



## **Hazard assessment of the Typhoon Mindulie- and the Typhoon Aere-induced landslides and debris flows by using FORMOSAT-2 images**

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The high resolution remote sensing satellite FORMOSAT-2 was launched on May 21, 2004. The satellite provides 2 m resolution black and white image and 8 m resolution color image. Due to its unique design to visit Taiwan daily, the satellite image is very valuable for hazard assessment, possibly within one day.

The Typhoon Mindulie stroke Taiwan on July 2<sup>nd</sup>, 2004, and it brought torrential rains during July 2<sup>nd</sup> to July 4<sup>th</sup> with the maximum accumulation rainfall 2500 mm that is equal to the average annual rainfall of the island. The Typhoon Aere triggered severe flooding and landslides that buried a mountain village in northern Taiwan on August 25, 2004. Right after these typhoons, FORMOSAT-2 images were used to recognize and assess landslide and debris flow hazards even most of area were covered by cloud in some images.

Interpretation FORMOSAT images taken 3 days to one week after the Typhoon Mindulie-induced heavy rainfall shows that landslides and debris flows are relatively easy to be discerned in images due to its natural color. Field investigations in the Chenyulan River watershed also confirmed that most of landslides and debris flows have been recognized in the images, and Chi-Chi earthquake-induced landslides can be differentiated from Mindulie-induced landslide by the variations in vegetation recovery. In addition, before detail information was released due to road interruption, the landslide caused the mountain village to be buried in the Typhoon Aere was discerned in FORMOSAT-2 image. All of these indicate that FORMOSAT-2 image provides a

quick, useful tool in landslide and debris flow hazard assessment and mitigation.