

**REMOTE SENSING APPLICATIONS  
TO PERFORM  
MASSIVE RURAL VALUATIONS  
IN THE ARGENTINE NORTHWEST**

- TO EXAMINE THE PROBLEMATIC OF THE ARGENTINE RURAL CADASTRE FROM AN ECONOMIC PERSPECTIVE

- TO ANALYZE THE REQUIREMENTS OF THE AGROGEOGRAPHICAL ZONING DELIMITATIONS ESTABLISHED IN THE CADASTRAL LEGISLATION OF SOME ARGENTINE PROVINCES

- TO SHOW SOME EXAMPLES OF DELIMITATIONS OF THE AGROGEOGRAPHICAL ZONING IN THE ARGENTINE NORTHWEST ON THE BASIS OF DIGITAL TREATMENT OF LANDSAT IMAGES

**ECONOMIC ASPECTS OF THE CADASTRE**

FROM A RESTRICTIVE PERSPECTIVE

CADASTRES HAVE BEEN DEVELOPED MAINLY WITH TAXATION OBJECTIVES  
THEY WERE USED TO ANSWER THE NEED OF THE REAL STATE MARKET BY MEANS OF THE PUBLICITY

THE MODERN CONCEPTION OF CADASTRE

A DECISIVE ROLE AS INTERDISCIPLINARY AND MULTIPURPOSE TERRITORIAL SYSTEM

**CADASTRAL MASSIVE RURAL VALUATION**

BASIC UNITARY VALUES AT ZONING LEVELS

APPRAISAL OF THE CHARACTERISTICS OF EACH PARCEL

VALUATIONS AT PARCEL LEVEL

THE BASIS FOR THE DECISION-MAKING PROCESSES AND THE TAX-SYSTEM

**CADASTRE IN ARGENTINA**

LEGISLATION AT PROVINCIAL LEVEL

MASSIVE RURAL VALUATIONS

TERRITORIAL DIVISIONS INTO REGIONS OR ZONES

CATAMARCA'S CADASTRAL PROVINCIAL ACT 3585/80

**THE PHENOMENON OF ZONING**

ZONE

implies

Segmentation of more complex spatial realities

It has

Similarity with the term "REGION"

such as

Geographical

Administrative

Economical

such as

Homogeneity of resources

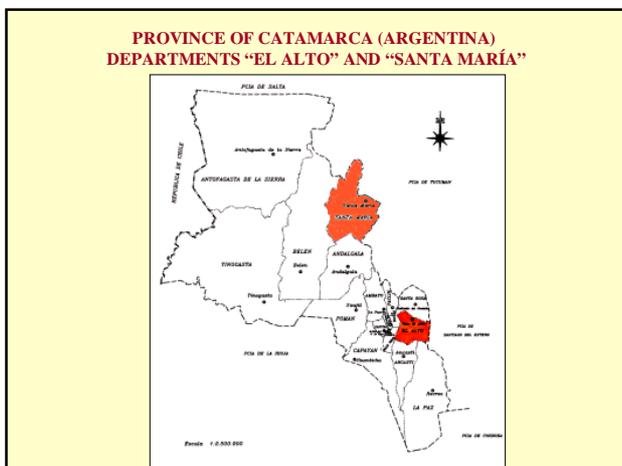
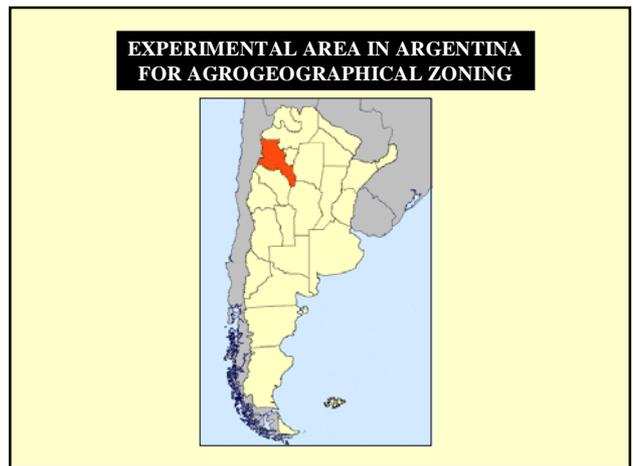
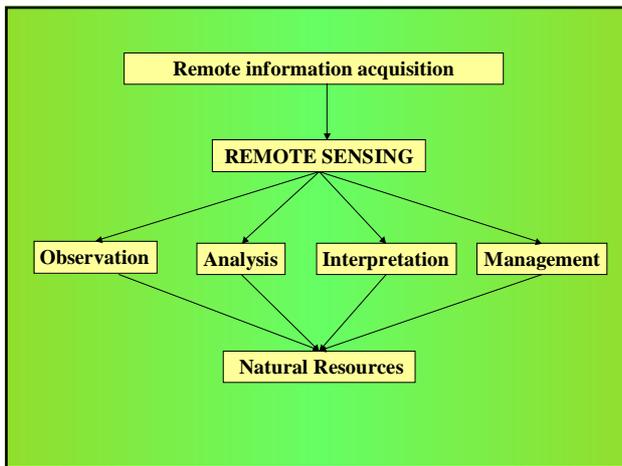
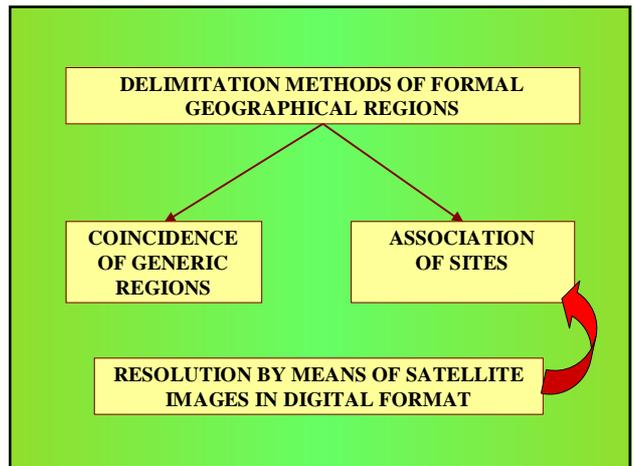
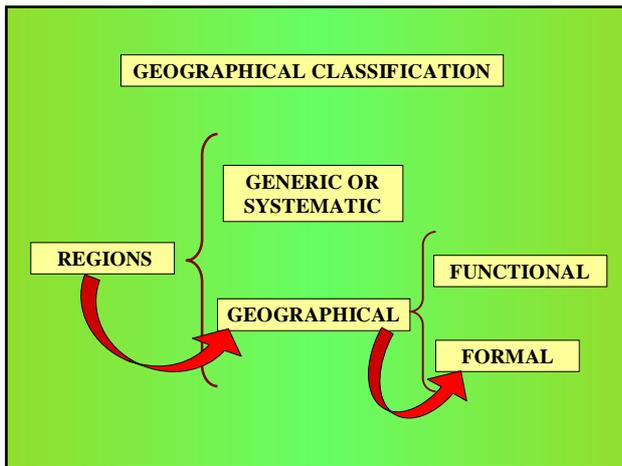
whose

Delimitation

whose

depends on

The established objectives



**PROVINCE OF CATAMARCA (ARGENTINA)**

**AREA: 102,602 square km**

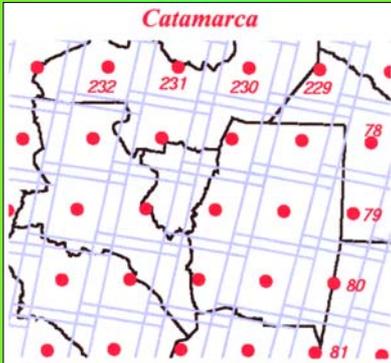
**TOTAL POPULATION: 331,635 inhabitants**

**DEPARTMENT "EL ALTO"**  
**AREA: 2,397 square km**    **POPULATION: 3,392 inhabitants**  
**EXTENDED:**  
 between latitude 28° 10' and 28° 40' S  
 longitude 65° 05' and 65° 37' W

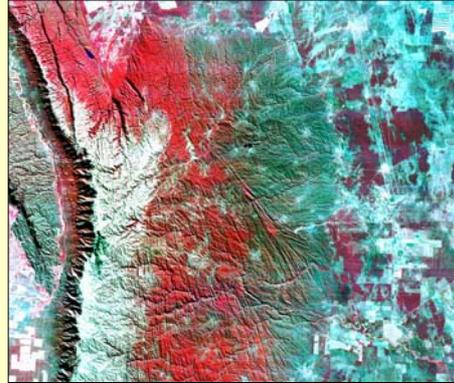
**DEPARTMENT "SANTA MARÍA"**  
**AREA: 5,740 square km**    **POPULATION: 22,048 inhabitants**  
**EXTENDED:**  
 between latitude 26° 10' and 27° 15' S  
 longitude 65° 45' and 66° 35' W

A photograph of a rural landscape in Catamarca, Argentina, showing rolling hills and a dirt road.

**LANDSAT IMAGES LOCALIZATION**



**FALSE COLOR COMPOSITE (BANDS 2 - 3 - 4)  
LANDSAT TM**



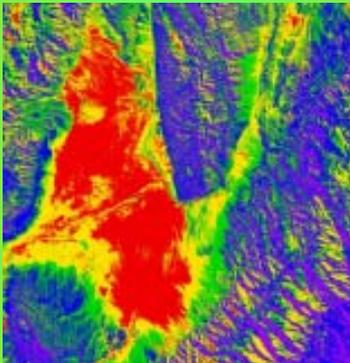
**LANDSAT TM - COLOR COMPOSITE (BANDS 1 - 4 - 5)**



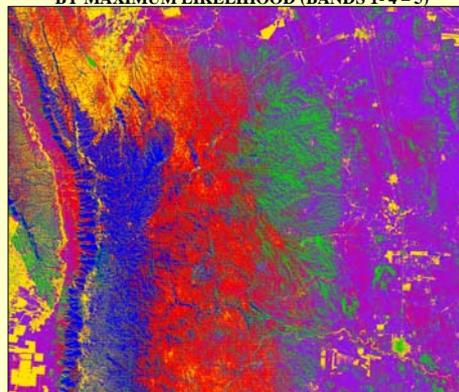
**LANDSAT TM - COLOR COMPOSITE (BANDS 1 - 4 - 5)**



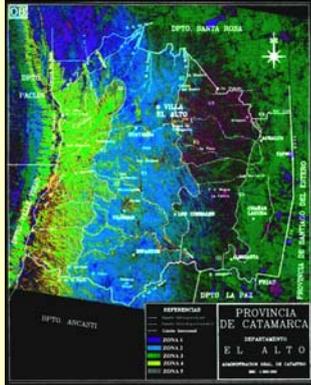
**SUPERVISED CLASSIFICATION  
BY MAXIMUM LIKELIHOOD (BANDS 1 - 4 - 5)**



**SUPERVISED CLASSIFICATION  
BY MAXIMUM LIKELIHOOD (BANDS 1 - 4 - 5)**



**ZONING AS THE CULMINATING PHASE  
OF THE SATELLITE DIGITAL IMAGE PROCESSING**



**ANALYSIS OF RESULTS**

The agrogeographical zoning by association of sites with satellite image processing:

- Classifies the spectral information obtained simultaneously and in the same conditions (image acquisition date)
- Observes inter-zonal variations
- Tends to be more accurate than other methods
- Can be periodically checked by new satellite images
- Zonal boundaries can be easily laid out on the ground with the coordinates of satellite image georeferencing
- Can be easily integrated to G.I.S. and L.I.S.

**FINAL REMARKS**

In order to determine the agrogeographical areas required in particular for the procedures of massive valuations, according to what is established by cadastral laws of different provinces of the Argentine Northwest, and as they are required in general in the processes of decision making as essential tools for the design and implementation of policies related to the territory and the natural resources, the application of the method of site association from the aided classification of satellite images is highly recommended.