**Notation**

***H***, ***h*** or calligraphic ***H***: non-linear observation operator

**H**: tangent linear observation operator

***M*** or calligraphic *M*: non-linear model

**M**: tangent linear model

*N*: size of ensemble

*n*: size of state space

**B**, **P**f or **P**b: a-priori or prior error covariance matrix

**P**f(N): a-priori or prior error covariance matrix formed from a sample of *N*

**C**f: a-priori or prior error correlation matrix

**P**a: a-posteriori error covariance matrix

*p*: number of observations

**Q**: model error covariance matrix

**R**: observation error covariance matrix

**x**a: analysis state vector

**x**f or **x**B : forecast or a-priori state vector (use primed to denote perturbation from mean)

**η**: model error vector

**Ω** or **C**loc: localization / moderation matrix

**K**: gain matrix

**X**': matrix of ensemble perturbations

**ε**: random error (in ob, background, etc)

**Σ**b: background error standard deviation matrix

**U**, **L** or **B**c1/2: control variable transform.

**chi** or **v**: control variable