A fast 3D gravity forward algorithm based on cyclic convolution

Code By: Xianzhe Yin, Changli Yao, Yuanman Zheng, Guangxi Chen, Wenqiang Xu

School of Geophysics and Information Technology, China University of Geosciences, Beijing, China: 100083

E-mail: yinxz@cugb.edu.cn

clyao@cugb.edu.cn

The code is written in Matlab R2022a.

Code Description

1、Our methond

Fast computation of gravity field based on circular convolution.

Main function:

Cal_ModelGravityinFourie.m

Calling sub-functions:

- *Cal_tranGraf.m : Analytic formula method for calculating the gravity of a cube*
- *GraconvelP.m : Construct the circular kernel matrix and calculate the gravity field using FFT algorithm*

2、In space domain

Main function:

Cal_ModelGravityinFourie.m

Calling sub-functions:

- *Cal_tranGraf.m : Analytic formula method for calculating the gravity of a cube*

✧ ***Note: See code comments for detailed parameters.***