Three Slide Introduction

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PhD Title:
Understanding the Information Content in Diverse Observations of Forest Carbon Stocks and Fluxes for Data Assimilation and Ecological Modeling.

Background

PhD student at University of Reading in the United Kingdom
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The DALEC Model

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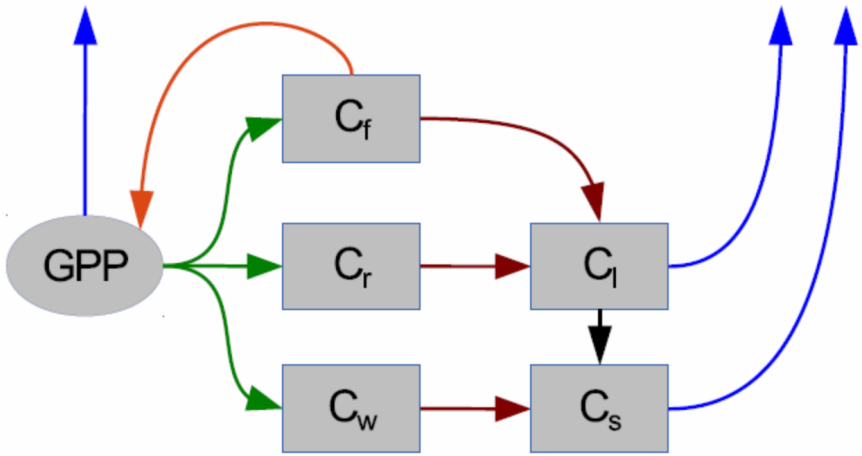

4DVAR with DALEC

The DALEC model is coded up in a 4DVAR cost function and gradient to be minimised where,

$$J = \frac{1}{2}(\mathbf{x}_0 - \mathbf{x}_B)^T \mathbf{B}^{-1}(\mathbf{x}_0 - \mathbf{x}_B) + \frac{1}{2}\sum_{i=0}^{n}(\mathbf{y}_i - \underline{h}_i(\mathbf{x}_i))^T \mathbf{R}_i^{-1}(\mathbf{y}_i - \underline{h}_i(\mathbf{x}_i))$$

$$\bigtriangledown J = \mathbf{B}^{-1}(\mathbf{x}_0 - \mathbf{x}_B) - \sum_{i=0}^{n} \mathbf{M}_{i,0}^T \mathbf{H}_i^T \mathbf{R}_i^{-1}(\mathbf{y}_i - \underline{h}_i(\mathbf{x}_i)).$$

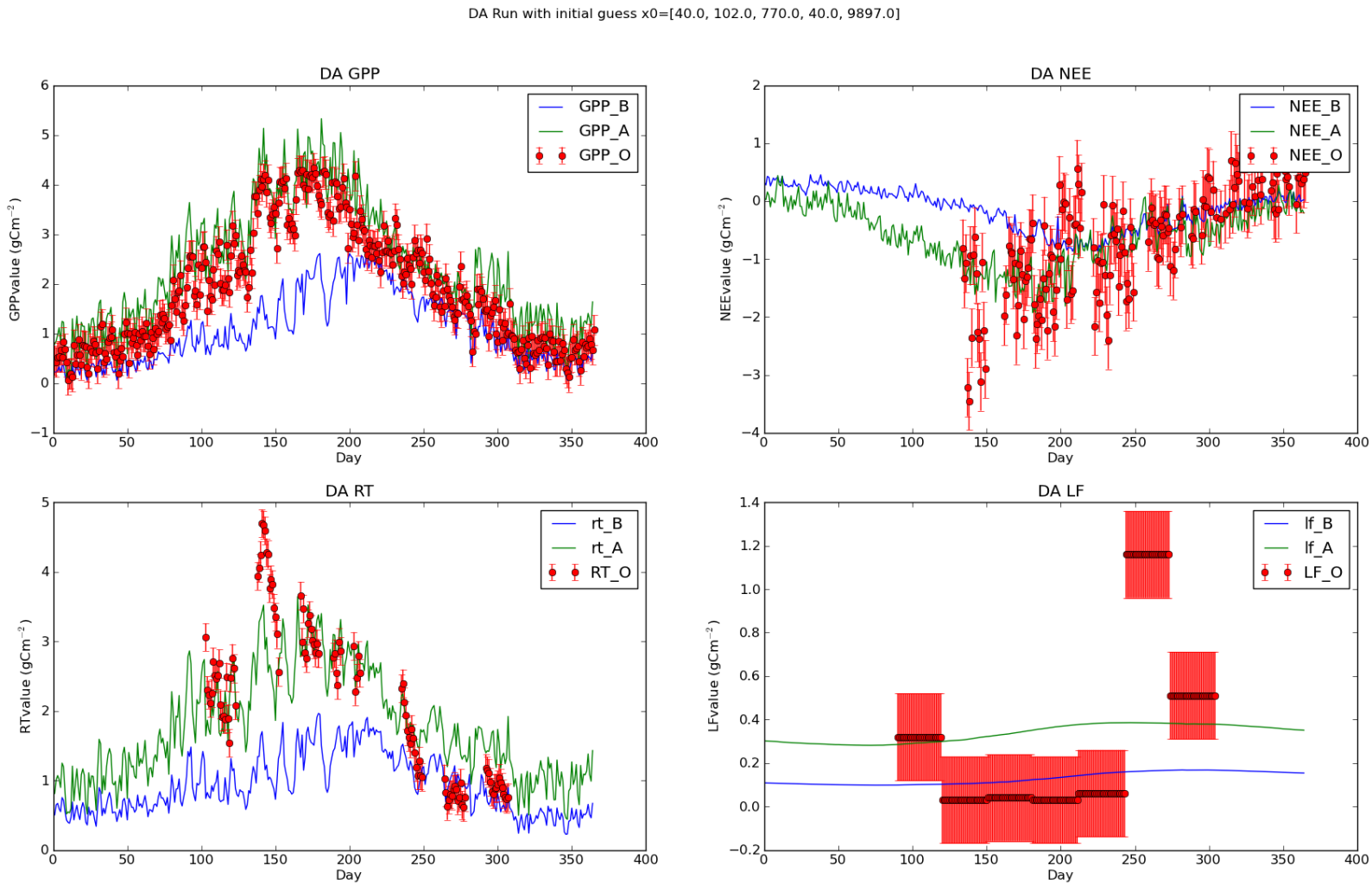

Figure : 4DVAR DALEC with a 365 day assimilation window and only observations of NEE assimilated.