

## **Mapping mangrove biomass**

**A comparison of three techniques to detect changes in mangrove forest areas suggests one gives more reliable results than the other two, and this finding will help researchers better understand growth and loss of this important habitat. The work is published in the Pertanika Journal of Science and Technology.**

Mangroves provide protection against typhoon damage, pollutant absorption and water purification, as well as being an important habitat for flora and fauna. The 2004 Asian Tsunami caused dramatic damage, but there are other threats. Remote sensing technologies are evolving quickly and provide tools for monitoring such tropical forests so the team set out to compare three methods.

Image differencing is a simple technique whereby pixels in images are compared and differences highlighted. Normalized Differenced Vegetation Index (NDVI) presents the amount of photosynthesising vegetation and correlates well with green biomass areas. Finally mutual information can be used to compare the similarity of images and has previously been used in detecting landslides.

S. Khairunniza-Bejo and colleagues' compared four areas of tropical mangrove in the The Matang Mangrove Perak forest from August 2005 and June 2007. The experimental results show that local mutual information provides more reliable results in detecting changes of the multi-temporal images containing different lighting condition compared to the image differencing and NDVI technique, specifically in areas with less plant growth.



Figure 1: Image of Matang Mangrove forest taken during a field visit in 2009.



Figure 2: Image for Area 1 taken from Google Earth dated on 9 March 2006. Location 1, 3, 5, 7 and 11 have been identified as loss areas in 2007.

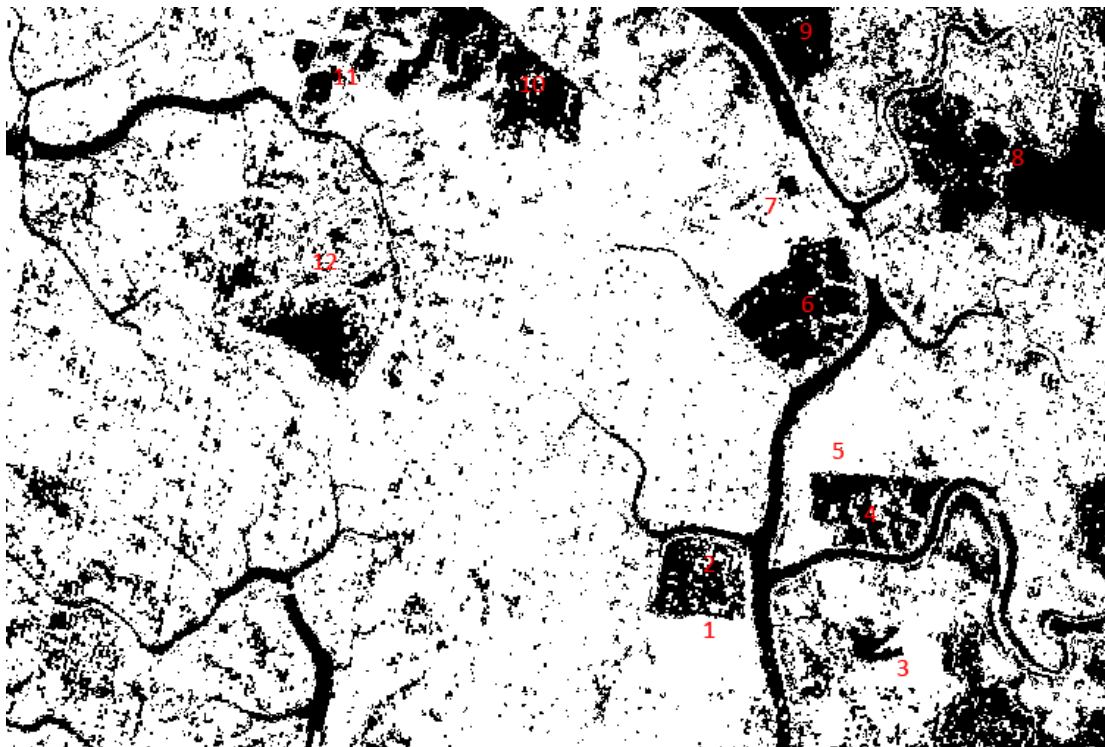


Figure 3: Result of mutual information for area 1 using thresholding value of 1. Change areas are shown in white pixels and unchanged are represented by black pixels.

For more information about the research, please contact

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