

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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USE IMAGE STACKING FOR GEO SPACE DEBRIS DETECTION

Abstract

To meet the needs of detecting space debris in GEO, the exposure time of telescope is generally long. Because of the relatively large spatial sampling, the saturation of CCD pixels of bright star images becomes inevitable, which makes it difficult for image processing. A method of stacking series of short exposure time images is presented to prevent this situation. Using the stacked image, of which the store range is enlarged, the saturation problem is solved efficiently. The signal to noise ratio (SNR) is also promoted and the detection ability for space debris is kept. In this paper, firstly, the relationship between the SNR of object and exposure time is studied, and then the SNR promotion of object in stacked image with different exposure time is also discussed, the accuracy of mean plate parameters for astronomical orientation is proved to be reliable. At last, the efficiency of stacking images is discussed when the electron multiplying amplifier of CCD is set to different values.