

## Physical models adopted in orbit analysis software concerto v4 -Perturbations acting on satellites-

# Toshihiro Kubo-oka[1]; Toshimichi Otsubo[1]; Tadahiro Gotoh[1]

[1] NiCT

<http://www2.crl.go.jp/ka/control/index-J.html>

At National Institute of Information and Communications Technology, a precise orbit determination software concerto has been developed and the new version 4 is now being tested. One of the major features of this new version is an improvement of orbit determination accuracy. To achieve this requirement, perturbations acting on the satellite have to be evaluated more precisely than the previous versions.

Acceleration models included in version 4 are mostly based on IERS Conventions 2003. Moreover, satellite-specific perturbations, such as solar radiation pressure, are implemented in accordance with the shape and attitude control of the satellite. Perturbation models used in orbit determination can be switched by specifying them in the initial setting file.

In this paper, the physical models included in concerto v4 and comparison between the satellite orbits determined with different perturbation models are described.