

Aids to Navigation facilities based e-Navigation Service integrated System

1 . Background

The Republic of KOREA(ROK) tries to cope with "e-Nav" Strategy development, being driven by International Maritime Community(IMO, IALA, etc.) since 2006 and supplies maritime safety information to all marine users. We have Aids to Navigation based Ubiquitous integrated system constructing plan for collecting and supplying the high quality of real time marine safety information by the use of IT technology.

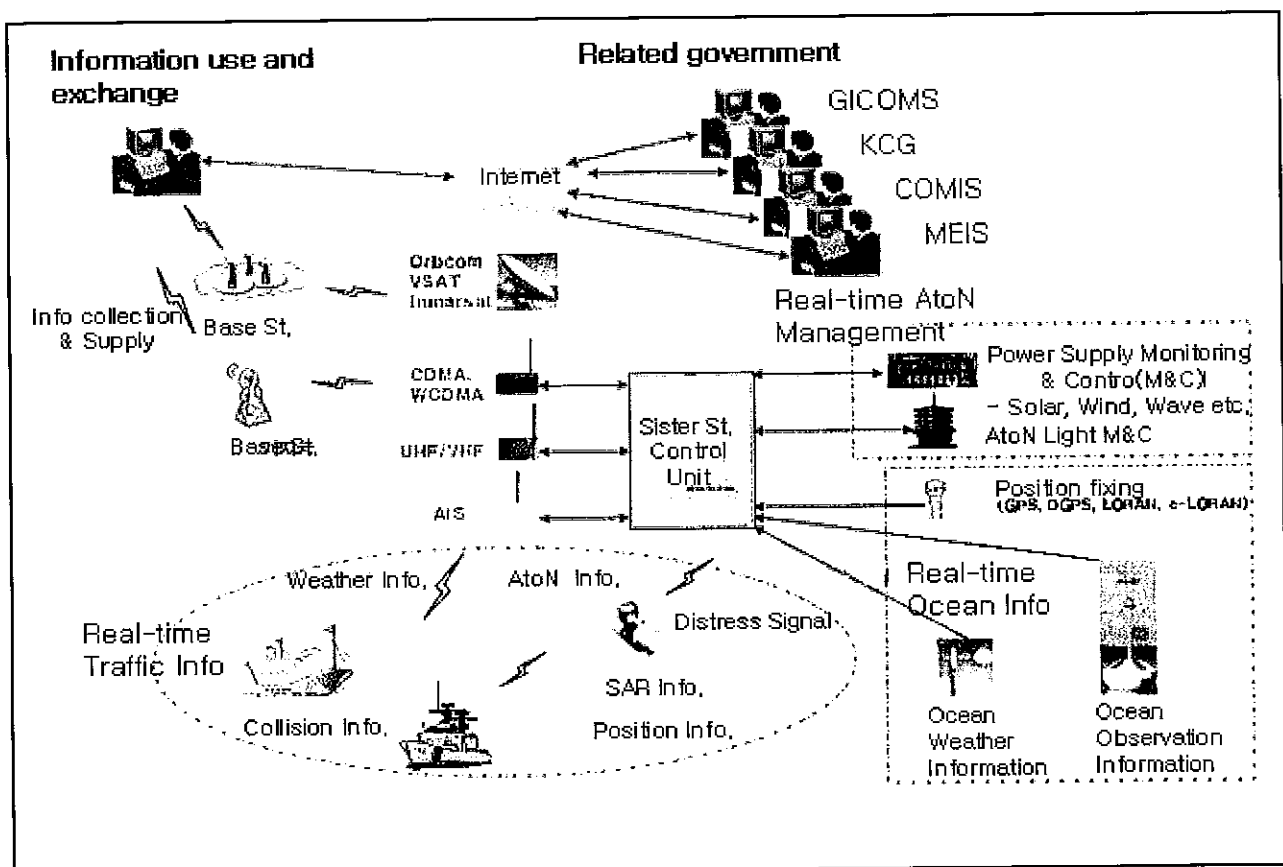
Since 2005, We have constructed and are operating the remote monitoring system on Aids to Navigation(AtoN) facilities which are located in the Southern & Western coast in accordance with IALA Recommendations. From 2008 we are constructing marine meteorological information system(weather signal aids). These projects are being constructed separately in each water.

If these systems are constructed individually in separated projects, it will be difficult to manage and operate the system owing to its incompatibility and dis-connectivity. Moreover it is anticipated that the shore based e-Navigation service is difficult to act and the communication process has a limit for each system.

Accordingly, we have a plan to develop standard protocol and the integrated system by using AIS international standard communication process with independent communication process such as VHF, CDMA, UHF, SSB, TRS etc.

Aids to navigation based e-Navigation integrated systems, visualized by ROK, are AIS AtoN(Virtual, Pseudo, Real-time AtoN information), Remote Monitoring & Controlling, Maritime Weather Observation, Route information and Coastal Vessel Traffic Management System.

II. Conceptual figure



"e-Nav" Service integrated system architecture makes it possible for users to supply and exchange the ubiquitous based real-time maritime safety information collected by every kind of maritime safety information by utilizing AtoN infrastructure with international standard and various communication methods(CDMA, VHF, UHF etc.).

Maritime Safety information, collected by integrated system, will be provided via internet(Web) and all kinds of communication service(WAP, SMS, e-mail, FAX, ARS) in real-time to all users on sea, and which is multiple networked and connected with DB for the purpose of storing into the AtoN comprehensive information management center and sharing with the related organization.

AtoN facilities, based "e-NAV" service integrated system, work with as followed:

○ integrated project

- AtoN AIS(Virtual, Pseudo, Real-time AtoN information), Remote Monitoring & Controlling, Maritime Weather Observation, Route information, Coastal Vessel Traffic Management System, and DGPS positioning information.

○ individual project

- vessel anti-collision system in dangerous waters, constructing the maritime traffic safety information exchanging network between adjacent states.

III. The similar system of other countries

- ☐ Japan Coast Guard developed the trial version of ENSS, displaying the features, images, static information and etc via the AIS binary message and static data of the interested maritime domain to the remote equipment by using AIS from 2004 to 2007, and suggested to IALA as the international standard. The system, one of "e-Nav" supporting the mariners, offers the maritime navigation information(AtoN, maritime meteorological information, virtual AtoN, and etc).
- ☐ Maritime Navigation Information Service System(MarNIS/EU)
- ☐ EU executive committee is developing MarNIS, which comprehends the "e-NAV" improvement of IMO, to support the maritime navigation information in the coast domain from 2004 to 2008, and MarNIS contributes the e-Maritime(maritime operation service and information exchange).
- ☐ My country developed GICOMS(General Information Center On Maritime Safety & Security) to support the maritime navigation safety with comprehensive management, to cope with the maritime disaster.

The system executes the related information Gateway with vessel location tracking, vessel security alert, condition control and the operation of maritime safety general information portal.

IV. The future plan

- 「e-Nav Service Integrated System based on Aid To Navigation」 is prepared to be accepted in the international maritime community as "e-Nav" system and for all of the people, acting on the ocean, we will develop H/W using the AtoN infra as realtime maritime navigation safety integrated system and make the equipment displaying the information by integrating the standard protocol, mixed international standard with our own way, and vessel navigation system.

The integrated system related business needs to be scrutinized from the first step, to be prepared for collecting and exchanging the maritime safety information in open type. And to cope with adapting the international standards(e-Nav), we will try to develop the communication network mixed international standard with our own way.

When the system is constructed, it can collect and support the realtime integrated maritime safety information to contribute the prevention of coastal accident, SAR and environment. And also the system, under the international standards, expects to save cost by each system integrated business to act as the e-Nav service system based on the coast.

V. Questionnaire

1. Is our plan, 「e-Nav Service Integrated System based on Aid To Navigation」, close to IALA's developing 「e-Nav based on the maritime system」 ?
2. If every our plan is not acceptable to 「e-Nav based on the maritime system」, which system is necessary to be improved?
3. 「e-Nav Service Integrated System based on Aid To Navigation」 collects the maritime safety information by using the aid to navigation, furnishes to the ship or users and exchange with authorities. It is similar to ENSS of Japan, MarNIS of Europe.
I think that the system, displaying this information on the vessel equipment, is necessary to be developed. What is your opinion?
4. Does any other country develop the e-Nav based on the maritime safety system?
5. What is your opinion of e-Nav development? (especially, the Aid to Navigation service and the application of communication method)
6. others
「e-Nav Service Integrated System based on Aid To Navigation」 suggestion.