NAIA v1.1.0 Status

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
  - **MCParticle charge is now correctly printed (P. Zuccon)**
  - **Fixed filling of PDG values in MCParticle**
  - **Fixed filling the list of secondary particles in MCTruth**
- RTIInfo:
  - Added `nexl` 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
  - **Added a new class TSNAIAChain to allow TSelector style analysis (P. Zuccon)**

Environment and other changes

So far we distribute all th 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 tested the LCG release bundles and chose a base environment for NAIA.

Environment and other changes

We tested the LCG release bundles and chose a base environment for NAIA:

LCG 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 mantained

Cons

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

Environment and other changes

v1.1.0 production started right before xmas but, due to the MCTruth changes, we had to re-start the production.

We are now at >93% of the production and we are aiming to release v1.1.0 by the end of the month.

We are currently struggling with gpfs space and we are trying to cleanup as much space as possible for v1.1.0. We will then proceed to backup to tape v1.0.0.