Gridpoint Atlas® 4.1

Welcome to Gridpoint Atlas®.

It is our hope that you will enjoy this software and be greatly assisted in your own endeavors.

License

This software may be installed by its registered owner, hereafter known as the licensee, on more than one computer, so long as the USB stick is present on the computer you are currently using.

The licensee may not sell or redistribute the software, data, or manual, in whole or in part.

Copyright

Limited Warranty

Limits of Liability

Notice

Acknowledgements

Software

Reference Books

The Bridge to Infinity – Bruce L. Cathie, America West Publishers, 1989
The Harmonic Conquest of Space – Bruce L. Cathie, Nexus Magazine, 1995
The Map Catalog, Second Edition – Joel Makower, Editor, Vintage Books, 1990
Mapping – David Greenwood, The University of Chicago Press, 1964
Map Projections, A Working Manual - John Snyder, U.S. Geological Survey Professional Paper 1395, 1989.
Plane and Spherical Trigonometry – Kaj L. Nielsen and John H. Vanlonkhuyzen, Barnes & Noble Books, 1954
Theory and Problems of Plane and Spherical Trigonometry – Frank Ayres, Jr., Ph.D., Shaum's Outline Series, McGraw-Hill Book Company, 1954
Webster's New World Dictionary of the American Language – Second College Edition, 1978.
Getting To Know ArcGIS Desktop, Second Edition, ESRI Press, 2004
American Institute of Physics Handbook, Third Edition, 1972
OpenGIS KML Encoding Standard, Version 2.2, Open Geospatial Consortium, Inc. 2009

Software Development Tools/Datasets

The following tools and datasets were used to develop and test the software and compile the map libraries.

Tools

Microsoft Visual C++ 6.0 with Service Pack 5
Microsoft Visual Basic 6.0 with Service Pack 5
Microsoft Developer Network Library
ESRI MapObjects LT 2.0
ESRI MapObjects 2.2
InstallShield Professional 2010
Microsoft Word 2007
Microsoft Excel 2007
MapCap Flare 1.1
Adobe Photoshop CS3

Datasets

ESRI Data & Maps 2002
Vector Map Level 0, formerly known as Digital Chart of the World, distributed by the National Imagery and Mapping Agency, a branch of the U.S. Government.

Introduction

This updated mapping version of our Windows computer program is the culmination of 49 years of extensive research into the UFO enigma, and over 21 years of close cooperation with computer expert Rod Maupin, of Rainier, Washington, United States of America.

The program has proved to be an excellent research tool and I have personally found it to be essential in my own work for the discovery of new knowledge regarding the harmonic, geometric make-up of our reality. Positions can now be pin-pointed in any part of the world for close analysis. This latest version has been greatly refined and as new knowledge is gained we will continue to upgrade the program and notify our customers.

The events that led up to the production of the program began in 1952 when my life changed dramatically. I was then a pilot with the New Zealand National Airways Corporation, and one evening with a group of friends I had a prolonged sighting of a UFO over the Manukau Harbour in Auckland, New Zealand.

The object carried out manoeuvres that no known man-made vehicle could accomplish at that time. The thing, whatever it was, had an intensely brilliant white light, with a smaller glowing red light some distance from it, and for about twenty minutes held myself and the other witnesses spellbound as it went through a series of right angle turns, then disappeared into a clear evening sky.
Ever since that time I have collected every bit of information available on the UFO phenomena. During my thousands of hours of flying I searched the skies constantly and have been rewarded with many other sightings. As time went on I was informed by many other airline pilots in New Zealand that they too were sighting objects for which they could find no explanation. It became very obvious that either we were being observed by some sort of advanced vehicles coming in from outer space, or that some scientific group on earth had discovered a principle of physics unknown to the rest of us, and that secret research of some nature was being carried out. I am now sure that both views were correct and that much is being kept from the public.

Over the years I have studied a great deal of material published by other investigating groups and came to the conclusion that no real progress could be made in discovering the purpose of UFO activity through this means. The main body of investigators seem to have confined their activity to collating masses of sighting reports, filing them away, and then doing nothing else with the information. Very little practical use has been made with any of it.

I decided long ago that the only way to tackle the problem would be to plot all the areas of activity and try to find some logical mathematical order in the hovering positions, or flight paths of the unknowns. To this purpose I studied the methods of a Frenchman by the name of Aime Michel who had also endeavoured to find a mathematical order of this nature. He had had partial success and managed to find several track lines with equally spaced activity in the European area. Just when he appeared to be onto something, for some unknown reason, he abandoned this line of research and publicly proclaimed that nothing could be accomplished by this method. After studying his early attempts I considered that there was definite logic in his findings and decided that I would carry on my own research using his basic methods.

I struck gold and ever since I plotted the first two track lines at right angles in the New Zealand area, I have continued to progress and advance my scientific knowledge in areas which otherwise would normally be completely foreign to me.

Along the way I have taken much flack from the academic world, and from those who profess to know all the answers - that is in public. But behind the scenes it has been a different story. Over the years I have had many direct communications from members of intelligence organizations, top scientific circles, and government agencies, wishing to know what my latest findings are and requesting copies of certain parts of my work.

Once I had established the two track lines I was able to form a complete grid network over the whole of the New Zealand area by gradually plotting onto the survey map the most reliable UFO sightings. The pattern consisted of lines spaced at thirty minute intervals oriented just on six degrees displacement from true north. Eventually two similar grids were found to be interlocked with each other creating rather a complex pattern, which could be further reduced to lines with a spacing of seven and one half minutes. I have made use of this map for many years and still find the structure valid when checking recent activity.

The next logical conclusion was that I had discovered a small section of what could possibly be a world system. The question then was how to transfer this small section onto the world sphere and accurately align it. It was then brought to my notice that a strange aerial-like object had been photographed by chance on the sea bed off the west coast of South America by the American survey ship Eltanin. The object was two to three feet high and had six main cross-bars spaced evenly up its stem, with a smaller one on top. Each set of cross-bars had a small ball at the end of each arm. A friend and I visited the Eltanin when it came into Auckland and we were told by one of the scientists on board that the object was thought to be an artifact of some kind and appeared to be metallic.

I had a hunch that this could be the point I was looking for upon which to orient a World Grid™, if in fact one existed. I spent some time constructing grid patterns on a plastic ball until I found a system which could be transferred onto the world surface and aligned with the aerial-type object and the section of the grid discovered over New Zealand. I found that the patterns matched and felt sure then that a global system was almost a certainty.

The next step was to find the mathematical basis of the system and this proved to be a long and arduous job; especially as I do not class myself as anything of a mathematician, or a physicist.

After a study of all the available information on UFO activity I came to the conclusion that the speed of light, mass and gravity acceleration values must have some connection with the grid structure in order to explain the extraordinary manoeuvres carried out by the strange craft.

The basic grid structure was formed by a series of great circles interlocking at various points around the earth's surface. The nodal points of the two grids, when joined by a series of small and great circles, formed what I have loosely termed polar squares around the north and south geographic poles. It was when I carried out a geometric and mathematical analysis of these sections that I found a direct connection with light, gravity, and mass equivalents, in a harmonic sense. To do this I had to convert all our normal systems of measurement into a single set of units and also convert our time measure into one that would correlate with the grid. After much thought and a long period of trial and error, I finally discovered that angular measure, in minute of arc values, and a time unit based on twenty-seven units for one revolution of the earth, was the key to unlocking the grid secrets.

After that it was a long slow process to learn how to relate the values being calculated, one to the other, in order to find a logical mathematical basis for the system.

Finally after years of work, I discovered that I could formulate a series of harmonic unified equations, which indicated that the whole of physical reality was in fact manifested by a complex pattern of interlocking wave forms. I gradually found that the harmonic values could be applied to all branches of scientific research and atomic theory. At first I was not very sure of the results I was getting, but as time went by, more and more interest was being shown by intelligence agents, government personnel, and scientists in the work I was doing and many requests started coming in for information. Help in my work was eventually offered from these quarters, but the catch was that I had to remain silent about my discoveries. This I refused to do and I still continue to battle on my own. Once I realized the importance of the material in my possession, I considered it extremely dangerous for any small group of people to have complete control of it.

It was only a matter of time before I realized that the energy network formed by the grid was already known to a powerful group of international interests and scientists. It became obvious that the system had many military applications and that political advantage could be obtained by those with secret knowledge of this nature. It would be possible for a comparatively small group, with this knowledge, to take over

control of the world. I have continually asked these people for a valid moral reason why the information should not be given to the world community and so far no answer has been given. So I carry on publishing the material as I find it.

One of the most startling facts that I discovered by the application of grid mathematics was that an atomic bomb is a device based on the geometrics of space and time. To be successfully detonated the bomb must be geometrically constructed, placed on, under, or over a geometric position in relation to the earth's surface and activated at a specific time in relation to the geometrics of the solar system. I found that it was possible to precalculate the times of various bomb tests and the locations where it was possible to explode a bomb. When it became known that I had discovered this well-kept secret I was offered a position by the American Central Intelligence Agency.

The offer was very tempting but I decided that I could not sign my freedom away and after two days I turned it down. According to the mathematical complexities of unlocking the geometric structure of the unstable material constituting a bomb, in order to create a sudden release of energy, I realized that an all out atomic war was an impossibility. Both sides could precalculate well in advance the time and positions of atomic attack. Plus the fact that only certain geometric locations could be devastated anyhow. This could be the reason for the proliferation of conventional weapons in modern warfare. Now, of course, the Russians and the Americans are in the process of dismantling the atomic warfare machine and beginning to cooperate in more peaceful ventures. The atomic threat has served its political purpose.

Another application of the grid unified harmonics is the production of energy. With the right know-how and with a comparatively simple apparatus, similar to a radio receiver, an unlimited amount of free electrical energy can be tapped from the gravitational fields inherent in the energy system. This has already been done in the past by one of the greatest technical geniuses in history, Nikola Tesla, and a Mr. Henry Moray. It is said that Mr. Tesla constructed a car which had an electric motor which derived its energy directly from the surrounding gravitational field. It was said to reach speeds of 90 miles per hour. Mr. Moray was tapping electrical energy directly from the atmosphere with a similar device.

It is not right for the public to have this knowledge, I was told. It would not be good for them. I am sure that most of you would disagree with this outlook. It is up to the scientific community themselves to open up research in all these fields in order that all mankind can reap the benefits.

In the early years of my research I believed that the grid system had been set up artificially by the geometric placement of specialized electromagnetic transmitters. As time went on I realized that this was not correct. The grid system is formed naturally by the electromagnetic fields of the earth itself. In theory, all spherical bodies in the Universe are formed the same way. The electronic hardware that I had discovered in my research was gear that had been built into a natural system. The scientists know about it and are tapping it.
I am still progressing in the research into the world energy system and the geometric nature of the Universe. During the last few years I have managed to compile all the discovered harmonic unified values into a set of unified tables, which can now be used for research in many areas of scientific interest. I discovered that I could convert the gravitational acceleration values in the physics books into geometric values and correlate them directly with the harmonic geometrics of light and mass derived from the grid system.
After all these years the latest computer tables indicate that the average harmonic of 695, published in my earlier works, is a direct conversion of gravity acceleration and the reciprocal of the light harmonic. This particular table has been incorporated in this computer program and can be printed out in full, with all the conversion values demonstrated, or calculated fractionally for any latitude from zero to ninety degrees.

The most accurate position for the grid pole in the north has been calculated by computer to be:

Latitude:
Grid pole B - 78º 26' 23.65" North Latitude

Longitude:

Grid pole B - 105º 0' 0" West Longitude

The pole positions in the south are displaced 180 degrees from those in the north. These are the most accurate calculations to date but future research may indicate that fractional repositioning may be necessary. Satellite mapping of the earth's surface has shown that some survey maps have small errors due to the irregularities of the earth sphere. At this stage it is impossible to allow for these fractional errors, but this program would be the most accurate available to the public to date. Any new information will be incorporated into the program in future versions.

Over the years I have been asked hundreds of times by members of the public whether I could supply maps or information regarding the grid network for particular areas on the earth's surface. I could only reply that it was impossible for me to calculate sections of the grid for other parts of the world because of the spherical geometry involved. The problem could only be tackled with the help of a computer, and then only if specialized programs were available. It is only in recent years that this has become possible. I was first visited by Rod Maupin 16 years ago and it turned out that he was the only one who understood my work and had the necessary computer programming skills to create the World Grid™ program. This work is the result. The first of its type available to the public.

Over the years my books explaining my research into the grid network have been generally suppressed on the world market. Over 10,000 copies were destroyed some years ago without explanation by the publishers at that time. Nexus Magazine and Adventures Unlimited Press came to the rescue and reprinted some of my books. I thank them for their confidence in my work.

Nexus Magazine and Adventures Unlimited have copies of my last three books available for purchase.

THE ENERGY GRID (This is a compilation of my second and third books, HARMONIC 695, THE UFO and ANTIGRAVITY and THE PULSE OF THE UNIVERSE, HARMONIC 288)
THE BRIDGE TO INFINITY
THE HARMONIC CONQUEST OF SPACE.

Adventures Unlimited Press

www.adventuresunlimitedpress.com

Nexus Magazine
www.nexusmagazine.com

We would welcome any suggestions from users of the program that would help to improve or extend its usefulness to researchers.

Bruce Cathie
Auckland, New Zealand
May 2010

Foreword (2010)

A lot of people have been waiting a long time for this moment, including Bruce Cathie and myself.

For the first time ever, people are now able to create a map in Gridpoint Atlas, overlay the World Grid, and then view that overlay in Google Earth. With this update, Gridpoint Atlas continues to be the only publicly-available tool for research into the World Grid system. This software will provide you with endless fun for years to come.

We were not able to create a Google-Earth-type viewer, because that would violate Google Earth's Terms of Service. Instead we opted to create the World Grid overlays in our software, and then allow you to send them to Google Earth for viewing.

I apologize to your spouses, girlfriends, boyfriends, and parents. You won't be spending much time with them for the foreseeable future. You won't be getting much sleep either. Too much fun is waiting to be had.

Rod Maupin
Rainier, WA, USA
June 2010

Contact Information

Should you wish to contact me, you may do so at the following address:

Wavepoint™ Studios

Rod Maupin
P.O. Box 976
Rainier, Washington 98576
United States of America
phone: 360-446-1050
email: gridman@worldgrid.net

Website

The Gridpoint Atlas® website can be found at:

www.worldgrid.net

Technical Support

Upon ordering the Gridpoint Atlas☐☐software, you were automatically registered as a user of the software, and are entitled to free technical support. If you have questions, you may call the number listed below during the specified hours. If you call at any other time and no one is available to answer your question, you will be given another time to call when someone will be available. Technical Support hours are listed in PST, Pacific Standard Time.

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Rod Maupin
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phone: 360-446-1050
email: gridman@worldgrid.net

Support Hours
Weekdays: 8:00PM – 10:00PM PST
Weekends: 8:00AM – 8:00PM PST

System Requirements

The minimum system requirements for this software are as follows:

IBM-compatible PC equipped with an Intel processor
Microsoft Windows 2000, Windows Server 2003, Windows XP, Windows Server 2008, Windows Vista, or Windows 7
1 GB of RAM
10 GB of hard drive space (if all map libraries are installed on hard drive)
Monitor set to a minimum of 1024 x 768 resolution
DVD-ROM drive
Internet Explorer
Adobe Flash Player
Google Earth

Software Installation

There are five map libraries that are provided with the Gridpoint Atlas® software.

To begin the installation, follow the directions below.

Installation

Place Disc 1 in your DVD-ROM drive. When you do this one of two things will happen:

1. The setup program will automatically begin, which means your computer has Auto-run capability. After the setup program loads, simply follow the instructions to install the software.

2. Nothing will happen, which means your computer does not have Auto-run capability. If this happens, go to the Start Menu and hit Run. Type **x:\setup.exe** (where **x** is the letter of your DVD-ROM drive) and hit Enter. After the setup program loads, follow the instructions to install the software.

If your drive has problems reading our DVDs, we would like to know about it. Just send an email to the following address:

gridman@worldgrid.net

Google Earth

In addition to installing Gridpoint Atlas, you must also install Google Earth on your computer. If you have not already done so, please go to the following link and download the software:

Download Google Earth

After downloading, install Google Earth.

Adobe Flash Player

In order to watch the Help video(s) for this course, you must have already installed the Adobe Flash Player on your computer. If you have not already done so, please go to the following link and install the software.

Adobe Flash Player

Running the Software

After installing Gridpoint Atlas, you will be able to go to the program folder (unless you changed the name, the folder will be named Gridpoint Atlas 4.1), click the Gridpoint Atlas 4.1 shortcut, and run the program. If you had the setup program place a shortcut on your desktop, you will be able to run the program from there.

Manuals

If you would like to print out the software manual, it can be found in the Manuals folder of the software directory. For example, if you installed the software to C:\Gridpoint Atlas 4.1, the manuals can be found in C:\Gridpoint Atlas 4.1\Manuals.

The manual contains the same information as the software's Help system. You will find that it is easier to print the manual from a word processor than it is to print the same information from the Help system. The print function of the online help is better suited for printing sections of information rather than the entire manual.

Help System

The Gridpoint Atlas® help system is in standard Windows HTML Help format. You must have Microsoft Internet Explorer or Mozilla Firefox installed on your system in order to access Help system.

Assumptions

The user of this software is assumed to have a basic working knowledge of maps, and the concepts of latitude and longitude. While this manual contains a glossary, it is not meant to be a textbook for teaching map reading or theory.

In addition, it is assumed that the user will have some knowledge of Captain Bruce Cathie's work, either through his many books or lectures on the subject. This manual is not meant to teach harmonic theory, the structure of the World Grid®, or relate the years of research of Captain Cathie. However, this manual will accurately document the software and its functionality.

Gridpoint Atlas® makes heavy use of both plane and spherical trigonometry in performing its calculations. While having knowledge of trigonometry can be helpful in understanding the data that Gridpoint Atlas® generates, a user is not required to know anything beyond the definitions of degrees, minutes, and seconds (these definitions are provided in the Glossary). Knowledge of physics, calculus, or any higher-level mathematics is not required, nor is it utilized in the program.

Current State of the Software

At this time, Gridpoint Atlas® treats the Earth as a perfect sphere, when in fact it is flattened somewhat at the poles, the technical term for the shape being an "oblate spheroid".   All calculations performed by the program, especially those connected with the mapping of the World Grid®, are done using spherical trigonometry.   This results only in very slight inaccuracies of the data, and spherical calculations are simpler and faster than other types.

When you view the World Grid® overlays in Google Earth, they will be projected using the WGS84 system.

Basic Concepts

To a novice researcher, the data generated by Gridpoint Atlas™, and the data shown in Captain Cathie's books can be very intimidating. However, there are some basic underlying principles involved in all of the mathematics of the World Grid™ system. A thorough comprehension of these basic rules is crucial to one's understanding of the system.

Rules of Harmonics

The mathematics of the grid can be called harmonic math, as the entire system is harmonic in nature. The rules to understanding this harmonic system are as follows:

1. Zeros to the left or right of the decimal point are insignificant.
2. The system is based on 6 and 10.

Looking at some examples for each of these rules will illustrate their significance.

1. Zeros to the left or right of the decimal point are   insignificant.

Example: 144000 nautical miles/grid sec is the maximum speed of light at the equator. Examining 144000, we find the following:

144000 is harmonically equivalent to 144, 14.4, 1.44, and .000144.

144 x 1000 = 144000
14.4 x 10 = 144
1.44 x 10 = 14.4
.000144 x 10000 = 1.44

Example: Let's examine the coordinate 14.4 N, 144 W. Both the latitude and longitude are harmonically equal to the speed of light 144000.

14.4 N) 14.4 x 10000 = 144000
144 W) 144 x 1000 = 144000

2. The system is based on 6 and 10.

Example: Let's examine the coordinate 86.4 S, 2.4 E. Again both the latitude and longitude are harmonically equal to the speed of light 144000.

86.4 S) 86.4/6 = 14.4, and 14.4 x 10000 = 144000
2.4 E) 2.4 x 6 = 14.4, and 14.4 x 10000 = 144000

These examples were chosen for their simplicity. Usually the analysis of a coordinate is not as straightforward.

Rules of Measurement

In addition to the harmonic rules, Captain Cathie found he had to apply different units of measurement in order to find the harmonic relationships. In order to uncover harmonic relationships, there are two units of measurement that must be used:

1. The nautical mile, which is equal to 6000 geodetic feet or 72000 geodetic inches.
2. A day based on 27 grid hours or periods for one revolution of the Earth. There are 60 grid minutes in 1 grid hour and 60 grid seconds in 1 grid minute.

If you understand these rules, you will find that your understanding of harmonics and the energy grid system will improve, and that its associated mathematics will not be as intimidating.

General Usage Information

The majority of the functions within the software require some kind of input. The amount of input varies with each function, but each type of input is handled consistently throughout the program.
Wherever you are prompted for input, the program will always validate that input and display an error if it is incorrect.
What follows are guidelines for how the different types of information should be entered.

Bearing

A bearing is a direction of travel out from a specified starting point. In this program, bearings are entered exactly like coordinates. Please refer to the coordinate information below.

Coordinate

A coordinate is a latitude/longitude pair used to denote a specific point on the Earth's surface. In G□□□□□□□□□□□□□□ the latitude and longitude values are always entered separately. Latitude and longitude values can be entered in any of the following ways:

35º is entered as 35
35.690435º is entered as 35.690435
35º 15.3345' is entered as 35,15.3345
35º 15' 22.635" is entered as 35,15,22.635
0º 1' 6.23498" is entered as 0,1,6.23498
0º 0' .33277" is entered as 0,0,.33277

Notice that when coordinate values are expressed in degrees, minutes, and
seconds, the degrees, minutes, and seconds values must always be separated by commas.

Coordinate Directions

Latitude and longitude direction entry is easy. Every time you are presented with a dialog box asking you to enter a coordinate, the directions for North, South, East, and West will be in the form of buttons in the dialog box. Simply select the one that you want.

In addition, latitude and longitude directions are in the following ranges:

North: N >= 0º, N <= 90º N (the equator is considered to be North latitude)
South: S > 0º, S <= 90º S
East: E >= 0º, E < 180º (0º is considered to be East longitude)
West: W > 0º, W <= 180º (180º is considered to be West longitude)

Distance

Distances are entered as a numerical value without the unit.

500 nautical miles is entered as 500

20.873652 kilometers is entered as 20.873652

Grid Resolution

The grid resolution is not something that you enter, but rather something you select from a list in a dialog box. This is to prevent invalid values from being entered.

Harmonic

Harmonics are easy to enter because the program will analyze where the decimal point is and adjust it accordingly. Therefore, when you wish to do a harmonic conversion, just enter the harmonic number with the decimal point anywhere you want.

To enter 144000, you could enter any of the following values:

1.44
14.4
144
1440
144000
or even 14400000

To the software it makes no difference, as a harmonic is a harmonic.

Current Latitude

The Current Latitude is the last latitude value entered into any function.

 For example, if I am in the Earth Metrics function and I enter a latitude, then that becomes the Current Latitude.   If I then move to the Single Latitude (Gravity to Light) function, I can hit the Current Latitude button, and the latitude I just entered in the Earth Metrics function will appear.

 It is a convenient way of using the same latitude value across all the functions in the software that make use of latitude.

Map Libraries

There are five map libraries that come with the Gridpoint Atlas® software. All libraries reside on the DVD-ROM, and can be copied to the hard drive during installation.

The libraries are as as follows:

Number	Name	Abbreviation
1	United States	USA
2	Europe/Northern Asia	EURNASIA
3	North America	NOAMER
4	Southern Asia/Australia	SASAUS
5	South America/Africa/Antarctica	SOAMAFR

Libary 1 is the United States database, which is from the ESRI Data & Maps CDs, 2002 Edition. It is a more detailed database of the U.S. than the one found in the North American library.

Libraries 2 - 5 are from the U.S. Government's Vector Map Level 0 product. These libraries were in Vector Product Format and were converted to Shapefile format.

Workspace

The Gridpoint Atlas® workspace is comprised of two windows, a Map window and a Calculation window. The Map window is used to draw maps and plot the World Grid®. By default, the workspace displays the Map window when the program is first run.

The Calculation window details all of the mathematical and harmonic tables in Bruce Cathie's work, and also includes many coordinate and harmonic conversion functions.

Project Files

When maps are created in this software, you will have the ability to save them to your hard drive. Technically, the maps, annotations, and drawing entities are saved as project files, and are saved with a ".prj" extension.   For purposes of discussion in this documentation, the terms map file and project file are used interchangeably and are one-in-the-same.

Conversion of Gridpoint 3.0 Project Files

Gridpoint Atlas™ has the ability to convert Gridpoint 3.0 project Files.

You will first need to copy the project files from the Gridpoint 3.0 projects folder. For example, if Gridpoint 3.0 is installed on the C: drive in a folder called Gridpoint 3.0, then this will be the path to the projects folder:

C:\Gridpoint 3.0\Projects folder

You will then need to copy these files to the Gridpoint Atlas 3.5 projects folder. For example, if you installed the software on the C: drive and in a folder called Gridpoint Atlas 3.5, then this will be the path to the projects folder:

C:\Gridpoint Atlas 3.5\Projects

Once you have copied your Gridpoint 3.0 projects into the Gridpoint Atlas 3.5 projects folder, then the hard part is done. When you open a 3.0 project, it will automatically be converted to the new 3.5 format. You can then save the project in the new format and the process is complete.

Use of the Mouse

Most PC mice have two buttons, a left and a right. In Gridpoint Atlas□ you will always select functions from the menus and toolbars with the left mouse button. If you select a function and change your mind, hit the right mouse button, and that will cancel the function and restore the cursor back to normal.

Many times in the program Help and Manual, you will be instructed to click the map. That means to place the cursor at a desired place on the map, press the left mouse button, and then release it.

Other times, you will be instructed to double-click on the map. This is the standard Windows double-click of pressing the left mouse button twice in rapid succession.

Introduction to GIS

For a long time, people have studied the world using models such as maps and globes.   In the last thirty years, it has been possible to put these models on computers, and as technology has advanced, the computers have gotten smaller.   These computer models, along with the tools for analyzing them, are what make up a geographic information system (GIS).

This software package is considered a GIS, even though it does not have the functionality of a full-fledged GIS system.   However, it does include all of the functions necessary to plot maps and overlay the World Grid™ onto them.

In a GIS, you can study every possible map, because you can see whatever you want, land, water bodies, roads, political bodies, cities, services, and much more.

Layers

A map generated by a GIS system has many advantages over a paper map.   With a paper map, you can't peel away cities, roads, rivers, or other attributes that you don't want to see.   But since a GIS map is comprised of layers, you can create the map with only the attributes you want.   A layer is a collection of geographic objects that are alike. For example, a rivers layer will contain many different rivers, a roads layer will contain many different roads.

Themes

To create a map in a GIS, you must select the themes you would like to see.   A theme is a collection of geographic objects that are alike. Examples are cities, roads, rivers, lakes, railroads, schools, and hospitals.   A theme differs from a layer in one aspect.   A theme becomes a layer when it is added to a map.   In addition, each layer of a map can contain only one theme.

Features

A feature is each separate, geographic object in a layer.   Since a roads layer will contain many roads, each separate road in the roads layer is a considered a feature.

Features have a shape and size and all geographic objects have an endless variety of shapes.   However, all of them can be represented by one of three geometrical forms; a point, line, or polygon.

Polygons are used to represent things that are large enough to have boundaries, such as countries, cities, lakes, national parks, and military bases.   Lines are used to represent things too narrow to be polygons, such as rivers, streams, roads, pipelines, and railroads.   Points are used for things that are too small to be polygons, such as schools, hospitals, and fire hydrants.

In order to plot the features onto a map, each feature has to have information associated with it, such as its location.   It will also be linked to its name and to other useful information.

Summary

You now have an idea of what a GIS is.   This software will continue to be enhanced in the future to make it an even more full-fledged GIS.

Map Window

The Map Window is used to draw maps and plot the World Grid™.   By default, the workspace displays the Map window when the program is first run.
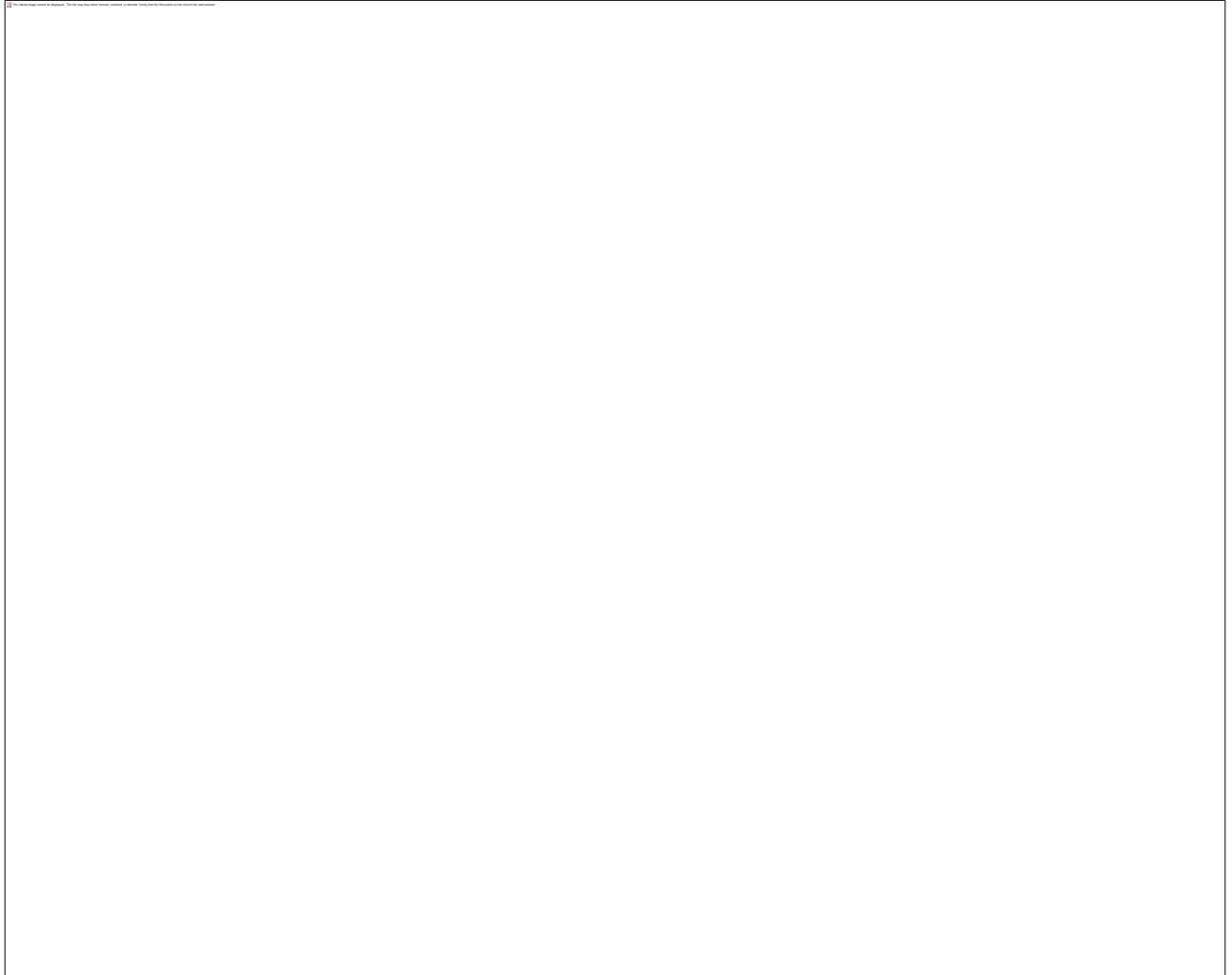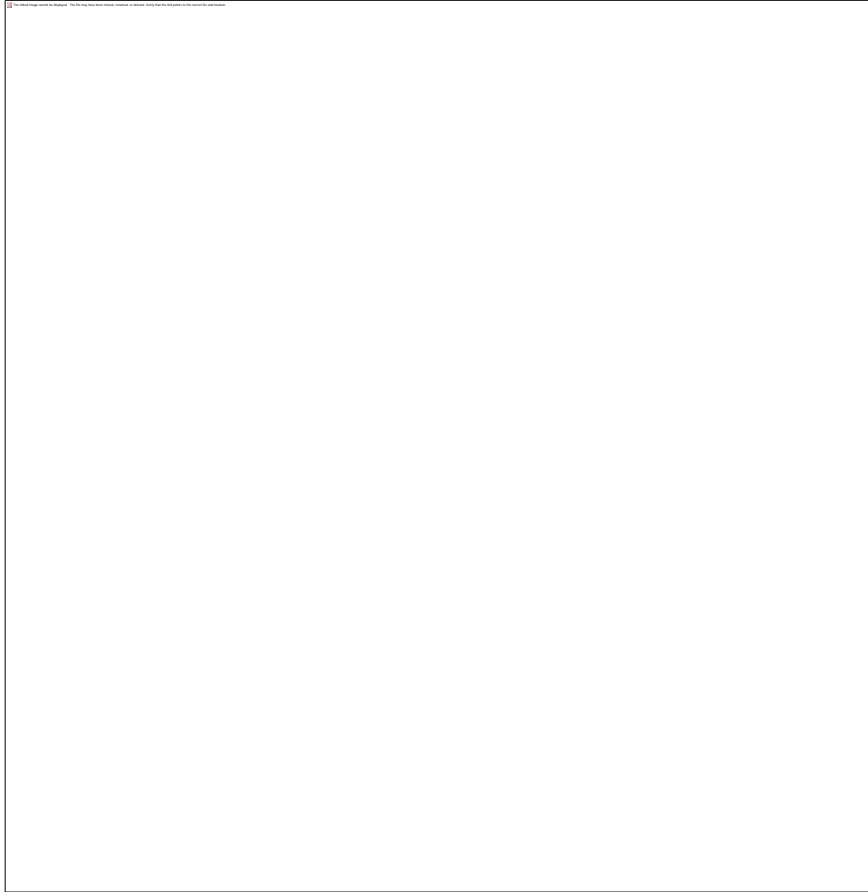
File Menu

The File menu performs file management functions for the maps (projects) created with this software.

New

Clears the workspace and creates a new, blank map.

Open

This function allows you to open a map and display it in the workspace.

When you select an entry from the "Existing Map Files" list, the "File Name", "Map Title", and "Map Description" will be displayed in the fields above.

Open

Opens the map file you have selected in the "Existing Map Files" list, and displays it in the workspace. The map file name and title will be displayed in the workspace's caption bar.

Clear

Clears the fields in the dialog box.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Save

This function allows you to save the current map to your hard drive.

To save the map, you must first enter a file name, and optionally enter a map title and description. As soon as the map is saved, the file name and title will be displayed in the caption bar of the workspace.

Save

Saves the map currently displayed in the workspace, using the file name, map title and map description you have provided.
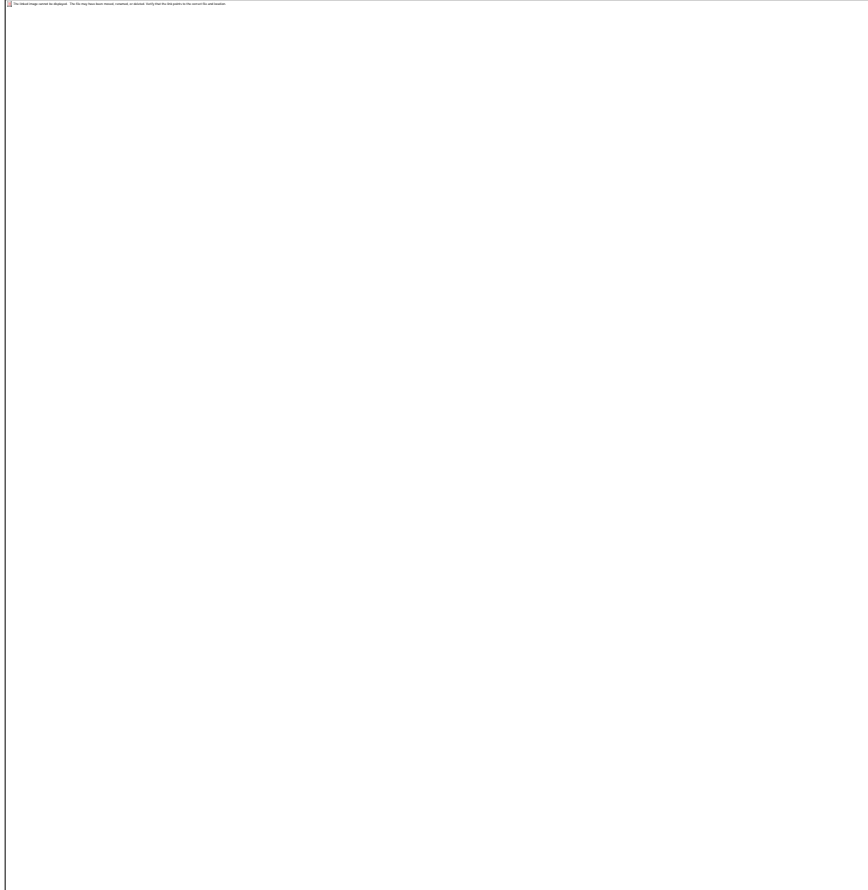
Clear

Clears the fields in the dialog box.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Save As

Saves the currently displayed map under a new file name, title, and description.

Save As

Saves the map under the new file name, title, and description you have provided.

Clear

Clears the fields in the dialog box.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Delete

Deletes the map that is selected in the "Existing Map Files" list.

Delete

Pressing this button deletes the map that is selected in the "Existing Map Files" list.   Any map can be deleted from this dialog box, whether it is currently displayed or not.

Clear

Clears the fields in the dialog box.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Export

This allows the current map to be exported to a bitmap file or to the clipboard. In addition, if the World Grid™ is overlaid onto the map, the grid point coordinates can be exported as well.
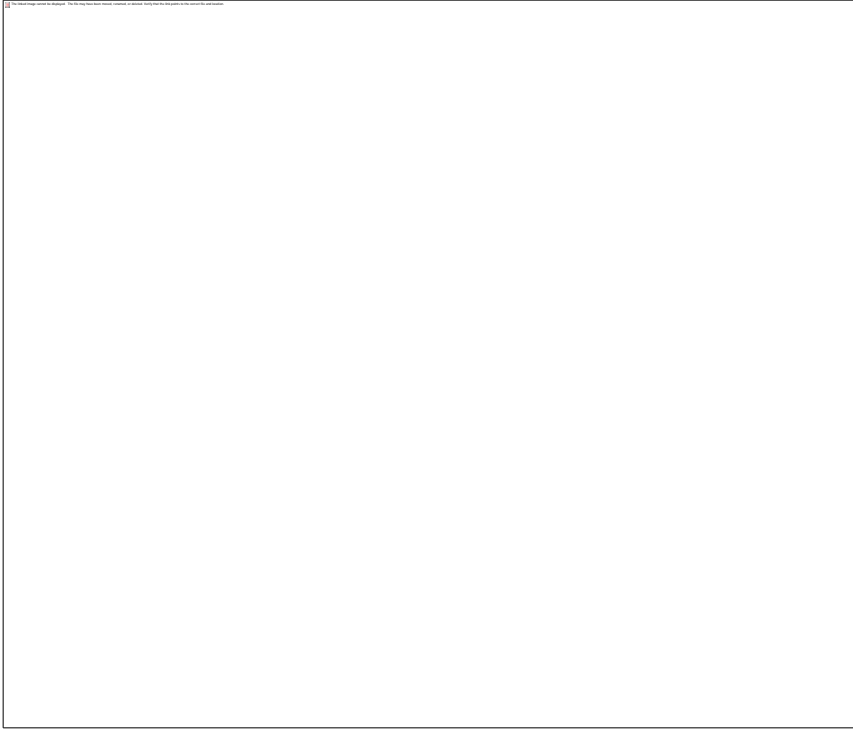
Export

To export the map, click the Export Workspace
checkbox. Next, decide whether to export to a file on the hard drive, or to the clipboard.

When exported to the hard drive, the file will be saved as a Bitmap to the Exports folder, and will have the same filename root as the current project name.

For example, if the current project is named Alabama, the exported map will be named Alabama.bmp.
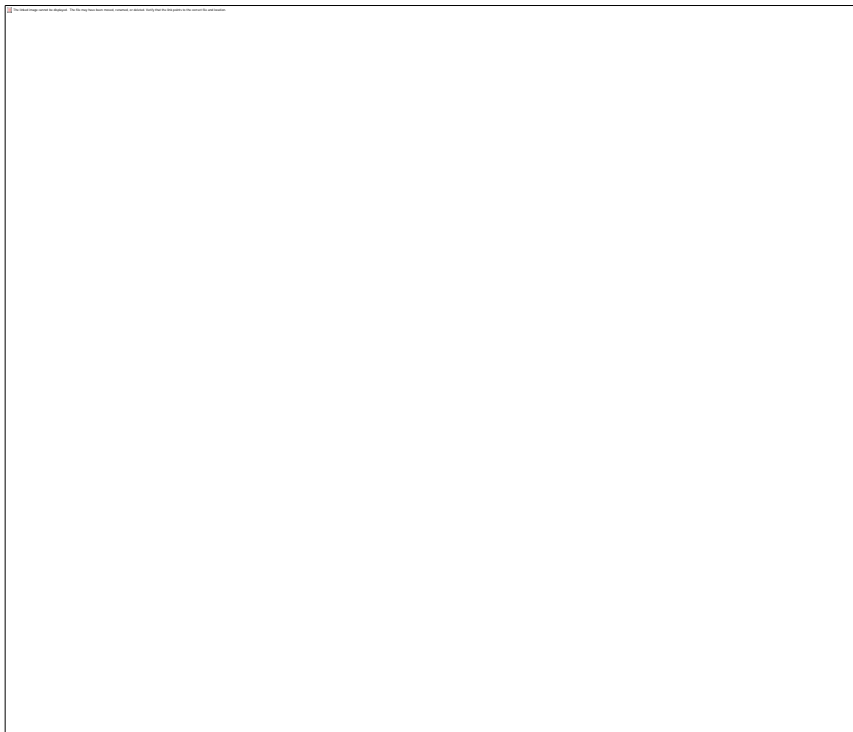
If the World Grid™ has been overlaid onto the map, the coordinate list can also be exported. There are two different types of coordinate exports, Numbered and Comma-Delimited.

When you click an overlay checkbox underneath "Export the following Overlay coordinate sets (numbered)" and click Export, a numbered list of coordinates will be exported. This type of export is suitable for taking in the field with an exported map and locating the grid points with a GPS device.

When you click an overlay checkbox underneath "Export the following Overlay coordinate sets (comma-delimited)" and click Export, a comma-delimited set of coordinates will be exported. This type of export is suitable for import into a spreadsheet program such as Microsoft Excel.

When you export the overlay coordinate list, the file will be saved to the Exports folder, and will have the same name as the current project. For example, if the current project is named Alabama, the following files will be exported:

Alabama_1_Numbered.txt (corresponds to the first grid overlay)
Alabama_1_CommaDelimited.txt (corresponds to the first grid overlay)
Alabama_2_Numbered.txt (corresponds to the second grid overlay)
Alabama_2_CommaDelimited.txt (corresponds to the second grid overlay)

Cancel

Closes the dialog box.

Help

Displays help for this function.

Print

Prints the map currently displayed in the workspace.

Exit

Saves the system settings and closes the program.

Edit Menu

This menu is an abbreviated version of the typical Windows Edit menu. In this software, there is only one function available.

Cut

Deletes the currently selected drawing entity from the map. The drawing entity must first be selected with the Select function, then the Cut function can be used to delete it.

View Menu

This menu controls the display of the Map Window toolbars, legend, and status bar.   You will generally want all of these things to be displayed, but turning it off is easy.   Just select the one to turn off, and the item will become unchecked. To turn it back on, select it and the item will again be checked.

Main Toolbar

The Main Toolbar performs file management functions for maps (projects) created with this software.

From left to right, the buttons are as follows:

1. New Map
2. Open Map
3. Save Map
4. Print Map
5. Next Window

New Map

Creates a new, blank map.

Open Map

Opens an existing map.

Save Map

Saves the current map.

Print Map

Prints the current map.

Next Window

Switches to the Calculation Window.

Management Toolbar

The Management toolbar controls the management of themes, layers, overlays, and handles the running of queries on the map.

From left to right, the buttons are as follows:

1. Theme Selection
2. Layer Order
3. Overlay Management
4. Coordinate Query
5. Coordinate Track
6. Identify a Feature
7. Find a Feature
8. Measure Distance

Theme Selection

Adds and removes themes to/from the map.

Layer Order

Provides the ability to change the ordering of layers in the map.

Overlay Management

Used to delete World Grid™ Overlays from a map.

Coordinate Query

Used to determine a coordinate on the map.

Coordinate Track

Tracks the cursor as it is moved around the map.

Identify a Feature

Identifies a feature on the map.

Find a Feature

Used to locate a feature on the map.

Measure Distance

Used to measure the distance between two points on the map.

Navigation Toolbar

The Navigation toolbar provides functions to move around on the map, including zooming and panning.

From left to right, the buttons are as follows:

1. Show Entire Map
2. Zoom Box
3. Zoom In
4. Zoom Out
5. Previous Extent
6. Next Extent
7. Pan
8. Pan Left
9. Pan Right
10. Pan Up
11. Pan Down
12. Center Map at Cursor
13. Center Map at Coordinate

Show Entire Map

Shows the entire map, which is referred to as the Full Extent.

Zoom Box

To zoom in on a desired area of a map, move the cursor to the upper left of the desired area, hold the left mouse button down, and drag the mouse down and to the right until the desired area is enclosed in a box. Then release the mouse button and the map will be zoomed in to the indicated area.

Zoom In

Zooms in on the map by a preset amount.

Zoom Out

Zooms out on the map by a preset amount.

Previous Extent

Moves the map to the previous extent.

The software will remember the last 10 places (extents) that you were at on the map. So, when this button is hit, you will be moved to the previous place in the list of places you've been.

Next Extent

Moves the map to the next extent.

The software will remember the last 10 places (extents) that you were at on the map. So, when this button is hit, you will be moved to the next place in the list of places you've been.

Pan

Pans the map by grabbing it. Click and hold down the left mouse button and then drag the mouse. The map will be moved by that amount. When finished, release the left mouse button.

Pan Left

Moves left on the map by a preset amount.

Pan Right

Moves right on the map by a preset amount.

Pan Up

Moves up on the map by a preset amount.

Pan Down

Pans down on the map by a preset amount.

Center Map at Cursor

Centers the map at the point of a mouse click.

Center Map at Coordinate

Centers the map at a specified coordinate.

Overlay Toolbar

The Overlay Toolbar controls the overlaying of the World Grid™ onto the map.

From left to right, the buttons are as follows:

1. Overlay World Grid™
2. Use Bounding Box
3. Use Current Extent
4. Label Grid Points
5. View Coordinates

Overlay World Grid™

Overlays the World Grid™ onto the map.

Use Bounding Box

Tells the software that a Bounding Box will be used to define an area.

Use Current Extent

Tells the software that the Current Extent will be used to define an area.

Label Grid Points

Labels the grid points in an Overlay.

View Coordinates

Displays the coordinates of the desired Overlay.

Drawing Toolbar

The Drawing toolbar provides functions to draw shapes on and add labels to the map.

From left to right, the buttons are as follows:

1. Edit Entity
2. Select Entity
3. Add a Text Label
4. Add a Feature Label
5. Annotate
6. Draw a Marker
7. Draw a Marker at Coordinate
8. Draw a Line
9. Draw a Rectangle
10. Draw an Ellipse
11. Draw a Polygon

Edit Entity

Used to edit a drawing entity.

Select Entity

Used to select a drawing entity for deletion.

Add a Text Label

Adds a text label to the map.

Add a Feature Label

Labels a selected feature of the map.

Annotate

Annotate a selected layer on the map.

Draw a Marker

Draws a marker on the map.

Draw a Marker at Coordinate

Draws a marker at a specified coordinate.

Draw a Line

Draws a line on the map.

Draw a Rectangle

Draws a rectangle on the map.

Draw an Ellipse

Draws an ellipse, or circle, on the map.

Draw a Polygon

Draws a polygon on the map.

Google Earth Toolbar

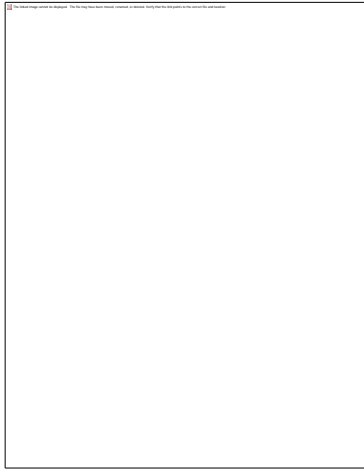If this item is checked, the toolbar will be shown. If not checked, the toolbar will be hidden.

View in Google Earth

Sends the current Overlay's KML file to Google Earth for viewing.

Edit Google Earth File

Allows you to edit an Overlay's KML file and change the view characteristics.

Legend Bar

The Legend lists the library used to draw the map, the map layers, along with the color each layer is drawn in.

You can toggle the visibility of a layer by clicking inside the check box next to the layer's color chip.   If there is a check in the box, the layer is visible.   If the box has no check, then the layer is not visible. However, it is still part of the map.

To change the color of a layer, double-click on the layer name or color chip and a Color Picker will display allowing the new color to be selected.

Status Bar

If this item is checked, the status bar will be shown. If not checked, the status bar will be hidden

The Status Bar is used to display messages during the use of the program.   These are usually pieces of information about the current function being used and are reminders of its purpose. The Status Bar also provides the Coordinate Track function that shows the position of the mouse on the map.

Management Menu

The Management menu controls the management of themes, layers, overlays, and handles the running of queries on the map.

Theme Selection

Adding themes to and removing themes from the map is done here.

On the left side of the dialog box is the Master Theme List.   On the right side is the Selected Themes list.
There are five map libraries listed in the Master Theme List, along with the themes contained in each
library.   To build a map, first choose one of the five libraries to work with.   Then select themes from that
library to add to the map.   Those themes then become part of the Selected Themes list.
Only one map library can be worked with at a time, so themes from two different libraries can not be used
to produce a single map.

Add

Takes the theme you have selected in the Master Theme List and adds it to the Selected Themes list.

Remove

Removes the theme you have selected from the Selected Themes list.

Remove All

Removes all the themes in the Selected Themes list.
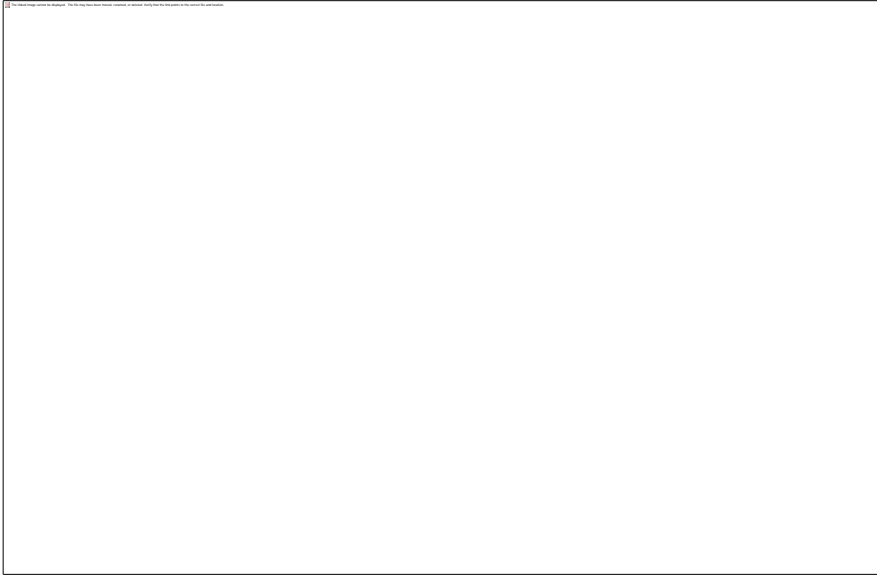
Update

After adding themes to or removing themes from the Selected Themes list, you must hit the Update button,
to update the map with the new changes.

Close

Closes the dialog box.

Layer Order

The Layer Order function provides the ability to change the ordering of layers in a map.

When you choose this function, this dialog box is displayed.   In the box is a list of all layers in the map. Each layer listing shows the library abbreviation and the theme name.   Notice that there is a top and bottom to the layer list.   The thing to remember is that the last layer added to the map will be the top layer. The first layer added to the map will be the bottom layer.
This function is useful for those times when one layer is covering up another layer. Changing the order of the layers will correct this problem.

Move Up

To move a layer up in the order, select it in the list and then hit Move Up.

Move Down

To move a layer down in the order, select it in the list and then hit Move Down.

Help
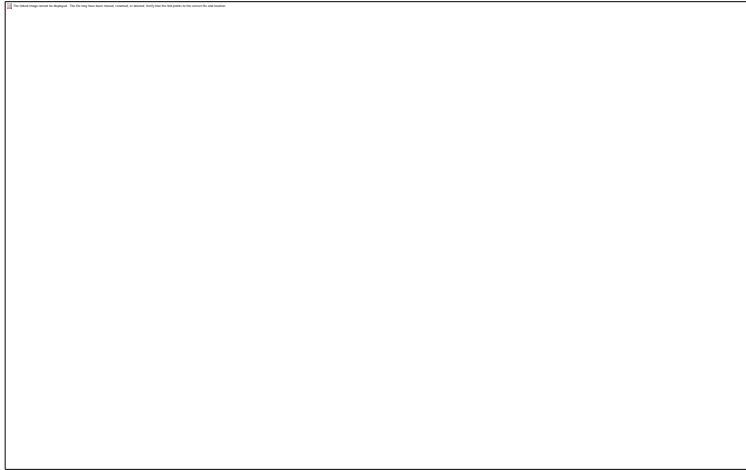
Displays help for this function.

Close

Closes the dialog box.

Overlay Management

Overlay Management is used to delete World Grid™ Overlays from a map.

When the World Grid™ is plotted on a map, it is referred to as an Overlay. This function is used to remove Overlays from a map.

Delete

To delete an Overlay, select it from the list and hit Delete.

Delete All

To delete all Overlays from a map, hit Delete All.

Help

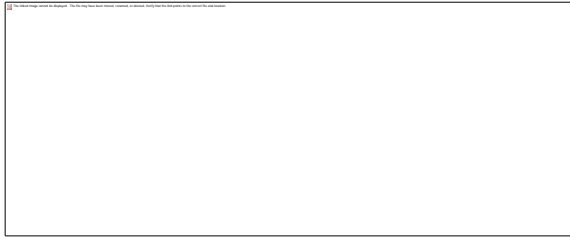Displays help for this function.

Close

Closes the dialog box.

Coordinate Query

This is used to determine a coordinate on the map.

Map Coordinates

To get a coordinate, place the cursor over the desired place, and click the left mouse button. The coordinate will be displayed in the following message box.

World Grid™ Coordinates

If the World Grid™ has been plotted onto the map, you can click on one of the grid points (at the intersection of two grid lines) and its coordinate will be displayed.
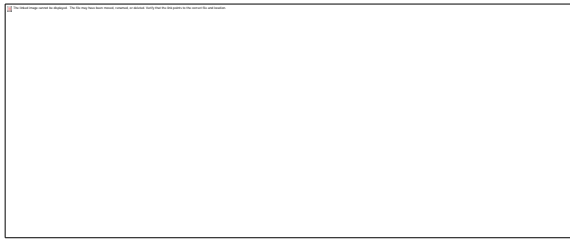
Coordinate Track

Selecting this function will track the cursor as it is moved around the map.

Use

To turn coordinate tracking on, select the function from the menu or hit the Coordinate Track button on the Management toolbar.   Then, as the mouse is moved around on the map, the coordinate will be displayed at the right edge of the Status bar.   To turn the function off, select the function again from the menu or hit the Coordinate Track button on the toolbar.

Identify a Feature

Identifies a feature on the map.

Use

To identify a feature on the map, select this function from the menu, and then click the feature on the map. When this is done, all layers of the map will be searched for the feature, and the matches will be displayed in the following message box, which will be displayed in the upper right corner of the workspace.
In the message box below, the city of Paris had been clicked on. The software found two matches, the city of Paris, and the country of France, because there were two layers in this map, and because Paris is a city in France.
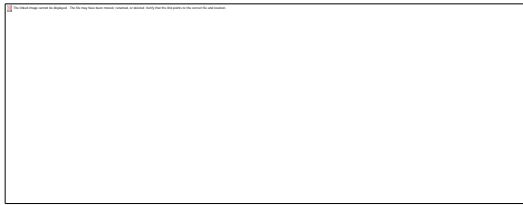
To close the message box, click the Close button in the upper right hand corner.

Find a Feature

Often it is helpful to locate a feature on a map. This function can be used to do just that.
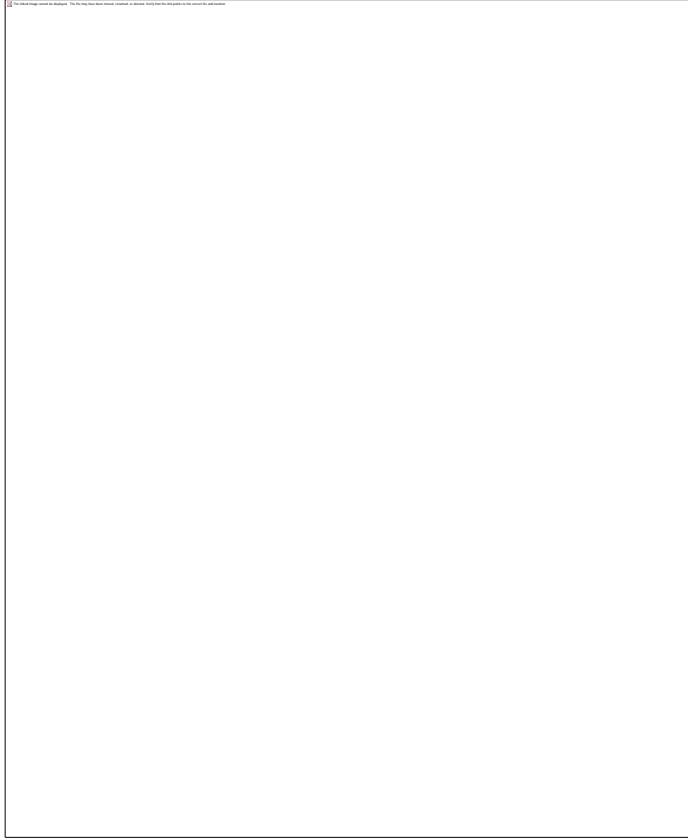
To find a feature, enter the name of the feature to find and then select the theme (layer) that the feature belongs to. In the example above, Paris is a city in France, so the Cities layer should be selected.

Find

When this button is hit, the specified layer is searched for the desired feature. The matches are listed in Search Results.

Move To/Highlight

To move to and highlight a feature, select it from the Search Results list, and hit this button. The software will then pan the map from the current location to the desired location, and flash the feature's shape three times.

Help

Displays the help for this function.

Close

Closes the dialog box.

Measure Distance

This function is used to measure distance on the map. When the function is chosen, a message is displayed in the Status Bar, "Please select the first point." Click the left mouse button on the map at the place to start measuring the distance from.

When the first point has been chosen, a new message will be displayed on the Status Bar, "Please select the second point". Again, click the left mouse button on the map to indicate the second or ending point for the distance.

After the points have been indicated, a message box will display that shows the distance in degrees, minutes (also nautical miles), and seconds.
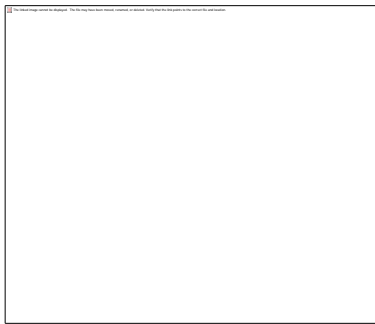
Navigation Menu

This menu provides functions for moving around on a map.

Show Entire Map

Use this function to cause the entire map to be shown. The software does this by zooming out to the map's full extent.

Zoom Box

To zoom in on a desired area of a map, move the cursor to the upper left of the desired area, hold the left mouse button down, and drag the mouse down and to the right until the desired area is enclosed in a box. Then release the mouse button and the map will be zoomed in to the indicated area.

Zoom In

Zooms in on the map by a preset amount.

Zoom Out

Zooms out on the map by a preset amount.

Previous Extent

Moves the map to the extent it was previously at.

The software will remember the last 10 places (extents) that you were at on the map. So, when this button is hit, you will move to the last place you were at on the map.

Next Extent

Moves the map to the next extent.

The software will remember the last 10 places (extents) that you were at on the map. So, when this button is hit, you will be moved to the next place in the list of places you've been.

Pan

Pans the map by grabbing it.

To pan the map, hold the left mouse button down and drag the mouse across the screen.   The map will follow the mouse around.   When the mouse button is released, the map will then stay at that point.

Pan Left

Moves left on the map by a preset amount.

Pan Right

Moves right on the map by a preset amount.

Pan Up

Moves up on the map by a preset amount.

Pan Down

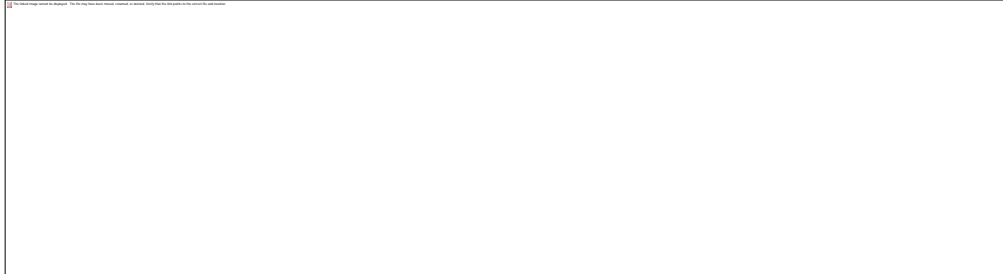Pans down on the map by a preset amount.

Center Map at Cursor

Select this function and then click the left mouse button on the map. The map will then be centered on that point.

Center Map at Coordinate

Centers the map at a specified coordinate.

When this function is chosen, the following dialog box will be displayed.

Enter the coordinate's latitude, latitude direction, longitude, longitude direction, and then press the OK button.

OK

Moves the map to the specified coordinate.

Clear

Clears the latitude and longitude fields.

Cancel

Closes the dialog box without moving the map.

Help

Displays the help for this function.

Overlay Menu

This menu provides the functions used to overlay the World Grid™ onto the map.

Overlay World Grid™

When given an area to plot, a grid resolution, grid color, grid line weight, and optionally a coordinate to center the view on, this function will plot the World Grid™ onto the map.

To begin, here is the Overlay Toolbar:

Moving from left to right, here are the buttons and their functions:

1. Overlay World Grid™
2. Use Bounding Box
3. Use Current Extent
4. Label Overlay Points
5. View Overlay Coordinates

Creating An Overlay

To overlay the World Grid™ onto a map, do the following:

1. **Press the Overlay World Grid™ button.**
2. **Indicate the desired area of the map to overlay the grid upon.** The can be accomplished in one of two ways. If the **Use Bounding Box** button is depressed, press and hold the left mouse button down at the upper left corner of the area. While holding the button down, drag the mouse down and to the right. When at the desired place, release the mouse button. That was the first way. If the **Use Current Extent** button id depressed, the software will use the Current Extent as the area to overlay, so no input is required.
3. A dialog box will now display where attributes of the grid can be entered. **The first piece of information that needs to be entered is the Center at Coordinate.** This can be entered in one of three ways. **The first method** is where you use the default setting, with the coordinate being blank. When you do this, the center of the area will be used as the coordinate to center the map on. You should note that this coordinate will be the center of the area, but not necessary the center of the view. **The second method** is to enter a coordinate. When you do this, the entered coordinate will be used as the center of the map. **The third method** is to select the **Use Last Marker Placed** checkbox. When you do this, the coordinate of the last marker placed on the map will be used as the center of the map.
4. **Specify a grid resolution.** The primary grid resolution discovered by Bruce Cathie is 7.5 nautical miles, or 7.5', and it is the default resolution.
5. **Specify a grid color.** This is the color of the plotted grid lines. The default color is ultraviolet blue, unless you have changed the value by going to the Settings menu, Map tab. If you do not wish to accept the default color, press the Change Grid Color button, and you can select a new grid color in the dialog box that is displayed.
6. **Specify the grid line weight.** This is the thickness or weight of the grid lines.
7. **Press the OK button.**

Notice that in this example, 7.5 minutes (7.5 nautical miles) is the default selection.
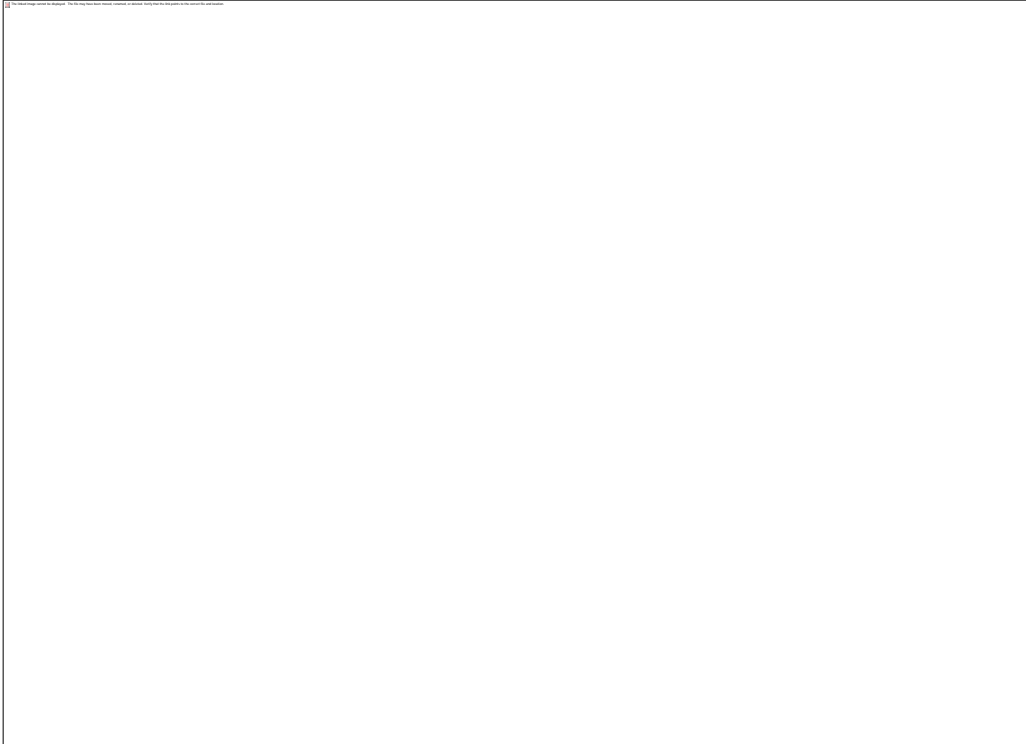
The grid points will then be calculated for the specified area and the grid plotted. After plotting, you will notice that there is a World Grid™ entry in the Legend. Also, when you go to the Overlay Management function, the World Grid™ overlay will be listed.

Having More Than One Overlay On A Map

It is possible to have two Overlays of different resolutions on the same map. However, you can only do this with the 30 nautical mile and 7.5 nautical mile Overlays. If you have plotted one of those Overlays onto a map, you can come back later and plot the other resolution Overlay on top of it.

When you try to plot the second Overlay, you will receive a message stating that there an area already exists, and asking if you want to add another Overlay, create a new area, or do nothing.
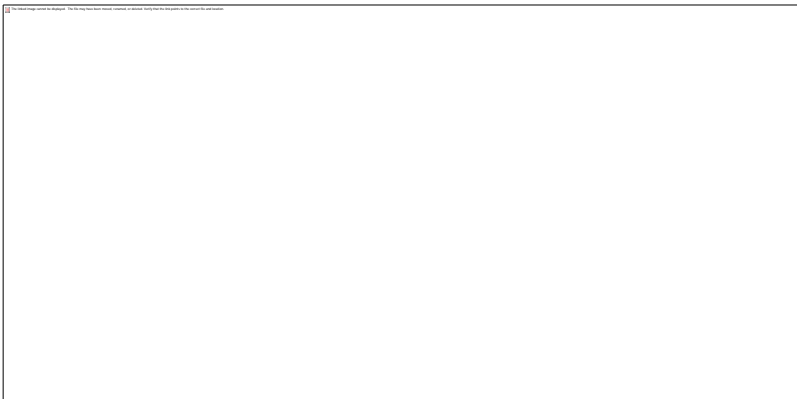
To Overlay another grid onto the map, just select that button, and you will be asked what resolution to make it.   The new Overlay will then be drawn. There is no need to indicate the area again as the existing area will be used.
To Create a new area, select that button, and the old area and Overlay will be deleted.   You will then need to indicate a new area to plot.

Overlay Characteristics

It should be noted that the first Overlay applied to a map is known as Grid 1. The second Overlay applied is known as Grid 2. The Grid 1 and Grid 2 Overlays will use the Grid 1 and Grid 2 settings from the Mapping tab of the Settings dialog box.

Project File Locations

Whenever you draw a map, overlay the World Grid, and save the project, several files are created. For example, let's say you installed Gridpoint Atlas to the default location which is C:\Gridpoint Atlas 4.1, then the project files will be located in C:\Gridpoint Atlas 4.1\Projects.

Let's say we have a map where the project file has been saved with the name "GreatPyramid". Let's also say that we have overlaid two World Grids, of different resolutions, onto the map. Here then is a list of the files that will be created:

GreatPyramid.prj (the Project file)
GreatPyramid_1.shp (the Shape Data file for Grid 1)
GreatPyramid_1.shx (the Shape Index file for Grid 1)
GreatPyramid_1.dbf (the Shape Database file for Grid 1)
GreatPyramid_1.kml (the Google Earth KML file for Grid 1)
GreatPyramid_2.shp (the Shape Data file for Grid 2)
GreatPyramid_2.shx (the Shape Index file for Grid 2)
GreatPyramid_2.dbf (the Shape Database file for Grid 2)
GreatPyramid_2.kml (the Google Earth KML file for Grid 2)

Use Bounding Box

When the Use Bounding Box button is depressed, the World Grid™ will be plotted over an area that you select with a zoom box.

For more information, please refer to Overlay World Grid™.

Use Current Extent

When the Use Current Extent button is depressed, the World Grid™ will be plotted over an area the size of the Current Extent.

For more information, please refer to [Overlay World Grid™](#).

Label Grid Points

This is used to label (number) the grid points in an Overlay. When this button is clicked, what happens next will depend on how many grids are overlaid onto the map.

If two grids are overlaid, the following dialog box will be displayed:
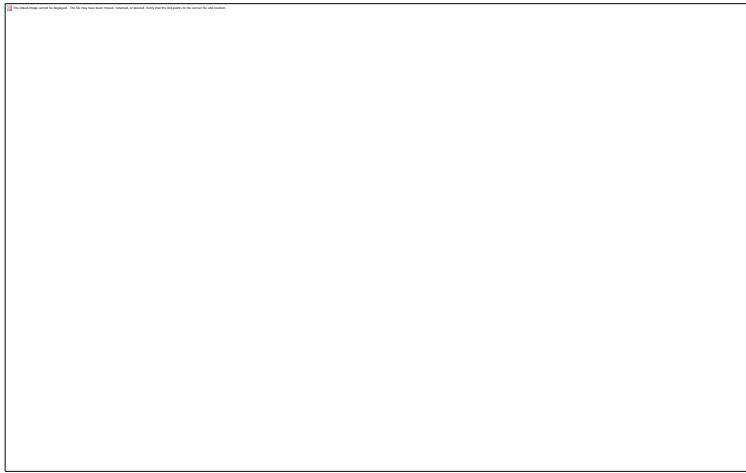
Select the Overlay to label from the list, press the Edit button, and the following dialog box will be displayed:

Notice the caption of this dialog box tells what Overlay is currently being worked on.

The first thing to do is check the Label Grid Points check box.
 Notice that the Grid Properties and the Label Properties can both be modified from this dialog box.

Selecting the Label Properties is very straightforward. The tricky part is the alignment of the label next to the grid point. The alignment will need to be experimented with to decide what looks best. Try each of the Horizontal Alignment options and view the result. Next, try the Vertical Alignment options and view their result. There will be one option that will make the label (number) look the best near the crossing of the grid lines.

New Color (Grid Properties)

Displays the Color Picker so a new color can be chosen for the Overlay being worked with.

New Color (Label Properties)

Displays the Color Picker so a color can be chosen for the Overlay (grid points) labels.

OK

Labels the desired Overlay with the selection options.

Help

Displays help for this function.

Cancel

Closes the dialog box.

View Coordinates

When the World Grid™ is plotted on a map, it becomes an Overlay. The plotted grid will provide a visual representation, but the coordinates are not be displayed on the map.   Choose this function to display the coordinates of all the grid points calculated for the specified overlay.
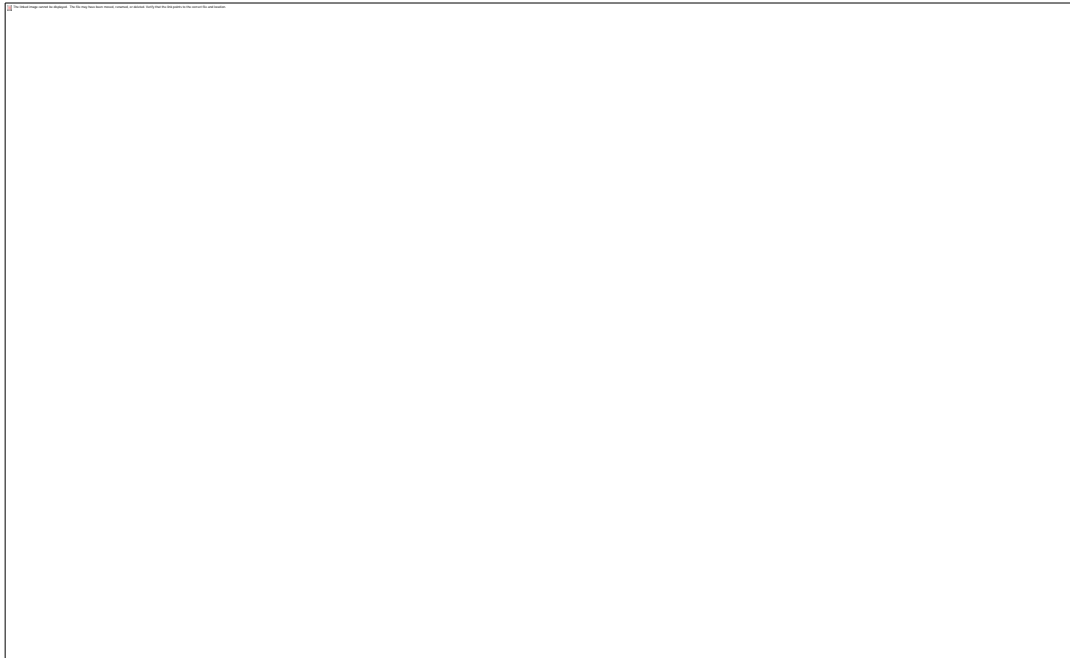
View Coordinates

To view coordinates for a specific Overlay, select the desired Overlay from the Overlay list and then hit this button.

Print Coordinates

Prints the coordinate list for the selected Overlay.

Help

Displays the help for this function.

Close

Closes the dialog box.

Drawing Menu

The Drawing menu provides functions to draw shapes and labels on the map.

Edit Entity

Used to edit a drawing entity.

When it is desired to change the characteristics of a drawing entity (marker, line, rectangle, ellipse, or polygon), select this function, then double-click on the desired entity.   A dialog box will be displayed for that entity which will allow you to edit its characteristics, such as color, fill color, line weight, size, etc.

Select Entity

Used to select a drawing entity for deletion.

To select a drawing entity, select this function, then click on the desired entity.   You may then go to the Edit menu and delete it.

Add a Text Label

Adding a label to a map is easy. The following dialog box allows the setting of several characteristics of the text, similar to what would be found in a word processing program.
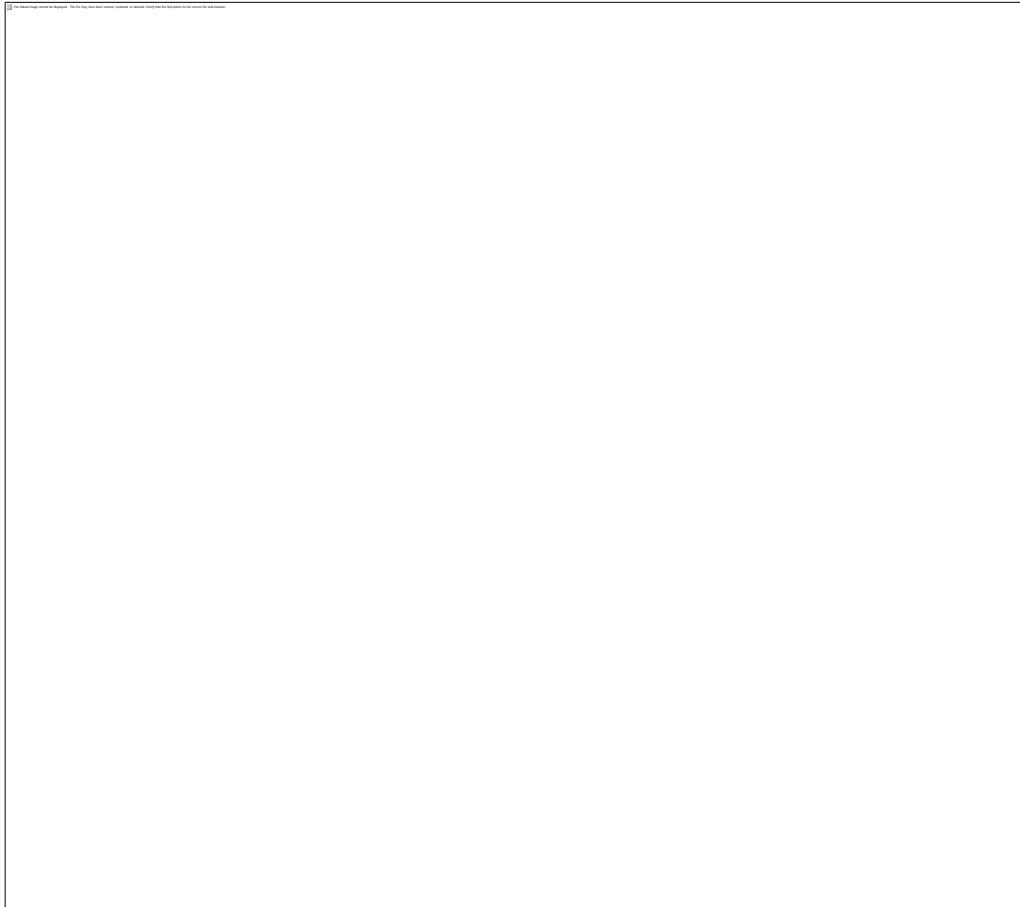
To add a label to a map, select this function, then click on the map at the desired place for the label. After doing that, the above dialog box will be displayed allowing the characteristics of the label to be set. Set the characteristics and hit the OK button.

Font

Sets a font for the label.

Style

Sets a style for the label.

Size

Sets the size of the label. Note that the size of a map label does not correspond exactly to the point (pts) system used in word processors. It is an approximation. It is best to leave the size set to the default value and place the label on the map. The label can always be edited later and the size altered.

Underline

Checking this box causes the text to be underlined.

Rotation

Entering an angle here will cause the label to be rotated.

Horizontal and Vertical Alignment

This controls the alignment of the label. Horizontal or vertical can be selected and each alignment set has its own justification. How this works is that the label will be placed relative to the point on the map that was clicked. So, for horizontal alignment, the text will be set horizontally, using the selected justification. For example, for left justification, the text will be drawn to the right of the point. For right justification, the text will be drawn to the left of the point. Experimenting with the settings will help yield the desired results. For the majority of labels, left justification is appropriate.

Color

Sets the color the text will be drawn in.

Label Text

Type the text of the label here.

OK

Draws the label with the selected characteristics.

Help

Displays the help for this function

Cancel

Closes the dialog box without displaying the label.

Add a Feature Label

Allows the labeling of a feature on a map.
A feature label is the same as a text label except for one aspect. To label a feature, click on the feature, and the software will search each layer of a map to see if a feature lies at the point of the mouse click.   If there is more than one feature found, the following dialog box will be display allowing the selection of the desired feature.
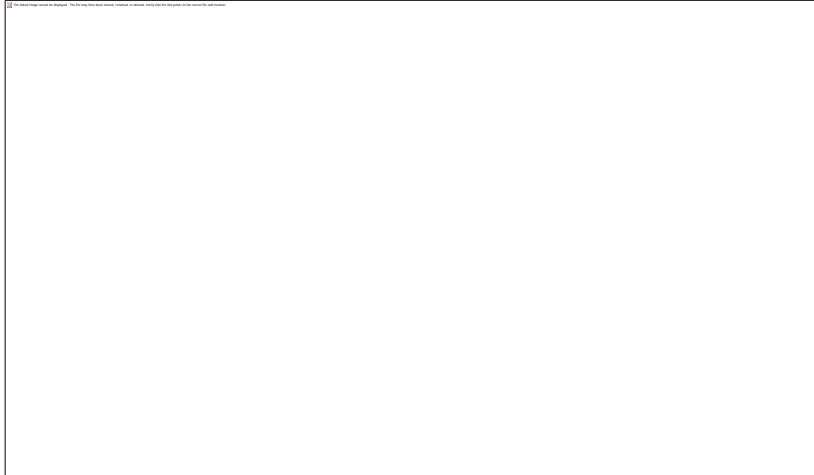
After selecting the feature to label, the following dialog box will be displayed allowing the characteristics of the label to be set.
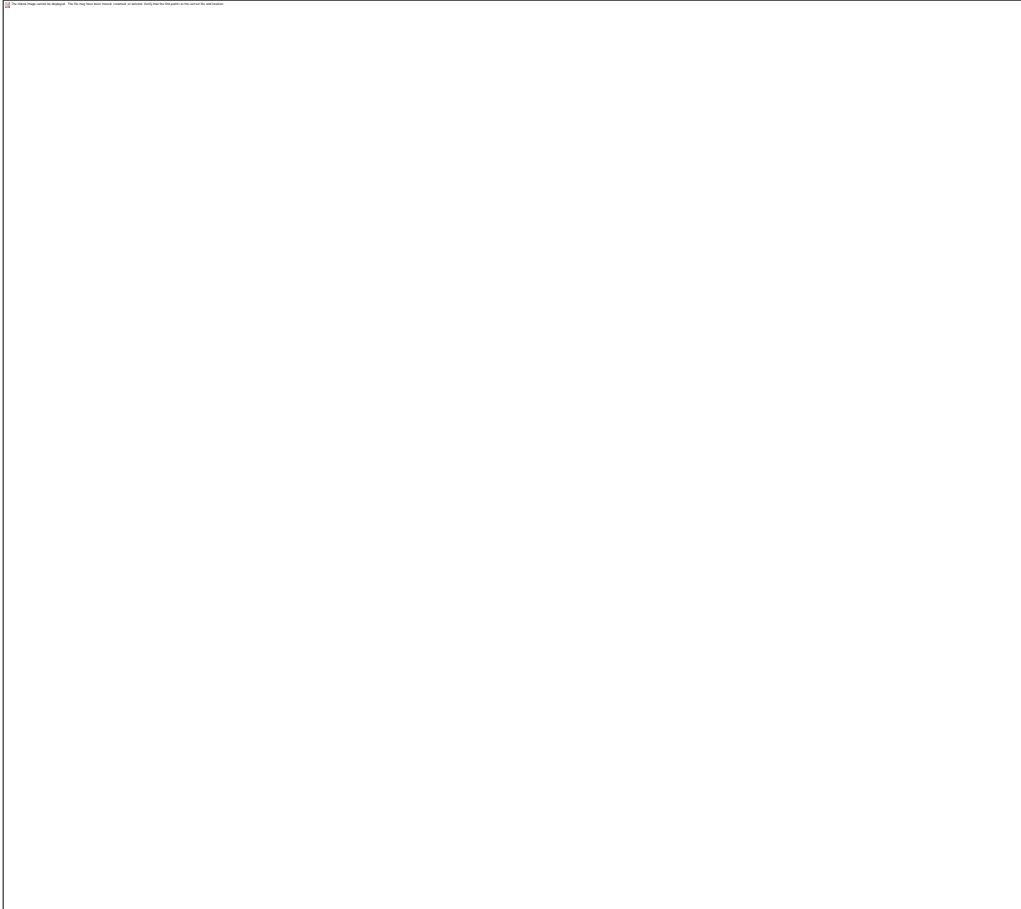
Set the characteristics of the label and hit the OK button.   The label will then be drawn on the map.

Font

Sets a font for the label.

Style

Sets a style for the label.

Size

Sets the size of the label.   Note that the size of a map label does not correspond exactly to the point (pts) system used in word processors. It is an approximation.   It is best to leave the size set to the default value and place the label on the map.   The label can always be edited later and the size altered.

Underline

Checking this box causes the text to be underlined.

Rotation

Entering an angle here will cause the label to be rotated.

Horizontal and Vertical Alignment

This controls the alignment of the label.   Horizontal or vertical can be selected and each alignment set has its own justification.   How this works is that the label will be placed relative to the point on the map that was clicked.   So, for horizontal alignment, the text will be set horizontally, using the selected justification.   For left justification, the text will be drawn to the right of the point.   For right justification, the text will be drawn to the left of the point.   Experimenting with the settings will help yield the desired results.   For the majority of labels, left justification is appropriate.

Color

Sets the color the text will be drawn in.

Label Text

Type the text of the label here.

OK

Causes the label to be drawn with the characteristics set in the dialog box.

Help

Displays the help for this function

Cancel

Closes the dialog box without displaying the label.

Annotate

The Annotate function provides the ability to label all features on one or more layers of a map. When this function is chosen, the following dialog box is displayed.

To annotate one or more layers of a map, first select the layers to annotate. On the left side of the box is a list of the Current Map Layers. Select a layer and hit the Add button. Next, set the font, style, and size of the text for that layer. When finished, hit the Annotate button and the map will be redrawn with the selected layers annotated. Note that each layer of a map can be annotated with different characteristics. After the annotations have been added to the map, they can be edited by reselecting the Annotate function and changing any characteristics. In addition, layers can be added or remove from the Layers to Annotate list. After making any changes, hit the Annotate button so the map will be updated with the new changes.

Add

Takes the selected layer in the Current Map Layers list and adds it to the Layers to Annotate list.

Remove

Removes the selected layer from the Layers to Annotate list.

Remove All

Removes all layers from the Layers to Annotate list.

Font

Sets a font of the text.

Style

Sets a style of the text.

Size

Sets the size of the text. Note that the size of text on a map does not correspond exactly to the point (pts) system used in word processors. It is an approximation. It is best to leave the size set to the default value and allow the map to be redrawn. The annotation can always be edited later and the size changed.

Annotate

Causes the specified layers to be annotated according to the specified characteristics.

Help

Displays the help for this function

Cancel

Closes the dialog box without annotating any layers.

Draw a Marker

A marker can be used to mark a location on the map.
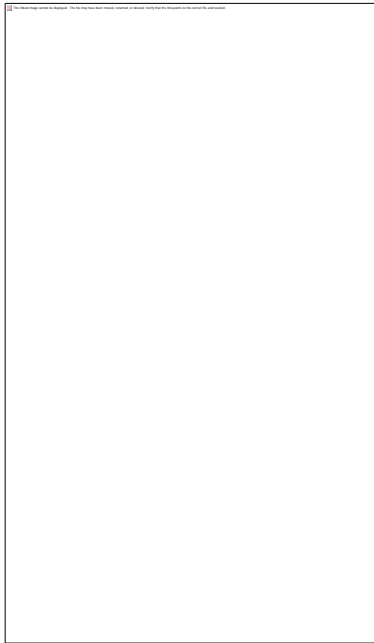
Drawing a Marker

There are four kinds of markers available for use:
1. Circle
2. Square
3. Triangle
4. Cross

To place a marker, select this function, then click on the map at the desired location. The default marker will be drawn at that point.   The default marker is a square, which has a black outline and is filled with white.

Editing a Marker

To edit the marker, select the Edit function from the Drawing menu or the Drawing toolbar.   Then, double-click on the marker.   A dialog box will be displayed allowing the marker's color, style, and size to be changed.

Make the desired changes and hit the OK button.   The marker will then be redrawn with the new characteristics.
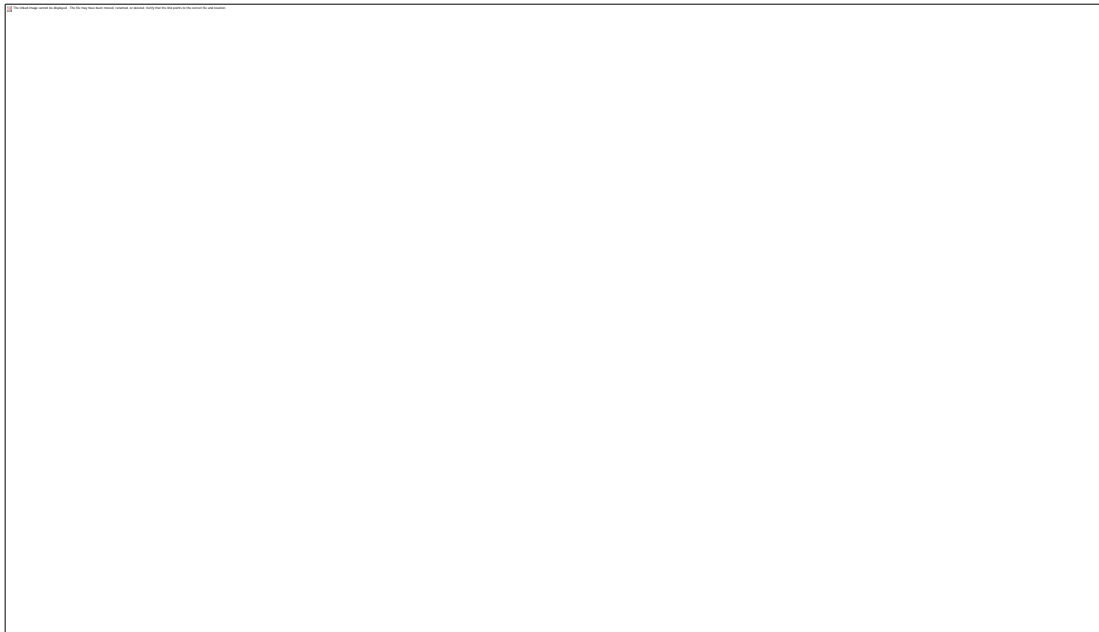
Draw a Marker at Coordinate

A marker can be used to mark a location on the map.

Drawing a Marker

There are four kinds of markers available for use:

1. Circle
2. Square
3. Triangle
4. Cross

To place a marker, select this function, and the following dialog box will appear:

Select the desired characteristics for the marker, including the coordinate of the marker, then click the OK button. The marker will then be drawn at the desired location with the desired characteristics.

Editing a Marker

To edit the marker, select the Edit function from the Drawing menu or the Drawing toolbar. Then, double-click on the marker. A dialog box will be displayed allowing the marker's color, style, and size to be changed.
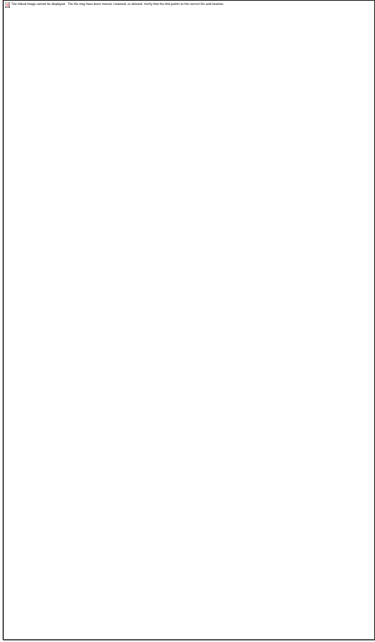
Make the desired changes and hit the OK button.   The marker will then be redrawn with the new characteristics.

Draw a Line

A line can be drawn anywhere on a map.

Drawing a Line

To draw a line, click on the map at where you want the first endpoint of the line. Then move to where you want the second endpoint and double-click. The line will be drawn with the default characteristics of being black, solid, and having a normal thickness.

Editing a Line

To edit the line, select the Edit function from the Drawing menu or the Drawing toolbar. Then, double-click on the line. A dialog box will be displayed allowing the line's color, style, and size to be changed.
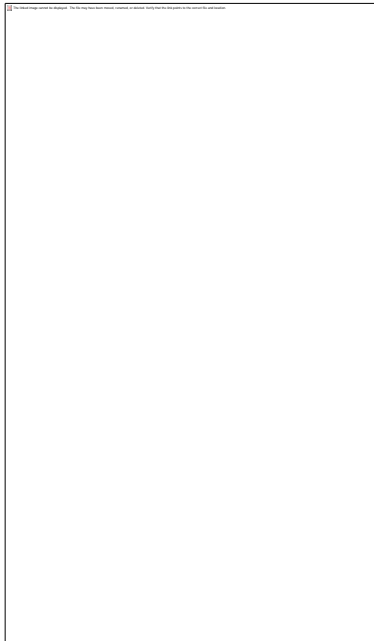
Make the desired changes and hit the OK button. The line will then be redrawn with the new characteristics.
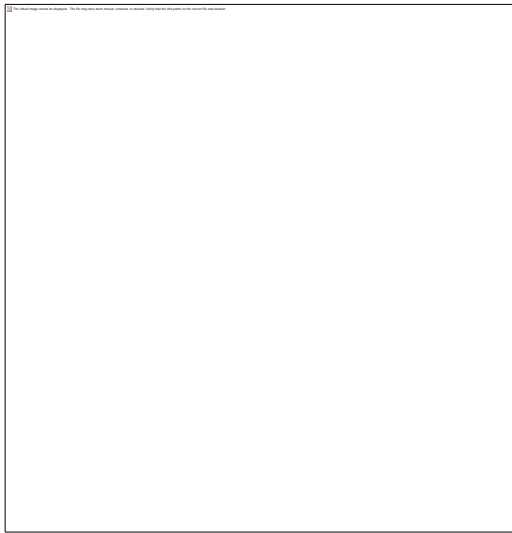
Draw a Rectangle

A rectangle can be drawn anywhere on a map.

Drawing a Rectangle

To draw a rectangle, select this function, then move the mouse to where you want the first corner to be. Hold the left mouse button down and drag the mouse to where you want the opposite corner of the rectangle to be.   Notice that the rectangle changes size as you move the mouse. When satisfied, release the left mouse button.   The rectangle will be drawn with the default characteristics of having a black outline and a transparent fill color (which means no fill).

Editing a Rectangle

To edit the rectangle, select the Edit function from the Drawing menu or the Drawing toolbar.   Then, double-click on or within the rectangle. A dialog box will be displayed allowing the rectangle's outline color, fill color, and fill style to be changed.

Make the desired changes and hit the OK button.   The rectangle will then be redrawn with the new characteristics.
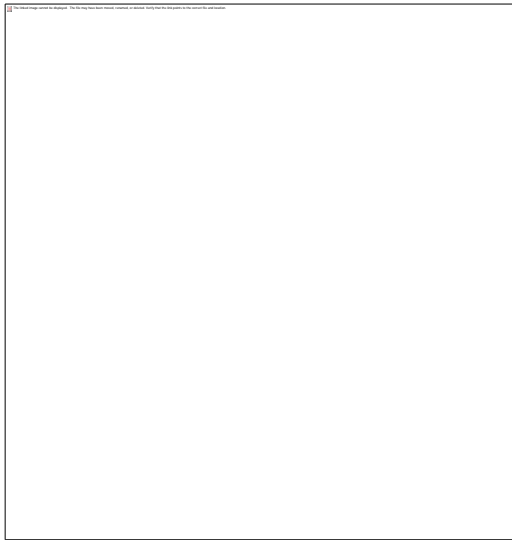
Draw an Ellipse

An ellipse can be drawn anywhere on a map. This function can also be used to draw a circle.

Drawing an Ellipse

An ellipse is drawn by indicating a rectangle or square. The ellipse will then be drawn within the rectangle. To draw an ellipse, move the mouse to where the first corner of the rectangle would be. Hold the left mouse button down and drag the mouse to where you want the opposite corner of the rectangle to be. As the mouse is dragged across the map, the ellipse will be drawn, and the size will change as the mouse is moved. When satisfied, release the left mouse button. The ellipse will be drawn with the default characteristics of having a black outline and a transparent fill color (which means no fill).

Editing an Ellipse

To edit the ellipse, select the Edit function from the Drawing menu or the Drawing toolbar. Then, double-click on or within the ellipse. A dialog box will be displayed allowing the ellipse's outline color, fill color, and fill style to be changed.

Make the desired changes and hit the OK button. The ellipse will then be redrawn with the new characteristics.

Draw a Polygon

A polygon can be drawn anywhere on a map.

Drawing a Polygon

To draw a polygon, move the mouse to where you want the first corner to be. To set the first corner, click at that point and move the mouse. The polygon will now look like a line. To set the second corner, click the mouse again, and move the mouse to where you want the next corner. The polygon now looks like a triangle. If satisfied, double-click the mouse and the polygon will be set and drawn with the default characteristics of having a black outline and a transparent fill color (which means no fill).
Remember, that when a polygon is started, the number of corners it has will be determined by the number of times the mouse is clicked and moved during its construction.

Editing a Polygon

To edit the polygon, select the Edit function from the Drawing menu or the Drawing toolbar. Then, double-click on the polygon. A dialog box will be displayed allowing the polygon's outline color, fill color, and fill style to be changed.
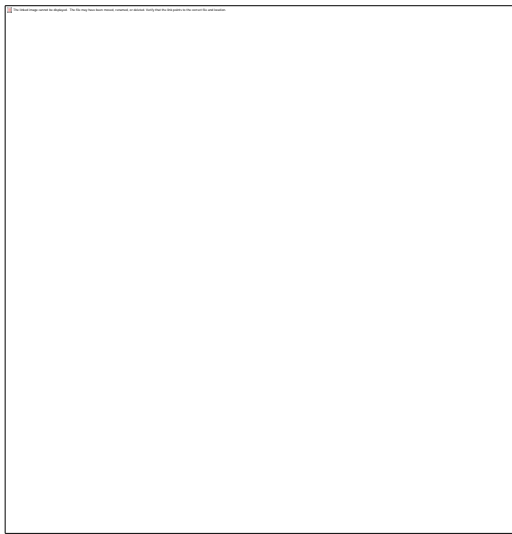
Make the desired changes and hit the OK button. The polygon will then be redrawn with the new characteristics.
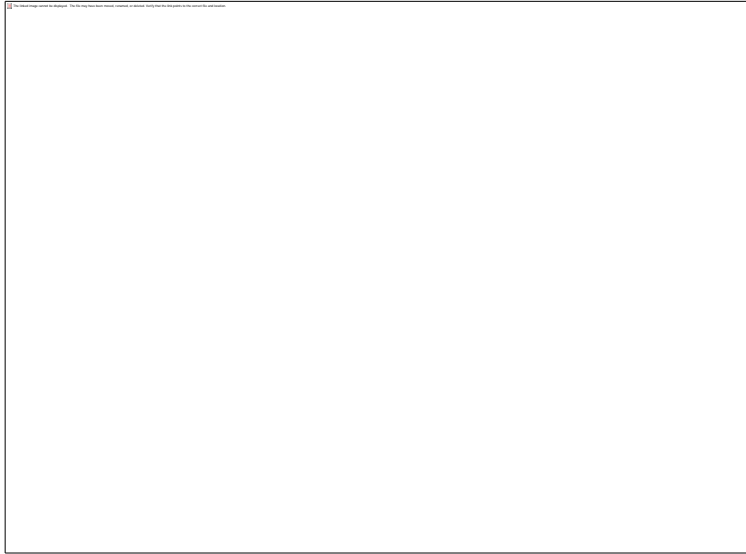
Google Earth Menu

The Google Earth menu controls the viewing and editing of Google Earth files.

View in Google Earth

This function allows you to view a World Grid® Overlay in Google Earth.

If there is only one World Grid® Overlay is plotted on the map, it will be sent to Google Earth when you press this button. If there is more than one World Grid® Overlay plotted on the map, the Overlay Selection dialog box will display.


This dialog box will allow you to select which Overlay should be sent to Google Earth. Just select the desired Overlay from the list, and press the Select button.

Edit Google Earth File (KML)

After you have overlaid the World Grid onto a map, you can edit the KML file that was created. The reason you may want to do this is that you can specify exactly how you want to view the Overlay in Google Earth.

When the KML file is created, the center of the area is used as the coordinate of the view. However, this may not be the view you want. You may want a different view, which means you would need to specify a different Coordinate, Eye Altitude, Tilt, and Heading. You can specify these things here:
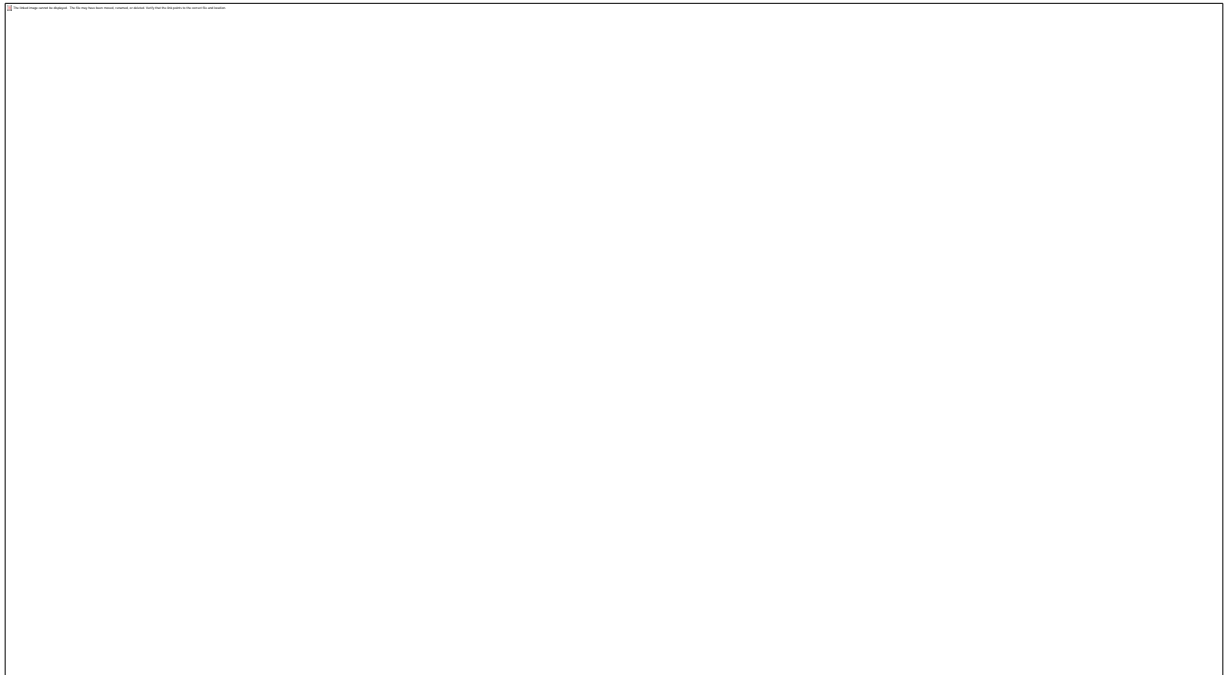
The steps to edit a KML file are as follows:

1. Select the Overlay to edit and click the Edit button. The view characteristics of that Overlay will be displayed in the various fields.
2. Edit the Coordinate to be the center of the view you want. Stated another way, this is the location of the eye, the point from which it is viewing.
3. Edit the Eye Altitude in meters. This is the distance of the eye above the ground.
4. Edit the Tilt. This is the tilt of the eye. Usually this will be 0, unless you are very close to the ground, in which case you would make it a value up to 90 degrees.
5. Edit the Heading. This is the direction the eye is looking. Enter a value up to 360 degrees. A value of 0 degrees means you are looking directly North. A value of 90 degrees means you are looking directly East. 180 degrees means you are looking directly South. 270 degrees means you are looking directly West.
6. Edit the Grid Color. This is the color of the plotted grid lines. If you do not like the default color, just press the Change Grid Color button, and a dialog box will be displayed where you can select a new color.
7. Edit the Grid Line Weight. This is the thickness or weight of the grid lines. To pick a new value, click the arrow, and select a new value from the drop-down list.

8. Click the Save button to save the changes, then click Close to close the dialog.

Please note: If you have two overlays plotted, you will need to edit both overlays, and make the Center At Coordinate, the Eye Altitude, the Tilt, and the Heading be the same values for both overlays.

Center at this Coordinate

The coordinate to center the view at. In other words, this is the coordinate of the eye, the viewpoint from which the observer is looking.

Eye Altitude (meters)

The Eye Altitude in meters above the ground.

Tilt (deg)

The Tilt of the Eye in degrees with respect to the ground. A value of 0 degrees means you are looking straight down at the ground. A value of 90 degrees means you are looking straight at the horizon.

Heading (deg)

The Heading of the Eye in degrees. This is the direction the eye is looking. A value of 0 degrees means you are looking directly North. A value of 180 degrees means you are looking directly South.

Grid Color

The color of the plotted grid line.

Grid Line Weight

The weight of the plotted grid lines.

Edit

Loads the selected overlay's KML file settings.

Save

Saves the changes to the selected overlay's KML file.

Help

Displays the help for this function.

Close

Closes the dialog box.

Settings Menu

The Settings Menu controls the setting of many software parameters. When the menu item is selected, a dialog box will be displayed with three tabs, a Workspace tab, a Miscellaneous tab, and a Map tab. The settings are saved when the program is closed and reloaded when the program is opened.

Workspace Tab

The Workspace Tab contains settings related to the workspace.

Startup Window

This sets the window that will come up when the software is run. For example, if the Calculation Window is used mostly, set it to that. If the Map Window is used more, set it to that.

Cursor

This sets whether the cursor is an arrow or a cross in the Map Window.

OK

Closes the dialog box.

Cancel

Closes the dialog box without saving any changes.

Apply

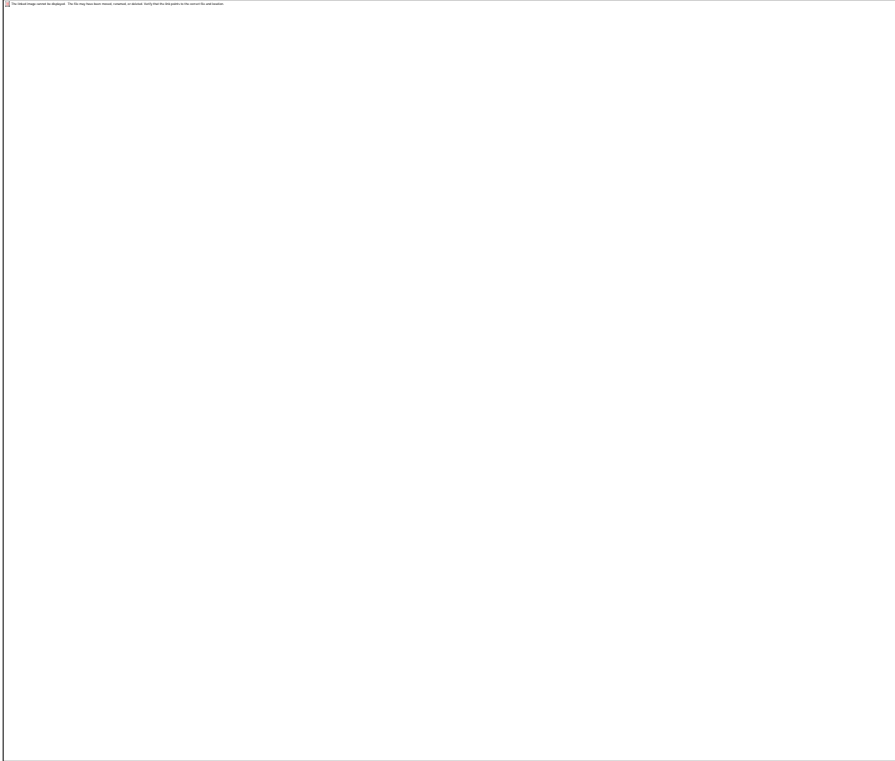Saves the changes made to the individual settings. This button must be hit for any changes to be saved.

Help

Displays the help for this function.

Miscellaneous Tab

The Miscellaneous tab contains settings related to coordinate display and precision.

Coordinate Display

Controls whether coordinates are displayed in degrees or degrees/minutes/seconds.

Coordinate Precision

Sets the precision of coordinates displayed. Select the desired value from the list.

Coordinate Tracking Display

Controls how coordinates are displayed during Coordinate Tracking, either in degrees, or degrees/minutes/seconds.

Coordinate Tracking Precision

Sets the precision of coordinates displayed during Coordinate Tracking. Select the desired value from the list.

OK

Closes the dialog box.

Cancel
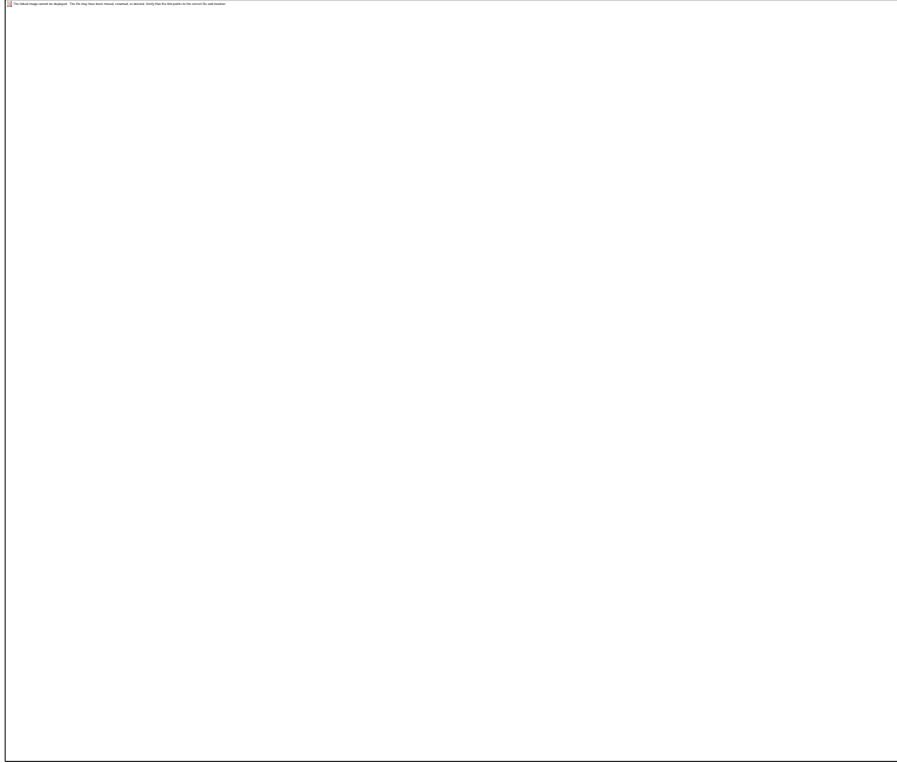
Closes the dialog box without saving any changes.

Apply

Saves the changes made to the individual settings. This button must be hit for any changes to be saved.

Help

Displays the help for this function.

Map Tab

The Map Tab contains setting pertaining to the drawing of maps.

Area Definition

Controls how an area is defined, either by using the Bounding Box or by using the Current Extent. By default, the software is set to use the Current Extent.

Grid Resolution

Sets the default grid resolution. Whenever the Overlay World Grid™ function is selected, a grid resolution will have to be chosen. A dialog box is displayed with a list of resolutions where on resolution is pre-selected. The resolution that is pre-selected will be the one that is chosen here. If a resolution is desired that is currently in the list, press the Add button, and a new resolution can be added, just as long as the new resolution is a harmonic of 360 degrees. To delete a resolution from the list, press the Delete button.

Grid 1 Color

Displays the Grid 1 color, which is the color used to draw the first grid Overlay. To change the color, press Change Grid 1 Color, and select the new color from the choices available.

Grid 2 Color

Displays the Grid 2 color, which is the color used to draw the second grid Overlay. To change the color, press Change Grid 2 Color, and select the new color from the choices available.

Grid 1 Line Weight

Displays the Grid 1 line weight or thickness, which is the thickness used to draw the first grid Overlay. To change the line weight, select a new value from the list.

Grid 2 Line Weight

Displays the Grid 2 line weight or thickness, which is the thickness used to draw the second grid Overlay. To change the line weight, select a new value from the list.

OK

Closes the dialog box.

Cancel

Closes the dialog box without saving any changes.

Apply

Saves the changes made to the individual settings. This button must be hit for any changes to be saved.

Help

Displays the help for this function.

Window Menu

The Window Menu controls the switching between the Mapping and Calculation windows

Next Window

Select this to go to the Calculation Window.

Help Menu

This menu provides access to the software help.

Contents

Opens Contents tab in the Help window.

Index

Opens Index tab in the Help window.

Calculation Window Tour

Plays a video tour of the Calculation window.

Map Window Tour

Plays a video tour of the Map window.

Getting Started

Plays a video that shows how to create a map and overlay the World Grid in Gridpoint Atlas, and then view that overlay in Google Earth.

About Gridpoint Atlas

Displays the version information for Gridpoint Atlas.

Contents

Displays the Help Contents.

Index

Displays the Help Index.

Calculation Window - Video

Plays a video tour of the Calculation window in Gridpoint Atlas.

Map Window Tour - Video

Plays a video tour of the Map window in Gridpoint Atlas.

Getting Started - Video

Plays a video showing how to create a map and overlay the World Grid in Gridpoint Atlas, and then view that overlay in Google Earth.

About Gridpoint Atlas

Displays version and copyright information.

Calculation Window

The Calculation Window details all of the mathematical and harmonic tables in Bruce Cathie's work, and includes many coordinate and harmonic conversion functions.

File Menu

The File Menu is an abbreviated version of a typical Windows File Menu.   It holds printing functions and allows you to exit the program.

Print

Opens the standard Windows Print dialog box for the current default Windows printer.

This function will print the information displayed in the main window.   While many of the functions in Gridpoint Atlas™ use dialog boxes to display information, there are a few that display their data in the main window and which can be printed by selecting this function.   Here is the list of those functions:

1. Grid Polar Squares
2. Single Latitude (Gravity to Light)
3. All Latitudes (Gravity to Light)
4. Table of Conversions

You may notice that some of the functions in the Print dialog box have been disabled. You will not be able to **Print To File** or print a **Range of Pages**.   In addition, changing the page orientation will have no effect on the printed output.   This is because the page orientation is set internally in the program based on the optimum way to print each function's information.

Print Setup

Opens the standard Windows Print Setup dialog box for the current default Windows printer.

Here you can specify printer properties, paper size and source.   Please note that changing the page orientation will have no effect on the printed output.   This is because the page orientation is set internally in the program based on the optimum way to print each function's information.

Exit

Saves the system settings and closes the program.

View Menu

The View Menu controls the clearing of the main window and the displaying of the toolbar and status bar.

Clear Window

Clears whatever information is displayed in the main window.

Utility Toolbar

If this item is checked, the toolbar will be shown. If not checked, the toolbar will be hidden.
The toolbar provides a fast way to access the Calculation Window's most-used functions.   Clicking on one of the buttons prevents you from having to go to a menu to access the function.

Print

Prints the current contents of the main window.

Clear Window

Clears the contents of the main window.

Calculator

Displays the calculator.

Great Circle Distance

Displays the Great Circle Distance dialog box.

Second Coordinate

Displays the Second Coordinate dialog box.

Single Latitude (Gravity to Light)

Displays the Single Latitude (Gravity to Light) table in the main window.

Single Latitude (Magnetic Field to Gravity)

Displays the Single Latitude (Magnetic Field to Gravity) dialog box.

Earth to Grid Coordinate Conversion

Displays the Earth to Grid Coordinate Conversion dialog box.

Grid to Earth Coordinate Conversion

Displays the Grid to Earth Coordinate Conversion dialog box.

Equation 3: Energy Harmonic

Displays the Equation 3: Energy Harmonic dialog box.

Help Contents

Displays the help contents.

Status Bar

If this item is checked, the status bar will be shown. If not checked, the status bar will be hidden.

The Status Bar is used to display messages during the use of the program.   These are usually pieces of information about the current function being used and are reminders of its purpose.

Utilities Menu

The Utilities Menu contains functions ranging from calculating great circle distances, Earth metrics, grid point conversion, and harmonic tables, to grid point calculation.

Calculator

The calculator behaves like a standard handheld calculator except for the fact that it has 16-digit accuracy. This is very useful in harmonic research as accuracy of this degree is necessary.
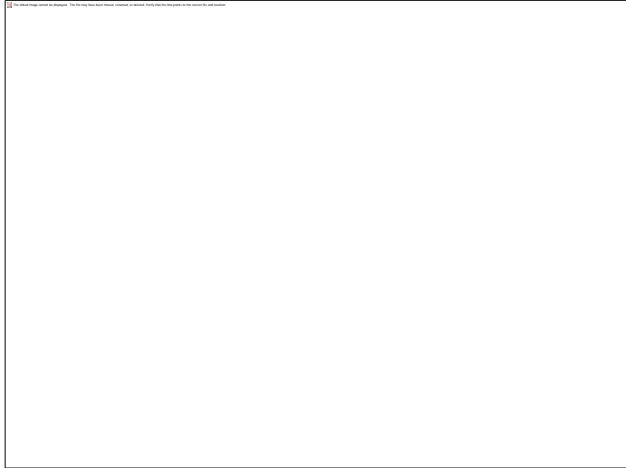
Performing Simple Calculations

1. Enter the first number in the calculation.
2. Click + to add, **-** to subtract, ***** to multiply, or **/** to divide.
3. Enter the next number in the calculation.
4. Click any remaining operators and numbers.
5. Click =.

Note: You can also use your numeric keypad to enter numbers and operators by pressing **NUM LOCK**.

Working with Numbers Stored in Memory

1. To store the displayed number, click **MS**.
2. When you store a number, an **M** appears in the box above the memory buttons (**MS**, **MR**, **MC**).   If you store another number, it replaces the one currently in memory.
3. To recall a stored number, click **MR**.
4. To clear the memory, click **MC**.

Functions (Buttons)

Each function on the calculator is listed below along with a description of how to use it.

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Hitting any of these keys will put the number in the calculator display.
Keyboard equivalents are **0-9**

•

Inserts a decimal point.
Keyboard equivalent is **.**

/

Divides.
Keyboard equivalent is **/**

x

Multiplies.
Keyboard equivalent is *****

-

Subtracts.
Keyboard equivalent is **-**

+

Adds.
Keyboard equivalent is +

=

Performs any operation on the previous two numbers.
Keyboard equivalents are = and **ENTER**

+/-

Changes the sign of the displayed number.
Keyboard equivalent is **F9**

x2

Squares the displayed number.
Keyboard equivalent is **X**

Sqrt

Calculates the square root of the displayed number.
Keyboard equivalent is **F2**

Cubrt

Calculates the cube root of the displayed number.
Keyboard equivalent is **F3**

1/x

Calculates the reciprocal of the displayed number.
Keyboard equivalent is **R**

xY

Computes x raised to the yth power. For example, to find 2 raised to the 3rd power, click **2** then **xY** then **3** then =, which equals 8.
Keyboard equivalent is **Y**

Pi

Displays the value of Pi (3.1415….)
Keyboard equivalent is **P**

Sin

Calculates the sine of the displayed number.
Keyboard equivalent is **F5**

Cos

Calculates the cosine of the display number.
Keyboard equivalent is **F6**

Tan

Calculates the tangent of the displayed number.
Keyboard equivalent is **F7**

Backspace

Deletes the last digit of the displayed number.
Keyboard equivalents are **Backspace** and **Del**

CE

Clears the displayed number.
Keyboard equivalent is **Ctrl-E**

C

Clears the current calculation.
Keyboard equivalent is **Ctrl**-**C**

MC

Clears any number stored in memory. When you do this, the M will disappear from the little box above the memory function keys.
Keyboard equivalent is **Alt**-**C**

MR

Recalls the number stored in memory. The number remains in memory.
Keyboard equivalent is **Alt**-**R**

MS

Stores the displayed number in memory. When you store a number in memory, an M is displayed in the little box above the memory function keys.
Keyboard equivalent is **Alt**-**S**

Help

Displays help for the calculator and all its functions.

Six

This function is the harmonic researcher's best friend. When given a value, this function makes it very easy to multiple by 6 or divide by 6 any number of times. It also allows you to take intermediate results and find the end harmonic. Finally, it allows you to go in the reverse direction. The best way to understand the function is with an example.

The first thing to understand about Six is that there are different areas of the dialog box. The area is where you enter the Value. The next area is the Primary Operation. Then there is the Reverse Operation. Finally, there is the Secondary Operation.

Let's say we have a great circle distance of 5610.625071288734' (nautical miles) and we want to see if the distance yields a harmonic. Let's go through it. Follow these steps.

1. To enter the number, we enter 5610.625071288734 in the Value field.
2. Next, we need to enter the exponent.   Since we are just starting out, we enter 0 in the Exponent field.
3. We also need to indicate what the Sign of the exponent is. In our case, it is positive, so we select +.

4. At this point, the value, exponent and the sign of the exponent have been entered, so we need to put the number together by clicking Put Number Together. This puts the number into the computer memory.
5. The next step is to move to the Primary Operation section. The first action we take here determines the direction we are going. If we click x6, then the function will be set for the multiply-by-six direction. If we click /6, the function will be set for the divide-by-six direction.
6. We are first multiply by six. So, click the x6 button once. When you do this, it will show a 1 in the Number Times field. This tells you how many times you have multiplied or divided by six. The resulting value will be shown in the Primary Result field.
7. We keep clicking the x6 button and multiplying by six until we have a harmonic or an intermediate value in the Primary Result field. If we multiply by six 37 times, 3.4722222222199946e+032 will be shown the in the Primary Result field. This is an intermediate value. So, we need to use the Secondary Result section of the dialog box.
8. In the Secondary Operation section, click the x2 button. This will multiply the intermediate result of 3.4722222222199946e+032 by 2. The result in the Secondary Result field will be 6.9444444444399895e+000. This is the harmonic for Light Reciprocal. Remember when you look at the Secondary Result, you can ignore the exponent because in the secondary operation, we are just interested in the harmonic value.
9. Finally, since we have a value for Light Reciprocal, I want to see what Speed of Light harmonic it is the reciprocal of. So, I will click the 1/x button in the Secondary Operation section. This will put 1.4400000000009239e-001 in the Second Result field.

We now know that the great circle distance we entered in the beginning yields a value that is very close to the Speed of Light - Maximum value. We now want to work backwards and get the exact great circle distance that yields the Speed of Light - Maximum value, or 144000.0000.

To do this, we will click the Start Over button. This will clear all the fields.

Next, I want to go back in the other direction and get the great circle distance that yields the harmonic. But, what number do we enter? We want to enter the value that is the exact Primary Result. I'll explain.

The last value I got when I was working in the Primary Result section was 3.4722222222199946e+032. This is 3.4722222222199946 x 10 to the 32nd power. The perfect intermediate value is actually 3.47222222222222 x 10 to the 32nd power. I got this by working back from 144000.000. Remember in harmonics, we can ignore zeros to the left or right of the decimal, so we take the reciprocal of 144, which results in 6.944444444. We then divide that by 2 and we get 3.472222222222. Now we have the value to enter in the number section.

I will enter 3.472222222222 for the Value, indicate the sign is +, and enter 32 for the exponent. I will then click the Put Number Together button. Since we are working in the reverse direction, I will put 37 in the Number Times field in the Reverse Operation section.

Initially, we multiplied by 6, 37 times. Since we are going in the reverse direction, we need to divide by 6, 37 times. Therefore, I will select /6 in the Reverse Operation section. Now that everything is set, I will click the Calculate button in the Reverse Operation section. This gives me a Primary Result of 5.6106250712919609e+003. This means the value has an exponent of 3, so we need to move the decimal point three places to the right. This gives a result of 5610.6250712919609 nautical miles. That is the exact great circle distance that yields the harmonic.

It will take some working with Six before you get totally used to it. But when you are used to using it, it will save countless hours in your research.

The one button we haven't talked about yet is Start Over with Same Value. In the above example, we multiplied by 6, 37 times and got a good intermediate result. However, this doesn't always happen.

I routinely multiply by 6 and divide by 6, 300 times. Through experience, I have found that if I can't find a harmonic after doing it 300 times, I probably won't find one. Let's say we multiply by 6, 300 times and didn't get a harmonic or an intermediate harmonic. Then we would want to start over with the same value, but divide by 6.

When we click Start Over with Same Value, it will clear all the fields, put 5610.625071288734 in the Value field and 0 in the Exponent field. You will then need to indicate the sign of the exponent, then click the Put Number Together button. Then you can click the /6 button the Primary Operation section and divide by 6 until you have a satisfactory result.

The Start Over with Same Value button just saves you from having to enter the value and the exponent again when you want to go in the other direction. It saves a little bit of time. But that little bit of time adds up when you are doing thousands of calculations.

The result of the buttons functions are as follows.

Clear

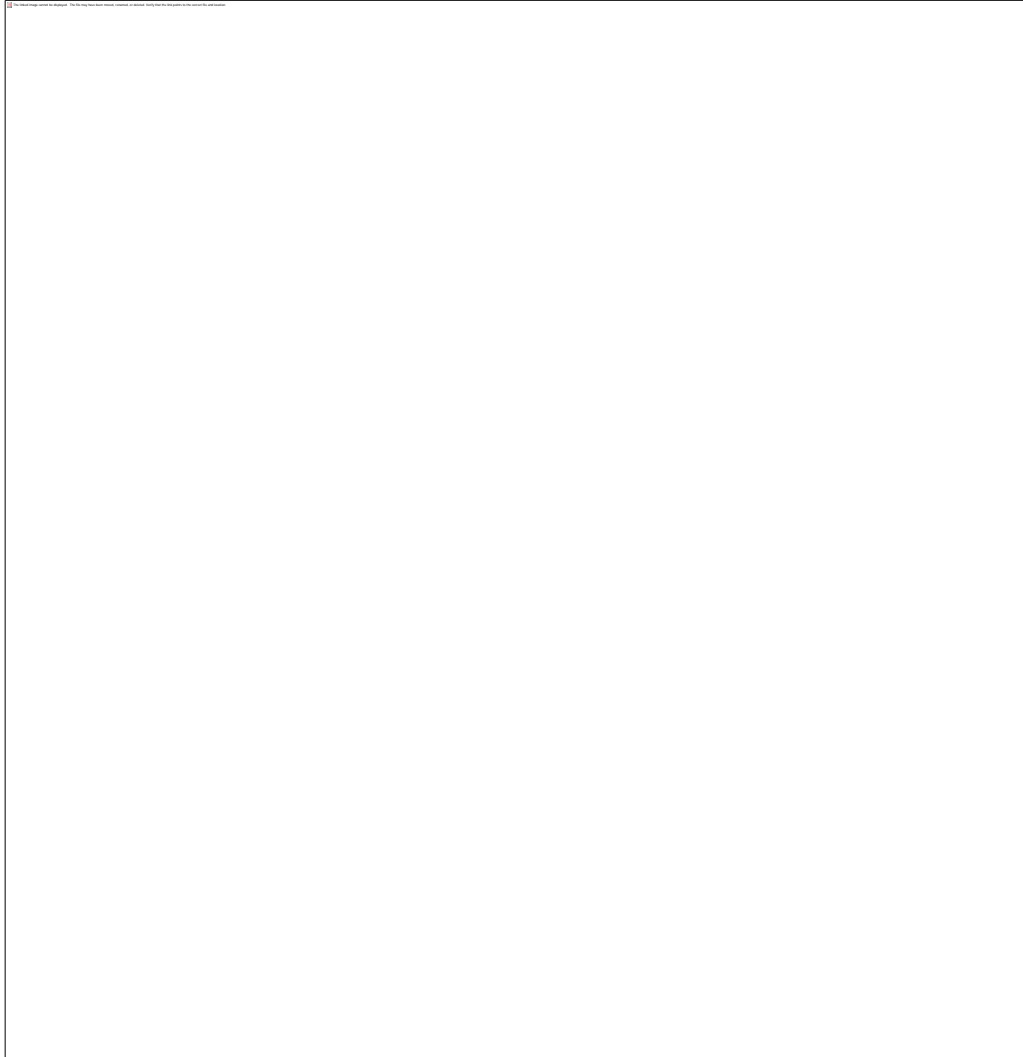Clears all of the fields.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Great Circle Distance

When given two coordinates, this function will calculate the Great Circle distance between the coordinates, along with the initial and final bearing.

The steps to calculate a great circle distance when you enter all the values are as follows:

1. Enter the first coordinate's latitude and longitude in the Coordinate 1 box.
2. Select the directions of both the latitude and longitude.
3. Enter the second coordinate's information in the Coordinate 2 box, just as you did for Coordinate 1.
4. Click the OK button to display the results.

If you are calculating a Great Circle distance in conjunction with the Sun Position function, you can click the Use Current Sun Position button, and the Observer position and Sun position values calculated with that function will be loaded into the Great Circle Distance dialog box for you. The Observer position will be Coordinate 1, and the Sun Position will be Coordinate 2.

Here are the steps:

1. Click the Use Current Sun Position button.
2. Click the OK button to display the results.

Great Circle - Distance (deg)

The Great Circle distance in degrees.

Great Circle - Distance (min)

The Great Circle distance in minutes.

Greate Circle - Distance (sec)

The Great Circle distance in seconds.

Great Circle - Bearing 1

The bearing in degrees from Coordinate 1 traveling towards Coordinate 2.

Great Circle - Bearing 2

The bearing in degrees from Coordinate 2 traveling back towards Coordinate 1.

Chord - Distance (deg)

The Chord distance in degrees.

Chord - Distance (min)

The Chord distance in minutes.

Chord - Distance (sec)

The Chord distance in seconds.

Great Circle - Chord Relationship - Difference (min)

The difference in minutes between the Great Circle distance and Chord distance.

Great Circle - Chord Relationship - Sum (min)

The sum in minutes of the Great Circle distance and Chord distance.

OK

Calculates the distances and bearings.

Clear

Clears the coordinate and result fields.

Print

Prints the coordinates and results.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Second Coordinate

When given a coordinate, a great circle distance, and an initial bearing, this function will calculate the second coordinate and the final bearing.

The steps to calculate a second coordinate are as follows:

1. Enter the first coordinate's latitude and longitude in the Coordinate 1 box.
2. Select the directions of both the latitude and longitude.
3. Enter the great circle distance in the Distance field.
4. Indicate what units the distance is in by selecting either Degrees, Minutes, or Seconds.
5. Enter the initial bearing in the Bearing 1 field.
6. Hit the OK button to display the results.

Coordinate 2

The point you arrive at after leaving Coordinate 1 in the direction of Bearing 1 and traveling the specified great circle distance.

Bearing 2

The bearing from Coordinate 2 traveling back towards Coordinate 1.

OK

Calculates the Second Coordinate and final bearing.

Clear

Clears the coordinate, distance, bearing, and result fields.

Print

Prints the coordinate, distance, bearing, and results.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Area of Circle

Calculates the area of a circle.

Here are the steps to calculate the area of a circle.

1. Select whether to calculate the Area of Circle or the Diameter.
2. If you are calculating the area of a circle, enter the diameter into the Diameter field. Then select the units of the diameter. You have three choices, Degrees, Minutes or Seconds.
3. If you are calculating the diameter, enter the area of the circle in the Area field. Then select the units of the area. If it's square degrees, select Degrees. If it's square minutes of arc, select Minutes. If it's square seconds, select Seconds.
4. Hit OK to display the result.

Either the Area or the Diameter will be displayed in the Results box.

OK

Performs the calculation.

Clear

Clears the Diameter and Area files results box.

Print

Prints the original value and the result.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Volume of Sphere

Calculates the volume of a sphere.

Here are the steps to calculate the volume of a sphere:

1. Select either to Calculate Volume of Sphere or Calculate Diameter.
2. If you are calculating the volume of a sphere, enter the diameter in the Diameter field. Next, select whether the diameter is in Degrees, Minutes of Seconds.
3. If you are calculating the diameter of a sphere, enter the volume of the sphere in the Volume field.   Next, select where the volume is in cubic degrees, cubic minutes or cubic seconds. For example, if the volume is in cubic minutes, select Minutes.
4. Hit OK to display the result.

Either the Volume or the Diameter of the sphere will be displayed in the Results box.

OK

Performs the desired calculation and displays the result.

Clear

Clears the Diameter, Volume and Results fields.

Print

Prints the result. If you are calculating the volume of a sphere the Diameter and Volume of Sphere will be printed. If you are calculating the diameter of a sphere, the Volume of Sphere and the Diameter will be printed.
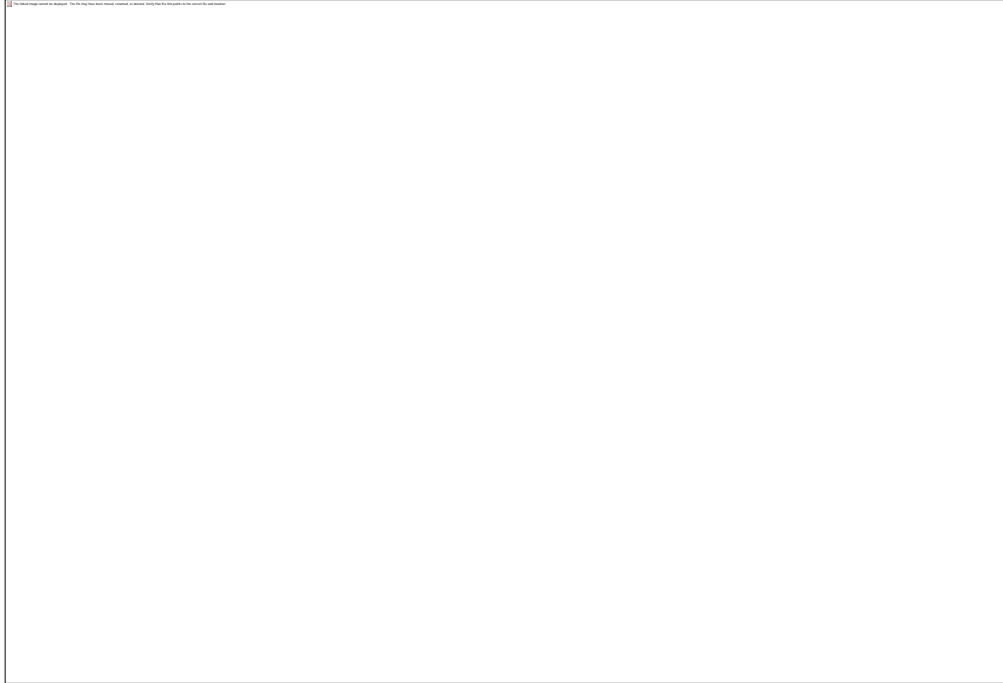
Cancel

Closes the dialog box.

Help

Displays help for this function.

Measurement Conversion

Converts a measurement from one unit to another.

Here are the steps to convert a measurement:

1. Select the button of the conversion you wish to perform
2. Enter the measurement in the field. For example, if you are converting statute miles to nautical miles, you would enter the number of statute miles where it says "Enter statute miles".
3. Hit OK to display the conversion.

The original measurement and its conversion will be displayed in the Results box.

OK

Performs the desired measurement conversion.

Clear

Clears the measurement field and the results box.

Print

Prints the original measurement and its conversion.

Cancel
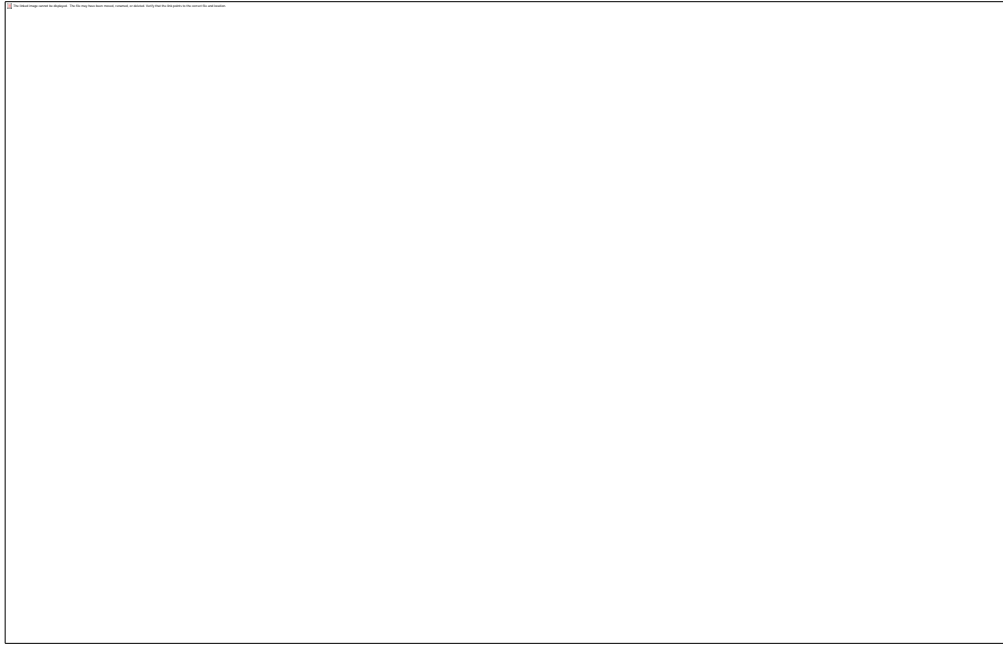
Closes the dialog box.

Help

Displays help for this function.

Harmonic Conversion

When given a harmonic, this function will calculate the one desired.

Here are the steps to perform a harmonic conversion:

1. Select which harmonic conversion you would like to perform. For example, to convert the light harmonic to the mass harmonic, choose "Mass from Light".
2. Enter the harmonic in the harmonic field. Continuing the above example, you would enter it where it says, "Enter light harmonic".
3. Hit OK to display the result.

OK

Performs the desired harmonic conversion.

Clear

Clears the harmonic field and the results box.

Print

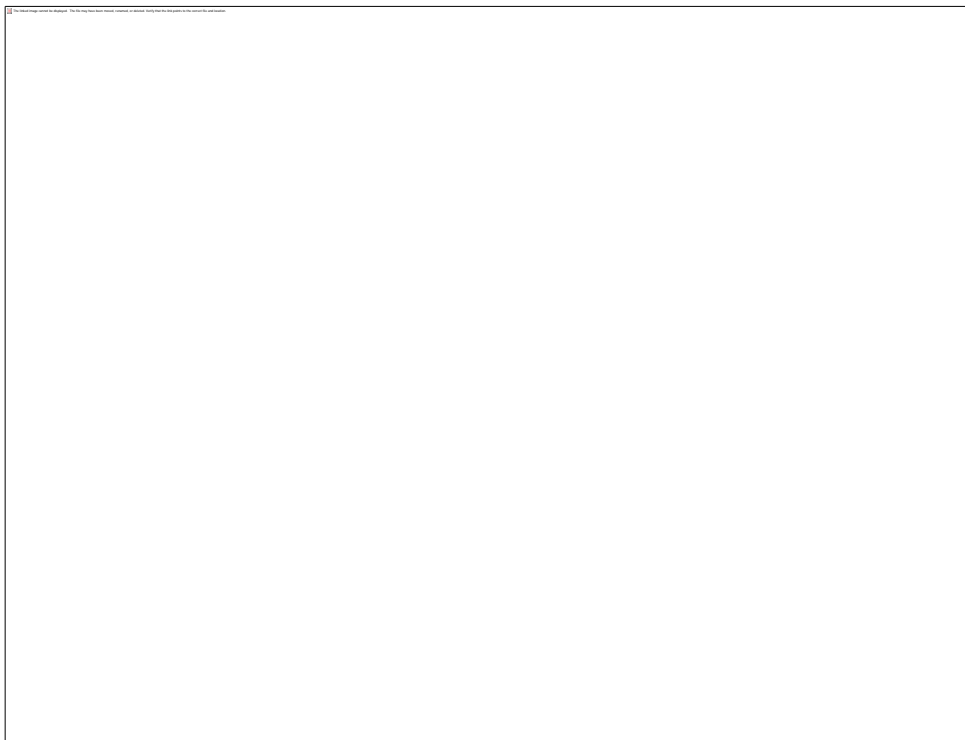Prints the original harmonic and its conversion.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Earth Metrics

When given a latitude, this function will calculate several values connected with the latitude.

To use the Earth Metrics function, follow these steps:
1. Enter a latitude.
2. Hit the OK button to display the results.

The latitude can be scrolled in 1° increments by using the **Up** or **DownArrows** next to the latitude entry box.   Just place the cursor on one of the arrows and hit the left mouse button.   In addition, the **Up** and **DownArrow** keys on the numeric keypad can be used to accomplish the same thing.   Hit the **Home** key to change the latitude to 0º.   Hit the **End** key to change it to 90º. Whenever you change the latitude value in any of these ways, the associated Earth Metric values will change as well.

Displacement from Pole

The result of the following equation:
Displacement from Pole = 90º - latitude

Displacement from Equator

The result of the following equation:
Displacement from Equator = latitude - 0º

Difference of Displacements

The result of the following equation:
Difference of Displacements = Dis. From Pole – Dis. From Equator

Great/Small Circle Radius (GCR/SCR)

If the latitude is 0º, then this will say **Great Circle Radius (GCR),** and the value will be the radius of the equator's great circle.   If the latitude is greater than 0º, then this will say **Small Circle Radius (SCR),** and the value will be the radius of the small circle at this latitude.

Great/Small Circle Circumference

If the latitude is 0º, then this will say **Great Circle Circumference**, and the value will be the circumference of the equator's great circle.   If the latitude is greater than 0º, then this will say **Small Circle Circumference**, and the value will be the circumference of the small circle at this latitude.

Great/Small Circle Area

If the latitude is 0º, then this will say **Great Circle Area**, and the value will be the area of the equator's great circle.   If the latitude is greater than 0º, then this will say **Small Circle Area**, and the value will be the area of the small circle at this latitude.

Volume of Sphere with the GCR/SCR

If the latitude is 0º, then this will say **Volume of Sphere with the GCR**, and the value will be the volume of a sphere with the great circle radius at 0º.   If the latitude is greater than 0º, then this will say **Volume of Sphere with the SCR**, and the value will be the volume of a sphere with the small circle radius at this latitude.

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates the metrics for the specified latitude.

Clear

Clears the latitude field and the results box.

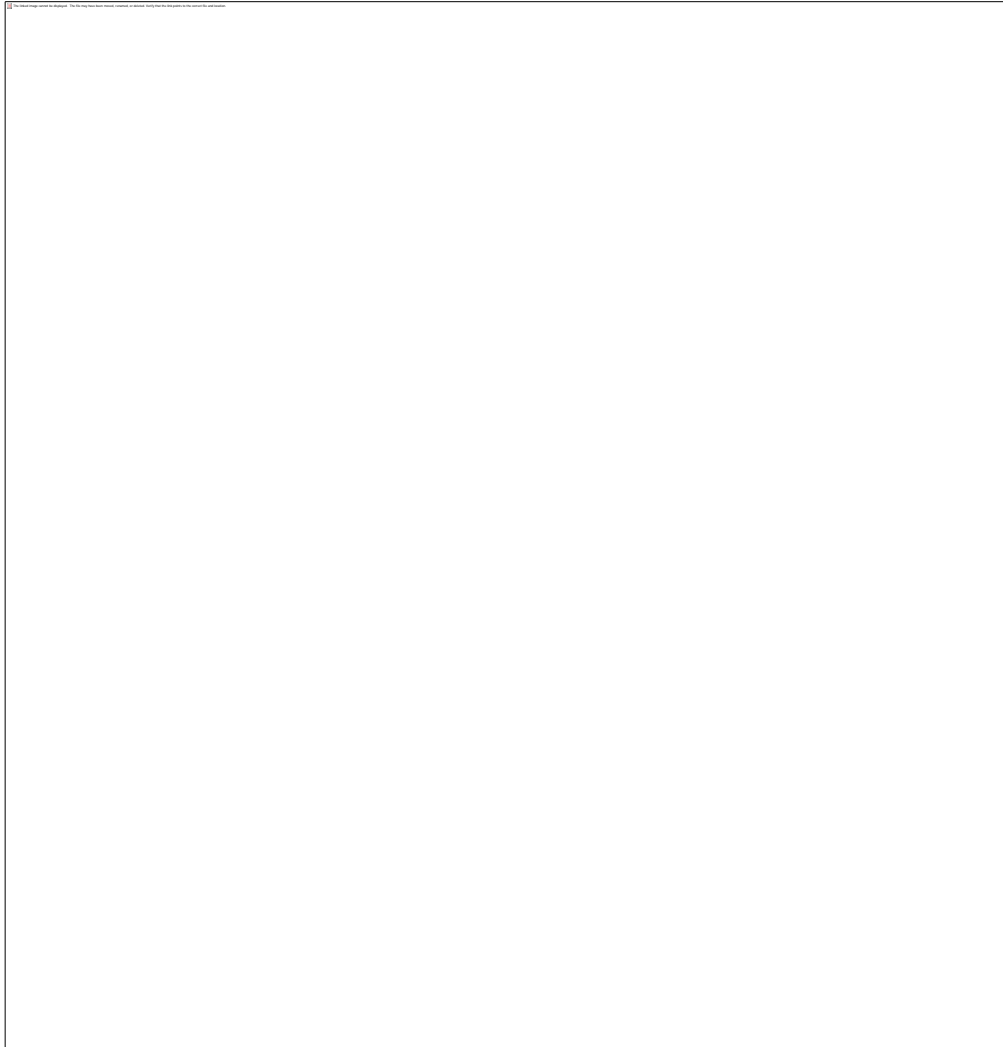## Print

Prints the latitude and its metrics.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Latitude Discovery

When given a harmonic, this function will find the latitude that the harmonic was calculated from.

Follow the steps below to do this:

1. Select the button of the harmonic you are going to enter.
2. Enter the harmonic in the harmonic field.
3. Hit OK to display the results.

The original harmonic and the latitude it was found at will be displayed in the Results box.

OK

Finds the latitude for the specified harmonic.

Clear

Clears the harmonic field and the results box.

Print

Prints the harmonic and its associated latitude.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Harmonic Tables Menu

Contains several functions that display harmonic values in tabular form.

Single Latitude (Gravity to Light)

This function will display a table of latitude harmonics from Gravity to Light. The explanation of each harmonic in the table is beyond the scope of this manual. The user of this software is encouraged to refer to Captain Bruce Cathie's many books on the subject.

Usage

When you select this function a dialog box will open asking you to enter the latitude to calculate the harmonics for.
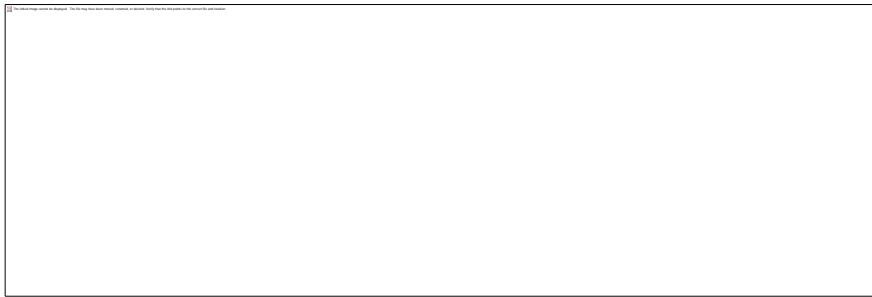
After entering the latitude, the harmonics for that latitude will be displayed in the main window.

The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

If you wish to print out this table, you may either go to the **File** Menu and select **Print**, or hit the printer icon on the toolbar.

Single Latitude (Magnetic Field to Gravity)

This function will display a table of latitude harmonics from the Magnetic Field to Gravity. The explanation of each harmonic in the table is beyond the scope of this manual. The user of this software is encouraged to refer to Captain Bruce Cathie's many books on the subject.

When you select this function a dialog box will open that displays a table of harmonics for 0º. You can change this latitude to any value you wish.
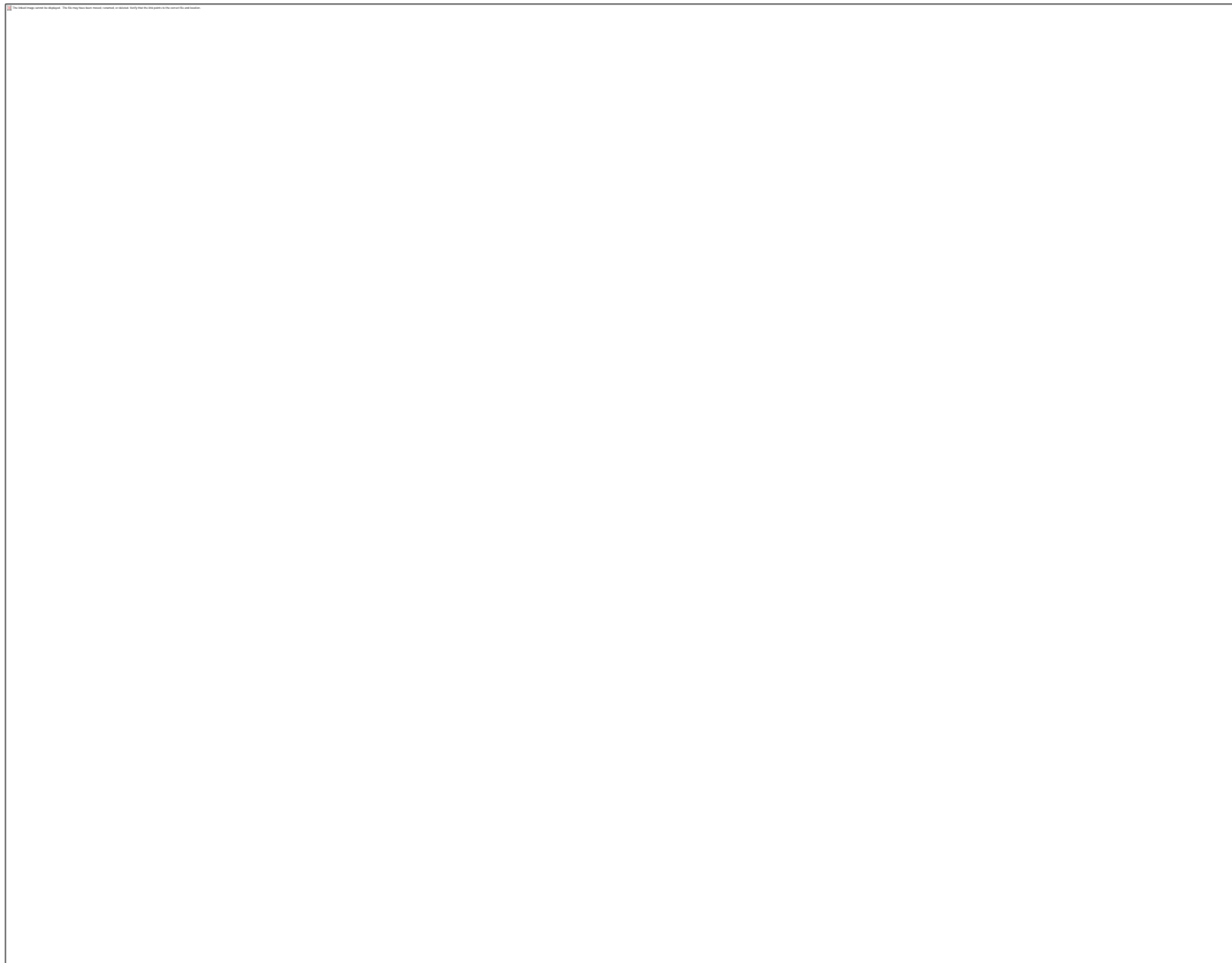
The latitude can be scrolled in 1º increments by using the **Up** or **DownArrows** next to the latitude entry box. Just place the cursor on one of the arrows and hit the left mouse button. In addition, the **Up** and **DownArrow** keys on the numeric keypad can be used to accomplish the same thing. Hit the **Home** key to change the latitude to 0º. Hit the **End** key to change it to 90º. Whenever you change the latitude value in any of these ways, the table harmonics will change as well.

The functions of the buttons on the bottom of the dialog box are as follows:

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates the harmonics for the specified latitude.

Clear

Changes the latitude back to 0º and recalculates the harmonics for that value.

Print

Prints the table of harmonics.

Cancel

Closes the dialog box.

Help

Displays help for this function.

All Latitudes (Gravity to Light)

This function will display a table of harmonics in the main window. The table shows latitudes 0º through 90º in 1º increments.

Refer to Captain Bruce Cathie's many books for an explanation of the table values.

Usage

The entire table is too large to fit in the main window, so you will have to use the scroll bars to view the rest of it. If you wish to print the table, you may either go to the **File** Menu and select **Print**, or hit the printer icon on the toolbar.

Table of Conversions

This function will use the main window to display a list of conversion values for the unified gravity and light tables. The list illustrates values of gravity acceleration converted to harmonics of light (geometric). The values were calculated at the Equator, but the conversions can be applied to any latitude.
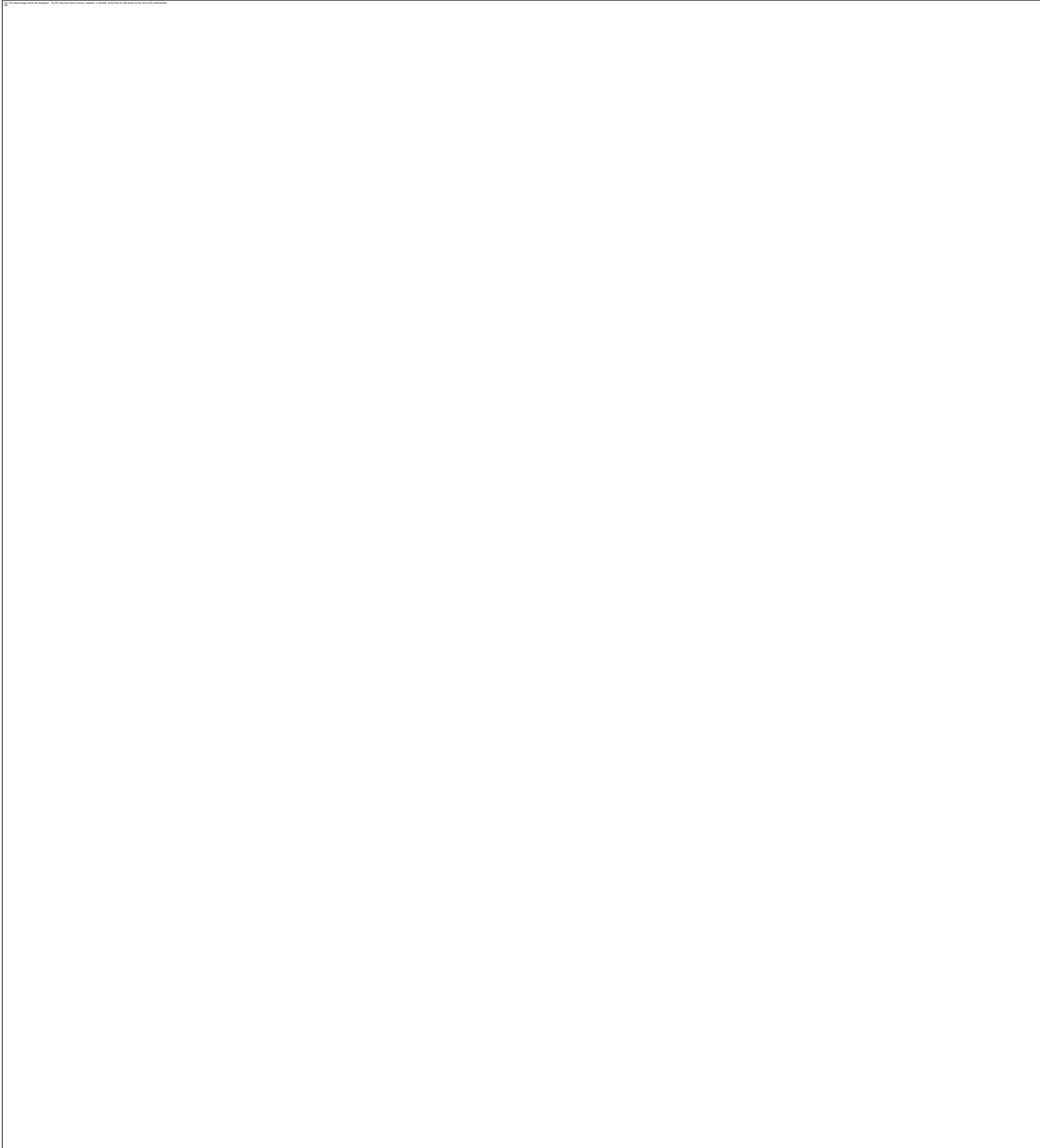
Usage

Since the list of conversions is larger than the main window, you will have to use the scroll bars to view the rest of it.
If you wish to print the list of conversions, you may either go to the **File** Menu and select **Print**, or hit the printer icon on the toolbar.

Earth to Grid Coordinate Conversion

This function, when given a coordinate in terms of the Earth graticule, will calculate the equivalent point on Grid B.
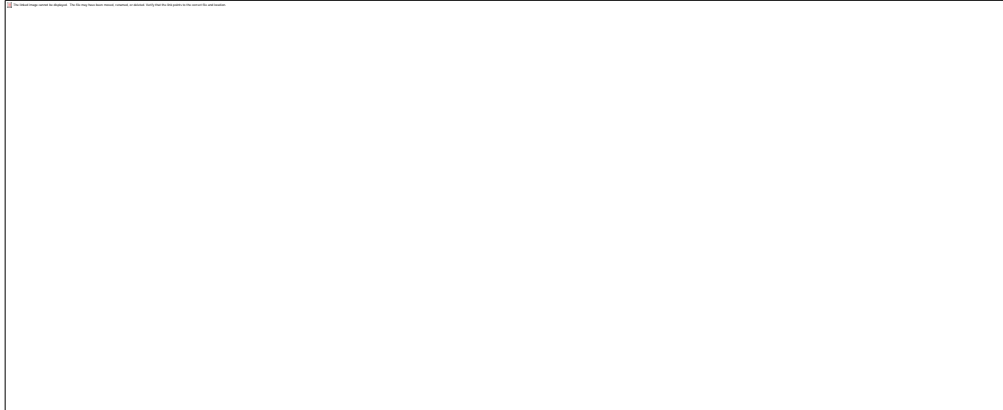
Follow these steps to use the function:

1. Enter the Earth coordinate's latitude and longitude in the Earth Coordinate box.
2. Select the directions of the Earth coordinate's latitude and longitude.
3. Hit the OK button to display the result.

Grid B Coordinate

The Earth Coordinate in terms of Grid B (the equivalent coordinate on Grid B).

OK

Converts the Earth Coordinate to its equivalent on Grid B.

Clear

Clears the Earth Coordinate and Grid B Coordinate result boxes.

Print

Prints the Earth Grid B coordinates.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Grid to Earth Coordinate Conversion

This function, when given a coordinate in terms of Grid B, will calculate the equivalent point on the Earth graticule.

Follow these steps to use the function:

1. Enter the Grid B coordinate's latitude and longitude in the Grid B Coordinate box.
2. Select the directions of the Earth coordinate's latitude and longitude.
3. Hit the OK button to display the result.

Results

The Earth coordinate will be displayed in the Earth Coordinate box.

OK

Converts the Grid B coordinate to its equivalent on the Earth.

Clear

Clears the Grid Coordinate and Earth Coordinate boxes.

Print

Prints the Grid B and Earth coordinates.

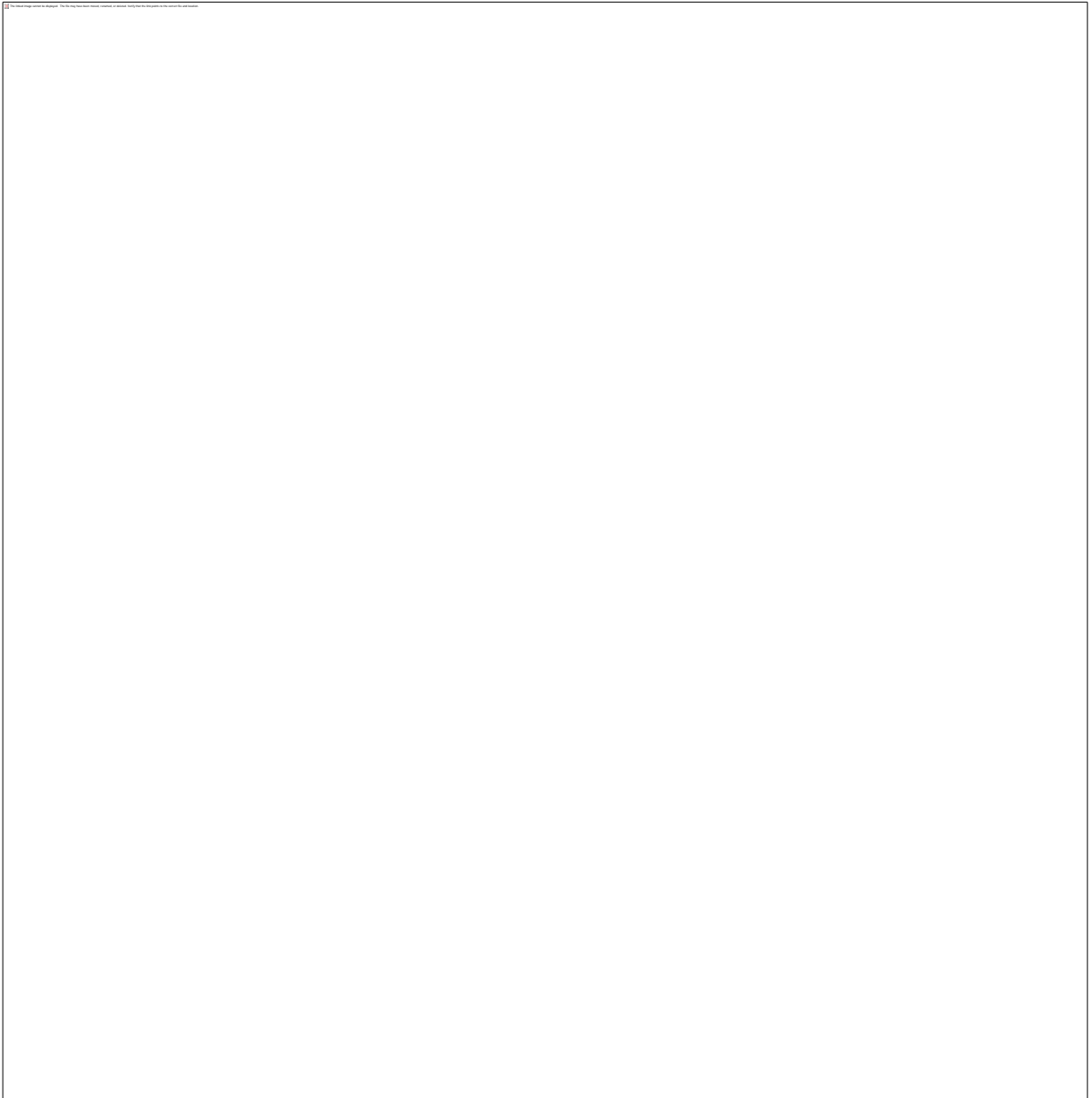## Cancel

Closes the dialog box.

Help

Displays help for this function.

Sun Position

When given a UTC Date and Time, and Observer Coordinate, this function will calculate the Sun Position at that specific moment in time.

The steps to calculate a sun position are as follows:

1. Enter the first coordinate's latitude and longitude in the Coordinate 1 box.
2. Select the directions of both the latitude and longitude.
3. Enter the second coordinate's information in the Coordinate 2 box, just as you did for Coordinate 1.

4. Click the OK button to display the results.

Whenever you calculate a Sun Position, the values will be saved. The next time you come back to this function, if you want to use the same values again, just press the Use Current Sun Position button, and the previous values will be filled in for you.

Here are the steps:

1. Click the Use Current Sun Position button.
2. Click the OK button to display the results.

Please note: You can use this function in conjunction with the Great Circle Distance function. To do so, refer to the instructions for the Great Circle Distance function.

Julian Date

The Julian Date of the Sun Position.

DEC

The Declination in degrees.

GHA

The Greenwich Hour Angle in degrees.

Coordinate

The coordinate of the Sun at that point in time (the UTC date and time).

RA

The Right Ascension in hours, minutes, and seconds.

GAST

The Greenwich Apparent Sidereal Time in hours, minutes, and seconds.

OK

Calculates the Sun Position.

Clear

Clears the coordinate and result fields.

Print

Prints the date, coordinate, and results.
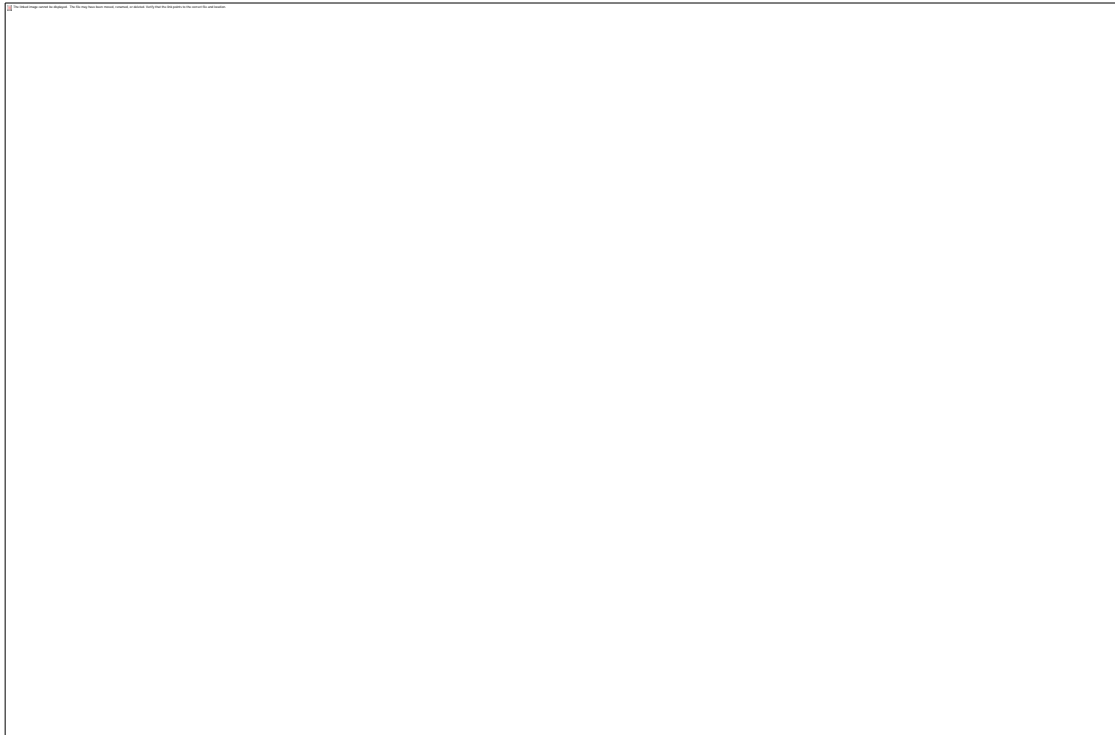
Cancel

Closes the dialog box.

Help

Displays help for this function.

Theory Menu

The Theory Menu contains functions that demonstrate the harmonic theory outlined in Captain Cathie's books.   These functions range from the display of the Grid Polar Squares to the unified harmonic equations.

Speed of Light Conversion

The Speed of Light Conversion function illustrates the conversion of the speed of light in normal units (statute miles/sec.) to the speed of light in grid units (nautical miles/grid sec.). It works by taking the theoretical maximum speed of light for a specified latitude and using it as the light speed to convert.

To use the Speed of Light Conversion function, follow these steps:
1. Enter a latitude.
2. Hit the OK button to display the results.

The latitude can be scrolled in 1° increments by using the **Up** or **DownArrows** next to the latitude entry box.   Just place the cursor on one of the arrows and hit the left mouse button.   In addition, the **Up** and **DownArrow** keys on the numeric keypad can be used to accomplish the same thing.   Hit the **Home** key to change the latitude to 0º.   Hit the **End** key to change it to 90º. Whenever you change the latitude value in any of these ways, the speed of light values will change as well.

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates the speed of light factors for the specified latitude.

Clear

Clears the latitude field and the result boxes.

Print

Prints the latitude and speed of light factors.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Gravity - Light Relationship

The Gravity - Light Relationship function illustrates the relationship between gravity and light.

To use the Speed of Light Conversion function, follow these steps:

1. Enter a latitude.
2. Hit the OK button to display the results.

The latitude can be scrolled in 1º increments by using the **Up** or **DownArrows** next to the latitude entry box. Just place the cursor on one of the arrows and hit the left mouse button. In addition, the **Up** and **DownArrow** keys on the numeric keypad can be used to accomplish the same thing. Hit the **Home** key to change the latitude to 0º. Hit the **End** key to change it to 90º. Whenever you change the latitude value in any of these ways, the speed of light values will change as well.

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates gravity and the speed of light for the specified latitude.

Clear

Clears the latitude, gravity, and speed of light boxes.

Print

Prints the latitude, gravity and speed of light factors.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Grid Polar Squares

The Grid Polar Squares function displays a graphic of the earth with a grid polar square overlaid upon it. In addition, coordinate values and various distances are shown as well.

Refer to Captain Cathie's books for an explanation on how the grid polar squares were discovered.

Usage

This table of information is displayed in the main window and is too large to fit in one screen. So you will have to use the scroll bars to view the rest of it.

If you wish to print the table, you may either go to the **File** Menu and select **Print**, or hit the printer icon on the toolbar.

Mass Harmonic

This function calculates the mass harmonic from the light harmonic.
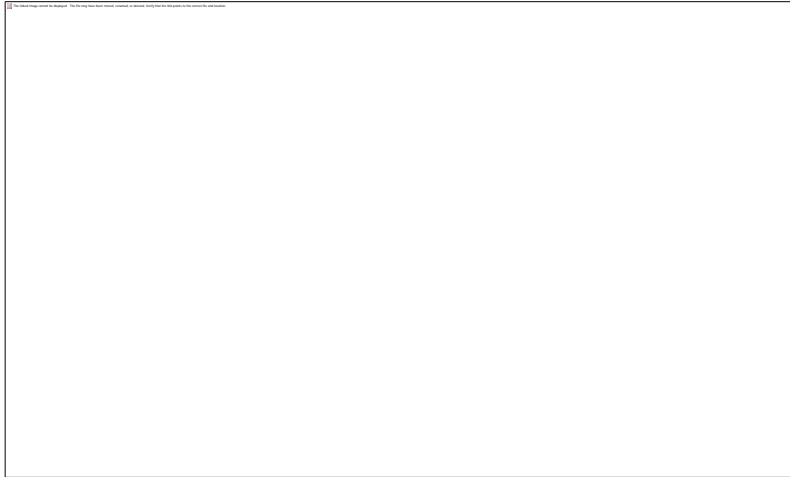
To use the function do the following:
1. Enter the light harmonic in the light harmonic field.
2. Hit the OK button to calculate the mass harmonic.

OK

Calculates and displays the mass harmonic.

Clear

Clears the light harmonic and mass harmonic fields.

Print

Prints the light harmonic and the resulting mass harmonic.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Mass Harmonic by Latitude

This function calculates the mass harmonic factors based on a specific latitude.

To use the function do the following:
1. Enter the latitude in the latitude field.
2. Hit the OK button to calculate the mass harmonic factors for that latitude.

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates and displays the mass harmonic factors for the specified latitude.

Clear

Clears the latitude, light harmonic, and mass harmonic fields.

Print

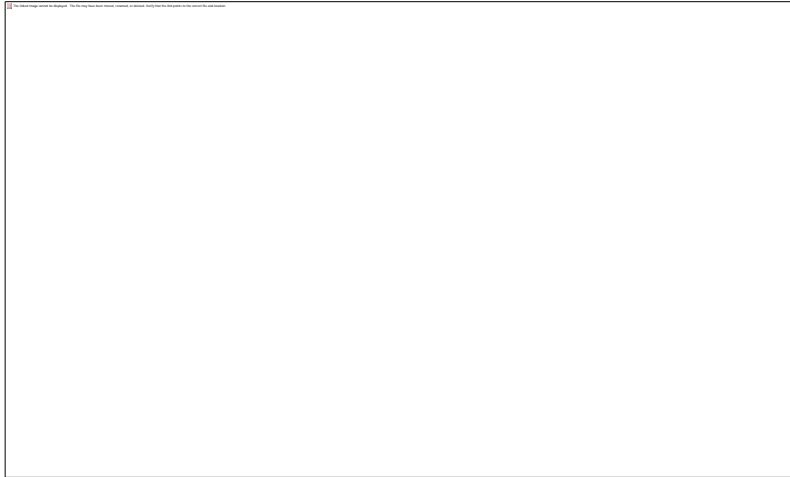Prints the latitude, light harmonic and mass harmonic factor fields.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Equation 1: Energy Harmonic

This function calculates the Equation 1: Energy harmonic from the light harmonic.

To use the function do the following:
1. Enter the light harmonic in the light harmonic field.
2. Hit the OK button to calculate the energy harmonic.

OK

Calculates and displays the energy harmonic.

Clear

Clears the light harmonic and energy harmonic fields.

Print

Prints the light harmonic and the resulting energy harmonic.

Cancel
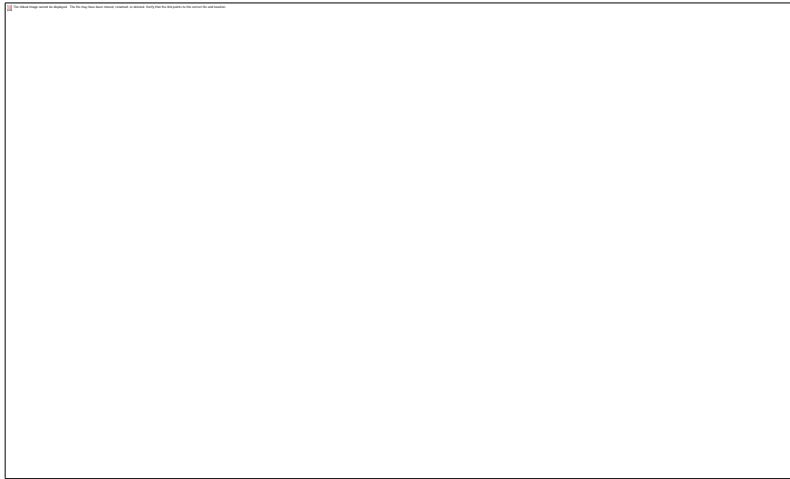
Closes the dialog box.

Help

Displays help for this function.

Equation 2: Difference in Magnetic Field Strengths

This function calculates the Equation 2: Difference in Magnetic Field Strengths harmonic (DMFS) from the light harmonic.

To use the function do the following:
1. Enter the light harmonic in the light harmonic field.
2. Hit the OK button to calculate the DMFS harmonic.

OK

Calculates and displays the DMFS harmonic.

Clear

Clears the light harmonic and DMFS harmonic fields.

Print

Prints the light harmonic and the resulting DMFS harmonic.
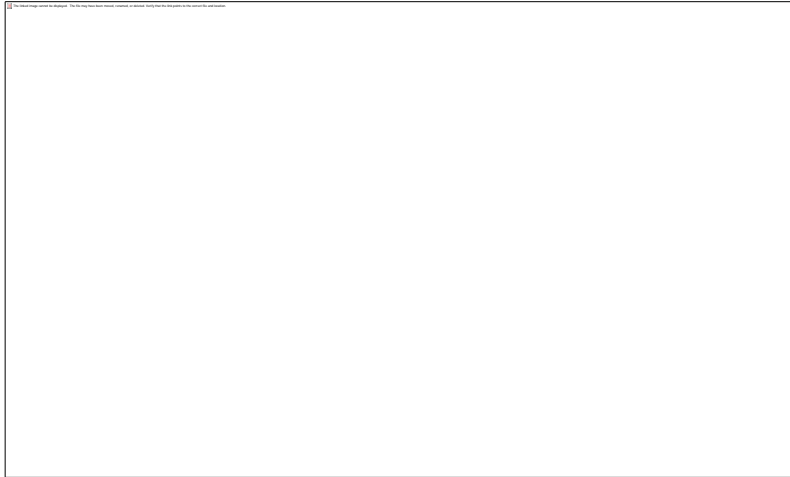
Cancel

Closes the dialog box.

Help

Displays help for this function.

Equation 3: Energy Harmonic

This function calculates the Equation 3: Energy harmonic from the light harmonic.

To use the function do the following:
1. Enter the light harmonic in the light harmonic field.
2. Hit the OK button to calculate the energy harmonic.

OK

Calculates and displays the energy harmonic.

Clear

Clears the light harmonic and energy harmonic fields.

Print

Prints the light harmonic and the resulting energy harmonic.
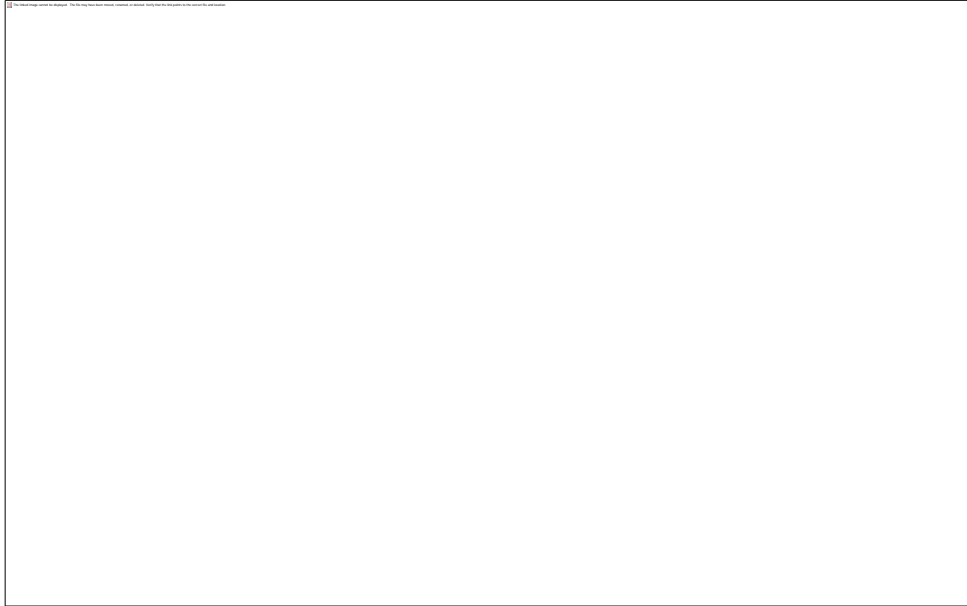
Cancel

Closes the dialog box.

Help

Displays help for this function.

Equations by Latitude

This function calculates the unified equations from a specified latitude. This is done by calculating the Speed of Light (theoretical maximum) at the Earth's surface and using it to calculate each unified equation.

To use this function, follow these steps:
1. Enter a latitude.
2. Hit the OK button to display the results.

The latitude can be scrolled in 1° increments by using the **Up** or **DownArrows** next to the latitude entry box. Just place the cursor on one of the arrows and hit the left mouse button. In addition, the **Up** and **DownArrow** keys on the numeric keypad can be used to accomplish the same thing. Hit the **Home** key to change the latitude to 0°. Hit the **End** key to change it to 90°. Whenever you change the latitude value in any of these ways, the associated unified equation values will change as well.

Use Current Latitude

Places the Current Latitude value into the latitude field.

OK

Calculates and displays the unified equation values for the specified latitude.

Clear

Clears the latitude and unified equation fields.

Print

Prints the latitude and unified equation values.

Cancel

Closes the dialog box.

Help

Displays help for this function.

Next Window

Select this to go to the Map Window.