Highlights of the data assimilation practical session

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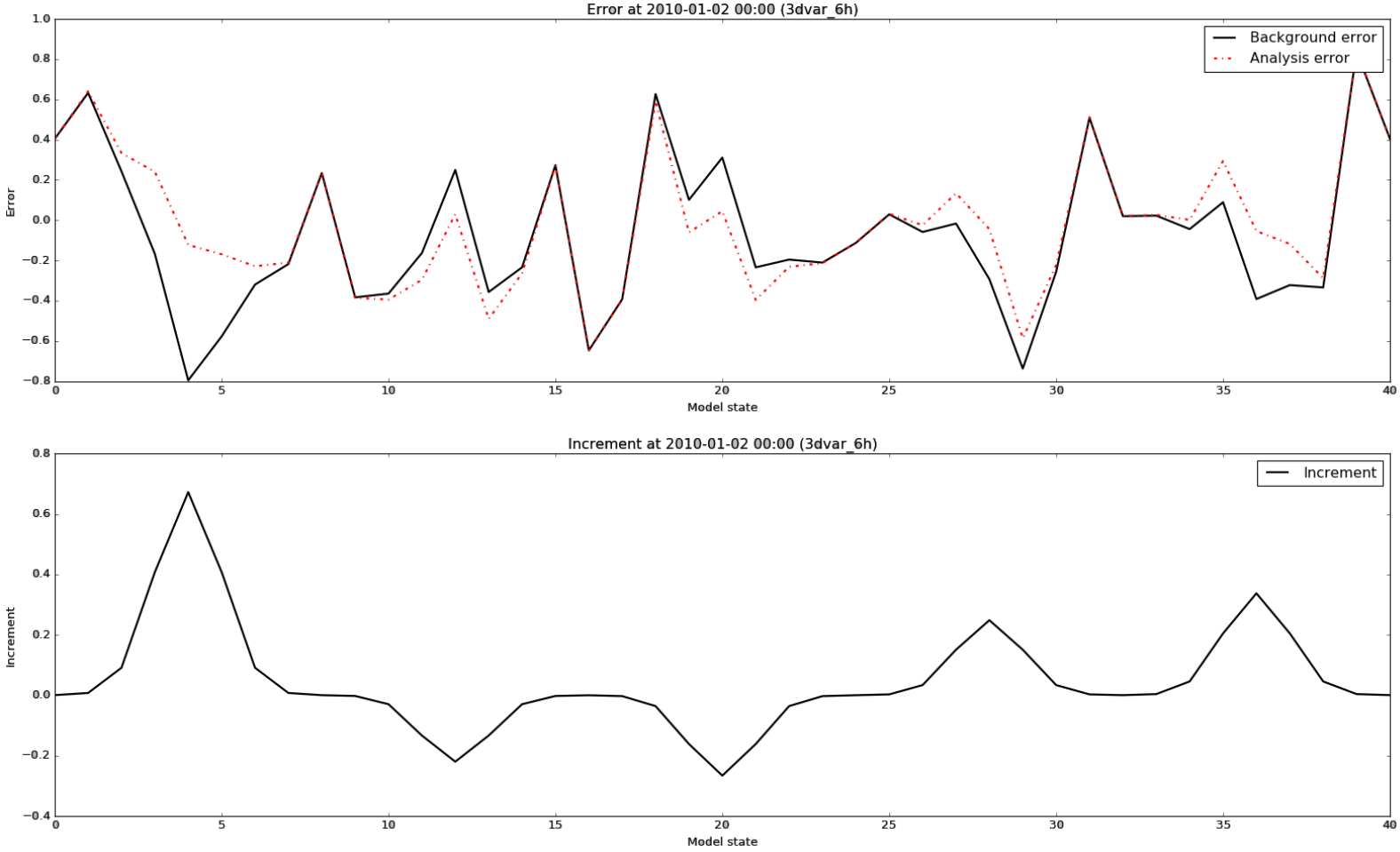
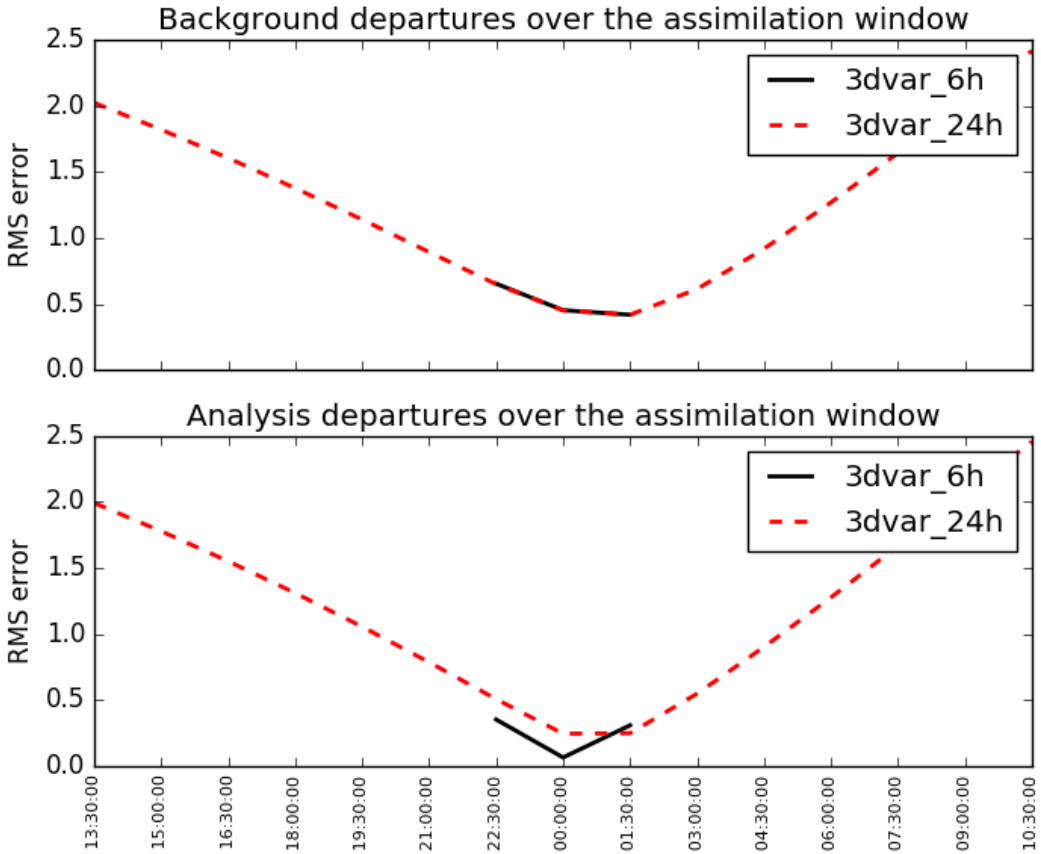
Assimilating observations



Increment corrects the background and produce an analysis closer to the observations

The background error covariance matrix B spreads the information in space

3D-Var with a 6-hour and 24-hour assimilation window

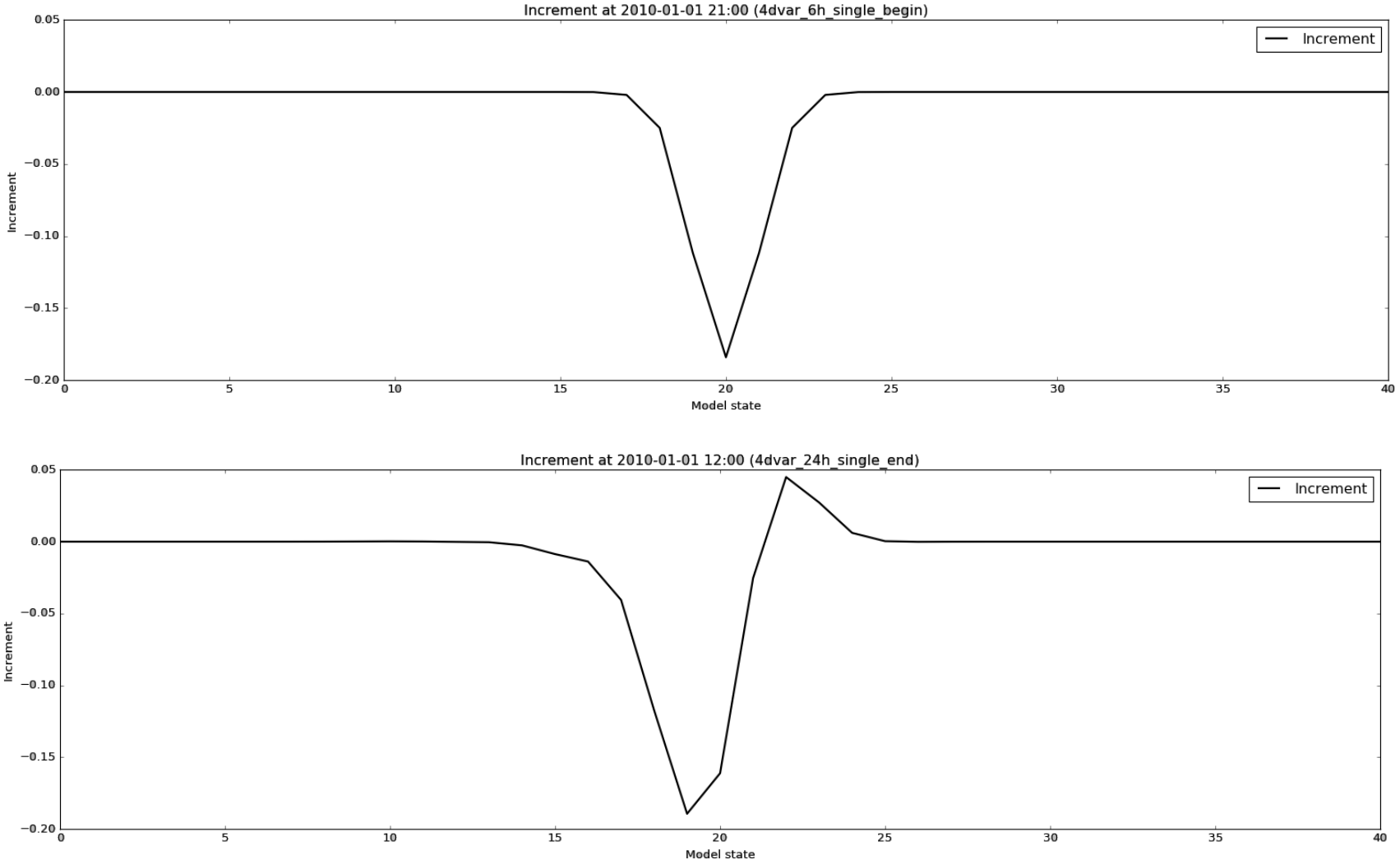


3D-Var assumes that all observations are available at the middle of the window

When the window is increasing, the background departures are large as the dynamical model is not taken into account

3D-Var cannot fit the observations at the beginning/end of the window

How information is spread in 3D-Var and 4D-Var



Information is spread with B in 3D-Var
Information is spread with B and M in 4D-Var