D107-P009 **Room: Poster Session Hall** **Time: May 19**

Application of a Numerical Inverse Laplace Integration Method to Surface Loading in a Viscoelastic Compressible Earth Model

Yoshiyuki Tanaka[1]; Jun'ichi Okuno[2]

[1] ERI; [2] NIPR

Normal mode approaches for calculating viscoelastic responses of self-gravitating and compressible spherical earth models have an intrinsic problem of deter mining the roots of the secular equation and the associated residues in the Laplace domain. To by-pass this problem, a method based on numerical in verse Laplace integration was developed by Tanaka et al. [2006, 2007] for com putations of viscoelastic deformation caused by an internal dislocation. The advantage of this approach is that the root-finding problem is avoided with out imposing any additional constraints on the governing equations and earth models. In this study, we apply the same algorithm to computations of vis coelastic responses to a surface load, and show that results obtained by this approach agree well with those obtained by a time-domain approach that does not need determinations of the normal modes in the Laplace domain.

Using an elastic earth model PREM and a convex viscosity profile, we cal culate viscoelastic load Love numbers (h, l, k) for compressible and incom pressible models. Comparisons between the results show that effects due to compressibility are consistent with results obtained by previous studies, and the rate differences between the two models can amount to 10-40 percent. This method will serve as an independent method to confirm results by time-domain ap proaches, and will be useful to increase reliability for modeling postglacial rebound.