

**PROJECT**

Optimization of Korean Operational Oceanographic System

**LOCATION & COUNTRY**

South Korea

**CLIENT**

KIOST – Korean Institute of Ocean Science and Technology  
<http://eng.kiost.ac/>

South Korea

**PARTNER**

**DATES**

2016

**ACTION MODULERS' MAIN TASKS**

Technical and scientific support, as well as MOHID source code optimization, in order to optimize Korean Operational Oceanographic System.

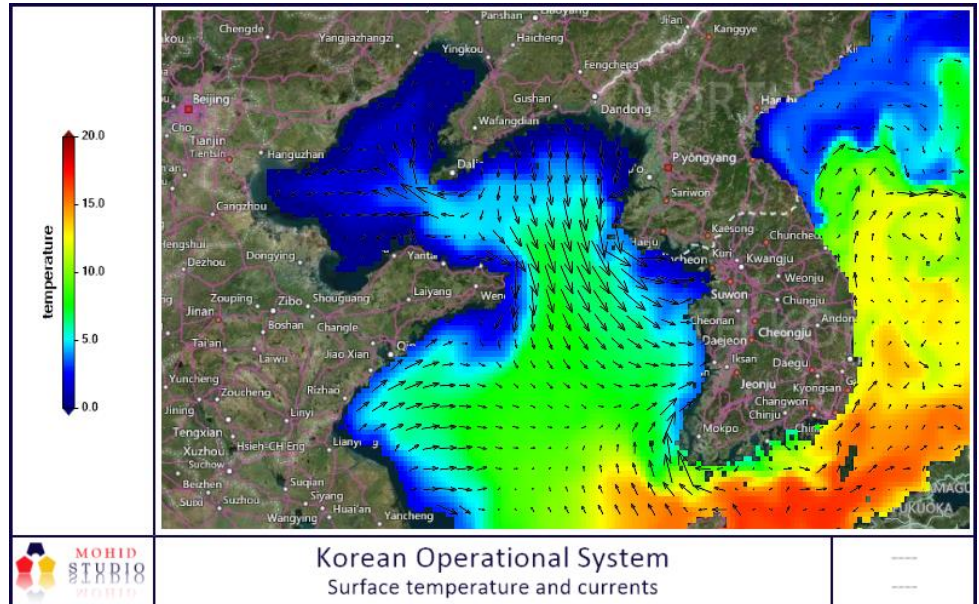
**SOFTWARE & SUPPORT**

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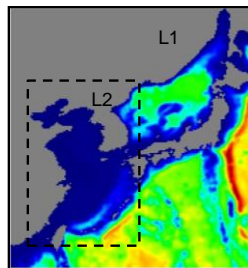
**CONTACTS**

Estrada Principal, nº 29  
Paz  
2640-583 Mafra  
Tel.: +351 261 813 660  
[sales@actionmodulers.com](mailto:sales@actionmodulers.com)  
[www.actionmodulers.com](http://www.actionmodulers.com)

# Optimization of Korean Operational Oceanographic System



This project involved technical and scientific consultancy in the optimization of the Korean Operational Oceanographic System (KOOS), to cope with the scheduled computational grid resolution increment to 300m along the Korean coast.



The services provided focused on two main topics: a) Improving the setup methodology of MOHID Water, the numerical model used in the forecasting system, by providing guidance in the definition of the high resolution domains, interfacing the downscaling process using an offline

method, thus efficiently eliminating redundancies; b) Increasing the computational speed of the model through revision and expansion of the numerical code of MOHID Water related with parallelization routines (using MPI and OpenMP) and/or memory allocation and access and by redesigning the domain decomposition approach used in the Korean operational system, optimizing the workload partition. Additionally, the interoperability of the two parallelization methods (MPI and OpenMP) was analyzed and tested. The new proposed methodologies and the development outputs will be implemented by KIOST in the new version of the Korean hydrodynamic operational forecast system.