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COST EFFECTIVE SMALLSAT JILIN CONSTELLATION AND ITS INNOVATIVE BUSINESS
MODEL

Abstract

The Earth observation (EO) market which has been driven by the era of smallsat development is expected to have 1,800 smallsats with the majority being 50 kg in the next decade. Future EO system is all about getting smaller, more compact with Very High Resolution (VHR) sensor at accessible cost.

This paper will introduce the new generation of a VHR microsatellite, Jilin, constellation developed by Chang Guang Satellite Technology Ltd. of China and commercialized by HEAD. This paper will provide an update of the constellation after one year being on orbit with his launch plan and innovative business model. Currently, the JL constellation is composed of 35 on orbit satellites, including the recent launch of 9 satellites end February 2022. Thirty more JL satellites are scheduled with confirmed launch by Sept 2022. The overall objective will be to provide near real time tasking capacity at submeter resolution with global revisit of every 14 minutes.

The JL constellation is designed to cover all type of applications to increase the profitability of satellite operation. The business model is based on providing operational satellite imagery including stereo mapping, video from space, nighttime imaging, large scale monitoring as well as hyperspectral satellite for agriculture and water management. This paper will present the cost-effective approaches for Small Satellite Operations with emphasis on the new Jilin missions with a new model of operation to reduce mission lifecycle costs and to minimize the cost impact of mission extensions. This new generation of small EO satellites allow a low-cost access to space making EO missions attainable to non-governmental organizations as well as traditional users. The satellite manufacturing price is kept at an accessible level given its 45 kg mass. The fact that the satellite is very light, it is designed to be launched with a single launch. This business model offers cost-effective solution to operate a satellite constellation. The very compact satellite is 10 times lighter in weight comparing with the satellites having the similar performance.

This paper will also address the entrepreneurial approach to new business opportunities and business models and international cooperation with the global distribution networks developed in the last 18 months.