



Grace accelerometers calibration

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The determination of calibration parameters of GRACE satellites accelerometers requires a very high level of precision (below 10^{-9} m/s²). An inverse method in which the full set of parameters (accelerometers, K-band, GPS, orbital, gravity model) are estimated simultaneously, is classically adopted. Because GRACE A and B satellites are very similar in shape, are flying the same orbit (only separated by about 220 km) and are linked by k-band observations, these adjusted parameters are highly correlated. We focus in this study on accelerometer biases and scale factors. Several strategies to apply a priori constraints to these unknowns are presented including a new approach to recover very precise relative biases from raw accelerometer observations. The impact on GRACE orbit determination and derived gravity field coefficients improvement is evaluated. In addition, a high sensitivity to temperature variation of the GRACE accelerometers is demonstrated.