



# **CORSIKA 8**

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#### First full had, muon, e.m. cascades !





## Many thanks! This is a great step!



#### Output format

- **1. HPC friendly**
- 2. low maintenance
- **3. Cleanliness and simplicity of format/solution (requirement:** multi-file solution to easily split of ground particles etc. )
- 5. Read performance (aka analyzing data)
- 4. Disk space consumption (aka sharing data)
- 6. Write performance (aka producing data)

#### For CORSIKA8, after pre-studies, we will chose apache/parquet as output format..

We will continue studies on the subject since it is of general wider interest. We have to decide in what way to make such study public.



### Basic performance results

#### 1e19eV p shower:

- 1 shower
- 1'244'553 particles
- About 2 h
  - root: 116min
  - Parquet: 123min
- Size:
  - Hdf5 24M
  - Parquet-plain 49M+0M
  - Parquet-gzip 53M+0M

23M

• ROOT

#### 1e13eV p showers:

- 1e5 showers
- 708'474 particles
- About 2 h
  - root: 118min
  - Parquet: 121min
- Size
  - Hdf5 356M
  - Parquet-plain 24M+3.2M
  - Parquet-gzip 25M+3.2M
  - ROOT 65M

Analysis throughput in general best for parquet!





• Refactoring status and plan

