IMPROVING COMPRESSION RATIO FOR SATELLITE TRANSMISSION BY USE OF CLOUD EXTRACTION (WedAmPO3)

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Abstract :

This paper presents an alternative approach to JPEG 2000 based ROI coding, for use on−board satellite image compression. The proposed method works in the wavelet domain and modifies the wavelet coefficients in a way to allocate fewer bits for cloud−covered areas. This approach improves compression ratio and/or improves the quality of un−cloud−covered areas. The algorithm is implemented with pixel based and codeblock based schemes. Pixel based scheme can be embedded into any wavelet transform based codec. Both schemes allow packing of the coefficients into a bitstream as soon as a codeblock is formed, without need for storing the coefficients until all are produced. The produced bitstream is fully JPEG2000 decoder compatible. The performance of the proposed schemes are demonstrated by tests on real satellite images acquired by BILSAT I.

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