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| **STUDENT:** | Edward M Lim | **EMAIL** | [edward.lim15@imperial.ac.uk](mailto:edward.lim15@imperial.ac.uk) |
| **TITLE:** Hybrid data assimilation with ensemble covariance matrices | | | |
| **SUMMARY:**  Data Assimilation (DA) is an uncertainty quantification technique used to reduce the error in predictions combining forecasting data with real observation of the state. The most used techniques for DA are Variational approaches and Kalman Filter.  However, applying these techniques is extremely computational expensive due to the requirement of solving the background error covariance matrices.  In this project, we propose to use ensemble technology to replace the background covariance matrix in a 3D Variational data assimilation. We are expecting this approach to improve the accuracy of the results. | | | |
| **DATA:**  London South Bank University (LSBU) air pollution data (velocity, tracer) | | | |
| **SCOPE:**   * Use dataset from ”Optimal reduced space for Variational Data Assimilation” paper * Validate against results from ”Optimal reduced space for Variational Data Assimilation” paper | | | |
| **MILESTONES:**  [COMPLETE]  June 2019: report  [COMPLETE]  August 2019: work finished!  [COMPLETE]  September 2019: final report and presentation | | | |