Geophysical Research Abstracts,
Vol. 11, EGU2009-3650, 2009
EGU General Assembly 2009


# The Velocity Model of Chinese Continent Established by GNSS Observations

Y. Yao

Institute of Satellite Application Engineering,School of Geodesy and Geomatics,Wuhan University,Wuhan,China(ybyao@sgg.whu.edu.cn)

With the high precision repeated GNSS observations, the Multi-quadric equations interpolation method is used to establish the velocity model of Chinese continent's crustal movement. The valuable present-day horizontal and vertical crustal movement velocity images are obtained. The eastwardly movement trend of Chinese continent is quite evident, and there is a trend of clockwise rolling, from northeast to east, then to southeast. At the same time Chinese continent movement show the difference between east and west. In the west the trend is move towards the north and northeast, while in the east the trend is creep towards south and southeast, with a huge north dextral shear zone. The horizontal movement velocity approximately equals to 30-50mm/a.The background velocity model of China mainland in ITRF97 frame is also computed by GNSS velocity observations. The local background velocity model is extremely consistent with Europe -Asia tectonic plate's Euler direction and the spin rate provide by some global background field model such as NNR-NUVEL1A model, Sillard model and Larson model in the magnitude and the major tendency, with which we can analyze the characteristic of Chinese continent's crustal movement.Chinese continent's absolute shift mainly happens in the southwest area. In Ximalaya and Lhasa block the eastern movement is very apparent, and there is an apparent clockwise rotation in Qiangtang, Chuandian, Dianxi block. In Qiangtan block, it shift toward east, but in Chuandian block, it shift toward southeast, and then it shift southwest in Dianxi block. The magnitude is about 10$\tilde{2}$5mm/a, and they are quite obvious activity deformation belt, and the absolute movement of other area is not evident, mostly less than 10mm/a.The characteristic of vertical crustal movement in Chinese mainland is qualitative analysed: more than 70% of Chinese mainland are descended and the speed of descend is less than 20mm/a , the Qingzang plateau [U+3001] Huabei plate(excluding Beijing area) and Yanshan plate are ascended with the speed less than 15mm/a. The holistic vertical crustal movement of West-North and East-South [U+3001] West-South and East-North areas of China are shown an approximate slanting symmetry state.