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RESEARCH ARTICLE

Cloud Removal from Satellite Images Using Information Cloning

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Abstract— In recent years, on average about 35% of cloud covers are generally present in optical satellite images. To develop cloud-free satellite images for analyses of current land cover and land-cover change cloud removal approach based on information cloning is introduced. The approach removes cloud-contaminated portions of a satellite image and then clones information from cloud-free patches to their corresponding cloud-contaminated patches under the assumption that land covers change insignificantly over a short period of time. To identify exact location of cloud contaminated region, cloud detection based on window based thresholding approach is introduced. The proposed information cloning algorithm is used to reconstruct the missing data after removing the cloud-contaminated region. By replacing cloud contaminated target image with cloud- and shadow-free parts from the reference image, the information reconstruction is performed. This approach results in cloud removed images and is tested for various input images.

Keywords— Cloud detection; Window based thresholding approach; Cloud removal; Information cloning; Information reconstruction

Full Text: <http://www.ijcsmc.com/docs/papers/February2014/V3I2201499a28.pdf>