



Using MODIS time series for burn area mapping

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Wildfire significantly impacts forest ecosystems throughout the world. At the regional scale, wildfire affects a wide range of ecological, economic and social values related to forests. At the global scale, forest fire emissions of greenhouse gases, particulates and aerosols emissions into the atmosphere, direct and significantly impacts on atmospheric and biogeochemical cycles and the Earth radiative budget. The assessment of the timing and spatial extent of biomass burning, as needed for different tasks, is a mission that nowadays is only affordable using remote sensing techniques.

Since forest fires are a major cause of surface change mainly due to vegetation combustion, burn area mapping is a task that can be achieved as a change detection process. The present study describes an algorithm developed to map fire-affected areas at regional scale (Spain) using MODIS (MODerate resolution Imaging Spectroradiometer) time series data. In particular, we used MODIS surface reflectance data (MOD09A product) as well as MODIS hotspot data for two fires seasons.

Burned area maps as resulted from this work were compared to official fire statistics and perimeters from the Spanish Ministry of Environment. Results were also tested against burns perimeters as derived from finer spatial resolution satellite images. Reached results showed that this method would be of great interest at regional to national scales, since it was proved to be quick, accurate and cost-effective.