

Geophysical Research Abstracts,  
Vol. 10, EGU2008-A-12082, 2008  
SRef-ID: 1607-7962/gra/EGU2008-A-12082  
EGU General Assembly 2008  
© Author(s) 2008



## **A minimum distance approach to marine geoid computation**

**A. A. Ardalan, R. Karimi**

Department of Surveying and Geomatics Engineering, Center of Excellence in Geomatics, Engineering and Disaster Prevention, College of Engineering, University of Tehran, P.O. Box 11155-4563, Tehran, Iran (ardalan@ut.ac.ir)

According to Gauss, the mathematical surface of the Earth (the geoid) is an equipotential surface which best fits to Mean Sea Level (MSL) in least squares sense. In this paper we have shown how this definition can give us a tool for marine geoid computation in the realm of the Lagrangian optimization. As case study, a new global marine geoid based on the introduced approach is computed. In order to assess the method, from the computed marine geoid and the MSL that used for the computations, a global Sea Surface Topography (SST) solution is derived and compared with POCM4B SST model. Based on the result of the comparison, the RMS of the difference between the two SST solutions is 10.2 cm, which shows high degree of agreement between the two SST models and also the success of the introduced technique for the marine geoid computations.