



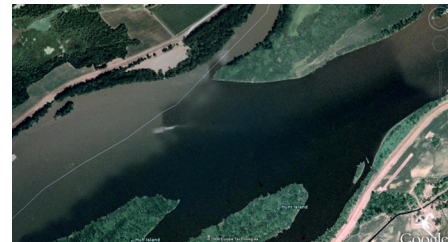
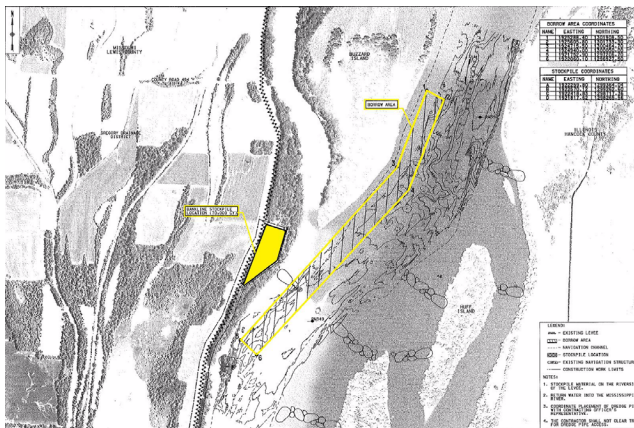
Image Geo-reference Tool - Your New Best Friend

By Joe Burnett

Have you ever been given a survey to do but you knew only generally where it was to be performed? Have you been given an aerial photograph with borders drawn around your project area, but no electronic format file that you could load into HYPACK®? It's pretty hard to set up your project runlines or matrix under these circumstances. Well then... this article is for you.

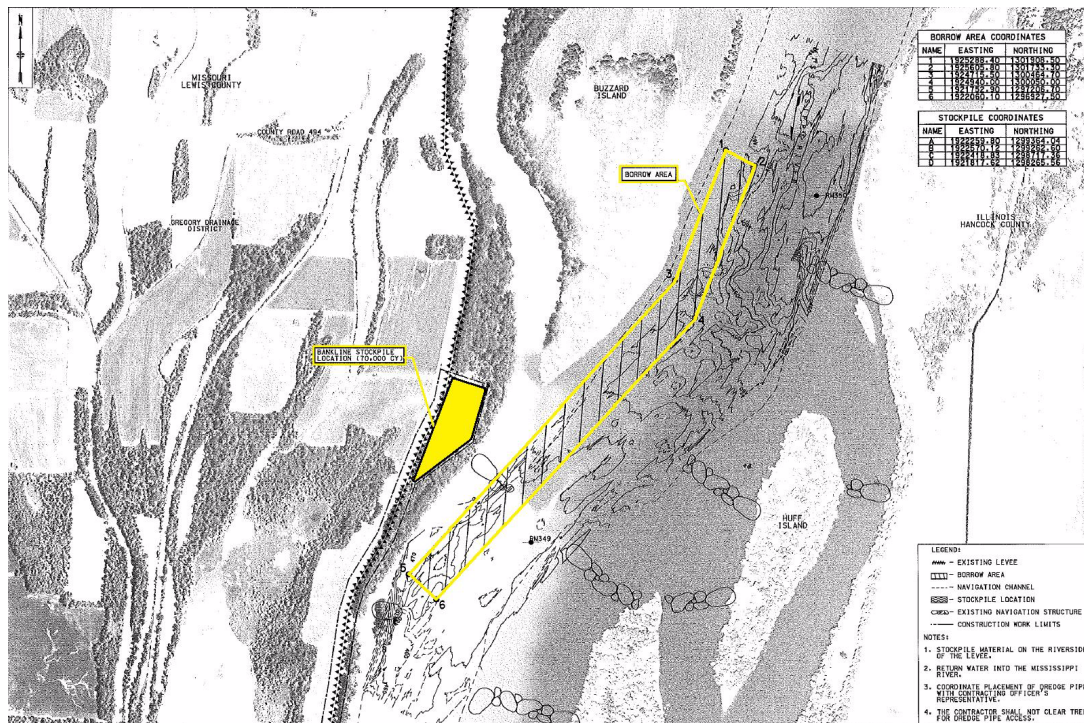
HYPACK® has incorporated an Image Geo-reference Tool that will enable you to take any image, sketch, scan, drawing, picture, or even your favorite cartoon character, and turn them into a geo-referenced TIF file, that you can then load into HYPACK® to reference during your survey.

So, first, you need your image. It really can be virtually anything:



In order to accurately geo-reference any of these images, you will need to establish "control points". **Control points** are the coordinates, in the project coordinate system or WGS-84, of specific locations in your chart. You will need a minimum of two points in your image file. If your image covers a large area, three or more points are recommended.

FIGURE 1.



So, let's get started.

1. **Create your project and set the geodesy.** For this example, we will be using State Plane NAD 83 - Illinois West .
2. **On the image, choose at least two points and their corresponding coordinates.** In Figure 1, we can see that there are coordinates for the boundary points of the survey area. We will use two of them.
3. **Select PREPARATIONS-EDITORS-IMAGE GEO-REFERENCE.** The window shown in Figure 2 will now appear.
4. **Select IMAGE-LOAD** and a File Open dialog will appear for you to load your image. HYPACK® supports *.tif, *.bmp and *.jpg format graphics. Your image will now appear on the screen.

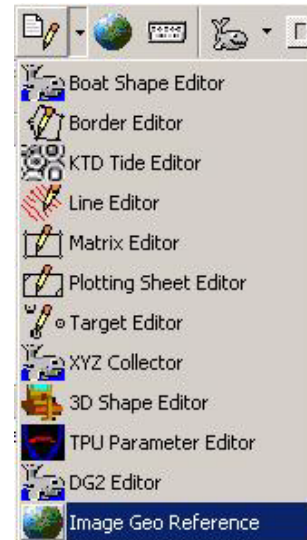
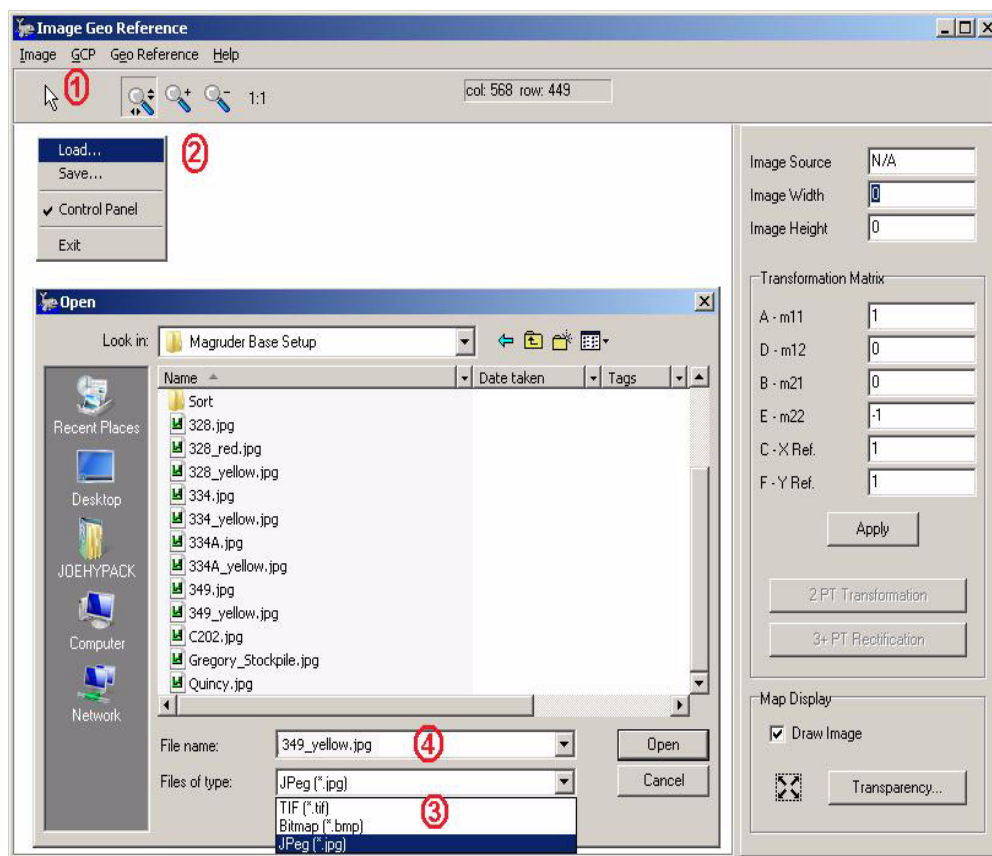


FIGURE 2. Loading your Image to the Geo-Reference Tool



1. Select IMAGE.
2. Select LOAD.
3. Choose your image file type.
4. Select your image and click [Open].

5. **Mark the control points** in the image and enter the coordinates.
 - a. Use the pan and zoom buttons to locate your reference points. (Figure 3, step 1)

FIGURE 3. Geo-reference Tool Tool Bar

- b. For each control point, do the following:
 - i. Click the arrow button. (Figure 3, step 2)
 - ii. Double-click the arrow cursor on the location of the first control point. The Edit Ground Control Point dialog will appear.
 - iii. Enter the coordinate values, in their correct world point units, in the dialog.
 - iv. Click [2 Pt Transformation]. The transformation information will now populate.
 - v. If you want the geo-referenced image to appear on the main shell, check the "Draw Image" option.

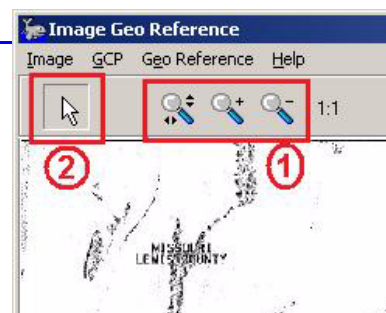
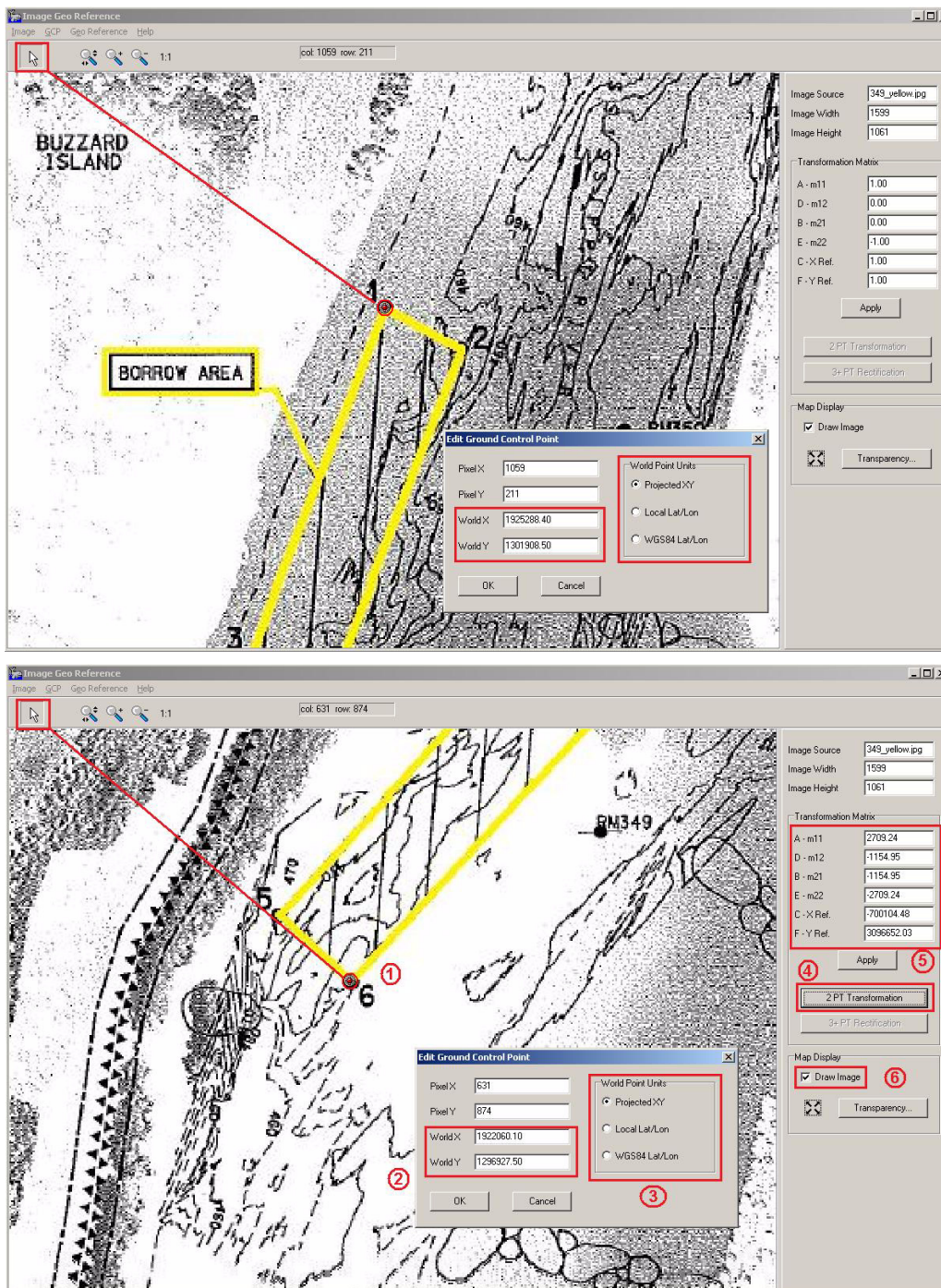


FIGURE 4. Entering your Control Points



1. Click the arrow icon and double-click the control point.

2. Enter the coordinates.

3. Set the world units.

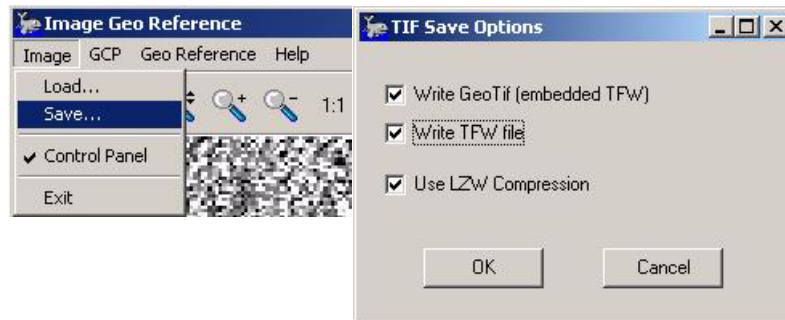
4. When the control points are entered, click [2 Pt Transformation].

The transformation info. populates.

5. Check "Draw Image".

6. **Save your image** to a GeoTIF file.
 - a. Select IMAGE-SAVE and the TIF Save Options dialog appears.

FIGURE 5. Saving your Geo-referenced TIF



- b. It is best if you go ahead and "check" all boxes. Some programs require the TFW file, so it's better to have it, than have to repeat this process again.
 - c. Click [OK], and name your TIF file.
- If you have done everything correctly, your Main Shell screen should look something like this:

FIGURE 6. Two Images Loaded to the HYPACK® Area Map

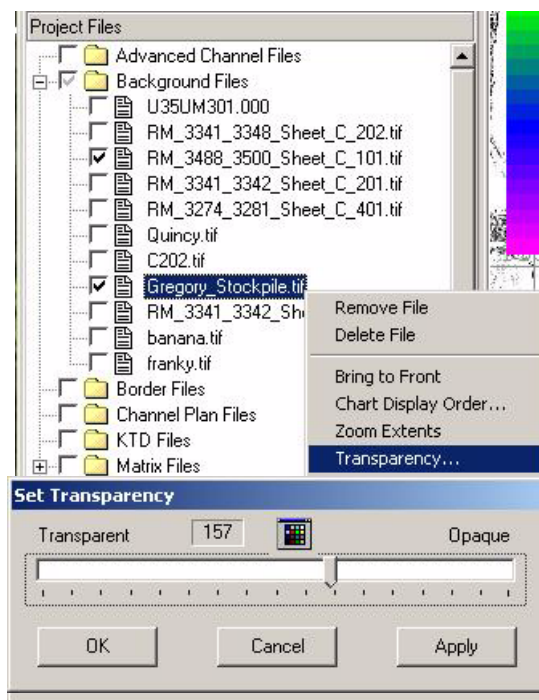


SETTING CHART TRANSPARENCY

As you can also see in Figure 6, the smaller, colored background file is semi-transparent. Transparency can be applied to almost any file in the main shell.

To apply a Transparency to a file,

1. Right-click on the file name in the Project Files list and select "Transparency..." and the Set Transparency Window will open. a
2. Set the image's transparency and click [Apply].
3. When you are satisfied with the resulting view, click [OK].



SETTING CHART ORDER

1. Right-click on the Background Charts folder in the Project Files list and select "Chart Draw Order".

FIGURE 7. Chart Display Order Dialog

2. Select a file in the list and use [Front] and [Back] to shift their order. (Move opaque files toward the back and transparent ones toward the front.)

If you have done this successfully, your HYPACK® map should look something like this:

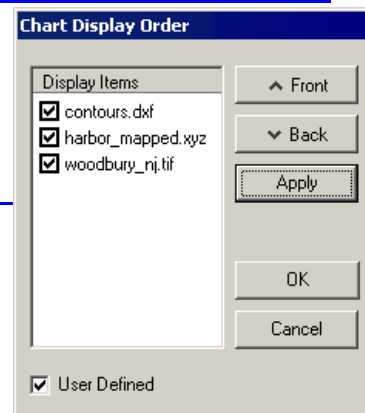


FIGURE 8. Any image can be a chart!

Good Luck and Have Fun.

