Improving land-use/land cover products from multiple EOS data sets using knowledge-based expert system

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Land-use/land cover products from MODIS data may not have the accuracy needed by the land surface models. A main reason for this lack of accuracy is that up to now, most methods used to extract land-use/land cover properties rely heavily on nadir spectral information and statistical pattern recognition techniques. There is an urgent need to develop more advanced methods and produce more accurate land-use/land cover products. In this project, we propose to use knowledge-based expert system to enhance the quality of land-use/land cover products. Expert classification is a rule-based approach and can be utilized to improve land cover products from multiples EOS sensors such as MODIS, MISR and ASTER by incorporating additional knowledge in the classification process.The main results of this research consist of more advanced methods and more accurate land-use/land cover products. The new methods are the knowledge-based expert systems composed of expert knowledge, rules, and data sets.(This is part of a three-year project that is funded by NASA and coordinated at the University of Maryland. In this project we are also developing methods to generate new global land surface products such as plant function types from multiple EOS sensors.)