

Implications of moving towards a Continuous Data Assimilation system

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Typically, operational NWP centres collect observational data up until a predefined cut-off time. After this data cut-off, the assimilation process begins. Consequently, data assimilation systems are optimised for “time to solution” to make the best use of the critical path. Under the Continuous Data Assimilation concept, the assimilation computations are started before all of the observations have arrived. This approach allows more time to be spent on the assimilation which enables an improved estimation of the initial state. Results will be presented from an experimental quasi-continuous data assimilation system where newly arrived observations are added at each outer loop of 4D-Var. In the future, such a system may evolve into something that runs continuously, with the first guess state being refined continually as new observations arrive. The implications in terms of operational HPC resources and resilience will be discussed.

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