My Outline

【7.20】

- theme

The Introduction of D.A.

see slides of 《IntroDAHARBIN2017》 and 《HIT1-2017》

【7.21】

- theme

show how to retrieve the initial condition of Lorenz system based on varaiational methods

see slides of 《OptimizationHARBIN2017》《UCM1》

【7.22】

- theme

again，derivate the O.S.（optimization system） of Lorenz system with respect to lamda，and make a summary of the varational methods to get our O.S. Also gave some issues about dimension, the difficult of transposing

- Summary

1. O.S. = model + adjoint model
2. Goals: let the functional equations be linear with respect to the variable we are interested
3. Tips:
    1) direction model: J
    2) adjoint model: introduce adjoint variables and derive the Gateaux derivative
    3) compare two model and get the solution of adjoint variables

【7.26-7.28 a.m.】

- theme

sensitivity analysis

details are listed as follows

【7.26】

- theme

applications of D.A. to the watercourse，show how to change nodels according to different case.Such as initial condition

the examples show the importance of controlling model error.

no slides

【7.27】

- theme

use adjoint to estimate sensitivity

see slides of 《Using Automatic Differentiation to study the sensitivity of a crop model》

- some tools I googled

TAPENADE tools
http://www-sop.inria.fr/tropics/tapenade.html
AutoDiff
http://autodiff.codeplex.com/

- Question：Can these be used in our experiments??

【7.28 a.m.】

- theme

derive the sensitivity equations of Lorenz system
see the proof in 《la dimet draft》

【7.28 p.m.】

- theme

second order adjoint in sensitivity analysis;give an example of image assimilation
slides 《HARBIN2017AD》、《SENSITIVITYPOLLUTIONUCM》
slides 《ImagesUCM》