

**Explanation of the shapefile accompanying the NAIP CCM image,
and how to access the image date information.
ArcView 3.x Version**

Introduction

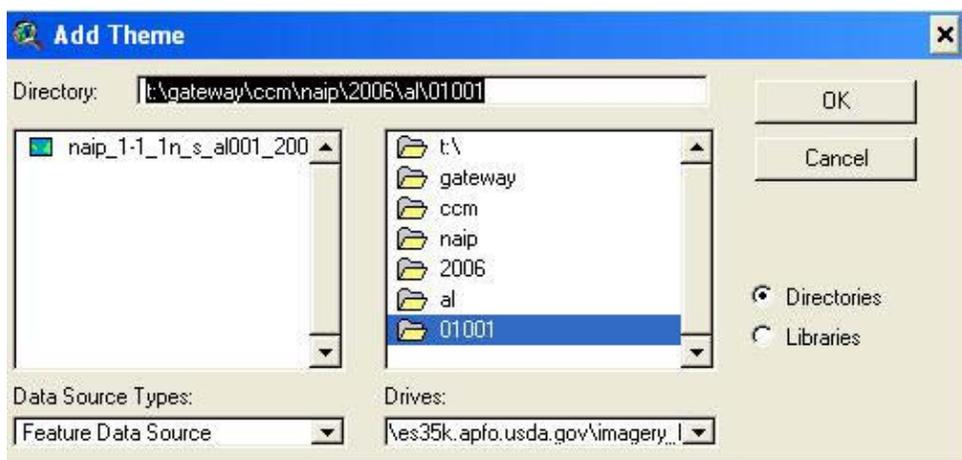
These instructions explain the shapefiles which accompany NAIP Compressed County Mosaics (CCM). The shapefiles are provided with the imagery, and include fields describing the image.

Image dates provided in the shapefile are for the majority date of the image. A given Digital Ortho Quarter Quad (DOQQ) may contain portions of several different exposures, possibly from different flying dates, or different times within the same day. Processing methods vary between image contractors, and the date given to a polygon may not be correct for all parts of the image.

Locating the Image Date

The imagery dates can be found easily. They are listed in a field called “*Idat*” in the attribute table of the shapefile provided with the Compressed County Mosaic. The shapefile should have the same name as the CCM, but with different extensions. Both of these files should be in the same projection: Universal Transverse Mercator (UTM), for their appropriate zone.

Data in ArcView are called “*Themes*.” When loading a Theme into ArcView, it is necessary to select the vector and raster data separately. To add the shapefile (vector), select *Feature Data Source* from the dropdown menu *Data Source Types* in the lower left corner of the dialog box. When adding the CCM, change the selection to *Image Data Source*.



*Figure 1: The Add Theme window, with the shapefile available for selection.
Feature Data Source is the data type.*

ArcView GIS 3.3

File Edit Table Field Window Help

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Attributes of Naip_1-1_1n_s_001_2006_1.shp

Shape	Qname	Idat	Econ	Doqg	Qkey
Polygon	Deatsville SE	20060916	NC	n3208629.se	323000N0862230W
Polygon	Deatsville NE	20060916	NC	n3208629.ne	323345N0862230W
Polygon	Marbury SE	20060916	NC	n3208621.se	323730N0862230W
Polygon	Marbury NE	20060916	NC	n3208621.ne	324115N0862230W
Polygon	Deatsville SW	20060818	NC	n3208629.sw	323000N0862615W
Polygon	Deatsville NW	20060818	NC	n3208629.nw	323345N0862615W
Polygon	Marbury SW	20060818	NC	n3208621.sw	323730N0862615W
Polygon	Marbury NW	20060818	NC	n3208621.nw	324115N0862615W
Polygon	Old Kingston SE	20060622	NC	n3208628.se	323000N0863000W
Polygon	Old Kingston NE	20060622	NC	n3208628.ne	323345N0863000W

Figure 2: The Theme (attribute) Table, with the IDAT field circled.

Steps for finding the dates

1. Loading the Data

- 1) Open ArcView
- 2) Add data by clicking on the *Add Theme* button. This is the plus sign with a raised square background, found on the Standard toolbar.



Figure 3: The Add Theme button in ArcView.

- 3) Navigate to the directory where the data is stored. Select the image (.sid) or the shapefile (.shp), as shown in *Figure 1*. Click *Add*. The shapefile and image must be added in two steps, by selecting *Feature Data Source* or *Image Data Source*.
- 4) Find the date(s) from the *Idat* field in the *Theme Table*.

2. Finding the Image Date Information

Method 1: Identify Tool

Using the *Identify* tool, click on a polygon, and read the date in the “*Idat*” field

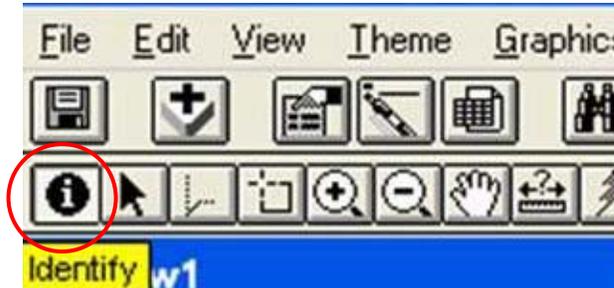


Figure 4: The identify tool is the letter “i” within a circle.

Select the shapefile name from the *Layers* dropdown menu in the *Identify Results* window. In the *Identify Results* window, the date will be displayed after the field heading *Idat* (Image Date). The date may be written in the format 20060616 or 2006-06-16.

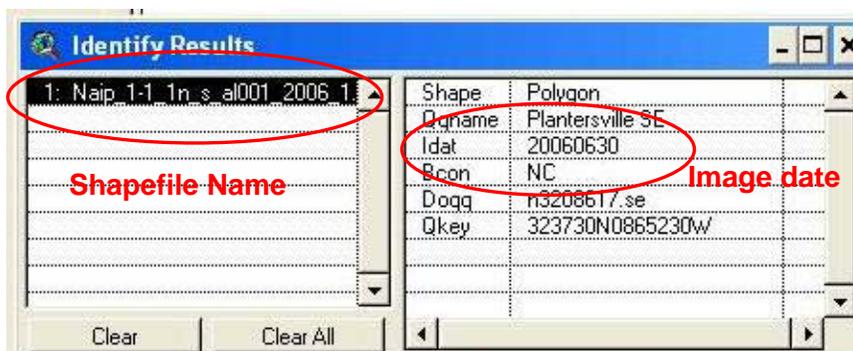


Figure 5: Finding the IDAT field from the shapefile’s attribute table in the Identify Results window.

Method 2: Open the Attribute Table

Use the *Select Feature* tool in ArcView, select a polygon (or polygons), and read the results in the *Theme Table*.



Figure 6: The Select Feature icon.

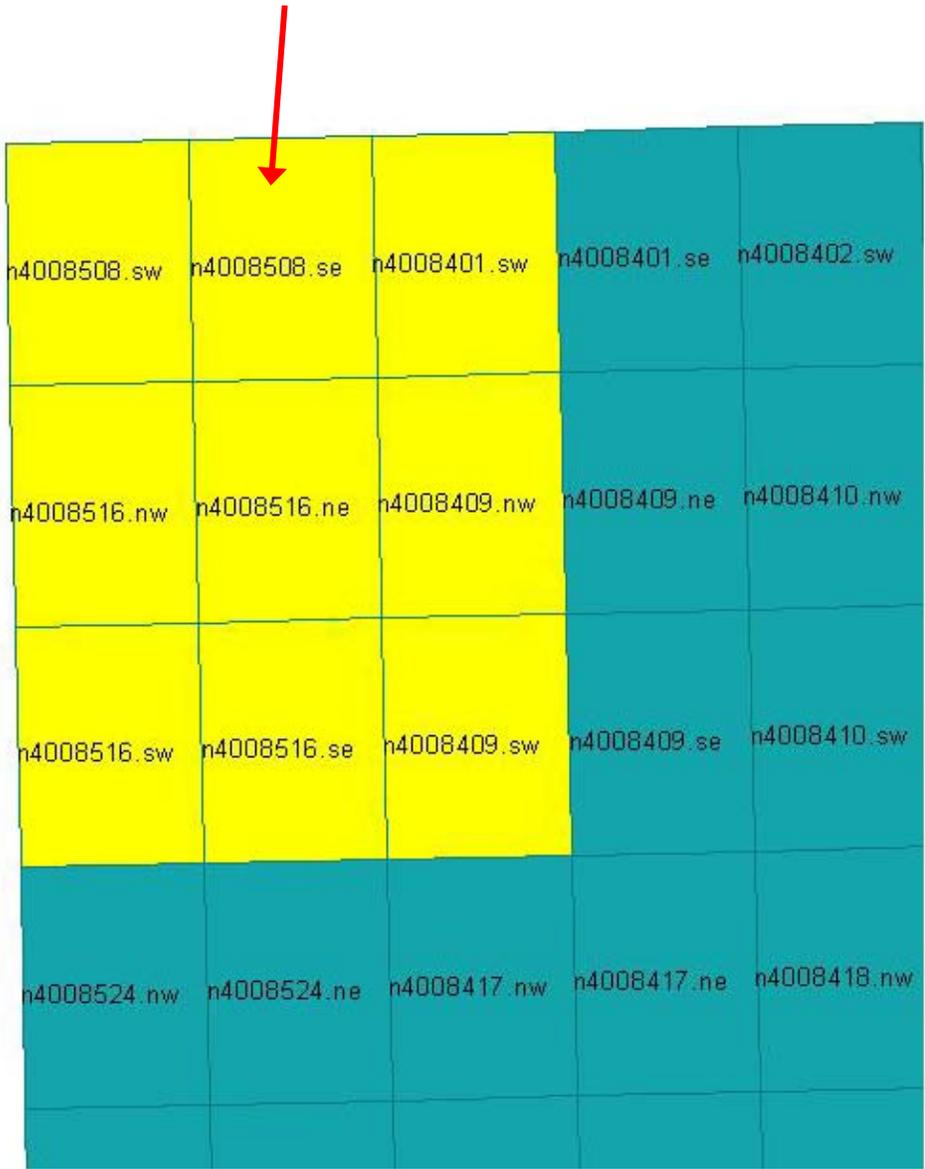


Figure 7: Hold down the Select Feature tool to select DOQQ polygons

Click the *Open Theme Table* icon (circled) to view the attribute records. Click the *Promote* icon at the top of the table to move the selected records to the top of the list. The image dates are in the *Idat* field (circled). The other fields in the *Theme Table* are explained in the last section of this document.



Figure 8: Click on the Open Theme Table icon.

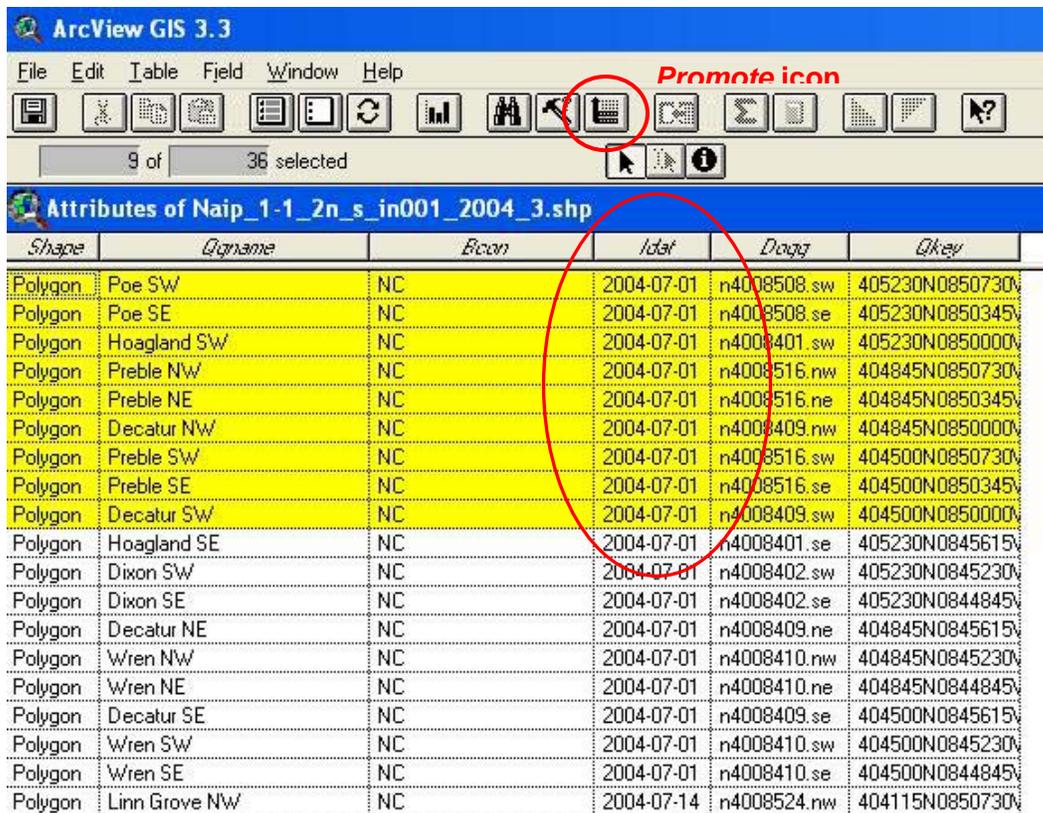


Figure 9: The Promote icon moves selected records to the top of the table. The image dates in the Idat field are circled.

Method 3: Label the DOQQ Polygons

Use the "Idat" field as a label for the polygons, and view all the dates for the entire CCM overlaid on the image.

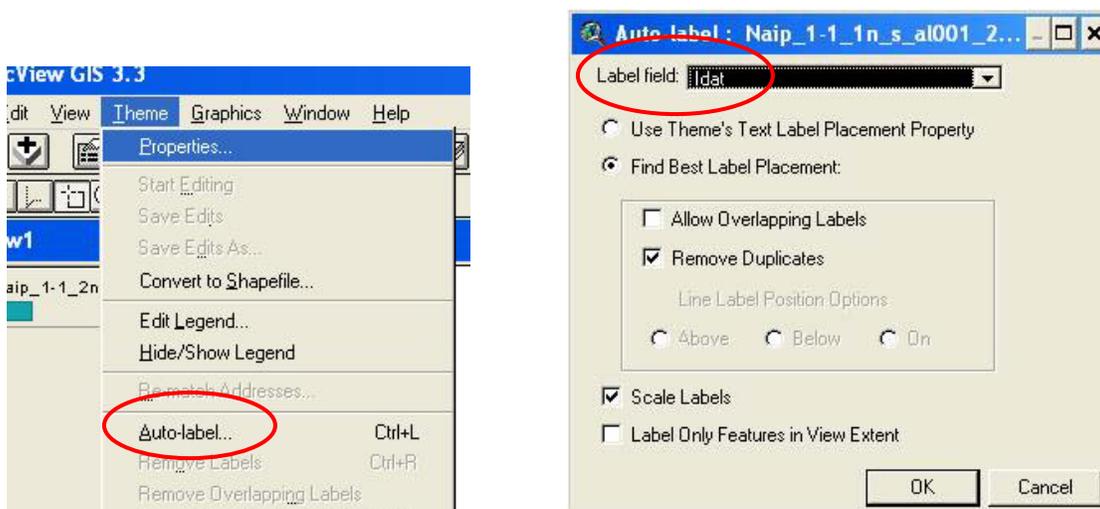


Figure 10: Under Theme, select Auto-label, then select Idat as the Label field in the Auto-label dialog box.

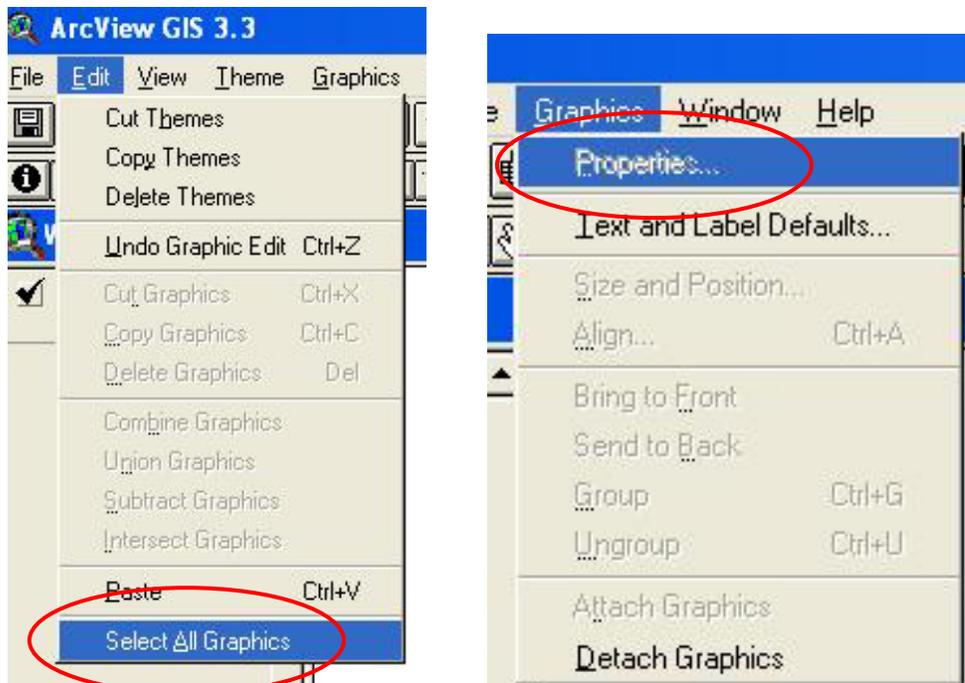


Figure 11: To rotate the labels, click Select All Graphics under the Edit dropdown menu. Open the Text Properties dialog box by selecting Properties under the Graphics menu.

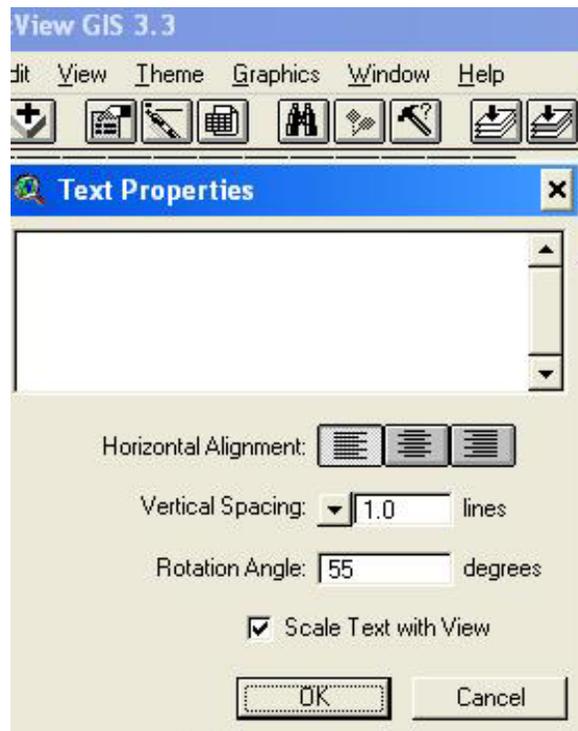


Figure 12: The Text Properties box gives the options to rotate the text or adjust the spacing.

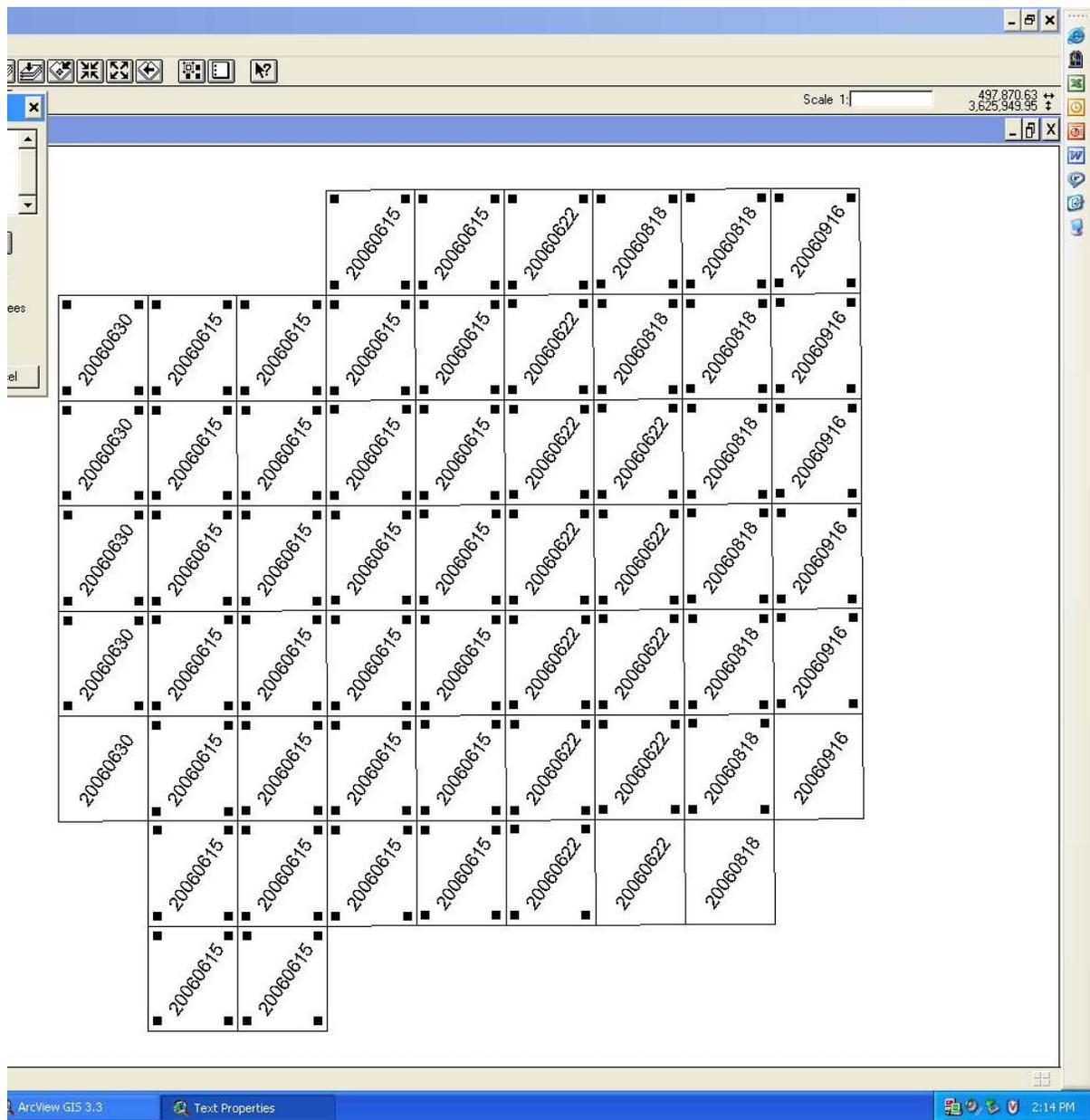


Figure 13: A shape file with the dates rotated.

In Figure 14, below, you will see that the polygon boundaries from the shapefile and the actual DOQQ (Digital Ortho Quarter Quads) areas displayed in the CCM are not identical. When looking inside the blue rectangle, there is a noticeable tonal difference between the image outlined and the ones next to it. There is also a definite image boundary, visible outside of the DOQQ polygon area. This is because each Quarter Quad has a buffer that overlaps the adjacent images. The input order of the DOQQs in the compression process will determine which image is displayed above another.

The image dates given in the Theme Table are for a majority date of flying, and apply to the individual tiles making up the CCM. They will need to be used carefully when looking at the entire county mosaic.

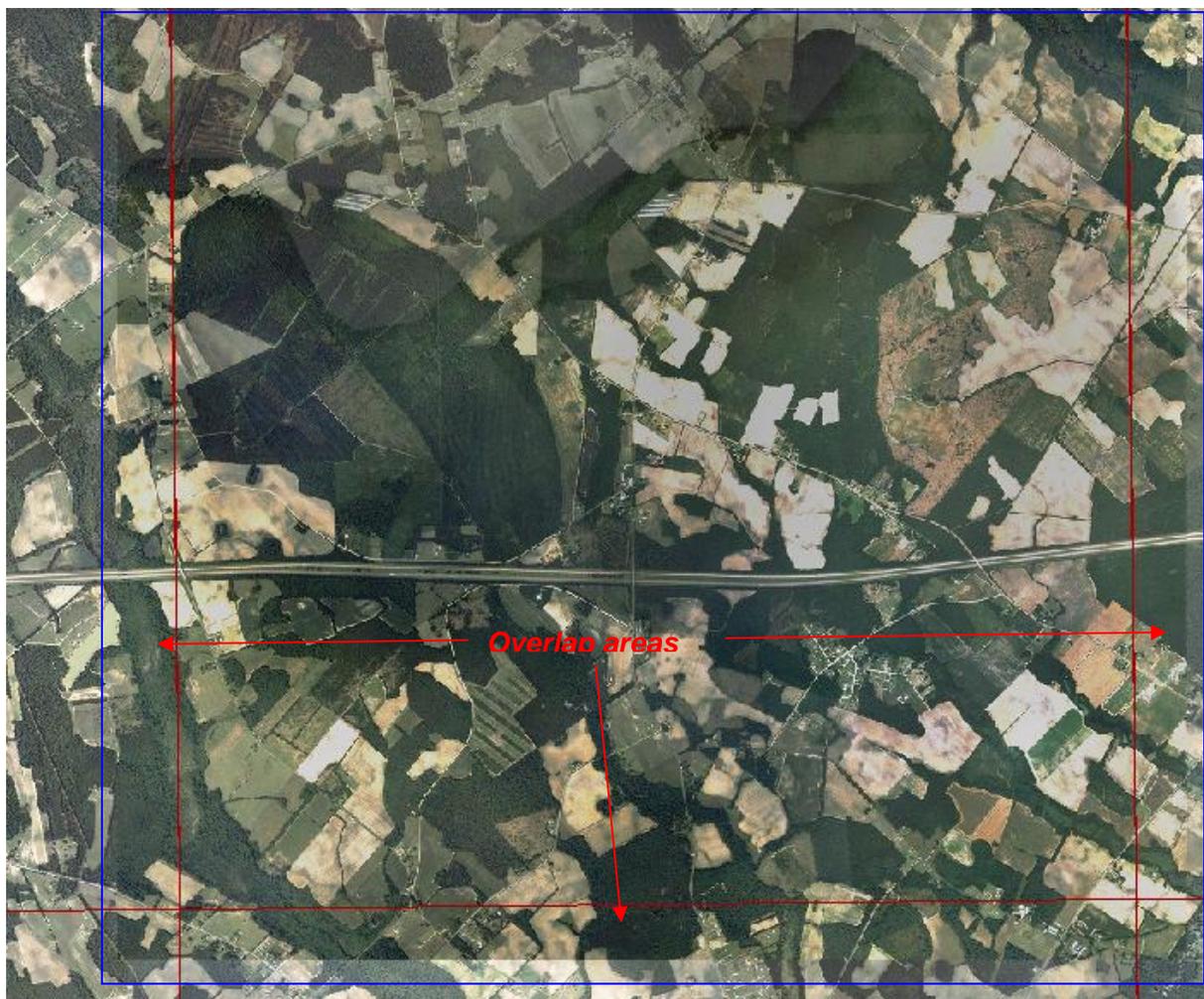


Figure 11: An area displaying image overlap, extending beyond the polygon area.

Other Fields in the Shapefile's Theme Table.

The Theme Table describing a CCM is rather small, containing six fields. One of these is a standard ESRI field, created by the program. This is *Shape*, in this case, *Polygon*. The other five fields are populated by the contractor providing the imagery, and describe each individual DOQQ in the CCM.

Shape	Qname	Idat	Bcon	Doqq	Qkey
Polygon	Deatsville SE	20060916	NC	n3208629.se	323000N0862230W
Polygon	Deatsville NE	20060916	NC	n3208629.ne	323345N0862230W
Polygon	Marbury SE	20060916	NC	n3208621.se	323730N0862230W
Polygon	Marbury NE	20060916	NC	n3208621.ne	324115N0862230W
Polygon	Deatsville SW	20060818	NC	n3208629.sw	323000N0862615W
Polygon	Deatsville NW	20060818	NC	n3208629.nw	323345N0862615W
Polygon	Marbury SW	20060818	NC	n3208621.sw	323730N0862615W
Polygon	Marbury NW	20060818	NC	n3208621.nw	324115N0862615W
Polygon	Old Kingdom SE	20060622	NC	n3208628.se	323000N0863000W
Polygon	Old Kingdom NE	20060622	NC	n3208628.ne	323345N0863000W

Figure 12: The Theme Table for the descriptive shapefile accompanying a CCM.

The **QQName** is the same name as the USGS topographic quadrangle map for that area. In this case, the quadrangle has been divided into four quarters, NE, NW, SE and SW. The image *Old Kingdom SE* would cover the area in the southeast portion of the USGS map of the same name, in Alabama.

BCON stands for “Band Content” (also defined as “acquisition collection medium”); in this case the “NC” indicates Natural Color. “CIR” would be Color Infrared.

IDAT, as discussed above, is the majority image date for each DOQQ.

DOQQ is the unique image name for each DOQQ, or Digital Ortho Quarter Quad. The elements of the name are (as defined in the metadata): image type, latitude, longitude, quadrangle number, and quadrant.

For the quadrangle *Old Kingdom SE*, the image name is *n3208628.ne*. The single letter “n” indicates a Natural Color image; “c” would indicate a Color Infrared image. “32” is the degree of Latitude, and “086” is the degree of Longitude for the image. “28” indicates the quadrangle’s 7.5’ x 7.5’ locator within a 1 degree block. This system, devised by USGS, divides each one degree block into 64 cells (8 cells x 8 cells.) The numbering begins in the upper left corner, with 1 – 8 on the first row, 9 – 16 on the second, etc. Block 40 is in the middle of the 4th row. The quadrant is the section within the quadrangle that the image represents (NE, NW, SE, or SW.)

QKEY is a more detailed locator for the image, and is unique to each DOQQ. It is formed by joining the Latitude and Longitude positions of the lower right hand corner. For the image used as the example above, *n3208628.ne*, the QKEY is *323000N0863000W*. This concatenation of numbers and letters means that the lower right corner is at 32°30'00" North Latitude and 86°30'00" West Longitude.

ArcView does not give the option of displaying *Degrees-Minutes-Seconds* in the display. Anyone wanting to verify a QKEY could set the ArcView display to decimal degrees, and convert from degrees-minutes-seconds to decimal degrees. The DOQQ corners would be at the following divisions of a minute: The example given above would convert to 32.50° and -86.50°

<i>Minutes/seconds</i>	<i>decimal</i>
-00-00.0N	0.00000
-03-45.0N	0.06250
-07-30.0N	0.12500
-11-15.0N	0.18750
-15-00.0N	0.25000
-18-45.0N	0.31250
-22-30.0N	0.37500
-26-15.0N	0.43750
-30-00.0N	0.50000
-33-45.0N	0.56250
-37-30.0N	0.62500
-41-15.0N	0.68750
-45-00.0N	0.75000
-48-45.0N	0.81250
-52-30.0N	0.87500
-56-15.0N	0.93750



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