Parallel suites documentation

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1. Description of experiments

There were five parallel suites performed during my stay at CHMI:

- *adt: is the test with explic direction and implicit strength of surface stress*
  The change in the code is in ACDIFUS: after the first computation leading to U+ and V+ at the lowest model level, C'd=Cd*SQRT((U+**2+V +**2)/(U**2+V**2)) is immediately computed and reused in a pure explicit way.
  In the code (after computing ZN1(JLON,KLEV) and ZN2(JLON,KLEV)) :
  ZMUL=_ONE_/(_ONE_+ZELIM*(_ONE_-ZSUB1(JLON,KLEV-1)))
  ZMULIE=SQRT((ZN1(JLON,KLEV)**2+ZN2(JLON,KLEV)**2)/MAX(ZEPS1,PU(JLON,KLEV)**2 +PV(JLON,KLEV)**2))
  ZN1(JLON,KLEV)=ZMUL*(ZELIM*ZN1(JLON,KLEV-1)+PU(JLON,KLEV)*(_ONE_-ZMULIE*ZXDR O(JLON)*ZIPOI(JLON,KLEV)))
  ZN2(JLON,KLEV)=ZMUL*(ZELIM*ZN2(JLON,KLEV-1)+PV(JLON,KLEV)*(_ONE_-ZMULIE*ZXDR O(JLON)*ZIPOI(JLON,KLEV)))

  after that, we compute PSTRTU/V like this:
  PSTRTU(JLON,KLEV)=ZMULIE*PCDROV(JLON)*PU(JLON,KLEV)
  PSTRTV(JLON,KLEV)=ZMULIE*PCDROV(JLON)*PV(JLON,KLEV)

- *adf: follow-up of constants*
  ALMAV=400. (instead of 300.),
  EDK=5. (instead of 1),
  VZ0CM=1.0E-4 (instead of 1.5E-4) and
  VZIUSTAR0=10. (instead of 4.)

- *adp: only correction of a bug in ACPLUIE*
  Instead of code: ZEVA=EVAP*(1.-ZRME(JLON)*(1.-REVGSL))
  ZFON=FONT*(1.-ZRME(JLON)*(1.-REVGSL)), we put:

  ZEVA=EVAP*SQRT(1.-ZRME(JLON)*(1.-REVGSL))
  ZFON=FONT*SQRT(1.-ZRME(JLON)*(1.-REVGSL))

- *adl: unified formula for mixing length computaion (ACMIXLENZ) + adp*

$$l_{m/h}(z) = \frac{kappa.z}{(1 + \frac{kappa.z}{lambda_{m/h}}[\frac{1 + e^{-a_{m/h}\sqrt{\frac{z}{H_{pbl}}} + b_{m/h}}}{beta_{m/h} + e^{-a_{m/h}\sqrt{\frac{z}{H_{pbl}}} + b_{m/h}}}])}$$

values of parameters are: a_m=4.5, a_h=5.0, b_m=3.0, b_h=0.8. H_{pbl} is computed using Martina Tudor's code.

- *adm: adl + adf*

2. Location of data and integration dates

All the scripts and namelists are on sx6: ~mma188/partests/${exp}/...
The binaries that were used are on kappa:

- binary used for adt: ~mma188/jure/ALADIN.exe
- binary used for adf is the operation one
- binary used for adp:
  ~mma188/acpluie_bug_only/ALADIN.acpluie_bug_only.exe
- binary used for adl: ~mma188/followup/ALADIN.exe
- binary used for adm is the same as adl.

For parallel tests *adp*, *adf*, *adl* and *adm* four integrations were performed: assimilation started 01/03/2005 at 00 UTC and dates of integrations are 02/03/2005, 03/03/2005, 04/03/2005 and 05/03/2005 (all at 00 UTC).
For parallel test *adt*, assimilation started at 03/03/2005 (00 UTC) and the dates of integrations are 04/03/2005, 05/03/2005, 06/03/2005 and 07/03/2005 (again all at 00 UTC). Besides that period, the *adt* suite was also ran over Tatras storm case: assimilation started on 17/11/2004 at 00 UTC and three integrations were computed: 18/11/2004 at 12 UTC, 19/11/2004 at 00 UTC and 19/11/2004 at 12 UTC.

All the results are on archiv:
~mma188/aos/${YYYY}/${MM}/${DD}/${HH}/ICMSHD${exp}+????.

The verification results are on voodoo:
~mma188/partests/parsuite_${exp}/res,
and Tatras storm verification result is in
~mma188/partests/parsuite_adt/res/tatras_storm (again on voodoo).