



STATUS AND NEEDS FOR A SUCCESSFUL REALISATION OF S-200

Presentation for e-navigation Underway 2018

Dr Nick Ward

Introduction



Common Maritime Data Structure

International agreement on need for a Common Maritime Data Structure to support e-navigation.

IHO Geo-spatial Information Standard S-100 to be used as the baseline for the CMDS.

IALA S-200 Registry was established with the approval of IHO



IALA's role

- . IHO has approved IALA as a Submitting Organization and Domain Controller.
 - . IALA Product Specifications compliant with the IHO S-100 standard, use the numbering series S-201 to S-299
 - . IALA Domain covers:
 - Aids to Navigation (AtoN)
 - Vessel Traffic Services (VTS)
 - Positioning Systems
 - Communication Systems
 - AIS, ASM, VDES.
-



S-200 Status

Two Product Specifications are reaching maturity:

- S-201 – AtoN Information
- S-240 – DGNSS Almanacs

Versions for comment being posted on IALA website

Other specifications under development or planned, including S-210, Inter VTS Exchange Format

Awaiting discussions in IHO on ‘data streaming’

Further specifications will emerge from MSP development



Guidelines & Recommendations

The IALA recommendation on Product Specification Development and Management refers to the ‘relevant guidelines’.

These are:

G-1106 on the Development of Product Specifications

G-1087 on the Management of the IALA Domain

both of which were further revised at ENAV 19.



Context

S-100 Product Specifications being developed by several organisations, in addition to IHO and IALA

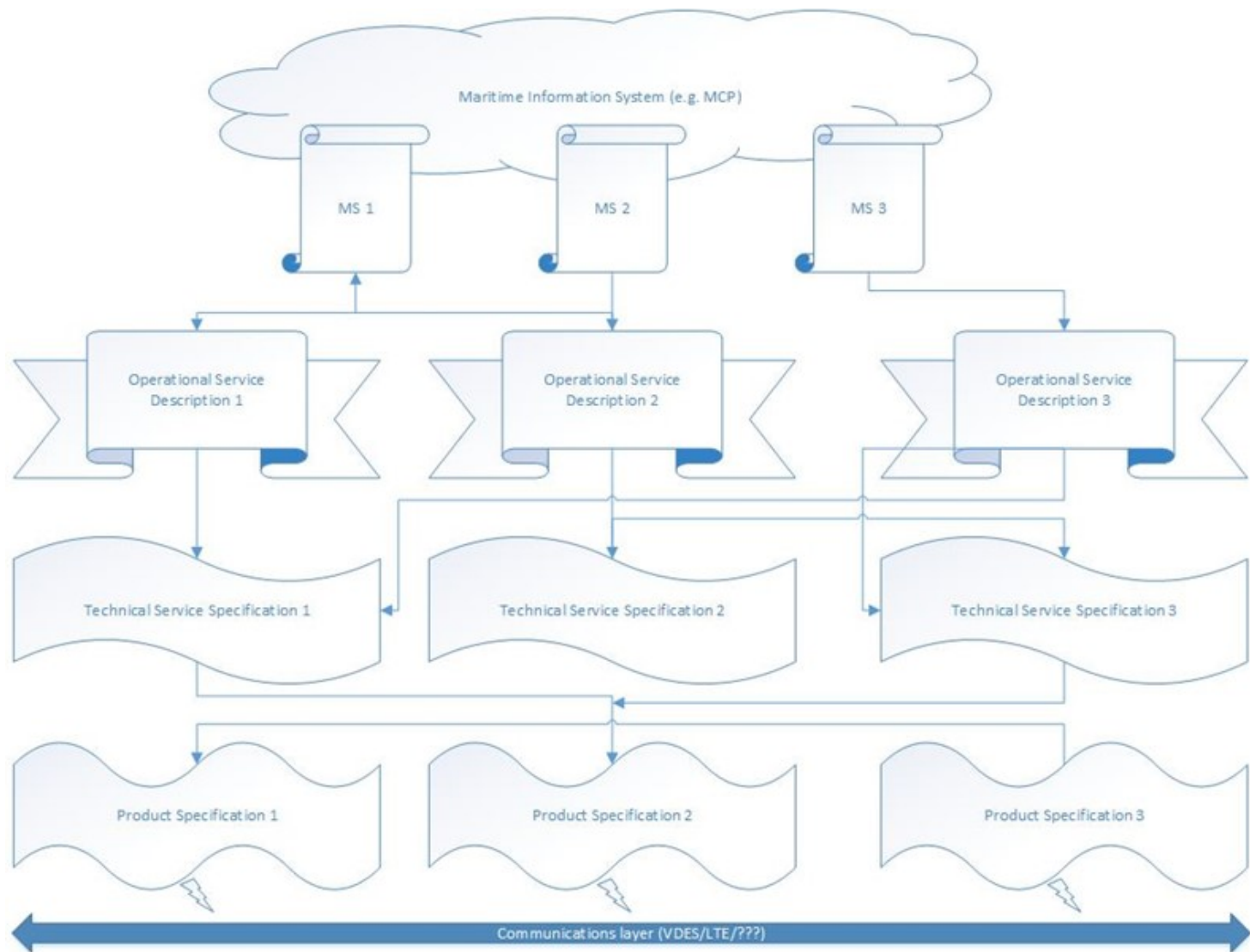
Data formats for e-navigation technical services are also being developed and implemented without reference to S-100

ASM implemented as binary code, in accordance with IMO Circ. 289. The binary encoding is specific to these applications

Standardise at Technical Service Specification level, each TSS referring to the relevant data exchange specification

Need to coordinate development of S-201 with S-101, S-124, S-125 and probably some other S-100 based PS

Hierarchy of e-navigation services





Proposed IALA Strategy

IALA coordinating specifications and data exchange formats that will underpin e-navigation services in the future.

S-200 Product Specifications reaching maturity (S-201 and S-240) need to be finalised and their use promoted

Development of other PS should be progressed, in particular S-210, lead to application of S-100 to data streaming services.

Agree structure of e-navigation, from information system through to data exchange formats and communications layer

Harmonisation of S-100 and S-200 specifications through a joint IALA/IHO Workshop and IHO & IALA working groups

Reflect outcomes in IALA Information Services Standard.



Development of S-201 AtoN Information

Standardised method of exchanging information on Aids to Navigation, initially between lighthouse authorities and hydrographic offices, but ultimately from the AtoN provider to the user (mariner)

IALA ENAV WG1 – Task Group 1

Web app for data input (GLA/Portolan Sciences)

Viewer for presentation (KRISO)



S-201 DATA EDITOR PROTOTYPE

Things you can do with this application

- [View/Update the sample using a form for entering attributes and creating features](#)
- [Make a new dataset using the same form interface as above for entering attribute values and creating features](#)
- [Pick a dataset to edit from a list of available datasets and create features and attributes using the same form-based interface](#)
- Choose a specific task (under development)

DATA EDITOR PROTOTYPE

www.s201editor.org/basic/pickset.jsp

Return to home page

S-201 DATASET EDITOR - BASIC PROTOTYPE

Select a dataset to view or work on

Dataset	
KRKRSEFAQ/KRKRSEFAQ_000	<input type="radio"/>
KRKR123456/KRKR123456_000	<input type="radio"/>
GBGB0001/GBGB0001_000	<input type="radio"/>
GBTH1234/GBTH1234_000	<input type="radio"/>
GBZZZZZZ/GBZZZZZZ_000	<input type="radio"/>
GBZ0302ZX1/GBZ0302ZX1_000	<input type="radio"/>
KRHYODONG2/KRHYODONG2_000	<input type="radio"/>
KRZZZZZZ/KRZZZZZZ_000	<input type="radio"/>
USTESTA/USTESTA_000	<input type="radio"/>
GBDS1/GBDS1_000	<input type="radio"/>
KRHYODONG1/KRHYODONG1_000	<input type="radio"/>
GBTHUKHO/GBTHUKHO_000	<input type="radio"/>
KRKORyeosu/KRKORyeosu_000	<input type="radio"/>
GBZZZZ123/GBZZZZ123_000	<input type="radio"/>
NOtest0001/NOtest0001_000	<input type="radio"/>
USTEST001A/USTEST001A_000	<input type="radio"/>
KRABCDEF/GH/KRABCDEF/GH_000	<input type="radio"/>
GB1234/GB1234_000	<input checked="" type="radio"/>

View/Edit selected dataset

10:31 17/11/2017



Dataset GB1234

DATA EDITOR PROTOTYPE

www.s201editor.org/basic/edit.jsp

Return to home page

DATASET EDITOR - BASIC PROTOTYPE

File: GB1234_000.gml
Title: Test
Date: 2017-02-10
Minimum Latitude: 51.9121667 Longitude: 1.1246667
Maximum Latitude: 52.0954833 Longitude: 1.5246667

Add...

- Beacons >
 - Cardinal
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- Buoys >
 - Cardinal
 - Installation
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- AIS Physical AtoN
- AIS Virtual AtoN
- AIS base station
- Daymarks
- Env. Observation Equipment
- Fog signals
- Landmarks
- Lights
- Light float
- Lighthouse
- Light vessel
- Pile objects
- Offshore platform
- Radar reflector

No.	Type	Name	Feature ID (Click to update)	Location
1	Topmark		8772061	S2.0 1.3

Upload support files: No files selected.

Create feature data from form

Download work in progress GB1234/GB1234_000

The feature being updated or created must be saved (with "Store encoded feature") to retain updates. To cancel or reset, just click a feature ID button above or a feature type button on the left.

10:34 17/11/2017



Dataset expanded to first level

DATA EDITOR PROTOTYPE

www.s201editor.org/basic/edit.jsp

Return to home page

DATASET EDITOR - BASIC PROTOTYPE

File: GB1234_000.gml
Title: Test
Date: 2017-02-10
Minimum Latitude: 51.9121667 Longitude: 1.1246667
Maximum Latitude: 52.0954833 Longitude: 1.5246667

No.	Type	Name	Feature ID (Click to update)	Location
1	Topmark		8772061	52.0 1.3

Upload support files: No files selected.

Show/hide Generic equipment attributes

Colour:

Colour pattern:

Height: System of marks:

Status: shape: Vert. Acc.: vertical datum:

Vert. Length:

Create feature data from form Show/Hide Feature XML Store encoded feature

Download work in progress GB1234/GB1234_000

The feature being updated or created must be saved (with "Store encoded feature") to retain updates. To cancel or reset, just click a feature ID button above or a feature type button on the left.

Updating Topmark

The screenshot displays a web-based data editor interface. At the top, there's a browser window with the URL 'www.s201editor.org/basic/edit.jsp'. Below the browser, a navigation bar includes a 'Return to home page' button and the title 'DATASET EDITOR - BASIC PROTOTYPE'. On the right side of this bar, metadata for the current dataset is shown: 'File: GB1234_000.gml', 'Title: Test', 'Date: 2017-02-10', and bounding box coordinates. The main area features a table with columns for 'No.', 'Type', 'Name', 'Feature ID (Click to update)', and 'Location'. A single row is visible with '1', 'Topmark', an empty name field, '8772061', and '52.0 1.3'. Below the table, there are buttons for 'Upload support files' and 'Refresh support file lists after uploading'. A large blue box highlights the 'Generic equipment attributes' section, which includes dropdown menus for 'Colour' (with 'white', 'black', 'red', 'black' options), 'Colour pattern' (with 'horizontal stripes', 'vertical stripes', 'diagonal stripes', 'horizontal stripes' options), 'Height' (set to '3'), 'System of marks' (set to 'IALA A'), 'Status' (with 'permanent', 'occasional', 'not in use', 'permanent' options), 'shape' (set to '2 cones, point to point'), 'Vert. Acc.' (set to '0.1'), and 'vertical datum' (set to 'Mean lower low water springs'). There is also a 'Vert. Length' field set to '0.0+'. At the bottom of the interface, there are buttons for 'Create feature data from form', 'Show/Hide Feature XML', and 'Store encoded feature', along with a 'Download work in progress' link. A status message at the bottom explains that features must be saved with 'Store encoded feature' to retain updates and provides instructions on how to cancel or reset.



Dataset expanded to second level

DATA EDITOR PROTOTYPE

www.s201editor.org/basic/edit.jsp

Return to home page

DATASET EDITOR - BASIC PROTOTYPE

File: GB1234_000.gml
Title: Test
Date: 2017-02-10
Minimum Latitude: 51.9121667 Longitude: 1.1246667
Maximum Latitude: 52.0954833 Longitude: 1.5246667

Add...

- Beacons >
 - Cardinal
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- Buoys >
 - Cardinal
 - Installation
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- AIS Physical AtoN
- AIS Virtual AtoN
- AIS base station
- Daymarks
- Env. Observation Equipment
- Fog signals
- Landmarks
- Lights
 - Light float
 - Lighthouse
 - Light vessel
- File objects
- Offshore platform
- Radar reflector

No.	Type	Name	Feature ID (Click to update)	Location
1	Topmark		8772061	52.0 1.3

Upload support files: No files selected.

Show/hide Generic equipment attributes

Show/hide Generic AtoN attributes

Remote monitoring system: Remotely monitored: Assoc. parent:

Colour:

Colour pattern:

Height: System of marks:

Status: Vert. Acc.: vertical datum:

Vert. Length:

Create feature data from form Show/Hide Feature XML Store encoded feature

Download work in progress GB1234/GB1234_000

The features being updated or created must be saved (with "Save unedited feature") to retain updates. To cancel or reset, just click a feature ID button above or a feature type button on the left.

10:37 17/11/2017



Dataset expanded to third level

DATA EDITOR PROTOTYPE

www.s201editor.org/basic/edit.jsp

Return to home page

DATASET EDITOR - BASIC PROTOTYPE

File: GB1234_000.gml
Title: Test
Date: 2017-02-10
Minimum Latitude: 51.9121667 Longitude: 1.1246667
Maximum Latitude: 52.0954833 Longitude: 1.5246667

Add...

- Beacons >
 - Cardinal
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- Buoys >
 - Cardinal
 - Installation
 - Isolated Danger
 - Lateral
 - Safe Water
 - Special purpose or general
- AIS Physical AtoN
- AIS Virtual AtoN
- AIS base station
- Daymarks
- Env. Observation Equipment
- Fog signals
- Landmarks
- Lights
- Light float
- Lighthouse
- Light vessel
- Pile objects
- Offshore platform
- Radar reflector

No.	Type	Name	Feature ID (Click to update)	Location
1	Topmark		8772061	52.0 1.3

Upload support files: No files selected.

Show/hide Generic equipment attributes

Show/hide Generic AtoN attributes

FOID: GB 8772061 1 ID Code: 021C487720614001 dateEnd: YYYY MM DD dateStart: YYYY MM DD periodEnd: MM 3 periodStart: MM 4

Information (English): note 1|note 2|note 3 Information (national lang.): note 1|note 2|note 3 Text file (Nat. language) +none+ Text file (English) +none+

Scale minimum: 1999 1999 sourceDate: 2017 3 10 0 0 0 Source indication: free text Graphics file: +none+

Inspection frequency: Inspection requirements: Maintenance record: installationDate: YYYY MM DD

Coordinates Lat. 52.0 Lon. 1.3

Remote monitoring system: free text Remotely monitored: +none+ Assoc. parent: BuoyCardinal 8758572 BuoyCardinal 8758572

10:37 17/11/2017



Entry screen for KRISO Viewer

S-201 AIDS TO NAVIGATION

S-201 Viewer List of Lights Help

S-201 DATA MODEL

- ▲ AidsToNavigation(Gunsan)
 - ▲ Equipment
 - Topmark (68)
 - Light (133)
 - Fog signal (3)
 - Retro-reflector (0)
 - Radar reflector (0)
 - Environment Observation Equipment (0)
 - Daymark (0)
 - Radar transponder beacon (4)
 - ▲ StructureObject
 - ▲ GenericBeacon
 - Beacon, special purpose/general (0)
 - Beacon, lateral (19)
 - Beacon, cardinal (14)
 - Beacon, isolated danger (12)
 - Beacon, safe water (0)
 - ▲ GenericBuoy
 - Buoy, installation (0)
 - Buoy, lateral (23)
 - Buoy, cardinal (4)
 - Buoy, safe water (0)
 - Buoy, isolated danger (0)
 - Buoy, special purpose/general (0)
 - Offshore platform (0)
 - Light vessel (0)
 - Pile (0)
 - Silo/tank (0)
 - Landmark (63)
 - ...

FEATURE INSTANCES

MAP

Map Satellite

Table mode Tree mode

ATTRIBUTE TYPE	ATTRIBUTE VALUE
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Windows taskbar: 12:24 17/11/2017



AtoNs for selected area highlighted

S-201 AIDS TO NAVIGATION

S-201 Viewer List of Lights Help

LIGHTNUM	NAME	POSITION	CHARACTER OF LIGHT	CLIMBING A HEIGHT	VISIBILITY OF
3235.4	Biin Hang	36.12989444 126.5099417	Fl(1)R6s	16	8
3236	Eocheongdo Hang	36.11394444 125.9873333	Fl(1)G5s	18	9
3196	Gunsan oehang	35.97744444 126.61725	Fl(3)R7s	17	9
3224	Yeondo Hang	36.08075 126.4460278	Fl(1)G6s	15	9
3149.5	Daeri Hang	35.56961111 126.269	Fl(1)G6s	13	9
3221	Yeokgyeong	36.03619167 126.5138194	Fl(1)W6s	20	8
3186.2	Gunsan Hang Daewoo No.8	35.97552778 126.5630278	Fl(4)Y8s	12	8
3233	Gajinseo	36.10588889 125.99775	Fl(T)W4s	29	10
3235.3	Biin Hang	36.13066667 126.5095278	Fl(1)G6s	16	8
3163	Maldo	35.85822222 126.3151667	Fl(c)W55s	60	10
3154.7	Sikdo Hang	35.62075 126.285	Fl(2)G6s	13.8	8
3152.19	Saemangeum	35.78188889 126.4339722	Fl(1)R4s	16	9
3148.1	Sangwangdeungdo Hang	35.65808333 126.1119722	Fl(1)G6s	16	9
3167	Hoenggyeongdo	35.85566667 126.4318333	(1)W6s	54	8
3155.1	Gughang Hang Bkw.N	35.59964444 126.4696472	Fl(1)Y4s	15	9
3165	Maldo Hang	35.85433333 126.3173333	Fl(1)R5s	18	8
3161.5	Seonyudo	35.80530556 126.4008611	Fl(1)W5s	25	8
3234	Eocheongdo	36.12511111 125.9678056	Fl(1)W45s	61	26
3218.1	Gunsan nae Hang	35.98641667 126.6578333	Fl(4)Y8s	10	7
3235.5	Biin Hang	36.13363889 126.5062778	Fl(2)Y6s	16	8
3231.1	Hongwon Hang	36.161 126.5064444	Fl(1)R6s	20	7
3162.7	Seonyudo Hang	35.82768056 126.4195611	Fl(2)G6s	14	8
3149	Georyundo	35.57302778 126.2394722	Fl(1)W6s	35	8
3147.10	Gusipo Hang	35.44858333 126.4235833	Fl(1)G5s	23	9
3231	Hongwon Hang	36.16055556 126.5046667	Fl(2)G6s	16	5
3207.5	Gunsan nae Hang	35.98813889 126.6945556	Fl(2)G6s	10	5
3151.3	Beolgeum Hang Breakwater	35.60997222 126.2878889	Fl(1)R5s	11	8
3220.1	Gaeyedo Hang	36.03263889 126.5580833	Fl(1)G6s	12	9

MAP

You are using a browser that is not supported by the Google Maps JavaScript API. Consider changing your browser. [Learn more](#) [Dismiss](#)

Google

12:25 17/11/2017



clicking on AtoN for image

S-201 AIDS TO NAVIGATION

S-201 Viewer List of Lights Help

LIGHTNUM	NAME	POSITION	CHARACTER OF LIGHT	CLIMBING A HEIGHT	VISIBILITY OF ^
3156	Gyeokpo Hang	35.62097222 126.4628611	Fl(1)R7s	18	5
3232	Hongwon Hang	36.16141667 126.5035	Fl(2)R6s	18	5
3166	Sohenggyeongdo	35.85477778 126.3949722	Fl(1)W4s	30	8
3207	Gunsan Hang	35.99533333 126.7008972	Fl(1)R4s	31	8
3222	Yeondo	36.08113889 126.4359722	Fl(1)W5s	199	8
3151	pajanggeum hang	35.62044444 126.2999444	Fl(2)R6s	12	9
3147.9	Gusipo Hang	35.44875 126.4247778	Fl(1)R5s	21	9
3219.1	Gunsan nae Hang	35.99013889 126.6575	Fl(4)Y8s	10	8
3170.7	Gunsan Hang	35.99680556 126.5158056	Fl(1)Y5s	24	9
3229.1	Biin Hang	36.13033333 126.5077778	Fl(1)R5s	16	5
3162.1	Seonyudo Hang	35.82702778 126.4183889	Fl(1)R5s	15	8
3170.1	Bieungdo Hang	35.93341667 126.5292222	Fl(1)R5s	17	8
3162.2	Shinsido Hang	35.82508889 126.4757806	Fl(1)R4s	10	8
3157	Gyeokpo Hang	35.62172222 126.4609722	Fl(1)G7s	17	5
3170.6	Gunsan Hang	35.97872222 126.4912222	Fl(G)G6s	24	10
3235	Eocheongdo Hang	36.11702778 125.9848889	Fl(2)G6s	19	9
3229.2	Biin Hang	36.1295 126.5086944	Fl(1)G5s	17	6
3162.8	Seonyudo Hang	35.82689167 126.4201833	Fl(2)R6s	14	8
3164	Maldo Hang	35.85377778 126.3165556	Fl(1)G5s	18	9
3155	Geseom	35.59886389 126.4666667	Fl(1)W5s	17	8
3151.1	pajanggeum hang	35.62047222 126.3010556	Fl(2)G6s	13	9
3223	Yeondo Hang	36.08169444 126.4463889	Fl(1)R6s	16	8
3152.5	Biando Hang	35.73727778 126.4601111	Fl(1)R4s	13	5
3149.4	Wido	35.56700278 126.2666667	Fl(1)W4s	22	8
3170.10	Gunsan Hang	35.97469444 126.5129444	Fl(1)R6s	23	15
3168	Sibidongpado	35.9895 126.2224444	(1)W7s	94	11
3186.1	Gunsan Hang	35.97472222 126.5472222	Fl(4)Y20s	13	8
3236.1	Eocheongdo Hang	36.11255556 125.9875556	Fl(1)R4s	29	8

MAP

Name Eocheongdo Hang
Pos 36.1125556, 125.9875556

Windows Taskbar: 12:25 17/11/2017



lat/long, height, light character

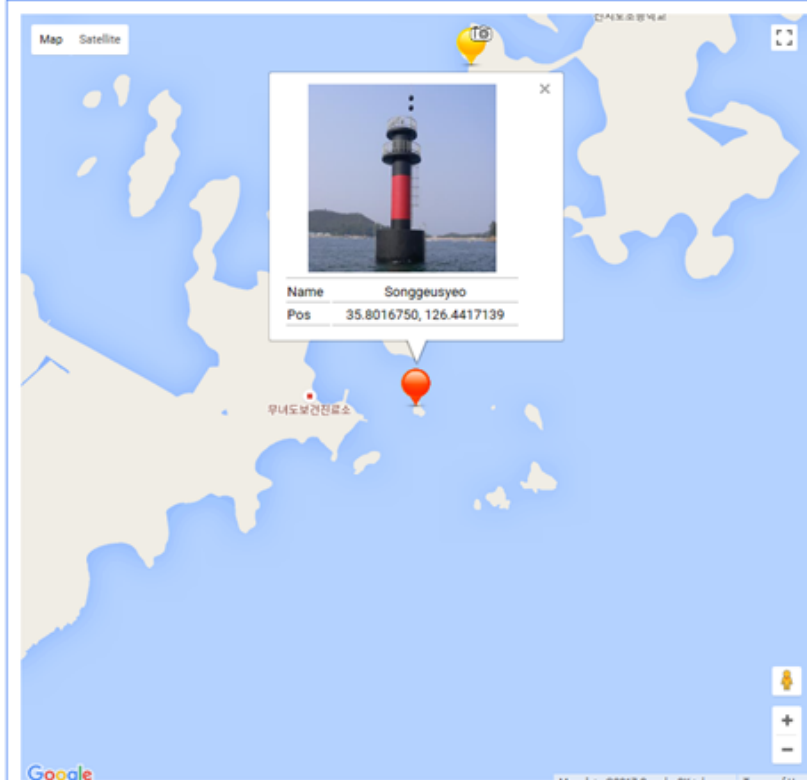
S-201 AIDS TO NAVIGATION

S-201 Viewer List of Lights Help

LIST OF LIGHTS

LIGHTNUM	NAME	POSITION	CHARACTER OF LIGHT	CLIMBING A HEIGHT	VISIBILITY OF LIGHT
3162	Seonyudo	35.81527778 126.4268889	FI(1)G5s	13	9
3155.5	Mohang Hang	35.57919444 126.5119444	FI(1)G6s	11	9
3170.8	Myeongam	35.98786111 126.514	FI(2)W10s	19	7
3161.6	Songgeunyeo	35.801675 126.4417139	FI(2)W5s	16	8
3150.5	Heukseo	35.61906944 126.3633528	FI(2)W5s	20	8
3146.2	Gwangseung	35.50341667 126.4626944	Q(9)W15s	9.6	5
3155.4	Gunsan Hang	35.59783333 126.4729167	FI(1)R4s	15	8
3158	Halminyeo	35.58158333 126.5940556	FI(2)R6s	13	8
3161	Dakseom	35.81969444 126.4279444	FI(2)G6s	15	9
3161.1	Seogeunyeo	35.79308333 126.4180833	QLFL((6)(1))W15s	18	8
	Shinsido	35.80641667 126.4467778	FI(3)G7s	13	9
3221.4	Bakgeunyeo	36.05011111 126.5626944	Q(1)W	16	8
3161.7	Munyeodo	35.81069444 126.4190861	FI(3)G7s	19	8
3189	Gunsan Hang	35.9805 126.6080556	FI(1)R4s	14	9
3221.1	Gollyeo	36.03497222 126.5346667	QLFL((6)(1))W15s	15	8
3146.1	Gwangseung	35.49777778 126.4609444	Q(9)W10s	9.9	5
3162.5	Dotomeorido	35.83177778 126.441	FI(1)G4s	15	5
3162.3	Jakgeunyeo	35.81302778 126.4439722	FI(2)G6s	13	9
3154	Galmaeyeo	35.61625 126.2413333	FI(2)W10s	14	8
3157.3	Gyeokpo Hang	35.63139444 126.4502694	QLFL((6)(1))W15s	17	8
3170.9	Myeongam	35.9887 126.5215	QLFL(9)W15s	19	9
3232.1	Gwangam	36.16544444 126.4915	FI(1)R5s	16	6
3160	Jangjado	35.81161111 126.392175	FI(1)G4s	14	9
3150.8	Widojeonggeumdo	35.61766667 126.2881111	Q(9)W15s	13	8
3163.5	Seonyudo	35.82308333 126.4012778	FI(1)G5s	15	8
3220	Jeonmangsan Lt.Bn.	36.99038889 126.6711111	FI(1)G4s	15	8
3154.5	Sikdo	35.62069444 126.2812222	FI(1)G4s	16	9
3154.6	Sikdo	35.62627778 126.2934722	FIR	13	8

MAP





Summary of S-201 status

web app demonstrates practical use of S-201 . KRISO viewer provides a presentation of output in ECS

S-201 is approaching a usable tool for navigation authorities, hydrographers and potentially end-users

Requires further work to provide portrayal catalogue and to ensure feature catalogue and encoding compliant with S-100.



Further work

Overlap between S-201, S-101 (ENC), S-124 (NavWarnings) and S-125 (Navigation Safety Info)

Liaison between IALA and the relevant IHO WGs necessary to ensure harmonization of standards.

Security – indication of ownership of data sets and authority to change them

Data entry – ensuring compatibility with systems already in use



QUESTIONS ?

nick.ward@iala-aism.org