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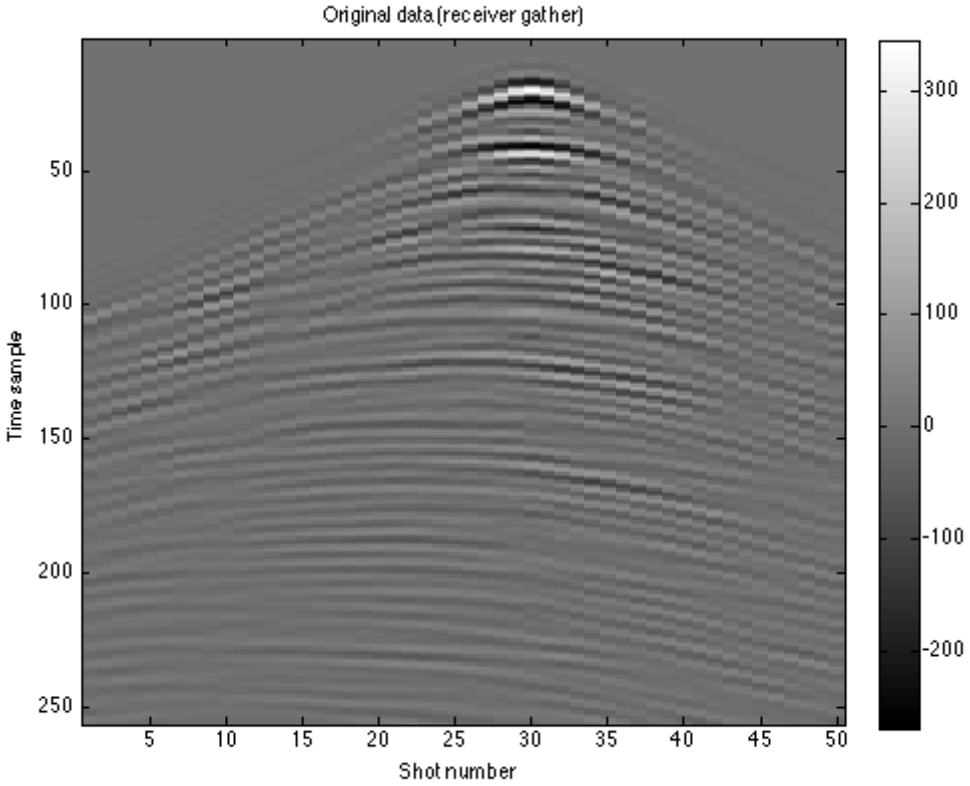
```
%Sequential-source data reconstruction (acquistion with randomly jittered missing
clear; close all;
cd ./simu_functions/
addpath(genpath(pwd))
cd ../..
addpath(genpath(pwd))
cd ../../../../pqnl1;
addpath(genpath(pwd))

cd ../experiments/help_spgl1/modifying/task11lasso/seismic
rmpath('/Volumes/Users/linamiao/Dropbox/PQN/pqnl1/minConF/')
```

original data

Number of time samples

```
nt = 1024;
% Number of sources
ns = 178;
% Number of receivers
nr = 178;

% Read data
D = ReadSuFast('GulfOfSuez178.su');
D = reshape(D,nt,nr,ns);

% Select small subset
D = D(1:256,30,1:50);

% Define new data sizes
[nt,nr,ns] = size(D);

% Vectorize D
D = D(:);

% Display
figure
imagesc(reshape(D,nt,ns)); colormap(gray); colorbar;
title('Original data (receiver gather)');
xlabel('Shot number'); ylabel('Time sample')
```

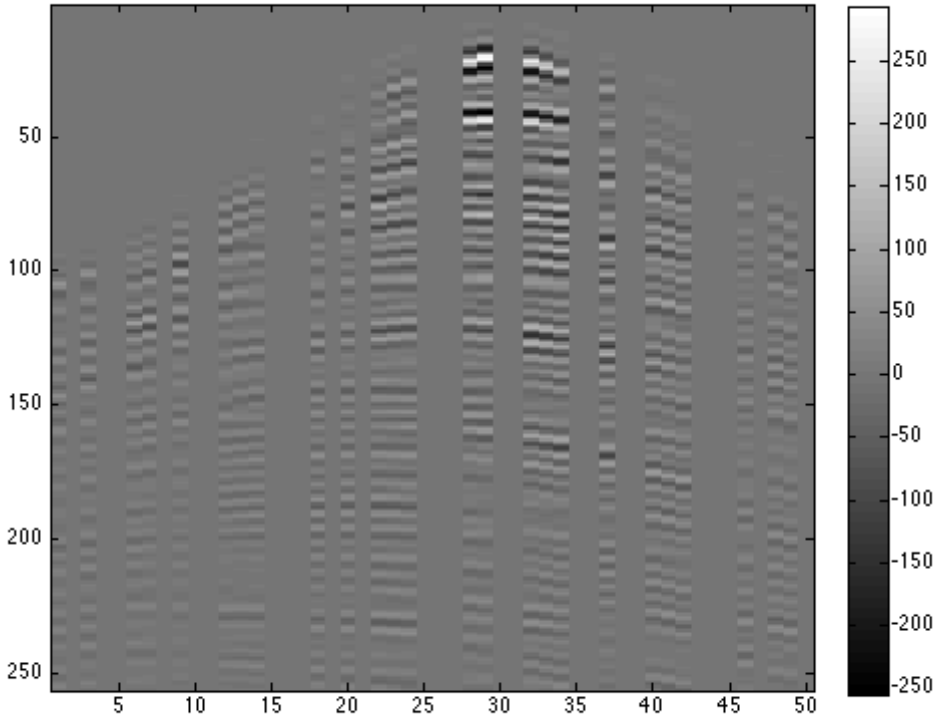


random jittering missing shots

random jittering missing shots

```
n = ns;
p = .5;
I_jitter = jitter1d(n,p*n);
S_jitter = zeros(n,1); S_jitter(I_jitter) = 1;
Js = opDiag(S_jitter);
Dt = opDirac(nt);
Dr = opDirac(nr);
RM = opKron(Js,Dr,Dt);


x_test = rand(size(RM,2),1);
y_test = rand(size(RM,1),1);
left = y_test'*(RM*x_test);
right = (RM'*y_test)'*x_test;
error = norm(left-right);
fprintf('In dottest error:%5.5e\n',error);


simD1 = RM*D;
figure;
imagesc(reshape(simD1,nt,ns)); colormap(gray); colorbar;
```

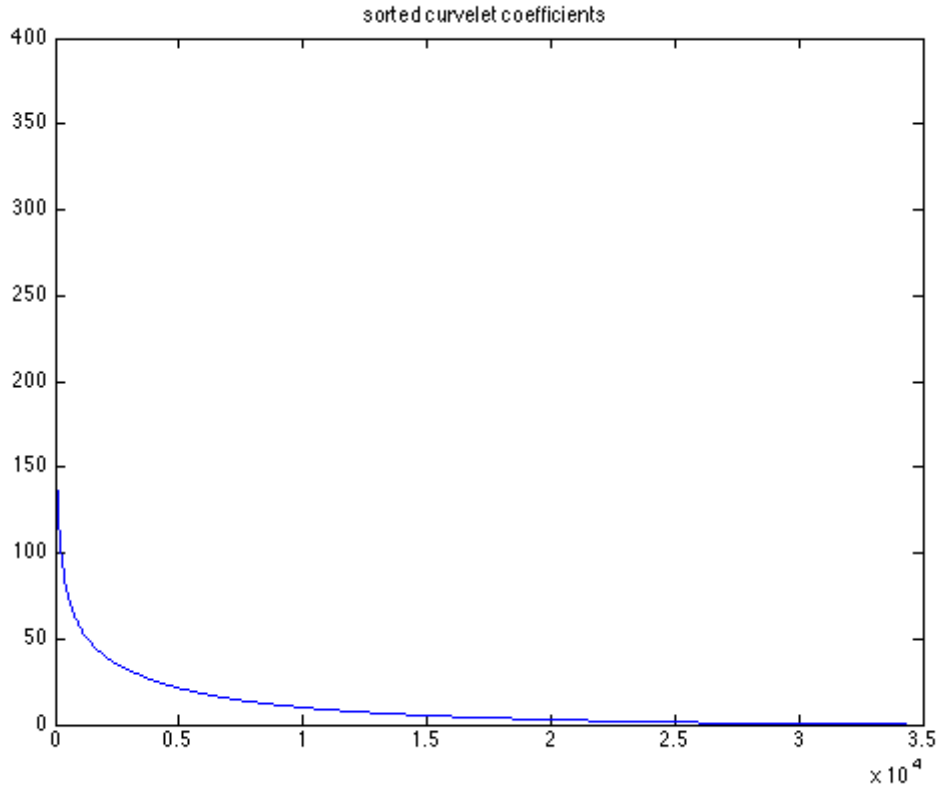
```
In dottest error:0.00000e+00
```



sparsifying transform

Use this to create a Curvelet SPOT operator:

```
C = opCurvelet(nt, ns);

% Transform the data into the Curvelet domain and plot the sorted coefficients
C_D = C*D;
sort_CD = sort(abs(C_D),'descend');
figure;plot(sort_CD);title('sorted curvelet coefficients')
```



reconstruct

```
options = spgSetParms('optTol', 1e-4, 'iterations', 200);%, 'fid', fid);
A = RM*C';

options = spgSetParms('optTol', 1e-4, 'iterations', 1000);%, 'fid', fid);
xestspg = spgl1(A,simD1,0,1e-3,[],options);
tau = norm(xestspg,1);
%tau = 1.8203121e+05;

options = spgSetParms('optTol', 1e-4, 'iterations', 200);%, 'fid', fid);
xinit = zeros(size(A,2),1);

which spgl1
%keyboard;
xestspg = spgl1(A,simD1,tau,[],xinit,options);
%options.iterations = 100;
xestpqn = pqnl1_2(A,simD1,tau,[],xinit,options);
fspg = C'*xestspg;
snrspg = SNR(D,fspg);
fpqn = C'*xestpqn;
snrpqn = SNR(D,fpqn);


figure;
```

```
subplot(1,2,1);imagesc(reshape(fspg,nt,ns)); colormap(gray);
title(strcat(['p = .5, SNR=' num2str(snrspg) 'dB']))
subplot(1,2,2);imagesc(reshape(fspg-D,nt,ns)); colormap(gray);
title('difference')


figure;
subplot(1,2,1);imagesc(reshape(fpqn,nt,ns)); colormap(gray);
title(strcat(['p = .5, SNR=' num2str(snrpqn) 'dB']))
subplot(1,2,2);imagesc(reshape(fpqn-D,nt,ns)); colormap(gray);
title('difference')
```

```
================================================================================
SPGL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
================================================================================
No. rows              :    12800      No. columns           :    34341
Initial tau           : 0.00e+00      Two-norm of b         : 2.75e+03
Optimality tol        : 1.00e-04      Target objective      : 1.00e-03
Basis pursuit tol     : 1.00e-06      Maximum iterations    :     1000

 Iter      Objective   Relative Gap  Rel Error      gNorm    stepG     nnzX
    0  2.7512647e+03  0.0000000e+00   1.00e+00  1.744e+02      0.0        0
    1  2.7461820e+03  2.8575316e+00   1.00e+00  2.435e+02     -0.3        1
    2  2.2666535e+03  6.2187845e+00   1.00e+00  3.375e+02      0.0      552
    3  1.8364006e+03  2.8913368e+00   1.00e+00  1.393e+02      0.0     1598
    4  1.7691443e+03  3.8625749e-01   1.00e+00  4.231e+01      0.0     1326
    5  1.7570275e+03  3.0599909e-01   1.00e+00  3.997e+01      0.0     1151
    6  1.7353661e+03  2.8379600e-01   1.00e+00  3.950e+01      0.0      811
    7  1.7429733e+03  1.4323090e+00   1.00e+00  7.769e+01      0.0      657
    8  1.7254384e+03  1.4497166e+00   1.00e+00  7.801e+01     -0.3      772
    9  1.7160797e+03  3.0268401e-01   1.00e+00  3.969e+01      0.0      721
   10  1.7148721e+03  1.3109439e-01   1.00e+00  3.384e+01      0.0      702
   11  1.7133195e+03  1.2546345e-01   1.00e+00  3.369e+01      0.0      677
   12  1.7067528e+03  7.0691489e-01   1.00e+00  5.269e+01      0.0      565
   13  1.7068370e+03  7.8322613e-01   1.00e+00  5.537e+01     -0.3      580
   14  1.0552437e+03  1.6613907e+00   1.00e+00  2.208e+01      0.0     6113
   15  1.0188244e+03  1.1233581e+00   1.00e+00  1.901e+01      0.0     4944
   16  9.8535801e+02  1.3996517e+00   1.00e+00  1.950e+01      0.0     3194
   17  9.9301268e+02  8.1616844e+00   1.00e+00  5.408e+01      0.0     2508
   18  1.0179957e+03  1.3304719e+01   1.00e+00  8.240e+01      0.0     2181
   19  9.6140332e+02  2.2325984e+00   1.00e+00  2.297e+01      0.0     2468
   20  9.5941597e+02  4.9169830e-01   1.00e+00  1.455e+01      0.0     2431
   21  9.5805964e+02  4.6989044e-01   1.00e+00  1.443e+01      0.0     2381
   22  9.5241185e+02  1.2658402e+00   1.00e+00  1.800e+01      0.0     2082
   23  9.5147803e+02  1.3456605e+00   1.00e+00  1.844e+01     -0.3     2121
   24  9.5097451e+02  1.7797561e+00   1.00e+00  2.040e+01      0.0     2119
   25  9.5011975e+02  1.0610654e+00   1.00e+00  1.707e+01      0.0     2094
   26  9.4964926e+02  3.2954200e-01   1.00e+00  1.360e+01      0.0     2085
   27  9.4924817e+02  3.1963246e-01   1.00e+00  1.356e+01      0.0     2067
   28  9.4764496e+02  1.7673615e+00   1.00e+00  2.025e+01      0.0     1991
   29  9.4744243e+02  2.2458319e+00   1.00e+00  2.254e+01     -0.3     2004
   30  9.4665405e+02  3.3034028e-01   1.00e+00  1.356e+01      0.0     2006
   31  9.4648436e+02  3.2752950e-01   1.00e+00  1.355e+01      0.0     1998
```

32	9.4564191e+02	3.1966203e-01	1.00e+00	1.349e+01	0.0	1967
33	9.4520544e+02	1.9015390e+00	1.00e+00	2.083e+01	-0.3	1968
34	9.4468679e+02	4.4618070e-01	1.00e+00	1.404e+01	-0.3	1974
35	9.4451269e+02	2.8787691e-01	1.00e+00	1.332e+01	0.0	1957
36	9.4426037e+02	2.9785931e-01	1.00e+00	1.336e+01	0.0	1940
37	9.4373616e+02	4.4184402e+00	1.00e+00	3.244e+01	0.0	1826
38	9.4383467e+02	3.9819458e+00	1.00e+00	3.035e+01	-0.3	1848
39	9.4194245e+02	3.4539243e-01	1.00e+00	1.354e+01	0.0	1858
40	9.4187422e+02	3.2060221e-01	1.00e+00	1.342e+01	0.0	1855
41	9.4167956e+02	2.5940545e-01	1.00e+00	1.314e+01	0.0	1846
42	9.4125590e+02	6.7892488e-01	1.00e+00	1.500e+01	0.0	1811
43	9.4095390e+02	4.0794914e-01	1.00e+00	1.379e+01	-0.3	1834
44	9.4085558e+02	3.3340019e-01	1.00e+00	1.345e+01	0.0	1826
45	9.4080026e+02	2.0384667e-01	1.00e+00	1.285e+01	0.0	1826
46	9.4074915e+02	2.0100632e-01	1.00e+00	1.283e+01	0.0	1822
47	9.4064893e+02	6.9037451e-01	1.00e+00	1.509e+01	0.0	1817
48	9.4077329e+02	1.2851728e+00	1.00e+00	1.781e+01	-0.3	1814
49	9.4051514e+02	5.0798524e-01	1.00e+00	1.425e+01	0.0	1817
50	9.4047035e+02	1.9421550e-01	1.00e+00	1.280e+01	0.0	1820
51	3.0305444e+02	1.2965914e+01	1.00e+00	5.747e+00	0.0	12732
52	2.7071081e+02	6.4432520e+00	1.00e+00	4.017e+00	0.0	13060
53	2.5505590e+02	6.2720640e+00	1.00e+00	3.677e+00	0.0	11378
54	2.2827779e+02	1.6268448e+01	1.00e+00	4.675e+00	0.0	8085
55	2.5821112e+02	2.8972093e+01	1.00e+00	7.646e+00	-0.3	7494
56	2.1933590e+02	2.1172698e+01	1.00e+00	5.179e+00	0.0	8995
57	2.1115795e+02	5.2585769e+00	1.00e+00	2.727e+00	0.0	8010
58	2.0983549e+02	5.3458610e+00	1.00e+00	2.719e+00	0.0	7763
59	2.0445070e+02	4.6603740e+00	1.00e+00	2.526e+00	0.0	7038
60	2.0742549e+02	2.8446249e+01	1.00e+00	5.651e+00	-0.3	6615
61	2.0224996e+02	1.8701513e+01	1.00e+00	4.181e+00	-0.3	6983
62	1.9782773e+02	7.1786157e+00	1.00e+00	2.744e+00	0.0	6702
63	1.9726601e+02	4.0134777e+00	1.00e+00	2.356e+00	0.0	6624
64	1.9653370e+02	3.9709874e+00	1.00e+00	2.341e+00	0.0	6499
65	1.9244851e+02	2.1658724e+01	1.00e+00	4.205e+00	0.0	5722
66	1.9603046e+02	2.3105060e+01	1.00e+00	4.549e+00	-0.3	5880
67	1.9021314e+02	9.5637055e+00	1.00e+00	2.859e+00	0.0	6073
68	1.8959494e+02	3.8751787e+00	1.00e+00	2.237e+00	0.0	5971
69	1.8940461e+02	3.8956662e+00	1.00e+00	2.234e+00	0.0	5917
70	1.8752305e+02	5.3246192e+00	1.00e+00	2.336e+00	0.0	5647
71	1.8782883e+02	1.3633979e+01	1.00e+00	3.271e+00	-0.3	5713
72	1.8781976e+02	2.0059369e+01	1.00e+00	3.912e+00	0.0	5748
73	1.0990238e+02	2.2078698e+01	1.00e+00	1.728e+00	0.0	13123
74	1.0736141e+02	7.9216644e+00	1.00e+00	1.217e+00	0.0	11297
75	1.0538917e+02	8.4390909e+00	1.00e+00	1.209e+00	0.0	9109
76	1.0518530e+02	4.8419361e+01	1.00e+00	2.468e+00	0.0	7387
77	1.0497795e+02	6.6973042e+01	1.00e+00	3.048e+00	-0.3	7190
78	1.0329020e+02	6.1296868e+00	1.00e+00	1.117e+00	0.0	7227
79	1.0317569e+02	6.0476858e+00	1.00e+00	1.113e+00	0.0	7166
80	1.0295533e+02	6.0483900e+00	1.00e+00	1.111e+00	0.0	7033
81	1.0205766e+02	3.6685589e+01	1.00e+00	2.031e+00	0.0	6202
82	1.0258999e+02	3.9082827e+01	1.00e+00	2.126e+00	-0.3	6337
83	1.0073426e+02	2.1588309e+01	1.00e+00	1.558e+00	0.0	6472
84	1.0050211e+02	4.4895692e+00	1.00e+00	1.058e+00	0.0	6400
85	1.0042834e+02	4.5994794e+00	1.00e+00	1.059e+00	0.0	6375

86	9.9986123e+01	4.9934557e+00	1.00e+00	1.053e+00	0.0	6246
87	1.0024655e+02	3.2549719e+01	1.00e+00	1.860e+00	-0.3	6250
88	9.9887928e+01	1.8919070e+01	1.00e+00	1.453e+00	-0.3	6311
89	9.9556426e+01	4.6103976e+00	1.00e+00	1.043e+00	0.0	6268
90	9.9516943e+01	4.5783685e+00	1.00e+00	1.041e+00	0.0	6250
91	9.9416385e+01	4.5134669e+00	1.00e+00	1.038e+00	0.0	6228
92	9.8761491e+01	2.4548371e+01	1.00e+00	1.584e+00	0.0	6039
93	9.9312705e+01	3.5274301e+01	1.00e+00	1.911e+00	-0.3	6100
94	9.8274482e+01	5.1759896e+00	1.00e+00	1.045e+00	0.0	6126
95	9.8226117e+01	4.4350456e+00	1.00e+00	1.023e+00	0.0	6107
96	9.8184214e+01	4.3976399e+00	1.00e+00	1.021e+00	0.0	6079
97	9.7831648e+01	1.6049416e+01	1.00e+00	1.337e+00	0.0	6002
98	9.8034061e+01	2.8293678e+01	1.00e+00	1.677e+00	-0.3	6033
99	9.7681374e+01	1.7133882e+01	1.00e+00	1.366e+00	-0.3	6070
100	9.7606200e+01	4.4539253e+00	1.00e+00	1.017e+00	0.0	6057
101	9.7578310e+01	4.4507001e+00	1.00e+00	1.017e+00	0.0	6034
102	9.7403028e+01	8.7592655e+00	1.00e+00	1.130e+00	0.0	5976
103	9.7352596e+01	6.1657582e+00	1.00e+00	1.061e+00	-0.3	5987
104	9.7429402e+01	2.2011062e+01	1.00e+00	1.491e+00	0.0	5991
105	9.7258897e+01	6.2251876e+00	1.00e+00	1.061e+00	0.0	5971
106	9.7223009e+01	4.5536733e+00	1.00e+00	1.015e+00	0.0	5978
107	9.7199404e+01	4.5572274e+00	1.00e+00	1.015e+00	0.0	5975
108	9.6099670e+01	1.4763018e+01	1.00e+00	1.265e+00	0.0	5774
109	9.6109420e+01	2.1759678e+01	1.00e+00	1.466e+00	-0.3	5828
110	9.5814925e+01	5.4260372e+00	1.00e+00	1.024e+00	0.0	5876
111	9.5780633e+01	4.4438530e+00	1.00e+00	9.977e-01	0.0	5854
112	9.5752596e+01	4.3709131e+00	1.00e+00	9.950e-01	0.0	5846
113	9.5581691e+01	7.2325460e+00	1.00e+00	1.067e+00	0.0	5801
114	9.5575154e+01	1.0109783e+01	1.00e+00	1.142e+00	-0.3	5843
115	9.5553246e+01	9.7320469e+00	1.00e+00	1.133e+00	0.0	5814
116	9.5487949e+01	4.3446643e+00	1.00e+00	9.906e-01	0.0	5830
117	9.5475703e+01	4.3433951e+00	1.00e+00	9.905e-01	0.0	5826
118	9.5397396e+01	4.3257450e+00	1.00e+00	9.893e-01	0.0	5805
119	9.5377600e+01	1.8249196e+01	1.00e+00	1.352e+00	-0.3	5806
120	9.5239907e+01	1.1746884e+01	1.00e+00	1.180e+00	-0.3	5830
121	9.5157831e+01	4.2085264e+00	1.00e+00	9.841e-01	0.0	5801
122	9.5146587e+01	4.2014512e+00	1.00e+00	9.837e-01	0.0	5801
123	9.4969877e+01	1.1177798e+01	1.00e+00	1.162e+00	0.0	5738
124	9.4960887e+01	1.7630147e+01	1.00e+00	1.329e+00	-0.3	5775
125	9.4907376e+01	2.1540263e+01	1.00e+00	1.428e+00	-0.3	5798
126	9.4868851e+01	4.1369632e+00	1.00e+00	9.787e-01	0.0	5766
127	9.4856588e+01	4.1377277e+00	1.00e+00	9.787e-01	0.0	5769
128	9.4827633e+01	4.1436343e+00	1.00e+00	9.786e-01	0.0	5753
129	9.4830131e+01	2.2448250e+01	1.00e+00	1.449e+00	-0.3	5717
130	8.7595387e+01	2.7167283e+02	1.00e+00	6.039e+00	0.0	6556
131	4.4462742e+01	2.1774282e+02	1.00e+00	1.528e+00	0.0	12182
132	4.0924513e+01	3.9138596e+01	1.00e+00	5.169e-01	0.0	10771
133	4.0611144e+01	3.4413621e+01	1.00e+00	4.937e-01	0.0	10055
134	4.0053231e+01	4.7656234e+01	1.00e+00	5.583e-01	0.0	8549
135	4.0370601e+01	6.8212789e+01	1.00e+00	6.385e-01	0.0	7813
136	3.9887625e+01	1.6875898e+02	1.00e+00	1.084e+00	0.0	8629
137	3.9552648e+01	3.3961005e+01	1.00e+00	4.871e-01	0.0	7976
138	3.9496053e+01	1.4774476e+01	1.00e+00	4.025e-01	0.0	7912
139	3.9456187e+01	1.4221265e+01	1.00e+00	4.003e-01	0.0	7797

140	3.9249552e+01	7.2013922e+01	1.00e+00	6.478e-01	0.0	7341
141	3.9298350e+01	1.0504074e+02	1.00e+00	7.934e-01	-0.3	7379
142	3.9154119e+01	4.2223087e+01	1.00e+00	5.185e-01	0.0	7385
143	3.9129376e+01	1.1387900e+01	1.00e+00	3.880e-01	0.0	7337
144	3.9112214e+01	1.1353606e+01	1.00e+00	3.876e-01	0.0	7309
145	3.8889746e+01	6.1680458e+01	1.00e+00	5.986e-01	0.0	6937
146	3.9118976e+01	1.3567238e+02	1.00e+00	9.148e-01	-0.3	6990
147	3.8832774e+01	4.8013399e+01	1.00e+00	5.406e-01	0.0	7093
148	3.8787833e+01	1.1327309e+01	1.00e+00	3.863e-01	0.0	7006
149	3.8780026e+01	1.1380657e+01	1.00e+00	3.865e-01	0.0	6977
150	3.8708888e+01	1.5534414e+01	1.00e+00	4.029e-01	0.0	6873
151	3.8689148e+01	1.5223019e+01	1.00e+00	4.023e-01	-0.3	6885
152	3.8709809e+01	9.1545332e+01	1.00e+00	7.174e-01	0.0	6869
153	3.8667271e+01	3.7152919e+01	1.00e+00	4.930e-01	0.0	6863
154	3.8642388e+01	1.1059813e+01	1.00e+00	3.840e-01	0.0	6864
155	3.8636457e+01	1.1150759e+01	1.00e+00	3.844e-01	0.0	6861
156	3.8584919e+01	1.1150774e+01	1.00e+00	3.840e-01	0.0	6820
157	3.8588969e+01	6.4264321e+01	1.00e+00	6.046e-01	-0.3	6824
158	3.8529748e+01	1.2332709e+01	1.00e+00	3.888e-01	-0.3	6836
159	3.8523276e+01	1.0915136e+01	1.00e+00	3.829e-01	0.0	6812
160	3.8508867e+01	1.1010783e+01	1.00e+00	3.830e-01	0.0	6789
161	3.8395145e+01	5.0090092e+01	1.00e+00	5.435e-01	0.0	6683
162	3.8409100e+01	4.9795571e+01	1.00e+00	5.401e-01	-0.3	6703
163	3.8329461e+01	1.1027578e+01	1.00e+00	3.821e-01	0.0	6683
164	3.8322148e+01	1.0791268e+01	1.00e+00	3.809e-01	0.0	6680
165	3.8315585e+01	1.0672688e+01	1.00e+00	3.804e-01	0.0	6675
166	3.8204203e+01	2.4988336e+01	1.00e+00	4.374e-01	0.0	6610
167	3.8210338e+01	2.5793104e+01	1.00e+00	4.414e-01	-0.3	6630
168	3.8187885e+01	1.7967757e+01	1.00e+00	4.086e-01	0.0	6626
169	3.8174618e+01	1.0796311e+01	1.00e+00	3.798e-01	0.0	6621
170	3.8170661e+01	1.0746750e+01	1.00e+00	3.796e-01	0.0	6617
171	3.8099393e+01	1.0154487e+01	1.00e+00	3.765e-01	0.0	6567
172	3.8116325e+01	3.3800548e+01	1.00e+00	4.716e-01	-0.3	6578
173	3.8150876e+01	5.2614927e+01	1.00e+00	5.481e-01	0.0	6594
174	3.8065570e+01	1.0407376e+01	1.00e+00	3.772e-01	0.0	6580
175	3.8062136e+01	1.0518640e+01	1.00e+00	3.777e-01	0.0	6580
176	3.8046273e+01	1.0682806e+01	1.00e+00	3.782e-01	0.0	6566
177	3.8056644e+01	1.9951765e+02	1.00e+00	1.133e+00	-0.3	6401
178	3.7840673e+01	7.7408781e+01	1.00e+00	6.442e-01	-0.3	6509
179	3.7672626e+01	2.5856172e+01	1.00e+00	4.357e-01	0.0	6532
180	3.7655912e+01	1.0614405e+01	1.00e+00	3.755e-01	0.0	6505
181	3.7651220e+01	1.0556394e+01	1.00e+00	3.751e-01	0.0	6495
182	3.7632566e+01	1.1141430e+01	1.00e+00	3.767e-01	0.0	6470
183	3.7633346e+01	4.4107489e+01	1.00e+00	5.068e-01	-0.3	6466
184	1.7252498e+01	7.6555448e+02	1.00e+00	7.244e-01	0.0	9500
185	1.4674789e+01	3.6332769e+02	1.00e+00	3.305e-01	0.0	13784
186	1.4273854e+01	8.8133845e+01	1.00e+00	1.643e-01	0.0	12093
187	1.4145392e+01	8.1123552e+01	1.00e+00	1.597e-01	0.0	11365
188	1.3889762e+01	9.7712789e+01	1.00e+00	1.684e-01	0.0	9820
189	1.3894729e+01	2.8656357e+02	1.00e+00	2.649e-01	-0.3	9349
190	1.3850160e+01	3.7575486e+02	1.00e+00	3.115e-01	0.0	9210
191	1.3713143e+01	5.3238544e+01	1.00e+00	1.422e-01	0.0	9165
192	1.3696193e+01	4.0119673e+01	1.00e+00	1.353e-01	0.0	9090
193	1.3654682e+01	3.5547925e+01	1.00e+00	1.327e-01	0.0	8910

194	1.3564094e+01	1.8502657e+02	1.00e+00	2.078e-01	-0.3	8142
195	1.3590967e+01	3.3054705e+02	1.00e+00	2.814e-01	-0.3	8206
196	1.3475115e+01	5.1948594e+01	1.00e+00	1.402e-01	0.0	8187
197	1.3465945e+01	2.8252927e+01	1.00e+00	1.283e-01	0.0	8161
198	1.3457545e+01	2.8527798e+01	1.00e+00	1.283e-01	0.0	8128
199	1.3377264e+01	8.2136638e+01	1.00e+00	1.534e-01	0.0	7752
200	1.3370515e+01	1.0272819e+02	1.00e+00	1.642e-01	-0.3	7810
201	1.3350892e+01	8.5802921e+01	1.00e+00	1.550e-01	0.0	7780
202	1.3339782e+01	3.0048990e+01	1.00e+00	1.281e-01	0.0	7765
203	1.3336089e+01	2.9907715e+01	1.00e+00	1.280e-01	0.0	7752
204	1.3314575e+01	2.9096833e+01	1.00e+00	1.276e-01	0.0	7687
205	1.3330373e+01	1.8561586e+02	1.00e+00	2.033e-01	-0.3	7688
206	1.3307425e+01	1.0613269e+02	1.00e+00	1.648e-01	-0.3	7659
207	1.3286357e+01	2.9812025e+01	1.00e+00	1.277e-01	0.0	7647
208	1.3284097e+01	2.9750703e+01	1.00e+00	1.277e-01	0.0	7636
209	1.3233874e+01	3.1058095e+01	1.00e+00	1.281e-01	0.0	7478
210	1.3278248e+01	2.4744499e+02	1.00e+00	2.328e-01	-0.3	7489
211	1.3220875e+01	4.7505368e+01	1.00e+00	1.357e-01	-0.3	7699
212	1.3211222e+01	5.5467689e+01	1.00e+00	1.396e-01	0.0	7562
213	1.3207862e+01	3.0049840e+01	1.00e+00	1.274e-01	0.0	7512
214	1.3201059e+01	3.0007346e+01	1.00e+00	1.274e-01	0.0	7455
215	1.3198385e+01	7.5733588e+01	1.00e+00	1.489e-01	-0.3	7427
216	1.3201902e+01	1.1895493e+02	1.00e+00	1.698e-01	-0.3	7413
217	1.3184141e+01	2.9965467e+01	1.00e+00	1.272e-01	0.0	7419
218	1.3182464e+01	2.9950521e+01	1.00e+00	1.272e-01	0.0	7417
219	1.3174398e+01	2.9673131e+01	1.00e+00	1.270e-01	0.0	7401
220	1.3146092e+01	2.0481076e+02	1.00e+00	2.100e-01	-0.3	7403
221	1.3123154e+01	6.4460913e+01	1.00e+00	1.435e-01	-0.3	7416
222	1.3113093e+01	3.1986392e+01	1.00e+00	1.280e-01	0.0	7375
223	1.3110864e+01	2.9008083e+01	1.00e+00	1.265e-01	0.0	7367
224	1.3102748e+01	2.8980406e+01	1.00e+00	1.262e-01	0.0	7331
225	1.3098864e+01	9.1827326e+01	1.00e+00	1.557e-01	-0.3	7305
226	1.3087475e+01	2.9698434e+01	1.00e+00	1.265e-01	-0.3	7328
227	1.3085000e+01	2.9512664e+01	1.00e+00	1.263e-01	0.0	7309
228	1.3082475e+01	2.9393148e+01	1.00e+00	1.262e-01	0.0	7296
229	1.3067002e+01	4.3301078e+01	1.00e+00	1.326e-01	0.0	7251
230	1.3068704e+01	6.9579098e+01	1.00e+00	1.449e-01	-0.3	7261
231	1.3060228e+01	2.9638627e+01	1.00e+00	1.262e-01	0.0	7255
232	1.3058585e+01	2.9565827e+01	1.00e+00	1.261e-01	0.0	7251
233	1.3056173e+01	2.9550692e+01	1.00e+00	1.261e-01	0.0	7249
234	1.3019095e+01	2.6506335e+02	1.00e+00	2.345e-01	0.0	7076
235	1.2937138e+01	1.5577173e+02	1.00e+00	1.834e-01	-0.3	7110
236	1.2905855e+01	3.0075784e+01	1.00e+00	1.256e-01	0.0	7120
237	1.2903447e+01	2.9869032e+01	1.00e+00	1.254e-01	0.0	7119
238	1.2895538e+01	2.9633086e+01	1.00e+00	1.250e-01	0.0	7113
239	1.2889610e+01	5.5267641e+01	1.00e+00	1.369e-01	0.0	7107
240	1.2895814e+01	2.2282913e+02	1.00e+00	2.119e-01	-0.3	7095
241	1.2884360e+01	7.3689415e+01	1.00e+00	1.450e-01	0.0	7136
242	1.2877489e+01	2.9852105e+01	1.00e+00	1.249e-01	0.0	7117
243	1.2876149e+01	2.9710933e+01	1.00e+00	1.248e-01	0.0	7112
244	1.2874046e+01	2.9721514e+01	1.00e+00	1.248e-01	0.0	7108
245	1.2851399e+01	1.7572405e+02	1.00e+00	1.902e-01	0.0	7059
246	1.2838925e+01	1.1054226e+02	1.00e+00	1.607e-01	-0.3	7076
247	1.2820667e+01	2.9807072e+01	1.00e+00	1.243e-01	0.0	7066

248	1.2819674e+01	2.9780725e+01	1.00e+00	1.242e-01	0.0	7064
249	1.2810486e+01	6.1849855e+01	1.00e+00	1.384e-01	0.0	7057
250	1.2807709e+01	7.4465626e+01	1.00e+00	1.442e-01	-0.3	7076
251	1.2807114e+01	2.3005082e+02	1.00e+00	2.136e-01	0.0	7048
252	6.7246192e+00	4.9208392e+02	1.00e+00	1.145e-01	0.0	12837
253	6.5218546e+00	2.5945629e+02	1.00e+00	8.361e-02	0.0	12683
254	6.4558268e+00	1.0475797e+02	1.00e+00	6.546e-02	0.0	11592
255	6.3710879e+00	6.6477513e+02	1.00e+00	1.260e-01	0.0	9937
256	6.3943388e+00	7.4031706e+02	1.00e+00	1.366e-01	-0.3	9215
257	6.3224429e+00	6.8609622e+02	1.00e+00	1.270e-01	0.0	9318
258	6.3077976e+00	7.0253010e+01	1.00e+00	6.043e-02	0.0	9133
259	6.3010379e+00	6.7950419e+01	1.00e+00	6.012e-02	0.0	9012
260	6.2630349e+00	1.7103505e+02	1.00e+00	7.118e-02	0.0	8183
261	6.2556674e+00	2.2092576e+02	1.00e+00	7.643e-02	-0.3	8232
262	6.2462626e+00	1.6290968e+02	1.00e+00	7.011e-02	0.0	8162
263	6.2417536e+00	5.8530846e+01	1.00e+00	5.896e-02	0.0	8158
264	6.2394906e+00	5.8210012e+01	1.00e+00	5.892e-02	0.0	8114
265	6.2275968e+00	8.3678649e+01	1.00e+00	6.143e-02	0.0	7970
266	6.2330309e+00	2.9686414e+02	1.00e+00	8.440e-02	-0.3	7966
267	6.2278819e+00	3.2624050e+02	1.00e+00	8.685e-02	0.0	7920
268	6.2177885e+00	6.0228722e+01	1.00e+00	5.902e-02	0.0	7901
269	6.2166100e+00	6.0278136e+01	1.00e+00	5.900e-02	0.0	7891
270	6.2042159e+00	6.1757545e+01	1.00e+00	5.914e-02	0.0	7740
271	6.2057771e+00	3.0486103e+02	1.00e+00	8.465e-02	-0.3	7746
272	6.1936800e+00	7.0200225e+01	1.00e+00	6.010e-02	-0.3	7814
273	6.1915069e+00	6.1424963e+01	1.00e+00	5.910e-02	0.0	7727
274	6.1898067e+00	6.1189766e+01	1.00e+00	5.906e-02	0.0	7685
275	6.1847039e+00	6.3323242e+01	1.00e+00	5.918e-02	0.0	7616
276	6.1839236e+00	1.1229565e+02	1.00e+00	6.437e-02	-0.3	7623
277	6.1814292e+00	6.2189308e+01	1.00e+00	5.907e-02	0.0	7613
278	6.1803663e+00	6.1884003e+01	1.00e+00	5.906e-02	0.0	7609
279	6.1789474e+00	6.1895838e+01	1.00e+00	5.904e-02	0.0	7595
280	6.1730529e+00	2.9404872e+02	1.00e+00	8.322e-02	0.0	7493
281	6.1617933e+00	1.0137266e+02	1.00e+00	6.305e-02	-0.3	7497
282	6.1589107e+00	5.9850407e+01	1.00e+00	5.879e-02	0.0	7491
283	6.1582558e+00	5.9889166e+01	1.00e+00	5.878e-02	0.0	7487
284	6.1424877e+00	1.8508424e+02	1.00e+00	7.148e-02	0.0	7418
285	6.1501326e+00	6.7566734e+02	1.00e+00	1.221e-01	-0.3	7454
286	6.1473985e+00	6.4653165e+02	1.00e+00	1.189e-01	0.0	7444
287	6.1357994e+00	1.1935557e+02	1.00e+00	6.470e-02	0.0	7430
288	6.1348762e+00	6.0349614e+01	1.00e+00	5.867e-02	0.0	7425
289	6.1339586e+00	6.0414091e+01	1.00e+00	5.866e-02	0.0	7425
290	6.1184976e+00	3.6916645e+02	1.00e+00	8.999e-02	0.0	7363
291	6.1211420e+00	5.4424322e+02	1.00e+00	1.078e-01	-0.3	7371
292	6.1168812e+00	2.9158907e+02	1.00e+00	8.207e-02	0.0	7369
293	6.1132502e+00	6.0849323e+01	1.00e+00	5.856e-02	0.0	7368
294	6.1127251e+00	6.0679887e+01	1.00e+00	5.854e-02	0.0	7365
295	6.1075548e+00	1.6274255e+02	1.00e+00	6.884e-02	0.0	7351
296	6.1093446e+00	1.1834508e+03	1.00e+00	1.724e-01	-0.3	7353
297	6.1021875e+00	1.0908123e+02	1.00e+00	6.337e-02	-0.3	7367
298	6.1010348e+00	1.3658107e+02	1.00e+00	6.614e-02	0.0	7363
299	6.0996306e+00	6.0908788e+01	1.00e+00	5.846e-02	0.0	7354
300	6.0957799e+00	7.4907085e+01	1.00e+00	5.984e-02	0.0	7335
301	6.0981938e+00	3.2274500e+02	1.00e+00	8.485e-02	-0.3	7340

302	6.0953715e+00	1.4771348e+02	1.00e+00	6.719e-02	0.0	7330
303	6.0920609e+00	6.1032565e+01	1.00e+00	5.840e-02	0.0	7335
304	6.0915939e+00	6.1019860e+01	1.00e+00	5.840e-02	0.0	7332
305	6.0838365e+00	6.1486885e+01	1.00e+00	5.838e-02	0.0	7315
306	6.0888791e+00	6.3246464e+02	1.00e+00	1.160e-01	-0.3	7319
307	6.0753114e+00	6.1619054e+01	1.00e+00	5.835e-02	-0.3	7333
308	6.0741597e+00	7.7265017e+01	1.00e+00	5.990e-02	0.0	7324
309	6.0733001e+00	6.1132342e+01	1.00e+00	5.826e-02	0.0	7313
310	6.0688073e+00	1.8473172e+02	1.00e+00	7.058e-02	0.0	7296
311	6.0684377e+00	4.0142046e+02	1.00e+00	9.224e-02	-0.3	7302
312	6.0707877e+00	3.7482137e+02	1.00e+00	8.968e-02	0.0	7301
313	6.0647950e+00	8.3176733e+01	1.00e+00	6.038e-02	0.0	7295
314	6.0642287e+00	6.1284430e+01	1.00e+00	5.819e-02	0.0	7296
315	6.0632300e+00	6.1262572e+01	1.00e+00	5.817e-02	0.0	7293
316	6.0251068e+00	1.1072691e+03	1.00e+00	1.610e-01	0.0	7217
317	6.0031872e+00	3.7551641e+02	1.00e+00	8.851e-02	-0.3	7236
318	5.9963077e+00	9.8168823e+01	1.00e+00	6.126e-02	0.0	7228
319	5.9954276e+00	6.2483410e+01	1.00e+00	5.774e-02	0.0	7231
320	5.9929390e+00	7.4130372e+01	1.00e+00	5.881e-02	0.0	7228
321	5.9910169e+00	7.2760193e+02	1.00e+00	1.226e-01	0.0	7224
322	5.9878794e+00	9.1073520e+01	1.00e+00	6.043e-02	-0.3	7233
323	5.9869612e+00	1.0756323e+02	1.00e+00	6.202e-02	0.0	7226
324	5.9862440e+00	6.2207832e+01	1.00e+00	5.759e-02	0.0	7224
325	5.9838484e+00	6.9976190e+01	1.00e+00	5.831e-02	0.0	7221
326	5.9835631e+00	1.2276733e+02	1.00e+00	6.344e-02	-0.3	7223
327	1.7814666e+00	2.2624695e+03	9.99e-01	3.252e-02	0.0	18463
328	1.6336477e+00	1.1038121e+03	9.99e-01	2.119e-02	0.0	18070
329	1.5607762e+00	8.9304327e+02	9.99e-01	1.865e-02	0.0	16563
330	1.4480082e+00	2.8808404e+03	9.99e-01	2.729e-02	0.0	12416
331	1.3807232e+00	9.1922240e+02	9.99e-01	1.653e-02	-0.3	12484
332	1.3619034e+00	4.8200453e+02	9.99e-01	1.374e-02	0.0	12275
333	1.3484162e+00	4.4660330e+02	9.99e-01	1.351e-02	0.0	11960
334	1.3264101e+00	1.7974448e+03	9.99e-01	2.028e-02	0.0	11190
335	1.3124364e+00	4.0180986e+02	9.99e-01	1.303e-02	-0.3	11194
336	1.3074022e+00	3.5794769e+02	9.99e-01	1.268e-02	0.0	11050
337	1.2980658e+00	3.3954071e+02	9.99e-01	1.253e-02	0.0	10763
338	1.2943705e+00	2.8952196e+03	9.99e-01	2.583e-02	-0.3	9879
339	1.2635532e+00	7.2270222e+02	9.99e-01	1.448e-02	-0.3	9915
340	1.2597714e+00	3.1028285e+02	9.99e-01	1.212e-02	0.0	9853
341	1.2573769e+00	3.1487236e+02	9.99e-01	1.212e-02	0.0	9795
342	1.2416544e+00	4.7619588e+02	9.99e-01	1.279e-02	0.0	9348
343	1.2440954e+00	1.3485365e+03	9.99e-01	1.773e-02	-0.3	9368
344	1.2394098e+00	1.3194088e+03	9.99e-01	1.727e-02	0.0	9310
345	1.2335457e+00	3.2383731e+02	9.99e-01	1.200e-02	0.0	9283
346	1.2325874e+00	3.2429942e+02	9.99e-01	1.199e-02	0.0	9261
347	1.2275633e+00	3.2018207e+02	9.99e-01	1.194e-02	0.0	9123
348	1.2303536e+00	1.9746038e+03	9.99e-01	2.076e-02	-0.3	9120
349	1.2174183e+00	5.4059671e+02	9.99e-01	1.313e-02	-0.3	9132
350	1.2153797e+00	2.9843111e+02	9.99e-01	1.177e-02	0.0	9061
351	1.2141508e+00	3.1248843e+02	9.99e-01	1.183e-02	0.0	9003
352	1.2088764e+00	3.1056986e+02	9.99e-01	1.171e-02	0.0	8798
353	1.2092046e+00	1.0268007e+03	9.99e-01	1.570e-02	-0.3	8806
354	1.2079614e+00	9.4119603e+02	9.99e-01	1.509e-02	0.0	8768
355	1.2051126e+00	2.9149520e+02	9.99e-01	1.163e-02	0.0	8759

356	1.2045916e+00	2.9367347e+02	9.99e-01	1.164e-02	0.0	8748
357	1.2012987e+00	3.0217605e+02	9.99e-01	1.167e-02	0.0	8657
358	1.2013716e+00	1.3044325e+03	9.99e-01	1.706e-02	-0.3	8656
359	1.1957978e+00	3.5654724e+02	9.99e-01	1.198e-02	-0.3	8655
360	1.1949074e+00	2.1046819e+02	9.99e-01	1.116e-02	0.0	8613
361	1.1941868e+00	2.4207805e+02	9.99e-01	1.132e-02	0.0	8591
362	1.1889794e+00	3.7098816e+02	9.99e-01	1.193e-02	0.0	8395
363	1.1907136e+00	1.2213906e+03	9.99e-01	1.663e-02	-0.3	8406
364	1.1876457e+00	6.0149214e+02	9.99e-01	1.317e-02	0.0	8390
365	1.1864362e+00	2.2183121e+02	9.99e-01	1.114e-02	0.0	8384
366	1.1861062e+00	2.2231121e+02	9.99e-01	1.114e-02	0.0	8377
367	1.1796329e+00	2.3573641e+02	9.99e-01	1.119e-02	0.0	8261
368	1.1807517e+00	9.9171848e+02	9.99e-01	1.527e-02	-0.3	8272
369	1.1806356e+00	1.2186374e+03	9.99e-01	1.652e-02	0.0	8247
370	1.1774013e+00	2.1265694e+02	9.99e-01	1.104e-02	0.0	8247
371	1.1771268e+00	2.1292450e+02	9.99e-01	1.104e-02	0.0	8237
372	1.1760638e+00	2.1266852e+02	9.99e-01	1.104e-02	0.0	8216
373	1.1722663e+00	9.0797274e+02	9.99e-01	1.482e-02	-0.3	8211
374	1.1726790e+00	1.3182917e+03	9.99e-01	1.704e-02	-0.3	8216
375	1.1684187e+00	3.1401042e+02	9.99e-01	1.157e-02	0.0	8187
376	1.1679470e+00	2.1389451e+02	9.99e-01	1.102e-02	0.0	8174
377	1.1675296e+00	2.1303106e+02	9.99e-01	1.100e-02	0.0	8158
378	1.1639171e+00	4.2695222e+02	9.99e-01	1.209e-02	0.0	8046
379	1.1649645e+00	1.1947508e+03	9.99e-01	1.630e-02	-0.3	8051
380	1.1628884e+00	4.5574130e+02	9.99e-01	1.225e-02	0.0	8050
381	1.1622146e+00	2.1203119e+02	9.99e-01	1.094e-02	0.0	8043
382	1.1620053e+00	2.1263651e+02	9.99e-01	1.095e-02	0.0	8039
383	1.1570357e+00	3.2883407e+02	9.99e-01	1.158e-02	0.0	7972
384	1.1579189e+00	9.0117303e+02	9.99e-01	1.464e-02	-0.3	7976
385	1.1573218e+00	9.5904770e+02	9.99e-01	1.497e-02	0.0	7972
386	1.1554816e+00	2.1223880e+02	9.99e-01	1.091e-02	0.0	7967
387	1.1553029e+00	2.1219573e+02	9.99e-01	1.091e-02	0.0	7961
388	1.1544882e+00	2.1273260e+02	9.99e-01	1.091e-02	0.0	7945
389	1.1517952e+00	1.2438797e+03	9.99e-01	1.647e-02	-0.3	7945
390	1.1526876e+00	1.1957952e+03	9.99e-01	1.621e-02	-0.3	7955
391	1.1487886e+00	2.1083758e+02	9.99e-01	1.087e-02	0.0	7930
392	1.1485482e+00	2.1085222e+02	9.99e-01	1.086e-02	0.0	7925
393	1.1482267e+00	2.1042802e+02	9.99e-01	1.086e-02	0.0	7916
394	1.1440598e+00	5.6011005e+02	9.99e-01	1.271e-02	0.0	7849
395	1.1478146e+00	1.8399018e+03	9.99e-01	1.967e-02	-0.3	7860
396	1.1434615e+00	6.5288777e+02	9.99e-01	1.320e-02	0.0	7866
397	1.1424039e+00	2.1295572e+02	9.99e-01	1.083e-02	0.0	7856
398	1.1422561e+00	2.1278359e+02	9.99e-01	1.082e-02	0.0	7855
399	1.1409389e+00	2.1004379e+02	9.99e-01	1.080e-02	0.0	7843
400	1.1404209e+00	4.3267879e+02	9.99e-01	1.201e-02	-0.3	7845
401	1.1405218e+00	6.7061192e+02	9.99e-01	1.329e-02	-0.3	7846
402	1.1396340e+00	2.9144142e+02	9.99e-01	1.123e-02	0.0	7831
403	1.1393129e+00	2.1030956e+02	9.99e-01	1.079e-02	0.0	7829
404	1.1391565e+00	2.1095752e+02	9.99e-01	1.079e-02	0.0	7828
405	1.1367143e+00	2.9185373e+02	9.99e-01	1.121e-02	0.0	7801
406	1.1384777e+00	1.0665436e+03	9.99e-01	1.541e-02	-0.3	7808
407	1.1364066e+00	6.4149054e+02	9.99e-01	1.310e-02	0.0	7799
408	1.1356854e+00	2.0589740e+02	9.99e-01	1.074e-02	0.0	7799
409	1.1355630e+00	2.0683236e+02	9.99e-01	1.074e-02	0.0	7797

410	1.1265718e+00	6.7994439e+02	9.99e-01	1.324e-02	0.0	7714
411	1.1291779e+00	1.8171371e+03	9.99e-01	1.946e-02	-0.3	7726
412	1.1275583e+00	1.9328926e+03	9.99e-01	2.000e-02	0.0	7768
413	1.1250192e+00	4.5352031e+02	9.99e-01	1.202e-02	0.0	7725
414	1.1248070e+00	1.9518404e+02	9.99e-01	1.061e-02	0.0	7722
415	1.1246320e+00	1.9617423e+02	9.99e-01	1.061e-02	0.0	7720
416	1.1213368e+00	9.7335023e+02	9.99e-01	1.478e-02	0.0	7678
417	1.1217008e+00	1.1773041e+03	9.99e-01	1.591e-02	-0.3	7684
418	1.1205103e+00	3.4833769e+02	9.99e-01	1.140e-02	0.0	7682
419	1.1201616e+00	1.9820939e+02	9.99e-01	1.059e-02	0.0	7679
420	1.1200441e+00	1.9839563e+02	9.99e-01	1.059e-02	0.0	7679
421	1.1162316e+00	4.9527328e+02	9.99e-01	1.217e-02	0.0	7662
422	1.1192457e+00	2.3493533e+03	9.99e-01	2.222e-02	-0.3	7667
423	1.1179725e+00	1.4905953e+03	9.99e-01	1.757e-02	0.0	7672
424	1.1150042e+00	2.6776417e+02	9.99e-01	1.093e-02	0.0	7666
425	1.1148862e+00	1.9975082e+02	9.99e-01	1.056e-02	0.0	7666
426	1.1144612e+00	1.9911029e+02	9.99e-01	1.055e-02	0.0	7659
427	1.1122439e+00	2.5787856e+03	9.99e-01	2.342e-02	0.0	7624
428	1.1144707e+00	4.6389707e+03	9.99e-01	3.460e-02	-0.3	7646
429	1.1095687e+00	1.0077665e+03	9.99e-01	1.490e-02	0.0	7634
430	1.1091723e+00	1.9745083e+02	9.99e-01	1.050e-02	0.0	7631
431	1.1090504e+00	1.9732983e+02	9.99e-01	1.050e-02	0.0	7631
432	1.1080416e+00	5.3759919e+02	9.99e-01	1.234e-02	0.0	7623
433	1.1081120e+00	1.9973724e+03	9.99e-01	2.025e-02	-0.3	7624
434	1.1074601e+00	6.8547295e+02	9.99e-01	1.313e-02	-0.3	7628
435	1.1071832e+00	2.6373942e+02	9.99e-01	1.085e-02	0.0	7623
436	1.1070625e+00	1.9740274e+02	9.99e-01	1.049e-02	0.0	7622
437	1.1062448e+00	1.9658543e+02	9.99e-01	1.048e-02	0.0	7619
438	1.1071381e+00	1.1758166e+03	9.99e-01	1.577e-02	-0.3	7621
439	1.1058002e+00	5.9491679e+02	9.99e-01	1.263e-02	-0.3	7620
440	1.1051303e+00	1.9738554e+02	9.99e-01	1.047e-02	0.0	7614
441	1.1050308e+00	1.9714953e+02	9.99e-01	1.047e-02	0.0	7610
442	1.1036285e+00	7.0014998e+02	9.99e-01	1.319e-02	0.0	7601
443	1.1034678e+00	2.0715868e+03	9.99e-01	2.062e-02	-0.3	7603
444	1.1038924e+00	2.6623804e+03	9.99e-01	2.382e-02	0.0	7605
445	1.1027200e+00	5.5032632e+02	9.99e-01	1.237e-02	0.0	7603
446	1.1025914e+00	1.9628634e+02	9.99e-01	1.045e-02	0.0	7600
447	1.1024124e+00	1.9635307e+02	9.99e-01	1.045e-02	0.0	7598
448	1.0964676e+00	2.2829055e+03	9.99e-01	2.171e-02	0.0	7570
449	1.0971234e+00	2.0133145e+03	9.99e-01	2.026e-02	-0.3	7572
450	1.0944912e+00	2.3453135e+02	9.99e-01	1.060e-02	0.0	7572
451	1.0943757e+00	1.9784847e+02	9.99e-01	1.040e-02	0.0	7572
452	1.0941458e+00	1.9797064e+02	9.99e-01	1.040e-02	0.0	7572
453	1.0906814e+00	2.0242341e+03	9.99e-01	2.026e-02	0.0	7554
454	1.0909154e+00	1.5643084e+03	9.99e-01	1.777e-02	-0.3	7570
455	1.0898683e+00	9.5386000e+02	9.99e-01	1.446e-02	0.0	7556
456	1.0896897e+00	1.9771144e+02	9.99e-01	1.036e-02	0.0	7557
457	1.0895595e+00	1.9769199e+02	9.99e-01	1.036e-02	0.0	7554
458	1.0873075e+00	8.5718328e+02	9.99e-01	1.392e-02	0.0	7545
459	1.0890564e+00	2.1294223e+03	9.99e-01	2.082e-02	-0.3	7554
460	1.0870321e+00	1.1029580e+03	9.99e-01	1.524e-02	0.0	7554
461	1.0862164e+00	1.9741057e+02	9.99e-01	1.034e-02	0.0	7553
462	1.0861291e+00	1.9747700e+02	9.99e-01	1.033e-02	0.0	7551
463	1.0846306e+00	3.5916861e+02	9.99e-01	1.120e-02	0.0	7540

464	1.0855675e+00	2.2424391e+03	9.99e-01	2.140e-02	-0.3	7549
465	1.0842993e+00	1.0184314e+03	9.99e-01	1.477e-02	-0.3	7564
466	1.0835472e+00	4.6495218e+02	9.99e-01	1.176e-02	0.0	7548
467	1.0834065e+00	1.9691341e+02	9.99e-01	1.031e-02	0.0	7549
468	1.0832154e+00	1.9704725e+02	9.99e-01	1.031e-02	0.0	7545
469	1.0818340e+00	1.3792311e+03	9.99e-01	1.670e-02	0.0	7537
470	1.0819984e+00	1.4272640e+03	9.99e-01	1.697e-02	-0.3	7541
471	1.0812848e+00	8.9693399e+02	9.99e-01	1.408e-02	0.0	7537
472	1.0809998e+00	1.9671737e+02	9.99e-01	1.029e-02	0.0	7536
473	1.0809089e+00	1.9677184e+02	9.99e-01	1.029e-02	0.0	7536
474	1.0793958e+00	2.8520698e+02	9.99e-01	1.076e-02	0.0	7531
475	1.0805152e+00	1.5673273e+03	9.99e-01	1.770e-02	-0.3	7534
476	1.0788143e+00	3.6094247e+02	9.99e-01	1.116e-02	-0.3	7538
477	1.0784722e+00	2.3625935e+02	9.99e-01	1.049e-02	0.0	7534
478	1.0783651e+00	1.9619260e+02	9.99e-01	1.027e-02	0.0	7532
479	1.0775657e+00	4.2551300e+02	9.99e-01	1.150e-02	0.0	7526
480	1.0773128e+00	6.4072630e+02	9.99e-01	1.267e-02	-0.3	7530
481	1.0774320e+00	1.1079936e+03	9.99e-01	1.520e-02	0.0	7529
482	1.0769222e+00	3.0886003e+02	9.99e-01	1.086e-02	0.0	7527
483	1.0767626e+00	1.9625282e+02	9.99e-01	1.025e-02	0.0	7528
484	1.0766564e+00	1.9623258e+02	9.99e-01	1.025e-02	0.0	7527
485	1.0740497e+00	9.4460015e+02	9.99e-01	1.429e-02	0.0	7525
486	1.0747441e+00	1.0198755e+03	9.99e-01	1.470e-02	-0.3	7526
487	1.0734465e+00	1.9564856e+02	9.99e-01	1.022e-02	0.0	7524
488	1.0733273e+00	1.9565498e+02	9.99e-01	1.022e-02	0.0	7524
489	1.0731957e+00	1.9566870e+02	9.99e-01	1.022e-02	0.0	7523
490	1.0638063e+00	2.3631619e+03	9.99e-01	2.188e-02	0.0	7496
491	1.0644981e+00	1.8473424e+03	9.99e-01	1.910e-02	-0.3	7512
492	1.0619761e+00	4.6118642e+02	9.99e-01	1.157e-02	0.0	7510
493	1.0618365e+00	2.2321131e+02	9.99e-01	1.028e-02	0.0	7510
494	1.0616154e+00	1.9429590e+02	9.99e-01	1.012e-02	0.0	7506
495	1.0602265e+00	7.7717455e+02	9.99e-01	1.327e-02	0.0	7498
496	1.0606896e+00	1.5199282e+03	9.99e-01	1.729e-02	-0.3	7500
497	1.0606472e+00	1.1750159e+03	9.99e-01	1.542e-02	0.0	7498
498	5.0841609e-01	3.6953408e+02	5.07e-01	6.214e-03	0.0	16754
499	4.8894249e-01	3.0912728e+02	4.88e-01	5.722e-03	0.0	14782
500	4.6718358e-01	6.0110253e+02	4.66e-01	6.956e-03	0.0	10730
501	4.7006764e-01	6.5208274e+02	4.69e-01	7.501e-03	-0.3	10058
502	4.5519476e-01	2.4752599e+02	4.54e-01	5.038e-03	0.0	10021
503	4.5316297e-01	1.1038569e+02	4.52e-01	4.353e-03	0.0	9865
504	4.5211364e-01	1.0788083e+02	4.51e-01	4.325e-03	0.0	9703
505	4.4797191e-01	1.8256771e+02	4.47e-01	4.741e-03	0.0	8911
506	4.5184488e-01	6.2482351e+02	4.51e-01	7.039e-03	-0.3	8885
507	4.4679502e-01	2.3335212e+02	4.46e-01	5.015e-03	0.0	8785
508	4.4568367e-01	9.3393053e+01	4.45e-01	4.220e-03	0.0	8750
509	4.4543497e-01	9.2388295e+01	4.44e-01	4.216e-03	0.0	8695
510	4.4327895e-01	1.1070213e+02	4.42e-01	4.304e-03	0.0	8334
511	4.4360038e-01	4.6252671e+02	4.43e-01	6.255e-03	-0.3	8331
512	4.4305240e-01	2.5166474e+02	4.42e-01	5.037e-03	0.0	8279
513	4.4225264e-01	7.5837725e+01	4.41e-01	4.124e-03	0.0	8257
514	4.4211586e-01	7.4242905e+01	4.41e-01	4.109e-03	0.0	8246
515	4.4181430e-01	7.4520217e+01	4.41e-01	4.111e-03	0.0	8201
516	4.4145368e-01	5.0946023e+02	4.40e-01	6.429e-03	-0.3	7922
517	4.3934899e-01	1.5902582e+02	4.38e-01	4.597e-03	-0.3	7939

518	4.3890240e-01	8.3233123e+01	4.38e-01	4.163e-03	0.0	7926
519	4.3880552e-01	8.1443426e+01	4.38e-01	4.152e-03	0.0	7921
520	4.3833498e-01	7.4912175e+01	4.37e-01	4.103e-03	0.0	7884
521	4.3815962e-01	3.0135230e+02	4.37e-01	5.351e-03	-0.3	7865
522	4.3845623e-01	3.1309254e+02	4.37e-01	5.367e-03	-0.3	7849
523	4.3769597e-01	1.3269425e+02	4.37e-01	4.423e-03	0.0	7850
524	4.3756040e-01	7.7626341e+01	4.37e-01	4.117e-03	0.0	7844
525	4.3749987e-01	7.8227094e+01	4.36e-01	4.121e-03	0.0	7843
526	4.3541148e-01	1.3196697e+02	4.34e-01	4.399e-03	0.0	7740
527	4.3670030e-01	8.9584205e+02	4.36e-01	8.570e-03	-0.3	7746
528	4.3543735e-01	3.3030894e+02	4.34e-01	5.457e-03	0.0	7732
529	4.3484987e-01	8.1327351e+01	4.34e-01	4.127e-03	0.0	7738
530	4.3480065e-01	7.4673538e+01	4.34e-01	4.090e-03	0.0	7734
531	4.3457931e-01	7.8265245e+01	4.34e-01	4.109e-03	0.0	7724
532	4.3418552e-01	5.8091494e+02	4.33e-01	6.813e-03	-0.3	7697
533	4.3398020e-01	3.1602234e+02	4.33e-01	5.401e-03	-0.3	7704
534	4.3362063e-01	1.6080336e+02	4.33e-01	4.546e-03	0.0	7693
535	4.3353020e-01	7.5609536e+01	4.33e-01	4.087e-03	0.0	7692
536	4.3347967e-01	7.5634433e+01	4.32e-01	4.086e-03	0.0	7690
537	4.3234882e-01	2.8622238e+02	4.31e-01	5.225e-03	0.0	7659
538	4.3309473e-01	8.2170581e+02	4.32e-01	8.112e-03	-0.3	7659
539	4.3218886e-01	1.7387017e+02	4.31e-01	4.617e-03	0.0	7661
540	4.3197788e-01	7.7190856e+01	4.31e-01	4.087e-03	0.0	7658
541	4.3193744e-01	7.6510285e+01	4.31e-01	4.083e-03	0.0	7657
542	4.3123743e-01	2.9026801e+02	4.30e-01	5.235e-03	0.0	7630
543	4.3116049e-01	7.0626799e+02	4.30e-01	7.490e-03	-0.3	7637
544	4.3111412e-01	4.4170779e+02	4.30e-01	6.054e-03	0.0	7636
545	4.3086843e-01	1.9984251e+02	4.30e-01	4.744e-03	0.0	7631
546	4.3081940e-01	7.5862745e+01	4.30e-01	4.072e-03	0.0	7631
547	4.3074034e-01	7.5622864e+01	4.30e-01	4.070e-03	0.0	7625
548	4.3013523e-01	2.1457396e+03	4.29e-01	1.527e-02	0.0	7580
549	4.2892404e-01	4.0255845e+02	4.28e-01	5.839e-03	-0.3	7583
550	4.2811176e-01	8.2061234e+01	4.27e-01	4.091e-03	0.0	7579
551	4.2806601e-01	7.8025215e+01	4.27e-01	4.069e-03	0.0	7579
552	4.2786237e-01	9.3573517e+01	4.27e-01	4.149e-03	0.0	7579
553	4.2786494e-01	5.4900082e+02	4.27e-01	6.626e-03	0.0	7578
554	2.5333985e-01	5.6102801e+03	2.52e-01	3.192e-02	0.0	7983
555	2.1243417e-01	1.5029105e+03	2.11e-01	9.788e-03	0.0	9006
556	2.0096927e-01	4.4805594e+02	2.00e-01	4.046e-03	0.0	8763
557	1.9965172e-01	2.1348717e+02	1.99e-01	2.774e-03	0.0	8747
558	1.9742661e-01	2.7488620e+02	1.96e-01	3.115e-03	0.0	8648
559	1.9803681e-01	9.0269816e+02	1.97e-01	6.511e-03	0.0	8367
560	1.9797774e-01	1.3202837e+03	1.97e-01	8.767e-03	0.0	8362
561	1.9570683e-01	1.3066885e+02	1.95e-01	2.332e-03	0.0	8339
562	1.9546293e-01	6.6635008e+01	1.94e-01	1.981e-03	0.0	8311
563	1.9532582e-01	5.1537084e+01	1.94e-01	1.899e-03	0.0	8275
564	1.9439499e-01	2.3431559e+02	1.93e-01	2.897e-03	0.0	8086
565	1.9450972e-01	1.9354299e+02	1.94e-01	2.681e-03	-0.3	8079
566	1.9409544e-01	1.9018822e+02	1.93e-01	2.654e-03	0.0	8056
567	1.9396997e-01	3.7415054e+01	1.93e-01	1.828e-03	0.0	8050
568	1.9391820e-01	3.3791533e+01	1.93e-01	1.808e-03	0.0	8044
569	1.9315806e-01	1.5528307e+02	1.92e-01	2.467e-03	0.0	7908
570	1.9325149e-01	2.8046294e+02	1.92e-01	3.144e-03	-0.3	7900
571	1.9301677e-01	1.3290623e+02	1.92e-01	2.342e-03	0.0	7897

572	1.9287398e-01	3.3582210e+01	1.92e-01	1.805e-03	0.0	7888
573	1.9284385e-01	3.3131325e+01	1.92e-01	1.803e-03	0.0	7884
574	1.9263416e-01	3.2479671e+01	1.92e-01	1.799e-03	0.0	7861
575	1.9260077e-01	1.7620695e+02	1.92e-01	2.577e-03	-0.3	7849
576	1.9235009e-01	6.3859370e+01	1.91e-01	1.968e-03	-0.3	7842
577	1.9231197e-01	3.6643694e+01	1.91e-01	1.820e-03	0.0	7836
578	1.9226018e-01	3.3163553e+01	1.91e-01	1.801e-03	0.0	7828
579	1.9184781e-01	1.2780465e+02	1.91e-01	2.311e-03	0.0	7779
580	1.9229783e-01	3.4279638e+02	1.91e-01	3.476e-03	-0.3	7774
581	1.9168585e-01	4.3972774e+01	1.91e-01	1.857e-03	0.0	7772
582	1.9164570e-01	3.3337319e+01	1.91e-01	1.800e-03	0.0	7769
583	1.9161786e-01	3.3651570e+01	1.91e-01	1.801e-03	0.0	7766
584	1.9042609e-01	9.2877991e+01	1.89e-01	2.117e-03	0.0	7699
585	1.9081364e-01	2.1646856e+02	1.90e-01	2.791e-03	-0.3	7707
586	1.9034526e-01	1.2867732e+02	1.89e-01	2.309e-03	0.0	7699
587	1.9020416e-01	3.2052913e+01	1.89e-01	1.787e-03	0.0	7698
588	1.9018462e-01	3.2196142e+01	1.89e-01	1.787e-03	0.0	7696
589	1.9000827e-01	3.1849462e+01	1.89e-01	1.783e-03	0.0	7686
590	1.8994323e-01	7.2799633e+01	1.89e-01	2.005e-03	-0.3	7683
591	1.8993121e-01	1.1421673e+02	1.89e-01	2.228e-03	-0.3	7682
592	1.8984316e-01	4.8613070e+01	1.89e-01	1.873e-03	0.0	7679
593	1.8980442e-01	3.2732934e+01	1.89e-01	1.787e-03	0.0	7678
594	1.8978318e-01	3.2738350e+01	1.89e-01	1.787e-03	0.0	7678
595	1.8952327e-01	4.3723496e+01	1.89e-01	1.845e-03	0.0	7663
596	1.8958846e-01	1.0498920e+02	1.89e-01	2.176e-03	-0.3	7661
597	1.8945422e-01	5.3506450e+01	1.88e-01	1.897e-03	0.0	7660
598	1.8941159e-01	3.2937892e+01	1.88e-01	1.785e-03	0.0	7659
599	1.8939267e-01	3.2882092e+01	1.88e-01	1.785e-03	0.0	7659
600	1.8823578e-01	5.9072433e+01	1.87e-01	1.919e-03	0.0	7626
601	1.8878188e-01	2.6946799e+02	1.88e-01	3.060e-03	-0.3	7630
602	1.8812379e-01	5.4051613e+01	1.87e-01	1.891e-03	0.0	7627
603	1.8806781e-01	3.3409215e+01	1.87e-01	1.779e-03	0.0	7627
604	1.8805013e-01	3.3249722e+01	1.87e-01	1.778e-03	0.0	7627
605	1.8761963e-01	6.3915095e+01	1.87e-01	1.941e-03	0.0	7615
606	1.8789442e-01	3.6318545e+02	1.87e-01	3.561e-03	-0.3	7617
607	1.8794604e-01	3.3261286e+02	1.87e-01	3.397e-03	0.0	7621
608	1.8743833e-01	1.4760008e+02	1.86e-01	2.393e-03	0.0	7614
609	1.8738761e-01	3.3209008e+01	1.86e-01	1.773e-03	0.0	7614
610	1.8736884e-01	3.3149454e+01	1.86e-01	1.772e-03	0.0	7613
611	1.8708480e-01	8.8151208e+01	1.86e-01	2.068e-03	0.0	7609
612	1.8712127e-01	1.8200148e+02	1.86e-01	2.577e-03	-0.3	7610
613	1.8716772e-01	2.4364706e+02	1.86e-01	2.909e-03	0.0	7613
614	1.8693528e-01	3.7870883e+01	1.86e-01	1.795e-03	0.0	7609
615	1.8691693e-01	3.3109260e+01	1.86e-01	1.769e-03	0.0	7609
616	1.8687852e-01	3.3066815e+01	1.86e-01	1.768e-03	0.0	7608
617	1.8581012e-01	3.2792157e+02	1.85e-01	3.356e-03	0.0	7592
618	1.8559777e-01	1.4323821e+02	1.85e-01	2.356e-03	-0.3	7594
619	1.8543384e-01	3.4335884e+01	1.84e-01	1.765e-03	0.0	7594
620	1.8541475e-01	3.4344722e+01	1.84e-01	1.765e-03	0.0	7594
621	1.8536967e-01	3.3967170e+01	1.84e-01	1.762e-03	0.0	7592
622	1.8495247e-01	2.3693975e+02	1.84e-01	2.856e-03	0.0	7587
623	1.8495357e-01	1.6566900e+02	1.84e-01	2.470e-03	-0.3	7589
624	8.2078456e-02	6.0732353e+01	8.11e-02	1.006e-03	0.0	7724
625	7.8330247e-02	4.7482163e+01	7.73e-02	9.028e-04	0.0	8357

626	7.4085056e-02	1.2759789e+02	7.31e-02	1.264e-03	0.0	8888
627	7.5049011e-02	1.4705482e+02	7.40e-02	1.423e-03	-0.3	8544
628	7.1270766e-02	4.3992060e+01	7.03e-02	8.121e-04	0.0	8631
629	7.0845928e-02	1.8620204e+01	6.98e-02	6.847e-04	0.0	8577
630	7.0639913e-02	1.8015546e+01	6.96e-02	6.789e-04	0.0	8545
631	6.9779525e-02	3.4954181e+01	6.88e-02	7.712e-04	0.0	8326
632	7.0504280e-02	1.0051964e+02	6.95e-02	1.110e-03	-0.3	8226
633	6.9602912e-02	5.2064720e+01	6.86e-02	8.644e-04	0.0	8220
634	6.9311941e-02	1.5107499e+01	6.83e-02	6.561e-04	0.0	8203
635	6.9260704e-02	1.4845048e+01	6.83e-02	6.552e-04	0.0	8193
636	6.8930456e-02	1.8803506e+01	6.79e-02	6.747e-04	0.0	8095
637	6.9228290e-02	1.0756281e+02	6.82e-02	1.165e-03	-0.3	8025
638	6.8753258e-02	2.4575677e+01	6.78e-02	7.029e-04	-0.3	8014
639	6.8661433e-02	1.6515957e+01	6.77e-02	6.626e-04	0.0	8010
640	6.8624729e-02	1.2920861e+01	6.76e-02	6.425e-04	0.0	8007
641	6.8496701e-02	1.1755907e+01	6.75e-02	6.367e-04	0.0	7977
642	6.8459986e-02	1.5681133e+01	6.75e-02	6.550e-04	-0.3	7961
643	6.8450301e-02	2.5576392e+01	6.75e-02	7.133e-04	0.0	7953
644	6.8381161e-02	1.1892639e+01	6.74e-02	6.348e-04	0.0	7949
645	6.8353611e-02	1.1594805e+01	6.74e-02	6.345e-04	0.0	7944
646	6.8326325e-02	1.1667484e+01	6.73e-02	6.345e-04	0.0	7934
647	6.8083199e-02	4.1600517e+01	6.71e-02	8.014e-04	0.0	7852
648	6.8143442e-02	5.0460385e+01	6.71e-02	8.405e-04	-0.3	7847
649	6.7902840e-02	1.1819913e+01	6.69e-02	6.362e-04	0.0	7847
650	6.7889367e-02	1.1833526e+01	6.69e-02	6.355e-04	0.0	7844
651	6.7850672e-02	1.1731860e+01	6.69e-02	6.343e-04	0.0	7828
652	6.7561915e-02	4.9497589e+01	6.66e-02	8.355e-04	0.0	7762
653	6.7459081e-02	2.6640211e+01	6.65e-02	7.149e-04	-0.3	7762
654	6.7386195e-02	1.7199979e+01	6.64e-02	6.606e-04	0.0	7758
655	6.7368829e-02	1.2600019e+01	6.64e-02	6.365e-04	0.0	7757
656	6.7350959e-02	1.2331565e+01	6.64e-02	6.348e-04	0.0	7754
657	6.7258111e-02	1.6469748e+01	6.63e-02	6.586e-04	0.0	7741
658	6.7302841e-02	6.0360884e+01	6.63e-02	8.920e-04	-0.3	7742
659	6.7205111e-02	1.1707484e+01	6.62e-02	6.316e-04	0.0	7740
660	6.7194010e-02	1.1758111e+01	6.62e-02	6.312e-04	0.0	7737
661	6.7181013e-02	1.1777706e+01	6.62e-02	6.313e-04	0.0	7735
662	6.6723062e-02	6.8098373e+01	6.57e-02	9.307e-04	0.0	7670
663	6.6671335e-02	5.6848265e+01	6.57e-02	8.753e-04	-0.3	7677
664	6.6518145e-02	2.4119991e+01	6.55e-02	6.936e-04	0.0	7671
665	6.6490518e-02	1.2433082e+01	6.55e-02	6.311e-04	0.0	7671
666	6.6472458e-02	1.1134807e+01	6.55e-02	6.238e-04	0.0	7670
667	6.6394205e-02	1.0740721e+01	6.54e-02	6.210e-04	0.0	7667
668	6.6488979e-02	8.5395715e+01	6.55e-02	1.023e-03	-0.3	7665
669	6.6336478e-02	1.1581375e+01	6.53e-02	6.255e-04	-0.3	7665
670	6.6325756e-02	1.1532706e+01	6.53e-02	6.248e-04	0.0	7665
671	6.6315932e-02	1.1450359e+01	6.53e-02	6.242e-04	0.0	7666
672	6.6107060e-02	1.5422329e+01	6.51e-02	6.437e-04	0.0	7646
673	6.6290019e-02	8.2722852e+01	6.53e-02	1.011e-03	-0.3	7648
674	6.6048916e-02	1.6440231e+01	6.50e-02	6.491e-04	-0.3	7646
675	6.6028633e-02	1.1940162e+01	6.50e-02	6.249e-04	0.0	7646
676	6.6013821e-02	1.1776464e+01	6.50e-02	6.238e-04	0.0	7646
677	6.5976996e-02	1.1327056e+01	6.50e-02	6.212e-04	0.0	7644
678	6.5992603e-02	5.4122512e+01	6.50e-02	8.519e-04	-0.3	7643
679	6.5989334e-02	5.6947299e+01	6.50e-02	8.689e-04	-0.3	7641

680	2.9233154e-02	2.1426244e+01	2.82e-02	3.569e-04	0.0	7666
681	2.7890034e-02	1.6072797e+01	2.69e-02	3.165e-04	0.0	7667
682	2.6416149e-02	4.9082780e+01	2.54e-02	4.685e-04	0.0	7677
683	2.6744410e-02	4.2926008e+01	2.57e-02	4.553e-04	-0.3	7680
684	2.5342104e-02	1.5847868e+01	2.43e-02	2.895e-04	0.0	7678
685	2.5191731e-02	6.5564438e+00	2.42e-02	2.427e-04	0.0	7679
686	2.5119033e-02	6.4398683e+00	2.41e-02	2.411e-04	0.0	7680
687	2.4811091e-02	1.0702805e+01	2.38e-02	2.646e-04	0.0	7700
688	2.5090006e-02	3.6912565e+01	2.41e-02	4.005e-04	-0.3	7704
689	2.4751080e-02	2.3334489e+01	2.38e-02	3.333e-04	0.0	7702
690	2.4644336e-02	5.4136122e+00	2.36e-02	2.332e-04	0.0	7707
691	2.4626092e-02	5.3651119e+00	2.36e-02	2.330e-04	0.0	7709
692	2.4505228e-02	6.5986350e+00	2.35e-02	2.391e-04	0.0	7720
693	2.4612724e-02	4.9614003e+01	2.36e-02	4.752e-04	-0.3	7719
694	2.4439659e-02	1.0141101e+01	2.34e-02	2.571e-04	-0.3	7719
695	2.4408000e-02	5.9289379e+00	2.34e-02	2.355e-04	0.0	7719
696	2.4394111e-02	4.3261444e+00	2.34e-02	2.265e-04	0.0	7719
697	2.4348482e-02	4.7026185e+00	2.33e-02	2.288e-04	0.0	7721
698	2.4335657e-02	6.9312723e+00	2.33e-02	2.399e-04	-0.3	7718
699	2.4326307e-02	8.9981856e+00	2.33e-02	2.524e-04	0.0	7720
700	2.4308510e-02	4.3221764e+00	2.33e-02	2.258e-04	0.0	7719
701	2.4298930e-02	4.1333012e+00	2.33e-02	2.253e-04	0.0	7721
702	2.4287446e-02	4.1723886e+00	2.33e-02	2.252e-04	0.0	7720
703	2.4253528e-02	1.9905627e+01	2.33e-02	3.122e-04	0.0	7721
704	2.4218174e-02	1.1674155e+01	2.32e-02	2.650e-04	-0.3	7717
705	2.4196094e-02	4.1931205e+00	2.32e-02	2.254e-04	0.0	7719
706	2.4191161e-02	4.2064652e+00	2.32e-02	2.254e-04	0.0	7719
707	2.4073661e-02	1.2563070e+01	2.31e-02	2.703e-04	0.0	7716
708	2.4141865e-02	4.1479945e+01	2.31e-02	4.267e-04	-0.3	7712
709	2.4115237e-02	4.3614521e+01	2.31e-02	4.391e-04	0.0	7714
710	2.4032945e-02	5.0918707e+00	2.30e-02	2.295e-04	0.0	7712
711	2.4027866e-02	4.1475981e+00	2.30e-02	2.246e-04	0.0	7712
712	2.4020825e-02	4.1351068e+00	2.30e-02	2.245e-04	0.0	7712
713	2.3911919e-02	1.7082385e+01	2.29e-02	2.944e-04	0.0	7698
714	2.3955683e-02	3.1113797e+01	2.30e-02	3.689e-04	-0.3	7697
715	2.3881447e-02	1.3029909e+01	2.29e-02	2.723e-04	0.0	7697
716	2.3872568e-02	4.1651517e+00	2.29e-02	2.238e-04	0.0	7695
717	2.3869289e-02	4.1787649e+00	2.29e-02	2.239e-04	0.0	7695
718	2.3780505e-02	1.0455438e+01	2.28e-02	2.574e-04	0.0	7688
719	2.3789285e-02	2.6103743e+01	2.28e-02	3.427e-04	-0.3	7688
720	2.3777076e-02	1.7431784e+01	2.28e-02	2.942e-04	0.0	7688
721	2.3753338e-02	4.0685248e+00	2.28e-02	2.227e-04	0.0	7688
722	2.3750234e-02	4.0588841e+00	2.28e-02	2.225e-04	0.0	7688
723	2.3741712e-02	4.0417473e+00	2.27e-02	2.224e-04	0.0	7686
724	2.3690027e-02	5.1629635e+01	2.27e-02	4.785e-04	-0.3	7676
725	2.3636570e-02	8.6336033e+00	2.26e-02	2.469e-04	-0.3	7677
726	2.3624630e-02	4.8998269e+00	2.26e-02	2.262e-04	0.0	7677
727	2.3621257e-02	4.0697416e+00	2.26e-02	2.217e-04	0.0	7677
728	2.3602365e-02	6.2531845e+00	2.26e-02	2.333e-04	0.0	7675
729	2.3595099e-02	1.5384035e+01	2.26e-02	2.830e-04	-0.3	7676
730	2.3591488e-02	9.3216561e+00	2.26e-02	2.495e-04	-0.3	7675
731	2.3582591e-02	4.0556058e+00	2.26e-02	2.214e-04	0.0	7675
732	2.3579226e-02	4.0571071e+00	2.26e-02	2.213e-04	0.0	7675
733	2.3574466e-02	4.0516422e+00	2.26e-02	2.213e-04	0.0	7675

734	2.3552192e-02	2.0227285e+01	2.26e-02	3.074e-04	0.0	7675
735	2.3513968e-02	1.0622625e+01	2.25e-02	2.569e-04	-0.3	7675
736	2.3487976e-02	4.0472459e+00	2.25e-02	2.206e-04	0.0	7675
737	2.3485797e-02	4.0460755e+00	2.25e-02	2.206e-04	0.0	7675
738	2.3342908e-02	7.0561969e+01	2.23e-02	5.798e-04	0.0	7672
739	2.3441900e-02	2.6852280e+02	2.24e-02	1.653e-03	-0.3	7672
740	2.3328184e-02	8.4056594e+01	2.23e-02	6.528e-04	0.0	7671
741	2.3314679e-02	4.0984579e+00	2.23e-02	2.198e-04	0.0	7671
742	2.3312042e-02	4.0705321e+00	2.23e-02	2.196e-04	0.0	7671
743	2.3294495e-02	4.8061281e+00	2.23e-02	2.234e-04	0.0	7671
744	2.3285494e-02	3.0393793e+01	2.23e-02	3.618e-04	-0.3	7670
745	2.3287973e-02	5.6265955e+01	2.23e-02	5.021e-04	-0.3	7669
746	2.3273561e-02	3.9857569e+01	2.23e-02	4.131e-04	0.0	7669
747	2.3267283e-02	4.0218707e+00	2.23e-02	2.190e-04	0.0	7669
748	2.3264871e-02	4.0254660e+00	2.23e-02	2.190e-04	0.0	7669
749	2.3238406e-02	1.2759854e+01	2.22e-02	2.661e-04	0.0	7668
750	2.3237068e-02	5.2316847e+01	2.22e-02	4.802e-04	-0.3	7667
751	2.3227919e-02	3.2731988e+01	2.22e-02	3.743e-04	-0.3	7667
752	2.3220200e-02	4.0575864e+00	2.22e-02	2.188e-04	0.0	7666
753	2.3217888e-02	4.0167741e+00	2.22e-02	2.186e-04	0.0	7665
754	2.3198036e-02	8.1391547e+00	2.22e-02	2.407e-04	0.0	7665
755	2.3196299e-02	4.1501250e+01	2.22e-02	4.215e-04	-0.3	7665
756	2.3190931e-02	4.0964909e+01	2.22e-02	4.183e-04	-0.3	7665
757	2.3178700e-02	4.0128487e+00	2.22e-02	2.183e-04	0.0	7664
758	2.3176591e-02	4.0140481e+00	2.22e-02	2.182e-04	0.0	7664
759	2.3154427e-02	4.0166406e+00	2.22e-02	2.181e-04	0.0	7662
760	2.3151822e-02	7.4700720e+01	2.22e-02	6.006e-04	-0.3	7662
761	2.3115086e-02	8.7529495e+00	2.21e-02	2.436e-04	-0.3	7662
762	2.3110562e-02	4.0053742e+00	2.21e-02	2.177e-04	0.0	7662
763	2.3107732e-02	4.0074233e+00	2.21e-02	2.177e-04	0.0	7662
764	2.3061136e-02	1.4900355e+01	2.21e-02	2.761e-04	0.0	7659
765	2.3061634e-02	1.2456033e+01	2.21e-02	2.632e-04	-0.3	7659
766	8.4680697e-03	3.3017138e+01	7.47e-03	2.426e-04	0.0	7666
767	7.9192795e-03	5.9059228e+00	6.92e-03	9.560e-05	0.0	7668
768	7.7185651e-03	3.8671753e+00	6.72e-03	8.368e-05	0.0	7669
769	7.4018035e-03	1.0556084e+01	6.40e-03	1.156e-04	0.0	7671
770	7.7443241e-03	3.5811885e+01	6.74e-03	2.573e-04	-0.3	7672
771	7.2101642e-03	9.3711615e+00	6.21e-03	1.081e-04	0.0	7670
772	7.1367421e-03	2.0452118e+00	6.14e-03	6.955e-05	0.0	7671
773	7.1170969e-03	1.9695933e+00	6.12e-03	6.897e-05	0.0	7670
774	7.0134060e-03	4.5672340e+00	6.01e-03	8.260e-05	0.0	7671
775	6.9949128e-03	4.5315028e+00	5.99e-03	8.227e-05	-0.3	7670
776	6.9795372e-03	8.3570323e+00	5.98e-03	1.028e-04	0.0	7673
777	6.9644644e-03	3.9151764e+00	5.96e-03	7.857e-05	0.0	7673
778	6.9529608e-03	2.7243586e+00	5.95e-03	7.215e-05	0.0	7673
779	6.9416757e-03	1.8330604e+00	5.94e-03	6.716e-05	0.0	7673
780	6.9258181e-03	1.0394700e+01	5.93e-03	1.136e-04	0.0	7673
781	6.9242008e-03	1.0333508e+01	5.92e-03	1.128e-04	-0.3	7673
782	6.9012249e-03	3.3442396e+00	5.90e-03	7.518e-05	0.0	7672
783	6.8956088e-03	1.5385122e+00	5.90e-03	6.531e-05	0.0	7672
784	6.8842225e-03	1.5308259e+00	5.88e-03	6.522e-05	0.0	7672
785	6.8733463e-03	2.1179754e+01	5.87e-03	1.711e-04	-0.3	7673
786	6.8007391e-03	4.2558196e+00	5.80e-03	8.031e-05	-0.3	7673
787	6.7889987e-03	1.6571086e+00	5.79e-03	6.585e-05	0.0	7673

788	6.7841179e-03	1.2166676e+00	5.78e-03	6.337e-05	0.0	7673
789	6.7706121e-03	1.5214633e+00	5.77e-03	6.466e-05	0.0	7673
790	6.7713313e-03	5.8029882e+00	5.77e-03	8.821e-05	-0.3	7673
791	6.7624297e-03	6.7201538e+00	5.76e-03	9.266e-05	-0.3	7673
792	6.7534904e-03	1.1311878e+00	5.75e-03	6.256e-05	0.0	7673
793	6.7517462e-03	1.1345856e+00	5.75e-03	6.254e-05	0.0	7673
794	6.7362058e-03	1.1699277e+00	5.74e-03	6.263e-05	0.0	7673
795	6.7398588e-03	7.7954596e+00	5.74e-03	9.852e-05	-0.3	7673
796	6.7181104e-03	1.3738058e+00	5.72e-03	6.383e-05	-0.3	7673
797	6.7150980e-03	1.1239238e+00	5.72e-03	6.238e-05	0.0	7673
798	6.7120821e-03	1.1287606e+00	5.71e-03	6.235e-05	0.0	7673
799	6.6989874e-03	1.9046886e+00	5.70e-03	6.637e-05	0.0	7675
800	6.7119597e-03	6.0253068e+00	5.71e-03	8.887e-05	-0.3	7675
801	6.6961955e-03	4.6778820e+00	5.70e-03	8.133e-05	0.0	7675
802	6.6888986e-03	1.1391880e+00	5.69e-03	6.224e-05	0.0	7675
803	6.6876854e-03	1.1429025e+00	5.69e-03	6.225e-05	0.0	7675
804	6.6488838e-03	3.4600195e+00	5.65e-03	7.468e-05	0.0	7675
805	6.6541233e-03	7.8846183e+00	5.65e-03	9.874e-05	-0.3	7675
806	6.6482744e-03	5.8700111e+00	5.65e-03	8.750e-05	0.0	7675
807	6.6386216e-03	1.1622364e+00	5.64e-03	6.218e-05	0.0	7675
808	6.6372714e-03	1.1601695e+00	5.64e-03	6.214e-05	0.0	7675
809	6.6354309e-03	1.1570861e+00	5.64e-03	6.211e-05	0.0	7675
810	6.6141116e-03	6.9988245e+00	5.61e-03	9.333e-05	0.0	7675
811	6.5981197e-03	6.4879220e+00	5.60e-03	9.069e-05	-0.3	7675
812	6.5854711e-03	1.2073339e+00	5.59e-03	6.204e-05	0.0	7675
813	6.5845294e-03	1.1905065e+00	5.58e-03	6.194e-05	0.0	7675
814	6.5773028e-03	1.6138387e+00	5.58e-03	6.420e-05	0.0	7674
815	6.5774089e-03	1.0872468e+01	5.58e-03	1.145e-04	-0.3	7675
816	4.3997735e-03	5.2100637e+01	3.40e-03	3.138e-04	0.0	7677
817	4.0111287e-03	1.8705463e+01	3.01e-03	1.333e-04	0.0	7676
818	3.9201695e-03	3.8829146e+00	2.92e-03	5.303e-05	0.0	7676
819	3.9081448e-03	2.7142175e+00	2.91e-03	4.670e-05	0.0	7676
820	3.8908351e-03	8.3070491e-01	2.89e-03	3.663e-05	0.0	7677
821	3.8841732e-03	5.7666692e+00	2.88e-03	6.340e-05	0.0	7677
822	3.8843266e-03	5.1536852e+00	2.88e-03	6.010e-05	-0.3	7677
823	2.4274051e-03	1.3097732e+00	1.43e-03	2.693e-05	0.0	7679
824	2.3884657e-03	8.6763374e-01	1.39e-03	2.413e-05	0.0	7679
825	2.3560491e-03	6.7816634e-01	1.36e-03	2.285e-05	0.0	7679
826	2.3566575e-03	3.6805049e+00	1.36e-03	3.930e-05	0.0	7679
827	2.3401284e-03	4.0933563e+00	1.34e-03	4.126e-05	-0.3	7679
828	2.3267869e-03	6.1633180e-01	1.33e-03	2.248e-05	0.0	7679
829	2.3249799e-03	5.5351891e-01	1.32e-03	2.214e-05	0.0	7679
830	2.3217826e-03	5.1539424e-01	1.32e-03	2.193e-05	0.0	7679
831	2.3241259e-03	4.9438024e+00	1.32e-03	4.605e-05	0.0	7679
832	2.2993259e-03	1.2754894e+00	1.30e-03	2.627e-05	-0.3	7679
833	2.2953281e-03	5.3491974e-01	1.30e-03	2.221e-05	0.0	7679
834	2.2931505e-03	4.7722235e-01	1.29e-03	2.186e-05	0.0	7679
835	2.2887101e-03	5.1881550e-01	1.29e-03	2.198e-05	0.0	7679
836	2.2895298e-03	1.8365166e+00	1.29e-03	2.910e-05	-0.3	7679
837	2.2911104e-03	3.0265143e+00	1.29e-03	3.551e-05	0.0	7679
838	2.2843545e-03	4.0960726e-01	1.28e-03	2.134e-05	0.0	7679
839	2.2838846e-03	4.1411543e-01	1.28e-03	2.136e-05	0.0	7679
840	2.2806912e-03	4.1779724e-01	1.28e-03	2.135e-05	0.0	7679
841	2.2737631e-03	1.7360210e+00	1.27e-03	2.850e-05	-0.3	7679

842	2.2740055e-03	1.8719806e+00	1.27e-03	2.922e-05	-0.3	7679
843	2.2668851e-03	4.8610013e-01	1.27e-03	2.167e-05	0.0	7679
844	2.2661445e-03	3.8820844e-01	1.27e-03	2.113e-05	0.0	7679
845	2.2654319e-03	3.8963022e-01	1.27e-03	2.113e-05	0.0	7679
846	2.2592136e-03	8.2031860e-01	1.26e-03	2.341e-05	0.0	7679
847	2.2606793e-03	1.9611234e+00	1.26e-03	2.958e-05	-0.3	7679
848	2.2574261e-03	6.9620364e-01	1.26e-03	2.272e-05	0.0	7679
849	2.2563695e-03	3.9402512e-01	1.26e-03	2.109e-05	0.0	7679
850	2.2560107e-03	3.9314938e-01	1.26e-03	2.108e-05	0.0	7679
851	2.2467252e-03	4.9174815e-01	1.25e-03	2.158e-05	0.0	7679
852	2.2492294e-03	2.3292880e+00	1.25e-03	3.153e-05	-0.3	7679
853	2.2472395e-03	1.7871922e+00	1.25e-03	2.856e-05	0.0	7679
854	2.2439421e-03	3.7662095e-01	1.24e-03	2.093e-05	0.0	7679
855	2.2436435e-03	3.8096932e-01	1.24e-03	2.095e-05	0.0	7679
856	2.2414775e-03	3.8893875e-01	1.24e-03	2.098e-05	0.0	7679
857	2.2384583e-03	3.1126226e+00	1.24e-03	3.567e-05	-0.3	7679
858	2.2421407e-03	2.6033568e+00	1.24e-03	3.295e-05	-0.3	7679
859	2.2341671e-03	5.5296769e-01	1.23e-03	2.183e-05	0.0	7679
860	2.2336258e-03	3.8352341e-01	1.23e-03	2.090e-05	0.0	7679
861	2.2332423e-03	3.7995293e-01	1.23e-03	2.087e-05	0.0	7679
862	2.2224255e-03	1.0870241e+00	1.22e-03	2.462e-05	0.0	7679
863	2.2230635e-03	1.6975798e+00	1.22e-03	2.792e-05	-0.3	7679
864	2.2204231e-03	5.6185603e-01	1.22e-03	2.176e-05	0.0	7679
865	2.2197507e-03	3.7813156e-01	1.22e-03	2.076e-05	0.0	7679
866	2.2194462e-03	3.7808359e-01	1.22e-03	2.076e-05	0.0	7679
867	2.2108617e-03	1.4155569e+00	1.21e-03	2.633e-05	0.0	7678
868	2.2124249e-03	1.5040804e+00	1.21e-03	2.678e-05	-0.3	7678
869	2.2096519e-03	8.4650227e-01	1.21e-03	2.322e-05	0.0	7678
870	2.2087871e-03	3.7183844e-01	1.21e-03	2.065e-05	0.0	7678
871	2.2085106e-03	3.7166449e-01	1.21e-03	2.065e-05	0.0	7678
872	2.1998352e-03	1.1802800e+00	1.20e-03	2.495e-05	0.0	7678
873	2.2035067e-03	5.7198552e+00	1.20e-03	4.953e-05	-0.3	7678
874	2.2017462e-03	2.2460165e+00	1.20e-03	3.071e-05	0.0	7678
875	2.1970253e-03	3.7622326e-01	1.20e-03	2.058e-05	0.0	7678
876	2.1967385e-03	3.7453732e-01	1.20e-03	2.057e-05	0.0	7678
877	2.1959361e-03	3.7104234e-01	1.20e-03	2.054e-05	0.0	7678
878	2.1886571e-03	7.9935295e+00	1.19e-03	6.167e-05	0.0	7676
879	2.1734587e-03	1.2577211e+00	1.17e-03	2.518e-05	-0.3	7677
880	2.1712610e-03	1.3557165e+00	1.17e-03	2.569e-05	0.0	7677
881	2.1702253e-03	1.0610901e+00	1.17e-03	2.408e-05	0.0	7677
882	2.1685170e-03	1.5891828e+00	1.17e-03	2.692e-05	0.0	7677
883	2.1691783e-03	1.8026579e+00	1.17e-03	2.808e-05	-0.3	7677
884	2.1676956e-03	1.5539689e+00	1.17e-03	2.672e-05	0.0	7676
885	2.1667032e-03	3.6854913e-01	1.17e-03	2.030e-05	0.0	7677
886	2.1664478e-03	3.6834773e-01	1.17e-03	2.029e-05	0.0	7677
887	2.1643477e-03	3.6776643e-01	1.16e-03	2.027e-05	0.0	7676
888	2.1658044e-03	2.4551676e+00	1.17e-03	3.155e-05	-0.3	7676
889	2.1611401e-03	5.1817836e-01	1.16e-03	2.106e-05	-0.3	7676
890	2.1608643e-03	3.6940243e-01	1.16e-03	2.026e-05	0.0	7676
891	2.1601650e-03	3.6726340e-01	1.16e-03	2.024e-05	0.0	7676
892	2.1516293e-03	6.8057150e+00	1.15e-03	5.499e-05	0.0	7676
893	2.1512869e-03	2.2938867e+00	1.15e-03	3.059e-05	-0.3	7676
894	2.1459703e-03	7.2086449e-01	1.15e-03	2.204e-05	0.0	7676
895	2.1452850e-03	4.5900063e-01	1.15e-03	2.062e-05	0.0	7676

896	2.1450077e-03	3.6659663e-01	1.15e-03	2.011e-05	0.0	7676
897	2.1416148e-03	3.0157871e+00	1.14e-03	3.443e-05	0.0	7676
898	2.1427873e-03	5.3691648e+00	1.14e-03	4.718e-05	-0.3	7676
899	2.1406967e-03	3.1623927e+00	1.14e-03	3.522e-05	0.0	7676
900	2.1398578e-03	3.6618339e-01	1.14e-03	2.007e-05	0.0	7676
901	2.1396201e-03	3.6592867e-01	1.14e-03	2.007e-05	0.0	7676
902	2.1348687e-03	4.7503174e-01	1.13e-03	2.062e-05	0.0	7676
903	2.1377386e-03	4.1716969e+00	1.14e-03	4.063e-05	-0.3	7676
904	2.1332273e-03	1.1980929e+00	1.13e-03	2.452e-05	-0.3	7676
905	2.1324135e-03	3.6634242e-01	1.13e-03	2.001e-05	0.0	7676
906	2.1321476e-03	3.6560194e-01	1.13e-03	2.000e-05	0.0	7676
907	2.1289279e-03	1.3009076e+00	1.13e-03	2.504e-05	0.0	7676
908	2.1302860e-03	4.6105929e+00	1.13e-03	4.296e-05	-0.3	7676
909	2.1275200e-03	1.3157664e+00	1.13e-03	2.512e-05	-0.3	7676
910	2.1265554e-03	6.7610023e-01	1.13e-03	2.164e-05	0.0	7676
911	2.1262170e-03	3.6565173e-01	1.13e-03	1.996e-05	0.0	7676
912	2.1253599e-03	4.2077897e-01	1.13e-03	2.024e-05	0.0	7676
913	2.1249458e-03	2.5763000e+00	1.12e-03	3.191e-05	-0.3	7676
914	2.1230527e-03	3.6540242e-01	1.12e-03	1.993e-05	-0.3	7676
915	2.1227177e-03	3.6429294e-01	1.12e-03	1.992e-05	0.0	7676
916	2.1223092e-03	3.6394404e-01	1.12e-03	1.991e-05	0.0	7676
917	2.1155424e-03	1.1286117e+00	1.12e-03	2.399e-05	0.0	7676
918	2.1161869e-03	1.3333985e+00	1.12e-03	2.510e-05	-0.3	7676
919	2.1138467e-03	3.6304647e-01	1.11e-03	1.984e-05	0.0	7676
920	2.1135944e-03	3.6275459e-01	1.11e-03	1.984e-05	0.0	7676
921	2.1130123e-03	3.6216311e-01	1.11e-03	1.983e-05	0.0	7676
922	2.1016181e-03	1.0620015e+01	1.10e-03	7.517e-05	-0.3	7676
923	2.1027163e-03	8.2069743e+00	1.10e-03	6.210e-05	-0.3	7676
924	2.0831766e-03	1.4040737e+00	1.08e-03	2.523e-05	0.0	7676
925	2.0827471e-03	1.0852365e+00	1.08e-03	2.350e-05	0.0	7676
926	2.0808235e-03	3.5812822e-01	1.08e-03	1.955e-05	0.0	7676
927	2.0816576e-03	6.5451422e+00	1.08e-03	5.303e-05	0.0	7676
928	2.0762889e-03	1.2762772e+00	1.08e-03	2.448e-05	-0.3	7676
929	2.0756150e-03	7.6359439e-01	1.08e-03	2.170e-05	0.0	7676
930	2.0752933e-03	3.6035345e-01	1.08e-03	1.951e-05	0.0	7676
931	2.0743875e-03	1.2274410e+00	1.07e-03	2.420e-05	0.0	7676
932	2.0739176e-03	9.3753999e-01	1.07e-03	2.262e-05	-0.3	7676
933	2.0742600e-03	6.0879786e+00	1.07e-03	5.052e-05	0.0	7676
934	2.0729022e-03	8.1979589e-01	1.07e-03	2.198e-05	0.0	7676
935	2.0724362e-03	3.5842594e-01	1.07e-03	1.948e-05	0.0	7676
936	2.0721833e-03	3.5855726e-01	1.07e-03	1.947e-05	0.0	7676
937	2.0643948e-03	1.2331159e+00	1.06e-03	2.415e-05	0.0	7676
938	2.0711111e-03	5.0097886e+00	1.07e-03	4.459e-05	-0.3	7676
939	2.0634471e-03	1.9060891e+00	1.06e-03	2.778e-05	0.0	7676
940	2.0625151e-03	3.5629816e-01	1.06e-03	1.938e-05	0.0	7676
941	2.0623075e-03	3.5603579e-01	1.06e-03	1.938e-05	0.0	7676
942	2.0473080e-03	2.4990630e+00	1.05e-03	3.085e-05	0.0	7675
943	2.0491029e-03	3.4695032e+00	1.05e-03	3.611e-05	-0.3	7675
944	2.0477305e-03	3.5985126e+00	1.05e-03	3.681e-05	0.0	7675
945	2.0440180e-03	1.4575024e+00	1.04e-03	2.520e-05	0.0	7675
946	2.0435721e-03	3.5542449e-01	1.04e-03	1.922e-05	0.0	7675
947	2.0432936e-03	3.5598213e-01	1.04e-03	1.922e-05	0.0	7675
948	2.0380182e-03	1.2448513e+00	1.04e-03	2.400e-05	0.0	7675
949	2.0379047e-03	2.8966026e+00	1.04e-03	3.293e-05	-0.3	7675

```
 950  2.0369731e-03  6.6227490e-01   1.04e-03  2.083e-05     0.0    7675
 951  2.0361795e-03  3.5330736e-01   1.04e-03  1.915e-05     0.0    7675
 952  2.0359693e-03  3.5309252e-01   1.04e-03  1.915e-05     0.0    7675
 953  2.0337160e-03  3.5215835e-01   1.03e-03  1.913e-05     0.0    7675
 954  2.0335268e-03  1.1669688e+00   1.03e-03  2.352e-05    -0.3    7675
 955  2.0337565e-03  1.8866004e+00   1.03e-03  2.743e-05    -0.3    7675
 956  2.0317195e-03  3.5281410e-01   1.03e-03  1.911e-05     0.0    7675
 957  2.0315202e-03  3.5286826e-01   1.03e-03  1.911e-05     0.0    7675
 958  2.0304318e-03  3.5311776e-01   1.03e-03  1.910e-05     0.0    7675
 959  2.0268835e-03  4.6920001e+00   1.03e-03  4.254e-05    -0.3    7675
 960  2.0209229e-03  1.6239771e+00   1.02e-03  2.589e-05    -0.3    7675
 961  2.0169298e-03  3.5186673e-01   1.02e-03  1.900e-05     0.0    7675
 962  2.0167070e-03  3.5040918e-01   1.02e-03  1.899e-05     0.0    7675
 963  2.0152512e-03  3.4691761e-01   1.02e-03  1.895e-05     0.0    7675
 964  2.0148736e-03  5.3109809e+00   1.01e-03  4.581e-05    -0.3    7674
 965  2.0122207e-03  7.4887373e-01   1.01e-03  2.111e-05    -0.3    7674
 966  2.0114833e-03  1.4465993e+00   1.01e-03  2.488e-05     0.0    7674
 967  2.0111255e-03  3.5092117e-01   1.01e-03  1.894e-05     0.0    7674
 968  2.0106397e-03  8.5177391e-01   1.01e-03  2.165e-05     0.0    7674
 969  2.0107518e-03  1.7658329e+00   1.01e-03  2.659e-05     0.0    7674
 970  2.0099223e-03  4.5404997e+00   1.01e-03  4.161e-05    -0.3    7674
 971  2.0086364e-03  3.5063263e-01   1.01e-03  1.891e-05     0.0    7674
 972  2.0084278e-03  3.5047508e-01   1.01e-03  1.891e-05     0.0    7674
 973  2.0073437e-03  3.4967887e-01   1.01e-03  1.890e-05     0.0    7674
 974  2.0059736e-03  5.3078402e+00   1.01e-03  4.573e-05    -0.3    7674
 975  2.0050185e-03  8.1321881e-01   1.01e-03  2.138e-05    -0.3    7674
 976  2.0040806e-03  6.6927785e-01   1.00e-03  2.060e-05     0.0    7674
 977  2.0038683e-03  3.4939306e-01   1.00e-03  1.887e-05     0.0    7674
 978  2.0031158e-03  3.4897837e-01   1.00e-03  1.886e-05     0.0    7674
 979  2.0007683e-03  1.9644599e+00   1.00e-03  2.757e-05    -0.3    7674
 980  1.9991133e-03  1.7919207e+00   9.99e-04  2.664e-05    -0.3    7674
 981  1.9975225e-03  3.7841526e-01   9.98e-04  1.897e-05     0.0    7674
 982  1.9973238e-03  3.4833209e-01   9.97e-04  1.881e-05     0.0    7674
 983  1.9953795e-03  5.2272318e-01   9.95e-04  1.974e-05     0.0    7674
 984  1.9966379e-03  9.4821473e+00   9.97e-04  6.824e-05    -0.3    7674
 985  1.9952550e-03  4.6795543e+00   9.95e-04  4.224e-05    -0.3    7674
 986  1.9929769e-03  1.2522687e+00   9.93e-04  2.367e-05     0.0    7674
 987  1.9927484e-03  3.4734799e-01   9.93e-04  1.876e-05     0.0    7674
 988  1.9922550e-03  3.4731500e-01   9.92e-04  1.876e-05     0.0    7674
 989  1.9820780e-03  3.7763634e+00   9.82e-04  3.723e-05     0.0    7672
 990  1.9830004e-03  1.0236857e+01   9.83e-04  7.222e-05    -0.3    7672
 991  1.9781844e-03  6.4450255e-01   9.78e-04  2.025e-05     0.0    7672
 992  1.9778841e-03  3.4481342e-01   9.78e-04  1.863e-05     0.0    7672
 993  1.9775626e-03  3.4524604e-01   9.78e-04  1.863e-05     0.0    7672
 994  1.9728060e-03  1.0153000e+00   9.73e-04  2.222e-05     0.0    7672
 995  1.9770259e-03  4.6699335e+00   9.77e-04  4.200e-05    -0.3    7672
 996  1.9743534e-03  5.0531889e+00   9.74e-04  4.408e-05     0.0    7672
 997  1.9708572e-03  3.4290144e-01   9.71e-04  1.856e-05     0.0    7672
 998  1.9706697e-03  3.4376308e-01   9.71e-04  1.856e-05     0.0    7672
 999  1.9695854e-03  3.4586983e-01   9.70e-04  1.857e-05     0.0    7672
1000  1.9674925e-03  3.9678764e+00   9.67e-04  3.815e-05    -0.3    7672

ERROR EXIT -- Too many iterations
```

```
 Products with A     :    1433        Total time   (secs) :   950.6
 Products with A'    :    1002        Project time (secs) :     5.6
 Newton iterations   :      15        Mat-vec time (secs) :   938.9
 Line search its     :     890        Subspace iterations :       0

/Tools/mat_toolbox/spgl1-slim/spgl1.m

 ================================================================================
 SPGL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
 ================================================================================
 No. rows              :    12800     No. columns           :    34341
 Initial tau           : 1.85e+05     Two-norm of b         : 2.75e+03
 Optimality tol        : 1.00e-04     Target one-norm of x  : 1.85e+05
 Basis pursuit tol     : 1.00e-06     Maximum iterations    :      200

  Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
     0  2.7512647e+03  8.5064506e+00   1.74e+02     0.0       0       0
     1  2.7350081e+03  8.5451242e+00   1.73e+02     0.0   32628       0
     2  6.4825717e+02  1.1698623e+01   1.92e+01     0.0   16708       0
     3  5.4265085e+02  1.2089124e+01   1.48e+01     0.0   14060       0
     4  3.4875804e+02  1.9589380e+01   9.34e+00     0.0    9564       0
     5  4.1624663e+02  5.4060967e+01   2.84e+01     0.0    8902       0
     6  3.4415927e+02  8.7407071e+01   2.96e+01     0.0    9850       0
     7  2.3524367e+02  2.0146352e+01   5.34e+00     0.0    9843       0
     8  2.2567801e+02  1.5693976e+01   4.35e+00     0.0    9339       0
     9  2.1436563e+02  1.6730878e+01   4.17e+00     0.0    8829       0
    10  1.7450722e+02  1.1467507e+02   1.06e+01     0.0    7325       0
    11  1.9276240e+02  1.7362248e+02   1.93e+01    -0.3    8197       0
    12  1.5300481e+02  9.0795491e+01   7.13e+00     0.0    8961       0
    13  1.4799091e+02  1.9632152e+01   2.57e+00     0.0    8429       0
    14  1.4586875e+02  1.9103415e+01   2.48e+00     0.0    8233       0
    15  1.2772964e+02  4.0194996e+01   2.91e+00     0.0    7448       0
    16  1.4275132e+02  1.1808780e+02   7.78e+00    -0.3    7848       0
    17  1.3064926e+02  1.1818505e+02   6.55e+00     0.0    8405       0
    18  1.1834620e+02  2.0055964e+01   1.88e+00     0.0    8164       0
    19  1.1727259e+02  2.0504818e+01   1.87e+00     0.0    7975       0
    20  1.1464301e+02  2.0842940e+01   1.82e+00     0.0    7747       0
    21  1.0911608e+02  1.4647251e+02   5.53e+00     0.0    7052       0
    22  9.6388568e+01  4.8342912e+01   2.10e+00    -0.3    7666       0
    23  9.2870922e+01  3.1328033e+01   1.59e+00     0.0    7820       0
    24  9.1924153e+01  2.1533638e+01   1.34e+00     0.0    7652       0
    25  9.0213253e+01  2.0808217e+01   1.29e+00     0.0    7500       0
    26  9.2582624e+01  1.1448724e+02   3.47e+00     0.0    7326       0
    27  9.0296495e+01  1.3972771e+02   3.87e+00    -0.3    7413       0
    28  8.5627711e+01  2.0835456e+01   1.21e+00     0.0    7426       0
    29  8.5320957e+01  2.0944768e+01   1.20e+00     0.0    7400       0
    30  8.1927305e+01  1.9194512e+01   1.11e+00     0.0    7239       0
    31  8.0773955e+01  6.2643103e+01   1.83e+00    -0.3    7296       0
    32  8.4813927e+01  2.0168531e+02   4.67e+00    -0.3    7370       0
    33  7.8946665e+01  5.3510917e+01   1.63e+00     0.0    7404       0
    34  7.8041253e+01  2.1824709e+01   1.08e+00     0.0    7399       0
    35  7.7760128e+01  2.1908088e+01   1.08e+00     0.0    7338       0
    36  7.4869487e+01  2.9197640e+01   1.13e+00     0.0    7185       0
    37  7.6542004e+01  1.2580971e+02   2.69e+00    -0.3    7242       0
```

38	7.3412735e+01	3.5133969e+01	1.19e+00	-0.3	7463	0
39	7.2837169e+01	2.2422551e+01	9.95e-01	0.0	7372	0
40	7.2550904e+01	2.2184028e+01	9.86e-01	0.0	7320	0
41	7.0040590e+01	6.1447053e+01	1.45e+00	0.0	7128	0
42	7.2261495e+01	3.3614967e+02	5.40e+00	-0.3	7245	0
43	7.0846023e+01	2.5315878e+02	4.07e+00	0.0	7397	0
44	6.8278114e+01	2.1784083e+01	9.03e-01	0.0	7337	0
45	6.8093285e+01	2.1772974e+01	9.00e-01	0.0	7298	0
46	6.7157487e+01	2.1936705e+01	8.84e-01	0.0	7181	0
47	6.6462851e+01	2.2392464e+02	3.25e+00	-0.3	7011	0
48	6.3776282e+01	1.2199923e+02	1.92e+00	-0.3	7483	0
49	6.2243606e+01	4.2031233e+01	1.01e+00	0.0	7417	0
50	6.1994834e+01	2.2577660e+01	8.03e-01	0.0	7336	0
51	6.1522545e+01	2.3731085e+01	8.06e-01	0.0	7213	0
52	6.0643417e+01	8.9250132e+01	1.44e+00	0.0	7118	0
53	6.0041861e+01	3.0754030e+01	8.49e-01	-0.3	7190	0
54	5.9810120e+01	2.2841576e+01	7.68e-01	0.0	7172	0
55	5.9635815e+01	2.3455128e+01	7.71e-01	0.0	7150	0
56	5.8384975e+01	4.3223389e+01	9.28e-01	0.0	7089	0
57	5.8713409e+01	9.9380180e+01	1.46e+00	-0.3	7140	0
58	5.7811897e+01	2.7544215e+01	7.76e-01	0.0	7152	0
59	5.7649753e+01	2.3844981e+01	7.41e-01	0.0	7143	0
60	5.7492003e+01	2.3894307e+01	7.39e-01	0.0	7139	0
61	5.2054853e+01	2.1466417e+02	1.98e+00	0.0	6845	0
62	5.6149423e+01	3.0559407e+02	3.09e+00	-0.3	7140	0
63	4.9271401e+01	1.1544689e+02	1.20e+00	0.0	7757	0
64	4.8720078e+01	2.6319408e+01	6.13e-01	0.0	7458	0
65	4.8577406e+01	2.5330000e+01	6.03e-01	0.0	7333	0
66	4.7958567e+01	4.9712235e+01	7.39e-01	0.0	7130	0
67	4.8090534e+01	2.7528779e+02	2.17e+00	-0.3	7128	0
68	4.7446532e+01	9.7152225e+01	1.02e+00	-0.3	7318	0
69	4.7265485e+01	2.6463438e+01	5.90e-01	0.0	7179	0
70	4.7171028e+01	2.6033954e+01	5.85e-01	0.0	7147	0
71	4.6847297e+01	2.5944079e+01	5.78e-01	0.0	7095	0
72	4.6735667e+01	3.7522963e+01	6.45e-01	-0.3	7115	0
73	4.6645724e+01	5.6463391e+01	7.55e-01	0.0	7088	0
74	4.6488179e+01	2.6152298e+01	5.74e-01	0.0	7099	0
75	4.6400665e+01	2.6349929e+01	5.74e-01	0.0	7092	0
76	4.6274873e+01	2.6373402e+01	5.73e-01	0.0	7086	0
77	4.6155051e+01	1.7445335e+02	1.42e+00	0.0	7041	0
78	4.5320242e+01	3.1716969e+01	5.87e-01	-0.3	7080	0
79	4.5231622e+01	2.7087520e+01	5.60e-01	0.0	7075	0
80	4.5146288e+01	2.7173687e+01	5.59e-01	0.0	7073	0
81	4.4670140e+01	4.0471175e+02	2.41e+00	0.0	6626	0
82	3.9559420e+01	1.6926603e+02	1.06e+00	-0.3	7602	0
83	3.7638641e+01	9.8988913e+01	6.96e-01	0.0	8055	0
84	3.7033844e+01	3.8724678e+01	4.63e-01	0.0	7799	0
85	3.6526024e+01	5.1808195e+01	5.06e-01	0.0	7658	0
86	3.6304639e+01	1.3719777e+02	8.12e-01	0.0	7459	0
87	3.5989497e+01	1.1295275e+02	7.13e-01	-0.3	7474	0
88	3.5721085e+01	3.1446112e+01	4.26e-01	0.0	7434	0
89	3.5654019e+01	3.1262026e+01	4.25e-01	0.0	7409	0
90	3.5085444e+01	4.2563082e+01	4.55e-01	0.0	7252	0
91	3.5442015e+01	2.4314574e+02	1.14e+00	-0.3	7298	0

92	3.4822317e+01	7.3706644e+01	5.53e-01	-0.3	7377	0
93	3.4693883e+01	3.3064055e+01	4.18e-01	0.0	7316	0
94	3.4651914e+01	3.2938452e+01	4.17e-01	0.0	7276	0
95	3.4300194e+01	6.6425979e+01	5.18e-01	0.0	7165	0
96	3.4319106e+01	1.2041126e+02	6.92e-01	-0.3	7184	0
97	3.4605043e+01	2.5257842e+02	1.12e+00	0.0	7213	0
98	3.4016380e+01	3.3866986e+01	4.11e-01	0.0	7180	0
99	3.3974956e+01	3.3784515e+01	4.10e-01	0.0	7169	0
100	3.3923374e+01	3.3620103e+01	4.09e-01	0.0	7155	0
101	3.2193475e+01	3.9369161e+02	1.38e+00	0.0	6924	0
102	3.2136691e+01	2.9082888e+02	1.10e+00	-0.3	7053	0
103	3.1675762e+01	1.1984407e+02	6.11e-01	0.0	7137	0
104	3.1614134e+01	4.0944918e+01	3.95e-01	0.0	7102	0
105	3.1555577e+01	4.8056926e+01	4.13e-01	0.0	7077	0
106	3.1242070e+01	3.2386677e+02	1.13e+00	0.0	7009	0
107	3.1313293e+01	4.7935855e+02	1.55e+00	-0.3	7094	0
108	3.1066975e+01	1.2348460e+02	6.01e-01	0.0	7069	0
109	3.1030530e+01	3.6195384e+01	3.73e-01	0.0	7057	0
110	3.0990909e+01	3.6416668e+01	3.73e-01	0.0	7045	0
111	3.0628524e+01	1.2438935e+03	3.42e+00	0.0	6900	0
112	3.0029860e+01	4.3146684e+02	1.32e+00	-0.3	7020	0
113	2.9719341e+01	7.8674474e+01	4.55e-01	0.0	7064	0
114	2.9660931e+01	4.4984670e+01	3.73e-01	0.0	7046	0
115	2.9434062e+01	1.0257904e+02	5.04e-01	0.0	6992	0
116	2.9626155e+01	6.1687291e+02	1.73e+00	0.0	6979	0
117	2.9531487e+01	7.3397134e+02	1.99e+00	-0.3	7006	0
118	2.9094050e+01	3.7415878e+01	3.46e-01	0.0	7027	0
119	2.9068088e+01	3.7997067e+01	3.47e-01	0.0	7007	0
120	2.9005922e+01	3.9252252e+01	3.49e-01	0.0	6982	0
121	2.8603984e+01	3.4936260e+02	1.03e+00	0.0	6937	0
122	2.8559122e+01	2.1764344e+02	7.36e-01	-0.3	7001	0
123	2.8451854e+01	1.3518893e+02	5.51e-01	0.0	6974	0
124	2.8423087e+01	3.9814680e+01	3.42e-01	0.0	6966	0
125	2.8391883e+01	3.9889973e+01	3.41e-01	0.0	6965	0
126	2.8113238e+01	3.3779875e+02	9.74e-01	0.0	6941	0
127	2.8102325e+01	2.2446892e+02	7.31e-01	-0.3	6974	0
128	2.7943803e+01	5.2503087e+01	3.61e-01	0.0	6972	0
129	2.7922474e+01	4.0379591e+01	3.35e-01	0.0	6967	0
130	2.7866504e+01	4.0494397e+01	3.34e-01	0.0	6955	0
131	2.7550329e+01	2.9341420e+02	8.47e-01	0.0	6931	0
132	2.7334335e+01	1.6247473e+02	5.72e-01	-0.3	6984	0
133	2.7225266e+01	4.1870883e+01	3.27e-01	0.0	6970	0
134	2.7207689e+01	4.1806857e+01	3.27e-01	0.0	6966	0
135	2.7050846e+01	7.7384901e+01	3.95e-01	0.0	6951	0
136	2.6998982e+01	6.4767120e+01	3.69e-01	-0.3	6976	0
137	2.7205633e+01	4.3267644e+02	1.11e+00	0.0	6961	0
138	2.6951874e+01	1.9427403e+02	6.23e-01	0.0	6980	0
139	2.6860039e+01	4.2143029e+01	3.22e-01	0.0	6979	0
140	2.6844461e+01	4.2138709e+01	3.22e-01	0.0	6976	0
141	2.6634332e+01	5.7763270e+01	3.49e-01	0.0	6952	0
142	2.6725576e+01	3.7433055e+02	9.62e-01	-0.3	6966	0
143	2.6632596e+01	3.5319014e+02	9.15e-01	-0.3	7035	0
144	2.6441718e+01	6.4172069e+01	3.58e-01	0.0	6993	0
145	2.6423153e+01	4.2421049e+01	3.16e-01	0.0	6988	0

146	2.6385191e+01	4.2776836e+01	3.16e-01	0.0	6967	0
147	2.5847562e+01	5.1782595e+02	1.16e+00	0.0	6906	0
148	2.6163027e+01	5.4629187e+02	1.24e+00	-0.3	6956	0
149	2.5536334e+01	7.3996839e+01	3.59e-01	0.0	6984	0
150	2.5513748e+01	3.7573536e+01	2.94e-01	0.0	6975	0
151	2.5482080e+01	3.2596541e+01	2.85e-01	0.0	6963	0
152	2.5313227e+01	5.5013142e+01	3.21e-01	0.0	6945	0
153	2.5374054e+01	3.2207514e+02	7.87e-01	-0.3	6966	0
154	2.5224725e+01	1.2720118e+02	4.44e-01	-0.3	6978	0
155	2.5179499e+01	3.2202439e+01	2.80e-01	0.0	6972	0
156	2.5164756e+01	3.2333137e+01	2.80e-01	0.0	6965	0
157	2.5072100e+01	3.4079330e+01	2.82e-01	0.0	6949	0
158	2.5096208e+01	2.9502961e+02	7.26e-01	-0.3	6952	0
159	2.5050594e+01	1.8201781e+02	5.32e-01	-0.3	6972	0
160	2.4939532e+01	3.2909859e+01	2.78e-01	0.0	6962	0
161	2.4927356e+01	3.2934657e+01	2.78e-01	0.0	6960	0
162	2.4781531e+01	4.6812417e+01	2.99e-01	0.0	6948	0
163	2.4895643e+01	8.5538311e+02	1.66e+00	-0.3	6957	0
164	2.4606479e+01	7.0570222e+01	3.35e-01	-0.3	7010	0
165	2.4568105e+01	7.1998943e+01	3.37e-01	0.0	6993	0
166	2.4541328e+01	3.3008982e+01	2.73e-01	0.0	6974	0
167	2.4452308e+01	9.0935935e+01	3.65e-01	0.0	6949	0
168	2.4424019e+01	7.0447141e+01	3.31e-01	-0.3	6958	0
169	2.4421018e+01	1.9305344e+02	5.29e-01	0.0	6945	0
170	2.4370286e+01	6.5799157e+01	3.23e-01	0.0	6952	0
171	2.4349151e+01	3.3703682e+01	2.71e-01	0.0	6950	0
172	2.4332589e+01	3.3654996e+01	2.71e-01	0.0	6949	0
173	2.4033358e+01	1.3987332e+02	4.32e-01	0.0	6920	0
174	2.4242244e+01	4.4157806e+02	9.17e-01	-0.3	6936	0
175	2.3940407e+01	5.9213380e+01	3.05e-01	0.0	6938	0
176	2.3923911e+01	3.4672543e+01	2.67e-01	0.0	6937	0
177	2.3905581e+01	3.4657714e+01	2.67e-01	0.0	6936	0
178	2.2959319e+01	3.6621014e+02	7.23e-01	0.0	6875	0
179	2.3439013e+01	7.1597380e+02	1.27e+00	-0.3	6973	0
180	2.2837856e+01	3.2445914e+02	6.61e-01	0.0	7089	0
181	2.2747770e+01	3.3804728e+01	2.50e-01	0.0	7013	0
182	2.2734127e+01	3.4575920e+01	2.51e-01	0.0	6990	0
183	2.2646944e+01	5.0777128e+01	2.71e-01	0.0	6938	0
184	2.2734001e+01	3.4653784e+02	6.90e-01	-0.3	6938	0
185	2.2728363e+01	4.5581176e+02	8.36e-01	-0.3	7082	0
186	2.2496116e+01	1.1347549e+02	3.56e-01	0.0	7001	0
187	2.2468762e+01	3.6345706e+01	2.50e-01	0.0	6988	0
188	2.2456352e+01	3.6122011e+01	2.49e-01	0.0	6975	0
189	2.2269831e+01	2.0935444e+02	4.78e-01	0.0	6925	0
190	2.2407394e+01	8.8226830e+02	1.40e+00	-0.3	6944	0
191	2.2265422e+01	3.9471384e+02	7.27e-01	0.0	7005	0
192	2.2173673e+01	3.7407678e+01	2.47e-01	0.0	6968	0
193	2.2163576e+01	3.7119253e+01	2.47e-01	0.0	6964	0
194	2.2069315e+01	5.6380130e+01	2.70e-01	0.0	6936	0
195	2.2034951e+01	1.3094258e+02	3.69e-01	-0.3	6942	0
196	2.2027743e+01	2.5024145e+02	5.24e-01	-0.3	6966	0
197	2.1982589e+01	7.4499589e+01	2.93e-01	0.0	6938	0
198	2.1964793e+01	3.7090118e+01	2.44e-01	0.0	6946	0
199	2.1952965e+01	3.7074924e+01	2.44e-01	0.0	6942	0

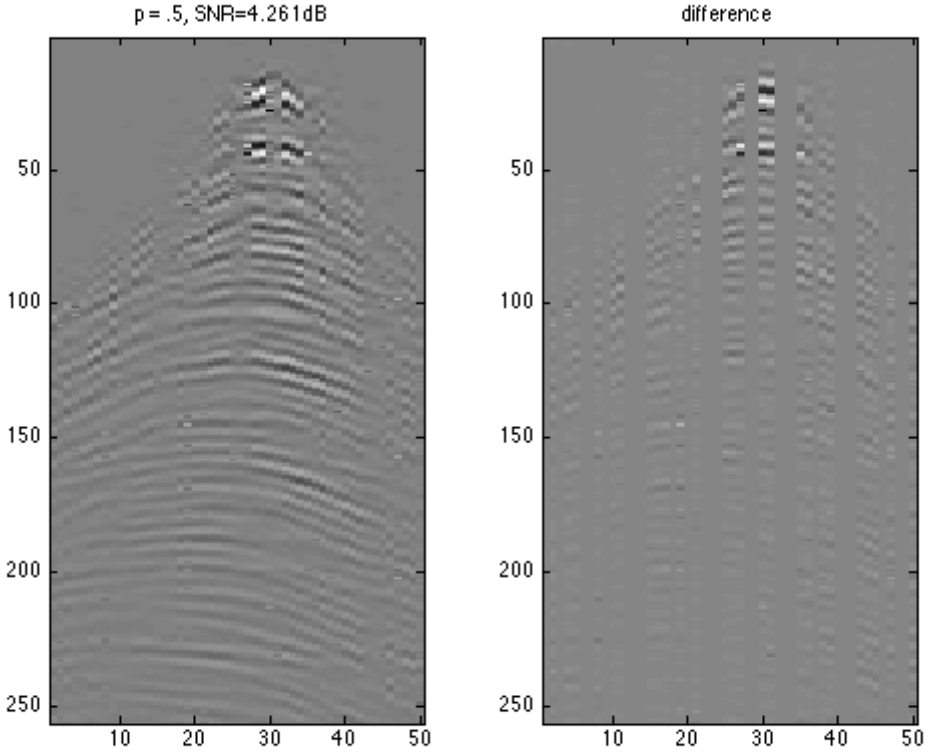
```
  200  2.1789258e+01  1.5330018e+02   3.90e-01     0.0    6922       0

 ERROR EXIT -- Too many iterations

 Products with A     :     282        Total time   (secs) :   182.3
 Products with A'    :     201        Project time (secs) :     1.1
 Newton iterations   :       0        Mat-vec time (secs) :   180.1
 Line search its     :     158        Subspace iterations :       0


 ================================================================================
 PQNL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
 ================================================================================
 No. rows              :    12800      No. columns           :    34341
 Initial tau           : 1.85e+05      Two-norm of b         : 2.75e+03
 Optimality tol        : 1.00e-04      Target one-norm of x  : 1.85e+05
 Basis pursuit tol     : 1.00e-06      Maximum iterations    :      200

  Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
     0  2.7512647e+03  8.5064506e+00   1.74e+02     0.0       0       0
Inside of minConf_PQN
 Iteration   FunEvals Projections     Step Length          rNorm2        O
         1          1           4     1.00000e+00     6.48257e+02     2.455
         2          1          21     1.00000e+00     5.37136e+02     1.595
         3          1          52     1.00000e+00     4.05017e+02     8.950
         4          1          81     1.00000e+00     3.34541e+02     6.348
         5          1         120     1.00000e+00     2.84443e+02     4.803
         6          1         165     1.00000e+00     2.47948e+02     3.779
         7          1         216     1.00000e+00     2.19853e+02     3.051
         8          1         267     1.00000e+00     1.96962e+02     2.520
         9          1         318     1.00000e+00     1.79496e+02     2.104
        10          1         379     1.00000e+00     1.64253e+02     1.854
        11          1         441     1.00000e+00     1.51880e+02     1.672
        12          1         505     1.00000e+00     1.41134e+02     1.514
        13          1         571     1.00000e+00     1.30991e+02     1.389
        14          1         638     1.00000e+00     1.22775e+02     1.234
        15          1         714     1.00000e+00     1.15463e+02     1.108
        16          1         792     1.00000e+00     1.09231e+02     1.006
        17          1         868     1.00000e+00     1.03508e+02     9.292
        18          1         942     1.00000e+00     9.82664e+01     8.869
        19          1        1026     1.00000e+00     9.36361e+01     8.384
        20          1        1101     1.00000e+00     8.91985e+01     7.697
        21          1        1177     1.00000e+00     8.54343e+01     6.965
        22          1        1255     1.00000e+00     8.16868e+01     6.667
        23          1        1351     1.00000e+00     7.85271e+01     6.299
        24          1        1457     1.00000e+00     7.54130e+01     6.027
        25          1        1576     1.00000e+00     7.26261e+01     5.599
        26          1        1678     1.00000e+00     6.98780e+01     5.383
        27          1        1779     1.00000e+00     6.75195e+01     5.136
        28          1        1870     1.00000e+00     6.51585e+01     4.867
        29          1        1994     1.00000e+00     6.31154e+01     4.673
        30          1        2133     1.00000e+00     6.09195e+01     4.614
        31          1        2272     1.00000e+00     5.88632e+01     4.475
        32          1        2401     1.00000e+00     5.68927e+01     4.280
```

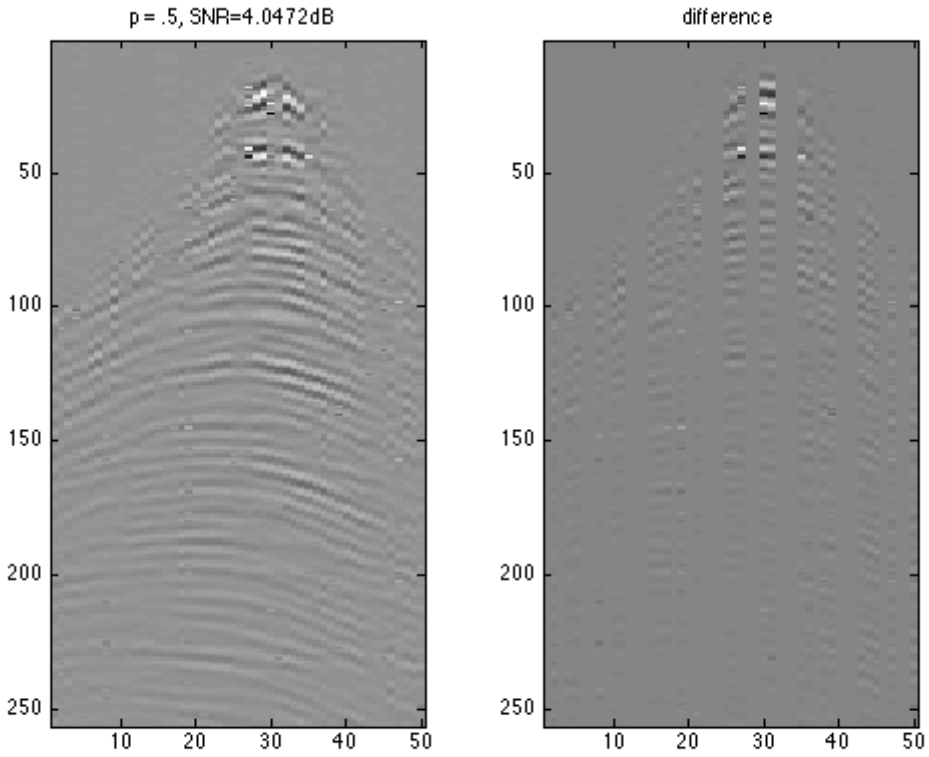
33	1	2527	1.00000e+00	5.50447e+01	3.976
34	1	2626	1.00000e+00	5.31675e+01	3.848
35	1	2765	1.00000e+00	5.15883e+01	3.644
36	1	2881	1.00000e+00	5.00400e+01	3.439
37	1	3015	1.00000e+00	4.85705e+01	3.384
38	1	3156	1.00000e+00	4.71955e+01	3.214
39	1	3277	1.00000e+00	4.59859e+01	2.961
40	1	3467	1.00000e+00	4.48347e+01	2.829
41	1	3618	1.00000e+00	4.36646e+01	2.894
42	1	3797	1.00000e+00	4.25627e+01	2.913
43	1	3962	1.00000e+00	4.15149e+01	2.652
44	1	4127	1.00000e+00	4.03636e+01	2.625
45	1	4284	1.00000e+00	3.93925e+01	2.697
46	1	4395	1.00000e+00	3.83713e+01	2.606
47	1	4543	1.00000e+00	3.74349e+01	2.303
48	1	4712	1.00000e+00	3.64542e+01	2.342
49	1	4865	1.00000e+00	3.56617e+01	2.281
50	1	5054	1.00000e+00	3.48139e+01	2.145
51	1	5230	1.00000e+00	3.40469e+01	2.101
52	1	5403	1.00000e+00	3.33039e+01	2.033
53	1	5596	1.00000e+00	3.25045e+01	1.989
54	1	5732	1.00000e+00	3.17493e+01	1.890
55	1	5904	1.00000e+00	3.10394e+01	1.916
56	1	6098	1.00000e+00	3.03664e+01	1.834
57	1	6256	1.00000e+00	2.97582e+01	1.694
58	1	6483	1.00000e+00	2.92148e+01	1.620
59	1	6610	1.00000e+00	2.86447e+01	1.596
60	1	6777	1.00000e+00	2.80453e+01	1.641
61	1	6987	1.00000e+00	2.74612e+01	1.692
62	1	7140	1.00000e+00	2.69053e+01	1.592
63	1	7266	1.00000e+00	2.64566e+01	1.365
64	1	7446	1.00000e+00	2.60430e+01	1.246
65	1	7660	1.00000e+00	2.56050e+01	1.388
66	1	7870	1.00000e+00	2.51704e+01	1.517
67	1	8099	1.00000e+00	2.47232e+01	1.439
68	1	8217	1.00000e+00	2.42573e+01	1.240
69	1	8360	1.00000e+00	2.38975e+01	1.203
70	1	8501	1.00000e+00	2.35481e+01	1.217
71	1	8672	1.00000e+00	2.31480e+01	1.265
72	1	8893	1.00000e+00	2.27966e+01	1.235
73	1	9133	1.00000e+00	2.23463e+01	1.186
74	1	9350	1.00000e+00	2.20156e+01	1.164
75	1	9561	1.00000e+00	2.16565e+01	1.159
76	1	9776	1.00000e+00	2.13292e+01	1.134
77	1	9988	1.00000e+00	2.10070e+01	1.142
78	1	10291	1.00000e+00	2.06631e+01	1.145
79	1	10538	1.00000e+00	2.03285e+01	1.069
80	1	10730	1.00000e+00	2.00120e+01	1.040
81	1	10987	1.00000e+00	1.97127e+01	1.053
82	1	11227	1.00000e+00	1.93252e+01	1.115
83	1	11472	1.00000e+00	1.90135e+01	1.094
84	1	11712	1.00000e+00	1.87397e+01	9.474
85	1	11949	1.00000e+00	1.84538e+01	8.863
86	1	12210	1.00000e+00	1.81872e+01	9.529

87	1	12407	1.00000e+00	1.79563e+01	9.131
88	1	12558	1.00000e+00	1.76776e+01	8.573
89	1	12760	1.00000e+00	1.74561e+01	8.333
90	1	12963	1.00000e+00	1.71985e+01	8.249
91	1	13140	1.00000e+00	1.69572e+01	8.629
92	1	13280	1.00000e+00	1.67125e+01	8.281
93	1	13529	1.00000e+00	1.64691e+01	7.891
94	1	13765	1.00000e+00	1.62374e+01	7.858
95	1	14018	1.00000e+00	1.60004e+01	7.761
96	1	14305	1.00000e+00	1.57665e+01	7.989
97	1	14551	1.00000e+00	1.55539e+01	7.885
98	1	14854	1.00000e+00	1.53217e+01	7.583
99	1	15037	1.00000e+00	1.51320e+01	6.965
100	1	15318	1.00000e+00	1.49361e+01	6.733
101	1	15588	1.00000e+00	1.47126e+01	7.369
102	1	15905	1.00000e+00	1.44777e+01	8.090
103	1	16276	1.00000e+00	1.42415e+01	7.912
104	1	16672	1.00000e+00	1.40106e+01	6.978
105	1	16876	1.00000e+00	1.37887e+01	6.840
106	1	17180	1.00000e+00	1.36093e+01	6.853
107	1	17532	1.00000e+00	1.34083e+01	6.724
108	1	18062	1.00000e+00	1.32060e+01	6.999
109	1	18414	1.00000e+00	1.30133e+01	7.169
110	1	18709	1.00000e+00	1.28211e+01	6.744
111	1	18913	1.00000e+00	1.26329e+01	6.291
112	1	19108	1.00000e+00	1.24917e+01	5.943
113	1	19420	1.00000e+00	1.23330e+01	5.951
114	1	19613	1.00000e+00	1.22053e+01	5.451
115	1	19833	1.00000e+00	1.20530e+01	5.527
116	1	20046	1.00000e+00	1.19311e+01	5.575
117	1	20293	1.00000e+00	1.18062e+01	5.239
118	1	20603	1.00000e+00	1.16508e+01	5.366
119	1	20698	1.00000e+00	1.15231e+01	5.482
120	1	20898	1.00000e+00	1.13826e+01	5.251
121	1	21108	1.00000e+00	1.12552e+01	4.824
122	1	21309	1.00000e+00	1.11310e+01	4.893
123	1	21544	1.00000e+00	1.10213e+01	5.052
124	1	21837	1.00000e+00	1.08648e+01	5.444
125	1	22131	1.00000e+00	1.07161e+01	5.490
126	1	22397	1.00000e+00	1.05529e+01	5.556
127	1	22790	1.00000e+00	1.03980e+01	5.588
128	1	23128	1.00000e+00	1.02490e+01	5.438
129	1	23394	1.00000e+00	1.01301e+01	4.952
130	1	23858	1.00000e+00	9.98991e+00	4.912
131	1	24149	1.00000e+00	9.87738e+00	4.813
132	1	24432	1.00000e+00	9.74461e+00	4.780
133	1	24870	1.00000e+00	9.61600e+00	5.065
134	1	25342	1.00000e+00	9.48376e+00	4.968
135	1	25665	1.00000e+00	9.34261e+00	4.896
136	1	25946	1.00000e+00	9.23640e+00	4.602
137	1	26183	1.00000e+00	9.14356e+00	3.996
138	1	26511	1.00000e+00	9.03887e+00	4.077
139	1	26780	1.00000e+00	8.94586e+00	4.225
140	1	27029	1.00000e+00	8.83079e+00	4.154

141	1	27370	1.00000e+00	8.73205e+00	4.065
142	1	27713	1.00000e+00	8.64706e+00	3.731
143	1	28046	1.00000e+00	8.54166e+00	3.503
144	1	28366	1.00000e+00	8.46274e+00	3.545
145	1	28711	1.00000e+00	8.36678e+00	3.877
146	1	29072	1.00000e+00	8.25894e+00	4.239
147	1	29407	1.00000e+00	8.15396e+00	4.225
148	1	29898	1.00000e+00	8.03331e+00	4.040
149	1	30122	1.00000e+00	7.93218e+00	3.946
150	1	30554	1.00000e+00	7.82510e+00	3.986
151	1	30898	1.00000e+00	7.70481e+00	4.187
152	1	31290	1.00000e+00	7.60538e+00	3.907
153	1	31719	1.00000e+00	7.50560e+00	3.359
154	1	32139	1.00000e+00	7.41966e+00	3.426
155	1	32460	1.00000e+00	7.32430e+00	3.733
156	1	32866	1.00000e+00	7.23514e+00	3.799
157	1	33112	1.00000e+00	7.13939e+00	3.435
158	1	33672	1.00000e+00	7.04236e+00	3.362
159	1	33981	1.00000e+00	6.97276e+00	3.228
160	1	34474	1.00000e+00	6.89014e+00	3.109
161	1	34787	1.00000e+00	6.81738e+00	3.146
162	1	35246	1.00000e+00	6.74541e+00	3.169
163	1	35634	1.00000e+00	6.66781e+00	2.985
164	1	36015	1.00000e+00	6.58545e+00	3.124
165	1	36353	1.00000e+00	6.50703e+00	3.202
166	1	36547	1.00000e+00	6.42538e+00	2.979
167	1	36892	1.00000e+00	6.34799e+00	2.930
168	1	37170	1.00000e+00	6.28083e+00	3.022
169	1	37519	1.00000e+00	6.20789e+00	2.962
170	1	37971	1.00000e+00	6.12642e+00	2.926
171	1	38389	1.00000e+00	6.05463e+00	2.901
172	1	38748	1.00000e+00	5.97264e+00	2.948
173	1	39181	1.00000e+00	5.90370e+00	2.959
174	1	39545	1.00000e+00	5.82530e+00	2.918
175	1	40031	1.00000e+00	5.74570e+00	2.932
176	1	40558	1.00000e+00	5.66242e+00	3.073
177	1	41093	1.00000e+00	5.57769e+00	3.101
178	1	41590	1.00000e+00	5.49058e+00	3.021
179	1	41801	1.00000e+00	5.40805e+00	2.825
180	1	42231	1.00000e+00	5.33797e+00	2.690
181	1	42661	1.00000e+00	5.26628e+00	2.633
182	1	42991	1.00000e+00	5.20861e+00	2.462
183	1	43486	1.00000e+00	5.14472e+00	2.428
184	1	43874	1.00000e+00	5.09138e+00	2.476
185	1	44211	1.00000e+00	5.02948e+00	2.531
186	1	44493	1.00000e+00	4.97890e+00	2.405
187	1	44935	1.00000e+00	4.91381e+00	2.401
188	1	45258	1.00000e+00	4.86112e+00	2.341
189	1	45566	1.00000e+00	4.80961e+00	2.131
190	1	45928	1.00000e+00	4.75716e+00	2.089
191	1	46080	1.00000e+00	4.71011e+00	2.101
192	1	46374	1.00000e+00	4.65316e+00	2.170
193	1	46675	1.00000e+00	4.60858e+00	2.004
194	1	47154	1.00000e+00	4.55055e+00	2.061

```
      195          1      47526     1.00000e+00     4.50258e+00     2.101

      196          1      47931     1.00000e+00     4.44742e+00     2.114
      197          1      48257     1.00000e+00     4.40357e+00     1.988
      198          1      48643     1.00000e+00     4.35109e+00     1.965
      199          1      48942     1.00000e+00     4.30300e+00     2.034
      200          1      49418     1.00000e+00     4.24355e+00     2.114
  200  4.2435459e+00  4.4219156e+02   5.76e-02     0.0    8111       0
ERROR EXIT -- Too many iterations

Products with A     :     202        Total time   (secs) :  2649.0
Products with A'    :     202        Project time (secs) :  1851.8
Newton iterations   :       0        Mat-vec time (secs) :   153.4
```





if given known strict sparse vector

```
[m n] = size(A); k = .2*round(n/log(m));
p = randperm(n); x0 = zeros(n,1); x0(p(1:k)) = sign(randn(k,1));
figure;plot(x0)
b0  = A*x0;

tau = norm(x0,1);

options = spgSetParms('optTol', 1e-4, 'iterations', 200);%, 'fid', fid);
xinit = zeros(size(A,2),1);

xestspg = spgl1(A,b0,tau,[],xinit,options);
xestpqn = pqnl1_2(A,b0,tau,[],xinit,options);
snrspg = SNR(x0,xestspg);
snrpqn = SNR(x0,xestpqn);

figure('Name','strcit sparse vector SPG');
subplot(2,1,1);plot(xestspg);
title(strcat(['p = .5, SNR=' num2str(snrspg) 'dB']))
subplot(2,1,2);plot(xestspg - x0);
title('difference')

figure('Name','strcit sparse vector PQN');
subplot(2,1,1);plot(xestpqn);
```

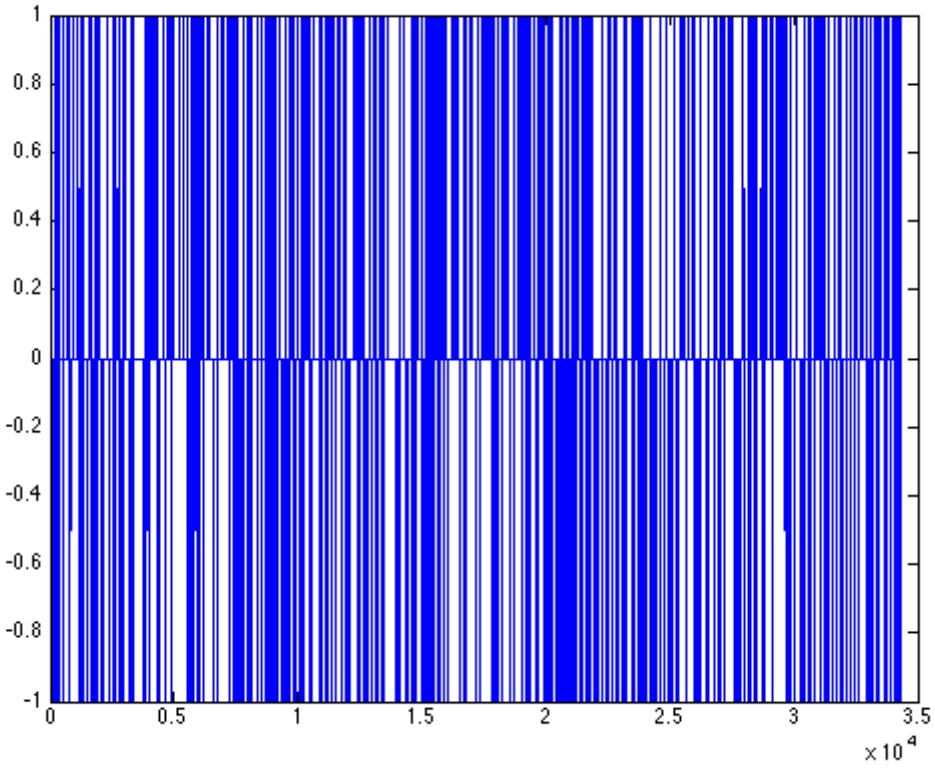
```
title(strcat(['p = .5, SNR=' num2str(snrpqn) 'dB']))
subplot(2,1,2);plot(xestpqn - x0);
title('difference')
```

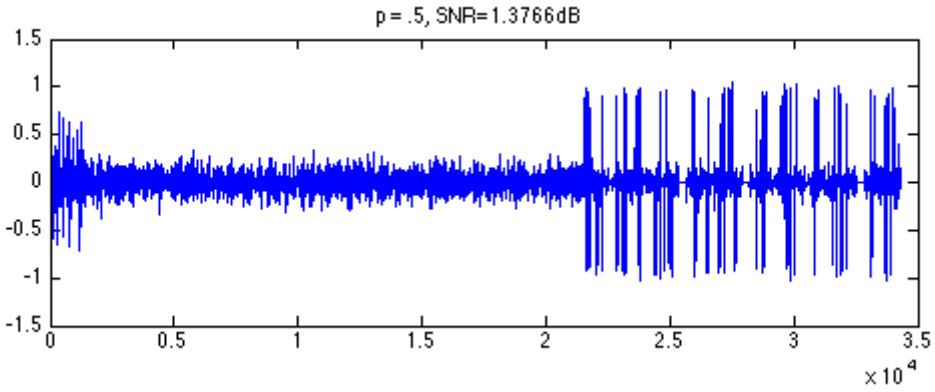
```
Warning: Size vector should be a row
vector with integer elements.
Warning: Integer operands are
required for colon operator when used
as index
```

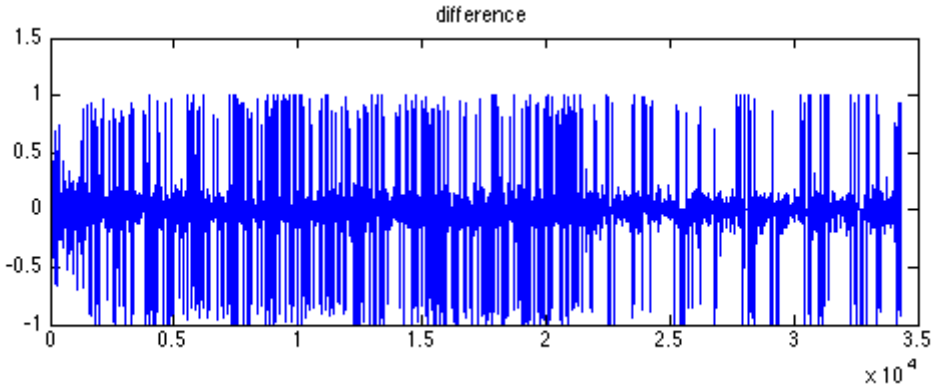
```
 ================================================================================
 SPGL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
 ================================================================================
 No. rows              :    12800      No. columns           :    34341
 Initial tau           : 7.26e+02      Two-norm of b         : 1.12e+01
 Optimality tol        : 1.00e-04      Target one-norm of x  : 7.26e+02
 Basis pursuit tol     : 1.00e-06      Maximum iterations    :      200

  Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
     0  1.1218161e+01  1.0482377e+01   9.09e-01     0.0       0       0
     1  2.0133338e+00  1.8685465e+01   5.82e-02     0.0   19150       0
     2  1.4965465e+00  1.8107177e+01   4.10e-02     0.0   18082       0
     3  1.1801134e+00  1.3588333e+01   2.90e-02     0.0   16258       0
     4  6.6796517e-01  1.8277691e+01   3.00e-02     0.0   13218       0
     5  1.2326438e+00  9.9825136e+01   1.40e-01     0.0   13286       0
     6  7.2055478e-01  6.4646993e+01   9.31e-02     0.0   15837       0
     7  3.4744173e-01  3.2540688e+00   7.49e-03     0.0   14597       0
     8  3.1993863e-01  2.4536972e+00   6.24e-03     0.0   13999       0
     9  2.5483702e-01  2.5996571e+00   5.73e-03     0.0   13023       0
    10  2.5121071e-01  1.9194326e+01   2.81e-02     0.0   12547       0
    11  2.8427553e-01  3.1318888e+01   4.42e-02    -0.3   13380       0
    12  1.4398226e-01  3.3277811e+00   5.82e-03     0.0   12653       0
    13  1.3424935e-01  8.4515749e-01   2.32e-03     0.0   12565       0
    14  1.2684625e-01  8.3944652e-01   2.26e-03     0.0   12495       0
    15  7.7515743e-02  3.9773875e+00   5.99e-03     0.0   12102       0
    16  9.1567664e-02  7.5782083e+00   1.11e-02    -0.3   12328       0
    17  6.2693216e-02  2.6913567e+00   4.18e-03     0.0   12150       0
    18  5.8074023e-02  3.8619375e-01   1.03e-03     0.0   12177       0
    19  5.6114248e-02  3.7009326e-01   9.90e-04     0.0   12159       0
    20  3.4900837e-02  1.3772333e+00   2.19e-03     0.0   12027       0
    21  4.3927805e-02  4.6837239e+00   6.68e-03    -0.3   12115       0
    22  3.1421488e-02  2.1408124e+00   3.21e-03     0.0   12023       0
    23  2.7314958e-02  1.8735134e-01   4.90e-04     0.0   12036       0
    24  2.6530936e-02  1.7507768e-01   4.68e-04     0.0   12030       0
    25  2.0194232e-02  2.2046659e-01   4.74e-04     0.0   11984       0
    26  1.8956517e-02  3.2287947e-01   6.06e-04    -0.3   11990       0
    27  1.8200384e-02  5.2245433e-01   8.63e-04     0.0   11981       0
    28  1.7023123e-02  3.9309787e-01   6.89e-04     0.0   11984       0
    29  1.6295928e-02  1.0238833e-01   2.79e-04     0.0   11980       0
    30  1.5710909e-02  1.0300751e-01   2.78e-04     0.0   11982       0
    31  1.3654492e-02  4.2175500e-01   6.89e-04     0.0   11967       0
    32  1.2927160e-02  2.1518095e-01   4.10e-04    -0.3   11973       0
    33  1.2421254e-02  9.6055876e-02   2.37e-04     0.0   11969       0
    34  1.1937146e-02  7.7481196e-02   2.10e-04     0.0   11967       0
```

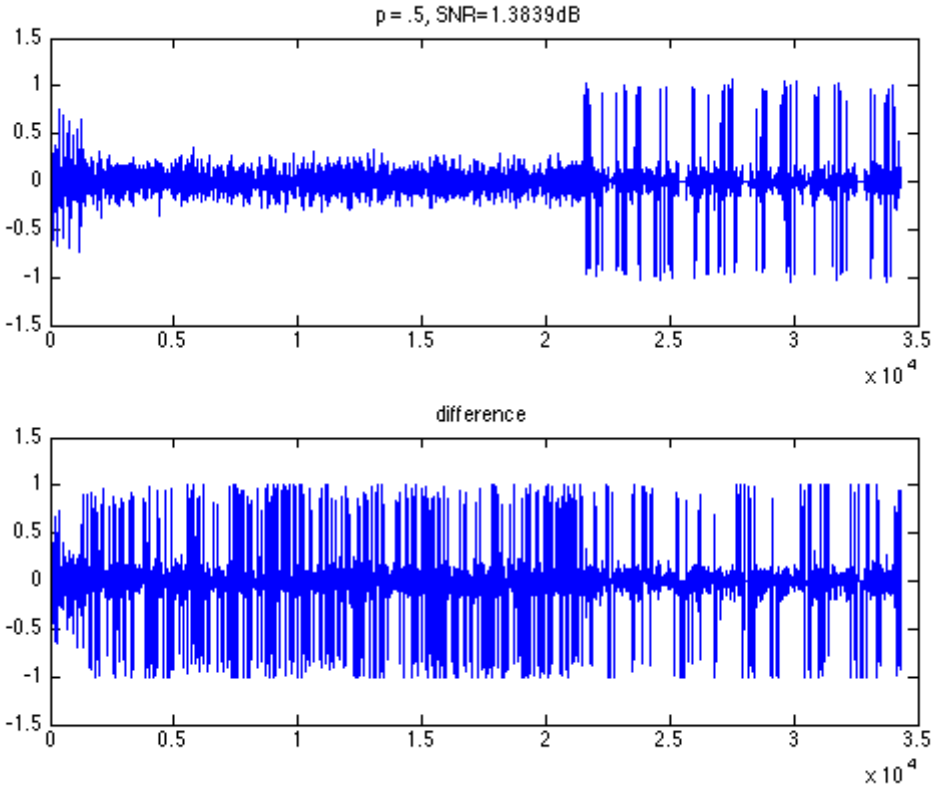
```
   35  1.0770194e-02  4.8217329e-01   7.45e-04     0.0   11967       0
   36  9.9977775e-03  1.2539507e-01   2.60e-04    -0.3   11963       0
   37  9.6958941e-03  6.1332107e-02   1.67e-04     0.0   11962       0
   38  9.1846143e-03  5.8505227e-02   1.60e-04     0.0   11958       0
   39  8.7083762e-03  1.0736742e+00   1.50e-03     0.0   11929       0
   40  6.9249629e-03  7.0778720e-01   1.02e-03    -0.3   11929       0
   41  4.3427242e-03  2.7946259e-02   7.57e-05     0.0   11929       0
   42  4.2506734e-03  2.6959437e-02   7.36e-05     0.0   11927       0
   43  1.9862558e-03  1.1631735e-01   1.76e-04     0.0   11913       0
   44  2.8221650e-03  4.9096934e-01   6.92e-04    -0.3   11917       0
   45  1.8382063e-03  2.2577355e-01   3.25e-04     0.0   11913       0
   46  1.5450063e-03  9.8342040e-03   2.67e-05     0.0   11913       0
   47  1.4994300e-03  9.6668987e-03   2.61e-05     0.0   11914       0
   48  1.1949703e-03  1.0804617e-02   2.51e-05     0.0   11912       0
   49  1.1209828e-03  2.2664087e-02   4.03e-05    -0.3   11913       0

 EXIT -- Optimal solution found

 Products with A     :      67        Total time   (secs) :    45.0
 Products with A'    :      50        Project time (secs) :     0.2
 Newton iterations   :       0        Mat-vec time (secs) :    44.5
 Line search its     :      25        Subspace iterations :       0


 ================================================================================
 PQNL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
 ================================================================================
 No. rows              :    12800      No. columns           :    34341
 Initial tau           : 7.26e+02      Two-norm of b         : 1.12e+01
 Optimality tol        : 1.00e-04      Target one-norm of x  : 7.26e+02
 Basis pursuit tol     : 1.00e-06      Maximum iterations    :      200

  Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
     0  1.1218161e+01  1.0482377e+01   9.09e-01     0.0       0       0
Inside of minConf_PQN
 Iteration   FunEvals Projections     Step Length          rNorm2         O
         1          1           4     1.00000e+00     2.06087e+00     9.938
         2          1          17     1.00000e+00     1.60366e+00     6.343
         3          1          32     1.00000e+00     1.07282e+00     3.604
         4          1          59     1.00000e+00     8.02187e-01     2.561
         5          1          98     1.00000e+00     5.91613e-01     1.893
         6          1         135     1.00000e+00     4.37683e-01     1.383
         7          1         178     1.00000e+00     3.21534e-01     1.007
         8          1         228     1.00000e+00     2.40765e-01     7.628
         9          1         276     1.00000e+00     1.80737e-01     5.840
        10          1         314     1.00000e+00     1.36616e-01     4.450
        11          1         350     1.00000e+00     1.03078e-01     3.407
        12          1         388     1.00000e+00     7.71373e-02     2.707
        13          1         437     1.00000e+00     5.74867e-02     2.124
        14          1         485     1.00000e+00     4.20909e-02     1.579
        15          1         528     1.00000e+00     3.03405e-02     1.177
        16          1         571     1.00000e+00     2.13920e-02     8.630
        17          1         582     1.00000e+00     1.70357e-02     4.730
        18          1         614     1.00000e+00     1.07957e-02     4.139
```

```
        19          1        631     1.00000e+00     8.76751e-03     2.964
        20          1        640     1.00000e+00     6.90623e-03     1.957
        21          1        657     1.00000e+00     5.35492e-03     1.497
        22          1        666     1.00000e+00     4.31343e-03     1.219
        23          1        686     1.00000e+00     3.43250e-03     1.700
        24          1        706     1.00000e+00     2.14920e-03     8.619
        25          1        728     1.00000e+00     1.43205e-03     4.190
        26          1        752     1.00000e+00     5.81082e-04     2.250
        27          1        777     1.00000e+00     3.72110e-04     1.306
        28          1        801     1.00000e+00     1.85011e-04     6.076
        29          1        812     1.00000e+00     1.56328e-04     6.325
        30          1        836     1.00000e+00     1.01696e-04     3.817
        31          1        854     1.00000e+00     5.39862e-05     2.407
        32          1        878     1.00000e+00     2.89271e-05     1.094
        33          1        903     1.00000e+00     8.82009e-06     4.072
        34          1        922     1.00000e+00     4.52758e-06     2.737
        35          1        938     1.00000e+00     2.87337e-06     1.608
        36          1        969     1.00000e+00     1.16547e-06     6.253
Directional Derivative below optTol
        37          1       1311     1.00000e+00     9.66829e-07     3.933
Function value changing by less than optTol
    37  9.6682948e-07  5.6318669e-06   1.46e-08     0.0   12800       0
 EXIT -- Optimal solution found

 Products with A     :      39        Total time   (secs) :    49.8
 Products with A'    :      39        Project time (secs) :    13.4
 Newton iterations   :       0        Mat-vec time (secs) :    28.9
```


1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4


p = .5, SNR= 1.3766dB
1.5
1
0.5
0
-0.5
-1
-1.5
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4


difference
1.5
1
0.5
0
-0.5
-1
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4

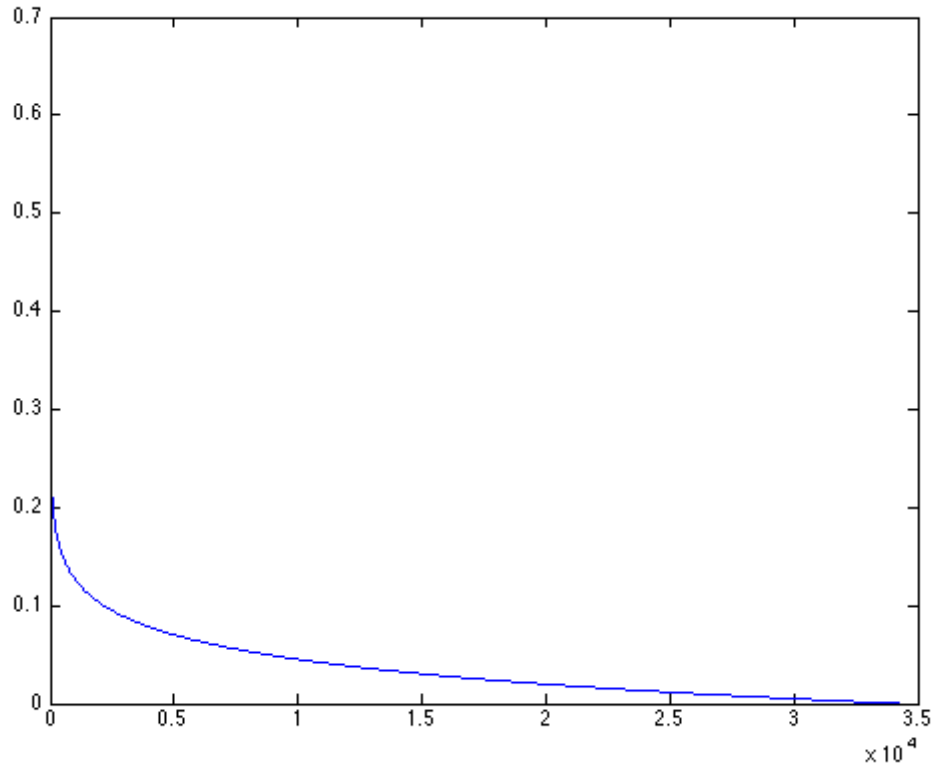


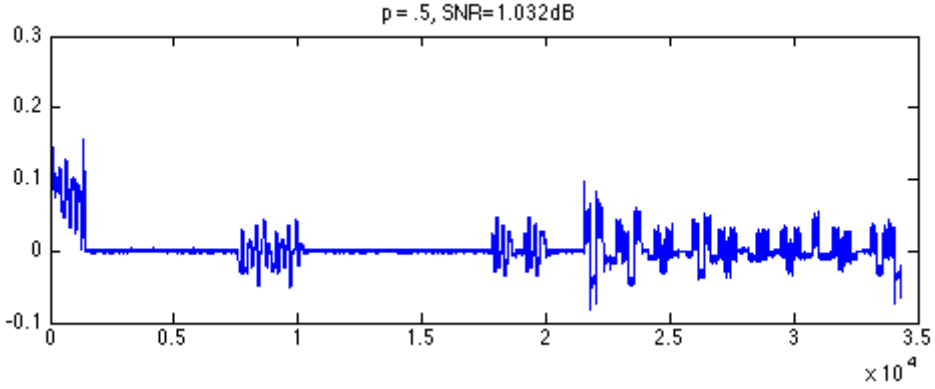
if given known compressible vector

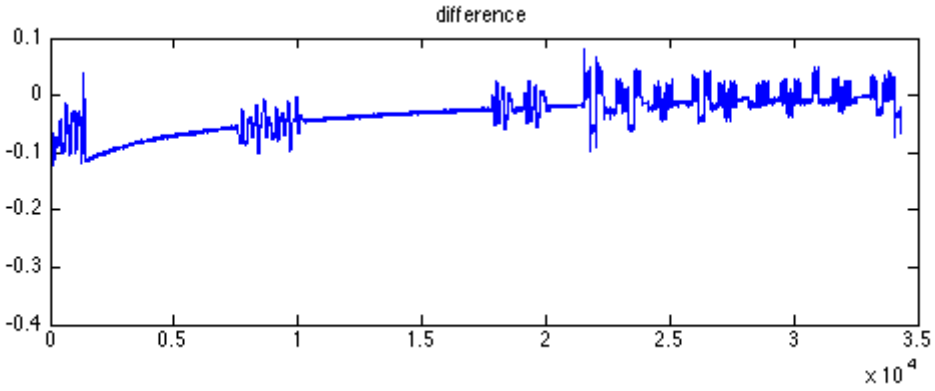
```
nn = linspace(0,1,n);
x0_compress = exp(-nn.^.1);
x0_compress = x0_compress - min(x0_compress);
figure;plot(x0_compress)
x0_compress = x0_compress(:);
b_compress  = A*x0_compress + 0.005 * randn(m,1);


tau = norm(x0_compress,1);

options = spgSetParms('optTol', 1e-4, 'iterations', 200);%, 'fid', fid);
xinit = zeros(size(A,2),1);

xestspg = spgl1(A,b_compress,tau,[],xinit,options);
xestpqn = pqnl1_2(A,b_compress,tau,[],xinit,options);
snrspg = SNR(x0_compress,xestspg);
snrpqn = SNR(x0_compress,xestpqn);

figure('Name','compressible vector SPG');
subplot(2,1,1);plot(xestspg);
title(strcat(['p = .5, SNR=' num2str(snrspg) 'dB']))
subplot(2,1,2);plot(xestspg - x0_compress);
title('difference')
```

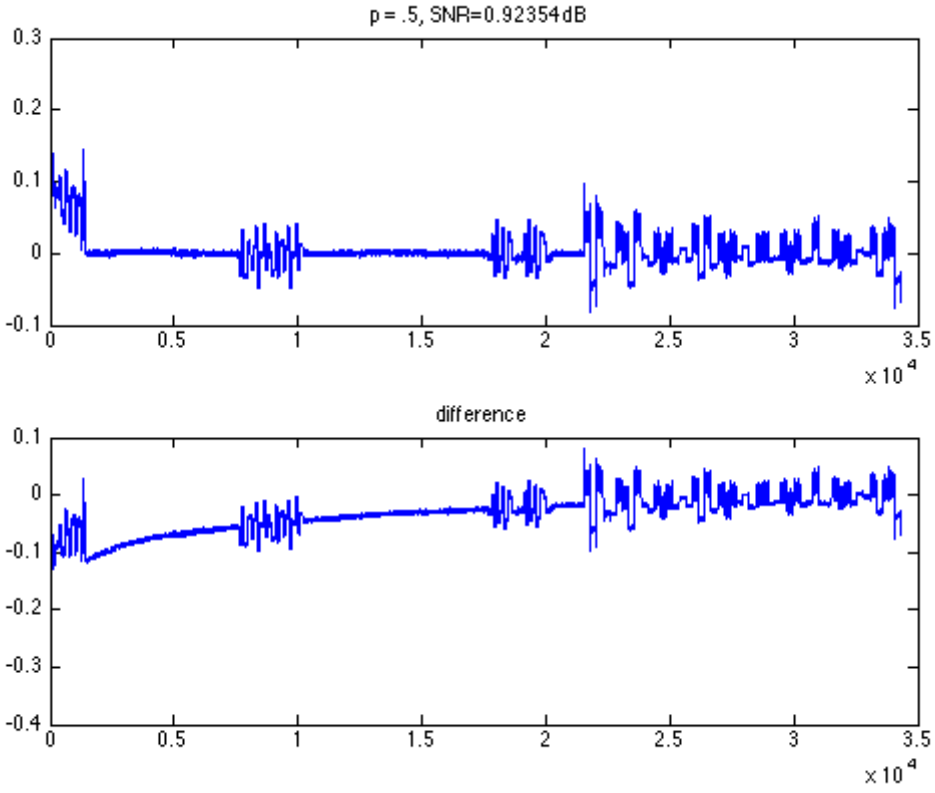
```
figure('Name','compressible vector PQN');
subplot(2,1,1);plot(xestpqn);
title(strcat(['p = .5, SNR=' num2str(snrpqn) 'dB']))
subplot(2,1,2);plot(xestpqn - x0_compress);
title('difference')
```

```
================================================================================
SPGL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
================================================================================
No. rows              :    12800      No. columns           :    34341
Initial tau           : 1.25e+03      Two-norm of b         : 4.22e+00
Optimality tol        : 1.00e-04      Target one-norm of x  : 1.25e+03
Basis pursuit tol     : 1.00e-06      Maximum iterations    :      200

 Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
    0  4.2191024e+00  3.3841568e+01   2.40e-01     0.0       0       0
    1  5.7395526e-01  3.3320463e+01   2.64e-02    -0.3   14690       0
    2  4.0458752e-01  6.6853332e-01   5.35e-04     0.0   21229       0
    3  4.0450343e-01  6.2550762e-14   4.97e-17     0.0   21076       0

EXIT -- Optimal solution found

Products with A     :       6        Total time   (secs) :     3.7
Products with A'    :       4        Project time (secs) :     0.0
Newton iterations   :       0        Mat-vec time (secs) :     3.7
Line search its     :       2        Subspace iterations :       0


================================================================================
PQNL1_SLIM v. 46  (Tue, 14 Jun 2011) based on v.1017
================================================================================
No. rows              :    12800      No. columns           :    34341
Initial tau           : 1.25e+03      Two-norm of b         : 4.22e+00
Optimality tol        : 1.00e-04      Target one-norm of x  : 1.25e+03
Basis pursuit tol     : 1.00e-06      Maximum iterations    :      200

 Iter      Objective   Relative Gap      gNorm   stepG    nnzX    nnzG
    0  4.2191024e+00  3.3841568e+01   2.40e-01     0.0       0       0
Inside of minConf_PQN
 Iteration   FunEvals Projections     Step Length          rNorm2        O
         1          1           4     1.00000e+00     4.04503e-01     1.638
First-Order Optimality Conditions Below optTol
    1  4.0450343e-01  9.9731443e-14   7.77e-17     0.0   27353       0
 EXIT -- Optimal solution found

 Products with A     :       3        Total time   (secs) :     2.3
 Products with A'    :       3        Project time (secs) :     0.0
 Newton iterations   :       0        Mat-vec time (secs) :     2.3
```


0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4


p = .5, SNR=1.032dB
0.3
0.2
0.1
0
-0.1
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4


difference
0.1
0
-0.1
-0.2
-0.3
-0.4
0
0.5
1
1.5
2
2.5
3
3.5
x 10^4



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