



Engaging Remote Sensing and Citizen Science into Water Quality Monitoring: A Case Study in Nhue-Day River Basin, Vietnam

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Remote sensing and citizen science can be utilized to fulfill the gap of conventional monitoring methods. However, how to engage these techniques, principally taking advantage of local capacities and of globally accessible data for satisfying the continuous data requirements and uncertainties are exciting challenges. Previous studies in Vietnam showed that official documents regulated towards responding the vital need of upgrading national water monitoring infrastructures do not put the huge potentials of free satellite images and crowd-based data collection into account, this factor also limits publications related to these techniques. In this research, a new water monitoring approach will be developed friendly with areas suffering poor quality monitoring works. Particularly, algorithms respecting to the relationship between temperature, total suspended sediment (TSS), chlorophyll and information collected by sensors onboard Landsat-8 and Sentinel-2 MSI satellites are built in the study area in Northern Vietnam; additionally, undergraduate student volunteers were sent to the sites with all the measurement activities are designed to coincide with the time when the study area captured by the satellites to compare the results. While conventional techniques are proving their irreplaceable role in the water monitoring network, the utilization of remote sensing techniques and citizen science in this study will demonstrate highly supportive values, saving monitoring costs and time; advantaging local human resources to science; providing an inclusive assessment of water quality changes along with land-use change in the study area, these approaches are excellent alternatives to meet the demand of real-time, continuous data nationwide.