Geophysical Research Abstracts,
Vol. 11, EGU2009-4810, 2009
EGU General Assembly 2009

Spectral analysis of the Geocenter variations.

S.K. Tatevian (1), S.P.. Kuzin (1), and S.G. Valeev (2)

(1) Institute of astronomy, RAS, Space geodesy, Moscow, Russian Federation (statev@inasan.ru, 07 495 9515557), (2) Ulyanovsk Technical; University, Ulyanovsk, Russian federation

Estimates of geocenter (center of mass of the entire Earth system) positions accuracy with the use of GPS/GLONASS measurements, as well as with the SLR data, proves the great dependence of the results on the distribution of the tracking sites over the Earth's globe and on the networks configuration. DORIS satellite system has a significant advantage for the estimation of the global dynamic parameters due to almost ideal distribution of the 55 tracking sites over the Earth. Processing of the DORIS network measurements for the period 1993-2008 has been repeated with the improved satellites models and with elevation cutoff at 15 degrees. Weekly coordinates of all DORIS sites were estimated. For the analysis of the geocenter dynamics, estimated by the DORIS data, the method of adaptive dynamic regressing modeling (DRM) has been applied. The time series of geocenter weekly positions (3 linear shift parameters: dx, dy,dz) for 15 years have been considered. After the spectral analysis and autocorrelation function studies a conclusion on the presence of harmonic components of 5-7 degrees in the time series of all three components of geocenter motion was made. A model of geocenter dynamics for three vector components has been created, which is considered as the preliminary one and should be improved and verified with the use of more data from all types of measurement techniques.