Ferramentas de análise para MARTA

1. Ficheiros de simulação B2015

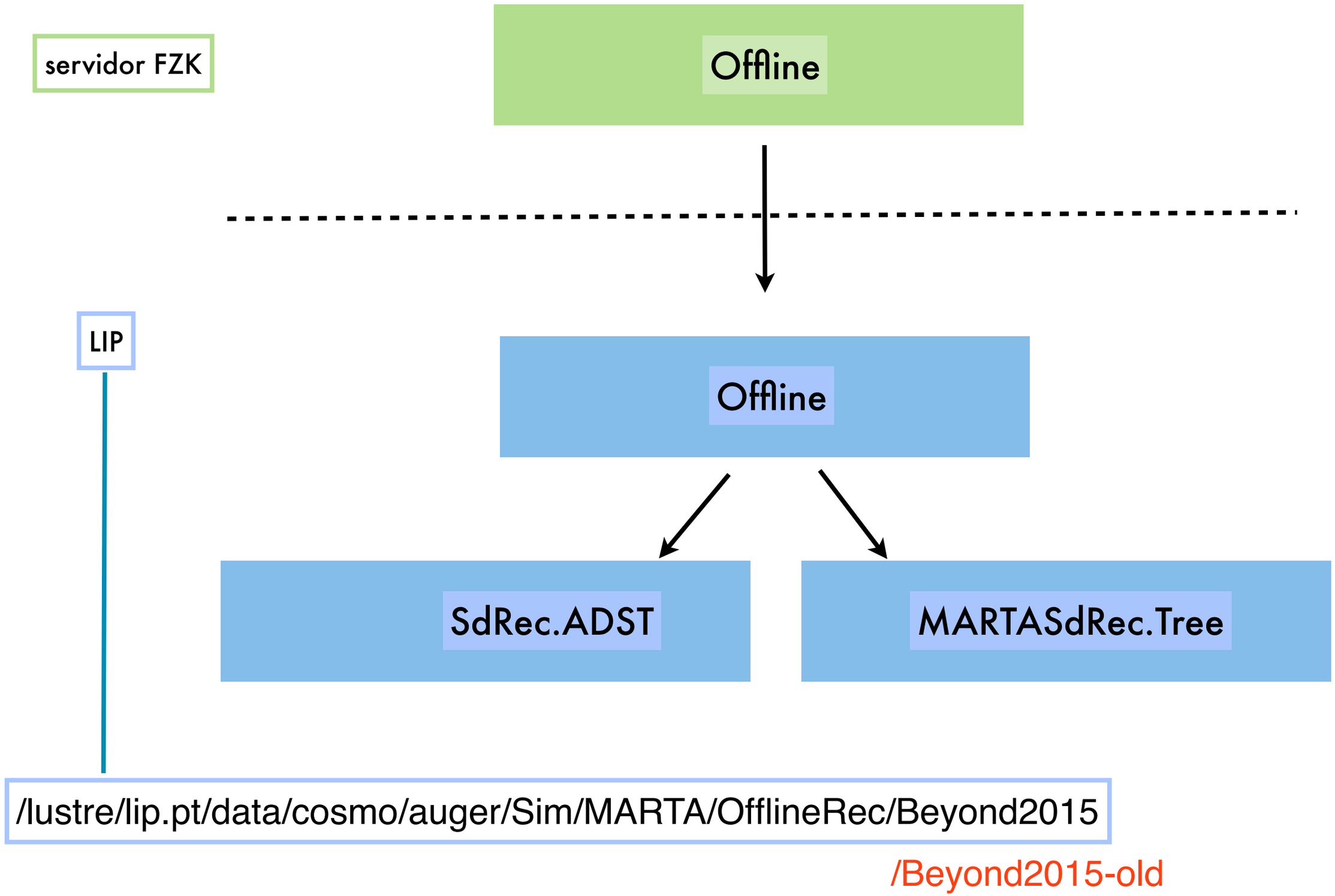
2. Processamento de dados

3. Repositórios git de código

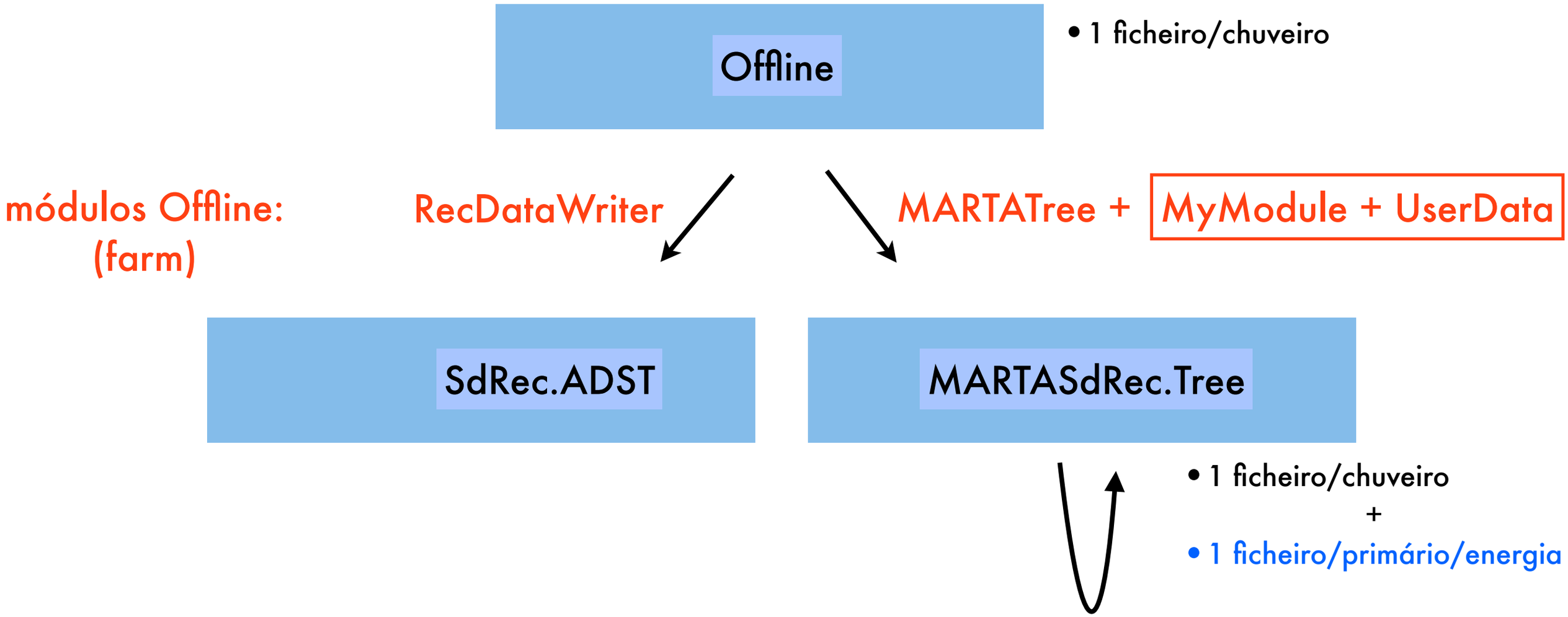
4. Análise

Nota: Informação já contida na secção de Auger da wiki do LIP ou a caminho.

1.Ficheiros de simulação B2015



2.Processamento de dados



- Produção centralizada (p.e. utilizador *auger*)
- Re-processamento de tudo para incluir novas sims. de FZK (p.e. semanalmente)
- Re-processamento das Trees de MARTA para incluir novas variáveis (p.e. diariamente)

3.Repositórios git de código

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(Under Construction) GIT Repositories

Using git to access and update MARTA shared repositories: brief instructions

List of repositories (in ~auger/git):

- **MARTATree** : Offline module(s) to create a ROOT Tree with MARTA variables (and others)
- **MARTAUtilities** : ROOT macro(s) to update the Tree by adding new variables built upon those already existing

3.Repositórios git de código

(Under Construction) Instructions for using git

Online git manual available here.

Summary of most important commands

git clone user@lipMachine:~auger/git/repositoryName.git	Clones the shared remote repository to the local directory (do only once)
git log	Info on commits of the local repository
git status	Info on changes in the local repository
git add filename	Stages file for next commit
git commit -m 'Initial project version'	Commit staged changes (with message summarizing them)
git push	Merge local changes (current commit) with remote repository
git pull	Bring and merge remote changes with local repository
git fetch origin	Bring (without merging) remote changes

Tutorial

1. User configuration

```
$ git config --global user.name "Raul Sarmento"
$ git config --global user.email raul@lip.pt
```

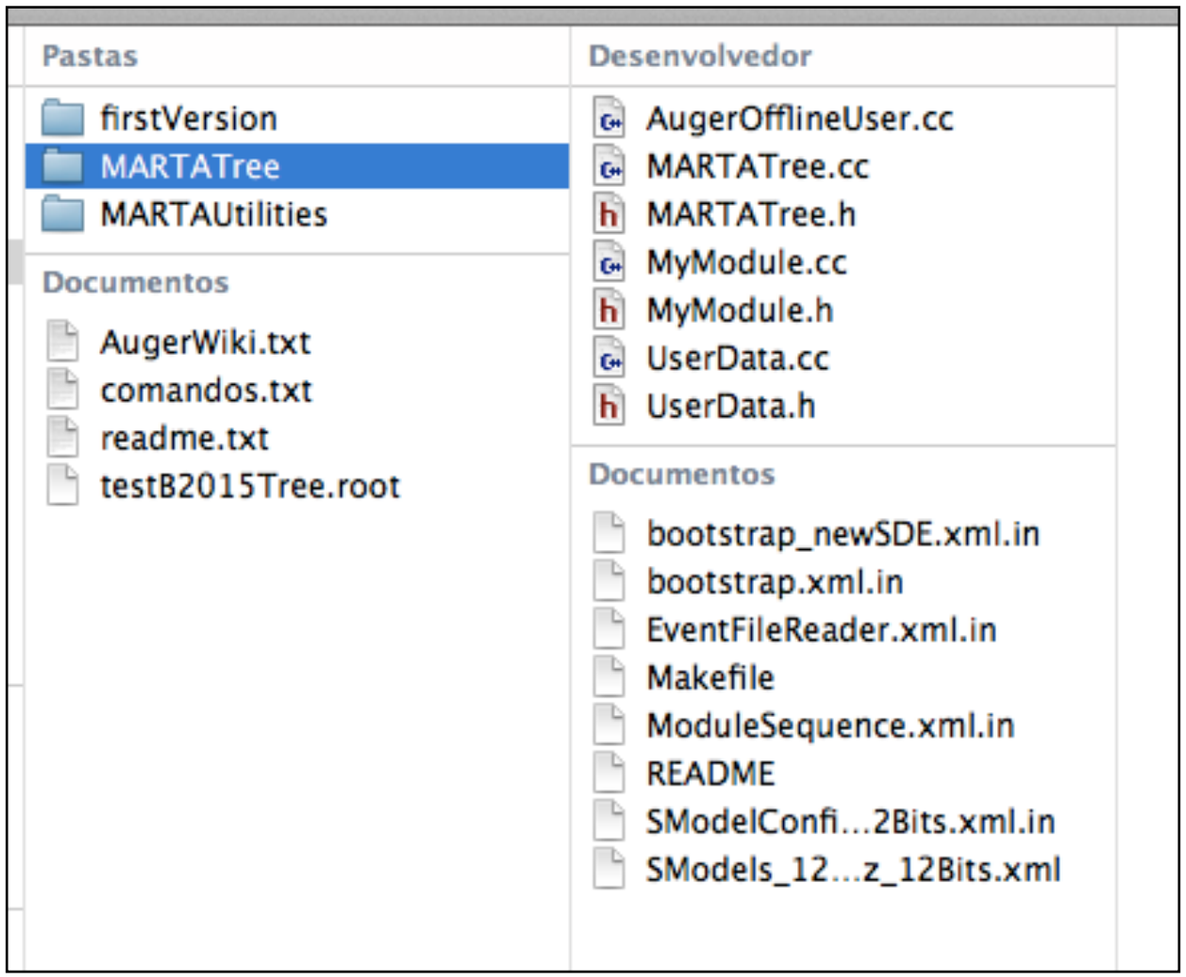
2. Clone remote shared repository to local machine

```
$ git clone raul@lnlip01.lip.pt:~auger/git/MARTATree.git
Cloning into 'MARTATree'...
Password:
remote: Counting objects: 12, done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 12 (delta 4), reused 0 (delta 0)
Receiving objects: 100% (12/12), 5.61 KiB, done.
Resolving deltas: 100% (4/4), done.
```

3.Repositórios git de código

2. Clone remote shared repository to local machine

```
$ git clone raul@lnlip01.lip.pt:~auger/git/MARTATree.git
Cloning into 'MARTATree'...
Password:
remote: Counting objects: 12, done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 12 (delta 4), reused 0 (delta 0)
Receiving objects: 100% (12/12), 5.61 KiB, done.
Resolving deltas: 100% (4/4), done.
```



3.Repositórios git de código

2.1. Go to locally created repository and view commit history

```
$ cd MARTATree/
$ git log
Commit:  31d8da610511be991944bfed17f88fd5f4bcb5dc
Author:  Auger <bernardo@lip.pt>
Date:    (7 hours ago) 2014-02-05 16:10:58 +0000
Subject: Add flag for dense stations. Removed jump in loop in case of a dense stations. Jump loop if a station does
not exhist.


Commit:  8cdfe1e2d12a7138146e86cbd8fd8a4e7328d5f1
Author:  Auger <bernardo@lip.pt>
Date:    (9 hours ago) 2014-02-05 14:18:19 +0000
Subject: Added height (geodetic coordinate) to core and stations position.


Commit:  0036bd68305ce9563e0ab479735cf8e5c7167b3a
Author:  Auger <bernardo@lip.pt>
Date:    (29 hours ago) 2014-02-04 18:18:17 +0000
Subject: Init repository.

$ ll
total 48
drwxr-xr-x   5 raul   170B  5 Fev 23:34 .
drwxr-xr-x   9 raul   306B  5 Fev 23:37 ..
drwxr-xr-x  13 raul   442B  5 Fev 23:34 .git
-rw-r--r--   1 raul    18K  5 Fev 23:34 MARTATree.cc
-rw-r--r--   1 raul   3,2K  5 Fev 23:34 MARTATree.h
```

3.Repositórios git de código

3. After editing files locally

3.1. Check status

```
$ git status
# On branch master
# Changes not staged for commit:
#   (use "git add <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       modified:   MARTATree.cc
#       modified:   MARTATree.h
#
no changes added to commit (use "git add" and/or "git commit -a")
```

3.2. Stage files

```
$ git add MARTATree.*
$ git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   MARTATree.cc
#       modified:   MARTATree.h
#
```

3.3. Commit changes

```
$ git commit -m 'Fixed shower curvature.'
[master 11aa0bc] Fixed shower curvature.
 2 files changed, 3 insertions(+), 3 deletions(-)

$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 1 commit.
#
nothing to commit (working directory clean)
```

3.Repositórios git de código

4. Push your changes to the remote, and check log

```
$ git push
Password:
Counting objects: 7, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 373 bytes, done.
Total 4 (delta 2), reused 0 (delta 0)
To raul@lnlip01.lip.pt:/home/cosmo/auger/git/MARTATree.git
   31d8da6..11aa0bc  master -> master


$ git log
Commit:  11aa0bc5a534964dab89d6080f09a5be3313a6f3
Author:  Raul Sarmento <raul@lip.pt>
Date:    (65 minutes ago) 2014-02-06 00:01:50 +0000
Subject: Fixed shower curvature.


Commit:  31d8da610511be991944bfed17f88fd5f4bcb5dc
Author:  Auger <bernardo@lip.pt>
Date:    (9 hours ago) 2014-02-05 16:10:58 +0000
Subject: Add flag for dense stations. Removed jump in loop in case
not exhist.


Commit:  8cdfe1e2d12a7138146e86cbd8fd8a4e7328d5f1
Author:  Auger <bernardo@lip.pt>
Date:    (11 hours ago) 2014-02-05 14:18:19 +0000
Subject: Added height (geodetic coordinate) to core and stations p


Commit:  0036bd68305ce9563e0ab479735cf8e5c7167b3a
Author:  Auger <bernardo@lip.pt>
Date:    (31 hours ago) 2014-02-04 18:18:17 +0000
Subject: Init repository.
```

3.Repositórios git de código

5. Bring and merge remote changes (from a different local repository, not yet updated with the commit performed in point 4. above)

```
$ git pull
remote: Counting objects: 7, done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 2), reused 0 (delta 0)
Unpacking objects: 100% (4/4), done.
From /home/cosmo/raul/auger_home/git/MARTATree
   31d8da6..11aa0bc  master     -> origin/master
Updating 31d8da6..11aa0bc
Fast-forward
 MARTATree.cc |    4 ++--
 MARTATree.h  |    2 +-
 2 files changed, 3 insertions(+), 3 deletions(-)
```

3.Repositórios git de código

MARTAUtilities/UpdateMARTATree.cc

```
//----
// -> Add a new branch to store your variable or class
// -> Assign values and fill the branch
//----

if(!t1->GetBranchStatus("hitsInRPCs")){
    double hitsInRPCs = sumOverRPCs(t1, j, (char*)"IsStandard", true, false, 500., 1000., 2000.);
    TBranch *bpt = t1->Branch("hitsInRPCs", &hitsInRPCs, "hitsInRPCs/D");
    bpt->Fill();
}
```

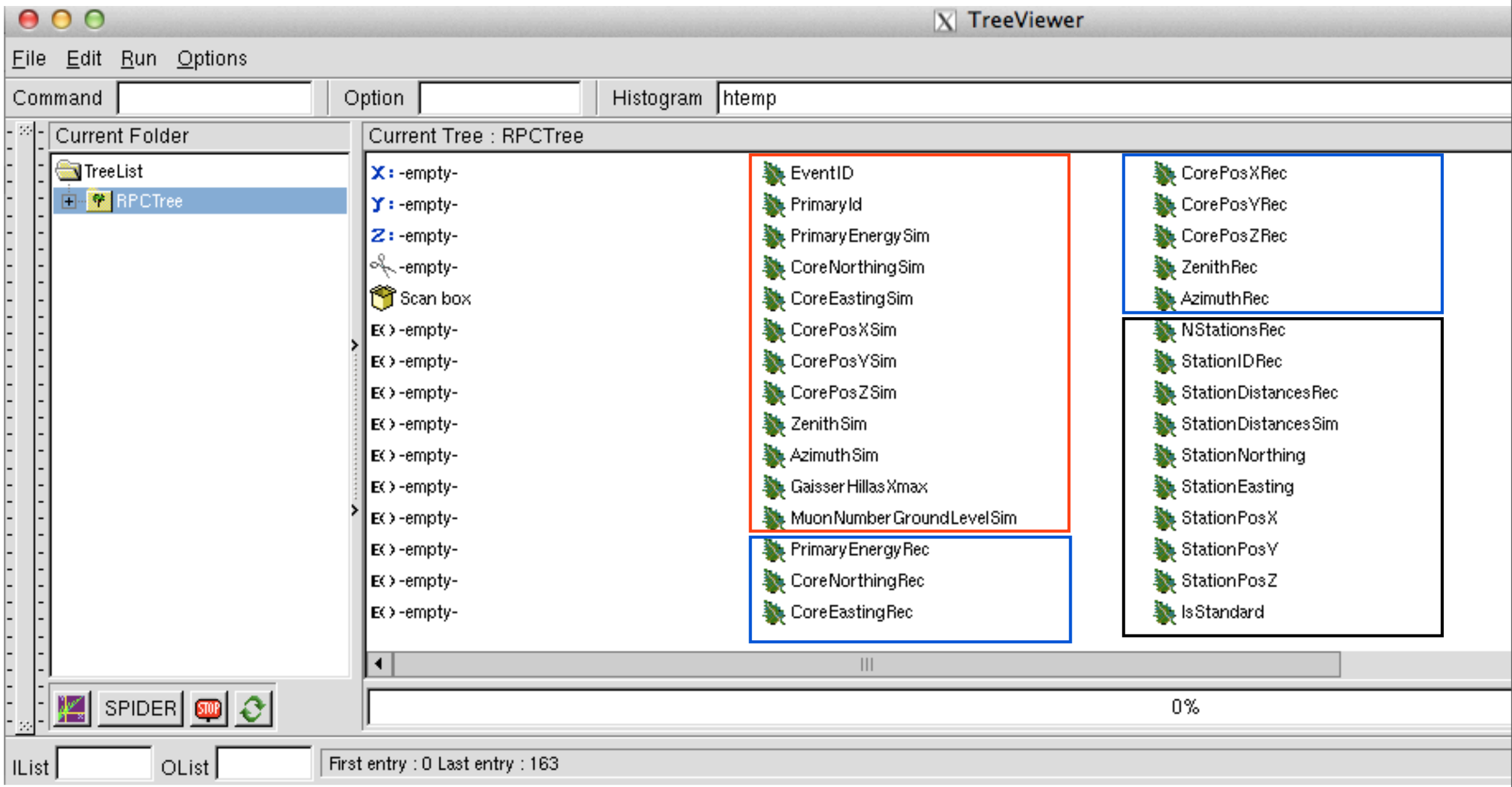
UpdateMARTATree.h

4.Análise

Info evento sim.

Info evento rec.

Info estações SD



- Variáveis nas Trees de MARTA
- Gráficos para o Simulation Challenge (macros ROOT para o rep. apropriado)

4.Análise

Info estações SD | Info SD rec. | Info estações MARTA | Info MARTA rec.

TreeViewer

Help

Histogram htemp Hist Scan Rec

e : RPCTree

CorePosXRec
CorePosYRec
CorePosZRec
ZenithRec
AzimuthRec
NStationsRec
StationIDRec
StationDistancesRec
StationDistancesSim
StationNorthing
StationEasting
StationPosX
StationPosY
StationPosZ
IsStandard

IsInfill750
IsStandard2600
StationNumberOfMuons
StationTotalSignal
StationSaturationFlag

ShowerSize
RadiusOfCurvature
RiseTime
Chi2RiseTime

RPCNumberOfMuons
RPCMuonHits
RPCMuonHitsInFiducialArea
RPCMuonHitsOutFiducialArea
RPCMuonHitsPileUpCorrected
RPCMuonHitsPileUpCorrectedInFiducialArea

RPCMuonHitsPileUpCorrectedOutFiducialArea
RPCTotalHits
RPCTotalHitsInFiducialArea
RPCTotalHitsOutFiducialArea
RPCTotalHitsPileUpCorrected
RPCTotalHitsPileUpCorrectedInFiducialArea
RPCTotalHitsPileUpCorrectedOutFiducialArea
SlantMass
SlantMassInFiducialArea
SlantMassOutFiducialArea
TotalReadoutArea
FiducialArea
NumberOfPadsInFiducialArea
NumberOfPadsOutFiducialArea
IsRejected

NmuRec_Raul.
NmuRec_Raul.numberOfStations
NmuRec_Raul.ndf
NmuRec_Raul.chi2
NmuRec_Raul.rho1000
NmuRec_Raul.beta
NmuRec_Raul.gamma
NmuRec_Raul.Nmu
NmuRec_Jakub.
NmuRec_Jakub.numberOfStations
NmuRec_Jakub.ndf
NmuRec_Jakub.chi2
NmuRec_Jakub.rho1000
NmuRec_Jakub.beta
NmuRec_Jakub.gamma

0%

entry : 163 RESET

- Variáveis nas Trees de MARTA
- Gráficos para o Simulation Challenge (macros ROOT para o rep. apropriado)