

## Kaiji Press “SATCOM Special Edition” for SMN Singapore event

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### Headline Interview:

**International Conference "Satellite Communications" will be held in Singapore on January 20th with themes including ship-land communication which gaining more importance**

The international forum "Smart Maritime Network Conference" hosted by Smart Maritime Network (SMN), an event promoter/provider based in Ireland, will be held in Singapore on the 20th. One of the main themes is exchanging of opinions on cooperation and standardization in the development of IT systems in the ship field and maritime satellite communications, which are gaining importance under the circumstances of corona virus spread. This time, Yoshihiro Hase, Chairman, Mobile Satellite Communications Council, talks about the current status and future prospects of ship-land communications.



\*Dr. Yoshihiro Hase, Chairman, Mobile Satellite Communications Council, talks about the current status and future prospects of ship-land communications.

Kaiji Press: What is the current status of players in the ship-land communication market?

Hase: There are companies that own and operate satellite systems such as Inmarsat and Iridium, and service providers that acquire circuit lines by wholesale from those companies and retail to each user. Currently, there are two companies, Inmarsat in the UK and Iridium in the U.S., that can serve the world with a single satellite system.

KP: What are the differences in infrastructure and services between Inmarsat and Iridium?

Hase: The most conspicuous difference is that Inmarsat is a geostationary satellite system (plural number of satellites are placed in orbits that appear stationary with respect to the Earth at an altitude of about 36,000 km above the equator), while Iridium is a satellite system orbiting low (with dozens or more satellites in orbit at an altitude of several hundred kilometers including the sky above the North and South Pole). Geostationary satellites, in

other words, always access the same satellite over the Pacific Ocean, for example, but orbiting satellites require switching of communication partner satellites every few minutes to tens of minutes, which requires complicated line control for the system.

It is generally said that geostationary satellite systems have large communication time lags while small orbiting satellites have small lags, but at present, Iridium concentrates all of its communications on one access station in the U.S., and requires a process of multiple intersatellite relays. Since taking such procedures, the length of time lag is not much different from that of geostationary satellites in the near waters of Japan, though depending on the location of the ship.

Both systems used to be a service in the 1.6/1.5GHz band called the L band, but from March 2016, Inmarsat has been providing services in the very high frequency band of the 30/20GHz band called the Ka band (FX and GX service) has started. As a result, the communication speed has dramatically improved compared the conventional hundreds of kbps to several Mbps or more at once, and the service is now the mainstay. Iridium has only the same L band as before, but the satellites have been completely replaced with new ones, and the maximum communication speed has also been enhanced to about 1 Mbps.

KP: Tell us about the recent trends of services provided by satellite operators.

Hase: Inmarsat offers new FX service (named for ships that integrates new service in the frequency of Ka band and FB service in conventional L band, GX service for Ka band alone is also provided for aircraft and land stations). It is the main service of it and is completely replacing the conventional FB service. As a result, an environment close to broadband on land is being put in place for ships.

Iridium has replaced all of superannuated satellites that have reached their life limit with new satellites called Iridium NEXT. In addition, in terms of satellite communication, it entered the GMDSS service, which was only available to Inmarsat in the past.

KP: What services are expected to emerge in the future for the entire ship-land communication including collaboration with other industries?

Hase: Services that surely provide a broadband environment comparable to that on land (high-speed Internet services) are expected to become mainstream. Thereby, it is expected that the environment for automatic and autonomous operation of ships will be progressed.

KP: How far is the introduction of maritime broadband communications advanced such as Fleet Express?

Hase: There are about 10,000 vessels worldwide receiving FX service since Inmarsat started to introduce it in 2016, and it is expected that it will continue to spread steadily in the future.

KP: How do you view the future ship-land communication market, including aspects of autonomous navigation technology and welfare demand for seafarers?

Hase: In order to operate autonomous or automated vessels, it is essential for ships to have an environment of seamless broadband connection similar to that on land. These navigational technologies and satellite communications are like a chicken-and-egg relationship. It is unknown which comes first, but autonomous navigation and automated operation are the sources of great demand for satellite communication, and broadband communication environment is an absolute prerequisite for autonomous navigation and automated operation. In order for the Japanese shipping industry to lead the world in autonomous navigation and automated operations, I think it is necessary for the industry as a whole to be more interested in satellite communications and both industries to closely work together. Meanwhile, it is expected that the welfare demand of seafarers will be satisfied if the broadband communication environment is enhanced.

KP: What is the current status and future outlook for the satellite communications business?

Hase: To begin with, satellite communication is a business with very high risks. Construction or renewal of satellite systems requires intensive investment that is many times higher annual sales of satellite operators. Moreover, in land applications, it will compete with the spreading out of optical fiber networks. There are already some cases where the risks in the competitive environment have become apparent. However, since the communication environment for ships and aircraft in service on international routes has to rely on satellite communications, conducting business in that field is expected to remain firm. There is concern about growth in demand for aircraft due to the impact of COVID-19, but for vessels, on the other hand, expectations for automated navigation and autonomous operations may be increased. We are hoping to see steady business growth in satellite communications for ships.

KP: From what perspective should satellite communication providers and customers work toward further improvement of ship-land communication?

Hase: Perspective from outside for the shipping industry, there seems an ambience in the shipping industry today that satellite communications are merely a tool for existing services. Considering the popularization and sophistication of automated navigation and autonomous operation, the shipping industry and the satellite communication industry may fall behind in the future unless they cooperate more to cope with system development and business growth. Maybe this is an extreme proposal, but it may be possible that the Japanese shipping industry will jointly build its own dedicated satellite system to lead the world's automated or autonomous shipping businesses. I think that it would be feasible in terms of business if we could outsource the specialty tasks such as launch and operation of satellites to the specialized parties, then building a system specialized for automated navigation and autonomous operation.

## Singapore conference to be a hybrid event

SMN was launched in 2019. SMN is working on support for cooperation and standardization in the development of IT systems for the marine shipping field, integration of the industry in shipping and logistics, and strengthening of data sharing. Conferences in Singapore will be a combination of real events and online. Only attendees from within Singapore can attend the real events onsite. There will also be virtual booths for online participants.

The meeting was scheduled to be held also in Tokyo in December, but it was canceled due to the COVID-19 pandemic. For this reason, at the Singapore conference, some of the speakers who were planning to take the stage in Tokyo will participate in the session, and some Japanese companies who had a plan to exhibit in Tokyo will participate in the form of virtual booth.

At the conference, a total of 20 experts will be on stage. And from Japan, Hideyuki Ando, Director of MTI, and Tetsuro Ashida, Senior Coordinator of Mitsui OSK Lines, who were scheduled to give a lecture in Tokyo will be on stage.

In addition, 13 companies that were planning to exhibit in Japan will participate in the virtual booth. Of these, two companies from Japan, Japan Weather Association and JSAT MOBILE Communications, will have booths.

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