

Space Studies of the Earth's Surface, Meteorology and Climate (A)  
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## **AGRICULTURAL LAND-USE MAPPING USING VERY HIGH RESOLUTION SATELLITE IMAGES IN CANARY ISLANDS**

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Crop maps are a basic tool for rural planning and a way to assess the impact of politics and infrastructures in the rural environment. Thus, they must be accurate and updated. Because of the small size of the land fields in Canary Islands, until now the crop maps have been made by means of an intense and expensive field work. The tiny crop terraces do not allow the use of traditional medium-size resolution satellite images. The launch of several satellites with sub-meter spatial resolutions in the last years provides an opportunity to update land use maps in these fragmented areas.

SATELMAC is a project financed by the PCT-MAC 2007-2013 (FEDER funds). One of the main objectives of this project is to develop a methodology that allows the use of very high resolution satellite images to automate as much as possible the updating of agricultural land use maps.

The study was carried out in 3 different areas of the two main islands of the Canarian Archipelago, Tenerife and Gran Canaria. The total area is about 550 km<sup>2</sup>, which includes both urban and rural areas. Multitemporal images from Geo-Eye 1 were acquired during a whole agricultural season to extract information about annual and perennial crops. The work includes a detailed geographic correction of the images and dealing with many adverse factors like cloud shadows, variability of atmospheric conditions and the heterogeneity of the land uses within the study area.

Different classification methods, including traditional pixel-based methods and object-oriented approach, were compared in order to obtain the best accuracy. An intensive field work was

carried out to obtain the ground truth, which is the base for the classification procedures and the validation of the results. The final results will be integrated into a cadastral vector layer.