# LEOWorks 4 - Quick Start

**Start LEOWorks**

Although built for educational purposes, LEOWorks offers a set of powerful tools for manipulating geo-spatial data in raster or vector format.

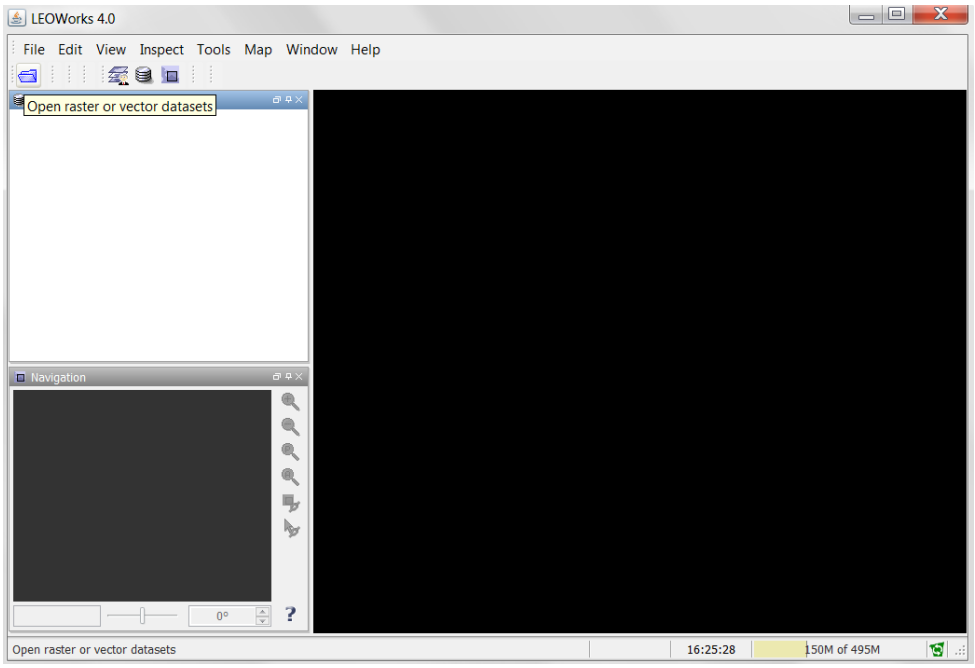
To get started double click the appropriate shortcut of LEOWorks. This will be different depending on your operating system. Please check the Installation Guide for details. After starting LEOWorks, the Help system can be always activated by selecting the appropriate option from the Help menu.

In this tutorial/QuickStart the Venice testdata will be used.

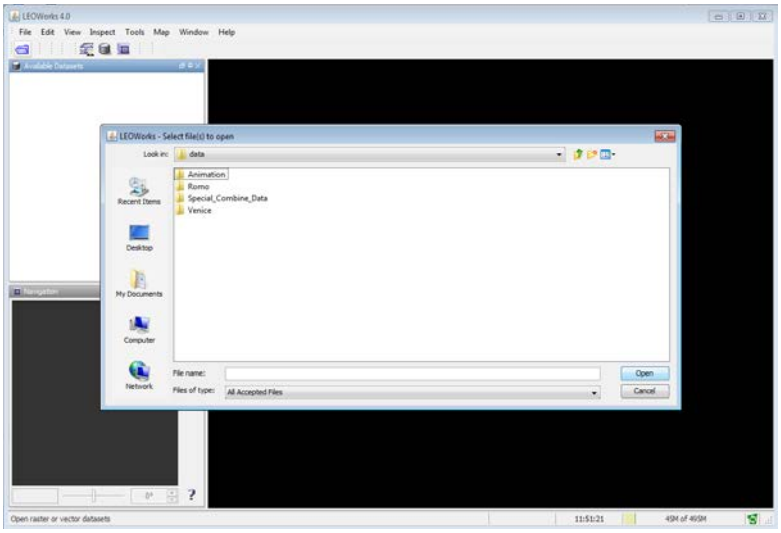
**Open files and display image data**

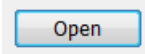
In LEOWorks you can read raster and vector data stored in a large variety of file formats.

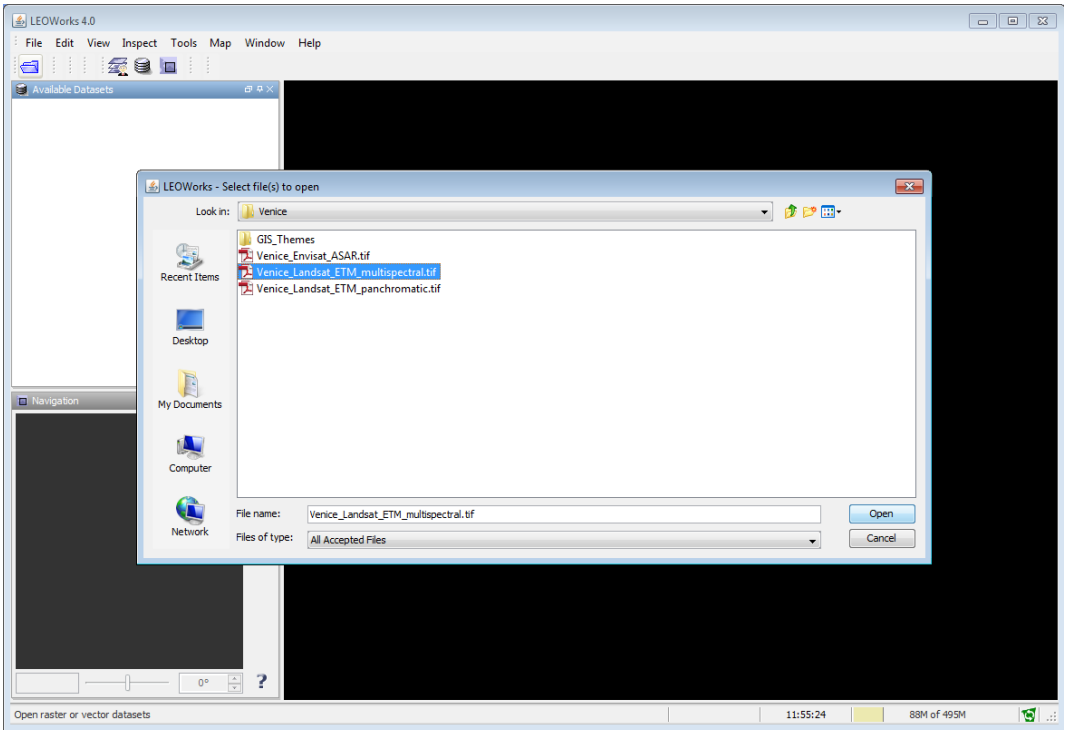
To open a file and read the data, you just click the appropriate icon  in the toolbar (or select File/Open/ .....)



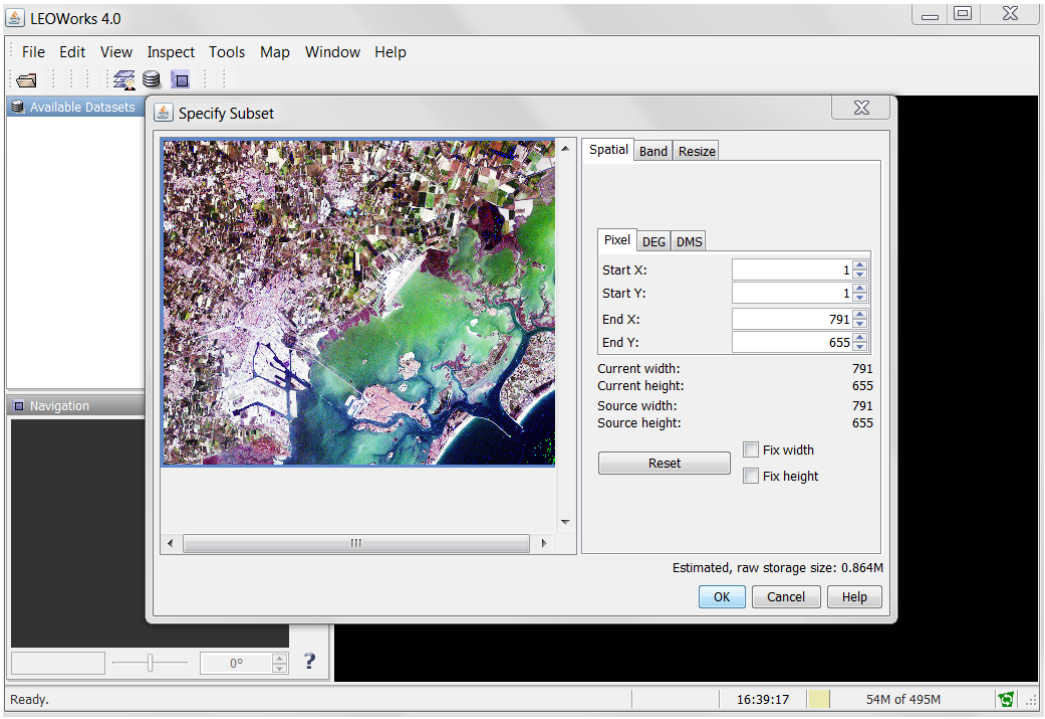

By default the directory is set to C:\Program Files\LEOWorks 4.0\data:



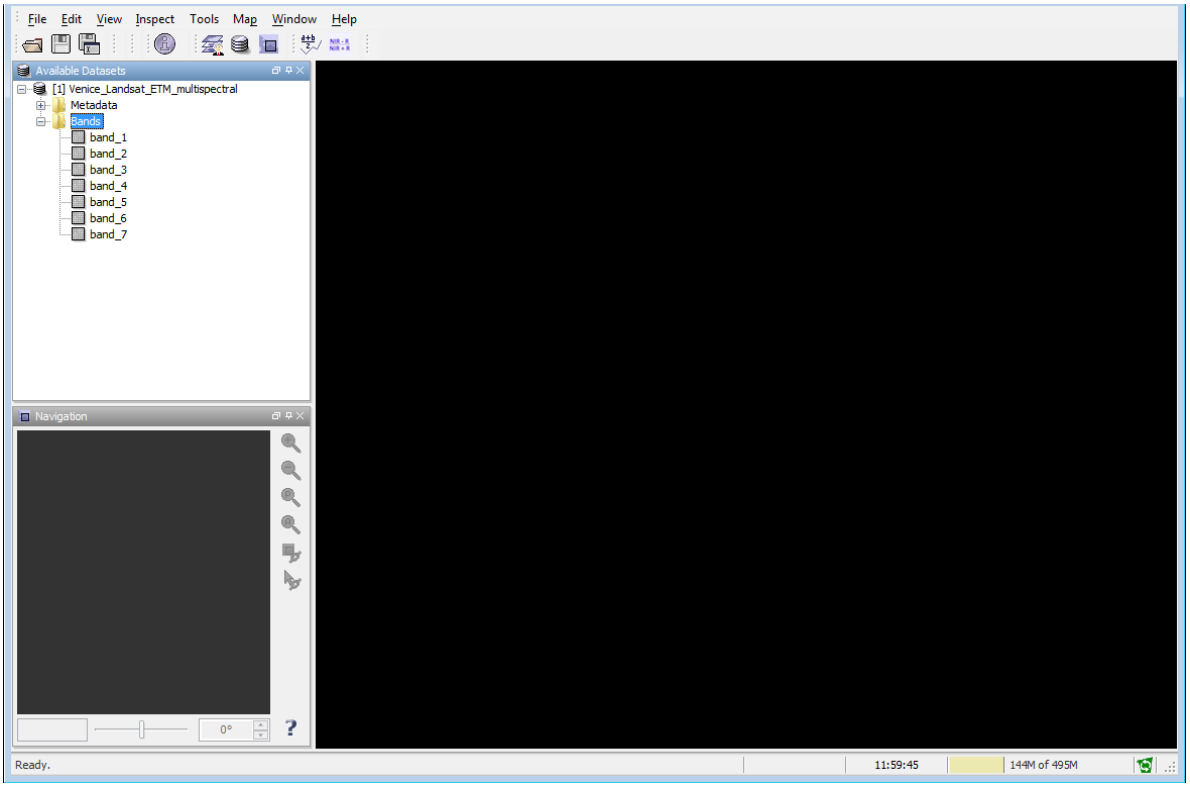
Select the directory “Venice” and select the image “Venice_Landsat_ETM_mulitspectral” and click Open  (on the lower right of the window)



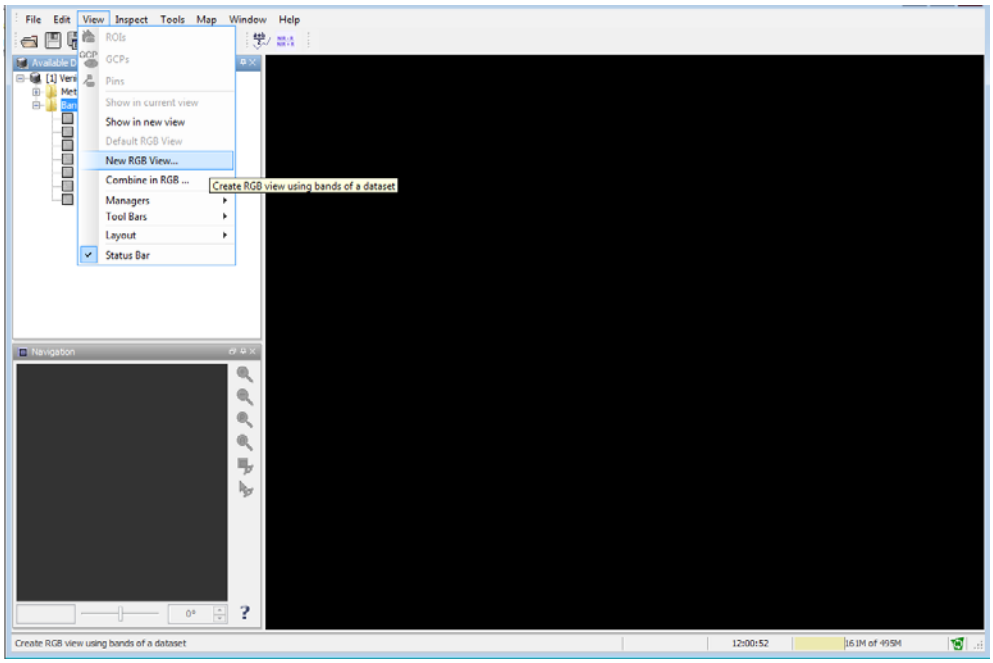

The Quicklook appears. Now you just go ahead clicking OK – or you may specify a subset of the image: To do this, hold and drag the top left corner of the image frame and then hold and drag the smaller image frame within the Quicklook.



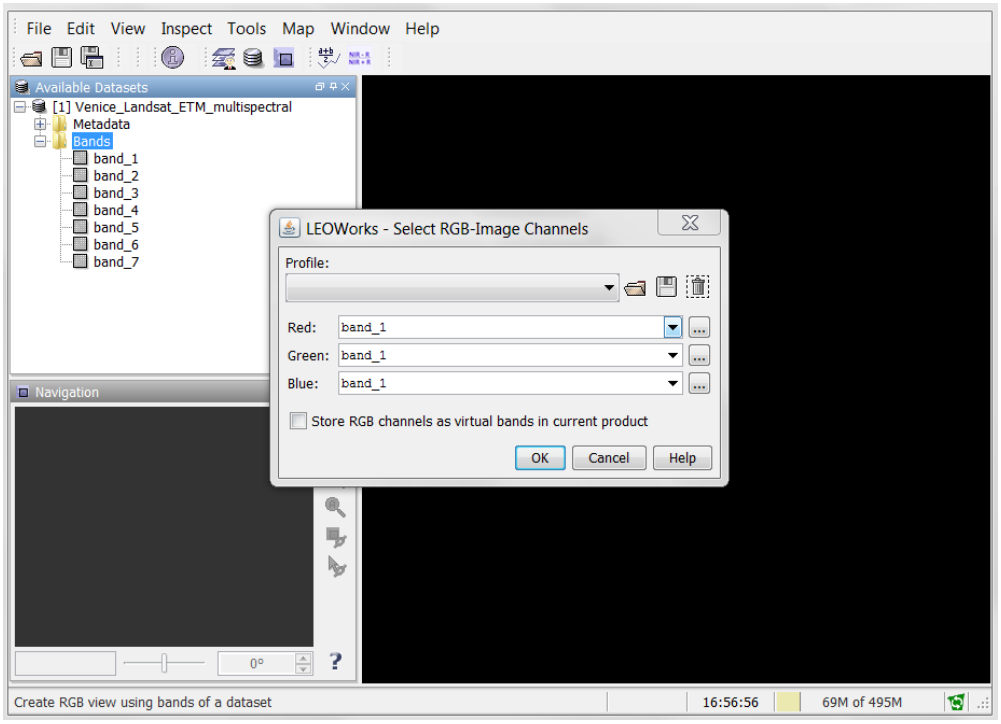

The data is now loaded as you can see from the "Available Datasets" window. Click the "+" next to "Bands" to show all available bands in this dataset.



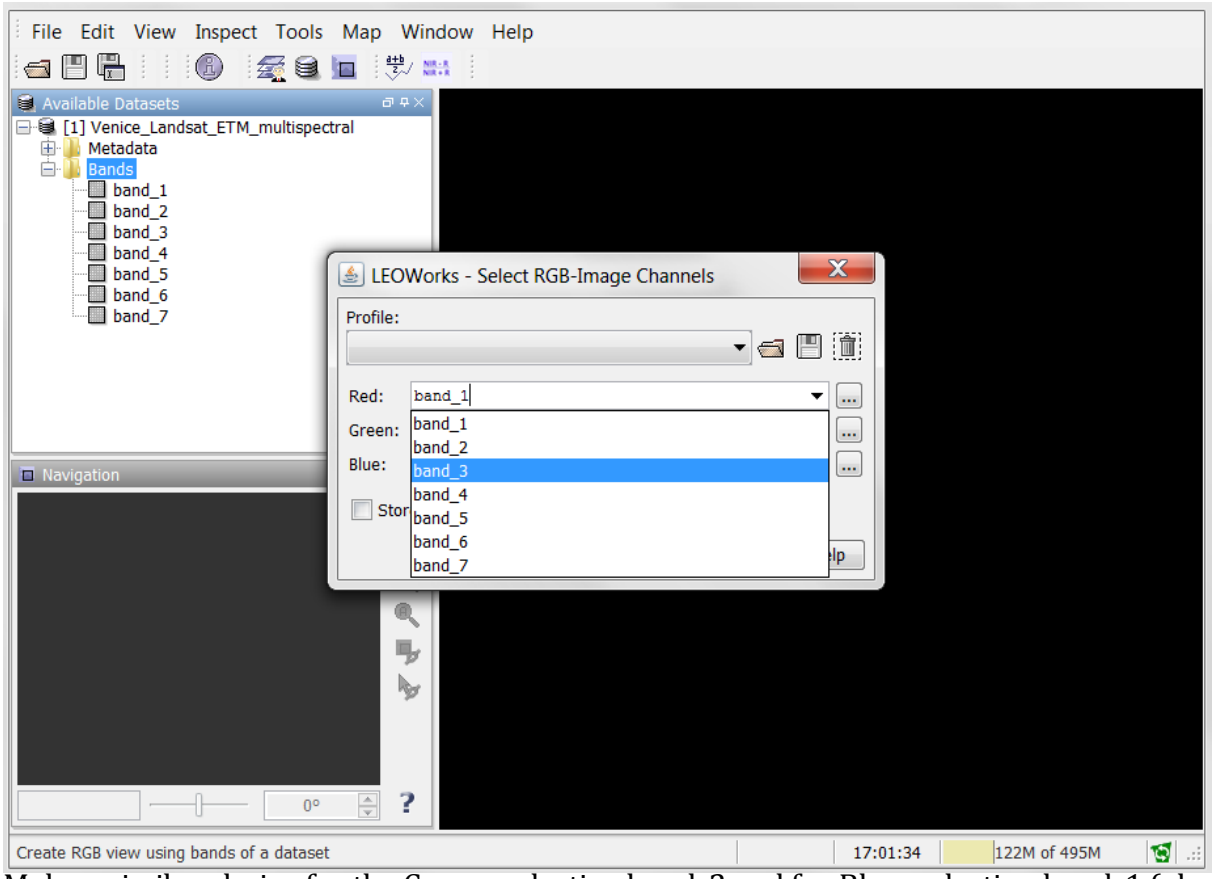

To combine 3 bands into a colour image, select View/New RGB view…



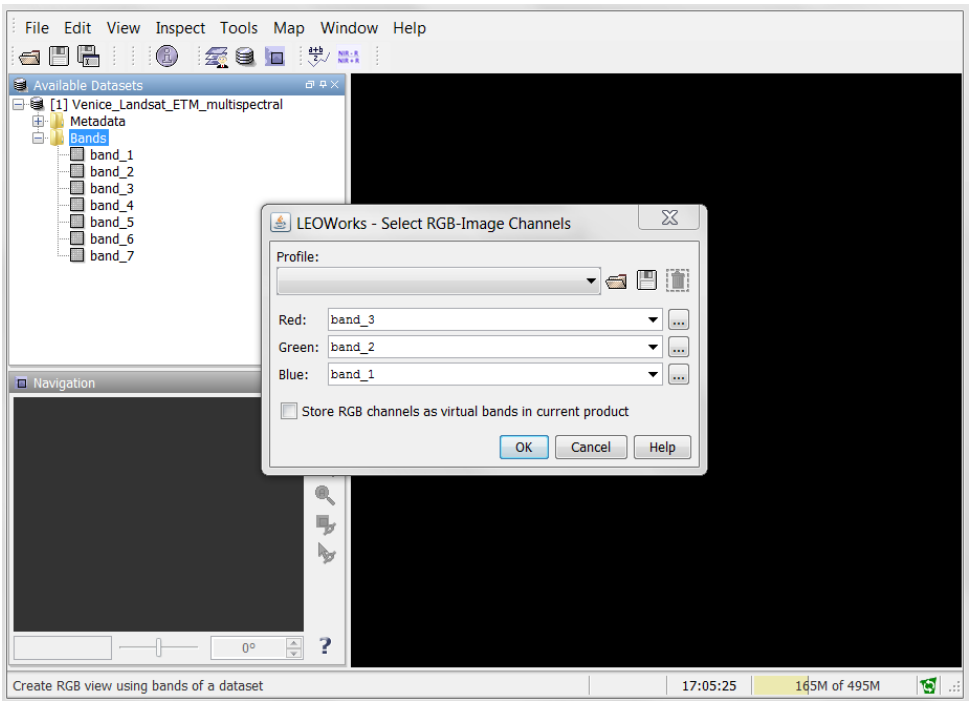

This will open the Select RGB-Image Channels window:



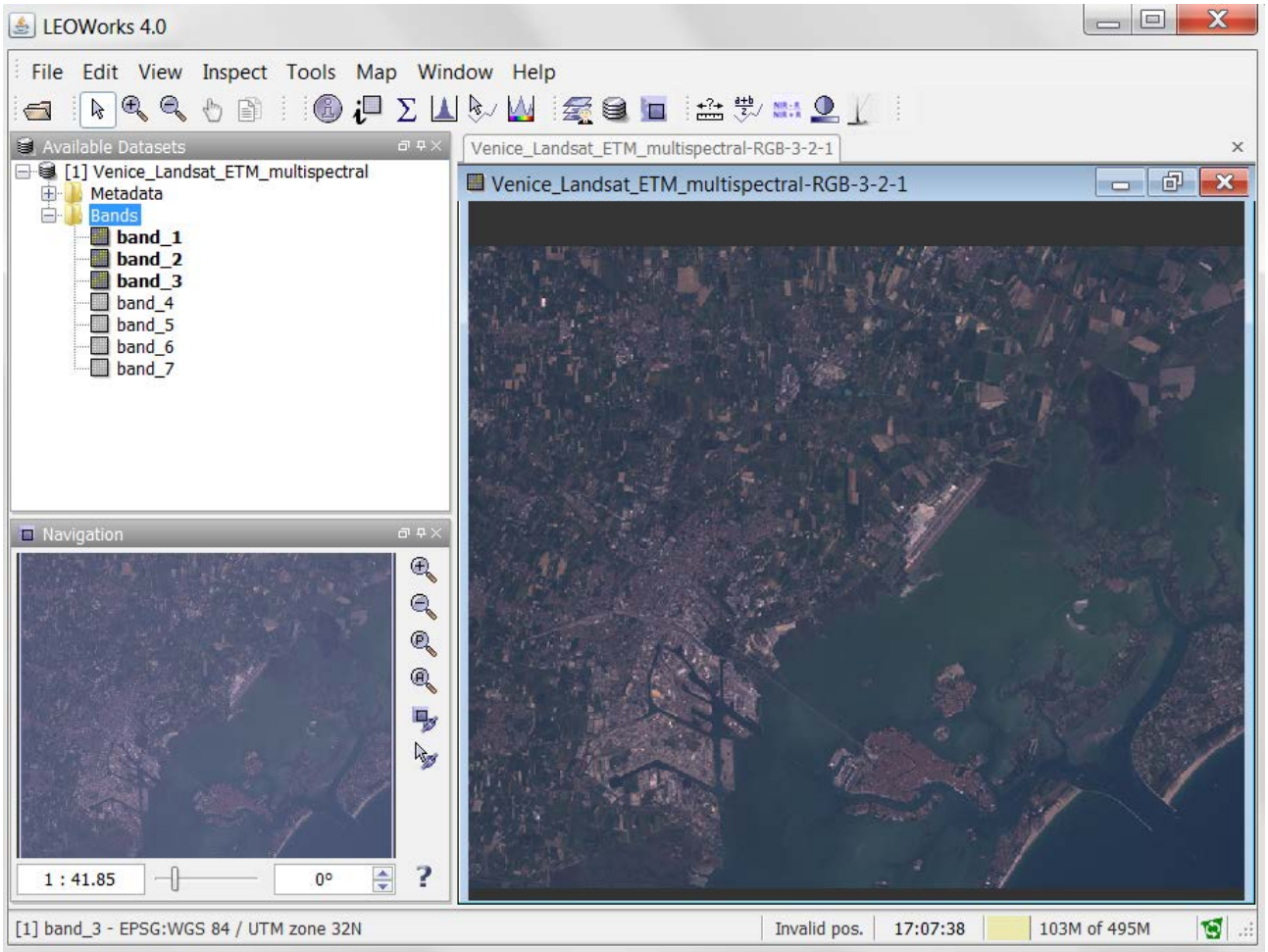

and by clicking on the  small triangle at the end of the line: "Red: band_1" select band 3 (the red band of the multispectral imaging sensor).



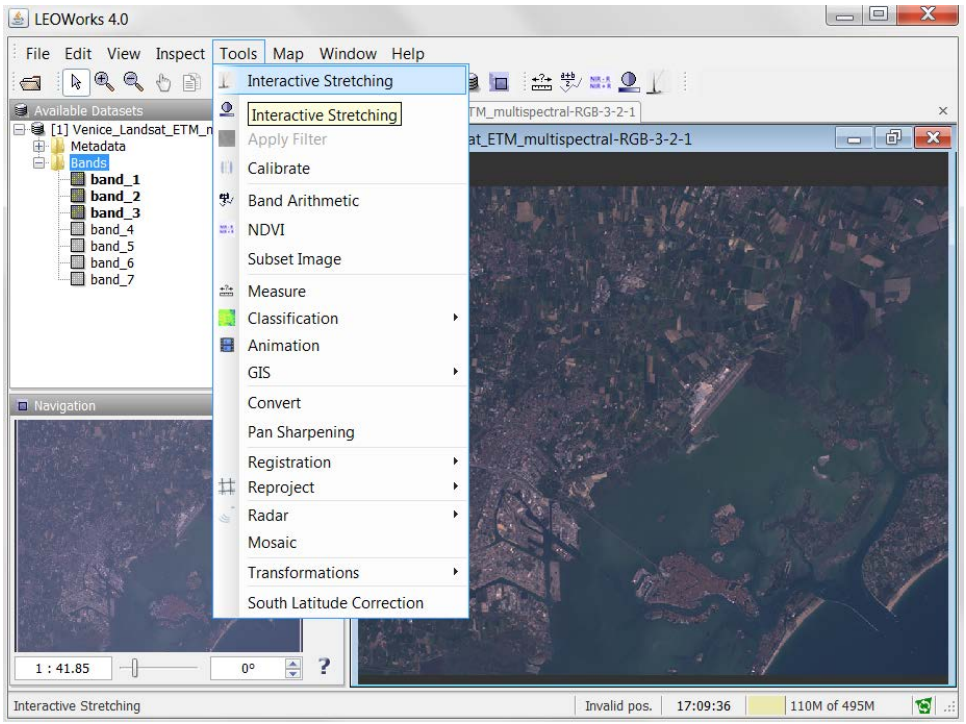

Make a similar choice for the Green: selecting band_2 and for Blue: selecting band_1 (already there by default): resulting in the following band-selection:



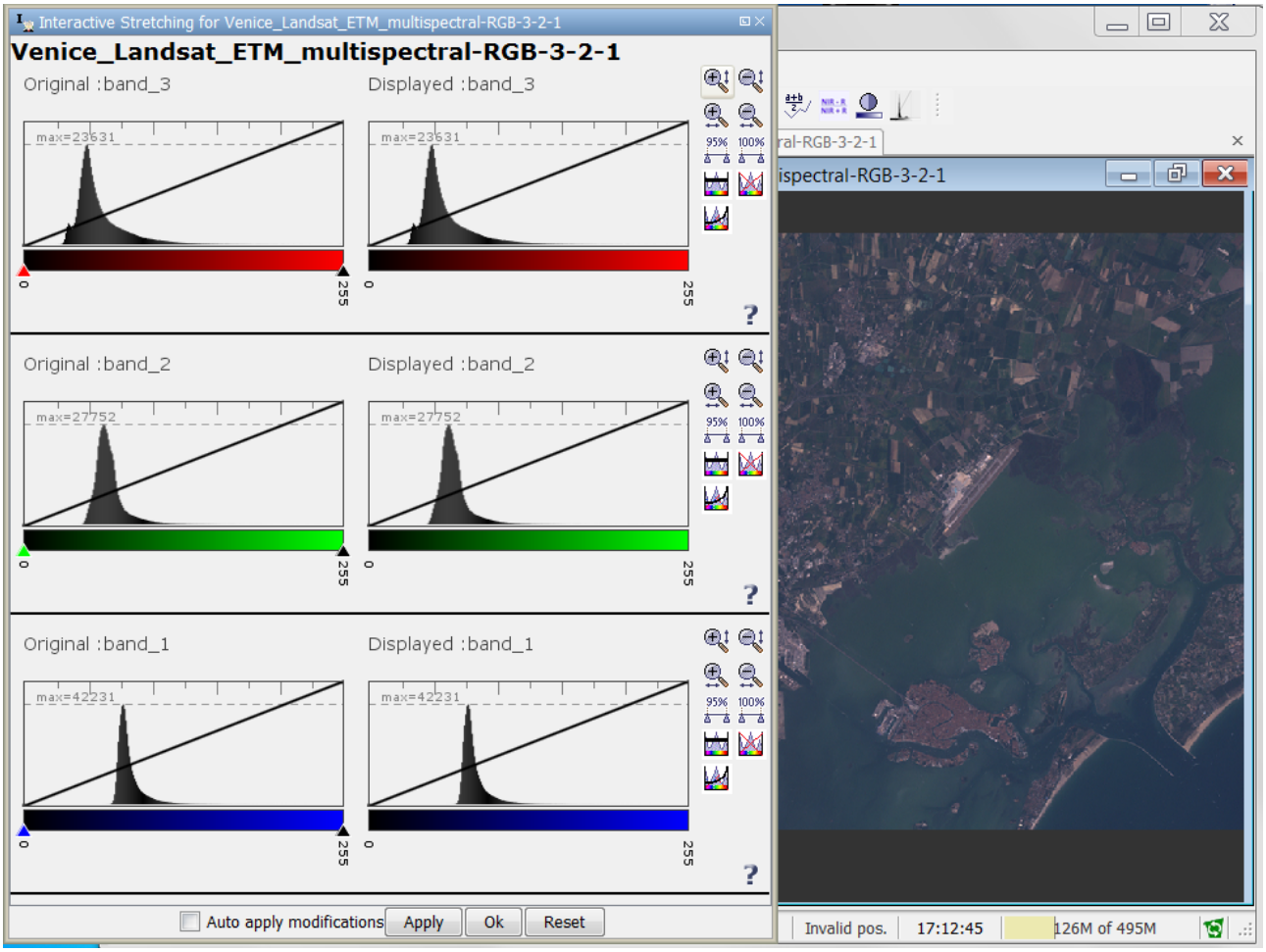

Click OK and the 3-band colour image is loaded into the viewer:



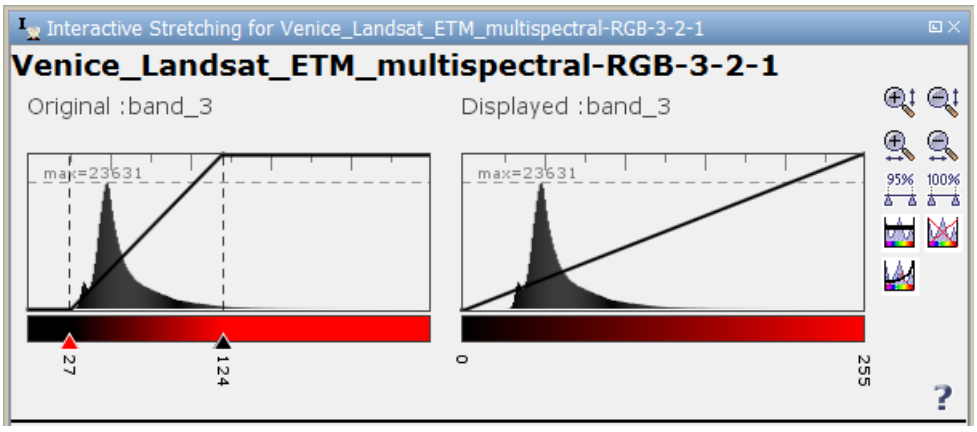

The image is rather low contrasted. It can be substantially improved by stretching the contrast. Select Tools/Interactive Stretching:



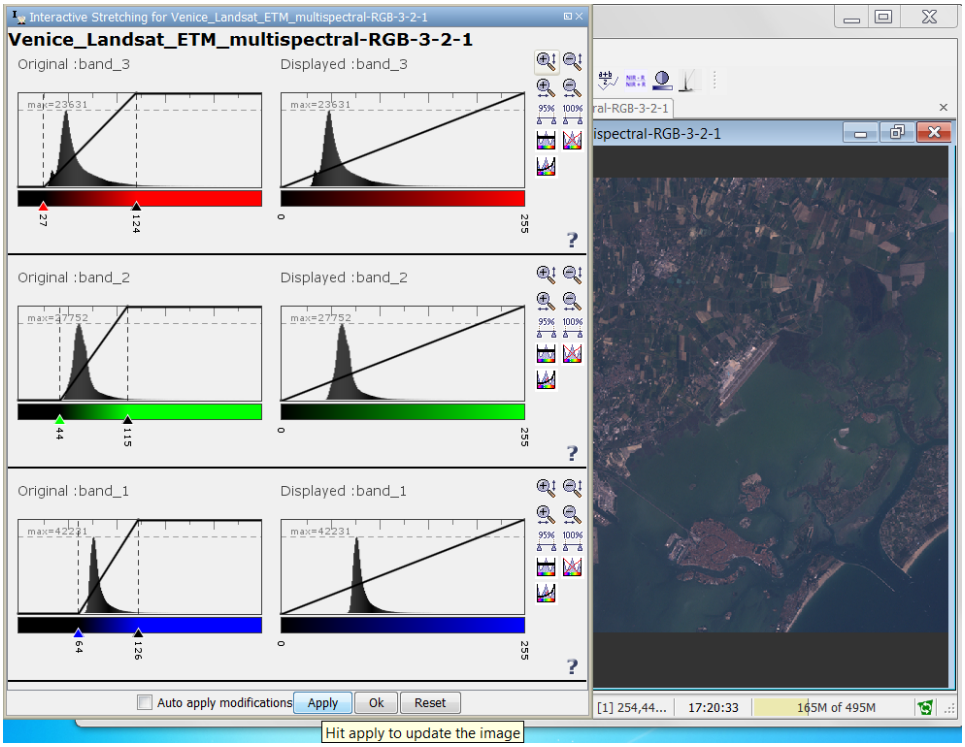

The histograms of all three bands are displayed for both input and output:



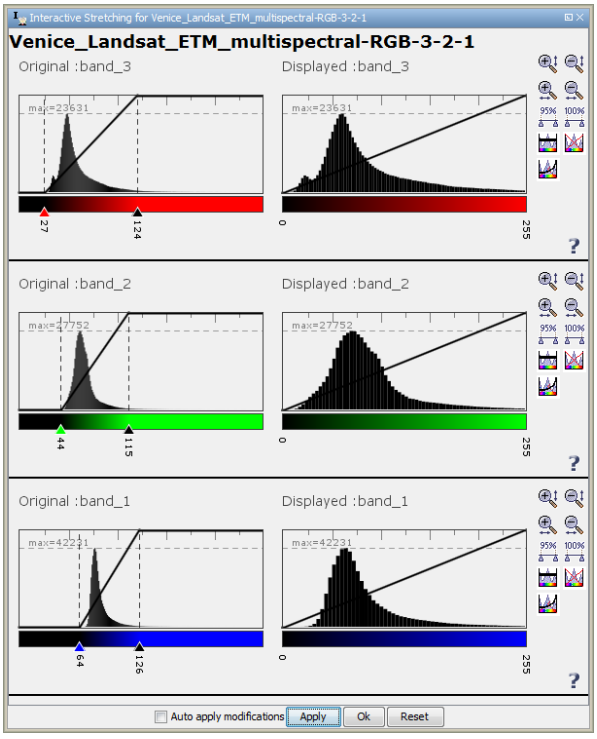

Now grab the minimum red slider and move it to the lowest bin of the red histogram and grab and move the maximum (black) slider from 255 to the left to about the highest bin of the red histogram:



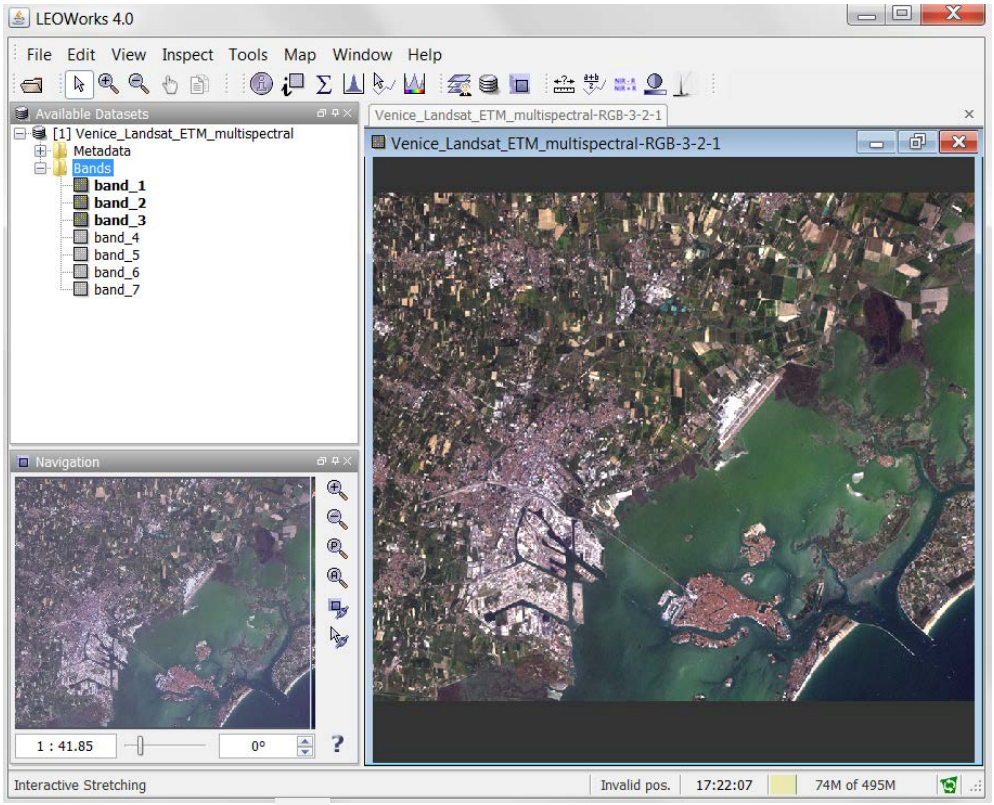

Do the same with the green and the blue histogram




Click Apply (below the histograms):

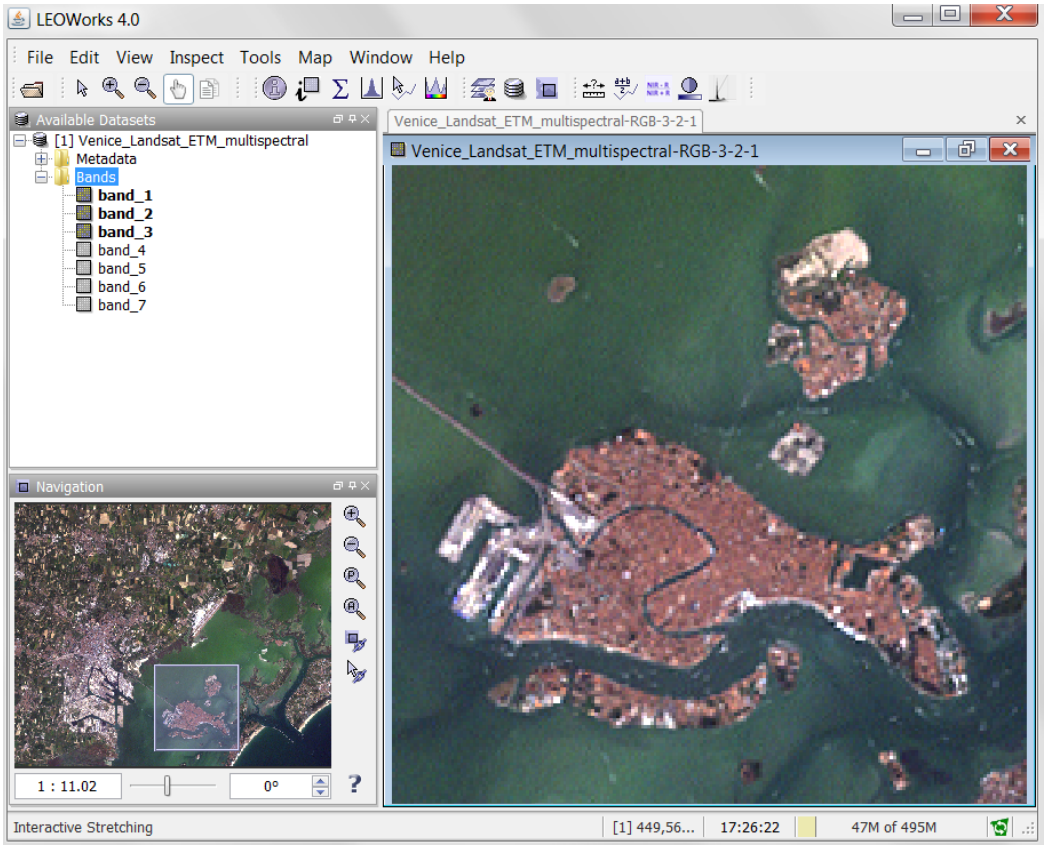



...and the image is now high contrasted and ready for inspection.

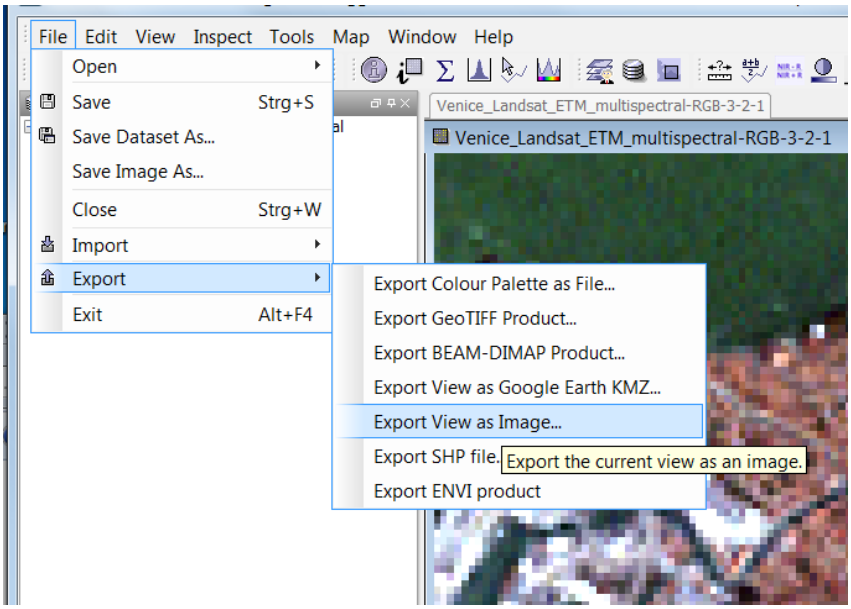



Use the small hand  to move over the image and zoom with the cursor, or zoom with  drawing a box .

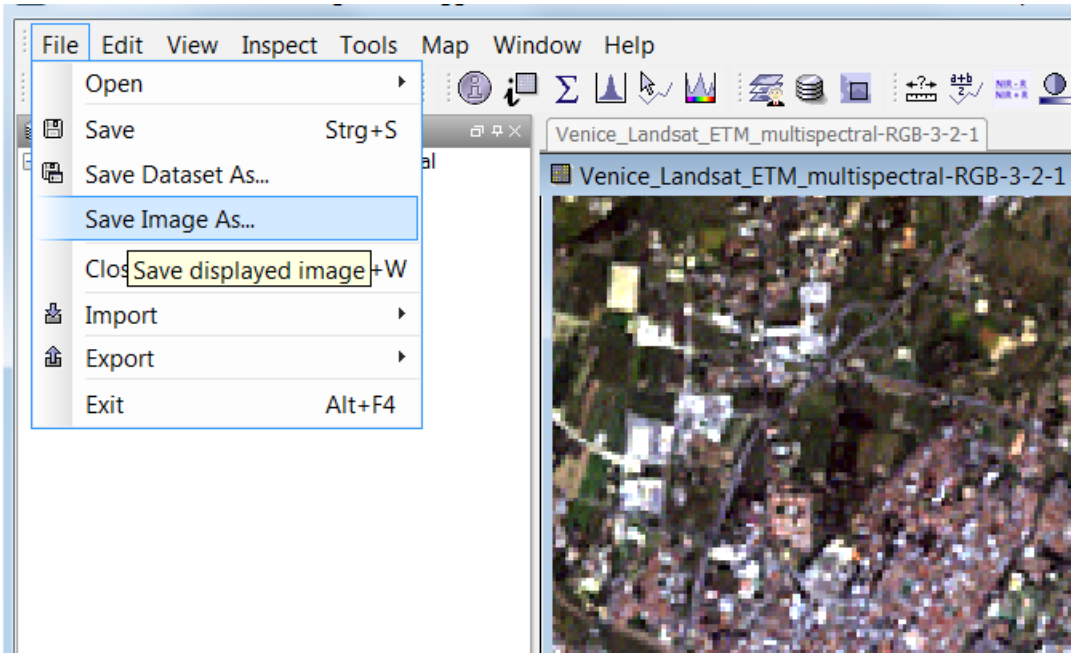
Move the cursor over the icons of Tool bars and discover more functions…



To save the displayed (e.g. zoomed) image use File/Export/Export View as image…




To save the entire loaded and enhanced image use File/Save image as…




**For many more details consult the Tutorial of LEOWorks 4 !**