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**CLASSIFICATION OF SIMPLE VEGETATION TYPES USING POLSAR
IMAGE DATA**

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Mapping basic vegetation or land cover types is a fairly common problem in remote sensing. Knowledge of the land cover type is a key input to algorithms which estimate geophysical parameters, such as soil moisture, surface roughness, leaf area index or biomass from remotely sensed data.

In an earlier paper [1], an algorithm for fitting a simple three-component scattering model to POLSAR data was presented. The algorithm yielded estimates for surface scatter, double-bounce scatter and volume scatter for each pixel in a POLSAR image data set. In this paper, we show how the relative levels of each of the three components can be used as inputs to a simple classifier for vegetation type. Vegetation classes include no vegetation cover (e.g. bare soil or desert), low vegetation cover (e.g. grassland), moderate vegetation cover (e.g. fully developed crops), forest and urban areas. Implementation of the approach requires estimates for the three components from all three frequencies available using the NASA/JPL AIRSAR, i.e. C-, L- and P-bands.

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[1]. Freeman, A. and Durden, S., A three-component scattering model to describe polarimetric SAR data, Proc. SPIE Conference, San Diego, CA, June 1992.