Figure 1, Survival probability of τ leptons as function of the thickness of the mountain travelled from the point of creation of τ, for five energies of the incident ν_τ:

Thickness(km)	P(10^{16} eV)	P(10^{17} eV)	P(10^{18} eV)	P(10^{19} eV)	P(10^{20} eV)
0,01	1	1	1	1	1
1	0,35294	0,31746	0,68605	0,94853	0,99678
2	0,08772	0,22297	0,37048	0,80593	0,97518
3	0,06316	0,13992	0,24797	0,63032	0,94575
4	0,04274	0,07233	0,20057	0,53142	0,90443
5	0,05464	0,05405	0,14027	0,42713	0,8382
6	0,07735	0,05134	0,12488	0,34144	0,76866
7	0,04128	0,0394	0,11701	0,28405	0,69776
8	0,04231	0,03987	0,1026	0,26791	0,62296
9	0,02098	0,03428	0,07624	0,23531	0,55214
10	0,02096	0,0203	0,07727	0,19841	0,48757
11	0,02601	0,03425	0,08246	0,1971	0,44665
12	0,03073	0,0245	0,0749	0,17104	0,39799
13	0,0119	0,03125	0,06143	0,15345	0,37419
14	0,01092	0,02579	0,05354	0,1576	0,34363
15	0,01242	0,02232	0,05149	0,1312	0,32013
16	0,01733	0,02103	0,04618	0,13633	0,29296
17	0,01358	0,01599	0,04562	0,11496	0,27801
18	0,01228	0,01752	0,04083	0,10989	0,26791
19	0,02187	0,01509	0,04085	0,1062	0,24673
20	0,00571	0,01621	0,04093	0,10854	0,23558
21	0,01102	0,01466	0,03853	0,0968	0,22247
22	0,02078	0,0176	0,03453	0,09173	0,21264
23	0,00877	0,01607	0,03529	0,08941	0,20273
24	0,01111	0,0122	0,0313	0,08423	0,18909
25	0,0095	0,01055	0,02467	0,08014	0,18067
26	0,00667	0,01147	0,03043	0,07483	0,1777
27	0,01003	0,01355	0,03148	0,07904	0,16813
28	0,00532	0,01544	0,0232	0,07669	0,16073
29	0,00717	0,00908	0,02225	0,06828	0,15534
30	0,01201	0,00639	0,02857	0,07018	0,14653

Figure 2 Energy of the tau lepton produced by the incident ν_τ with an energy of 10_{20} eV as function of the de la distance travelled in the rock:

Position (km)	Energy of tau (eV)
21,5386	7,47038E19
21,5486	7,44089E19
21,5586	7,41152E19
21,5686	7,38229E19
21,5786	7,35318E19
21,5886	7,3242E19
21,5986	7,29534E19
21,6086	7,26661E19
21,6186	7,23801E19
21,6286	7,20953E19
21,6386	7,18117E19
21,6486	7,15294E19
21,6586	7,12483E19
21,6686	7,09684E19
21,6786	7,06897E19
21,6886	7,04122E19
21,6986	7,0136E19
21,7086	6,98609E19
21,7186	6,95871E19
21,7286	6,93144E19
21,7386	6,90429E19
21,7486	6,87726E19
21,7586	6,85034E19
21,7686	6,82354E19
21,7786	6,79686E19
21,7886	6,77029E19
21,7986	6,74384E19
21,8086	6,7175E19
21,8186	6,69128E19
21,8286	6,66517E19
21,8386	6,63917E19
21,8486	6,61328E19
21,8586	6,58751E19
21,8686	6,56184E19
21,8786	6,53629E19
21,8886	6,51085E19
21,8986	6,48551E19
21,9086	6,46029E19
21,9186	6,43517E19
21,9286	6,41017E19
21,9386	6,38526E19

21,9486	6,36047E19
21,9586	6,33578E19
21,9686	6,3112E19
21,9786	6,28673E19
21,9886	6,26236E19
21,9986	6,23809E19
22,0086	6,21393E19
22,0186	6,18987E19
22,0286	6,16592E19
22,0386	6,14207E19
22,0486	6,11832E19
22,0586	6,09467E19
22,0686	6,07112E19
22,0786	6,04767E19
22,0886	6,02433E19
22,0986	6,00108E19
22,1086	5,97793E19
22,1186	5,95488E19
22,1286	5,93193E19
22,1386	5,90908E19
22,1486	5,88633E19
22,1586	5,86367E19
22,1686	5,84111E19
22,1786	5,81864E19
22,1886	5,79628E19
22,1986	5,774E19
22,2086	5,75182E19
22,2186	5,72974E19
22,2286	5,70775E19
22,2386	5,68585E19
22,2486	5,66405E19
22,2586	5,64233E19
22,2686	5,62071E19
22,2786	5,59919E19
22,2886	5,57775E19
22,2986	5,5564E19
22,3086	5,53515E19
22,3186	5,51399E19
22,3286	5,49291E19
22,3386	5,47192E19
22,3486	5,45103E19
22,3586	5,43022E19
22,3686	5,4095E19
22,3786	5,38887E19
22,3886	5,36832E19
22,3986	5,34786E19

22,4086	5,32749E19
22,4186	5,3072E19
22,4286	5,287E19
22,4386	5,26689E19
22,4486	5,24686E19
22,4586	5,22691E19
22,4686	5,20705E19
22,4786	5,18727E19
22,4886	5,16757E19
22,4986	5,14796E19
22,5086	5,12843E19
22,5186	5,10899E19
22,5286	5,08962E19
22,5386	5,07034E19
22,5486	5,05113E19
22,5586	5,03201E19
22,5686	5,01297E19
22,5786	4,99401E19
22,5886	4,97512E19
22,5986	4,95632E19
22,6086	4,93759E19
22,6186	4,91895E19
22,6286	4,90038E19
22,6386	4,88189E19
22,6486	4,86348E19
22,6586	4,84514E19
22,6686	4,82688E19
22,6786	4,8087E19
22,6886	4,79059E19
22,6986	4,77256E19
22,7086	4,75461E19
22,7186	4,73673E19
22,7286	4,71892E19
22,7386	4,70119E19
22,7486	4,68353E19
22,7586	4,66595E19
22,7686	4,64843E19
22,7786	4,631E19
22,7886	4,61363E19
22,7986	4,59634E19
22,8086	4,57912E19
22,8186	4,56197E19
22,8286	4,54489E19
22,8386	4,52788E19
22,8486	4,51095E19
22,8586	4,49408E19

22,8686	4,47728E19
22,8786	4,46056E19
22,8886	4,4439E19
22,8986	4,42731E19
22,9086	4,41079E19
22,9186	4,39434E19
22,9286	4,37796E19
22,9386	4,36165E19
22,9486	4,3454E19
22,9586	4,32922E19
22,9686	4,31311E19
22,9786	4,29706E19
22,9886	4,28108E19
22,9986	4,26517E19
23,0086	4,24932E19
23,0186	4,23354E19
23,0286	4,21782E19
23,0386	4,20217E19
23,0486	4,18658E19
23,0586	4,17105E19
23,0686	4,15559E19
23,0786	4,1402E19
23,0886	4,12487E19
23,0986	4,1096E19
23,1086	4,09439E19
23,1186	4,07924E19
23,1286	4,06416E19
23,1386	4,04914E19
23,1486	4,03418E19
23,1586	4,01929E19
23,1686	4,00445E19
23,1786	3,98968E19
23,1886	3,97496E19
23,1986	3,96031E19
23,2086	3,94572E19
23,2186	3,93118E19
23,2286	3,91671E19
23,2386	3,90229E19
23,2486	3,88794E19
23,2586	3,87364E19
23,2686	3,8594E19
23,2786	3,84522E19
23,2886	3,8311E19
23,2986	3,81703E19
23,3086	3,80303E19
23,3186	3,78908E19

23,3286	3,77518E19
23,3386	3,76135E19
23,3486	3,74757E19
23,3586	3,73384E19
23,3686	3,72017E19
23,3786	3,70656E19
23,3886	3,693E19
23,3986	3,6795E19
23,4086	3,66606E19
23,4186	3,65266E19
23,4286	3,63933E19
23,4386	3,62604E19
23,4486	3,61281E19
23,4586	3,59964E19
23,4686	3,58652E19
23,4786	3,57345E19
23,4886	3,56043E19
23,4986	3,54747E19
23,5086	3,53456E19
23,5186	3,5217E19
23,5286	3,50889E19
23,5386	3,49614E19
23,5486	3,48344E19
23,5586	3,47079E19
23,5686	3,45819E19
23,5786	3,44564E19
23,5886	3,43314E19
23,5986	3,42069E19
23,6086	3,40829E19
23,6186	3,39595E19
23,6286	3,38365E19
23,6386	3,3714E19
23,6486	3,3592E19
23,6586	3,34705E19
23,6686	3,33495E19
23,6786	3,3229E19
23,6886	3,3109E19
23,6986	3,29894E19
23,7086	3,28703E19
23,7186	3,27518E19
23,7286	3,26336E19
23,7386	3,2516E19
23,7486	3,23988E19
23,7586	3,22822E19
23,7686	3,21659E19
23,7786	3,20502E19

23,7886	3,19349E19
23,7986	3,182E19
23,8086	3,17057E19
23,8186	3,15918E19
23,8286	3,14783E19
23,8386	3,13653E19
23,8486	3,12528E19
23,8586	3,11407E19
23,8686	3,1029E19
23,8786	3,09178E19
23,8886	3,0807E19
23,8986	3,06967E19
23,9086	3,05868E19
23,9186	3,04774E19
23,9286	3,03684E19
23,9386	3,02598E19
23,9486	3,01517E19
23,9586	3,0044E19
23,9686	2,99367E19
23,9786	2,98299E19
23,9886	2,97235E19
23,9986	2,96175E19
24,0086	2,95119E19
24,0186	2,94068E19
24,0286	2,9302E19
24,0386	2,91977E19
24,0486	2,90938E19
24,0586	2,89903E19
24,0686	2,88872E19
24,0786	2,87845E19
24,0886	2,86823E19
24,0986	2,85804E19
24,1086	2,8479E19
24,1186	2,83779E19
24,1286	2,82773E19
24,1386	2,8177E19
24,1486	2,80772E19
24,1586	2,79777E19
24,1686	2,78786E19
24,1786	2,77799E19
24,1886	2,76817E19
24,1986	2,75838E19
24,2086	2,74863E19
24,2186	2,73891E19
24,2286	2,72924E19
24,2386	2,7196E19

24,2486	2,71E19
24,2586	2,70044E19
24,2686	2,69092E19
24,2786	2,68144E19
24,2886	2,67199E19
24,2986	2,66258E19
24,3086	2,6532E19
24,3186	2,64387E19
24,3286	2,63457E19
24,3386	2,62531E19
24,3486	2,61608E19
24,3586	2,60689E19
24,3686	2,59773E19
24,3786	2,58861E19
24,3886	2,57953E19
24,3986	2,57048E19
24,4086	2,56147E19
24,4186	2,5525E19
24,4286	2,54356E19
24,4386	2,53465E19
24,4486	2,52578E19
24,4586	2,51694E19
24,4686	2,50814E19
24,4786	2,49937E19
24,4886	2,49064E19
24,4986	2,48194E19
24,5086	2,47327E19
24,5186	2,46464E19
24,5286	2,45604E19
24,5386	2,44748E19
24,5486	2,43895E19
24,5586	2,43045E19
24,5686	2,42199E19
24,5786	2,41356E19
24,5886	2,40516E19
24,5986	2,39679E19
24,6086	2,38846E19
24,6186	2,38016E19
24,6286	2,37189E19
24,6386	2,36365E19
24,6486	2,35545E19
24,6586	2,34728E19
24,6686	2,33913E19
24,6786	2,33103E19
24,6886	2,32295E19
24,6986	2,3149E19

24,7086	2,30689E19
24,7186	2,2989E19
24,7286	2,29095E19
24,7386	2,28303E19
24,7486	2,27513E19
24,7586	2,26727E19
24,7686	2,25944E19
24,7786	2,25164E19
24,7886	2,24387E19
24,7986	2,23613E19
24,8086	2,22842E19
24,8186	2,22074E19
24,8286	2,21309E19
24,8386	2,20547E19
24,8486	2,19788E19
24,8586	2,19031E19
24,8686	2,18278E19
24,8786	2,17527E19
24,8886	2,1678E19
24,8986	2,16035E19
24,9086	2,15293E19
24,9186	2,14554E19
24,9286	2,13818E19
24,9386	2,13085E19
24,9486	2,12355E19
24,9586	2,11627E19
24,9686	2,10902E19
24,9786	2,1018E19
24,9886	2,09461E19
24,9986	2,08744E19
25,0086	2,0803E19

Figure 3 Number of τ (emerging with black color and decaying with red color) as function of the rock length for the tau neutrino energy to 10^{19} eV for different values of the valley widths (3, 5, 8 et 10 km):

The value of the valley widths 3 km :

Rock length	Taus emerging	Taus decaying
1	398	145
2	755	389
3	1027	558
4	1215	772
5	1339	860
6	1443	943
7	1434	982

8	1450	939
9	1488	991
10	1411	950
11	1480	964
12	1394	967
13	1325	868
14	1351	870
15	1417	925
16	1408	953
17	1383	919
18	1430	949
19	1467	951
20	1401	948
21	1358	898
22	1333	878
23	1324	887
24	1373	906
25	1282	880
26	1357	935
27	1353	920
28	1307	868
29	1314	894
30	1314	869

The value of the valley widths 5 km :

Rock length	Taus emerging	Taus decaying
1	382	273
2	747	567
3	1026	843
4	1230	1049
5	1388	1183
6	1459	1279
7	1414	1250
8	1417	1237
9	1473	1286
10	1423	1238
11	1371	1176
12	1453	1255
13	1408	1219
14	1372	1201
15	1357	1173
16	1440	1272
17	1417	1234
18	1348	1184
19	1406	1211

20	1367	1194
21	1411	1240
22	1370	1196
23	1345	1194
24	1383	1205
25	1357	1190
26	1334	1176
27	1405	1222
28	1358	1202
29	1253	1081
30	1358	1148

The value of the valley widths 10 km :

Rock length	Taus emerging	Taus decaying
1	386	380
2	702	698
3	1023	1014
4	1301	1296
5	1409	1408
6	1421	1415
7	1438	1433
8	1411	1408
9	1447	1440
10	1430	1427
11	1449	1445
12	1483	1482
13	1429	1422
14	1434	1433
15	1382	1380
16	1397	1392
17	1407	1398
18	1355	1349
19	1390	1380
20	1336	1329
21	1371	1364
22	1328	1326
23	1345	1343
24	1351	1345
25	1358	1354
26	1343	1340
27	1386	1381
28	1295	1289
29	1320	1316
30	1400	1393

Figure 4 Number of τ (emerging with black color and decaying with red color) as function of the rock length for the tau neutrino energy to 10_{18} eV for the valley widths 3 km:

Rock length	Taus emerging	Taus decaying
1	169	166
2	245	244
3	256	250
4	251	246
5	276	274
6	272	268
7	263	263
8	268	265
9	259	255
10	261	258
11	279	269
12	247	243
13	261	260
14	290	286
15	274	267
16	266	266
17	252	249
18	277	273
19	285	283
20	240	239
21	253	251
22	256	251
23	243	240
24	262	259
25	249	244
26	240	236
27	269	263
28	251	249
29	226	222
30	257	253

Figure 5 Number of τ (emerging with black color and decaying with red color)as function of the rock length for the tau neutrino energy to 10^{20} eV for different values of the valley widths (5, 10, 15 et 20 km):

The value of the valley widths 5 km :

Rock length	Taus emerging	Taus decaying
1	845	95

2	1672	255
3	2613	541
4	3376	849
5	4104	1253
6	4881	1788
7	5352	2239
8	5787	2720
9	5969	2923
10	6185	3168
11	6261	3234
12	6276	3382
13	6327	3401
14	6241	3285
15	6338	3268
16	6252	3292
17	6088	3267
18	5993	3206
19	6144	3231
20	5898	3143
21	5875	3057
22	5915	3141
23	5795	3135
24	5696	2988
25	5744	3051
26	5679	3005
27	5627	2993
28	5570	2960
29	5392	2852
30	5486	2885

The value of the valley widths 10 km :

rock length	Taus emerging	Taus decaying
1	917	326
2	1702	771
3	2590	1345
4	3322	1969
5	3993	2626
6	4655	3209
7	5342	3887
8	5821	4391
9	6098	4703
10	6276	4947
11	6361	4970

12	6303	4975
13	6272	4954
14	6364	5055
15	6098	4785
16	6124	4775
17	6141	4808
18	6074	4706
19	6061	4783
20	5767	4508
21	5857	4595
22	5897	4649
23	5908	4592
24	5815	4572
25	5640	4451
26	5818	4562
27	5611	4492
28	5520	4273
29	5415	4245
30	5371	4170

The value of the valley widths 15 km :

Largeur	tausurvie	taudev
1	66	41
2	177	129
3	253	200
4	314	248
5	407	355
6	474	409
7	522	456
8	583	528
9	575	519
10	612	554
11	661	604
12	624	571
13	610	545
14	635	571
15	648	586
16	615	544
17	604	549
18	645	590
19	596	540
20	604	548
21	574	523
22	574	530
23	559	510

24	613	548
25	600	540
26	567	519
27	574	517
28	556	508
29	621	557
30	532	473

The value of the valley widths 20 km :

Rock length	Taus emerging	Taus decaying
1	99	79
2	192	164
3	259	240
4	349	323
5	402	389
6	480	445
7	545	518
8	553	541
9	588	565
10	648	619
11	673	650
12	649	631
13	631	617
14	656	633
15	625	595
16	618	601
17	585	564
18	603	581
19	640	615
20	629	605
21	617	598
22	556	542
23	568	542
24	569	544
25	558	536
26	552	534
27	611	587
28	547	529
29	550	536
30	543	528

Figure 6 Distribution normalisée des muons de la gerbe initiée par un lepton tau en fonction de la hauteur pour les différentes valeurs de l'énergie et pour les trois valeurs de θ (70, 75 *et* 80) :

10^6 GeV	**ang=70°**	10^7 GeV	ang=70°	10^8 GeV	ang=70°	10^9 GeV	ang=70°
Height(m)	norm	Height(m)	norm	Height(m)	norm	Height(m)	norm
90808,32085	0,00111	81789,98912	0,00158	81789,98912	0,00218	84816,71479	0,00141
88501,21717	0,0025	78772,56174	0,00425	78772,56174	0,00462	81789,98912	0,00318
86199,57271	0,00361	75764,37566	0,01189	75764,37566	0,01052	78772,56174	0,00612
83903,36166	0,00804	72765,37442	0,02475	72765,37442	0,02005	75764,37566	0,01036
81612,55844	0,01664	69775,50205	0,0415	69775,50205	0,03338	72765,37442	0,01711
79327,13761	0,03245	66794,70311	0,06322	66794,70311	0,05217	69775,50205	0,02653
77047,07395	0,05381	63822,92267	0,08773	63822,92267	0,0736	66794,70311	0,0391
74772,34238	0,07129	60860,10628	0,11334	60860,10628	0,10063	63822,92267	0,05577
72502,91802	0,09043	57906,19999	0,14428	57906,19999	0,13295	60860,10628	0,07588
70238,77615	0,11567	54961,15034	0,1791	54961,15034	0,16751	57906,19999	0,09971
67979,89223	0,13842	52024,90433	0,21369	52024,90433	0,21004	54961,15034	0,12861
65726,24189	0,17032	49097,40948	0,25482	49097,40948	0,25687	52024,90433	0,16267
63477,80092	0,19917	46178,61372	0,30227	46178,61372	0,31053	49097,40948	0,2016
61234,5453	0,23689	43268,46548	0,36088	43268,46548	0,36701	46178,61372	0,24652
58996,45115	0,27656	40366,91365	0,42373	40366,91365	0,43023	43268,46548	0,29858
56763,49477	0,3215	37473,90756	0,50297	37473,90756	0,49819	40366,91365	0,35717
54535,65261	0,36422	34589,39698	0,59204	34589,39698	0,57122	37473,90756	0,42207
52312,9013	0,41831	31713,33213	0,67383	31713,33213	0,64462	34589,39698	0,49371
50095,21762	0,47989	28845,66367	0,7476	28845,66367	0,72377	31713,33213	0,57145
47882,57851	0,53426	25986,3427	0,8249	25986,3427	0,80426	28845,66367	0,65533
45674,96106	0,58419	23135,32072	0,89892	23135,32072	0,88416	25986,3427	0,7419
43472,34253	0,64438	20292,54968	0,95923	20292,54968	0,95082	23135,32072	0,829
41274,70032	0,7104	17457,98192	1	17457,98192	1	20292,54968	0,91402
39082,01199	0,76588					17457,98192	0,98085
36894,25525	0,82219					14631,57021	1
34711,40796	0,87351						
32533,44813	0,91234						
30360,35392	0,94092						
28192,10364	0,96117						
26028,67572	0,9828						
23870,04877	1						

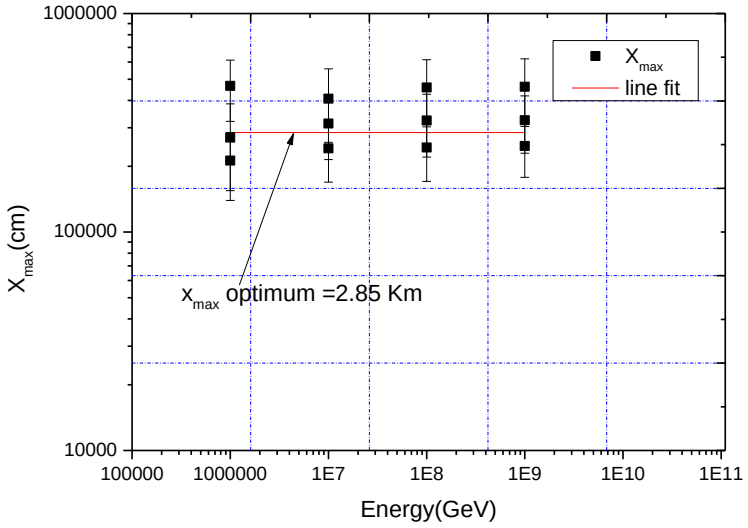
10^6 GeV	**ang=75°**	10^7 GeV	ang=75°	10^8 GeV	ang=75°	10^9 GeV	ang=75°
Height(m)	norm	Height(m)	norm	Height(m)	norm	Height(m)	norm
92281,35444	0,00285	88501,21717	0,00122	86199,57271	0,00143	86199,57271	0,00101
90726,95864	0,00438	86199,57271	0,00315	83903,36166	0,00293	83903,36166	0,00216
89175,11097	0,00701	83903,36166	0,00578	81612,55844	0,00519	81612,55844	0,00423
87625,8031	0,01359	81612,55844	0,00925	79327,13761	0,0092	79327,13761	0,00703
86079,02675	0,02499	79327,13761	0,01348	77047,07395	0,01591	77047,07395	0,01105
84534,77367	0,03332	77047,07395	0,02029	74772,34238	0,0249	74772,34238	0,01628
82993,03565	0,05327	74772,34238	0,02735	72502,91802	0,03633	72502,91802	0,02306

81453,80452	0,07234	72502,91802	0,03628	70238,77615	0,05115	70238,77615	0,03177
79917,07217	0,09185	70238,77615	0,04764	67979,89223	0,06714	67979,89223	0,04231
78382,83051	0,11464	67979,89223	0,06138	65726,24189	0,08691	65726,24189	0,05563
76851,07147	0,13832	65726,24189	0,07949	63477,80092	0,10929	63477,80092	0,0721
75321,78707	0,16287	63477,80092	0,0999	61234,5453	0,13422	61234,5453	0,09138
73794,96932	0,1929	61234,5453	0,13027	58996,45115	0,16078	58996,45115	0,11341
72270,6103	0,22753	58996,45115	0,16045	56763,49477	0,19021	56763,49477	0,13916
70748,70211	0,26523	56763,49477	0,19339	54535,65261	0,22257	54535,65261	0,16764
69229,2369	0,2968	54535,65261	0,23236	52312,9013	0,25858	52312,9013	0,20001
67712,20684	0,32836	52312,9013	0,27897	50095,21762	0,29805	50095,21762	0,23604
66197,60417	0,37155	50095,21762	0,32648	47882,57851	0,34009	47882,57851	0,27597
64685,42113	0,39961	47882,57851	0,37393	45674,96106	0,38518	45674,96106	0,31998
63175,65001	0,42635	45674,96106	0,4253	43472,34253	0,43412	43472,34253	0,36792
61668,28316	0,45945	43472,34253	0,48096	41274,70032	0,48323	41274,70032	0,41974
60163,31294	0,49342	41274,70032	0,53432	39082,01199	0,53402	39082,01199	0,47451
58660,73174	0,53003	39082,01199	0,59095	36894,25525	0,58818	36894,25525	0,5317
54167,24691	0,63744	36894,25525	0,63923	34711,40796	0,64262	34711,40796	0,59064
52674,14659	0,67142	34711,40796	0,69271	32533,44813	0,69969	32533,44813	0,6511
51183,39785	0,70517	32533,44813	0,74876	30360,35392	0,75668	30360,35392	0,71207
49694,99331	0,72797	30360,35392	0,79974	28192,10364	0,81037	28192,10364	0,77246
48208,92562	0,7534	28192,10364	0,85335	26028,67572	0,86057	26028,67572	0,83147
46725,18747	0,78321	26028,67572	0,90119	23870,04877	0,9096	23870,04877	0,88647
42287,87761	0,84546	23870,04877	0,9451	21716,20151	0,95302	21716,20151	0,93547
40813,38514	0,86848	21716,20151	0,97425	19567,11282	0,98496	19567,11282	0,97549
39341,18616	0,89456	19567,11282	0,99518	17422,76172	1	17422,76172	1
37871,27353	0,91451	17422,76172	1				
27645,3128	1						

10^6 GeV	**ang=80°**	10^7 GeV	ang=80°	10^8 GeV	ang=80°	10^9 GeV	ang=80°
Height(m)	norm	Height(m)	norm	Height(m)	norm	Height(m)	norm
90726,95864	0,00151	90726,95864	0,00151	89175,11097	0,00199	89175,11097	0,0011
89175,11097	0,00303	89175,11097	0,00303	87625,8031	0,00395	87625,8031	0,00236
87625,8031	0,00662	87625,8031	0,00662	86079,02675	0,00686	86079,02675	0,00425
86079,02675	0,01137	86079,02675	0,01137	84534,77367	0,01065	84534,77367	0,0068
84534,77367	0,01853	84534,77367	0,01853	82993,03565	0,01518	79917,07217	0,01993
82993,03565	0,02717	82993,03565	0,02717	81453,80452	0,02035	78382,83051	0,02665
81453,80452	0,03776	81453,80452	0,03776	79917,07217	0,02643	76851,07147	0,0346
79917,07217	0,04836	79917,07217	0,04836	78382,83051	0,03337	75321,78707	0,04371
78382,83051	0,06255	78382,83051	0,06255	76851,07147	0,04106	73794,96932	0,05402
76851,07147	0,07771	76851,07147	0,07771	75321,78707	0,05024	72270,6103	0,06608
75321,78707	0,09708	75321,78707	0,09708	73794,96932	0,06093	70748,70211	0,07984
73794,96932	0,1187	73794,96932	0,1187	72270,6103	0,07312	69229,2369	0,09482
72270,6103	0,13992	72270,6103	0,13992	70748,70211	0,08586	67712,20684	0,11136
70748,70211	0,1637	70748,70211	0,1637	69229,2369	0,10036	66197,60417	0,12931
69229,2369	0,19117	69229,2369	0,19117	63175,65001	0,17075	54167,24691	0,32804
67712,20684	0,21763	67712,20684	0,21763	61668,28316	0,19215	52674,14659	0,35913
66197,60417	0,24531	66197,60417	0,24531	60163,31294	0,21457	51183,39785	0,39105
64685,42113	0,27655	64685,42113	0,27655	55662,70623	0,29397	49694,99331	0,42429
63175,65001	0,30829	63175,65001	0,30829	54167,24691	0,32312	48208,92562	0,45801
61668,28316	0,34444	61668,28316	0,34444	52674,14659	0,35432	42287,87761	0,59781
60163,31294	0,3781	52674,14659	0,55505	51183,39785	0,38643	40813,38514	0,63329

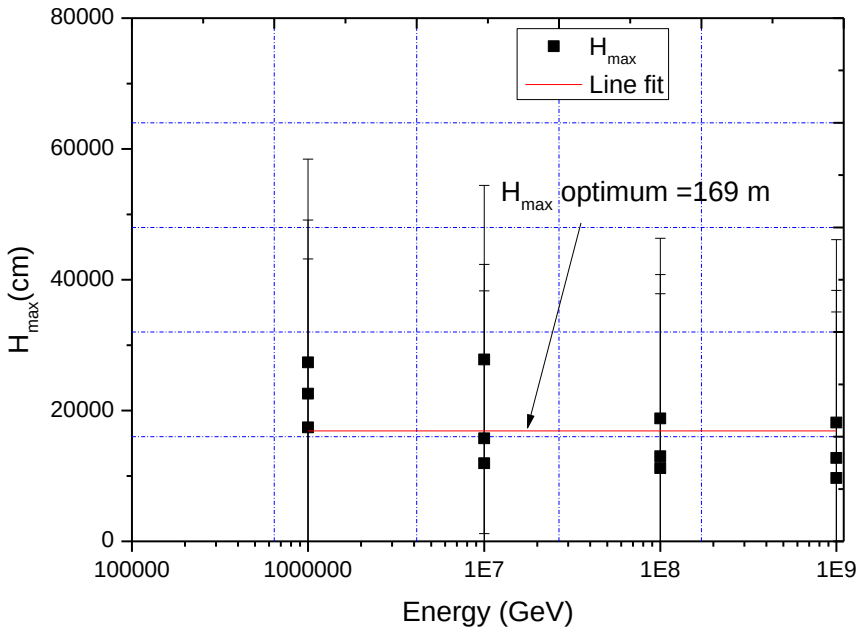
58660,73174	0,41038	51183,39785	0,5912	46725,18747	0,49169	39341,18616	0,66813
57160,53201	0,44539	49694,99331	0,6297	42287,87761	0,60268	37871,27353	0,7037
55662,70623	0,48463	48208,92562	0,6674	40813,38514	0,64015	30555,75923	0,8679
51183,39785	0,5912	46725,18747	0,7024	39341,18616	0,67713	29099,41727	0,89569
49694,99331	0,6297	45243,77158	0,73895	37871,27353	0,71425	27645,3128	0,92147
48208,92562	0,6674	43764,67069	0,7713	29099,41727	0,90855	26193,43898	0,94511
46725,18747	0,7024	42287,87761	0,80705	27645,3128	0,93288	24743,78897	0,96595
45243,77158	0,73895	40813,38514	0,8394	26193,43898	0,9548	23296,35599	0,98211
43764,67069	0,7713	39341,18616	0,86855	24743,78897	0,97275	21851,13328	0,99368
42287,87761	0,80705	37871,27353	0,89643	23296,35599	0,98769	20408,11411	1
40813,38514	0,8394	36403,64019	0,9232	21851,13328	0,9972		
32014,34557	0,973	34938,27908	0,94095	20408,11411	1		
30555,75923	0,98268	33475,1832	0,95753				
29099,41727	0,99136	32014,34557	0,973				
27645,3128	0,99445	30555,75923	0,98268				
26193,43898	1	26193,43898	1				

Figure 7 Valeurs de $L'max$ en fonction de l'énergie du lepton tau pour les trois valeurs de θ :



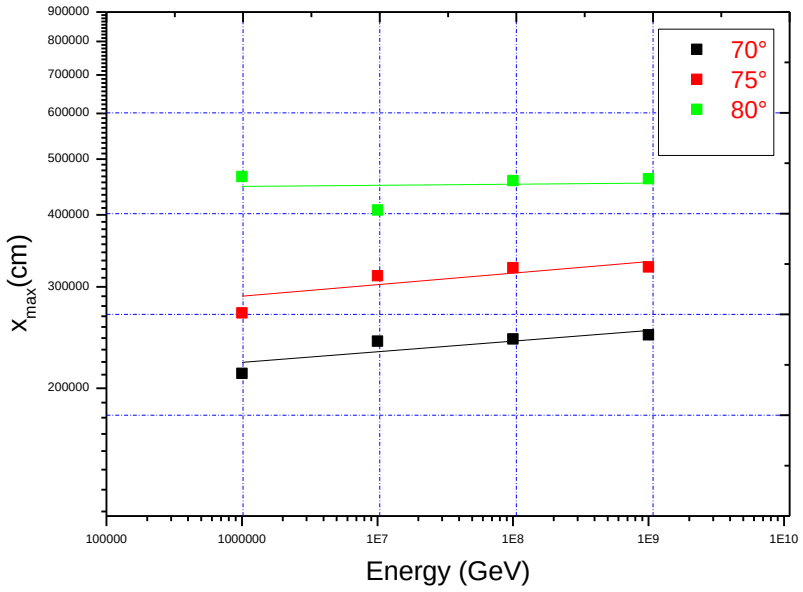
Energy(GeV)	L'max (Xmax) (km)	σ(Km)
1000000	212337,23629	72862,05535
1E7	241488,20382	72282,05568
1E8	243525,10682	73118,24938
1E9	247661,78424	69644,98519
1000000	270329,5841	115658,74176
1E7	313636,31492	98996,76384
1E8	323771,83869	103358,36631
1E9	324721,06939	95311,39114

1000000	466363,57005	145447,54864
1E7	407733,22178	150339,20542
1E8	458659,47915	155640,70873
1E9	462224,91087	157999,6699



Energie(GeV)	Xmax(Km)	σ(Km)
1000000	22567,49618	26570,73744
1E7	11936,96015	26359,22792
1E8	11194,15905	26664,16419
1E9	9685,62942	25397,56265
1000000	27374	31072,94342
1E7	15739,18904	26596,52694
1E8	13016,17345	27768,31755

1E9	12761,15259	25606,41262
1000000	17428	25752,49582
1E7	27808,90922	26618,59753
1E8	18792,06265	27557,26541
1E9	18160,77827	27974,93582



Energie(GeV)	Angle 80°	Angle 75°	Angle 70°
1000000	466363,57005	270329,5841	212337,23629
1E7	407733,22178	313636,31492	241488,20382
1E8	458659,47915	323771,83869	243525,10682
1E9	462224,91087	324721,06939	247661,78424