

**SOME FACTS
YOU SHOULD KNOW
ABOUT THE WORLD**

**A
Globe Manual**

•
**Questions
and
Answers**

•
**Short Wave
International
Radio Log**

THE EARTH • SHAPE AND SIZE

OUR EARTH is almost a sphere or perfect ball, measuring 7,927 miles in diameter at the equator and only 27 miles less through the poles. There is a very slight elliptical bulge at the equator. The earth can properly be called an oblate spheroid.

Diameter at Equator	7,927 Miles
Diameter through the Poles (Axis)	7,900 Miles
Circumference at Equator	24,903 Miles
Circumference at Poles	24,860 Miles
Area of Earth's Surface (sq. mi.)	196,970,980 Miles

About three-fourths of the earth's surface is covered by water.

• *Inclination*

THE earth's axis is an imaginary line passing through the center from pole to pole. This axis is tipped or inclined 23.5 degrees from the perpendicular and this slant is called the angle of inclination. This angle remains constantly the same with the northern point of the axis (the North Pole) directed always to a fixed point in the sky near the Pole Star.

It is important to understand the fact of inclination, as, together with the motions of the earth, it is responsible for the lengths of night and day and other phenomena.

• *Motions*

THE most important fact in Geography is that the earth is constantly in motion, rotating and revolving in space. Because of these motions we have day and night and seasons with all that this means to life in different regions.

• *Rotation*

THE earth turns or spins upon its axis from west to east (or counter-clockwise) once every twenty-three hours, 56 minutes, and 4.09 seconds. This motion causes day and night. The perception of this fact formed the first measure of time. If the earth did not rotate upon its axis, one-half of its surface would have eternal day and one-half eternal night. Day and night, then, are produced by the rotating motion combined with the shining of the sun. The speed of rotation at any point upon the equator is at the rate of approximately 1038 miles per hour, decreasing to zero at the poles.

• *Revolution*

As the earth rotates upon its axis, it, at the same time, revolves

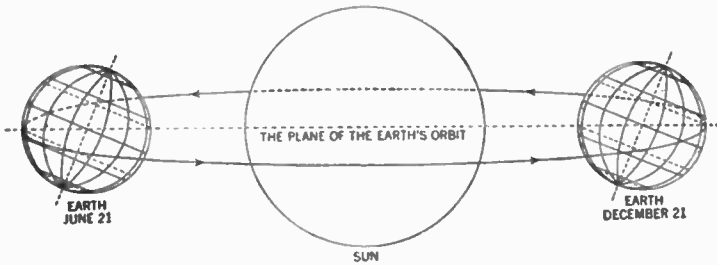


FIG. 1—THE EARTH'S INCLINATION

The earth revolving around the sun maintains a fixed orbit, the plane of which is the same as the plane of the sun.

This plane passes through the center of both bodies. The earth's equator inclines $23\frac{1}{2}^{\circ}$ from this plane.

in a fixed path around the sun once a year in a counter-clockwise



direction. See diagram (Fig. 1). This path in which the earth revolves around the sun is known as the earth's orbit. It is very nearly a circle. The mean distance of the earth from the sun is 92,900,000 miles and the distance varies but 3,000,000 miles, forming an oval path, the ellipticity of which varies but slightly from a perfect circle. In drawings it is necessary to distort this ellipticity so that it may be observed with the eye and be illustrative. As such a path has neither beginning nor end it is seen that nature herself does not mark where the year commences or ends. January first for the beginning of the new year was adopted in England in 1752. The names of the months have nothing in common with the Christian Calendar, or with their proper origin.

• *The Plane of the Earth's Orbit*

THIS holds to a fixed and level course through space around the sun. This plane may be considered as passing through the center of the sun and the center of the earth (Fig. 1). The earth's equator slants at an angle of 23.5 degrees from the parallel to the plane of its orbit, which of course causes the axis to incline 23.5 degrees from the perpendicular. This slanting or angle of inclination has been previously referred to. In order to show this inclination all globes are permanently mounted at an angle of 23.5 degrees from perpendicular or are adjustable so that the axis may be inclined to the proper angle. The revolution of the earth around the sun traverses a distance of 584 million miles in 365 days, 6 hours, 9 minutes and 11 seconds. This means a distance of 18 miles a second (or 64,800 miles per hour) while at the same time rotating once in approximately twenty-four hours. The motion of revolution around the sun causes the succession of seasons and years.

• *Longitude*

Meridians of Longitude are imaginary lines running through both poles. Each semicircle and its complement forms a "great circle" cutting the earth into two equal parts.

On geographical globes meridians are usually marked at intervals of 15 degrees, commencing with the meridian which passes through Greenwich, England. This meridian is numbered zero and is known as the prime meridian, or Meridian of Greenwich (Fig. 2).

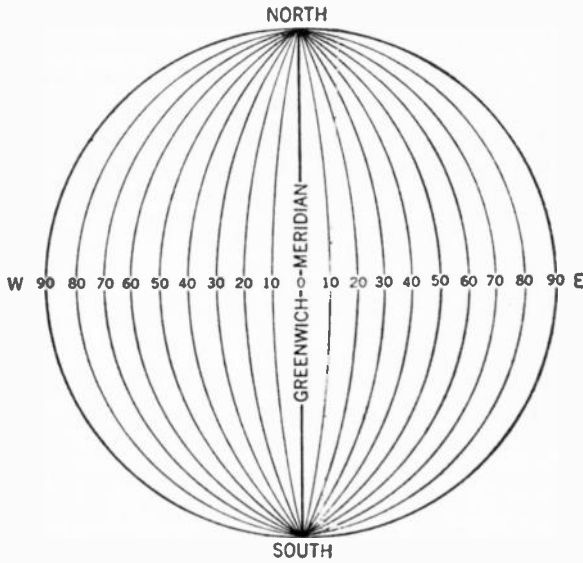


FIG. 2—MERIDIANS OF LONGITUDE

The numbering is done both west and east from the prime meridian so that as we locate west we say so many degrees west of Greenwich or so many degrees west longitude. Use the same process for indicating east of the prime or Greenwich Meridian. Half way around the world is numbered 180° longitude—it being 180° both east and west from Greenwich.

• *Latitude*

Parallels of Latitude are imaginary lines running around the earth parallel to the equator. The equator is the zero parallel and as it is equi-distant from the north and south poles it divides the

earth into halves or hemispheres north and south. North and south of the equator the parallels are numbered consecutively toward the poles. On a terrestrial globe, parallel lines are usually shown ten degrees apart starting at zero from the equator and ending at 90° at the poles; from the equator to either pole measures one-quarter way around the globe, or one-fourth of a circle of 360° .

• *Degrees*

MEASUREMENTS of circles are figured by degrees. Each circle is divided into 360 parts called degrees. The length of a degree therefore depends upon the length of the circle.

For smaller fractions of a circle, each degree is divided into 60 parts called minutes. Each minute is divided into 60 parts called seconds. Thus we are enabled to divide a circle into very small lengths or parts.

• *Locations on the Earth's Surface*

EVERY spot on the earth's surface may be thought of as having a meridian and a parallel passing through it. Meridian circles and parallel circles may be divided into as small parts as desired by the use of the measurement of degrees, minutes, seconds and fractions of seconds. There is no point on the earth's surface that cannot be indicated by an exact location.

Every spot is so many degrees, minutes and seconds of longitude east or west of the Greenwich meridian, and so many degrees, minutes and seconds of latitude north or south of the equator.

• *International Date Line*

THIS is often referred to as the Sunday-Monday line and follows approximately the 180th meridian, on opposite sides of which the reckoning of the date differs by one day. As one travels from west to east, standard time advances one hour for each 15° ; that is, each twenty-fourth of a circle of longitude about the earth. In passing completely around the earth, therefore, one gains twenty-

four hours, or one complete day. As one travels from east to west it is necessary to set one's watch back one hour for each 15 degrees of longitude. In passing completely around the earth one's watch would lose twenty-four hours. Of course, repeating a day or losing one is a matter of reckoning only, since it is impossible to actually repeat or omit days. When it is Sunday on the American side of the "International Date Line" it is Monday or one day ahead on the Asiatic side. The 180th meridian is chosen as the one at which this change of date should be made because it is farthest from the zero, or Greenwich, meridian and because, passing near the center of the Pacific Ocean, it avoids inhabited lands, where it might cause serious confusion. The date line departs from the 180th meridian sufficiently to pass through Bering Strait, west of the Aleutian islands, and east of certain islands near New Zealand.

THE ANALEMMA

THE ANALEMMA is the diagram of the large figure 8 in the Pacific ocean. It shows the sun's declination, or latitude, for every day of the year by showing the latitude where the sun's rays are vertical on any day of the year. Each month is indicated by a distinct color and each day by a separate dot. It also shows the Equation of Time. The particular type of Analemma on Cram's globes, because of its figure 8 shape, has the additional use of telling at once whether the clock is before or after the sun-dial for every day in the year.

The Analemma extends between the points $23\frac{1}{2}^{\circ}$ north and $23\frac{1}{2}^{\circ}$ south only, or between the Tropic of Capricorn and the Tropic of Cancer, indicated by dotted lines on the globe. The region between these lines is known as the tropics. The sun's ray does not fall vertically outside the tropics. To those living in the U. S. the explanation for the fact that June 21st is the longest day and that December 22nd is the shortest day in the year, is more easily understood by noticing that according to the Analemma the sun has reached the northernmost point of its track on June 21st and starts south on June 22nd, and vice versa on December 22nd. The sun's rays are more nearly direct on June 21st and less direct on December 22nd than at any other time.

By looking closely at the figure one finds that the Equator crosses the Analemma on March 21st and September 23rd, indicating that on these days the sun's rays fall vertically on the Equator. One can easily discover for himself where the sun's rays are vertical on specific days. For instance, on December 22nd, one finds the latitude to be $23\frac{1}{2}^{\circ}$ south. That is, on the entire Tropic of Capricorn the sun's vertical ray is falling at sometime during the day.

The Analemma also shows that the sun passes north and south more rapidly in some months than in others. The sun at some dates seems to stand at the same place at our noon for several days, or even a month, as in June, while at other times it seems to climb rapidly from noon to noon. It is noticeable how much longer space north and south some months occupy than others. During June and December it takes almost a month to "turn around" according to the Analemma. Therefore the sun remains about the same height at our noon during these two months.

Another use of the Analemma, that of the Equation of Time, is none the less interesting or important. By the term "Equation of Time" is meant the difference between mean solar time and solar time. It is shown by a horizontal scale of time. A good watch and the sun do not keep the same time. According to solar time (sun time) a day may vary in length from $23\frac{3}{4}$ hours to $24\frac{1}{4}$ hours, whereas according to the mean solar time (clock time) it is always 24 hours long. Clock time and sun time correspond exactly only four times a year. One can judge for himself, by stretching a piece of paper parallel with the nearest longitudinal meridian from a certain date to the scale of time, how much ahead or behind clock time the sun time is. (The metallic meridian can be used instead of paper.) For instance, on November 2nd the sun is 16 minutes, 20 seconds fast according to clock time and on February 11th it is 14 minutes, 20 seconds slow. The times correspond on June 20th, April 14th, August 30th, and December 20th.

• *The Ecliptic Line on the Globe*

THE ecliptic is the actual path of the earth through space in

its trip around the sun. (Since the sun apparently moves around us, we usually think of the ecliptic as the path of the sun.) The ecliptic

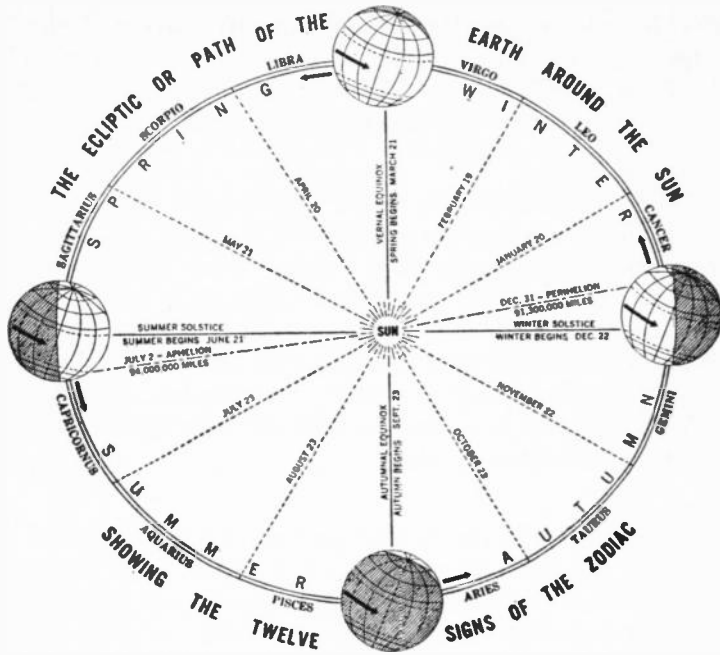


FIG. 3

itself is not on the earth but the Plane of Ecliptic (the plane in which the path is located) is represented on the globe by a line which cuts the earth, at an angle of $23\frac{1}{2}^{\circ}$, into two hemispheres. It crosses the equator and extends to the Tropic of Capricorn on one side and to the Tropic of Cancer on the other side. It remains at the same angle constantly. The sun and earth are always opposite in the path, chasing each other round and round in the ecliptic, always moving in the same direction at 180° apart, it taking one year to complete the journey. The line on the Globe, representing the ecliptic, is divided into months, the months into days. On the same line the signs of the Zodiac are shown too. The vertical rays of the sun fall along this line and the date opposite any latitude line shows when the rays are vertical at this point (Fig. 3). See also the Analemma on the Globe.

QUESTIONS

1. What point in the United States is located farthest north?
2. What is the largest inland body of fresh water in the world?
3. What territory has but recently been acquired through conquest, by another nation?
4. What Canadian city, located 1000 miles from the ocean, is 500 miles nearer Liverpool than New York?
5. Account for the fact that in Tibet, located nearer the equator than Italy or Greece, snow remains on the ground for at least six months of every year, while the latter have a mild climate.
6. What European nation has a lone possession almost 4000 miles south of the equator?
7. What probably is the longest ungarrisoned boundary line between two states in the world?
8. Name the capital of China.
9. Name Belgium's only colonial holding.
10. Where are practically all of the Netherland possessions located?
11. What vast stretch of land is almost wholly under the mandate of European nations?
12. Which is the largest republic of the U. S. S. R.?
13. At what rate of speed is the earth traveling through space?
14. Where is "the crossroads of the Pacific"?
15. What is the line of direction of the Panama Canal?
16. Why is the United States so well situated in regard to international trade?
17. Compare the size of the U. S. S. R. with that of Europe.
18. Which country, as well as our own, has the initials U. S. A.?
19. At what location is every point on the earth north?
20. Although England and Labrador are both situated between 50° and 60° latitude, the former enjoys a mild climate, while the latter is extremely cold much of the time. Explain this situation.
21. How far is the English shore from Europe?
22. Where are the Caroline Islands?
23. From what point on the globe might you go 100 miles north, 100 miles east and 100 miles south and find yourself back at the same point where you started?
24. Where is east west, and west east?
25. Where alone do we find floating ice sheets?
26. Is Europe a continent?
27. What is the highest mountain of each of the four major continents?
28. What is the Portuguese colony and port in China?
29. Where is the longest ship canal in the world located?
30. Which is farther west, Los Angeles, Calif., or Reno, Nevada?
31. Where is Hong Kong?
32. What is the world's largest desert?
33. Does it get colder at the poles than at any other spot in the world?
34. What is the longest river on the globe?
35. What three possessions comprise Portuguese India?
36. What three men have reached the South Pole, when did they reach the Pole, and what is the nationality of each man?
37. The thermometer rarely falls below zero along the southern coast of Alaska, while a temperature of 60° below zero is not unusual in the interior. Can you account for this extreme variation?

38. On what two days of the year are day and night of equal duration in every part of the world?
39. What is the ecliptic?
40. Which portion of the earth's surface moves most rapidly?
41. Which ocean receives drainage from the greater area of the continent of Asia?
42. Which continent, in proportion to its size, has the least extent of coast line?
43. Why are the zones at the poles given the name "Arctic" and "Antarctic"?
44. How does Europe compare in size to Asia?
45. What portion of the world's habitable land surface is covered by the British Empire?
46. What is the only country in South America under foreign control?
47. What is the most stupendous engineering feat of all ancient times?
48. Why is the Hudson Bay rapidly becoming a chief Canadian wheat export center?
49. Name the largest river in the world.
50. Compare the Atlantic and Pacific oceans in respect to area drained.
51. Which in all probability is colder, the North or the South Polar region?
52. What country is more than 25 times as long as its average width?
53. What is the distance between Africa and Europe?
54. While traveling from San Francisco, Calif., to Yokohama, Japan, does one lose or gain a day?
55. In what direction does the day travel?
56. What is the capital of India? The summer capital?
57. What is the present Turkish capital?
58. What country in South America is the only one without a seaport?
59. How far is it from North America to Asia?
60. What are the 7 main republics which go to make up the U. S. S. R.?
61. Name the southernmost Asiatic city.
62. In what Canadian lake region has an air rush for gold and radium but recently taken place?
63. Locate Baile Atha Cliath.
64. Which South American country has two capitals?
65. What is the name of Byrd's camp in Antarctica?
66. Which is the largest state in the United States? The smallest?
67. Why does Greenland appear much smaller on a globe than on a flat map?
68. Where is Dec. 22 the longest day in the year?
69. How does the coast line of Europe compare in length to that of the other continents?
70. Where are day and night, each, six months long?
71. What is the date of the vernal equinox in the northern hemisphere? Of the autumnal equinox? Of the summer solstice? Of the winter solstice?
72. Why is the Analemma always placed between the Tropics of Cancer and Capricorn, extending from one to the other?
73. The Union of South Africa has two capitals. What are they?
74. Where is the longest canal?
75. Why is the development of interior U. S. S. R. so severely handicapped?
76. What two cities of the same name in widely separated countries are famous for their iron works?
77. What state touches only one other state?
78. How does the latitude of the northernmost city of the United States shown on the globe compare to that of the southernmost city shown in England?
79. Why do not all vessels leaving New York for Liverpool always proceed immediately for "the great circle route"?
80. Two cities of the same name in India are shown on the globe. What is the name?

ANSWERS

1. A small, detached area northwest of the Lake of the Woods, with a few islands in that lake, is a part of Minnesota and lies north of 49°, the parallel usually considered the extreme northern boundary of the states.
2. Lake Superior.
3. Manchoukuo, acquired by Japan.
4. Montreal.
5. Tibet is a high plateau with an average height of 15,000 ft. The village of Gartok (14,518 ft.) is the highest spot where human beings live all the year.
6. Norway, who owns Bouvet Island.
7. The Canadian-United States boundary.
8. Nanking. Previous to 1928, the capital was at Peiping.
9. Belgian Congo in Africa.
10. In Netherland East Indies, between 90° E. and 145° E., along the equator.
11. The African Continent.
12. The Russian Socialist Federated Soviet Republic.
13. 64,800 miles per hour, or about 18 miles per second.
14. The Hawaiian Islands.
15. The line of the canal is northwest and southeast. The Pacific end is 27 miles east of the Atlantic end.
16. The United States is flanked on either side by the Atlantic and Pacific oceans.
17. The U. S. S. R. is more than twice as large as Europe, comprising one-seventh of the entire land surface of our planet.
18. Union of South Africa.
19. The South Pole.
20. The Gulf Stream, bringing a large body of warm water constantly to England's shores, gives that country a comparatively mild climate. The Labrador current, flowing from the north polar regions, brings cold weather to Labrador.
21. 18 miles at the nearest points.
22. In the Pacific Ocean; those controlled by Japan lying north of the equator, 150° E.; while a second group, owned by Great Britain, lie south of the equator, 152° W.
23. The South Pole.
24. On the 180th meridian.
25. In Antarctic regions. The Ross barrier is the greatest of these.
26. Europe might more truly be spoken of as the European peninsula of the larger continent Eurasia.
27. Everest, 29,141 ft., in Asia; Aconcagua, 22,868 ft., in South America; McKinley, 20,300 ft., in North America; Kilimanjaro, 19,320 ft., in Africa.
28. Macau.
29. In northwestern U. S. S. R. a new 152 mile canal joins the Baltic and White Seas.
30. Reno, Nev.
31. Hong Kong is a small island off the Chinese coast, separated from the mainland by a channel half a mile wide; also the British colony which extends into China proper as well as covering the islands of Hong Kong and Lan-tao at the mouth of the Canton River.
32. Sahara, 2,000,000 sq. mi.
33. Though the average temperature probably is lower at the poles than anywhere else, present records show that the coldest known region is in the province of Yakutsk in Siberia, in the vicinity of the Arctic Circle, where temperatures colder than -90° F. have been reliably recorded.
34. The Nile, which is 4000 miles long.
35. Goa, Damao, both located on the west coast of India, and Diu, a small island 140 miles west of Damao.
36. Roald Amundsen, 1911, of Norway; Capt. Rob't F. Scott, 1912, of Gr. Britain; Rear Adm. R. E. Byrd, 1929, of the United States.
37. The temperature of the coastline is moderated by the warm Kuro Siwo ocean current.

38. On March 21 and September 23.
39. Usually thought of as the apparent path of the sun around the celestial sphere, but more truly that plane, passing through the center of the sun, which contains the orbit of the earth.
40. The equator.
41. The Arctic, whose Asiatic drainage area is 4,367,000 sq. mi., in comparison to 3,641,000 sq. mi. to the Pacific and 2,873,000 sq. mi. to the Indiaa.
42. Africa.
43. Arctic is from the Greek word meaning "northern." The Latin "anti" means "against" or "opposite." Thus Antarctic zone would be the zone opposite to the Arctic or northern zone.
44. Asia is approximately $4\frac{1}{2}$ times as large as Europe.
45. Approximately one-fourth. 13,172,060 sq. mi.
46. Guiana, divided between Gr. Britain, Netherlands, and France.
47. The Great Wall of China, which marks the northern limits of China Proper.
48. First, because the wheat-growing districts of the Canadian Northwest are nearer Hudson Bay than to the Great Lakes; and, secondly, because the Hudson Bay is from 100-250 miles nearer to Liverpool than New York.
49. The Amazon.
50. The Atlantic has a drainage basin of over 19,000,000 sq. mi.; the Pacific but 8,660,000 sq. mi.
51. The South Polar. The South Pole is on an elevated plateau, while the North Pole is at sea level in the Arctic Ocean.
52. Chile.
53. The width of the strait between the southern point of Spain and Africa is $8\frac{1}{2}$ miles.
54. A day is lost sailing westward across the International Date Line.
55. To the east, since the earth rotates in a counter-clockwise direction.
56. New Delhi, opened Feb. 10, 1931, is the new capital and Simla is the summer seat of government.
57. Ankara.
58. Bolivia. While Paraguay also is an inland state, vessels of light draft pass up the Paraguay and Parana Rivers to Asuncion.
59. 36 miles, across the shallow Bering Strait.
60. Russian S. F. S. R., White Russian S. S. R., Ukrainian S. S. R., Transcaucasian S. F. S. R., Turcoman S. S. R., Uzbek S. S. R., Tajik S. S. R.
61. Singapore.
62. In the region of the Great Bear Lake.
63. The capital of the Irish Free State. (Formerly called Dublin.)
64. Bolivia. La Paz is the actual seat of government, though Sucre is nominally the capital.
65. Little America.
66. Texas. Rhode Island.
67. Relative geographical size can be shown truly only on a globe, whereas a flat map is distorted because it illustrates the surface of the world as a flat surface.
68. The southern hemisphere.
69. Though second smallest in size, this continent has a coast-line longer in proportion to its area than that of any other continent.
70. At either pole.
71. March 21. Sept. 23. June 21. Dec. 22.
72. The purpose of the Analemma is to show the latitude where the sun's rays are vertical on any day of the year.
73. Pretoria is the seat of government of the Union; Cape Town is the seat of legislature.
74. In China. It extends from the city of Hangchow north to Tientsin.
75. Lack of ice-free ports and poor natural internal transport conditions.
76. Birmingham, England and Birmingham, Alabama.
77. Maine.
78. Seattle, Wash. (also Minot, N. Dak.) is 48° N., whereas Plymouth, England, is
79. To avoid the fog banks and icebergs along the Newfoundland coast. (50° N.
80. Hyderabad.

Principal Short Wave Stations of the World

EASTERN STANDARD TIME ONLY

Mega.	Meters	Call	Location	Time	Mega.	Meters	Call	Location	Time
4.00	75.00	HCJB	Quito, Ecuador	7:30-10 PM	6.11	49.10	VE9HX	Halifax, Can.	5-11 PM
4.24	70.65	RV15	Khabarovsk, U.S.S.R.	3-9 AM	6.11	49.10	YV1BC	Caracas, Ven.	5-10 PM
4.51	66.43	ZFS	Nassau, Bahamas	2-10 PM	6.12	49.00	PK1WK	Bandoeng, Java	4:15-6 AM
4.97	60.30	G6RX	Rugby, England	8-10 PM	6.12	49.00	W2XE	Wayne, N. J.	6-11 PM
5.05	59.42	ZFA	Hamilton, Bermuda	Night	6.12	49.02	ZTJ	Johannesburg, U. of S. Af.	4 AM-3:30 PM
5.68	52.82	VK3LR	Melbourne, Australia	5-7:30 AM	6.13	48.94	ZGE	Kuala Lumpur, F.M.S.	7-9 AM
5.69	52.65	HCK	Quito, Ecuador	8-11 PM	6.14	48.85	W8XK	Pittsburgh, Pa.	4:30 PM-1 AM
5.88	51.00	HJ2ABA	Tunja, Colombia	7:30-10 PM	6.15	48.78	YV3BC	Caracas, Ven.	10:30 AM-1 PM, 4:30-9:30 PM
5.94	50.51	TGX	Guatemala Cy., Guat.	Su. 2-5 AM	6.19	48.47	TGW	Guatemala Cy., Guat.	5 PM-Mid.
5.95	50.43	HIX	Santo Domingo, D. R., Tu & Fri.	8-10 PM, Su. 7:45 AM	6.20	48.38	HJ3ABF	Bogota, Colombia	7-11 PM
5.95	50.43	HJ4ABE	Medellin, Col.	7-11 PM	6.23	48.15	H11A	Dominican Rep.	12-4 PM
5.97	50.25	HVJ	Vatican City	2-2:15, Su. 5 AM	6.38	47.50	H1Z	Santo Domingo, D.R.	5-6 PM
5.99	50.08	YV4CSG	Caracas, Venezuela	8-10:30 PM	6.42	46.66	W3XL	Bound Brook, N.J.	Fr. 5:30 PM-1 AM
6.00	50.00	COC	Havana, Cuba	4-6 PM	6.45	46.51	HJ1ABB	Barranquilla, Col.	5-11 PM
6.00	50.00	RV59	Moskva, U.S.S.R.	2-6 PM	6.48	46.20	HJ5ABD	Call, Colombia Th., Sa., Su.	7-11 PM
6.00	50.00	Tananarive, Madag.		3-4 AM	6.61	45.39	REN	Moskva, U. S. S. R.	1-6 PM
6.00	50.00	VE9DN	Drummondv., Can., Sa.	11:30 PM	6.62	45.31	PRADO	Riobamba, Ecuador	Th. 9-11 PM
6.00	50.00	VE9DR	Montreal, Can., 7:30 AM-Mid.		6.67	45.04	HC2RL	Guayaquil, Ecu., Su.	6-8 PM, Tu. 9:15-Mid.
6.00	50.00	ZGE	Kuala Lumpur, F.M.S., Tu. & Fr.	6:30-8:30 AM, Su. 7 AM	6.71	44.71	YNCRG	Granada, Nic.	6-11 PM
6.02	49.83	DJC	Zeesen, Ger.	8-11 PM	6.85	43.82	HAT2	Budapest, Hungary	4-5:30 PM
6.03	49.75	VE9CA	Calgary, Can.		6.99	42.90	LCL	Oso, Norway	11 AM-6 PM
6.03	49.75	VE9CA	Macao, Port. China	AM	7.14	42.00	HJ4ABB	Manisales, Col.	11 PM-Mid., Su. 3-10 PM
6.04	49.67	HJ3ABI	Bogota, Colombia	8-10 PM	7.14	42.00	HKN	Medellin, Col.	8-10 PM
6.04	49.65	W1XAL	Boston, Mass. Th. 5:15-7:15 PM, Su. 6:30-9:30 PM		7.14	42.00	YV2AM	Maracaibo, Ven.	Su. 8-10 AM
6.05	49.58	GSA	Daventry, Eng.	11 AM-1 PM, 2:45-8 PM	7.23	41.50	HKE	Bogota, Colombia	8-9 PM
6.05	49.58	W3XAU	Philadelphia, Pa.	8 PM-1 AM	7.38	40.65	EA8AB	Santa Cruz, Canary Is.	5-7 PM
6.06	49.50	HIX	Santo Domingo, R.D., Tu. Fr. & Su.	8-10 PM	7.39	40.60	ZLT	Wellington, N. Z.	AM
6.06	49.50	W4XB	Miami, Fla.	Sa. 6-11 PM	7.40	40.54	HJ3ABD	Bogota, Colombia	9-11 PM
6.06	49.50	W8XAL	Cincinnati, O., 6:30-10:30 AM, 1-3 PM, 6 PM-Mid.		7.80	38.46	HBP	Geneve, Switz.	Sa. 5:30-6 PM
6.06	49.50	YV5BMO	Maracaibo, Ven.	Evenings	7.99	37.55	VK2ME	Sydney, Aust.	5:30 AM
6.07	49.42	OXY	Skamleback, Den.	2-6:30 PM	8.10	37.03	CNR	Rabat, Morocco	2:30-5 PM
6.07	49.42	UOR2	Wien, Austria, 8:30-9 AM, 10 AM-1 PM		8.20	36.65	PRA3	Riode Janeiro, Bra., 6:30-7:30 PM	
6.07	49.42	VE9CS	Vancouver, Can.	8-10 PM	6.10	33.00	CP5	La Paz, Bolivia	7-11 PM
6.07	49.42	VQ7LO	Nairobi, Kenya	11 AM-2 PM	9.17	32.70	VYR	Maracay, Ven.	Afternoon
6.08	49.30	CP5	La Paz, Bolivia, 6:30-8 PM, Su. 9-11 PM		9.34	32.10	CGA	Drummondv., Can.	Irreg.
6.08	49.30	W9XAA	Chicago, Ill.	3-6 PM	9.41	31.88	PLV	Bandoeng, Java	8-10 AM
6.09	49.25	VE9BJ	St. John, Can.	Irreg.	9.50	31.58	SRI	Posnan, Poland	Tu. 1-3 PM, Wed. 8-9 AM
6.09	49.20	VE9GW	Bowmanv., Can.	3 PM-Mid.	9.50	31.58	VK3ME	Melbourne, Aust.	Wed. 5-6:30 AM, Sa. 5-7 AM
6.10	49.18	VUC	Calcutta, India	9:30 AM-Noon	9.51	31.54	GSB	Daventry, Eng.	9 AM-5:45 PM
6.10	49.18	W3XAL	Bound Brook, N. J., Sa. 3 PM-1 AM		9.51	31.54	YV3BC	Caracas, Ven.	9:30-10 PM
6.10	49.18	W9XF	Chicago, Ill. 4:30 PM-2 AM, Su. 1 PM-2 AM		9.52	31.51	OXY	Skamleback, Den.	Irreg.
					9.53	31.46	W2XAF	Schenestady, N. Y.	8-11 PM

Principal Short Wave Stations of the World

EASTERN STANDARD TIME ONLY

Megs.	Meters	Call	Location	Time	Megs.	Meters	Call	Location	Time
9.57	31.34	DJA	Zeesen, Ger.	8-11 AM, Evenings	13.30	22.69	CGA	Drummondville, Can.	Day
9.57	31.34	W1XAZ	Boston, Mass.	7 AM-1 AM	13.34	22.49	YVQ	Maracay, Ven.	Day
9.58	31.31	HBL	Geneve, Swits.	Sat. 5:30-6:15 PM	13.50	22.21	GBB	Rugby, England	Irreg.
9.59	31.28	W3XAU	Philadelphia, Pa.	Noon-6 PM	13.83	21.70	SUZ	Abu-Zabel, Egypt	7 AM-3:30 PM
9.59	31.28	GSC	Daventry, Eng.	6-8 PM	14.45	20.76	GBW	Rugby, England	Day
9.59	31.24	CT1AA	Lisboa, Portugal, Tu. & Fr.	4:30-7 PM	14.48	20.72	YNA	Managua, Nicaragua	Day
					14.49	20.70	HPF	Panama City, Panama	Day
9.60	31.25	XETH	Mexleo City, Mex.	2:30-Mid.	14.49	20.70	TGA	Guatemala City, Guat.	Day
9.67	31.00	T14NRH	Heredia, Costa Rica		14.49	20.70	TIR	Cartago, Costa Rica	Day
9.75	30.77	VK2ME	Sydney, Aust.	4-8 AM	14.70	20.41	PSF	Rio de Janeiro, Brasil	Day
9.86	30.12	EAQ	Madrid, Spain, 5:30-8 PM, Sa.		14.93	20.10	HJB	Bogota, Colombia	Day
					14.98	20.02	KAY	Manila, P. I.	5-8 PM
9.86	30.12	J1AA	Kemikawa-Cho, Japan	5-8 AM	15.06	19.92	WNC	Hiaseh, Florida	Day
9.90	30.30	LSN	Buenos Aires, Arg.	6 PM-6 AM	15.11	19.85	DJL	Zeesen, Germany	Day
					15.12	19.84	HVJ	Vatican City	5-5:15 AM
					15.13	19.82	GSF	Daventry, Eng.	2:30-4:30 AM, 9-11 AM
10.05	29.85	SUV	Abu Zabel, Egypt	3:30 PM on.	15.20	19.74	DJB	Zeesen, Germany	8-11 AM
10.06	29.81	ZFB	Hamilton, Bermuda	Day	15.20	19.73	W8XK	Pittsburgh, Pa.	10 AM-4 PM
10.14	29.59	OPM	Leopoldville, Bel. Congo	9-11 AM, 3-6 PM	15.24	19.69		Pontoise, France	8-11 AM
					15.24	19.69	W1XAL	Boston, Mass. Su.	10 AM-1:30 PM
10.16	29.52	EHY	Madrid, Spain	4 PM	15.28	19.63	W2XE	Wayne, N. J.	10 AM-1 PM
10.29	29.17	DIQ	Nauen, Germany		15.30	19.60	CP5	La Paz, Bolivia	9-11 AM
10.35	28.99	LSX	Buenos Aires, Arg.	8-10 PM	15.34	19.55	W2XAD	Schenectady, N. Y.	2-4 PM
10.44	28.74	EHZ	Canary Islands	Irreg.	15.35	19.54	CT1AA	Lisboa, Portugal	8-10 AM
10.51	28.52	VK2ME	Sydney, Aust.	1-8 AM	15.46	19.40		Pontoise, France	8-11 AM
10.99	27.29	ZLT	Wellington, N. Z.	5-7 AM	15.86	18.91	CEC	Santiago, Chile,	11 AM-5 PM
11.17	26.84	CT3AQ	Funchal, Madeiro, Tu. & Th.	5-6:30 PM, Su. 10:30-Noon	15.87	18.90	FTK	Ste. Assise, France	8:30-11 AM
					16.03	18.71	KKP	Hawaii	2-7 PM
11.20	26.78	XAM	Merida, Mexico	1-6 PM	17.31	17.33	W3XL	Bound Brook, N. J., Fr.	11 AM-5 PM
11.71	25.61		Pontoise, France,	3-Mid	17.51	17.13	DFB	Nauen, Germany	9 AM
11.72	25.59	VE9JR	Winnipeg, Can.	Irreg.	17.54	17.10	VWZ	Poona, India	2-8 AM
11.73	25.58	PHI	Hulzen, Holland	7:30-10 AM	17.73	16.92	HSP	Bangkok, Siam	4-6 AM
11.75	25.53	GSD	Daventry, Eng.	2-4 AM, 1-2:45 PM	17.77	16.88	W3XAL	Bound Brook, N. J., 9 AM-5 PM	
					17.78	16.85	PHI	Hulzen, Neth.	
11.75	25.53	DJD	Zeesen, Germany	8-11 AM	17.79	16.86	G6G	Daventry, England	7-9 AM
11.76	25.51	XDM	Mexico City, Mexico		18.12	16.55	LSY	Buenos Aires, Arg.	Irreg.
11.78	25.47	W1XAL	Boston, Mass. Sa.	5:30-11 PM	18.29	16.40	YVR	Maracay, Ven.	10 AM
					18.29	16.40	GAS	Rugby, England	AM
					18.46	16.25	HJY	Bogota, Colombia	Noon-4 PM
11.80	25.42	I2RO	Roma, Italy	11:30 AM-6 PM	18.67	16.07	OCI	Valverde, Peru	2 PM
11.83	25.36	W2XE	Wayne, N. J.	3-5 PM	18.82	15.94	PLE	Bandoeng, Java	6-11 AM
11.87	25.27	GSE	Daventry, England	7 AM-Noon	18.95	15.83	ZSS	Cape Town, U. of S. Af.	4 AM-Noon
11.87	25.27	W8XK	Pittsburgh, Pa.	4:30-10 PM	19.00	15.79	HBF	Prangins, Switzerland	Irreg.
11.90	25.21		Pontoise, France	11 AM-6 PM	19.27	15.57	PPU	Rio de Janeiro, Bra.	10 AM-3 PM
11.92	25.16	RNE	Moskva, U.S.S.R.	Irreg.	19.28	15.56	FTM	Ste. Assise, France	10 AM-2 PM
11.98	25.04	FZS	Saigon Indo-China,	4-7 AM, 10 PM-Mid.	19.68	15.24	CEC	La Granja, Chile,	11 AM-4 PM
					20.04	14.97	OPL	Leopoldville, Bel. Congo	AM
					21.55	13.92	W8XK	Pittsburgh, Pa.	7 AM-2 PM
12.15	24.69	GBS	Rugby, England						
12.23	24.53	CT1CT	Lisboa, Port. Su.	7-9 AM, Th. 4-6 PM					
12.39	24.21	DAF	Norden, Germany	AM					
12.79	23.45	IAC	Coltano, Italy	AM					
12.82	23.40	CNR	Rabat, Morocco Su.	7:30-9 AM					
12.84	23.37	CNR	Rabat, Morocco	5-8 AM					

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