Image Analysis for ArcGIS FAQs[1]

Fall 2004

How Do I Apply a Histogram Match to an Image?

Use the Image Analysis extension in ArcMap to apply a Histogram Match to your image. Histogram Matching is often useful for mosaicking purposes and visual analysis. This document describes how to perform this operation in ArcMap.

What You Will Need and Other Assumptions

- An image to be matched to a 'master image' for visual analysis and mosaicking purposes (ERDAS Imagine format)
- A 'master image' to use as the Match Image

Overview of Steps

1. Use the Radiometric Enhancement tools of the Image Analysis extension in ArcMap to apply a Histogram Match to your image.

Step-by-Step Example

1. Start ArcMap from your Desktop, or on the Windows Taskbar click **Start | Programs | ArcGIS | ArcMap**. Ensure the Image Analysis extension is visible. If not, from ArcMap's main menu select: 1) **Tools | Extensions** and enable **Image Analysis**; and 2) **View | Toolbars** and enable **Image Analysis**.

2. Use the **Add Data** button on the main toolbar of ArcMap to add your images to the Data Frame (both an original image to match, and an image to use as the Match Image).

3. From the Image Analysis toolbar, select **Image Analysis | Radiometric Enhancement | Histogram Match**.

4. In the Histogram Match dialog, specify your **Input Image** (the image to be matched to the Match Image) and specify a location and filename for your new **Output Image** (saving the results from the Histogram Match). Also specify the **Match Image** for the Histogram Match. Click **OK**. The histogram of your Input Image will be matched to the histogram of the Match Image you specify.

5. Inspect your results. *Note: The output image of a Histogram Match should not be used for further spectral analysis. The original spectral data have been modified and do not correspond to actual reflectance of ground features.*

Note: Problems occur with the Histogram Match function when matching images of large extents (e.g., full Landsat scenes) in ArcGIS 8.3. Using this procedure on smaller image extents or subsets should work fine (e.g., DOQs), but we recommend to still carefully inspect your results. Use ERDAS Imagine when performing a Histogram Match on large-extent image data. Leica Geosystems has resolved this issue for ArcGIS 9.0.