

ARM7-6.2

Drifting Wreckage & Alternative Plan in Korea

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Drifting Wreckage Cases in Korea

Drifting wreckage case #I

● Oil spill

- Date & Location : Dec. 2007. / Offshore the west coast of Korea
- Cause : damage(hole) of oil tanker due to ship collision
- The specification of ship : Oil Tanker (about 17,000 tons)
- Result : crude oil 13,000kl spilled

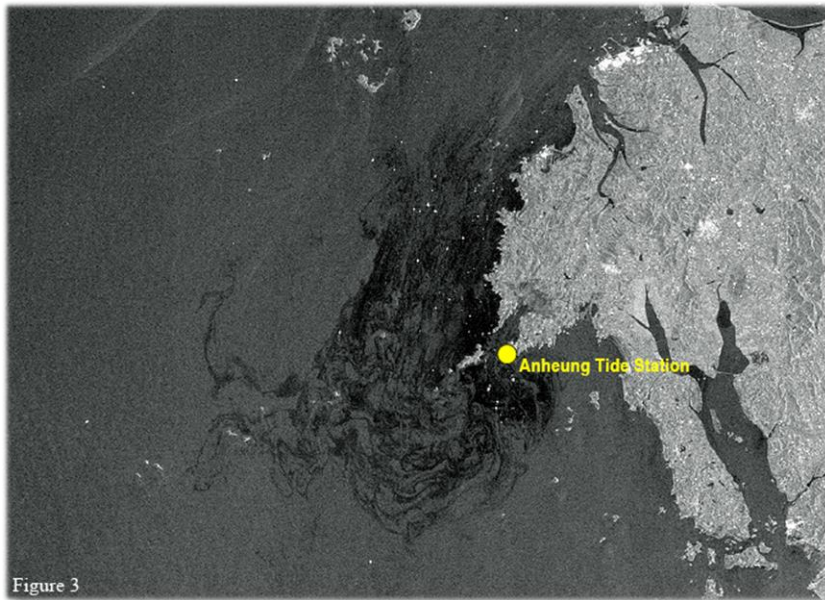


Figure 3



Tanker Hebei Spirit leaking crude oil

Response action for the west coast oil spill in 2007

- Prompt proclamation of 'Special Disaster Area' by the government
 - The preparation of Measures to be taken by the government
 - Spread prevention and elimination of spill oil with civil, government, Coast guard and military



Drifting wreckage case #2

● drifting logs

- Date & Location : Aug. 2016 / the south coast of Korea EEZ
- Cause : Ship declined by the damage(hole) due to the unknown cause
- The specification of ship : log carrier (about 3,000 tons)
- Result : drifting of More than 1,500 logs



Response action for the south coast drifting logs in 2016

- The decision of the hazard and eliminate for drifting logs
 - The order of elimination to captain and ship owner
 - Drafting logs eliminated by civil, government and Coast guard
(about 1,500 logs)



*KOOS

Korean Operational Oceanographic System

Korea Operational Oceanographic System

Korea ocean observing and forecasting system



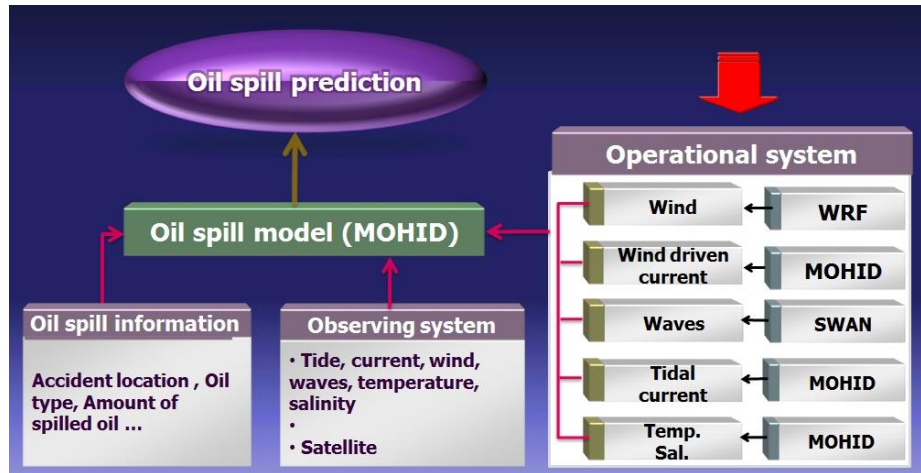
Numerical ocean prediction system



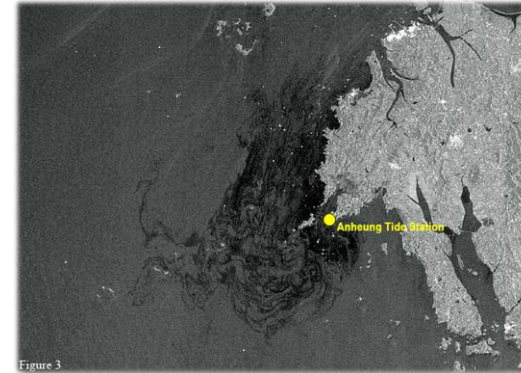
Integrated application system
(status and prediction information)



Spilled Oil spreading prediction system



Oil Spill

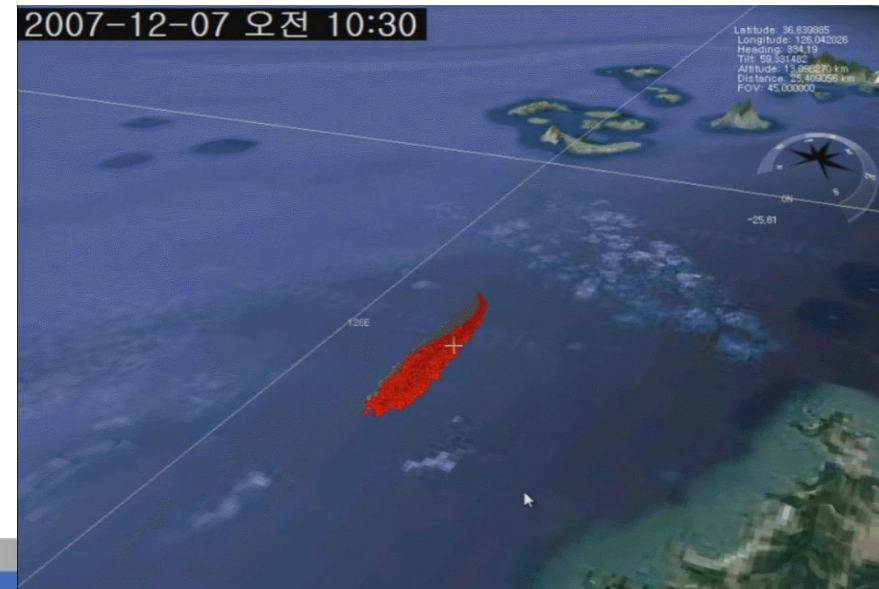
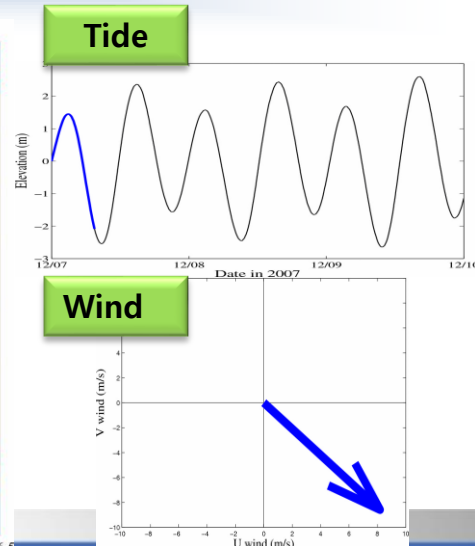
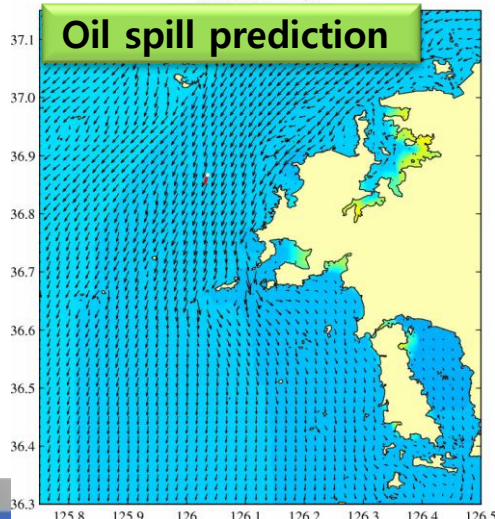


Tanker Hebei Spirit leaking crude oil



Hebei Spirit Oil Spill (Dec/07/2007)

2007/12/07 07:30



Applications (Spilled Oil spreading prediction system)

Application of preventing effect

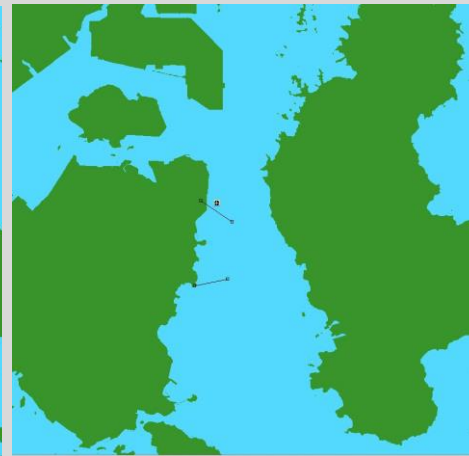
1. Configure four hypothetical scenarios for oil leakage
2. The quantity of spilled oil : 700kl
3. The activity of preventing : Length of oil fence(1.5km, The limit of flow velocity 2 m/s, The limit of wave 2m), emulsifier(100 liter)



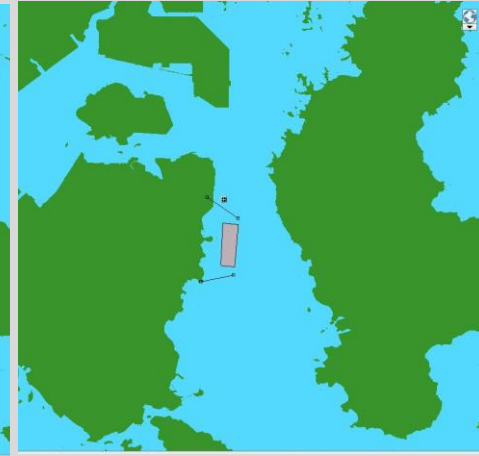
Non activity



Installation of oil fence
(after 6 hours)



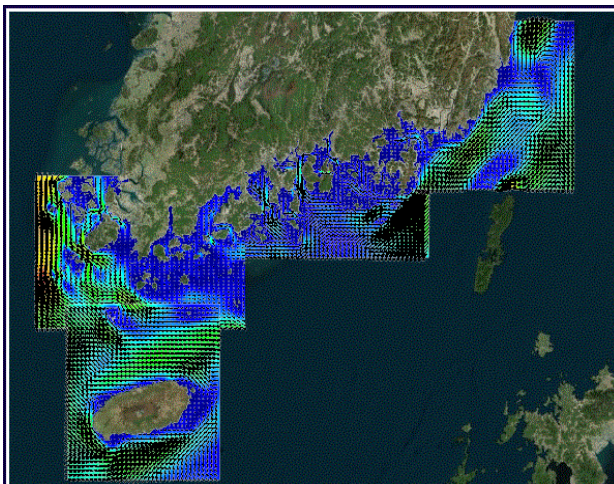
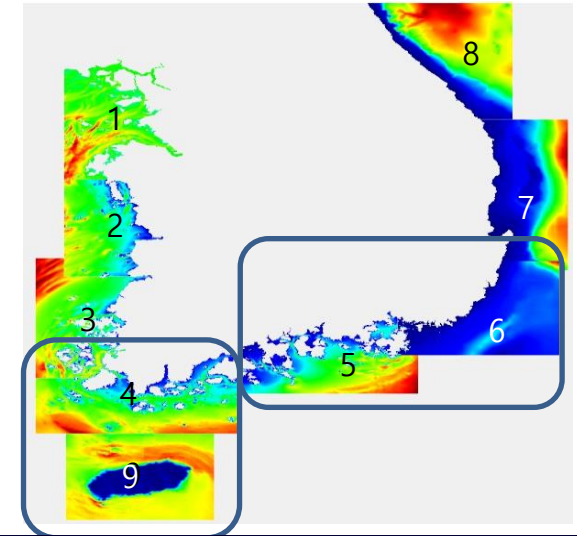
Additional Installation
of oil fence
(after 12 hours)



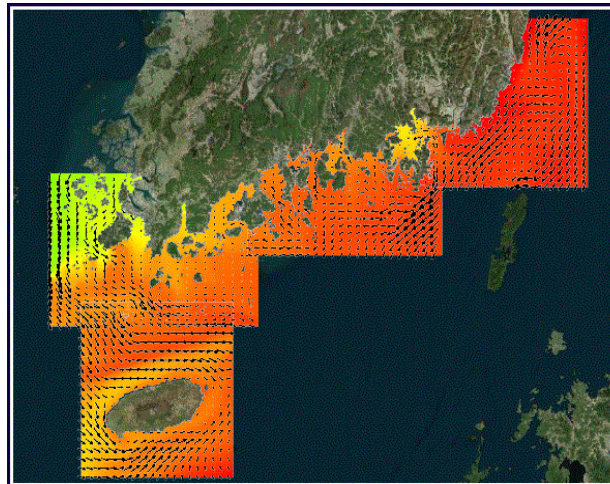
emulsifier spraying
(after 24 hours)

Three-dimensional Ocean circulation Prediction system

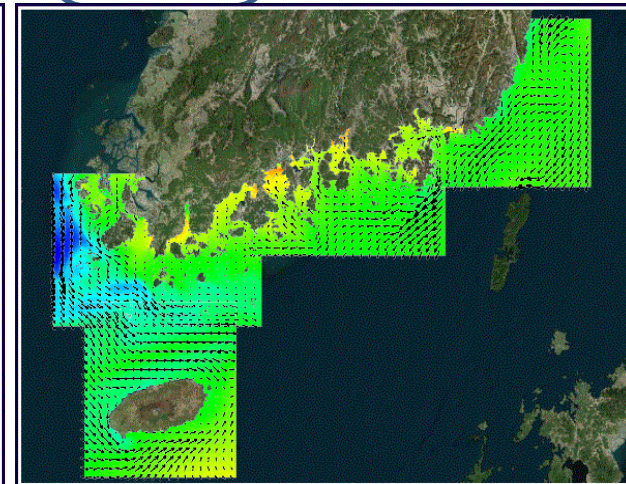
- Construction of high resolution coastal circulation prediction system of South coast
- Establishment of the foundation of the operation through verification of coastal circulation prediction system in South coast)



KIOST L4 Result (Current speed) 12:00:00
2017.05.16.12:00 - 05.19.12:00 (UTC) 16-05-2017

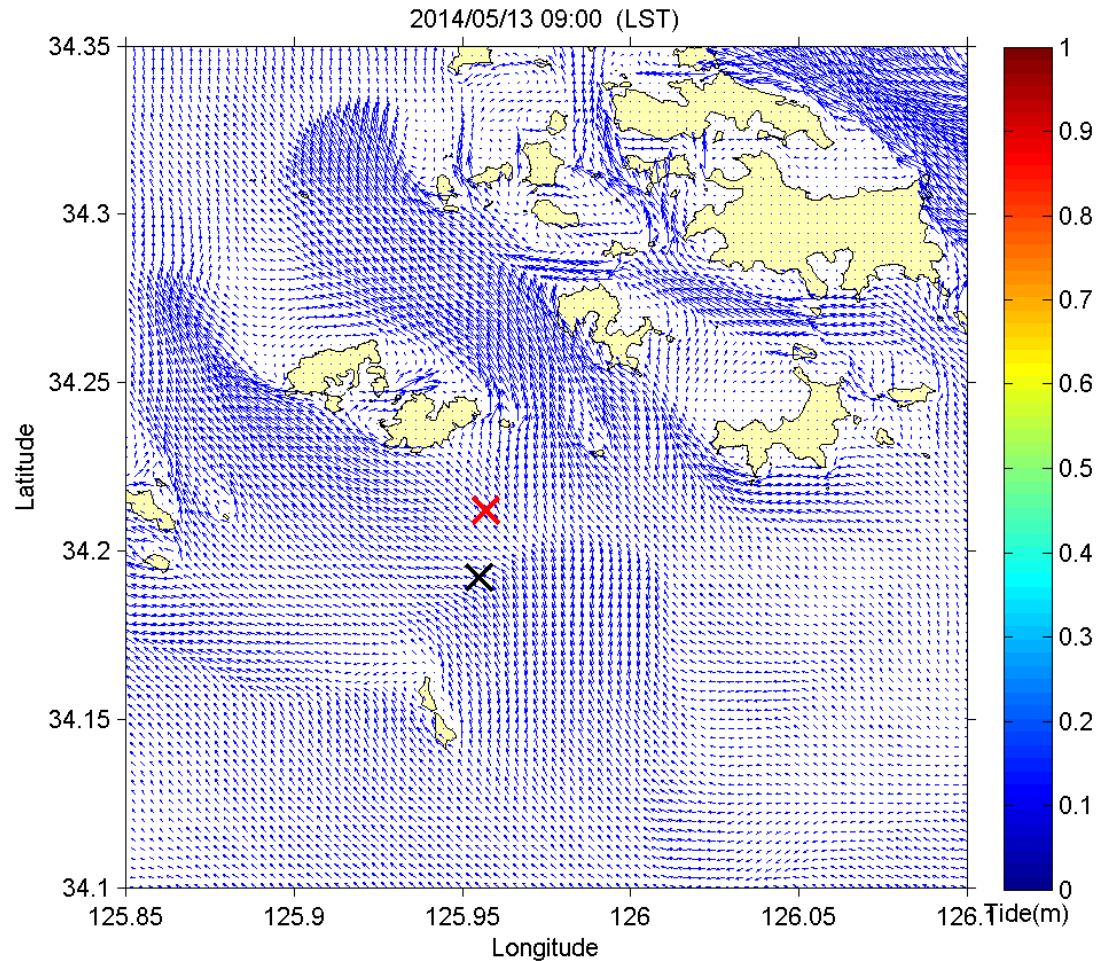


KIOST L4 Result (Salinity) 12:00:00
2017.05.16.12:00 ~ 05.19.12:00 (UTC) 16-05-2017



KIOST L4 Result (Temperature) 12:00:00
2017.05.16.12:00 ~ 05.19.12:00 (UTC) 16-05-2017

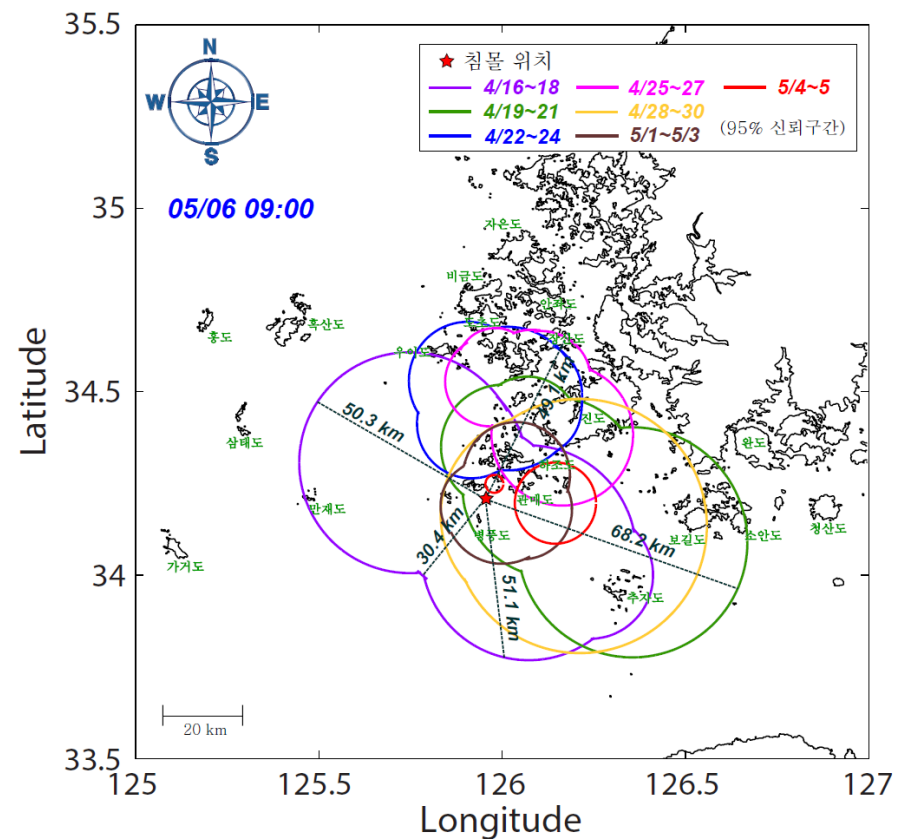
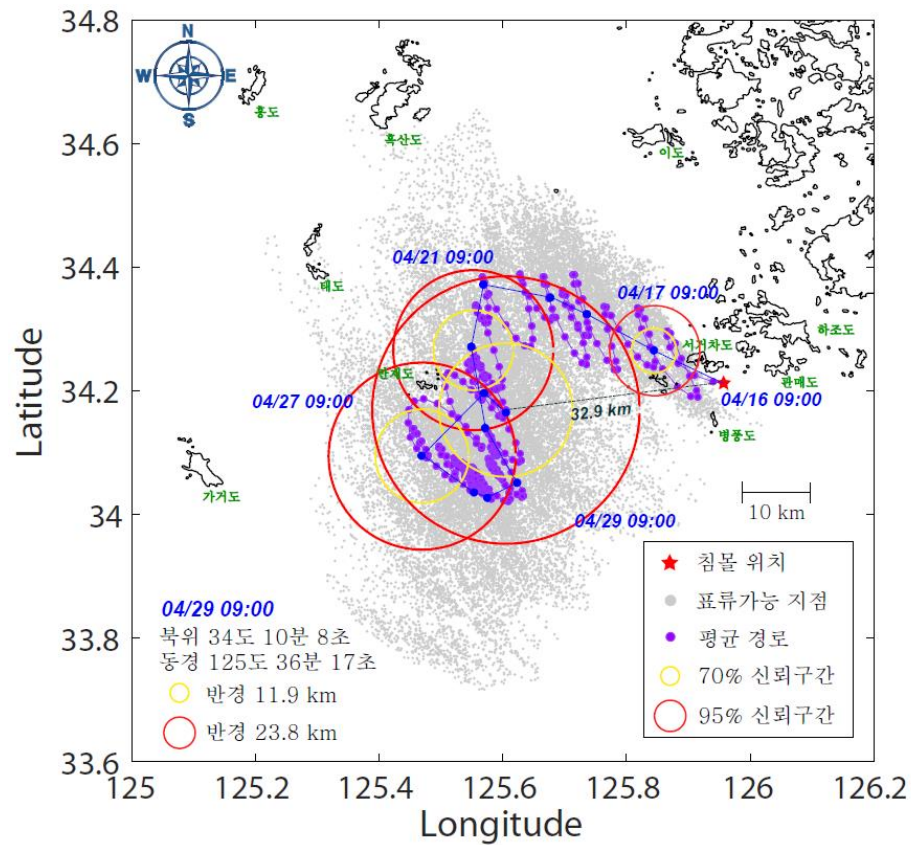
Three-dimensional flow velocity prediction information (72-hour prediction information)



X : sinking point (depth : 42m)

X : Buoy observation point

Examples of Search Range Prediction



Opinions

Opinions

- Removal of hazardous materials is the most important factor of drifting wreckage
- Effective in ensuring safety and preventing the spread of damage when applying marine forecasting system to the removal of danger
- Rapid information delivery to navigator for preventing second ship accident when drifting wreckage occurs
- Virtual AtoN AIS rapidly notifies risk

Opinions

- Drifting hazardous materials change dangers in position (range)
- Coordinates of the virtual AtoN AIS are only displayed as an Ipoint
- Risk range setting is required applying Virtual AtoN AIS to Drifting wreckage



Thank You

감사합니다