

[Home](#) > [Journal](#) > [Earth & Environmental Sciences](#) > [IJG](#)
[Indexing](#) | [View Papers](#) | [Aims & Scope](#) | [Editorial Board](#) | [Guideline](#) | [Article Processing Charges](#)
[IJG](#) > Vol.3 No.1, February 2012



Complex Object Shapes Recognition. Automatic Aid Photointerpretation in a Satellite Image

PDF (Size:847KB) PP. 21-24 DOI: 10.4236/ijg.2012.31003

Author(s)

Kada Mouedden, Youcef Amar, Macho Anani, Sara Lebid, Mohammed Benyahia

ABSTRACT

The interpretation of geological structures on earth observation images involves like many other domains to both visual observation as well as specialized knowledge. To help this process and make it more objective, we propose a method to extract the components of complex shapes with a geological significance. Thus, remote sensing allows the production of digital recordings reflecting the objects' brightness measures on the soil. These recordings are often presented as images and ready to be computer automatically processed. The numerical techniques used exploit the morphology mathematical transformations properties. Presentation shows the operations' sequences with tailored properties. The example shown is a portion of an anticline fraction in which the organization shows clearly oriented entities. The results are obtained by a procedure with an interest in the geological reasoning: it is the extraction of entities involved in the observed structure and the exploration of the main direction of a set of objects striking the structure. Extraction of elementary entities is made by their physical and physiognomic characteristics recognition such as reflectance, the shadow effect, size, shape or orientation. The resulting image must then be stripped frequently of many artifacts. Another sequence has been developed to minimize the noise due to the direct identification of physical measures contained in the image. Data from different spectral bands are first filtered by an operator of grayscale morphology to remove high frequency spatial components. The image then obtained in the treatment that follows is therefore more compact and closer to the needs of the geologist. The search for significant overall direction comes from interception measures sampling a rotation from 0 to 180 degrees. The results obtained show a clear geological significance of the organization of the extracted objects.

KEYWORDS

Object Shapes Recognition; Photointerpretation

Cite this paper

K. Mouedden, Y. Amar, M. Anani, S. Lebid and M. Benyahia, "Complex Object Shapes Recognition. Automatic Aid Photointerpretation in a Satellite Image," *International Journal of Geosciences*, Vol. 3 No. 1, 2012, pp. 21-24. doi: 10.4236/ijg.2012.31003.

References

- [1] C. Laurence, " Traitement Numérique des Données Multibandes HRV de SPOT Appliqué à la Cartographie des Zones de Végétation Humide Dans les Régions à Fort Relief," In: Aupelf-Uref, Ed., Télédétection et Cartographie, Université du Québec, Québec City, 1993.
- [2] B. Ferdinand, " Précis de Télédétection (Principes et Méthodes)," Université du Québec, Québec City, 1996.
- [3] G. Flouzat, " Modélisation de la Compréhension Visuelle des Images de Télédétection: Essai de Simulation Numérique de la Photo-Interprétation Analytique," Community Symposium, Toulouse, 8-10 September 1982.
- [4] J. Serra, " Image Analysis and Mathematical Morphology," Academy Press, New York, 1982.

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[IJG Subscription](#)
[Most popular papers in IJG](#)
[About IJG News](#)
[Frequently Asked Questions](#)
[Recommend to Peers](#)
[Recommend to Library](#)
[Contact Us](#)

Downloads:	165,256
------------	---------

Visits:	394,054
---------	---------

[Sponsors, Associates, and Links >>](#)