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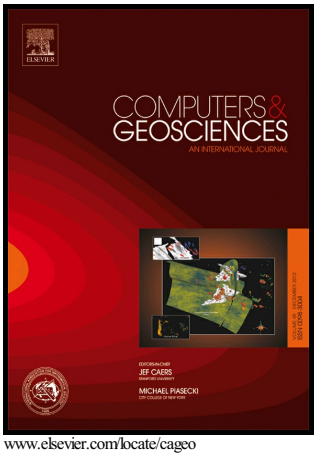

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PII: S0098-3004(17)30207-8
DOI: http://dx.doi.org/10.1016/j.cageo.2017.02.018
Reference: CAGEO3915

To appear in: *Computers and Geosciences*

Received date: 9 March 2016
Revised date: 9 September 2016
Accepted date: 22 February 2017

Cite this article as: Samuel Andrés, Damien Arvor, Isabelle Mougenot, Thérèse Libourel and Laurent Durieux, Ontology-based classification of remote sensing images using spectral rules, *Computers and Geosciences* http://dx.doi.org/10.1016/j.cageo.2017.02.018

Ontology-based classification of remote sensing images using spectral rules

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Abstract

Earth Observation data is of great interest for a wide spectrum of scientific domain applications. An enhanced access to remote sensing images for "domain" experts thus represents a great advance since it allows users to interpret remote sensing images based on their domain expert knowledge. However, such an advantage can also turn into a major limitation if this knowledge is not formalized, and thus is difficult for it to be shared with and understood by other users. In this context, knowledge representation techniques such as ontologies should play a major role in the future of remote sensing applications. We implemented an ontology-based prototype to automatically classify Landsat images based on explicit spectral rules. The ontology is designed in a very modular way in order to achieve a generic and versatile representation of concepts we think of utmost importance in remote sensing. The prototype was tested on four subsets of Landsat images and the results confirmed the potential of ontologies to formalize expert knowledge and classify remote sensing images.

Keywords: Ontology, Expert Knowledge, Remote Sensing, Image classification, Description Logics