

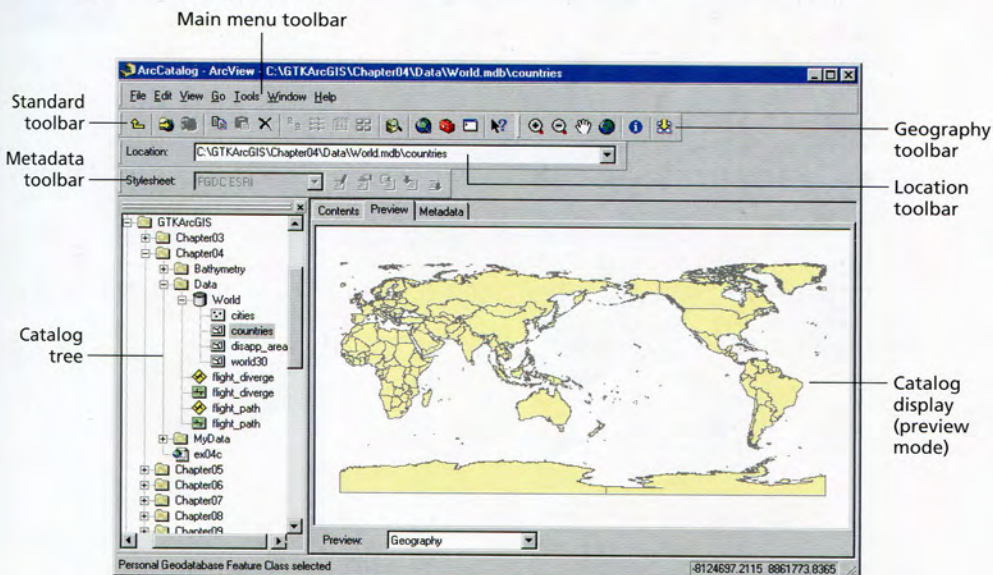
# Exploring ArcCatalog

*Browsing map data*

*Searching for map data*

*Adding data to ArcMap*

ArcCatalog is an application for managing geographic data. You can copy, move, and delete data; search for data; look at data before deciding whether to add it to a map; and create new data. The ArcCatalog application window includes the catalog display for looking at spatial data, the catalog tree for browsing data, and several toolbars.



Spatial data comes in many different formats, including geodatabases, coverages, shapefiles, CAD files, rasters, and TINs. Each format is identified by its own icon in ArcCatalog. The shapefile icon, for example, is a green rectangle. Different patterns on the green rectangle distinguish point, line, and polygon shapefiles.

In this book, you'll use geodatabase, shapefile, and raster data. You'll also use layer files, which are not spatial data sets, but rather instructions for displaying spatial data sets with certain colors, symbol markers, line widths, and so on. Layer files, too, have their own ArcCatalog icon. You'll learn more about layer files and spatial data formats throughout this book.



## Browsing map data

chapter

3  
4

ArcCatalog gives you more information about spatial data than you can get from Windows Explorer or other file browsers. It can show you which folders contain spatial data and what kinds of spatial data they contain. It lets you preview features and attributes of data before you add the data to a map. It lets you examine and edit meta-data, which is information about your data, such as when and how it was created.

### Exercise 4a

As the GIS manager of the aviation history foundation's Earhart project, you need to be familiar with its spatial data. You'll use ArcCatalog to look at this data and get information about it.

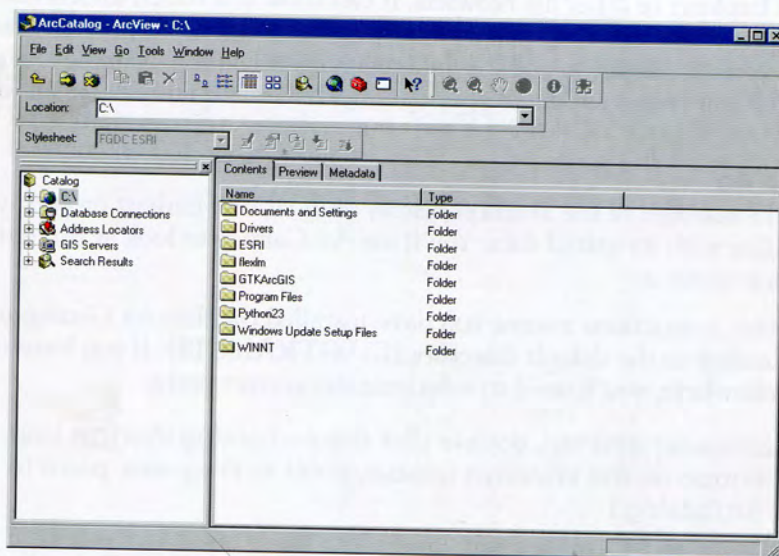
The exercise instructions assume you have installed the data for *Getting to Know ArcGIS Desktop* to the default directory (C:\GTKArcGIS). If you have installed the data elsewhere, you'll need to substitute the correct paths.

- 1 On your computer desktop, double-click the ArcCatalog shortcut icon. (Or, click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, and click ArcCatalog.)



## exercise 4a

The ArcCatalog application window opens. The catalog tree lists the data and services that ArcCatalog is connected to. By default, there is a connection to each local drive on your computer. Your application may look different from the following graphic depending on the drives you have.



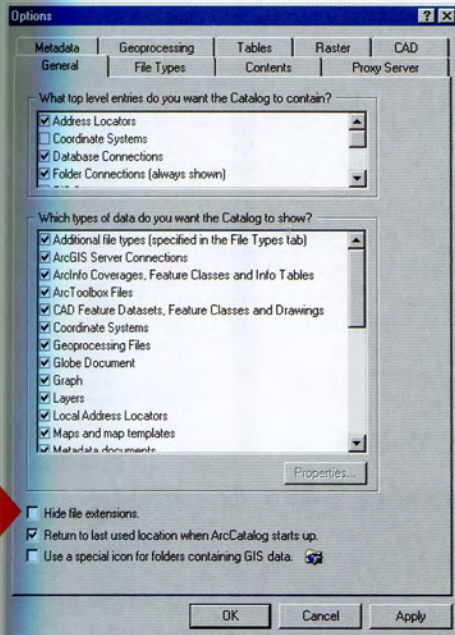
You can also connect to subdirectories, network drives, databases, Internet servers, and other services.

Once you connect to a folder, you can access the data it contains. In this exercise, it will be helpful to see the file extensions of different spatial data sets, so you will make sure that ArcCatalog is set to display these extensions.

- 2 Click the Tools menu and click Options. In the Options dialog, click the General tab.

The Options dialog lets you specify the types of data ArcCatalog displays and the information it shows about them (file name, file size, date modified, and so on). You can distinguish folders containing spatial data from those that don't, and make many other customizations to the way data is displayed.

- 3 If necessary, uncheck Hide file extensions, then click OK.



To access the spatial data in the GTKArcGIS folder more quickly, you'll create a connection to it.

- 4 On the Standard toolbar, click the Connect To Folder button.



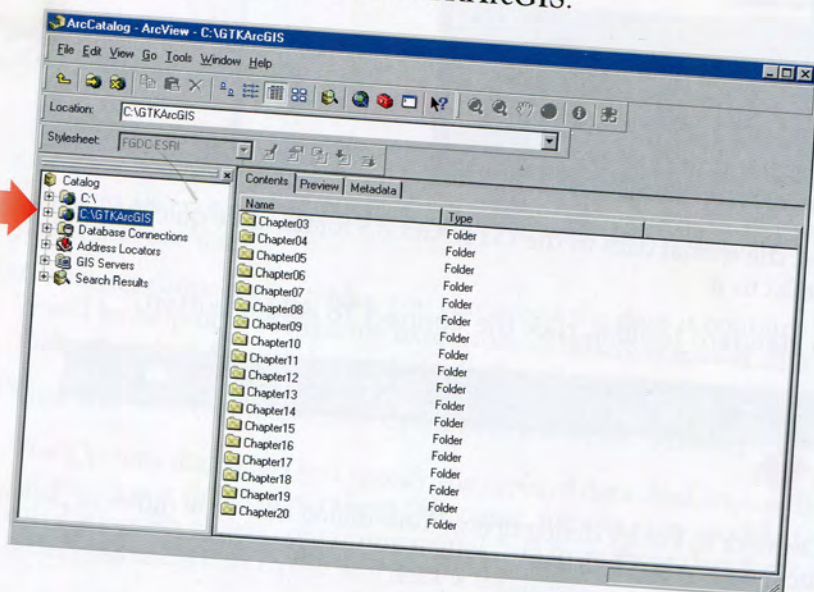
The Connect to Folder dialog opens. Your dialog may look different depending on your local and network drives.



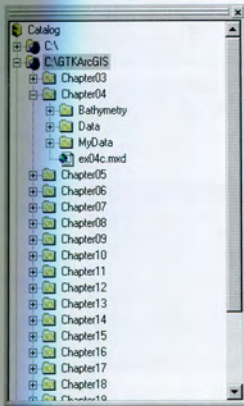
- 5 In the Connect to Folder dialog, click the plus sign (+) next to the (C:) drive to view its contents. Click on the GTKArcGIS folder, as shown in the following graphic, then click OK.



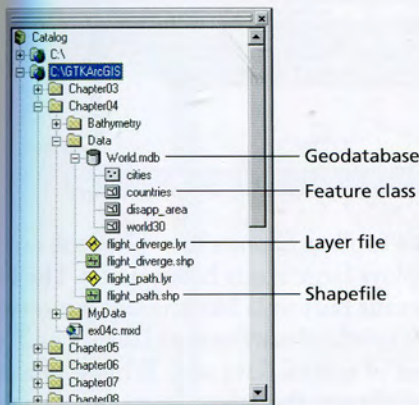
A connection is made to C:\GTKArcGIS.



- 6 In the catalog tree, click the plus sign next to C:\GTKArcGIS. Click the plus sign next to the Chapter04 folder. It contains three folders, Bathymetry, Data, and MyData, and one map document, ex04c.mxd.



- 7 Click the plus sign next to the Data folder. It contains a geodatabase (World.mdb), two shapefiles, and two layer files. Click the plus sign next to World.mdb.



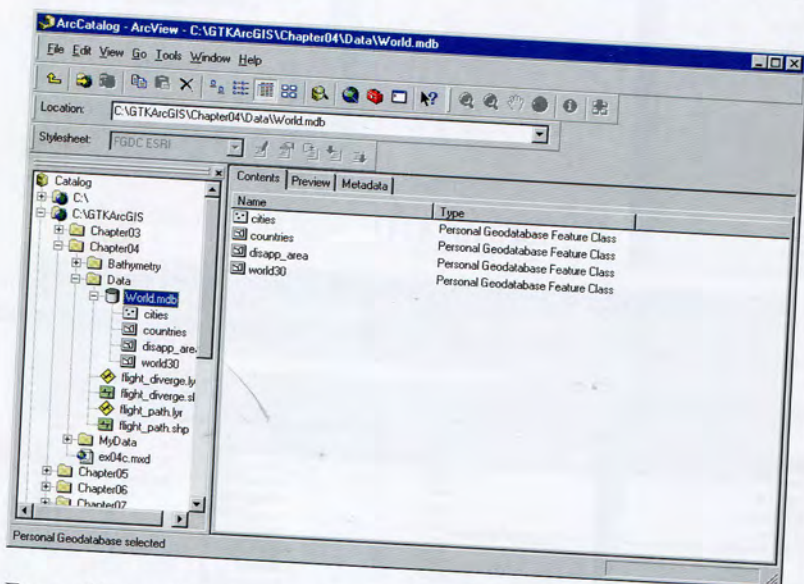
The geodatabase contains four feature classes. A feature class is a group of points, lines, or polygons representing geographic objects of the same kind. The cities feature class contains point features, the other three contain polygon features. This data was used to make the map of Earhart's flight in the previous chapter. For a more detailed explanation of feature classes, see the introduction to chapter 14.

## exercise 4a

- 8 On the Standard toolbar, make sure the Details button is selected.



- 9 In the catalog tree, click on **World.mdb**. In the catalog display, make sure the Contents tab is active.

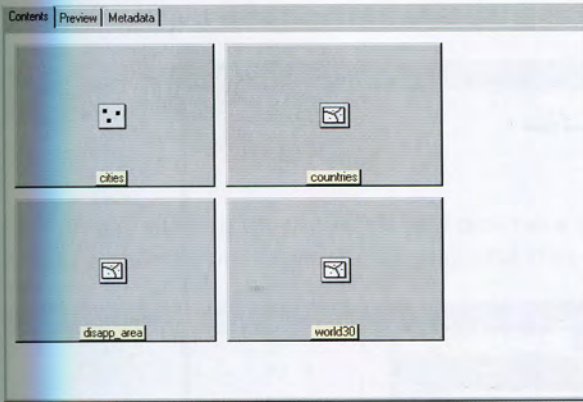


Four adjacent buttons on the Standard toolbar change how files look on the Contents tab. The Large Icons button displays large icons horizontally. The List button displays small icons vertically. The Details button is like the List button except it also shows the file type—in this case, geodatabase feature classes. The Thumbnails button allows you to view small images of spatial data sets. Whenever a folder or geodatabase is highlighted in the catalog tree, these four buttons are enabled.

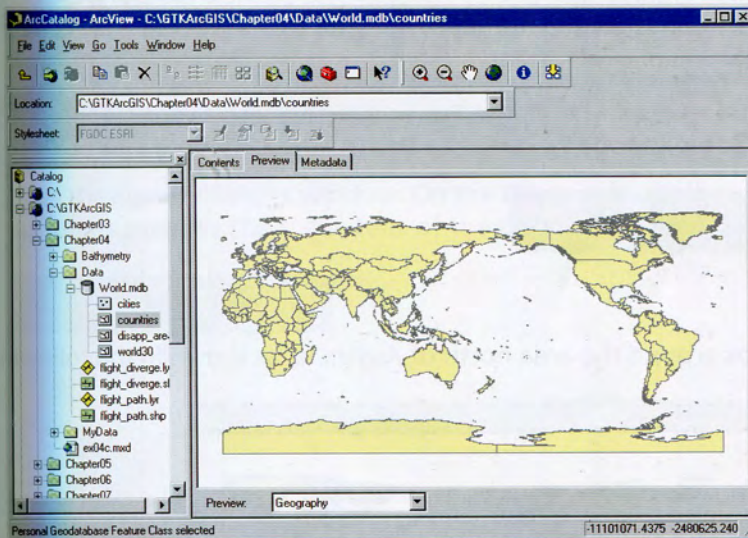
- 10 On the Standard toolbar, click the Thumbnails button.



The display changes to show thumbnail images for each file. At the moment, the thumbnails are simply larger versions of the icons. A thumbnail that shows an image of a data set can help you decide quickly if you want to use the data or not. You'll create a thumbnail for the countries feature class.



- 11 In the catalog tree, click on the **countries** feature class in the World geodatabase. In the catalog display, click the Preview tab. The geographic data for countries displays in pale yellow.



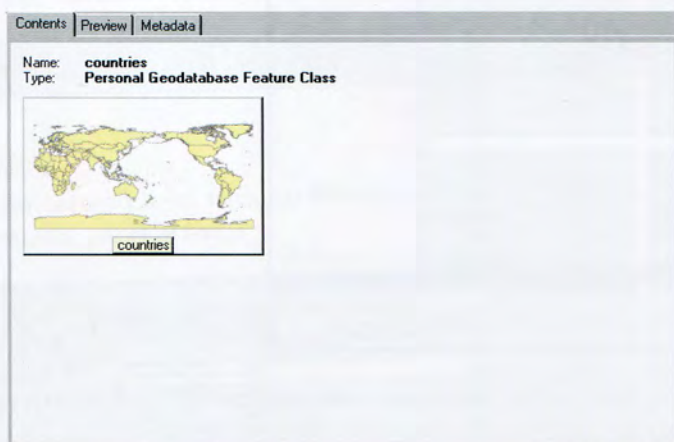
- 12 On the Geography toolbar, click the Create Thumbnail button.



An image of the data shown on the Preview tab is saved as a thumbnail graphic.

## Exercise 4a

- 13 In the catalog display, click the Contents tab to see the thumbnail.

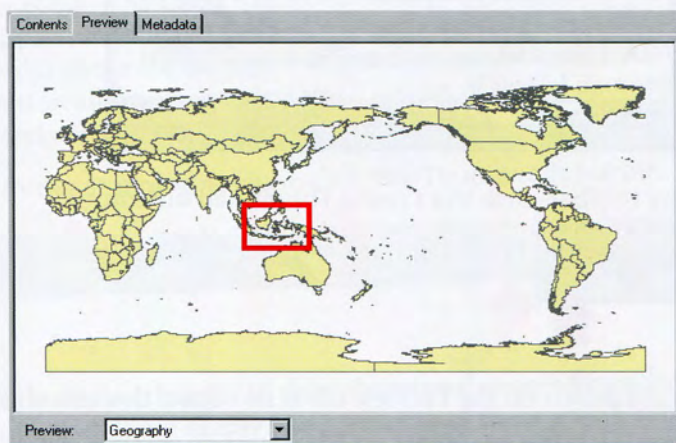


A thumbnail graphic may not be enough. The preview tab and the tools on the Geography toolbar let you further investigate a data set before deciding if you want to use it in a map.

- 14 In the catalog display, click the Preview tab again. On the Geography toolbar, click the Zoom In tool.



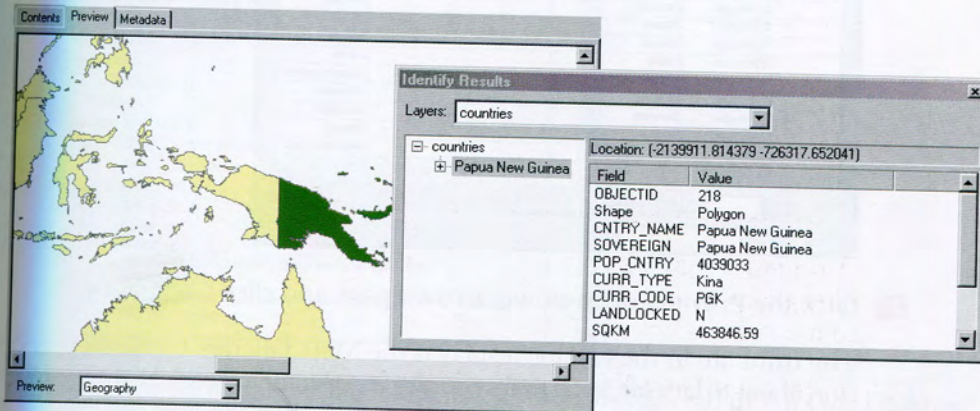
- 15 Drag a box around the area north of Australia, as shown in the following



- 16 On the Geography toolbar, click the Identify tool.



- 17 Click on a feature to identify it. If you don't see it flash green, move the Identify Results window away from the display and click the feature again.



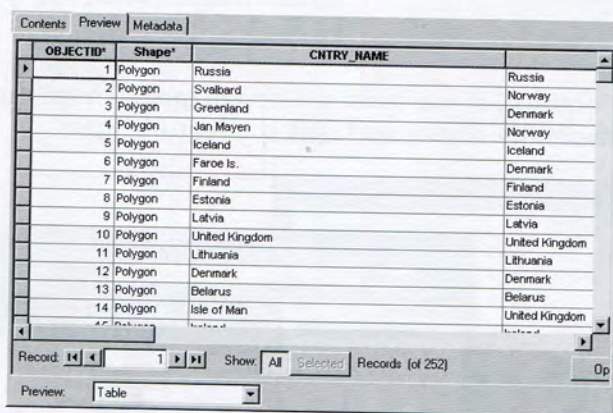
- 18 Close the Identify Results window. On the Geography toolbar, click the Full Extent button to zoom to the full extent of the data.



## exercise 4a

You can preview the attributes of a data set as well as its geography.

- 19** At the bottom of the catalog display, click the Preview drop-down arrow and click Table. The display shows you the attribute table of the countries feature class.



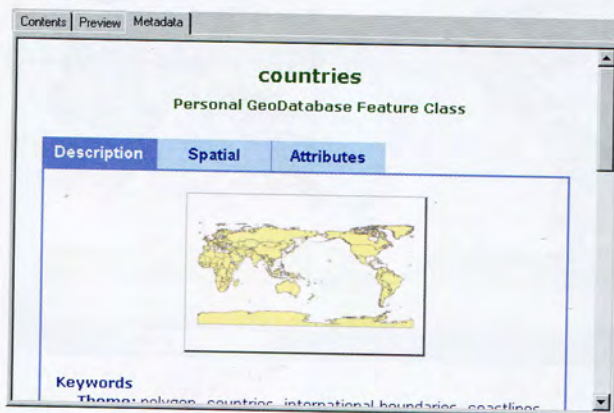
| OBJECTID | Shape   | CNTRY_NAME     |
|----------|---------|----------------|
| 1        | Polygon | Russia         |
| 2        | Polygon | Svalbard       |
| 3        | Polygon | Norway         |
| 4        | Polygon | Greenland      |
| 5        | Polygon | Denmark        |
| 6        | Polygon | Jan Mayen      |
| 7        | Polygon | Norway         |
| 8        | Polygon | Iceland        |
| 9        | Polygon | Faroe Is.      |
| 10       | Polygon | Iceland        |
| 11       | Polygon | Finland        |
| 12       | Polygon | Finland        |
| 13       | Polygon | Estonia        |
| 14       | Polygon | Estonia        |
| 15       | Polygon | Latvia         |
| 16       | Polygon | Latvia         |
| 17       | Polygon | United Kingdom |
| 18       | Polygon | United Kingdom |
| 19       | Polygon | Lithuania      |
| 20       | Polygon | Lithuania      |
| 21       | Polygon | Denmark        |
| 22       | Polygon | Denmark        |
| 23       | Polygon | Belarus        |
| 24       | Polygon | Belarus        |
| 25       | Polygon | Isle of Man    |
| 26       | Polygon | United Kingdom |

- 20** Click the Preview drop-down arrow again and click Geography.

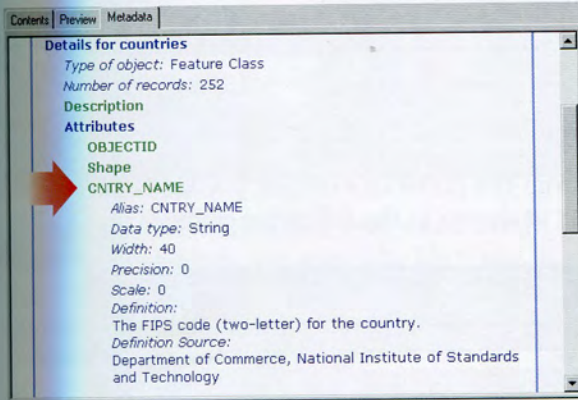
The third tab in the catalog display is the Metadata tab. Metadata provides information about a data set, such as its coordinate system, its spatial extent, and descriptions of its attributes. It may also explain how and when the data was created, what standards of accuracy it meets, and what its appropriate uses are.

A great deal of metadata is maintained automatically by ArcCatalog; some, however, must be maintained by the people who use and manage the data. ArcCatalog doesn't require you to maintain metadata, but you should.

- 21** In the catalog display, click the Metadata tab. You see the name of the countries feature class, the thumbnail you created, and three blue tabs. The Description tab is highlighted. (If your metadata looks different from the graphic, click the Stylesheet drop-down arrow on the Metadata toolbar and click FGDC ESRI.)

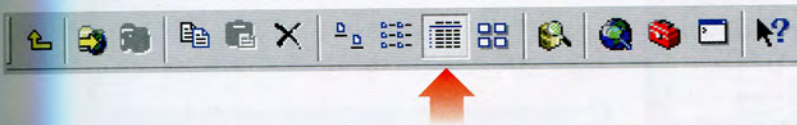


- 22 Scroll down. Clickable green text headings give you access to general information about the data. Scroll up to the top.
- 23 Click the Spatial tab to see the map projection and coordinate system that the data uses. (You will work with projections and coordinate systems in chapter 13.)
- 24 Click the Attributes tab. Click on a green attribute name to learn more about it.



For more information about metadata, click the Contents tab in ArcGIS Desktop Help (not the Contents tab in ArcCatalog) and navigate to *ArcCatalog > Working with metadata*.

- 25 In the catalog display, click the Contents tab. In the catalog tree, click on **World.mdb**. On the Standard toolbar, click the Details button.



The display is restored to its initial state.

- 26 If you are continuing with the next exercise, leave ArcCatalog open. Otherwise, click the File menu and click Exit.

# Searching for map data

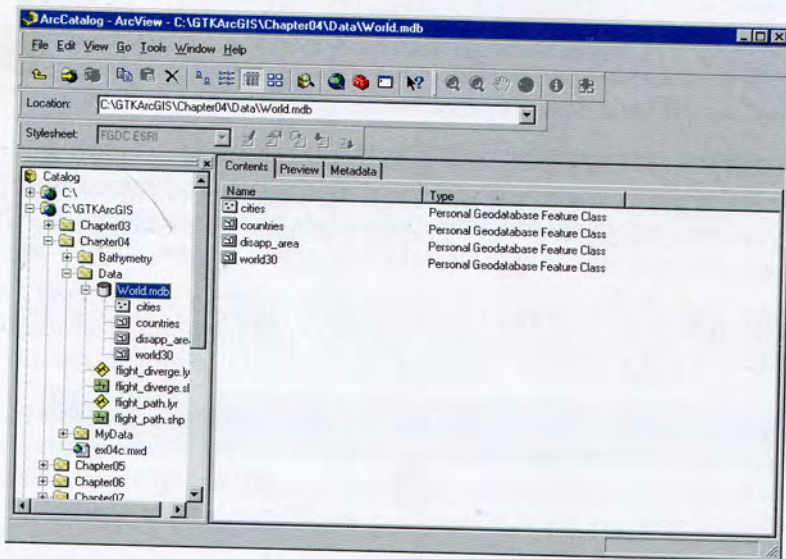
With ArcCatalog, you can search for geographic data on disk or across a network. You can search by name, file type, geographic location, creation date, or by other properties stored in the metadata.

## Exercise 4b

In this exercise, you will search ArcCatalog for more data that may be useful to Earhart project.

- 1 If necessary, start ArcCatalog.

If ArcCatalog is open from the previous exercise, you are connected to the C:\GTKArcGIS folder, as shown in the following graphic.

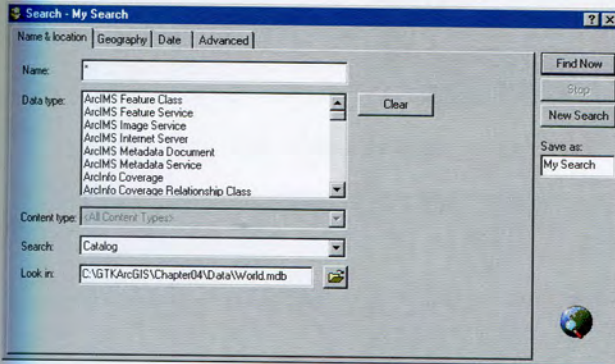


If you started a new ArcCatalog session, you are connected to the C:\ folder and your catalog tree looks slightly different. Either way is fine.

- 2 On the Standard toolbar, click the Search button.



The Search dialog opens with the Name & location tab active.

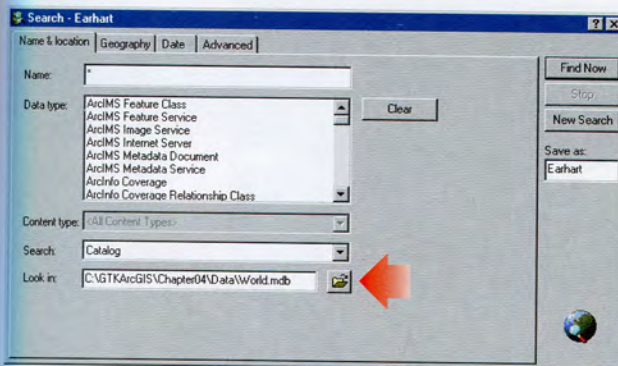


The tabs on the Search dialog give you different ways to search for data. On the Name & location tab, you search by file name or type. On the Geography tab, you search by geographic location. On the Date tab, you search by the date files were last accessed or by other dates in the metadata. On the Advanced tab, you search for keywords or other metadata text.

ArcCatalog gives each search a name and saves the results to a Search Results folder. As you will see in a moment, it doesn't actually copy or move any data into this folder. (That would be inefficient.) Instead, it creates shortcuts, or pointers, to the data it finds.

You will change the default search name (My Search) to something more descriptive. You will also restrict the search to the contents of the Chapter04 folder. This spares ArcCatalog the trouble of looking for data in unlikely places.

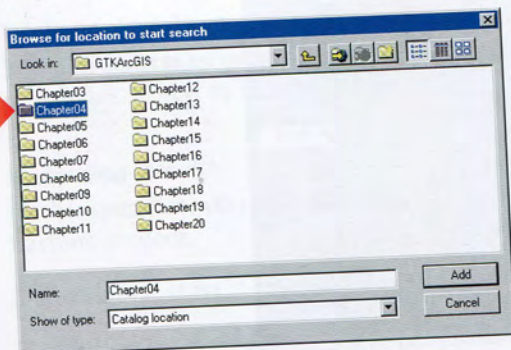
- 3 In the Save as box, highlight the name My Search and replace it with **Earhart**. Then click the Browse button next to the Look in box.



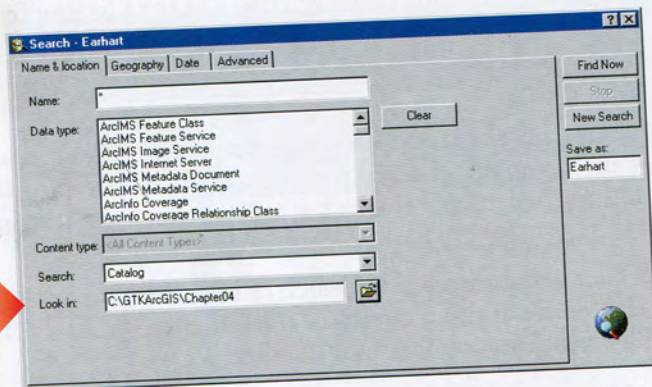
The Browse for location to start search dialog opens.

## exercise 4b

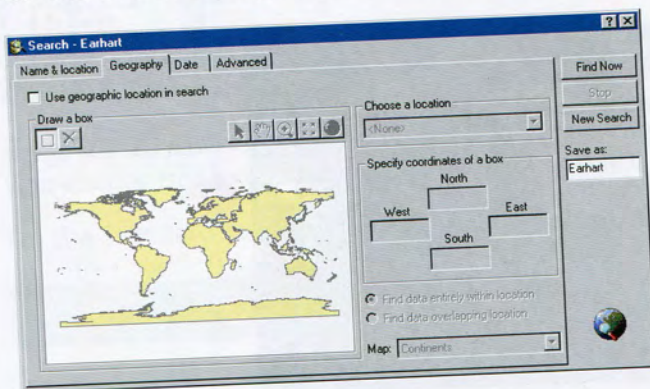
- 4 In the Browse dialog, navigate to C:\GTKArcGIS. Click on the **Chapter04** folder as shown in the following graphic, then click Add.



The search is now limited to the contents of the Chapter04 folder.

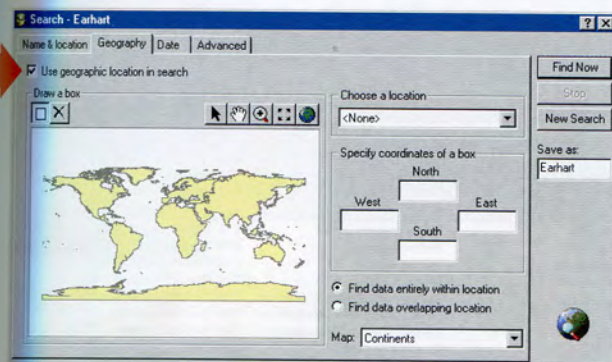


- 5 On the Search dialog, click the Geography tab.



You will concentrate your search for data on the area where Earhart disappeared. Geographical searches use latitude and longitude coordinates to find data; specifically, they check the bounding coordinates stored in a data set's spatial metadata to see if these lie within the latitude–longitude values of the search area. If they do, the data set is returned in the search results.

- 6 On the Geography tab, check Use geographic location in search.

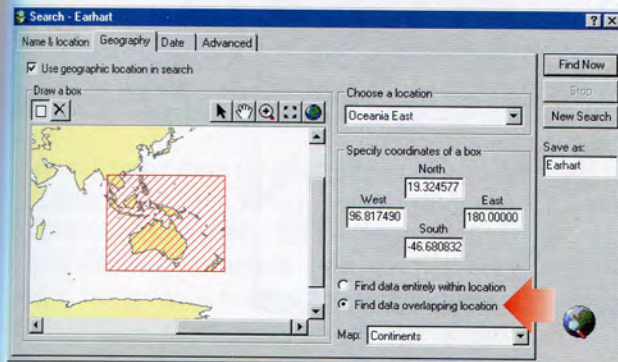


You can search for data by drawing a box on the map, by choosing a part of the world, or by entering latitude and longitude coordinates.

- 7 Click the Choose a location drop-down arrow and click Oceania East.

This is the part of the world where Earhart disappeared. The map zooms in and a shaded rectangle covers the search area.

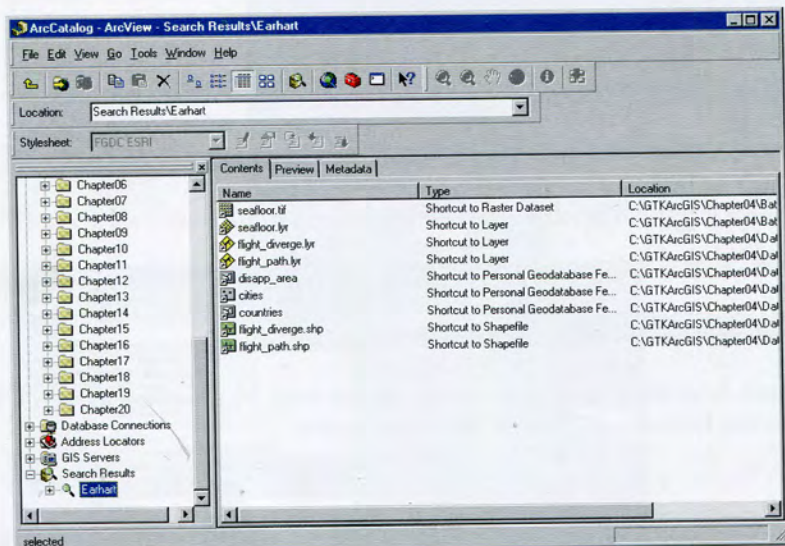
- 8 Near the bottom of the dialog, click the Find data overlapping location option. ArcCatalog will find any spatial data that falls at least partly within the rectangle. Make sure that the dialog matches the following graphic, then click Find Now.



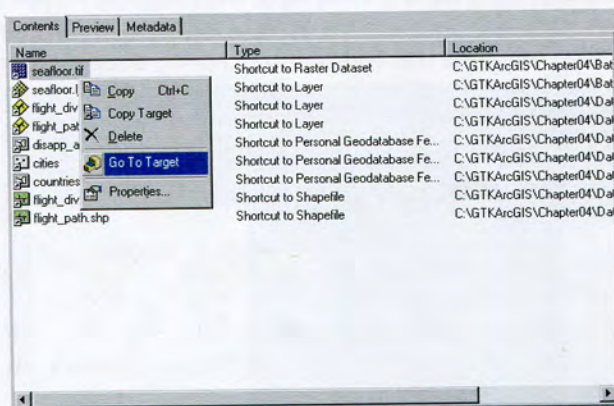
When all data sets have been found, the ArcCatalog status bar at the bottom of the application window displays the message, "Catalog search finished."

**9** Close the Search dialog.

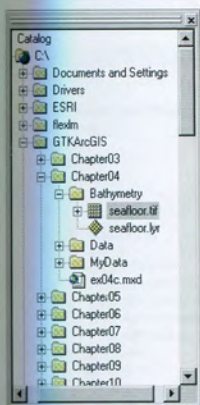
Earhart is added under Search Results in the catalog tree. The display lists shortcuts to the data sets that were found. You have already seen most of them, but there is a raster data set called *seafloor.tif* that you haven't seen before.



**10** In the catalog display, right-click on *seafloor.tif* and click Go To Target.



The catalog tree opens to the location of the data. Scroll to the top of the table of contents.



The seafloor raster data set is in the Bathymetry folder under Chapter04, along with a layer file called seafloor.lyr.

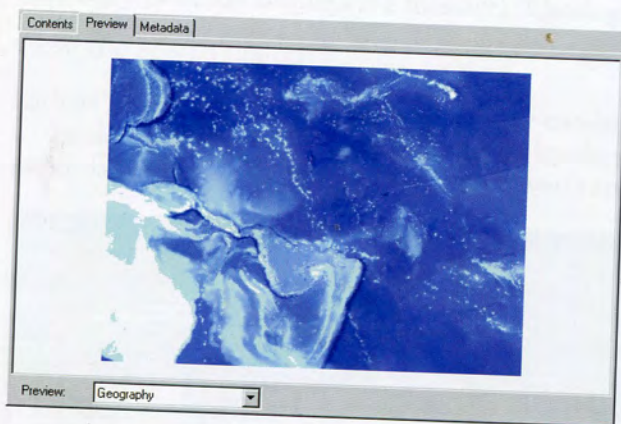
- 11 In the catalog tree, make sure that seafloor.tif is highlighted. In the catalog display, click the Preview tab.



You see a raster data set of seafloor elevation in East Oceania. The data may be useful in a map of the area where Earhart disappeared. For example, you could zoom in on Nikumaroro Island and find out how deep the water around it is. This information might affect operations to find and recover plane wreckage. The black-and-white image, however, is not easy to interpret as seafloor elevation. The seafloor layer file displays the elevation data in shades of blue.

## exercise 4b

- 12 In the catalog tree, click on **seafloor.lyr**.



In the layer file, the depth of the water is indicated by the shade of blue; darker is deeper. White areas are land.

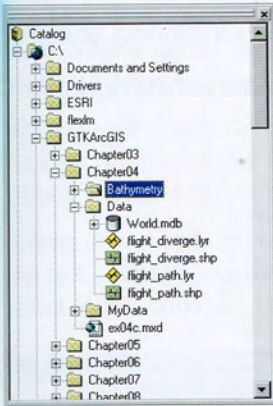
- 13 On the Geography toolbar, click the Identify tool.



- 14 Click on a few locations to identify elevation values (described as pixel values in the Identify Results window). The values are in meters. If you click on a spot of land, you should get the value No Data.

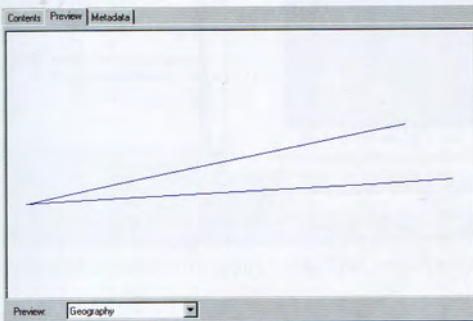


- 15 Close the Identify Results window. In the catalog tree, click the minus sign next to the Bathymetry folder to collapse it. If necessary, click the plus sign next to the Data folder to expand it.

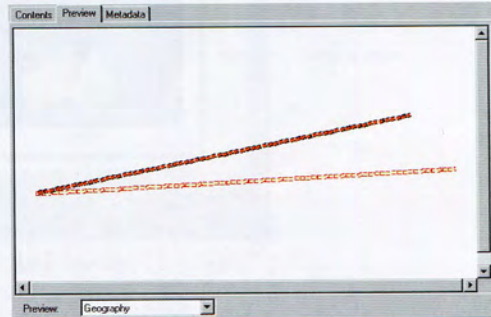


Besides the World geodatabase, the Data folder contains shapefiles and layer files for the Earhart flight paths.

- 16 Make sure the Preview tab is active in the display. Click on the flight\_diverge shapefile (green square icon) to preview it. Next, click on the flight\_diverge layer file (yellow diamond) and preview it.



flight\_diverge shapefile



flight\_diverge layer file

The shapefile displays as two blue lines. The layer file shows the thick dotted lines that you saw in the previous chapter.

## exercise 4b

Layer files allow you to store symbology information—the colors, shapes, and sizes that you choose for features—so you never have to recreate it. Every layer file is associated with and depends on a spatial data set. The `flight_diverge` layer file will not display in ArcMap unless the `flight_diverge` shapefile is accessible on disk.

In the next exercise, you will add data and layer files from ArcCatalog to ArcMap.

- 17** If you are continuing with the next exercise, leave ArcCatalog open. Otherwise, click the File menu and click Exit.