

LAND COVER IDENTIFICATION USING POLARIMETRIC SAR IMAGES

A. Kourgli^{*a} M. Ouarzeddine^a Y. Oukil^b A. Belhadj-Aissa^a

^a FEI, Université de Sciences et Technologie Houari Boumediene, Image Processing Laboratory, 16111 Bab-ezzouar, 16111, Algier, Algeria

^b ENS, Geography Department, , , Algiers, Algeria

Technical Commission VII Symposium 2010

KEY WORDS: Classification, Modelling, SAR, Texture, Distributed

ABSTRACT:

Synthetic Aperture Radar (SAR) has been proven to be a powerful earth observation tool. Due to its sensitivity to vegetation, its orientations and various land-covers, SAR polarimetry has the potential to become a principle mean for crop and land-cover classification. A variety of polarimetric classification algorithms have been proposed in the literature for segmentation and/or classification of polarimetric SAR images into classes reflecting canonical scattering processes and/or some statistical properties. However, classification based on polarimetric data alone does not provide sufficient sensitivity for the separation of some classes such as forests. The use of other kinds of characteristics like texture provides better sensitivity for class separation. In this paper, we wish to address this issue, testing and comparing some polarimetric SAR classification algorithms using texture. Such an analysis will allow us to evaluate the importance of texture considering and to prove if the chosen texture model parameters describe, also, physical properties of the targets. Thus, the proposed approach is compared with the Wishart classifier showing interesting results. The test area used is the Oberpfaffenhofen in Munich and the SAR images are acquired in the P band.

TOPIC: Microwave remote sensing

ALTERNATIVE TOPIC: Microwave remote sensing