OPTIMUM SENSOR RESOLUTION FOR PREDICTION OF HOUSING DENSITY

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ABSTRACT

The relationship between sensor resolution and the size of urban features is one of critical importance when attempting to use satellite based remote sensing systems for the prediction of urban housing density. Accurate prediction of this variable has potential benefits for census and planning studies of urban areas. The visible and near infrared reflectance of urban residential areas has been modelled using different housing densities, typical of a modern western city. The modelled response of these areas using sensors with resolutions ranging from 5 to 30 metres has been determined, and indicates a strong correlation between response variance and housing density with an optimum result being achieved at a resolution of 20 metres. These results have been applied to selected areas of the Sydney metropolitan area using SPOT XS-mode data. Results and conclusions of the study are presented in this paper.