1147-76-171 **Yuan Pei*** (yuan.pei@wwu.edu), 516 High St. MS 9063, Department of Mathematics, Western Washington University, Bellingham, WA 98225-9063, and **Adam Larios** (alarios@unl.edu), 203 Avery Hall, Lincoln, NE 68588-0130. *Some new results on data assimilation for geophysical and fluid dynamics.*

In this presentation, we introduce some recent progress on the continuous data assimilation algorithm in geophysical and fluid dynamical models. In particular, we show the analysis of this algorithm for the primitive equations of the ocean and the atmosphere in 3D, i.e., we prove that the interpolated solution converges to the reference solution in L^2 norm exponentially fast in time. Also, we introduce a new feature of the data assimilation for PDEs. That is, we can drive the regularized 2D Navier-Stokes equations by the observational data and obtain errors bounded by a power of the regularizing parameter α. Moreover, the long-term error decays to zero as α goes to zero, even including the H^2 norm, provided smooth enough initial data are assumed. Part of the works here is jointly with Adam Larios. (Received January 06, 2019)