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GROUND STATION SYSTEM SUPPORTING INTEGRATED EO AND IOT SATELLITE APPLICATION

Abstract

The development of earth observation and the Internet of Things (IoT) is blurring the distance between them. Both of these operations are driven by similar needs, but they are both developed in the environment they envisaged. Earth observation satellites collect optical/SAR imagery while IoT satellites collect ground terminal data. The IoT data from ground terminals can be updated up to every 30mins while EO satellite can be updated every day. The combined data of EO and IoT data can be widely used in many different scenarios. To the support "EO + IoT" application scenarios, a ground station system solution is proposed to receive, process, display, integrate both EO satellite data and IoT satellite data into one platform. The ground station system is consisting of antenna subsystem, operation management subsystem, data processing subsystem, data archiving management subsystem and data application subsystem. With an increasing number of IoT satellites and EO satellites to be launched in the next decade, the ground station system will provide high frequency data collection capability which will support traffic maritime monitoring, infrastructure monitoring, disaster early warning, precision agriculture, and other domains which require both EO and IoT data. This paper will focus on and demonstrate the function, specifications, structure, workflow of this integrate "EO + IoT" ground station system, especially operational features, applicable aera and different configuration for different requirements. International cooperation on the ground station network is also very important for the combined data application, suggestions for building such ground station network will also be raised in this paper.