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Paper A →

IDENTIFICATION OF LARGE MASSES OF CITRUS FRUIT AND RICE FIELDS IN EASTERN SPAIN

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ABSTRACT

ERTS-1 imagery has been successfully used for the identification of large areas of citrus groves and rice fields in the Valencia region of Eastern Spain. Results are encouraging and will facilitate the elaboration of a Land Use Map with a fair degree of definition once methods prove to be fully operational.

1. GROUND TRUTH DATA ACQUISITION

Before receiving ERTS-1 imagery a survey was made so as to obtain all available aerial photographs of the study zone. In the same way meteorological data such as temperature, rainfall, atmospheric pressure, humidity etc. were carefully examined for all stations of the area. A report about meteorological conditions is, at present, being produced every day.

Part of the ground truth data about vegetative vigour, blooming periods, ripening etc. of the citrus trees are supplied by the Centro Regional de Burjasot, dependant on the Instituto Nacional de Investigaciones Agrarias and the Botany and Photointerpretation Departments of the Universidad Politécnica de Valencia. In addition three test sites have been selected at Nules, Sagunto and La Albufera in which terrestrial photographs are periodically taken. These

include black and white panchromatic, colour, black and white infrared, colour infrared. Collections of leafs and soil samples are made periodically and subsequently analyzed and their spectrograms taken in the 450 to 2150 nm. region.

2. ERTS-1 IMAGERY HANDLING

With the arrival of the ERTS-1 imagery the following methodology was used ;Based on flights USAF-B (1957) and Citrus Trees Census (1971 , all citrus groves and rice fields of model areas were delimited and their boundaries drawn on the National Topographic Map scale 1 : 50,000. Reductions were made to different scales ranging from 1 : 100,000 to 1 : 400,000 and they were subsequently compared to the enlarged MSS 4 to 7 bands.

3. RESULTS

Tonal response for the studied areas was distinctive for either citrus trees or rice fields. Bands MSS 5 and 7 were more useful than either 4 or 6 which were discarded in a first approach to the experiment.

From the preliminary results a draft general map was obtained which showed citrus groves or rice fields areas. This was drawn on a ERTS-1 image, scale 1 : 300,000. This map has been used recently in the field so as to asses the degree of correct identification.

So far results are encouraging and it is expected that they will serve as an important basis for the elaboration of a Land Use Map that will supersede the existing one published in 1958.

False colour products have not been used so far but it is hoped that, in a near future, a three-lantern system will be made operational thus improving appreciably the actual results.