New Horizons of Space Systems of Optical-Electronic Observation of High Resolution Earth (Part II)

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Abstract. This article is a continuation (second part) of the article published earlier [1]. The main trends in the development of the global grouping of space optical and electronic observation systems of high and ultra-high resolution are considered. Much attention is paid to the construction of large groups of satellites of the same type and different types by foreign companies and operators, such as DigitalGlobe, Planet, BlackSky, Satellogic, as well as plans to deploy such groupings in China, France, India, Japan, Canada etc. The description of some microsatellites with optical-electronic equipment and new observation systems is given. It is noted that, Earth remote sensing satellites increasingly employ either separate equipment or separate recording modes for receiving data (videos) in FHD and even UFHD (4K) video formats. Live video modes, as well as the new multi-satellite groupings, are aimed at high-speed acquisition and update of information. Two main directions for the development of high-resolution and ultra-high resolution optical-electronic remote sensing systems based on traditional large satellite busses and instruments, as well as micro- and mini-satellite constellations, are analyzed in detail. A comparative analysis of the applied technical solutions and the achieved characteristics is carried out, allowing evaluating the possible applications of such systems in the future.

Keywords: Earth remote sensing, ERS, optical and electronic satellites of high and ultra-high resolution, spatial resolution, information performance, observation speed, ERS constellations, video from space