

# Estimation of Submerged Aquatic Vegetation in Lake Biwa from GCOM-C Data by Multiple Linear Regression

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Monitoring Submerged aquatic vegetation is essential for evaluating the environment in Lakes and Reservoirs. SAV can be a habitat or food of animals living in Lakes, but overgrown SAV negatively affects fishery or existing ecosystem. Lake Biwa has been suffering from increasing SAV, and Shweta et al. (2017) monitor SAV by satellite data from Landsat 8 in Lake Biwa. This study aims to determine whether the advantage of the GCOM-C satellite can be used to detect SAVs even at low resolution. The highest resolution of sensors onboard GCOM-C is lower than Landsat 8, 15 m. However, it has higher spectral resolution and higher temporal resolution. This study aims to determine whether the advantage of the GCOM-C satellite can be used to detect SAVs even at low resolution. Furthermore, the previous studies have concluded that SAV reflection is affected by the presence of water. The present study also aims to determine the effect of water depth on SAV estimation. In this study, we used data on the depth and length of SAV in 52 points in Lake Biwa measured by LBERI on November 9, 2020. Satellite data used in this research is an atmospheric corrected reflectance. This research used multiple regression analyses to estimate the vegetation of SAV and tried to establish an estimation algorithm concerning the effect of depth. The combination of the objective and explanatory variables was examined with the value of the adjusted coefficient of determination.

Keywords: remote sensing, submerged aquatic vegetation