



Numerical simulation of meandering, patch and lens structures of Changjiang Diluted Water in the Yellow Sea.

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Numerical simulation using the ROMS model was conducted for the circulation and coastal mixing processes in the Yellow Sea, particularly focusing on the behavior of low-saline water patch due to Changjiang Diluted Water. The patch and sometimes so-called a lens of low-saline water body were generally observed in the field survey. However up until now those features and characteristics were not fully explained with synoptic hydrographic survey.

This study demonstrates the applicability of the terrain-following ROMS model to major processes in the Yellow Sea such as distinct features of different circulation patterns, dilution of seawater due to fresh water discharge from major rivers, exchange between coastal waters and shelf waters across the tidal fronts etc. The surface forcing has been refined and the tidal forcing was combined together in the model implementation. The effect of the tidal stirring in the bottom layer and the mixing effect in the surface layer due to refined wind were the major sources of CJDW dispersion evolving in sequence of meandering, patch and lens structures.

Key Words: Yellow Sea, Changjiang River, ROMS model, Low-saline water patch, Tidal stirring, Coastal fronts

Acknowledgments This study was partly supported by Ministry of Fisheries and Marine Affairs Korea through the research project on the sediment transport in bottom boundary layer due to undersea sand mining, and on the China-Korea Collaborative project for the Yellow Sea. The authors express their sincere thanks to the funding agency.