Geocenter motion is not only the key point in realizing and maintaining reference frame based on the center of mass of the Earth system (CM), but also helps to study global surface mass loads. Relative motion of the center of surface figure (CF) to CM is defined as the geocenter motion in this paper. Compared with the past International GNSS Service (IGS) products, apparent geocenter motion from IGS reprocessing campaign is much improved, especially in Z direction, showing obvious annual variations and good consistency with geophysical predictions. So we adopt reprocessed IGS weekly solution from 2000.0 to 2010.0 and uses degree-one deformation approach to inverse geocenter motion. We choose 132 reference stations given by IGS05, and the velocity is eliminated by IGS05_repro.snx provided by MACS. Full variance-covariance matrixes are considered in order to keep the shape of the network provided by ig1 SINEX. There are four schemes adopted in this paper totally and results show good consistency with each other. Especially result from scheme 2 shows that annual amplitudes are 3.72mm, 3.06mm and 8.95mm and phases are 261, 331, 228 degree in X, Y and Z direction respectively, which are generally consistent with that of SLR, except for annual amplitude in Z direction. And our annual phase in Z direction indicates that the maximum mass loads within northern hemisphere is during February, and that of southern hemisphere is during August.