



Is the Geographic Latitude Variations detectable with Large Ring Laser Gyroscopes(RLG)?

W. Tian (1), M. Soffel (1), T. Klügel (2), K.U. Schreiber (2,3), and A. Gebauer (3)

(1) TU Dresden, Institut für Planetare Geodäsie, Lohrmann-Observatorium, Dresden, Germany (wei.tian@mailbox.tu-dresden.de), (2) Bundesamt für Kartographie und Geodäsie, Geodätisches Observatorium Wettzell, 93444 Bad Kötzing, Germany, (3) Technische Universität München, Forschungseinrichtung Satellitengeodäsie, Geodätisches Observatorium Wettzell, 93444 Bad Kötzing, Germany

After that the tilt of the large RLG's platform caused by the Earth tide and the diurnal polar motion of the Earth were detected by Schreiber et al.(2003) and Schreiber et al.(2004), the G-RLG located in fundamental station Wettzell has been improved dramatically and its sensitivity now reaches the level of less than $1 \cdot 10^{-8}$ s. Meanwhile the diurnal polar motion model and tilt model are improved and fully consistent with the IERS convention 2010. All these above improvements allow us to investigate the largest diurnal and semi-diurnal signals caused by the Geographic Latitude Variations(GLV)in the residual of the raw data after the diurnal polar motion and Earth tide tilt reductions. The estimated amplitudes are compared with the well-modeled GLV values, and the detectability of GLV by large RLG is discussed at the end.