Geomatica Focus can detect change between images. That is, change detection can reveal the differences between two images of the same content from different dates. You can perform change detection with both airphoto and satellite imagery, and you can choose from several options on how you want the changes to be shown. That is, areas of change can be shown using one of three available options for output display: red, green, and blue (RGB), pseudocolor, or grayscale. Masks can be used in the Change Detection process as well. Masks are used to limit the input data to process or to exclude pixels under the mask.

It is recommended that you read Performing Change Detection from the Geomatica Help for additional information on the topic.

Change Detection

1. Open the Geomatica 2014 Focus application.

2. Load the images you will be performing change detection on into Focus by dragging and dropping the file into the Maps tab or by clicking File ➔ Open. The images used in this tutorial are two Landsat images. The image shown on the left is from August 1990. The image shown in the right is from September 1999.
3. In the Focus menu bar, click on the Analysis dropdown menu
4. Select Change Detection...

5. The Change Detection window opens

6. Under Working raster (A) select the most recent image
7. Under Reference raster (B) select the older image
8. Change the Output display to Pseudocolor
9. Uncheck Absolute value checkbox
10. Click Run
The output Pseudocolor change image is added to the viewer. Areas showing change can be seen below in pink.

Extracting Polygons Showing Change

1. In the Focus menu bar, click on the Tool dropdown menu
2. Select Algorithm Librarian…
3. Navigate to the EXPOLRAS module
4. Click Open…
5. The EXPOLRAS module control panel opens. In the Files tab, expand the **Unnamed Map branch**, followed by the **New Area branch**

![EXPOLRAS Module Control Panel](image)

6. Click the **Input Params 1 tab**
7. In the **Threshold minimum** field, enter **90**
8. In the **Minimum area (pixels)** field, enter **250 (pixels)**
9. Click **Run**
The **EXPOLRAS** algorithm generates a polygon layer identify areas of change, in this case clear cutting.

10. In the Focus Maps tab, uncheck the Change Layer
11. The polygons from the EXPOLRAS output are now clearly visible
12. Toggle the top image layer on and off to show the change in the images reflected by the polygons