Training Course : Ideal case

MesoNH Tutorial Class 1-4 December 2025

Simulation 1

- a square domain with 24 points :
  NIMAX=24 NJMAX=24 in PRE_IDEA1.nam
  (&NAM_DIMn_PRE)
- a mesh of 1 km :
  XDELTAX=1000.0 XDELTAY=1000.0 in PRE_IDEA1.nam
  (&NAM_GRIDH_PRE)
- a time step of 15s :
  XTSTEP =15 in EXSEG1.nam (&NAM_DYNn)
- 1 hour of simulation :
  XSEGLEN = 3600. in EXSEG1.nam (&NAM_DYN)
- numerical diffusion for momentum :
  LNUMDIFU = T in EXSEG1.nam (&NAM_DYN)

Simulation 1

- 4 backup files (at 1200s, 1800s, 2400s and 3600s)

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  XBAK_TIME(1,1) = 1200.0,
  XBAK_TIME(1,2) = 1800.0,
  XBAK_TIME(1,3) = 2400.0,
  XBAK_TIME(1,4) = 3600.0/
  in EXSEG1.nam (&NAM_BACKUP)

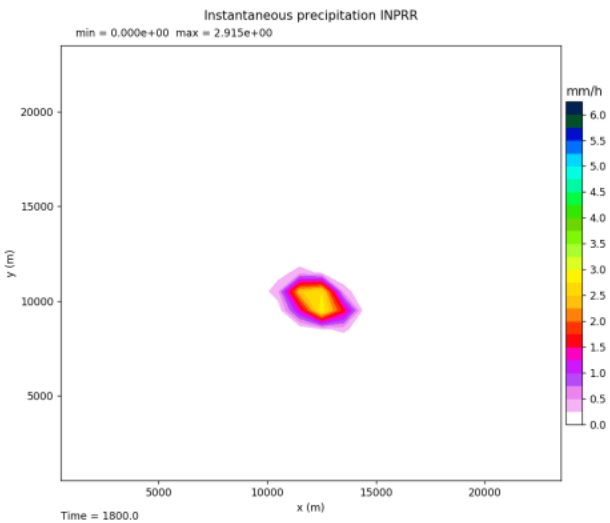
Simulation 1

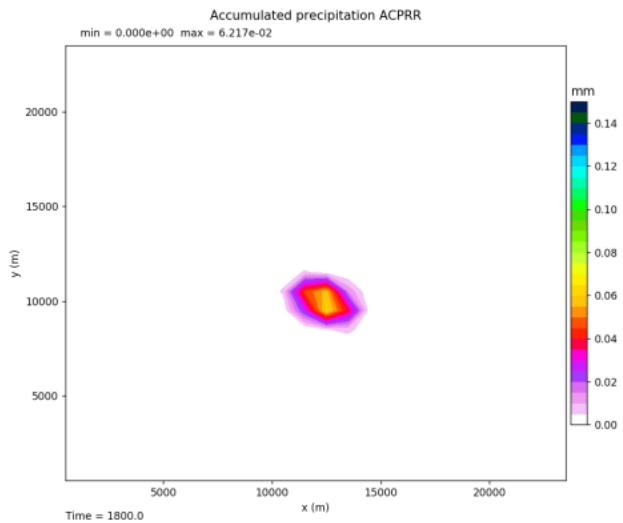
- 4 backup files (at 1200s, 1800s, 2400s and 3600s).
  2nd solution :
  XBAK_TIME_FREQ_FIRST(1) = 1200.0,
  XBAK_TIME_FREQ(1) = 1200.0,
  XBAK_TIME(1,1) = 1800.0/
  in EXSEG1.nam (&NAM_BACKUP)

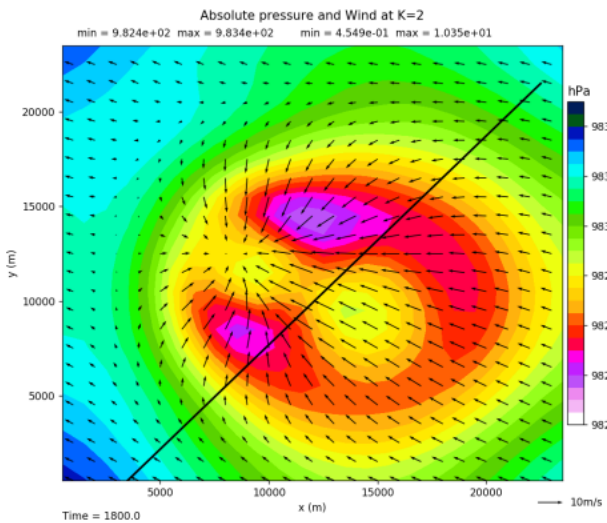
Simulation 1 : horizontal sections

Modify the python script to plot graphics for the 1800s backup

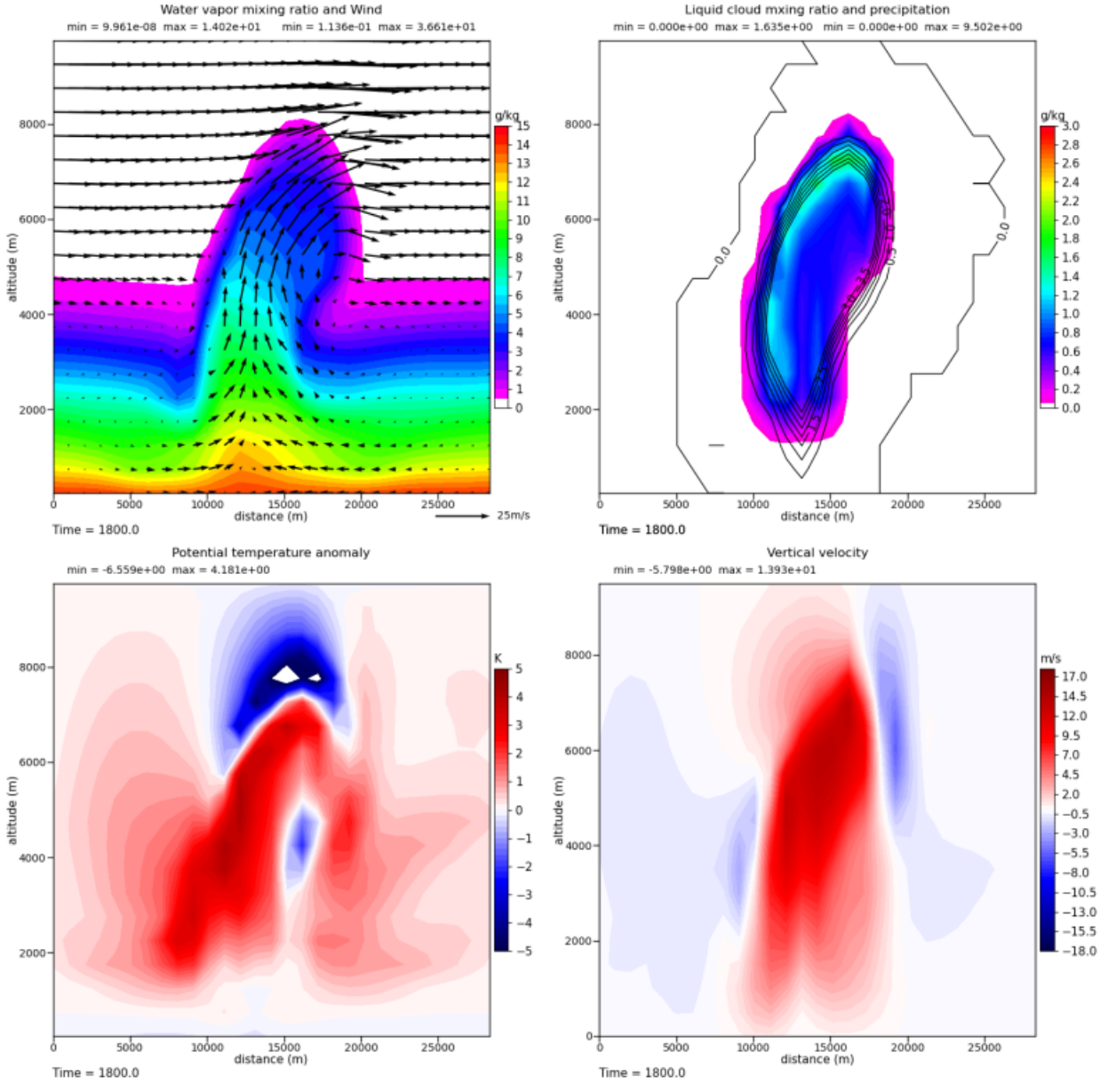
```
#
#  User's parameter / Namelist
#
path="../002_mesonh/"

LnameFiles = ['KWRAI.1.SEG01.002.nc' ]
```







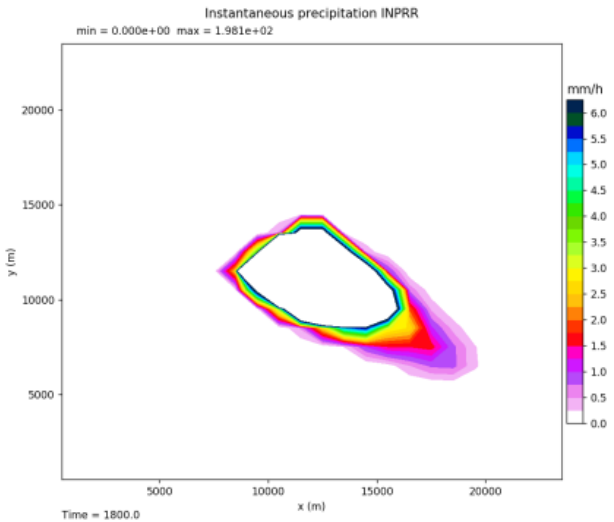
Simulation 1 : vertical oblique sections

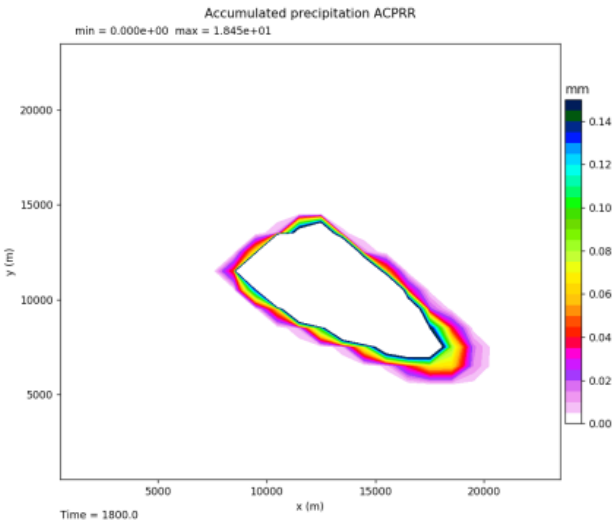


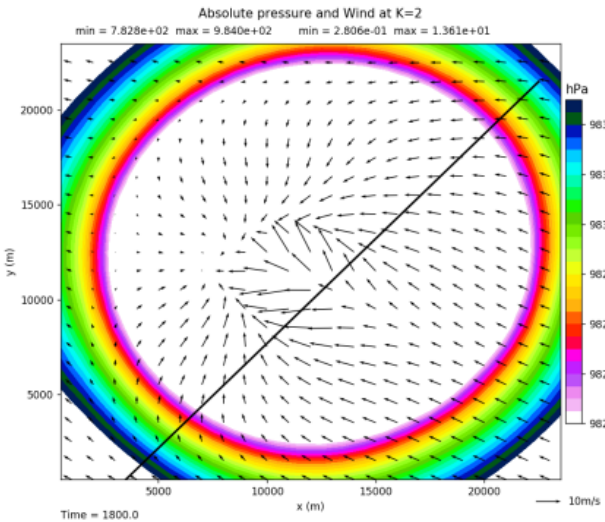
Simulation 2

1. Simulation 2 :
   - a bell orography CZS='BELL' in PRE_IDEA1.nam (&NAM_CONF_PRE)
   - in the center of the domain NIZS=12 NJZS=12 in PRE_IDEA1.nam (&NAM_GRIDH_PRE)
   - with a heigth of 2000m XHMAX=2000. in PRE_IDEA1.nam (&NAM_GRIDH_PRE)
   - and a width of 2000m in x and y XAX=2000 XAY=2000 in PRE_IDEA1.nam (&NAM_GRIDH_PRE)

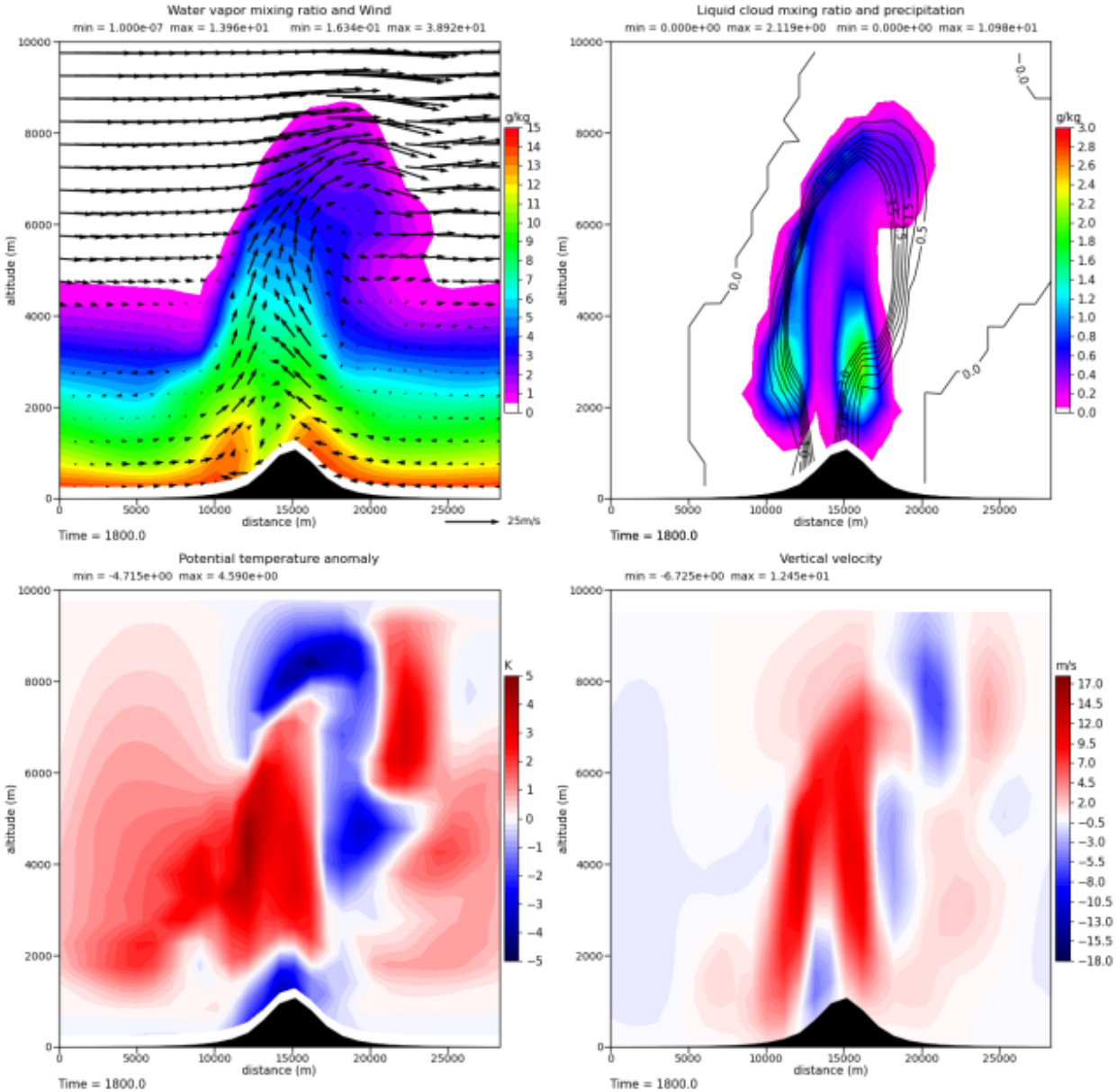
Simulation 2 : horizontal sections







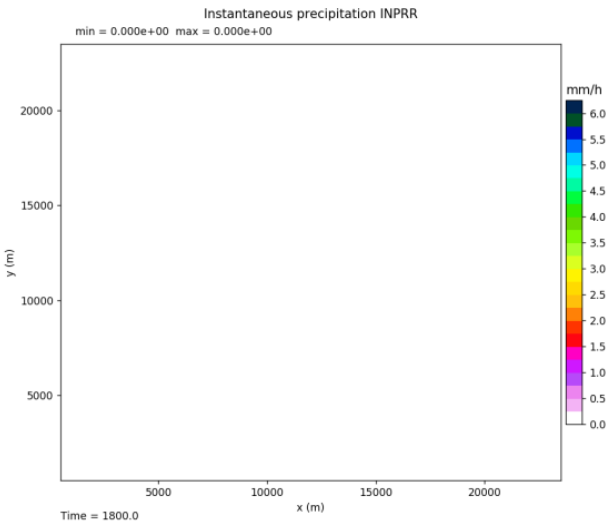
Simulation 2 : vertical oblique sections

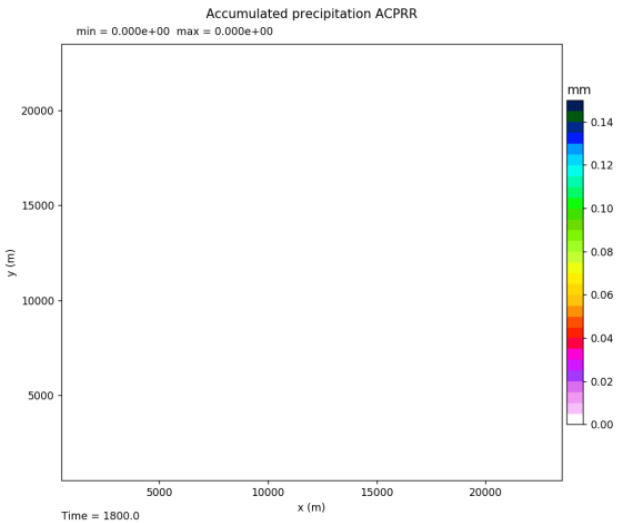


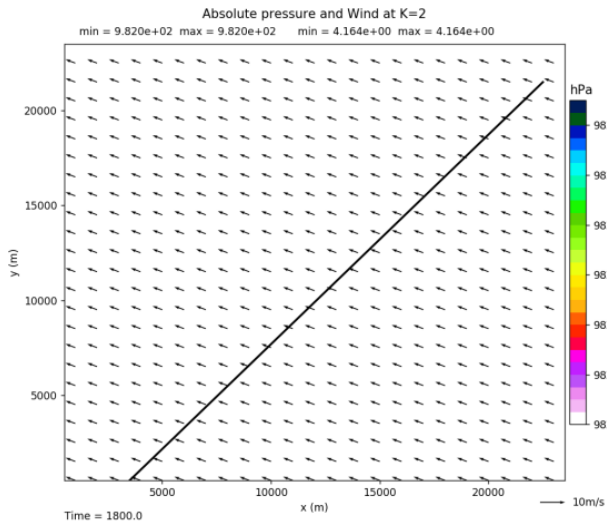
Simulation 3

1. Simulation 3 : remove the θ perturbation
   LPERTURB=.FALSE. in PRE_IDEA1.nam
   (&NAM_CONF_PRE)

Simulation 3 : horizontal sections







Simulation 3 : vertical oblique sections