Optimum micro-satellite constellation for disaster monitoring

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Artificial satellites are generally categorized according to weight: pico-satellites (<1 kg), nano-satellites (1-10 kg), micro-satellites (10-100 kg), mini-satellites (100-1000 kg), and large satellites (>1000 kg). Among the above categories, micro-satellites have made the most remarkable progress over the past few years, and a few hundred of universities, institutes, and companies have launched their own micro-satellites into space. A significant feature of recent micro-satellites is that their missions are getting closer to practical applications of remote-sensing data, such as disaster monitoring. However, due to limitations of spatial resolution and data rate, a single micro-satellite cannot cover a large area in the same way as a larger satellite covers the Earth's surface globally and periodically. In addition, designed life time of micro-satellites is not so long compared with larger satellites. Therefore, a constellation of microsatellites is essentially important, especially for disaster monitoring application that requires rapid response to the specific disaster area. This paper reviews previous satellite constellations for disaster monitoring and discusses a micro-satellite constellation optimized for disaster monitoring.

Keywords: micro-satellite constellation, disaster monitoring

