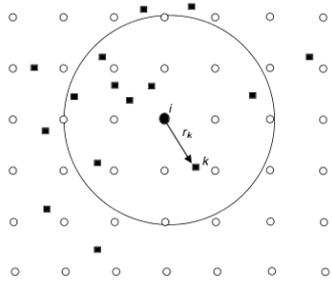


**Center for Weather Forecast and Climate Studies(CPTEC)
National Institute for Space Research (INPE)
GDAD – Group on Data Assimilation Developments**

CURRENT

Physical-space Statistical Analysis System



$$\delta x_i = (BH^T)(R + HBH^T)^{-1} \delta y_o$$

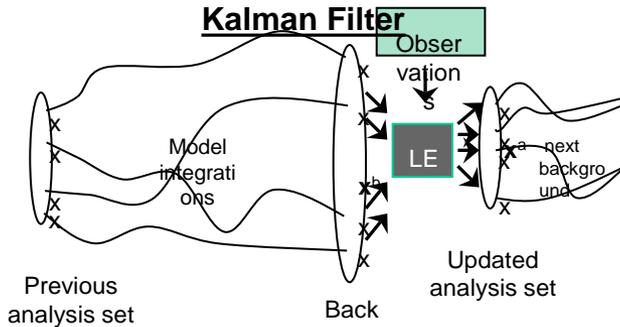
(Analysis increment)

$$J(w) = \frac{1}{2} w^T (R + HBH^T) w - w^T [y_o - H(x_b)]$$

(Minimize cost function)

UNDER IMPLEMENTATION

Local Ensemble Transform



Previous analysis set

Kalman Filter

Observation

LE

Updated analysis set

$$x^a = x^b + E_{loc} \cdot \tilde{K} \cdot y^o$$

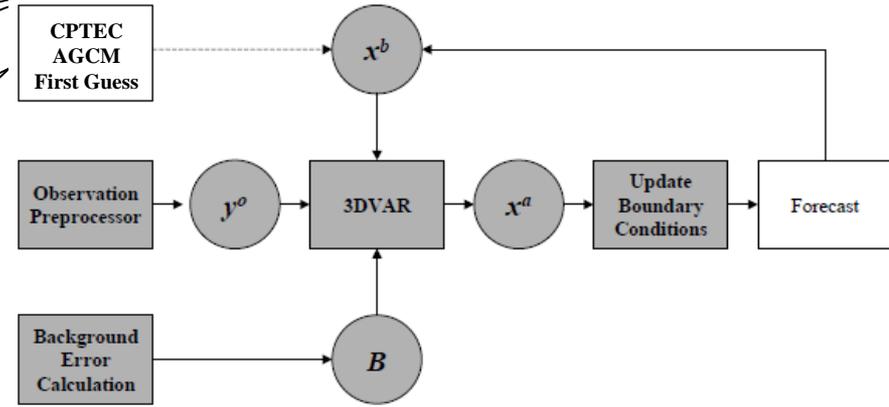
(Kalman Filter Analysis update)

$$\tilde{K} = (I + Z^T R^{-1} Z)^{-1} Z^T R^{-1}$$

(Kalman Gain)

3D-Var (GSI)

$$J(x) = (x - x^b)^T B^{-1} (x - x^b) + (z - H(x))^T R^{-1} (z - H(x))$$



First Cut Priorities:

ATOVS (NOAA-18, 19, MetOp-A)

IASI (MetOp-A)

SSMIS (F16, 17, 18)

GPSRO, AMVs, ASCAT

ATMS (NPP-1)*

SEVIRI (MSG)

CrIS (NPP-1)*

AIRS (Aqua)

MWTS, MWHS, IRS (FY-3)

