**REMOTE SENSING OF FRESHWATER CYANOBACTERIA: FOCUS ON ESTIMATING LOW CONCENTRATION OF PHYCOCYANIN**

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As one type of harmful algal blooms, toxic cyanobacterial blooms severely impact health of the environment, animals, and people. Over the past decade, optical remote sensing has been an important tool for monitoring cyanobacterial blooms of inland waters, which is often achieved by detecting phycocyanin (PC), a pigment used as a proxy of freshwater cyanobacteria. Although many efforts have been made to retrieve PC concentrations from remote sensing reflectance (Rrs), yet it is still a challenging task to accurately estimate low PC concentrations (e.g. less than 20 mg m-3) and few studies are devoted to address this issue. In this study, PC concentrations were determined upon the absorption coefficients derived from Rrs using Inherent optical property (IOP) Inversion Model for Inland Waters (IIMIW), an IOP inversion model developed specifically for inland waters. Results indicate that the PC concentrations lower than 20 mg m-3 can be predicted for most of the water samples collected in reservoirs and rivers of Australia and central Indiana. Despite of further efforts needed, the results confirm that detection of cyanobacteria in their early growth period is possible, which is critical for issuing an early warning of cyanobacterial blooms.

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