

# CHANGE VISUALIZATION THROUGH A TEXTURE-BASED ANALYSIS APPROACH FOR DISASTER APPLICATIONS

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## **ABSTRACT:**

A fast detection and visualization of change in crisis areas is an important condition for planning and coordination of help. The availability of new satellites with high temporal resolution (e.g. RapidEye) and/or high spatial resolution (e.g. Quickbird) provides the basis for a better visualization of multitemporal change. For automated change detection, a large number of algorithms has been proposed and developed. This article describes the results of four texture based change detection approaches that were applied to satellite images of the Darfur crisis region. In our methodology we calculate firstly different texture characteristics (“energy”, “correlation”, “contrast” and “inverse distance moment”), for a whole image at two (or more) different times. The second step is to test the capability of known change detection methods (image-differencing, image-ratioing, regression analysis and principal component analysis) to visualize the change of settlement areas through these texture characteristics and texture images, respectively. The comparison of different texture characteristics with different change detection methods shows that best results can be obtained using a selective bitemporal principal component analysis with the texture feature “energy”.

**TOPIC:** Change detection and process modelling

**ALTERNATIVE TOPIC:** Change detection and process modelling