

Poster für Session 5 (Geodätische Aspekte neuartiger Satellitenmissionen,  
Gravitationsfeld)

ITG-Champ02: An Improved Gravity Field Model from a Two-Year Observation Period

T. Mayer-Gürr, K.H. Ilk, A. Eicker, M. Feuchtinger  
Institut für Theoretische Geodäsie  
Universität Bonn  
Nussallee 17, 53115 Bonn  
Mail: [tmg@geod.uni-bonn.de](mailto:tmg@geod.uni-bonn.de)

Abstract:

Improved global gravity field models have been determined based on kinematical orbits covering an observation period of two years, provided by D. Svehla and M. Rothacher from the FESG München. The kinematical orbits are available as set of position vectors with a sampling rate of 30 seconds. Various versions of the gravity field model have been derived depending on the regularization method applied. A first version was based on the potential coefficients of the gravity field model EGM96. A second model has been determined based on Kaula's rule of thumb and a third one has been derived without regularization at all. In the latter case no additional information has been used to derive the potential coefficients complete up to a degree 90. The physical model of the gravity field recovery technique is the same as those used for the derivation of the recently published model ITG-CHAMP01. The set of observation equations are formulated in space domain by dividing the total observation period in short pieces of arcs, not exceeding a time span of approximately 30 minutes. For every short arc a variance factor has been determined by an iterative computation procedure.