Multi regression analysis of water quality characteristics in lowland paddy fields

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ABSTRACT

Drainage water in lowland paddy fields is quantitatively influenced recycle and/or repeated irrigation by irrigation facilities, i.e. pumps, check gates, small reservoirs and so on. In those drainage channels, nutrients accumulation and increasing organic matters are considered to be occurred, and water quality would be degraded not only environmental aspect but irrigation purpose. In general, Total Nitrogen (T-N) is interested water quality index in irrigation water, because high nitrogen concentration sometimes caused decreasing rice production by excess growth and fallen or degrading quality of taste, then, farmers would like to clear water less than 1mg/L of T-N concentration. In drainage channel, it is known that the nitrogen concentration change is influenced by physical, chemical and biological properties, i.e, stream or river bed condition, water temperature, other water quality index, and plant cover condition. In this study, discharge data (velocity and level) in a drainage channel was monitored by an Acoustic Doppler system and water quality was sampled at same time in 2011. So those data was analyzed by multi regression model to realize hydrological and environmental factors to influence with nitrogen concentration. The results showed the difference tendency between irrigation and non-irrigation period, and those influenced factors would be considered in water quality model developing in future.

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