A vision for the integrated coastal ocean observing system in Korea

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suggestion

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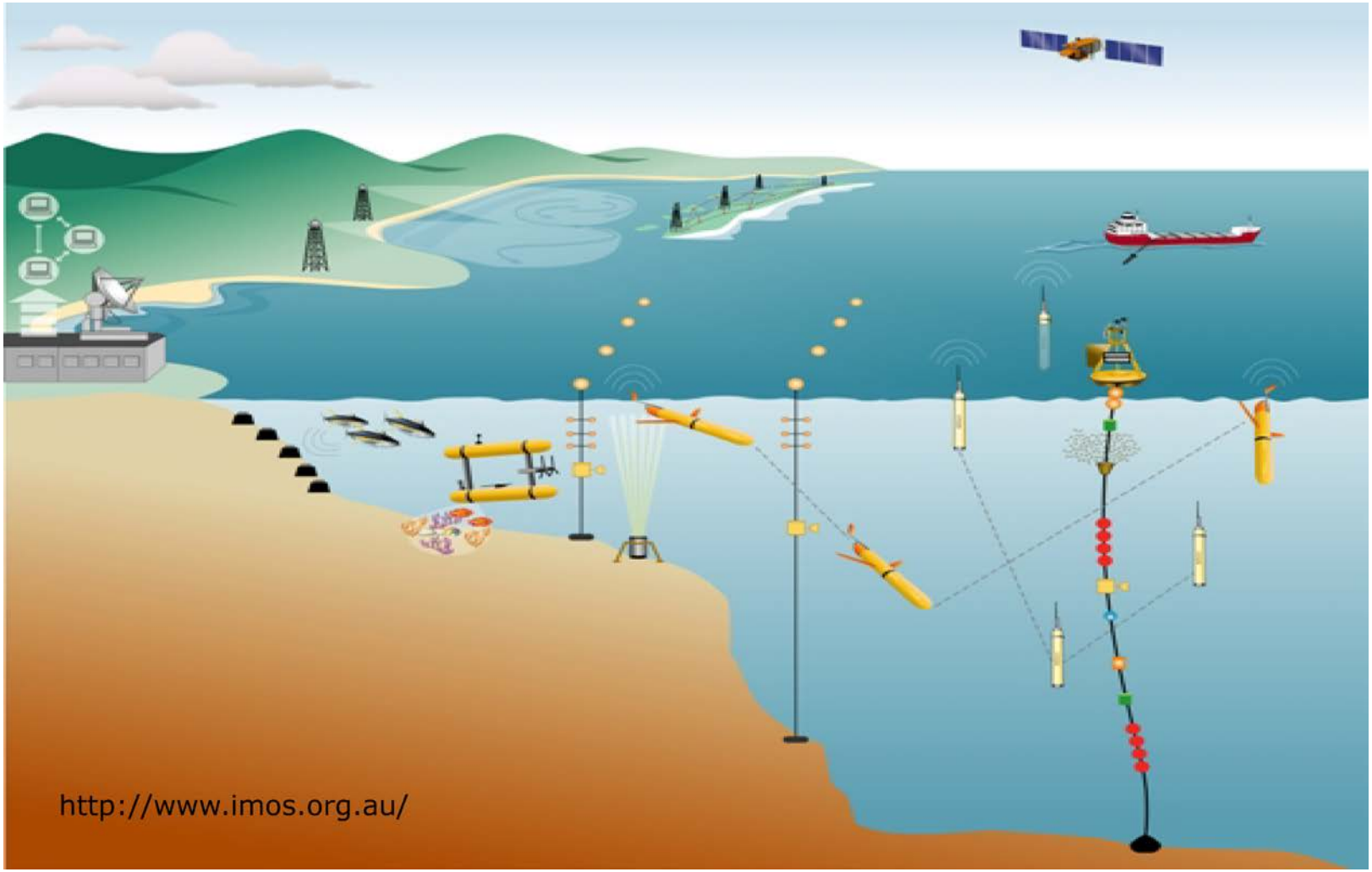
Outline

- Current status of coastal ocean observing systems in S. Korea
  - Goals and primary issues
  - Operational coastal observation assets in Korea
- Suggestions for integrated COOS
  - Future plans for coastal and science communities
- Summary

Coastal Ocean Observing System



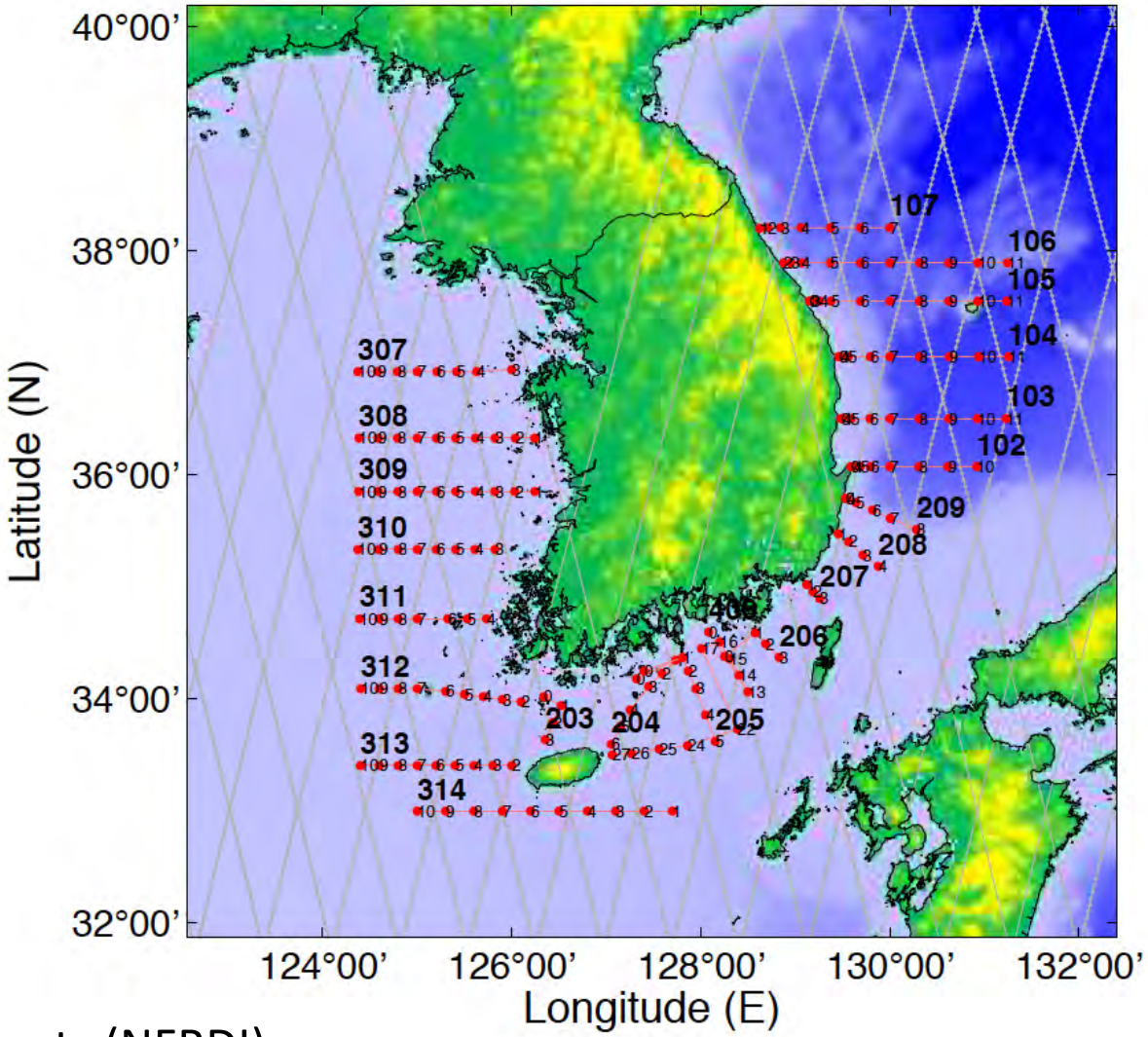
- Satellites; Buoys; Gliders; Floats; Tide gauges; high-freq. radars
- Integration of systems and collected data

Primary issues in Korean coastal regions

- Beach erosion, shoreline change, and trash in nearshore areas
- Red tides
- Freshwater due to coastal river plumes (e.g., dyke)
- Nowcast and forecast of local/regional weather
- Providing the status of ocean in bays, ports, and coastal regions to end users (ship/vessel and coastal/fishery communities) (e.g., circulation and sea water temperature)
- Tidal power station (e.g., Sihwa) and its influence on coastal environment

COOS – CTD and along-track SSHAs

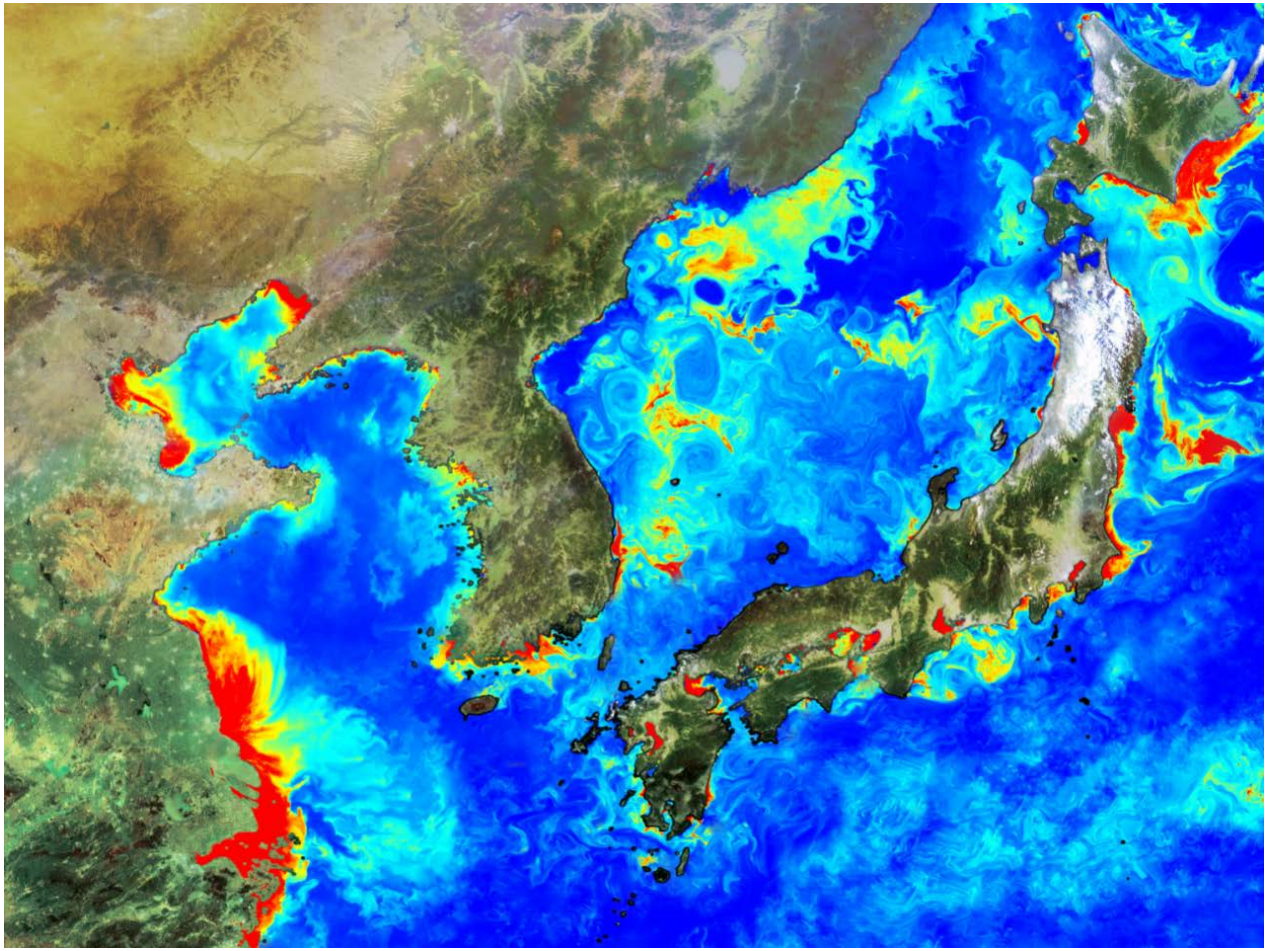
- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Coastal CTD observations



- Bi-monthly CTD casts (NFRDI)
- Along-track altimeter-derived sea surface height anomalies (e.g., AVISO)

COOS –Satellites

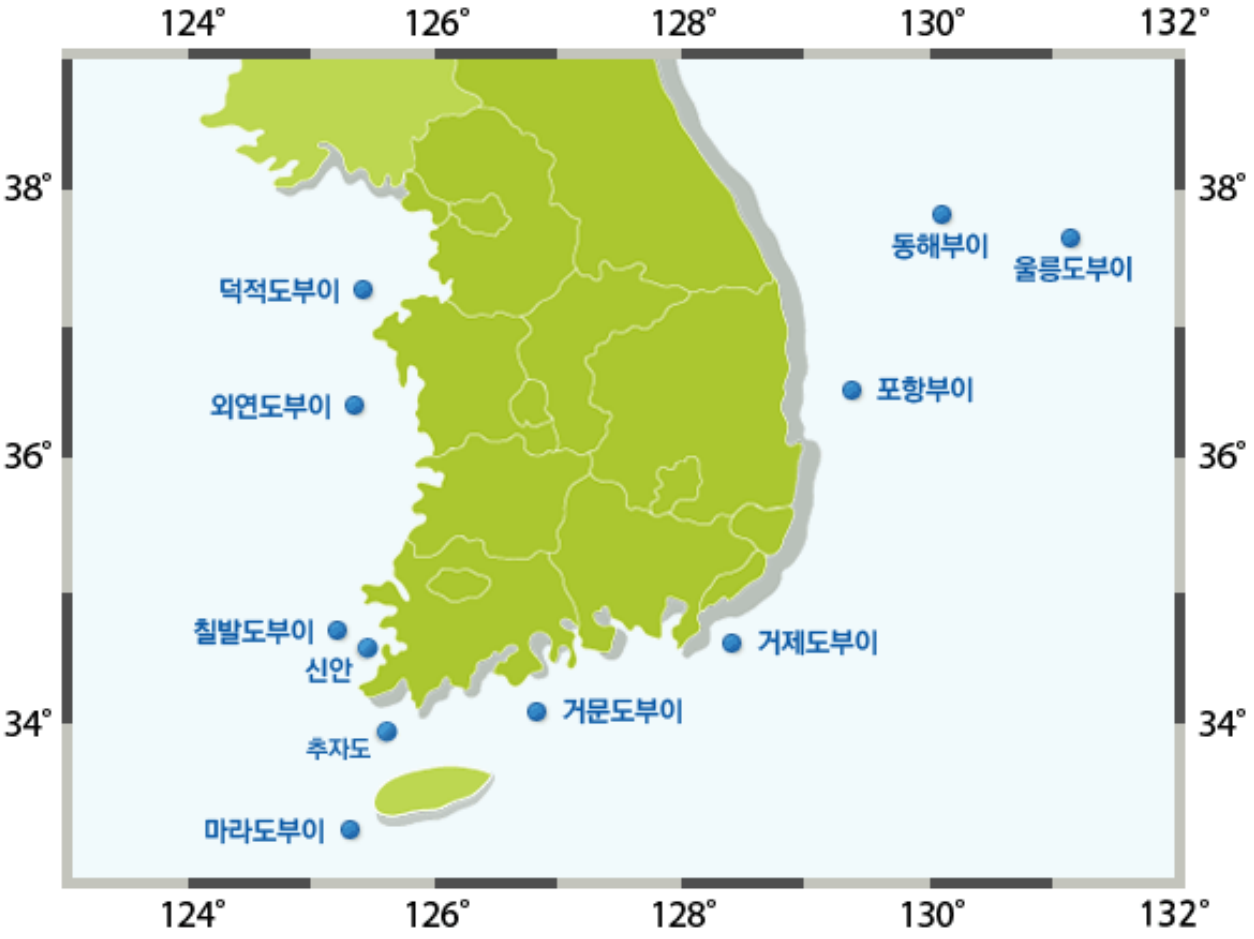
- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations



- GOCI (Geostationary Ocean Color Imagery)
  - 0.5 km and hourly resolutions during the day (8 snashopts/day)
  - CHL/TSS/CDOM L2 level products;
- AVISO geostrophic currents (0.25 deg. 7 daily); OSTIA SST (0.25 deg. daily)

COOS – Buoys (T/S/T-air/P)

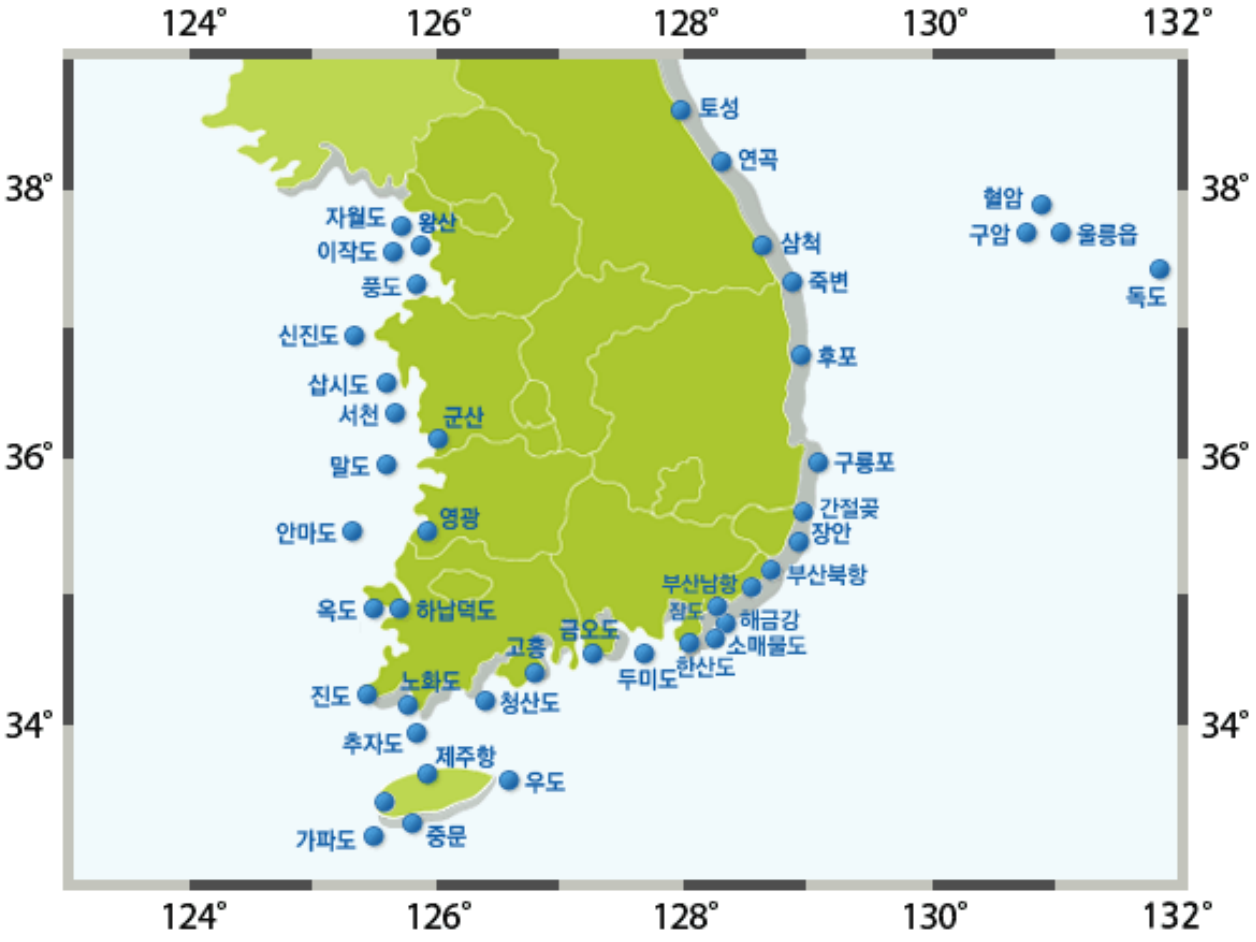
- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations



- Ocean T/S/T-air/P at every hour

COOS – Buoys (Waves)

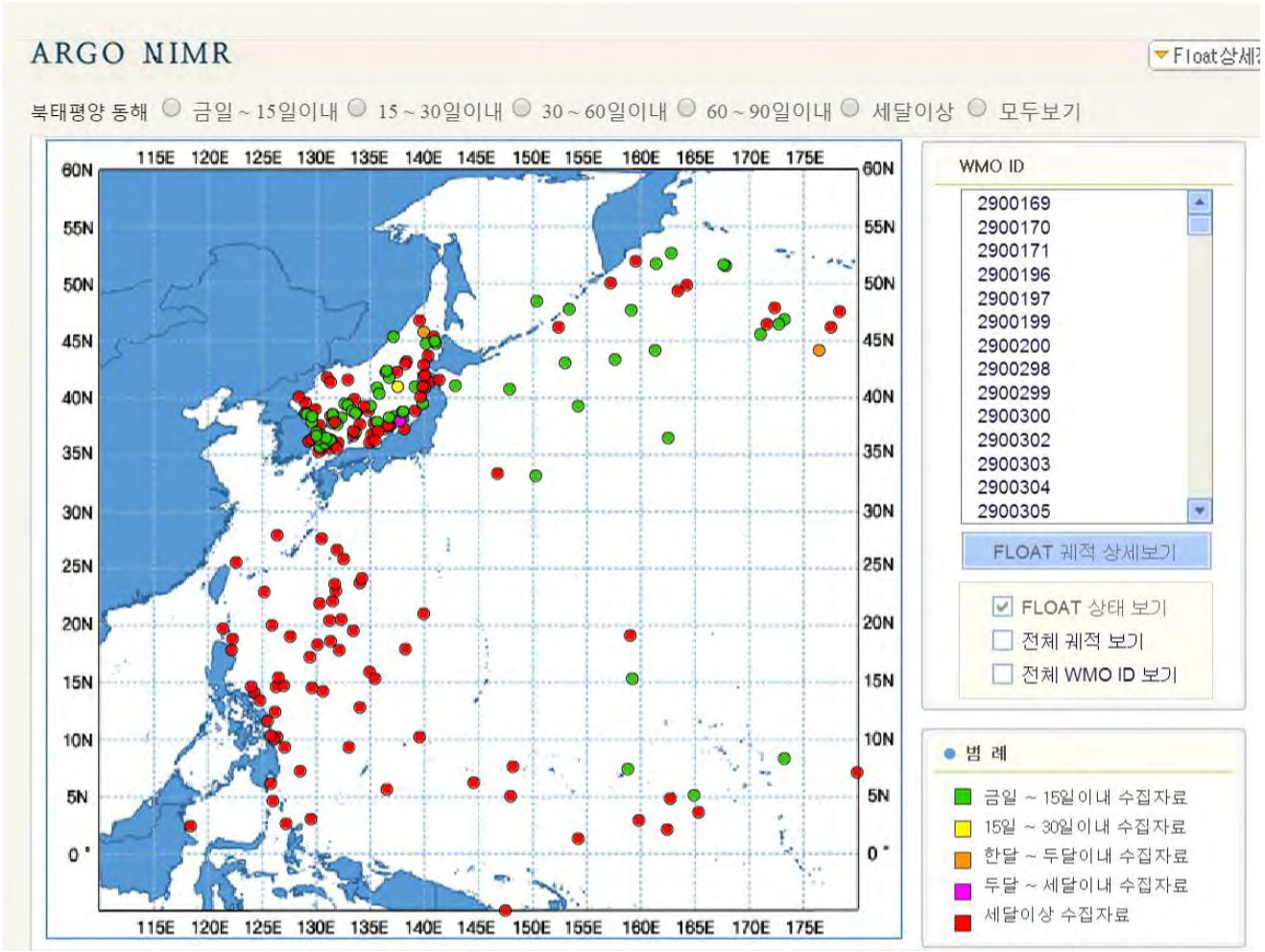
- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations



- Surface waves information of Tp/Hs/Hmax/Hmin at every hour

COOS – Argo Floats

- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations



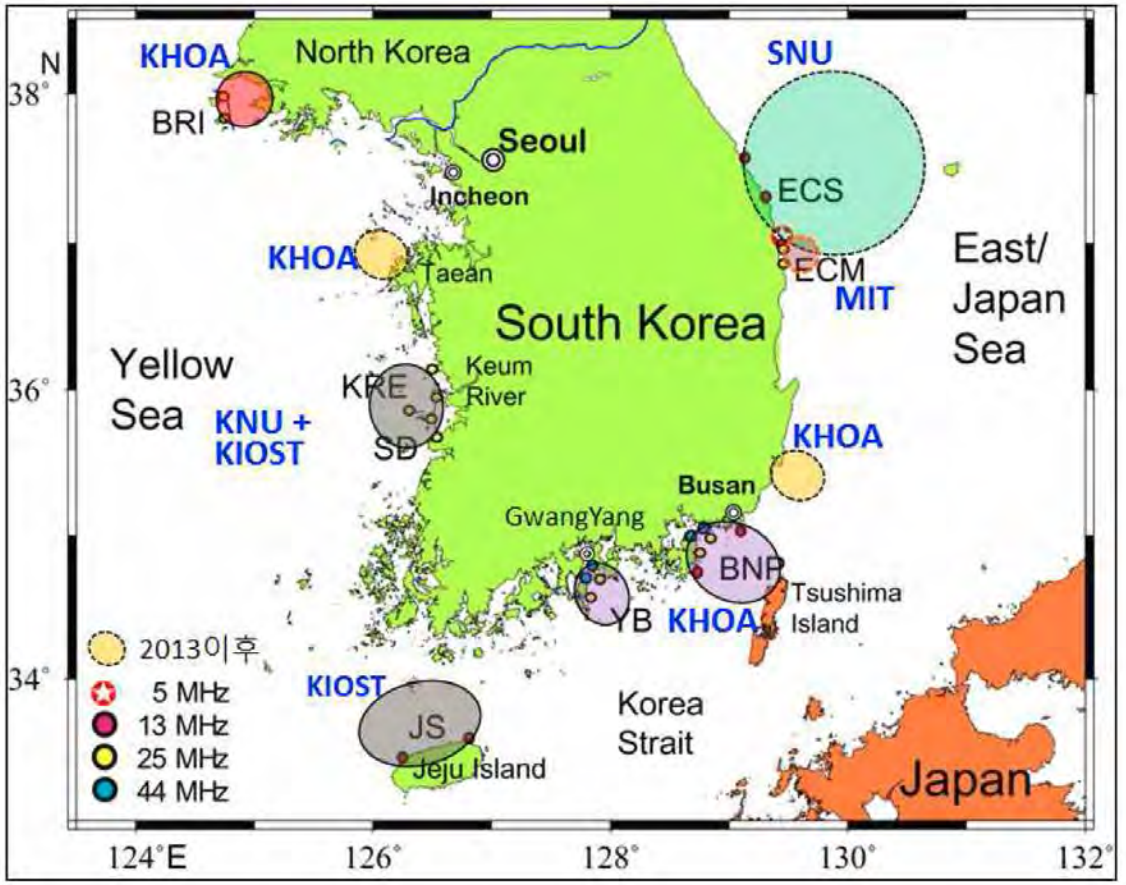
COOS – Tide gauges

- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations

- Sea elevations at 35 stations at every hour

COOS – HF Radars

- Satellites
- Buoys
- Gliders
- Argo-Floats
- Tide gauges
- High-frequency radars
- Other in-situ coastal observations



- Surface current maps in several hours and bays at every hour

Integration of systems and data within COOS

- Integration of COOS systems
  - Data portal and visualization (e.g., multi-layer tools)
  - Coordination between agencies/institutions on goals for observations
  - Minimize duplicate/similar observational efforts

- Integration of COOS data
  - Agreement on data sharing
  - Development of data-derived models and forecast models
  - 4-dimensional data/observations/model outputs (as a dynamical framework) and data analysis

Summary

- Operational coastal ocean observations in Korea include sea elevations, CTD, satellite-derive products (GOCI, SST, and SSHs), high-resolution surface currents, and surface waves.
- Integration of systems and collected data can be possible with common goals in scientific and coastal communities – data sharing, data-derived and forecast models, and 4D data analysis, etc….