

EarthSun 4.0 - June 23rd, 1994



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What is EarthSun?

EarthSun is a shareware MicroSoft Windows 3.x program that displays the current sunlit-side of the Earth in an icon. You also have the option of showing the Earth as seen from a point in space directly over where you live, so you can watch the advancing and retreating shadow traverse the globe.

You can specify the icon's title to display the current time and/or date in **many** different formats, as well as changing the icon's background color and rotation direction. **EarthSun** even adjusts **automatically** for daylight savings/summer time for users in the United States, the UK, and Europe.

EarthSun can display an analog clock, complete with options such as hand and face color, and hand size and shape. If you need to be reminded of important times and appointments, there is also an alarm feature where you can set up to three different alarms. Double-clicking on the icon displays the very-informative Sun and Moon info screen that shows today's Sun and Moon rise and set times, along with the current position of each body in the sky. The current *lunation cycle* is also displayed here, showing the dates and times of each lunar phase from one New Moon to the next.

EarthSun can also be a talking clock/calendar if you have a sound card installed in your computer. This feature will "speak" the time and/or date whenever you ask for it, "read" your alarm descriptions to you, and can also play .WAV files at specified intervals if your computer supports sounds. Finally, for international and non-English speaking users, the icon title can be displayed in any one of **many** supported languages.

Installing EarthSun

- Simply use the Program Manager to create a New Program Icon in the group of your choice and set the **Working Directory** to the subdirectory where you installed the rest of the program files. You may place the files in the subdirectory of your choice, but the software **must** be able to find its EARTHSUN.INI file there.
- If it cannot find the .INI file, then the *About* box will be displayed *each and every time* you start **EarthSun**. See the [Troubleshooting](#) section for more information.
- I also recommend placing the Program Icon in the **Startup** group so it loads every time you start Windows.
- If you don't already have the file **BWCC.DLL**, make sure you copy it to your Windows system subdirectory and erase any other older copies of it. This file **must** be available for **EarthSun** to run. See the file BWCC.TXT for more information.

Configuring EarthSun

● Before you can use **EarthSun**, you need to tell it where you live and how to adjust for daylight savings time. You can also select **many** different options as well. Select the following links for more information:

[Selecting the Language](#)

[Viewing Perspective](#)

[Setting your Time Zone](#)

[Adjusting for Daylight Savings/Summer Time](#)

[Animating the EarthSun icon](#)

[Background/Text Colors/Hatch Styles](#)

["Always on top" feature](#)

["Preserve icon's screen position" feature](#)

Once you have set all the above options, you'll need to use the [Your Location](#) dialog box to set your latitude, longitude and altitude so the [Sun and Moon info](#) screen works correctly.

You will also want to have a look at how you can [change the icon's title](#). If you're interested in seeing other parts of the world while viewing your location, the [multiple instances](#) section explains how to set up more than one **EarthSun** icon at a time.

Your Location dialog box

The **Your Location** dialog box allows you to enter your location's longitude, latitude, and altitude. This is necessary for the [Sun and Moon info](#) screen to work correctly. Type in your city's name in the *City* field, and enter your location in the *Longitude*, *Latitude*, and *Altitude* fields. Use the following links to see a table of these values, and find your city or use one that's nearby:

[USA - Alabama to Montana](#)

[USA - Nebraska to Wyoming](#)

[European Cities](#)

Note that all United States cities are located in the Northern and Western hemispheres, and that the tables list the altitudes in meters instead of feet.

Next, you may want to use the *Horizon Obstruction Adjustment* fields if you have objects such as buildings or hills near your location. These prevent a clear view of the horizon and affect the exact time of Sun and Moon rise and set times. Normally you enter a positive number, say 30 or 45 seconds, in these fields, but if you are near the top of a very large hill and look down at either horizon, a negative number may be used.

Finally, the *Adjust for atmospheric refraction* check box is mainly for amateur astronomers who need precise sky locations for the Sun and Moon. Un-check this box if you require more accurate altitude determinations, but most people should just leave it checked **on**.

Selecting the Language

Earlier versions of **EarthSun** have spread around the world, finding homes in countries such as Australia, Germany, England, France and Israel. As a result of this widespread international use, a need arose for the ability to support people who speak in tongues other than my native English. I'm pleased to announce that **EarthSun** can now display the icon's title in any of **24** languages.

To select a language, use the *Language* list box to choose either English, French, Italian, Spanish, German, Dutch, Afrikaans, Portugese, Irish, Welsh, Danish, Swedish, Norwegian, Finnish, Icelandic, Polish, Czech, Romanian, Hungarian, Turkish, Albanian, Japanese (Romanized), Esperanto or Latin. The names and abbreviations of the months and days-of-the-week that display in the icon's title will now appear in your selected language. For something a little more interesting and to get a taste of other world languages, click the *Random* button **on** to have **EarthSun** randomly select a language for you each time the program starts.

Note that due to limitations in the characters that can be displayed, I had to sometimes substitute accented characters with either similar accented characters or with just the unaccented character. This is especially true with the Polish and Czech languages. Also, some of the Hungarian months may not be correct; if you know what they should be, please send them to me. Finally, I am interested in supporting as many different languages as I have access to, so if you know of another language that is not currently supported, please send it to me so I can include it in future versions of **EarthSun**.

● If you are interested in learning about the origin of some of the month and day names, and how different languages have derived similar names, please read the word origin section for a brief overview.

Finally, to lay aside any question that I'm possibly an expert student of world languages, many thanks to the resources at Uris Hall and Olin Hall on the Cornell University campus for providing me with the many "English-to-xxx" dictionaries I used for this project.

Word Origins

As an amateur astronomer and an English minor back in college, I developed a great interest in supporting as many world languages as I could in [EarthSun](#) after I received the German and Italian words from a [helpful user](#). I've known for some time how the names of the days and months were intimately tied to the Sun, Moon, and the planets of our Solar System, and thought I should share some of it here.

Latin is, of course, one of the world's oldest languages, and it has heavily influenced many languages that came after it. For instance, *Sunday* in English is equivalent to the Latin *Solis*, or "Sun-Day". Notice how *Sol* in *Solis* is in the word *Solar*. Other examples from Latin follow for the other days of the week. *Lunae* is the English *Monday*, or "Moon-Day"; *Lunar* no doubt derives from this word. *Tuesday* is *Martis* or "Mars-Day", *Wednesday* is *Mercurii* for "Mercury-Day."

The rest of the days of the week are also named after planets in Latin. *Thursday* is *Jovis* for "Jupiter-Day" or *Jovian* in English. *Friday* is named after Venus, as shown by the name *Veneris*, and *Saturday* is named for Saturn, as shown by *Saturni*. Other languages, particularly Italian, use similar names. Be sure to try all the available languages that [EarthSun](#) has to offer and compare one language with another, trying to see how they relate to one another.

Even the word *month* itself has an interesting origin tied to astronomy. In the past, lunar cycles were very important to fisherman so they could better predict high and low tides. Since the Moon completes one cycle of its phases once every 28 days or so, this period became known as one "moonth". Since that time long ago, the word was shortened to become the English *month* of today.

The month names, too, have an interesting history. March is named after the planet Mars in Latin (*Martius*), and July and August were named after Julius Caesar and Augustus, respectively (*Iulius* and *Augustus*). During Caesar's time, the current 12-month calendar was created amid much debate and confusion. New months were inserted in the existing 10-month calendar, and evidence of that can still be seen. Notice the months of September, October, November and December. These were originally the 7th, 8th, 9th and 10th months of the year. Notice from French the word for seven is *sept*, probably originally from Latin. The root *oct* stands for *eight* (remember the English word *octagon*, a shape with eight sides), *nov* is for nine and *dec* represents ten (recall the English word *decimal*).

As you can see from this very brief look at the origins of the names for the days-of-the-week and the months, it's interesting and educational to re-examine some of the words that we all take for granted in our everyday lives, and realize that most of them have existed for centuries and have been spoken throughout modern history by literally billions of people.

Viewing Perspective

● **EarthSun** can display the icon in either of two ways: show the current half of the Earth that is illuminated by the Sun, or show the Earth as seen from a point in space directly above where you live.

Normally, the icon "rotates" slowly throughout the day, always showing a full view of the half of our planet that is currently facing the Sun. Only one half of the Earth is ever illuminated at any one time. In the morning, you can watch your location appear on the far left, or western, side of the icon. At noon, your location will be shown near the center. Finally, at nightfall, the spot on Earth where you live will rotate out of view of the Sun and will appear on the far right, or eastern, side of the icon as the Sun sets in the West.

Clicking the *View from Darkness Perspective* button, however, will show the same icon of the Earth all day long. Note how the other buttons in the box are only active when this check box is on. The icon now represents the view as seen from space looking down on your location. As the hours pass, you will see a "shadow" advance over the icon. This shadow represents the advancing and retreating darkness that seems to move as the Earth spins. In the morning, the edge of the shadow will be on the left, or western, side of the globe. At noon, the shadow will be gone since the Sun is high in the midday sky. During the afternoon, the shadow will once again appear, but this time from the right, or eastern, side. At sunset, the Earth will be half covered in sunlight and half covered in shadow, with the *terminator* running down the center of the icon and directly over your location. The shadow deepens during the night until midnight when the entire icon is in total darkness. As dawn approaches, however, sunlight reappears on the eastern side, heralding the start of a new day.

● For more interesting and educational information, see the [tricks](#) section for suggested configurations of **EarthSun**.

Setting your Time Zone

● **EarthSun** must know the **time zone** in which you live to display the icon properly. The default is the Eastern Standard Time time zone, which is valid for cities in the United States such as New York City, Boston and Miami. If you live in another time zone, you must select it yourself.

● When you first run **EarthSun**, the program's *About* box appears. Here you'll find the list box *Your Time Zone* containing all of the world's time zones. Simply select the one in which you live. For more adventurous users, see the tricks section for information on how to use the *Other View* fields.

Adjusting for Daylight Savings/Summer Time

● There is a list box if you want the **Daylight Savings Time** (Summer Time) adjustment applied or not. Simply select the region in which you live. If you select *Manual*, the daylight savings time adjustment will be applied **regardless** of today's date. This means you must change this list box selection twice a year when the time changes. You also need to select this option if your region is not listed below. Tables that list the daylight savings time start/stop dates for the other regions follow below. If you select one of these, the daylight savings time adjustment will be applied or not-applied **automatically** based on today's date. All daylight savings time adjustments subtract 1 hour from the current time.

United States:

1994 - Start: April 3rd	End: October 30th
1995 - Start: April 2nd	End: October 29th
1996 - Start: April 7th	End: October 27th
1997 - Start: April 6th	End: October 26th

UK:

1994 - Start: March 27th	End: October 23rd
1995 - Start: March 26th	End: October 22nd
1996 - Start: March 24th	End: October 27th
1997 - Start: March 23rd	End: October 26th

Europe:

1994 - Start: March 27th	End: September 25th
1995 - Start: March 26th	End: September 24th
1996 - Start: March 24th	End: September 22nd
1997 - Start: March 23rd	End: September 28th

● If you live in one of these regions and the above dates are incorrect, OR if you live in another region not listed above, please [contact me](#) with the correct dates so I can update my software.

Animating the EarthSun icon

● You can also select an **update interval** for the **EarthSun** icon. The default is *Real-Time*, which shows the current sunlit side of the Earth. Other values are available to **animate** the icon, displaying a new icon once every update interval. The values you may choose from are once every second, once every five seconds or once every ten seconds.

You can also have the icon **rotate** in the normal forward direction, or in reverse. Just click on the appropriate radio button.

Changing the icon's title

● You can change the **title** beneath the icon to whatever you like. More importantly, you can have the time and/or date displayed here as well.

The *About* box has the default icon title set to `~1~a ~w ~m ~d~o`, which is a special "code" to display the current time in 12-hour format, have either "am" or "pm" displayed after the time, show the day-of-the-week in 3 letters, show the month in 3 letters, and show the day-of-the-month followed by "st", "rd", etc. For example, "9:05pm Thu Jun 23rd". Note how you can add spaces between the various options to cause them to "wrap" down to the next icon title line, if desired.

● If you prefer, you can change the title to be just a simple word or two, like "Earth" or "Earth's Sunlit Side". This may be necessary to work with some screen savers.

All the available options are listed below:

- ~1 = 12-hour format
- ~2 = 24-hour format
- ~a = "am" or "pm"
- ~A = "AM" or "PM"
- ~p = "a" or "p"
- ~P = "A" or "P"
- ~w = Weekday name as "Mon", "Tue", etc.
- ~W = Weekday name as "Monday", "Tuesday", etc.
- ~m = Month name as "Jan", "Feb", etc.
- ~M = Month name as "January", "February", etc.
- ~h = Month number (1-12)
- ~d = Day of the month number (1-31)
- ~y = Year as "94", etc. (Year without the century)
- ~Y = Year as "1994", etc. (Year with the century)
- ~o = Ordinal suffix of "Day of the month" as "st", "nd", "rd", "th",
etc. (as in 1st, 2nd, 3rd, 4th, etc.)
- ~L = Language name (useful with [Random language](#) check box)
- ~l = Language name abbreviated to first 3 letters
- ~i = Available Daylight ("15 hours, 38 minutes, 2 seconds")
- ~I = Available Daylight difference from yesterday
- ~r = Sunrise time in hh:mm:ss format
- ~s = Sunset time in hh:mm:ss format
- ~V = Moon Visibility ("Evening to Dawn")
- ~z = Moon Phase ("Full Moon")

NOTE: See the [Sun and Moon info](#) screen for more detailed solar and lunar information.

Example icon titles:

Title:

~2 ~W ~m ~d~o
~1~A
~w ~M ~d ~Y
~y.~h.~d
~W ~M ~d~o (~l)
~z - ~V
Earth

Displays as:

21:05 Thursday June 23rd
9:05PM
Thu June 23 1994
94.06.23
Thursday June 23rd (Eng)
Full Moon - Evening to Dawn
Earth

- Feel free to experiment with different combinations!

Background/Text Colors and Hatching

● You can select one of 16 different **background colors**. The default is black, but you can select another color if you prefer. Also, the "transparent" color allows you to display the Earth with no background, appearing on top of whatever is beneath it.

You can also select the color of the text that the Sun and Moon info screen uses. By selecting the proper background and text colors, you can make this screen very easy to read. Note that "transparent" selections default the background to black and the text to light gray.

The *Hatch Style* list box allows you to specify different "cross-hatch" styles for the background. Normally, the background is one solid color, but you may choose one of six hatch patterns if you like.

"Always On Top" feature

- You can click the *Icon is always on top of windows* button **on** to have the **EarthSun** icon stay visible when other windows are covering it. When on, the icon will always appear "on top of" the other windows instead of being "hidden" beneath them.

"Preserve icon's screen position" feature

● You can click the *Preserve icon's screen position* button **on** to have the **EarthSun** icon remain in the same position on the screen the next time you start Windows. Usually, icons appear beside each other on the bottom of the screen in the order that they are listed in the Startup group. This option, however, lets you move the icon to any place on the screen and it will appear there instead of with the other icons.

Multiple Instances

Microsoft Windows™ allow you to have **multiple instances** of a program running at the same time. **EarthSun** supports this as well and is an interesting feature for viewing more than one location at a time.

For instance, say you live on the East Coast of the United States and you want to see your location as well as the view from England. You can set **EarthSun** to have two icons on your screen at the same time, one that represents the view from the East Coast and one that represents the view from England. The first step you need to do is to install **EarthSun** in two separate locations on your computer's hard drive. Next, create two separate Program Icons using the Windows Program Manager. In the first one, enter the full pathname to the first place you installed **EarthSun**, set the *Working Directory* to that subdirectory, and name the icon something like "EarthSun - East Coast". In the second icon, enter the full pathname to the second place where it's installed and name it "EarthSun - England". This way, there are two separate EARTHSUN.INI files on your system, so each one can now be configured in it's own way. See the [Troubleshooting](#) section if you need more help installing **EarthSun**.

You should now have two Program Icons, one for the East Coast and one for England. You now go into the *About* box for the East Coast icon and set it up appropriately, namely set the *Your Time Zone* field for Eastern Standard Time. Next, do the same for the England, setting the field for Greenwich Mean Time. If you did everything correctly, you will now have two views of the Earth, each seen from a different point on the planet. This feature is most noticeable if the *View from Darkness Perspective* is **on** for each icon, since it will show the same shadow from two different points.

● Experiment with different combinations of [settings](#), [languages](#) and [time zones](#). **EarthSun** is not only informative by showing you the current time and date, but it's main purpose is to be entertaining and educational. See the [tricks](#) section for more ideas on how to get the most out of **EarthSun**.

Sun and Moon info window

● When you double-click the **EarthSun** icon, or select the **Sun and Moon info** window, the current date, time and icon are displayed in a full-screen window and updated once a second. More importantly, however, a great deal of information about the Sun and Moon rise, transit, and set times for your location are displayed. Make sure you have used the Your Location dialog box before examining this screen.

Among the many values displayed are the twilight start and end times, and the amount of available daylight and the difference in daylight from yesterday. The azimuth (location on the horizon) and altitude (height above the horizon) for the rise, transit (time of highest altitude), and set times for both the Sun and the Moon are shown as well. If the Sun or Moon is above the horizon (in the sky), its current location is displayed.

Detailed information about the Moon is provided, showing the current phase and when to look for the Moon in the sky. The *moon fraction*, or percentage of the Moon that is lit by the Sun as seen from Earth, is displayed, as is the Moon's age (amount of time since the last New Moon) and the orbit position in degrees (zero degrees represents a New Moon). Finally, the current *lunation cycle* is shown, displaying the dates and times of each lunar phase from the previous New Moon to the next.

When you are finished, press the Minimize button in the upper right corner to shrink the window back to the **EarthSun** icon.

EarthSun and Screen Savers

● In the default configuration, **EarthSun** displays a clock beneath the icon. Since this will automatically update the icon's title once per minute, this may cause some **screen savers**, which can sense such activity, to never activate. I've had reports that the *After Dark*™ screen savers work fine with **EarthSun**'s defaults, but the Windows built-in screen savers are known to be a problem.

● A simple solution is to change the *Icon Title* field in the *About* box to a simple word or group of words, such as "Earth" or "Earth's Sunlit Side". You will not be able to show the time in **EarthSun**'s title (although you could still display the date), but your screen savers should work again. Consider using the clock feature if you want to show the time in the icon.

Other related programs

● If you enjoy [EarthSun](#), look for these other icon-programs:

● [GRedSpot](#): Filename GREDSpxx.ZIP; a Windows icon that shows the current view of the planet Jupiter, it's Great Red Spot, and the 4 Galilean moons Io, Europa, Ganymede and Callisto.

● [MarsIcon](#): Filename MARSICxx.ZIP; a Windows icon that shows the current view of the planet Mars.

● [SolSys](#): Filename SOLSYSxx.ZIP; a Windows icon that shows the current relative position of the nine planets in our Solar System.

All three have been released and are available at the Internet FTP sites [oak.oakland.edu](#) and it's mirrors, [ftp.cica.indiana.edu](#) and it's mirrors around the world, and at the Software Creations BBS, (508) 365-2359 (2400,N,8,1), all in the USA. All users receive the shareware versions of these programs when they register. The current versions are **GREDSpxx.ZIP**, **MARSICxx.ZIP**, and **SOLSYSxx.ZIP**.

● Also look for [MoonIcon](#), a Windows icon that shows the current phase of the Moon in the fall of 1994. This program will have even more data than does the [Sun and Moon info](#) screen in [EarthSun](#).

Registering EarthSun

Print out the file ORDER.FRM to get a quick order form for registering **EarthSun**. Remember, you can use **File|Print Topic** directly from that window's menu, or send the file ORDER.FRM, included with the rest of the program files, to your printer from the DOS prompt. This shareware version is not cripple-ware, nag-ware or free-ware, although it will remind you every 5 times to register until the evaluation period expires. When you do register, you will receive the latest executable version that allows **UNLIMITED** use of the program with no reminder box and no expiration.

● All future versions/upgrades of this program are **FREE** to registered users. When a new shareware version becomes available, just download it and copy the new **EarthSun** files to the registered version's subdirectory. It's that simple!

The cost of the diskette and the mailing charges are all included in the **US \$10** registration fee. Personal checks, money orders and AmEx, Visa, etc. traveler's checks are all accepted (sorry, I do not yet accept credit card orders). You will also receive the shareware versions of **3** similar icon-programs for the planet Mars, Jupiter and the Solar System. In addition, you'll receive an impressive Windows wallpaper .BMP file and a BONUS shareware program.

If you are a Windows/C programmer, you may also purchase the full Borland C++ 3.1 source code and Windows resource files used to make **EarthSun** for **US \$25**. The source code for each future version will also be available at a discount, and, needless to say, many programming tips and tricks can be learned by studying this program.

● If you find **EarthSun** useful, please upload it to other bulletin boards and Internet FTP sites so other people can see the sunny side of our planet!

License Agreement

DISCLAIMER - LICENSE AGREEMENT

Users of **EarthSun** must accept this disclaimer of warranty:

"**EarthSun** is supplied "as is". W. Scott Thoman disclaims all warranties, either expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. W. Scott Thoman assumes no liability for damages, direct or consequential, which may result from the use of **EarthSun**."

EarthSun is a shareware program and is provided at no charge to the user for evaluation. Feel free to share it with your friends, but please do not give it away altered or as part of another system. The essence of "user-supported" software is to provide personal computer users with quality software without high prices, and yet to provide incentive for programmers to continue to develop new products. If you find this program useful and find that you enjoy **EarthSun**, you must register it. The registration fee will license one copy for use on any one computer at any one time. You must treat this software just like a book. An example is that this software may be used by any number of people and may be freely moved from one computer location to another, so long as there is **no** possibility of it being used at one location while it's being used at another. It is just like a book which cannot be read by two different people at the same time.

Anyone distributing **EarthSun** for any kind of remuneration must first contact W. Scott Thoman for authorization. W. Scott Thoman should be advised so that the distributor can be kept up-to-date with the latest version.

Disk Vendors, Shareware Distributors and BBS(s) may charge a nominal fee for distribution of the program. The recipient of **EarthSun** must be informed, in advance, that the fee paid to acquire **EarthSun** does not relieve the recipient from paying the Registration Fee if the recipient uses **EarthSun**.

● You are encouraged to pass a copy of **EarthSun** along to your friends for evaluation. Please encourage them to register their copy if they find that they can use it, too. Of course, all registered users will receive a copy of the latest version of **EarthSun**.

EarthSun 4.0 - Order Form

Return this registration form along with US \$10 to:

W. Scott Thoman
41 Lee Road
Dryden, New York 13053 -USA-

or send US \$25 to receive the Registered version PLUS the Borland C++ 3.1 source code and Windows resource files.

Registered users are entitled to ALL upgrades AT NO EXTRA COST! When a new shareware version becomes available, just download it and copy the new EarthSun files to your registered version's subdirectory. It's that simple!

Personal checks, money orders and AmEx, Visa, etc. traveler's checks are all accepted. (Sorry, I don't yet accept credit card orders). You will also receive the shareware version of 3 other related icon-programs, one for the planet Jupiter (GRedSpot; GREDSPP36.ZIP), Mars (MarsIcon; MARSIC26.ZIP), and the Solar System (SolSys; SOLSYS10.ZIP).

Name _____

Address _____

Internet/CompuServe Address: _____

Can I e-mail it to you? ___ .ZIP file ___ UUENCODEd ___ No

Where did you hear about EarthSun? _____

Disk size: ___ 5.25" ___ 3.5"

Comments: _____

THANK YOU!

New Ideas

If you have improved the existing icons, or have created any new icons to improve the animation, please send them to me. Any ideas for new features or capabilities are always welcome. If you would like to see other languages supported, just send me the names and abbreviations of the months and days-of-the-week and I'll be sure to include them in the next version.

● If I use your contributions, you will receive my thanks in the Acknowledgements section and the latest registered version of **EarthSun free**.

Troubleshooting

- If you get the *About* box each and every time you start the program, make **sure** you have the program icon's *Working Directory* set to the directory where you have the EARTHSUN.EXE file. This allows the program to properly find its .INI file. Make sure your EARTHSUN.INI file is in the same subdirectory as the EARTHSUN.EXE file; if it isn't, move it to that subdirectory. This is the recommended way to keep all of **EarthSun**'s files together.
- If you prefer, you may also set the *Working Directory* to your Windows subdirectory explicitly, or just leave it blank to have it default to your Windows subdirectory. Again, just make **sure** that EARTHSUN.INI is, indeed, located there.
- Finally, make sure the .INI file is marked as read/write (this is the default); do **NOT** mark this file as read-only.

Acknowledgements

- Many thanks go to **Peter Hayes** (peter.hayes@uk.cray.com) in England for the information he supplied to me on the daylight savings time issues in the UK and Europe. Thanks to **Eric Rickin** (erickin@umich.edu) for pointing me in the right direction, namely to **Don LeClair** (71534.3255@compuserve.com) for help on doing transparent backgrounds and having icons stay "always on top". Thanks also to **Mike Andersson** (anderss@u.washington.edu) for the idea of preserving the icon position.
- Thanks to my long-time friend **Brian Knapp** in Fayetteville, NY for proof-reading this help file, beta-testing many pre-release versions, offering various Windows tips, and generally struggling with me over the last 12+ years to learn how to make computers do what we want them to do.
- Thanks also to **Reinhold H. Uebbing** (100337.1404@compuserve.com) in Germany for the multi-language support he provided. Also, his ideas led to the implementation of the darkness viewing perspective and multiple instances.
- Finally, many thanks to **William B. Phelps** (wbp@vnet.ibm.com) in California for his Sun and Moon rise/transit/set time algorithms. He sent me the source code, initially in Pascal, and tirelessly worked with me for over two months to improve the accuracy and make it work within **EarthSun**.

Dedication

● Hi Mom and Dad, Linda, Grandma and Grandpa Cruver, Grandma and Grandpa Thoman, Brian, Joe, and especially my wife, Robin.

EarthSun Tricks!

- One of the entertaining and educational **tricks** you can do with **EarthSun** is to animate the icon without the darkness perspective feature on. This shows how the Earth actually spins in space during the course of a day by showing the side of the Earth that is currently facing, or being illuminated by, the Sun. Each "frame" in the animation shows a time difference of one and a half hours from the previous frame.

- Another interesting configuration is to animate the icon with the darkness perspective on, and switching between *Your View* and *Other View* in the *About* box. *Your View* shows the current view of the Earth as seen from a point in space directly over where you live. If you set the *Other Time Zone* field to another part of the world and select *Other View*, you can see the current position of the shadow as seen from that part of the world.

For instance, say you live on the eastern coast of the United States, and you want to view the shadow as seen from England. You would set *Your Time Zone* for Eastern Standard Time and the *Other Time Zone* for Greenwich Mean Time. Now, when you click on the button *Your View*, you see the Earth as it looks from space over the East Coast. When you use the *About* box again and click on the *Other View* button, you are now seeing the Earth as currently seen from space looking down on England. Note how the shadow is different between the two views and remember that only one half of the planet is ever illuminated at a time.

- If you have trouble visualizing this effect, go to a globe of the Earth and shine a flashlight at it in a darkened room. As you slowly spin the globe, watch how different parts of the world enter the lit portion and how others exit into the shadow. With a little practice, you can learn how the rotation of the Earth causes the Sun to seemingly rise and set at different times in different parts of the world.

- **EarthSun** now supports multiple instances of itself on-screen at the same time. This allows you to set up two or more icons that each show the Earth from a different point on the planet.

- To see an analog clock either by itself or on top of the **EarthSun** icon, select the Clock options choice from the system menu.

- Make sure you try out the sounds and talking clock feature, too. If your computer can play .WAV files or has a sound card in it, **EarthSun** can play sounds at specified intervals and can "speak" the time and date to you! The

alarm feature can also "speak" your alarms.

● Finally, try changing the *Language* field from the one with which you're most comfortable to a different language. By changing the $\sim w$ and $\sim m$ parts of the icon's title to capital letters (i.e. $\sim W$ and $\sim M$), you can learn how the months and days-of-the-week are spelled in other languages. Also, look at the word origin section for some history on the words we all use everyday.

EarthSun - Revision History

- 06/23/94 Version 4.0 - Added clock and alarm features. Added Sun and Moon info. Added hatching styles. Added six new languages.
- 04/19/94 Version 3.0 - "International Edition". Added talking clock/calendar via DDE messaging. Added support for many different languages. Added new "perspective" to show the darkness covering the Earth. Multiple instances are now supported. Added preserve icon position feature.
- 02/05/94 Version 2.6 - Added support for transparent backgrounds. Added the "always on top" check box. Added printable order forms directly from the help system.
- 01/20/94 Version 2.5 - Added the on-line help system. Improved dialog box background.
- 12/03/93 Version 2.1 - Added automatic daylight savings/summer time support for US, UK, and European users. Added forward/reverse rotation direction. Added background color selection. Increased evaluation period for un-registered users. Improved the overall look of the About box. Granted free upgrades to registered users. Added support for display of the month number (1-12).
- 11/09/93 Version 2.0 - Removed TZ environment variable; all options are now fully user-configurable on the About screen and saved in EARTHSUN.INI. Added support for all timezones, daylight savings time, and update intervals. Support for displaying date/time in many formats. Improved all of the icons, added Antarctica.
- 10/28/93 Version 1.1 - Initial release. Changed from OWL to straight Windows API calls. Added TZ environment variable support.
- 07/12/93 Version 1.0 - First version. Used BC++/OWL as a framework.

Author Information

● Any suggestions, bugs, ideas, complaints? Let me know what you think of this program so I can improve it! Please include the version number you are using in all correspondence; this is version 4.0. If you want to be on [EarthSun](#)'s e-mail list so you can be notified of new versions, indicate this as well.

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Thank you for using [EarthSun](#)!

What is ShareWare?

● If you're familiar with the idea behind Shareware, then you know that Shareware is the ultimate in **money-back guarantees**.

Most money-back guarantees work like this: You pay for the product and then have some period of time to try it out and see whether or not you like it. If you don't like it or find that it doesn't do what you need, you return it (undamaged) and at some point - which might take months - you get your money back. Some software companies won't even let you try their product! In order to qualify for a refund, the diskette envelope must have an unbroken seal. With these "licensing" agreements, you only qualify for your money back if you haven't tried the product. How absurd!

Shareware is very different. With Shareware, you get to **try it** for a limited time, **without spending a penny**. If you decide not to continue using it, you throw it away and forget all about it. No paperwork, phone calls, or correspondence to waste your valuable time.

Software authors who use the Shareware method of distribution feel that Shareware is the **best** way to try a product. You are able to try it on your own system(s), in your own special work environment, with no sales people looking over your shoulder. Have you ever purchased a car and realized that if you could have test driven it for 30 days your purchase decision might have been different? With Shareware, these problems can be avoided - you **do** have a 30 day test-drive!

After trying a Shareware product and deciding to continue to use it, then - and only then - do you pay for it. Not only that, but Shareware is traditionally **much less expensive** simply because you are paying for the software, not the advertising and marketing that comprises the majority of the cost of most software (a one-page ad in PC Magazine, one time, can cost upwards of \$20,000). If the try-before-you-buy concept sounds like an ideal way to make your purchase decisions, you're right!

Some companies burden their products with annoying copy protection schemes because they don't trust their users. Shareware developers not only don't use copy protection, they **freely distribute** their products because they trust their users.

Someone once said that you should never trust software which doesn't trust you. This makes a lot of sense - no wonder Shareware is becoming so popular among users and developers.

Shareware is a distribution method, **not** a type of software. Shareware is produced by accomplished programmers, just like retail software. There is good and bad Shareware, just as there is good and bad retail software. The primary difference between Shareware and retail software is that with Shareware you know if it's good or bad **before** you pay for it. Registration of Shareware products, in addition to being required, is also an incentive for programmers to continue to produce quality software for the Shareware market.

There is another significant advantage to Shareware - it allows small companies to make software available without the hundreds of thousands of dollars in expenses that it takes to launch a traditional retail software product. There are many programs on the market today which would never have become available without the Shareware marketing method. Please show your support for Shareware by registering those programs you actually use and by passing them on to others.

Thank you for your support!

Sounds and Talking Clock/Calendar

● A fun and entertaining feature is the ability of **EarthSun** to be a **talking clock and calendar**. If you have a *SoundBlaster*™ or compatible sound card and the program *Monologue for Windows*, you can have it "speak" the current time and/or date to you. If your computer can play .WAV files, you can have **EarthSun** play any sound file you wish at the intervals you specify.

First, you need to tell **EarthSun** how it should handle sounds. From the program's System Menu, select the *Sounds/Speech* option. Next, in the *Sound Selection* box, click the *No Sounds* button if your computer cannot play sounds. Most Windows installations can at least play sounds through the PC's internal speaker, so only use this if you are sure you don't want sounds. Next, the *Windows .WAV files* button lets you play any .WAV file as an hourly, half, or quarterly chime. Finally, if you have a sound card and the appropriate software, click the *Enable DDE Speech capability* button to have it speak the time and date. Notice how different parts of the dialog box are enabled and disabled as you select different sound options. This makes it easier for you to tell which options are available based on the sound selection you choose.

Once this is done, you can set many options to have **EarthSun** speak at certain times and say various phrases. The *Sound/Speech Interval* box lets you select when **EarthSun** will speak or play sounds. If you select *Only right-click*, it only speaks when you click the right mouse button when the mouse cursor is over the icon. Other options cause **EarthSun** to play sounds or speak **automatically** once every hour, every half-hour, or every 15 minutes. Note that when you select *Enable DDE Speech capability* and *Only right-click*, the corresponding .WAV file will play at the specified interval instead of the speech for that time. Also, when *Windows .WAV files* and *Only right-click* are selected, the last-played .WAV file will be the one that is played when right-clicked.

To have it play sounds, enter the full filename of a .WAV file that you want **EarthSun** to play at the corresponding interval. For instance, **EarthSun** defaults to playing the file CHIMES.WAV that comes with Windows on the hour. If you have another file that you prefer, simply type it in here. The other filename fields work in the same manner. If you enter an incorrect filename, the standard "beep" is sounded instead of your intended file.

To hear it talk, select *Sounds/Speech* for the system menu. Next, click the *Enable DDE Speech capability* button. If you are using *Monologue for Windows*, set the *Service* field in the *DDE Names* box to **MONOLOG** and the *Topic* field to **TALK**. Other DDE (**D**ynamic **D**ata **E**xchange) speech server software may require other Service and Topic names; if so, simply type them in. Also, you must make **sure** that your speech server is running before **EarthSun** tries to speak; it can't talk without help from this other software package. If you are using *Monologue for Windows*, I've included the file EARTHSUN.DIC, which is a small dictionary of words that **EarthSun** can use to better pronounce the time and date. See

your sound card and speech server software documentation for further details. If you have a specific speech program that doesn't seem to work with **EarthSun**, please [contact me](#) and I'll see if I can help you and/or support it in future versions.

The *Speech Selection* box lets you determine the order in which **EarthSun** speaks the time and/or date. You can have it say only the time, say only the date, say the time then the date, or say the date then the time. Simply click on the radio button that matches your preference.

Finally, the *Time Options* and *Date Options* let you select different word and phrase combinations when the time and date are spoken. Again, click the appropriate buttons to suit your taste.

In this version, **EarthSun** only speaks in English. See the [language](#) section for information on how you can have the icon title display in other languages.

● By the way, yes, that is my voice you hear when you click the *Clear Skies* button and the other dialog box *OK* buttons. I created the CLEARSKY.WAV, OK.WAV and a few others with my *SoundBlaster*™ card and a microphone and had **EarthSun** play them. If you don't want to hear them, simply delete all the .WAV files.

● When using *Monologue for Windows*™, I've noticed it can produce a "WaveOutOpen" error when my .WAV files start playing after leaving a dialog box and it then tries to speak the time on one of the 15-minute intervals. You can simply press the *OK* button to continue, or delete the .WAV files if this is a problem.

Clock features

● A new feature for version 4.0 is the ability of **EarthSun** to be an analog **clock**, or a clock with hour and minute "hands". You can control the size, shape, and color of the hands as well as the clock face. Markers for the hour positions can also be set any way you prefer.

Use the *Clock options* selection from **EarthSun**'s system menu to bring up the *Clock Options* dialog box. Note how the various settings are disabled (grayed-out) and enabled based on the selections you choose.

● **EarthSun** defaults to not showing the clock at all. To use it, you first need to check either the *Only show the clock* or the *Show clock on top of icon* radio button. I recommend showing only the clock until you are familiar with the different clock features, since most of the clock face is covered by the Earth icon when using the other selection.

You can change the color of the hands by using the *Hand Colors|Minute* and *Hour* list boxes. Next, the *Hand Style* check box lets you select whether you wish to have the hands partially "filled" with the hand color. NOTE: This is only used when the hand "width" is more than zero; see below for more details. The check box beneath called *Face Size* controls the size of the clock face. When checked, the clock face will be drawn to encompass the hour markers and is slightly larger than the size of the Earth icon. Un-check this box to have the face hidden when the icon is displayed.

● The size and shape of the hands can be changed by using the *Hand Size* box. This box is organized into two rows of fields; the first row is for the hour hand and the second is for the minute hand. The *Width* fields in each row control the width of the hand on either side of the clock's center point. For the smallest hand possible, enter **0** in this field. This will create a hand that is only 1 pixel wide. For more stylish hands, however, try values such as **1**, **2** or **4**. These give the hands "width" and create a triangular shape. Try different values until you find a width that looks good to you.

Next, the *Length* fields control the length, in pixels, of the hour and minute hands starting from the clock's center point and moving outward to the tip. Normally, the default values are appropriate, but feel free to change them. Finally, the *Back* fields specify the length of the part of the hand that extends behind the clock's center point. A value of **0** means to have no back portion of the hand, but a much more interesting value is, say, **4**.

● In addition, you can also tell **EarthSun** to draw **markers** at the 12 "hour points" along the clock face's edge. Click the *None* button to hide the markers, select the *3-hour* button to show only the 12-, 3-, 6-, and 9-hour markers, or choose *All* to show all twelve. Also, don't forget to try the two marker

color list boxes to change the color of each type of marker!

● Finally, the *Face Color* list box allows you to change the color of the clock's face. Be sure to try many different combinations of background colors, face colors, hand colors, and hand sizes and shapes. There is no "correct" combination of **EarthSun** options; use your imagination and keep trying new ones! One of my personal favorites is setting transparent background and face colors, so the only part of the clock that is visible are the hands and (maybe) the markers...

Alarm features

● **EarthSun** can also be used as an **alarm clock**. You can set up to **three** different alarms and have .WAV files played when the alarm "goes off". **EarthSun** can also be set to speak the alarm description to you!

Use the *Alarm options* selection from **EarthSun**'s system menu to bring up the *Alarm Options* dialog box. Note how the various settings are disabled (grayed-out) and enabled based on the selections you choose.

● **EarthSun** has no alarms set as the default. To use them, you first need to click one of the check boxes under the word *On*. Notice how the other controls in the line are now enabled for use. By clicking an alarm's *On* button on and off, you can choose to set or not to set an alarm without having to re-type the alarm's other values. Remember that an alarm will not go off if it's *On* button is not clicked on.

The next control to the right is the *Month* list box, and it displays the 12 months of the year in the language you selected in the *About* dialog box. If you wish, you may set an alarm for a certain month in the future and **EarthSun** will signal you when that month arrives. Select *-None-* if you do not wish to keep track of the month. This control is normally used only with the following *Day* field, so that a certain day in the future can be specified. If neither the *Month* or *Day* field is used, then **EarthSun** will sound the alarm each day at the specified time.

The next three fields, *Hour*, *Min* and *pm*, let you specify the time that the alarm is to go off. Type in the number of the hour (from 1 to 12) and the minute (from 0 to 59), and be sure to click the *pm* button if necessary.

The *Description* field is the name for the alarm and it will be shown in the small message box that appears when the alarm goes off. Simply type in any description you like for this alarm. Read on for an entertaining use for this field...

● Finally, the *.WAV file or "SPEAK"* field is the last control on each alarm. If you do not want **EarthSun** to make a sound when the alarm goes off, simply leave this field blank. If want a .WAV file played, type in it's filename here. For the most fun, however, type in the word **SPEAK** and **EarthSun** will speak the alarm description to you!

You can also have **EarthSun** turn an alarm off after it notifies you by clicking the *Turn Alarm Off* check box in the *After Alarm occurs* box. This will stop an alarm from occurring again unless you click the *On* button back on. Also, you can have the alarm's fields set to all blank values afterward by checking the *Clear Alarm's fields* button. Note that clearing the fields also turns that alarm off.

USA - Alabama to Montana

Location/ City Name	North		West		Alt m
	Latitude Deg	Min	Longitude Deg	Min	
ALABAMA					
Anniston	33	39.0	85	47.0	-
Birmingham	33	31.8	86	48.6	203
Gadsden	34	00.6	86	00.6	182
Huntsville	34	43.9	86	35.2	210
Mobile	30	40.8	88	06.6	2
Montgomery	32	21.6	86	18.0	52
Tuscaloosa	33	12.0	87	32.4	-
ALASKA					
Anchorage	61	12.0	149	48.0	28
Fairbanks	64	50.0	147	48.0	143
Juneau	58	18.2	134	24.5	4
ARIZONA					
Flagstaff	35	12.6	111	37.2	2264
Glendale	33	30.0	112	15.0	-
Mesa	33	25.0	111	50.0	-
Phoenix	33	30.0	112	04.8	366
Scottsdale	33	30.0	111	53.0	-
Tempe	33	24.0	111	54.0	-
Tucson	32	13.2	110	55.2	784
Yuma	32	42.0	114	37.8	52
ARKANSAS					
Fort Smith	35	22.8	94	24.0	144
Little Rock	34	44.4	92	19.2	94
N Little Rock	34	46.0	92	13.0	-
Pine Bluff	34	13.2	92	01.2	-
CALIFORNIA					
Alameda	37	46.0	122	15.0	-
Alhambra	34	05.0	118	08.0	-
Anaheim	33	50.0	117	55.0	-
Bakersfield	35	23.0	119	00.0	131
Baldwin Park	34	05.0	117	58.0	-
Bellflower	33	53.0	118	08.0	-
Berkeley	37	52.0	122	17.0	13
Buena Park	33	52.0	118	00.0	-
Burbank	34	11.0	118	19.0	-
Carson	33	49.0	118	16.0	-

Cerritos	33	52.0	118	05.0	-
Chula Vista	32	38.0	117	05.0	-
Compton	33	54.0	118	14.0	-
Concord	37	58.0	122	02.0	-
Cosa Mesa	33	39.0	118	54.0	-
Daly City	37	43.0	122	31.0	-
Downey	33	56.0	118	08.0	-
El Cajon	32	48.0	116	58.0	-
El Monte	34	04.0	118	02.0	-
Escondido	33	07.0	117	00.0	-
Eureka	40	45.0	124	10.0	-
Fairfield	38	14.0	122	02.0	-
Fountain Valley	33	42.0	117	57.0	-
Fremont	37	33.0	122	00.0	-
Fresno	36	46.2	119	46.8	94
Fullerton	33	53.0	117	56.0	-
Garden Grove	33	47.0	117	56.0	-
Glendale	34	09.0	118	15.0	-
Hawthorne	33	55.0	118	22.0	-
Hayward	37	40.0	122	06.0	-
Huntington Beach	33	39.0	118	00.0	-
Inglewood	33	57.0	118	22.0	-
Irvine	33	40.0	117	45.0	-
Lakewood	33	50.0	118	09.0	-
La Mesa	32	46.0	117	01.0	-
Long Beach	33	46.0	118	12.0	-
Los Angeles	34	04.8	118	22.2	32
Modesto	37	39.0	121	00.0	-
Montebello	34	01.0	118	06.0	-
Monterey Park	34	04.0	118	08.0	-
Mountain View	37	25.0	122	07.0	-
Napa	38	20.0	122	17.0	-
Newport Beach	33	36.0	117	55.0	-
Norwalk	33	54.0	118	05.0	-
Oakland	37	48.0	122	16.0	8
Oceanside	33	11.0	117	22.0	-
Ontario	34	04.0	117	39.0	-
Orange	33	48.0	117	51.0	-
Oxnard	34	08.0	119	12.0	-
Palo Alto	37	27.0	122	09.0	-
Pasadena	34	09.0	118	09.0	272
Pico Rivera	34	01.0	118	05.0	-
Pomona	34	04.0	117	45.0	-
Rancho Cucamonga	34	05.0	117	35.0	-
Redondo Beach	33	50.0	118	23.0	-
Redwood City	37	29.0	122	13.0	-
Richmond	37	56.0	122	21.0	-

Riverside	33	59.0	117	21.0	-
Sacramento	38	35.0	121	30.0	10
Salinas	36	41.0	121	40.0	-
San Bernardino	34	07.0	117	19.0	354
San Buenaventura	34	18.0	119	18.0	-
San Diego	32	45.0	117	08.4	7
San Francisco	37	45.6	122	26.4	21
San Jose	37	20.0	121	54.0	30
San Leandro	37	43.0	122	10.0	-
San Mateo	37	34.0	122	20.0	-
Santa Ana	33	41.0	117	57.0	-
Santa Barbara	34	26.0	119	43.0	33
Santa Clara	37	21.0	121	56.0	-
Santa Monica	34	01.0	118	29.0	-
Santa Rosa	38	27.0	122	42.0	-
Simi Valley	34	16.0	118	47.0	-
South Gate	33	57.0	118	13.0	-
Stockton	37	57.5	121	17.3	7
Sunnyvale	37	23.0	122	02.0	-
Thousand Oaks	34	10.0	118	50.0	-
Torrance	33	50.0	118	20.0	-
Vallejo	38	06.0	122	15.0	-
Visalia	36	20.0	119	18.0	-
Walnut Creek	37	54.0	122	04.0	-
West Covina	34	04.0	117	55.0	-
Westminster	33	45.0	117	59.0	-
Whittier	33	58.0	118	02.0	-
COLORADO					
Arvada	39	48.0	105	05.0	-
Aurora	39	43.0	104	49.0	-
Boulder	40	00.2	105	15.7	-
Colorado Springs	38	49.0	104	48.0	1932
Denver	39	43.2	104	58.8	1732
Durango	37	15.0	107	55.0	-
Fort Collins	40	36.0	105	04.0	-
Grand Junction	39	04.2	108	33.0	1506
Greeley	40	25.0	104	41.0	-
Lakewood	39	44.0	105	06.0	-
Pueblo	38	17.4	104	38.4	1539
Westminster	39	50.0	105	02.0	-
CONNECTICUT					
Bridgeport	41	11.4	73	11.4	3
Bristol	41	40.0	72	55.0	-
Danbury	41	23.0	73	27.0	-
East Hartford	41	45.0	72	35.0	-

Fairfield	41	08.0	73	22.0	-
Greenwich	41	01.0	73	37.0	-
Hamden	41	20.0	72	55.0	-
Hartford	41	45.6	72	41.4	13
Manchester	41	45.0	72	30.0	-
Meriden	41	30.0	72	50.0	62
Milford	41	15.0	73	05.0	-
New Britain	41	40.0	72	45.0	66
New Haven	41	18.6	72	55.8	13
Norwalk	41	06.0	73	25.0	-
Stamford	41	03.0	73	32.0	11
Stratford	41	10.0	73	05.0	-
Waterbury	41	30.0	73	00.0	85
West Hartford	41	45.0	72	45.0	-
West Haven	41	16.0	72	57.0	-
DELAWARE					
Dover	39	09.6	75	31.8	-
Wilmington	39	45.0	75	33.0	44
DISTRICT OF COLUMBIA					
Washington	38	52.8	77	01.2	5
FLORIDA					
Boca Raton	26	21.0	80	05.0	-
Clearwater	27	43.0	82	45.0	-
Daytona Beach	29	11.0	81	02.0	2
Fort Lauderdale	26	07.0	80	09.0	-
Gainesville	29	39.6	82	19.8	57
Hialeah	25	49.0	80	18.0	-
Hollywood	26	00.0	80	11.0	-
Jacksonville	30	19.2	81	39.0	7
Largo	27	54.0	82	47.0	-
Miami	25	46.8	80	13.2	2
Orlando	28	32.4	81	22.8	23
Pensacola	30	25.0	87	13.0	5
Pompano Beach	26	12.0	80	07.0	-
St. Petersburg	27	47.0	82	38.0	7
Sarasota	27	20.0	82	32.0	7
Tallahassee	30	26.4	84	17.4	-
Tampa	27	57.6	82	28.2	-
West Palm Beach	26	43.0	80	03.2	-
GEORGIA					
Albany	31	34.8	84	09.6	-
Atlanta	33	45.6	84	24.6	331
Augusta	33	28.2	81	59.4	47
Columbus	32	28.8	84	57.0	87

Macon	32	49.8	83	39.6	110
Savannah	32	03.0	81	05.4	7
HAWAII					
Hilo	19	44.0	155	01.0	13
Honolulu	21	18.6	157	50.4	7
IDAHO					
Boise	43	36.6	116	13.2	931
Coeur D'Alene	47	40.8	116	46.2	-
Lewiston	46	24.0	116	59.0	-
Pocatello	42	52.8	112	27.0	1463
Twin Falls	42	33.0	114	29.0	-
ILLINOIS					
Arlington Heights	42	05.0	87	59.0	-
Aurora	41	45.0	88	18.0	-
Bloomington	40	29.0	89	00.0	262
Champaign	40	06.6	88	15.0	243
Chicago	41	51.0	87	40.8	199
Cicero	41	50.0	87	46.0	-
Decatur	39	50.0	88	59.0	224
Des Plaines	42	02.0	87	54.0	-
East St. Louis	38	38.0	90	10.0	-
Elgin	42	03.0	88	16.0	-
Evanston	42	02.0	87	41.0	-
Joliet	41	37.0	88	05.0	-
Mount Prospect	42	03.0	87	56.0	-
Oak Lawn	41	43.0	87	45.0	-
Oak Park	41	53.0	87	48.0	-
Peoria	40	42.6	89	36.6	154
Rockford	42	16.2	89	04.2	235
Schaumburg	42	02.0	88	05.0	-
Skokie	42	02.0	87	45.0	-
Springfield	39	48.0	89	39.0	200
Urbana	40	06.3	88	13.5	238
INDIANA					
Anderson	40	05.0	85	50.0	-
Bloomington	39	12.6	86	34.8	-
Evansville	37	58.8	87	33.0	126
Fort Wayne	41	04.2	85	09.0	259
Gary	41	35.0	87	21.0	194
Hammond	41	37.0	87	31.0	-
Indianapolis	39	47.4	86	08.4	260
Muncie	40	11.5	85	23.3	312
South Bend	41	40.0	86	20.0	233
Terre Haute	39	28.1	87	24.4	163

IOWA					
Ames	42	02.4	93	36.6	-
Cedar Rapids	41	58.0	91	39.9	240
Council Bluffs	41	16.0	95	53.0	-
Davenport	41	32.4	90	35.4	194
Des Moines	41	36.0	93	37.8	308
Dubuque	42	30.0	90	43.0	269
Iowa City	41	40.2	91	31.8	225
Sioux City	42	30.0	96	24.0	331
Waterloo	42	30.0	92	22.0	279

KANSAS					
Dodge City	37	45.6	100	01.2	847
Independence	37	13.0	95	42.0	-
Kansas City	39	06.0	94	39.0	246
Lawrence	38	57.6	95	15.0	-
Overland Park	38	59.0	94	40.0	-
Parsons	37	20.0	95	16.0	-
Salina	38	50.1	97	36.5	403
Topeka	39	02.4	95	41.4	305
Wichita	37	40.8	97	19.8	423

KENTUCKY					
Ashland	38	28.6	82	38.4	176
Bowling Green	36	59.0	86	27.0	167
Corbin	36	56.4	84	06.0	-
Frankfort	38	12.0	84	51.6	-
Lexington	38	03.6	84	29.4	313
Louisville	38	13.2	85	45.0	156
Owensboro	37	45.0	87	05.0	-
Paducah	37	05.0	88	36.0	113

LOUISIANA					
Alexandria	31	18.0	92	28.0	-
Baton Rouge	30	27.0	91	08.4	19
Bossier City	32	31.0	93	42.0	-
Kenner	29	58.0	90	15.0	-
Lafayette	30	13.2	92	01.2	-
Lake Charles	30	12.6	93	12.0	-
Monroe	32	30.6	92	06.0	-
New Orleans	29	58.2	90	04.8	2
Shreveport	32	28.2	93	46.2	67

MAINE					
Augusta	44	19.2	69	46.2	15
Bangor	44	47.0	68	47.0	7
Eastport	44	54.0	67	00.0	-

Portland	43	40.2	70	16.8	15
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MARYLAND

Annapolis	38	58.2	76	30.0	-
Baltimore	39	18.6	76	37.2	7
Bethesda	39	00.0	77	10.0	-
College Park	39	00.1	76	57.3	-
Dundalk	39	16.0	76	31.0	-
Greenbelt	39	01.2	76	49.6	-
Ocean City	38	23.4	75	04.8	-
Silver Spring	39	00.0	77	00.0	-
Wheaton	39	05.0	77	05.0	-

MASSACHUSETTS

Boston	42	19.2	71	05.4	7
Brockton	42	04.0	71	01.0	43
Brookline	42	20.0	71	08.0	-
Cambridge	42	22.8	71	07.8	7
Chicopee	42	10.0	72	35.0	-
Fall River	41	42.0	71	07.0	13
Framingham	42	16.0	71	25.0	-
Holyoke	42	10.0	72	40.0	38
Lawrence	42	42.0	71	09.0	21
Lowell	42	38.0	71	18.0	33
Lynn	42	28.0	70	57.0	-
Malden	42	26.0	71	04.0	-
Medford	42	25.0	71	07.0	-
New Bedford	41	38.2	70	55.7	5
Newton	42	21.0	71	13.0	-
Pittsfield	42	25.0	73	15.0	333
Quincy	42	15.0	71	00.0	-
Somerville	42	23.0	71	06.0	5
Springfield	42	06.6	72	33.0	28
Waltham	42	22.0	71	14.0	-
Weymouth	42	44.0	70	57.0	-
Worcester	42	16.2	71	48.6	156

MICHIGAN

Ann Arbor	42	16.8	83	44.4	289
Battle Creek	42	19.0	85	11.0	269
Clinton	42	04.0	83	58.0	-
Dearborn	42	18.0	83	15.0	-
Dearborn Heights	41	43.0	87	48.0	-
Detroit	42	22.8	83	05.4	192
Farmington Hills	42	28.0	83	23.0	-
Flint	43	01.8	83	41.4	246
Grand Rapids	42	57.6	85	39.6	200
Kalamazoo	42	35.0	86	00.0	248

Lansing	42	43.2	84	33.6	272
Livonia	42	25.0	83	23.0	-
Mount Pleasant	43	36.0	84	46.2	-
Pontiac	42	37.0	83	17.0	-
Redford	42	25.0	83	16.0	-
Roseville	42	30.0	82	55.0	-
Royal Oak	42	29.0	83	09.0	-
Saginaw	43	25.0	84	00.0	195
St. Clair Shores	42	30.0	82	54.0	-
Sault Ste. Marie	46	28.0	84	22.0	237
Southfield	42	28.0	83	13.0	-
Sterling Heights	42	34.0	83	01.0	-
Taylor	42	14.0	83	16.0	-
Troy	42	34.0	83	09.0	-
Warren	42	33.0	83	03.0	-
Westland	42	19.0	83	24.0	-
Wyoming	42	54.0	85	42.0	-

MINNESOTA

Bloomington	44	50.0	93	18.0	-
Duluth	46	47.4	92	06.6	200
Hibbing	47	25.2	92	55.2	-
Internat'l Falls	48	36.0	93	24.6	-
Mankato	44	09.6	94	00.0	-
Minneapolis	44	57.6	93	16.2	274
Northfield	44	27.6	93	09.6	-
Rochester	44	01.0	92	30.0	-
St. Cloud	45	34.0	94	10.4	341
St. Paul	44	57.0	93	05.0	256

MISSISSIPPI

Aberdeen	33	49.0	88	33.0	-
Biloxi	30	24.6	88	55.2	7
Greenville	33	25.0	91	00.0	-
Jackson	32	19.2	90	12.0	98
Meridian	32	21.0	88	41.0	-
Vicksburg	32	20.0	90	50.0	-

MISSOURI

Cape Girardeau	37	18.6	89	31.8	-
Columbia	38	55.0	92	19.0	240
Fayette	39	09.0	92	42.0	-
Florissant	38	47.0	90	20.0	-
Independence	39	06.0	94	26.0	-
Jefferson City	38	34.2	92	10.8	-
Kansas City	39	05.0	94	35.0	243
Mexico	39	10.0	91	53.0	-
Nevada	37	51.0	94	22.0	-

St. Joseph	39	44.0	94	49.0	279
St. Louis	38	37.8	90	15.0	149
Sedalia	38	42.0	93	14.0	-
Springfield	37	12.0	93	17.4	427

MONTANA

Billings	45	46.8	108	32.4	1024
Bozeman	45	41.0	111	00.0	-
Butte	46	00.0	112	31.0	1891
Great Falls	47	30.0	111	15.0	1096
Helena	46	35.4	112	01.8	1363
Missoula	46	51.6	114	00.0	1047

USA - Nebraska to Wyoming

Location/ City Name	North		West		Alt m
	Latitude Deg	Min	Longitude Deg	Min	
NEBRASKA					
Grand Island	40	55.8	98	21.0	-
Lincoln	40	48.6	96	40.2	377
North Platte	41	08.0	100	45.0	-
Omaha	41	18.0	95	57.0	341
Scottsbluff	41	51.6	103	39.6	-
NEVADA					
Carson City	39	09.0	119	46.8	1535
Las Vegas	36	10.2	115	10.2	709
Reno	39	31.5	119	48.7	1445
NEW HAMPSHIRE					
Concord	43	10.0	71	30.0	95
Hanover	43	42.3	72	17.0	-
Manchester	42	59.4	71	27.6	57
Nashua	42	47.0	71	23.0	-
NEW JERSEY					
Atlantic City	39	21.6	74	26.4	3
Bayonne	40	40.0	74	07.0	-
Camden	39	56.0	75	06.0	10
Cape May	38	56.4	74	54.6	-
Cherry Hill	39	56.0	75	01.0	-
Clifton	40	35.0	74	09.0	-
East Orange	40	46.0	74	12.0	-
Edison	40	27.0	74	18.0	-
Elizabeth	40	40.0	74	13.0	7
Irvington	40	43.0	74	15.0	-
Jersey City	40	43.0	74	05.0	7
Newark	40	44.4	74	11.4	-
Passaic	40	52.0	74	08.0	-
Paterson	40	55.0	74	10.0	33
Princeton	40	21.0	74	39.6	-
Trenton	40	13.2	74	45.6	11
Union	40	41.0	74	15.0	-
Union City	40	46.0	74	01.0	-
Vineland	39	30.0	75	00.0	-
NEW MEXICO					
Alamagordo	32	54.0	105	57.0	-

Albuquerque	35	05.0	106	40.0	1742
Clovis	34	24.0	103	12.0	-
Deming	32	16.0	107	45.0	-
Las Cruces	32	20.4	106	43.8	-
Portales	34	11.0	103	20.0	-
Roswell	33	23.0	104	32.0	-
Santa Fe	35	40.2	105	57.0	2280
Sunspot	32	47.2	105	49.2	-
NEW YORK					
Albany	42	39.6	73	46.8	7
Binghamton	42	05.0	75	55.0	284
Buffalo	42	54.6	78	51.0	231
Cheektowaga	42	54.0	78	46.0	-
Cortland					
LVRN Marker	42	36.0	76	10.0	1130 feet
Cortland					
D.L.&W. R.R. Marker	42	36.0	76	10.0	1113 feet
Dryden					
LVRN S. Street Xing	42	29.0	76	17.0	1101 feet
Dryden					
Southworth Library	42	29.0	76	17.0	1098 feet
Dryden					
Fireplug S. & Main	42	29.0	76	17.0	1093 feet
Dryden					
Dryden Lake	42	29.0	76	17.0	1156 feet
Fayetteville	43	02.0	76	01.0	543 feet
Freeville					
LVRN Xing	42	32.0	76	20.0	1046 feet
Freeville					
Freeville Junction	42	32.0	76	20.0	1045 feet
Irondequoit	43	12.0	77	36.0	-
Ithaca					
Cornell University Engineering Building	42	26.4	76	29.4	814 feet
Hollister Hall	42	26.4	76	29.4	814 feet
Ithaca					

Cayuga Lake	42 26.4	76 30.0	381 feet
Jamestown	42 06.6	79 14.4	-
Mount Vernon	40 55.0	73 51.0	-
New Rochelle	40 55.0	73 47.0	-
New York	40 43.8	73 55.2	43
Niagara Falls	43 06.0	79 02.0	187
Poughkeepsie	41 42.0	73 55.2	-
Rochester	43 09.6	77 36.6	169
Schenectady	42 47.0	73 53.0	80
Syracuse	43 05.0	76 10.0	131
Tonawanda	43 01.0	78 53.0	-
Troy	42 45.0	73 45.0	11
Utica	43 06.2	75 13.6	136
West Seneca	42 50.0	78 45.0	-
Yonkers	40 57.0	73 54.0	3

NORTH CAROLINA

Asheville	35 35.4	82 33.6	702
Charlotte	35 13.2	80 49.8	236
Durham	36 00.0	78 54.6	133
Fayetteville	35 02.0	78 54.0	-
Greensboro	36 04.2	79 48.6	275
High Point	35 55.0	80 00.0	-
Raleigh	35 47.4	78 39.0	120
Wilmington	34 13.2	77 55.8	9
Winston-Salem	36 06.0	80 15.6	282

NORTH DAKOTA

Bismarck	46 48.6	100 46.8	540
Fargo	46 52.2	96 47.4	295
Grand Forks	47 55.0	97 05.0	-
Minot	48 14.4	101 18.0	509

OHIO

Akron	41 05.0	81 30.7	287
Canton	40 50.0	81 25.0	338
Cincinnati	39 08.4	84 30.6	180
Cleveland	41 28.8	81 39.6	217
Cleveland Heights	41 30.0	81 35.0	-
Columbus	39 58.8	82 59.4	256
Dayton	39 45.0	84 15.0	188
Elyria	41 22.0	82 07.0	-
Euclid	41 34.0	81 32.0	-
Hamilton	39 22.0	84 33.0	197

OHIO

Kettering	39 40.0	84 15.0	-
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Lakewood	41	29.0	81	48.0	-
Lima	40	45.0	84	06.0	284
Lorain	41	28.0	82	10.0	200
Mansfield	40	45.0	82	30.0	-
Parma	41	23.0	81	44.0	-
Springfield	39	55.0	83	50.0	322
Steubenville	40	22.0	80	37.0	217
Toledo	41	40.2	83	34.2	192
Warren	41	15.0	80	50.0	-
Youngstown	41	05.4	80	39.0	276

OKLAHOMA

Clinton	35	31.0	98	59.0	-
Enid	36	23.7	97	52.5	407
Lawton	34	36.0	98	25.0	-
Midwest City	35	26.0	97	23.0	-
Norman	35	13.0	97	25.0	-
Muskogee	35	44.0	95	21.0	-
Oklahoma City	35	28.8	97	31.8	422
Ponca City	36	42.0	97	05.0	-
Tulsa	36	08.4	95	56.4	264

OREGON

Burns	43	35.0	119	05.0	-
Corvallis	44	34.0	123	16.0	-
Eugene	44	03.0	123	06.0	138
Medford	42	19.0	122	52.0	-
Pendleton	45	40.2	118	48.0	-
Portland	45	31.2	122	39.0	7
Salem	44	55.8	123	01.8	51

PENNSYLVANIA

Allentown	40	35.0	75	30.0	84
Altoona	40	25.0	78	25.0	387
Bethlehem	40	40.0	75	25.0	77
Erie	42	07.2	80	04.8	225
Harrisburg	40	16.2	76	52.8	120
Lancaster	40	05.0	76	20.0	116
Penn Hills	40	28.0	79	51.0	-
Philadelphia	40	00.0	75	09.0	33
Pittsburgh	40	26.4	79	58.2	245
Reading	40	20.0	75	55.0	87
Scranton	41	24.6	75	40.2	238
Upper Darby	39	58.0	75	16.0	-
Wilkes-Barre	41	14.5	75	53.3	210

RHODE ISLAND

Cranston	41	46.0	71	25.0	-
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East Providence	41	49.0	71	22.0	-
Pawtucket	41	53.0	71	23.0	-
Providence	41	49.2	71	25.8	-
Warwick	41	42.0	71	27.0	26
SOUTH CAROLINA					
Charleston	32	48.6	79	57.6	3
Columbia	34	00.6	81	00.0	62
Greenville	34	51.0	82	23.4	317
North Charleston	32	49.0	79	57.0	-
Spartanburg	34	56.4	81	55.8	287
SOUTH DAKOTA					
Pierre	44	22.2	100	20.4	486
Rapid City	44	04.2	103	13.8	1060
Sioux Falls	43	32.4	96	42.6	364
TENNESSEE					
Chattanooga	35	02.4	85	16.8	221
Clarksville	36	30.0	87	23.0	-
Knoxville	35	58.8	83	56.4	292
Memphis	35	07.2	89	59.4	90
Nashville	36	09.6	86	46.2	194
TEXAS					
Abilene	32	25.0	99	45.0	561
Amarillo	35	12.0	101	51.0	1209
Arlington	32	44.0	97	07.0	-
Austin	30	17.4	97	43.8	196
Baytown	29	44.0	95	01.0	-
Beaumont	30	04.8	94	07.2	7
Brownsville	25	54.6	97	29.4	5
Corpus Christi	27	45.0	97	24.6	11
Dallas	32	47.4	96	47.4	143
El Paso	31	47.4	106	25.2	1285
Fort Worth	32	44.9	97	19.7	220
Galveston	29	18.0	94	48.6	2
Garland	32	55.0	96	39.0	-
Grand Prairie	32	45.0	97	00.0	-
Houston	29	45.0	95	23.4	13
Irving	32	49.0	96	57.0	-
Laredo	27	31.0	99	29.0	144
Longview	32	29.0	94	44.0	-
Lubbock	33	35.0	101	51.0	1048
McAllen	26	12.0	98	13.0	-
Mesquite	32	46.0	96	35.0	-
Midland	32	05.0	102	05.0	-
Odessa	31	51.0	102	22.0	-

Pasadena	29	43.0	95	13.0	-
Plano	33	01.0	96	42.0	-
Port Arthur	29	52.0	93	59.0	3
Plainsview	34	11.0	101	43.0	-
Richardson	32	56.0	96	44.0	-
San Angelo	31	28.0	100	22.0	605
San Antonio	29	25.8	98	30.0	213
Tyler	32	21.0	95	19.0	-
Victoria	28	48.0	97	00.0	-
Waco	31	33.2	97	08.0	133
Wichita Falls	33	54.0	98	30.0	310

UTAH

Logan	41	46.0	111	51.0	-
Ogden	41	13.5	111	58.4	1409
Orem	40	15.0	111	50.0	-
Provo	40	15.0	111	40.0	1493
Salt Lake City	40	45.6	111	52.2	1385
Sandy City	40	36.0	111	53.0	-

VERMONT

Brattleboro	42	51.1	72	33.8	98
Burlington	44	28.8	73	13.2	36
Montpelier	44	15.6	72	34.2	159

VIRGINIA

Alexandria	38	49.2	77	04.8	-
Arlington	38	55.0	77	10.0	-
Bristol	36	36.6	82	10.8	-
Charlottesville	38	02.4	78	29.4	-
Chesapeake	38	48.0	76	16.0	-
Danville	36	35.4	79	24.0	-
Hampton	37	02.0	76	21.0	-
Lynchburg	37	24.6	79	09.6	-
Newport News	37	03.0	76	28.8	-
Norfolk	36	54.0	76	16.2	3
Petersburg	37	13.2	77	24.0	-
Portsmouth	36	50.0	76	19.0	3
Richmond	37	32.4	77	27.6	52
Roanoke	37	16.8	79	57.6	297
Virginia Beach	36	50.0	75	58.0	-

WASHINGTON

Bellevue	47	37.0	122	12.0	-
Billingham	48	45.0	122	28.6	-
Everett	47	59.0	122	11.0	-
Mt. Rainier	46	50.0	121	45.0	-
Olympia	47	03.0	122	53.0	-

Pullman	46	46.0	117	09.0	-
Richland	46	17.0	119	17.0	-
Seattle	47	37.8	122	19.8	131
Spokane	47	40.2	117	24.6	773
Tacoma	47	16.0	122	30.0	36
Walla Walla	46	05.0	118	18.0	-
Yakima	46	35.7	120	30.8	348

WEST VIRGINIA

Charleston	38	21.0	81	37.8	197
Greenbank	38	26.3	79	50.2	-
Huntington	38	24.6	82	25.8	185
Wheeling	40	04.2	80	42.0	213

WISCONSIN

Appleton	44	14.0	88	27.0	-
Eau Claire	44	48.6	91	30.0	-
Green Bay	44	30.0	88	04.0	194
Janesville	42	41.0	89	03.0	-
Kenosha	42	34.0	87	50.0	-
La Crosse	43	48.6	91	13.8	-
Madison	43	05.4	89	23.4	282
Milwaukee	43	03.0	87	57.0	208
Oshkosh	44	01.0	88	35.0	-
Racine	42	43.0	87	49.0	207
Sheboygan	43	45.6	87	44.9	207
Waukesha	43	01.0	88	13.0	-
Wauwatosa	43	03.0	88	00.0	-
West Allis	43	01.0	88	01.0	-

WYOMING

Casper	42	50.4	106	19.2	-
Cheyenne	41	08.4	104	48.0	2010
Sheridan	44	47.8	106	57.7	1301

European Cities

Location Name	Latitude		Longitude		Alt m
	Deg	Min	Deg	Min	
ANDORRA					
Andorra la Vella	42	30.0N	1	31.0E	1162
AUSTRIA					
Vienna	48	13.0N	16	20.0E	218
BELGIUM					
Antwerp	51	13.0N	4	25.0E	-
Brussels	50	50.0N	4	20.0E	-
Liege	50	38.0N	5	34.0E	-
BYELARUS					
Minsk	53	54.0N	27	35.0E	242
CZECHOSLOVAKIA					
Ostrava	49	50.0N	18	17.0E	-
Prague	50	05.0N	14	28.0E	217
DENMARK					
Copenhagen	55	40.0N	12	35.0E	14
ESTONIA					
Tallinn	59	26.0N	24	44.0E	-
FINLAND					
Helsinki	60	10.0N	24	58.0E	10
FRANCE					
Bordeaux	44	50.0N	0	34.0W	52
Lille	50	38.0N	3	04.0E	46
Lyon	45	43.0N	5	04.0E	308
Marseille	43	18.0N	5	24.0E	81
Paris	48	52.0N	2	20.0E	54
Toulouse	43	36.0N	1	26.0E	177
GERMANY					
Aachen	50	47.0N	6	05.0E	-
Berlin	52	31.0N	13	24.0E	61
Bielefeld	52	01.0N	8	31.0E	-
Bonn	50	44.0N	7	05.0E	-
Bremen	53	04.0N	8	49.0E	17
Dortmund	51	31.0N	7	28.0E	-
Dresden	51	03.0N	13	44.0E	-
Duisburg	51	25.0N	6	46.0E	-

Dusseldorf	51 12.0N	6 47.0E	-
Essen	52 43.0N	7 57.0E	-
Frankfurt	50 07.0N	8 40.0E	111
Hamburg	53 33.0N	9 59.0E	22
Hannover	52 24.0N	9 44.0E	-
Koln	50 56.0N	6 59.0E	-
Leipzig	51 19.0N	12 20.0E	-
Mannheim	49 29.0N	8 29.0E	-
Munich	48 08.0N	11 35.0E	571
Nurnberg	49 27.0N	11 04.0E	344
Stuttgart	48 46.0N	9 11.0E	-
Wiesbaden	50 05.0N	8 14.0E	-
Wuppertal	51 16.0N	7 11.0E	-
HUNGARY			
Budapest	47 30.0N	19 05.0E	129
IRELAND			
Dublin	53 20.0N	6 15.0W	51
ITALY			
Bologna	44 29.0N	11 20.0E	-
Catania	37 30.0N	15 06.0E	-
Florence	43 46.0N	11 15.0E	-
Genova	44 25.0N	8 57.0E	104
Milano	45 28.0N	9 12.0E	-
Napoli	40 51.0N	14 17.0E	27
Palermo	38 07.0N	13 21.0E	116
Rome	41 54.0N	12 29.0E	124
Torino	45 03.0N	7 40.0E	-
LATVIA			
Riga	56 57.0N	24 06.0E	-
LIECHTENSTEIN			
Vaduz	47 09.0N	9 31.0E	-
LITHUANIA			
Vilnius	54 40.0N	25 26.0E	-
LUXEMBOURG			
Luxembourg	49 36.0N	6 09.0E	360
MALTA			
Valletta	35 54.0N	14 31.0E	76
MONACO			
Monaco	43 44.0N	7 25.0E	59

NETHERLANDS				
Amsterdam	52 22.0N	4 54.0E	2	
Rotterdam	51 55.0N	4 28.0E	-	
S'Gravenhage	52 06.0N	4 18.0E	-	
Utrecht	52 05.0N	5 08.0E	-	
NORWAY				
Oslo	59 55.0N	10 45.0E	101	
POLAND				
Gdansk	54 23.0N	18 40.0E	12	
Krakow	50 03.0N	19 58.0E	237	
Lodz	51 46.0N	19 30.0E	-	
Poznan	52 25.0N	16 55.0E	-	
Warsaw	52 15.0N	21 00.0E	96	
Wroclaw	51 06.0N	17 00.0E	158	
PORTUGAL				
Lisbon	38 43.0N	9 08.0W	103	
Porto	41 10.0N	8 36.0W	-	
SAN MARINO				
San Marino	43 55.0N	12 28.0E	-	
SPAIN				
Barcelona	41 23.0N	2 11.0E	102	
Bilbao	43 15.0N	2 58.0W	-	
Madrid	40 24.0N	3 41.0W	718	
Malaga	36 34.0N	4 25.0W	-	
Seville	37 23.0N	5 59.0W	32	
Valencia	39 28.0N	0 22.0E	26	
Zaragoza	41 38.0N	0 53.0E	-	
SWEDEN				
Goteborg	57 43.0N	11 58.0E	18	
Stockholm	59 20.0N	18 03.0E	48	
SWITZERLAND				
Basel	47 33.0N	7 35.0E	-	
Bern	46 57.0N	7 26.0E	616	
Zurich	47 23.0N	8 32.0E	531	
UKRAINE				
L'vov	49 50.0N	24 00.0E	321	
UNITED KINGDOM				
Belfast	54 35.0N	5 55.0W	19	
Birmingham	52 29.0N	1 55.0W	176	

Bristol	51	27.0N	2	35.0W	-
Cardiff	51	29.0N	3	13.0W	67
Coventry	52	25.0N	1	30.0W	-
Edinburgh	55	57.0N	3	13.0W	145
Glasgow	55	53.0N	5	15.0W	-
Leeds	53	50.0N	1	35.0W	-
Liverpool	53	25.0N	2	55.0W	65
London	51	30.0N	0	10.0E	49
Manchester	53	28.0N	2	15.0W	-
Middlesbrough	54	35.0N	1	14.0W	-
Newcastle	52	26.0N	3	06.0W	-
Nottingham	52	58.0N	1	10.0W	-
Sheffield	53	23.0N	1	28.0W	-
YUGOSLAVIA					
Belgrade	44	50.0N	20	30.0E	149
Zagreb	45	48.0N	15	58.0E	-

