1146-35-39 **Chongsheng Cao** and **Yanqiu Guo***, Department of Mathematics and Statistics, 11200 S W 8th Street, Miami, FL 33199, and **Edriss S. Titi**. *Global regularity for a rotating convection model of tall columnar structure with weak dissipation.*

We study a three-dimensional fluid model describing rapidly rotating convection that takes place in tall columnar structures. Global existence, uniqueness, continuous dependence on initial data, and large-time behavior of strong solutions are shown provided the model is regularized by a weak dissipation term. The main difficulty of analyzing this model lies in the fact that the physical domain is three-dimensional, whereas the regularizing viscosity acts only on the horizontal variables. (Received December 25, 2018)