



Mapping burned area for fragmented landscape using satellite Aster data

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In Italy, after each fire season (generally summer season for the southern Mediterranean landscapes and winter/spring for the Northern alpine ecosystems) the up to date of burned area mapping is mandatory according to the current national legislation.

The mapping of burned areas is generally performed by regional forestry service by using field GPS survey and/or helicopter in the case of large fire extension. The use of remote sensing technologies can be an effective support for mapping fire affected areas. Such areas are characterized by the removal of vegetation, deposits of charcoal and ash, and alteration of the vegetation structure, that can be detected by satellite remote sensed data. Due to the fact that in Italy the extension of fire is generally as small as 10 ha to 50 ha the use of high resolution data is mandatory. In order to set up a low cost technologies to be effectively applied in operational context, we assessed the capability of ASTER data for same test areas in the Basilicata Region.

In this paper we present results we obtained from the use of several Vegetation indices based on ASTER VNIR.

Among the spectral indices proposed for burnt area mapping we used and compare the Simple Vegetation Index, the Normalized Difference Vegetation Index (NDVI), the Transformed Vegetation Index, and Soil Adjusted Vegetation Index (SAVI). The data processing was performed using both a single date and a multirate (pre and post fire) approach.

Several test cases selected from the 2007 fire season were investigated. ASTER-based results were compared with field data provided by the Basilicata regional Forestry Service