Report on Korea Real-time Database

16th Session of IOC/WESTPAC Coordinating Committee for NEAR-GOOS

KHOA

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Status of
Korea Oceanographic Observation Network


- **KHOA’s 117 stations**
  - Tide station: 50
  - Ocean Station: 4
  - HF-Radar: 33 (13 local area)
  - Ocean Buoy: 29
  - Ocean Research Station: 1

- **Ocean phenomena such as Sea level, Wave, Currents, Water temperature & Meteorological items, etc.**

All the Data obtained to KHOA are serviced in a real-time
Tidal Stations for Sea level Monitoring

< Location of 50 Tidal stations >

- Observe sea level each important port

Shaft Encoder Tide Gauge
Laser Tide Gauge

Microwave Tide Gauge

AWS

Data Logger

Real-Time Transmission Equipment (CDMA)

Tem. + cond. sensor

Tide gauge (Ana. + Dig.)
Ocean Stations for Sea level, Wave Monitoring

< Location of 4 Ocean stations >

- Observe sea level & wave on a light beacon

Microwave Tide Gauge

Tough book
Ocean Buoys for Currents, Wave Monitoring

< Location of 29 Ocean buoys >

Satellite

Meteorological sensor

Ulleungdo (Northeastern) buoy

Underwater sensor
Currents / Wave / Temperature / Salinity
HF-Radar for Surface Currents

< Location of 33 HF-radars >

★ 13MHz : 7 sta.  
★ 25MHz : 17 sta.  
★ 42MHz : 9 sta.
Underwater rock located 149 km southwest of Marado is.

- Height: 77m (from bottom) 36m (from sea level)
- Weight: 3,400t

IEODO Ocean Research Station

< Location of IEODO research station >

- Equipment: 68 (36 types)
  - Atmos. obs.: 20 (13 types)
  - Ocean obs.: 30 (14 types)
  - Structure safety obs.: 10 (3 types)
  - Environment obs.: 8 (6 types)
IEODO Ocean Research Station

Real time CCTV
Real-time Ocean Data Processing
### Data Quality Control (1)

#### Primary Quality Control Overview (real-time automatic)

<table>
<thead>
<tr>
<th>Check Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Check</td>
<td>Compare observation time to current time</td>
</tr>
<tr>
<td>Location Check</td>
<td>Check the available range of observation equipment</td>
</tr>
<tr>
<td>Error Check</td>
<td>Check for the error code of equipment specified in</td>
</tr>
<tr>
<td>Global Range Check</td>
<td>Check for the global range limits observed score</td>
</tr>
<tr>
<td>Variation Check</td>
<td>Check for duration same value over specified time</td>
</tr>
<tr>
<td>Internal Consistency</td>
<td>Comparison with values of correlated item</td>
</tr>
<tr>
<td>Gradient Check</td>
<td>Check for spike value specified data variation</td>
</tr>
<tr>
<td>Regional Range Check</td>
<td>Check for limit scope of regional identity</td>
</tr>
<tr>
<td>Seasonal Range Check</td>
<td>Check for limit scope of seasonal or monthly characteristics</td>
</tr>
<tr>
<td>Statistic Check</td>
<td>Check for last year’s standard deviation in same month</td>
</tr>
<tr>
<td>Delay Check</td>
<td>Compare observation time to saved time</td>
</tr>
<tr>
<td>Power Check</td>
<td>Check for equipment power to error possibility</td>
</tr>
</tbody>
</table>
Secondary QC Overview (semi-automatic)

- Past data: Based on the past observation statistical values of the same observatory
- Close stations: Based on the neighboring observatories in same time
- External data: Based on the reliable external agencies statistical data in same area
- Statistics: Based on the statistical analysis using a variety of graphs like FFT, correlation chart, T-S Diagram and so on

Secondary QC flag & results saved
Real-time Ocean Data Monitoring System
Data Service : Korea RTDB for NEAR-GOOS
KHOA established RTDB in Dec. 2015. Currently, the ocean data from 14 tide stations, 4 Ocean stations, 2 Ocean Buoys, 1 Surface Current and 1 Ocean Research station are open to the public.
Service: Ocean Data in Grid framework
(http://www.khoa.go.kr/oceangrid)
KHOA has operated 117 Korea Oceanographic Observation Network (KOOK) 50 Tidal Stations, 4 Ocean(Wave) Stations, 29 Ocean Buoys, 33 HF-Radar(Surface Current/13area) and 1 Ocean Research Stations(Ieodo).

Korea RTDB(22 stations) provides the real-time and 72hrs ocean data of Korea, linked with NEAR-GOOS.
Thank you