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# 閉鎖性水域の水質予測のための Biwa-3D の開発
# Development of Biwa-3D to predict water quality in lakes and estuaries.

山敷 庸亮 [1*] ; 東 雅樹 [4] ; Shweta Yadav[2] ; 寶 馨 [3] ; 米田 稔 [2]
YAMASHIKI, Yosuke[1*] ; AZUMA, Masaki[4] ; SHWETA, Yadav[2] ; TAKARA, Kaoru[3] ; YONEDA, Minoru[2]

[1] 京都大学大学院総合生存学館, [2] 京都大学工学研究科, [3] 京都大学防災研究所, [4] 三菱東京 UFJ 銀行
[1]GSAIS, Kyoto University, [2]Graduate School of Engineering, Kyoto University, [3]DPRI Kyoto University, [4]Mitsubishi Tokyo UFJ Bank

Biwa-3D, an integrated water quality model, has been developed for water quality assessment in lakes and estuary. Water temperature and dissolved oxygen in Lake Biwa has been numerically simulated using Biwa-3D with 250 m horizontal grid spacing. Calculated temperature has been compared with field observation results by Lake Biwa Environmental Research Institute (LBERI), showing good agreement especially in horizontal direction. The model outputs for dissolved oxygen concentration initially showed earlier decrease compared to the field observation results, which has been modified throughout adjusting vertical mixing procedure during stratified and non-stratified season. The model also showed non-uniform distribution in east-west section, which observation can not support due to the luck of sampling station. Seasonal change in Chlorophyll-a concentration is also simulated and compared with field observation data. Application of the model into different lakes, including Lake Tahoe, is introduced with relevant agreement with field observation dataset. Parallelization of the model enables us to perform long-term water quality prediction.

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