Many thanks for reviewing our manuscript and for taking the time to provide constructive feedback. We are glad you find our contribution valuable to the disaster mitigation community. We feel it is also a significant contribution to the hydrological community. To the best of our knowledge our manuscript presents the first data assimilation framework to be applied to a simulation library flood inundation forecasting system.

1.   Observations are used alongside the model's simulation library flood maps to select the most appropriate model state, or flood map, per sub-catchment. In our opinion, this meets the requirements of a data assimilation approach since it includes both observation and model data. Our cost function has a similar derivation to conventional 3D-Var, but its form is different since, unlike conventional 3D-Var, the observation likelihood is not Gaussian. During the minimization we use a physical constraint, namely that the solution must be a member of the simulation library. This has an analogy to strong-constraint 4D-Var where the solution must fit the forecast model.

2.   Thank you for your interest in the evaluation metrics used. The evaluation metrics were developed recently and hold several benefits over conventional binary skill scores and several previous works using them have been cited in the paper (Hooker et al., 2022, 2023a, 2023b). They have been applied here to evaluate the data assimilation performance against independent observation data.

3.   Thank you for your useful suggestion. During revision we will add a data assimilation framework flow diagram to aid understanding.