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OPTICAL DATA RELAY INTERSATELLITE SYSTEM (ODRISAT)

Abstract

The high number of objects in the LEO is a risk that collisions between sub-orbital or escape velocity objects with an orbiting object of satellites occur when two satellites collide while orbiting the earth. One of the approaches to avoid collisions is a robotic configuration of satellite constellations. Satellite constellations should not be confused with satellite clusters, which are groups of satellites moving in close proximity to each other in nearly identical orbits; nor with satellite series or satellite programs, which are generations of satellites launched successively; nor with satellite fleets, which are groups of satellites from the same manufacturer or operator that operate an independent system. Optical Data Relay intersatellite System designed for geospatial applications and Earth observation. Unlike a single satellite, a constellation can provide permanent global or near-global coverage anywhere on Earth. Optical Data Relay intersatellite System is configured in sets of complementary orbital planes and connects to ground stations located around the globe. This invention proposes a quantum photonic systems configuration for Optical Data Relay intersatellite System. Satellites acquire data for many tasks such as accurate and long-range weather forecasting, high-precision climate modeling, ecosystem monitoring, city planning, transportation, and disaster relief. Satellite data must reach users as quickly and reliably as possible to support emergency response teams and security services. If the amount of data is too large, the transmission should be continued on the next hover. Building a fast satellite data processing system has become a challenge in recent years. In conventional radio transmission, the satellite must be within range of an appropriate ground station; it may take up to eighty minutes to reach a transmit window. Observation of the difficulties inherent in alternative satellite data processing systems led to consider a quantum photonic configuration for Optical Data Relay intersatellite System.