

# Liquefaction Resistance - Python Routine

November 22, 2018

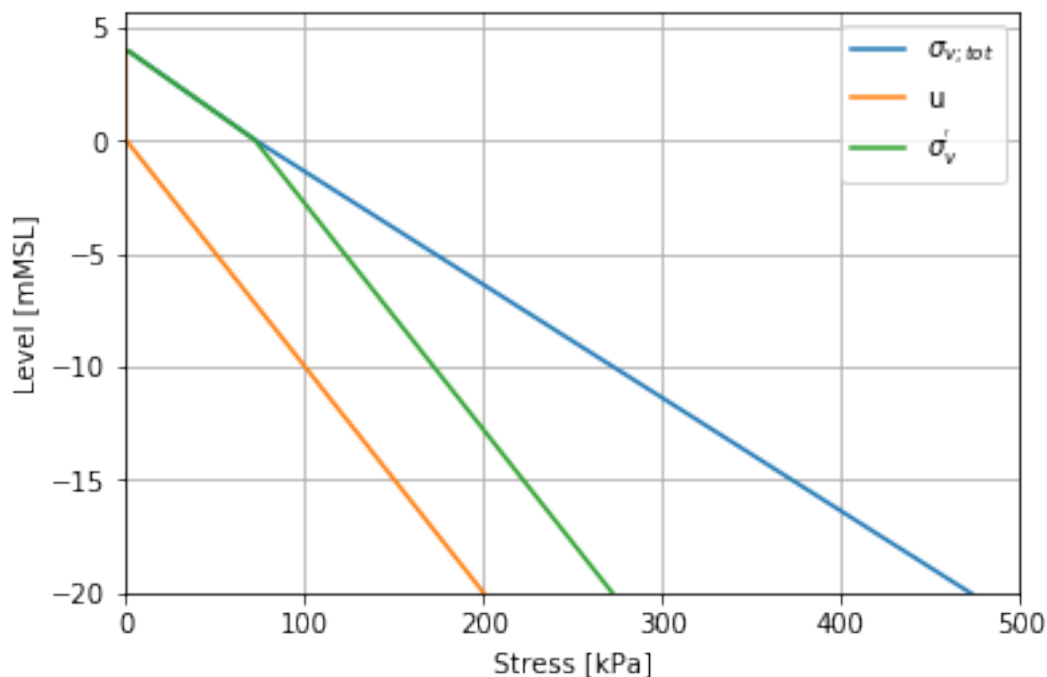
[1] Youd, T. L., Idriss, I. M., Andrus, R. D., Arango, I., Castro, G., Christian, J. T., Dobry, R., Finn, W. D. L., Harder, L. F., Hynes, M. E., Ishihara, K., Koester, J. P., Liao, S. S. C., Marcuson, W. F., Martin, G. R., Mitchell, J. K., Moriwaki, Y., Power, M. S., Robertson, P. K., Seed, R. B., and Stokoe, K. H. (2001). *Liquefaction resistance of soils: summary report from the 1996 NCEER and 1998 NCEER/NSF workshops on evaluation of liquefaction resistance of soils*, J. Geotechnical and Geoenvironmental Eng., ASCE 127(10), 817–33.

[2] Boulanger, R. W., and Idriss, I. M. (2014). *CPT and SPT Based Liquefaction Triggering Procedures*, Report No. UCD/CGN-14/01, Department of Civil & Environmental Engineering, College of Engineering, University of California at Davis

## 1 Input Parameters

### 1.1 Stress State

```
In [666]: GL = 4.03; WL = 0;  
          g_sat = 20; g_unsat = 18; g_w = 10
```



## 1.2 Seismic

```
In [668]: amax_g = 0.24 ; Mw = 8.2 ; FS = 1.3
          #qc-Dr correlation
          C0 = 157; C1 = 0.55; C2 = 2.41; # Baldi NC
```

## 2 CPT criteria for evaluating Liquefaction Resistance

```
MSF_idb = min(6.9*np.exp(-Mw/4)-0.058,1.8)
MSF = MSF_idb

rd = np.clip((1-0.4113*z**0.5 + 0.04052*z + 0.001753*z**1.5) / (1 - 0.4177*z**0.5 + 0.05729*z - 0.006205*z**1.5 + 0.001210*z**2),0,1) #TF. Blake
CSR = 0.65*amax_g*np.divide(sigVTot,sigV)*rd;
f = 0.7; Ksig = np.clip((sigV/100)**(f-1),0,1) #0.6-0.7 for Dr=60-80%, 0.7-0.8 for Dr=40-60%
CSR75 = CSR/(MSF*Ksig)
CRR75 = FS*CSR75
qc1Ncs = np.cbrt((CRR75 - 0.08)/93)*1000; #cubic root

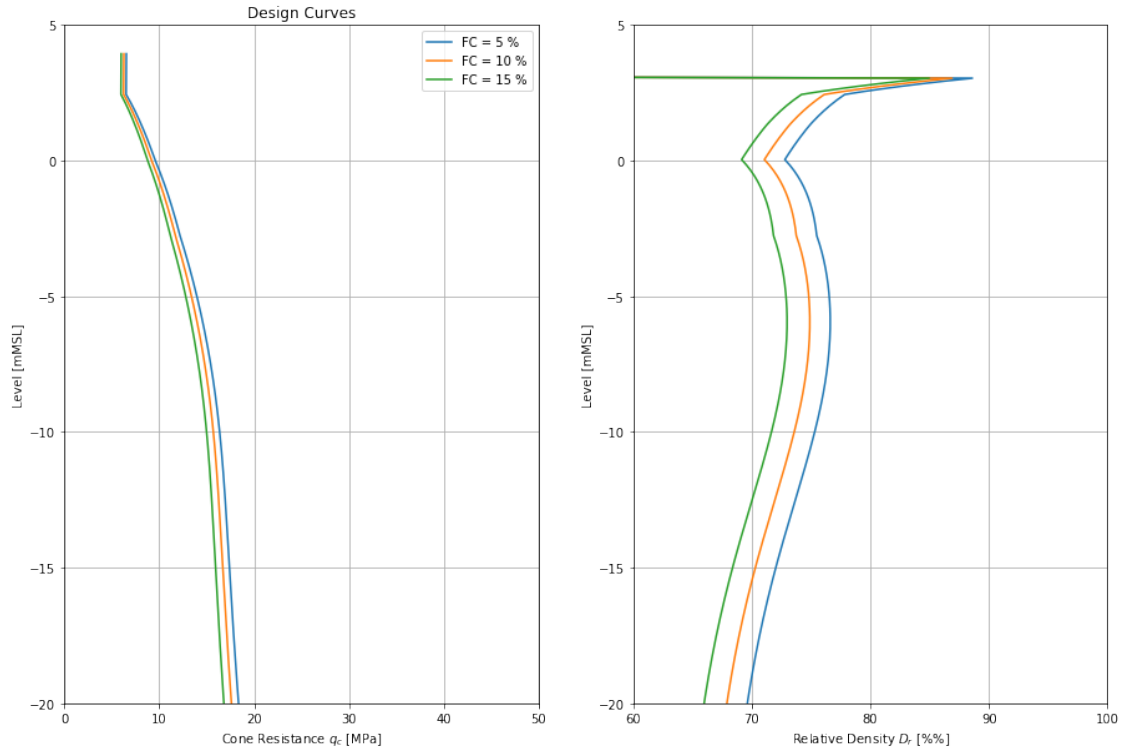
m = 1.338 - 0.249*qc1Ncs**0.264
Cq = np.clip((100/sigV)**m,0,1.7);

FC = np.array([5,10,15])
Ic_FC = (FC+137)/80; #Idriss and Boulanger, 2015
Kc = np.clip(-0.403*Ic_FC**4+5.581*Ic_FC**3-21.63*Ic_FC**2+33.75*Ic_FC-17.88,1,100)
qc1N = np.zeros((len(sigV),len(Ic_FC))); qc = np.zeros((len(sigV),len(Ic_FC))); Dr = np.zeros((len(sigV),len(Ic_FC)))
plt.figure(figsize=(15,10))
for i in np.arange(0,len(Ic_FC),1):
    qc1N[:,i] = qc1Ncs/Kc[i]
    qc[:,i] = qc1N[:,i]/Cq*100/1000
    plt.subplot(121)
    plt.plot(qc[:,i],Level,label = 'FC = %.f %%' %FC[i])
    Dr[:,i] = (1/C2)*np.log(qc[:,i]*1000/(C0*(sigV)**C1))*100
    Dr[Depth+1,i] = 0
    plt.subplot(122)
    plt.plot(Dr[:,i],Level,label = 'FC = %.f %%' %FC[i])

plt.subplot(121);
plt.title('Design Curves')
plt.ylabel('Level [mMSL]'); plt.xlabel('Cone Resistance $q_{c0}$ [MPa]')
plt.grid(); plt.legend(); plt.xlim(0,50);plt.ylim(-20,5)
plt.subplot(122)
plt.ylabel('Level [mMSL]'); plt.xlabel('Relative Density $D_r$ [%]')
plt.grid(); plt.xticks(np.arange(0, 110, step=10));plt.xlim(60,100);plt.ylim(-20,5);

plt.show()

Output = pd.DataFrame()
Output['rd'] = rd;
Output['CSR'] = CSR;
Output['Ksigma'] = Ksig;
Output['CSR75=CSR/(MSF*Ksigma)'] = CSR75;
Output['CRR75=FS*CSR75'] = CRR75;
Output['qc1Ncs'] = qc1Ncs;
Output['m'] = m;
Output['Cn'] = Cq;
Output['qc1N FC5%'] = qc1N[:,0];
Output['qc FC5%'] = qc[:,0];
Output['Dr FC5%'] = Dr[:,0];
Output['qc1N FC10%'] = qc1N[:,1];
Output['qc FC10%'] = qc[:,1];
Output['Dr FC10%'] = Dr[:,1];
Output['qc1N FC15%'] = qc1N[:,2];
Output['qc FC15%'] = qc[:,2];
Output['Dr FC15%'] = Dr[:,2];
```



## 2.1 Summary Results $q_c$ Vs depth for several FC%

Out [670]:

	Levels	FC5	FC10	FC15
0	0.0	9.53	9.14	8.73
1	-2.0	11.55	11.08	10.58
2	-4.0	13.20	12.66	12.09
3	-6.0	14.59	14.00	13.36
4	-8.0	15.63	15.00	14.32
5	-10.0	16.36	15.69	14.98
6	-12.0	16.85	16.16	15.43
7	-14.0	17.22	16.52	15.77
8	-16.0	17.57	16.85	16.09
9	-18.0	17.94	17.21	16.43
10	-20.0	18.35	17.60	16.81

## 2.2 Detailed Results

	rd	CSR	Ksigma	$CSR_{75} = CSR / (MSF * Ksigma)$	$CRR_{75} = FS * CSR_{75}$	\
0	1.000000	0.156000	1.000000	0.187890	0.244258	
1	1.000000	0.156000	1.000000	0.187890	0.244258	
2	0.999585	0.155935	1.000000	0.187813	0.244156	
3	0.998890	0.155827	1.000000	0.187682	0.243987	
4	0.998156	0.155712	1.000000	0.187544	0.243807	
5	0.997400	0.155594	1.000000	0.187402	0.243623	
6	0.996631	0.155474	1.000000	0.187257	0.243435	
7	0.995854	0.155353	1.000000	0.187112	0.243245	

8	0.995074	0.155232	1.000000	0.186965	0.243054
9	0.994292	0.155110	1.000000	0.186818	0.242864
10	0.993512	0.154988	1.000000	0.186671	0.242673
11	0.992734	0.154866	1.000000	0.186525	0.242483
12	0.991958	0.154746	1.000000	0.186380	0.242293
13	0.991187	0.154625	1.000000	0.186235	0.242105
14	0.990420	0.154505	1.000000	0.186090	0.241918
15	0.989657	0.154387	1.000000	0.185947	0.241731
16	0.988900	0.154268	1.000000	0.185805	0.241546
17	0.988147	0.154151	1.000000	0.185663	0.241362
18	0.987399	0.154034	1.000000	0.185523	0.241180
19	0.986657	0.153918	1.000000	0.185383	0.240998
20	0.985919	0.153803	1.000000	0.185245	0.240818
21	0.985186	0.153689	1.000000	0.185107	0.240639
22	0.984458	0.153576	1.000000	0.184970	0.240462
23	0.983735	0.153463	1.000000	0.184834	0.240285
24	0.983016	0.153350	1.000000	0.184699	0.240109
25	0.982301	0.153239	1.000000	0.184565	0.239935
26	0.981590	0.153128	1.000000	0.184431	0.239761
27	0.980883	0.153018	1.000000	0.184299	0.239588
28	0.980179	0.152908	1.000000	0.184166	0.239416
29	0.979478	0.152799	1.000000	0.184035	0.239245
30	0.978779	0.152690	1.000000	0.183903	0.239074
31	0.978083	0.152581	1.000000	0.183773	0.238904
32	0.977389	0.152473	1.000000	0.183642	0.238735
33	0.976697	0.152365	1.000000	0.183512	0.238566
34	0.976006	0.152257	1.000000	0.183382	0.238397
35	0.975316	0.152149	1.000000	0.183253	0.238228
36	0.974626	0.152042	1.000000	0.183123	0.238060
37	0.973936	0.151934	1.000000	0.182993	0.237891
38	0.973245	0.151826	1.000000	0.182864	0.237723
39	0.972554	0.151718	1.000000	0.182734	0.237554
40	0.971862	0.151609	1.000000	0.182605	0.237386
41	0.971167	0.151500	1.000000	0.182476	0.237218
42	0.970470	0.151392	1.000000	0.182347	0.237050
43	0.969770	0.151284	1.000000	0.182218	0.236882
44	0.969067	0.151176	1.000000	0.182089	0.236714
45	0.968360	0.151068	1.000000	0.181960	0.236546
46	0.967648	0.150960	1.000000	0.181831	0.236378
47	0.966931	0.150852	1.000000	0.181702	0.236210
48	0.966208	0.150744	1.000000	0.181573	0.236042
49	0.965479	0.150636	1.000000	0.181444	0.235874
50	0.964744	0.150528	1.000000	0.181315	0.235706
51	0.964000	0.150420	1.000000	0.181186	0.235538
52	0.963249	0.150312	1.000000	0.181057	0.235370
53	0.962488	0.150204	1.000000	0.180928	0.235202
54	0.961719	0.150096	1.000000	0.180799	0.235034
55	0.960939	0.149988	1.000000	0.180670	0.234866

56	0.960148	0.178393	1.000000	0.214862	0.279320
57	0.959346	0.179589	1.000000	0.216302	0.281193
58	0.958531	0.180752	1.000000	0.217702	0.283012
59	0.957703	0.181880	1.000000	0.219061	0.284780
60	0.956862	0.182977	1.000000	0.220382	0.286497
61	0.956006	0.184041	1.000000	0.221664	0.288164
62	0.955135	0.185075	1.000000	0.222909	0.289782
63	0.954248	0.186078	1.000000	0.224118	0.291353
64	0.953344	0.187052	1.000000	0.225290	0.292878
65	0.952423	0.187997	1.000000	0.226428	0.294357
66	0.951483	0.188913	1.000000	0.227531	0.295791
67	0.950524	0.189801	1.000000	0.228601	0.297181
68	0.949545	0.190661	0.997019	0.230324	0.299421
69	0.948546	0.191495	0.994077	0.232015	0.301620
70	0.947525	0.192301	0.991172	0.233676	0.303779
71	0.946481	0.193082	0.988303	0.235306	0.305897
72	0.945414	0.193837	0.985470	0.236905	0.307976
73	0.944323	0.194566	0.982671	0.238473	0.310015
74	0.943207	0.195270	0.979907	0.240011	0.312015
75	0.942065	0.195950	0.977176	0.241519	0.313975
76	0.940897	0.196604	0.974478	0.242997	0.315896
77	0.939701	0.197235	0.971812	0.244445	0.317779
78	0.938478	0.197841	0.969177	0.245863	0.319622
79	0.937225	0.198424	0.966573	0.247252	0.321427
80	0.935942	0.198983	0.963999	0.248611	0.323194
81	0.934629	0.199519	0.961454	0.249940	0.324921
82	0.933284	0.200031	0.958938	0.251239	0.326611
83	0.931907	0.200521	0.956451	0.252509	0.328262
84	0.930497	0.200987	0.953991	0.253749	0.329874
85	0.929053	0.201431	0.951558	0.254960	0.331448
86	0.927575	0.201853	0.949152	0.256141	0.332983
87	0.926062	0.202252	0.946772	0.257292	0.334480
88	0.924512	0.202629	0.944418	0.258414	0.335939
89	0.922927	0.202983	0.942089	0.259507	0.337359
90	0.921304	0.203316	0.939785	0.260569	0.338740
91	0.919643	0.203627	0.937505	0.261602	0.340083
92	0.917944	0.203916	0.935248	0.262606	0.341387
93	0.916206	0.204183	0.933015	0.263579	0.342653
94	0.914429	0.204429	0.930805	0.264523	0.343880
95	0.912611	0.204653	0.928618	0.265437	0.345068
96	0.910754	0.204856	0.926452	0.266321	0.346218
97	0.908855	0.205038	0.924309	0.267176	0.347328
98	0.906915	0.205198	0.922186	0.268000	0.348400
99	0.904934	0.205338	0.920085	0.268795	0.349434
100	0.902911	0.205456	0.918004	0.269560	0.350428
101	0.900846	0.205554	0.915943	0.270295	0.351384
102	0.898739	0.205631	0.913903	0.271000	0.352300
103	0.896589	0.205688	0.911881	0.271676	0.353179

104	0.894397	0.205724	0.909879	0.272322	0.354018
105	0.892162	0.205740	0.907896	0.272938	0.354819
106	0.889885	0.205736	0.905932	0.273524	0.355581
107	0.887565	0.205712	0.903986	0.274081	0.356305
108	0.885203	0.205668	0.902058	0.274608	0.356991
109	0.882799	0.205605	0.900147	0.275106	0.357638
110	0.880353	0.205522	0.898254	0.275575	0.358248
111	0.877865	0.205420	0.896378	0.276015	0.358819
112	0.875336	0.205299	0.894519	0.276426	0.359353
113	0.872766	0.205160	0.892677	0.276808	0.359850
114	0.870156	0.205002	0.890850	0.277161	0.360310
115	0.867505	0.204825	0.889040	0.277486	0.360732
116	0.864816	0.204631	0.887246	0.277784	0.361119
117	0.862088	0.204418	0.885467	0.278053	0.361469
118	0.859322	0.204188	0.883704	0.278294	0.361783
119	0.856518	0.203942	0.881956	0.278509	0.362061
120	0.853679	0.203678	0.880223	0.278696	0.362305
121	0.850803	0.203397	0.878504	0.278857	0.362514
122	0.847894	0.203101	0.876800	0.278992	0.362689
123	0.844950	0.202788	0.875110	0.279100	0.362830
124	0.841974	0.202460	0.873434	0.279183	0.362938
125	0.838967	0.202117	0.871772	0.279241	0.363014
126	0.835929	0.201759	0.870123	0.279274	0.363057
127	0.832862	0.201386	0.868488	0.279284	0.363069
128	0.829767	0.200999	0.866867	0.279269	0.363050
129	0.826645	0.200599	0.865258	0.279231	0.363000
130	0.823497	0.200186	0.863662	0.279170	0.362922
131	0.820326	0.199759	0.862079	0.279088	0.362814
132	0.817132	0.199321	0.860508	0.278983	0.362678
133	0.813916	0.198870	0.858949	0.278857	0.362515
134	0.810680	0.198408	0.857403	0.278711	0.362324
135	0.807426	0.197935	0.855869	0.278545	0.362108
136	0.804155	0.197451	0.854346	0.278359	0.361867
137	0.800868	0.196957	0.852836	0.278155	0.361601
138	0.797567	0.196453	0.851336	0.277932	0.361311
139	0.794253	0.195940	0.849848	0.277692	0.360999
140	0.790928	0.195419	0.848372	0.277434	0.360665
141	0.787594	0.194889	0.846906	0.277161	0.360309
142	0.784251	0.194351	0.845451	0.276871	0.359933
143	0.780902	0.193806	0.844007	0.276567	0.359537
144	0.777548	0.193254	0.842574	0.276248	0.359123
145	0.774190	0.192695	0.841151	0.275916	0.358691
146	0.770830	0.192131	0.839739	0.275570	0.358242
147	0.767470	0.191561	0.838336	0.275212	0.357776
148	0.764111	0.190985	0.836944	0.274843	0.357295
149	0.760754	0.190406	0.835562	0.274462	0.356800
150	0.757400	0.189822	0.834189	0.274070	0.356291
151	0.754052	0.189234	0.832827	0.273669	0.355770

152	0.750710	0.188643	0.831474	0.273258	0.355236
153	0.747377	0.188050	0.830130	0.272839	0.354691
154	0.744052	0.187453	0.828796	0.272412	0.354135
155	0.740738	0.186855	0.827471	0.271977	0.353571
156	0.737436	0.186255	0.826155	0.271536	0.352997
157	0.734147	0.185654	0.824848	0.271088	0.352415
158	0.730872	0.185052	0.823550	0.270635	0.351826
159	0.727612	0.184450	0.822261	0.270177	0.351230
160	0.724369	0.183847	0.820980	0.269715	0.350629
161	0.721144	0.183245	0.819709	0.269248	0.350022
162	0.717936	0.182643	0.818445	0.268778	0.349411
163	0.714749	0.182042	0.817190	0.268305	0.348797
164	0.711582	0.181443	0.815944	0.267830	0.348179
165	0.708436	0.180844	0.814705	0.267353	0.347559
166	0.705313	0.180248	0.813475	0.266875	0.346937
167	0.702213	0.179654	0.812252	0.266395	0.346314
168	0.699137	0.179062	0.811038	0.265915	0.345690
169	0.696085	0.178473	0.809831	0.265436	0.345066
170	0.693058	0.177887	0.808632	0.264956	0.344443
171	0.690058	0.177304	0.807441	0.264477	0.343821
172	0.687084	0.176725	0.806258	0.264000	0.343200
173	0.684137	0.176149	0.805081	0.263524	0.342581
174	0.681218	0.175577	0.803913	0.263050	0.341965
175	0.678327	0.175008	0.802751	0.262578	0.341351
176	0.675465	0.174445	0.801597	0.262109	0.340741
177	0.672632	0.173885	0.800450	0.261642	0.340135
178	0.669828	0.173330	0.799310	0.261179	0.339533
179	0.667053	0.172779	0.798177	0.260719	0.338935
180	0.664309	0.172234	0.797051	0.260263	0.338342
181	0.661595	0.171693	0.795932	0.259811	0.337754
182	0.658911	0.171158	0.794819	0.259363	0.337172
183	0.656258	0.170627	0.793714	0.258919	0.336595
184	0.653636	0.170102	0.792615	0.258480	0.336024
185	0.651045	0.169582	0.791522	0.258046	0.335460
186	0.648484	0.169068	0.790436	0.257617	0.334902
187	0.645955	0.168559	0.789357	0.257193	0.334351
188	0.643457	0.168056	0.788283	0.256774	0.333806
189	0.640990	0.167558	0.787216	0.256361	0.333269
190	0.638554	0.167066	0.786156	0.255953	0.332739
191	0.636149	0.166580	0.785101	0.255551	0.332217
192	0.633775	0.166100	0.784053	0.255155	0.331701
193	0.631432	0.165625	0.783010	0.254765	0.331194
194	0.629120	0.165156	0.781974	0.254380	0.330694
195	0.626838	0.164694	0.780943	0.254002	0.330203
196	0.624587	0.164236	0.779919	0.253630	0.329719
197	0.622367	0.163785	0.778900	0.253264	0.329243
198	0.620176	0.163340	0.777887	0.252904	0.328775
199	0.618015	0.162900	0.776879	0.252551	0.328316

200	0.615884	0.162467	0.775878	0.252204	0.327865
201	0.613783	0.162039	0.774881	0.251863	0.327421
202	0.611711	0.161617	0.773891	0.251528	0.326987
203	0.609668	0.161200	0.772906	0.251200	0.326560
204	0.607653	0.160790	0.771926	0.250878	0.326142
205	0.605667	0.160385	0.770951	0.250563	0.325732
206	0.603710	0.159986	0.769982	0.250254	0.325330
207	0.601780	0.159592	0.769018	0.249951	0.324936
208	0.599877	0.159204	0.768060	0.249654	0.324551
209	0.598002	0.158821	0.767106	0.249364	0.324173
210	0.596154	0.158444	0.766158	0.249080	0.323804
211	0.594332	0.158073	0.765214	0.248802	0.323443
212	0.592537	0.157707	0.764276	0.248531	0.323090
213	0.590767	0.157346	0.763343	0.248265	0.322745
214	0.589024	0.156990	0.762414	0.248006	0.322408
215	0.587305	0.156640	0.761491	0.247753	0.322078
216	0.585611	0.156295	0.760572	0.247505	0.321757
217	0.583942	0.155955	0.759658	0.247264	0.321443
218	0.582297	0.155619	0.758749	0.247028	0.321136
219	0.580676	0.155289	0.757844	0.246798	0.320838
220	0.579078	0.154964	0.756944	0.246574	0.320546
221	0.577504	0.154644	0.756049	0.246356	0.320262
222	0.575952	0.154328	0.755158	0.246143	0.319986
223	0.574423	0.154017	0.754272	0.245936	0.319716
224	0.572916	0.153711	0.753390	0.245734	0.319454
225	0.571430	0.153409	0.752513	0.245537	0.319198
226	0.569966	0.153112	0.751640	0.245346	0.318950
227	0.568523	0.152819	0.750772	0.245160	0.318708
228	0.567101	0.152531	0.749908	0.244979	0.318473
229	0.565699	0.152246	0.749048	0.244804	0.318245
230	0.564317	0.151967	0.748192	0.244633	0.318023
231	0.562955	0.151691	0.747341	0.244467	0.317807
232	0.561612	0.151419	0.746494	0.244306	0.317598
233	0.560288	0.151151	0.745651	0.244150	0.317395
234	0.558982	0.150888	0.744812	0.243998	0.317198
235	0.557695	0.150628	0.743977	0.243852	0.317007
236	0.556426	0.150372	0.743146	0.243709	0.316822
237	0.555175	0.150119	0.742320	0.243571	0.316643
238	0.553941	0.149871	0.741497	0.243438	0.316469
239	0.552724	0.149626	0.740678	0.243308	0.316301
240	0.551524	0.149384	0.739863	0.243183	0.316138
241	0.550340	0.149146	0.739052	0.243062	0.315981
242	0.549172	0.148912	0.738244	0.242945	0.315829
243	0.548021	0.148680	0.737441	0.242832	0.315682
244	0.546884	0.148452	0.736641	0.242723	0.315540
245	0.545763	0.148228	0.735845	0.242618	0.315403
246	0.544657	0.148006	0.735053	0.242517	0.315271
247	0.543566	0.147788	0.734265	0.242419	0.315144



248	0.542489	0.147572	0.733480	0.242324	0.315022
249	0.541426	0.147360	0.732698	0.242234	0.314904
250	0.540377	0.147151	0.731921	0.242146	0.314790
251	0.539341	0.146944	0.731147	0.242062	0.314681
252	0.538319	0.146740	0.730376	0.241982	0.314576
253	0.537310	0.146539	0.729609	0.241904	0.314476
254	0.536314	0.146341	0.728845	0.241830	0.314379
255	0.535330	0.146145	0.728085	0.241759	0.314287
256	0.534359	0.145952	0.727329	0.241691	0.314198
257	0.533400	0.145762	0.726575	0.241626	0.314113
258	0.532453	0.145574	0.725825	0.241563	0.314032
259	0.531517	0.145388	0.725079	0.241504	0.313955
260	0.530593	0.145205	0.724335	0.241447	0.313881
261	0.529680	0.145024	0.723595	0.241393	0.313811
262	0.528778	0.144846	0.722859	0.241342	0.313744
263	0.527886	0.144669	0.722125	0.241293	0.313681
264	0.527005	0.144495	0.721395	0.241246	0.313620
265	0.526135	0.144323	0.720668	0.241203	0.313563
266	0.525275	0.144154	0.719944	0.241161	0.313509
267	0.524424	0.143986	0.719223	0.241122	0.313458
268	0.523583	0.143820	0.718505	0.241085	0.313410
269	0.522752	0.143656	0.717791	0.241050	0.313365
270	0.521930	0.143495	0.717079	0.241018	0.313323
271	0.521118	0.143335	0.716371	0.240987	0.313283
272	0.520314	0.143177	0.715665	0.240959	0.313247
273	0.519519	0.143021	0.714963	0.240933	0.313212
274	0.518733	0.142866	0.714264	0.240908	0.313181
275	0.517956	0.142714	0.713567	0.240886	0.313151
276	0.517186	0.142563	0.712873	0.240865	0.313124
277	0.516425	0.142413	0.712183	0.240846	0.313100
278	0.515672	0.142266	0.711495	0.240829	0.313078
279	0.514927	0.142120	0.710810	0.240814	0.313058
280	0.514189	0.141975	0.710128	0.240800	0.313040
281	0.513459	0.141832	0.709449	0.240788	0.313024
282	0.512736	0.141691	0.708772	0.240777	0.313010
283	0.512020	0.141551	0.708099	0.240768	0.312999
284	0.511312	0.141412	0.707428	0.240761	0.312989
285	0.510611	0.141275	0.706760	0.240755	0.312981
286	0.509916	0.141140	0.706094	0.240750	0.312975
287	0.509228	0.141005	0.705432	0.240747	0.312971
288	0.508547	0.140872	0.704772	0.240745	0.312968
289	0.507872	0.140740	0.704114	0.240744	0.312967
290	0.507203	0.140610	0.703460	0.240745	0.312968
291	0.506541	0.140481	0.702808	0.240747	0.312971
292	0.505884	0.140353	0.702158	0.240750	0.312974
293	0.505234	0.140226	0.701511	0.240754	0.312980
294	0.504589	0.140100	0.700867	0.240759	0.312987
295	0.503951	0.139975	0.700225	0.240765	0.312995

296	0.503318	0.139852	0.699586	0.240773	0.313005
297	0.502690	0.139729	0.698950	0.240781	0.313016
298	0.502068	0.139608	0.698315	0.240791	0.313028
299	0.501451	0.139488	0.697684	0.240801	0.313041
300	0.500839	0.139369	0.697054	0.240812	0.313056
301	0.500232	0.139250	0.696428	0.240824	0.313072
302	0.499631	0.139133	0.695803	0.240837	0.313089
303	0.499034	0.139017	0.695182	0.240851	0.313107
304	0.498442	0.138901	0.694562	0.240866	0.313126
305	0.497855	0.138787	0.693945	0.240881	0.313146
306	0.497273	0.138673	0.693330	0.240898	0.313167
307	0.496695	0.138560	0.692718	0.240914	0.313189
308	0.496122	0.138448	0.692108	0.240932	0.313212
309	0.495553	0.138337	0.691500	0.240950	0.313236
310	0.494988	0.138227	0.690895	0.240969	0.313260
311	0.494427	0.138118	0.690291	0.240989	0.313286
312	0.493871	0.138009	0.689691	0.241009	0.313312
313	0.493319	0.137901	0.689092	0.241030	0.313339
314	0.492771	0.137794	0.688496	0.241051	0.313367
315	0.492227	0.137688	0.687901	0.241073	0.313395
316	0.491686	0.137582	0.687310	0.241096	0.313424
317	0.491150	0.137477	0.686720	0.241119	0.313454
318	0.490617	0.137373	0.686132	0.241142	0.313485
319	0.490088	0.137269	0.685547	0.241166	0.313516
320	0.489562	0.137166	0.684964	0.241190	0.313547
321	0.489040	0.137064	0.684383	0.241215	0.313580
322	0.488522	0.136962	0.683804	0.241240	0.313612
323	0.488007	0.136861	0.683227	0.241266	0.313645
324	0.487495	0.136761	0.682652	0.241292	0.313679
325	0.486987	0.136661	0.682080	0.241318	0.313713
326	0.486481	0.136562	0.681509	0.241344	0.313748
327	0.485979	0.136463	0.680941	0.241371	0.313783
328	0.485480	0.136365	0.680374	0.241399	0.313818
329	0.484985	0.136267	0.679810	0.241426	0.313854
330	0.484492	0.136170	0.679247	0.241454	0.313890
331	0.484002	0.136074	0.678687	0.241482	0.313927
332	0.483515	0.135978	0.678129	0.241510	0.313963
333	0.483031	0.135882	0.677572	0.241539	0.314001
334	0.482550	0.135787	0.677018	0.241568	0.314038
335	0.482071	0.135693	0.676466	0.241597	0.314076
336	0.481596	0.135599	0.675915	0.241626	0.314113
337	0.481123	0.135505	0.675366	0.241655	0.314152
338	0.480652	0.135412	0.674820	0.241685	0.314190
339	0.480185	0.135319	0.674275	0.241714	0.314228
340	0.479719	0.135227	0.673732	0.241744	0.314267
341	0.479257	0.135135	0.673191	0.241774	0.314306
342	0.478796	0.135044	0.672652	0.241804	0.314345

	qc1Ncs	m	Cn	qc1N FC5%	qc FC5%	Dr FC5%	\
0	120.878079	0.424771	1.700000	111.016031	6.530355	0.000000	
1	120.878079	0.424805	1.700000	111.016031	6.530355	0.000000	
2	120.853206	0.424841	1.700000	110.993187	6.529011	0.000000	
3	120.811536	0.424877	1.700000	110.954917	6.526760	0.000000	
4	120.767512	0.424913	1.700000	110.914484	6.524381	0.000000	
5	120.722106	0.424950	1.700000	110.872783	6.521928	0.000000	
6	120.675873	0.424988	1.700000	110.830322	6.519431	0.000000	
7	120.629159	0.425026	1.700000	110.787419	6.516907	0.000000	
8	120.582191	0.425065	1.700000	110.744283	6.514370	0.000000	
9	120.535127	0.425104	1.700000	110.701059	6.511827	88.606849	
10	120.488077	0.425144	1.700000	110.657847	6.509285	86.415521	
11	120.441120	0.425184	1.700000	110.614722	6.506748	84.413610	
12	120.394315	0.425225	1.700000	110.571736	6.504220	82.570781	
13	120.347704	0.425267	1.700000	110.528927	6.501702	80.863452	
14	120.301316	0.425309	1.700000	110.486324	6.499196	79.272929	
15	120.255172	0.425352	1.698042	110.443945	6.504196	77.831970	
16	120.209288	0.425395	1.654899	110.401804	6.671211	77.500450	
17	120.163670	0.425439	1.615225	110.359908	6.832477	77.187122	
18	120.118324	0.425483	1.578571	110.318262	6.988490	76.890036	
19	120.073250	0.425528	1.544564	110.276865	7.139678	76.607540	
20	120.028444	0.425574	1.512894	110.235715	7.286415	76.338223	
21	119.983901	0.425620	1.483300	110.194806	7.429032	76.080870	
22	119.939613	0.425667	1.455560	110.154131	7.567817	75.834427	
23	119.895571	0.425714	1.429485	110.113683	7.703031	75.597973	
24	119.851763	0.425762	1.404911	110.073448	7.834905	75.370700	
25	119.808175	0.425810	1.381696	110.033417	7.963646	75.151894	
26	119.764793	0.425859	1.359718	109.993574	8.089441	74.940920	
27	119.721601	0.425885	1.338570	109.953906	8.214280	74.746410	
28	119.678581	0.425204	1.318401	109.914396	8.336948	74.560634	
29	119.635716	0.424836	1.299238	109.875028	8.456883	74.379621	
30	119.592985	0.424481	1.280999	109.835784	8.574226	74.203093	
31	119.550369	0.424138	1.263613	109.796644	8.689106	74.030794	
32	119.507844	0.423807	1.247013	109.757589	8.801642	73.862487	
33	119.465389	0.423486	1.231141	109.718597	8.911943	73.697957	
34	119.422979	0.423176	1.215946	109.679648	9.020109	73.537002	
35	119.380591	0.422875	1.201380	109.640718	9.126233	73.379438	
36	119.338198	0.422584	1.187400	109.601783	9.230403	73.225090	
37	119.295773	0.422301	1.173967	109.562820	9.332698	73.073799	
38	119.253290	0.422027	1.161047	109.523803	9.433192	72.925414	
39	119.210720	0.421760	1.148607	109.484706	9.531956	72.779794	
40	119.983185	0.420398	1.141455	110.194148	9.653833	72.992191	
41	120.722978	0.419110	1.134505	110.873584	9.772863	73.190172	
42	121.432092	0.417890	1.127744	111.524844	9.889196	73.374849	
43	122.112344	0.416733	1.121163	112.149596	10.002968	73.547218	
44	122.765395	0.415633	1.114752	112.749367	10.114303	73.708175	
45	123.392766	0.414586	1.108501	113.325553	10.223316	73.858530	
46	123.995855	0.413589	1.102403	113.879438	10.330112	73.999017	

47	124.575947	0.412637	1.096450	114.412202	10.434790	74.130299
48	125.134226	0.411728	1.090635	114.924933	10.537437	74.252980
49	125.671784	0.410858	1.084951	115.418633	10.638139	74.367612
50	126.189630	0.410025	1.079394	115.894230	10.736971	74.474697
51	126.688700	0.409227	1.073957	116.352582	10.834006	74.574694
52	127.169858	0.408461	1.068636	116.794484	10.929310	74.668025
53	127.633908	0.407725	1.063424	117.220674	11.022943	74.755076
54	128.081596	0.407018	1.058319	117.631836	11.114965	74.836201
55	128.513614	0.406338	1.053316	118.028608	11.205429	74.911728
56	128.930609	0.405683	1.048411	118.411581	11.294385	74.981957
57	129.333181	0.405051	1.043600	118.781308	11.381879	75.047166
58	129.721889	0.404443	1.038880	119.138303	11.467956	75.107611
59	130.097257	0.403855	1.034247	119.483046	11.552655	75.163530
60	130.459771	0.403288	1.029699	119.815983	11.636016	75.215140
61	130.809886	0.402740	1.025233	120.137534	11.718074	75.262646
62	131.148027	0.402209	1.020845	120.448087	11.798862	75.306236
63	131.474591	0.401697	1.016533	120.748008	11.878412	75.346083
64	131.789950	0.401200	1.012295	121.037638	11.956753	75.382351
65	132.094451	0.400719	1.008128	121.317295	12.033912	75.415188
66	132.388418	0.400253	1.004031	121.587278	12.109915	75.444736
67	132.672155	0.399802	1.000000	121.847866	12.184787	75.471122
68	133.126684	0.399363	0.996034	122.265312	12.275214	75.550841
69	133.569943	0.398938	0.992131	122.672407	12.364536	75.626838
70	134.002212	0.398525	0.988289	123.069408	12.452773	75.699247
71	134.423750	0.398124	0.984507	123.456555	12.539942	75.768191
72	134.834803	0.397734	0.980782	123.834072	12.626060	75.833786
73	135.235602	0.397355	0.977113	124.202170	12.711143	75.896140
74	135.626360	0.396987	0.973498	124.561048	12.795204	75.955355
75	136.007281	0.396628	0.969936	124.910891	12.878258	76.011524
76	136.378555	0.396279	0.966426	125.251873	12.960316	76.064738
77	136.740358	0.395940	0.962966	125.584158	13.041389	76.115078
78	137.092859	0.395609	0.959555	125.907899	13.121490	76.162622
79	137.436213	0.395287	0.956191	126.223241	13.200627	76.207444
80	137.770569	0.394973	0.952874	126.530318	13.278809	76.249611
81	138.096064	0.394666	0.949602	126.829257	13.356045	76.289188
82	138.412829	0.394368	0.946374	127.120177	13.432343	76.326235
83	138.720984	0.394077	0.943189	127.403192	13.507709	76.360807
84	139.020646	0.393793	0.940046	127.678405	13.582151	76.392959
85	139.311921	0.393516	0.936943	127.945916	13.655674	76.422739
86	139.594911	0.393245	0.933881	128.205818	13.728283	76.450194
87	139.869713	0.392981	0.930858	128.458199	13.799983	76.475369
88	140.136417	0.392723	0.927872	128.703143	13.870780	76.498305
89	140.395107	0.392471	0.924924	128.940728	13.940677	76.519040
90	140.645865	0.392225	0.922013	129.171028	14.009678	76.537612
91	140.888768	0.391985	0.919137	129.394113	14.077787	76.554056
92	141.123889	0.391750	0.916295	129.610051	14.145006	76.568404
93	141.351297	0.391520	0.913488	129.818905	14.211339	76.580688
94	141.571059	0.391295	0.910714	130.020738	14.276788	76.590937

95	141.783239	0.391075	0.907973	130.215607	14.341356	76.599179
96	141.987899	0.390860	0.905263	130.403569	14.405045	76.605442
97	142.185099	0.390650	0.902585	130.584680	14.467858	76.609751
98	142.374896	0.390445	0.899937	130.758992	14.529795	76.612131
99	142.557347	0.390243	0.897319	130.926558	14.590861	76.612605
100	142.732509	0.390046	0.894730	131.087429	14.651055	76.611196
101	142.900435	0.389853	0.892170	131.241655	14.710381	76.607927
102	143.061181	0.389665	0.889638	131.389286	14.768841	76.602820
103	143.214800	0.389480	0.887134	131.530371	14.826435	76.595894
104	143.361347	0.389299	0.884657	131.664962	14.883167	76.587171
105	143.500876	0.389121	0.882206	131.793107	14.939039	76.576671
106	143.633442	0.388948	0.879781	131.914858	14.994052	76.564414
107	143.759102	0.388778	0.877382	132.030265	15.048209	76.550420
108	143.877911	0.388611	0.875008	132.139382	15.101513	76.534709
109	143.989929	0.388448	0.872658	132.242261	15.153967	76.517300
110	144.095215	0.388288	0.870332	132.338956	15.205573	76.498213
111	144.193829	0.388131	0.868030	132.429525	15.256335	76.477467
112	144.285836	0.387977	0.865751	132.514025	15.306256	76.455084
113	144.371298	0.387827	0.863495	132.592515	15.355339	76.431082
114	144.450284	0.387679	0.861261	132.665057	15.403590	76.405484
115	144.522863	0.387534	0.859049	132.731714	15.451012	76.378309
116	144.589105	0.387392	0.856858	132.792551	15.497610	76.349578
117	144.649085	0.387253	0.854689	132.847638	15.543389	76.319314
118	144.702880	0.387117	0.852541	132.897044	15.588354	76.287539
119	144.750568	0.386983	0.850413	132.940841	15.632512	76.254275
120	144.792232	0.386852	0.848305	132.979106	15.675867	76.219545
121	144.827955	0.386723	0.846216	133.011915	15.718428	76.183374
122	144.857826	0.386597	0.844148	133.039349	15.760200	76.145784
123	144.881935	0.386473	0.842098	133.061491	15.801190	76.106803
124	144.900376	0.386351	0.840067	133.078427	15.841408	76.066454
125	144.913243	0.386232	0.838054	133.090244	15.880860	76.024763
126	144.920637	0.386115	0.836060	133.097035	15.919555	75.981759
127	144.922659	0.386001	0.834083	133.098892	15.957503	75.937468
128	144.919414	0.385888	0.832124	133.095911	15.994712	75.891918
129	144.911008	0.385778	0.830183	133.088192	16.031192	75.845138
130	144.897553	0.385670	0.828258	133.075834	16.066954	75.797158
131	144.879161	0.385564	0.826350	133.058943	16.102008	75.748006
132	144.855947	0.385459	0.824458	133.037622	16.136366	75.697715
133	144.828028	0.385357	0.822583	133.011982	16.170037	75.646314
134	144.795526	0.385257	0.820724	132.982131	16.203035	75.593836
135	144.758561	0.385159	0.818880	132.948182	16.235371	75.540313
136	144.717258	0.385062	0.817052	132.910249	16.267057	75.485777
137	144.671744	0.384967	0.815239	132.868448	16.298107	75.430262
138	144.622146	0.384874	0.813440	132.822896	16.328534	75.373802
139	144.568593	0.384783	0.811657	132.773713	16.358350	75.316431
140	144.511217	0.384694	0.809888	132.721018	16.387570	75.258184
141	144.450150	0.384606	0.808134	132.664934	16.416208	75.199094
142	144.385526	0.384520	0.806394	132.605582	16.444277	75.139199

143	144.317478	0.384435	0.804667	132.543086	16.471792	75.078532
144	144.246143	0.384353	0.802954	132.477570	16.498768	75.017130
145	144.171654	0.384271	0.801255	132.409159	16.525219	74.955028
146	144.094150	0.384191	0.799569	132.337978	16.551161	74.892263
147	144.013765	0.384113	0.797896	132.264151	16.576609	74.828872
148	143.930635	0.384036	0.796236	132.187804	16.601577	74.764889
149	143.844898	0.383961	0.794589	132.109062	16.626082	74.700351
150	143.756689	0.383887	0.792955	132.028049	16.650138	74.635295
151	143.666142	0.383815	0.791332	131.944890	16.673762	74.569756
152	143.573393	0.383744	0.789722	131.859708	16.696967	74.503771
153	143.478574	0.383674	0.788125	131.772625	16.719771	74.437375
154	143.381818	0.383606	0.786539	131.683763	16.742189	74.370603
155	143.283256	0.383539	0.784964	131.593242	16.764235	74.303492
156	143.183018	0.383473	0.783401	131.501182	16.785926	74.236075
157	143.081232	0.383409	0.781850	131.407701	16.807276	74.168387
158	142.978023	0.383345	0.780310	131.312913	16.828301	74.100463
159	142.873518	0.383283	0.778781	131.216934	16.849017	74.032337
160	142.767838	0.383223	0.777263	131.119875	16.869437	73.964041
161	142.661103	0.383163	0.775756	131.021849	16.889576	73.895608
162	142.553431	0.383105	0.774259	130.922962	16.909451	73.827070
163	142.444939	0.383048	0.772773	130.823321	16.929073	73.758459
164	142.335739	0.382992	0.771297	130.723030	16.948459	73.689807
165	142.225941	0.382937	0.769832	130.622191	16.967622	73.621142
166	142.115654	0.382883	0.768377	130.520902	16.986575	73.552495
167	142.004983	0.382830	0.766932	130.419259	17.005332	73.483895
168	141.894029	0.382779	0.765496	130.317358	17.023907	73.415370
169	141.782893	0.382728	0.764071	130.215289	17.042312	73.346948
170	141.671670	0.382679	0.762655	130.113140	17.060560	73.278655
171	141.560454	0.382630	0.761248	130.010998	17.078664	73.210516
172	141.449334	0.382583	0.759851	129.908944	17.096635	73.142558
173	141.338399	0.382536	0.758463	129.807060	17.114485	73.074804
174	141.227732	0.382491	0.757084	129.705422	17.132226	73.007278
175	141.117414	0.382446	0.755715	129.604105	17.149869	72.940003
176	141.007523	0.382402	0.754354	129.503179	17.167424	72.873000
177	140.898134	0.382360	0.753002	129.402714	17.184903	72.806290
178	140.789317	0.382318	0.751659	129.302776	17.202314	72.739894
179	140.681141	0.382277	0.750325	129.203426	17.219669	72.673830
180	140.573672	0.382237	0.748999	129.104725	17.236976	72.608117
181	140.466972	0.382198	0.747681	129.006730	17.254244	72.542773
182	140.361099	0.382160	0.746372	128.909495	17.271483	72.477814
183	140.256110	0.382123	0.745071	128.813071	17.288700	72.413256
184	140.152057	0.382086	0.743778	128.717507	17.305904	72.349115
185	140.048991	0.382051	0.742493	128.622850	17.323103	72.285404
186	139.946958	0.382016	0.741216	128.529142	17.340304	72.222137
187	139.846004	0.381982	0.739947	128.436424	17.357513	72.159326
188	139.746169	0.381949	0.738686	128.344735	17.374738	72.096984
189	139.647492	0.381916	0.737432	128.254109	17.391986	72.035121
190	139.550010	0.381885	0.736186	128.164580	17.409261	71.973747

191	139.453755	0.381854	0.734948	128.076178	17.426571	71.912873
192	139.358759	0.381824	0.733717	127.988933	17.443920	71.852507
193	139.265050	0.381794	0.732493	127.902869	17.461314	71.792656
194	139.172654	0.381766	0.731276	127.818011	17.478757	71.733330
195	139.081594	0.381738	0.730067	127.734380	17.496255	71.674533
196	138.991892	0.381711	0.728865	127.651997	17.513811	71.616272
197	138.903567	0.381684	0.727670	127.570878	17.531430	71.558553
198	138.816635	0.381658	0.726481	127.491039	17.549115	71.501380
199	138.731113	0.381633	0.725300	127.412494	17.566870	71.444758
200	138.647012	0.381609	0.724125	127.335254	17.584698	71.388690
201	138.564343	0.381585	0.722957	127.259331	17.602602	71.333178
202	138.483117	0.381562	0.721796	127.184731	17.620585	71.278227
203	138.403339	0.381539	0.720642	127.111462	17.638649	71.223836
204	138.325017	0.381517	0.719494	127.039530	17.656797	71.170009
205	138.248153	0.381496	0.718352	126.968937	17.675031	71.116745
206	138.172750	0.381476	0.717217	126.899686	17.693352	71.064045
207	138.098810	0.381456	0.716088	126.831779	17.711763	71.011910
208	138.026332	0.381436	0.714965	126.765214	17.730264	70.960339
209	137.955314	0.381417	0.713849	126.699990	17.748857	70.909330
210	137.885754	0.381399	0.712738	126.636105	17.767544	70.858884
211	137.817646	0.381381	0.711634	126.573554	17.786325	70.808997
212	137.750986	0.381364	0.710536	126.512332	17.805200	70.759669
213	137.685767	0.381348	0.709444	126.452434	17.824171	70.710896
214	137.621982	0.381332	0.708357	126.393853	17.843238	70.662677
215	137.559621	0.381316	0.707277	126.336580	17.862402	70.615009
216	137.498677	0.381301	0.706202	126.280608	17.881662	70.567887
217	137.439137	0.381287	0.705133	126.225926	17.901018	70.521310
218	137.380992	0.381273	0.704069	126.172525	17.920471	70.475272
219	137.324230	0.381259	0.703011	126.120394	17.940020	70.429771
220	137.268838	0.381246	0.701959	126.069521	17.959666	70.384801
221	137.214802	0.381234	0.700912	126.019894	17.979407	70.340359
222	137.162110	0.381222	0.699871	125.971501	17.999242	70.296440
223	137.110747	0.381210	0.698835	125.924328	18.019173	70.253039
224	137.060697	0.381199	0.697805	125.878362	18.039197	70.210151
225	137.011946	0.381188	0.696779	125.833589	18.059314	70.167771
226	136.964479	0.381178	0.695759	125.789994	18.079524	70.125894
227	136.918278	0.381169	0.694745	125.747562	18.099824	70.084515
228	136.873328	0.381159	0.693735	125.706279	18.120215	70.043627
229	136.829611	0.381150	0.692731	125.666130	18.140695	70.003226
230	136.787111	0.381142	0.691731	125.627097	18.161263	69.963306
231	136.745811	0.381134	0.690737	125.589166	18.181918	69.923861
232	136.705692	0.381126	0.689747	125.552321	18.202659	69.884885
233	136.666738	0.381119	0.688763	125.516544	18.223484	69.846373
234	136.628929	0.381112	0.687783	125.481821	18.244392	69.808317
235	136.592249	0.381106	0.686808	125.448133	18.265382	69.770713
236	136.556680	0.381099	0.685838	125.415465	18.286452	69.733554
237	136.522202	0.381094	0.684873	125.383801	18.307601	69.696835
238	136.488798	0.381088	0.683912	125.353122	18.328827	69.660548

239	136.456449	0.381083	0.682957	125.323413	18.350130	69.624688
240	136.425138	0.381079	0.682005	125.294656	18.371506	69.589248
241	136.394846	0.381074	0.681059	125.266835	18.392956	69.554223
242	136.365554	0.381070	0.680117	125.239933	18.414477	69.519607
243	136.337245	0.381066	0.679179	125.213933	18.436068	69.485392
244	136.309899	0.381063	0.678246	125.188819	18.457727	69.451574
245	136.283501	0.381060	0.677318	125.164574	18.479453	69.418145
246	136.258030	0.381057	0.676393	125.141182	18.501243	69.385100
247	136.233469	0.381055	0.675474	125.118625	18.523097	69.352433
248	136.209801	0.381052	0.674558	125.096888	18.545013	69.320137
249	136.187008	0.381051	0.673647	125.075954	18.566989	69.288207
250	136.165072	0.381049	0.672740	125.055808	18.589023	69.256636
251	136.143975	0.381047	0.671837	125.036432	18.611115	69.225419
252	136.123701	0.381046	0.670939	125.017813	18.633261	69.194550
253	136.104233	0.381045	0.670045	124.999932	18.655461	69.164022
254	136.085553	0.381045	0.669155	124.982776	18.677714	69.133830
255	136.067645	0.381044	0.668269	124.966329	18.700017	69.103968
256	136.050491	0.381044	0.667387	124.950576	18.722368	69.074430
257	136.034077	0.381044	0.666509	124.935500	18.744767	69.045211
258	136.018385	0.381045	0.665635	124.921089	18.767211	69.016305
259	136.003400	0.381045	0.664765	124.907326	18.789700	68.987706
260	135.989106	0.381046	0.663899	124.894198	18.812231	68.959409
261	135.975486	0.381047	0.663037	124.881690	18.834802	68.931409
262	135.962527	0.381048	0.662179	124.869788	18.857414	68.903700
263	135.950212	0.381049	0.661324	124.858477	18.880063	68.876276
264	135.938527	0.381051	0.660474	124.847746	18.902748	68.849133
265	135.927456	0.381053	0.659627	124.837578	18.925468	68.822265
266	135.916986	0.381054	0.658785	124.827963	18.948221	68.795667
267	135.907103	0.381056	0.657946	124.818885	18.971007	68.769335
268	135.897791	0.381058	0.657110	124.810333	18.993822	68.743262
269	135.889037	0.381061	0.656278	124.802294	19.016667	68.717444
270	135.880828	0.381063	0.655451	124.794754	19.039538	68.691876
271	135.873150	0.381066	0.654626	124.787703	19.062436	68.666554
272	135.865990	0.381069	0.653806	124.781127	19.085359	68.641472
273	135.859334	0.381071	0.652988	124.775014	19.108305	68.616627
274	135.853171	0.381074	0.652175	124.769354	19.131272	68.592012
275	135.847488	0.381077	0.651365	124.764134	19.154260	68.567625
276	135.842271	0.381081	0.650558	124.759344	19.177267	68.543459
277	135.837510	0.381084	0.649756	124.754971	19.200293	68.519511
278	135.833193	0.381087	0.648956	124.751006	19.223334	68.495777
279	135.829307	0.381091	0.648160	124.747437	19.246391	68.472252
280	135.825841	0.381094	0.647368	124.744253	19.269462	68.448932
281	135.822784	0.381098	0.646578	124.741446	19.292545	68.425813
282	135.820125	0.381101	0.645793	124.739004	19.315640	68.402891
283	135.817853	0.381105	0.645010	124.736918	19.338746	68.380161
284	135.815958	0.381109	0.644231	124.735177	19.361860	68.357620
285	135.814429	0.381113	0.643456	124.733773	19.384982	68.335264
286	135.813256	0.381117	0.642683	124.732695	19.408111	68.313089



287	135.812428	0.381120	0.641914	124.731935	19.431245	68.291091
288	135.811937	0.381124	0.641148	124.731484	19.454384	68.269266
289	135.811772	0.381128	0.640386	124.731333	19.477526	68.247611
290	135.811924	0.381132	0.639627	124.731472	19.500671	68.226123
291	135.812384	0.381136	0.638870	124.731895	19.523816	68.204797
292	135.813143	0.381140	0.638118	124.732592	19.546962	68.183630
293	135.814192	0.381144	0.637368	124.733555	19.570106	68.162619
294	135.815522	0.381148	0.636621	124.734776	19.593249	68.141761
295	135.817125	0.381152	0.635878	124.736248	19.616388	68.121052
296	135.818992	0.381156	0.635137	124.737963	19.639524	68.100488
297	135.821115	0.381160	0.634400	124.739913	19.662654	68.080067
298	135.823487	0.381164	0.633666	124.742092	19.685778	68.059785
299	135.826100	0.381168	0.632935	124.744491	19.708896	68.039640
300	135.828945	0.381171	0.632207	124.747104	19.732005	68.019628
301	135.832015	0.381175	0.631482	124.749924	19.755105	67.999747
302	135.835304	0.381179	0.630760	124.752945	19.778196	67.979992
303	135.838804	0.381182	0.630041	124.756159	19.801276	67.960362
304	135.842508	0.381186	0.629325	124.759561	19.824345	67.940854
305	135.846409	0.381189	0.628612	124.763143	19.847401	67.921465
306	135.850500	0.381193	0.627902	124.766901	19.870444	67.902191
307	135.854776	0.381196	0.627195	124.770828	19.893472	67.883031
308	135.859228	0.381199	0.626491	124.774917	19.916486	67.863981
309	135.863853	0.381202	0.625789	124.779164	19.939484	67.845040
310	135.868642	0.381205	0.625091	124.783563	19.962466	67.826204
311	135.873591	0.381208	0.624395	124.788107	19.985430	67.807471
312	135.878692	0.381211	0.623703	124.792793	20.008375	67.788838
313	135.883942	0.381213	0.623013	124.797614	20.031302	67.770303
314	135.889334	0.381216	0.622326	124.802566	20.054210	67.751864
315	135.894862	0.381218	0.621642	124.807643	20.077096	67.733518
316	135.900521	0.381220	0.620961	124.812841	20.099962	67.715263
317	135.906307	0.381222	0.620282	124.818155	20.122806	67.697096
318	135.912214	0.381224	0.619606	124.823580	20.145627	67.679016
319	135.918237	0.381226	0.618933	124.829111	20.168425	67.661020
320	135.924371	0.381227	0.618263	124.834745	20.191199	67.643106
321	135.930611	0.381229	0.617596	124.840476	20.213948	67.625271
322	135.936954	0.381230	0.616931	124.846301	20.236672	67.607514
323	135.943394	0.381231	0.616269	124.852215	20.259370	67.589833
324	135.949926	0.381232	0.615610	124.858215	20.282041	67.572225
325	135.956548	0.381232	0.614953	124.864296	20.304685	67.554688
326	135.963254	0.381232	0.614299	124.870455	20.327301	67.537222
327	135.970040	0.381233	0.613648	124.876688	20.349889	67.519822
328	135.976903	0.381233	0.612999	124.882991	20.372448	67.502489
329	135.983838	0.381232	0.612354	124.889360	20.394976	67.485219
330	135.990842	0.381232	0.611710	124.895793	20.417475	67.468011
331	135.997911	0.381231	0.611070	124.902285	20.439943	67.450863
332	136.005041	0.381230	0.610432	124.908833	20.462379	67.433774
333	136.012229	0.381229	0.609796	124.915435	20.484783	67.416741
334	136.019472	0.381227	0.609163	124.922086	20.507154	67.399762

335	136.026765	0.381226	0.608533	124.928785	20.529493	67.382837
336	136.034106	0.381224	0.607906	124.935527	20.551797	67.365964
337	136.041492	0.381221	0.607281	124.942310	20.574068	67.349139
338	136.048919	0.381219	0.606658	124.949131	20.596304	67.332364
339	136.056384	0.381216	0.606038	124.955988	20.618504	67.315634
340	136.063885	0.381213	0.605421	124.962877	20.640669	67.298949
341	136.071419	0.381209	0.604806	124.969795	20.662797	67.282308
342	136.078982	0.381206	0.604193	124.976741	20.684889	67.265709

	qc1N FC10%	qc FC10%	Dr FC10%	qc1N FC15%	qc FC15%	Dr FC15%
0	106.495695	6.264453	0.000000	101.677101	5.981006	0.000000
1	106.495695	6.264453	0.000000	101.677101	5.981006	0.000000
2	106.473781	6.263164	0.000000	101.656178	5.979775	0.000000
3	106.437070	6.261004	0.000000	101.621128	5.977713	0.000000
4	106.398283	6.258723	0.000000	101.584097	5.975535	0.000000
5	106.358280	6.256369	0.000000	101.545903	5.973288	0.000000
6	106.317548	6.253973	0.000000	101.507014	5.971001	0.000000
7	106.276392	6.251552	0.000000	101.467721	5.968689	0.000000
8	106.235013	6.249118	0.000000	101.428213	5.966365	0.000000
9	106.193548	6.246679	86.881951	101.388625	5.964037	84.960688
10	106.152096	6.244241	84.690622	101.349049	5.961709	82.769359
11	106.110727	6.241807	82.688711	101.309551	5.959385	80.767448
12	106.069491	6.239382	80.845882	101.270181	5.957069	78.924619
13	106.028425	6.236966	79.138554	101.230973	5.954763	77.217291
14	105.987556	6.234562	77.548031	101.191954	5.952468	75.626768
15	105.946903	6.239359	76.107071	101.153140	5.957047	74.185808
16	105.906478	6.399573	75.775551	101.114544	6.110013	73.854288
17	105.866289	6.554273	75.462224	101.076173	6.257713	73.540961
18	105.826338	6.703934	75.165138	101.038030	6.400602	73.243875
19	105.786627	6.848965	74.882642	101.000115	6.539071	72.961379
20	105.747152	6.989728	74.613325	100.962427	6.673465	72.692061
21	105.707909	7.126537	74.355972	100.924959	6.804084	72.434708
22	105.668890	7.259672	74.109528	100.887706	6.931195	72.188265
23	105.630088	7.389380	73.873075	100.850660	7.055034	71.951811
24	105.591492	7.515885	73.645802	100.813811	7.175815	71.724539
25	105.553091	7.639383	73.426996	100.777146	7.293725	71.505732
26	105.514871	7.760056	73.216021	100.740656	7.408938	71.294758
27	105.476818	7.879812	73.021511	100.704324	7.523276	71.100248
28	105.438917	7.997485	72.835735	100.668138	7.635624	70.914472
29	105.401152	8.112536	72.654723	100.632082	7.745470	70.733460
30	105.363505	8.225102	72.478195	100.596139	7.852942	70.556932
31	105.325959	8.335304	72.305895	100.560292	7.958158	70.384632
32	105.288494	8.443258	72.137589	100.524522	8.061227	70.216325
33	105.251090	8.549067	71.973058	100.488810	8.162249	70.051795
34	105.213727	8.652829	71.812104	100.453137	8.261316	69.890840
35	105.176382	8.754633	71.654539	100.417482	8.358513	69.733276
36	105.139033	8.854561	71.500192	100.381823	8.453920	69.578929
37	105.101656	8.952690	71.348901	100.346138	8.547609	69.427637

38	105.064228	9.049093	71.200516	100.310403	8.639650	69.279252
39	105.026723	9.143835	71.054896	100.274595	8.730105	69.133632
40	105.707278	9.260749	71.267292	100.924357	8.841730	69.346029
41	106.359049	9.374933	71.465274	101.546637	8.950747	69.544010
42	106.983791	9.486529	71.649951	102.143111	9.057294	69.728687
43	107.583104	9.595668	71.822319	102.715308	9.161494	69.901056
44	108.158453	9.702470	71.983277	103.264624	9.263464	70.062013
45	108.711178	9.807044	72.133632	103.792340	9.363306	70.212369
46	109.242510	9.909492	72.274118	104.299631	9.461119	70.352855
47	109.753582	10.009907	72.405400	104.787578	9.556990	70.484137
48	110.245435	10.108375	72.528082	105.257177	9.651003	70.606819
49	110.719033	10.204977	72.642714	105.709346	9.743234	70.721451
50	111.175264	10.299785	72.749799	106.144934	9.833752	70.828535
51	111.614953	10.392869	72.849796	106.564729	9.922624	70.928533
52	112.038862	10.484291	72.943127	106.969457	10.009910	71.021863
53	112.447698	10.574113	73.030178	107.359795	10.095667	71.108914
54	112.842119	10.662388	73.111303	107.736369	10.179948	71.190039
55	113.222735	10.749168	73.186830	108.099763	10.262802	71.265566
56	113.590114	10.834502	73.257059	108.450520	10.344275	71.335795
57	113.944787	10.918433	73.322268	108.789145	10.424409	71.401004
58	114.287246	11.001005	73.382713	109.116109	10.503244	71.461449
59	114.617951	11.082256	73.438631	109.431851	10.580819	71.517368
60	114.937332	11.162222	73.490242	109.736781	10.657167	71.568978
61	115.245790	11.240939	73.537748	110.031281	10.732322	71.616485
62	115.543698	11.318438	73.581338	110.315710	10.806314	71.660074
63	115.831407	11.394749	73.621185	110.590401	10.879172	71.699922
64	116.109244	11.469900	73.657452	110.855667	10.950923	71.736189
65	116.377514	11.543917	73.690290	111.111799	11.021591	71.769027
66	116.636504	11.616825	73.719837	111.359070	11.091201	71.798574
67	116.886481	11.688648	73.746224	111.597737	11.159774	71.824960
68	117.286929	11.775393	73.825942	111.980066	11.242594	71.904679
69	117.677449	11.861078	73.901940	112.352915	11.324402	71.980676
70	118.058285	11.945723	73.974349	112.716520	11.405216	72.053085
71	118.429667	12.029342	74.043293	113.071098	11.485053	72.122029
72	118.791813	12.111954	74.108888	113.416858	11.563926	72.187624
73	119.144923	12.193572	74.171242	113.753991	11.641852	72.249978
74	119.489188	12.274211	74.230456	114.082679	11.718842	72.309193
75	119.824786	12.353883	74.286626	114.403092	11.794908	72.365363
76	120.151884	12.432599	74.339839	114.715390	11.870063	72.418576
77	120.470639	12.510372	74.390180	115.019723	11.944317	72.468916
78	120.781198	12.587211	74.437724	115.316230	12.017679	72.516461
79	121.083700	12.663125	74.482546	115.605044	12.090159	72.561282
80	121.378273	12.738124	74.524713	115.886289	12.161764	72.603450
81	121.665040	12.812216	74.564290	116.160081	12.232503	72.643027
82	121.944115	12.885407	74.601337	116.426529	12.302383	72.680073
83	122.215606	12.957704	74.635909	116.685735	12.371409	72.714646
84	122.479613	13.029115	74.668060	116.937796	12.439588	72.746797
85	122.736231	13.099644	74.697841	117.182804	12.506926	72.776577

86	122.985551	13.169296	74.725296	117.420843	12.573427	72.804033
87	123.227656	13.238077	74.750471	117.651993	12.639096	72.829207
88	123.462626	13.305992	74.773406	117.876332	12.703937	72.852143
89	123.690537	13.373042	74.794142	118.093930	12.767954	72.872879
90	123.911459	13.439234	74.812714	118.304856	12.831151	72.891451
91	124.125461	13.504569	74.829158	118.509175	12.893530	72.907894
92	124.332606	13.569051	74.843506	118.706948	12.955095	72.922242
93	124.532957	13.632683	74.855790	118.898233	13.015848	72.934526
94	124.726571	13.695468	74.866038	119.083087	13.075791	72.944775
95	124.913505	13.757407	74.874281	119.261563	13.134927	72.953017
96	125.093815	13.818502	74.880544	119.433714	13.193259	72.959280
97	125.267551	13.878757	74.884853	119.599589	13.250787	72.963589
98	125.434765	13.938173	74.887232	119.759238	13.307515	72.965969
99	125.595508	13.996752	74.887706	119.912708	13.363443	72.966443
100	125.749829	14.054496	74.886298	120.060046	13.418574	72.965034
101	125.897775	14.111406	74.883029	120.201298	13.472909	72.961766
102	126.039394	14.167485	74.877921	120.336509	13.526451	72.956658
103	126.174735	14.222735	74.870996	120.465727	13.579201	72.949732
104	126.303846	14.277156	74.862273	120.588995	13.631160	72.941009
105	126.426773	14.330753	74.851773	120.706361	13.682332	72.930509
106	126.543566	14.383526	74.839516	120.817869	13.732717	72.918253
107	126.654275	14.435478	74.825522	120.923568	13.782318	72.904259
108	126.758948	14.486612	74.809811	121.023506	13.831138	72.888547
109	126.857638	14.536930	74.792401	121.117730	13.879179	72.871138
110	126.950397	14.586434	74.773314	121.206292	13.926444	72.852051
111	127.037278	14.635129	74.752569	121.289242	13.972936	72.831305
112	127.118337	14.683017	74.730185	121.366633	14.018657	72.808922
113	127.193631	14.730103	74.706184	121.438520	14.063612	72.784921
114	127.263219	14.776389	74.680585	121.504960	14.107804	72.759322
115	127.327162	14.821880	74.653410	121.566009	14.151237	72.732147
116	127.385522	14.866581	74.624680	121.621729	14.193915	72.703416
117	127.438366	14.910496	74.594416	121.672182	14.235843	72.673153
118	127.485760	14.953630	74.562641	121.717431	14.277025	72.641377
119	127.527774	14.995989	74.529377	121.757545	14.317468	72.608113
120	127.564480	15.037580	74.494647	121.792590	14.357177	72.573383
121	127.595953	15.078407	74.458475	121.822639	14.396157	72.537212
122	127.622270	15.118478	74.420886	121.847765	14.434414	72.499623
123	127.643511	15.157800	74.381904	121.868045	14.471957	72.460641
124	127.659757	15.196379	74.341555	121.883556	14.508791	72.420292
125	127.671094	15.234225	74.299865	121.894380	14.544924	72.378602
126	127.677608	15.271345	74.256861	121.900599	14.580365	72.335597
127	127.679389	15.307747	74.212570	121.902300	14.615120	72.291306
128	127.676530	15.343441	74.167020	121.899570	14.649199	72.245756
129	127.669125	15.378436	74.120240	121.892499	14.682611	72.198977
130	127.657270	15.412742	74.072259	121.881182	14.715364	72.150996
131	127.641067	15.446369	74.023108	121.865711	14.747470	72.101844
132	127.620614	15.479327	73.972816	121.846184	14.778937	72.051553
133	127.596018	15.511628	73.921416	121.822701	14.809776	72.000152

134	127.567382	15.543282	73.868937	121.795361	14.839997	71.947674
135	127.534816	15.574301	73.815414	121.764268	14.869613	71.894151
136	127.498427	15.604698	73.760879	121.729526	14.898634	71.839615
137	127.458328	15.634483	73.705364	121.691241	14.927072	71.784101
138	127.414632	15.663671	73.648904	121.649521	14.954939	71.727641
139	127.367451	15.692273	73.591533	121.604476	14.982247	71.670270
140	127.316902	15.720303	73.533285	121.556214	15.009009	71.612022
141	127.263101	15.747775	73.474196	121.504847	15.035238	71.552933
142	127.206166	15.774701	73.414300	121.450488	15.060945	71.493037
143	127.146215	15.801096	73.353633	121.393249	15.086146	71.432370
144	127.083367	15.826973	73.292231	121.333245	15.110853	71.370968
145	127.017741	15.852348	73.230130	121.270589	15.135079	71.308866
146	126.949458	15.877233	73.167365	121.205395	15.158839	71.246102
147	126.878637	15.901645	73.103973	121.137779	15.182146	71.182710
148	126.805399	15.925597	73.039990	121.067855	15.205014	71.118727
149	126.729863	15.949103	72.975453	120.995737	15.227457	71.054189
150	126.652149	15.972180	72.910397	120.921539	15.249489	70.989133
151	126.572376	15.994842	72.844858	120.845375	15.271125	70.923594
152	126.490662	16.017103	72.778873	120.767359	15.292379	70.857609
153	126.407125	16.038978	72.712476	120.687601	15.313265	70.791213
154	126.321881	16.060483	72.645705	120.606215	15.333796	70.724441
155	126.235047	16.081631	72.578593	120.523309	15.353988	70.657330
156	126.146735	16.102439	72.511176	120.438993	15.373854	70.589913
157	126.057060	16.122920	72.443489	120.353375	15.393409	70.522225
158	125.966131	16.143089	72.375565	120.266561	15.412665	70.454302
159	125.874060	16.162961	72.307438	120.178656	15.431638	70.386175
160	125.780954	16.182549	72.239142	120.089763	15.450340	70.317879
161	125.686919	16.201869	72.170709	119.999982	15.468786	70.249446
162	125.592058	16.220934	72.102172	119.909414	15.486988	70.180908
163	125.496475	16.239758	72.033561	119.818155	15.504960	70.112298
164	125.400267	16.258354	71.964908	119.726301	15.522715	70.043645
165	125.303534	16.276736	71.896244	119.633944	15.540265	69.974980
166	125.206369	16.294918	71.827597	119.541176	15.557624	69.906334
167	125.108866	16.312911	71.758997	119.448084	15.574804	69.837734
168	125.011114	16.330730	71.690472	119.354755	15.591816	69.769209
169	124.913200	16.348386	71.622050	119.261272	15.608673	69.700786
170	124.815211	16.365891	71.553756	119.167716	15.625386	69.632493
171	124.717228	16.383257	71.485618	119.074166	15.641967	69.564354
172	124.619329	16.400497	71.417660	118.980698	15.658426	69.496396
173	124.521594	16.417620	71.349906	118.887384	15.674775	69.428642
174	124.424094	16.434639	71.282380	118.794296	15.691023	69.361117
175	124.326902	16.451563	71.215105	118.701502	15.707182	69.293841
176	124.230086	16.468404	71.148101	118.609067	15.723260	69.226838
177	124.133712	16.485170	71.081392	118.517053	15.739268	69.160128
178	124.037843	16.501873	71.014995	118.425522	15.755215	69.093732
179	123.942538	16.518521	70.948931	118.334529	15.771110	69.027668
180	123.847856	16.535123	70.883219	118.244131	15.786961	68.961955
181	123.753851	16.551688	70.817875	118.154380	15.802777	68.896611

182	123.660575	16.568225	70.752916	118.065324	15.818565	68.831652
183	123.568078	16.584741	70.688358	117.977012	15.834334	68.767095
184	123.476405	16.601245	70.624217	117.889488	15.850091	68.702953
185	123.385602	16.617743	70.560506	117.802793	15.865843	68.639242
186	123.295710	16.634243	70.497238	117.716968	15.881596	68.575975
187	123.206767	16.650752	70.434428	117.632050	15.897358	68.513164
188	123.118811	16.667276	70.372085	117.548073	15.913134	68.450822
189	123.031875	16.683821	70.310222	117.465071	15.928931	68.388959
190	122.945992	16.700393	70.248849	117.383073	15.944753	68.327586
191	122.861190	16.716998	70.187975	117.302108	15.960607	68.266711
192	122.777497	16.733641	70.127608	117.222202	15.976496	68.206345
193	122.694937	16.750326	70.067758	117.143378	15.992427	68.146495
194	122.613534	16.767060	70.008431	117.065659	16.008403	68.087168
195	122.533309	16.783845	69.949634	116.989063	16.024429	68.028371
196	122.454280	16.800686	69.891374	116.913610	16.040508	67.970110
197	122.376464	16.817588	69.833655	116.839315	16.056645	67.912391
198	122.299876	16.834553	69.776482	116.766192	16.072842	67.855218
199	122.224529	16.851585	69.719860	116.694255	16.089104	67.798596
200	122.150435	16.868687	69.663791	116.623513	16.105432	67.742528
201	122.077602	16.885862	69.608280	116.553976	16.121830	67.687017
202	122.006040	16.903112	69.553328	116.485652	16.138300	67.632065
203	121.935755	16.920441	69.498938	116.418547	16.154844	67.577674
204	121.866751	16.937850	69.445110	116.352665	16.171466	67.523847
205	121.799033	16.955341	69.391847	116.288011	16.188165	67.470583
206	121.732602	16.972916	69.339147	116.224586	16.204946	67.417884
207	121.667460	16.990577	69.287012	116.162391	16.221807	67.365748
208	121.603605	17.008325	69.235440	116.101426	16.238752	67.314177
209	121.541037	17.026162	69.184432	116.041689	16.255782	67.263168
210	121.479753	17.044087	69.133985	115.983177	16.272896	67.212722
211	121.419749	17.062103	69.084099	115.925888	16.290097	67.162835
212	121.361020	17.080210	69.034770	115.869817	16.307385	67.113507
213	121.303561	17.098409	68.985998	115.814958	16.324760	67.064735
214	121.247365	17.116700	68.937779	115.761304	16.342223	67.016516
215	121.192425	17.135083	68.890110	115.708850	16.359775	66.968847
216	121.138731	17.153559	68.842989	115.657586	16.377414	66.921726
217	121.086276	17.172127	68.796411	115.607504	16.395142	66.875148
218	121.035049	17.190788	68.750374	115.558595	16.412959	66.829110
219	120.985041	17.209541	68.704872	115.510849	16.430864	66.783609
220	120.936239	17.228386	68.659903	115.464256	16.448856	66.738639
221	120.888633	17.247324	68.615461	115.418804	16.466937	66.694197
222	120.842210	17.266352	68.571541	115.374481	16.485104	66.650278
223	120.796958	17.285471	68.528140	115.331277	16.503358	66.606877
224	120.752864	17.304679	68.485252	115.289178	16.521697	66.563989
225	120.709914	17.323978	68.442872	115.248171	16.540122	66.521609
226	120.668094	17.343364	68.400996	115.208243	16.558631	66.479732
227	120.627390	17.362838	68.359616	115.169381	16.577224	66.438353
228	120.587788	17.382399	68.318729	115.131571	16.595900	66.397465
229	120.549273	17.402045	68.278328	115.094799	16.614657	66.357065

230	120.511830	17.421775	68.238408	115.059050	16.633495	66.317145
231	120.475443	17.441589	68.198963	115.024310	16.652412	66.277700
232	120.440098	17.461485	68.159987	114.990564	16.671408	66.238724
233	120.405779	17.481462	68.121474	114.957797	16.690481	66.200211
234	120.372469	17.501519	68.083419	114.925994	16.709631	66.162156
235	120.340153	17.521654	68.045815	114.895141	16.728855	66.124552
236	120.308815	17.541867	68.008656	114.865221	16.748152	66.087393
237	120.278440	17.562154	67.971936	114.836220	16.767522	66.050673
238	120.249010	17.582517	67.935649	114.808122	16.786963	66.014386
239	120.220511	17.602951	67.899789	114.780912	16.806473	65.978526
240	120.192925	17.623458	67.864350	114.754574	16.826052	65.943087
241	120.166237	17.644034	67.829325	114.729094	16.845697	65.908062
242	120.140430	17.664679	67.794709	114.704455	16.865408	65.873445
243	120.115489	17.685391	67.760494	114.680642	16.885182	65.839231
244	120.091398	17.706168	67.726676	114.657641	16.905019	65.805412
245	120.068140	17.727009	67.693247	114.635435	16.924917	65.771984
246	120.045700	17.747912	67.660202	114.614011	16.944875	65.738939
247	120.024062	17.768876	67.627535	114.593351	16.964891	65.706271
248	120.003210	17.789900	67.595239	114.573443	16.984963	65.673976
249	119.983128	17.810981	67.563309	114.554270	17.005090	65.642045
250	119.963802	17.832118	67.531738	114.535818	17.025271	65.610475
251	119.945216	17.853310	67.500521	114.518073	17.045504	65.579257
252	119.927354	17.874555	67.469651	114.501020	17.065787	65.548388
253	119.910202	17.895851	67.439123	114.484644	17.086120	65.517860
254	119.893745	17.917197	67.408931	114.468931	17.106501	65.487668
255	119.877967	17.938592	67.379069	114.453867	17.126927	65.457806
256	119.862855	17.960033	67.349531	114.439439	17.147398	65.428268
257	119.848394	17.981520	67.320312	114.425632	17.167913	65.399049
258	119.834569	18.003050	67.291406	114.412433	17.188469	65.370143
259	119.821367	18.024623	67.262808	114.399828	17.209066	65.341544
260	119.808773	18.046237	67.234511	114.387804	17.229701	65.313247
261	119.796774	18.067890	67.206511	114.376348	17.250375	65.285247
262	119.785356	18.089580	67.178801	114.365447	17.271084	65.257538
263	119.774507	18.111307	67.151378	114.355088	17.291827	65.230114
264	119.764212	18.133068	67.124235	114.345259	17.312604	65.202971
265	119.754459	18.154863	67.097367	114.335947	17.333413	65.176103
266	119.745235	18.176690	67.070769	114.327140	17.354252	65.149506
267	119.736527	18.198548	67.044436	114.318827	17.375121	65.123173
268	119.728323	18.220434	67.018363	114.310994	17.396017	65.097100
269	119.720611	18.242349	66.992546	114.303631	17.416940	65.071282
270	119.713378	18.264289	66.966978	114.296726	17.437888	65.045715
271	119.706614	18.286255	66.941656	114.290267	17.458859	65.020392
272	119.700306	18.308244	66.916574	114.284244	17.479854	64.995311
273	119.694442	18.330255	66.891728	114.278646	17.500869	64.970465
274	119.689012	18.352288	66.867114	114.273462	17.521904	64.945850
275	119.684005	18.374340	66.842726	114.268681	17.542959	64.921463
276	119.679409	18.396410	66.818561	114.264294	17.564031	64.897297
277	119.675215	18.418498	66.794613	114.260289	17.585119	64.873350

278	119.671411	18.440601	66.770879	114.256657	17.606222	64.849615
279	119.667987	18.462719	66.747354	114.253388	17.627339	64.826091
280	119.664934	18.484850	66.724034	114.250473	17.648469	64.802771
281	119.662241	18.506994	66.700915	114.247902	17.669611	64.779651
282	119.659898	18.529149	66.677992	114.245665	17.690763	64.756729
283	119.657897	18.551313	66.655263	114.243754	17.711925	64.733999
284	119.656227	18.573486	66.632722	114.242160	17.733095	64.711458
285	119.654880	18.595667	66.610365	114.240874	17.754272	64.689102
286	119.653846	18.617854	66.588190	114.239887	17.775455	64.666927
287	119.653117	18.640047	66.566192	114.239191	17.796643	64.644929
288	119.652684	18.662243	66.544368	114.238778	17.817836	64.623104
289	119.652539	18.684443	66.522713	114.238639	17.839031	64.601450
290	119.652673	18.706645	66.501224	114.238767	17.860228	64.579961
291	119.653078	18.728848	66.479899	114.239154	17.881427	64.558635
292	119.653747	18.751051	66.458732	114.239792	17.902625	64.537469
293	119.654671	18.773253	66.437721	114.240675	17.923823	64.516458
294	119.655843	18.795454	66.416863	114.241793	17.945019	64.495599
295	119.657255	18.817651	66.396153	114.243141	17.966211	64.474890
296	119.658900	18.839844	66.375590	114.244712	17.987401	64.454326
297	119.660771	18.862033	66.355169	114.246498	18.008585	64.433905
298	119.662860	18.884215	66.334887	114.248493	18.029764	64.413624
299	119.665162	18.906391	66.314742	114.250691	18.050937	64.393478
300	119.667668	18.928560	66.294730	114.253084	18.072102	64.373466
301	119.670374	18.950720	66.274848	114.255667	18.093259	64.353585
302	119.673271	18.972870	66.255094	114.258433	18.114408	64.333830
303	119.676355	18.995011	66.235464	114.261377	18.135546	64.314201
304	119.679618	19.017140	66.215956	114.264493	18.156674	64.294692
305	119.683055	19.039257	66.196566	114.267774	18.177791	64.275303
306	119.686659	19.061362	66.177293	114.271215	18.198895	64.256029
307	119.690426	19.083453	66.158133	114.274812	18.219987	64.236869
308	119.694349	19.105529	66.139083	114.278557	18.241064	64.217820
309	119.698423	19.127591	66.120142	114.282447	18.262128	64.198878
310	119.702642	19.149637	66.101306	114.286475	18.283176	64.180042
311	119.707002	19.171666	66.082572	114.290638	18.304208	64.161309
312	119.711497	19.193677	66.063940	114.294929	18.325224	64.142676
313	119.716122	19.215670	66.045405	114.299345	18.346222	64.124142
314	119.720872	19.237645	66.026966	114.303880	18.367202	64.105702
315	119.725742	19.259600	66.008620	114.308530	18.388164	64.087356
316	119.730729	19.281534	65.990365	114.313291	18.409106	64.069101
317	119.735826	19.303448	65.972198	114.318158	18.430028	64.050935
318	119.741030	19.325340	65.954118	114.323126	18.450929	64.032854
319	119.746336	19.347210	65.936122	114.328192	18.471809	64.014858
320	119.751740	19.369056	65.918207	114.333352	18.492668	63.996944
321	119.757238	19.390879	65.900373	114.338601	18.513503	63.979109
322	119.762826	19.412678	65.882616	114.343936	18.534315	63.961352
323	119.768500	19.434452	65.864934	114.349353	18.555104	63.943671
324	119.774255	19.456200	65.847326	114.354848	18.575868	63.926063
325	119.780089	19.477922	65.829790	114.360418	18.596607	63.908527



326	119.785997	19.499617	65.812323	114.366059	18.617321	63.891060
327	119.791976	19.521285	65.794924	114.371767	18.638008	63.873661
328	119.798022	19.542925	65.777590	114.377539	18.658669	63.856327
329	119.804132	19.564537	65.760321	114.383373	18.679303	63.839057
330	119.810303	19.586119	65.743113	114.389264	18.699909	63.821849
331	119.816530	19.607672	65.725965	114.395210	18.720486	63.804701
332	119.822812	19.629194	65.708875	114.401208	18.741035	63.787612
333	119.829145	19.650686	65.691842	114.407254	18.761555	63.770579
334	119.835526	19.672147	65.674864	114.413346	18.782044	63.753601
335	119.841951	19.693576	65.657939	114.419481	18.802503	63.736675
336	119.848419	19.714972	65.641065	114.425656	18.822932	63.719802
337	119.854926	19.736336	65.624241	114.431869	18.843329	63.702978
338	119.861469	19.757666	65.607465	114.438116	18.863694	63.686202
339	119.868047	19.778963	65.590736	114.444396	18.884027	63.669472
340	119.874655	19.800225	65.574051	114.450705	18.904327	63.652788
341	119.881292	19.821452	65.557410	114.457042	18.924594	63.636146
342	119.887955	19.842644	65.540810	114.463404	18.944827	63.619547