Wednesday, October 10
Poster Session 3
16:00–18:00

Poster 274

USING WORLDVIEW IMAGERY TO STUDY CHLOROPHYLL-A CONCENTRATION IN SOUTH NATION RIVER, EASTERN ONTARIO, CANADA

There are numerous stresses degrading surface water quality, categorized generally as natural processes and anthropogenic influences. Rivers are easily prone to water quality degradation due to being abused for the disposal of wastewater. Rivers' water quality has a substantial role in the ecological and human health, and economic development. Therefore, it has become an essential task worldwide to prevent and control the declining water quality in rivers. Eutrophication is a serious pollution problem. Chlorophyll-a (chla), a photosynthetic pigment available in all kinds of phytoplankton, can be addressed to determine the eutrophication status. Reliable information on chla concentration at a sufficient spatial and temporal scale should be collected to address the highly heterogeneous nature of water quality in rivers and implement protective techniques to improve water quality conditions. Traditional laboratory approaches can be logistically intractable if the end point of interest is dense spatio-temporal datasets. The use of satellite remote sensing can reduce some of these logistical constraints, while at the same time provide chla characterization with high spatial resolution and frequent temporal coverage. In this study, an ordinary least square (OLS) linear regression model is used to estimate the concentration of chla (avg: 8.4 mg m^{-3}) in South Nation River from the WorldView band ratio of RedEdge to Blue ($R^2 = 0.58$). The best band combination was selected based on the highest absolute value of calculated Pearson correlation coefficient. The spatial variations of chla on a selected date in fall 2015 is also calculated using the derived OLS regression model.

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