

KM3NeT: water properties study
STEP 2 : Running JSirene on the input data
with the CDF tables.

Meriem BENDAHDMAN

Pr. Yahya TAYALATI

18/06/2018

After merging the PDF tables to CDF tables, and archive it in a designated folder

We run JSirene on the input data with these tables.

To do it, we run the script as follow:

```
JSirene.sh [detector file [input file [output file [CDF file descriptor]]]]
```

The detector file: [km3net_reference.detx](#) created using [Jdetector.sh](#)

The input file : [genhen.km3net_wpd_V2_0.evt.gz](#) located in Jpp/data/

The output file : [sirene.root](#) created using [JSirene -o/ our work directory/sirene.root](#)

CDF : The CDF tables was created in de first step of this work.
 <CDF file descriptor> read our_work_directory/I%p.dat.

```
[m.bendahman@login Jpp]$ JSirene.sh /data/m.bendahman/Jpp/data//km3net_reference.detx /data/m.bendahman/Jpp/data//genhen.km3net_wpd_V2_0.evt.gz /data/m.bendahman/Jpp/data/default/sirene.root /data/m.bendahman/Jpp/data/default/I%p.dat
```

The results

```
Setting environment variables for Jpp software.
DETECTOR           = /data/m.bendahman/Jpp/data//km3net_reference.detx
INPUT_FILE         = /data/m.bendahman/Jpp/data//genhen.km3net_wpd_V2_0.evt.gz
OUTPUT_FILE        = /data/m.bendahman/Jpp/data/default/sirene.root
CDF                = /data/m.bendahman/Jpp/data/default/I%p.dat
Main program to simulate detector response to muons and showers.
usage: JSirene
-h "help"
-h! "help with print of default and possible values"
-v "print revision"
-- "end of options; remainder will be discarded"
--! "end of options with print of actual values"
-@ <properties> = Dmin_m=0.1
Ecut_GeV=0.1
Emin_GeV=1
Nmax_npe=2147483647
Tmax_ns=2

-F <fileDescriptor> = /data/m.bendahman/Jpp/data/default/I%p.dat
-N <numberOfHits> = 1
-S <seed> = 0
-U <factor> = 1
-a <detectorFile> = /data/m.bendahman/Jpp/data//km3net_reference.detx
-d <debug> = 1
-f <inputFile> = /data/m.bendahman/Jpp/data//genhen.km3net_wpd_V2_0.evt.gz

-n <numberOfEvents> = 0 9223372036854775807
-o <outputFile> = /data/m.bendahman/Jpp/data/default/sirene.root
-s <writeEMShowers> = 0
Maximal road width [m] 310
Maximal distance [m] 800
Offset applied to true tracks is: -2.51121 -0.167883 479.9
eof
Elapsed time 473 s.
JSirene 11.0.0-final-rc
JSirene 5.34/36
JSirene /data/m.bendahman/Jpp/out//Linux/bin//JSirene -F /data/m.bendahman/Jpp/data/default/I%p.dat -a /data/m.bendahman/Jpp/data//km3net_reference.detx -f /data/m.bendahman/Jpp/data//genhen.km3net_wpd_V2_0.evt.gz -o /data/m.bendahman/Jpp/data/default/sirene.root -@ Tmax_ns=2.0; -U 1.0 -S 0 -d 1 --!
JSirene KM3NET
JSirene Linux login 3.10.0-693.el7.x86_64 #1 SMP Thu Jul 6 19:56:57 EDT 2017 x86_64 x86_64 x86_64 GNU/Linux
```

The results

```
Job summary
Number of events input          54228
Number of muons                 54830
Number of muons in can         54829
Number of muons within road    29235
Number of taus                  88
Number of detectable taus      0
Number of electrons/hadrons    327025
Number of detectable electrons/hadrons 25904
Number of events output        12184
Number of unknown particles     0

Number of photons      1          68369
Number of photons      2          68455
Number of photons      5          36825
Number of photons      6          35003
Number of photons     13        11362064
Number of photons     14         6214687
Number of photons     21           0
Number of photons     22           0
Number of photons     25           0
Number of photons     26           0
Number of photons     53         3874316
Number of photons     54        3480309

Number of errors      1           0
Number of errors      2           0
Number of errors      5           0
Number of errors      6           0
Number of errors     13           0
Number of errors     14           0
Number of errors     21           0
Number of errors     22           0
Number of errors     25           0
Number of errors     26           0
Number of errors     53           0
Number of errors     54           0

Number of misses      1           0
Number of misses      2           0
Number of misses      5           0
Number of misses      6           0
Number of misses     13            2
Number of misses     14           0
Number of misses     21           0
Number of misses     22           0
Number of misses     25           0
Number of misses     26           0
Number of misses     53           0
Number of misses     54           0

/data/m.bendahman/Jpp/data/default/sirene.root
E                               Evt                               12184   570 [MB]
```

Number of events stored in sirene.root

The results

The sirene.root file contains a Ttree : E

