

Building damage assessment after the earthquake in Haiti using two postevent satellite stereo imagery and DSMs - DTU Orbit (08/11/2017)

Building damage assessment after the earthquake in Haiti using two postevent satellite stereo imagery and DSMs

In this article, a novel after-disaster building damage monitoring method is presented. This method combines the multispectral imagery and digital surface models (DSMs) from stereo matching of two dates to obtain three kinds of changes: collapsed buildings, newly built buildings and temporary shelters. The proposed method contains three basic steps. The first step is to focus on the DSMs and orthorectified images preparation. The second step is to segment the panchromatic images in obtaining small homogeneous regions. In the last step, a rule-based classification is built on the change information from iteratively reweighted multivariate alteration detection (IR-MAD) and height to extract the three kinds of changes. To further improve the accuracy of the results, a region-based grey-level co-occurrence matrix texture measurement is used. The proposed method is applied to monitor building changes after the 2010 Haiti earthquake, and the obtained results are further evaluated both visually and numerically.

General information

State: Published

Organisations: Department of Applied Mathematics and Computer Science , Image Analysis & Computer Graphics, German Aerospace Center

Authors: Tian, J. (Ekstern), Nielsen, A. A. (Intern), Reinartz, P. (Ekstern)

Pages: 155-169

Publication date: 2015

Main Research Area: Technical/natural sciences

Publication information

Journal: International Journal of Image and Data Fusion

Volume: 6

Issue number: 2

ISSN (Print): 1947-9832

Ratings:

Scopus rating (2016): SJR 0.805 SNIP 1.492 CiteScore 2.08

Scopus rating (2015): SJR 1.103 SNIP 1.061 CiteScore 1.73

Scopus rating (2014): SJR 0.832 SNIP 1.384 CiteScore 2.16

Scopus rating (2013): SJR 1.121 SNIP 1.892 CiteScore 1.39

Scopus rating (2012): SJR 0.904 SNIP 2.532 CiteScore 1.8

Scopus rating (2011): SJR 1.085 SNIP 2.348 CiteScore 2.42

Original language: English

Building damage, Change detection, Digital surface models, Segmentation

DOIs:

10.1080/19479832.2014.1001879

Source: PublicationPreSubmission

Source-ID: 118445724

Publication: Research - peer-review › Journal article – Annual report year: 2015