

Modeling and Characterization of Vegetation, Aquatic and Mineral Surfaces Using the Theory of Plausible and Paradoxical Reasoning from Satellite Images : Case of the Toumodi-Yamoussoukro-Tiébissou Zone in V Baoulé (Côte d'Ivoire)

Submitted by Alain Clément on Mon, 02/26/2018 - 16:57

Titre	Modeling and Characterization of Vegetation, Aquatic and Mineral Surfaces Using the Theory of Plausible and Paradoxical Reasoning from Satellite Images : Case of the Toumodi-Yamoussoukro-Tiébissou Zone in V Baoulé (Côte d'Ivoire)
Type de publication	Article de revue
Auteur	Okaingni, Jean-Claude [1], Ouattara, Sié [2], Kouassi, Adles Francis [3], Vangah, Wognin Joseph [4], Koffi, Aubin K [5], Clément, Alain [6]
Editeur	Scientific Research Publishing
Type	Article scientifique dans une revue à comité de lecture
Année	2017
Langue	Anglais
Date	26/10/2017
Numéro	10
Pagination	520-536
Volume	7
Titre de la revue	Open Journal of Applied Sciences
ISSN	2165-3917
Mots-clés	Aster Satellite Images [7], classification [8], MNDWI [9], modeling [10], NDBaI [11], NDVI [12], PCR5 Rule [13], Theory of Plausible and Paradoxical Reasoning [14]
Résumé en anglais	<p>In this paper, the theory of plausible and paradoxical reasoning of Dezert-Smarandache (DSmT) is used to take into account the paradoxical character through the intersections of vegetation, aquatic and mineral surfaces. In order to do this, we developed a classification model of pixels by aggregating information using the DSmT theory based on the PCR5 rule using the NDVI, MNDWI and NDBaI spectral indices obtained from the ASTER satellite images. On the qualitative level, the model produced three simple classes for certain knowledge (E, V, M) and eight composite classes including two union classes characterizing partial ignorance ($\{E,V\}$, $\{M,V\}$) and six classes of intersection of which three classes of simple intersection ($E\cap V$, $M\cap V$, $E\cap M$) and three classes of composite intersection ($E\cap\{M,V\}$, $M\cap\{E,V\}$, $V\cap\{E,M\}$), which represent paradoxes. This model was validated with an average rate of 93.34% for the well-classified pixels and a compliance rate of the entities in the field of 96.37%. Thus, the model 1 retained provides 84.98% for the simple classes against 15.02% for the composite classes.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua16854 [15]
DOI	10.4236/ojapps.2017.710038 [16]

Liens

- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=28137>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=2156>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=28136>
- [4] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=28139>
- [5] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=25121>
- [6] <http://okina.univ-angers.fr/alain.clement/publications>
- [7] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24382>
- [8] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=1301>
- [9] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24387>
- [10] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=3357>
- [11] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24388>
- [12] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24386>
- [13] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24385>
- [14] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24384>
- [15] <http://okina.univ-angers.fr/publications/ua16854>
- [16] <http://dx.doi.org/10.4236/ojapps.2017.710038>
- [17] http://file.scirp.org/Html/3-2310774_79854.htm

Publié sur *Okina* (<http://okina.univ-angers.fr>)