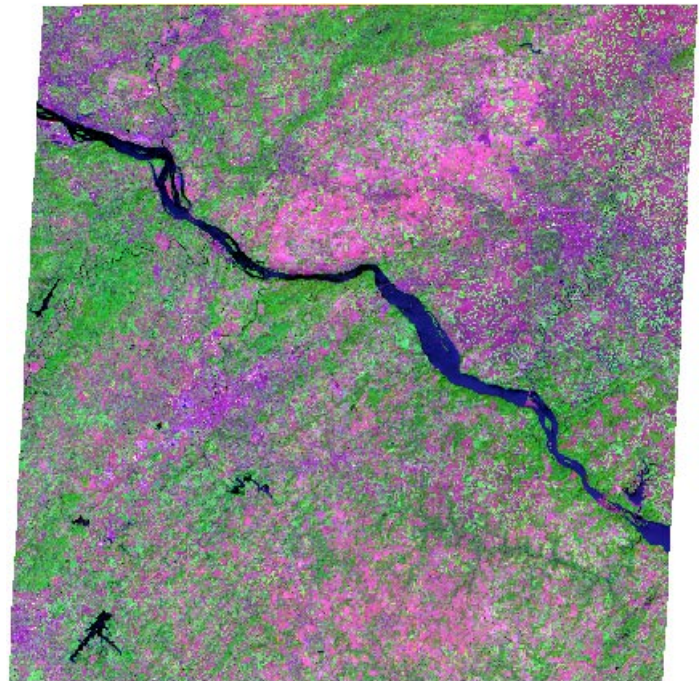


Color Display of Image Bands with Differing Cell Size and Extents

Raster image layers using predefined color combinations of multiple rasters (such as Red-Green-Blue and Cyan-Magenta-Yellow) do not require that all of the rasters have the same dimensions and cell size. The rasters used can have differing cell size, row-column dimensions, and geographic extents, as long as all share some common area.

This means that you can create RGB color displays using any image bands from sensors such as ASTER, which have bands of differing cell size, without prior resampling. (ASTER scenes have band sets with three cell sizes: visible and near-infrared = 15 meters, shortwave infrared = 30 meters, and thermal infrared = 90 meters.) You can also create displays using bands from overlapping scenes acquired by different sensors with different spatial resolution (for best results the scenes should be acquired as close as possible to the same date and time). Because some satellite images (such as ASTER and early SPOT images) lack a blue image band, you can create “natural color” Red-Green-Blue displays from these images by using the blue image band from an overlapping image from another sensor. Another example combining ASTER and LANDSAT 8 bands is described and illustrated below.



RGB display of ASTER scene using shortwave-infrared band 7 (30-meter cell size) as red, near-infrared band 3N (15-meter cell size) as green, and visible green band 1 (15-meter cell size) as blue.



Above left, RGB display using two bands from an ASTER scene acquired 02 August 2014 (15-meter cell size) and one band from a LANDSAT 8 scene acquired 12 October 2014 (30-meter cell size). The footprint of the LANDSAT 8 scene is shown to the right by the grayscale image and that of the ASTER scene in color (with yellow outline). In this RGB display Blue = ASTER visible green band, Green = ASTER near-infrared band, and Red = LANDSAT 8 shortwave infrared 2 band (substituting for a similar ASTER band that is not useable due to a sensor failure in 2008). Green vegetation appears in green colors. The small area shown is displayed at 1X zoom relative to the ASTER bands. The RGB display above right uses corresponding spectral bands entirely from the LANDSAT 8 image; all have cell size = 30 meters. More detail is visible in the composite RGB display due to the higher spatial resolution of the ASTER bands.

