Geophysical Research Abstracts,
Vol. 11, EGU2009-2726-3, 2009
EGU General Assembly 2009

Wenchuan Earthquake Gravity Changes Detection from GRACE

Z. Zou (1,2,3), Hui Li (1,3), ZhiCai Luo (2), Xin Zhou (1,3)

(1) Institute of Seismology, CEA, Wuhan, China (zouzb@126.com), (2) School of Geodesy and Geodynamic,Wuhan University, Wuhan,China, (3) Crustal movement laboratory, Wuhan,China

Abstract:

After the Gravity Recovery and Climate Experiment mission was successfully launched in March 2002, Three researcher center,a lot of gravity fields of the Earth over its six year life time are released by UTCSR, NASA in the USA and GFZ in German, which includes the time-variable global gravity field models with the maximum degree to 120 (RL01) and 60 (RL04) , and 1 month time resolution. The unprecedented precision of GRACE mission will enable us to detect the time variations of the gravity field related to global redistributions of water and air mass inside fluid envelops at the surface of the Earth.

The purpose of this paper is to study how to use these products to detect the gravity changes in China and its vicinity according to the spatial resolution and the required precision for Wenchuan earthquake, and try to analyze some gravity information. Firstly, in order to study earthquake, the maximum truncated degree of the monthly GRACE gravity field models is discussed. Secondly, we use the GRACE level 2 products to calculate the gravity changes in China mainland and its vicinity with Gaussian smoothing method, and analyze the reason for the results. Thirdly, we do some experiments on special area and special earthquakes and get reasonable results.

Key words: satellite gravity, GRACE,earthquake,gravity changes,Gaussian smoothing