Applying Genetic Algorithm Combining Operation Tree (GAOT) for Estimating Salinity of Taiwan Strait Using MODIS/Terra

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Abstract

This paper proposes genetic algorithm combining operation tree (GAOT) and applies it to estimate the sea salinity of Taiwan Strait (TS) using MODIS/Terra data. GAOT is a data mining method, used to automatically discover the relationships among nonlinear systems. The main advantage of GAOT is to optimize appropriate types of function and their associated coefficients simultaneously. In the case study, this GAOT described above combining with MODIS/Terra seven bands was employed. These results are then verified with in situ sea salinity data of TS. The results show that the GAOT generates accurate multi-variable equation and has better performance than linear regression (LR) method

Keyword：Genetic algorithm combining operation tree (GAOT); Sea salinity; MODIS/Terra; Linear regression