

ON SPECKLE FILTERING IN POLARIMETRIC RADAR SAR IMAGES: STUDY OF ALGIERS AND ORAN REGIONS

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Abstract

In this paper, we present various filtering methods in polarimetric synthetic aperture radar images (PolSAR). Coherent summation operation in SAR data measure leads multiplicative noise appearance, named Speckle which disturb strongly radar data treatments and their results interpretation. We propose in this paper a comparative study of Speckle filtering methods in polarimetric synthetic aperture radar images. These filtering methods are evaluated on images in the case of totally polarimetric data in Algiers images, Algeria, on the three polarimetric components of the Oberpfaffenhofen area, in Munich, Germany, and in the case of dual polarisation ASAR images of Envisat satellite for Oran, west town in Algeria. The comparison criterions are: the polarimetric information conservation, the edge preservation and the smoothing of homogeneous areas.

Keywords - Speckle filtering, polarimetry, adaptive Lee filter, ASAR, PWF, ESDPWF