AN UNIQUE LARGE AREA POST-DISASTER OVERALL ASSESSMENT MECHANISM PROVIDED BY FORMOSAT-2

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ABSTRACT

The Taiwanese FORMOSAT-2 was successfully launched on 20 May 2004. The satellite has the ability to acquire imagery of an area of interest every day due to its geosynchronous orbit. Imagery produced by FORMOSAT-2 has four spectral bands (near infrared, red, green and blue) with spatial resolution of 8 m and one panchromatic band with a resolution of 2 m. The sensor has a swath width of 24 km. However, with its off-nadir capability more than 55° across-track and along track (forward/aft), combining with the high body agility of the satellite, FORMOSAT-2 can take multi-stripes image in one single pass to cover a larger area, e.g., take 5 stripes of image in one pass to cover the whole Taiwan. Thus, an idea based on the so called wide-area acquisition of FORMOSAT-2 is proposed for disaster monitoring and assessment. There are two stages for the proposal that are described respectively in the following. (1) Archive Stage: FORMOSAT-2 will periodically acquire the interested area using its wide-area capability according to a fixed imaging plan to make sure the archive is not too out-of-date. (2) Assessment Stage: FORMOSAT-2 will follow the pre-designed plan to acquire the images when a disaster occurs. Due to the geosynchronous orbit and the fixed viewing angles, the disaster images will have the same viewing parameters with the archive and ready for change detection without further processing even for large viewing angle images. The mechanism can quickly provide an overall assessment after disaster occurs for the authorities to better manage their resources for rescue and alleviation.