

## Characteristics of the temporally varying gravity field solutions derived from GRACE mission

KEIKO YAMAMOTO, TAKAYUKI SUGANO and YOICHI FUKUDA Department of Geophysics, Graduate School of Science, Kyoto University

Using the monthly gravity field solutions derived from the dedicated gravity satellite GRACE launched in 2002, temporally varying gravity signals can be detected. The solutions shows a good agreement with the seasonal varying signal in the spatial scale about 1000 km (about degree/order = 20), as shown in Tapley et al. (2004), which reported the gravity field variation from the land water variation in the Amazon drainage.

GRACE Level 2 monthly gravity field solutions include spherical harmonic coefficients up to relatively high degree of 120. However, the reliability and the error properties of the data in the short wavelength are not enough investigated. In this study, we aim to reveal the characteristics of GRACE gravity field solutions, especially the reliability and the error characteristics in the short wavelength. The 22 sets of monthly gravity field solutions until July, 2004, that can be obtained now, are examined about spatial and temporal error characteristics by comparing the expected gravity field recovery precision based on orbit information or evaluating the validity of the dealiasing model which is used for the real GRACE processing.

Keywords: satellite gravity mission; GRACE; gravity.