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Application of Remote Sensing and GIS in Monitoring Forest, Rubber and Oil Palm Drought Study

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Abstract. Tropical forest together with oil palm and rubber play huge significant role in providing biodiversity, maintaining ecosystem, maintaining carbon balance and have economic value for Malaysian economy. However, drought and "El Nino" phenomena that happening in Malaysia have gave dynamic impact on reducing yield quality and quantity of forest and the plants. To study drought based on remote sensing techniques, continuous time-series of satellite images of the study site collected by using WorldView-2 satellite image. The images were employed to develop important vegetation indices inclusion of Normalised Difference Vegetation Index (NDVI), the Normalised Difference Water Index (NDWI), Water Index (WI), Simple Ratio (SR), Stress Index (SI), Difference Vegetation Index (DVI) and Ratio Vegetation Index (RVI). The indices were applied on the three different habitats to monitor drought of the sampling points. Then lastly, the detail analysis and interpretation of maps throughout the study period was done Geographic Information Systems (GIS) of segmentation analysis in spatial analyst.

Keywords: drought, monitoring, tropical forest, oil palm, rubber palm GIS, Remote Sensing