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MAPPING STRATEGY FOR LARGE AREA USING OPTICAL PAYLOAD ON MICRO-SATELLITE

Abstract

Micro Satellite have some limitation especially payloads envelope, power consumption, and complexities system. Frequent and continuous monitoring large area like national territory is needed to provide visual information that can be used such as deforestation and land cover changes. Main disadvantages Optical system is cloud especially in equatorial region, need some mosaic some images from satellite in different orbit. To mapping large area in this case is Indonesian archipelago, LAPAN-A3 satellite which has mission of remote sensing experiment brings multi spectral push-broom imager. Imager has four channel which are blue, green, red and near-infrared (NIR), and has 16 meter ground resolution with 120 kilometer swath-width. This paper deeply discusses about the strategy of LAPAN-A3 satellite operation to continuously produce a good observation images within Indonesian area. The information about daily weather forecast is also used to avoid dense-cloud area, so that the image captured will have high information to be extracted. After the daily imager observation strategy is developed, it is all about Geo-referencing the images so that a whole Indonesian area can be covered as fast and as often as possible. Based on numerous images that have been processed, it can be shown that LAPAN-A3 satellite is capable of fulfilling Indonesian archipelago images data in about 6 months with good location accuracy, with assumption that the cloud and haze that affect the images quality can be tolerated at some degree.