ALGERIAN SPACE AGENCY

Forest fire extent mapping

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Introduction

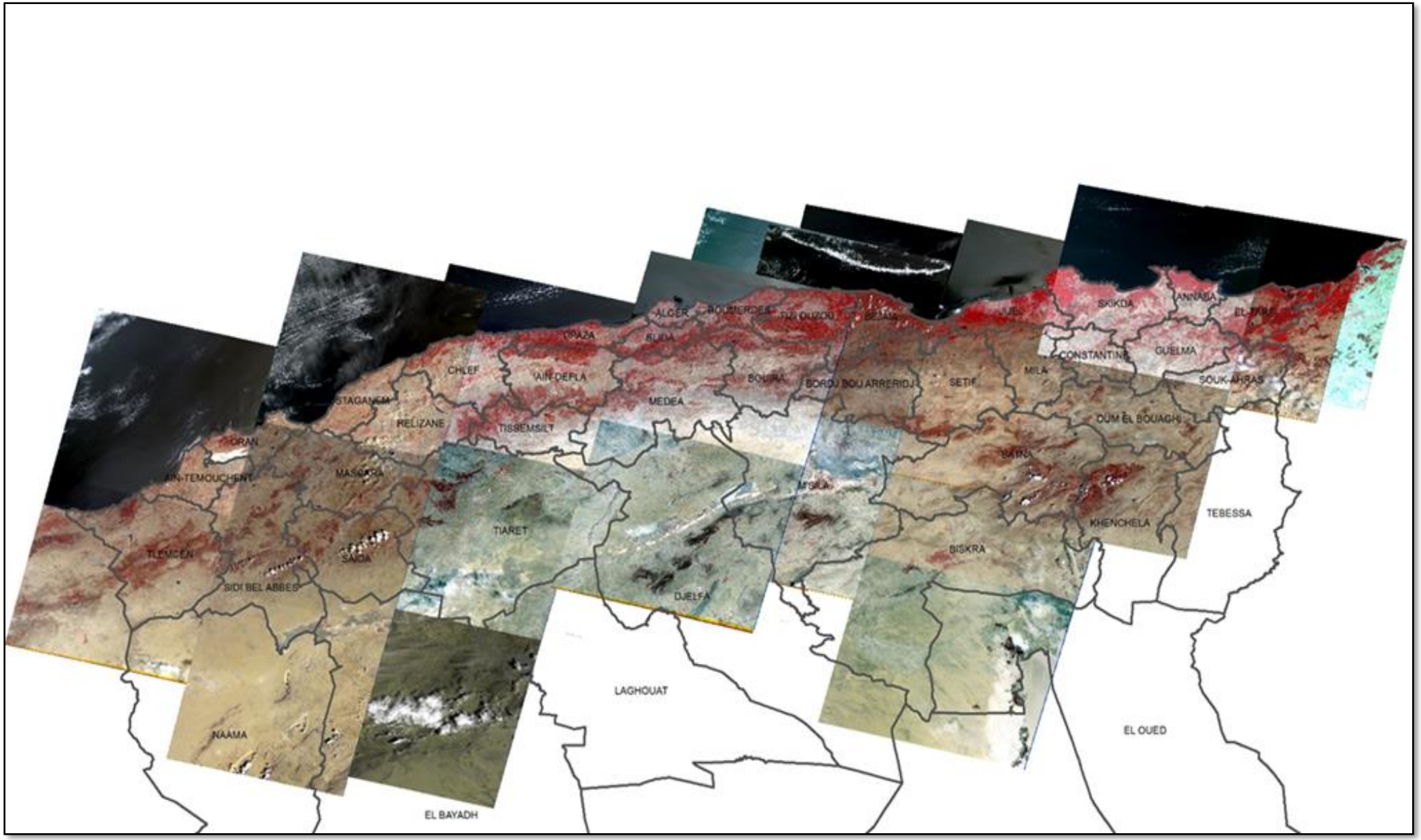
Priority axis in the activity program of the Algerian Space Agency, due to its cyclical nature and its impact on the environment and Sustainable Development, the annual monitoring of forest fires using satellite imagery establishes a state of forest areas covered by fire, mainly during scorching periods, since 2003.

Alsat-1 and Alsat-2 satellite images were used, the Alsat-2 images, given their high spatial resolution and their spectral richness, are used to refine the delineation of forest areas traversed by fire.

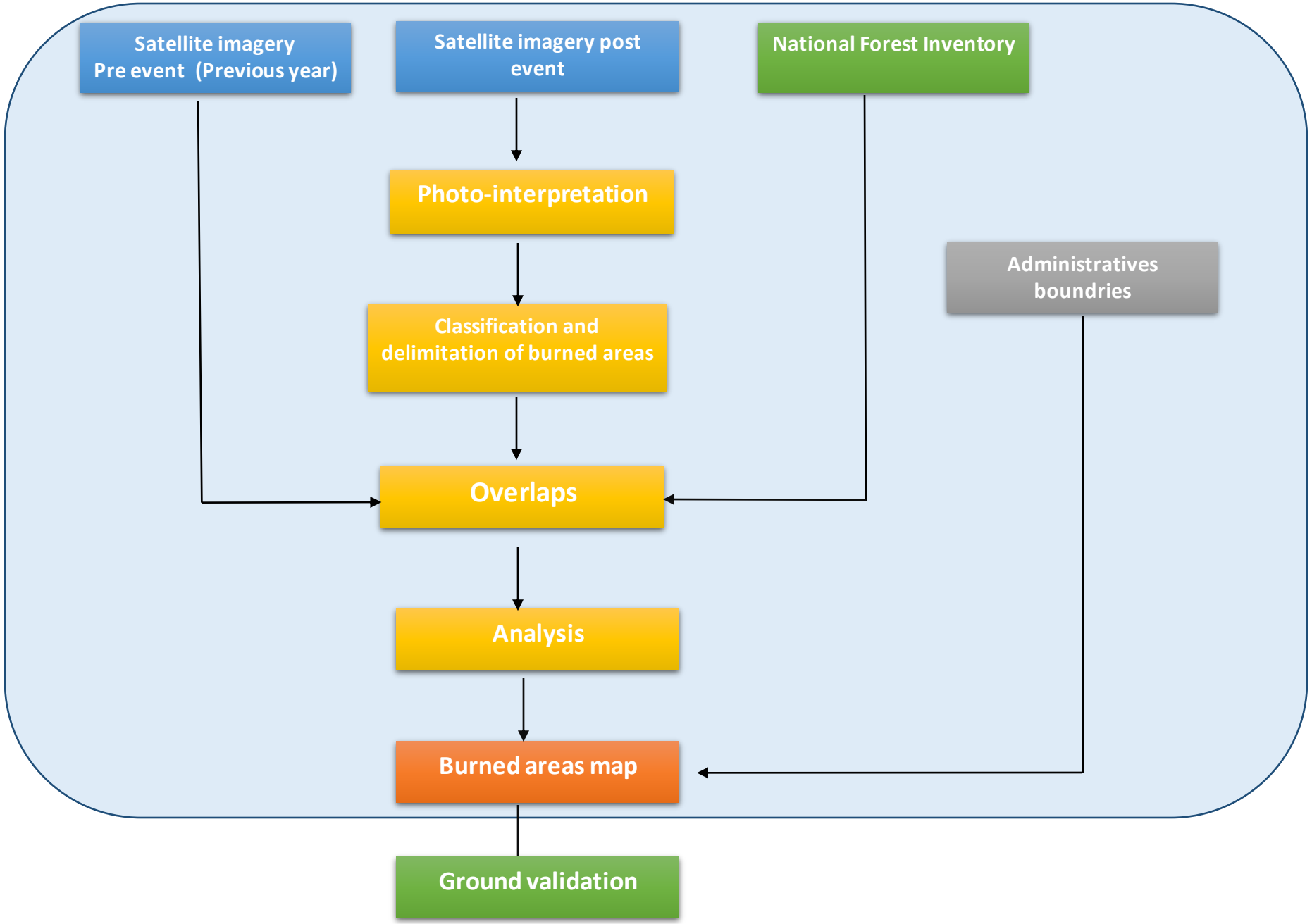
The annual forest fires monitoring using satellite imagery allows a global analysis and supplies very useful information on the environment at various scales. It allows the identification of forest burned surfaces, in particular during summer season.

Methodology used offers to decision makers a rich and accurate geographic information.

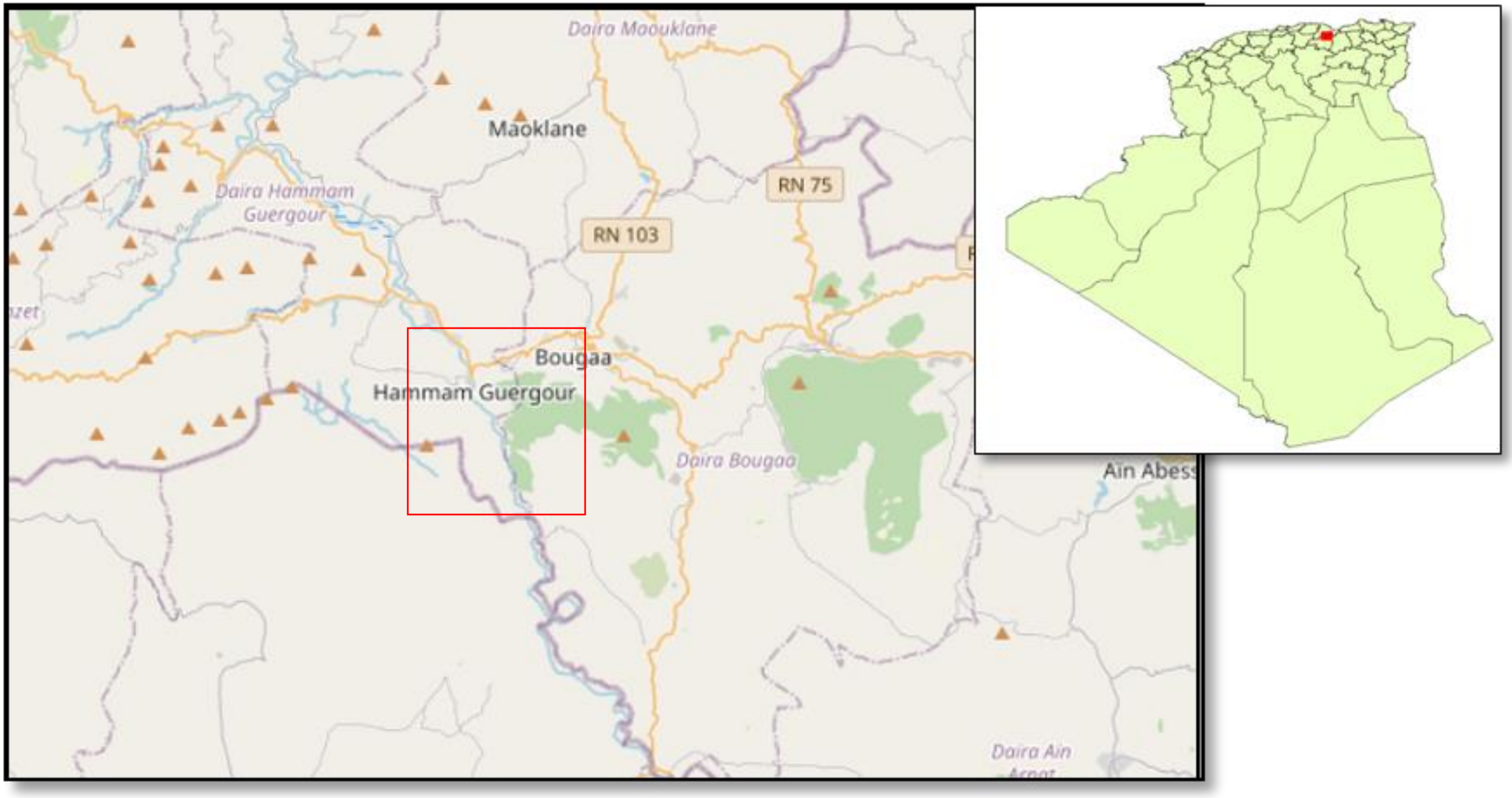
1. Acquisition of Alsat images

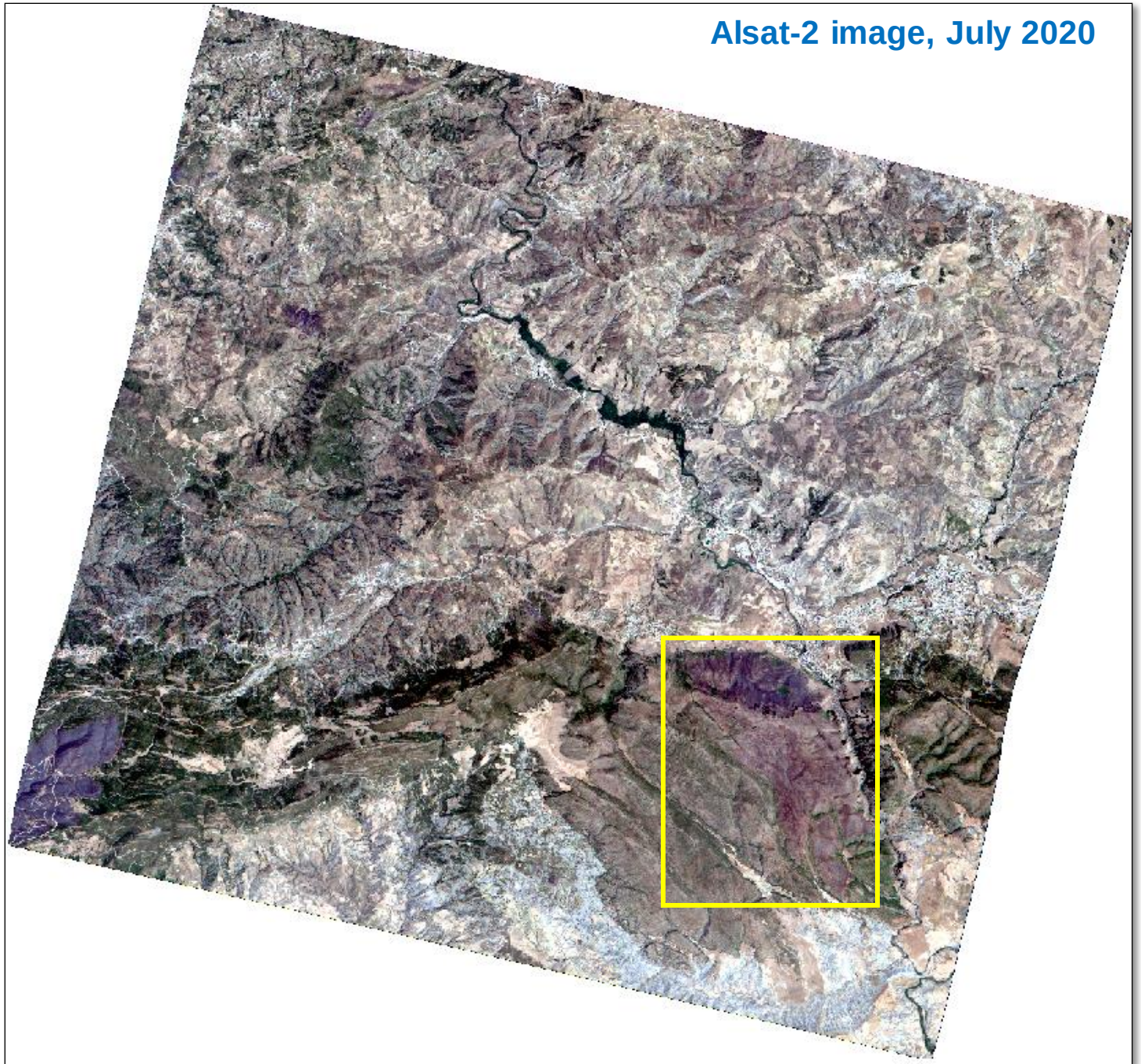


2. Methodology

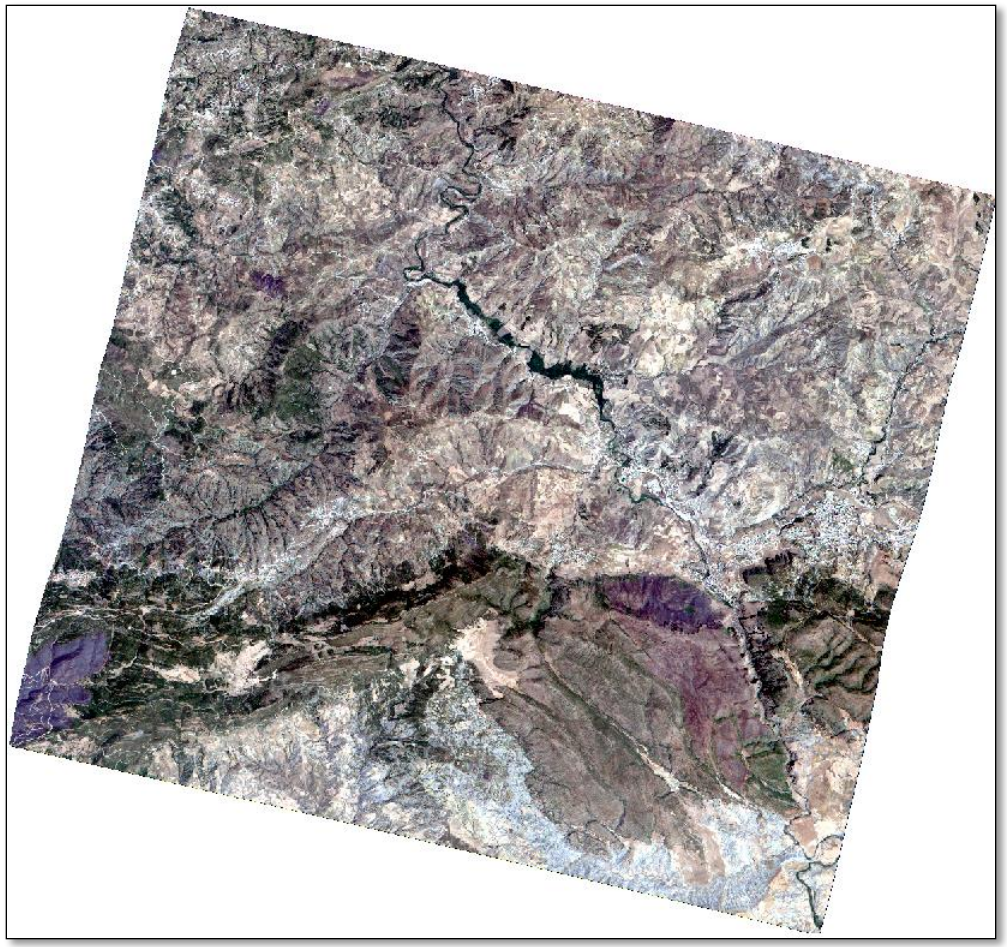


Area of interest

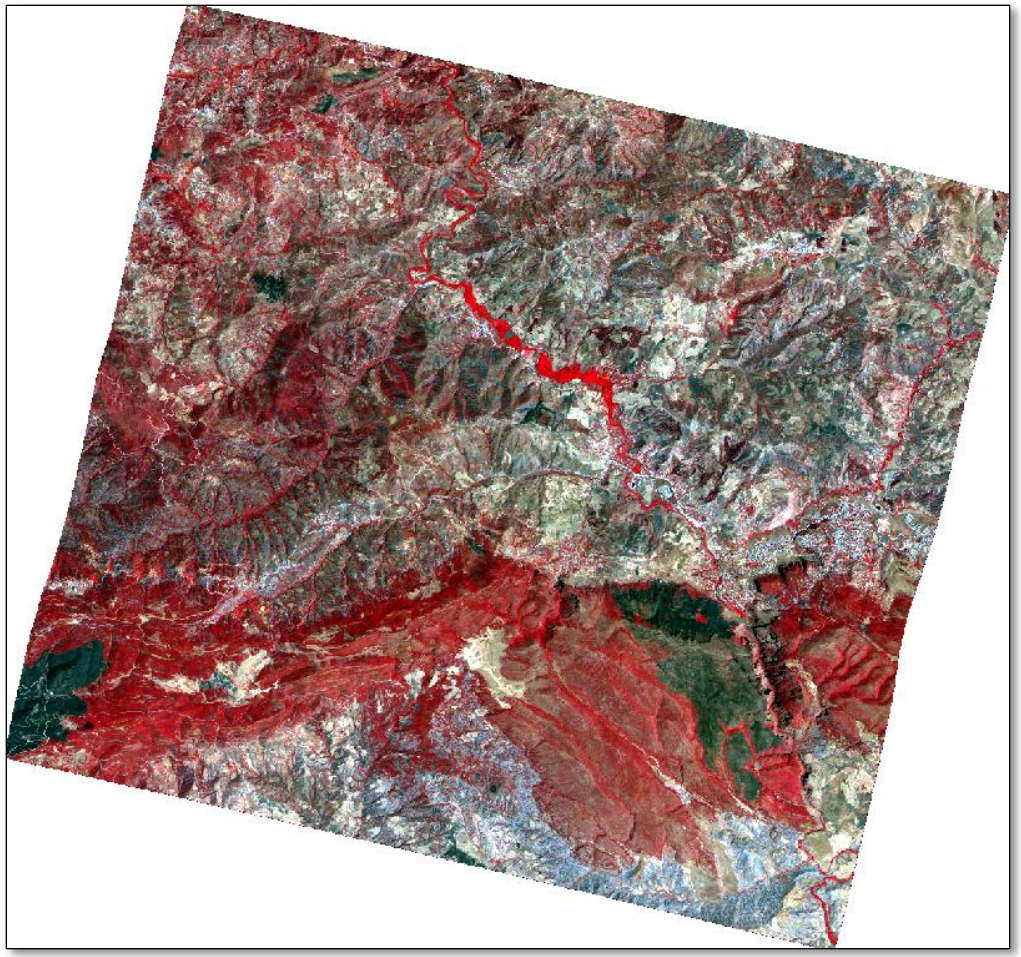



Alsat-2 image, July 2020

Display the raster in flase color



True color image



False color image

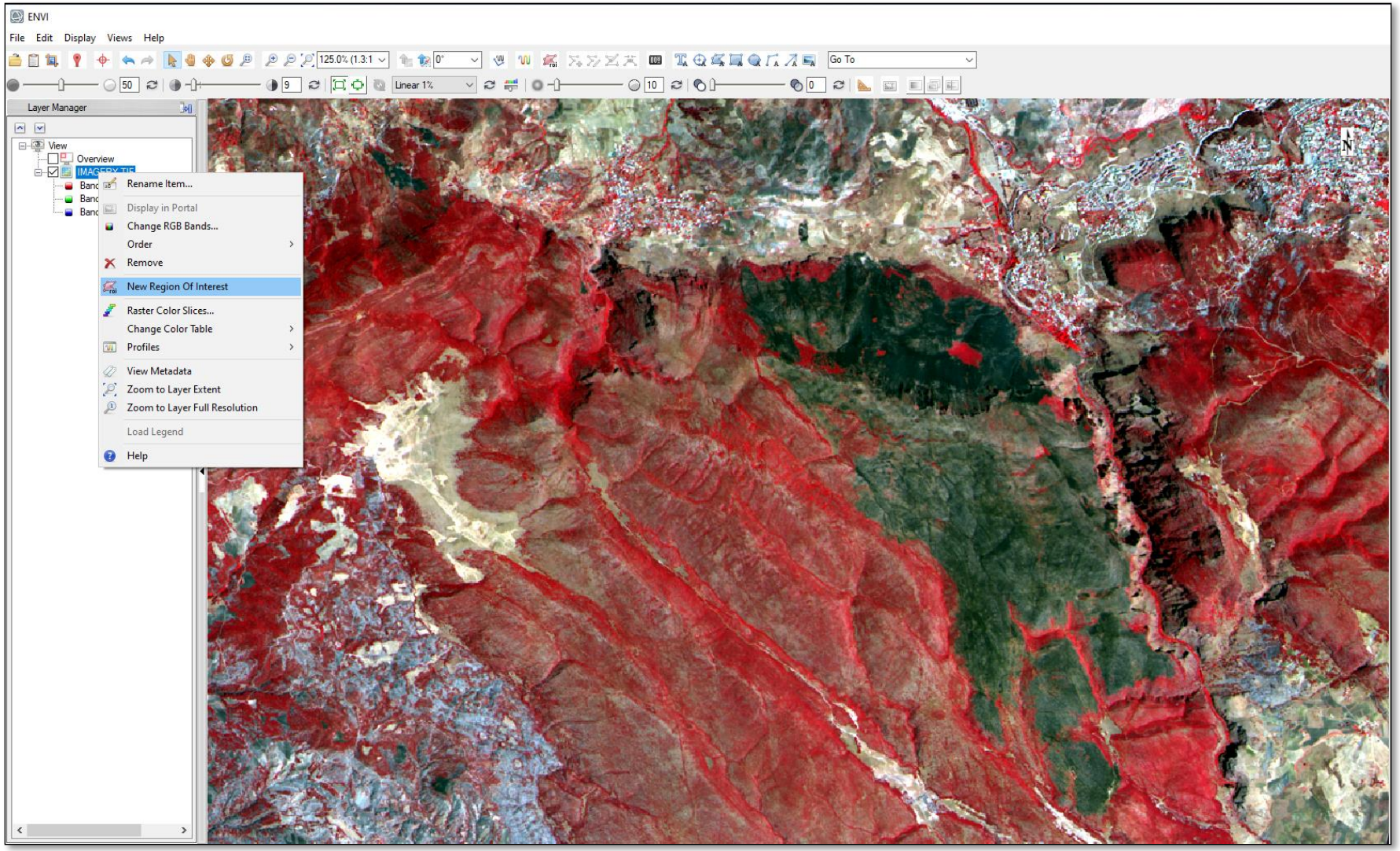
Supervised Classification :

- Selecting samples from areas affected by forest fires (region of interest)

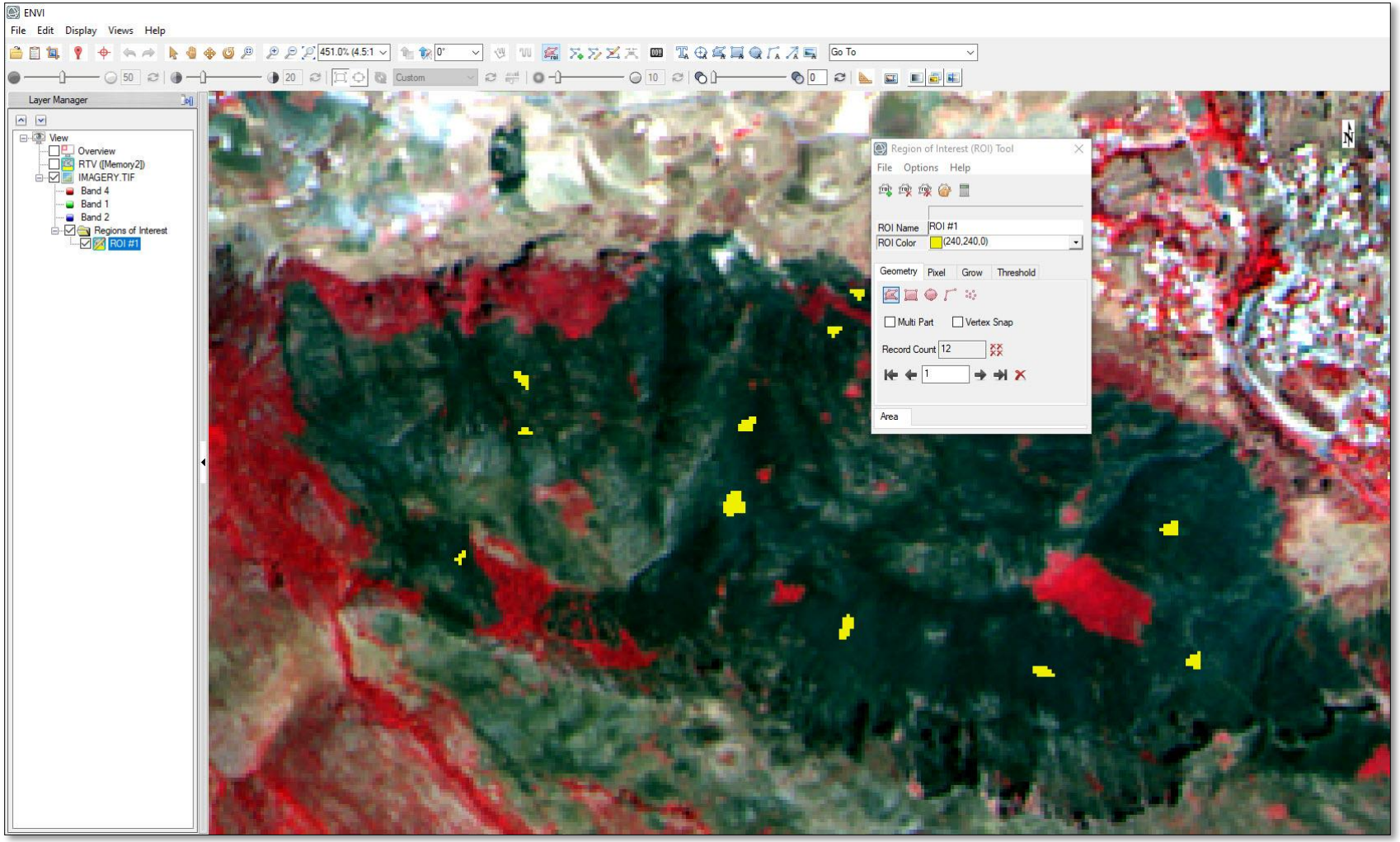
- Classification based on the regions of interests selected previousely (Generalization to the whole image)

Choose the Region of interest:

Menu **Tools – Region of Interest – ROI Tool.**



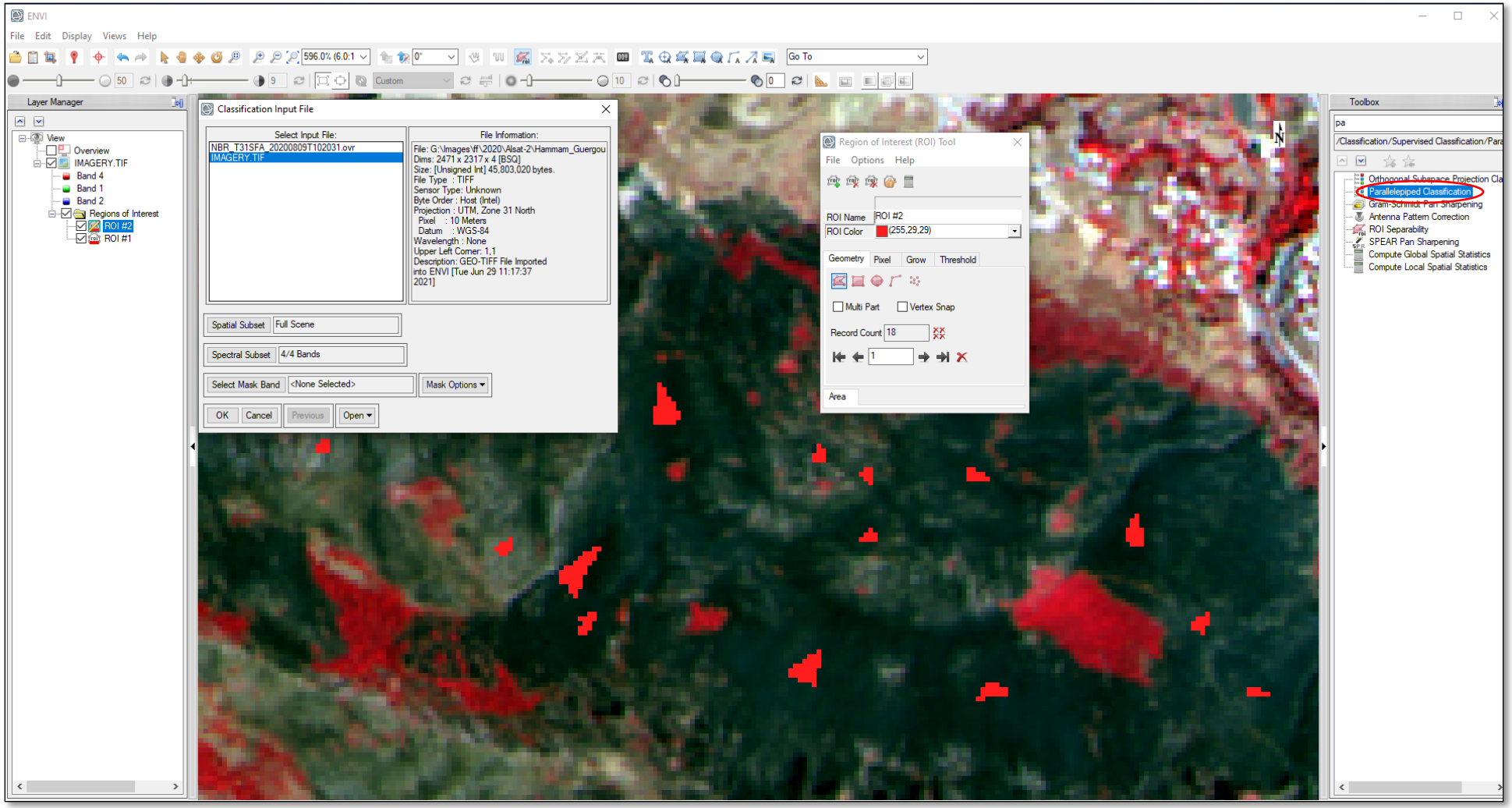
- Choose a homogeneous area;
- Use the tool Edit in ROI Tool to allocate a name of this test zone.
- Click on zoom in the ROI Tool window and start the delimitation of the test zone.
- Use the left button of mouse for bounding the test zone.
- Click twice the right button of the mouse to end.



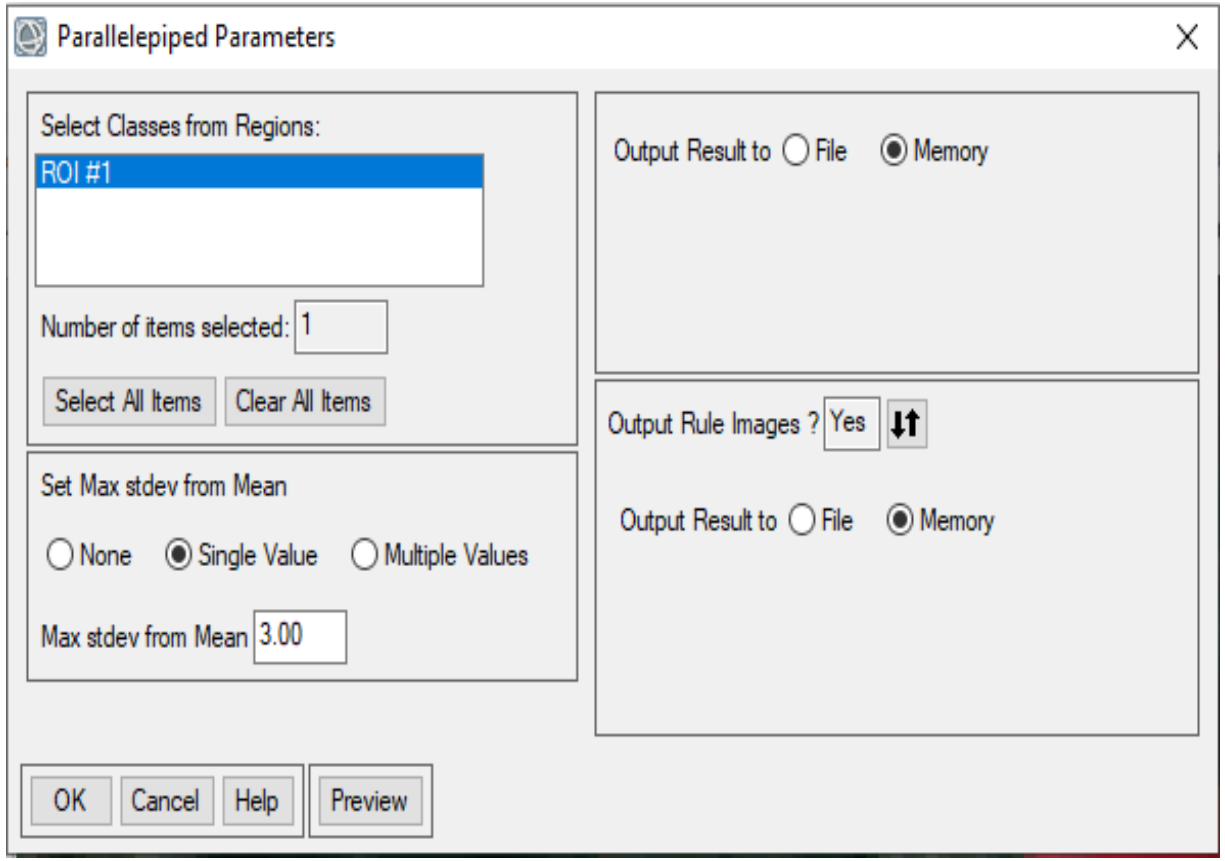
Redo the same operation to bound the other reference zones.

There are several methods of classification, we shall choose the method Parallelepiped

The purpose of the classification is to bound automatically the burned-out areas

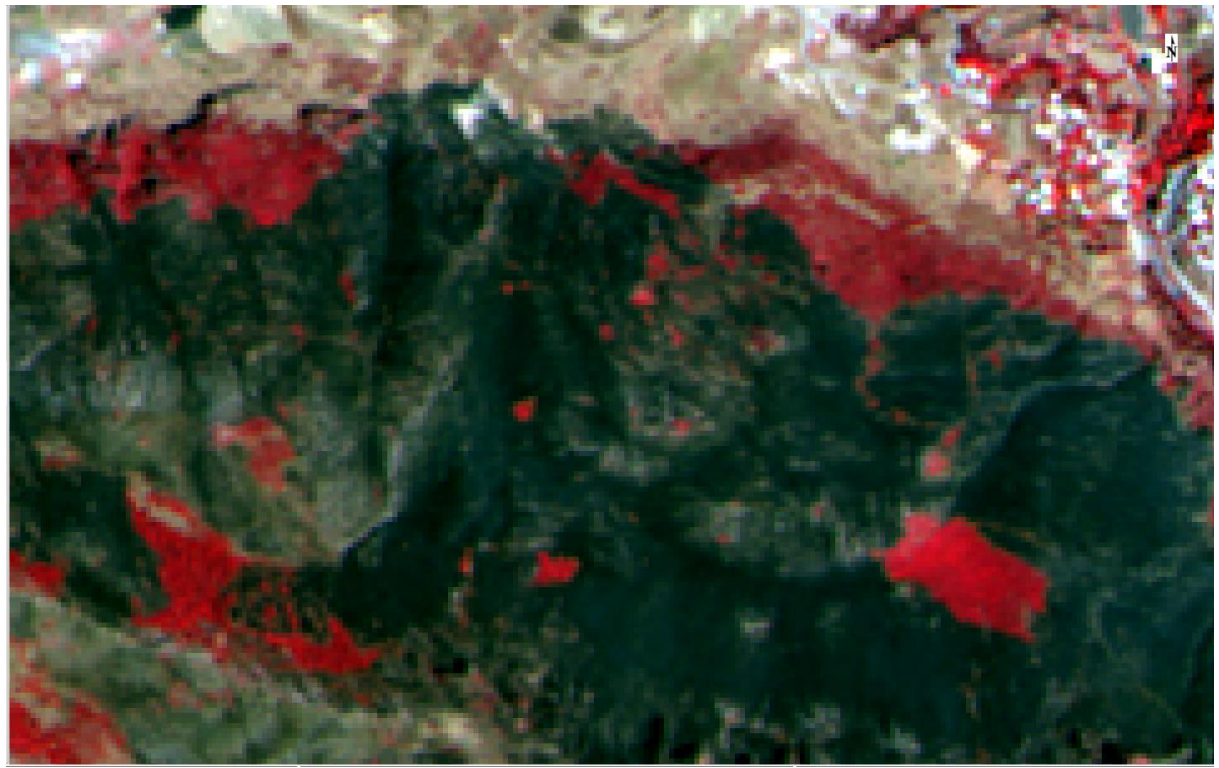


Selection of the regions of interests chosen previously

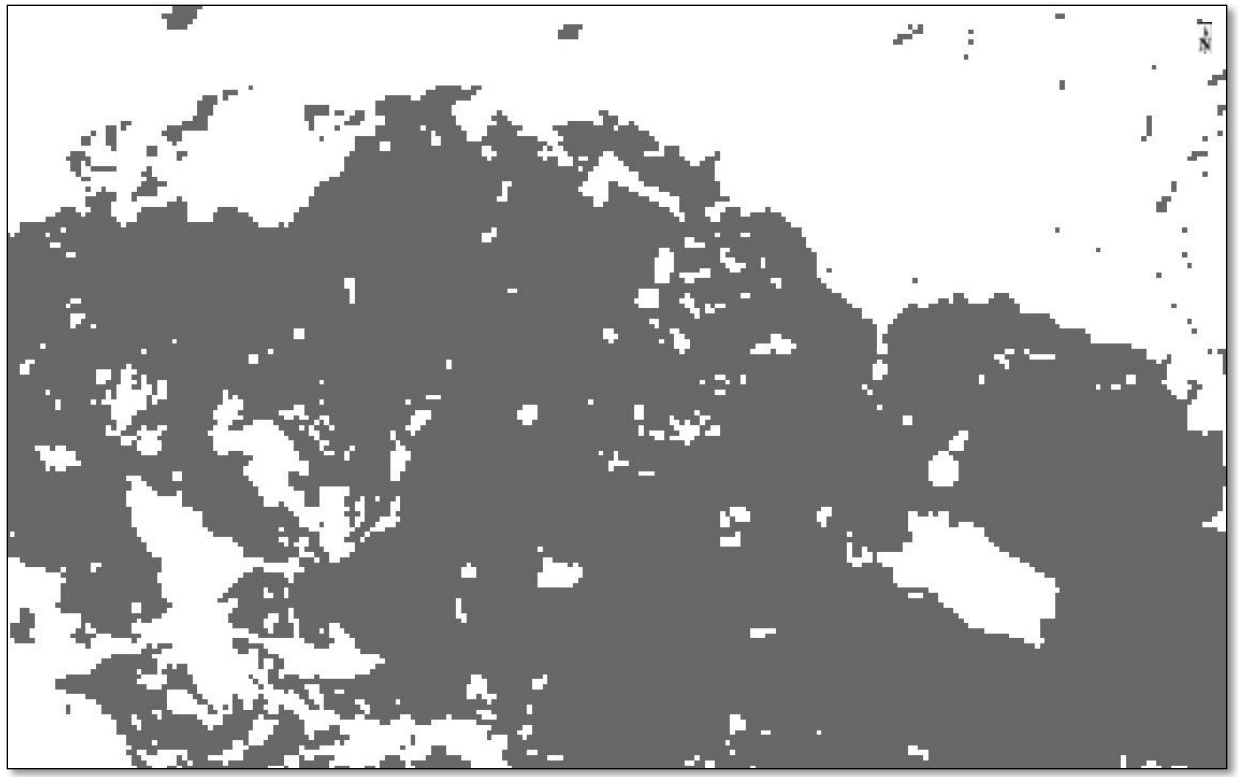


The burned-out regions (grey areas) on the satellite image were classified

False color Image

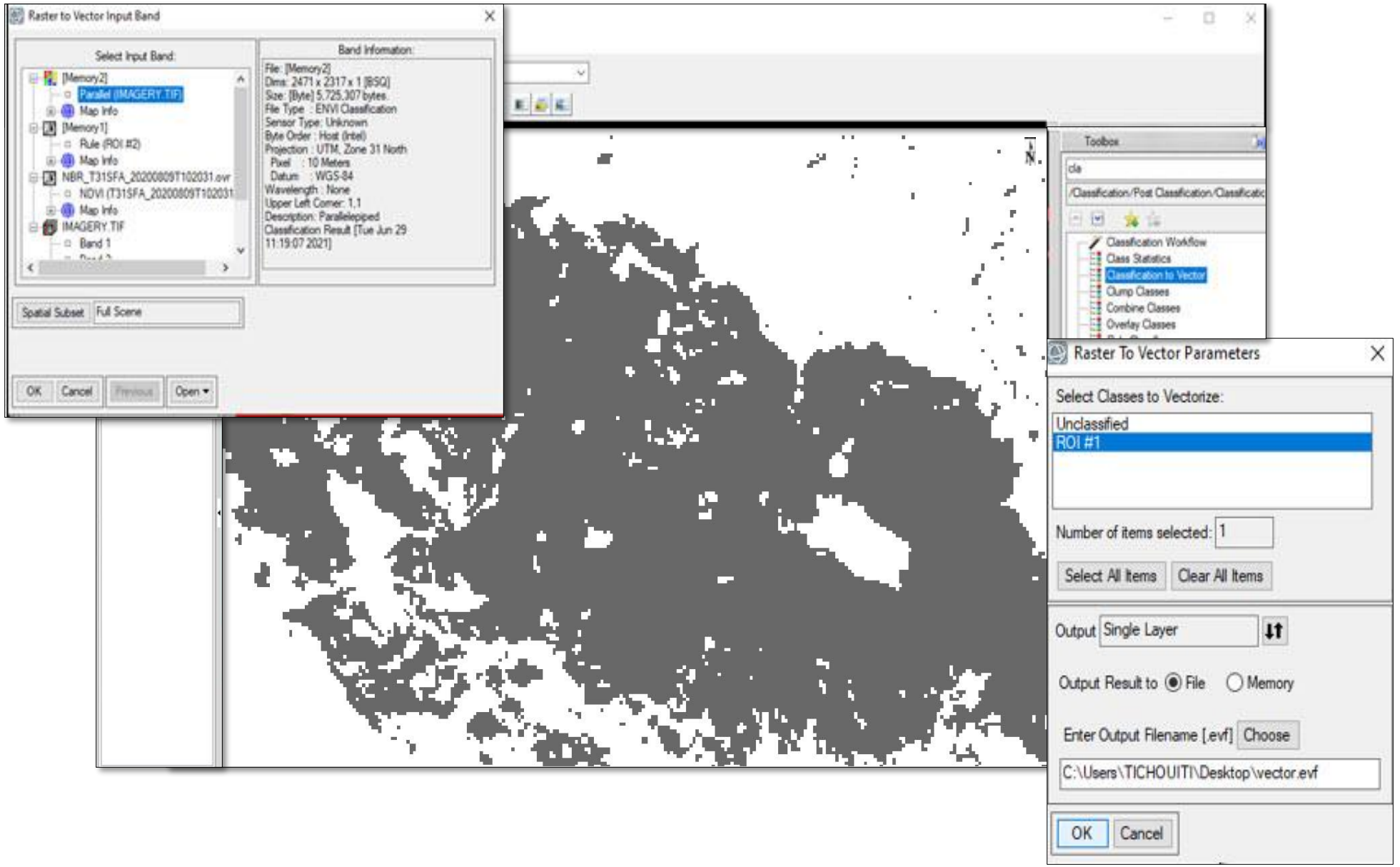


Classified burned area

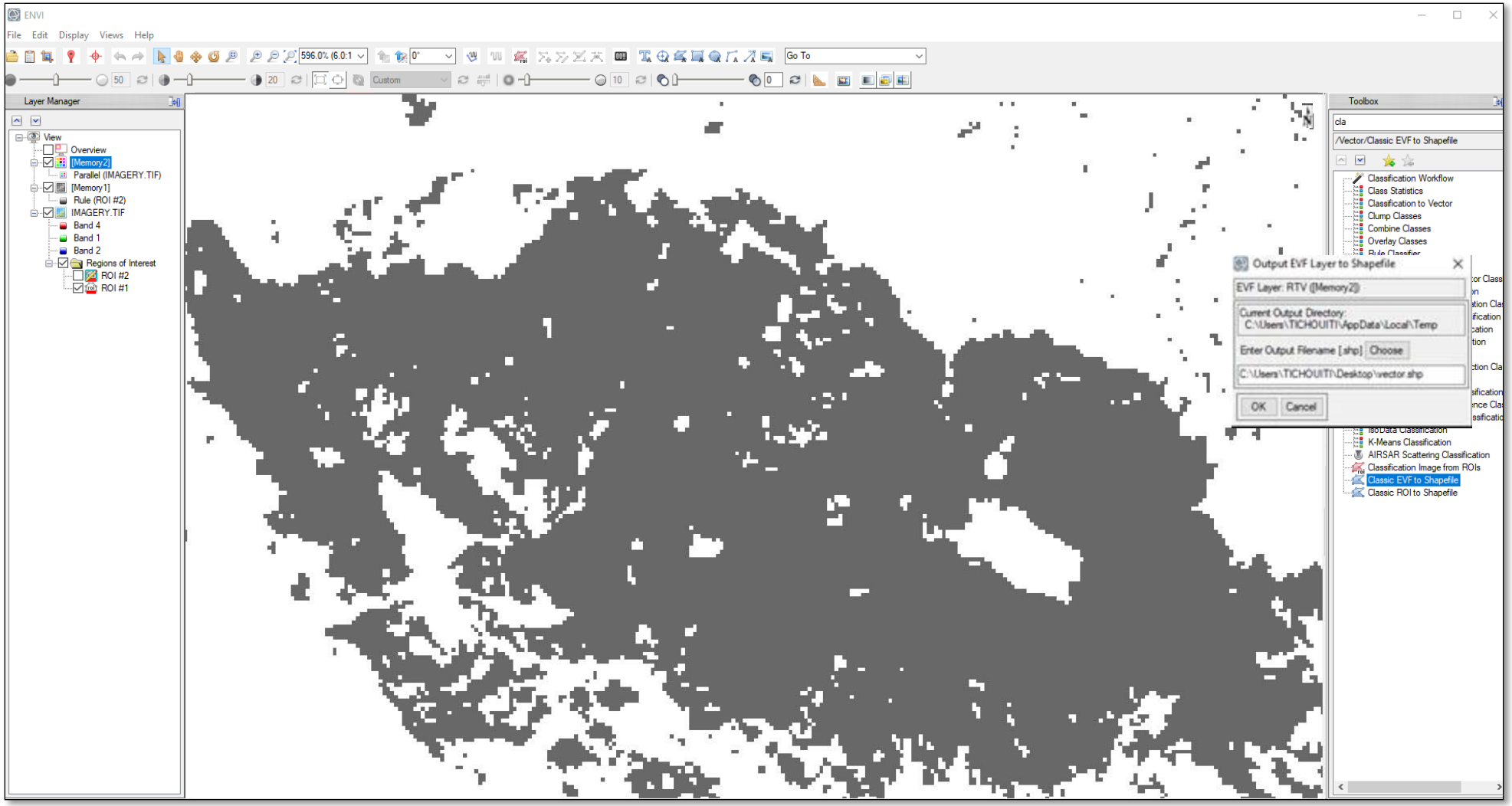


Raster of burned area

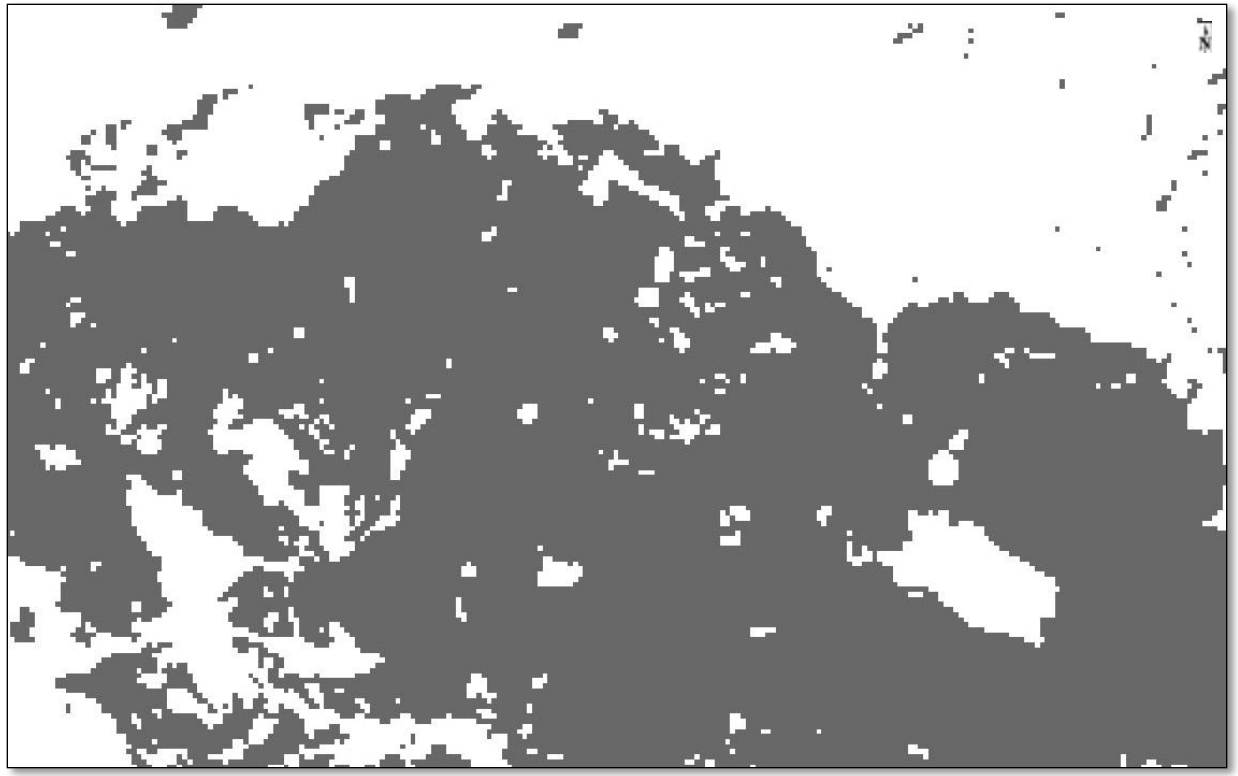
Conversion of the class " burned-out forests “ to shape file

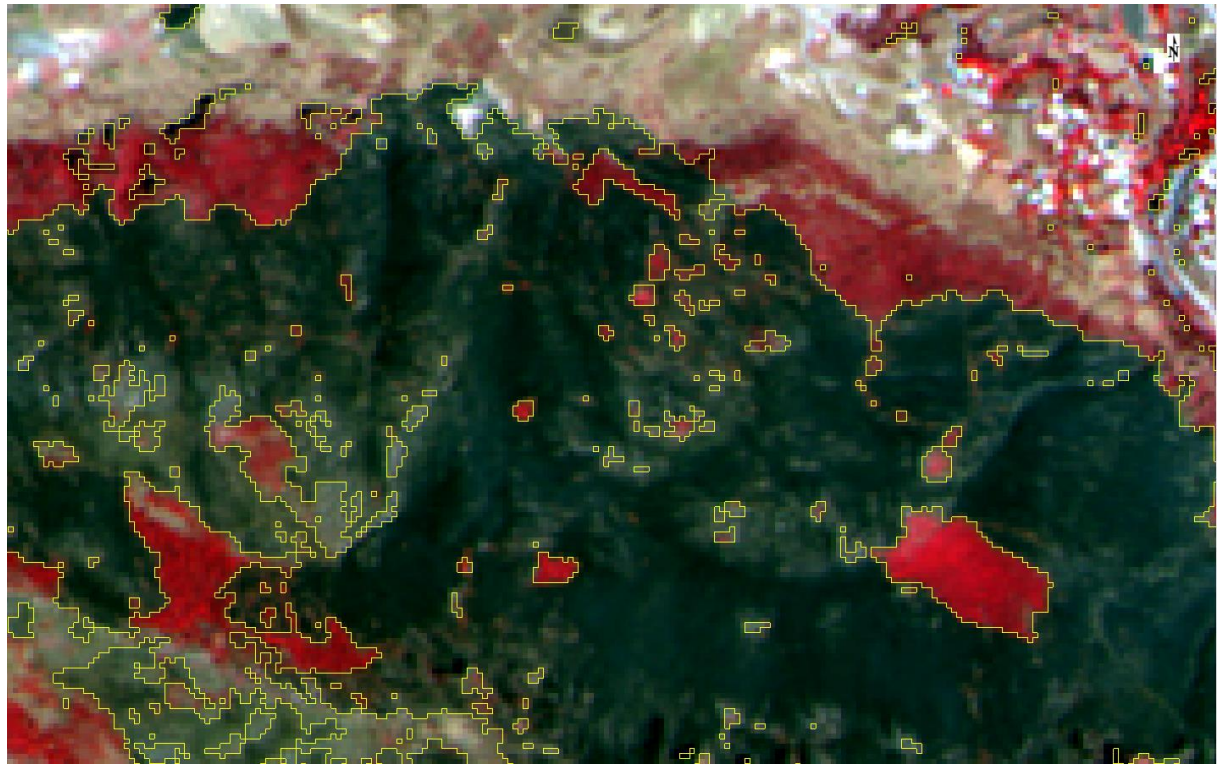


Convert the classic evf to Shapfile

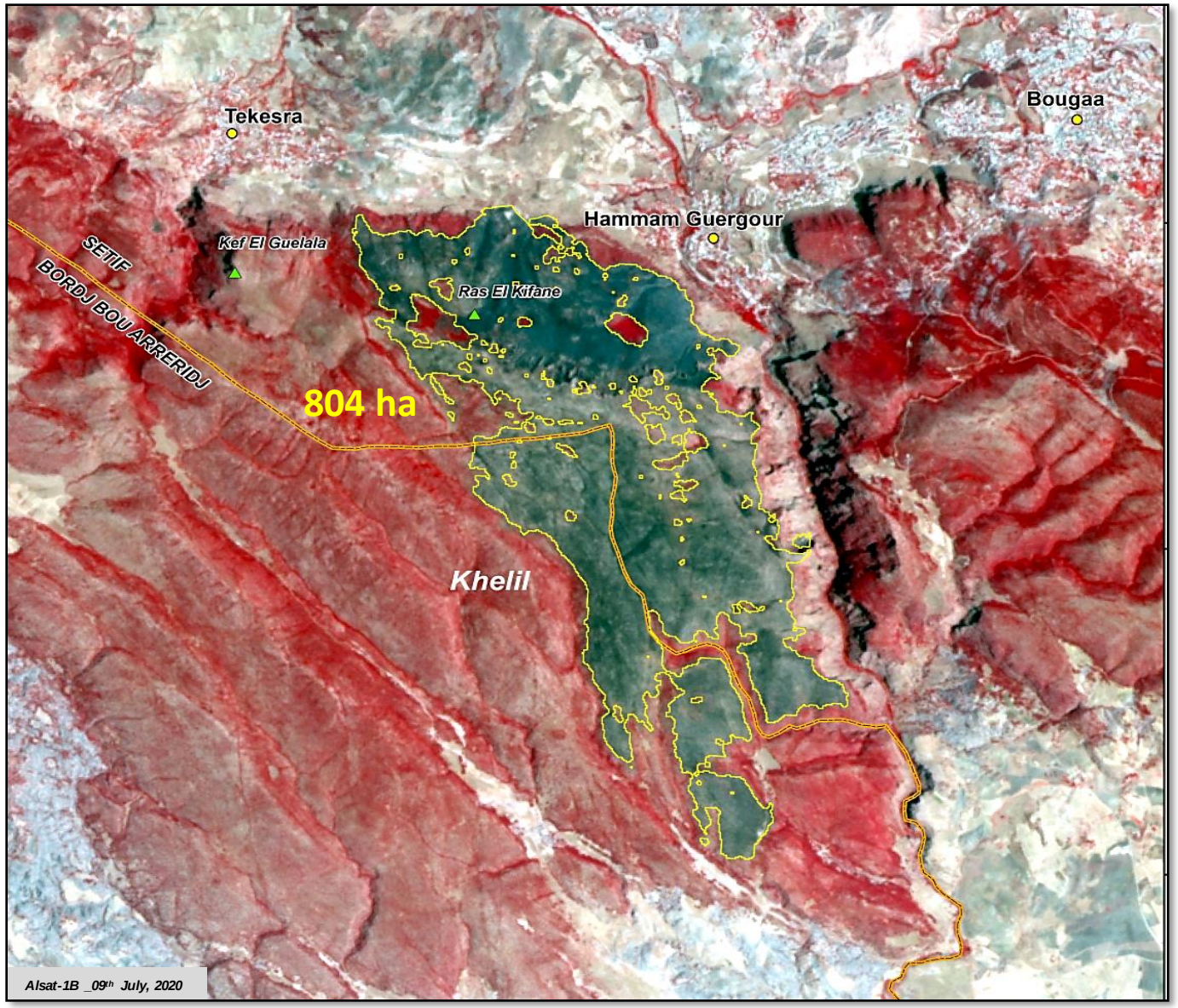


Superposition of the file (Shapefile) of surfaces burned on the composition colored in yellow color

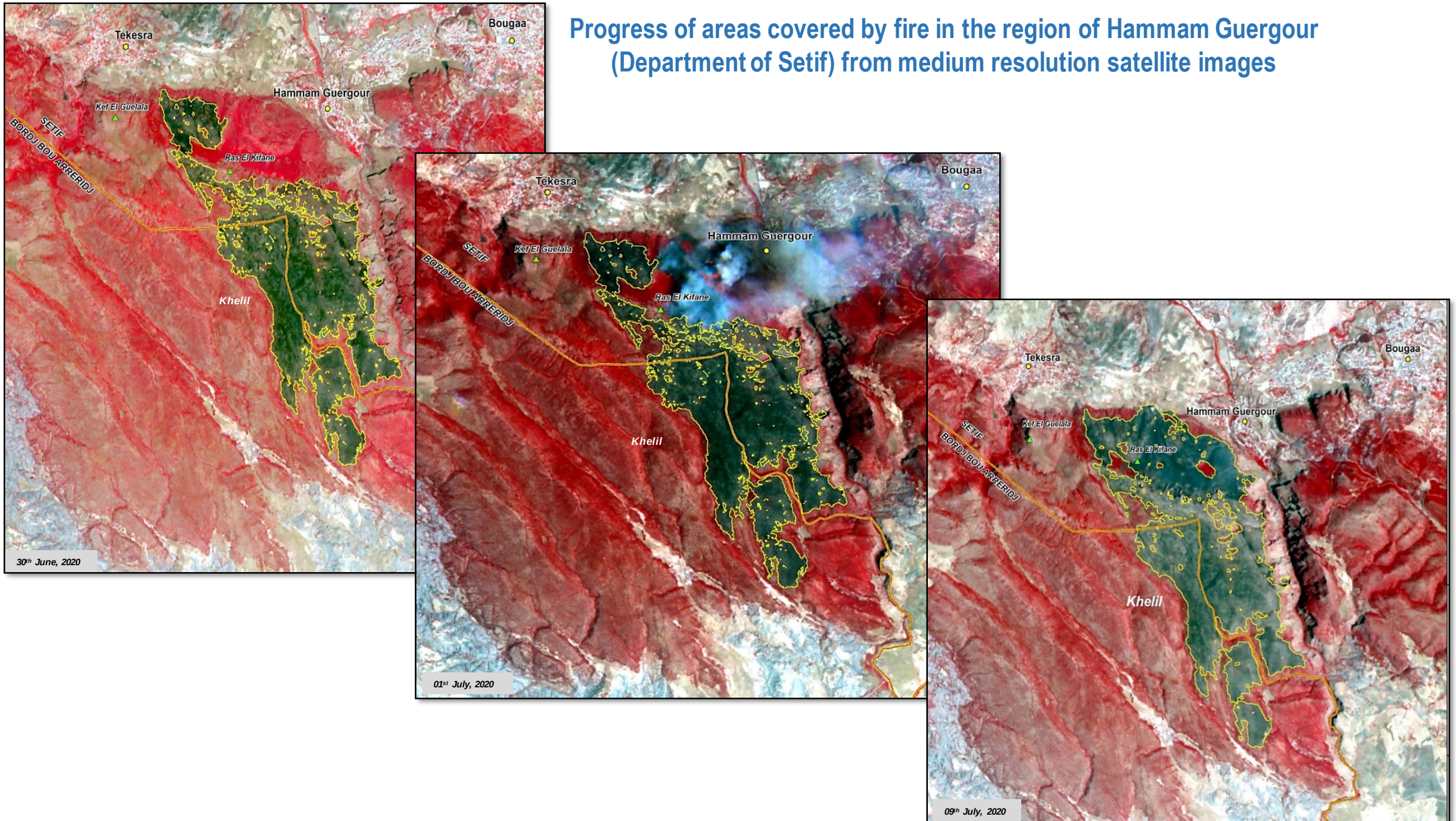




Example of the resulting output (e.g. map)



Progress of areas covered by fire in the region of Hammam Guergour (Department of Setif) from medium resolution satellite images




Thank You!!!