Geophysical Research Abstracts
Vol. 19, EGU2017-15532, 2017
EGU General Assembly 2017

Effect of the improved accelerometer calibration method on AIUB's GRACE monthly gravity field solution

Yoomin Jean, Ulrich Meyer, Daniel Arnold, Katrin Bentel, and Adrian Jäggi
University of Bern, Switzerland (yoomin.jean@aiub.unibe.ch)

The monthly global gravity field solutions derived using the measurements from the GRACE (Gravity Recovery and Climate Experiment) satellites have been continuously improved by the processing centers. One of the improvements in the processing method is a more detailed calibration of the on-board accelerometers in the GRACE satellites. The accelerometer data calibration is usually restricted to the scale factors and biases. It has been assumed that the three different axes are perfectly orthogonal in the GRACE science reference frame. Recently, it was shown by Klinger and Mayer-Gürr (2016) that a fully-populated scale matrix considering the non-orthogonality of the axes and the misalignment of the GRACE science reference frame and the GRACE accelerometer frame improves the quality of the C20 coefficient in the GRACE monthly gravity field solutions. We investigate the effect of the more detailed calibration of the GRACE accelerometer data on the C20 coefficient in the case of the AIUB (Astronomical Institute of the University of Bern) processing method using the Celestial Mechanics Approach. We also investigate the effect of the new calibration parameters on the stochastic parameters in the Celestial Mechanics Approach.