核燃料サイクル施設に隣接する汽水湖尾駮沼における流動モデルの開発

植田　真司*　近藤　邦男*　稲葉　次郎*
細田　昌広**　横山　瑞江**　中田　喜三郎***

Abstract

The brackish Lake Obuchi in Rokkasho-Village, Aomori, Japan, is bordered by nuclear fuel facilities including a nuclear spent-fuel reprocessing plant under construction. Small amount of radionuclides will be released from the reprocessing plant, when it will be in operation. These radionuclides may enter this lake from the ocean by tides, from the land by rivers, and from the atmosphere by fallout. Therefore, it is necessary to evaluate the impact of released radioactive substances to assess the safety of the surrounding environment and develop a radionuclide transport model in this lake. As the part for constructing for a radionuclide transport model, a 3-D hydrodynamic model was developed for lake current, salinity and water temperature in Lake and calculated from May to October 1998.

The numerical results were compared favorably with the field measurements of water current and salinity indicating the validity and predictive capability of the model in this lake. Field observations showed that the model could simulate a formation and elimination of the halocline. Moreover, the model could well describe flow to a back swamp in the ebb-current of the lake's lower layer in the spring. However, as a point of the nonconformity, the salinity of middle layer in the model result was estimated a little lower than field measurement, and it was not possible to express internal wave of a short time period (1.5 to 6 hours) in the model results.