The rheological structure of crust is a very important issue in the study of the crustal movement. The evaluation of physical properties within the crust is a basic task. In this paper, we quantitative researched some physical properties within the Tibet crust. Firstly, we developed a constitutive relation about density, stress, velocity, temperature and their spatial derivative based on the thermodynamic equation, and derived the coupling interaction relation between upper and lower crust. Secondly, we divided crust into two layers: the brittle layer and the ductile layer, and assume that the elastic brittle layer approximates to elasticity, and the viscoelastic ductile layer is viscoelastic. Then, we use Crust2.0 model and GNSS time series for crust physical parameters inversion, estimated brittle-ductile transition plane of Tibet plateau crust and varied physical parameters of depth, temperature, effective viscosity of ductile layer and so on. This paper gets the following conclusions: 1) The internal temperature of Tibet crust increases with depth, and the temperature distribution of moho-surface is about 500~900°. 2) Brittle-ductile transition plane usually locates in middle crust with depth about 22~37km, the thicker the crust, the deeper the transition plane is. 3) Effective viscosity of middle crust located in Tibetan plateau is between $10^{19}$~$10^{22}$Pa·s, and of lower crust is between $10^{17}$~$10^{20}$Pa·s.

**Keywords:** Tibet, GNSS, Effective viscosity