A Bayesian approach to Lagrangian data assimilation

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I will discuss the problem of data assimilation from the Bayesian statistical perspective. I will present the posterior distribution of the state of the system given its noisy observations and a dynamical model. I demonstrate the application of three sampling methods, based on Langevin equation and Metropolis-Hastings algorithm, for sampling this posterior distribution, in the context of the Lagrangian data assimilation problem. This exact posterior is compared to the posterior implied by ensemble Kalamn filter.