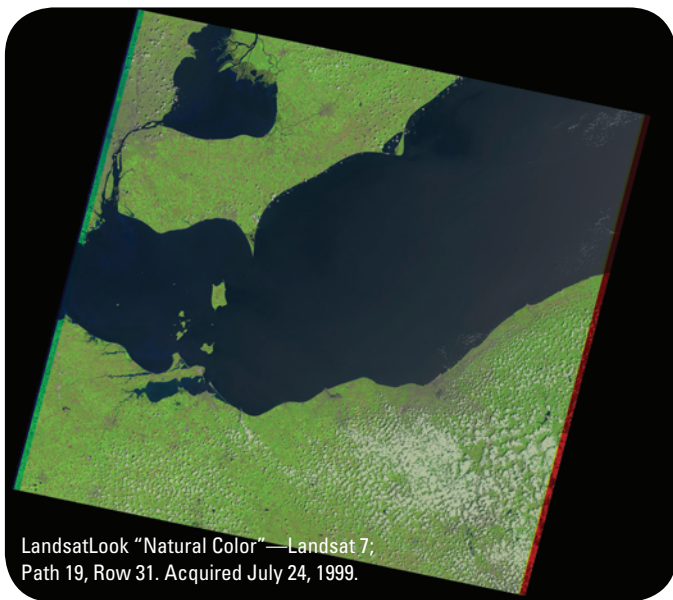


# LandsatLook Images

*LandsatLook images are full resolution JPEG files derived from Landsat Level 1 data products. The images are compressed and stretched to create an image optimized for image selection and visual interpretation; it is not recommended that they be used in digital analysis.*

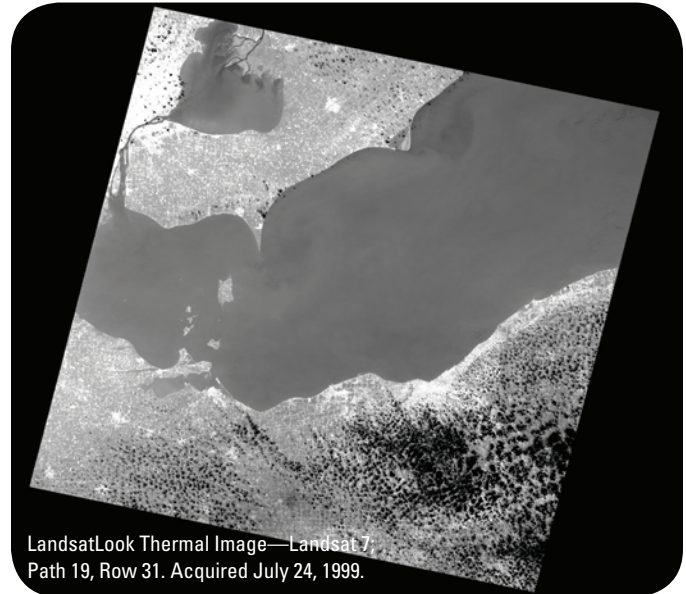
## Natural Color and Thermal Images Available

*The LandsatLook “Natural Color” Image is a composite of three bands designed to show a natural color image.* Bands 5, 4, and 3 are used for Landsat Enhanced Thematic Mapper Plus (ETM+) and Thematic Mapper (TM) images. Bands 2, 4, and 1 are used for Landsat Multispectral Scanner (MSS) images. Top of atmosphere reflectance values were calculated from the calibrated scaled digital number (DN) image data. Values were scaled to a 1–255 range using a gamma stretch, with a gamma=2.0. This stretch was designed to emphasize vegetation without clipping the extreme values.



*The LandsatLook Thermal Image is a single-band grayscale image designed to display thermal properties.* Band 6 (TM) and Band 61-high gain (ETM+) are used; this image is not available for MSS scenes. Image brightness temperature values were calculated from the calibrated scaled DN image data. An image specific 2 percent clip and a linear stretch to 1–255

were applied to the brightness temperature values to emphasize image-specific thermal variability.



*The LandsatLook Images with Geographic Reference bundle includes the “Natural Color” and Thermal Image files, along with .xml and .wld files, and is designed for use in geographic information system or image processing software packages.* The bundle uses the Geospatial Data Abstraction Library Extensible Markup Language files (GDAL XML) and Environmental Systems Research Institute (ESRI™) world files. ESRI™ world files are simple and widely supported, but do not include projection information. GDAL XML files are less well supported, but contain important projection information. (In some software packages, it will be necessary to import the .wld and .xml files separately to successfully create a georeferenced image.)

## Downloading and Using LandsatLook Images

LandsatLook images are included as options when downloading Landsat data from the U.S. Geological Survey archives by way of [EarthExplorer](http://earthexplorer.usgs.gov) (<http://earthexplorer.usgs.gov>) or [GloVis](http://glovis.usgs.gov) (<http://glovis.usgs.gov>). LandsatLook images can be viewed in most software, including image processing systems, web browsers, and graphic packages.

**About .jpg images:** Most geographic information systems and image processing software packages easily support .jpg images. To create the .jpg images, the Landsat data are mapped to a 1–255 range, with the fill area set to zero. If a no-data value is set to zero, the compression algorithm may introduce zero-value artifacts into the data area, causing very dark data values to be displayed as no-data. Other image formats support a layer that explicitly defines the mask area. (Two examples are PNG and JPEG2000. The PNG algorithm creates much larger images. The JPEG2000 algorithm is not as widely supported.)