Image Analysis for ArcGIS FAQs[1]

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How Do I Perform a Neighborhood Analysis on an Image?

Use the Image Analysis extension in ArcMap to perform a neighborhood analysis on a thematic image. This document describes how to perform a neighborhood analysis using ArcGIS. This is a useful technique to apply a wide range of GIS functions to thematic image data (including image filtering). It is based on a moving analysis window that passes over the input image to create a new output determined by the neighborhood function you specify.

What You Will Need and Other Assumptions

- A thematic image (ERDAS Imagine format)

Overview of Steps

1. Use the GIS Analysis tools of the Image Analysis extension in ArcMap to perform a neighborhood analysis on an existing thematic 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 multispectral image to the Data Frame.

3. From the Image Analysis extension, select **Image Analysis | GIS Analysis | Neighborhood**.

4. In the Neighborhood Analysis dialog, specify your **Input Image** (your thematic image to be analyzed), choose an appropriate **Neighborhood Function**, **Neighborhood Shape**, **Neighborhood Definition**, and specify a location and filename for your new **Output Image**. Click **OK** to create your new image. *Note: some neighborhood functions, such as a majority filter, are often used to smooth or generalize a thematic image. This is usually required before vectorizing a thematic raster for integration with GIS databases*.

5. Inspect the results.

[1] Produced by the USDA Forest Service RSAC (http://fsweb.rsac.fs.fed.us). A Forest Service version of Image Analysis for ArcGIS was used to develop this reference document. No warranty is made as to completeness or accuracy.