

IHO S-100 Working Group

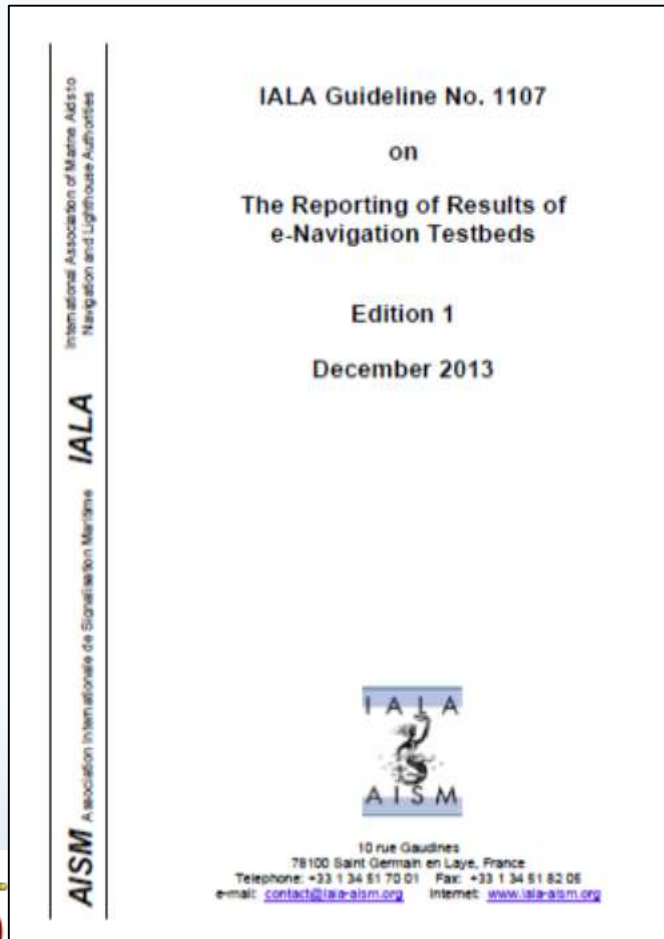
KHOA S-100 Testbed Project

Presented by KHOA (Sewoong OH)



Reporting template for S-100 Testbed project

- Use of the IALA Reporting Guidelines for S-100 Test Beds
 - S-100WG2 meeting in Genoa, Italy (2017)



1. General Information

2. Executive summary

3. Testbed
Information

The type of user group/s involved in the test
Details of e-navigation gap/s considered for the testbed
The category of e-navigation gap/s considered in the testbed
Details of e-navigation solution/s considered in the testbed
The category of e-nav solution/s considered in the testbed

4. Testbed
Methodology

Methodology used for data collection
Summary information on testbed respondents / participants
Procedure used in the testbed

5. Testbed results

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S-100WG-3, Singapore, 10 – 13 April 2018



General Information

• Overview

- Name of testbed: KHOA S-100 Testbed Project
- Location of testbed: Busan, ROK
- Time and duration of testbed: Ongoing till S-100 testbed project of the IHO is completed
- Contact person(s): Yong Baek, ybaek@korea.kr (Project Manager)
- Testbed website: N/A
- Organization(s) involved : KHOA (Korea Hydrographic and Oceanographic Agency)
- Funding program and budget: KHOA
- Last Edited/Updated: 23 March 2018



Executive summary

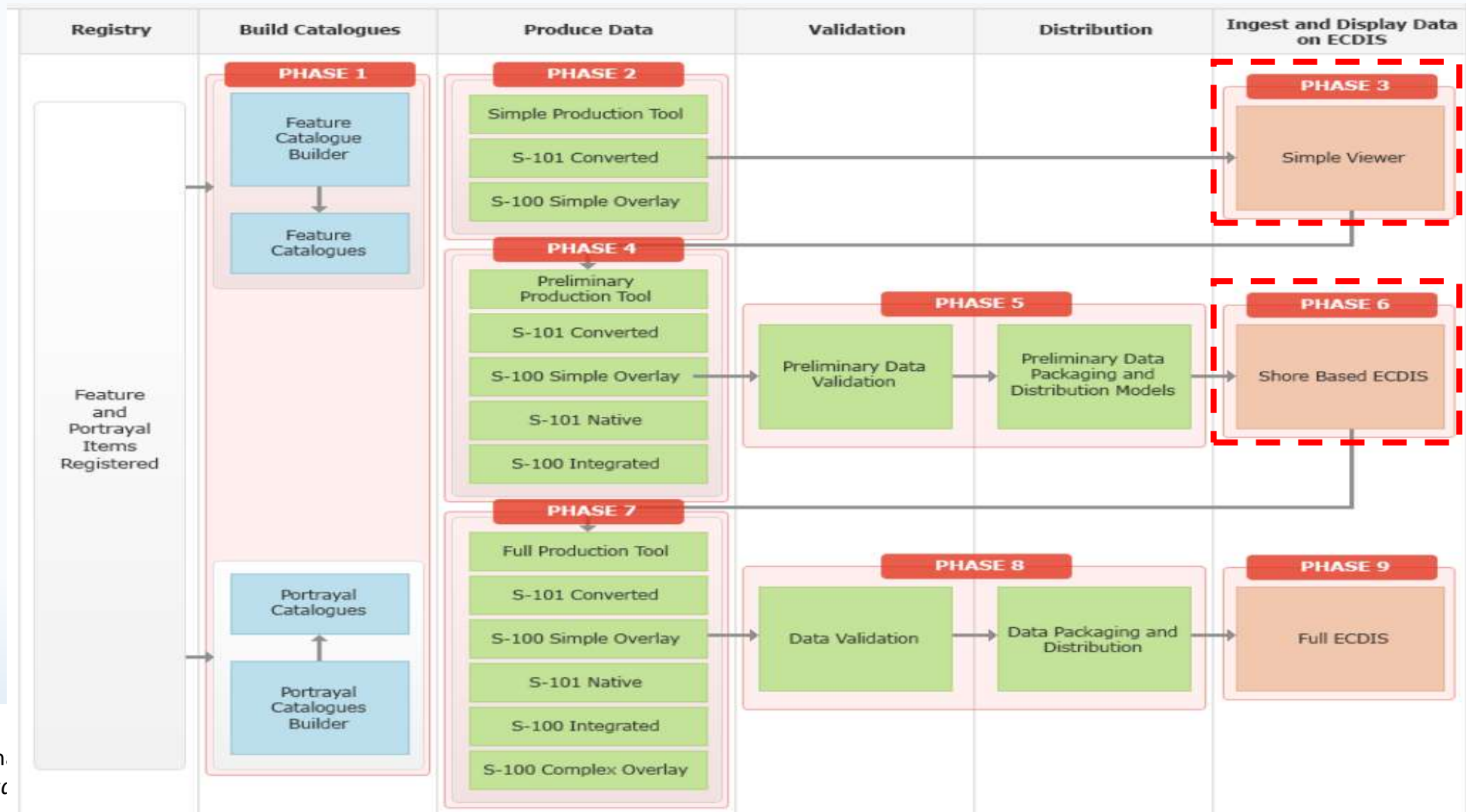
- Purpose

- aims to develop Phase 3 (Simple Viewer) and Phase 6 (shore based ECDIS) of S-100 test framework to support the S-100 Testbed project of the IHO
- Phase 1 : Feature catalogue / Portrayal catalogue
- Phase 2 : Simple production tool (S-57 to S-101 converter), Simple overlay
- **Phase 3 : Simple Viewer**
- Phase 4 : Preliminary product tool (Simple Editor), S-101 Native
- Phase 5 : Preliminary data packaging and distribution models
- **Phase 6 : Shore based ECDIS**



Executive summary

- S-100 Testbed overview



Testbed Information

- The type of user group(s) involved in the test
 - S-100 WG and TSM members, S-100 infrastructure developers and S-100 product specification developers are involved.
- Details of the S-100 testbed solutions
 - S-100 testbed allows testing of S-100 infrastructure including S-100 Registry, FCB and PCB and validation of S-100 TDS production/validation/packaging tools. Since data formats such as 8211, GML, BAG and HDF-5 are used in S-100, S-100 TDS using these formats can be tested.



Testbed Methodology

- Methodology used for data collection
 - Data applied to KHOA S-100 Testbed
 - Feature Catalogue: Produced Test Feature Catalogue using KHOA FCB
 - Portrayal Catalogue: Produced Test Portrayal Catalogue using KHOA PCB
 - TDS in 8211: Produced using NOAA/ESRI Converter or CARIS Composer
 - TDS in GML: Produced using our own editor and converter
 - TDS in BAG: Produced using our own converter which uses open source
 - TDS in HDF-5: Produced using our own converter which uses open source



Testbed Methodology

- Procedure used in the testbed
 - Technical solutions used
 - S-100 Portrayal process: Portrayal rule was applied and screen was presented (XSLT application method) about S-10X TDS according to S-100 Chapter 9.
 - S-10X TDS: Processing various data formats including 8211, GML, BAG and HDF-5
 - S-100 Exchange Catalogue: Loading and processing data according to information included in exchange set catalogue
 - S-100 Interoperability: Organizing screen presentation methods among S-100 product specifications from portrayal perspective
 - Plug & Play Concept: Changes to data model of S-100 product specifications are applied to Feature/Portrayal Catalogue. Data processing and screen presentation are applied according to Catalogues information.



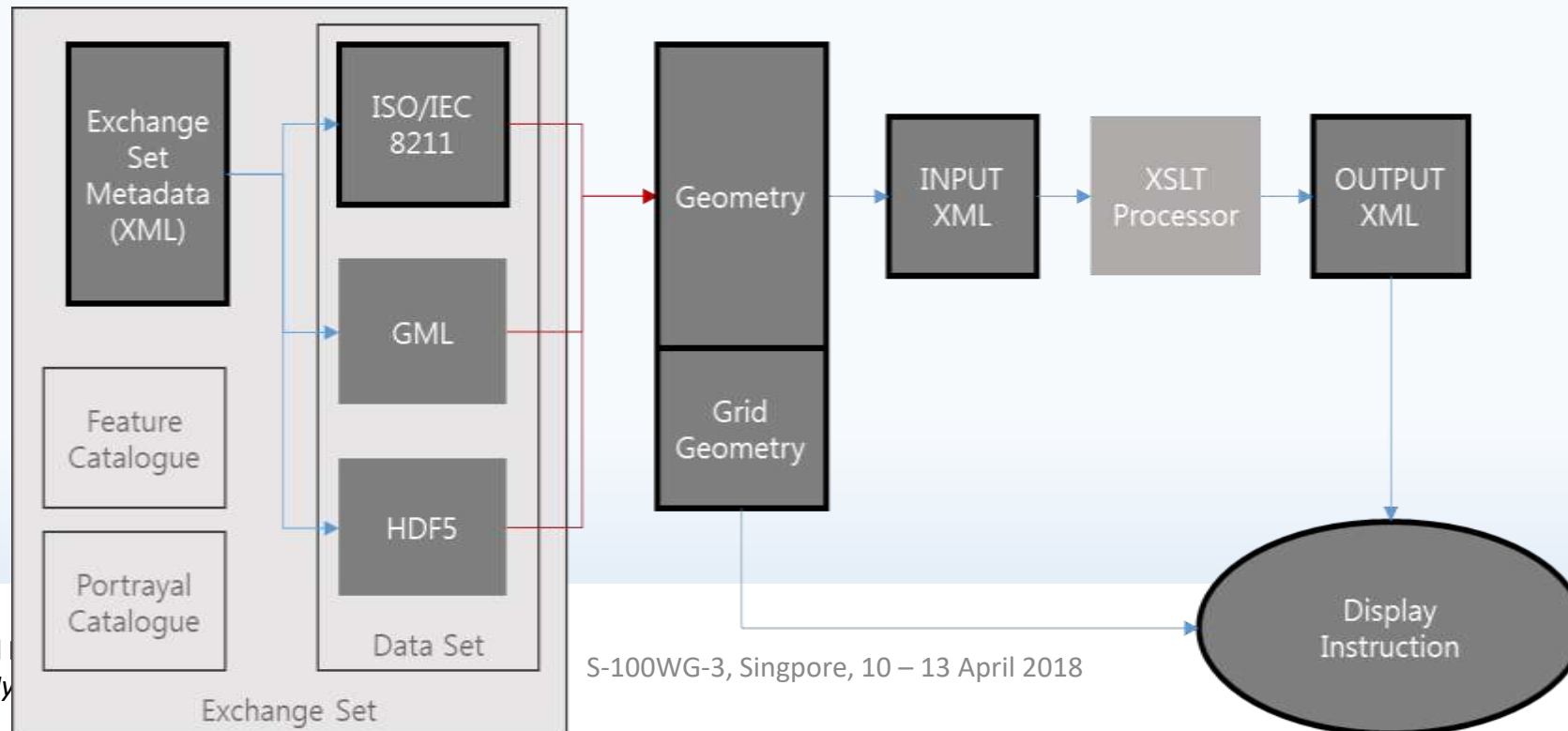
Testbed Methodology

- Procedure used in the testbed
 - Standards
 - S-100 Universal Hydrographic Data Model, Ver. 3.0
 - S-101 ENC Electronic Navigational Chart (ENC)
 - S-102 Bathymetric Surface
 - S-104 Water Level Information for Surface Navigation
 - S-111 Surface Currents
 - S-122 Marine Protected Areas
 - S-124 Navigational Warnings
 - S-412 Weather Overlay
 - S-100 Interoperability Design Specification



Testbed Results

- Processing various data formats of S-100
 - 8211 (vector): S-101 ENC
 - GML (vector): S-122 MPA, S-124 NW, S-412 Weather
 - BAG (grid): S-102 Bathy
 - HDF-5 (grid): S-104 Water level, S-111 Surface current

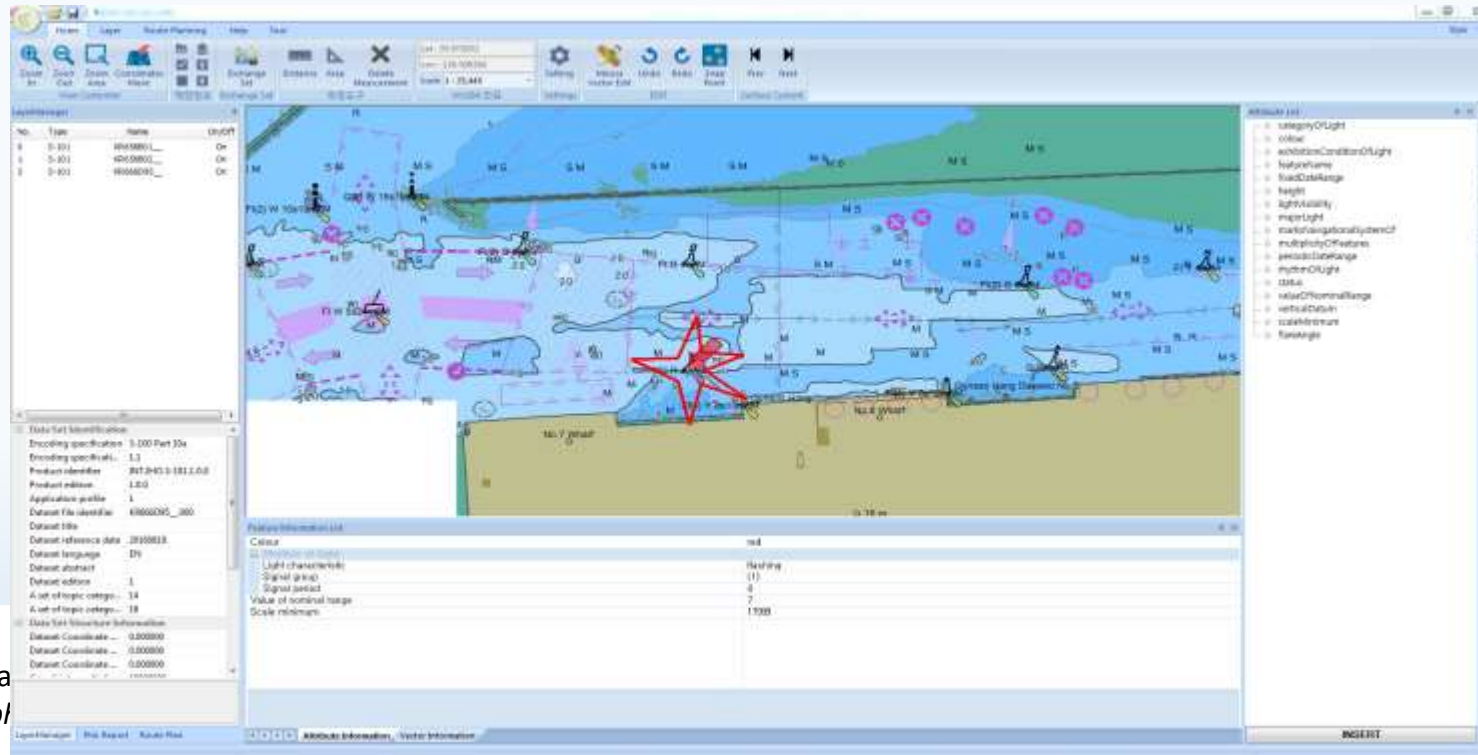


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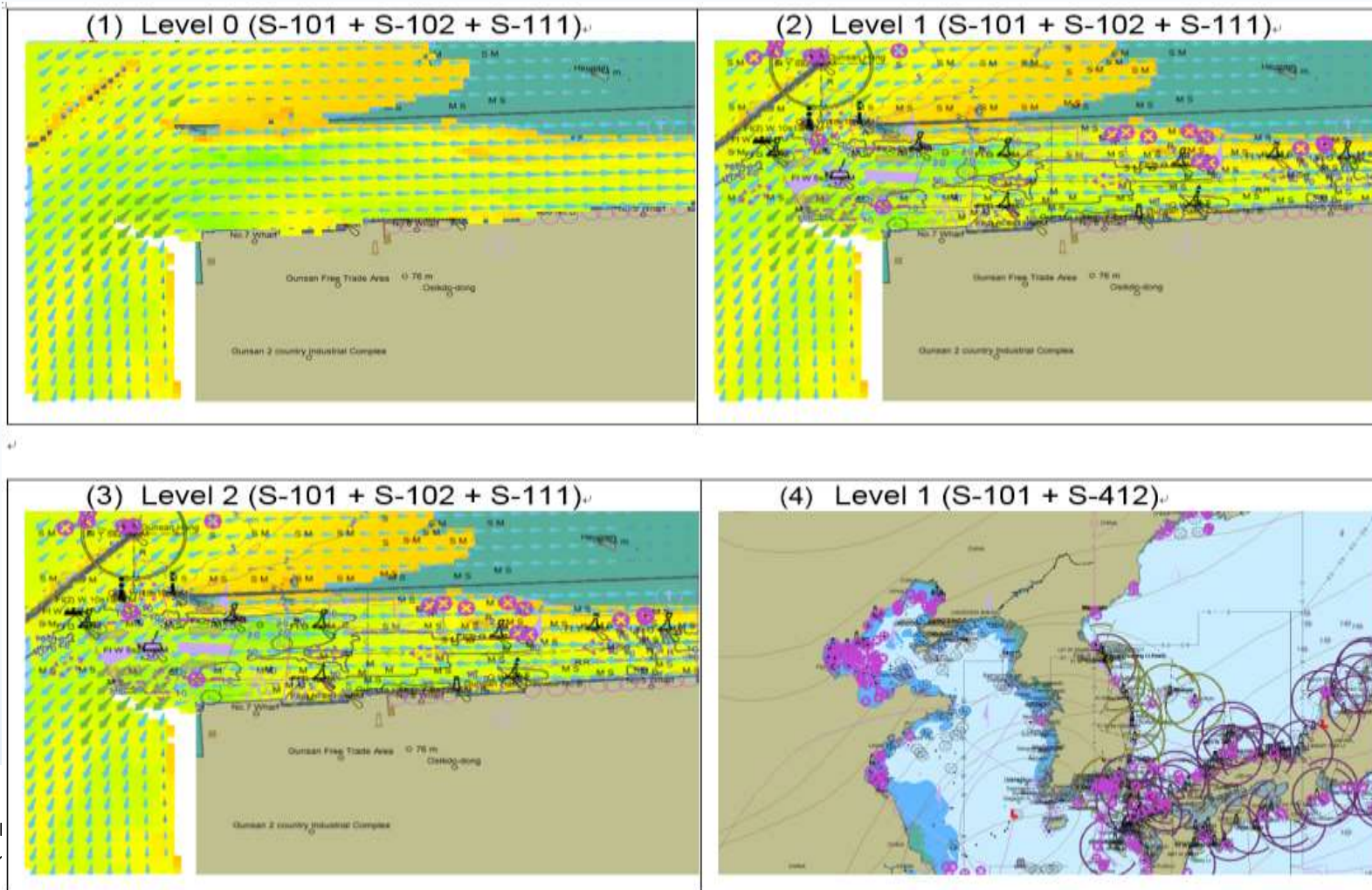
Testbed Results

- Development of S-100 Exchange set processing function
 - functions and procedure for the project
 - Process S-100 Exchange Catalogue files and load several data sets included in package at once
 - Identify Feature and Portrayal Catalogue included in exchange set before processing data set and process it using the Catalogues



Testbed Results

- Test application of S-100 Interoperability Catalogue
 - Interoperability functions with Level 0, 1 and 2



Conclusions and Recommendations

- Conclusions
 - KHOA has been carrying out the S-100 Testbed project to support the development of S-100 and its infrastructure of the IHO. The project aims to develop Phase 3 S-100 Viewer and Phase 6 shore based ECDIS.
 - After the S-100WG2 in Genoa we applied functions to process various S-100 data sets, S-100 exchange set and apply Interoperability Catalogue. As for Interoperability, we applied prototypes of Levels 1 and 2 and plan to proceed with more development according to the outcome of discussion.



Conclusions and Recommendations

- Recommendations
 - Define the structure of folders in S-100 exchange set
 - Develop an item to distinguish between Feature Catalogue and Portrayal Catalogue in S-100_CatalogueMetadata of S-100 Exchange Catalogue
 - S-100 Viewer allows processing of Feature Catalogue and Portrayal Catalogue for various product specifications. Identification numbers need to be assigned to distinguish Catalogues per product specification.

