

IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advanced Satellite Services (5)

Author: Dr. Dongxia Wang
Beijing Satellite Navigation Center, China, wdx2008abc@163.com

Ms. Xiao Chen
Beijing Satellite Navigation Center, China, 2984446357@qq.com

Mrs. Jie Xin
Engineer, China, 15810539683@139.com

Mrs. Jie Xin
Engineer, China, 15810539683@139.com

Dr. Rui Guo
China, salon@163.com

STATUS AND DEVELOPMENT OF GNSS SATELLITE-GROUND COORDINATED OPERATION

Abstract

With the development of mobile anchoring technology and inter-satellite link (ISL) technology, high reliability satellite-ground coordinated operation of Global Satellite Navigation System (GNSS) is an urgent research hotspot. Firstly, this article describes the status of satellite-ground coordinated operation for GPS, GLONASS, Galileo, BDS in detail. The satellite-ground coordinated operation mode of GNSS mainly includes three modes: ground control mode, anchoring support mode and autonomous navigation mode. Moreover, ground control mode is the main and normal operation mode, and the anchoring support mode and autonomous navigation mode are development trend. Combined with the major services like basic navigation, satellite-based enhancement and positioning report, the related technologies and switch strategy of three GNSS coordinated operation modes are studied in mode operation and work diagram. Finally, comprehensive analysis of research status and key technology research status, the paper obtained that the satellite-ground coordinated operation and switching control technology, high reliability analysis technology and high reliability main standby cooperative work technology is the future development direction of satellite-ground cooperative operation of navigation systems in China.