



국립해양조사원 KHOA
Korea Hydrographic and Oceanographic Agency

National Oceanographic Forecasting System : Now and Future

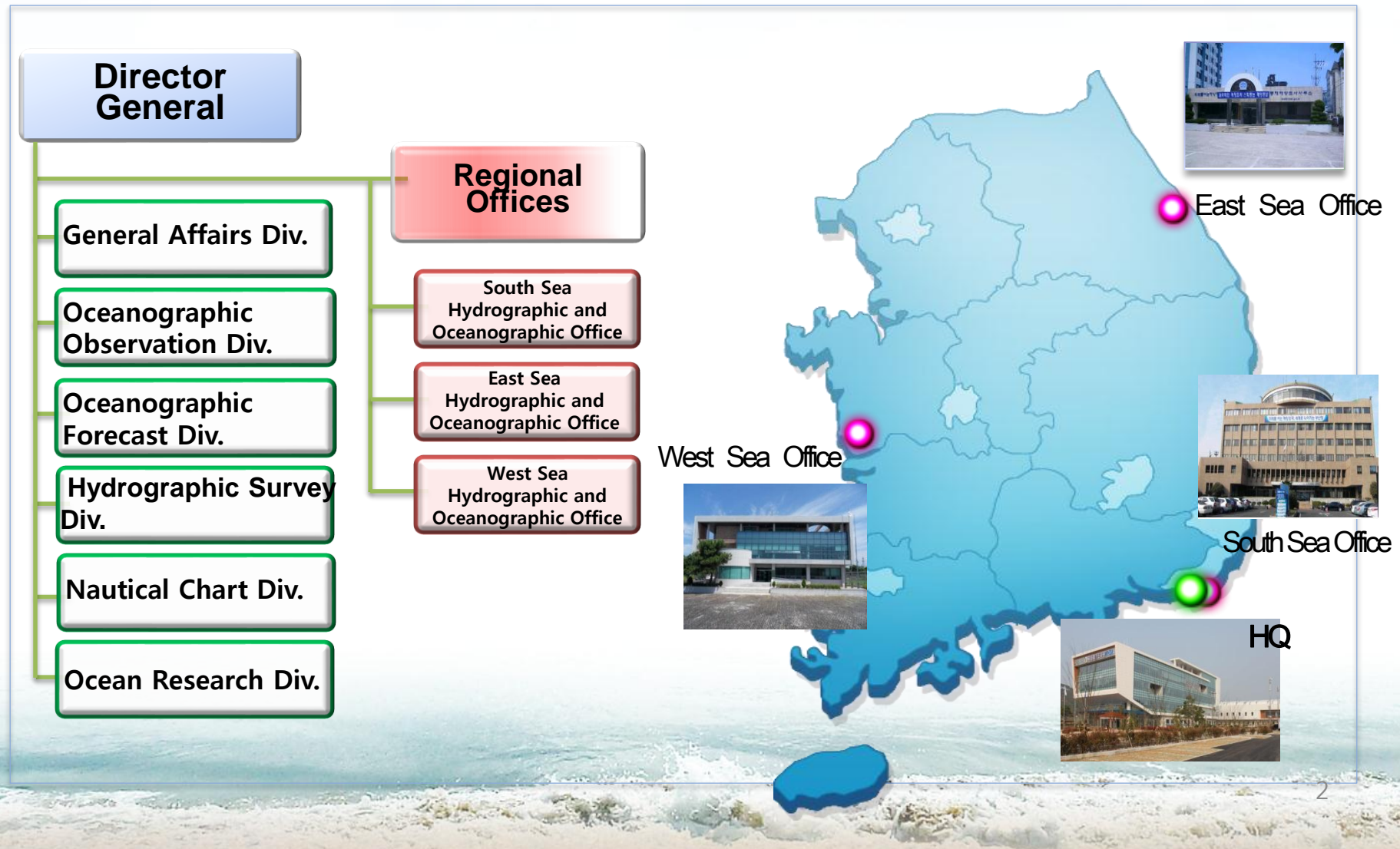
2016. 10. 28.

LEE Jaeyon



1. Introduction of KHOA

○ 5 Divisions / 1 Laboratory / 3 Regional Offices / Approx. 227 staff



1. Introduction of KHOA



○ 8 Research vessels in total with the latest research equipment

Haeyang 2000 (2,161t)



Badaro 1 (695t)



Badaro 2 (273t)



Badaro 5 (189t)



Donghaero (136t)



Namhaero (52t)



Hwanghaero (77t)



Haeyangnuri (90t)





3. Oceanographic Activities

Korea Ocean Observation Network

Korea Ocean Observing Network (120 stations)

Real-Time Observation Data served on web page & app.



Tidal Stations (50)

Ocean Stations (4)

Ocean Buoys (30)



Surface Current Stations (33)

Ocean Research Stations (3)



Communicating via Various Social Network Platforms



Mof Khoa님이 링크를 공유했습니다.
7월 20일 오전 11:13 · ♥



[해양관측과]다층 장기 조류관측을 통한 예보정확도 향상
안녕하세요 이 포스트는 네이버 블로그에서 작성된 게시글입니다. 자세한 내용을 보려면 링크를 클릭해주세요 감사드립니다.

BLOG NAVER.COM



- Needs for Ocean Forecast

◆ The More Popular Marine and Beach Activities are,
The More Marine Accidents are

◆ Big Ocean data

◆ Helping to Reduce Marine Accidents or Marine disasters

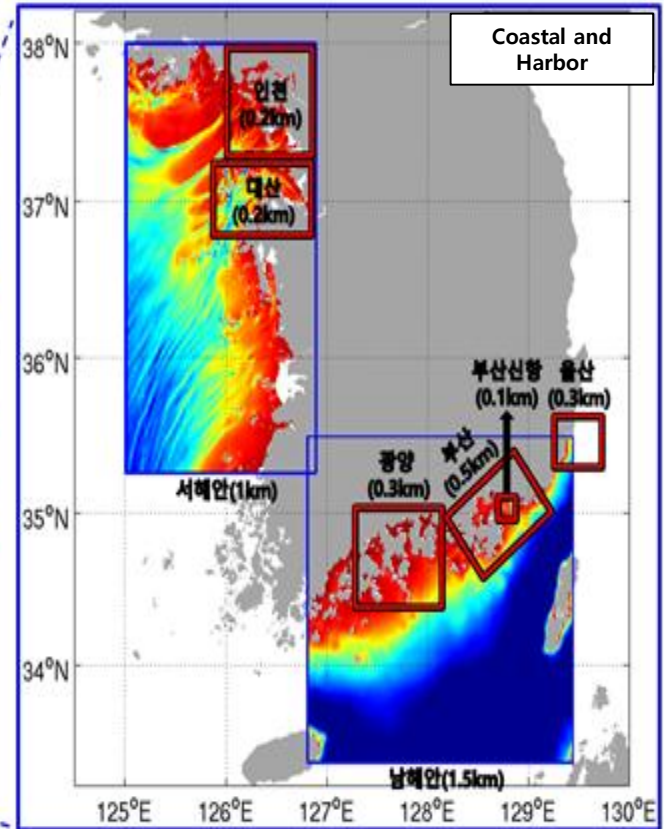
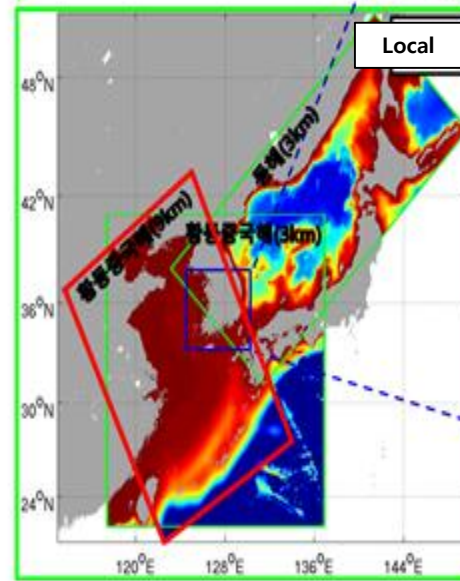
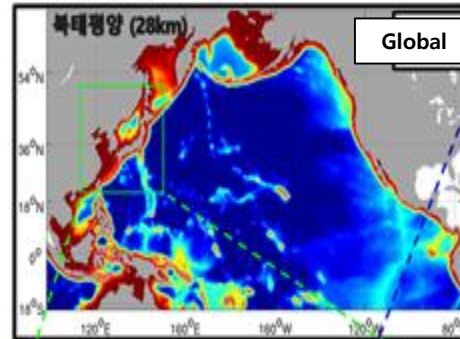
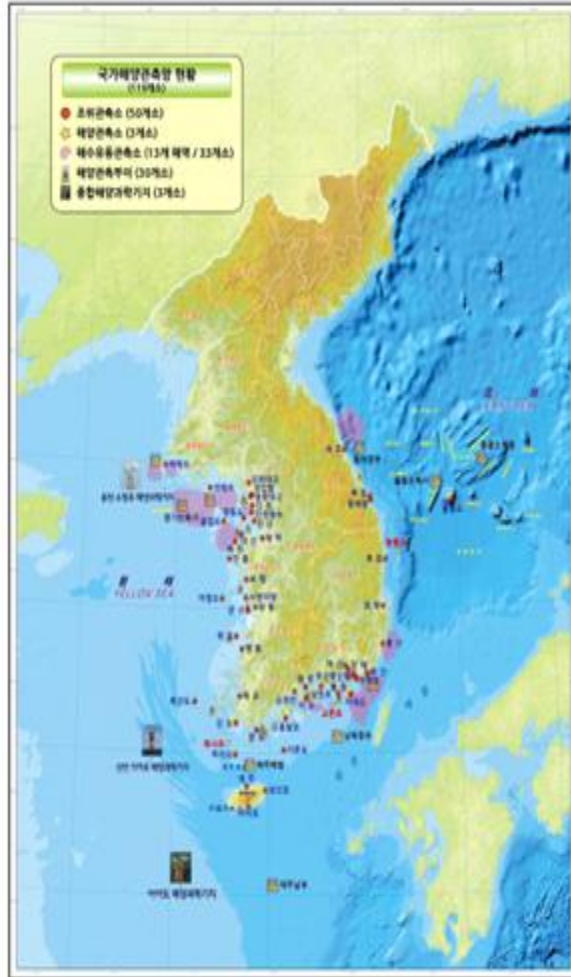
◆ Established New Division ('15.05.26)
=> Oceanographic Forecast Division

Oceanographic
Forecast
Division

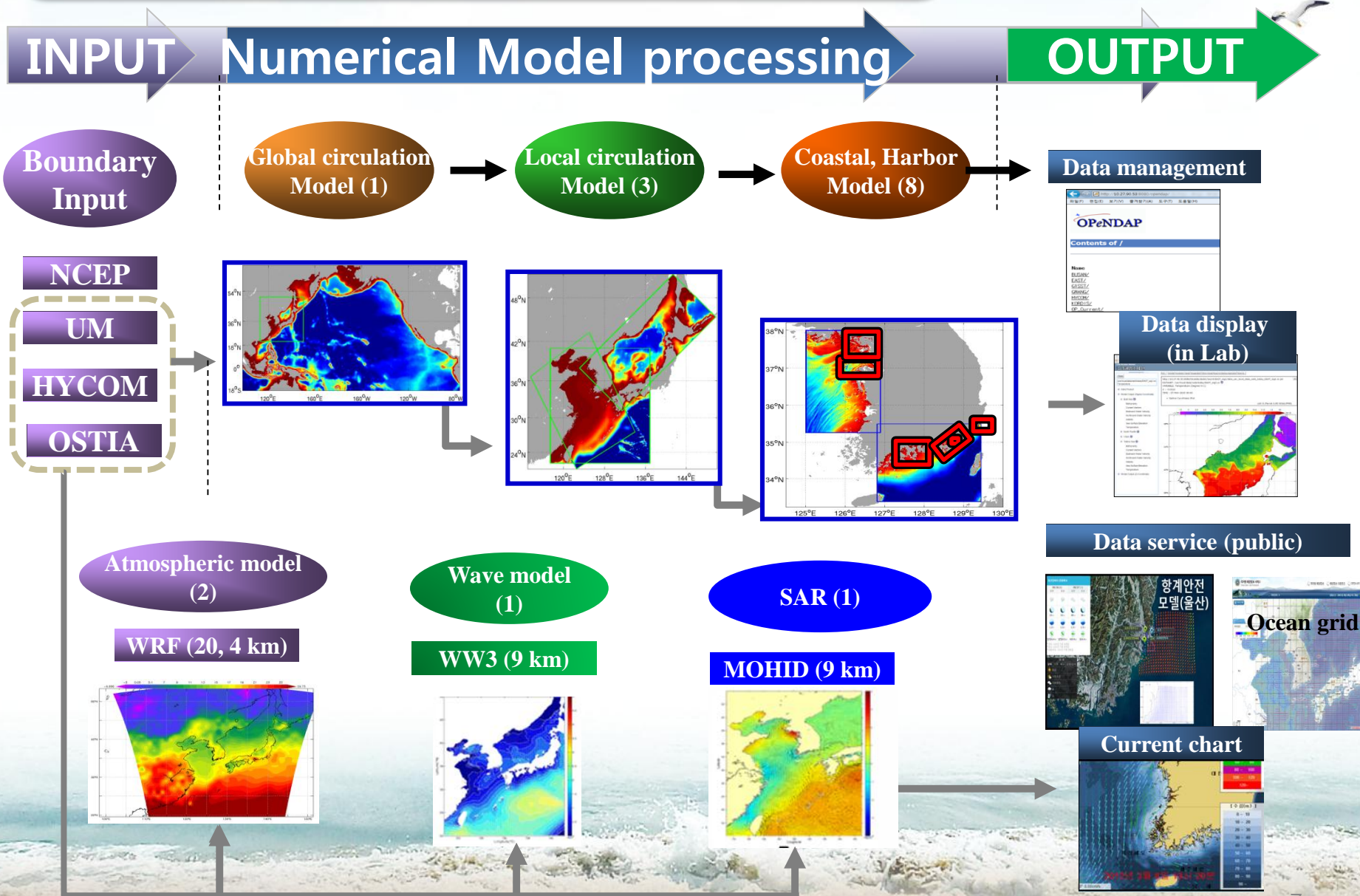


2. Ocean Models

• Numerical Models for the Ocean Forecast

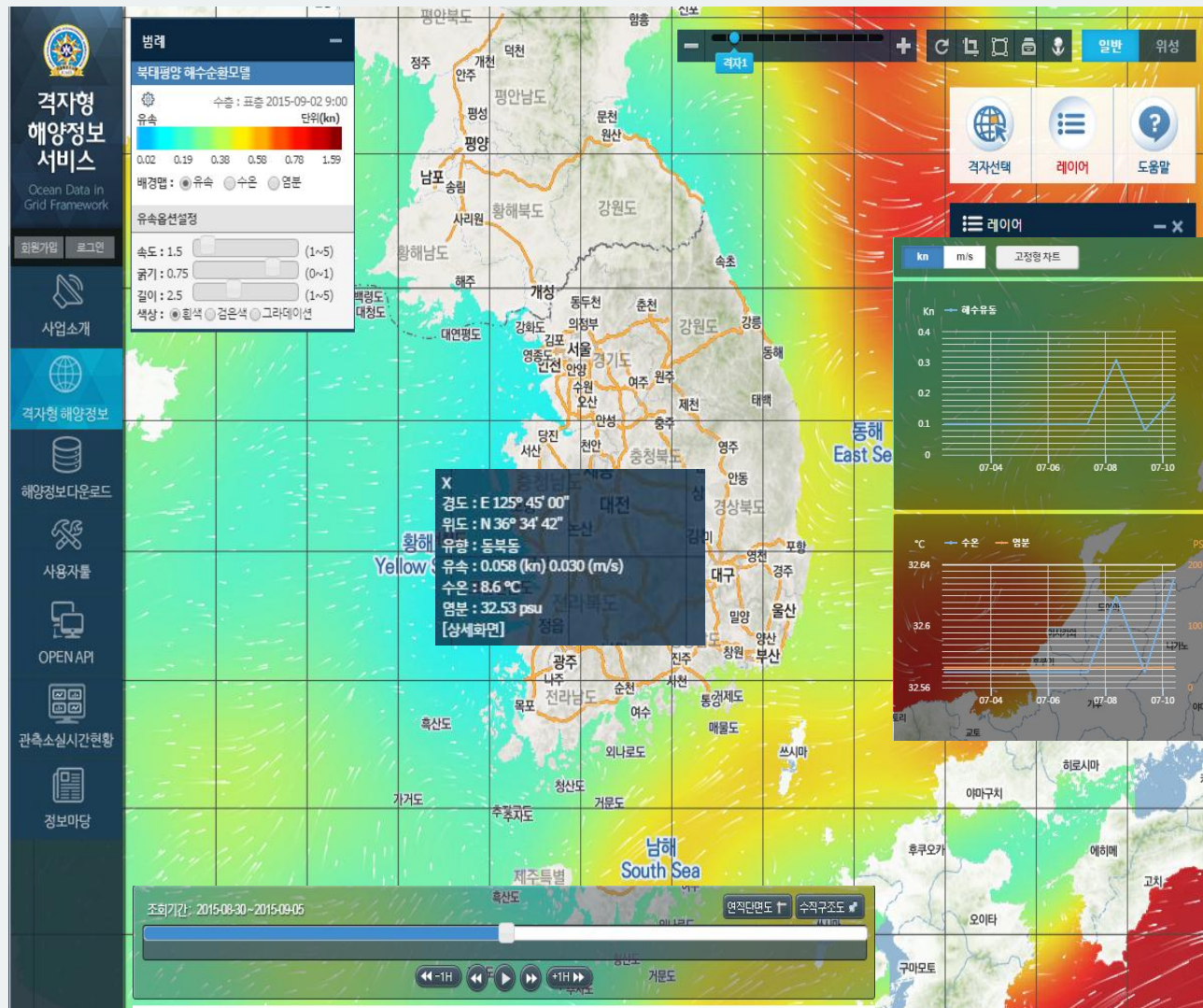


Flow Chart of Numerical Models



3. Ocean Forecasting Database

• Ocean Data in Grid Framework



New paradigm of visualizing oceanographic prediction

Convenient to use spatial ocean data

Can easily recognize various Ocean data at a place

User-oriented service with various options along with Sequential change

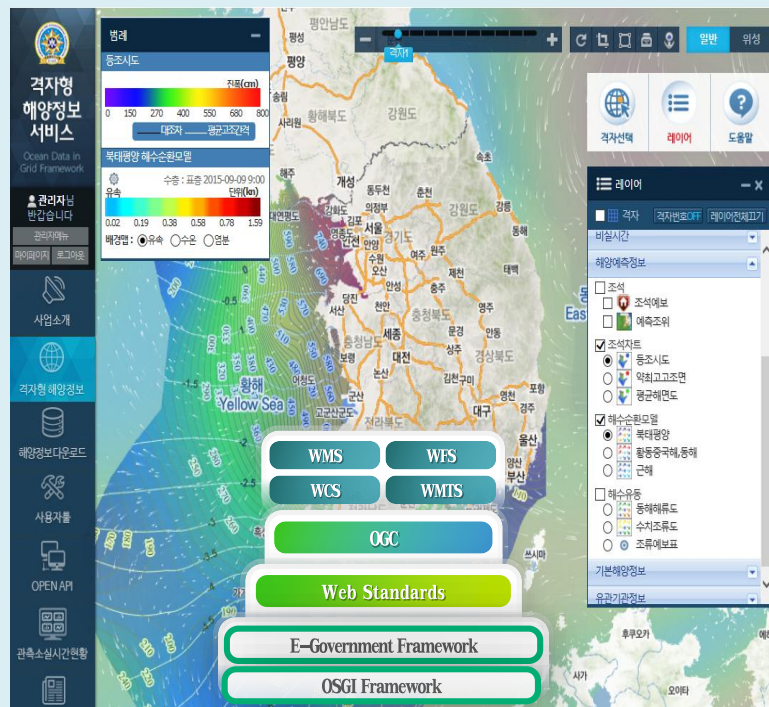


3. Ocean Forecasting Database

• Ocean Data in Grid Framework

“Could easily recognize if there are any ocean data in grid”

▷ Spatial Architecture based on Open Source



Menu base on
User Experience

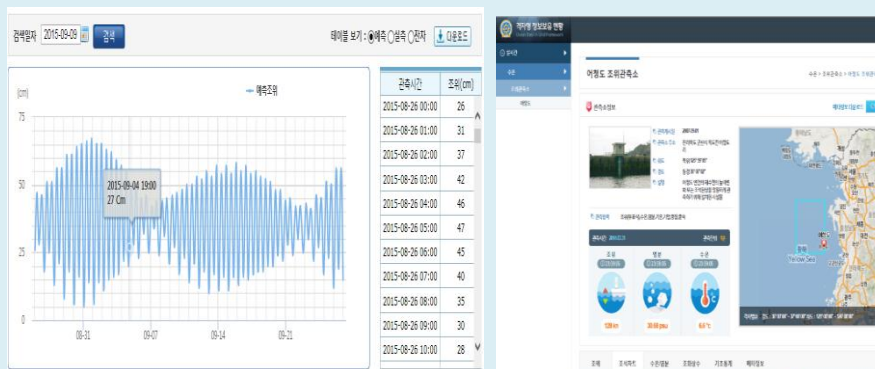
Geoserver, PostgreSQL/PostGIS

▷ Recognize Ocean Data List in Grid at a glance



해양정보 보유현황

조석(1)		수온(1)		염분(1)		해수유동(37)		기본해양정보(3)		해양과학조사(10)		유관기관정보(10)	
번호	대분류	중분류	소분류	관측소/사업명	관측시작일	관측종료일							
1	실시간	조석관측	조위관측소	어청도	2014-03-01	-							



3. Ocean Forecasting Database

• Ocean Data in Grid Framework

“Provide various services for the public and developer”

Public Service



Open Service

- Visualization services
- Observed and Predicted Information owned KHOA

Ocean Data Download

- Download by selecting grid
- Ocean Meta data
- Ocean Observation Information



OceanGrid Platform

REST, Mash-Up, CMS

E-government
Framework



OSGI
Framework



Spatial/
Attribute Info



SW/HW
/ Network

REST, Mash-Up, CMS

Developer Service



OpenAPI

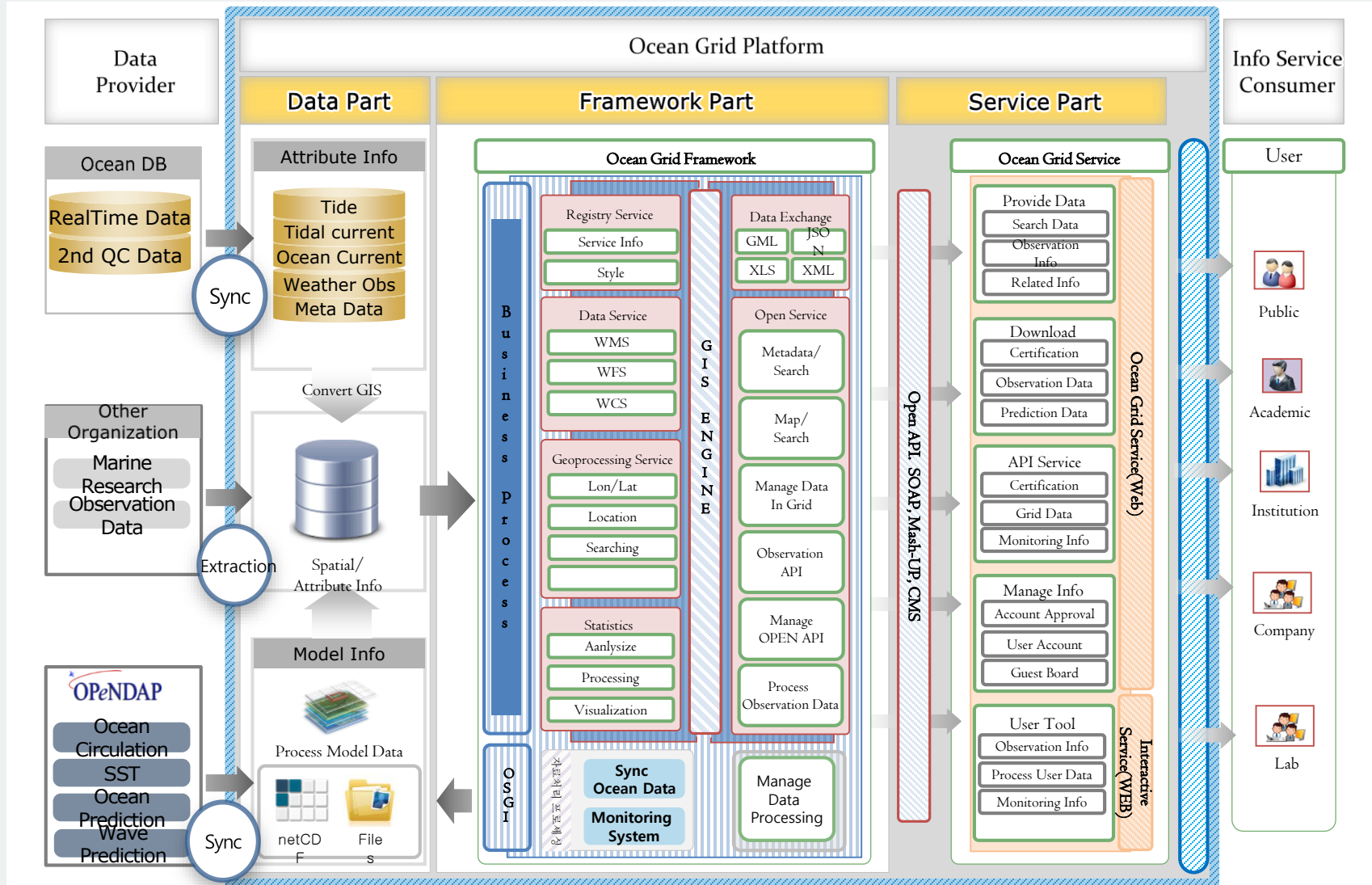
- Provide 23 types of OPEN API such as Water level, tidal current, water temperature etc.

User Tool

- Provide a tool which can analyze user's materials
- The same process with KHOA

3. Ocean Forecasting Database

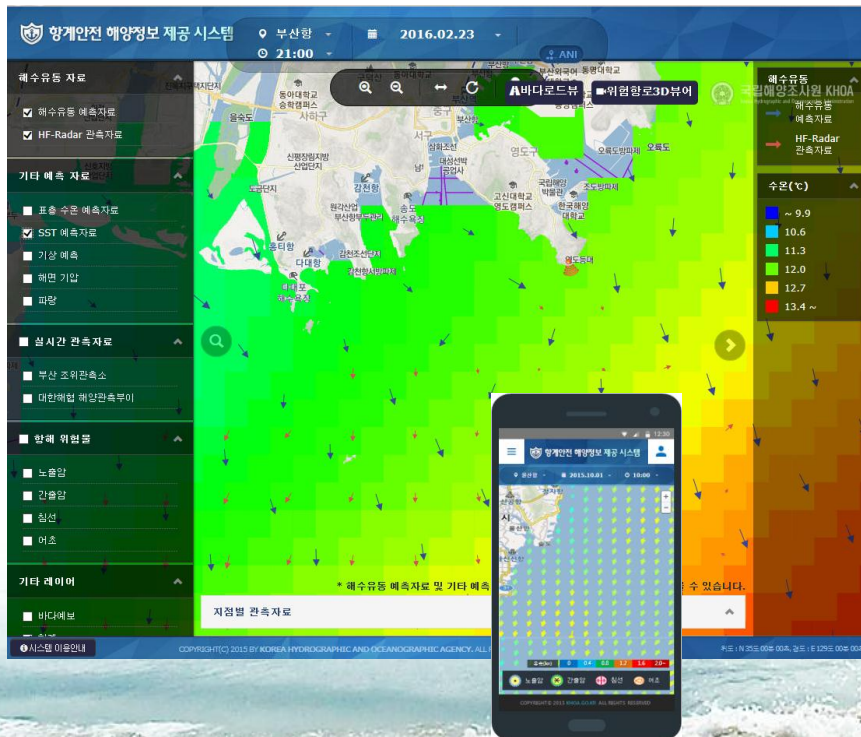
“One-Stop service platform as recognizable system at a glance”



4. Ocean Forecasting Services

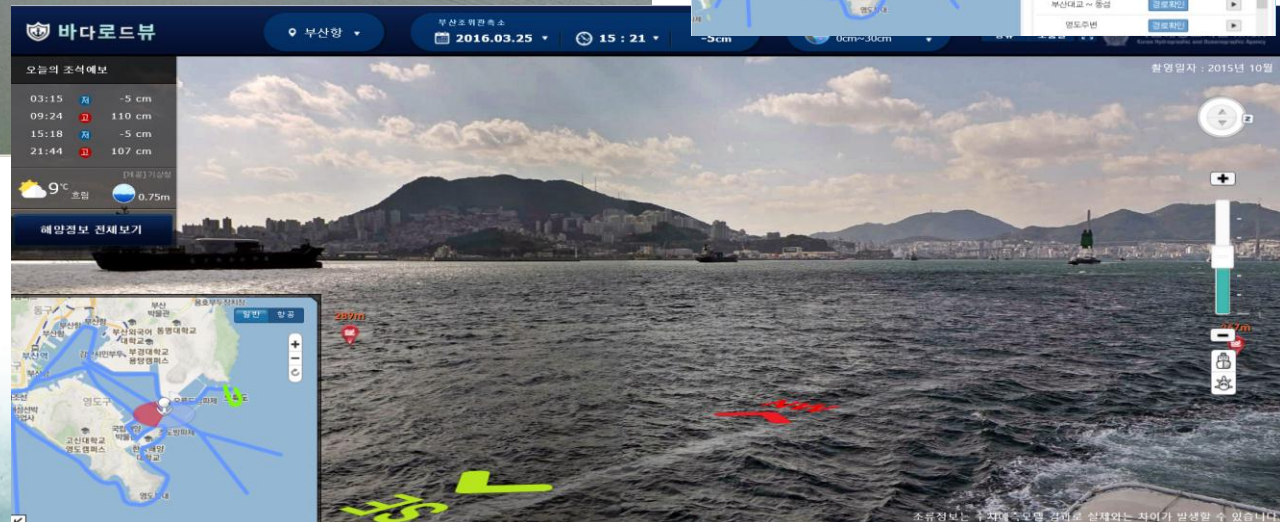
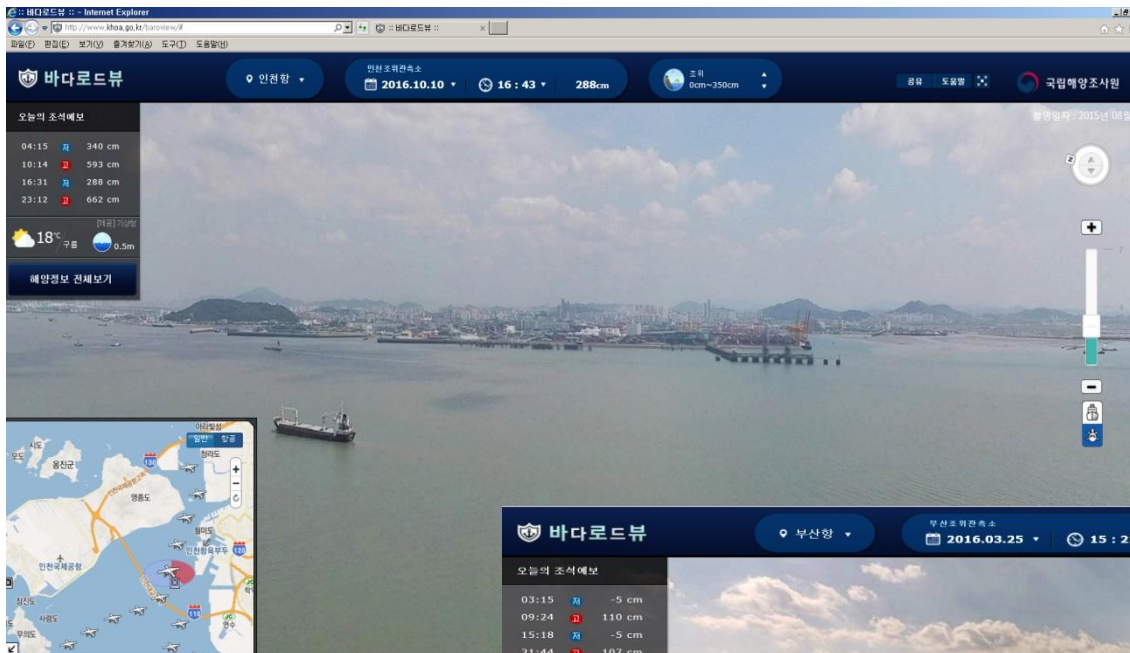
● Ports Oceanographic Information System(POIS)

- Providing the ocean information for marine safety and efficient port management
- POIS Webpage (<http://www.khoa.go.kr/pois>)
- Baroview Webpage (<http://www.khoa.go.kr/baroview/>)



4. Ocean Forecasting Services

Baroview by the vessels and Drones



4. Ocean Forecasting Services

- Video Clip of the Rip Current Event



4. Ocean Forecasting Services

Real-time Rip Current Warning System

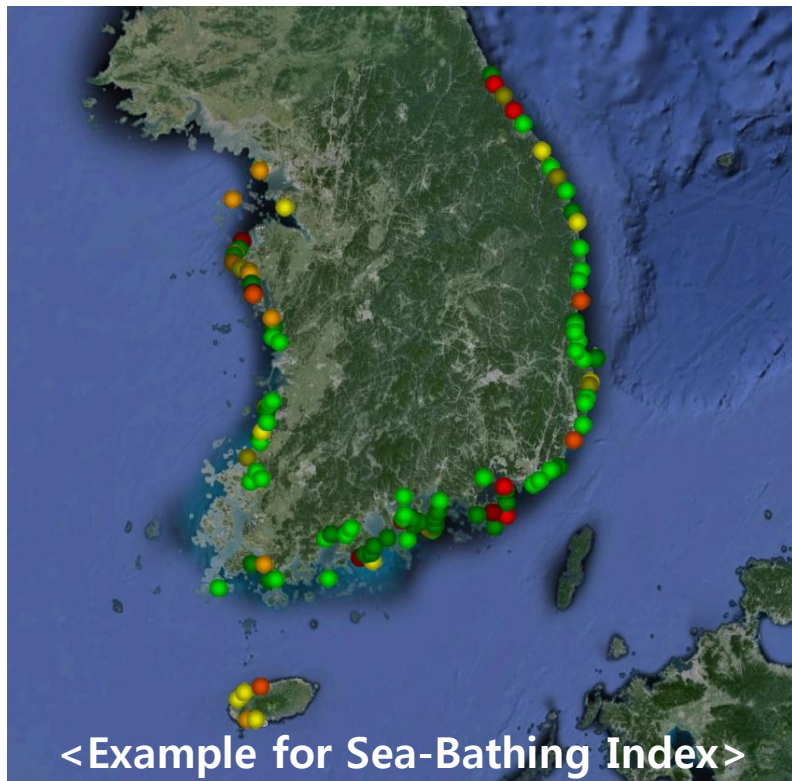
- Warning system to prevent the accident caused by rip current during the summer vacation



4. Ocean Forecasting Services

Sea-Bathing Index

- 50 Beaches around Korean Peninsula



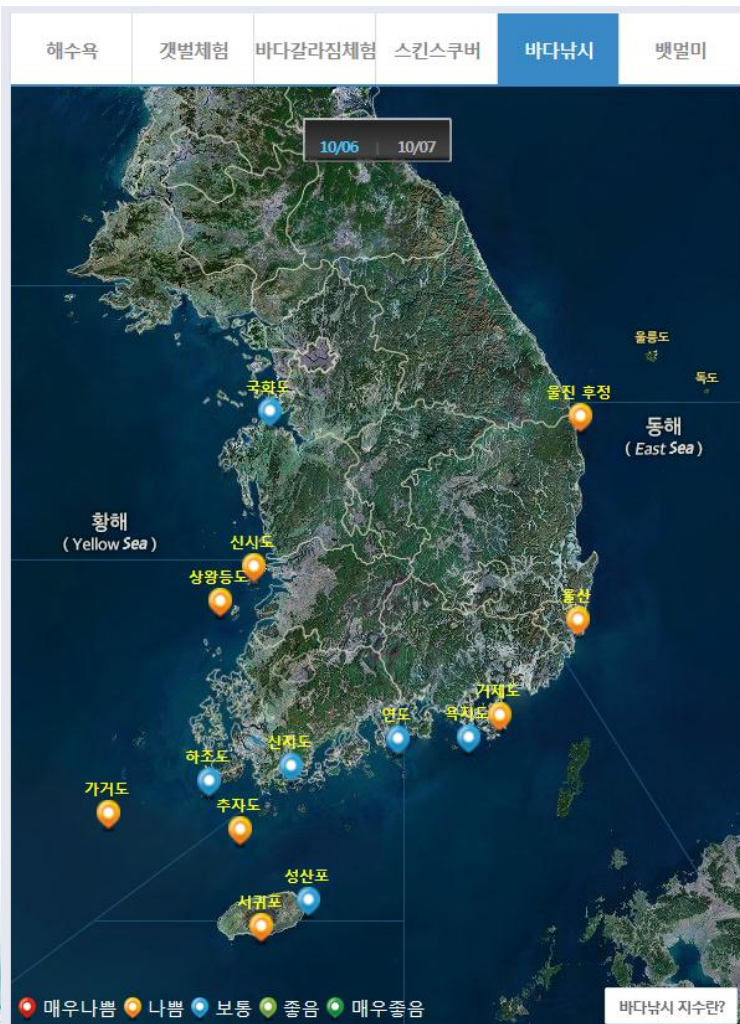
- Service Period : June ~ September

	Water Temp. (°C)	SWH (m)	Temp. (°C)	Wind Speed (m/s)
Very Good(5)	22<	<0.5	27<	<2
Good (4)	20~22	0.5~1	24~27	2~5
Normal (3)	18~20	1~1.5	22~24	5~8
Bad (2)	14~18	1.5~2	20~22	8~10
Very Bad (1)	<14	2<	<20	<10

- Developing Index Service using Value and Weight status
- Some statistics from The American National Red Cross book(1974

4. Ocean Forecasting Services

● Indexes for Marine Recreational Activities



● Icons for Indexes

➤ Sea-Bathing



➤ Tideland



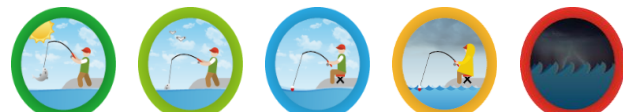
➤ Sea Parting



➤ Scuba diving



➤ Sea Fishing



➤ Seasickness

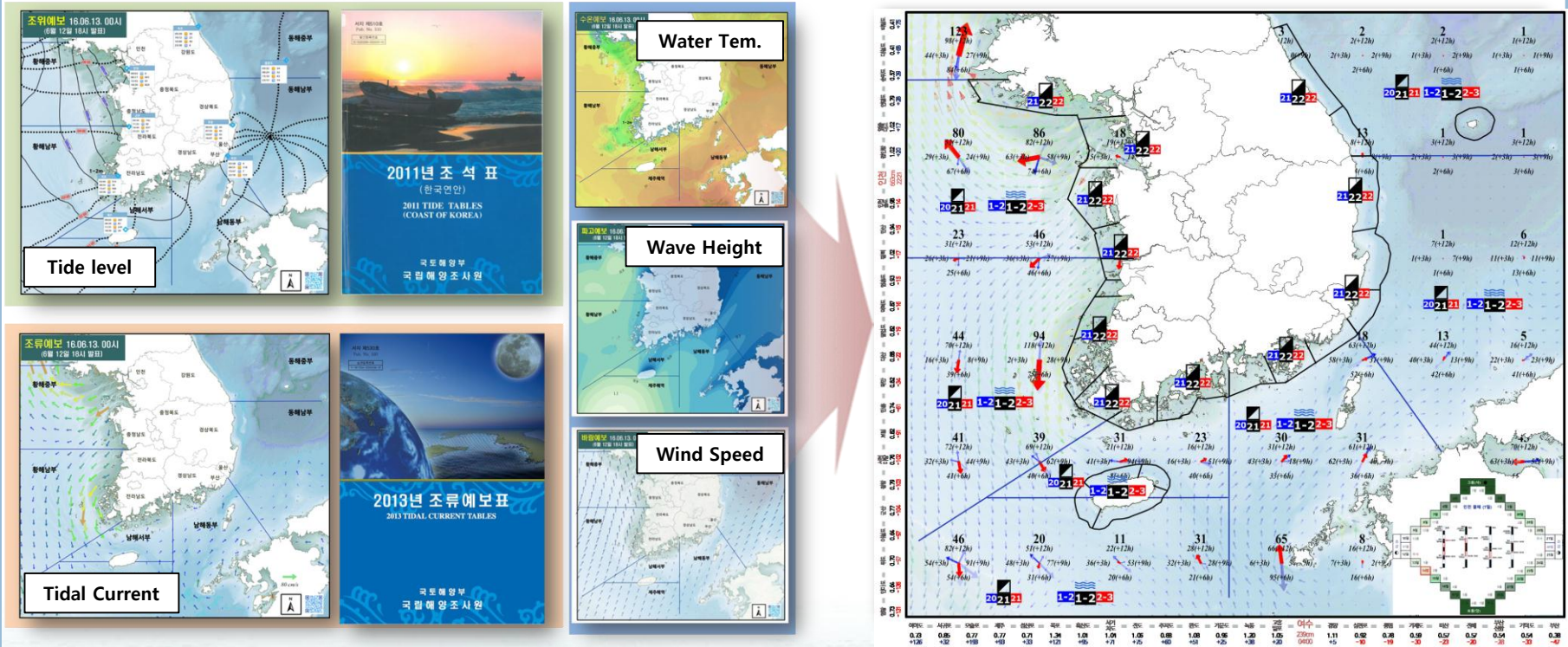


➤ Vessel Operation Possibility



4. Ocean Forecasting Services

- All the Oceanographic Forecasting information on a map



5. Broadcasting System



Works of the Oceanographic Forecast Division

[Broadcasting]

YouTube

facebook

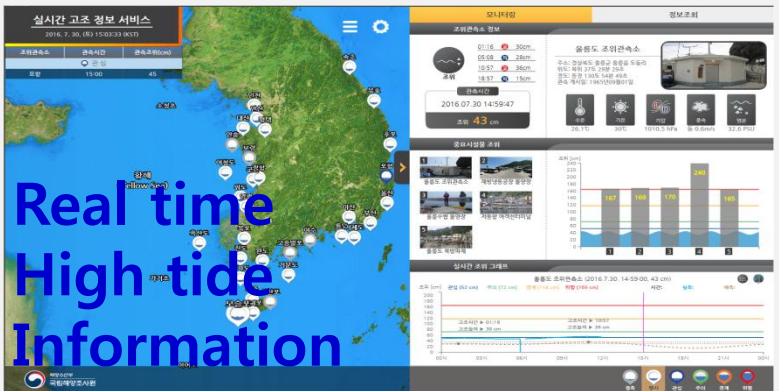
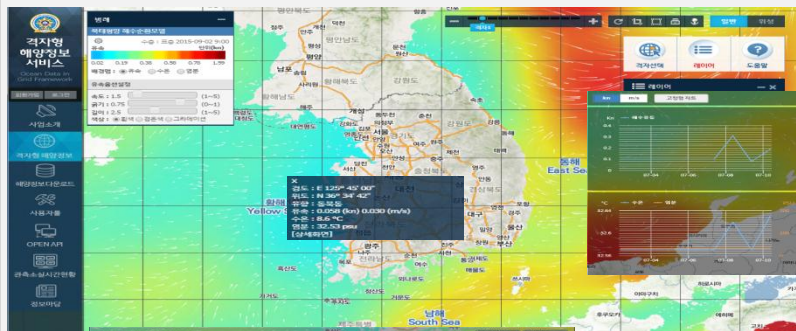
FTV
OUTDOOR LIFE



[Oceanographic Status Chart & Forecast Index]



[Ocean Data in Grid Framework]



Oceanographic
Forecast
Division

감사합니다

