pPP)	58 58
	e(PPP)	11 00 31
	i(SKKP)	08 31
GCA	eP'	10 55 48
	i	56 00
	i(pPP)	59 01
	i(SKKP)	11 06 43
HHM	iP'	10 55 44
	ipP'	56 56
	i	57 26
	iPKKP	11 05 28
	eSKKP	09 09
RCD	eP'	10 56 04
	epP'	57 06
	e(pPP)	59 03
SLC	eP	10 55 55
SJP	iP'	10 56 50
	ipP'	57 56
	i(PP)	59 02
	e(pPPP)	11 02 48
	e(PKKP)	06 22
THU	eP'	10 55 16
	e	55 58
TUC	e(P')	10 55 50
	i	56 04
	ePP	58 39
	e	11 00 34
TUT	eP'	10 55 53
	epP'	57 08
	ePP	59 11
Dec. 17		
COL	iP	12 11 26
Dec. 17		
COL	eP	12 21 52

Date and Station	Phase	Phase (GCT) h m s
Dec. 17		
COL	eP	12 29 11
EUR	eP	12 29 12
Dec. 17		
COL	eP	12 31 59
EUR	eP	12 32 39
HHM	e(P)	12 32 08
	i	34 58
RCD	e(P)	12 33 14
Dec. 17		
EUR	iP	12 35 28
Dec. 17		
EUR	eP	13 14 40
FGU	iP	13 14 08
GCA	eP	13 14 32
Dec. 17		
EUR	iP	13 24 43
GCA	eP	13 24 33
HHM	iP	13 24 01
TUC	iP	13 24 49
Dec. 17		
BUT	eP	13 38 25
COL	iP	13 36 32
EUR	iP	13 38 24
Dec. 17		
EUR	iP	14 54 26
HHM	eP	14 55 05
SJP	iP	14 50 42
Dec. 17		
EUR	eP	16 15 37
Dec. 17		
EUR	iP	16 18 44
Dec. 17		
BOZ e	eP	16 55 04
COL	iP	16 51 44
EUR	iP	16 55 11
FGU	eP	16 55 29
GCA	eP	16 55 38
HHM	iP	16 54 41
	i	54 57

Date and Station		Phase (GCT) h m s
RCN	iP	16 55 37
THU	eP	16 54 10
TUC	eP	16 56 12
TUT	eP	16 56 12
Dec. 17		
SJP	e(P)	17 53 30
Dec. 17		
EUR	eP	18 07 00
	i	08 06
Dec. 17		
EUR	iP	18 16 12
HHM	eP	18 15 33
Dec. 17		
SLC	eP	19 03 48
Dec. 17		
EUR	eP	19 15 23
Dec. 17		
BOZ	eP	21 01 26
COL	iP	21 01 20
EUR	eP	21 00 50
FGU	e(P)	21 01 08
GCA	eP	21 00 59
HHM	e(P)	21 01 27
TUC	eP	21 00 56
TUT	e(P)	21 00 51
Dec. 17		
COL	iP	22 24 19
Dec. 17		
FGU	eP	23 06 03
	e	08 10
Dec. 18		
COL	eP	02 19 34
Dec. 18		
HHM	eP	02 57 14
Dec. 18		
EUR	eP	03 53 54
Dec. 18		
COL	iP	05 23 56
	i(pP)	24 27
EUR	iP	05 24 12
	ipP	24 41
FGU	e(P)	05 24 36

Date and Station		Phase (GCT) h m s
GCA	eP	05 24 27
Dec. 18		
TUT	eP	05 50 41
	eS	51 05
Dec. 18		
GCA	e(P)	05 53 45
Dec. 18		
COL	iP	07 44 35
EUR	iP	07 47 33
GCA	eP	07 47 55
HHM	iP	07 47 10
RCD	eP	07 47 57
TUC	eP	07 48 14
Dec. 18		
EUR	eP	07 57 08
FGU	e(P)	07 56 29
SJP	iP	07 49 59
	i(S)	50 45
Dec. 18		
COL	iP	09 09 17
EUR	iP	09 12 37
Dec. 18		
COL	iP	09 40 28
EUR	iP	09 39 13
Dec. 18		
BOZ	iP	11 53 06
	e(S)	53 28
BUT	iP	11 53 16
	eS	53 26
EUR	eP	11 55 12
FGU	eP	11 54 23
HHM	eP	11 53 53
	i(S)	54 36
RCD	e(P)	11 56 02
Dec. 18		
EUR	eP	12 17 22
Dec. 18		
COL	eP	16 58 15
Dec. 18		
COL	eP	17 14 17
Dec. 18		
HHM	eP	17 30 44

Date and Station		Phase (GCT) h m s
Dec. 17		
COL	iP	18 32 55
	i(PcP)	33 06
	i	33 37
	i	35 22
	i(PP)	36 32
EUR	eP'	18 39 15
GUA	eP	18 25 11
	eS	29 09
SJP	eP'	18 40 40
THU	eP	18 34 04
TUC	eP'	18 40 05
TUT	e(P')	18 40 05
Dec. 18		
BHP	iP	19 40 05
	iS	40 54
Dec. 18		
HHM	iP	19 41 16
Dec. 18		
COL	eP	21 06 52
	iPcP	07 03
	ipP	07 10
Dec. 18		
EUR	iP	22 02 02
	iL	03 47
RCD	e(P)	22 03 50
SLC	eL	22 01 36
	e(S)	02 26
TUT	eP	22 02 19
	eS	03 44
Dec. 18		
EUR	iP	23 24 17
	i	24 26
GCA	eP	23 24 55
	e	26 50
Dec. 19		
COL	eP	00 13 06
Dec. 19		
COL	eP	02 54 23
EUR	eP	02 54 03
TUC	eP	02 55 36
TUT	e(P)	03 55 22
Dec. 19		
COL	eP	07 13 04
EUR	iP	17 13 02
FGU	eP	07 13 26

Date and Station		Phase (GCT) h m s
GCA	eP	07 12 58
	ePP	16 59
SJP	iP'	07 19 04
TUC	eP	07 13 07
TUT	e(P)	07 13 08
Dec. 19		
FGU	e(P)	07 40 32
Dec. 19		
FGU	eP	08 04 36
Dec. 19		
COL	eP	09 16 45
Dec. 19		
HHM	eP	09 54 28
TUC	eP	09 54 05
Dec. 19		
FGU	eP	10 01 50
	e	03 22
Dec. 19		
BUT	eP	10 12 07
EUR	iP	10 12 20
FGU	eP	10 11 50
GCA	eP	10 11 15
	e(PP)	13 00
HHM	iP	10 12 13
RCD	eP	10 11 26
TUC	eP	10 11 53
TUT	eP	10 11 53
Dec. 19		
COL	eP	11 42 58
Dec. 19		
COL	eP	11 54 08
Dec. 19		
COL	eP	12 09 38
EUR	eP	12 12 09
FGU	eP	12 12 28
HHM	iP	12 11 54
	i(pP)	12 14
Dec. 19		
COL	eP	13 12 40
	e(pP)	13 08
EUR	eP	13 12 04

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Date and Station	Phase	(GCT) h m s
Dec. 19		
COL	eP	13 34 53
	i	35 05
	i	36 01
EUR	iP	13 33 57
	i(PcP)	34 06
FGU	eP	13 33 45
	i(PcP)	33 53
	e(PPP)	38 55
GCA	eP	13 33 29
	i(PcP)	33 42
	e	35 00
HHM	iP	13 34 27
RCD	eP	13 33 46
	i(PcP)	33 55
	i(PPP)	39 08
SJP	eP	13 30 09
TUC	eP	13 33 08
	i(PcP)	34 16
TUT	eP	13 33 08
Dec. 19		
EUR	iP	13 38 42
	i	38 53
HHM	i(P)	13 39 18
TUC	eP	13 39 36
Dec. 19		
COL	eP	14 46 40
Dec. 19		
EUR	eP	18 48 22
Dec. 19		
COL	iP	19 10 58
GUA	iP	19 00 43
	iS	01 27
	eT	03 59
HHM	eP	19 12 44
Dec. 19		
TUT	eP	21 23 04
Dec. 19		
COL	eP	21 34 50
Dec. 19		
TUT	e(P)	21 47 32
Dec. 19		
TUT	e(P)	21 55 10
Dec. 19		
COL	eP	22 26 26
EUR	eP	22 26 46
Dec. 19		
TUT	e(P)	22 55 47
	e(S)	56 11

Date and Station	Phase	(GCT) h m s
Dec. 20		
COL	eP	01 51 51
EUR	iP	01 55 19
	i	55 32
HHM	iP	01 54 50
TUC	eP	01 56 20
Dec. 20		
TUT	eP	03 29 06
Dec. 20		
EUR	eP	03 59 06
Dec. 20		
EUR	eP	04 14 54
Dec. 20		
COL	eP	05 28 36
Dec. 20		
EUR	eP	06 17 57
HHM	iP	06 17 36
	i	18 25
Dec. 20		
FGU	eP	10 05 39
	i	05 41
Dec. 20		
TUC	e(P)	11 39 04
Dec. 20		
EUR	iP	11 53 35
TUC	eP	11 53 35
Dec. 20		
COL	iP	14 48 47
EUR	iP	14 52 19
Dec. 20		
COL	iP	15 59 47
Dec. 20		
HHM	e(P)	16 25 12
Dec. 20		
EUR	eP	19 12 44
GCA	eP	19 09 52
	e	10 27
GUA	iP	19 00 48
TUC	eP	19 09 07
Dec. 20		
TUT	eP	19 21 14
	eS	21 57
Dec. 20		
TUC	eP	19 51 02
Dec. 20		
EUR	e(P)	20 07 31
Dec. 20		
COL	iP	20 57 37

Date and Station	Phase	(GCT) h m s
Dec. 20		
TUC	e(P)	22 08 24
TUT	eP	22 08 19
	eS	09 04
Dec. 20		
COL	iP	22 32 08
GUA	iP	22 24 23
Dec. 23		
TUT	e(P)	22 46 52
Dec. 21		
EUR	iP'	00 14 05
HHM	eP'	00 13 55
Dec. 21		
GUA	iP	02 11 02
Dec. 21		
TUT	eP	02 33 55
	e(S)	34 42
Dec. 21		
EUR	eP	05 05 05
Dec. 21		
EUR	iP	06 15 20
SLC	eP	06 15 37
TUC	eP	06 15 24
Dec. 21		
BOZ	e(P)	06 34 51
Dec. 21		
GUA	iP	07 42 11
	iS	42 21
Dec. 21		
COL	iP	08 02 19
Dec. 21		
COL	iP	11 59 06
Dec. 21		
BOZ	iP	14 45 46
	epP	46 14
	i(scP)	52 23
BUT	iP	14 45 45
	e(scP)	52 25
COL	iP	14 40 57
CSC	eP	14 48 58
EUR	iP	14 46 13
	ipP	46 43
	iPcP	49 00
	i(ScP)	52 33
	e(ScS)	56 34
HHM	iP	14 45 17
	ipP	45 45
	isP	46 05
	ePP	46 13
	iPcP	48 46
	eS	49 47
	i(ScP)	52 13

Date and Station	Phase	(GCT) h m s
RCD	iP	14 46 30
	ipP	46 57
	ePP	47 30
	e(PPP)	47 57
	ePcP	48 46
	eS	51 45
	e(ScP)	52 41
SLC	iP	14 46 18
	epP	46 45
	i(ScP)	52 34
SJP	iP	14 41 12
SIT	e(P)	14 42 17
	i	42 19
	e(S)	44 02
THU	eP	14 45 58
	epP	46 24
	ePP	47 11
TUC	iP	14 47 24
	isP	48 06
	ePP	48 50
	e(PPP)	49 26
	iScP	53 03
TUT	iP	14 47 23
	e(pP)	47 49
	ePP	48 55
	e(PPP)	49 07
	e(ScP)	53 03
WAS	iP	14 48 21
	ePcP	49 26
Dec. 21		
EUR	iP	20 47 00
Dec. 21		
COL	iP	21 05 08
BOZ	eP	21 07 05
	ePP	10 48
BUT	eP	21 07 01
GUA	iP	20 54 52
	eS	55 35
HHM	eP	21 06 53
	ePP	10 13
SJP	e(P')	21 12 31
Dec. 21		
COL	i(P)	21 52 57
Dec. 21		
BOZ	eP'	22 48 59
HHM	eP'	22 49 00
Dec. 21		
SLC	iP	23 14 25
	iS	14 56

Date and Station		Phase (GCT)
		h m s
Dec. 21		
COL	eP	23 44 52
Dec. 22		
FGU	eP	01 03 38
Dec. 22		
EUR	iP	01 32 30
	i	33 08
Dec. 22		
COL	iP	01 44 23
Dec. 22		
HHM	iP	01 57 38
Dec. 22		
COL	eP	02 38 26
EUR	iP	02 37 55
HHM	e(P)	02 38 22
TUC	iP	02 37 52
	i(pP)	39 14
Dec. 21		
COL	eP	03 15 38
	e	18 52
	e(PP)	19 23
EUR	eP'	03 21 19
	ePP	23 10
FGU	eP'	03 21 51
	i	21 59
HHM	eP'	03 21 13
SJP	iP'	03 21 08
THU	eP	03 15 39
TUC	e(P')	03 21 36
	e	21 40
TUT	eP	03 21 38
Dec. 22		
BOZ	eP	03 58 25
BUT	eP	03 58 32
COL	iP	04 00 46
	ipP	01 12
EUR	iP	03 58 13
	ipP	58 38
	eP'P'	04 26 20
FGU	iP	03 57 58
	epP	58 23
HHM	iP	03 58 46
RCD	iP	03 57 58
	epP	58 22
SJP	iP	03 54 02
SLC	iP	03 58 05
TUC	iP	03 57 19
TUT	eP	03 57 19
Dec. 22		
BOZ	e(P)	06 44 51
COL	iP	06 44 57
	ePP	48 46
EUR	iP	06 44 20
	ePKKP	07 02 33
FGU	eP	06 44 42
HHM	eP	06 44 51
	ePP	48 45
	ePKKP	07 01 33
SLC	eP	06 44 35
THU	eP'	06 50 15
TUC	iP	06 44 15
	e	44 23
TUT	iP	06 44 16
Dec. 22		
TUT	eP	07 37 53
Dec. 22		
COL	e(P)	09 54 23
EUR	iP	09 57 48
HHM	eP	09 57 18
TUC	eP	09 58 52
Dec. 22		
EUR	eP	11 34 12
Dec. 22		
BOZ	iP	11 43 45
BUT	eP	11 43 31
	e(S)	46 27
COL	eP	11 46 27
EUR	iP	11 43 11
HHM	iP	11 43 28
RCD	eP	11 44 56
THU	eP	11 48 39
TUC	eP	11 44 55
	e	45 01
TUT	eP	11 44 55
Dec. 22		
COL	iP	12 19 33
EUR	iP	12 23 10
Dec. 22		
BUT	eP	12 34 00
EUR	iP	12 33 40
	ipP	33 55
FGU	eP	12 33 28
	i	33 32
	ipP	33 46
HHM	iP	12 34 11
	i	34 25
RCD	eP	12 33 33
	epP	33 46
SJP	iP	12 30 10
TUC	iP	12 32 54
	ipP	33 08
TUT	eP	12 32 54
Dec.		
COL	iP	14 25 41
EUR	iP	14 25 06
TUC	iP	14 25 02
TUT	eP	14 25 01
Dec. 22		
BOZ	eP	14 34 50
BUT	eP	14 34 42
COL	iP	14 31 18
	e(S)	35 38
	eScP	39 44
	iScS	43 25
EUR	iP	14 34 57
	ipP	35 21
	iScP	40 49
FGU	eP	14 35 20
	i	35 21
	eScP	41 01
HHM	iP	14 34 23
	ipP	34 47
	iScP	40 36
RCD	eP	14 35 35
	ePP	36 46
	e(S)	41 08
SJP	eP	14 40 02
THU	e(P)	14 35 20
TUC	eP	14 36 24
Dec. 22		
COL	eP	18 13 56
EUR	iP	18 14 14
Dec. 22		
TUC	eP	20 19 59
TUT	e(P)	20 18 23
	eS	19 50
Dec. 22		
BHP	iP'	21 22 06
BOZ	e(P)	21 15 29
COL	iP	21 14 20
	e(sP)	17 08
	iS	24 06
EUR	iP	21 15 12
	epP	16 50
	ePP	18 53
	eS	25 19
FGU	iP	21 15 34
	epPP	17 11
GCA	eP'	21 15 23
	eP'	19 25
GUA	iP	21 07 10
	iS	10 48
	i(PcP)	11 01
HHM	iP	21 15 20
	ePP	19 14
	eS	25 17
	ePKKP	32 10
	e(SKPP)	43 18
RCD	e(P)	21 15 55
	ePP	20 14
	e(sP)	28 47
SLC	iP	21 15 26
SJP	eP'	21 21 08
	i	21 18
	iPP	24 15
	ipPP	25 30
	isPP	25 58
TUT	e(P)	21 15 30
Dec. 22		
GCA	eP	22 08 16
	e	09 27
	e	10 06
Dec. 22		
FGU	eP	23 19 22
	e	20 22
Dec. 23		
HHM	eP	02 09 49
Dec. 23		
FGU	eP	03 00 34

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Date and Station		Phase	(GCT) h m s
Dec. 23			
COL		iP	06 17 27
		epP	17 37
EUR		iP	06 13 33
FGU		iP	06 13 14
		e(PcP)	17 30
HHM		iP	06 14 22
TUC		eP	06 12 21
TUT		eP	06 12 22
Dec. 23			
GCA		eP	09 02 00
Dec. 23			
FGU		e(P)	09 45 42
Dec. 23			
BOZ		eP'	10 00 45
		e	01 02
COL		eP'	09 59 48
		e(PKKP)	10 11 36
CSC		eP'	10 01 26
EUR		iP'	10 00 48
		i	01 06
		i(sPP)	04 05
		i(PPP)	04 38
FGU		eP'	00 36
		i	00 53
		iPP'	01 13
		isPP	04 15
		iPPP	04 46
HHM		iP'	10 00 38
		i	00 56
		iPP	02 34
		ePKKP	10 35
SLC		eP'	10 00 50
		e(sPP)	04 11
		e(PPP)	04 40
TUC		eP'	10 00 53
		i(sPP)	04 31
		i(PPP)	05 04
TUT		eP'	10 00 53
		e(PPP)	06 22
		e	09 31
		e(PKKP)	10 04
Dec. 23			
COL		eP	11 00 09
Dec. 23			
TUC		e(P)	11 07 18
Dec. 23			
EUR		iP	13 10 38
FGU		eP	13 10 14
		i	10 15
HHM		e(P)	13 11 20
Dec. 23			
EUR		eP	13 41 05
Dec. 23			
EUR		eP	14 44 25
FGU		eP	14 44 04
HHM		eP	14 44 59
SJP		iP	14 40 00
Dec. 23			
COL		eP	15 59 08
Dec. 23			
COL		eP	16 26 43
EUR		iP	16 27 10
HHM		e(P)	16 27 25
Dec. 23			
TUC		eP	16 34 52
Dec. 23			
EUR		iP	18 34 34
Dec. 23			
EUR		iP	18 41 32
Dec. 23			
COL		iP	19 20 03
EUR		iP	19 19 30
GCA		eP	19 19 13
		i	19 36
TUC		eP	19 19 25
TUT		eP	19 19 26
Dec. 23			
COL		iP	19 42 27
		ePcP	42 33
		e	42 39
		e(PP)	45 22
EUR		iP	19 40 34
GUA		iP	19 35 41
Dec. 23			
EUR		eP	20 05 47
Dec. 23			
GCA		eP	22 15 25
Dec. 23			
FGU		e(P)	23 10 13
Dec. 24			
EUR		iP	04 08 16
		i	08 42
GCA		eP	04 09 40
Dec. 24			
BOZ		e(P')	04 15 22
EUR		eP'	04 15 37
HHM		eP'	04 15 15
RCD		eP'	04 15 23
Dec. 24			
TUT		eP	07 11 57
		eS	12 55
Dec. 24			
EUR		iP	09 01 31
HHM		eP	09 01 57
RCD		iP	09 00 53
TUC		eP	09 00 36
Dec. 24			
COL		eP	09 11 02
EUR		iP	09 14 07
HHM		iP	09 13 42
Dec. 24			
EUR		iP	10 48 38
Dec. 24			
BOZ		e(P)	12 32 58
COL		eP	12 36 30
EUR		eP	12 32 40
FGU		eP	12 31 17
GCA		e(P)	12 31 59
HHM		e(P)	12 33 25
TUC		eP	12 31 29
TUT		eP	12 31 27
Dec. 24			
EUR		iP	17 01 04
Dec. 24			
TUC		eP	20 36 34
Dec. 24			
BUT		eP	20 55 33
Dec. 24			
COL		eP	21 17 33
		i	17 35
		i	17 57
EUR		iP	21 17 08
GCA		eP	21 17 14
HHM		e(P)	21 17 37
TUC		eP	21 17 03
Dec. 24			
EUR		iP	21 48 28
HHM		iP	21 49 00
TUC		eP	21 47 44
TUT		eP	21 47 45
Dec. 24			
BHP		iP	23 21 35
BOZ		eP	23 28 19
COL		iP	23 31 05
		ePP	34 22
EUR		iP	23 28 06
GCA		eP	23 27 35
		e(PcP)	28 20
HHM		iP	23 28 42
RCD		iP	23 27 47
		iPcP	28 07
SJP		eP	23 23 53
SLC		eP	23 27 55
TUC		iP	23 27 06
		i	27 16
TUT		eP	23 27 07
Dec. 25			
BUT		eP	05 33 07
COL		eP	05 30 41
		i	31 02
EUR		iP	05 33 11
GCA		eP	05 33 33
HHM		iP	05 32 56
RCD		eP	05 33 41
		i	34 05
SLC		e(P)	05 33 22
THU		eP	05 32 36
TUC		eP	05 33 48
TUT		eP	05 33 48
Dec. 25			
COL		eP	06 02 18
EUR		iP	06 02 44
Dec. 25			
BOZ		eP	07 29 38
Dec. 25			
HHM		e(P)	08 55 23

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Date and Station		Phase (GCT)
		h m s
Dec. 25		
HHM	i(P)	10 44 20
	i	44 54
Dec. 25		
EUR	iP	11 21 29
TUC	eP	11 20 29
TUT	eP	11 20 29
Dec. 25		
COL	iP	11 36 21
	i	36 29
Dec. 25		
EUR	eP	12 03 45
Dec. 25		
EUR	iP	13 04 05
GCA	eP	13 04 28
HON	iP	12 57 13
HHM	eP	13 04 45
Dec. 25		
RCD	e(P)	16 23 01
	e	28 10
Dec. 25		
HHM	i(P)	16 53 55
Dec. 25		
EUR	iP	17 48 16
HHM	iP	17 48 46
Dec. 25		
COL	eP	20 33 12
EUR	iP	20 37 06
GCA	e(P)	20 36 55
	e(PcP)	37 25
HHM	eP	20 36 27
RCD	eP	20 37 29
THU	iP	20 35 52
TUC	eP	20 38 02
Dec. 25		
SLC	e(P)	22 01 34
Dec. 26		
BUT	eP	01 09 18
COL	iP	01 09 18
EUR	iP	01 08 50
GCA	eP	01 08 58
HHM	eP	01 09 20
TUC	iP	01 08 47

Date and Station		Phase (GCT)
		h m s
TUT	eP	01 08 48
Dec. 26		
EUR	iP	01 37 17
BOZ	iP	01 56 53
	ePcP	57 08
	e(PPP)	02 00 14
BUT	eP	01 56 47
COL	iP	01 54 05
	epP	54 24
	ePcP	55 09
EUR	iP	01 56 58
	ipP	57 18
	e(sP)	02 00 22
GCA	eP	01 57 19
GUA	iP	01 49 37
	iS	53 44
	eT	02 11 55
HHM	iP	01 56 35
	ePP	59 45
RCD	iP	01 57 22
	iPP	02 00 55
SLC	iP	01 57 07
THU	eP	01 55 44
	e(PcP)	55 51
TUC	iP	01 57 36
	ePcP	57 47
	ePP	02 01 05
TUT	eP	01 57 37
	ePP	02 01 06
Dec. 16		
BOZ	eP'	04 51 29
	e	51 54
	ePP	54 55
BUT	eP'	04 51 31
	ePP	54 54
COL	iP'	04 52 13
	ePKKP	05 01 14
EUR	eP'	04 51 23
	i	51 29
	i(PKKP)	05 01 22
	iPS	04 55
GCA	eP'	04 51 15
	i	51 18
	ePP	54 40
HHM	iP'	04 51 34
	i	52 09
	iPP	54 42
	iPS	05 04 39

Date and Station		Phase (GCT)
		h m s
RCD	eP	04 51 20
	ePP	54 46
SJP	iP	04 44 53
SLC	eP'	04 51 23
TUC	eP'	04 51 10
	e	51 12
	ePKKP	05 01 51
TUT	eP'	04 51 08
Dec. 26		
BHP	iP	05 37 37
	iS	38 25
COL	eP	05 48 00
EUR	iP	05 44 37
GCA	eP	05 44 02
HHM	iP	05 45 15
RCD	eP	05 44 11.5
TUC	eP	05 43 33
TUT	eP	05 43 34
Dec. 26		
HHM	eP	06 20 39
Dec. 26		
EUR	iP	07 24 11
TUC	eP	07 24 09
Dec. 26		
COL	e(P)	09 48 01
EUR	iP	09 46 29
RCD	e(P)	09 45 27
TUC	eP	09 46 02
Dec. 26		
RCD	e(P)	11 12 47
Dec. 26		
SLC	e(P)	11 34 21
Dec. 26		
EUR	iP	13 32 09
Dec. 26		
GUA	iP	13 56 52
	iS	57 07
Dec. 26		
EUR	iP	17 24 41
Dec. 26		
HHM	iP	20 08 11
Dec. 26		
EUR	eP	20 22 03

Date and Station		Phase (GCT)
		h m s
Dec. 26		
COL	iP	20 54 30
Dec. 26		
EUR	iP	22 02 53
HHM	eP	22 02 22
	i	04 48
Dec. 26		
TUT	e(P)	22 29 22
Dec. 26		
EUR	iP	22 56 31
Dec. 27		
EUR	eP	03 32 57
Dec. 27		
TUC	eP	10 18 44
Dec. 27		
BOZ	iP	10 38 04
	e	38 44
	eS	42 00
BUT	eP	10 37 52
	eS	41 03
COL	iP	10 41 07
	e	41 41
	e	44 37
	eS	45 49
	eL	47 16
EUR	iP	10 37 14
GCA	iP	10 38 13
	i	39 12
	iL	41 20
HHM	iP	10 37 56
	i	38 11
	iS	39 24
RCD	iP	10 39 13
	eS	41 58
	eL	44 22
SLC	iP	10 37 52
	i	38 43
	iS	40 31
	iL	45 03
SJP	iP	10 45 00
SIT	eP	10 39 26
	iS	42 48
	eL	45 08
THU	eP	10 43 21
TUC	iP	10 38 56
	iL	42 19
TUT	eP	10 38 57
	e	39 05
	eS	42 01

Date and Station		Phase	(GCT) h m s
WAS		iP	10 41 32
		e	51 06
Dec. 27 BOZ		e(P)	10 59 14
COL		eP	11 02 17
EUR		iP	10 58 24
		e	11 07 35
GCA		eP	10 59 24
HHM		eP	10 59 05
RCD		eP	11 00 23
SLC		iP	10 59 02
		eS	11 02 23
TUC		e(P)	11 00 07
		i	00 20
TUT		eP	11 00 07
Dec. 27 BOZ		eP	11 11 22
		e	11 36
		eS	15 12
COL		eP	11 14 30
		e	14 46
EUR		iP	11 10 32
		e	23 59
GCA		eP	11 11 31
		i	11 38
		eL	15 16
HHM		eP	11 11 13
RCD		eP	11 12 31
SLC		eP	11 11 11
		eS	14 16
		eL	15 47
TUC		eP	11 12 20
Dec. 27 EUR		eP	11 36 36
Dec. 27 COL		eP	11 59 44
Dec. 27 EUR		iP	13 05 59
HHM		iP	13 05 40
Dec. 27 TUT		e(P)	13 29 44
Dec. 27 EUR		eP	14 06 15
Dec. 27 EUR		eP	15 20 52
Dec. 27 EUR		iP	15 47 53
Dec. 27 HHM		iP	16 05 44
Dec. 27 EUR		iP	16 18 38
		i	18 44
Dec. 27 BHP		iP	18 14 43
BOZ		iP	18 20 35
		ipP	20 58
EUR		iP	18 20 22
		ipP	20 22
		eP'P'	49 10
COL		iP	18 23 02
		ipP	23 26
FGU		iP	18 20 07
		ipP	20 31
GCA		eP	18 19 54
		epP	20 17
HHM		iP	18 20 56
		ipP	21 20
		isP	21 30
		i	22 12
		iPP	23 39
RCD		eP	18 20 05
		epP	20 29
SLC		eP	18 20 14
SJP		iP	18 16 12
		ipP	16 34
		iPcP	18 40
THU		iP	18 22 38
		epP	23 03
TUC		iP	18 19 50
TUT		eP	18 19 26
Dec. 27 EUR		iP	20 32 14
Dec. 27 HHM		eP	21 58 46
Dec. 27 FGU		eP	22 01 08
Dec. 27 EUR		eP	22 21 07
Dec. 27 GCA		eP	22 37 15
Dec. 27 FGU		eP	23 12 16
		i	12 18
Dec. 27 GCA		eP	23 26 01
Dec. 28 EUR		eP	00 42 20
Dec. 28 EUR		iP	02 08 58
GCA		eP	02 09 13
TUC		eP	02 09 01
Dec. 28 FGU		eP	03 34 56
Dec. 28 EUR		iP	04 37 27
Dec. 28 BOZ		e(P)	05 52 38
COL		iP	05 51 52
HHM		iP	05 52 33
SJP		e(P)	05 51 41
Dec. 28 FGU		eP	09 35 12
Dec. 28 EUR		iP	10 43 44
		i	43 50
HHM		e(P)	10 44 29
Dec. 28 FGU		eP	11 14 37
		i	14 40
Dec. 28 EUR		iP	14 24 50
Dec. 28 TUT		eP	16 01 06
		eS	02 05
Dec. 28 EUR		eP	16 48 20
Dec. 28 COL		iP	18 03 07
HHM		i(P)	18 07 49
Dec. 28 COL		iP	19 47 12
		eS	48 29
EUR		eP	19 51 40
		ipP	51 59
FGU		eP	19 51 58
		i	52 17
HHM		eP	19 50 52
		i	51 10
Dec. 28 EUR		iP	22 32 23
Dec. 28 COL		iP	23 19 56
EUR		iP	23 23 35
		ipP	23 51
FGU		eP	23 23 52
HHM		e(P)	23 23 00
Dec. 29 FGU		eP	00 07 39
Dec. 29 COL		e(P)	00 48 12
Dec. 29 EUR		eP	01 00 19
Dec. 29 FGU		eP	04 37 19
Dec. 29 FGU		eP	05 36 54
Dec. 29 BOZ		eP	06 14 45
BUT		eP	06 14 44
COL		iP	06 14 44
		eS	25 18
EUR		iP	06 14 14
		ePP	17 14
		e(rPPP)	20 30
FGU		eP	06 14 39
GCA		eP	06 14 23
HHM		eP	06 14 46
SLC		eP	06 14 32
TUC		eP	06 14 13
		iP	14 14
		ePP	17 11
		e	22 30
		eL	37 56
TUT		e(P)	06 14 14
Dec. 29 EUR		iP	07 00 38
Dec. 29 EUR		iP	07 16 57
HHM		eP	07 17 27
Dec. 29 COL		iP	09 48 13
EUR		iP	09 51 45

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Date and Station		Phase (GCT)	
		h m s	
HHM	e(P)	09 51 13	
Dec. 29			
BHP	iP	10 46 05	
	i(S)	53 36	
BOZ	eP	10 50 07	
BUT	eP	10 50 10	
COL	iP	10 55 35	D
EUR	iP	10 49 48	C
	ePKKP	11 06 41	
FGU	eP	10 49 42	
	ePP	53 17	
GCA	eP	10 49 31	
HHM	eP	10 50 19	
	ePP	54 22	
	ePKKP	11 06 48	
RCD	eP	10 49 48	
	i	49 59	
SLC	eP	10 49 47	
	ePP	53 33	
SJP	iP	10 47 11	C
	i	47 28	
THU	eP'	10 55 33	
TUC	iP	10 49 07	C
	eL	11 15 15	
TUT	eP	10 49 08	
	e	49 16	
	ePP	52 19	
Dec. 29			
COL	eP	11 02 05	
Dec. 29			
COL	iP	11 17 27	
EUR	iP	11 14 41	
FGU	eP	11 14 24	
GCA	eP	11 14 13	
HHM	eP	11 15 16	
SJP	e(P)	11 10 29	
TUT	eP	11 13 44	
Dec. 29			
COL	iP	13 55 07	
HHM	eP	13 56 22	
SJP	iP'	14 02 11	
	i	02 36	

Date and Station		Phase (GCT)
		h m s
Dec. 29		
EUR	iP	18 03 51
Dec. 29		
COL	eP	18 31 49
HHM	iP	18 32 28
Dec. 29		
TUT	e(P)	19 05 25
Dec. 29		
BOZ	iP	19 13 17
	e(pP)	13 33
BUT	eP	19 13 22
COL	iP	19 15 30
	ipP	15 47
	ePP	19 44
CSC	eP	19 10 59
EUR	iP	19 13 05
GCA	iP	19 12 40
	iPcP	20 13 21
HHM	iP	19 13 35
	ipP	13 52
RCD	iP	19 12 49
	ipP	13 07
SLC	eP	19 12 56
	epP	13 03
SJP	iP	19 08 49
	i	09 15
	iPcP	11 26
	eS	14 28
THU	iP	19 15 01
	ipP	15 17
TUC	iP	19 12 13
TUT	iP	19 12 14
	ipP	12 31
Dec. 29		
COL	eP	20 01 54
	ePcP	02 17
EUR	eP	20 02 55
	i	03 38
GUA	eP	19 51 46
	eS	52 58
HHM	eP	20 03 32
Dec. 29		
GCA	eP	20 08 32
	i	08 56
Dec. 29		
EUR	iP	20 45 28
TUC	eP	20 44 48

Date and Station		Phase (GCT)
		h m s
Dec. 29		
HHM	eP	21 08 13
Dec. 29		
EUR	iP	21 23 47
HHM	iP	21 23 41
TUT	e(P)	21 44 40
Dec. 29		
EUR	iP	22 24 40
HHM	iP	22 24 35
Dec. 29		
EUR	iP	22 37 32
HHM	eP	22 37 27
Dec. 29		
EUR	eP	23 17 54
GCA	eP	23 17 20
	e(S)	19 14
	e(L)	21 25
TUC	eP	23 16 32
	i	16 39
TUT	e(P)	23 16 27
	iS	17 23
Dec. 30		
GCA	e(P)	00 20 24
	e	20 39
Dec. 30		
COL	eP	00 37 28
EUR	iP	00 37 52
	i	38 19
HHM	e(P)	00 38 37
Dec. 30		
GCA	e(P)	00 43 18
	e(S)	45 29
TUC	eP	00 42 33
	i	42 42
TUT	eP	00 42 33
	eS	43 24
Dec. 30		
EUR	iP	01 51 34
	i	53 44
HHM	eP	01 51 28
Dec. 30		
COL	eP	01 51 46
FGU	eP	01 53 18
HHM	eP	01 53 37

Date and Station		Phase (GCT)
		h m s
Dec. 30		
TUT	eP	02 56 47
	eS	57 30
Dec. 30		
EUR	eP	03 55 55
Dec. 30		
EUR	iP	05 26 56
Dec. 30		
EUR	iP	05 29 46
TUC	eP	05 28 21
	e	28 27
	i	28 33
TUT	eP	05 28 08
	iS	29 16
Dec. 30		
EUR	iP	05 41 22
HHM	iP	05 41 16
TUC	eP	05 40 58
Dec. 30		
EUR	iP'	05 48 24
GUA	iP	05 36 03
	ipP	36 14
HHM	iP'	05 48 21
Dec. 30		
HHM	eP	06 13 14
Dec. 30		
EUR	iP	06 31 21
TUC	e(P)	06 28 35
	e	28 39
TUT	e(P)	06 28 39
	eS	29 28
Dec. 30		
RCD	eP	08 21 26
Dec. 30		
EUR	iP	08 39 15
HHM	iP	08 39 09
RCD	e(P)	08 38 27
TUC	eP	08 38 52
	e	39 02
TUT	eP	08 38 52
Dec. 30		
EUR	iP	09 14 42
HHM	eP	09 15 12
Dec. 30		
EUR	iP	09 36 01

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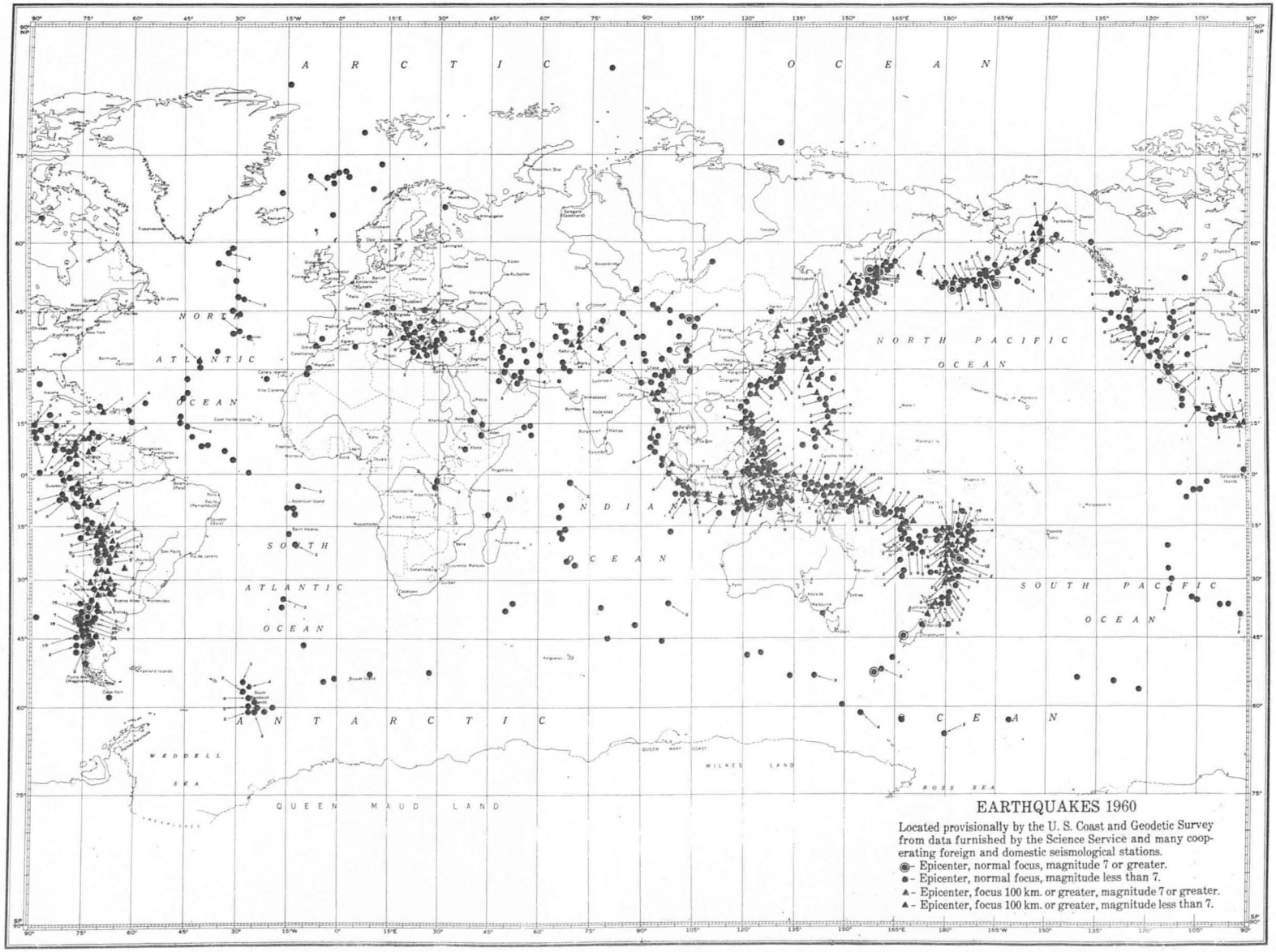
Date and Station	Phase	Phase (GCT) h m s
HHM	eP	09 35 56
Dec. 30 EUR	iP	09 57 18
Dec. 30 BUT	e(P)	11 15 09
EUR	iP	11 14 51
	i(sP)	15 38
HHM	iP	11 15 22
	i	15 48
RCD	eP	11 14 35
SJP	iP	11 10 31
TUC	eP	11 13 59
	i	14 25
Dec. 30 EUR	eP	12 54 11
Dec. 30 EUR	eP	13 41 03
Dec. 30 COL	iP	17 16 27
Dec. 30 HHM	iP	19 21 34
Dec. 30 EUR	iP	21 41 59
	i	42 23
	eL	43 46
GCA	iP	21 41 17
	i	42 36
Dec. 30 EUR	iP	23 46 28
	eL	48 14
TUT	e(P)	23 46 47
	eS	48 11
Dec. 31 COL	eP	00 21 40
	epP	22 00
EUR	iP	00 21 08
	ipP	21 24
TUC	iP	00 21 04
	ipP	21 20
Dec. 31 FGU	eP	00 59 00
	e	59 18
Dec. 31 COL	eP	01 08 16
EUR	iP	01 11 59
Dec. 31 EUR	eP	04 20 15
Dec. 31 EUR	iP	07 07 40
Dec. 31 EUR	iP	07 39 58
FGU	eP	07 39 55
Dec. 31 TUT	eP	08 07 17
	eS	08 09
Dec. 31 COL	iP	08 17 07
Dec. 31 TUC	eP	08 22 01
Dec. 31 FGU	eP	09 10 26
Dec. 31 EUR	eP	11 30 53
TUC	eP	11 30 20
TUT	e(P)	11 30 21
Dec. 31 TUC	eP	13 25 56
Dec. 31 COL	eP	13 32 23
EUR	eP	13 35 51
HHM	eP	13 35 21
Dec. 31 COL	eP	14 55 06
	e	55 18
Dec. 31 COL	i(P)	14 59 51
FGU	iP	14 55 43
HHM	eP	14 56 49
Dec. 31 TUC	eP	15 54 47
Dec. 31 HHM	eP'	16 24 20
Dec. 31 HHM	iP	16 31 39
Dec. 31 WAS	iP	17 20 29
Dec. 31 BHP	iP	18 17 24
BOZ	iP	18 21 27 D
BUT	e(P)	18 21 32
COL	iP'	18 26 58
EUR	iP	18 21 10 D
	iPP	24 47
	ePKKP	38 22
	eP'P'	46 55
FGU	eP	18 21 06
	i	21 30
HHM	eP	18 21 43 D
RCD	eP	18 21 12
SJP	iP	18 18 27 C
TUC	iP	18 20 29 D
TUT	iP	18 20 30 D
Dec. 31 COL	iP	18 56 13
	eS	56 40
HHM	e(P)	19 01 07
Dec. 31 EUR	eP	19 11 58
Dec. 31 COL	iP	21 18 13
EUR	iP	21 19 15
GUA	iP	21 10 26
HHM	iP	21 19 21
Dec. 31 TUT	eP	21 23 16

Date and Station	Phase	Phase (GCT) h m s

Date and Station	Phase (GCT)
	h m s
Local and Minor Earthquakes	
December	
BUT	
1	01.5
5	07.7
17	11.9
21	06.6
23	07.4
25	07.5
COL	
1	20.0
	20.7
2	04.0
	08.0
3	04.1
4	18.3
5	01.9
	03.9
	18.8
6	04.5
8	13.5
	23.3
9	16.8
	23.3
10	10.6
11	13.2
	13.8
12	07.8
13	03.6
	07.7
	09.4
	15.0
	18.1
14	01.5
	10.7
	14.4
15	04.9
	10.0
16	20.2
	21.1
17	01.7
	16.2
18	00.8
	05.9
23	19.1
25	00.1
26	18.0
	20.0
28	01.9
30	14.0
	19.7
31	04.4
	08.2
	10.8
HHM	
1	01.5
	22.6
3	19.9
6	01.4
	13.0
8	13.0
13	08.1
17	07.6
	16.3
18	22.0
21	03.2
	06.6
22	19.3
23	09.7
24	10.9
30	21.8
SJP	
3	14.7
21	15.6
	15.7
24	02.6
	06.9
25	03.4
26	03.5
29	03.9
31	16.8
TUC	
4	05.5
	06.3
	10.1
5	12.2
	13.0
6	02.0
	09.5
	10.0
	13.5
7	06.1
	06.9
	08.7
	10.8
	11.8
8	02.4
	05.5
	07.3
	07.4
	13.3
9	00.4
10	01.8
	06.4
	07.1
	10.8
	12.5
	22.3
	23.9
11	00.9
	03.5
12	13.0
14	01.7
15	02.3
17	12.1
18	05.8
	22.0
21	02.6
22	04.2
24	07.2
	23.9
25	20.7
27	08.2
30.	00.9
	01.8
	02.9
	03.4
30	04.1
	04.7
	06.6
	08.0
	09.1
	10.9
	14.0
	21.7
31	05.9
	08.1
	08.2
	08.6
TUT	
6	10.4
9	18.1
13	18.2
14	19.1
16	21.9
17	23.0
18	15.7
22	21.9
27	22.0



EARTHQUAKES 1960

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, focus 100 km. or greater, magnitude 7 or greater.
- Epicenter, focus 100 km. or greater, magnitude less than 7.