

# **DIAGNOSING THE IMPACT OF ATMOSPHERIC MOTION VECTORS IN THE ECMWF 4D-VAR ASSIMILATION SYSTEM**

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## **ABSTRACT**

The forecast sensitivity to observations (FSO) diagnostic tool has recently been implemented at ECMWF. FSO calculate the third-order sensitivity gradient for, typically, the 24h forecast error. Sensitivity gradients are provided at the start of the minimization and the linearized equations are solved to provide the sensitivity of the forecast error with respect to the observations. The FSO tool has been used to diagnose the impact of Atmospheric Motion Vectors in ECMWF's variational assimilation system. Some of these results and comparison with Observing system Experiments (OSE) will be presented and the implications discussed.