

1145-76-2683

**Animikh Biswas\*** ([abiswas@umbc.edu](mailto:abiswas@umbc.edu)). *Determining map for statistical data assimilation and applications*. Preliminary report.

Based on a down-scaling data assimilation algorithm which employs a nudging term on the coarse scales, for observations discrete in time and possibly contaminated with a random error, we construct a *determining map* of coarse scale trajectories and investigate its properties. This map is then used to develop a down-scaling statistical data assimilation scheme for dissipative systems, where the coarse scale statistics of the systems are obtained from measurements. We also discuss some computational strategies for statistical solutions of the Navier-Stokes equations by employing the data assimilation map. (Received September 25, 2018)