General comments:

Review of "Inferring flow energy, space and time scales: freely-drifting vs fixed point observations" by Aurelien Luigi Serge Ponte et al. submitted for *Nonlinear Process in Geophysics*.

The study addresses the interesting topic of the inference of spatiotemporal decomposition of oceanic surface flow variability. The authors presented a novel method to deal with the problem and evaluated the its performances in a synthetic idealized configuration. From the perspective of computation cost and environment impact, the novel method highlights the superiority of the drifter deployments.

The paper is interesting and well structured, which may have important inspirations to the scientific community. I recommend it to be accepted before some minor revisions.

More detailed comments are below.

1. The authors claimed that the observed data **y** was obtained by adding the white noise to the flow time series. The properties of white noise have important impact on the accuracy of the experiment result. Generally, different amplitudes of white noise may lead to different results. More detailed descriptions of the white noise and its possible impacts of different amplitudes are preferable in this paper.

2. The nonlinear characteristic is obvious in the oceanic surface flow variability, which means the dynamical trajectories of surface flow are sensitive to the initial conditions. Besides, the synthetic idealized configuration used in this study has no parameter errors, which are different to real oceanic systems. If the nonlinearity is taken account, whether it change the conclusion, please give some discussions.

3. The study is carried out in an ideal model, which has much differences from the real scenario. What is the most challenge, if the novel method is applied to the real oceanic systems? And how do the authors apply it to the real oceanic systems. Please clarify.