



Satellite-based Fuel type Mapping using neural nets

Rosa Lasaponara¹, Antonio Lanorte¹

¹ National Research Council, Institute of Methodologies of Environmental Analysis, C. da S. Loja, Tito Scalo, Potenza 85050, Italy.

Text of Abstract

In the context of fire management, fuel maps are essential information requested at many spatial and temporal scales for managing wildland fire hazard and risk and for understanding ecological relationships between land fire and landscape structure. Remote sensing data provide valuable information for the characterization and mapping of fuel types and vegetation properties at different temporal and spatial scales including the regional and landscape levels.

This study aims to ascertain how well remote sensing data can characterize fuel type at different spatial scales in fragmented ecosystems. For this purpose, satellite ASTER and MODIS data were processed using neural networks for a test area of Southern Italy characterized by mixed vegetation covers and complex topography. Fuel type recognition, performed at the same time as remote sensing data acquisitions, were used to assess the results obtained for the considered test areas. Results from our preliminary analysis showed that the neural nets provides detailed mapping of fuel types with accuracy levels higher than 75%.