World Ocean Forum 2016
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Development and Applications of Underwater Glider and Amphibious Drone

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KIOST
한국해양과학기술원

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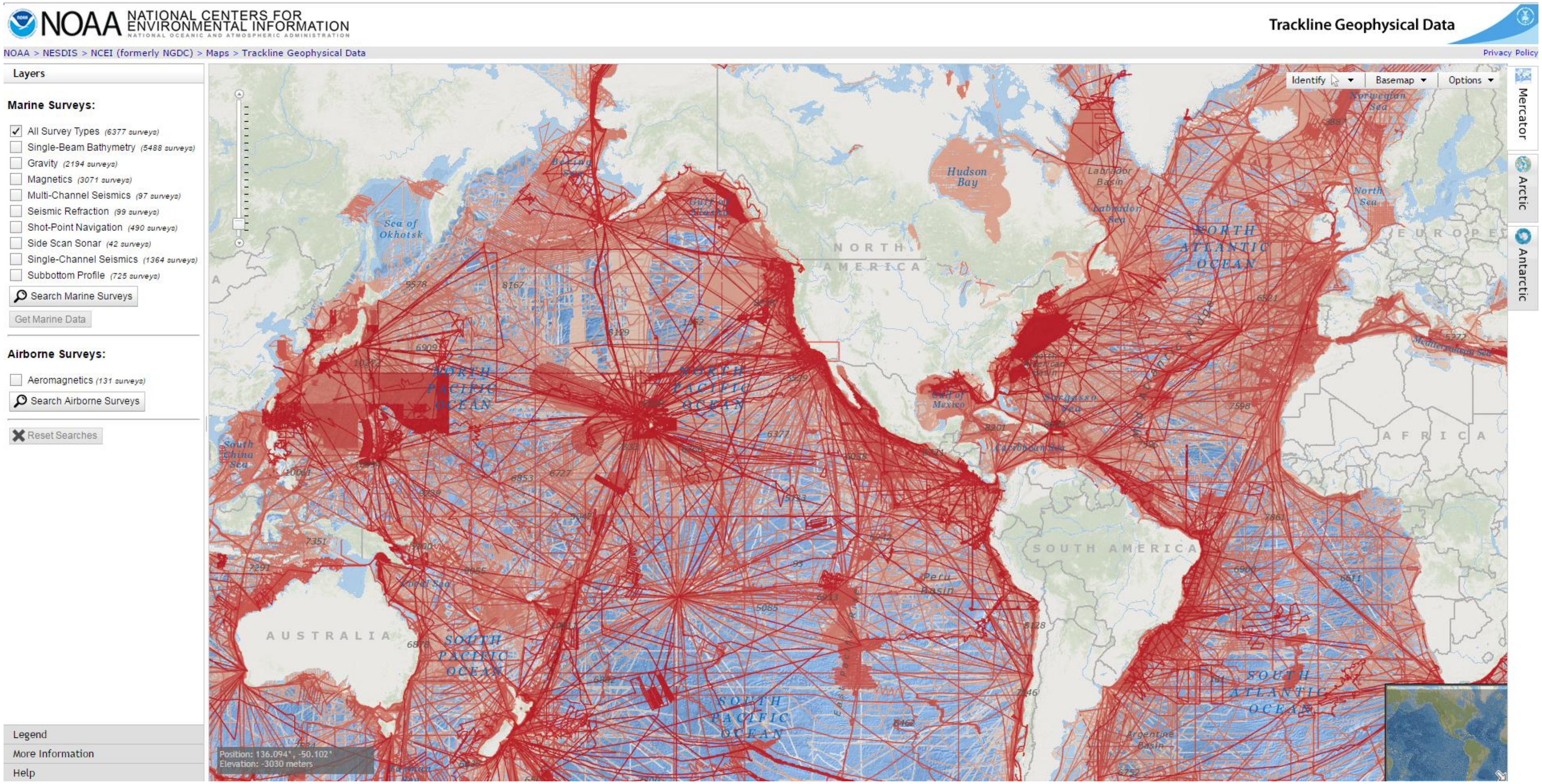
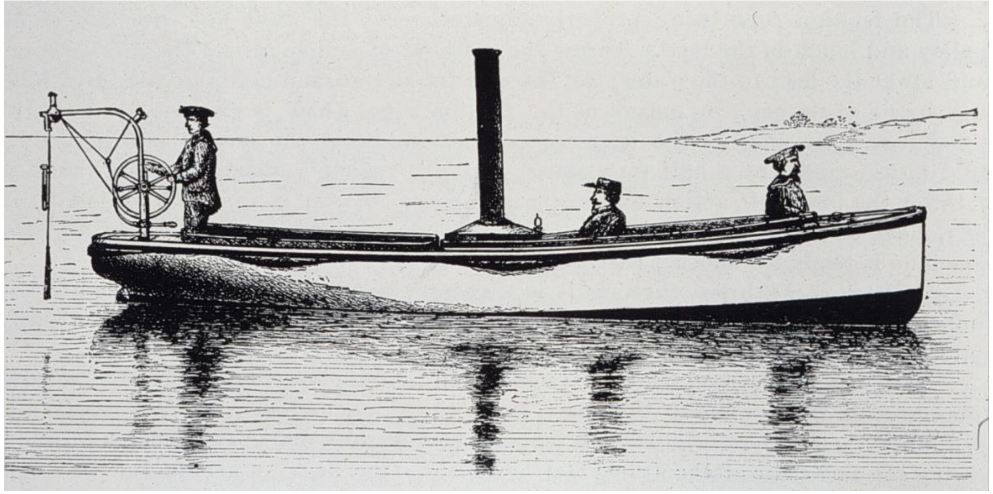
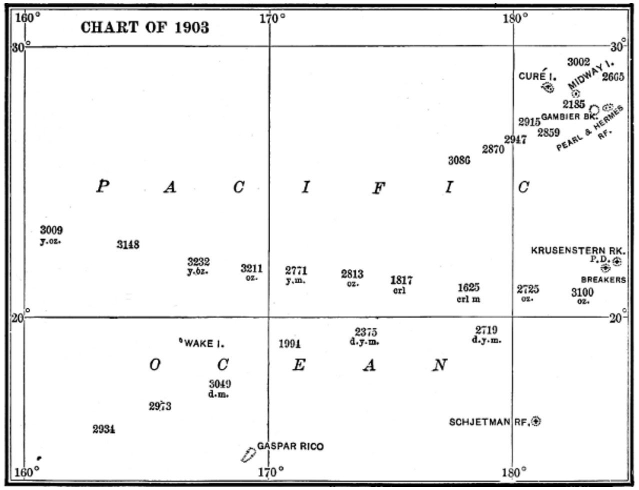
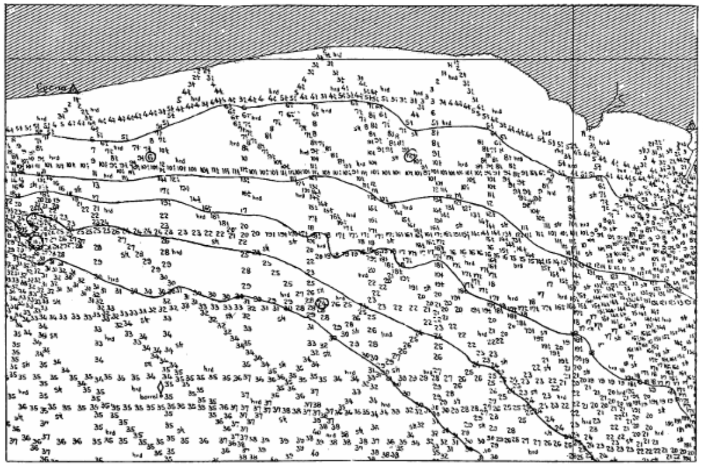
Modern Survey Ship Cruise Track

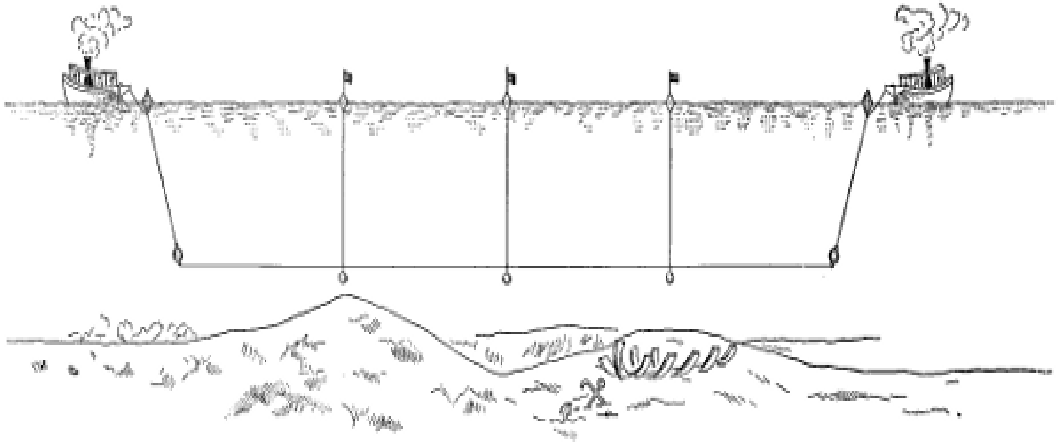


Historical Hydrographic Survey

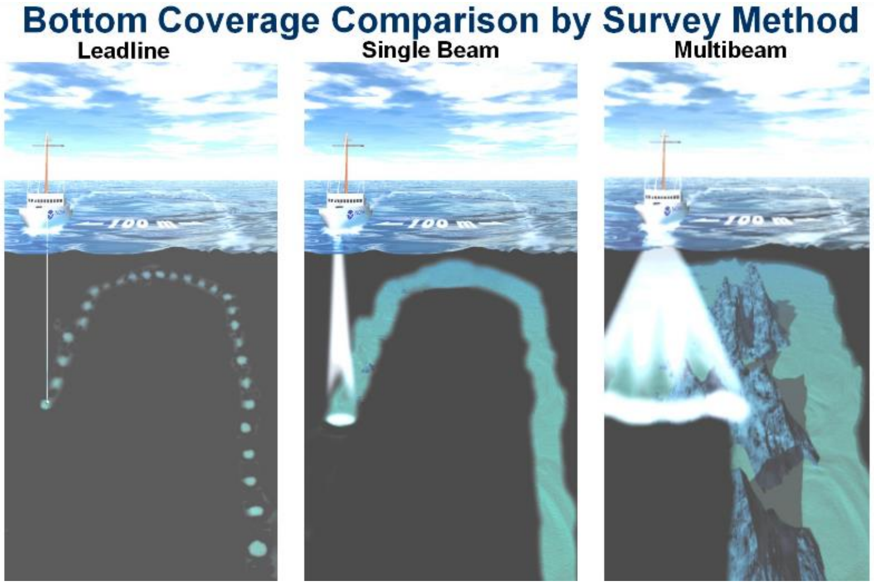


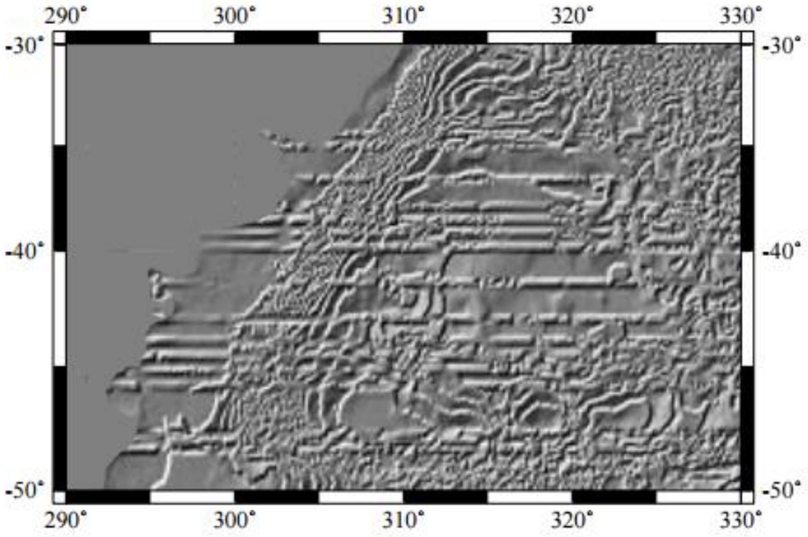


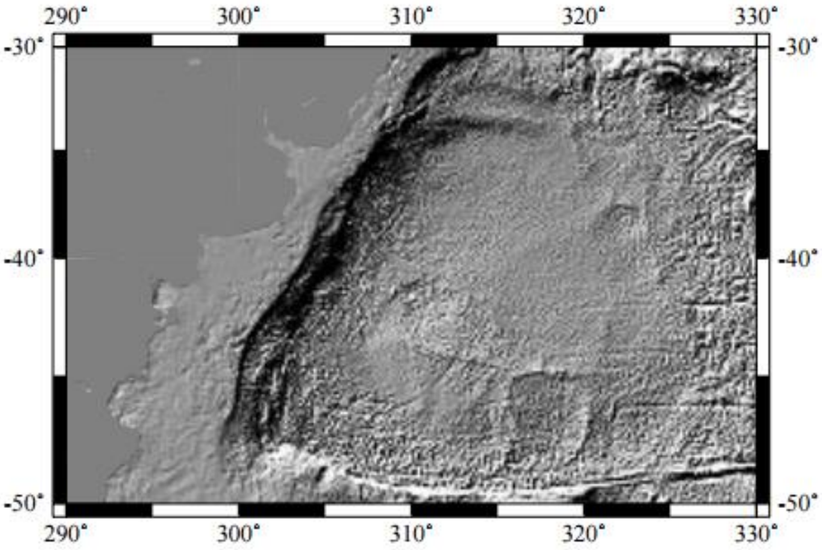




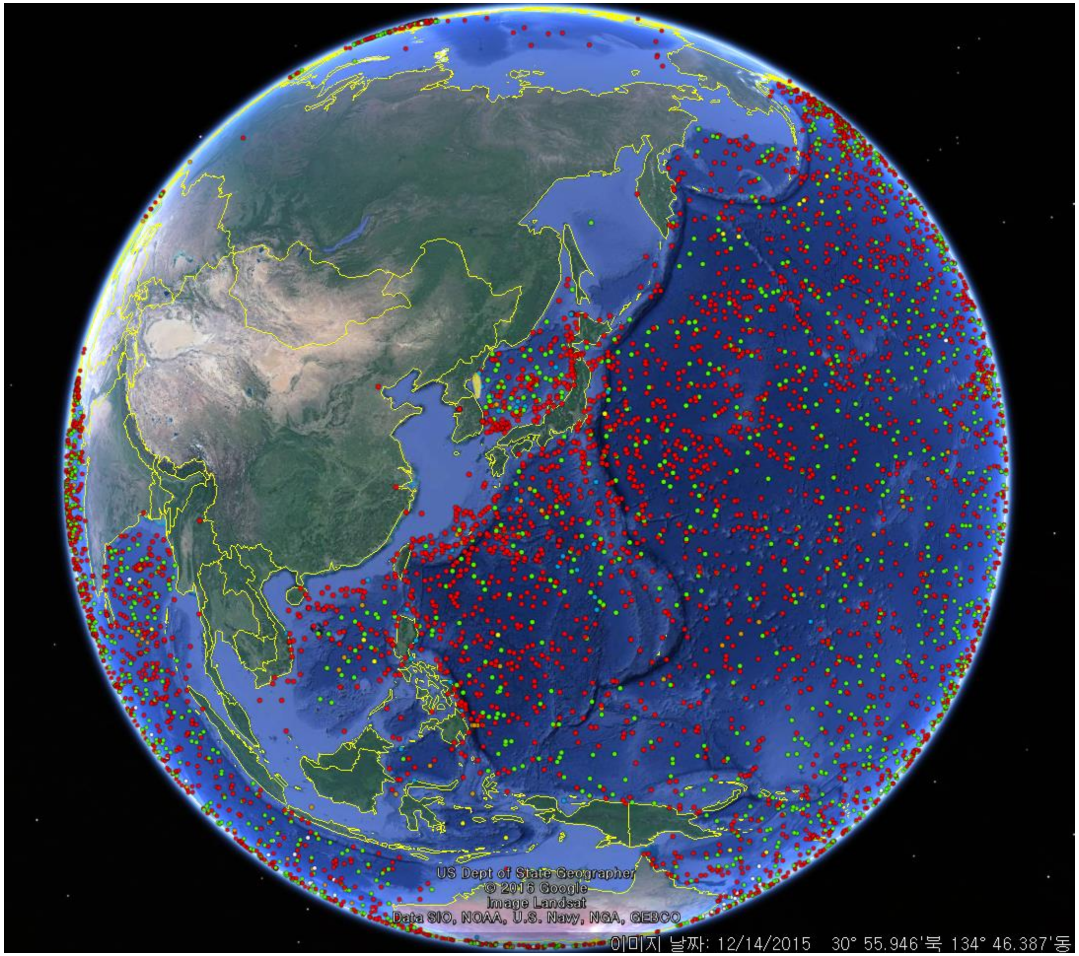
Higher data density, Deep Insight

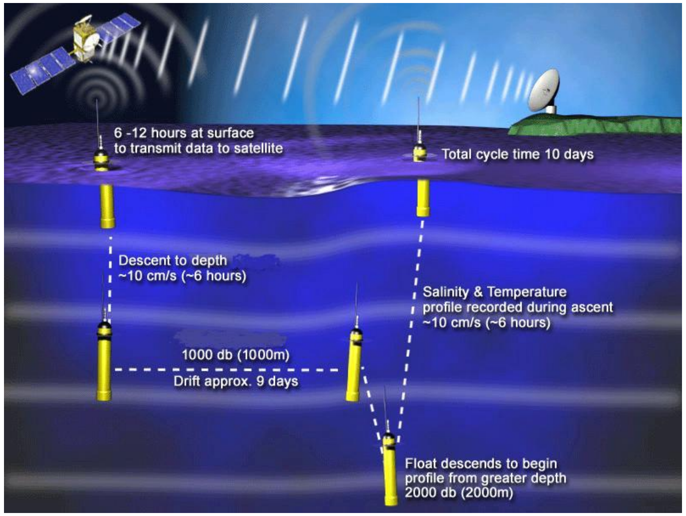




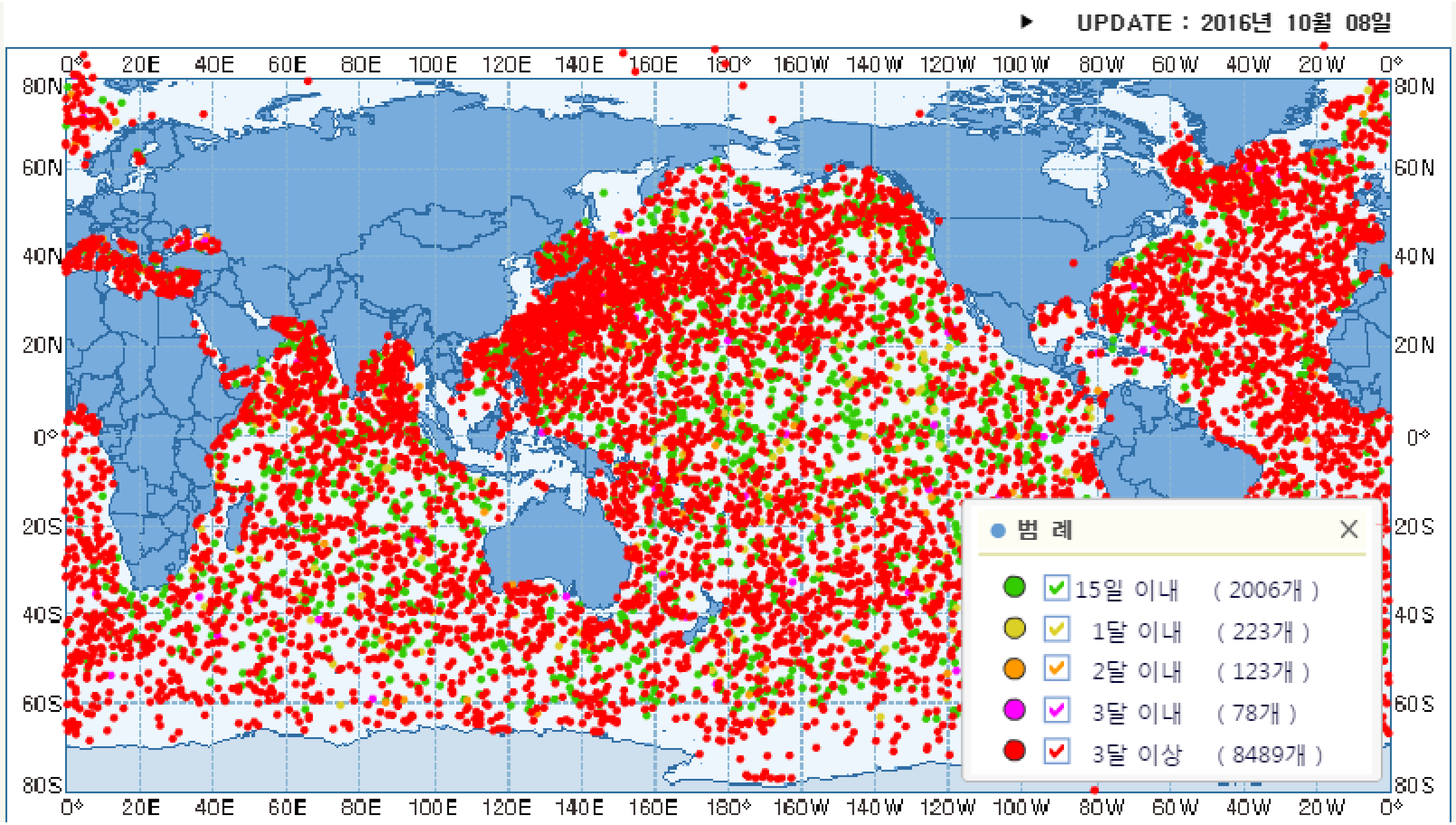


Modern Ocean Observation by Drifter

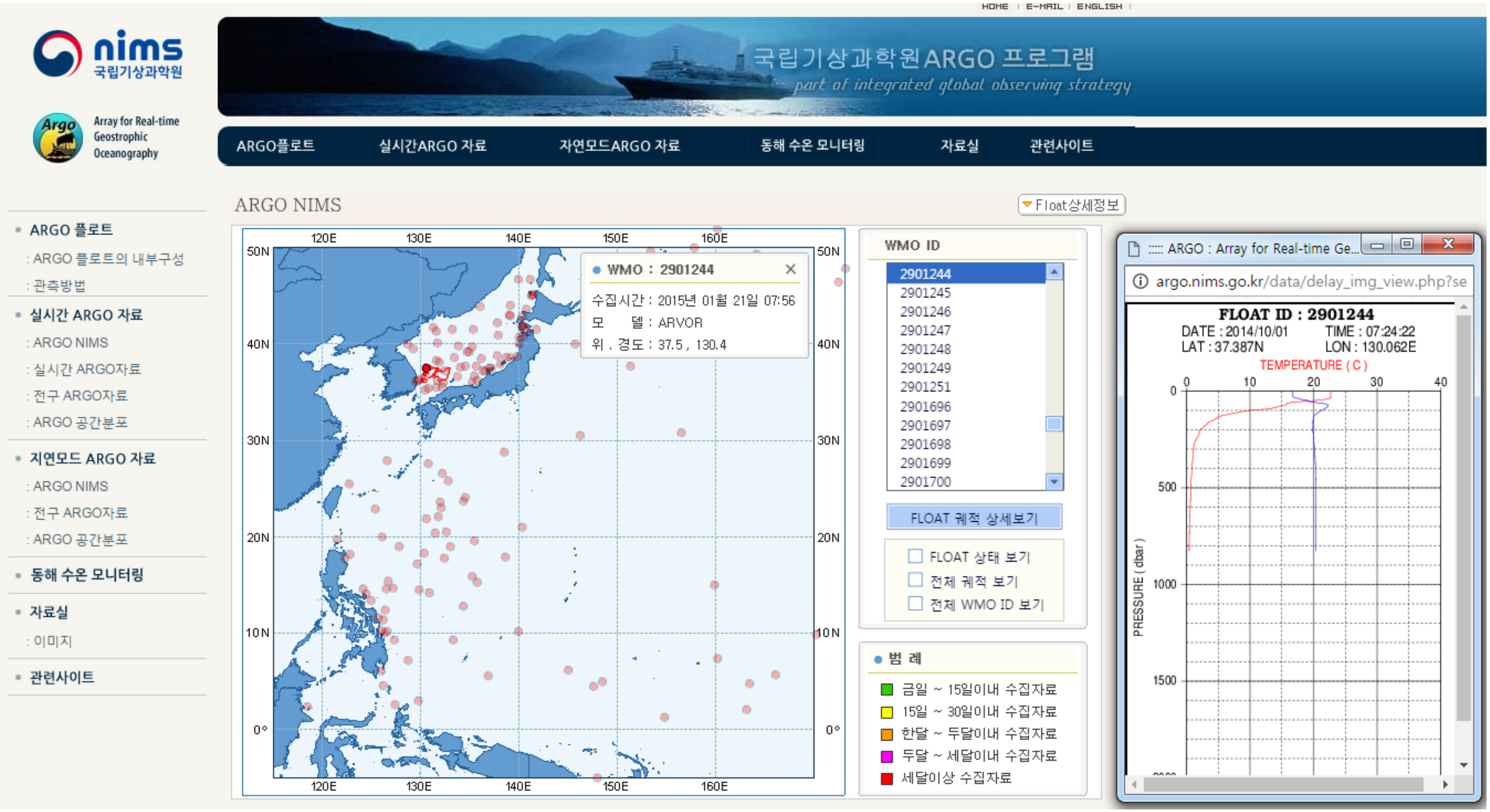




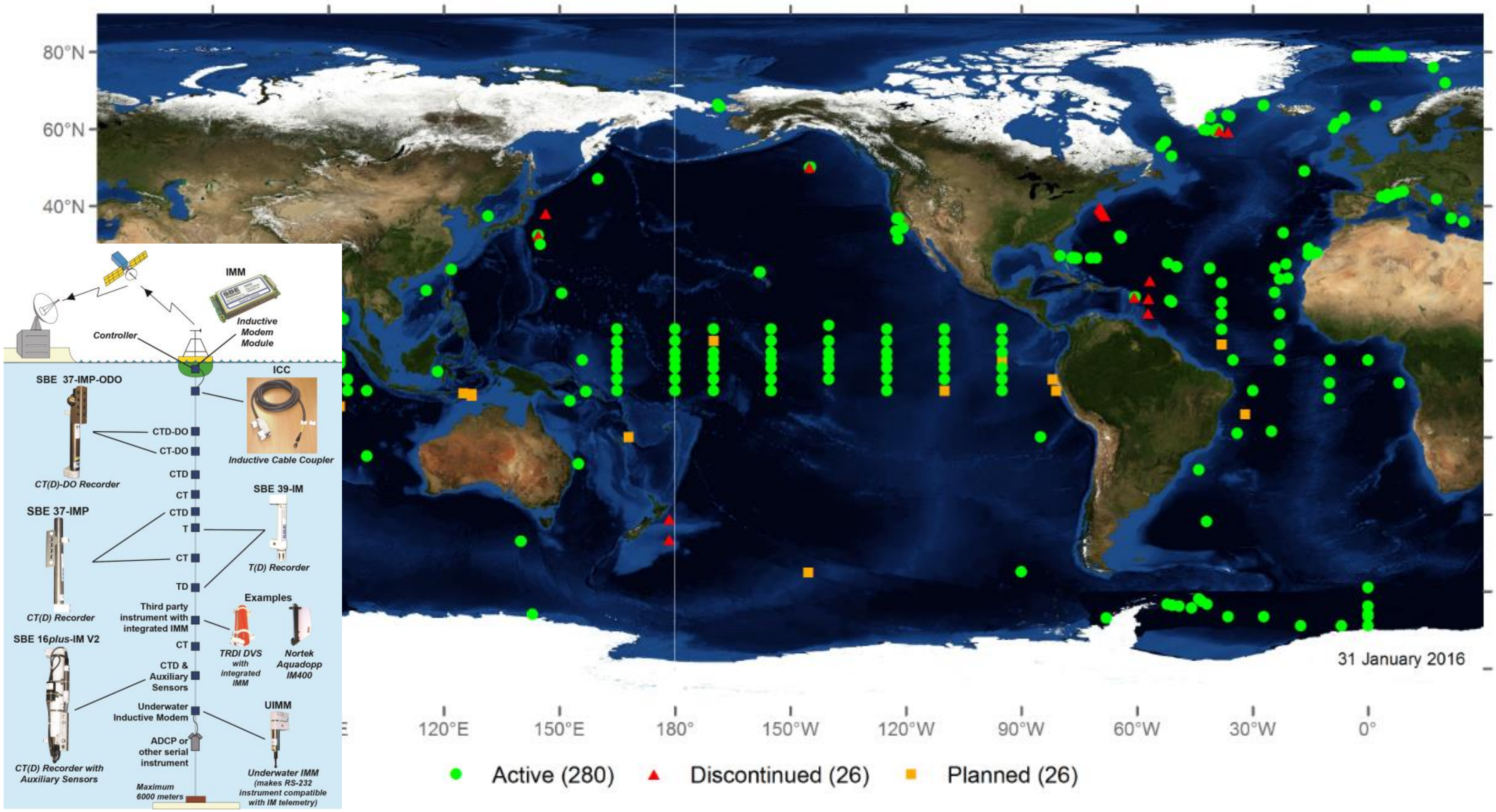
Modern Ocean Observation by Drifter



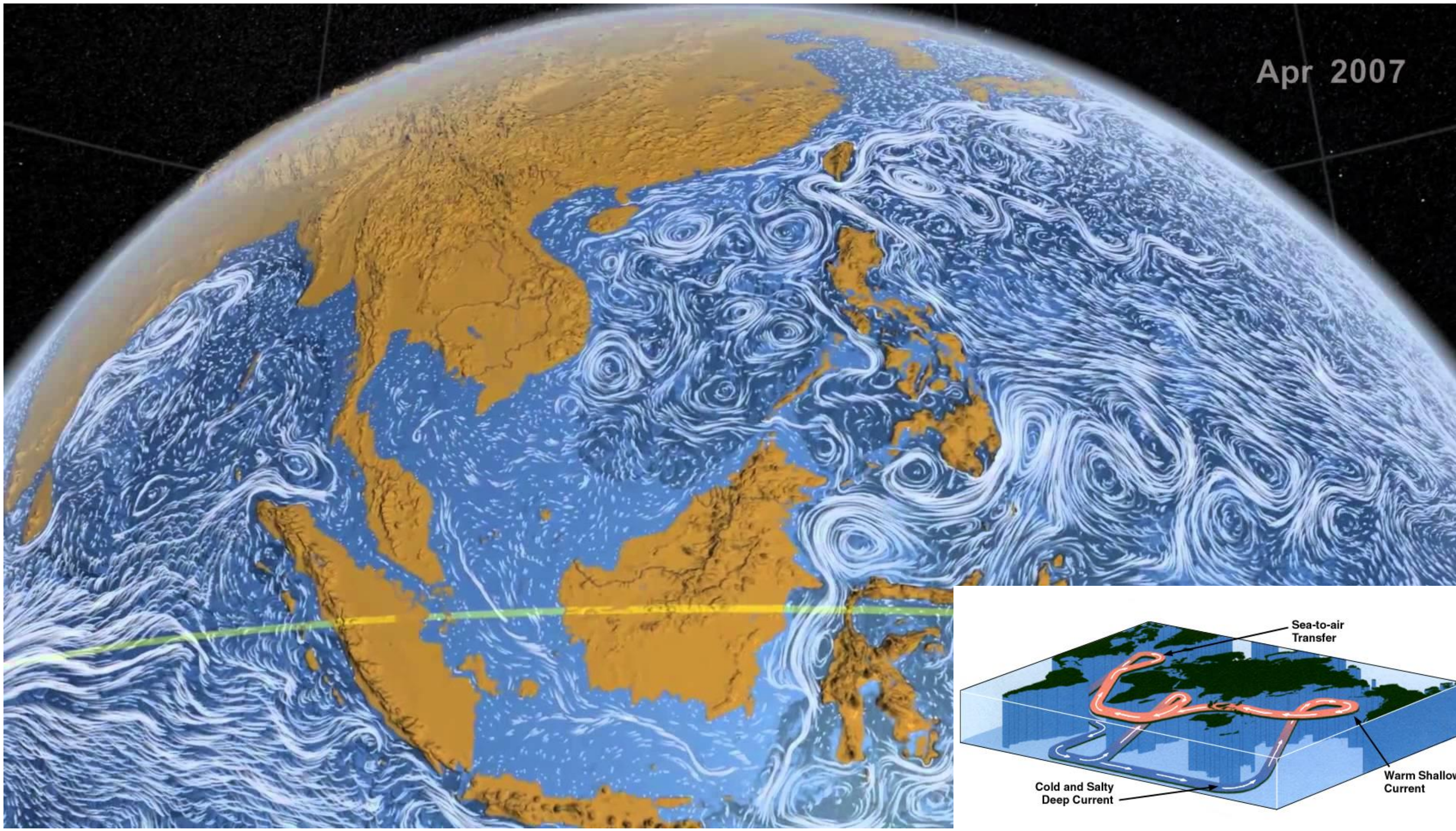
Korea ARGO Program



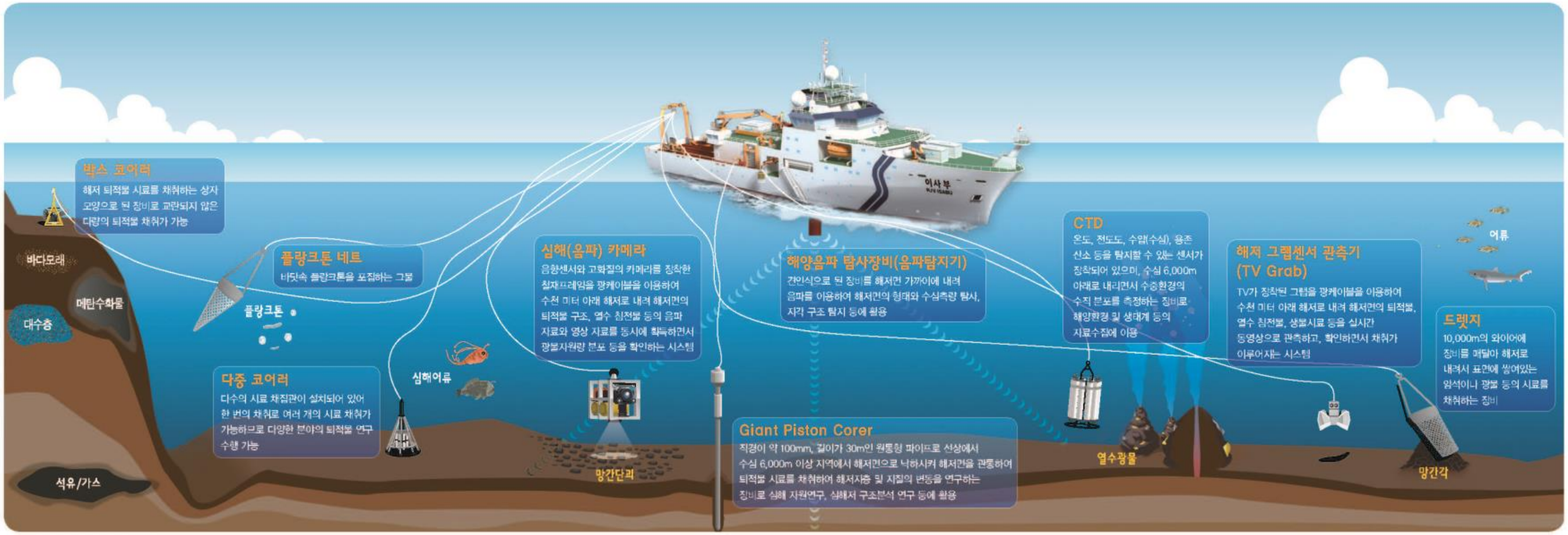
OceanSites Network

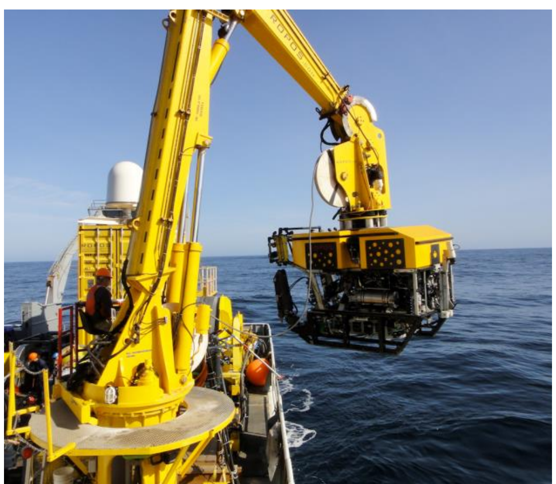


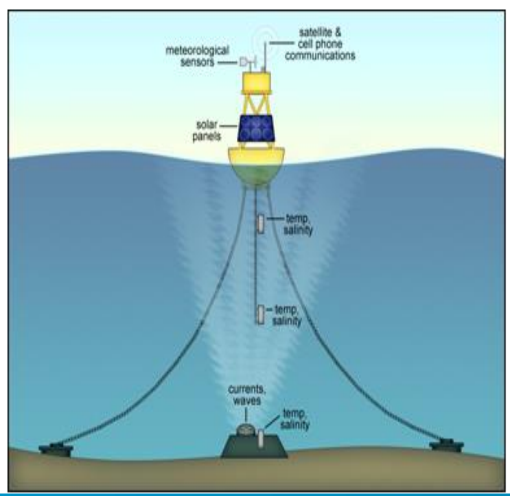
Global Ocean Current



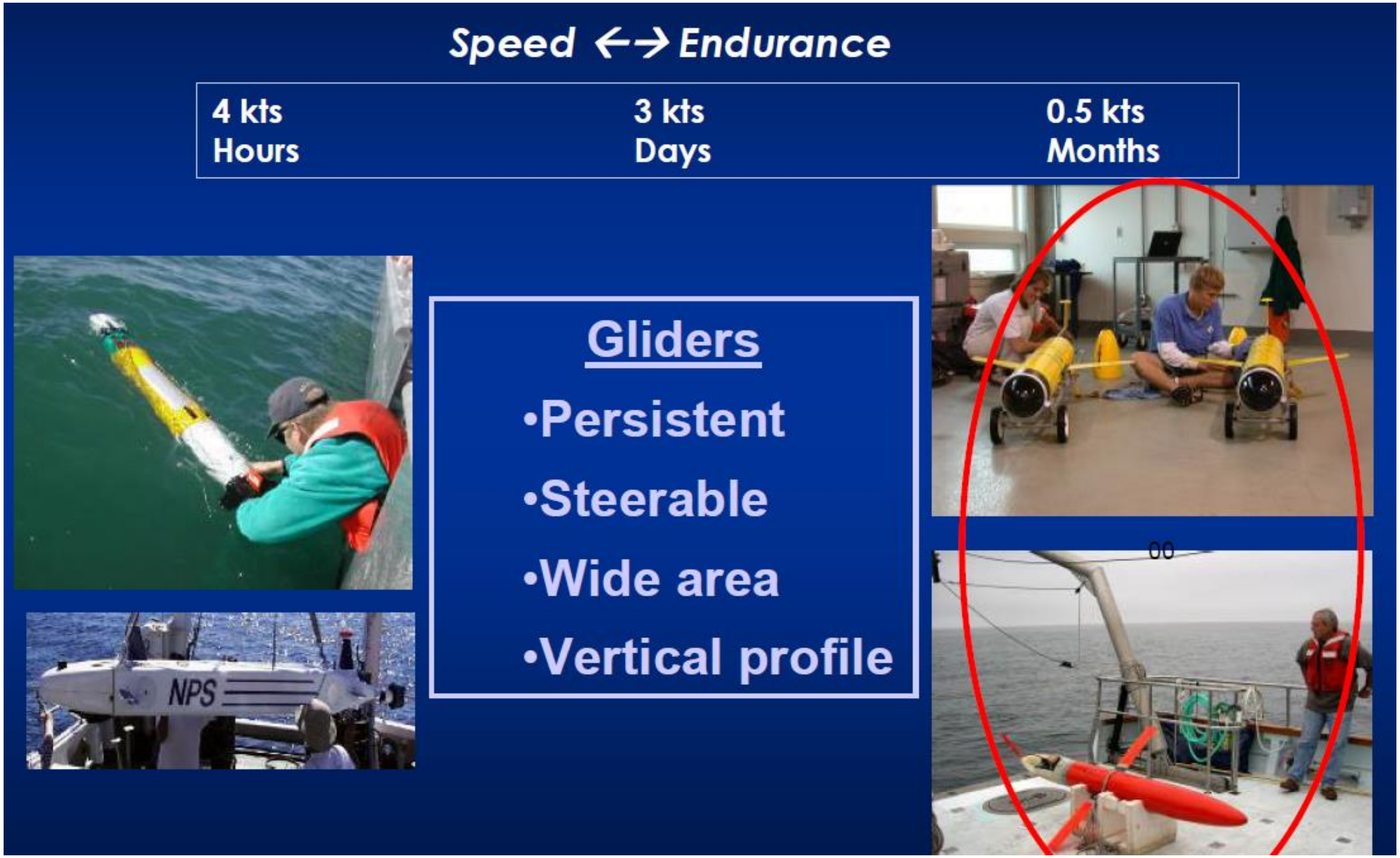
Traditional way of expedition





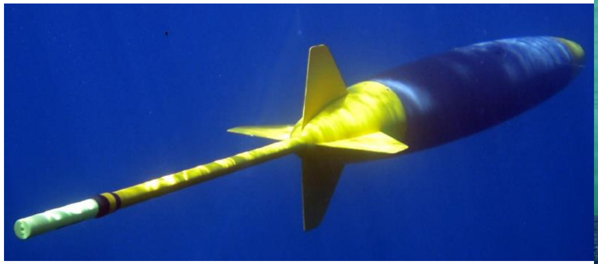


Energy Harvesting Platforms



Underwater Glider Intro

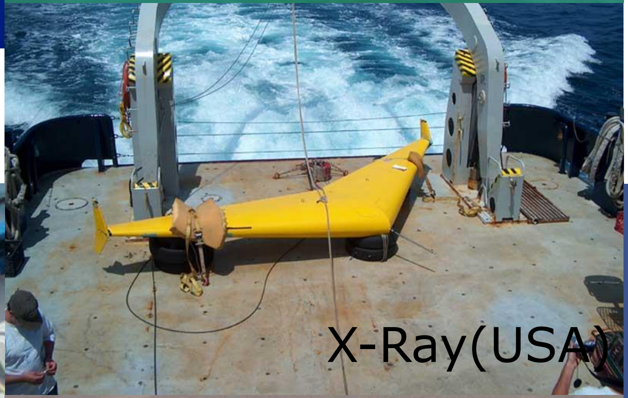
Commercial Underwater Glider

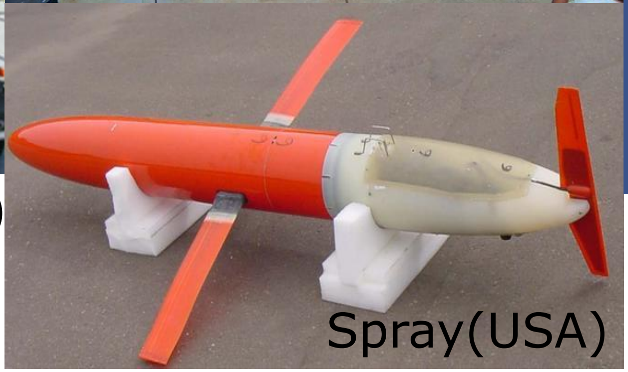

SeaExplorer(France)


Science One(China)


Sea Glider


ANT Littoral Glider(USA)


X-Ray(USA)


Spray(USA)

Slocum(USA)

Glider Networks

GROOM

Gliders for Research, Ocean Observation and Management

Underwater gliders offer new ways to monitor with high resolution ocean temperatures, salinity, currents, and other essential parameters. Their potential for ocean research can help scientists to develop completely new research areas and improve the cost-effectiveness of ocean observations. As a result, the gliders have rapidly grown in importance for science-driven applications. Now the objective of the GROOM project is to design a new European Research Infrastructure that uses underwater gliders for collecting oceanographic data for research applications and oceanic surveys. This will ensure better monitoring of European seas and overall marine management.

Supporting marine research

The development of gliders has already made significant progress under the EU's research programmes. The 6th Framework Programme funded the first European glider experiment, which took place in the Ionian Sea in 2005. National projects – both past and on-going – have also supported many glider operations in European and foreign waters.

Gliders represent a very attractive platform for research in a wide range of marine sciences. The project has already made headway with creating and evaluating a new European glider infrastructure, using underwater gliders for monitoring and sampling ocean state variables. GROOM is also working on a wave glider – the first unmanned autonomous marine robot to use only the ocean's wave energy for propulsion – which complement the underwater glider to collect data at surface.

The GROOM infrastructure will benefit a large number of marine activities and societal applications related to climate change, marine ecosystems, resources and security. These applications rely on academic oceanographic research and operational oceanography systems. GROOM demonstrates the progress that can be achieved with gliders in improving coverage, resolution and organisation of existing marine observation systems.

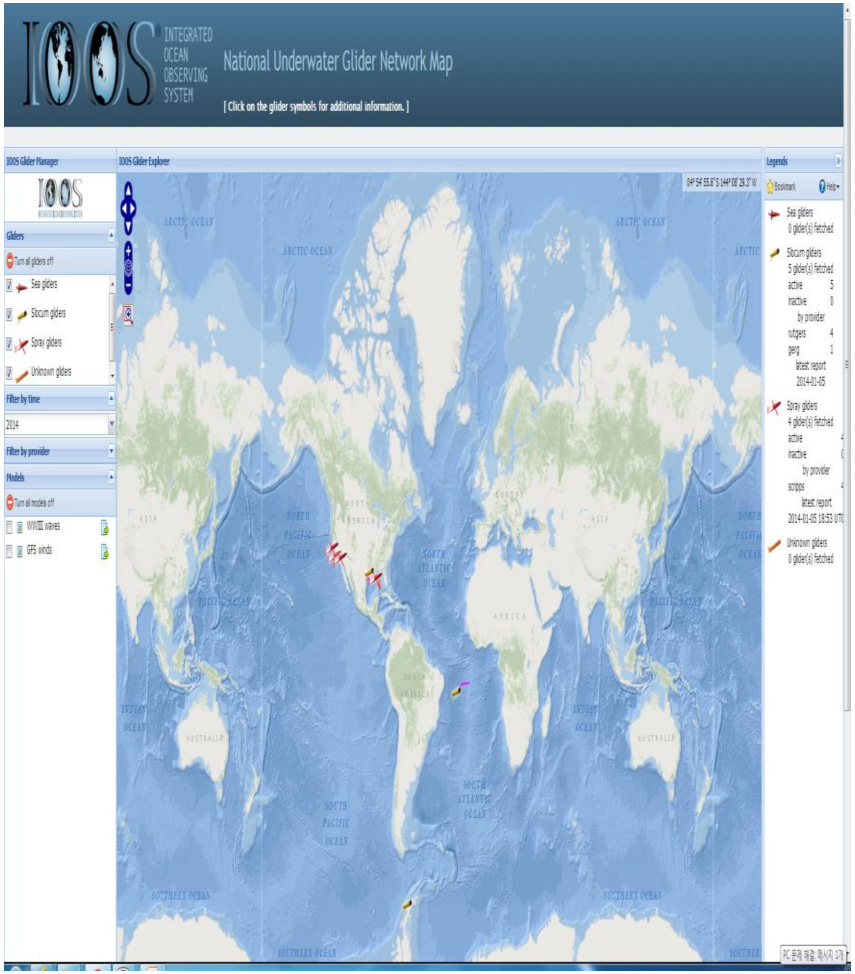
Distribution of the infrastructure 'gliderports' (yellow stars) to serve glider operations in the GOOS and in the European Regional Ocean Observing Systems: 1=GOOS; 2=Artic ROOS; 3=BOOS; 4=NOOS; 5=IBI-ROOS; 6=MOON; 7=Black Sea GOOS

In particular, the GROOM project will provide a roadmap for the installation of a sustained and distributed glider component as part of the Marine Observatories and marine observing systems in the European seas. As such, it will also contribute to the Global Ocean Observing system (GOOS).

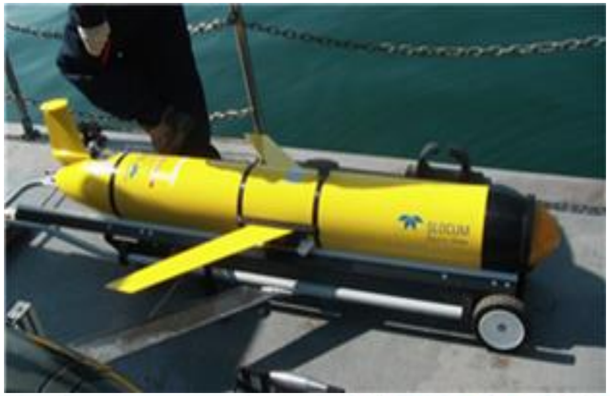
Gliders have the capacity to tackle pollution problems around coastal areas, or together with the oil and gas marine sector, can deliver accurate information to ensure the industry does not have a negative impact on the marine environment. All these aspects contribute to the aims of the EU's Marine Strategy Framework Directive. This means that efficient marine platforms and adequate infrastructure such as GROOM that service and deliver information are very much needed.

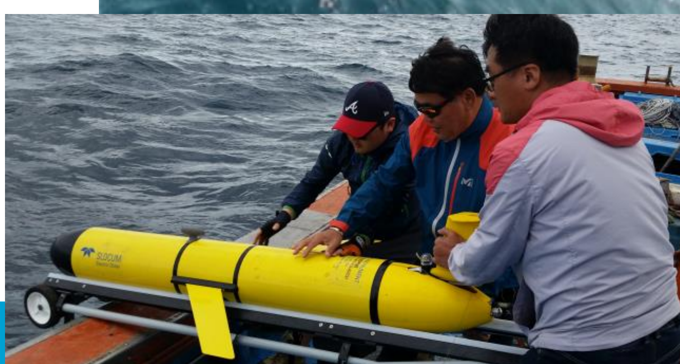
European Commission

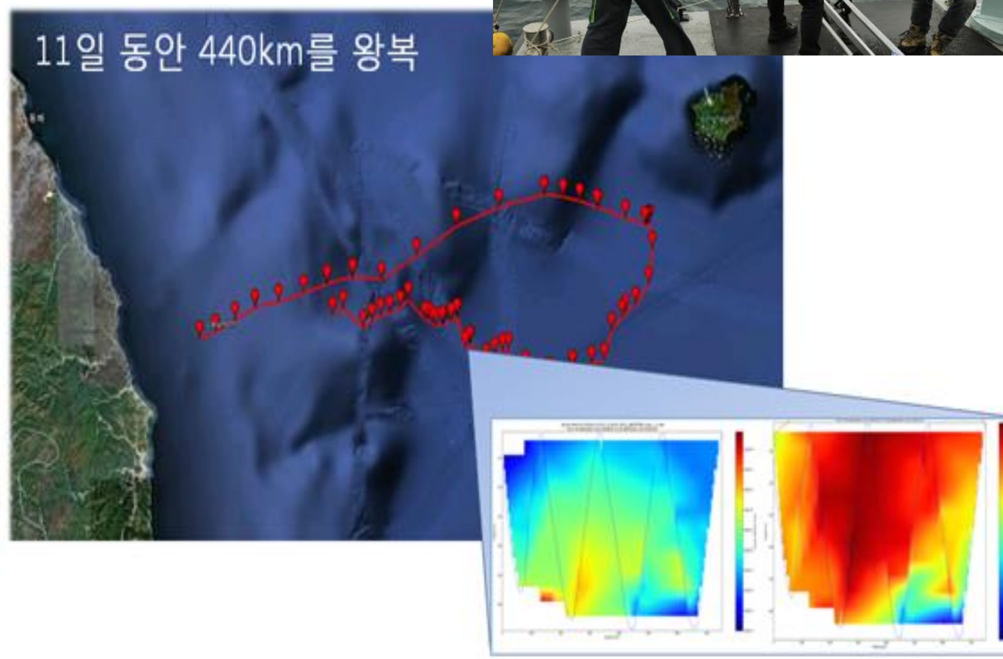
SEVENTH FRAMEWORK PROGRAMME



Underwater Glider Operation

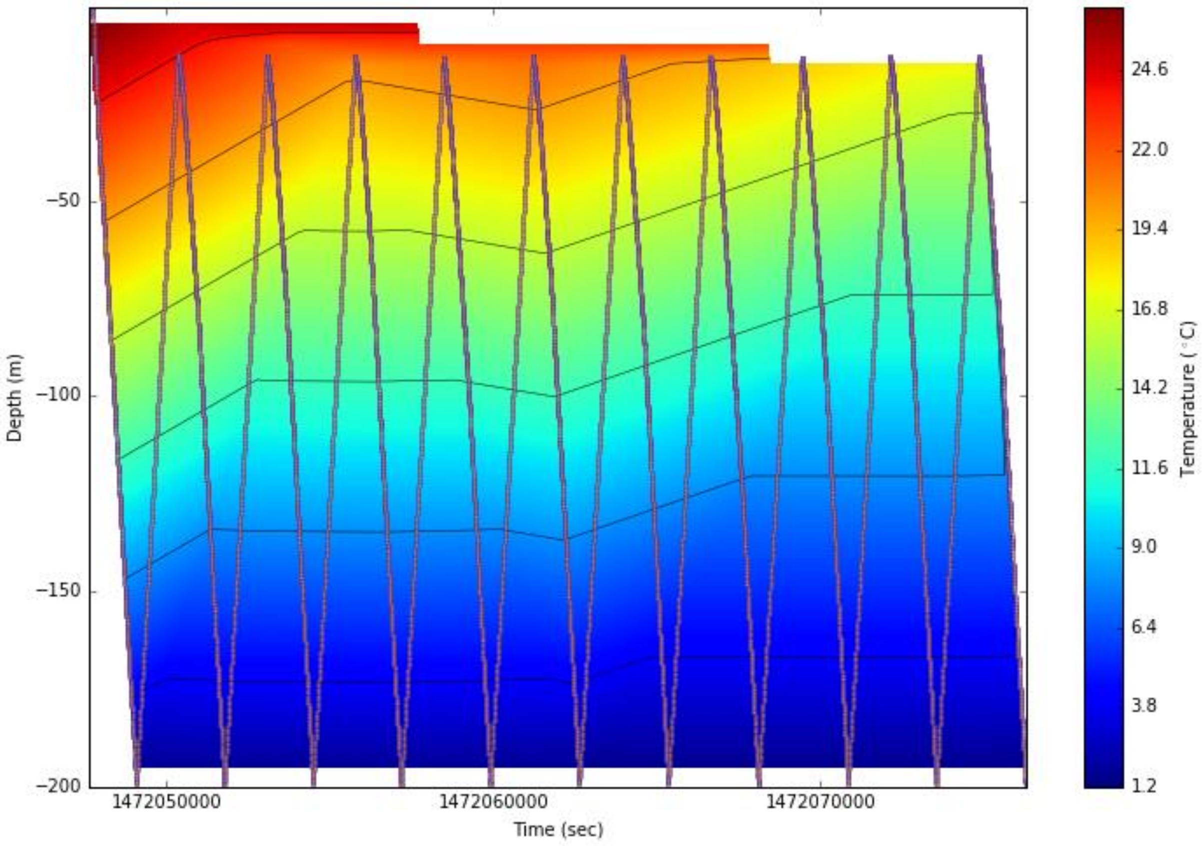




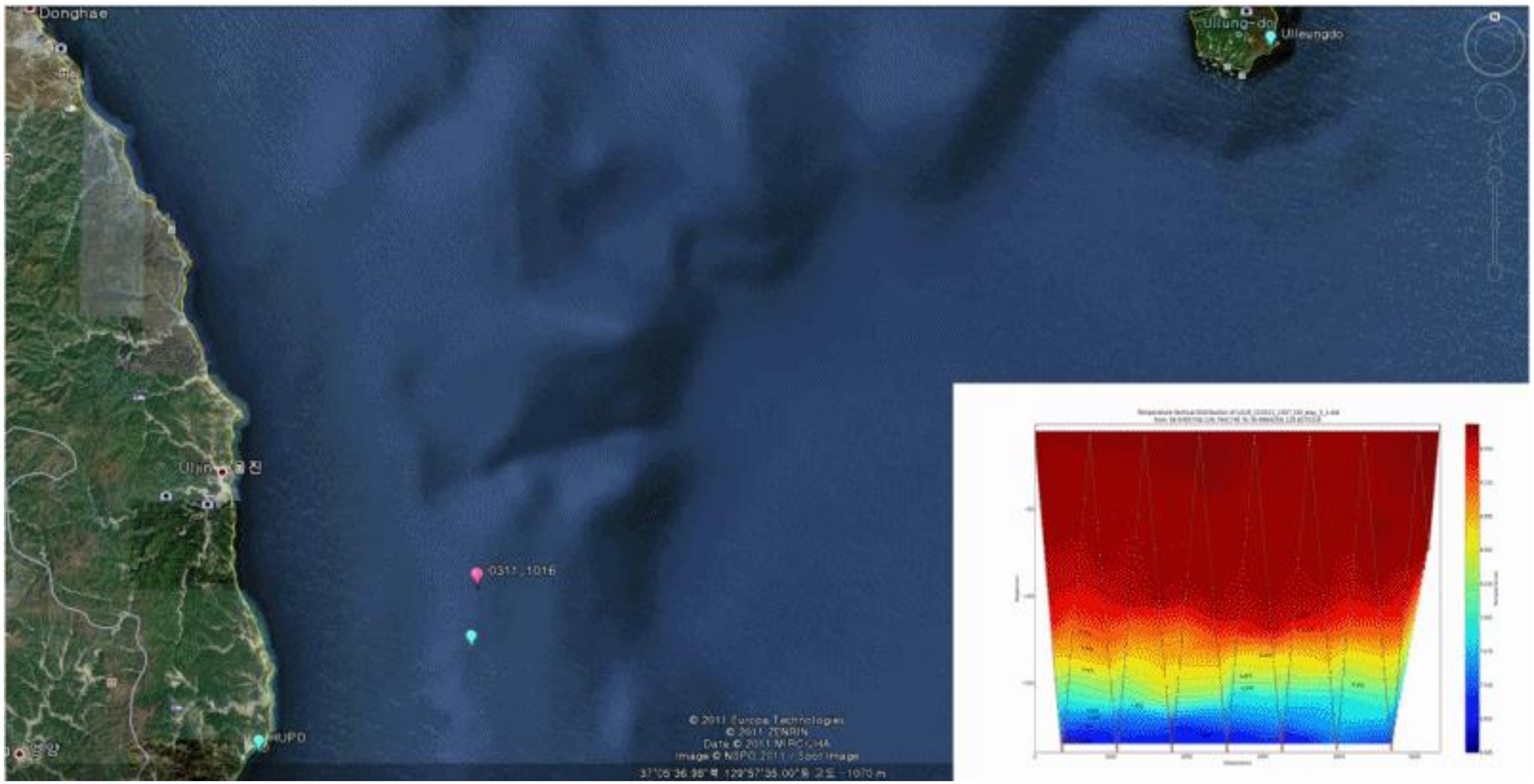


ANT Littoral 수중 글라이더 실해역 시험 항적도 및 획득 온도 데이터

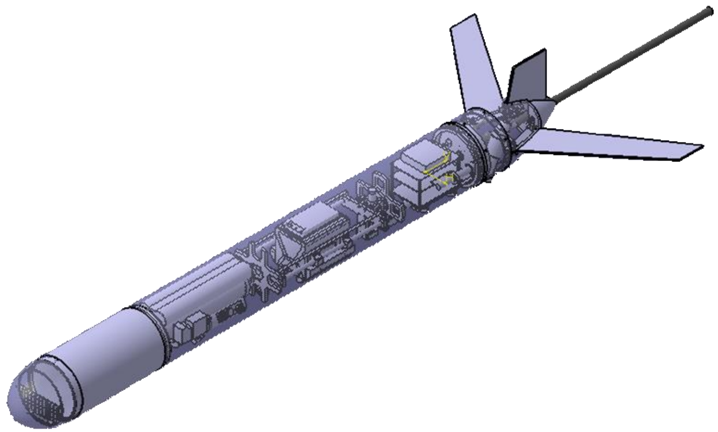
Higher Density, Higher Understanding

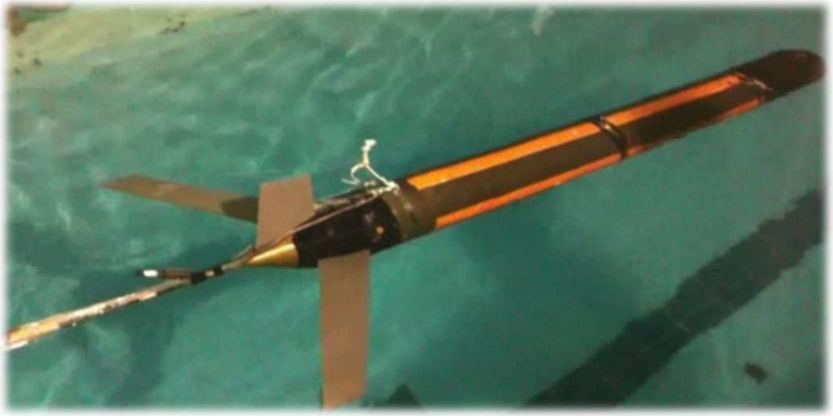


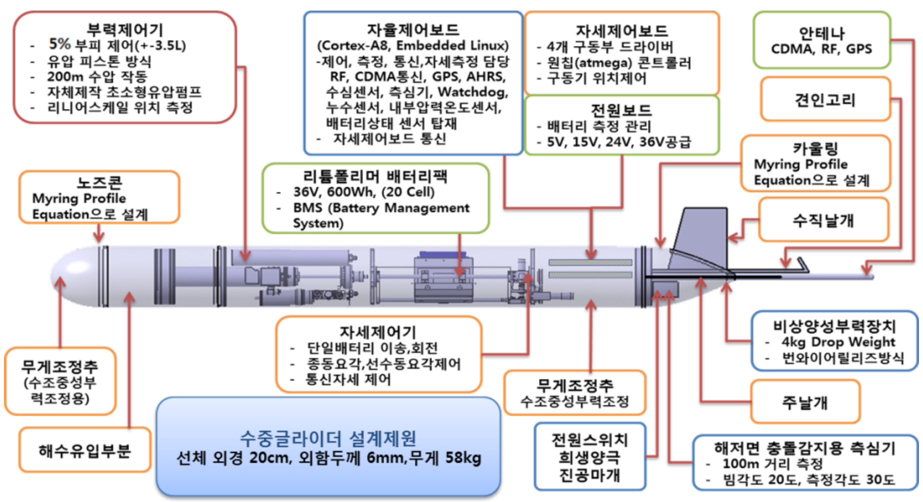
Underwater Glider in East Sea

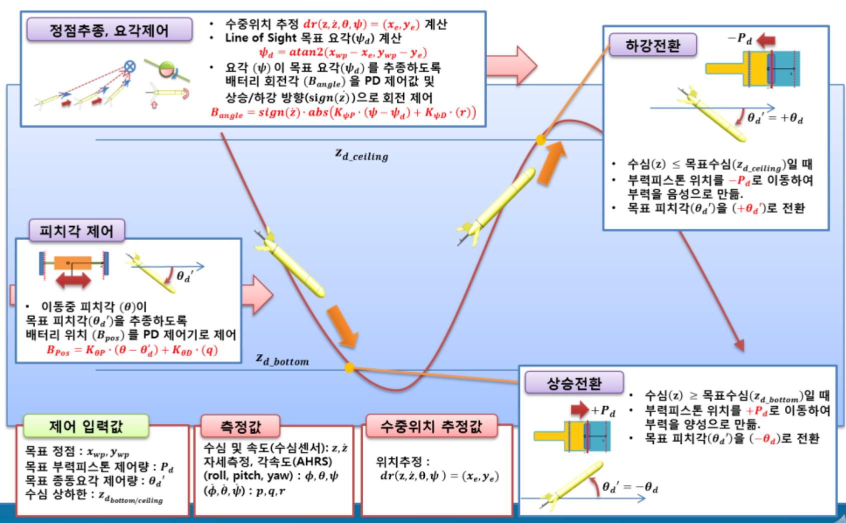


KIOST Underwater Glider

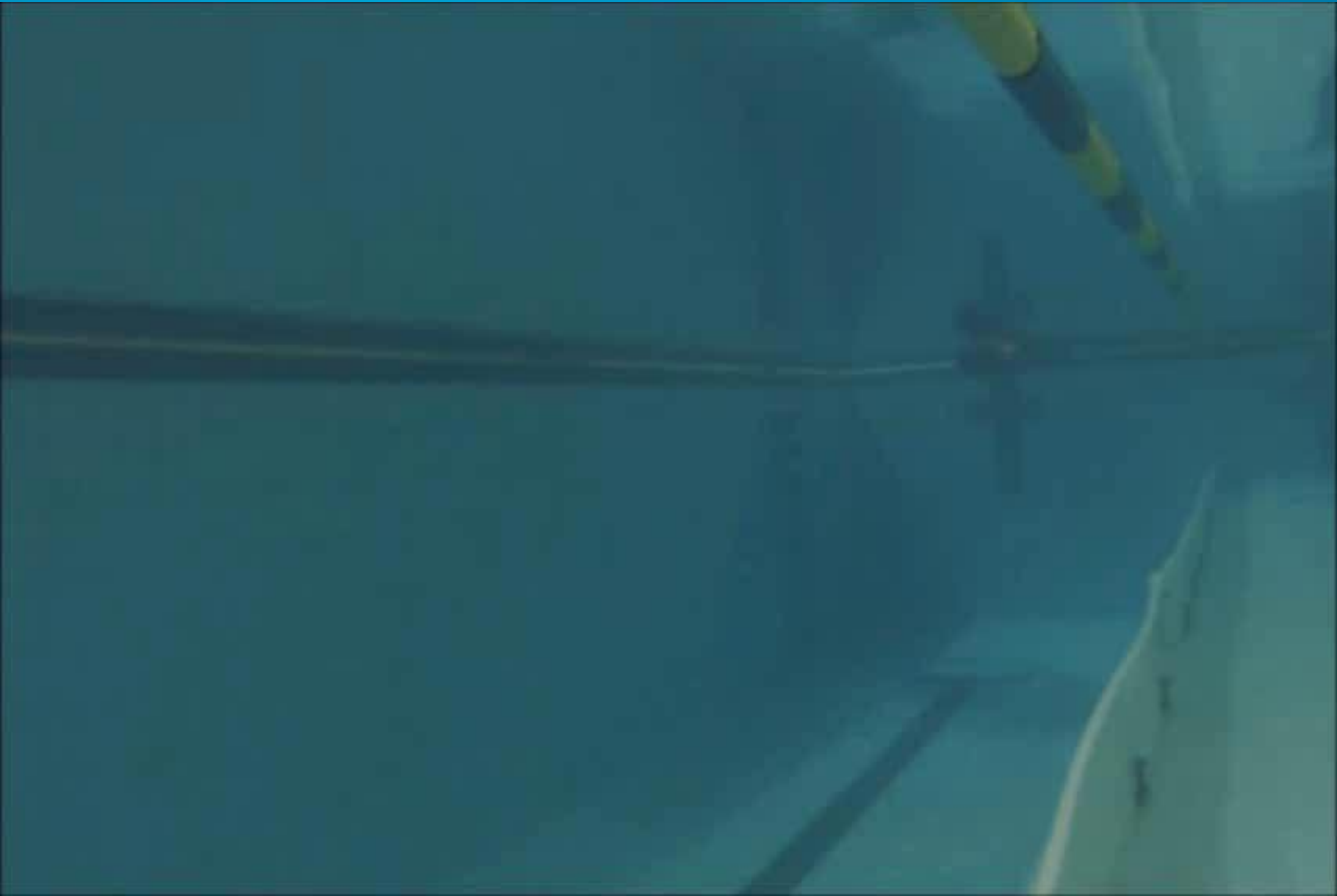




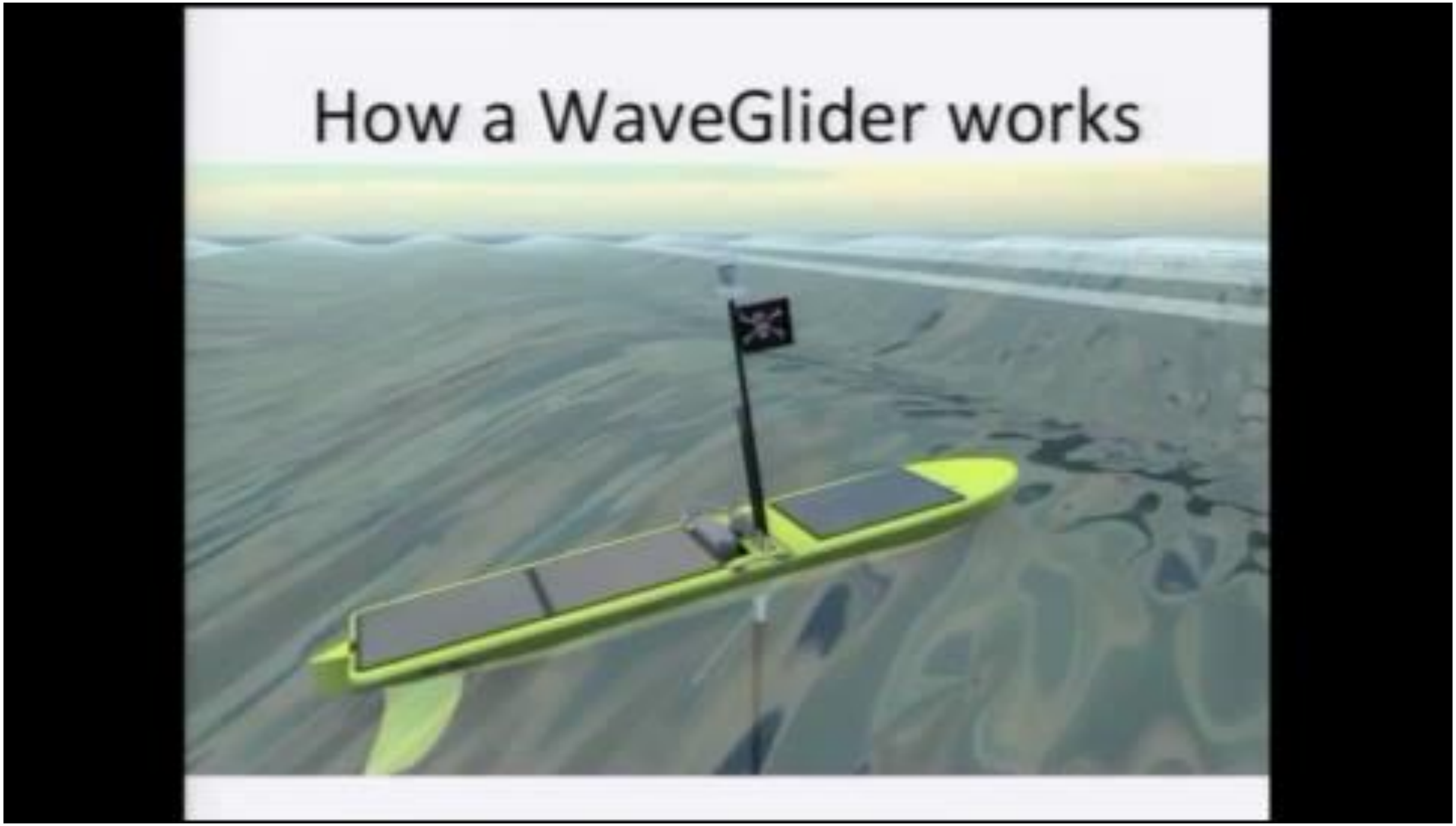




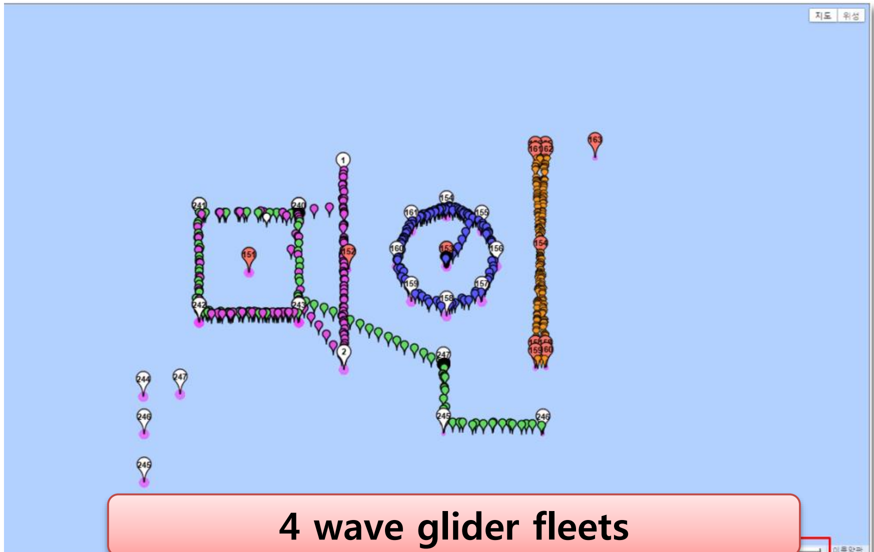
KIOST 수중 글라이더 수조시험

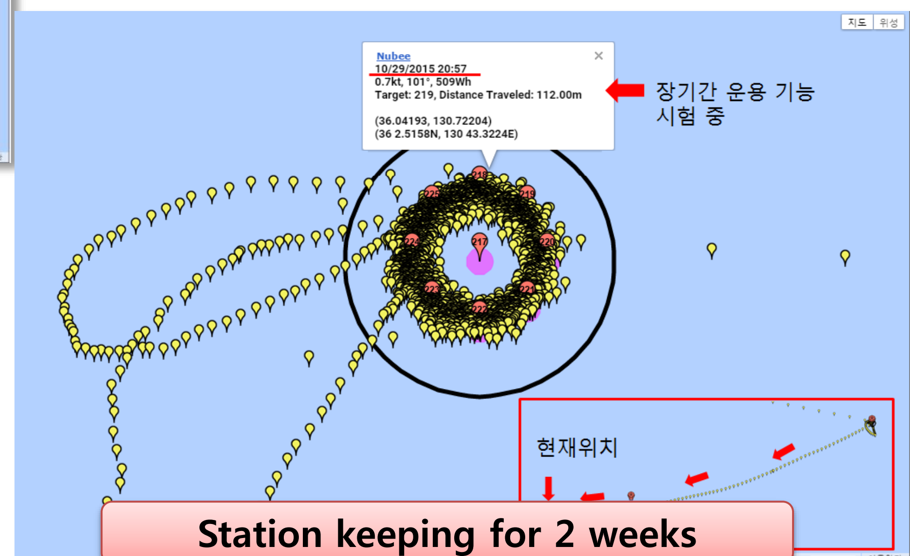


Wave Glider

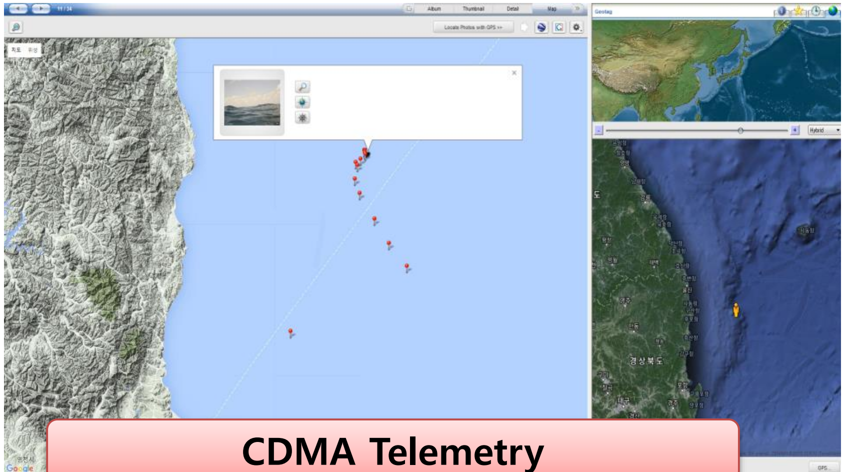


Wave Glider Operation

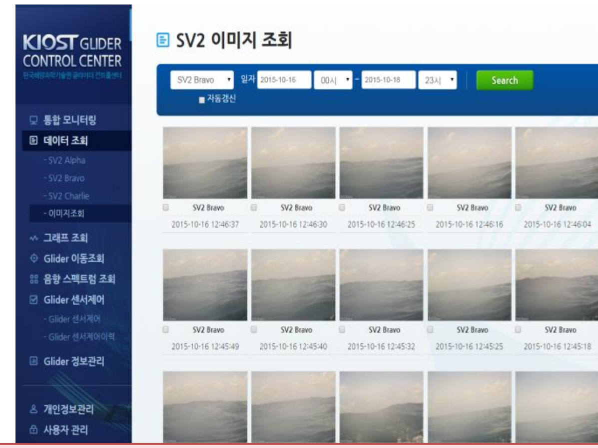




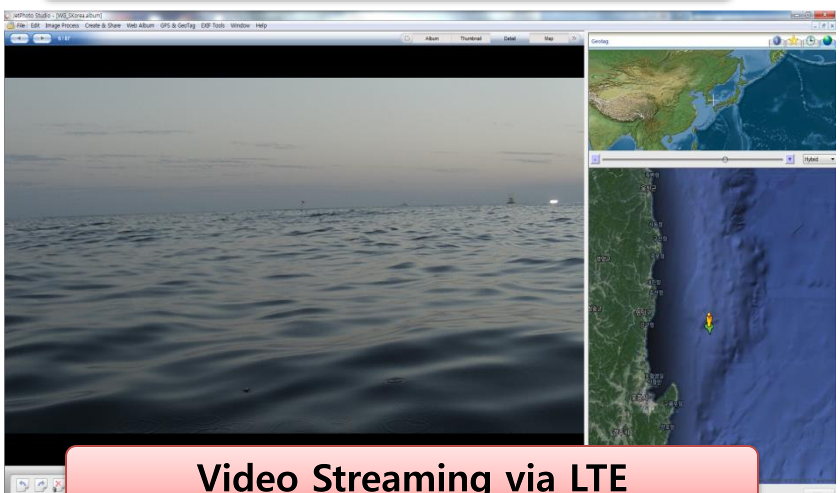
Video Monitoring with Wave Glider



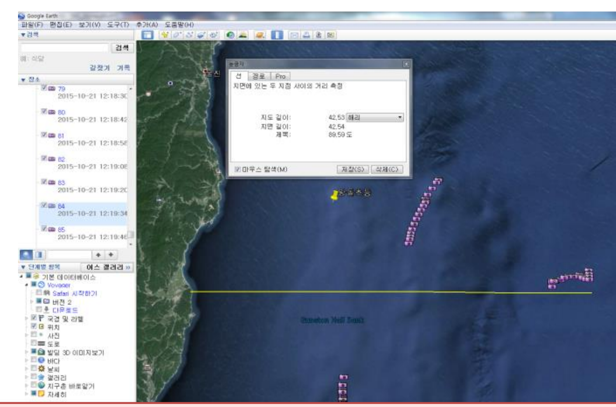
CDMA Telemetry



Real Time Monitoring

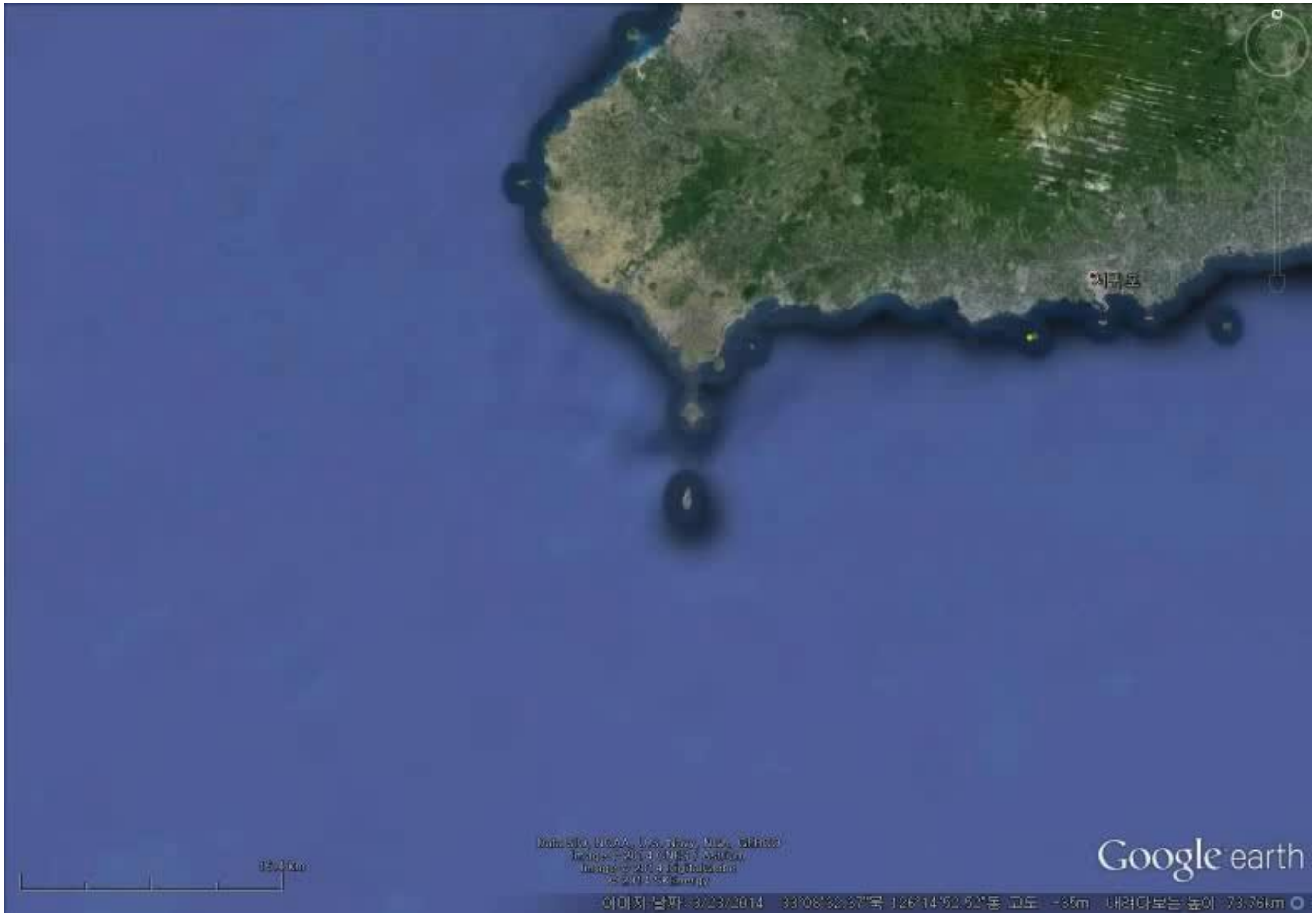


Video Streaming via LTE

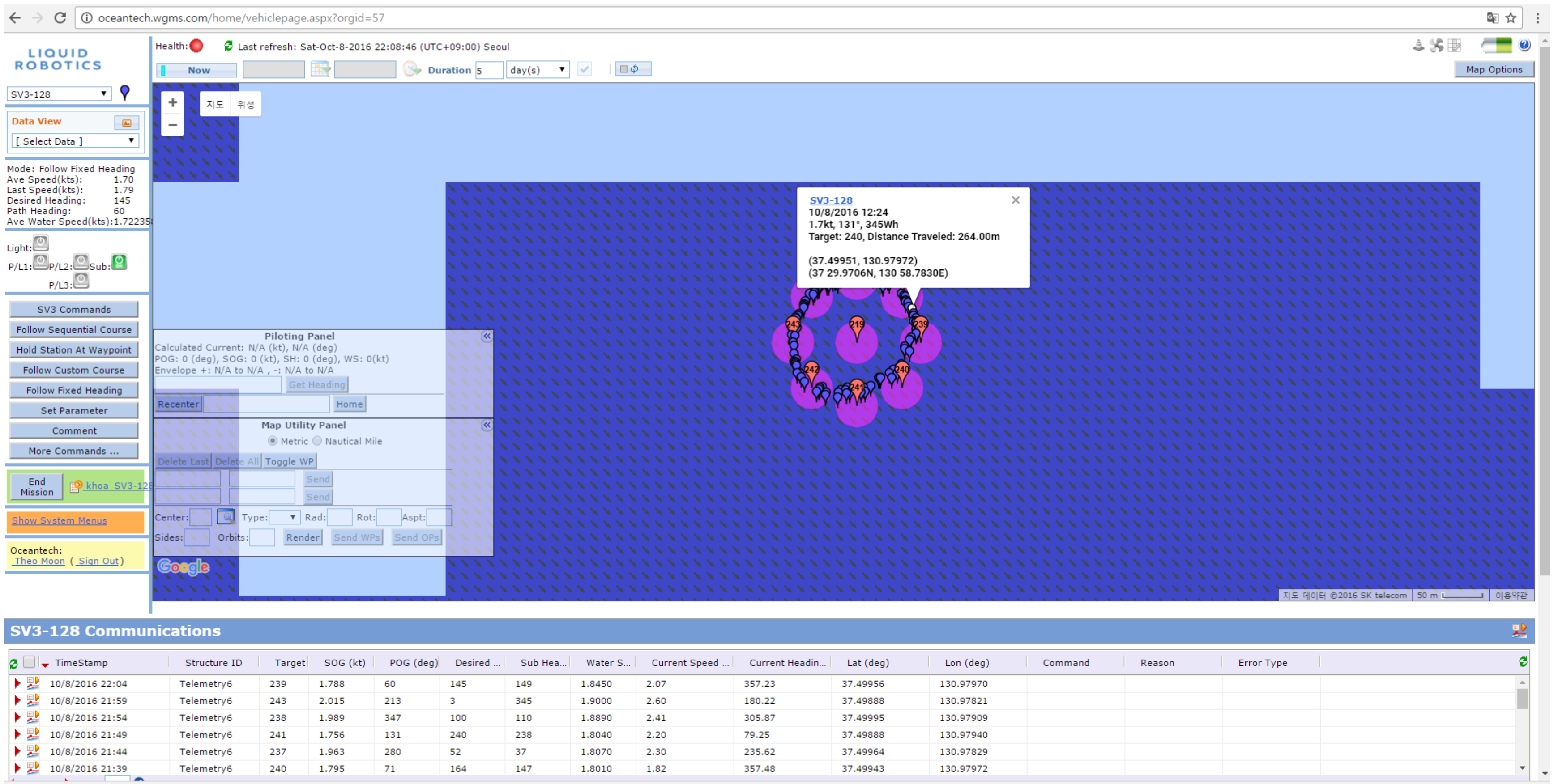


Worldwide Monitoring via Iridium

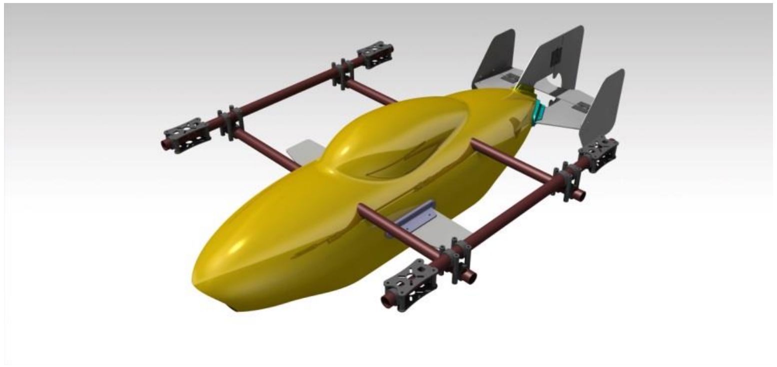
Wave Glider for Typhoon



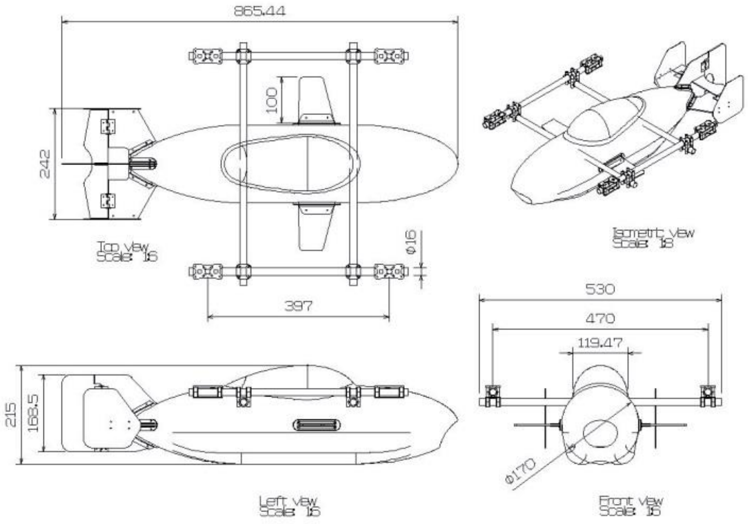
Wave Glider Monitoring DEMO



Amphibious Drone for Survey

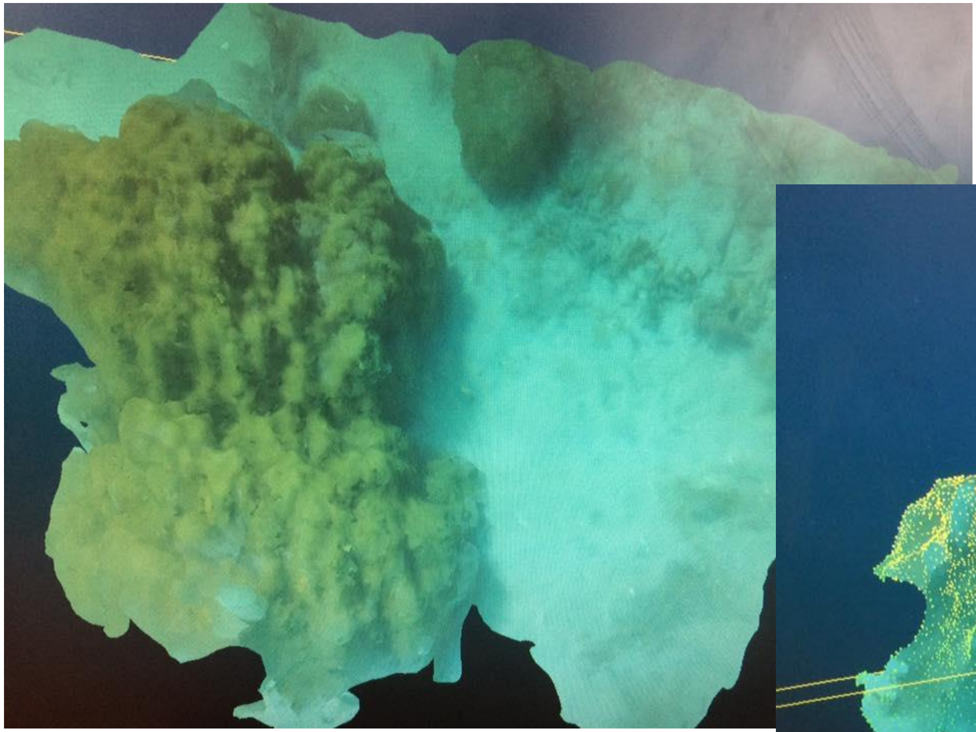


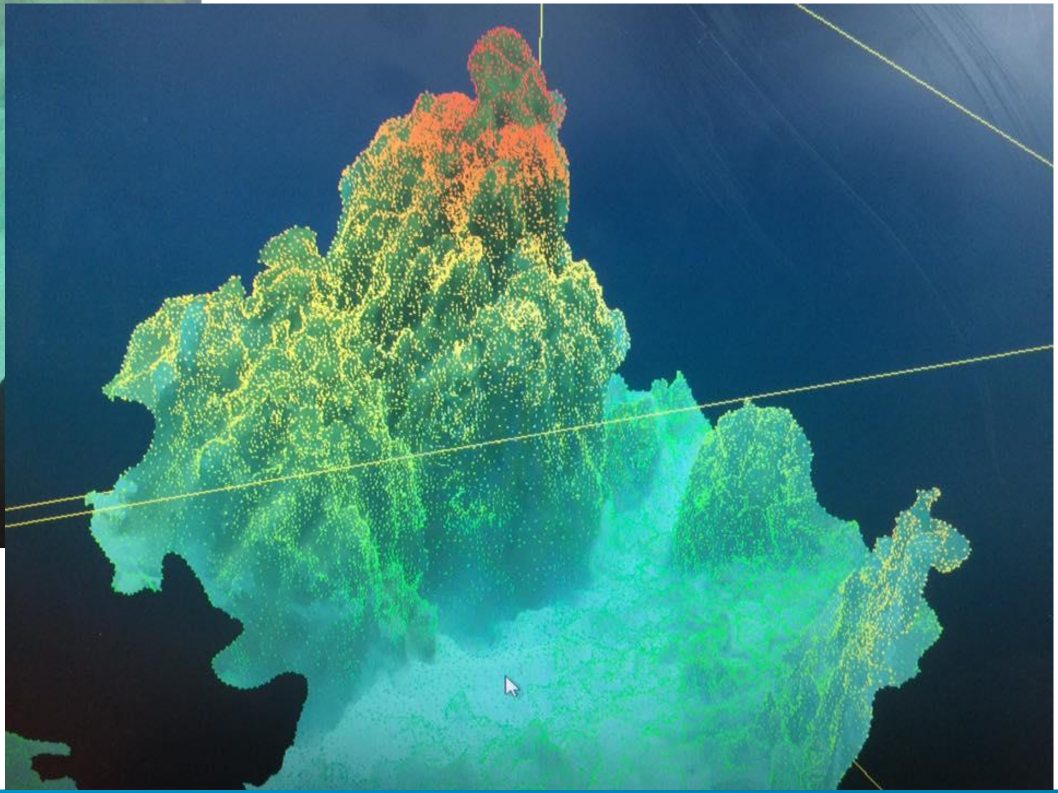
4 Mode Conversion
- Flight
- Surface Ship
- Underwater Glider
- Submarine



Amphibious Drone for Survey

Coral Reef Mapping by Amphibious Drone





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Drone Application

Thank You!