

Toward construction of on-demand network for micro-satellite constellation

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Development plans for 50 kg microsatellite are underway in Southeast Asian countries, and it is expected that many countries will own and operate high-performance satellites in the near future. Until now, the sharing of satellite data has been to archive the observation data of satellites that are regularly obtained and share it with other countries, but we are internationally able to respond on demand to specific imaging targets. This makes it possible to monitor the development of dangerous cumulonimbus clouds and the front of forest fires in real time with a relatively small number of satellites. For continuous shooting of large-scale natural disasters that have occurred somewhere in the world, it is sufficient to have at least 24 satellites, and even considering redundancy, about 48 satellites might be enough. This is far more efficient than the fact that about 200 satellite constellation currently deployed by US company are shot about once a day. In order to enable such on-demand operation, it is necessary to build a network system in which each member of the consortium is equipped with compatible ground stations and communication between operation stations is performed in real time. In this presentation, we propose a method for constructing such a network and introduce application examples.

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