

1162-35-199

Aseel Farhat* (afarhat@fsu.edu), 1017 Academic Way, Tallahassee, FL 32304, and **Hans Johnston, Michael S. Jolly** and **Edriss S. Titi**. *Assimilation of nearly turbulent Rayleigh-Bénard flow through local circulation measurements.*

We will discuss a continuous (downscaling) data assimilation algorithm for the 2D Bénard convection problem using vorticity or local circulation measurements. Our numerical results indicate that the approximate solution of the algorithm is converging to the unknown reference solution (vorticity and temperature) corresponding to the measurements of the 2D Bénard convection problem. Moreover, this convergence is realized using data which is much more coarse than the resolution needed to satisfy rigorous analytical estimates. (Received August 31, 2020)