On the Optimum Observing Conditions for Geodetic Parameter Estimation from RADIOASTRON

E. WEI (1,2), Peilai ZHOU (1), Guan LI (1), and Hui YI (1)

(1) Wuhan University, Institue of Satellite applications, School of Geodesy and Geomatics, Wuhan, China (ehwei@sgg.whu.edu.cn, +86-27-68778371), (2) The Key Laboratory of Geospace Environment and Geodesy, Ministry of Education,Wuhan University, Wuhan,China(ehwei@sgg.whu.edu.cn)

Abstract: Space Very Long Baseline Interferometry (SVLBI) is the unique space technology that can directly interconnect the three reference systems, which include the Conventional Inertial System (CIS) fixed in space and defined by radio source, the Conventional Terrestrial System (CTS) fixed to the earth and defined by a series of observation stations on the ground, and the dynamic reference system defined by the movement of satellite. As a new and rapidly developing technology in the field of space physics, SVLBI has tremendous potentials to be applied in geodetic research.

In this paper, SVLBI mathematical model with nutation parameters is discussed, and its feasibility for estimation of geodesy parameters is discussed. Based on the theory above , Simulation has been done for the SVLBI observations and related parameters for the RADIOASTRON .With the results of the simulation , the feasibility for estimation of EOP'S and nutation parameters has been researched, then appropriate number of station and epoch for the estimation of parameters has been analysed. And also some useful advice has been given.

Keywords: RADIOASTRON; Space VLBI; mathematical model; Geodetic parameters; Optimum observation conditions