



## METADATA

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### Abstract

The aim of this course is to introduce and deepen, within the framework of a semester, methods and applications of photo interpretation through the processing of aerial photographs and satellite remote sensing. The first chapters develop the basic concepts of aerial photograph processing and their usefulness in different sciences. Next, the science of satellite remote sensing is presented. More specifically, existing satellite systems are analyzed, followed by a detailed presentation of the steps required for processing satellite data. In this context, the following are presented in detail: - Geometric errors in images and their correction procedures (geometric correction, orthorectification). - Radiometric and atmospheric corrections of images.

- Image enhancement/improvement methodologies through: histograms, multispectral image transformations, spatial enhancement with filters, and image fusion. - Image classification. Spectral signatures are presented, as well as supervised and unsupervised classification techniques/methods. Special mention is made to new advanced classification methods, such as classification using artificial intelligence, classification using neural networks, object-oriented classification, etc. - Classification accuracies and methodologies required for statistically documented evaluation of results. Finally, new trends in remote sensing are presented, with the emergence of very high resolution data and image acquisition using unmanned aerial vehicles (UAVs).

