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SEISMOLOGICAL BULLETIN

December, 1961

COAST & GEODETIC SURVEY
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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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1961

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

Albuquerque, New Mexico (ALQ)
**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,[1] Nebr. (LIN)
Nebraska Wesleyan University
**Philadelphia, Pa. (PHI)
The Franklin Institute
**Rapid City, S. C. (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the data from the horizontal components of the seismographs at all stations except College, Honolulu, and Tucson will not be published for earthquakes occurring outside the United States.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 earthquakes 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 in the Preliminary Determination of Epicenters 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.

1 Discontinued as of June, 1961.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
1	06 55 10.9	3.6 S.	152.5 E.	New Ireland region. h about 342 km.
1	07 34 22.2	56.4 N.	159.0 E.	Kamchatka. h about 35 km.
1	07 58 50.1	8.8 N.	121.9 E.	Off coast of Negros, Philippine Islands. Felt at Dumaguete. h about 50 km.
1	09 16 01.1	6.0 S.	130.6 E.	Banda Sea. h about 22 km.
1	15 04 17.5	25.5 S.	179.4 W.	South of Fiji Islands. h about 374 km.
1	20 17 51.3	28.0 N.	141.5 E.	Bonin Islands region. h about 90 km.
1	21 13 04.1	26.5 N.	124.9 E.	East China Sea. h about 206 km.
2	04 47 53.7	13.9 N	92.3 W.	Near coast of Guatemala. h about 33 km.
2	07 20 17.6	20.1 N.	108.5 W.	Revilla Gigedo Islands region. h about 33 km.
2	12 40 16.2	36.5 N.	8.2 E.	Algeria-Tunisia border. Felt at Bone, Lamy and Philippeville. h about 33 km.
2	14 05 50.8	17.4 S.	168.6 E.	New Hebrides Islands. h about 33 km.
2	18 45 47.3	22.4 S.	175.1 W.	Tonga Islands region. h about 33 km.
2	19 19 57.4	51.6 N.	179.5 E.	Rat Islands, Aleutian Islands. h about 50 km.
2	19 33 16.5	2.7 S.	138.8 E.	Near north coast of New Guinea. h about 100 km.
3	01 00 31.8	17.1 N.	99.3 W.	Near coast of Guerrero, Mexico. h about 46 km.
3	08 40 29.2	25.0 N.	123.1 E.	Off northeast coast of Formosa. Felt on Formosa. h about 140 km.
3	09 32 25.5	41.5 N.	75.3 E.	Kirghiz S.S.R. h about 24 km.
3	10 00 09.0	13.3 S.	166.5 E.	New Hebrides Islands. h about 39 km.
3	11 17 36.6	19.8 N.	95.9 W.	Near coast of Veracruz, Mexico. h about 33 km.
3	12 08 40.7	7.4 S.	112.1 E.	Java. h about 140 km.
3	14 27 43.4	24.0 S.	68.1 W.	Northern Chile-Argentina border. h about 217 km.
3	16 14 31.4	11.6 S.	166.1 E.	Santa Cruz Islands. h about 122 km.
3	18 31 56.1	40.9 N.	44.1 E.	Armenia S.S.R. Felt at Kars, Turkey and in Georgia S.S.R. h about 33 km.
3	19 55 05.5	43.6 N.	135.1 E.	Sea of Japan. h about 386 km.
3	21 03 23.4	4.2 S.	142.3 E.	New Guinea. h about 120 km.
3	23 04 59.632			37°02'45" N. 116°01'40" W. Nevada Test Site. FISHER. Shot elevation = 861.7 meters (AEC).
3	23 27.1			FISHER Collapse.
4	03 42 37.0	55.2 N.	160.1 W.	Alaska Peninsula. h about 62 km.
4	05 33 17.9	5.5 S.	151.7 E.	New Britain region. Felt. h about 47 km.
4	07 36 23.1	18.6 N.	69.0 W.	Near coast of Dominican Republic. h about 140 km.
4	08 20 17.7	60.2 N.	160.4 E.	Northern Kamchatka. h about 45 km.
4	12 38 11.9	33.2 N.	95.3 E.	Tsinghai Province, China. h about 45 km.
4	16 12 12.0	0.3 N.	78.3 W.	Ecuador. h about 33 km.
5	06 44 14.8	45.8 S.	73.2 W.	Southern Chile. h about 33 km.
5	13 01 04.3	50.8 S.	139.7 E.	Southwest of Tasmania. h about 33 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
5	13 02 35.7	16.4 S.	168.0 E.	New Hebrides Islands. Felt on Santo. h about 205 km. Mag. 6¼-6¾.
5	22 39 11.0	21.0 S.	178.4 W.	Fiji Islands region. h about 532 km.
6	02 15 59.5	37.8 N.	142.6 E.	Off east coast of Honshu, Japan. h about 47 km.
6	04 50 17.1	61.4 N.	147.9 W.	Southern Alaska. h about 70 km.
6	05 48 38.3	13.6 N.	93.4 E.	Andaman Islands. h about 35 km. Mag. 5¼ (Pal).
6	13 35 48.2	23.5 S.	176.1 W.	Tonga Islands region. h about 45 km. Mag. 6¼ (Brk).
6	15 18 09.5	24.0 S.	175.8 W.	Tonga Islands region. h about 45 km.
6	15 40 34.4	8.3 S.	117.4 E.	Soembawa. h about 77 km.
6	16 39 37.6	49.3 N.	155.4 E.	Kurile Islands. Felt on Paramushiro. h about 60 km. Mag. 6-6¼.
7	00 18 26.0	23.4 S.	175.9 W.	Tonga Islands region. h about 45 km.
7	09 11 06.0	6.8 S.	155.2 E.	Solomon Islands. h about 62 km.
7	14 24 03.4	23.4 S.	175.9 W.	Tonga Islands region. h about 45 km.
7	16 29 15.4	23.8 S.	175.9 W.	Tonga Islands region. h about 45 km.
8	03 46 24.5	23.6 S.	175.8 W.	Tonga Islands region. h about 45 km.
8	06 07 38.6	3.0 S.	136.9 E.	Western New Guinea. h about 64 km.
8	07 57 52.8	15.3 N.	104.7 W.	Off west coast of Mexico. h about 33 km.
8	08 13 07.3	8.5 S.	119.4 E.	Flores. h about 144 km.
8	09 36 24.9	1.8 S.	139.4 E.	Near north coast of New Guinea. h about 55 km.
8	10 19 53.1	30.6 N.	87.0 E.	Tibet. h about 33 km.
8	10 40 42.6	13.5 N.	50.2 E.	Gulf of Aden. h about 33 km.
8	11 17 03.6	8.5 S.	117.4 E.	Soembawa. h about 33 km.
8	14 27 00.5	15.0 S.	168.5 E.	New Hebrides Islands. h about 178 km.
8	14 42 50.1	23.5 S.	176.0 W.	Tonga Islands region. h about 45 km.
8	16 11 44.0	6.7 S.	155.0 E.	Solomon Islands. h about 54 km.
9	02 15 22.0	56.3 N.	153.9 W.	Kodiak Island, Alaska. h about 31 km. Mag. 5½-5¾ (Brk).
9	02 33 26.9	18.8 S.	169.5 E.	New Hebrides Islands. h about 252 km.
9	03 58 55.4	14.9 S.	75.7 W.	Near coast of Peru. h about 39 km. Mag. 5 (Pal).
9	10 18 21.9	7.8 S.	108.1 E.	Near south coast of Java. h about 230 km.
9	11 18 08.9	43.7 S.	75.2 W.	Near coast of southern Chile. h about 34 km. Mag. 6¾.
9	16 35 53.2	8.9 S.	105.6 E.	South of Java. h about 35 km.
9	19 17 35.1	10.1 S.	161.2 E.	Solomon Islands. h about 100 km.
9	19 49 41.3	21.7 S.	179.9 E.	Fiji Islands region. h about 620 km.
9	21 21 51.3	56.3 N.	153.5 W.	Kodiak Island, Alaska. h about 33 km.
9	21 41 45.8	22.4 S.	177.3 W.	Tonga Islands region. h about 45 km.
9	22 39 00.2	6.0 S.	149.3 E.	New Britain region. h about 123 km.
10	04 58 35.9	56.4 N.	153.1 W.	Kodiak Island, Alaska. h about 33 km.
10	08 39 03.6	34.6 N.	26.0 E.	Crete. h about 17 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
10	16 50 54.1	16.3 S.	172.6 W.	Samoa Islands region. h about 35 km.
10	19 00 00.004			32°15'49" N. 103°51'57" W. New Mexico Test Site. GNOME. Shot elevation = 369.7 meters (AEC).
11	04 48 00.4	19.7 N.	99.1 W.	Central Mexico. Minor damage in Mexico City. h about 33 km.
11	05 08 51.1	29.8 S.	179.1 W.	Kermadec Islands. h about 279 km.
11	09 52 15.8	23.3 N.	94.6 E.	Burma. h about 83 km.
11	15 06 50.4	37.5 S.	72.8 W.	Near coast of central Chile. h about 45 km.
11	16 53 06.4	36.4 N.	23.6 E.	Near coast of southern Greece. Felt. h about 33 km.
11	18 05 18.4	27.1 S.	176.6 W.	Kermadec Islands region. h about 33 km.
11	22 10 49.4	15.2 S.	166.7 E.	New Hebrides Islands. Felt on Santo. h about 38 km.
12	03 55 10.2	4.3 S.	127.2 E.	Banda Sea. h about 65 km.
12	11 18 24.0	11.9 N.	60.2 W.	Windward Islands region. h about 80 km.
12	17 23 04.0	21.7 N.	146.0 E.	Mariana Islands region. h about 24 km.
12	21 18 32.5	13.9 N.	120.6 E.	Near coast of Luzon, Philippine Islands. h about 120 km.
12	22 14 38.7	18.9 N.	107.7 W.	Revilla Gegido Islands region. h about 33 km. Mag. 5¼ (Brk).
12	23 06 20.6	43.4 N.	146.2 E.	Near east coast of Hokkaido, Japan. h about 65 km.
13	08 40 48.3	26.6 N.	129.4 E.	Ryukyu Islands. h about 55 km.
13	11 23 28.6	50.9 S.	73.6 W.	Near coast of southern Chile. h about 50 km.
13	16 49 50.4	18.9 S.	168.4 E.	New Hebrides Islands. Felt at Port Vila. h about 30 km.
13	18 00 00.163			37°07'36" N. 116°02'56" W. Nevada Test Site. MAD. Shot elevation = 1100.3 meters (AEC).
13	19 18 56.0	32.0 S.	70.7 W.	Chile-Argentina border. h about 125 km.
13	19 59 13.4	9.9 N.	125.8 E.	Near north coast of Mindanao, Philippine Islands. h about 69 km.
14	01 40 24.3	21.2 N.	109.0 W.	Revilla Gegido Islands region. h about 33 km.
14	04 40 17.0	20.1 S.	173.6 W.	Tonga Islands. h about 33 km.
14	07 10 23.2	3.1 S.	140.9 E.	Near north coast of New Guinea. h about 44 km.
14	12 14 38.9	7.8 S.	120.5 E.	Flores Sea. h about 62 km.
14	18 48 55.5	19.8 S.	177.7 W.	Fiji Islands. h about 398 km.
14	23 26 04.3	26.2 S.	179.5 E.	South of Fiji Islands. h about 488 km.
15	12 36 32.0	5.5 S.	147.2 E.	New Britain region. h about 197 km.
15	14 10 29.8	13.6 N.	92.8 W.	Near coast of Guatemala. h about 160 km.
15	16 42 57.6	13.9 S.	165.9 E.	New Hebrides Islands. h about 39 km.
15	19 36 02.7	1.0 N.	126.0 E.	Molucca Passage. h about 28 km.
15	22 03 04.1	34.3 N.	24.8 E.	Crete. Felt. h about 33 km.
16	01 37 17.1	9.8 N.	125.6 E.	Near north coast of Mindanao, Philippine Islands. h about 135 km.
16	09 16 56.1	26.5 S.	177.0 W.	South of Tonga Islands. h about 33 km.
16	09 59 16.5	23.9 S.	175.9 W.	South of Tonga Islands. h about 50 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
16	13 40 26.3	51.9 N.	160.1 E.	Off east coast of Kamchatka. h about 62 km.
16	20 35 29.0	28.4 S.	179.2 W.	Kermadec Islands. h about 295 km.
17	00 51 47.3	15.7 N.	88.3 W.	Honduras. h about 33 km.
17	16 35 00.131			37°02'35" N. 116°01'31" W. Nevada Test Site. RINGTAIL. Shot elevation = 860.8 meters (AEC).
17	21 32 03.1	14.4 S.	75.5 W.	Near coast of Peru. h about 84 km.
17	22 05 21.6	4.8 S.	126.7 E.	Banda Sea. h about 33 km.
17	22 12 32.3	54.5 S.	143.9 E.	South of Tasmania. h about 45 km.
18	02 18 31.3	19.6 N.	120.8 E.	Near north coast of Luson, Philippine Islands. Felt on Calayan. h about 32 km.
18	16 42 22.3	26.3 N.	96.3 E.	Northern Burma. h about 93 km.
18	22 24 52.9	20.9 S.	174.5 W.	Tonga Islands. h about 33 km.
19	13 02 43.5	14.4 S.	168.1 E.	New Hebrides Islands. h about 172 km.
19	15 41 26.4	4.9 N.	127.4 E.	Off south coast of Mindanao, Philippine Islands. h about 123 km.
19	16 10 08.8	2.6 S.	122.2 E.	Celebes. h about 93 km.
19	17 30 10.6	24.2 N.	122.4 E.	Near east coast of Formosa. h about 59 km.
20	01 44 23.3	3.2 N.	118.5 E.	Near east coast of Borneo. h about 33 km.
20	13 25 34.4	4.6 N.	75.6 W.	West-central Colombia. 23 killed, 100 injured and moderate property damage in Caldas Province. Felt at Balboa Heights, C. Z. h about 176 km. Mag. 6¾.
20	14 28 18.7	6.6 S.	129.8 E.	Banda Sea. h about 105 km.
20	23 00 28.3	14.3 N.	90.8 W.	Near coast of Guatemala. h about 98 km.
20	23 47 51.7	15.9 S.	168.6 E.	New Hebrides Islands. h about 33 km.
21	00 44 28.1	6.7 N.	127.0 E.	Off coast of Mindanao, Philippine Islands. h about 33 km.
21	07 10 45.1	0.9 N.	127.6 E.	Halmahera. h about 238 km.
21	12 07 31.7	55.1 S.	32.5 W.	Sandwich Islands region. h about 33 km.
21	13 30 40.3	7.2 S.	129.1 E.	Banda Sea. h about 165 km.
21	23 36 55.1	1.5 S.	138.1 E.	Near north coast of New Guinea. h about 33 km.
22	01 37 44.8	6.4 S.	128.9 E.	Banda Sea. h about 38 km.
22	10 33 42.5	2.8 S.	136.7 E.	Western New Guinea. h about 38 km.
22	11 26 46.5	40.5 N.	126.3 W.	Off coast of northern California. h about 33 km. Mag. 4.6 (Brk).
22	14 58 33.4	56.2 N.	154.3 W.	Kodiak Island, Alaska. h about 26 km.
22	15 36 18.3	11.9 N.	85.5 W.	Nicaragua. h about 49 km.
22	16 30 00.126			37°11'42" N. 116°12'30" W. Nevada Test Site. FEATHER. Shot elevation = 2021.2 meters (AEC).
22	22 11 10.0	14.7 S.	167.2 E.	New Hebrides Islands. h about 95 km.
22	22 46 24.6	18.6 N.	145.6 E.	Mariana Islands. h about 155 km.
22	23 43 34.4	16.4 N.	120.4 E.	Luson, Philippine Islands. Felt at Baguio. h about 33 km.
23	03 49 37.6	10.1 S.	160.3 E.	Solomon Islands. h about 90 km.
23	06 53 36.5	44.9 N.	111.2 W.	Yellowstone National Park, Montana. h about 23 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
23	14 36 27.1	6.4 N.	73.4 W.	Colombia. h about 197 km.
23	18 09 04.7	36.3 N.	71.3 E.	Hindu Kush. h about 183 km.
23	19 11 53.3	34.3 N.	138.3 E.	Near coast of southern Honshu, Japan. Felt. h about 245 km.
23	21 18 12.5	19.9 S.	68.3 W.	Chile-Bolivia border. h about 215 km.
24	02 04 18.8	65.9 N.	150.2 W.	Alaska. Felt at Manly Hot Springs. h about 33 km.
24	02 40 07.6	3.4 S.	140.3 E.	New Guinea. h about 29 km.
24	02 54 50.0	15.1 N.	144.0 E.	Mariana Islands. h about 85 km.
24	03 50 45.6	3.2 S.	140.1 E.	Near north coast of New Guinea. h about 39 km.
24	06 50 54.0	43.3 N.	144.0 E.	Near coast of northern Hokkaido, Japan. h about 125 km.
24	07 13 27.5	29.5 N.	80.8 E.	Nepal. h about 33 km.
24	09 19 02.7	20.4 S.	173.6 W.	Tonga Islands. h about 45 km.
24	11 26 32.2	4.7 S.	144.2 E.	New Guinea. h about 95 km.
24	14 25 30.6	5.7 S.	80.9 W.	Near coast of northern Peru. h about 33 km.
24	16 23 02.4	3.4 S.	140.1 E.	New Guinea. h about 44 km.
24	16 58 23.2	3.2 S.	140.0 E.	New Guinea. h about 33 km.
24	17 15 44.4	5.8 S.	81.0 W.	Near coast of northern Peru. h about 33 km.
24	20 28 09.0	74.6 N.	7.9 E.	Svalbard region. h about 33 km.
24	23 43 19.2	38.3 S.	74.6 W.	Near coast of central Chile. h about 31 km. Mag. 6-6½ (Pal).
25	00 01 55.0	3.3 S.	140.3 E.	New Guinea. h about 29 km.
25	08 00 59.3	3.7 S.	127.7 E.	Ceram. h about 47 km.
25	08 13 10.0	0.8 S.	126.8 E.	Halmahera. h about 33 km.
25	08 57 31.9	6.0 N.	82.6 W.	South of Panama. h about 33 km.
25	09 09 07.4	3.8 S.	127.6 E.	Ceram. h about 33 km.
25	09 14 12.1	3.8 S.	127.5 E.	Ceram. h about 42 km.
25	09 21 22.5	3.7 S.	127.3 E.	Ceram. h about 27 km.
25	11 19 11.2	27.1 N.	90.4 E.	Bhutan. h about 33 km.
25	12 20 02.8	39.1 N.	94.6 W.	Kansas-Missouri border. Felt. h about 25 km.
25	12 58 21.4	39.1 N.	94.6 W.	Kansas-Missouri border. Felt. h about 20 km.
25	13 55 38.8	20.4 S.	173.7 W.	Tonga Islands. h about 64 km.
25	14 25 16.9	60.9 N.	147.7 W.	Kenai Peninsula, Alaska. Felt at Devils Club and Girdwood. h about 33 km.
25	15 49 06.9	10.1 S.	125.1 E.	Timor. h about 33 km.
25	19 58 28.6	63.9 N.	89.3 W.	Hudson Bay, Canada. h about 33 km.
25	21 47 50.0	44.2 N.	142.9 E.	Near coast of northern Hokkaido, Japan. h about 257 km.
25	21 51 03.9	39.5 N.	76.9 E.	Sinkiang Province, China. h about 130 km.
25	22 24 56.9	9.0 S.	109.9 E.	Off coast of Java. h about 97 km.
26	04 24 57.3	5.6 S.	110.7 E.	Java Sea. h about 550 km.
26	06 17 30.6	44.2 S.	38.1 E.	Prince Edward Islands region. h about 22 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
26	06 34 50.6	5.6 S.	110.7 E.	Java Sea. h about 549 km.
27	02 16 02.3	22.5 S.	68.8 W.	Northern Chile. h about 120 km.
27	02 25 58.3	2.9 S.	141.2 E.	Near north coast of New Guinea. h about 115 km.
27	07 18 04.5	18.7 S.	177.5 W.	Fiji Islands. h about 616 km.
27	09 38 13.2	15.9 N.	96.9 W.	Near coast of Oaxaca, Mexico. h about 117 km.
27	11 51 10.3	17.3 S.	173.5 W.	Tonga Islands. h about 33 km.
27	15 19 15.8	53.4 N.	160.3 E.	Near east coast of Kamchatka. h about 35 km.
27	16 46 31.2	1.7 S.	12.9 W.	Atlantic Ocean, north of Ascension Island. h about 37 km.
27	23 18 12.1	6.0 S.	147.9 E.	New Britain region. h about 33 km.
27	23 48 01.7	41.2 S.	175.8 E.	Near coast of North Island, New Zealand. Felt at Wellington. h about 40 km. Mag. 6¾.
28	05 12 21.2	62.6 N.	155.0 W.	Alaska. h about 60 km.
28	05 44 58.2	45.3 S.	74.8 W.	Near coast of southern Chile. h about 33 km.
28	18 18 00.4	17.7 S.	178.6 W.	Fiji Islands. h about 592 km.
28	23 55 55.5	12.4 S.	166.3 E.	Santa Cruz Islands. h about 81 km.
29	08 00 08.9	42.6 N.	142.7 E.	Hokkaido, Japan. h about 43 km.
29	10 00 37.2	6.4 S.	154.4 E.	Solomon Islands. h about 70 km.
29	14 53 19.4	14.3 N.	92.8 W.	Near Mexico-Guatemala border. h about 45 km.
29	15 34 38.2	21.5 S.	68.7 W.	Chile-Bolivia border. h about 127 km.
29	21 34 38.3	52.1 N.	177.9 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	00 39 27.1	52.3 N.	177.6 E.	Rat Islands, Aleutian Islands. h about 56 km. Mag. 6¾.
30	01 11 22.7	52.3 N.	177.9 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	03 43 11.6	7.3 S.	148.0 E.	Near north coast of New Guinea. h about 58 km.
30	06 56 53.0	13.4 N.	92.3 W.	Off coast of Guatemala. h about 33 km.
30	07 08 39.1	39.7 N.	77.7 E.	Sinkiang Province, China. h about 35 km.
30	08 53 15.5	52.1 N.	177.5 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	08 59 31.7	22.9 S.	175.2 W.	Tonga Islands. h about 41 km.
30	09 17 15.0	51.8 N.	178.0 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	10 14 39.2	52.1 N.	177.9 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	11 40 12.1	54.0 N.	166.2 W.	Unalaska Island, Alaska. h about 59 km.
30	15 31 41.7	16.0 S.	170.0 E.	New Hebrides Islands. h about 65 km.
30	15 42 16.2	7.9 S.	106.9 E.	Off coast of Java. h about 76 km.
30	16 41 54.7	52.2 N.	177.7 E.	Rat Islands, Aleutian Islands. h about 35 km.
30	18 18 32.6	8.7 N.	126.3 E.	Near coast of Mindanao, Philippine Islands. h about 119 km.
30	19 08 48.0	52.1 N.	177.9 E.	Rat Islands, Aleutian Islands. h about 50 km.
30	23 20 16.9	16.5 N.	46.6 W.	North Atlantic Ocean. h about 32 km.
31	02 19 16.5	52.1 N.	177.8 E.	Rat Islands, Aleutian Islands. h about 50 km.
31	13 46 01.8	1.6 N.	127.3 E.	Halmahera. h about 140 km.
31	15 54 49.3	52.3 N.	177.8 E.	Rat Islands, Aleutian Islands. h about 50 km.

Date 1961	Origin Time G. C. T.	Lat.	Long.	Region, Remarks and Focal Depth
Dec.	h m s	°	°	
31	16 07 46.2	8.1 S.	106.6 E.	Off coast of Java. h about 46 km.
31	16 35 58.7	44.4 N.	100.5 W.	Central South Dakota. Felt. h about 16 km.
31	17 48 27.8	51.8 N.	171.2 W.	Fox Islands, Aleutian Islands. h about 47 km.
31	18 04 30.3	18.4 N.	106.1 W.	Off coast of Jalisco, Mexico. h about 33 km.

Date and Station		Phase (GCT)
		h m s
Dec. 1		
GCA	eP	00 03 40
	eS	04 02
Dec. 1		
COL	iP	07 06 41
	epP	07 58
Dec. 1		
ALQ	eP	07 44 55
BCN	eP	07 44 20
BOZ	eP	07 43 42
BUT	eP	07 43 34
COL	iP	07 39 58
	i	40 29
CSC	eP	07 46 10
FGU	eP	07 44 13
GCA	eP	07 44 26
THU	eP	07 42 33
TUC	eP	07 44 53
TUT	iP	07 44 53
Dec. 1		
COL	eP	08 10 51
GUA	e(P)	08 07 30
Dec. 1		
SJP	iP	09 06 15
Dec. 1		
COL	eP	11 41 09
EUR	eP	11 45 07
Dec. 1		
COL	e(P)	12 27 05
Dec. 1		
EUR	e(P)	15 16 26
Dec. 1		
COL	eP	20 27 29
EUR	e(P)	20 30 10
FGU	e(P)	20 30 19
HHM	iP	20 29 45
THU	e(P)	20 29 26
Dec. 1		
COL	e(P)	20 48 42
Dec. 1		
ALQ	e(P)	21 26 43
	e	27 23
BCN	eP	21 26 12

Date and Station		Phase (GCT)
		h m s
BOZ	eP	21 25 53
BUT	eP	21 25 47
COL	iP	21 23 25
	ipP	24 12
	i	25 11
	i	25 22
	eS	31 52
EUR	iP	21 25 58
	ipP	26 53
	ieP	27 18
	iPP	29 41
	ipPP	30 27
	i	31 22
	iS	36 48
FGU	eP	21 26 10
	epP	27 05
GCA	eP	21 26 16
GUA	iP	21 17 50
	iS	21 42
HHM	iP	21 25 38
SJP	ePP	21 35 07
THU	e(P)	21 24 40
	epP	25 33
Dec. 1		
EUR	e(P)	21 58 05
	eL	59 39
FGU	e(P)	21 57 26
	e	57 34
HHM	iP	21 57 34
	i	57 45
	iL	58 44
Dec. 1		
HHM	e(P)	22 35 45
Dec. 2		
HHM	e(P)	01 17 05
Dec. 2		
GUA	iP	02 18 12
	iS	18 25
Dec. 2		
COL	e(P)	03 35 39
Dec. 2		
ALQ	eP	04 53 14
COL	e(P)	04 58 19
EUR	e(P)	04 54 31
FGU	eP	04 54 09
Dec. 2		
HHM	eP	05 12 48
Dec. 2		
ALQ	eP	07 23 54

Date and Station		Phase (GCT)
		h m s
COL	eP	07 29 23
EUR	i(P)	07 24 56
FGU	eP	07 24 58
GCA	eP	07 24 18
HHM	eP	07 26 14
TUC	eP	07 23 14
TUT	eP	07 23 15
Dec. 2		
ALQ	eP	08 07 26
Dec. 2		
ALQ	iP	12 52 59
BCN	eP	12 53 18
BOZ	eP	12 52 35
BUT	eP	12 52 36
COL	iP	12 52 09
	i	52 27
CSC	eP	12 51 28
EUR	iP	12 53 10
	i	53 49
FGU	iP	12 52 46
HHM	iP	12 52 31
SLC	eP	12 52 54
SJP	iP	12 51 08
	i	51 14
THU	e(P)	12 49 27
TUC	eP	12 53 20
TUT	iP	12 53 20
Dec. 2		
EUR	iP	13 24 39
Dec. 2		
COL	eP	13 26 00
EUR	eP	13 28 30
Dec. 2		
COL	eP	14 18 40
EUR	iP	14 18 50
Dec. 2		
COL	eP	16 06 35
Dec. 2		
HHM	e(P)	16 13 54
Dec. 2		
ALQ	eP	18 57 31

Date and Station		Phase (GCT)
		h m s
COL	iP	18 58 45
EUR	iP	18 58 11
Dec. 2		
ALQ	eP	19 29 19
COL	iP	19 24 42
	i	24 45
EUR	iP	19 28 13
	i	28 25
	i	28 39
	i	28 52
	iScP	33 31
Dec. 2		
COL	iP	19 45 43
	epP	46 08
Dec. 2		
ALQ	eP	21 09 46
Dec. 2		
BOZ	eP	21 56 48
Dec. 3		
BCN	eP	00 46 26
Dec. 3		
ALQ	iP	01 04 51
	e	10 40
BCN	eP	01 05 37
	eScP	12 53
COL	iP	01 10 19
CSC	eP	01 05 39
	eS	10 04
EUR	iP	01 06 09
	iPP	06 51
	e	10 09
	e(S)	10 31
	iL	14 45
FGU	eP	01 05 56
	i	06 05
	eL	14 02
GCA	eP	01 05 32
SLC	eP	01 06 03
TUC	eP	01 04 45
TUT	eP	01 04 44
Dec. 3		
ALQ	eP	04 03 06
Dec. 3		
ALQ	e(P)	04 05 31
FGU	e(P)	04 06 37
EUR	iP	04 06 41

Date and Station		Phase (GCT)
Dec. 3		h m s
EUR	e(P)	04 10 14
Dec. 3		
COL	iP	06 06 45
	iS	07 43
EUR	iP	06 12 18
	i	12 24
Dec. 3		
EUR	e(P)	07 01 38
Dec. 3		
ALQ	iP	07 53 32
	e	58 07
	e	58 55
COL	eP	07 58 06
EUR	eP	07 54 43
FGU	eP	07 54 22
SJP	eP	07 51 06
Dec. 3		
BUT	eP	08 53 30
	epP	54 06
COL	iP	08 51 10
	i	51 27
EUR	iP	08 53 41
	i	54 02
	ipP	54 15
	e	57 08
	ePP	57 29
	iPKKP	09 11 04
FGU	eP	08 53 54
TUC	eP'	08 58 30
TUT	eP'	08 58 30
Dec. 3		
EUR	eP	09 17 52
Dec. 3		
EUR	i(P)	09 24 58
Dec. 3		
COL	iP	09 43 28
	i	43 34
EUR	e(P)	09 46 06
Dec. 3		
COL	eP	10 12 40
	ipP	12 51
	i	13 42
EUR	e(P)	10 13 02
	e	15 08
Dec. 3		
BUT	eP	11 23 40
COL	eP	11 27 19
	ePcP	28 17

Date and Station		Phase (GCT)
		h m s
EUR	iP	11 23 11
FGU	eP	11 22 53
GCA	eP	11 22 31
TUC	e(P)	11 21 49
TUT	eP	11 21 46
Dec. 3		
ALQ	eP'	12 27 47
	iPP	31 05
EUR	iP'	12 27 30
	e	29 15
FGU	e(PP)	12 30 47
Dec. 3		
ALQ	iP	14 38 29
BUT	eP	14 39 34
EUR	iP	14 39 19
SJP	eP	14 35 11
Dec. 3		
EUR	iP	16 03 34
Dec. 3		
COL	iP	16 09 07
EUR	eP	16 09 27
Dec. 3		
ALQ	eP	16 27 44
BCN	eP	16 27 11
COL	iP	16 26 47
	i	26 57
	ipP	27 14
EUR	iP	16 27 13
FGU	eP	16 27 39
GCA	e(P)	16 27 20
SJP	e(P')	16 33 30
	e	36 55
Dec. 3		
COL	iP'	17 11 25
	i	11 33
Dec. 3		
FGU	e(P)	18 33 52
	e	34 53
	e	36 19
Dec. 3		
BOZ	eP	18 45 00
EUR	eP	18 45 30
COL	iP	18 43 31
	i	43 43

Date and Station		Phase (GCT)
Dec. 3		h m s
COL	eP	18 49 33
Dec. 3		
COL	eP	19 00 51
Dec. 3		
ALQ	eP	19 57 48
	eS	58 29
Dec. 3		
ALQ	eP	20 06 54
BCN	eP	20 06 27
BOZ	eP	20 06 00
COL	iP	20 02 56
	i	03 30
	ipP	04 22
	iScP	07 41
	iPcS	08 17
EUR	iP	20 06 10
FGU	eP	20 06 23
GCA	eP	20 06 33
SLC	eP	20 06 17
THU	eP	20 04 32
Dec. 3		
COL	e(P)	21 05 52
Dec. 3		
COL	iP	21 15 47
	epP	16 18
SJP	eP'	21 22 58
Dec. 3		
ALQ	iP	23 06 59.1
BCN	iP	23 05 26.4
BUT	eP	23 07 21.6
BOZ	e(P)	23 07 42
COL	iP	23 11 44.0
EUR	iP	23 05 41.0
FGU	eP	23 06 39.5
GCA	iP	23 05 57.1
HHM	e(P)	23 07 34
SLC	iP	23 06 18.8
TUC	eP	23 06 37.2
TUT	iP	23 06 37.2
Dec. 3		
ALQ	eP	23 29 06.4
BCN	eP	23 27 29.3

Date and Station		Phase (GCT)
		h m s
COL	iP	23 33 46.8
EUR	iP	23 27 44.2
FGU	eP	23 28 51.7
GCA	eP	23 27 57.2
SLC	eP	23 28 26.3
TUC	ePg	23 29 09.1
TUT	iLg	23 30 40.3
Dec. 4		
COL	e(P)	00 53 54
Dec. 4		
COL	eP	01 05 35
Dec. 4		
COL	eP	03 45 20
EUR	eP	03 49 10
Dec. 4		
EUR	eP	04 36 28
FGU	e(P)	04 35 43
HHM	iP	04 35 42
Dec. 4		
COL	iP	05 45 37
	i	46 03
EUR	iP	05 46 39
FGU	eP	05 47 01
HHM	iP	05 46 46
SJP	eP'	05 52 45
Dec. 4		
COL	eP	07 47 12
	epP	47 46
CSC	eP	07 40 38
EUR	eP	07 44 30
HHM	eP	07 44 41
SJP	eP	07 37 08
	iS	37 41
Dec. 4		
BCN	eP	08 30 03
COL	iP	08 25 27
	i	25 46
	i	26 17
EUR	iP	08 29 38
FGU	eP	08 29 52

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Date and Station		Phase (GCT) h m s
GCA	eP	08 30 08
	e	34 26
	e	35 07
HHM	e(P)	08 28 53
Dec. 4 FGU	eP	08 48 17
Dec. 4 EUR	iP	10 28 06
UKI	eP	10 27 26
Dec. 4 COL	iP	12 36 48
Dec. 4 COL	iP	12 48 11
HHM	e(P)	12 50 18
Dec. 4 BCN	eP'	12 56 34
COL	iP	12 49 25
	i	50 19
EUR	eP	12 52 11
FGU	e(P)	12 52 18
HHM	eP	12 51 32
THU	eP	12 49 28
Dec. 4 COL	eP	13 12 08
Dec. 4 COL	iP	14 34 27
	i	34 58
EUR	iP	14 37 56
FGU	eP	14 38 19
	iPcP	39 52
HHM	i(P)	14 39 29
Dec. 4 COL	e(P)	16 24 22
EUR	e(P)	16 21 21
SJP	eP	16 17 02
Dec. 4 EUR	e(P)	17 09 46
Dec. 4 EUR	eP	21 03 57
	i	03 59
	i	04 14
Dec. 4 ALQ	eP	21 10 13
Dec. 4 ALQ	eP	21 34 50
	eS	35 29

Date and Station		Phase (GCT) h m s
GCA	e(P)	21 36 08
Dec. 4 COL	e(P)	21 43 12
Dec. 4 COL	eP	22 36 33
Dec. 4 ALQ	iP	22 56 32
Dec. 4 COL	e(P)	23 48 05
EUR	e(P)	23 51 41
Dec. 5 COL	iP	00 01 29
Dec. 5 HHM	eP	01 37 40
Dec. 5 ALQ	eP	04 16 04
EUR	eP	04 16 42
Dec. 5 ALQ	eP	06 56 56
COL	iP'	07 03 09
EUR	eP	06 57 27
TUC	eP	06 56 48
TUT	eP	06 56 47
Dec. 5 HHM	e(P)	07 58 28
Dec. 5 HHM	e(P)	08 23 22
Dec. 5 HHM	e(P)	09 15 12
Dec. 5 COL	e(P)	12 03 10
Dec. 5 ALQ	eP	13 15 40
	epP	16 31
BCN	eP	13 15 13
	epP	16 03
COL	iP	13 15 01
	ipP	15 55
EUR	iP	13 15 14
	ipP	16 02
	isP	16 25
	iPP	18 52
	eS	25 37
	ePKKP	32 46
FGU	eP	13 15 00
	epP	15 53
GUA	iP	13 09 32
	ePP	11 06

Date and Station		Phase (GCT) h m s
HHM	e(P)	13 15 35
TUC	eP	13 15 21
TUT	eP	13 15 21
UKI	eP	13 14 49
Dec. 5 ALQ	eP'	13 19 33
	ePKKP	29 42
COL	eP'	13 19 08
CSC	eP'	13 20 45
EUR	iP'	13 20 12
	ePP	22 07
	e	24 30
	eSKS	27 38
	eSKKP	33 51
HHM	e(P')	13 20 24
Dec. 5 COL	eP	15 30 09
	e	30 31
EUR	eP	15 29 04
Dec. 5 COL	eP	22 51 09
EUR	e(P)	22 50 47
Dec. 6 COL	iP	02 24 36
	i	25 36
EUR	iP	02 27 36
HHM	e(P)	02 27 12
Dec. 6 COL	i(P)	04 20 37
Dec. 6 EUR	iP	04 28 27
Dec. 6 COL	iP	04 51 11
	iL	53 37
EUR	iP	04 56 16
HHM	iP	04 55 18
Dec. 6 ALQ	iP'	06 07 45
	iPP	10 04
BCN	eP'	06 07 38
COL	eP	06 01 33
	ipP	01 41
	ePKKP	19 09
EUR	iP'	06 07 30
	i	08 56
	e(PP)	10 32
	e	11 07
	iPKKP	17 32
	eSKKP	21 04

Date and Station		Phase (GCT) h m s
FGU	iP'	06 07 32
GCA	eP'	06 07 27
GUA	e(P)	05 55 22
HHM	e(P')	06 07 18
	ePKKP	17 57
THU	eP	06 01 35
TUC	eP'	06 07 47
TUT	iP'	06 07 47
Dec. 6 EUR	eP	11 23 14
Dec. 6 COL	eP	13 13 18
Dec. 6 COL	eP	13 21 50
Dec. 6 ALQ	eP	13 48 35
BCN	eP	13 48 09
BOZ	eP	13 48 48
BUT	eP	13 48 44
COL	iP	13 48 48
	ipP	49 00
	i	50 03
EUR	eP	13 48 16
FGU	eP	13 48 40
GCA	eP	13 48 24
HHM	iP	13 48 47
TUC	eP	13 48 13
	eL	14 13 53
TUT	iP	13 48 14
Dec. 6 COL	eP	13 55 49
Dec. 6 COL	iP	15 31 10
TUT	e(P)	15 30 36
Dec. 6 COL	eP	15 34 52
Dec. 6 ALQ	iP	16 50 40
	ipP	50 56
	e	58 24
BCN	eP	16 50 05
BOZ	eP	16 49 36

Date and Station		Phase (GCT) h m s
BUT	eP	16 49 28
COL	iP	16 46 11
	iS	51 27
	eScS	56 52
EUR	iP	16 49 45
	ipP	50 01
	isP	50 15
	iPcP	50 25
	iPP	52 12
	eS	57 44
FGU	eP	16 50 02
	eS	58 34
HHM	iP	16 49 12
THU	iP	16 48 39
	i	49 06
	eS	55 56
TUC	iP	16 50 36
	eS	59 42
	eL	17 10 27
	iP'P'	18 48
TUT	iP	16 50 37
UKI	eP	16 49 18
WAS	iP	16 51 46
	e(S)	17 02 01
Dec. 6		
TUT	e(P)	18 17 09
Dec. 6		
COL	e(P)	21 30 39
Dec. 6		
ALQ	e(P)	21 57 48
	eS	59 05
Dec. 6		
BCN	eP	22 19 19
FGU	eP	22 19 32
Dec. 6		
FGU	eP	23 37 04
Dec. 7		
SJP	e(P)	00 10 55
Dec. 7		
ALQ	eP	00 31 16
BCN	eP	00 30 51
COL	e(P)	00 31 06
	i	31 28
EUR	eP	00 30 55
FGU	eP	00 31 21
GCA	eP	00 31 04

Date and Station		Phase (GCT) h m s
TUC	eP	00 30 53
TUT	iP	00 30 54
Dec. 7		
HHM	iP	03 02 44
Dec. 7		
COL	iP	06 02 39
	i	03 16
Dec. 7		
FGU	e(P)	07 08 33
Dec. 7		
COL	iP	08 07 10
HHM	e(P)	08 09 29
Dec. 7		
COL	e(P)	08 52 11
Dec. 7		
COL	eP	09 23 28
Dec. 7		
COL	iP	14 37 03
Dec. 7		
COL	iP	16 42 16
Dec. 7		
GCA	eP	16 50 11
Dec. 7		
ALQ	eP	17 47 21
	eS	47 53
Dec. 8		
COL	iP	03 17 17
Dec. 8		
EUR	eP	03 56 24
Dec. 8		
COL	iP	03 59 27
EUR	eP	03 58 54
Dec. 8		
COL	eP	04 50 07
	i	50 16
Dec. 8		
COL	eP	04 57 56
	i	58 16
Dec. 8		
COL	iP	06 20 15
	ipP	20 30
EUR	eP'	06 26 05
GUA	eP	06 11 49
SJP	eP'	06 27 33
Dec. 8		
ALQ	eP	08 02 23
BCN	eP	08 02 54

Date and Station		Phase (GCT) h m s
COL	eP	08 07 39
EUR	eP	08 03 24
GCA	eP	08 02 35
TUC	eP	08 02 00
Dec. 8		
COL	e(P)	08 27 15
	e	27 30
EUR	iP'	08 31 45
Dec. 8		
COL	iP	08 52 20
	i	52 32
Dec. 8		
COL	iP	09 48 56
	ipP	49 11
	i	49 22
EUR	iP	09 50 23
	e	53 41
GUA	eP	09 40 11
	eL	44 58
SJP	eP'	09 56 14
	i	56 32
Dec. 8		
COL	eP	10 31 37
THU	eP	10 31 17
Dec. 8		
EUR	eP'	10 59 41
Dec. 8		
COL	eP	13 17 54
Dec. 8		
COL	eP	14 55 09
EUR	eP	14 55 18
Dec. 8		
HHM	e(P)	15 52 49
Dec. 8		
COL	iP	16 24 03
EUR	eP	16 24 56
Dec. 8		
COL	iP	16 31 09
Dec. 8		
COL	iP	18 50 47
SJP	e(P)	18 43 03
Dec. 8		
HHM	eP	19 36 50
Dec. 8		
COL	e(P)	20 37 34
	i	37 50

Date and Station		Phase (GCT) h m s
Dec. 8		
COL	eP	21 43 02
Dec. 8		
COL	iP	21 59 04
Dec. 9		
ALQ	eP	02 23 43
BCN	eP	02 21 59
BOZ	eP	02 21 23
BUT	eP	02 21 07
COL	iP	02 17 34
	iL	20 06
CSC	eP	02 24 42
EUR	iP	02 21 30
	ipP	21 41
	iPcP	24 40
	i	25 59
	eS	26 49
	iScP	28 14
FGU	eP	02 21 52
	ePcP	24 48
	eScP	28 22
GCA	eP	02 22 07
	ePcP	24 58
HHM	iP	02 20 48
SLC	eP	02 21 42
SJP	e(P)	02 26 58
	i	27 03
THU	eP	02 22 21
TUC	eP	02 22 40
	e	27 20
	eL	33 51
TUT	iP	02 22 41
WAS	e(P)	02 24 37
	eL	45 01
Dec. 9		
COL	eP	02 40 01
Dec. 9		
ALQ	iP	04 08 45
	i	09 02
BCN	eP	04 09 22
BUT	eP	04 10 02
COL	iP	04 12 21
CSC	eP	04 07 40
EUR	iP	04 09 42

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Date and Station		Phase (GCT)
		h m s
FGU	eP	04 09 27
GCA	eP	04 09 15
HHM	iP	04 10 17
SLC	eP	04 09 34
SJP	eP	04 05 41
	i	05 58
	i	07 12
THU	eP	04 12 02
TUC	eP	04 08 45
	eL	27 26
TUT	iP	04 08 46
Dec. 9		
EUR	eP	04 38 18
FGU	e(P)	04 38 22
Dec. 9		
HHM	e(P)	08 10 07
Dec. 9		
EUR	i(P)	09 29 38
Dec. 9		
EUR	eP'	10 37 06
Dec. 9		
HUT	eP'	11 14 00
HHM	e(P')	11 14 01
Dec. 9		
ALQ	iP	11 30 33
BOZ	eP	11 31 26
BUT	eP	11 31 30
COL	iP'	11 36 57
	i	37 12
	i	37 30
CSC	eP	11 30 05
EUR	iP	11 31 08
	i	31 13
	i	31 22
	i	32 58
	iPP	34 57
	eS	41 51
	ePKKP	48 38
	eP'P'	56 51
FGU	eP	11 31 04
	ePP	34 00
	eS	42 03
GCA	eP	11 30 52
GUA	eP'	11 37 28
HHM	e(P)	11 31 43

Date and Station		Phase (GCT)
		h m s
RCD	eP	11 31 08
SLC	eP	11 31 05
SJP	eP	11 28 27
	i	28 32
	i	28 38
	ePP	31 00
	eS	37 06
THU	e(P')	11 37 14
TUC	iP	11 30 28
	ePP	33 45
TUT	iP	11 30 29
WAS	eP	11 30 28
Dec. 9		
COL	e(P)	13 24 13
Dec. 9		
COL	e(PP)	16 51 05
EUR	eP'	16 55 07
Dec. 9		
HHM	e(P)	17 59 30
Dec. 9		
COL	eP	19 29 54
EUR	iP	19 30 30
	ipP	30 54
Dec. 9		
ALQ	iP	20 01 40
BOZ	eP	20 01 49
BUT	eP	20 01 45
EUR	iP	20 01 20
	ePP	04 50
	eP'P'	27 23
	eSKPP'	29 50
FGU	iP	20 01 44
	i	02 10
	epP	03 55
GUA	iP	19 57 41
HHM	iP	20 01 46
SLC	iP	20 01 35
THU	eP'	20 07 20
TUC	iP	20 01 20
TUT	iP	20 01 20
UKI	eP	20 00 59
Dec. 9		
EUR	iP	20 40 12
	e	56 58

Date and Station		Phase (GCT)
		h m s
Dec. 9		
COL	eP	21 11 13
EUR	eP	21 15 09
Dec. 9		
COL	iP	21 24 01
EUR	iP	21 27 57
FGU	e(P)	21 28 29
HHM	e(P)	21 27 15
THU	eP	21 28 46
Dec. 9		
EUR	iP	21 54 16
Dec. 9		
COL	eP	22 51 23
FGU	e(P)	23 53 55
Dec. 9		
ALQ	eP	24 01 00
	i	01 40
	iL	03 19
EUR	iP	24 01 41
	eL	05 02
	i	05 39
FGU	e(P)	24 02 00
	eL	05 33
TUC	iP	23 59 55
	iS	24 00 15
	iL	00 17
TUT	eP	23 59 56
Dec. 10		
COL	e(P)	01 54 20
Dec. 10		
FGU	e(P)	04 20 49
	eS	22 03
Dec. 10		
COL	iP	05 00 45
	iS	02 38
EUR	iP	05 04 40
	i	04 52
	iPP	05 32
	iPcP	07 43
THU	eP	05 05 30
Dec. 10		
HHM	e(P)	07 43 18
Dec. 10		
EUR	iP	08 30 31
FGU	eP	08 30 56
Dec. 10		
COL	eP	08 51 18
HHM	iP	08 52 05

Date and Station		Phase (GCT)
		h m s
THU	e(P)	08 49 01
Dec. 10		
EUR	i(P)	09 57 43
Dec. 10		
EUR	i(P)	11 08 53
Dec. 10		
COL	iP	12 23 36
EUR	eP	12 27 31
THU	e(P)	12 28 11
Dec. 10		
COL	e(P)	14 26 52
Dec. 10		
COL	eP	17 03 19
EUR	e(P)	17 02 34
Dec. 10		
ALQ	iP	19 00 56.4
BOZ	eP	19 03 27.3
BUT	eP	19 03 41.2
COL	iP	19 07 55.8
CSC	eL	19 10 40
EUR	iP	19 03 01.0
FGU	iP	19 02 25.1
GCA	eP	19 02 00.2
HHM	eP	19 04 11
SLC	ePg	19 03 20
TUC	eP	19 01 29.4
TUT	eP	19 01 28.2
Dec. 10		
FGU	iP	19 59 27
Dec. 11		
GCA	e(P)	00 48 50
	e	49 03
Dec. 11		
COL	e(P)	03 37 02
Dec. 11		
EUR	eP	04 32 55
FGU	eP	04 33 17
Dec. 11		
EUR	eP	04 53 18
FGU	eP	04 53 03

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Date and Station	Phase (GCT)
	h m s
GCA eP	04 52 38
Dec. 11	
EUR eP	05 21 23
Dec. 11	
COL eP	14 29 38
Dec. 11	
COL iP	15 01 40
Dec. 11	
EUR eP	15 19 28
Dec. 11	
EUR eP	17 06 31
HHM iP	17 05 53
Dec. 11	
COL e(P)	18 20 39
EUR eP	18 18 02
Dec. 11	
COL eP	18 28 57
Dec. 11	
COL e(P)	19 51 14
e	51 46
Dec. 11	
TUC eP	22 17 52
TUT eP	22 17 52
Dec. 11	
TUC eP	23 03 08
Dec. 11	
TUT iP	23 18 09
Dec. 12	
COL e(P)	00 09 27
Dec. 12	
SJP eP	03 40 01
i	40 07
iS	40 49
Dec. 12	
FGU e(P)	03 41 36
Dec. 12	
COL eP	04 08 15
EUR eP'	04 13 56
Dec. 12	
EUR iP	04 51 42
iS	53 06
Dec. 12	
COL eP	11 30 16
EUR iP	11 27 58
HHM iP	11 28 07
SJP iP	11 20 29
iS	22 07

Date and Station	Phase (GCT)
Dec. 12	h m s
COL eP	13 41 02
e	46 44
Dec. 12	
SJP i(P)	13 41 34
EUR eP	13 44 27
i	49 31
Dec. 12	
BUT eP	17 35 31
COL eP	17 33 16
i	33 22
i	33 33
EUR iP	17 35 28
iPP	38 37
FGU eP	17 35 48
GCA eP	17 35 49
GUA eP	17 25 02
eS	26 42
HHM iP	17 35 18
THU e(P)	17 35 06
Dec. 12	
ALQ eP	18 16 02
iS	16 42
Dec. 12	
EUR iP	20 39 43
i	39 52
i	39 57
iS	40 33
iL	40 48
Dec. 12	
EUR iP	21 09 50
iL	10 15
Dec. 12	
COL eP	21 30 21
Dec. 12	
EUR e(P)	22 09 50
Dec. 12	
ALQ iP	22 18 25
eS	21 41
COL eP	22 23 53
EUR iP	22 19 30
iL	27 00
FGU eP	22 19 32
GCA eP	22 18 54
SLC eP	22 19 33
Dec. 12	
EUR i(P)	22 20 00
iS	21 16
iL	21 35

Date and Station	Phase (GCT)
Dec. 12	h m s
ALQ iP	23 18 18
i	18 30
BOZ eP	23 17 19
epP	17 34
BUT eP	23 17 08
COL iP	23 14 06
CSC eP	23 19 23
EUR iP	23 17 21
ipP	17 38
i	17 46
i	18 02
i	19 44
iPP	20 01
i	20 53
e	21 40
FGU eP	23 17 39
ipP	17 57
i	18 14
GCA eP	23 17 47
ipP	18 05
HHM iP	23 16 54
ipP	17 11
THU e(P)	23 15 59
UKI eP	23 16 54
Dec. 12	
ALQ iP	23 31 12
COL e(P)	23 36 20
EUR i(P)	23 32 29
Dec. 13	
GUA eP	03 15 15
eS	16 09
Dec. 13	
COL iP	03 15 46
EUR e(P)	03 15 28
HHM iP	03 16 32
Dec. 13	
COL iP	03 17 13
Dec. 13	
COL eP	03 24 21
Dec. 13	
COL iP	03 32 27
Dec. 13	
COL iP	05 20 01
EUR e(P)	05 19 30
Dec. 13	
COL eP	05 42 29

Date and Station	Phase (GCT)
Dec. 13	h m s
BUT e(P)	08 53 33
COL eP	08 51 11
ipP	51 24
EUR eP	08 53 44
FGU e(P)	08 53 59
HHM iP	08 53 26
Dec. 13	
COL e(P)	10 27 01
Dec. 13	
ALQ iP	11 36 25
COL iP'	11 42 31
i	43 13
EUR eP	11 37 00
Dec. 13	
ALQ eP	14 17 09
COL eP	14 22 40
EUR eP	14 18 26
Dec. 13	
ALQ eP	16 57 04
EUR e(P)	16 56 57
Dec. 13	
EUR iP	17 02 56
Dec. 13	
COL e(P)	17 47 22
HHM i(P)	17 47 28
Dec. 13	
EUR iP	18 00 41
Dec. 13	
ALQ iP	19 30 24
EUR iP	19 31 08
FGU eP	19 30 58
Dec. 13	
HHM e(P)	20 24 37
Dec. 13	
ALQ eP	20 44 00
Dec. 13	
UKI eP	22 04 40
Dec. 13	
HHM iP	22 23 43
Dec. 13	
HHM iP	22 28 14
Dec. 14	
EUR i(P)	00 51 18

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

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Date and Station		Phase (GCT) h m s
FGU	e(P)	21 26 51
Dec. 16		
HHM	eP	22 22 23
Dec. 16		
EUR	i(P)	23 29 26
Dec. 17		
COL	e(P)	01 02 16
EUR	eP	00 58 31
FGU	e(P)	00 58 07
GCA	e(P)	00 57 55
TUC	e(P)	00 57 21
Dec. 17		
HHM	iP	01 53 56
Dec. 17		
COL	iP	02 05 45
FGU	e(P)	02 07 11
GCA	e(P)	02 05 01
Dec. 17		
SJP	eP	02 27 12
Dec. 17		
COL	eP	03 31 16
EUR	i(P)	03 35 03
Dec. 17		
COL	eP	04 15 04
Dec. 17		
COL	iP	06 02 33
EUR	e(P)	06 01 38
HHM	i(P)	06 01 45
Dec. 17		
COL	eP	06 25 48
Dec. 17		
COL	iP	09 27 26
Dec. 17		
COL	eP	14 45 17
Dec. 17		
EUR	i(P)	16 01 49
Dec. 17		
COL	eP	16 41 44.8
EUR	iP	16 35 41.7
FGU	eP	16 36 42.6
GCA	eP	16 35 57.7
Dec. 17		
COL	iP	16 48 42

Date and Station		Phase (GCT) h m s
Dec. 17		
GUA	iP	19 13 03
	iS	13 32
Dec. 17		
ALQ	eP	20 59 28
	eS	21 00 09
Dec. 17		
COL	eP	21 22 01
Dec. 17		
ALQ	iP	21 41 43
BOZ	eP	21 42 55
BUT	eP	21 43 00
COL	iP	21 45 20
	i	45 46
	ePP	49 09
CSC	eP	21 40 38
EUR	iP	21 42 41
	iPcP	43 11
FGU	iP	21 42 26
	ipP	42 46
GCA	eP	21 42 14
HHM	iP	21 43 16
RCD	eP	21 42 25
SJP	eP	21 38 39
	ePcP	41 12
THU	eP	21 44 59
TUC	iP	21 41 46
Dec. 17		
EUR	i(P)	21 55 30
Dec. 17		
COL	eP'	22 31 36
EUR	iP'	22 31 31
THU	e(P')	22 32 28
Dec. 17		
THU	e(P')	22 40 28
Dec. 17		
COL	iP	23 02 20
	i	02 32
HHM	i(P)	23 01 32
Dec. 18		
COL	eP	02 30 01
	i	30 30
Dec. 18		
EUR	e(P)	02 40 53
Dec. 18		
COL	iP	03 23 46
	i	23 59

Date and Station		Phase (GCT) h m s
Dec. 18		
COL	eP	06 26 50
	e	27 03
EUR	e(P)	06 25 52
Dec. 18		
EUR	e(P)	07 19 05
Dec. 18		
COL	e(P)	07 23 33
Dec. 18		
BCN	eP	07 36 06
EUR	e(P)	07 36 47
	i	37 12
FGU	e(P)	07 37 40
TUC	eP	07 36 05
	iS	37 00
	iL	37 04
Dec. 18		
COL	e(P)	09 12 52
Dec. 18		
COL	e(P)	09 32 29
Dec. 18		
COL	e(P)	09 39 41
Dec. 18		
COL	e(P)	12 30 20
Dec. 18		
COL	e(P)	14 27 58
Dec. 18		
COL	iP	16 54 04
	i	54 35
Dec. 18		
HHM	e(P)	18 01 22
Dec. 18		
HHM	e(P)	20 03 12
Dec. 18		
HHM	e(P)	20 06 00
Dec. 18		
HHM	e(P)	20 59 57
Dec. 18		
COL	eP	21 57 51
Dec. 18		
GCA	eP	22 10 14
	i	10 24
Dec. 18		
COL	eP	22 37 42
	i	37 59
EUR	e(P)	22 37 09
GCA	e(P)	22 37 31

Date and Station		Phase (GCT) h m s
Dec. 18		
EUR	i(P)	22 52 54
Dec. 19		
FGU	e(P)	00 53 56
	eS	54 33
Dec. 19		
BCN	eP	04 52 16
EUR	e(P)	04 52 58
	e	56 22
GCA	eP	04 52 44
	e	53 08
	e	54 19
TUC	e(P)	04 51 42
	iS	52 21
	iL	52 24
Dec. 19		
COL	iP	10 26 59
	i	27 30
Dec. 19		
SIT	eP	13 36 30
Dec. 19		
COL	i(P)	14 16 17
EUR	i(P)	14 18 53
Dec. 19		
COL	e(P)	14 39 55
EUR	i(P)	14 42 56
	i	43 08
Dec. 19		
EUR	e(P)	14 50 34
Dec. 19		
COL	eP	15 53 41
Dec. 19		
COL	e(P)	16 26 50
Dec. 19		
COL	e(P)	16 58 09
Dec. 19		
COL	eP	17 41 06
HHM	iP	17 43 17
Dec. 19		
BCN	eP	18 29 43
Dec. 19		
COL	iP	18 41 17
	i	42 50
Dec. 19		
ALQ	eP	19 21 11
Dec. 19		
EUR	i(P)	19 24 34

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

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

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Date and Station		Phase (GCT)
		h m s
KIP	iP	02 50 49
SJP	eP'	02 59 57
	e	03 01 35
	ePP	03 38
Dec. 24		
COL	eP	03 05 37
FGU	eP	03 07 52
	epP	08 12
GUA	iP	02 55 19
	iS	55 35
HHM	e(P)	03 07 26
Dec. 24		
COL	e(P)	03 15 31
Dec. 24		
COL	eP	03 32 08
	e	32 41
Dec. 24		
COL	eP	04 03 23
Dec. 24		
ALQ	eP	04 03 48
EUR	eP	04 04 48
Dec. 24		
COL	e(P)	04 46 09
Dec. 24		
COL	eP	06 45 09
	e	45 20
Dec. 24		
ALQ	eP	07 02 43
BOZ	eP	07 01 49
BUT	eP	07 01 41
COL	iP	06 58 40
	ipP	59 09
EUR	iP	07 01 56
	ipP	02 26
	isP	02 37
	i	03 07
	ePP	04 47
FGU	eP	07 02 13
GCA	e(P)	07 02 12
	e	02 22
HHM	i(P)	07 01 29
RCD	e(P)	07 02 20
SLC	eP	07 02 06
THU	iP	07 00 37
TUC	eP	07 02 42

Date and Station		Phase (GCT)
		h m s
TUT	iP	07 02 43
Dec. 24		
COL	iP	07 25 28
EUR	iP'	07 32 00
	ePP	32 36
	ePKKP	43 04
THU	iP	07 24 51
Dec. 24		
COL	e(P)	08 40 45
Dec. 24		
COL	e(P)	08 57 32
Dec. 24		
ALQ	eP	09 31 32
COL	iP	09 31 45
EUR	iP	09 31 10
	ipP	31 24
	i	31 28
	i	31 36
FGU	eP	09 31 37
GCA	eP	09 31 19
SLC	eP	09 31 28
TUC	eP	09 31 08
TUT	e(P)	09 31 09
Dec. 24		
COL	e(P)	09 55 52
	e	56 27
EUR	e(P)	09 57 53
FGU	e(P)	09 57 16
Dec. 24		
COL	e(P)	10 01 13
Dec. 24		
COL	iP	10 41 30
Dec. 24		
COL	iP'	11 38 57
Dec. 24		
COL	eP	12 03 13
Dec. 24		
COL	eP	12 18 23
Dec. 24		
ALQ	eP	14 34 00
BCN	eP	14 34 43
BOZ	eP	14 35 21
BUT	eP	14 35 26
COL	eP	14 38 06

Date and Station		Phase (GCT)
		h m s
EUR	iP	14 35 04
	i	35 12
	i	35 26
FGU	eP	14 34 48
GCA	e(P)	14 34 34
HHM	iP	14 35 44
RCD	e(P)	14 34 50
SLC	eP	14 34 56
SJP	eP	14 31 21
THU	eP	14 37 48
TUC	eP	14 34 03
TUT	eP	14 34 03
Dec. 24		
COL	eP	16 35 38
Dec. 24		
COL	eP	16 42 53
Dec. 24		
ALQ	e(P)	16 48 11
	e	48 42
	i	49 55
TUC	e(P)	16 47 22
TUT	eP	16 47 22
Dec. 24		
COL	i(P)	16 58 07
Dec. 24		
COL	iP	17 10 59
Dec. 24		
ALQ	eP	17 24 16
COL	eP	17 28 23
EUR	iP	17 25 19
FGU	eP	17 25 03
SJP	eP	17 21 36
Dec. 24		
COL	eP	19 18 25
Dec. 24		
COL	eP	19 26 52
Dec. 24		
HHM	i(P)	19 36 37
Dec. 24		
COL	iP	20 26 18
Dec. 24		
COL	iP	20 35 42
EUR	e(P)	20 38 17

Date and Station		Phase (GCT)
		h m s
FGU	e(P)	20 37 58
THU	e(P)	20 32 10
Dec. 24		
FGU	eP	22 23 03
Dec. 24		
ALQ	eP	23 55 20
BCN	eP	23 55 50
BUT	eP	23 56 21
EUR	iP	23 56 00
	ipP	56 07
	i	56 16
FGU	eP	23 55 54
HHM	e(P)	23 56 33
SJP	eP	23 53 07
TUC	eP	23 55 20
TUT	eP	23 55 19
Dec. 25		
COL	eP	00 14 31
Dec. 25		
ALQ	eP	01 16 02
EUR	e(P)	01 16 49
FGU	e(P)	01 16 41
Dec. 25		
COL	eP	01 30 53
Dec. 25		
EUR	i(P)	01 50 55
Dec. 25		
COL	iP	04 28 35
Dec. 25		
GCA	eP	05 39 41
	eS	40 12
Dec. 25		
COL	iP	05 55 37
EUR	i(P)	05 55 14
Dec. 25		
ALQ	iP'	08 19 53
BCN	eP'	08 19 40
COL	eP	08 14 03
	e	14 31
EUR	e(P)	08 15 41
	eP'	19 35
	iPP	20 32

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Date and Station		Phase (GCT)
		h m s
FGU	eP'	08 19 44
GCA	e(P')	08 19 40
RCD	e(P')	08 19 36
SJP	eP'	08 21 40
TUT	eP'	08 19 49
Dec. 25		
COL	eP	08 26 02
EUR	e(P)	08 27 40
	eP'	31 45
	ePP	32 43
SJP	eP'	08 33 41
Dec. 25		
ALQ	eP	09 04 35
BCN	eP	09 05 26
COL	eP	09 09 09
	e	09 22
EUR	eP	09 05 48
FGU	eP	09 05 24
GCA	e(P)	09 05 15
HHM	iP	09 06 26
RCD	eP	09 05 22
SJP	eP	09 02 09
Dec. 25		
FGU	e(P)	09 21 20
	eS	22 08
Dec. 25		
ALQ	eP'	09 28 00
COL	iP	09 22 10
EUR	e(P)	09 23 29
	eP'	27 44
	ePP	28 35
FGU	eP'	09 27 53
	e	32 56
RCD	eP'	09 27 56
SJP	iP'	09 29 47
Dec. 25		
COL	eP	09 27 16
EUR	i(P)	09 29 02
	eP'	32 49
SJP	eP'	09 34 52

Date and Station		Phase (GCT)
		h m s
Dec. 25		
COL	eP	09 34 29
EUR	e(P')	09 40 02
Dec. 25		
COL	iP	09 54 27
Dec. 25		
COL	iP	11 31 08
	i	31 15
	e	32 31
EUR	e(P)	11 33 33
	eP'	37 40
Dec. 25		
FGU	e(P)	12 25 26
Dec. 25		
ALQ	eP	13 01 05
FGU	e(P)	13 01 22
	eL	04 17
RCD	e(P)	13 00 44
Dec. 25		
ALQ	eP	14 07 05
BCN	eP	14 07 38
BOZ	eP	14 08 18
BUT	eP	14 08 13
COL	iP	14 08 19
	i	08 51
EUR	iP	14 07 44
	ipP	07 59
FGU	eP	14 08 10
GCA	eP	14 07 53
GUA	i(P)	14 04 53
HHM	iP	14 08 16
KIP	iP	14 03 46
SLC	eP	14 08 01
TUC	iP	14 07 41
	ipP	07 57
TUT	iP	14 07 42
	ipP	07 59
Dec. 25		
COL	iP	14 26 18
EUR	iP	14 31 17
FGU	eP	14 31 31
HHM	iP	14 30 22
RCD	eP	14 31 35

Date and Station		Phase (GCT)
		h m s
Dec. 25		
BCN	eP	15 19 00
EUR	eP	15 19 50
GCA	e(P)	15 19 09
	e	19 22
Dec. 25		
BOZ	eL	20 07 37
BUT	eP	20 03 24
	eL	07 28
COL	eP	20 03 49
	i	04 04
	i	04 11
EUR	eP	20 04 41
FGU	eP	20 04 02
HHM	iP	20 03 09
RCD	e(P)	20 05 13
THU	eP	20 02 02
	e	04 23
Dec. 25		
COL	eP	20 37 24
Dec. 25		
COL	iP	21 55 22
EUR	eP	21 58 17
HHM	i(P)	21 58 10
THU	eP	21 57 14
Dec. 25		
COL	iP	22 02 04
	ipP	02 36
THU	e(P)	22 01 11
Dec. 25		
EUR	eP'	22 43 57
Dec. 25		
COL	iP	23 55 07
EUR	e(P)	23 57 50
HHM	i(P)	23 57 30
Dec. 26		
HHM	iP	01 42 53
Dec. 26		
COL	eP	04 30 37
Dec. 26		
BCN	eP'	04 43 06
BOZ	e(P')	04 43 00
	epP'	45 02
BUT	eP'	04 42 57

Date and Station		Phase (GCT)
		h m s
COL	e(P)	04 37 53
	epP	39 41
	ePP	41 57
	ePKKP	53 57
	i	54 29
CSC	eP'	04 43 42
	epP'	45 50
EUR	i(P)	04 39 32
	ePKIKP	42 56
	iP'	43 00
	iPP	45 03
	ipP'	45 24
	isP'	46 22
	ipPP	46 52
	iPKKP	52 35
	iSKKP	55 23
FGU	e(P')	04 43 07
GCA	eP'	04 43 10
GUA	iP	04 31 36
RCD	eP'	04 43 09
	epP'	45 14
	ePP	45 46
SLC	eP'	04 43 05
	epP'	45 10
SJP	eP'	04 44 03
TUC	eP'	04 43 16
	epP'	45 19
	iPP	45 58
TUT	iP'	04 43 16
	ipP'	45 19
	iPP	45 58
Dec. 26		
COL	eP	05 37 04
Dec. 26		
COL	eP	05 59 22
Dec. 26		
BCN	eP'	06 37 39
BOZ	e(P')	06 37 39
BUT	eP'	06 37 37
COL	eP'	06 37 38
	ePP	41 48
EUR	eP'	06 37 40
	i	37 44
	i	38 21
	i	38 29
	i	39 00
	iPP	42 08
	iSKP	42 37
	ePKS	42 58
FGU	e(P')	06 37 37
GCA	e(P')	06 37 32
HHM	eP'	06 37 38
RCD	eP'	06 37 29

Date and Station		Phase	(GCT) h m s
SLC		eP'	06 37 42
TUC		eP'	06 37 28
TUT		e(P')	06 37 22
		i	37 33
Dec. 26			
COL		ePP	06 51 54
EUR		iP'	06 52 54
		ePP	54 58
		esP'	56 14
		ipPP	56 42
FGU		iPP	06 55 43
GCA		ePP	06 55 35
TUC		ePP	06 55 46
TUT		iPP	06 55 46
Dec. 26			
COL		iP	10 18 16
Dec. 26			
COL		iP	10 34 22
Dec. 26			
COL		iP	16 57 32
Dec. 26			
COL		eP	17 46 06
EUR		eP	17 46 48
Dec. 26			
HHM		e(P)	18 02 47
Dec. 26			
COL		e(P)	18 47 08
Dec. 26			
GCA		eP	22 45 25
Dec. 27			
GUA		iP	01 01 15
		iS	01 30
Dec. 27			
ALQ		eP	02 26 47
EUR		iP	02 27 38
		e	27 50
		i	28 17
		i	28 38
FGU		eP	02 27 24
GCA		eP	02 27 14
HHM		iP	02 28 08
RCD		iP	02 27 23
SJP		eP	02 23 29
TUT		iP	02 26 49

Date and Station		Phase	(GCT) h m s
Dec. 27			
COL		eP	02 38 20
Dec. 27			
COL		iP	04 07 19
		i	07 31
Dec. 27			
COL		e(P)	04 17 56
EUR		eP	04 20 50
Dec. 27			
ALQ		e(P)	05 39 27
EUR		iP	05 38 12
Dec. 27			
COL		iP	07 29 47
EUR		eP	07 29 25
Dec. 27			
FGU		eP	09 22 15
		e	22 37
Dec. 27			
ALQ		eP	09 42 47
BCN		eP	09 43 33
COL		iP	09 48 08
EUR		eP	09 44 02
		e	44 23
FGU		eP	09 43 50
GCA		eP	09 43 28
TUT		iP	09 42 44
Dec. 27			
COL		iP	11 49 18
EUR		e(P)	11 50 01
Dec. 27			
COL		iP	12 03 42
EUR		eP	12 03 06
Dec. 27			
COL		eP	15 25 06
EUR		eP	15 28 54
Dec. 27			
ALQ		e(P)	15 42 05
COL		i(P)	15 47 43
EUR		eP	15 43 21
Dec. 27			
EUR		e(P)	17 00 21
Dec. 27			
COL		iP	17 46 14

Date and Station		Phase	(GCT) h m s
Dec. 27			
EUR		e(P)	18 29 40
Dec. 27			
COL		iP	19 13 15
Dec. 27			
COL		iP	22 57 11
HHM		iP	22 59 36
EUR		e(P)	23 00 13
Dec. 27			
COL		iP	23 30 45
		e	31 21
Dec. 27			
BCN		eP	24 01 49
COL		eP'	24 06 34
EUR		e(P)	24 02 15
		eP'	06 20
		ePP	06 45
		ePKKP	18 06
		i	18 28
		eP'P'	26 22
GCA		ePKKP	24 17 59
GUA		e(P)	23 58 18
HON		eP	23 58 58
KIP		eP	23 58 52
HHM		ePP	24 07 10
		ePKKP	17 42
RCD		ePP	24 07 24
		ePKKP	17 40
TUC		e(P)	24 01 42
		ePP	06 13
Dec. 28			
ALQ		eP	00 57 07
		e	01 02 14
COL		eP	01 02 11
EUR		eP	00 58 28
FGU		e(P)	00 58 01
GCA		e(P)	00 57 49
TUC		iP	00 56 26
Dec. 28			
EUR		eP	02 30 50
Dec. 28			
COL		iP	05 13 21
		i	13 39
EUR		iP	05 18 51
FGU		eP	05 19 05

Date and Station		Phase	(GCT) h m s
HHM		iP	05 17 55
Dec. 28			
BCN		eP	05 57 50
EUR		eP	05 58 05
GCA		e(P)	05 57 48
Dec. 28			
ALQ		iP	06 12 30
Dec. 28			
EUR		e(P)	06 23 22
FGU		e(P)	06 23 00
Dec. 28			
COL		e(P)	11 41 56
Dec. 28			
COL		e(P)	11 58 31
Dec. 28			
COL		e(P)	12 30 23
Dec. 28			
COL		iP	12 37 10
Dec. 28			
COL		e(P)	12 54 29
Dec. 28			
COL		e(P)	13 54 57
Dec. 28			
COL		e(P)	14 47 03
Dec. 28			
COL		e(P)	14 57 55
Dec. 28			
COL		iP	15 39 41
HHM		e(P)	15 38 57
Dec. 28			
COL		e(P)	16 34 31
Dec. 28			
COL		eP	16 47 24
Dec. 28			
COL		e(P)	17 21 49
Dec. 28			
COL		iP	18 29 41
EUR		eP	18 29 22
Dec. 28			
COL		eP	18 33 47
Dec. 28			
ALQ		eP	21 26 40
Dec. 28			
COL		e(P)	23 06 42

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Date and Station		Phase (GCT)	
Dec. 28		h m s	
COL	eP	23 18 18	
Dec. 28			
COL	eP	23 25 23	
Dec. 29			
BCN	eP	00 08 39	
COL	iP	00 08 19	
	ipP	08 40	
	i	09 04	
	i	09 25	
	i	09 49	
	ePKKP	25 21	
	i	26 32	
EUR	iP	00 08 41	
	ipP	09 02	
	isP	09 18	
	i	09 26	
	ePP	12 21	
GCA	e(P)	00 08 55	
TUC	eP	00 08 52	
Dec. 29			
THU	eP	00 47 40	
	i	47 48	
Dec. 29			
COL	eP	05 56 52	
EUR	iP	05 52 29	
Dec. 29			
COL	iP	08 08 14	
	i	08 39	
	i	09 00	
EUR	eP	08 11 28	
	epP	11 42	
	esP	11 58	
Dec. 29			
BCN	eP	10 13 51	
COL	iP	10 12 53	
	ipP	13 13	
	i	13 22	
	i	13 37	
EUR	iP	10 13 48	
	i	14 25	
	i	14 38	
GUA	i(P)	10 05 38	
HHM	iP	10 13 56	
SJP	eP'	10 19 59	
Dec. 29			
COL	eP	12 06 51	
Dec. 29			
COL	eP	12 24 27	
Dec. 29			
COL	eP	14 39 29	
	i	39 40	

Date and Station		Phase (GCT)	
Dec. 29		h m s	
ALQ	eP	14 58 32	
	eS	15 03 00	
BCN	eP	14 59 20	
BOZ	eP	15 00 11	
BUT	eP	15 00 17	
COL	iP	15 03 41	
	ipP	03 57	
	i	04 30	
	i	04 55	
CSC	eP	14 58 15	
EUR	iP	14 59 47	
	i	59 53	
	i	15 00 13	
	i	00 24	
	i	00 46	
	iPP	00 58	
	i	01 13	
	i	01 21	
	i	01 42	
	i	02 01	
	iPcP	02 40	
GCA	eP	14 59 10	
HHM	iP	15 00 37	
RCD	e(P)	14 59 37	
SLC	eP	14 59 37	
SJP	e(P)	14 59 19	
TUC	eP	14 58 35	
Dec. 29			
EUR	iP	15 46 09	
	i	46 21	
	i	46 47	
	i	47 03	
HHM	iP	15 46 38	
Dec. 29			
COL	iP	15 54 32	
	i	54 37	
	e	55 38	
EUR	iP	15 58 07	
Dec. 29			
COL	eP	18 08 11	
	i	08 20	
	i	08 31	
EUR	eP	18 11 45	
	i	11 51	
	i	12 06	
	i	12 12	
	i	13 21	
Dec. 29			
HHM	e(P)	18 31 54	
Dec. 29			
EUR	iP	18 57 44	

Date and Station		Phase (GCT)	
Dec. 29		h m s	
HHM	e(P)	19 31 45	
Dec. 29			
COL	iP	19 38 12	
EUR	eP	19 41 46	
	i	41 56	
	i	42 12	
Dec. 29			
COL	eP	19 49 23	
Dec. 29			
ALQ	eP	20 40 03	
	eS	40 41	
GCA	e(P)	20 41 55	
	e(S)	42 01	
Dec. 29			
COL	iP	21 39 27	
	i	39 43	
EUR	iP	21 43 01	
	e	46 10	
HHM	e(P)	21 42 28	
Dec. 29			
COL	iP	22 05 09	
EUR	iP	22 08 43	
	i	10 19	
Dec. 29			
EUR	iP	23 34 49	
	i	35 11	
	i	35 19	
Dec. 30			
COL	eP	00 01 38	
EUR	iP	00 05 11	
Dec. 30			
COL	iP	00 06 03	
EUR	iP	00 06 56	
Dec. 30			
ALQ	eP	00 48 53	
	iS	56 40	
BCN	eP	00 48 13	D
BOZ	eP	00 47 43	C
	eS	54 26	
BUT	eP	00 47 34	C
	eS	54 08	
COL	iP	00 44 14	(C)
	iS	48 17	
	i	57 24	
CSC	eP	00 50 38	
	eS	59 46	

Date and Station		Phase (GCT)	
Dec. 30		h m s	
EUR	iP	00 47 49	C
	iPP	49 40	
	i	52 38	
	iPcS	53 17	
	i	54 24	
	iS	54 44	
	i	55 55	
	e	56 34	
	i	57 59	
	iL	58 41	
FCU	eP	00 48 17	
GCA	eP	00 48 23	
GUA	i(P)	00 47 37	
HON	iP	00 46 26	(C)
	iS	52 08	
	iL	01 00 46	
HHM	iP	00 47 17	D
	iPcP	48 54	
KIP	iP	00 46 25	D
	i	01 00 46	
	i	22 26	
	iT	30 08	
RCD	iP	00 48 25	
SLC	iP	00 48 03	C
SJP	eP	00 52 27	
	ePP	56 08	
SIT	eP	00 45 10	C
	eS	49 44	
TUC	eP	00 48 49	C
	i	48 51	
TUT	iP	00 48 50	
UKI	eP	00 47 16	
WAS	iP	00 50 29	D
	e	52 33	
	eS	59 41	
	e	01 03 17	
Dec. 30			
COL	iP	01 11 25	
Dec. 30			
EUR	e(P)	01 18 44	
Dec. 30			
COL	iP	01 16 09	
EUR	iP	01 19 43	
Dec. 30			
COL	eP	01 21 44	
Dec. 30			
COL	iP	01 46 28	
EUR	eP	01 50 02	

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

Date and Station		Phase (GCT)
		h m s
HHM	eP	19 16 37
Dec. 30		
ALQ	eP	20 58 23
Dec. 30		
COL	iP	21 22 22
EUR	eP	21 26 09
Dec. 30		
COL	eP	21 53 58
Dec. 30		
ALQ	eP	21 58 18
Dec. 30		
COL	iP	22 05 01
EUR	iP	22 08 43
Dec. 30		
ALQ	eP	23 29 56
BCN	eP	22 30 44
COL	iP	23 32 26
	e	33 03
EUR	eP	23 30 50
	ePP	33 23
FGU	e(P)	23 30 17
HHM	eP	23 30 43
SLC	eP	23 29 28
SJP	e(P)	23 24 29
	e	24 40
TUC	eP	23 30 22
TUT	eP	23 30 22
Dec. 30		
FGU	eP	23 47 44
Dec. 31		
COL	iP	02 24 05
EUR	eP	02 27 39
	i	28 01
HHM	e(P)	02 27 07
Dec. 31		
COL	iP	04 40 28
EUR	eP	04 44 02
HHM	e(P)	04 43 31
Dec.31		
COL	iP	06 31 28
EUR	eP	06 35 02
Dec. 31		
HHM	e(P)	06 42 19

Date and Station		Phase (GCT)
		h m s
Dec. 31		
COL	iP	06 44 17
EUR	iP	06 47 51
	ePcP	49 27
HHM	e(P)	06 47 19
Dec. 31		
COL	eP	07 40 20
EUR	iP	07 43 55
Dec. 31		
BCN	iP	07 58 14
Dec. 31		
COL	e(P)	08 14 30
Dec. 31		
EUR	eP	10 08 24
Dec. 31		
COL	iP	10 34 30
EUR	eP	10 38 05
Dec. 31		
COL	iP	12 29 57
	i	30 17
	e	33 23
EUR	iP	12 33 32
	e	36 58
Dec. 31		
COL	iP	13 33 43
	i	34 07
EUR	eP	13 37 16
	i	37 32
Dec. 31		
ALQ	eP'	14 04 33
COL	iP	13 58 28
EUR	eP'	14 04 04
	e	04 17
	e	04 41
	iPP	05 17
GUA	i(P)	13 50 33
HON	eP	13 57 31
KIP	eP	13 57 31
SJP	iP'	14 06 09
Dec. 31		
ALQ	eP	16 04 16
COL	iP	15 59 37
	iS	16 04 09
BCN	eP	16 03 34
EUR	iP	16 03 11
	i	03 31
	i	03 50
	iPcP	05 03
	e	07 44

Date and Station		Phase (GCT)
		h m s
HHM	e(P)	16 02 39
THU	eP	16 03 23
Dec. 31		
EUR	eP	16 07 44
Dec. 31		
EUR	eP'	16 26 56
Dec. 31		
BCN	eL	16 43 05
BOZ	eP	16 37 54
	e	38 20
	eL	39 56
BUT	eP	16 38 07
	eL	40 24
COL	iP	16 42 39
CSC	eL	16 43 50
FGU	eP	16 37 51
	i	38 20
	eL	39 48
GCA	eP	16 38 43
HHM	eP	16 38 26
	iL	41 11
RCD	iP	16 36 33
	iS	37 00
SLC	eP	16 38 13
Dec. 31		
ALQ	eP	17 33 23
Dec. 31		
ALQ	eP	17 57 09
BCN	eP	17 56 22
COL	iP	17 52 34
FGU	eP	17 56 23
HHM	eP	17 55 27
SJP	eP	18 00 59
Dec. 31		
ALQ	eP	18 08 22
BCN	eP	18 08 54
BUT	e(P)	18 10 19
COL	e(P)	18 13 57
CSC	eP	18 10 17
FGU	eP	18 09 31
GCA	e(P)	18 08 54
SLC	eP	18 09 31

Date and Station		Phase (GCT)
		h m s
Dec. 31		
THU	eP	20 12 28
Dec. 31		
ALQ	eP	20 39 27
Dec. 31		
COL	eP	22 10 43

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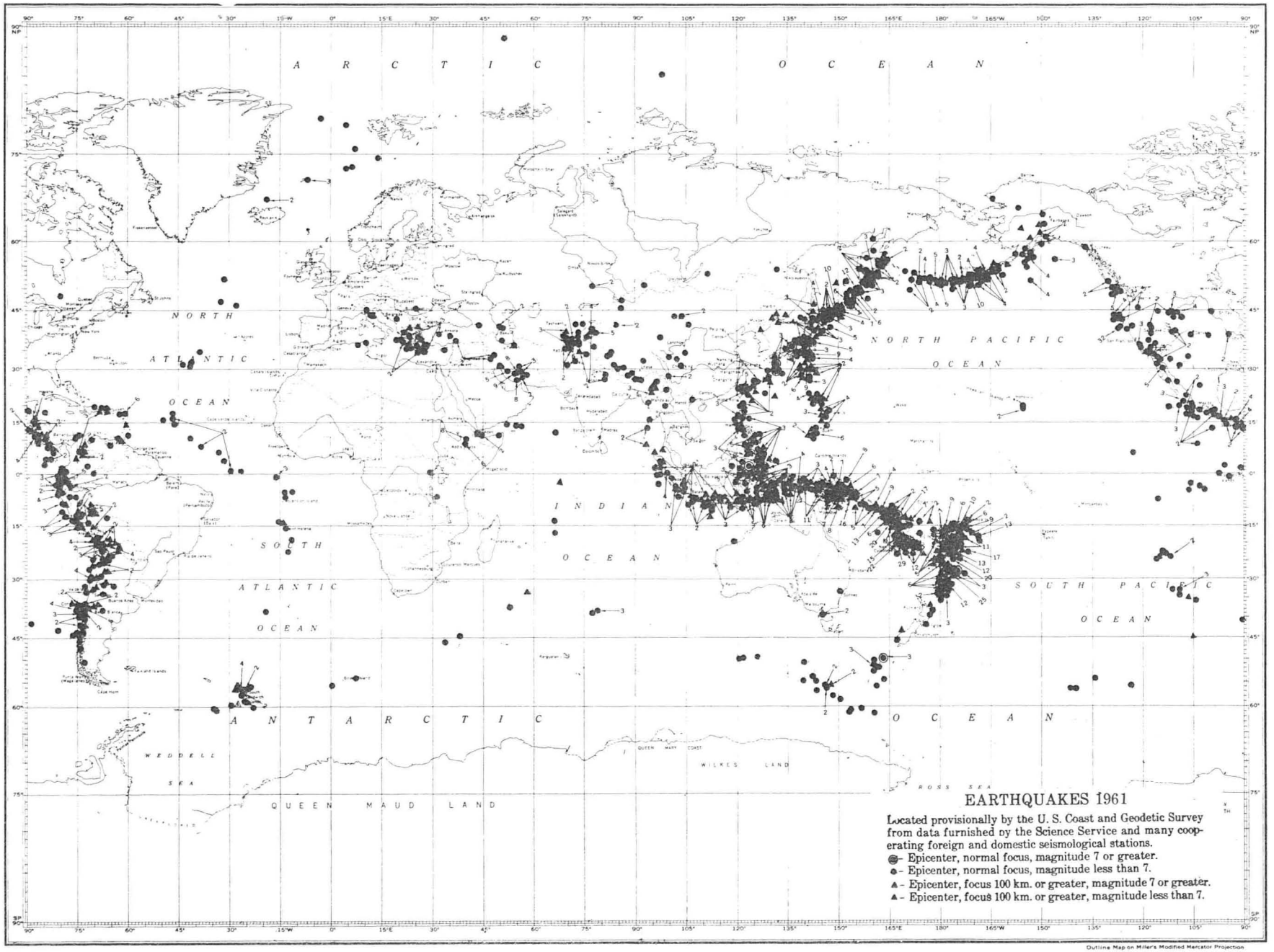
Date and Station	Phase (GCT)
	h m s
Local and Minor Earthquakes	
Dec.	
COL	
1	14.5
	15.0
	22.5
4	15.2
	17.9
6	10.1
9	17.3
10	21.7
11	01.6
13	23.9
17	11.2
18	00.5
	03.6
20	15.3
21	04.5
22	04.9
23	08.4
	11.7
24	04.1
	16.1
26	21.7
27	01.7
	11.0
28	02.2
	08.9
	21.1
	22.6
29	16.0
	22.3
31	08.0
Dec.	
EUR	
3	00.8
12	05.9
	06.2
	06.3
	09.5
	10.2
	10.2
	10.3
	11.2
	13.5
	16.1
	18.9
	20.0
	22.3
13	03.3
	03.4
	03.5
	05.3
	05.6
	18.0
	18.2
	22.2
14	00.4
	05.0
	07.7
	08.8
	14.5
	16.1
	17.5
	18.1

Date and Station	Phase (GCT)
	h m s
Dec.	
EUR (Con't.)	
24	02.3
	03.1
27	16.9
Dec.	
GUA	
1	21.7
6	11.0
11	04.4
	16.4
19	07.3
28	10.3
Dec.	
SJP	
1	03.2
8	10.0
10	14.3
11	16.6
14	02.8
	19.5
18	14.6
20	22.2
25	23.1
27	03.2
30	07.8

Date and Station	Phase (GCT)
	h m s

Date and Station	Phase (GCT)
	h m s

B-4297-4


ARCTIC OCEAN
NORTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
INDIAN OCEAN
SOUTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
ANTARCTIC OCEAN
WEDDELL SEA
QUEEN MAUD LAND
QUEEN MARY COAST
WILKES LAND
ROSS SEA
EARTHQUAKES 1961
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.
Outline Map on Miller's Modified Mercator Projection