# Physical models adopted in orbit analysis software concerto v4 -Earth rotation and site displacement-

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http://www.crl.go.jp/ka/control

To attain the high accuracy required for the orbit determination of artificial satellites, more and more satellites now carry a laser reflector set and/or a GPS receiver. Such cm- or mm-accurate data have to be processed with the physical models whose accuracy match that of the observation data. Among the models, we focus on the earth rotation and the site displacement in this paper.

At National Institute of Information and Communications Technology, orbit determination software concerto is the middle of a major renovation, and the new version 4 is being tested. The version 4 will mostly based on the physical models in IERS Conventions 2003 whereas the version 3, currently in use, has adopted the physical models mostly taken from IERS Conventions 1996. For example, in the new version, the new IAU 2000A model for precession-nutation, and the earth rotation angle for the diurnal motion are available. For the site displacement, the models for the solid earth tide and the polar tide are slightly modified, and further, the 54-constituent ocean loading model (Matsumoto 2003) is also implemented beyond the limit of IERS Conventions 2003. These new models were evaluated in comparison to the former models.