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Abstract

We have developed a bioaccumulation model for operation in a Windows® PC system that predicts the levels of hazardous chemicals in an estuarine food chain. This model, called as the "AIST-Bioaccumulation Model in Tokyo Bay for Windows® version" was developed to estimate with high temporal and spatial resolution the concentration of chemical substances in organism. Within this model average current field, concentration of particulate organic matter and specific chemical substances in Tokyo Bay were simulated using a 3D-hydrodynamic model, an ecological model, and a chemical fate prediction model sequentially. The results of these calculations were stored in an embedded database and then used by the bioaccumulation model to predict of the concentration of chemical substances in organisms of Tokyo Bay using a PC. In addition, a user-friendly Graphical User Interface (GUI), developed using C++, was applied to set parameters for the model calculation and to visualize the results. This system includes the following functions:

・Parameter settings for predicting the concentrations of chemical substances in organisms

・Prediction of concentrations and amounts of chemical substances in organisms

・Temporal and spatial distribution display of prediction results

・Temporal variation display of prediction results at arbitrary points

・Export of prediction results; numerical value (CSV format) and output image (BMP, JPEG and WMF)