Satellite Business Network Euroconsult

Feb. 24, 2023

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# SMALLSAT SYMPOSIUM

A Report on Participation at SmallSat Symposium 2023

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### Overview

Over three days from February 7 (Tuesday) to 9 (Thursday), 2023, I participated in SmallSat Symposium 2023, held at the Computer History Museum in Mountain View (Silicon Valley), California, U.S. This is a symposium that is held annually by SatNews, which is a space-related media outlet. Overall, about 1,000 people participated in this year's event, and there were about 80 exhibits on hand. As the name suggests, this symposium is dedicated to smallsat-related business, which is completely separate from the SmallSat Conference, which will be held in Utah in August and which centers on smallsat technology.

This symposium has been held every year since 2016—even during the COVID-19 crisis (but that included online events). However, this is the first time for me to attend since 2020, just before the onset of the COVID-19 pandemic. Considering that the number of participants in 2020 was 900 and the number of exhibits was 70, in contrast with this year, perhaps one can say that the smallsat industry is completely finished with the COVID-19 saga. And although there were no participants from Mainland China or Russia, it was conspicuous that many attendees were from Japan and South Korea, even though this symposium focused on the U.S. and Europe. (About 50 participants showed up from Japan, with one company exhibiting.)

I spoke with the organizers a bit, and 1,000 people was the max limit for this venue, so if the number of participants is expected to increase next year, the organizers will have to change the venue or pair down the number of applications for attendance.

### Overall impression and analysis

While I haven't participated in this symposium for a whole two years because of the COVID-19 debacle, I sensed that the smallsat business in the U.S. has changed a lot. Until you come and see it live, listening to what people have to say, you wouldn't necessarily come to understand the level and magnitude of the progress being made. In the private sector, large-scale communications satellite constellations such as Starlink have finally started business. In addition, the U.S. government has established a large-scale communications satellite constellation for national security, and the Space Development Agency (SDA) under the Department of Defense is steadily advancing this as a National Defense Space Architecture (NDSA) project.

Coinciding with this symposium was the release of the

Space Index, which is being released quarterly by Seraphim Space (an investment company specializing in space). The report is that space investment in 2022 amounted to $9 billion, down 25% from 2021. This decline is due to less investment in large constellations, and the focus of investment is shifting from large constellations to ground systems and value-added services. Meanwhile, among all investments, seed investment is up 50% from 2021. In other words, the development of large-scale communications constellations is already progressing as a straight fact, and investors are more interested in future usage scenarios.

The above stats were quoted here and there during the symposium, and discussions proceeded at the symposium with an understanding of this situation. For large-scale communications constellations, many sessions focused on satellite manufacturing lines and the mass production of satellites, along with the importance of supply chains. On the other hand, there was almost no talk about satellites and constellations as infrastructure in Earth observation, while there were many discussions on the use of new sensors and AI.

For the first time in two years, while attending this symposium I could strong feel the following.

- A large satellite communications satellite constellation is being developed by the SDA for civil and defense security purposes, such as in Starlink, for instance. Immediately after this symposium, the European Union (EU) decided to create a budget for the IRIS2 satellite communication constellation. Although these examples both use inter-satellite optical communications, the main point is not the optical terminal per se but the construction of a communication networks as a mesh network. Against this backdrop, in Japan, the Ministry of Economy, Trade and Industry/NEDO is in the process of selecting a company to demonstrate inter-satellite communication using optics, and in response to this, the construction of actual systems has already begun in earnest, in the U.S. and Europe. Although it is essential for Japan to acquire inter-satellite communications using optics and mesh network technology, it is completely behind the U.S. and Europe in this regard. At the very least, it is necessary to ensure interoperability with constellations in the U.S. and Europe as a demonstrative system and to be able to participate in a global satellite mesh network.
- Toward large-scale constellations, discussions have begun in the U.S. regarding satellite mass production lines and supply chains. Originally, this field existed on the back of the strength of Japanese manufacturing. As with automobiles, it is necessary to come up with a vision at an early stage regarding how to achieve stable mass production with a secure supply chain for the global market—not just the Japanese market.
- Infrastructure for communications satellite constellations is now in the process of being built. However, it is not yet clear what kind of services will be realized on such infrastructure. Of course, Starlink and others will try to commercialize services for end users via vertical integration, but, more than that, it seems that there is still enough business out there for existing satellite operators that are familiar with the needs of end users toward proposing value-added communications services for individual users using constellations, such as those for ships, aircraft, and local governments.

**Main presentations and discussions**

**(1) Government policy and the funding of smallsat ecosystems**

<Omitted below>

**(2) The challenges of smallsat manufacturing at scale**

<Omitted below>

**(3) Optical comms for inter-satellite and satellite ground stations**

<Omitted below>

**Other miscellaneous comments**

Silicon Valley is a mecca for IT companies such as Google, and business people and engineers come here from all over the world. There is thus also a plethora of restaurants catering to the different nationalities here. Right in front of the main station at Mountain View, you can find not only French, Italian, Chinese, and Japanese food (i.e., ramen and *izakaya* fare) but also Mexican, Mongolian, Greek, and Korean, with other flavors from all over the world. It is enough of a restaurant repertoire to keep you busy for about a week!

For this report, I would like to introduce some Turkish cuisine that I found in this restaurant heaven. Of course, there are bean dishes such as those involving hummus that are common in the Middle East, but the first thing I ordered this time was *lahmacun*. To my eye, it looks like *okonomiyaki* pancakes or pizza, and it is topped with minced lamb, tomatoes, and green chili peppers on a round, flat dough. As the crust is thin, it does have a crisp to it. In addition, *moussaka*, which I ate as a main dish, is a pilaf with eggplant and potatoes, minced lamb, and besmir sauce, and it is similar to Italian doria. Pair it with a beer, and you will definitely get full.

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