COMPUTER APPLICATIONS FOR GEOTHERMAL ENERGY

by Tonya Boyd

1. FILES AND EXTENSIONS

This is only an introduction into the different types of files and extensions you might come across during your acquaintance with computers. Files and programs have changed quite a lot in the last ten years.

Have you ever been sent an attachment and not sure which program you were suppose to use to open it. This can be caused by not having an extension on the attachment or using an uncommon extension like your initials. This can be very frustrating at time, especially when the computer is not smart enough to figure out which program to use. This is why the section on file extensions is included.

The purpose of this web page (http://extensions.webprovider.com//index.html) is to help you identify what programs (for the PC) open files with the extensions listed.

If you need help in how to select certain programs to open certain file extensions, go to the web page http://extensions.webprovider.com//extensionexplain.html.

Listed below are some file extensions and the programs used to open them.

.002	ARJ File Compresion PROGRAM (usually used with WINZIP)
.1ST	WINDOWS NOTEPAD or replacement Notepad
.323	WINDOWS RUNDLL32
.ABC	MICROGRAFIX ABC FLOWCHART PROGRAM DOCUMENT
.ACC	IMGCOMP
.AFT	MICROGRAFIX ABC FLOWCHART PROGRAM TEMPLATE
.AFW	MICROGRAFIX ABC FLOWCHART PROGRAM WORKSPACE
.AIF	WINDOWS RUNDLL32 Sound Clips
.AIFF	WINDOWS RUNDLL32 Sound Clips
.ART	MICROSOFT INTERNET EXPLORER
.ASP	MICROSOFT FRONTPAGE
.ASA	MICROSOFT FRONTPAGE
.AIM	INSTANT MESSENGER
.ASF,	WINDOWS MEDIA PLAYER Streaming audio/video file, and shortcut
.ASX	WINDOWS MEDIA PLAYER Streaming audio/video file, and shortcut
.AU	WINDOWS RUNDLL32 Sound Clip
.AVI	WINDOWS RUNDLL32 Video Clip
.AWD	KODAK PICTURE VIEWER
.AXI	METATOOLS PROGRAM FILE
.BAT	Executable MS DOS Batch File
.BFC	WINDOWS EXPLORER
.BMP	MSPAINT-MANY PICTURE PUBLISHERS
.BUP	SPARQ Drive Backup file
.CAB	WINDOWS EXPLORER
.CDA	CD PLAYERS
.CDF	WINDOWS RUNDLL32
.CDR	PAINT SHOP PRO Image
.CDX	MICROSOFT FRONTPAGE
.CFM	COLD FUSION, HOMESITE3
.CGM	.PAINT SHOP PRO Image
.CHM	HH.EXE FILE IN WINDOWS
.CIF	CD CREATOR

.CL3	CD CREATOR
.CLP	PAINTSHOP PRO PROGRAM Clipboard
.COM	Executable MS DOS Application
.CPT	NETSCAPE NAVIGATOR
.CR	WINDOWS NOTEPAD
.CRT	WINDOWS RUNDLL32 Security Certificate
.CSS	MS FRONTPAGE
.CUT	PAINTSHOP PRO PROGRAM Dr.HALO Picture
.DAT	PHOTORUN
.DBF	PICTURE PUBLISHER
.DCX	BITFAX PRO
.DER	WINDOWS RUNDLL32 Security Certificate
.DIB	PAINT SHOP PRO Image OS2 or Windows
.DIF	MICROSOFT EXCELL (data interchange file)
.DIZ	MICROSOFT NOTEPAD
.DOC	MICROSOFT WORD, MICROSOFT WORKS WP (MANY WORD PROCESSING PROGRAMS)
.DOT	MICROSOFT WORD template
.EMF	MICROSOFT PICTURE IT PROGRAM
.EML	OUTLOOK EXPRESS Mail Message
.EPS	.PAINTSHOP PRO Encapsulated Postscript
.EXE	SELF-EXECUTABLE
.FAV	.MICROSOFT OUTLOOK Bar Shortcut
.FDF	ADOBE ACROBAT
.FND	WINDOWS EXPLORER Saved Search
.FON	WINDOWS FONTVIEW PROGRAM
.FPH	MICROSOFT FRONTPAGE
.FPX	MICOROSOFT PICTURE IT PROGRAM
.GAL	EASYPHOTO
.GFX	PAINTSHOP PRO
.GIF	IE4, NETSCAPE NAV, ANY PICTURE PUBLISHER Compuserve image
.GRA	MICROSOFT GRAPH CHART
.GRP	Microsoft Program Group
.GZ	WINZIP32 PROGRAM file compression
.HLP	WINDOWS WINHLP32 PROGRAM

|			
.HPF	ICQ PROGRAM	.PCT	.PAINTSHOP PRO Macintosh Picture
.HQX	WINZIP32 PROGRAM file compression	.PCX	WINDOWS KODACPRV PROGRAM, PAINTSHOP PRO Zsoft Paintbrush
.HT	WINDOWS HYPERTERMINAL		
.HTA	MSHTA PROGRAM IN WINDOWS/SYSTEM	.PDF	ADOBE ACROBAT
		.PDD	ADOBE ACROBAT
.HTM	NETSCAPE NAVIGATOR, INTERNET EXLORER, Many Web Browsers	.PGM	PAINTSHOP PRO Portable Greymap Image
		.PIC	MICROSOFT VIEWER Quicktime Picture
.HTML	NETSCAPE NAVIGATOR, INTERNET EXLORER, Many Web Browsers	.PLS	REALPLAYER PROGRAM playlist
		.POT	MICROSOFT POWERPOINT addin and template
.HTX	MICROSOFT FRONTPAGE PROGRAM		
.IDC	FRONTPAGE 98 FILE FPIDCWIZ.EXE	.PPA	MICROSOFT POWERPOINT addin and template
.IDF	MIDI Instrument Definition		
.IFF	.PAINTSHOP PRO Amiga Image	.PPM	PAINTSHOP PRO Portable Pixelmap
.IGM	PAINTSHOP PRO GEM Paint	.PPS	MICROSOFT POWERPOINT presentation
.III	WINDOWS RUNDLL32	.PPT	MICROSOFT POWERPOINT presentation
.INI	MICR0SOFT NOTEPAD	.PSD	ADOBE PHOTOSHOP, PAINT SHOP PRO
.IOF	TOOLS 95 FINDIT PROGRAM	.PSP	PRINTSHOP PRESSWRITER Document
.IPD	IE 4 OR NETSCAPE NAVIGATOR	.PSS	PRINT SHOP postscript printer stub
.IQY	MICROSOFT NOTEPAD	.PTC	MICROSOFT WORDPAD File
.ISO	CD CREATOR	.PUB	MICROSOFT PUBLISHER publication
.ISP	WINDOWS CONNECTION WIZARD FILE ISIGNUP.EXE	.PWZ	MICROSOFT POWERPOINT wizard
		.QT	WINDOWS RUNDLL32 Video Clip
.ITS	INTERNET EXPLORER	.RAR	WINRAR95 File Compression Program
.JBF	PAINTSOP PRO Browser file	.RAS	MICROGRAFIXS PICTURE PUBLISHER PROGRAM Sun Raster Images
.JFIF	IE4, NETSCAPE NAV., PICTURE PUBLISH PROGRAMS		
		.RA	REALPLAYER PROGRAM Audio Clip
JPE	IE4, NETSCAPE NAV., PICTURE PUBLISH PROGRAMS	.REG	.WINDOWS REGEDIT or NOTEPAD
		.RF	REALPLAYER PROGRAM Realflash Clip
.JPEG	IE4, NETSCAPE NAV., PICTURE PUBLISH PROGRAMS	.RLE	PAINTSHOP PRO Compuser or Windows Image
.LBM	PAINT SHOP PRO PROGRAM Deluxe Paint	.RAM	REALPLAYER PROGRAM Realmedia Files
		.RP	REALPLAYER PROGRAM RealPix and RealText Clip
.LPD	AVERY LABEL PRO		
.LZ	WINZIP32 PROGRAM file compression	.RT	REALPLAYER PROGRAM RealPix and RealText Clip
.MAC	PAINT SHOP PRO PROGRAM Macpaint		
.MAD, .MAF, .MAM, .MAQ, .MAR, .MAT, .MDA, .MDB, .MDE, .MDN, .MDT, .MDW, .MDZ MICROSOFT ACCESS PROGRAM- (different components of this program)		.RTF	MICROSOFT WORD FOR WINDOWS
		.SCF	WINDOWS EXPLORER Command
		.SCT	WINDOWS NOTEPAD Script Component
		.SDP	REALPLAYER PROGRAM Scalable Multicast
.ME	MICROSOFT WORDPAD		
.MHT	WINDOWS EXPLORER	.SCP	WINDOWS NOTEPAD
.MID	(audio/midi) RUNDLL32	.SCR	Executable Screen Saver
.MIM	(MIME file) convert to an executable file using a mime conversion program, or Winzip 7.0	.SLK	MICROSOFT EXCEL (data import file)
		.SMI	REALPLAYER PROGRAM Document
		.SND	WINDOWS RUNDLL32 Sound Clip
.MIX	MICROSOFT PICTURE IT PROGRAM	.SQB	EZBACKUP DOCUMENT
.MMC	WINDOWS MEDIA CATALOG	.SST	WINDOWS RUNDLL32
.MMM	PS FONTS	.STL	WINDOWS RUNDLL32
.MOV	WINDOWS MEDIAPLAYER Quicktime Movie	.TAR	WINZIP32 PROGRAM File Compression
		.TBL	WINDOWS NOTEPAD
.MPEG	(movie clips) RUNDLL32	.TGA	PAINTSHOP PRO Truevision Targa Image
.MP3	REALPLAYER PROGRAM	.TIF	PAINTSHOP PRO and Many PICTURE PUBLISHERS
.MPG	MICROSOFT MEDIAPLAYER Quicktime Movie		
		.TGZ	.WINZIP32 PROGRAM File Compression
.MSG	OUTLOOK message item	.TMB	PHOTOHOP PROGRAM
.NFO	MICROSOFT NOTEPAD file	.TTF	WINDOWS FONTVIEW PROGRAM
.NWS	OUTLOOK EXPRESS News Message	.TXT	MICROISOFT NOTEPAD and Many TEXT EDITORS
.OFN	MICROSOFT OFFICE Document		
.OPX	.MICROSOFT ORGANIZATIONAL CHART	.VBS	WINDOWS NOTEPAD Script file
.OSS	MICROSOFT OFFICE search	.VCF	OULOOK EXPRESS PROGRAM vCard
.P7C	OUTLOOK EXPRESS	.VSH	WINDOWS NOTEPAD VShield Config File
.P7R	WINDOWS RUNDLL32	.WIF	WINDOWS KODAKPRV PROGRAM image document
.PBM	PAINTSHOP PRO Portable Bitmap Image		

.VSC	VIRUSSCAN PROGRAM Config File	.XBM	NETSCAPE NAVIGATOR, INTERNET EXPLORER, Many Web Browsers
.VTM	HOMESITE 3.0 PROGRAM		
.WAB	MICROSOFT WINDOWS ADDRESS BOOK	.XIF	WINDOWS KODALPRV PROGRAM
.WAV	SOUNDSCAPE WINDAT PROGRAM and Many Music Players	.XLA	MICROSOFT EXCEL PROGRAM (different components)
.WBK	WINWORD PROGRAM backup document	.XLB	MICROSOFT EXCEL PROGRAM (different components)
.WIZ	.MICROSOFT WORD wizard		.XLS, MICROSOFT EXCEL PROGRAM (different components)
.WLG	DR WATSON PROGRAM		
.WLL	MICROSOFT WORD addin		
.WMF,.WPG	.PAINT SHOP PRO Image	.XNK	OUTLOOK EXPRESS PROGRAM
.WRI	MICROSOFT WORDPAD Write Document	.XSL	INTERNET EXPLORER xsl Stylesheet
.WSC	WINDOWS NOTEPAD Script Component	.Z	WINZIP32 PROGRAM File Compression
.WSH	WINDOWS WSCRIPT PROGRAM	ZIP	WINZIP32 PROGRAM File Compression

2. DIGITAL SHOWS IN POWERPOINT
2.1 *Getting Started.*

When you open the program PowerPoint, a window as shown on the right will appear. This window allows for several option for setting up a slide show.
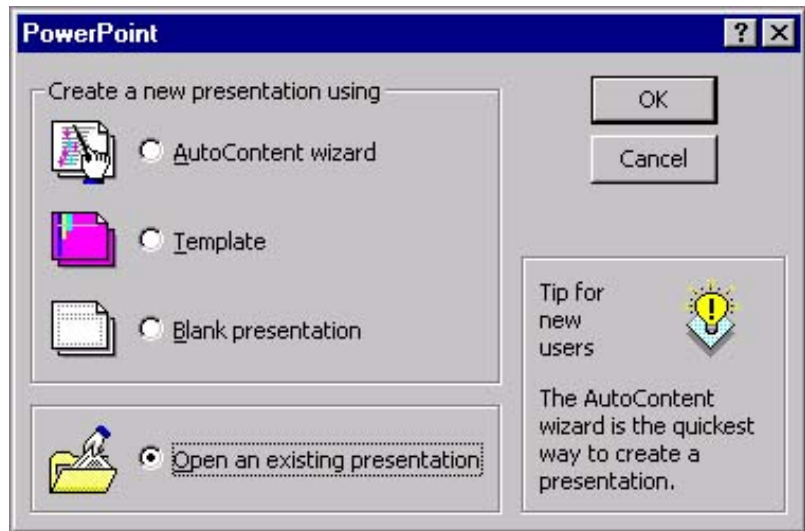
2.1.1 Auto Content Wizard

The **AutoContent wizard** is the quickest way to create a presentation. It has several steps to go through to help you out. It will setup the background and add text for you and show you what they look like. As you can see from the figures below there are only five easy steps to follow. The last figure shows what it will look like after going through these steps.
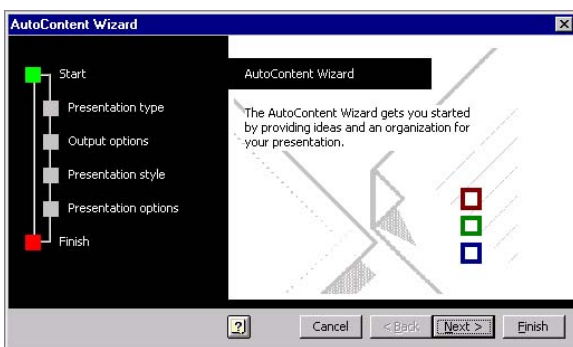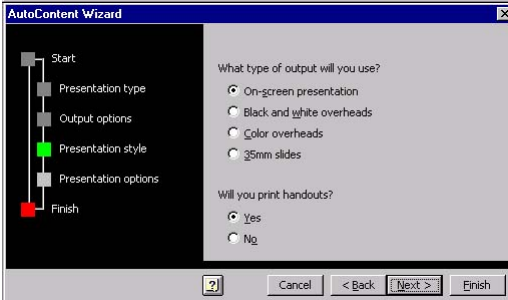

This is the first window and it shows the different steps you will go through on the left.
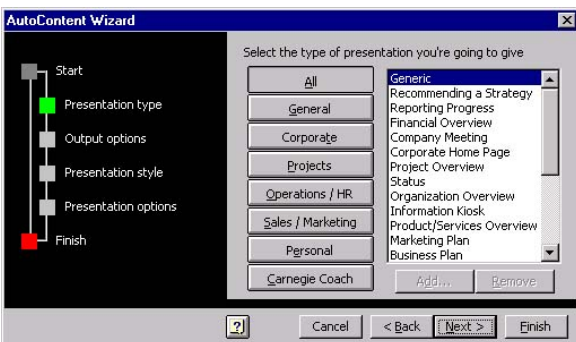

The second step lets you pick the presentation type. There are several choices from a status report to business plan.

313
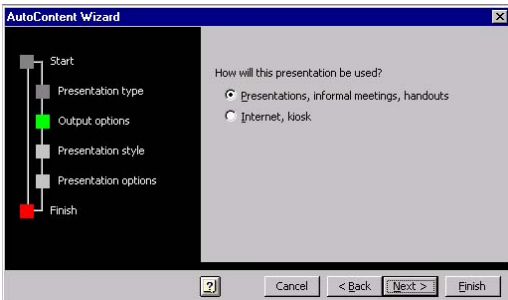
The third step is to select the output options (how will the presentation be used). You can always change the presentation later.
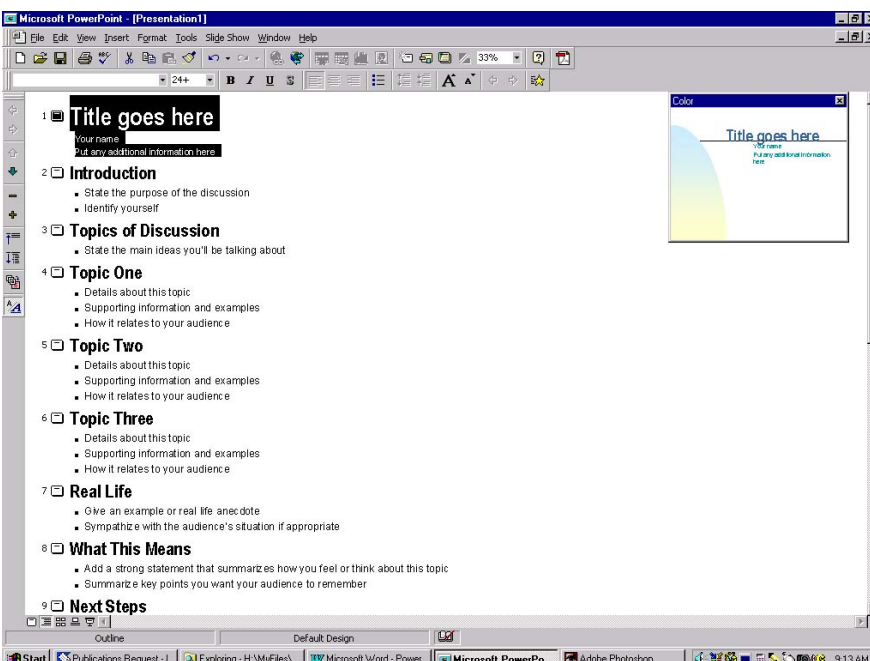
The fourth step is important. The page layout changes with some of the options like on-screen presentation and color overheads.
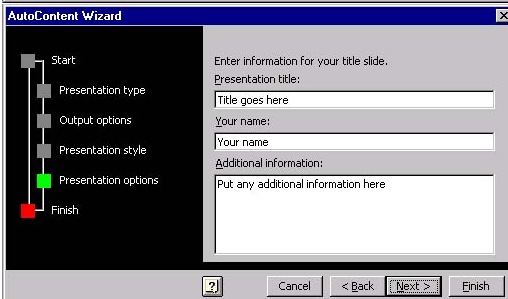
The last option lets you setup the first slide (title) of the presentation. After you finish this step, click on either the **Next** or **Finish** button.
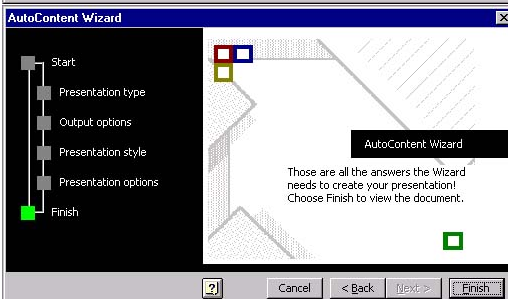
If you click on the **Next** button, this box will show up. The next step is to click on the **Finish** button.

When you click on the **Finish** button, the boxes will go away and the screen will show the outline for the slideshow and what the first slide will look like as shown to the right.

2.1.2 Template Option

The **Template** option lets you choose the background design, type of presentation, or webpages. The first tab lets you browse through the backgrounds and see which you like best. If one of these is chosen it will then ask you which layout you would like. The second tab Presentations lets you select the type of presentation you would like. When you have made a choice it will show you what the first slide will look like in the preview window to the right of the box.
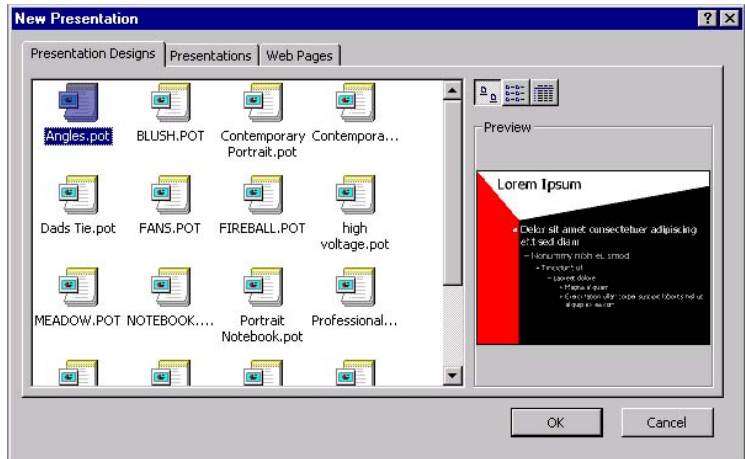
When you click **OK**, the window below will appear. Now you need to choose the Layout you would like for the first slide. The windows above show the other optional layouts that are available.
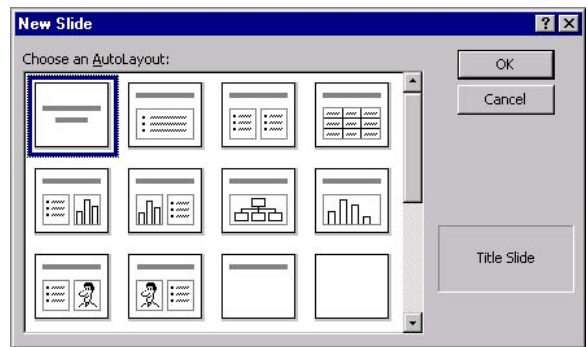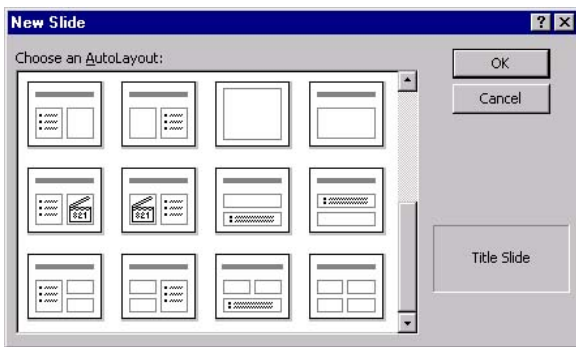
When you have decided on which layout you would like to use and click **OK**, the boxes will disappear and your first slide will come up as shown to the right. You are now ready to start on your slide show.
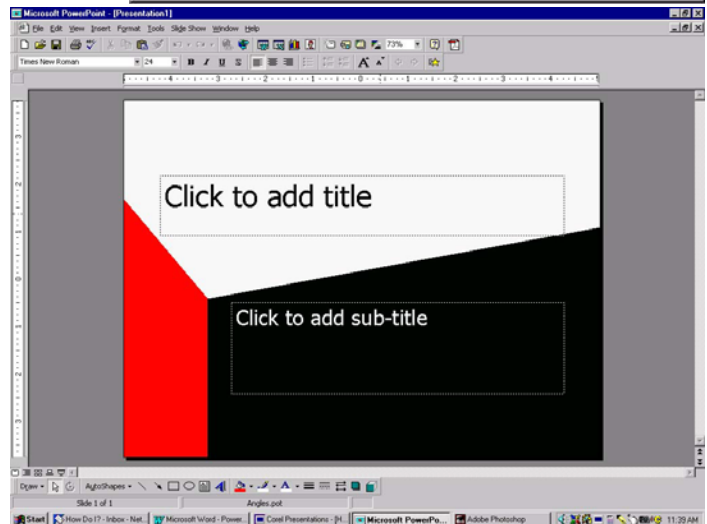
2.1.3 Blank presentation

The **Blank presentation** option lets you design it from the bottom up. This is the option I usually choose and will cover how to accomplish this later. If you already know what will be on each slide and the background you want, I would use this step also. When you choose this option the window shown above labeled New Slide will appear. This will allow you to set up the layout of your first slide.   This will be a black and white slide.   We will cover how to add color or a background design later. Now that there is a blank presentation open, we can start customizing the presentation.

2.1.4 Open an existing presentation

The last option **Open an existing presentation** lets you work on a presentation you started.

2.2 Backgrounds

One of the first things you need to decide is when setting up a slide show: Is do I want to use a background template or do I want just a plain color slide? This section will cover to adding or changing the background. One thing you will notice in these programs there are usually several ways to do things.

To add a background template you can either:
a) Right click on the slide then select *Apply Design* from the menu,
b) Use the pull down menu **Format** then select *Apply Design*,
c) Double click right box on the bottom which says something like Default Design.

This will bring up the window as shown above. The background is viewable in the right hand box. As you can see the Angles template is shown.

To change the color of your slide you can either:
a) Right click on slide the select *Background* from the menu,
b) Use the pull down menu **Format**, then select *Background*.

This will bring up the window as shown on the right. This window shows you the colors that will be used for the slides unless you decide to change them. In this example the text will be black and the first bullet and fills will be green. You can also remove the background graphic from the master. These changes can be for just one slide or all of them.
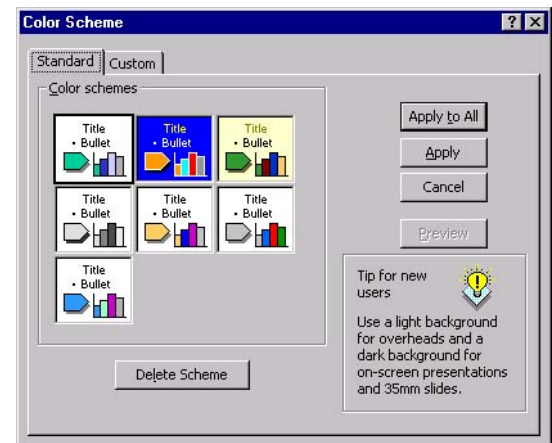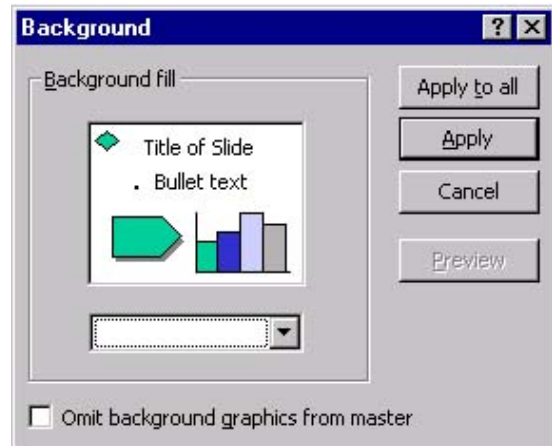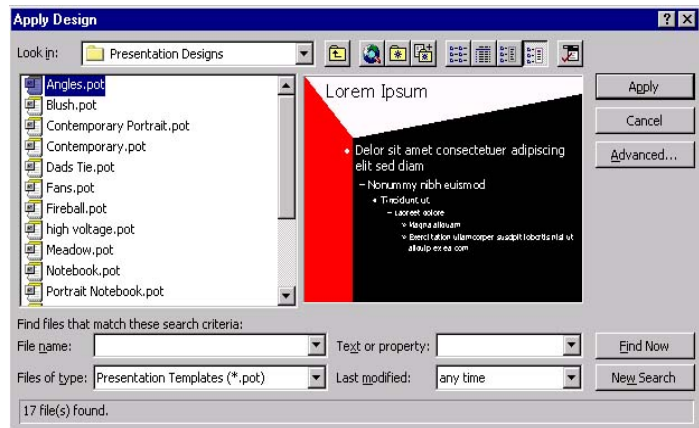
If you would like to change more than just the background, like the color of the bars, bullet colors, etc. for all or some of the slides you can either:
a) Right click on the slide, then *select Slide Color Scheme* from the menu
b) Use the pull down menu **Format** then select *Slide Color Scheme*.

The window shown on the previous page will appear. There are some standard colors shown or you may choose to customize the colors by clicking on the *Custom* tab. After deciding what you would like it to look like you can choose to **Apply to All**, **Apply**, **or Cancel**.

Now that you have chosen what you would like the slide to look like we need to start adding the information for your presentation. This next part will cover some basics on adding text, tables, charts, and images.

2.3 *How to edit the slide once you have it in front of you*

The slide on the right shows a title, bulleted list and a clip art. To add any of these items just follow the prompts. To add the title - have mouse cursor in the title box then click. To add the clip art - have the mouse cursor in the clip art box, then double click.
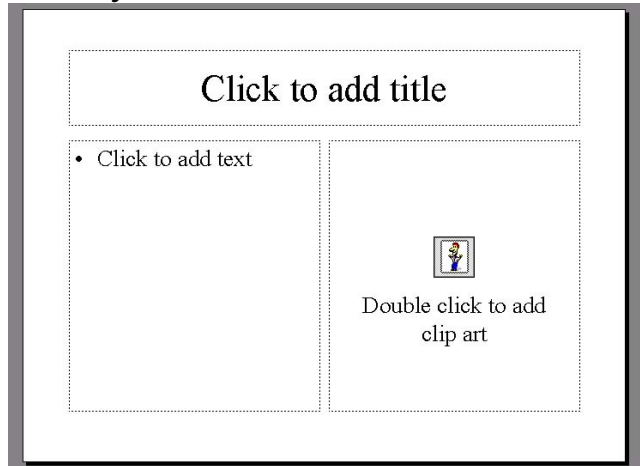
2.3.1 Text

When you follow the prompt (Click to add text), the box will turn into the figure shown on the right. The cursor (for a text box) will more than likely be blinking in the top of the box. The text can now be entered. The little squares around the box will allow you to resize the box. You just have to click on the little box and hold the mouse button and increase to the desired size. If you click anywhere else on the box and hold the mouse button you can move the box.
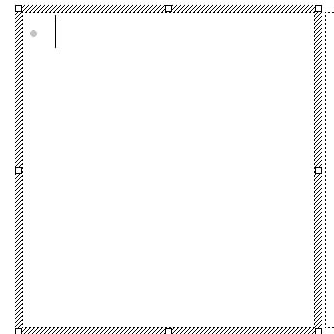
2.3.2 Clipart / Figures

When adding clip art, after following the prompts, the window shown on the right appear. This window allows you to add *Clip Art*, *Pictures*, *Sounds* or *Videos*. There are some items that come with the program when you install it which are avaialbe to select from. This window will also allow you to import clips to the existing directory to be used whenever you use the program.

If you don't want to deal with importing the clip art and want to use your own figure or clip art you use the pull down menu **Insert** then select *Picture*. This will show a menu to the side as show to the right. This menu will give you a selection of different items you can insert. The *From File* option will allow you to insert your own figure. When the item is insert it will appear in the center of the slide. To move the item to its desired location just click, hold the mouse button until you have moved it to where you want it.

2.3.3 Tables

After following the prompts to add a table, the window to the right will appear. This will allow you to decide the size. After you decide what size you would like and click **OK**. The slide will look something like the figure below. This will allow you to enter the information and edit the text and font sizes just like a word table using the same commands. As you can see I have add some text.
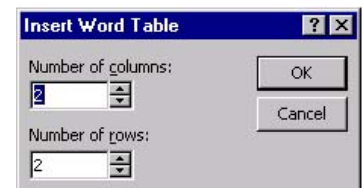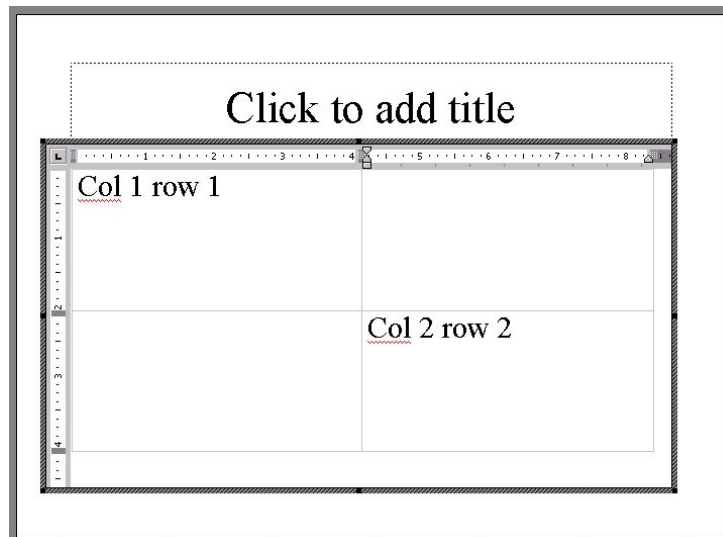
2.3.4 Chart

After following the prompts to add a chart the slide will look like the figure shown to the right. It will already have a sample table and chart to help you set up your own. The chart and table can be edited just like you would edit an excel spreadsheet to fit your needs.
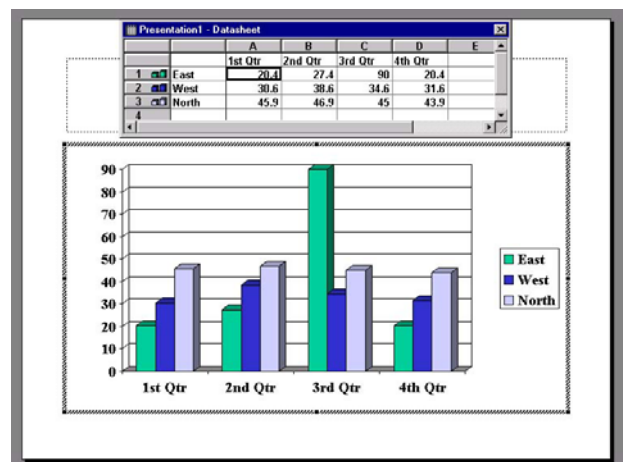
2.4 *Changing attributes*

Text or Bullets – Right click on the text box, then move the mouse cursor until it shows four arrows. This will allow for a global style change of all the text present in the box. While the mouse is still showing the four arrows you can either right click the mouse or select the various options from the **font toolbar** (shown below) located just below the pulldown menus. This will allow you to make changes to the style of the text.
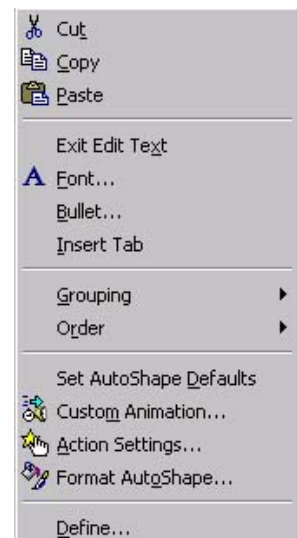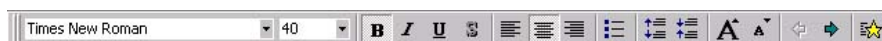
If you choose to use the mouse, a menu as shown to the right will appear. If you select *Font*... you can change the size, font type, bold, italic, underline, color, and shadow. If you select *Bullet*... you can change the type, size and color of the bullet.

Figures - If you don't like the size of a figure move the mouse cursor to one of the corners until the cursor looks like to arrows going diagonally. Then click and hold the button and pull to the size you would like. To move the figure, click on the figure box and hold the mouse button until it is in the desired position, then release the mouse. When resizing figures it is not recommended to use the little squares located on the side or top of the figure box. It will allow you to stretch the figure either sideways or up and down, which will distort the figure.

Now that we know a little bit about how to edit a slide, we can now add more slides to our presentation.

2.5 Adding Slides

When you are ready to add a new slide you can:
a) Use the pull down menu *Insert* then select *New Slide* or
b) Click on the icon shown to the right.

If you have changed the attributes (font size, color, bullets, and slide color) of a slide before and would like to use them again from one slide to the next it is best to use the pull down menu *Insert* then select *Duplicate Slide* instead of *New Slide*.   That way you won't have to make all the changes again.

This is all that is needed to print the slides into overheads, but if you would like to use it a digital slide show, read on. Once you have the slideshow completed, it is now time to add transitions for the items on a slide and the slides themselves.

2.6 Transitions

Now that you have all your slides ready to go, you must decide how you want to present the material. Are you going want a lively presentation with all the bells and whistles, or are you pressed for time and can't be to interactive. This will help you decide if you want any transitions are not. There are several ways to go through a digital show.
a) You can have a transition between slides,
b) Have objects transition within the slide,
c) Have transitions within the slide and between the slides, or
d) No transitions.
The different transitions will be covered below

2.6.1 Transitions to the items of a slide

To set up the transitions on a slide you will need to click on one of the items you would like to transition then right click. This will bring up the menu shown to the right. Select *Custom Animation* from the menu. This will bring up the box shown on the top of the next page. In the lower left part of the box are four tabs. I will only cover information on the *Timing* tab and *Effects* tab below. This window does not have to be set up to run the slideshow, the default is for all items to appear at once
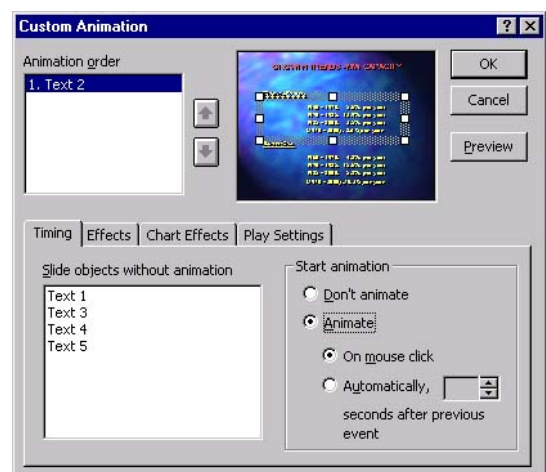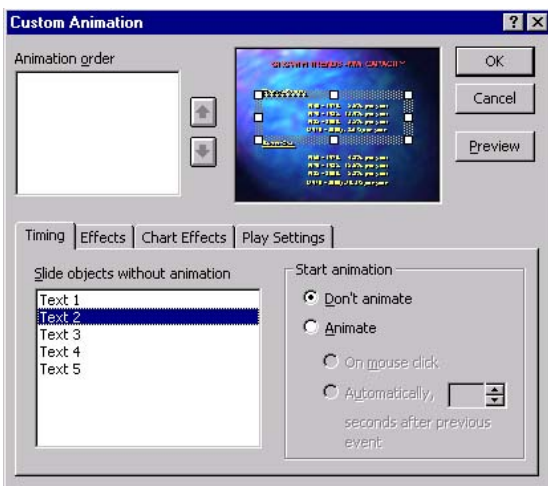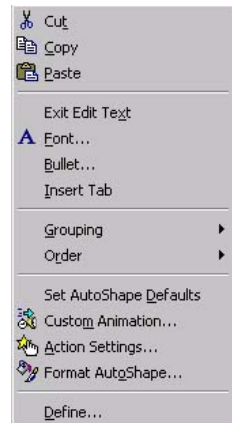
Timing - The Timing tab allows you to select what to animate, the order of the animation and how to animate. I personally don't like to animate the title. It should be shown when the slide comes in. To animate an item - highlight it (figure above), then click on the Animate button under Start Animation. This will also give you a choice to animate with the mouse click or automatically at a certain time. If you are giving a presentation I would chose the mouse click. The timing setting is good for a show that you want to run by itself.

319

Effects - The Effects tab allows you to choose the type of animation effect you would like. It will also let you add sound when it comes in and how the text will appear. You can set the text to come as a letter at a time, word at a time, all at once, or you can group it into lines. The example to the right shows a bulleted list with the text flying from the left all at once. You can always preview your selection to see if you like the effect.

You can animate as many of the objects as you would like to on a slide. Just remember the more you add, the slower it will take to get through all the slides.

2.6.2   Slide transition

Now that the slide items are setup with their transition it is now time to set the slide transition. To set the slide transition for a slide you need to be in the Slide Sorter window. To get there you can either:

a) Click on the icon shown on the right or
b) Use the pull down menu *View* then select *Slide Sorter*.

The window where the slide was will turn into something like the figure shown to the right and show more than one slide if there are more.
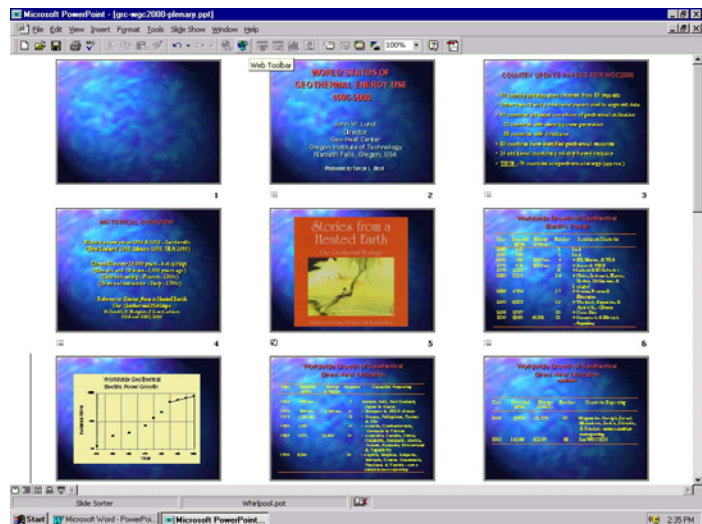
Select a slide then right click on that slide.   The menu shown below will appear select *Slide Transition*.   After selecting *Slide Transition* the window below will appear. This window will give you the ability to set up a transition from one slide to the next or you can apply the transition to all the slides. You can set it up to transition on a mouse click or on a set timing. It also gives you the ability to add sound, and the type of transition between each slide.
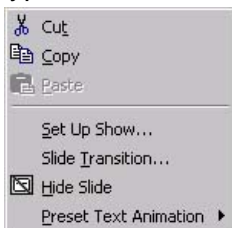
That is all you really need to know to set up slide show transitions.
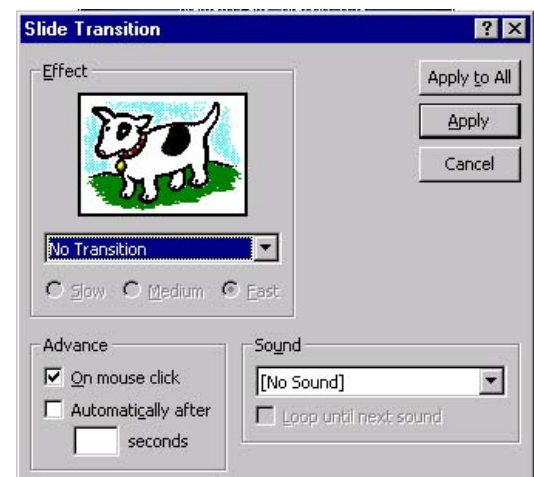
2.7 Playing the Show

Now that the hard part is finished you are ready to play the show. Before playing the show you need to tell the computer how you would like to present the show. To accomplish this task go to the **Slide Show** pulldown menu and select *Set Up Show*. The window to the right will appear. This window gives you several options to choose from. It is set up on the default settings now. For a presentation the only thing I would change is to click the *Advance Slides* to *Manually*. This window also gives you the option to only use certain slides.

After that part is completed you are ready to run the show. Like almost everything in this program this can be done one of several ways:
  a) Use the pull down menu **Slide Show** then select *View Show*, or
  b) Click on the icon show to the right.
  When you want to stop the slideshow and return to the program hit the **Esc** key.
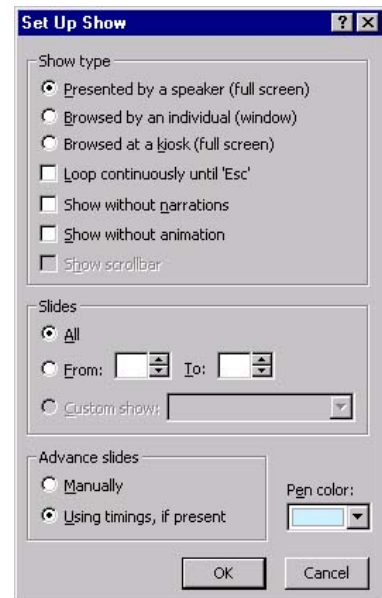
3. CROSS-PLATFORM COMPATIBLE FILES – FILE NAMING ISSUES

Ever had someone send you a Macintosh file and not been able to open it in your Windows system. There are several reasons why this happens, the file either doesn't have an extension on it or maybe there are spaces in the file name. Sometimes the computer recognizes spaces as individual file names and tries to open many files instead of the one file, or without an extension it doesn't know what it is. While this makes it easy to remember what the file was used for, it can be hard to open at first glance. Some ways to get around this is to let a person know what program created the file or save the file on your computer first before opening it with the appropriate program.

3.1 What is PDF?

PDF stands for Portable Document Format and is a unique type of cross platform file format developed by Adobe. You might be asking yourself why should PDF be important to you? PDF is a cross platform, navigational, ultra-printable, ultra-viewable, and smaller than conventional document formats.

3.2 Cross Platform Advantage

A cross-platform file format represents documents independent of any software, hardware or operating system used to create the file. Simply, you may read a PDF document in Windows 98 that was created on a Macintosh that you downloaded from a website running UNIX.

3.3 Navigational Advantage

Objects built into the PDF file format allow users and creator to expand the usefulness of a publication. Such items include: internal and external links, bookmarks, thumbnails of each page, article threads, form fields, buttons for navigation, notes to annotate information, views to allow a user to magnify or reduce a page to fit the user's computer screen

3.4 Ultra-Printable Advantage

PDF files are based on the PostScript language-imaging model. This enables sharp, color-precise printing on almost all printers. Ever have somebody give you a file and you print it out and the layout is all messed up because you have a different printer? With a PDF file the layout also does not change from one computer to other, no matter what type of printer it is hooked up to.

3.5 Ultra-Viewable Advantage

On screen PDF files have a precise color match regardless of the monitor used. PDF files allow the user to magnify documents up to 800% with out loss of clarity in text or graphics.

3.6 Space Advantage

PDF files may be optimized to reduce their file sizes. PDF files for example may be 1/5 of the size of their HTML counterparts and 1/10 the size of word processing documents.

3.7 Internet Strengths

PDF files have many of the same characteristics as HTML documents and can be viewed within Netscape and Internet Explorer windows. These files may be saved for off-line use without also having to save the graphics on the page. A combination of HTML and PDF format enables a publisher to serve content to users in its most useful format based on the demands of content versus technology. PDF files need no translation, compression or filtering on webservers. Full-text search capabilities are available for PDF files. PDF takes document security to the next level where creators of PDF files can prevent copying of text, graphics, making changes, and printing a document. Documents created in generally any program that can be printed can be created into a PDF document.

PDF files seal the gap that many developers find when they become frustrated creating content for the web.

I want it to look just like this! Why can't it look just like as if I make it in Word?
I know how to do it there! All this without being an HTML, JAVA, or CGI guru.

3.8 How do I create a PDF file?

There are currently five main ways to create a PDF file
a) Using Adobe Acrobat,
b) PDF Writer,
c) Acrobat Distiller,
d) Acrobat Capture, and
e) A Third Party software

With the advent of Acrobat 4.0, you can now Web Capture webpages and convert them to PDF documents. The next few pages were done in this fashion. PDF Writer emulates a printer driver and converts the GDI or Quickdraw commends from Windows and Macintosh applications to PDF documents. PDF Writer is intended for desktop applications such as Word, PowerPoint, etc. Acrobat Distiller acts as a PostScript Interpreter that can be used to convert PostScript to PDF. Distiller is intended for the use and for the creation of PDF files containing high-end print publishing features. A good example of this would be Adobe PageMaker. Acrobat Capture is a Microsoft Windows OLE server application that is designed for the batch conversion of image files to PDF and the recognition of the text to create searchable text PDF files. You can also use Third Party Software to convert documents such as text documents "on the fly" to PDF.

4. VIRUS ATTACKS - IS IT A HOAX OR IS IT FOR REAL?

Information About Hoaxes

The information below was cut from several different webpages and condensed. It contains information about hoaxes, chain letters, urban myths and other bogus information being routed around the Internet. It also contains information on where to go to find out information about possible viruses, and how to fix the computer once it is infected.

What Are Internet Hoaxes and Chain Letters?

Internet hoaxes and chain letters are e-mail messages written with one purpose; to be sent to everyone you know. The messages they contain are usually untrue. A few of the sympathy messages do describe a real situation but that situation was resolved years ago so the message is not valid and has not been valid for many years. Hoax messages try to get you to pass them on to everyone you know using several different methods of social engineering. Most of the hoax messages play on your need to help other people. Who wouldn't want to warn their friends about some terrible virus that is destroying people's systems? Or, how could you not want to help this

poor little girl who is about to die from cancer? It is hard to say no to these messages when you first see them, though after a few thousand have passed through your mail box you (hopefully) delete them without even looking.

Chain letters are lumped in with the hoax messages because they have the same purpose as the hoax messages but use a slightly different method of coercing you into passing them on to everyone you know. Chain letters, like their printed ancestors, generally offer luck or money if you send them on. They play on your fear of bad luck and the realization that it is almost trivial for you to send them on. The chain letters that deal in money play on people's greed and are illegal no matter what they say in the letter.

The Risk and Cost of Hoaxes

The cost and risk associated with hoaxes may not seem to be that high, and isn't when you consider the cost of handling one hoax on one machine. However, if you consider everyone that receives a hoax, that small cost gets multiplied into some pretty significant costs. For example, if everyone on the Internet were to receive one hoax message and spend one minute reading and discarding it, the cost would be something like:

50,000,000 people * 1/60 hour * $50/hour = $41.7 million

Most people have seen far more than one hoax message and many people cost a business far more than $50 per hour when you add in benefits and overhead. The result is not a small number. Probably the biggest risk for hoax messages is their ability to multiply. Most people send on the hoax messages to everyone in their address books but consider if they only sent them on to 10 people. The first person (the first generation) sends it to 10, each member of that group of 10 (the second generation) sends it to 10 others or 100 messages and so on.

As you can see, by the sixth generation there are a million e-mail messages being processed by our mail servers. The capacity to handle these messages must be paid for by the users or, if it is not paid for, the mail servers slow down to a crawl or crash. Note that this example only forwards the message to 10 people at each generation while people who forward real hoax messages often send them to many times that number.

Recently, we have been hearing of spammers (bulk mailers of unsolicited mail) harvesting e-mail addresses from hoaxes and chain letters. After a few generations, many of these letters contain hundreds of good addresses, which is just what the spammers want. We have also heard rumors that spammers are deliberately starting hoaxes and chain letters to gather e-mail addresses (of course, that could be a hoax). So now, all those nice people who were so worried about the poor little girl dying of cancer find themselves not only laughed at for passing on a hoax but also the recipients of tons of spam mail.

How to Recognize a Hoax

Probably the first thing you should notice about a warning is the request to "send this to everyone you know" or some variant of that statement. This should raise a red flag that the warning is probably a hoax. No real warning message from a credible source will tell you to send this to everyone you know.

Next, look at what makes a successful hoax. There are two known factors that make a successful hoax, they are:
(1) technical sounding language.
(2) credibility by association.

If the warning uses the proper technical jargon, most individuals, including technologically savvy individuals, tend to believe the warning is real. For example, the Good Times hoax says that ***"...if the program is not stopped, the computer's processor will be placed in an nth-complexity infinite binary loop which can severely damage the processor...***". The first time you read this, it sounds like it might be something real. With a little research, you find that there is no such thing as an ***nth-complexity infinite binary loop*** and that processors are designed to run loops for weeks at a time without damage.

When we say *credibility by association* we are referring to who sent the warning. If the janitor at a large technological organization sends a warning to someone outside of that organization, people on the outside tend to believe the warning because the company should know about those things. Even though the person sending the warning may not have a clue what he is talking about, the prestige of the company backs the warning, making it appear real. If a manager

at the company sends the warning, the message is doubly backed by the company's and the manager's reputations.

Both of these items make it very difficult to claim a warning is a hoax so you must do your homework to see if the claims are real and if the person sending out the warning is a real person and is someone who would know what they are talking about. You do need to be a little careful verifying the person as the apparent author may be a real person who has nothing to do with the hoax. If thousands of people start sending them mail asking if the message is real, that essentially constitutes an unintentional denial of service attack on that person. Check the person's web site or the person's company web site to see if the hoax has been responded to there.

Hoax messages also follow the same pattern as a chain letter (see below).

Recognizing a Chain Letter

Chain letters and most hoax messages all have a similar pattern. From the older printed letters to the newer electronic kind, they all have three recognizable parts:

A hook.
A threat.
A request.

The Hook

First, there is a hook, to catch your interest and get you to read the rest of the letter. Hooks used to be "Make Money Fast" or "Get Rich" or similar statements related to making money for little or no work. Electronic chain letters also use the "free money" type of hooks, but have added hooks like "Danger!" and "Virus Alert" or "A Little Girl Is Dying". These tie into our fear for the survival of our computers or into our sympathy for some poor unfortunate person.

The Threat

When you are hooked, you read on to the threat. Most threats used to warn you about the terrible things that will happen if you do not maintain the chain. However, others play on greed or sympathy to get you to pass the letter on. The threat often contains official or technical sounding language to get you to believe it is real.

The Request

Finally, the request. Some older chain letters ask you to mail a dollar to the top ten names on the letter and then pass it on. The electronic ones simply admonish you to "Distribute this letter to as many people as possible." They never mention clogging the Internet or the fact that the message is a fake, they only want you to pass it on to others.

Chain letters usually **do not** have the name and contact information of the original sender so it is impossible to check on its authenticity. Legitimate warnings and solicitations will always have complete contact information from the person sending the message and will often be signed with a cryptographic signature, such as PGP to assure its authenticity. Many of the newer chain letters do have a person's name and contact information but that person either does not really exist or does exist but does not have anything to do with the hoax message. As mentioned in the previous section, try to use other means than contacting the person directly to find out if the message is a hoax. Try the person's web page, the person's company web page, or this and other hoax sites first to see if the message has already been declared a hoax. For example, the PENPAL GREETINGS! hoax shown below appears to be an attempt to kill an e-mail chain letter. This chain letter is a hoax because reading an e-mail message does not execute a virus nor does it execute any attachments; therefore the Trojan horse must be self starting. Aside from the fact that a program cannot start itself, the Trojan horse would have to know about every different kind of e-mail program to be able to forward copies of itself to other people. Notice the three parts of a chain letter, which are easy to identify in this example.

Validating a Warning

CIAC recommends that you **DO NOT** circulate warnings without first checking with an authoritative source. Authoritative sources are your computer system security administrator, your computer incident handling team, or your antivirus vendor. Real warnings about viruses and other

network problems are issued by computer security response teams (CIAC, CERT, ASSIST, NASIRC, etc.) and are digitally signed by the sending team using PGP. If you download a warning from a team's web site or validate the PGP signature, you can usually be assured that the warning is real. Warnings without the name of the person sending the original notice, or warnings with names, addresses and phone numbers that do not actually exist are probably hoaxes. Warnings about new malicious code are also available at the antivirus vendors sites and at the operating system's vendor site.

What to Do When You Receive a Warning

Upon receiving a warning, you should examine its PGP signature to see that it is from a real response team or antivirus organization. To do so, you will need a copy of the PGP software and the public signature of the team that sent the message. The CIAC signature is available at the CIAC home page: ciac.llnl.gov. You can find the addresses of other response teams by connecting to the FIRST web page at: www.first.org. If there is no PGP signature, check at this and other hoax sites to see if the warning has already been declared as a hoax. If you do not find the warning at the hoax sites, it just may mean that we have not yet seen this particular hoax. See if the warning includes the name of the person submitting the original warning. If it does, see if you can determine if the person really exists. If they do, don't send them an e-mail message. It is likely that they have nothing to do with this hoax and thousands of people sending them questions will be just as damaging to them as sending around the hoax message. Instead, check their personal or company web site. Often if a person has been the brunt of a hoax, that hoax message will be debunked on the person's company web site. If you still cannot determine if a message is real or a hoax, send it to your computer security manager, your ISP, or your incident response team and let them validate it.

When in Doubt, Don't Send It Out.

In addition, most anti-virus companies have a web page containing information about most known viruses and hoaxes. You can also call or check the web site of the company that produces the product that is supposed to contain the virus. Checking the PKWARE site for the current releases of PKZip would stop the circulation of the warning about PKZ300 since there is no released version 3 of PKZip. Other useful virus and hoax sites are listed on our Other Hoax Sites pages. In most cases, common sense would eliminate Internet hoaxes.

Why People Send Chain Letters and Hoax Messages

Only the original writer knows the real reason, but some possibilities are:
- To see how far a letter will go.
- To harass another person (include an e-mail address and ask everyone to send mail, e.g. Jessica Mydek).
- To bilk money out of people using a pyramid scheme.
- To kill some other chain letter (e.g. Make Money Fast).
- To damage a person's or organization's reputation.

Where do you go to find about possible viruses?

One of the interesting things about the Internet is the rapidity with which gossip and rumors become widespread. The onslaught of computer virus hoaxes is no exception. The Good Times hoax warning about a non-existent e-mail virus has been circulating for two years. There are several dozen hoaxes, several of which obtain wide publicity.

Below is a partial list and brief description of some of the more common or current virus hoaxes. On place to go is www.vmyths.com for a comprehensive guide and list of computer hoaxes.

Coca-Cola Giveaway	Good Times
Be My Valentine	Irina
AOL / Intel merger	PenPal Greetings
California/Wobbler	Ghost

Information about possible viruses
There are quite a few places to check if somebody sent you a Hoax email or if it is the real thing. I have included a list below of just a few places you can check for a possible virus.

Computer Incident Advisory Capability	www.ciac.org/
Command AntiVirus Software	www.commandcom.com
Symantec	www.symantec.com/avcenter/index.html
Rob Rosenberger's Site	www.vmyth.com
The San Fernando Valley Folklore Society	www.snopes.com
CERT. Coordination Center	www.cert.org
Data Fellows' Hoax page	www.datafellows.com/news/hoax.htm
Data Fellow's Virus Page	www.europe.datafellows.com/vir-info/

How to fix the computer once it is infected with a virus
Most AntiVirus software webpages have information on how to fix the computer once it is infected. A couple of examples of viruses and how to fix them have been included at the end on this section. As you can see from the examples they can have various degrees of damage to a computer. The ease of fixing the computer can vary also from a few steps to four pages of steps to go through.
Of course the best way to protect your computer is to have an AntiVirus program on your computer and make sure it is regularly updated. It won't protect you if it is 6 months old.


5.   WHAT IS FTP?
FTP stands for File Transfer Protocol or File Transfer Program. This is an Internet tool that copies a file from one Internet site to another. With an Internet address or domain name of a site, you can use FTP to connect to a specific location on that site (specific directory path and file name) and copy a file containing information to or from your computer for your own use.
There are two modes, basically, for using FTP. In one mode, you sign on using your own account or ID and transfer files, or you can sign on as a guest or as an anonymous user and transfer files. With anonymous FTP, your privileges will be very limited for security reasons. This is used on certain sites to make certain files available to anyone who wants them. When using anonymous FTP your ID will be anonymous and your password would be your email address. For FTP using your account, the person controlling the other computer has given you permission to get into the computer and access some files. They don't always have to give you access to the whole computer.

5.1   Setting up an FTP program
The first thing to setting up the FTP program is to open the program. The figure below shows what will come up on your monitor after opening the program WS_FTP. Most window-based FTP programs are pretty much the same, this is the one I happen to use. We will concentrate on the top window. The program comes with some FTP sites already setup in the profiles. The buttons **Delete**, **Save** and **New** are for the profiles.
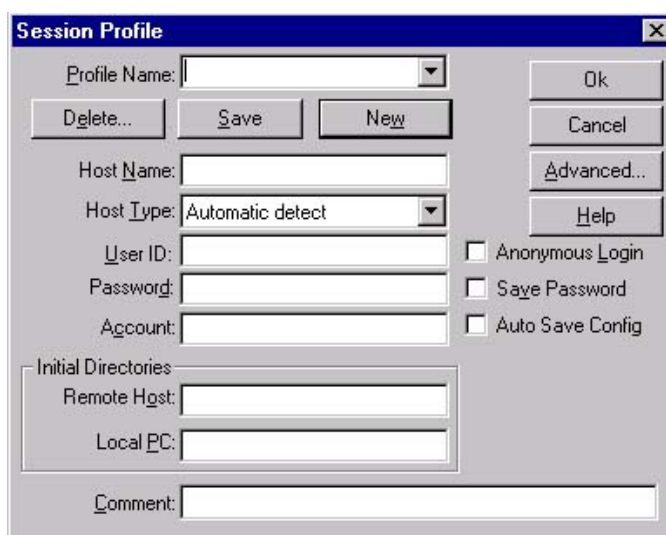
Below is an explanation a few of the items on the top window.
Host Name: This is the name of the server/computer. Sometimes it will have a www or an ftp in front.
Host Type: This is usually left on Automatic detect. Then you don't have to know what type of computer operating system it has.

User ID: This is an identifier to the server/computer, much like your email address. It can also act like a subdirectory on a computer.

Password: This is needed to gain access to the server/computer.

Remote Host: This refers to the server/computer you want to connect to. Sometimes you will have to put something here to gain access to the server/computer. You might have permission to go to a certain part of it.

Local PC: This of course refers to your computer. You can set the profile up so it will go to the directory you want like where the file is stored. This does not have to be the same for each profile.

To set up a new profile, click on the **New** button. A new *Session Profile* window will open up just like the figure shown to the right.

We will go through an example of setting up a profile. Say we want to set up the profile so we can upload our paper to the WGC2000 server according to the instructions. I put in for the Profile Name - wgc2000, so I will remember what it was for. The other boxes need to be filled in exactly as below (These were in the instructions for the authors). Some servers are case sensitive and items like passwords might have both upper and lower case letter which need to be paid attention to. Below is the other information you will need.

 Host Name: www.ics-inc.co.jp
 User ID: cdicsu
 Password: Wgc2000P
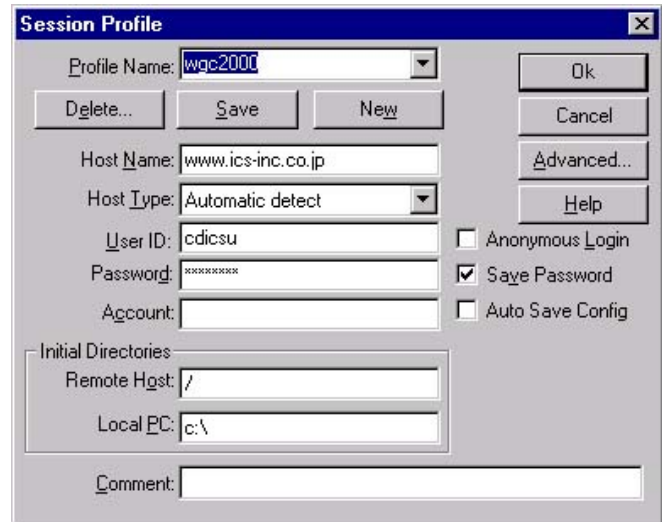
The figure above is setup for the WGC2000 paper upload. As you can see when you type in the password all you see is stars. This is so nobody can see the password over your shoulder. Since this profile might not be used very often, I clicked on the *Save Password* box, so I wouldn't have to remember the password every time. You can also click on the *Auto Save Config*. This will allow it to save the information for the next time you want to use it. I also set the *Local PC* to my main c:\ drive. The instructions didn't tell us that we needed to enter anything for the *Remote Host:* so it was left blank.

Now we are going to connect with the WGC2000 server. Just click on the **OK** button. The top window will go away, don't panic. It is suppose to do that. The computer is in the process of trying to access the other server / computer. It might take a little time as this depends on what kind of modem you have and how busy the system is.
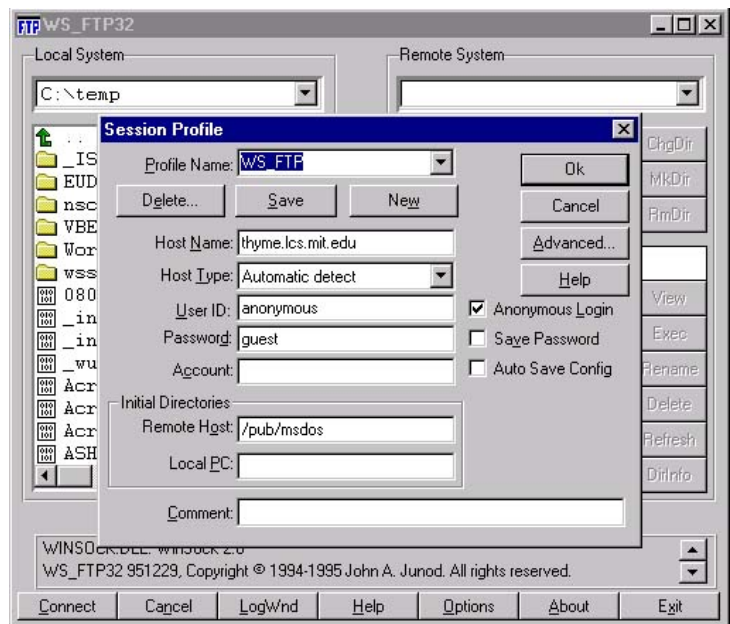
Once you are connected to the other server, it will look something like the figure on the next page.

You can see that the server name is at the top of the window and down towards the bottom it says *226 Transfer complete*.

Now we will explain a few items in this window.

Local System This is your computer. Remember from the example above we had it set to go to the C drive.

Remote System This is the other computer we are connected to. The example did not have us go into subdirectories.
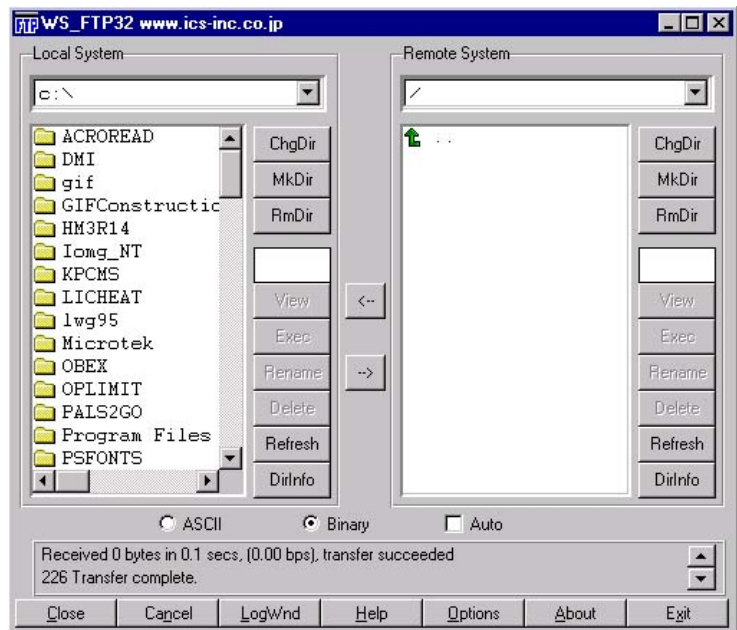
The three buttons to the left work just like they would in your Windows Explorer/File Manger programs on your computer.

ChgDir - stands for change directory
MkDir - stands for make directory
RmDir - stands for remove directory

These two buttons are for transferring files from one computer to the other. The top button is usually for transferring from the other computer to your computer. The bottom button is for transferring files from your computer to the remote one.

The figure below shows the choices you have for transferring files. I personally don't like to click on the Auto one. If you are sending HTML, TXT, or an ASCII file then the **ASCII** should be checked. If you are sending a Word, WordPerfect, PowerPoint, etc. file then they need to be send as a **Binary** file.

Now that you know what most of the symbols mean, we are ready to transfer files. Under the **Local System** window click on the file you would like to transfer to the **Remote System**. Once the file is highlighted make sure the appropriate file type is selected. Then click the appropriate arrow button to sent the file to the other computer. Again this might take some time depending how big the file is. Be patient. Once the file is transferred you may **Exit** the program.

6.   SEARCH ENGINES

6.1   What are Search Engines used for?

To engineer a search engine is a challenging task. Search engines index tens to hundreds of millions of web pages involving a comparable number of distinct terms. They answer tens of millions of queries every day. Furthermore, due to rapid advance in technology and web proliferation, creating a web search engine today is very different from three years ago. This paper provides an in-depth description of our large-scale web search engine -- the first such detailed public description we know of to date. Apart from the problems of scaling traditional search techniques to data of this magnitude, there are new technical challenges involved with using the additional information present in hypertext to produce better search results. Also we look at the problem of how to effectively deal with uncontrolled hypertext collections where anyone can publish anything they want.

6.2   What are Some of the Popular Search Engines?

There are now some 100 million publicly available web pages, I understand. Not even the most ardent surfer is going to visit all those, or even a fraction, and discover your wonderful little corner. You can advertise your presence, for free or for fee. You could have your URL tattooed in

big letters on your body and then run naked across the White House lawn. Make sure the media is there and can get a good view. Personally, I prefer to understand how search engines work, how to select and use keywords, etc.

You will need to study search techniques before you can optimize for them. The very least you should be familiar with is Alta Vista: Help for Simple Query. You will also need to understand how to construct an HTML Head with META tags, to declare keywords and a description, to be used by search engines. See the source of this page for example.

The META tag: Controlling how your Web page is indexed by AltaVista: In the absence of any other information, Alta Vista and some other search engines, will index all words in your document (except for comments), and will use the first few words (e.g. 250 characters) as a short abstract to serve back. It is possible for you to control how your page is indexed by using the META tag to specify additional keywords to index, and a short abstract.

This tag can be used to augment documents with 'meta' information that is not normally displayed by browsers. It provides document authors with a mechanism for identifying information that should be included in the response headers for an HTTP request. The markup is stored as attributes of the META tag and is not displayed when the document is loaded into a browser. However it can be extracted by servers and clients for use in identifying, indexing, and cataloging documents. Here is an example

```
<HTML>
<HEAD>
<TITLE>The Web Developer's Virtual Library
</TITLE>
<META NAME= "Keywords"CONTENT="
  HTML, CGI, Java, VRML, browsers, plugins,
  graphics, HTTP servers, JavaScript, Perl,
  ActiveX, Shockwave">
<META NAME="Description"CONTENT="
  Locate web authoring and software Internet
  resources at The WDVL, a well-organised
  goldmine with over 500 pages and thousands
  of links about HTML, CGI, Java, VRML,
  browsers, plugins, graphics, HTTP servers,
  JavaScript, Perl, ActiveX, Shockwave,..">
</HEAD>
```

Use acronyms and spell them out. In general, you will only use a very large number of keywords on the index page of a large site. Do not include spurious irrelevant keywords - you might attract extra visitors who would not otherwise have come, but they might not thank you for it. If I added 'sex' to the above list I could expect both my traffic and my hate mail to increase dramatically.

One FAQ is: would the various search engines (like Infoseek, Alta Vista, etc.) that normally enter ALL the Web page text into their database, would they just enter the "keywords" from the meta tag in place of the HTML body text on the page. Or do they include all the regular HTML text visible on the Web page PLUS the meta tag "keywords"?

According to Infoseek's Using META Tags to Define Index Terms for Your Page, when a site is added to Infoseek's index, all the words on the page are included with the exception of any text within a <Comments> field.

The META tag keyword field can be used to specify additional key words or synonyms that describe the contents of a site. META tag keywords are used in the indexing process but will not display on your Web page. The keywords can include up to 1000 characters of text. Be sure that the key words chosen are relevant to the contents of the page. Infoseek Guide indexes your entire page (except any text within comments), regardless of whether or not you include a description or keywords in the tags. The words in the tags are indexed in addition to the rest of the document.

According to Alta Vista, it is possible for you to control how your page is indexed by using the META tag to specify additional keywords to index, and a short abstract.

Both of them say 'additional', i.e. using the META tag supplies extra keywords, they do not inhibit the search for keywords in the text. Note that the same cannot be true for the abstract served back to the user - if you supply a description in META then this is what the user will see. You should do this if for some reason you don't have a descriptive paragraph at the start of your document, e.g. you really believe 1 GIF = 1Kwords. If you do have a descriptive paragraph at the start of your document (recommended) then better to omit the META description because you will forget to update one of the duplicates.

I used these tags on all my pages long before AV and ISG existed; they were necessary for Aliweb, and at the time this was all so experimental I only put 'Web Developers Virtual Lib.' in the description. It took me a while to realize the experimental period was over and everybody searching for HTML, CGI etc was only getting that terse abstract..

Not all engines use META; e.g. Excite says:- Our spider doesn't honor meta tags. We believe our decision protects our users from unreliable information.

So the best advice seems to be, work very hard on selecting your keywords (e.g. use a thesaurus to find other words people might use; brainstorm with friends and colleagues, etc) and put the most important ones into a carefully crafted paragraph at the start of your HTML document. Put the whole list into a META tag, most important or selective words first. Announce your page or site using one of the multiple submission services such as Entity. Keep your clothes on.

The FAQ goes on to ask: Also, does anyone know whether the text within "Comments" tags and "Alt" tags are entered into search engine databases?
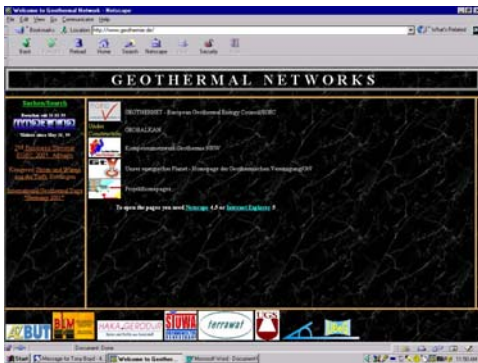
The ISG goes on to say: "Infoseek Guide also indexes the ALT attribute in the [INLINE] tag. If your site mainly consists of graphics, you can also use the ALT attribute to describe your page." So, comments are ignored, ALT text is not.

The META Tag Builder is a fill-in form that will build an HTML header with appropriate META tags. These tags allow better indexing by robot-driven search engines, such as AltaVista, Infoseek.

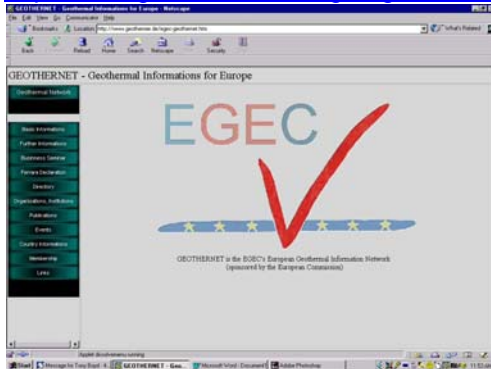## 7.   GEOTHERMAL WEBSITES

Welcome to Geothermal Network
http://www.geothermie.de/
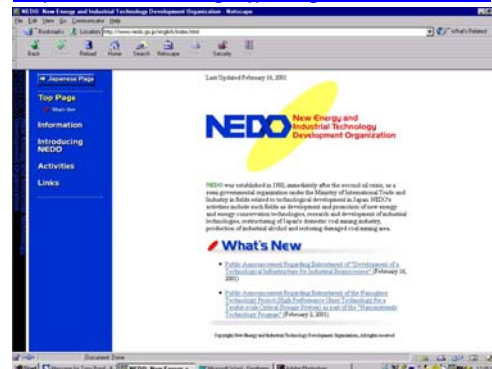

Geothermal Institute, The University of Auckland
http://www.auckland.ac.nz/gei/

GEOTHERNET –
Geothermal Informations for Europe
http://www.geothermie.de/egec-geothernet.htm

NEDO: New Energy and Industrial Technology Development Organization
http://www.nedo.go.jp/english/index.html

Agores European Commission Website for RES
http://www.agores.org

Argentine Geothermal:
http://www.mecon.gov.ar/mineria/geotermia/
geoter.htm

Bundesanstalt für Geowissenschaften und
Rohstoffe / Geowissenschaftliche
Gemeinschaftsaufgaben/ Niedersächsisches
Landesamt für Bodenforschung
http://www.gga-hannover.de

California Energy Commission:
http://www.enery.ca.gov

Deep Heat Mining, Switzerland
http://www.dhm.ch/

DOE Technical Site:
http://geothermal.id.doe.gov/geothermal/

Energy in Canada:
http://www.earthenergy.ca/

European Business Council - Sustainable
Energy Future:
http://e5.org

Förderprogramme Geothermie in Österreich
http://www.eva.wsr.ac.at

GeoForschungsZentrum Potsdam
http://www.gfz-potsdam.de

Geo-Heat Center:
http://www.oit.edu/~geoheat/

Geologisches Landesamt Nordrhein-Westfalen
http://www.gla.nrw.de

GeoScience Earth Energy UK
http://www.earthenergy.co.uk/

Geothermal Database and Publications:
http://www.smu.edu/~geothermal.htm

Geothermal Education Office:
http://geothermal.marin.org

Geothermal Exchange:
http://www.the-gx.com

Geothermal Energy Technology:
http://www.doe.gov/get/getright.html

Geothermal Energy Association:
http://www.geotherm.org

Geothermal Institut New Zealand:
http://www.auckland.ac.nz/gei

Geothermal Resources Council:
http://www.geothermal.org

Geothermal Research Department:
http://www.sandia.gov/geothermal/

Geothermisches Heizwerk Neustadt-Glewe
http://www.esn.de/et-geo.htm

Geowissenschaftlicher Server Österreich
http://www.unileoben.ac.at/~bibwww/Fbg/
geoaut.html

Idaho National Laboratory:
http://www.inel.gov

IEA-Energiespeicherprogramm
http://www.sb.luth.se/vatten/projects/iea

International Geothermal Association
http://www.demon.co.uk/geosci/ igahome.html

International Geothermal Association
http://www.demon.co.uk/80geosci/igahome.html

IGA Discussion Group:
e-mail: iga-group@geoscience.co.uk

Indian Renewable Energies:
http://www.mprenewable.com

Indonesian Geothermal Association:
http://www.api.or.id

Indonesian Geothermal Association
http://www.api.or.id

Hitaveita Reykjavikur
http://www.reykjavik.is/vefur/owa/

Hita- og vatnsveita Akureyrar
http://www.nett.is/hitaveita/

Orkustofnun
http://www.os.is/english/

JMC Geothermal Engineering Homepage:
http://www.geothermal.co.jp/english/ index.htm

Mexican Geothermal Association:
http://www.ugm.org.mx/agm

New Zealand Geothermal Association:
http://www.voyager.co.nz/~tking/
nzgahome.html

Renewable Energy DataBase:
http://www.osti.gov/html/eren/eren.html
http://www.eeca.govt.nz/

Renewable Energy Meeting Calendar:
http://www.ttcorp.com/calendar.htm

Sandia National Laboratories:
http://www.sandia.gov/geothermal

Schweiz: Bundesamt für Energie,
CH-3003 Bern
http://geothermal-energy.ch

Geothermal Explorers Ltd
http://www.geothermal.ch

SOCOMINE SA, Hot-Dry-Rock-Project Soultz-
sous-Forêts
http://www.soultz.net

Stanford Geothermal Programm:
http://ekofisk.stanford.edu/geotherm.html

Sustainable Energy and Development:
http://solstice.crest.org

Swiss Federal Department of Energy-
Geothermal Office:
http://www.geothermal-energie.ch

University of Utah: Tracer Home Page:
http://www.egi.utah.edu
http://www.egi.utah.edu/egihome/egi_inside/
research/research.html

U.S. Department of Energy Geothermal:
http://www.eren.doe.gov/geothermal/

WREN - World Renewable Energy:
http://www.wrenuk.co.uk/

Worldbank / Geothermal Informations
http://www.worldbank.org/html/fpd/energy/
geothermal/index.htm

Heat Pump Links

European Heat Pump Network
http://www.ehpn.de
http://www.ehpa.org

GroundSwell: The Underground Newsletter of
the UK Ground Coupled Heating & and Cooling
Community

International Ground Source Heat Pump
Association
http://www.igshpa.okstate.edu/

IZW e.V. - Informationszentrum
Wärmepumpen- und Kältetechnik

Richard Stockton College Geothermal Project
http://vulcan.geo-phys.stockton.edu/

Heat Pump Online-Journal
"Underground Thermal Storage and Utilization",
a peer reviewed journal
http://www.geo-journal.stockton.edu
http://www.geo-journal.stockton.edu

http://vulcan.geo-phys.stockton.edu
http://www.heatpumpcentre.org/home.htm
http://www.sb.luth.se/vatten/projects/iea/
http://www.earthenergy.co.uk
http://earthenergy.ca/ghg.html
http://www.ghpc.org
http://doegeothermal.inel.gov/heatpumps.htm
http://www.demon.co.uk/geosci/earthen.html
http://www.geoexchange.org
http://www.igshpa.okstate.edu