

# MoonIcon 1.1 - February 5th, 1995

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## What is MoonIcon?

**MoonIcon** is a shareware MicroSoft Windows 3.x program that displays the current phase of the Moon in an icon. The icon's title displays the current location of the Moon in the sky, or the last moonset/next moonrise time if the Moon is below the horizon. It also displays an analog clock, complete with numerous options such as hand and face color, and hand size and shape. 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.

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. **MoonIcon** even adjusts **automatically** for daylight savings/summer time for users in the United States, the UK, Europe, Australia and New Zealand.

## Installing MoonIcon

- 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 MOONICON.INI file there.
- If it cannot find the .INI file, then the *About* box will be displayed *each and every time* you start **MoonIcon**. 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 **MoonIcon** to run. See the file BWCC.TXT for more information.

# Configuring MoonIcon

● Before you can use **MoonIcon**, 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:

[Setting your Time Zone](#)

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

[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](#).

## *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](#)

[Australian Cities](#)

[Other World 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.

● If you are on the Internet and have TelNet access, there is a weather server available that lists the latitude and longitude of most of the world's cities. It also displays a great deal of other information as well, and is an interesting and recommended site for "Net surfers". The server is called **[martini.eecs.umich.edu](http://martini.eecs.umich.edu)** and the port number is **3000**. It's IP address is **141.212.196.79**.

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.

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**.

● The *Twilight Times* box of radio buttons determines how you wish to calculate the beginning of morning and the end of evening twilight. Since "dark" is a rather arbitrary term, twilight is officially determined as the time at which the center of the Sun is 18° below the horizon. The difference between this time and sunrise/sunset is then divided into 3 equal periods, with one period for each of three different purposes.

For most people, the default value of *Civil* should be used, since this is the time at which it's too dark for most ordinary outdoor activities to continue without artificial lighting. Civil twilight is the time at which the center of the Sun is

6° below the horizon.

Ocean-going vessels use the *Nautical* twilight time calculation to define darkness. When the Sun is 12° below the sea horizon, ship captains can no longer distinguish the night sky from the surface of the water.

It is still too light outside for taking photographs of the stars and planets at this point, so *Astronomical* twilight is used for astro-photographers. The Sun must be 18° degrees below the horizon for the night sky to be totally dark and ready for capturing the wonders of space on film.

● The *Background Effects* box of radio buttons determines how you wish to have the icon's background to change during twilight. *None* will simply use the background colors you have selected, but the *Twilight* setting will cause **MoonIcon** to have a blue background when the Sun is up, and a black background when the Sun is not in the sky. During evening twilight, however, the background color is gradually changed from blue to dark blue to purple and finally to black, one color change per minute. The background changes from black to blue during morning twilight as well.

The *In-the-sky* setting also shows twilight effects, but only when the Moon is in the sky. When the Moon is below the horizon, the icon is shown with a transparent background. This means that if the Moon is up during the day, **MoonIcon** will show a blue background, and if the Moon is up during the night, a black background is shown. If the Moon is up during morning or evening twilight, the appropriate twilight color is displayed.

● Finally, the *24-hour format* check box in the *Sun/Moon times* area lets you change the display of the time values on the Sun and Moon info screen. Click this **on** to show them in 24-hour (military) format, or leave it unchecked for 12-hour format.

## Setting your Time Zone

● **MoonIcon** 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 **MoonIcon**, 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.

If you live in an area that has a difference of 30 minutes from the surrounding time zone, click the *30 min* check box **on** and your time will be adjusted appropriately.

## 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.

Note that for some Australian cities, especially those in the Central Time Zone, the start and end dates of Daylight Savings Time are subject to change from year to year. Currently, the start date is near the end of October to the start/middle of March. Likewise, New Zealand Daylight Savings Time starts on the first Sunday in October and continues until the third Sunday in March. Northern Hemisphere users such as those in the United States and Europe should notice that "summer" for Southern Hemisphere users occurs during the Northern "winter" months and *vice versa*.

### 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 |
| 1998 - Start: April 5th | End: October 25th |
| 1999 - Start: April 4th | End: October 31st |

### United Kingdom:

|                          |                   |
|--------------------------|-------------------|
| 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 |
| 1998 - Start: March 22nd | End: October 25th |
| 1999 - Start: March 28th | End: October 31st |

### 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 |
| 1998 - Start: March 22nd | End: September 27th |
| 1999 - Start: March 21st | End: September 26th |

### Australia:

|                            |                       |
|----------------------------|-----------------------|
| 1994 - Start: October 30th | End: March 13th, 1995 |
|----------------------------|-----------------------|



1995 - Start: October 29th End: March 12th, 1996  
1996 - Start: October 27th End: March 10th, 1997  
1997 - Start: October 26th End: March 9th, 1998  
1998 - Start: October 25th End: March 8th, 1999  
1999 - Start: October 31st End: March 14th, 2000

New Zealand:

1994 - Start: October 2nd End: March 19th, 1995  
1995 - Start: October 1st End: March 17th, 1996  
1996 - Start: October 6th End: March 16th, 1997  
1997 - Start: October 5th End: March 22nd, 1998  
1998 - Start: October 4th End: March 21st, 1999  
1999 - Start: October 3rd End: March 20th, 2000

● 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.

## 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 `~i`, which is a special "code" to display the current position of the Moon in the sky, or show the last moonset or next moonrise time if it's not visible. 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 "Moon" or "Moon Phase". This may be necessary to work with some [screen savers](#).

All the available options are listed below:

### *Time options:*

- `~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 "95", etc. (Year without the century)
- `~Y` = Year as "1995", 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.)

### *Moon options:*

- `~i` = **(default)** Moon Visibility.
- `~I` = Moon position in sky
- `~r` = Sunrise time in hh:mm:ss format
- `~s` = Sunset time in hh:mm:ss format
- `~z` = Moon Phase ("Full Moon")
- `~v` = Moon is visible now/later/earlier
- `~V` = Moon is visible at these times: ("Evening to Dawn")
- `~g` = Moon's Age ("2 days, 3 hours, 42 minutes")

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

*Example icon titles:*

**Title:**

~i  
~2 ~W ~m ~d~o  
~1~A  
~w ~M ~d ~Y  
~y.~h.~d  
~z - ~V  
Moon Phase

**Displays as:**

Rising in the East  
21:05 Saturday February 5th  
9:05PM  
Sat February 5 1994  
94.02.05  
Full Moon - Evening to Dawn  
Moon Phase

- 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 icon with no background, appearing on top of whatever is beneath it. Note that the *Background effects* checkbox on the Your Location screen **must** be set to *None* for these background colors to work correctly.

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 **MoonIcon** 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 **MoonIcon** 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.

## *Sun and Moon info* window

● When you double-click the **MoonIcon** 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 values displayed are the twilight start, end and length 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 reading, press the Minimize button in the upper right corner to shrink the window back to the **MoonIcon** icon.





## MoonIcon and Screen Savers

- In the default configuration, **MoonIcon** displays the Moon's current position. Since this will automatically update the icon's title every half-hour or so, this may cause some **screen savers**, which can sense such activity, to not activate. I've had reports that the *After Dark*™ screen savers work fine with **MoonIcon**'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 "Moon" or "Moon Phase". You will not be able to show the time in **MoonIcon**'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 **MoonIcon**, look for these other icon-programs:



**EarthSun**: Filename EARTHSxx.ZIP; a Windows icon that shows the current sunlit-side of Earth. Over 120 options, recommendations by 3 shareware magazines and a review in a full-page newspaper article in Switzerland make this a fine addition to your Windows desktop!



**MarsIcon**: Filename MARSICxx.ZIP; a Windows icon that shows the current view of the planet Mars.



**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.

- **SolSys**: Filename SOLSYSxx.ZIP; a Windows icon that shows the current relative position of the nine planets in our Solar System.

All four icon-programs have been released and are available at many BBSs and Internet FTP sites around the world. I release them to the sites listed below:

- The Internet FTP sites **oak.oakland.edu**, subdirectory **/pub3/win3/icon**, the extensive, but always-busy site **ftp.cica.indiana.edu**, subdirectories **/pub/pc/win3/desktop** and **/pub/pc/win3/icons**, and their mirrors around the world. Note that if these subdirectories no longer exist at these sites, the files are still there, but are probably just in another subdirectory with a similar name. Of course, most large FTP sites will carry these programs as well, and some have corresponding WWW homepages for their FTP file archives.
- The experimental WWW site **http://cayuga.law.cornell.edu/icons/homepage.htm** at the Cornell Law School. This site is literally upstairs when I'm at work, so updates are sure to be here first. However, the site is only experimental and may not always be available. Check **oak.oakland.edu** above if you have any trouble.
- The Software Creations BBS, **(508) 365-2359** (2400,N,8,1), and in the Ziff Davis Interactive (**GO ZDI**) and Astronomy (**GO ASTROFORUM**) areas of CompuServe.

All users receive the shareware versions of these programs when they register **MoonIcon**. The current versions are **EARTHS45.ZIP**, **MARSIC27.ZIP**, **GREDS37.ZIP**, and **SOLSYS11.ZIP**.

● Also in 1995, look for **SatIcon** which shows Saturn, it's rings and it's 8 most-visible moons, and **TideIcon** which displays the current height of the ocean tides in your area.

## Registering MoonIcon

Print out the file ORDER.FRM to get a quick order form for registering **MoonIcon**. 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 **MoonIcon** files to the registered version's subdirectory. It's that simple!

The registration fee is **US \$10**. If you particularly enjoy the software, contributions of more than the basic fee are welcome and help to fund future versions. Although not required, United States orders sending an extra US\$2, and "foreign" orders sending an extra US\$3 to cover the cost of the diskette, disk envelope and mailing charges will be greatly appreciated. Site licenses, educational, and group discounts are available as well; contact me for details. Personal checks, money orders and American Express, Visa, etc. traveler's checks are all accepted (sorry, I do not yet accept credit card orders). Of course, checks are not cashed until I mail your copy. I also accept payment in any currency from any country. Although a few people seem reluctant to send currency via regular mail, I have always received such registrations with no trouble, and for "foreign" orders, payment in currency is especially interesting.

In addition to **MoonIcon**, you will also receive the shareware versions of **4** similar icon-programs for the Earth, the planets Mars and Jupiter, and the Solar System. You'll also receive an impressive (and my personal favorite) Windows wallpaper .BMP file.

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 **MoonIcon** for **US \$35**. 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 **MoonIcon** useful, please upload it to other bulletin boards and Internet FTP sites so other people can enjoy it, too!

# License Agreement

## DISCLAIMER - LICENSE AGREEMENT

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

"**MoonIcon** 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 **MoonIcon**."

**MoonIcon** 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 **MoonIcon**, 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 **MoonIcon** 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 **MoonIcon** must be informed, in advance, that the fee paid to acquire **MoonIcon** does not relieve the recipient from paying the Registration Fee if the recipient uses **MoonIcon**.

● You are encouraged to pass a copy of **MoonIcon** 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 **MoonIcon**.

MoonIcon 1.1 - Order Form

Return this registration form along with US \$10 or more 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 MoonIcon 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 4 other icon-programs, one for our planet Earth (EarthSun), the planets Mars (MarsIcon) and Jupiter (GRedSpot), and one for the Solar System (SolSys).

Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Internet/CompuServe Address: \_\_\_\_\_

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

Diskette size if mailed: \_\_\_ 3.5" \_\_\_ 5.25"

Where did you hear about MoonIcon? \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_

THANK YOU!

## New Ideas

If you have any ideas, please send them to me! Any ideas for new features or capabilities are always welcome!

- If I use your contributions, you will receive my thanks in the Acknowledgements section and the latest registered version of **MoonIcon** 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 MOONICON.EXE file. This allows the program to properly find its .INI file. Make sure your MOONICON.INI file is in the same subdirectory as the MOONICON.EXE file; if it isn't, move it to that subdirectory. This is the recommended way to keep all of **MoonIcon**'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 MOONICON.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 his relentless beta-testing, the weather server site name, and also for leading me 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 also to **Tony Beresford** (phacb@cc.flinders.edu.au) of the Astronomical Society of Southern Australia for the information about his country's daylight savings time issues.
- Thanks to my long-time friend **Brian Knapp** in Jamesville, 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.
- 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 **MoonIcon**.

## Dedication

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

## MoonIcon - Revision History

02/05/95 Version 1.1 - Improved Sun/Moon info calculations. Added  
New Zealand daylight savings time.  
Fixed preserve icon's screen position feature.

11/01/94 Version 1.0 - Initial version. Derived from EarthSun.

## 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 1.1. If you want to be on **MoonIcon**'s e-mail list so you can be notified of new versions, indicate this as well.

Mail Address:

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

Internet E-Mail Address:

**thoman@law.mail.cornell.edu**

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Thank you for using **MoonIcon**!

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## 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!

## Clock features

● A great feature is the ability of **MoonIcon** 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 **MoonIcon**'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.

● **MoonIcon** 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 the clock on top of the icon' so you can see the phase and the time at once.

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 Moon 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 **MoonIcon** 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 **MoonIcon** 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...



## USA - Alabama to Montana

| Location/<br>City Name | North           |      | West             |      | Alt<br>m |
|------------------------|-----------------|------|------------------|------|----------|
|                        | Latitude<br>Deg | Min  | Longitude<br>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 |
|----------|----|------|----|------|----|

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 | 17.00 | 83 | 44.75 | 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/<br>City Name | North           |      | West             |      | Alt<br>m |
|------------------------|-----------------|------|------------------|------|----------|
|                        | Latitude<br>Deg | Min  | Longitude<br>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    |      |
| Auburn                |    |       |     |       |      |      |
| (New York Central RR) | 42 | 56.0  | 76  | 34.0  | 677  | feet |
| Binghamton            | 42 | 05.0  | 75  | 55.0  | 284  |      |
| Brooktondale          | 42 | 23.0  | 76  | 24.0  | -    |      |
| Buffalo               | 42 | 54.6  | 78  | 51.0  | 231  |      |
| Cheektowaga           | 42 | 54.0  | 78  | 46.0  | -    |      |
| Corning (DL&WRR)      | 42 | 09.0  | 77  | 04.0  | 957  | feet |
| Cortland              |    |       |     |       |      |      |
| LVRN Marker           | 42 | 36.0  | 76  | 10.0  | 1130 | feet |
| D.L.&W. R.R. Marker   | 42 | 36.0  | 76  | 10.0  | 1113 | feet |
| Dewitt                |    |       |     |       |      |      |
|                       | 43 | 02.0  | 76  | 04.0  | 413  | feet |
| Dryden                |    |       |     |       |      |      |
| LVRN S. Street Xing   | 42 | 29.45 | 76  | 17.85 | 1101 | feet |
| Southworth Library    | 42 | 29.45 | 76  | 17.85 | 1098 | feet |
| Fireplug S. & Main    | 42 | 29.45 | 76  | 17.85 | 1093 | feet |
| Dryden Lake           | 42 | 29.45 | 76  | 17.85 | 1156 | feet |
| Elmira (E.R.R.)       |    |       |     |       |      |      |
|                       | 42 | 06.0  | 76  | 49.0  | 857  | feet |
| Etna (LVRN)           | 42 | 29.0  | 76  | 23.0  | 1025 | feet |
| Fayetteville          | 43 | 02.0  | 76  | 01.0  | 543  | feet |
| Fredonia              | 42 | 27.0  | 79  | 20.0  | -    |      |
| Freeville             |    |       |     |       |      |      |
| LVRN Xing             | 42 | 32.0  | 76  | 20.0  | 1046 | feet |
| Freeville Junction    | 42 | 32.0  | 76  | 20.0  | 1045 | feet |
| Groton                |    |       |     |       |      |      |
| LVRN                  | 42 | 35.0  | 76  | 22.0  | 995  | feet |
| Fall Creek bridge     | 42 | 35.0  | 76  | 22.0  | 1273 | feet |
| McLean Road           | 42 | 35.0  | 76  | 22.0  | 1288 | feet |
| Homer                 |    |       |     |       |      |      |
| DL&W R.R./James St.   | 42 | 38.0  | 76  | 11.0  | 1133 | feet |
| East Homer, LVRN      | 42 | 38.0  | 76  | 11.0  | 1132 | feet |

|                     |         |         |          |
|---------------------|---------|---------|----------|
| Horseheads (DL&WRR) | 42 10.0 | 76 50.0 | 915 feet |
| Irondequoit         | 43 12.0 | 77 36.0 | -        |

Ithaca

Cornell University  
Engineering Building

|                |         |         |          |
|----------------|---------|---------|----------|
| Hollister Hall | 42 26.4 | 76 29.4 | 814 feet |
| Cayuga Lake    | 42 26.4 | 76 30.0 | 381 feet |

|                      |         |         |           |
|----------------------|---------|---------|-----------|
| Jamestown            | 42 06.6 | 79 14.4 | -         |
| Jamesville (DL&WRR)  | 42 59.0 | 76 04.0 | 597 feet  |
| Killawog (DL&WRR)    | 42 24.0 | 76 01.0 | 1001 feet |
| Marathon (DL&WRR)    | 42 26.0 | 76 02.0 | 1043 feet |
| McGraw (E&CNYRR)     | 42 36.0 | 76 06.0 | 1150 feet |
| McLean (LVRR)        | 42 33.0 | 76 17.0 | 1116 feet |
| Moravia              | 42 43.0 | 76 25.0 | -         |
| Mount Vernon         | 40 55.0 | 73 51.0 | -         |
| Newark Valley        | 42 14.0 | 76 11.0 | 1076 feet |
| 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        |
| Sodus                | 43 14.0 | 77 04.0 | 428 feet  |
| Sodus Point (NYCRR)  | 43 16.0 | 76 59.0 | 267 feet  |
| 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 | -         |
| Whitney Point (DL&W) | 42 20.0 | 75 58.0 | 958 feet  |
| 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 | -   |
| 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 | -   |
| Whitehall    | 40 | 22.0 | 79 | 59.0 | -   |
| Wilkes-Barre | 41 | 14.5 | 75 | 53.3 | 210 |

RHODE ISLAND

|                 |    |      |    |      |    |
|-----------------|----|------|----|------|----|
| Cranston        | 41 | 46.0 | 71 | 25.0 | -  |
| 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<br>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 | -   |  |
| Lukanowice     | 50 00.0N | 20 33.6E | -   |  |
| 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 | -   |

# Australian Cities

| Location Name | Latitude |       | Longitude |       | Alt<br>m |
|---------------|----------|-------|-----------|-------|----------|
|               | Deg      | Min   | Deg       | Min   |          |
| Adelaide      | 34       | 55.0S | 138       | 35.0E | -        |
| Brisbane      | 27       | 28.0S | 153       | 02.0E | -        |
| Broken Hill   | 31       | 57.0S | 141       | 27.0E | -        |
| Canberra      | 35       | 17.0S | 149       | 08.0E | -        |
| Darwin        | 12       | 28.0S | 130       | 50.0E | -        |
| Fremantle     | 32       | 03.0S | 115       | 45.0E | -        |
| Marathon      | 20       | 49.0S | 143       | 34.0E | -        |
| Melbourne     | 37       | 49.0S | 144       | 58.0E | -        |
| New Castle    | 32       | 56.0S | 151       | 46.0E | -        |
| Perth         | 31       | 56.0S | 115       | 50.0E | -        |
| Sydney        | 33       | 52.0S | 151       | 13.0E | -        |
| Townsville    | 19       | 16.0S | 146       | 48.0E | -        |
| Wollongong    | 34       | 25.0S | 150       | 54.0E | -        |



## Other World Cities

| Location Name     | Latitude |       | Longitude |       | Alt<br>m |
|-------------------|----------|-------|-----------|-------|----------|
|                   | Deg      | Min   | Deg       | Min   |          |
| AFRICA            |          |       |           |       |          |
| Cape of Good Hope | 31       | 00.0S | 23        | 00.0E | -        |
| Cape Town         | 33       | 55.0S | 18        | 22.0E | -        |
| Johannesburg      | 26       | 15.0S | 28        | 00.0E | -        |
| EGYPT             |          |       |           |       |          |
| Cairo             | 30       | 08.0N | 31        | 24.0E | -        |
| HONG KONG         |          |       |           |       |          |
| Hong Kong         | 22       | 15.0N | 114       | 11.0E | -        |
| JAPAN             |          |       |           |       |          |
| Tokyo             | 35       | 45.0N | 139       | 30.0E | -        |
| NEW ZEALAND       |          |       |           |       |          |
| Auckland          | 36       | 53.0S | 174       | 45.0E | -        |
| Dunedin           | 45       | 53.0S | 170       | 30.0E | -        |
| Wellington        | 41       | 18.0S | 174       | 46.0E | -        |
| RUSSIA            |          |       |           |       |          |
| Moscow            | 55       | 45.0N | 37        | 35.0E | -        |
| SWEDEN            |          |       |           |       |          |
| Stockholm         | 59       | 20.0N | 18        | 03.0E | -        |
| TAZMANIA          |          |       |           |       |          |
| Hobart            | 43       | 00S   | 147       | 10.0E | -        |



