

NAIA v1.1.0

Changes, fixes and new features

- TrTrack:
 - Theta and Phi are now computed at the bottom of the instrument for upgoing particles
 - UpperHalf and LowerHalf spans are now actually fitted 😊
 - Added NoMS fit for Choutko and GBL algos
 - Fixed pattern evaluation (N.B. the API for `GetTrackPattern` has changed as a result)
- TRD:
 - Improved reconstruction for low-energy events
- Tof:
 - Improved selection of standalone BetaH object

Changes, fixes and new features

- MCTruth:
 - ParticleID in `TrMCHit` follows now the PDG scheme instead of the old Geant3 naming
- RTIInfo:
 - Added `nex1` variables by Q.Y. for newer RTI cuts
 - Added ISS roll, pitch, yaw and velocities from RTI
 - Added geomagnetic field variables from IGRF model
- misc:
 - Added helper function to translate AMS local coordinates to GTOD

NSL

NSL was updated accordingly by J. Tian and will be released alongside NAIA 1.1.0

Environment and other changes

So far we distribute all the required software via CVMFS, including ROOT.

Our bespoke ROOT installation doesn't run well on lxplus (the interpreter gets stuck before loading the prompt). In addition, compiling and installing ROOT on CVMFS is quite a cumbersome and time-consuming procedure.

We are currently testing LCG release bundles as a possible base environment for NAIA.

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Looking at release 104:

```
gcc      12.1  
python  3.9.12  
ROOT    6.28/04 (c++17)  
XROOTD  5.5.4
```

Pros:

- We don't have to ship our own ROOT
- Guaranteed to work and well maintained

Cons

- We don't have have control over features and compilation settings

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Looking at release 104:

```
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python  3.9.12  
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```

If this works well, production should start over the xmas break