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On Fire regime modelling using satellite TM time series

F. Oddi (1), L . Ghermandi (1), A. Lanorte (2), and R. Lasaponara (2)
(1) IMAA - CNR, Italy (lasaponara@imaa.cnr.it), (2) IMAA - CNR, Italy (lasaponara@imaa.cnr.it)

Wildfires can cause an environment deterioration modifying vegetation dynamics because they have the capacity of changing vegetation diversity and physiognomy. In semiarid regions, like the northwestern Patagonia, fire disturbance is also important because it could impact on the potential productivity of the ecosystem. There is reduction plant biomass and with that reducing the animal carrying capacity and/or the forest site quality with negative economics implications. Therefore knowledge of the fires regime in a region is of great importance to understand and predict the responses of vegetation and its possible effect on the regional economy. Studies of this type at a landscape level can be addressed using GIS tools. Satellite imagery allows detect burned areas and through a temporary analysis can be determined to fire regime and detecting changes at landscape scale. The study area of work is located on the east of the city of Bariloche including the San Ramon Ranch (22,000 ha) and its environs in the ecotone formed by the sub Antarctic forest and the patagonian steppe. We worked with multiespectral Landsat TM images and Landsat ETM + 30m spatial resolution obtained at different times. For the spatial analysis we used the software Erdas Imagine 9.0 and ArcView 3.3. A discrimination of vegetation types has made and was determined areas affected by fires in different years. We determined the level of change on vegetation induced by fire. In the future the use of high spatial resolution images combined with higher spectral resolution will allows distinguish burned areas with greater precision on study area. Also the use of digital terrain models derived from satellite imagery associated with climatic variables will allows model the relationship between them and the dynamics of vegetation.