Seagrass Mapping Of Tinggi Island Using Alos Avnir-2 Data

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Abstract – The multispectral sensor ALOS AVNIR-2 with a spatial resolution of 10 m which was acquired on the 29th of July 2008 was processed to map the seagrass area of Pulau Tinggi coastal waters. The mapping process was done via the modified Bierwtih model (1993) which derives the sea bottom reflectance and water column effect removal. A few parameters was taken into consideration in the modified Bierwith model, they are the water attenuation coefficient (k), water/air interface reflactance, variation of water depth around the designated area and optically deep water column reflactance. The attenution coefficient (k) was obtained by applying the Benny and Dawson's model (1983) and result of the model are 0.0266 m^{-1} (blue band), 0.0427 m^{-1} (green band) and 0.047 m^{-1} (red band). The water depth variation was by extracting the depth of water with the hydorgraphic chart, interpolating every points that was extracted and rasterizing the interpolated product according to the data and pixel size of ALOS AVNIR-2 subsetted data of Pulau Tinggi. The ALOS AVNIR-2 data was converted from digital number to radiance and from radiance to reflactance with the atmospheric correction based on Sukano (2007) radiance to reflactance conversion. Maximum Likelihood Supervised Classification was implemented to the product of modified Bierwith model to discriminate between seagrass, sand and unclassified areas. A total of 30 training areas was sampled from seagrass and sand to identify the classified location of each benthic features on the ALOS AVNIR-2 data. From the result of classification, an overall accuracy of 76.67% and kappa coefficient of 0.18 was obtained. An approximate of 86.96% and 83.33% of user's accuracy was obtained for seagrass and sand classification respectively.

Keywords: *Seagrass, Benthic Mapping, ALOS AVNIR-2*