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ASSESSMENT OF ASTER DATA FOR FOREST INVENTORY IN CANARY ISLANDS

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To understand and evaluate the forest structural attributes, forest inventories are conducted, which are costly and lengthy in time. Since the last 10-15 years there has been examining the possibility of using remote sensing data, to save costs and cheapen the process. One of the aims of SATELMAC, a project PCT-MAC 2007-2013 co-financing with FEDER funds, is to automate the forest inventory in Canary Islands using satellite images.

In this study, Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data were used to estimate forest structure of the endemic vegetal specie, *Pinus canariensis*, located on the island of Tenerife (Spain). The forest structural attributes analyzed have been volume, basal area, stem per hectare and tree height.

ASTER is an imaging instrument flying on Terra, a satellite launched in December 1999 as part of NASA's Earth Observing System. ASTER data were used because it have relatively high spatial resolution in the three visible and near-infrared bands (15 m) and in the six spectral bands (30 m) in the shortwave-IR region. To identify the vegetation index that is most suitable to use, about specific forest structural attributes in our study area, we assess the ability of different spectral indices: Normalized Difference Vegetation Index, Transformed Soil Adjusted Vegetation Index, Modified Soil adjusted Vegetation Index, Perpendicular Vegetation Index and Reduced Simple Ratio.

The information provided by the ASTER data has been supplemented by the Third National Forest Inventory (III NFI) and field data. The results are analyzed statistically in order to see the degree of correlation (R^2) and the mean square error (RMSE) of the values studied.