SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advanced Space Communications and Navigation Systems (7)

Author: Dr. Zhengan Zhai
Beijing Space Information Relay and Transmission Technology Research Center (BSIR), China

STUDY ON DEVELOPMENT OF NEXT GENERATION DATA RELAY SATELLITE SYSTEM

Abstract

The paper describes systematically the past development of the data relay satellite system and the technical system and status of data relay satellite systems of major countries and organizations,especialy, Chinese data relay satellite system. According to the future trends of satellite, manned spacecraft and deep space exploration mission, requirements for the next generation relay satellite system are analyzed. Based on that, from the aspects of system structure, satellite platform, link modulation schemes, network protocols, the paper discusses and presents the development trend and technical ways of the next generation relay satellite system. In order to meet the different requirements of future near-earthdeep spacenear-space mission, aerial and land fast-moving users and reduce the system cost, the next generation data relay satellite system comes to be of a specific function and integrating with other systems. ISL will increase laser communication link, the data rate will be more than 10Gbps. Multi access will be the main service mode, the number of users supported simultaneously will be greatly improved. Thanks to the CR and SDR technology, Link modulation scheme can be real-time adjusted adaptively and re-configured by uploading on demand. Data will transmission will be accomplished by the integrated space and ground DTN network.