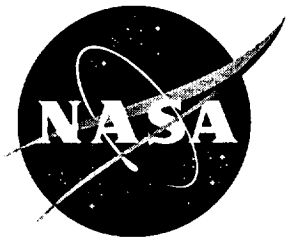
NASA Contractor Report 201712, Volume II



Sensitivity of Runway Occupancy Time (ROT) to Various Rollout and Turnoff (ROTO) Factors

Volume II - Complete Set of Plotted Data

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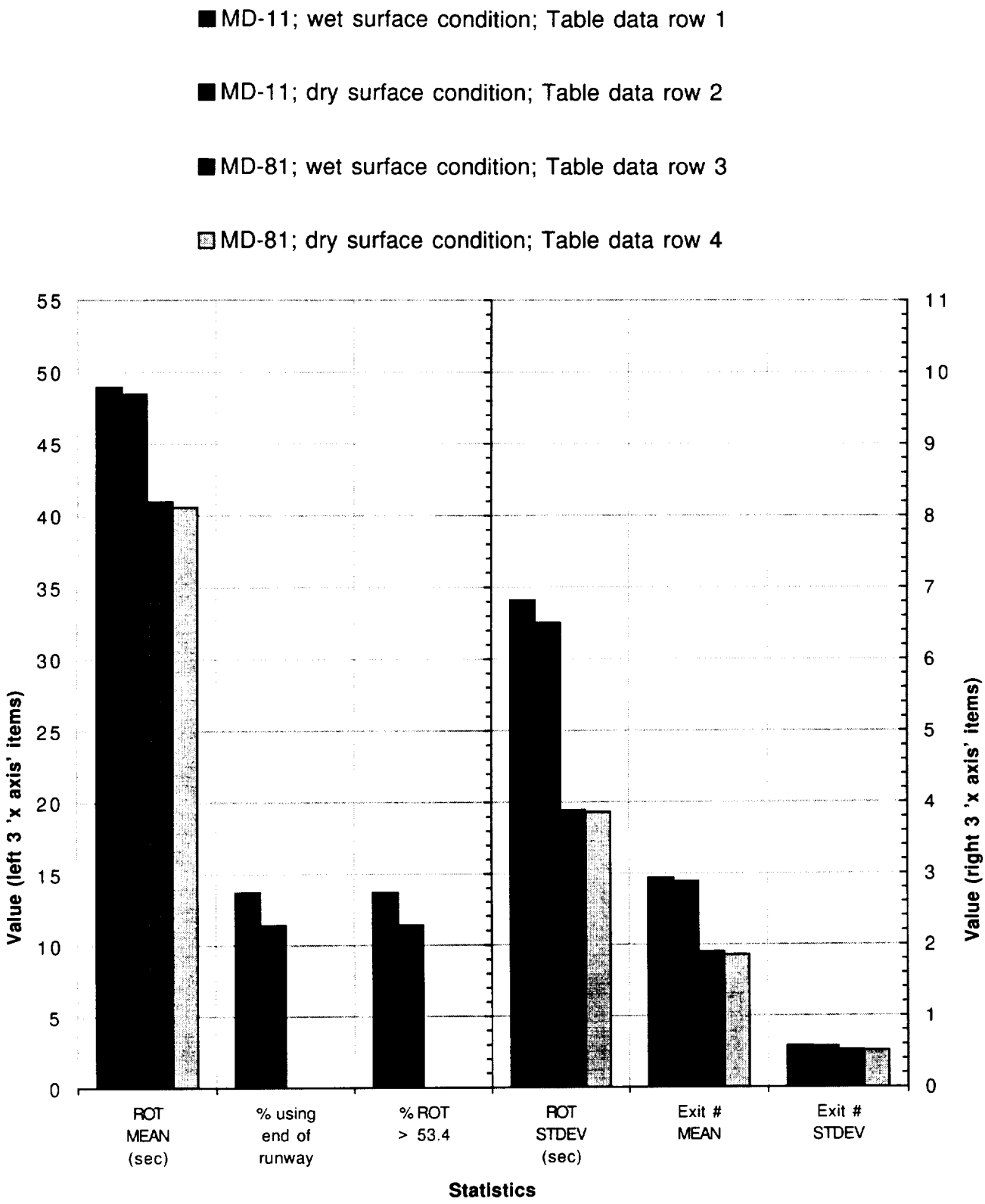
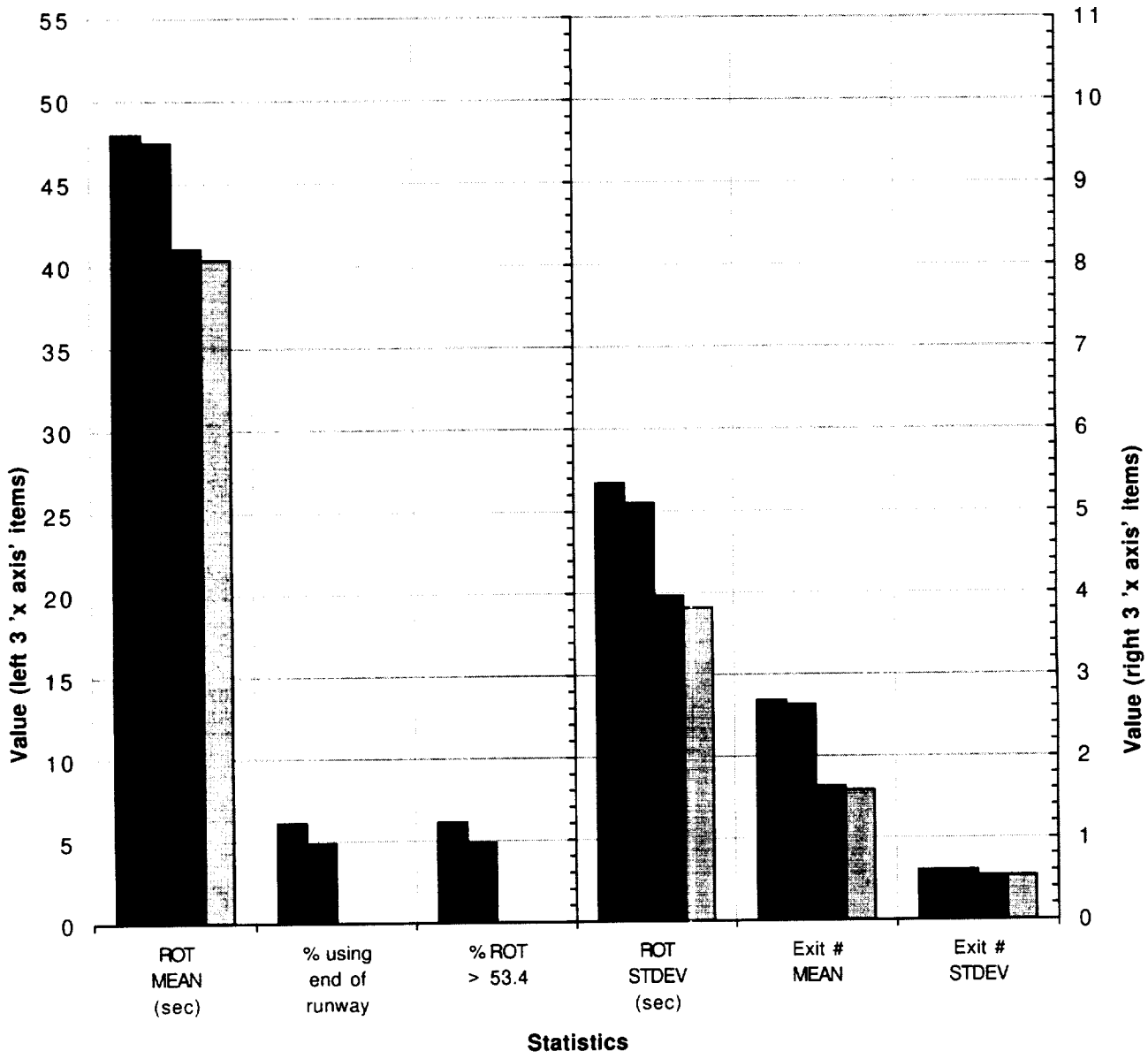
Contract NAS1-19703

June 1997

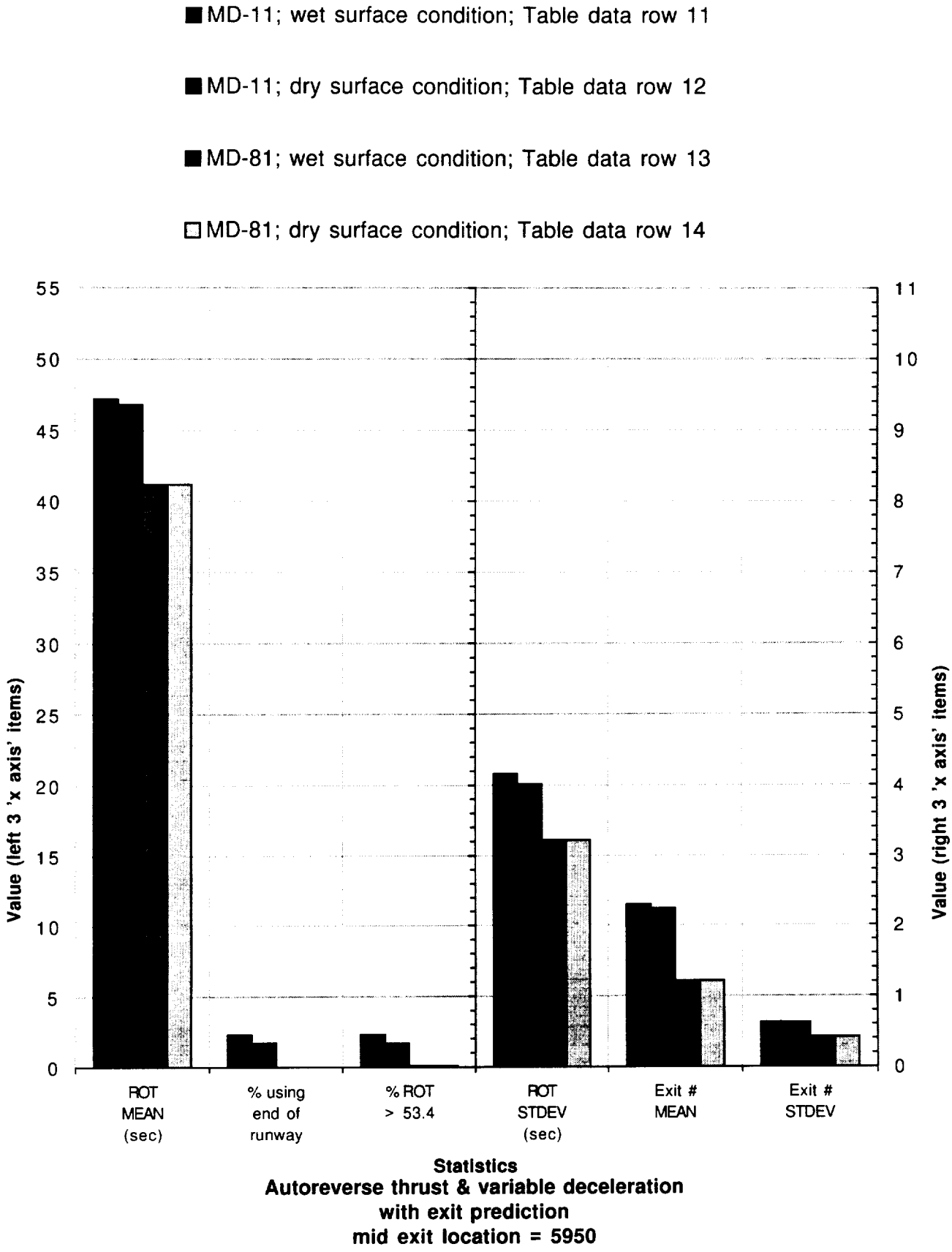
National Aeronautics and
Space Administration
Langley Research Center
Hampton, Virginia 23681-0001



Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 4950



Autoreverse thrust & variable deceleration with exit prediction mid exit location = 5350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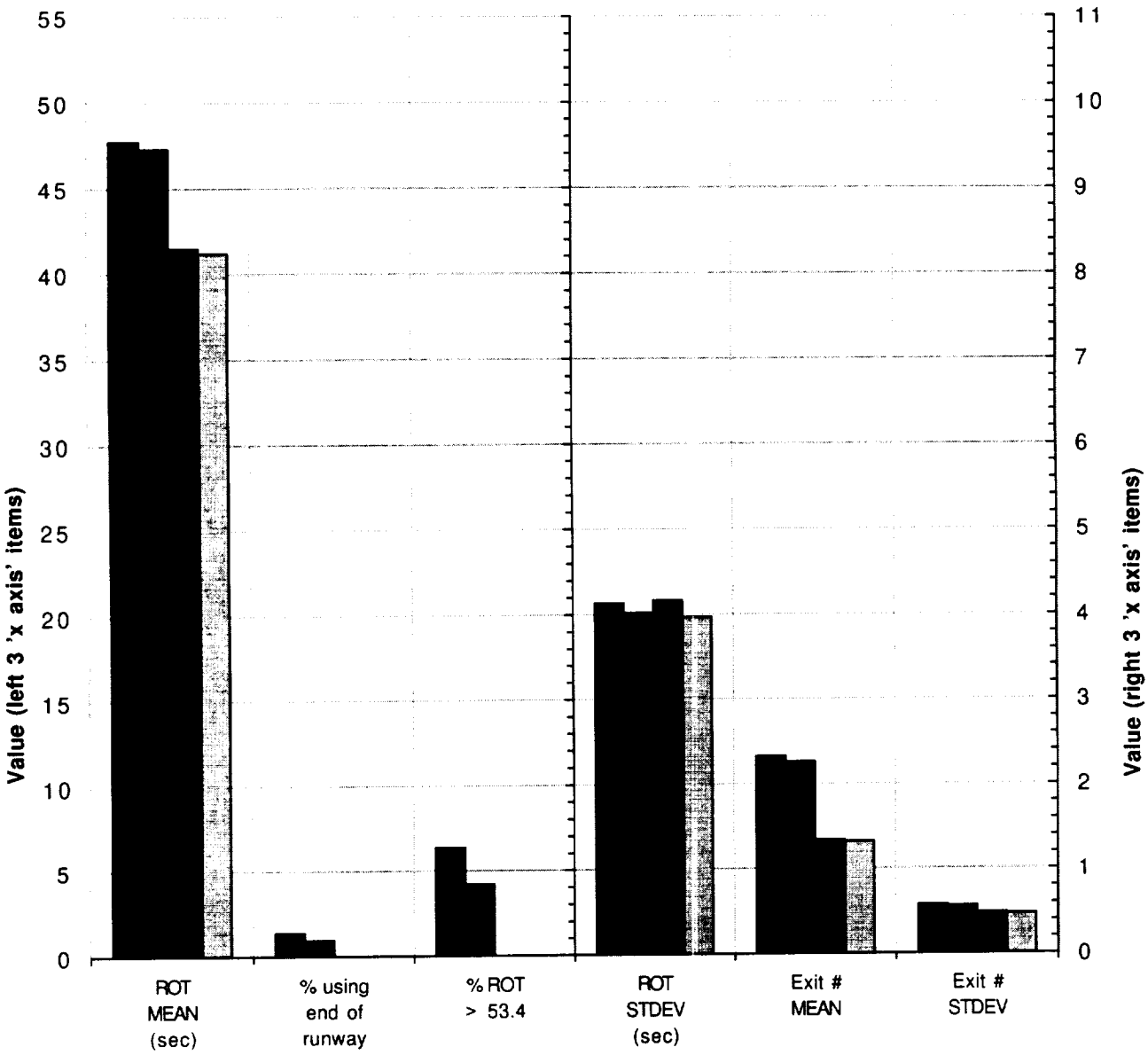
MD-11; dry surface condition; Table data row 12
MD-81; wet surface condition; Table data row 13
MD-81; dry surface condition; Table data row 14
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950

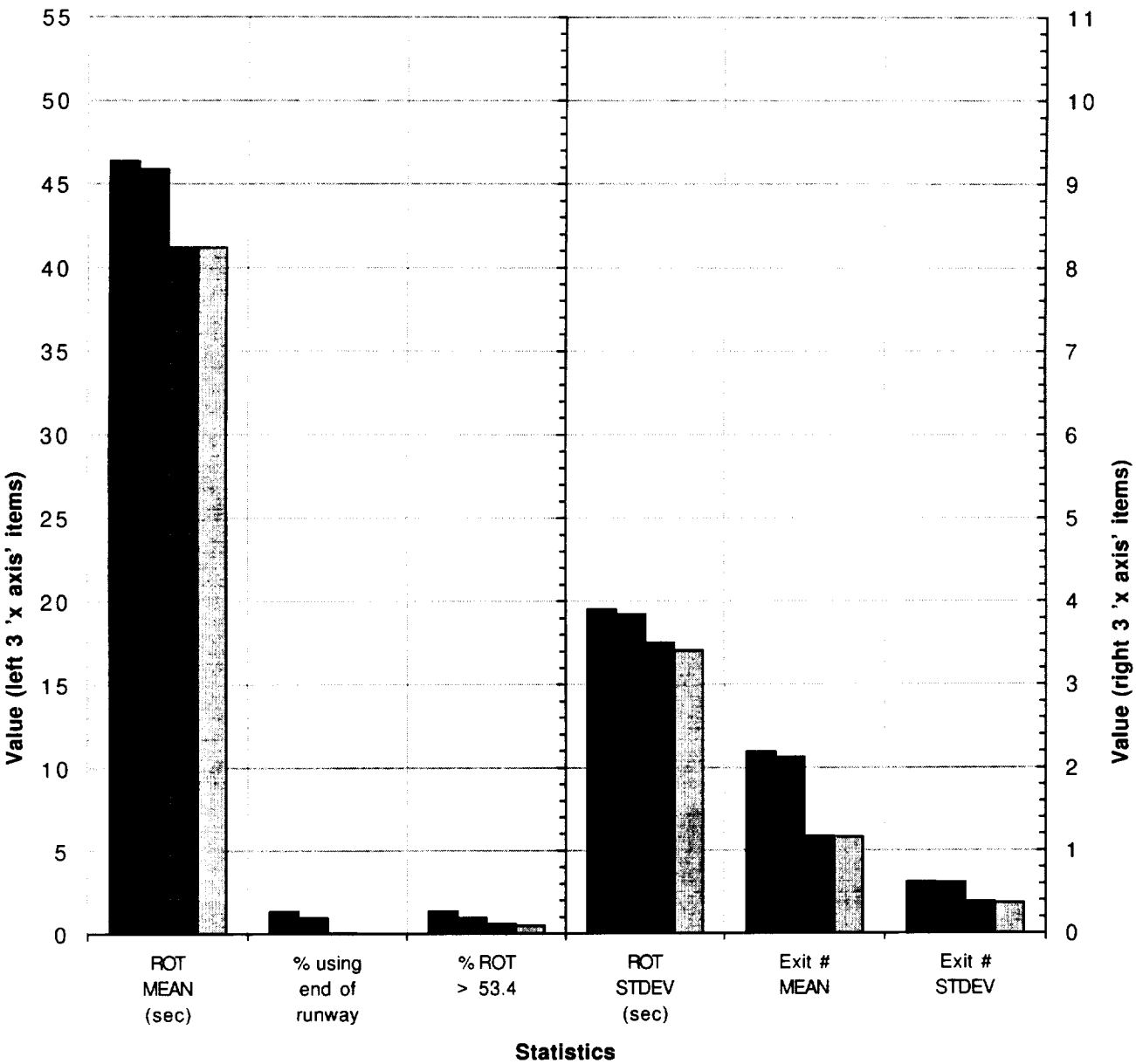
■ MD-11; wet surface condition; Table data row 16

■ MD-11; dry surface condition; Table data row 17

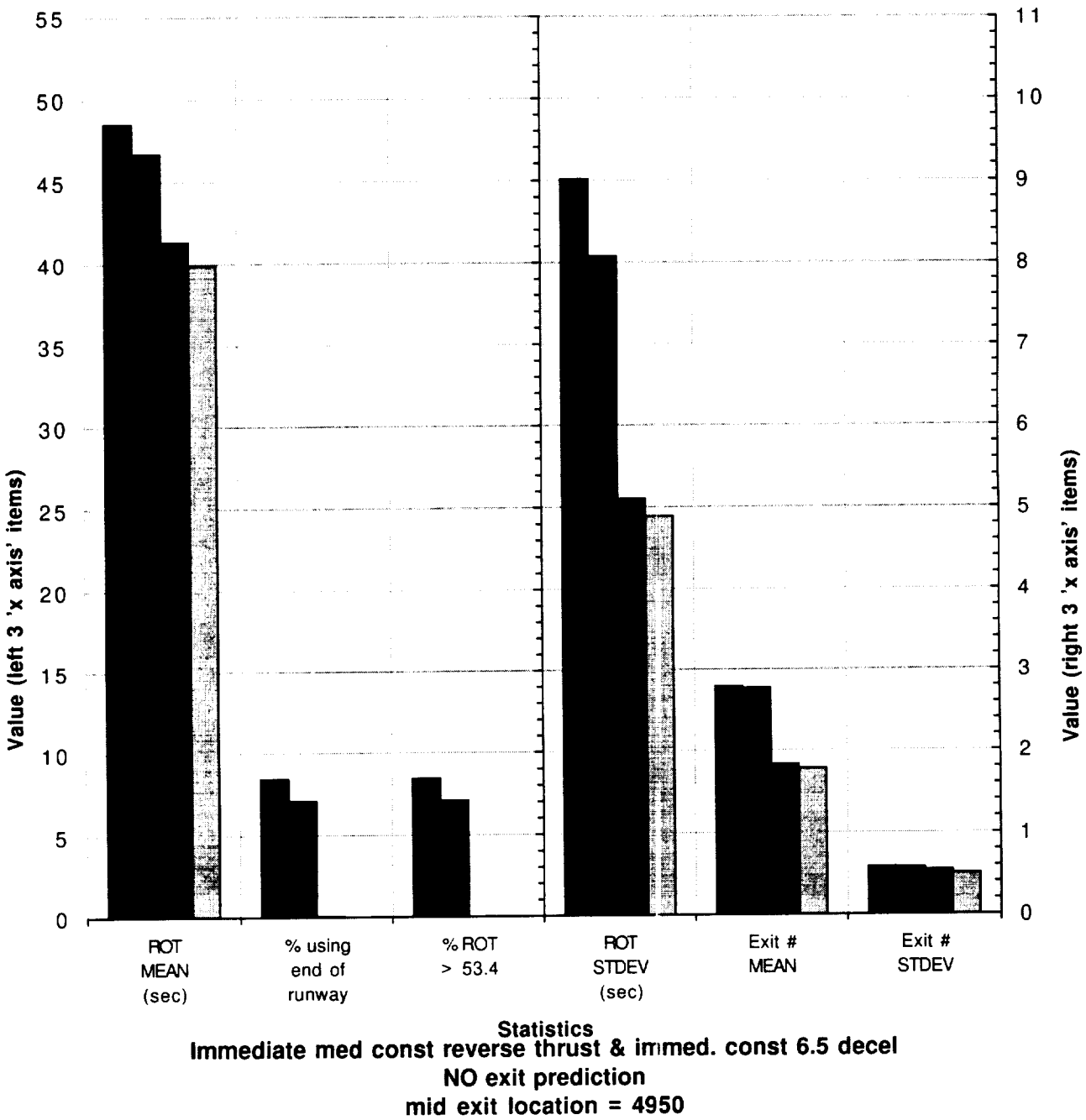
■ MD-81; wet surface condition; Table data row 18

□ MD-81; dry surface condition; Table data row 19





Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
full flaps


MD-11; wet surface condition; Table data row 26
MD-11; dry surface condition; Table data row 27
MD-81; wet surface condition; Table data row 28
MD-81; dry surface condition; Table data row 29
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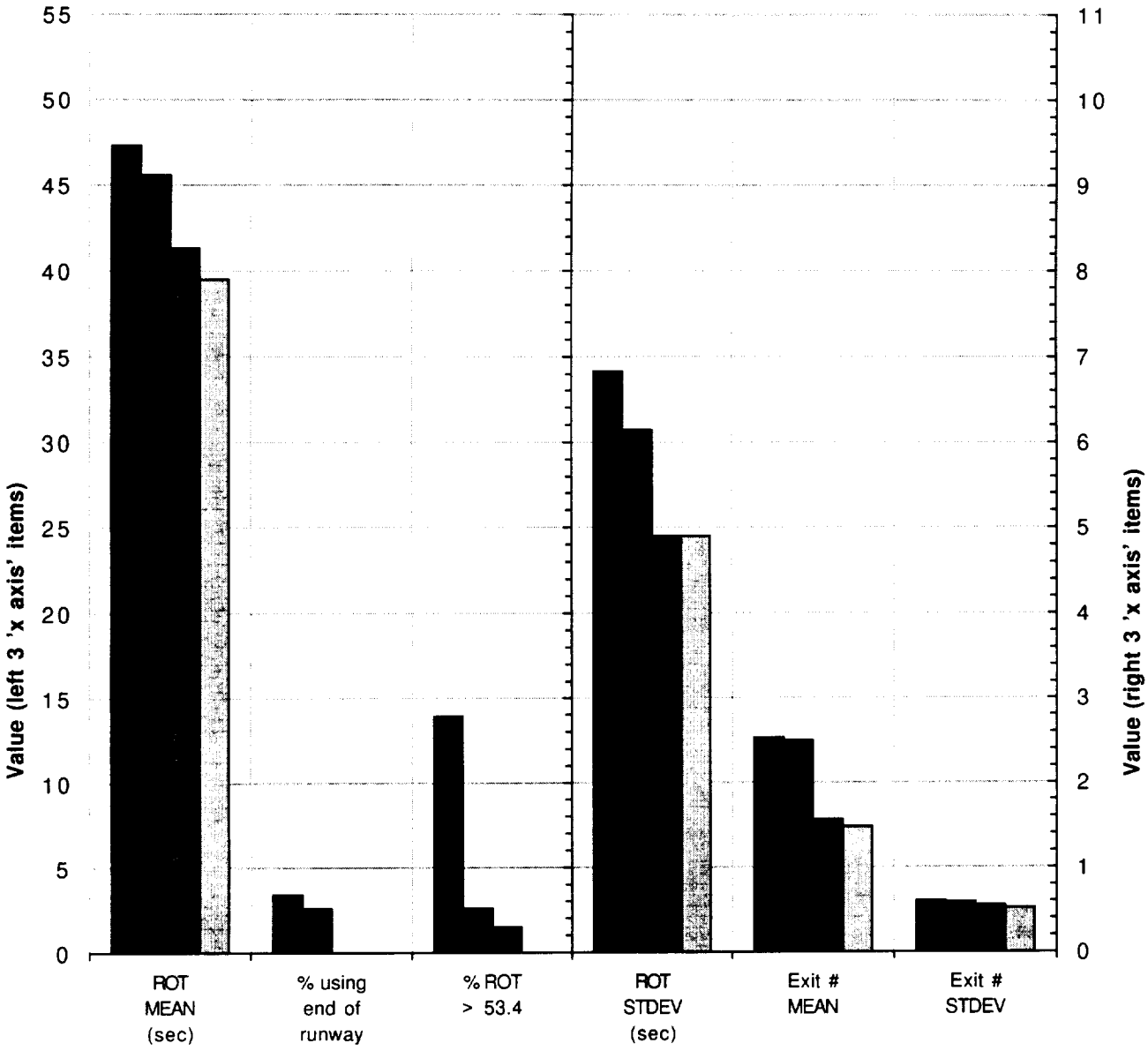
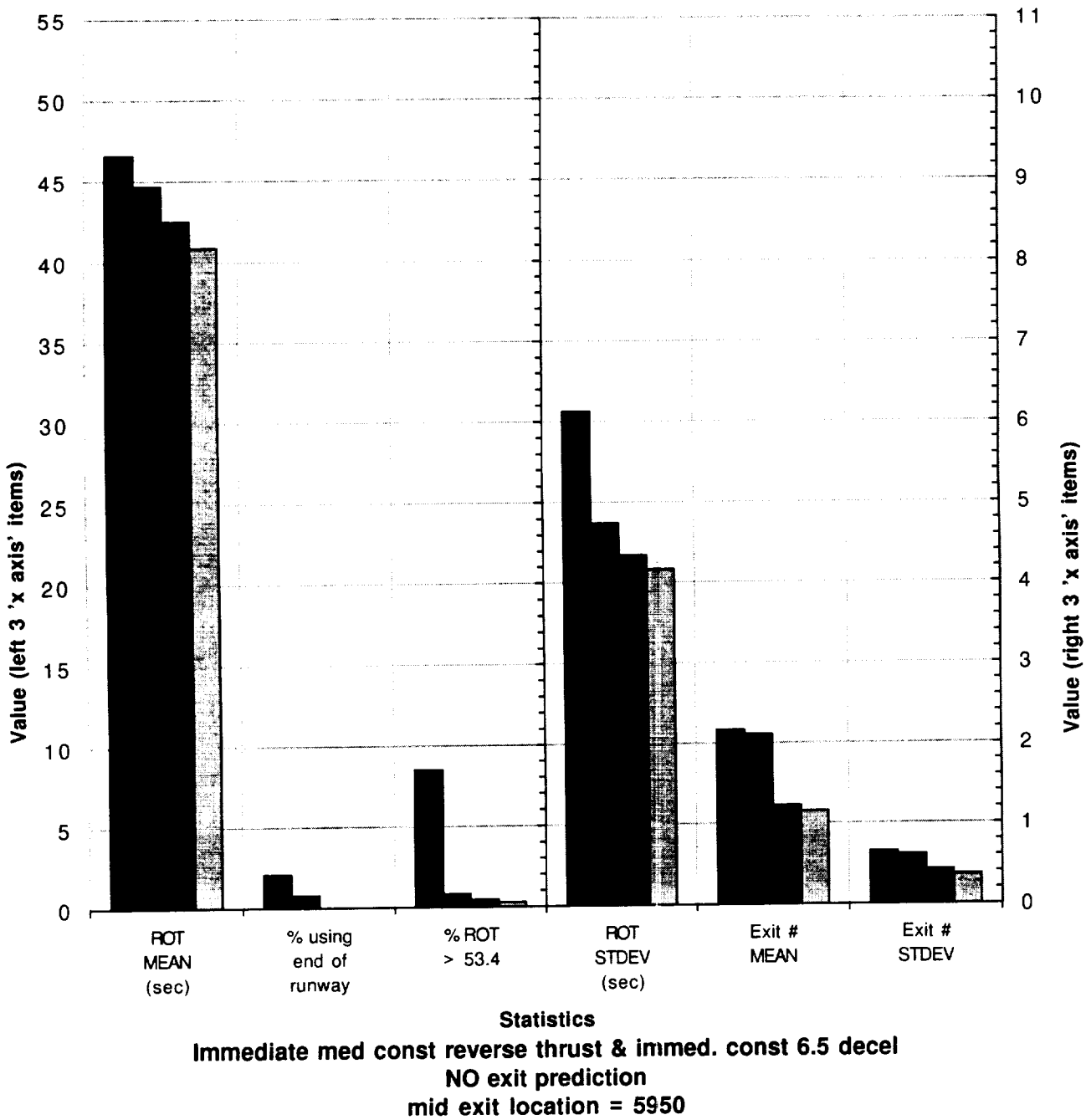
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Immediate med const reverse thrust & immed. const 6.5 decel
NO exit prediction
mid exit location = 4950


MD-11; wet surface condition; Table data row 31
MD-11; dry surface condition; Table data row 32
MD-81; wet surface condition; Table data row 33
MD-81; dry surface condition; Table data row 34
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Immediate med const reverse thrust & immed const 6.5 decel
NO exit prediction
mid exit location = 5350


MD-11; wet surface condition; Table data row 36
MD-11; dry surface condition; Table data row 37
MD-81; wet surface condition; Table data row 38
MD-81; dry surface condition; Table data row 39
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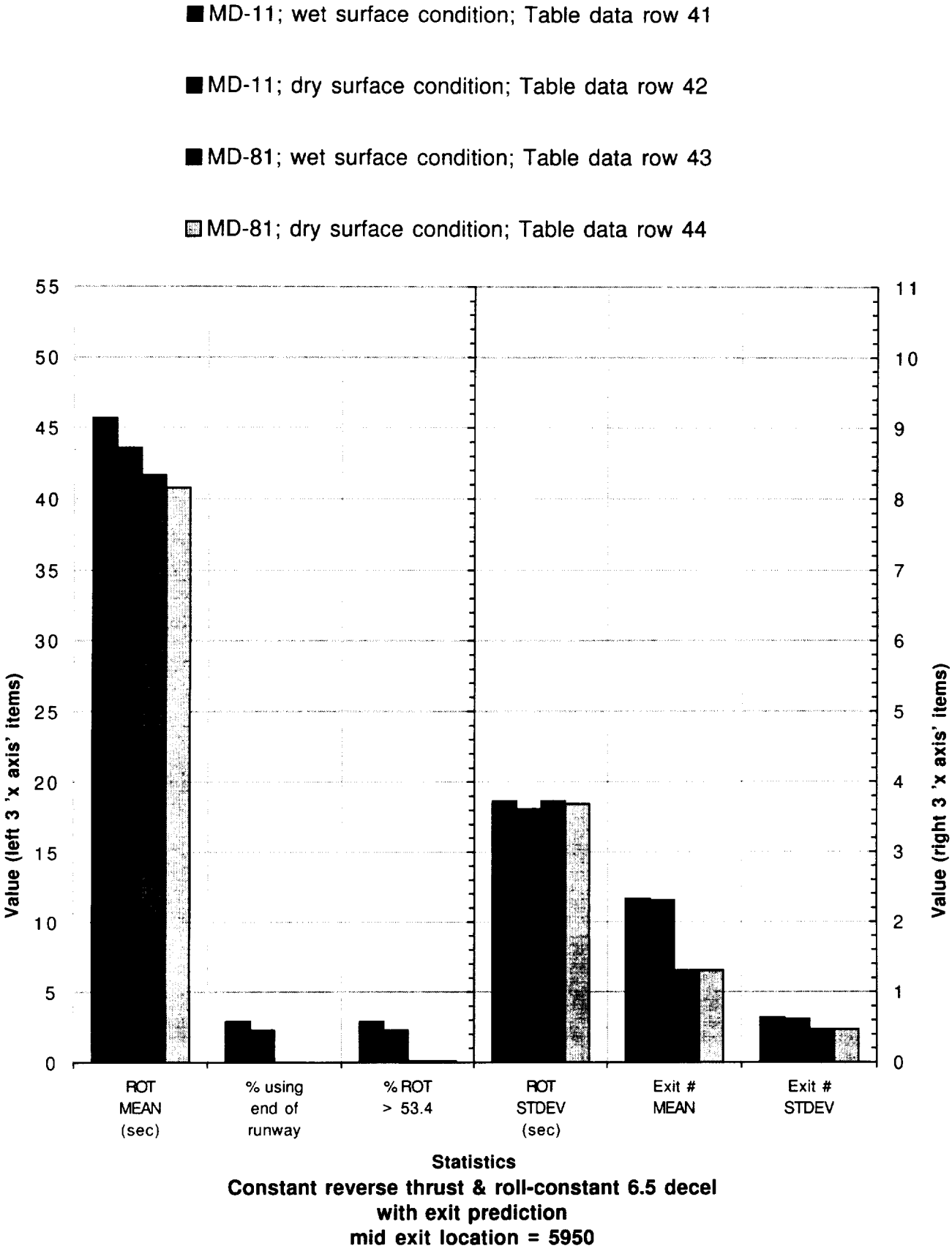
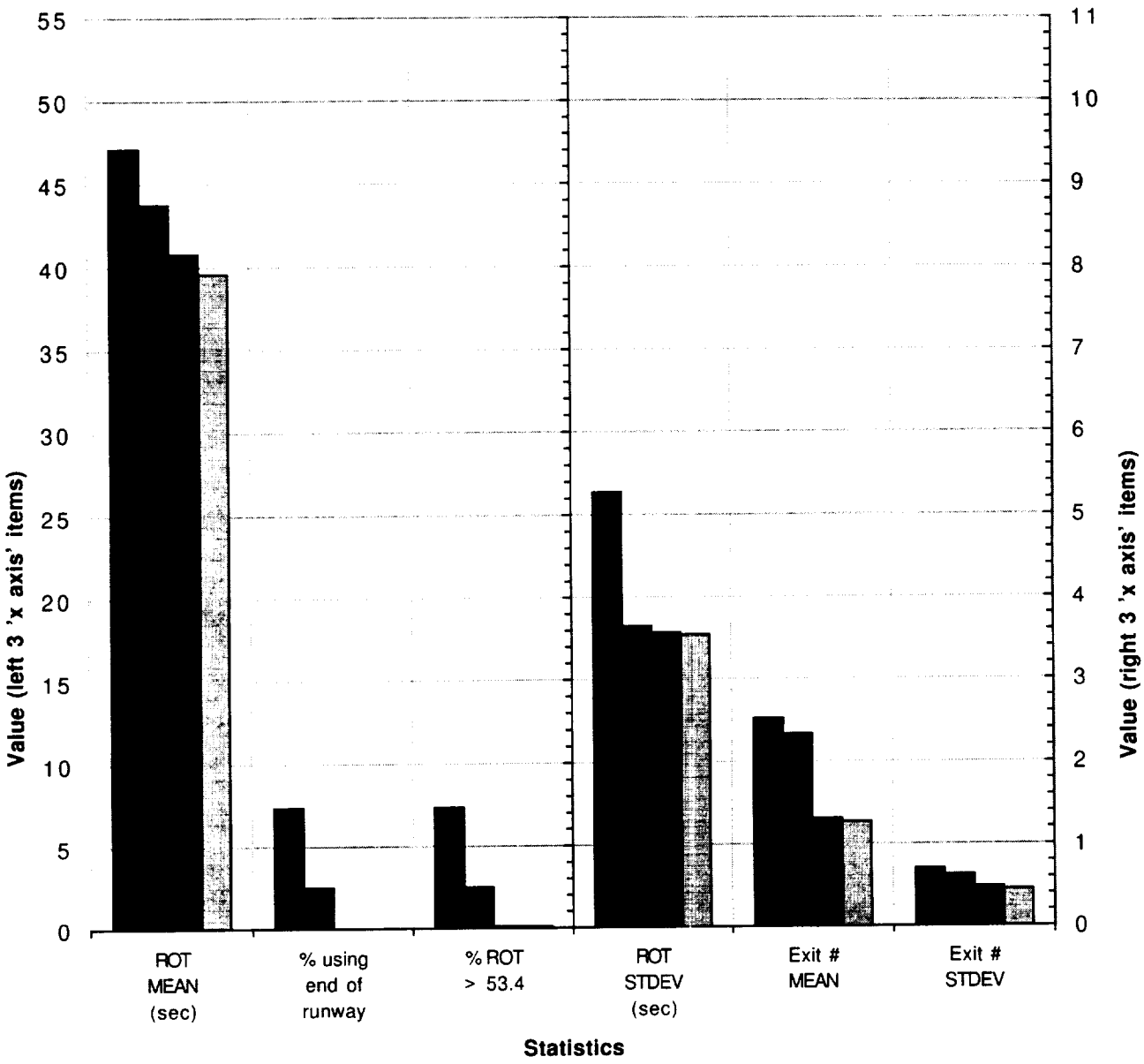
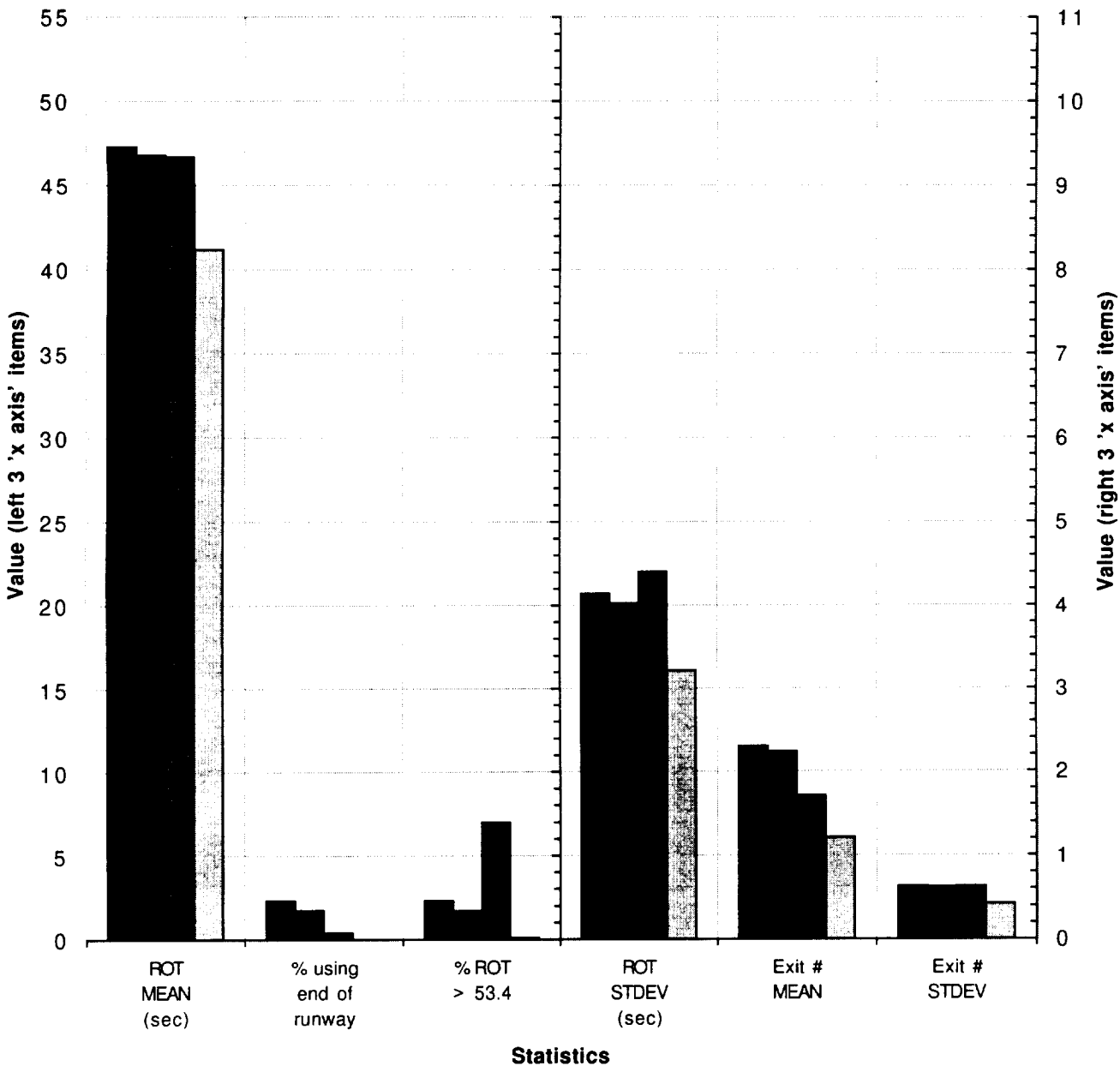
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Immediate med const reverse thrust & immed. const 6.5 decel
NO exit prediction
mid exit location = 5950

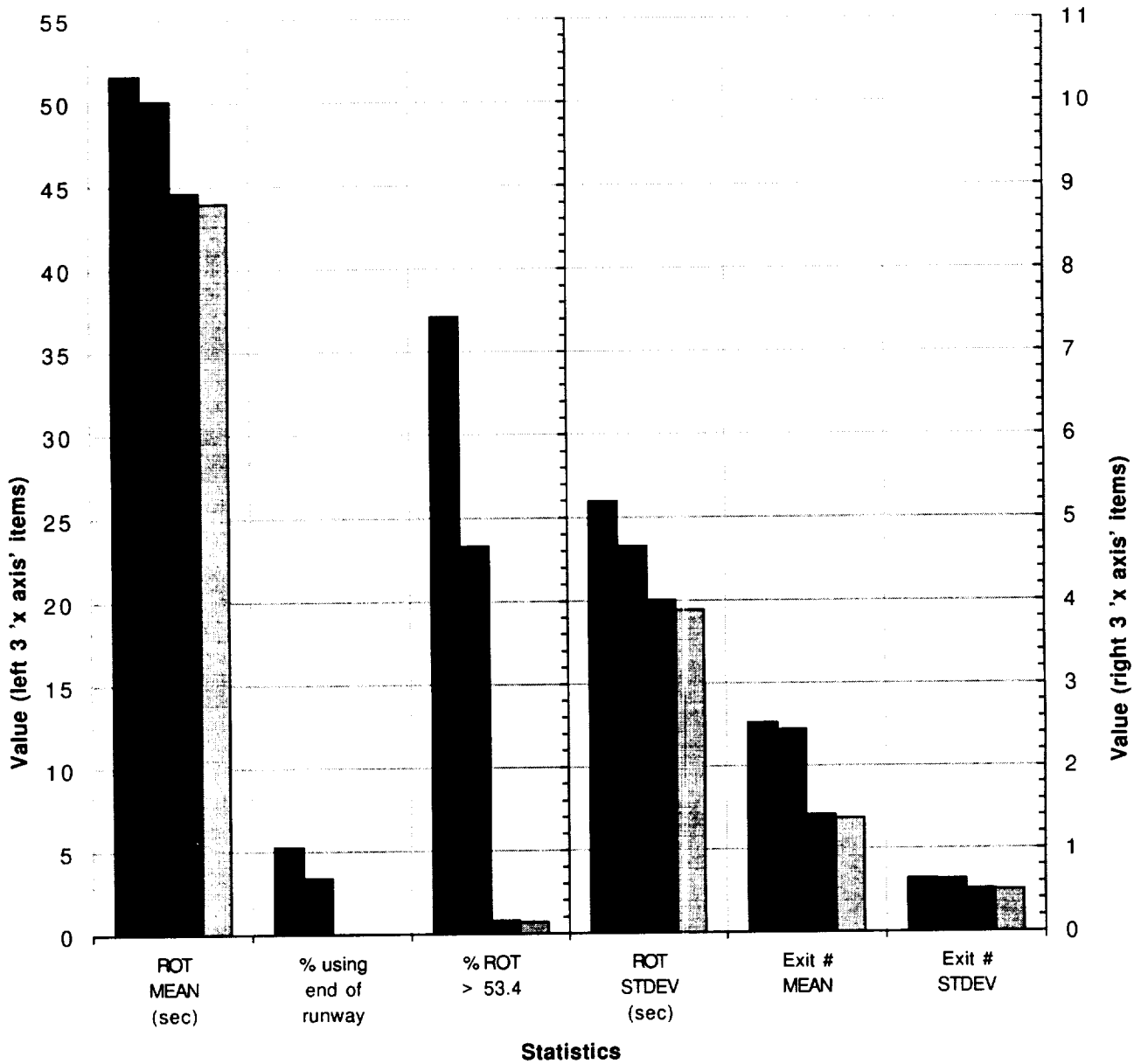

MD-11; wet surface condition; Table data row 41
MD-11; dry surface condition; Table data row 42
MD-81; wet surface condition; Table data row 43
MD-81; dry surface condition; Table data row 44
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Constant reverse thrust & roll-constant 6.5 decel
with exit prediction
mid exit location = 5950



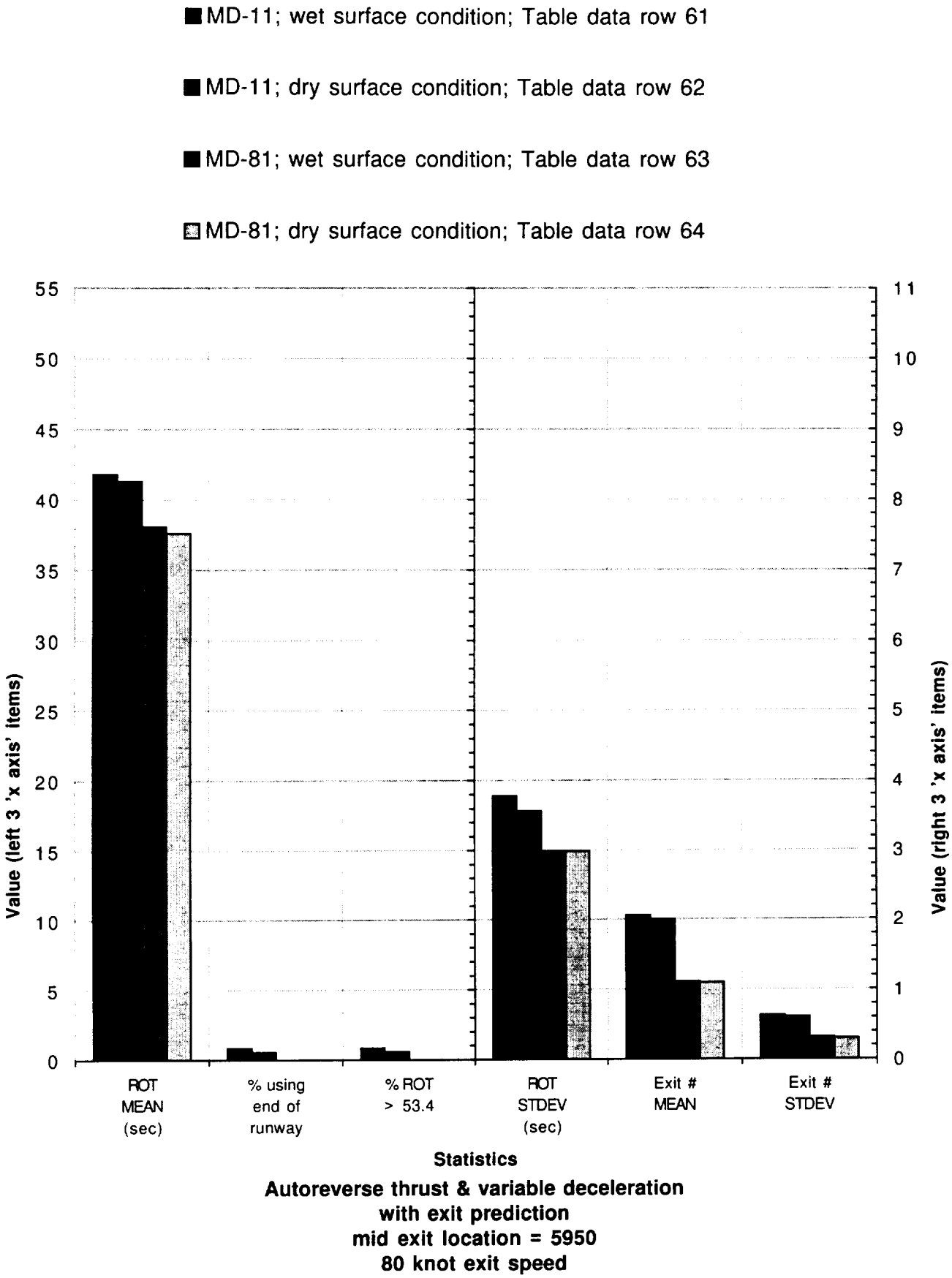
Autoreverse thrust & roll-constant 6.5 deceleration
with exit prediction
mid exit location = 5950



Constant reverse thrust & variable deceleration with exit prediction
mid exit location = 5950



Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
60 knot exit speed


MD-11; wet surface condition; Table data row 61
MD-11; dry surface condition; Table data row 62
MD-81; wet surface condition; Table data row 63
MD-81; dry surface condition; Table data row 64
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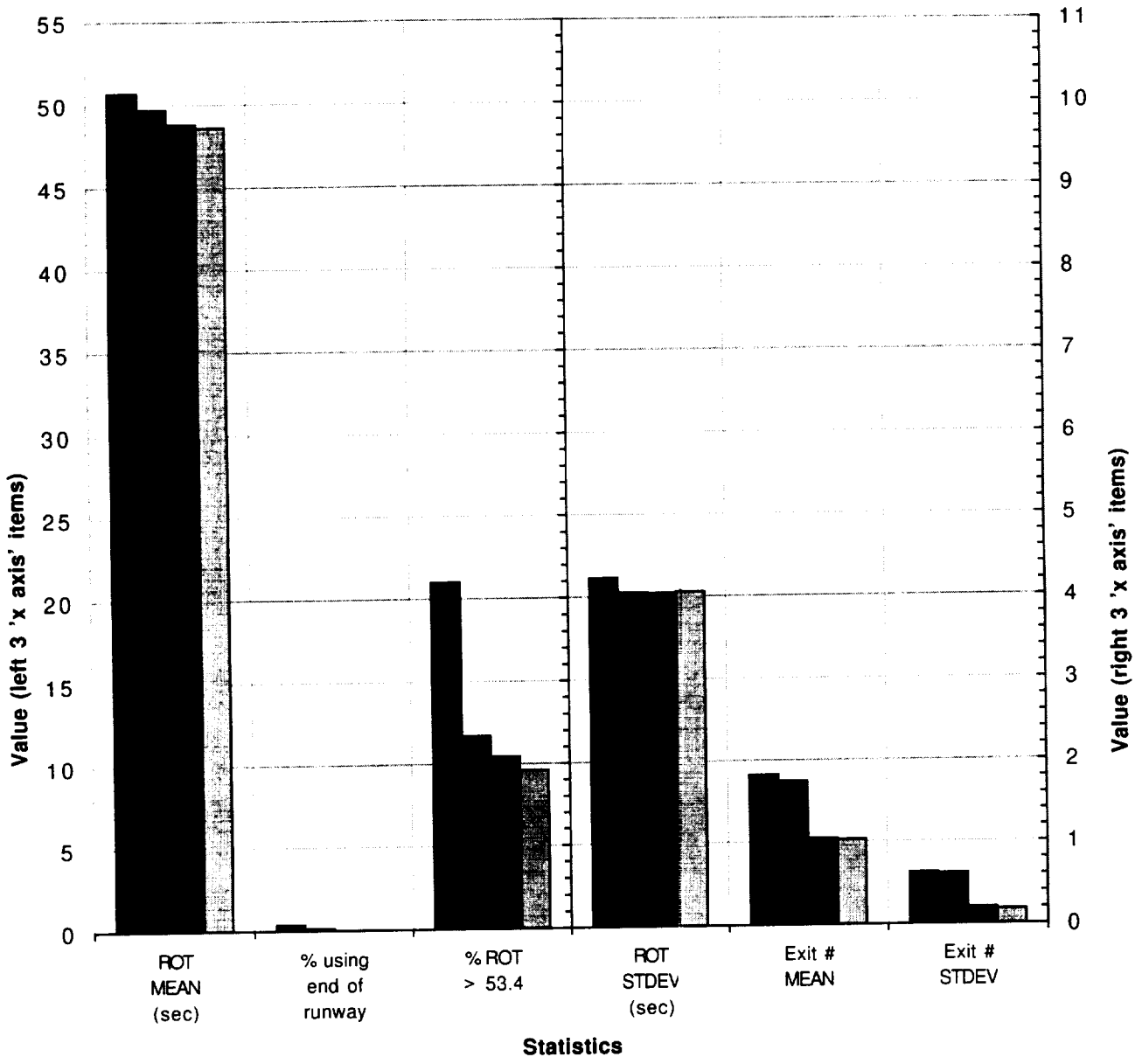
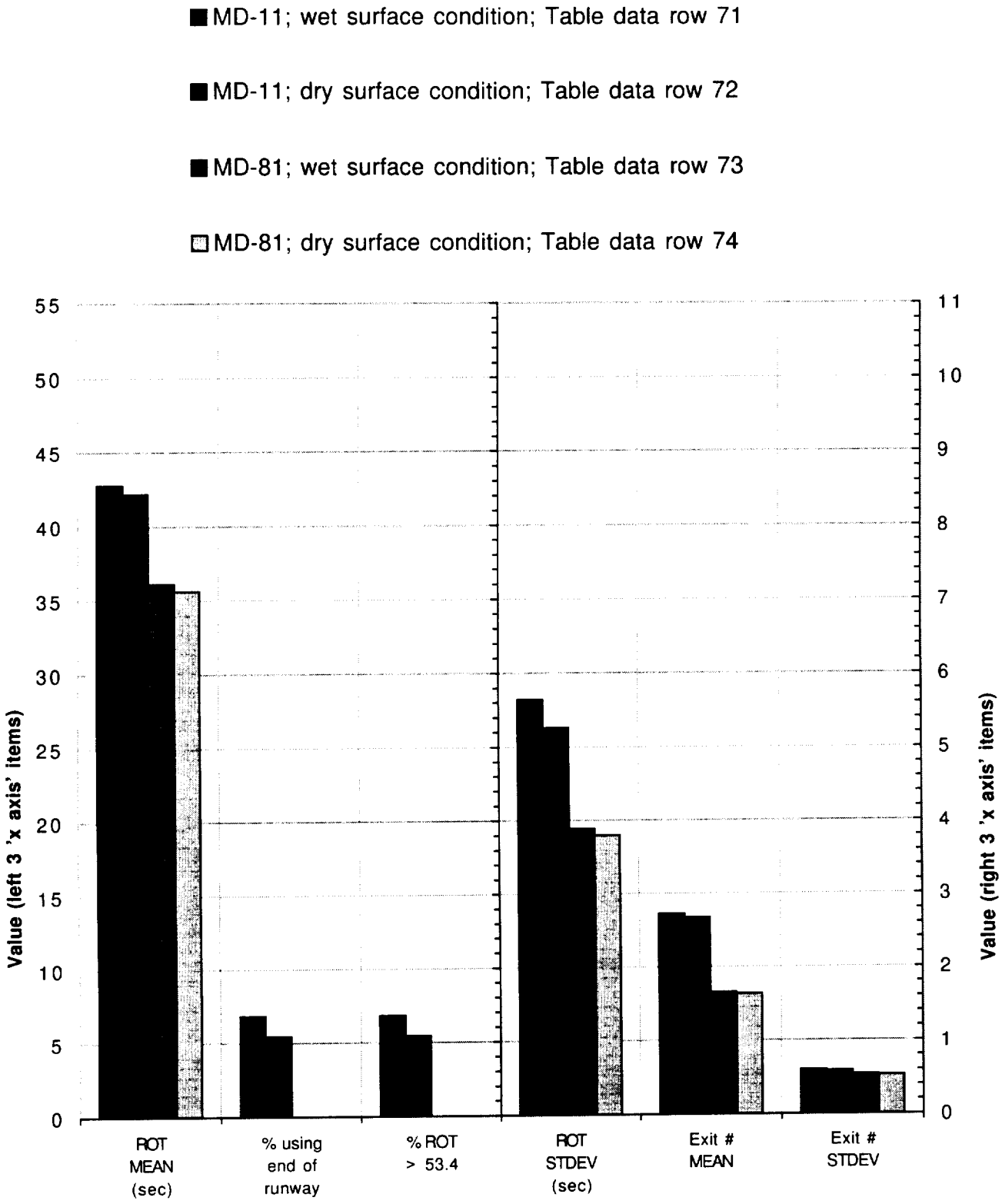
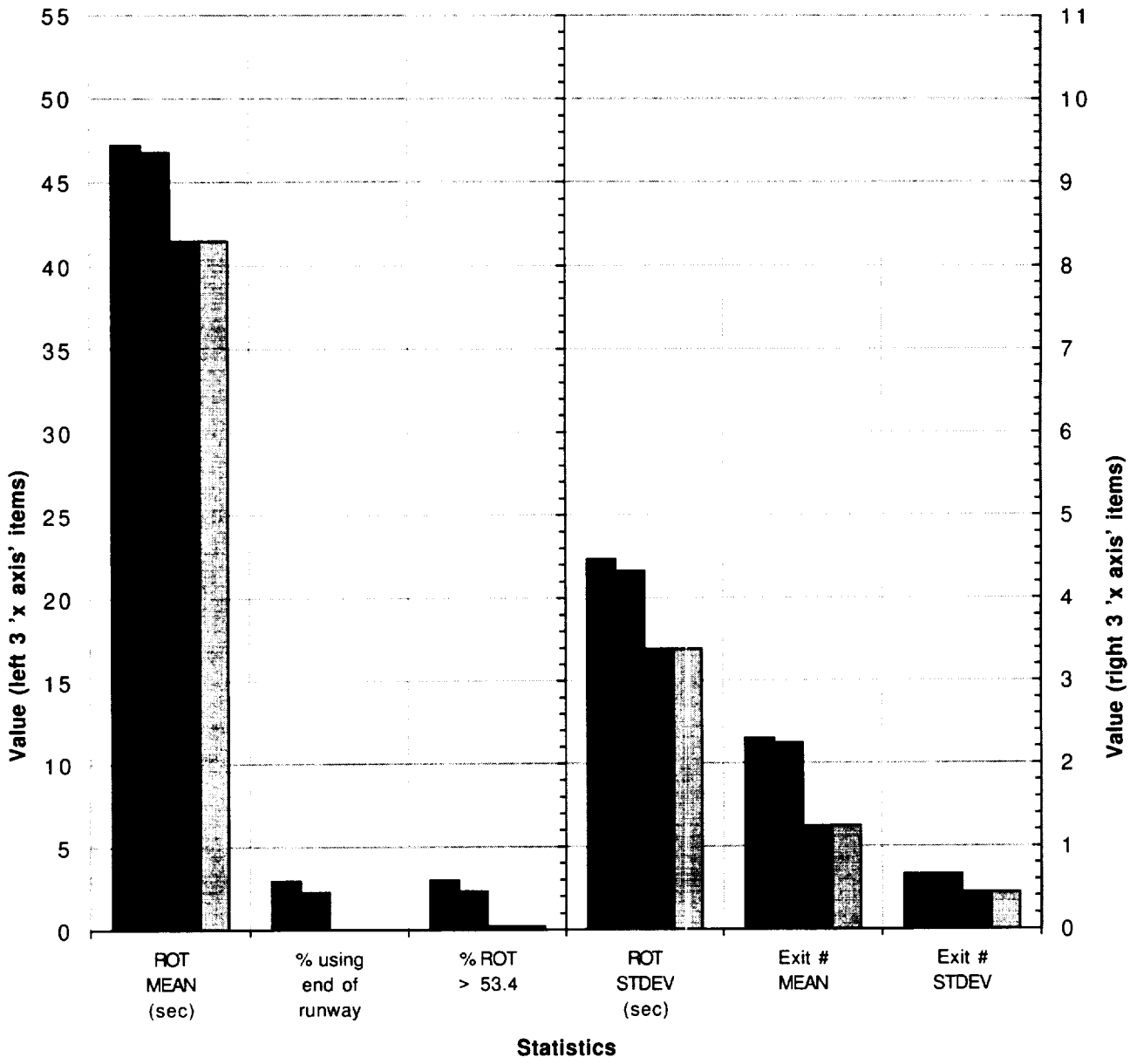
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
80 knot exit speed

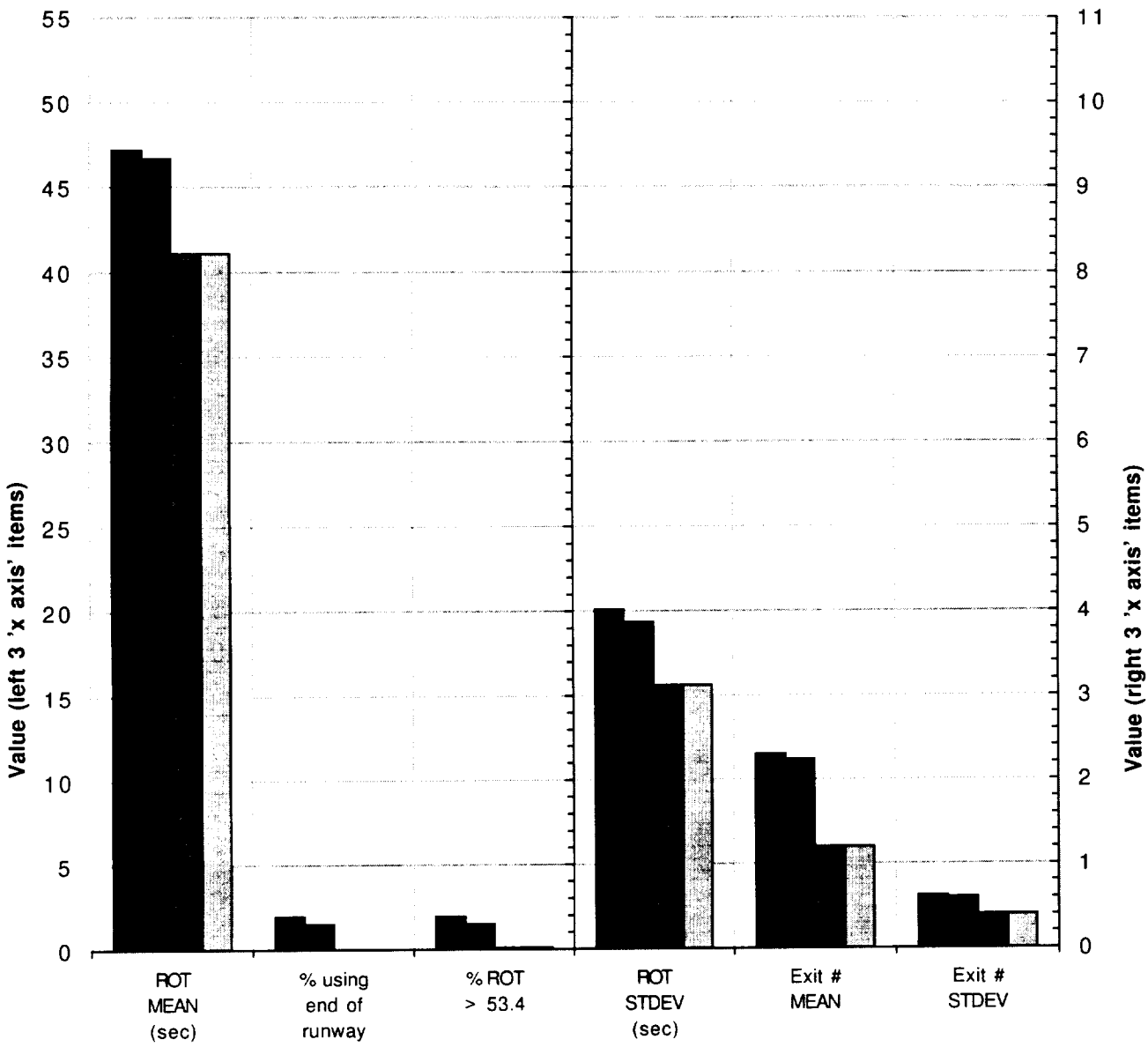


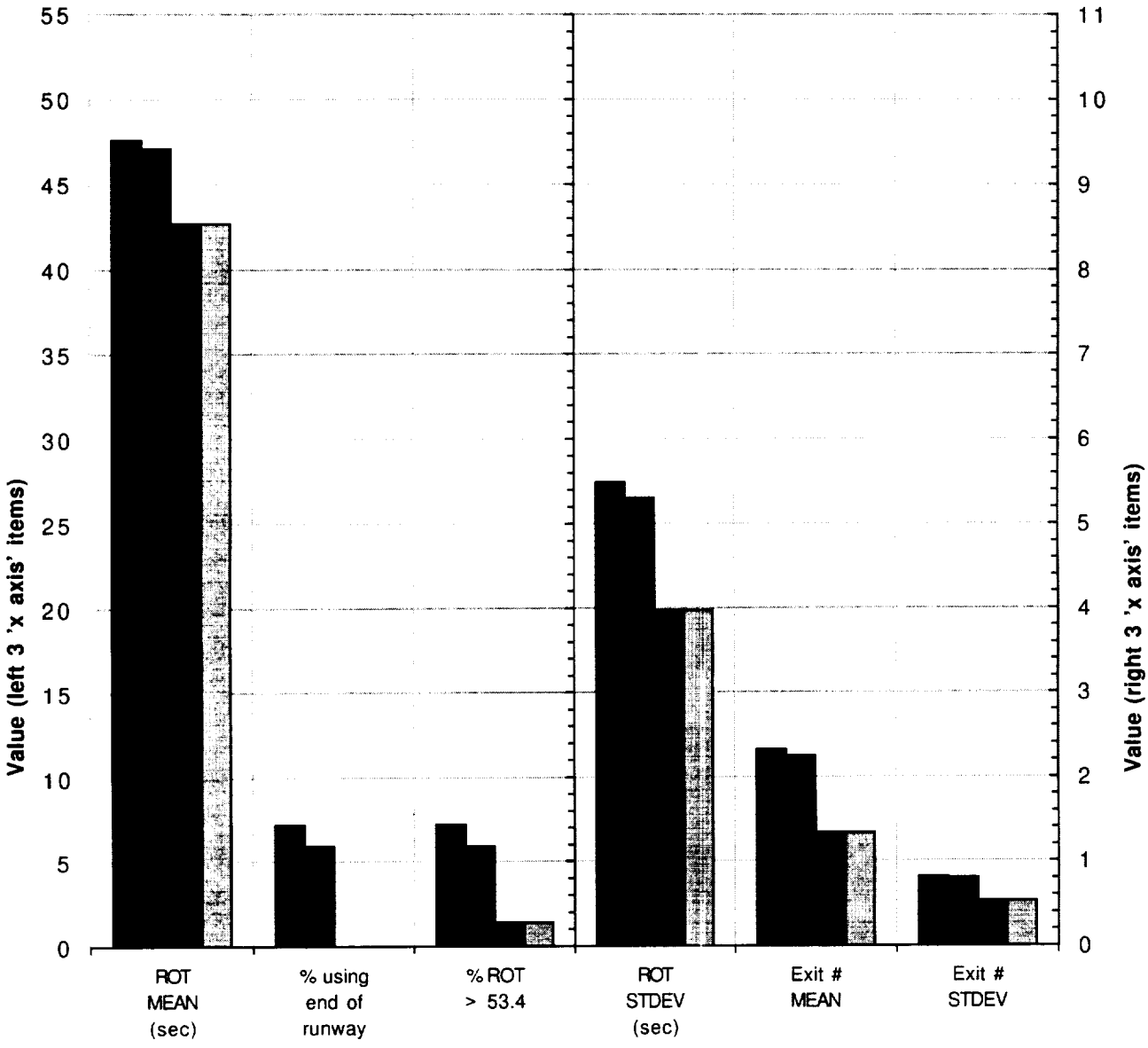
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 6950
60 knot exit speed


MD-11; wet surface condition; Table data row 71
MD-11; dry surface condition; Table data row 72
MD-81; wet surface condition; Table data row 73
MD-81; dry surface condition; Table data row 74
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 4950
80 knot exit speed



Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
TD dispersion sigma=375


MD-11; wet surface condition; Table data row 81
MD-11; dry surface condition; Table data row 82
MD-81; wet surface condition; Table data row 83
MD-81; dry surface condition; Table data row 84
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
TD dispersion sigma=100


MD-11; wet surface condition; Table data row 86
MD-11; dry surface condition; Table data row 87
MD-81; wet surface condition; Table data row 88
MD-81; dry surface condition; Table data row 89
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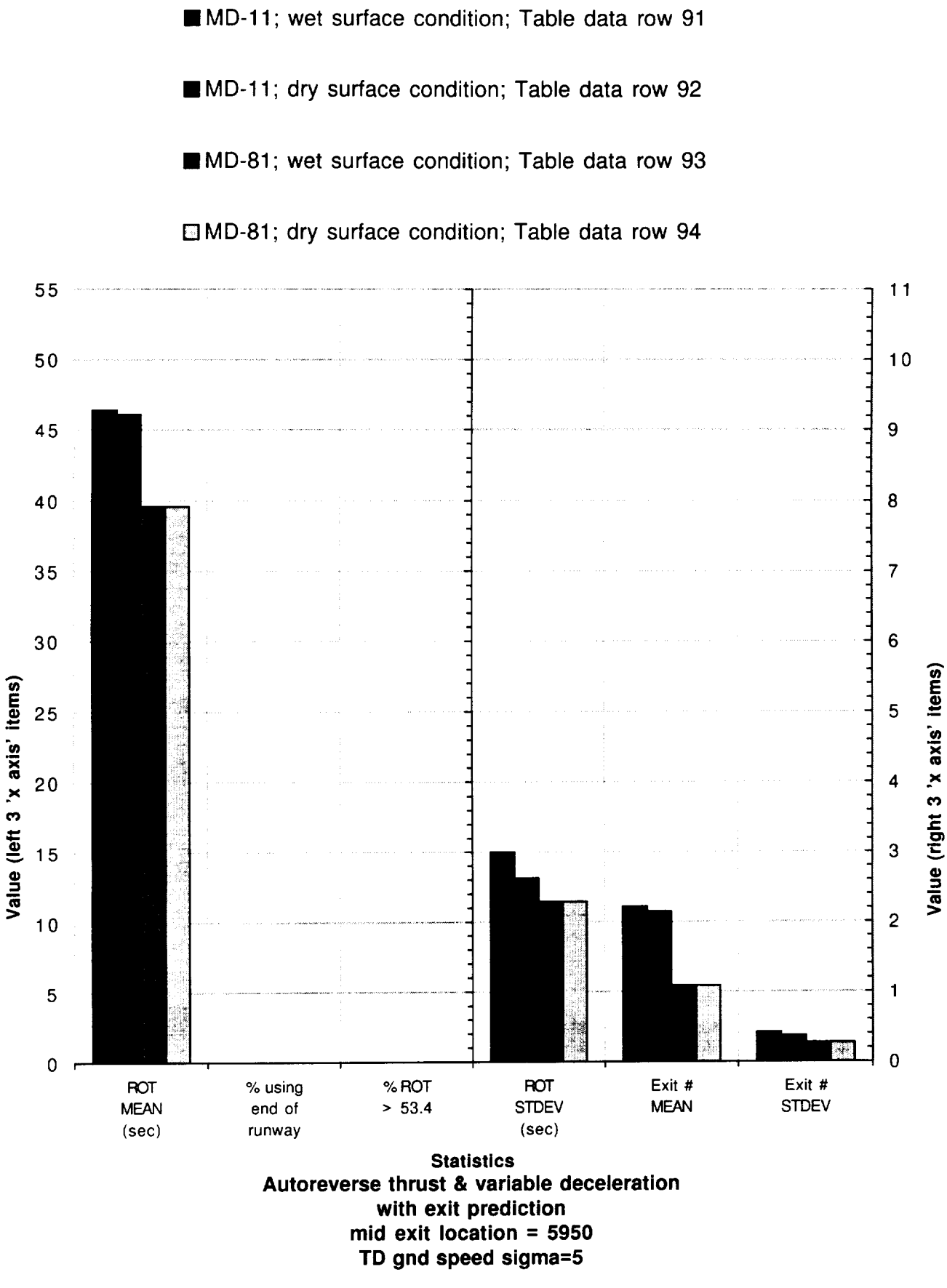
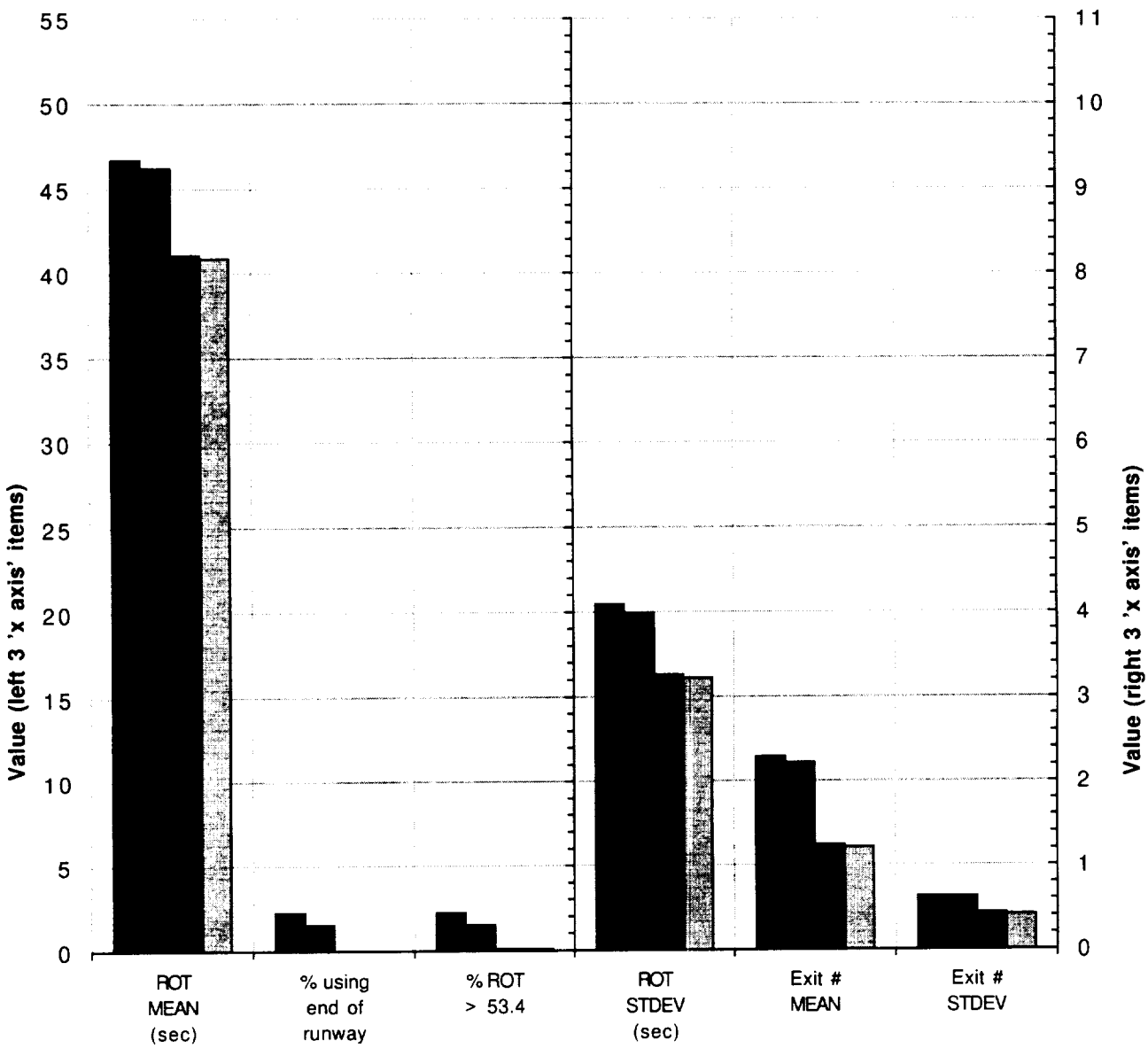
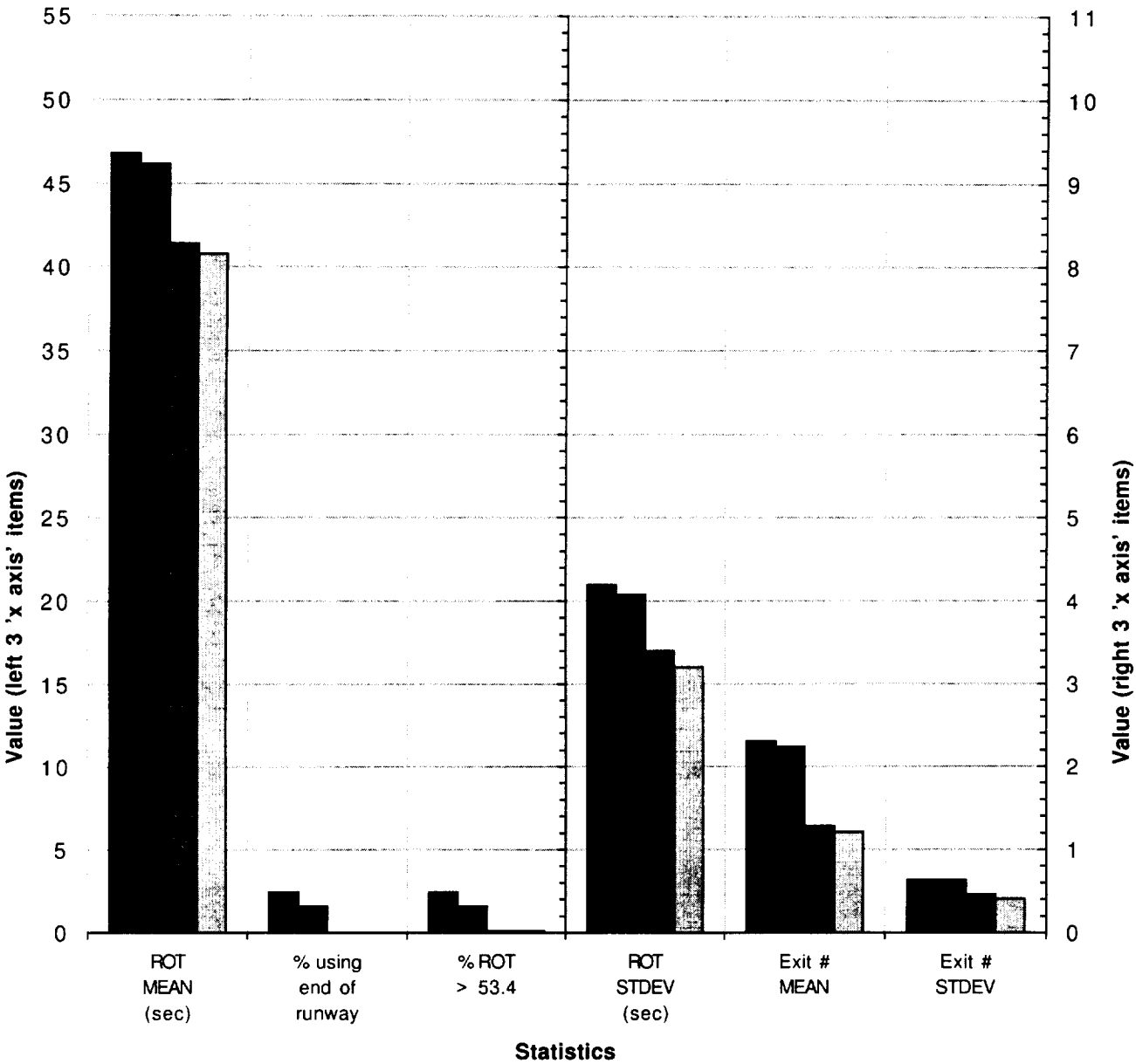
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
TD gnd speed sigma=17

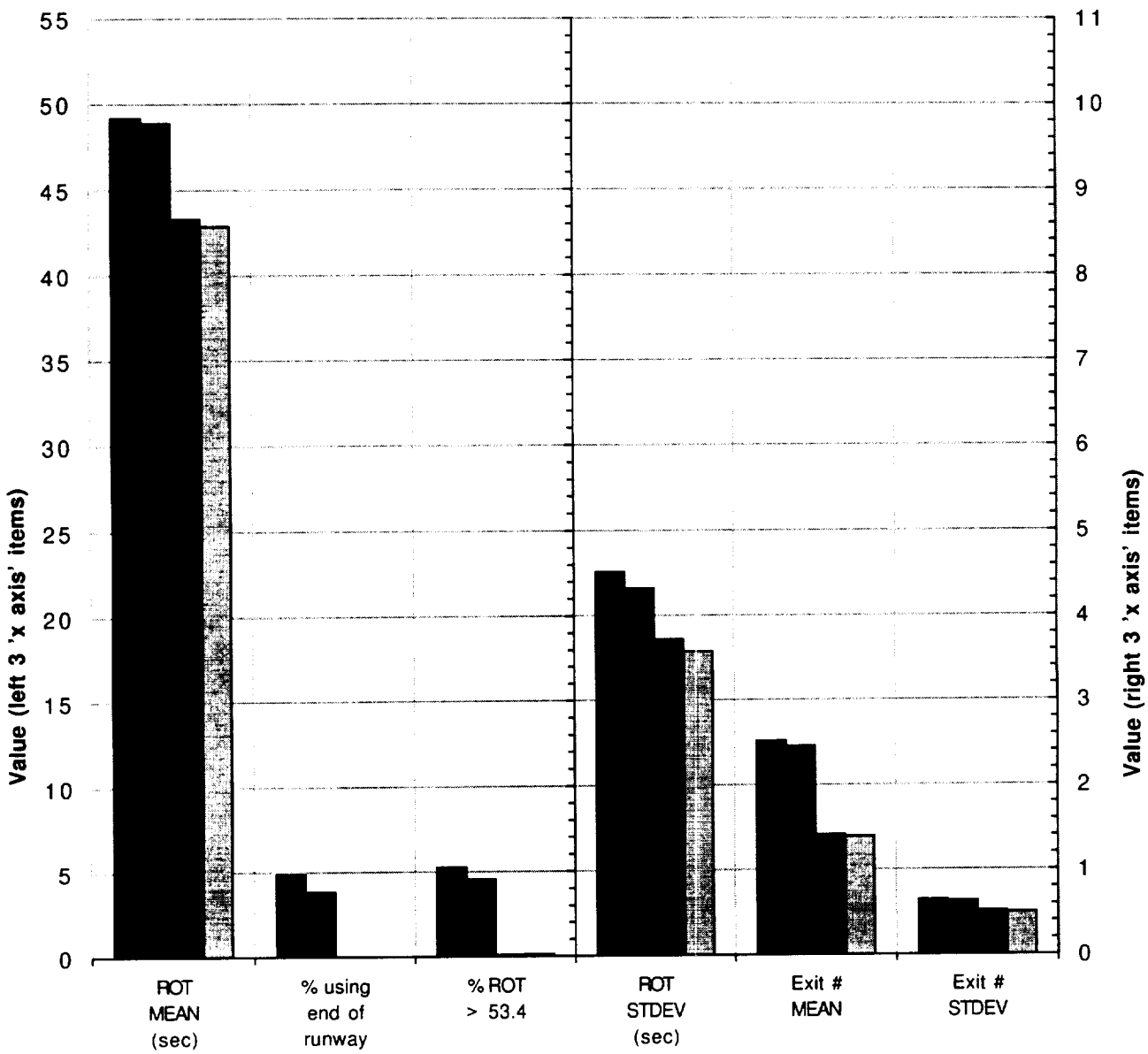

MD-11; wet surface condition; Table data row 91
MD-11; dry surface condition; Table data row 92
MD-81; wet surface condition; Table data row 93
MD-81; dry surface condition; Table data row 94
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
TD gnd speed sigma=5



Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
no crosswind



Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
gusting crosswind 12.5 +2.5sigma, sensor noise


MD-11; wet surface condition; Table data row 106
MD-11; dry surface condition; Table data row 107
MD-81; wet surface condition; Table data row 108
MD-81; dry surface condition; Table data row 109
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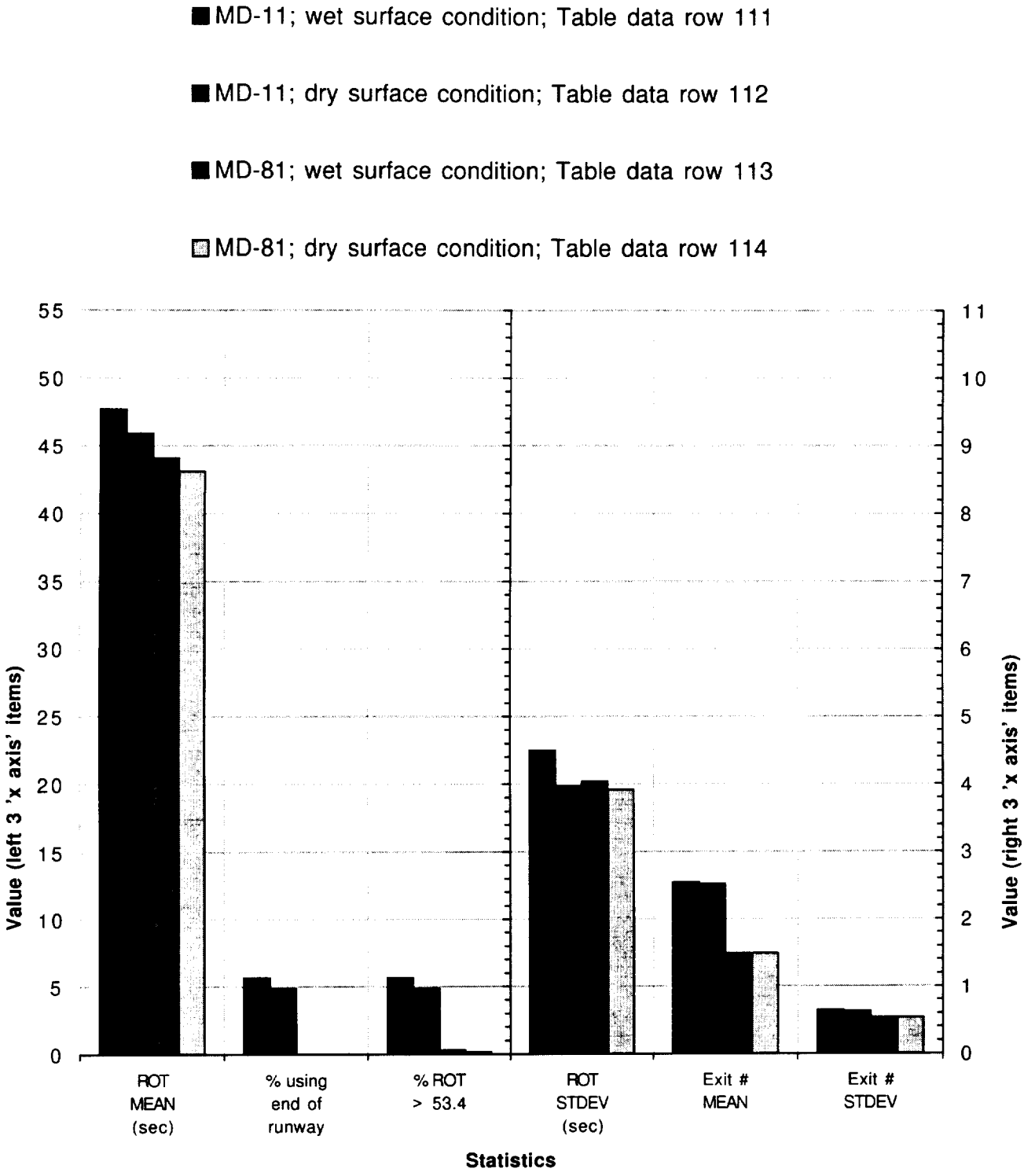
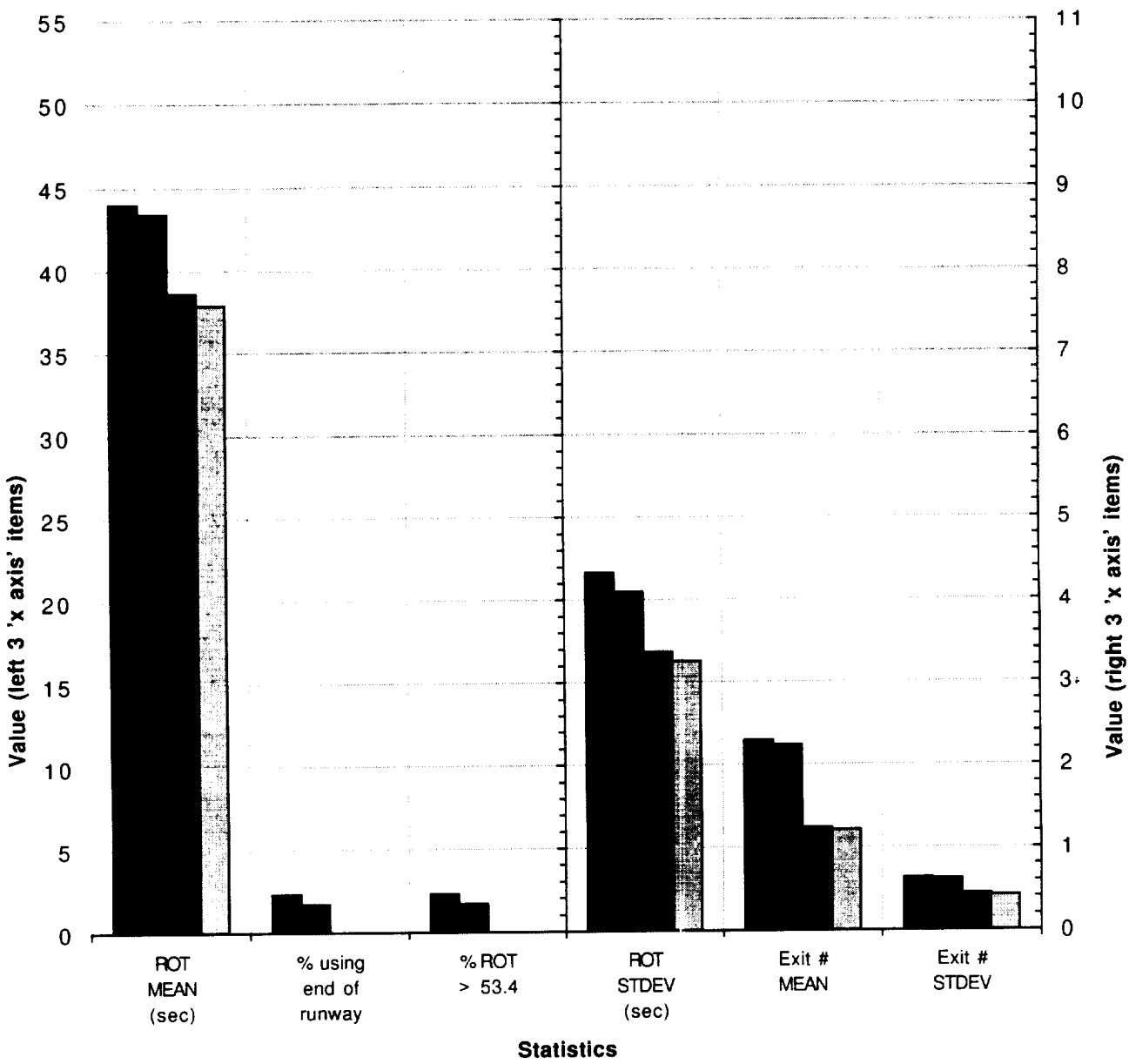
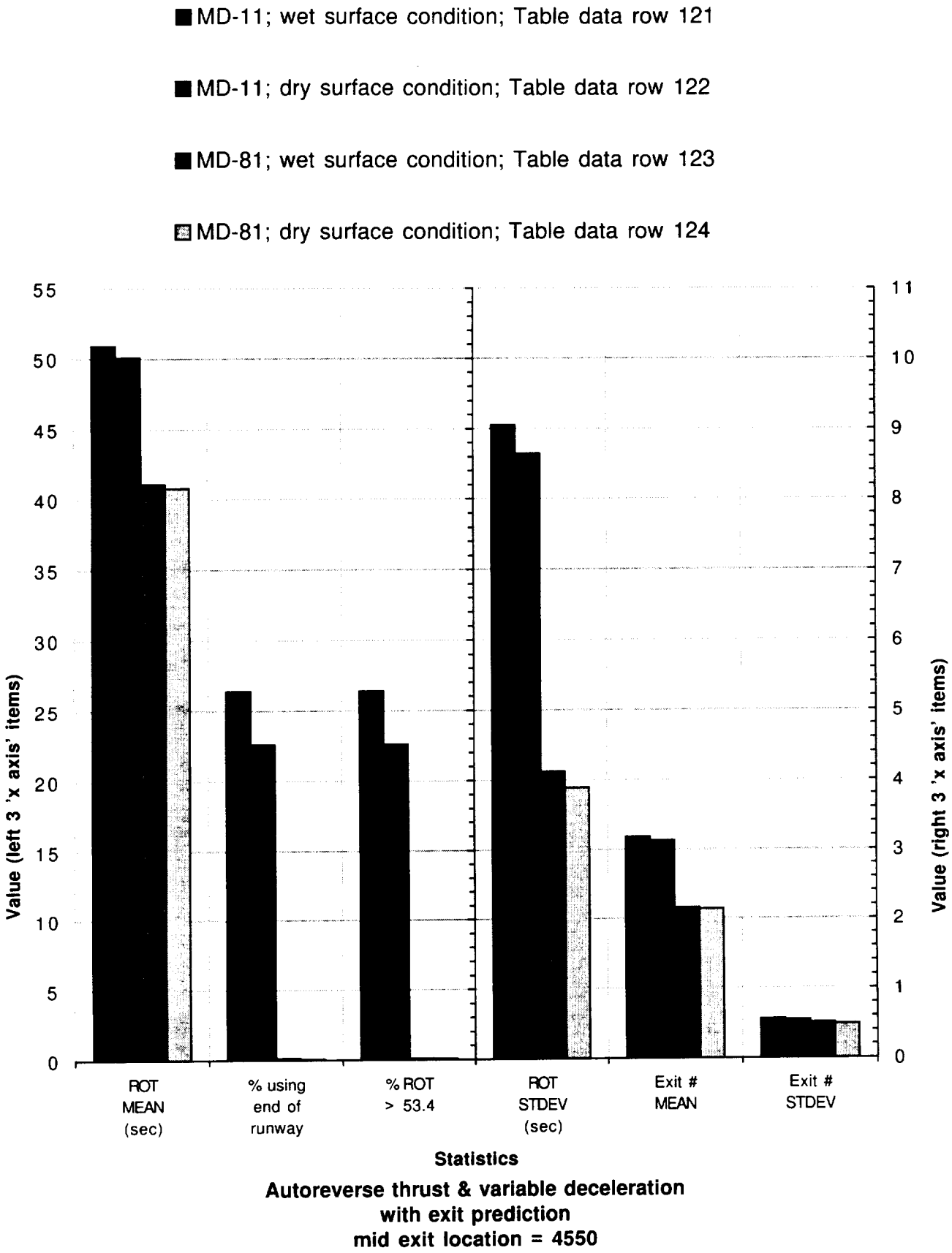
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950
predict TD location error of 300 feet



Constant reverse thrust & roll-constant 6.5 deceleration
with exit prediction
mid exit location = 5950
predict TD location error of 300 feet



Autoreverse thrust & variable deceleration
with exit prediction
constant 2900 ft exit radius
mid exit location = 5950


MD-11; wet surface condition; Table data row 121
MD-11; dry surface condition; Table data row 122
MD-81; wet surface condition; Table data row 123
MD-81; dry surface condition; Table data row 124
55
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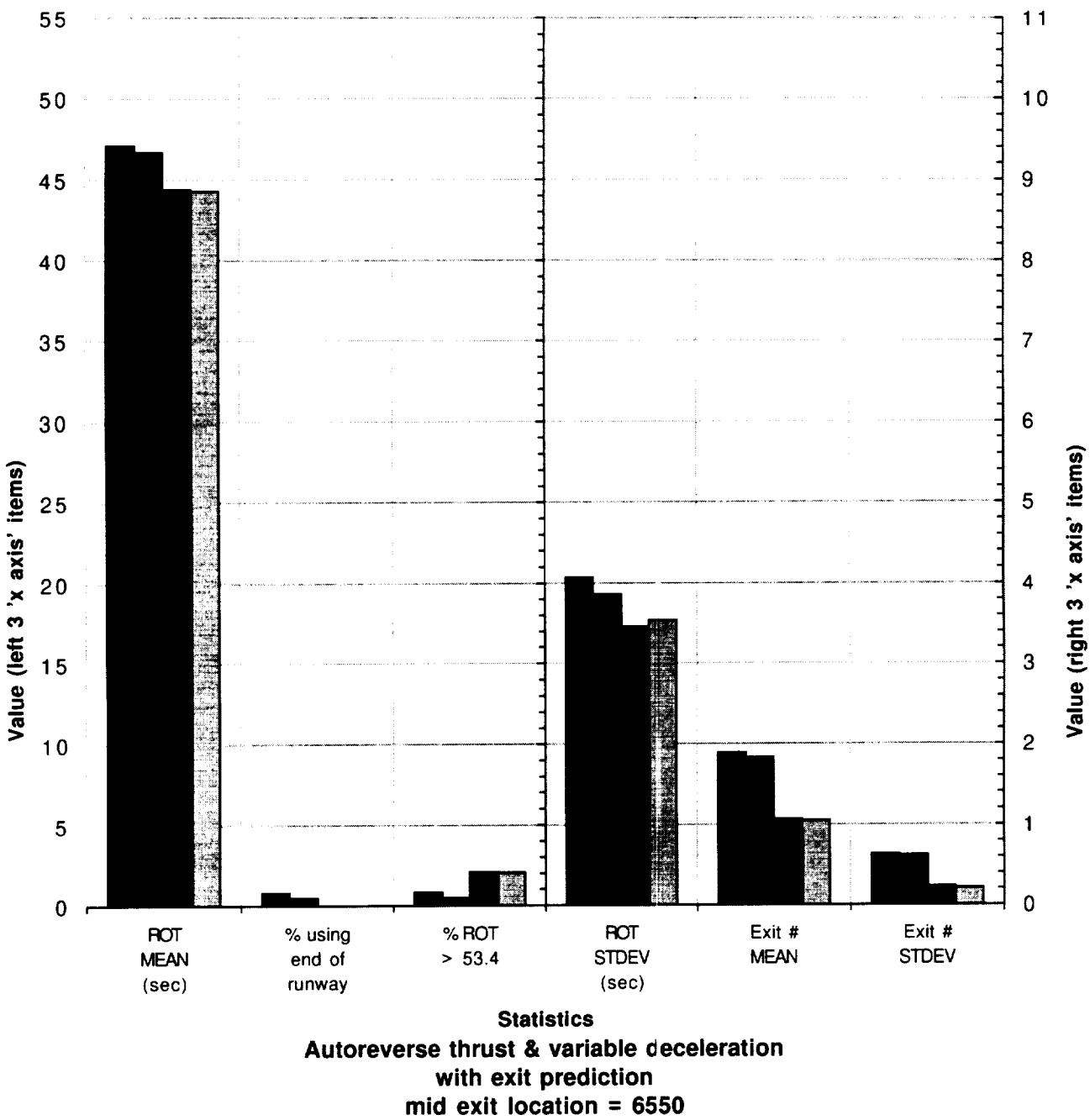
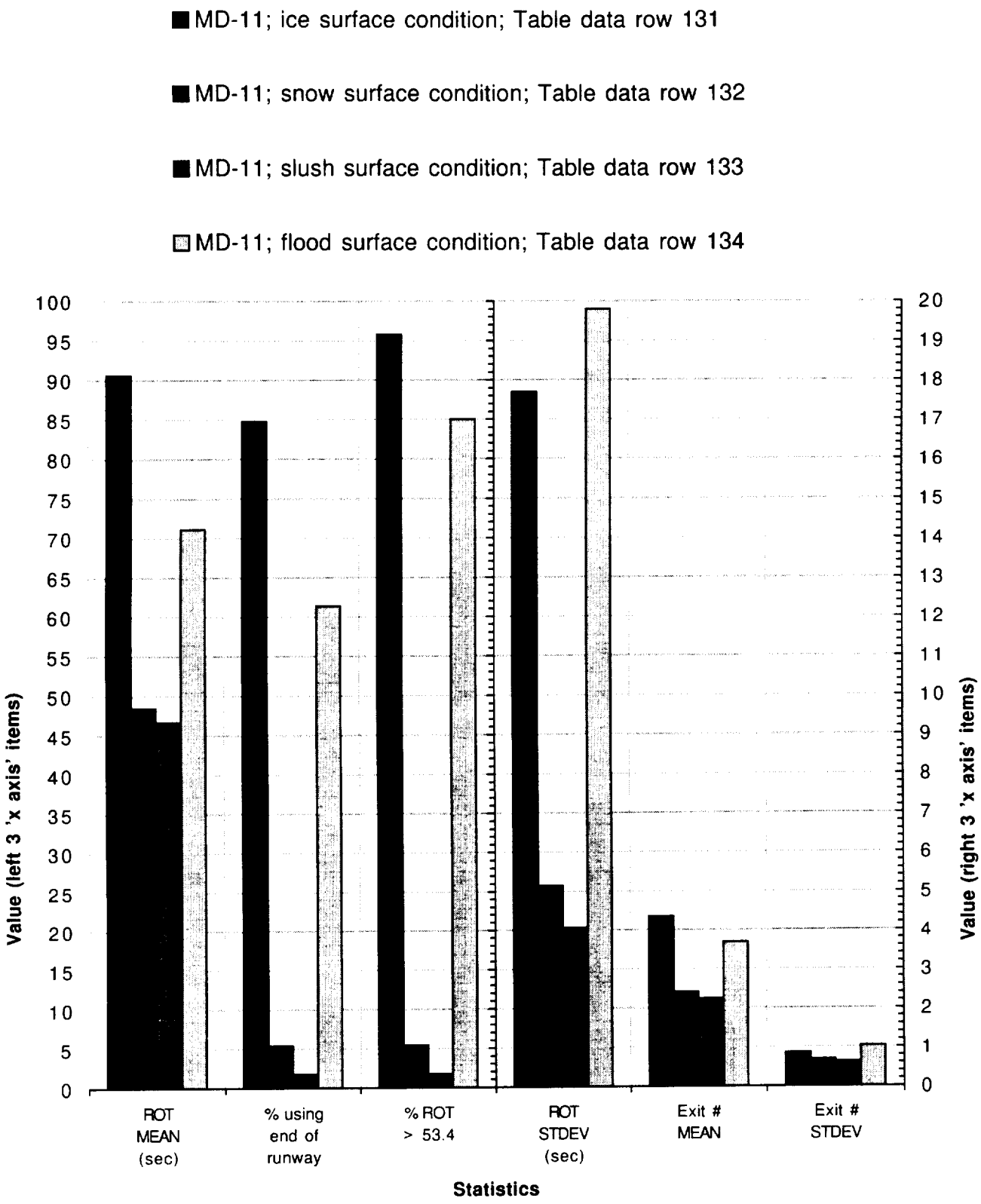
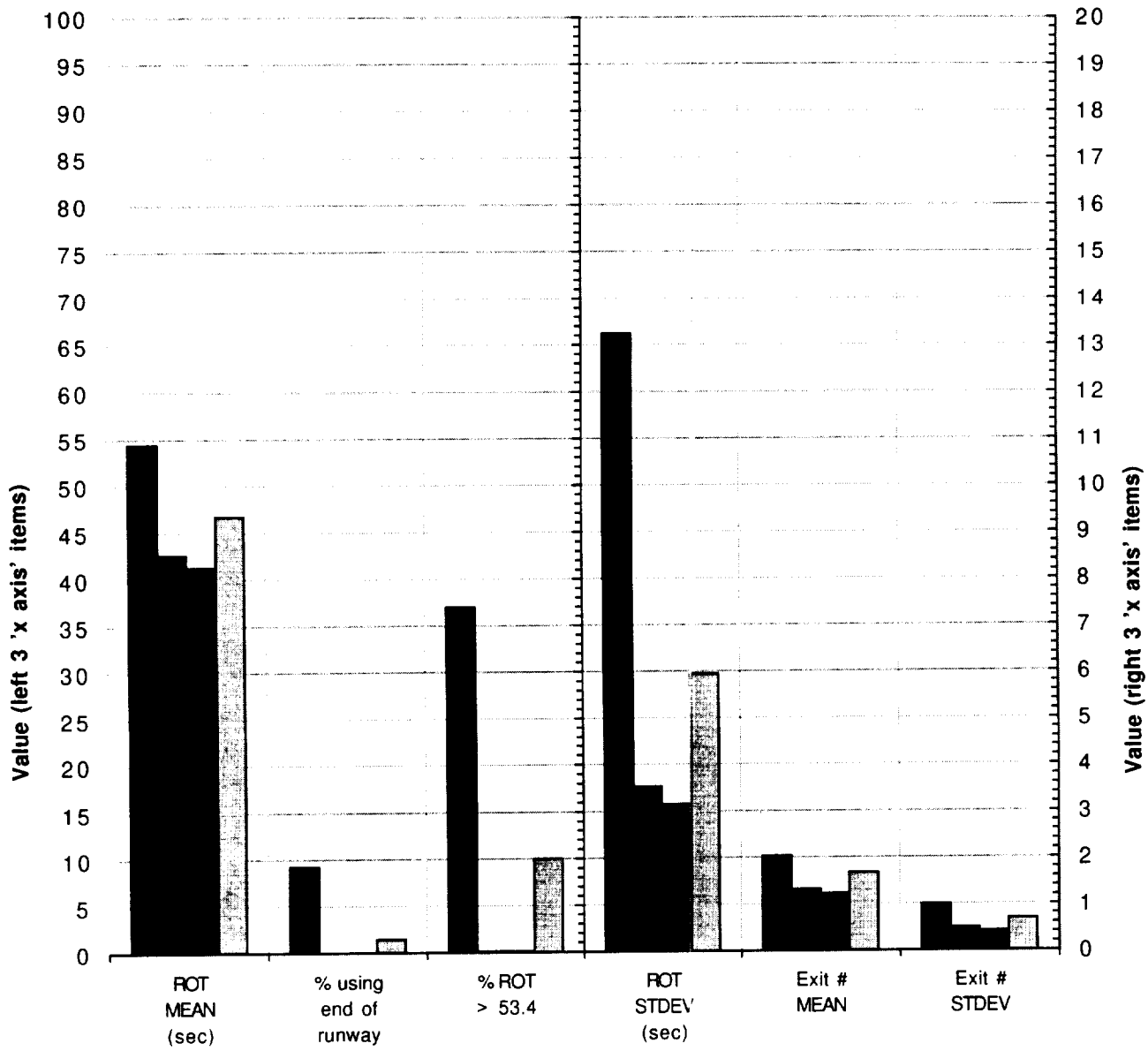
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 4550

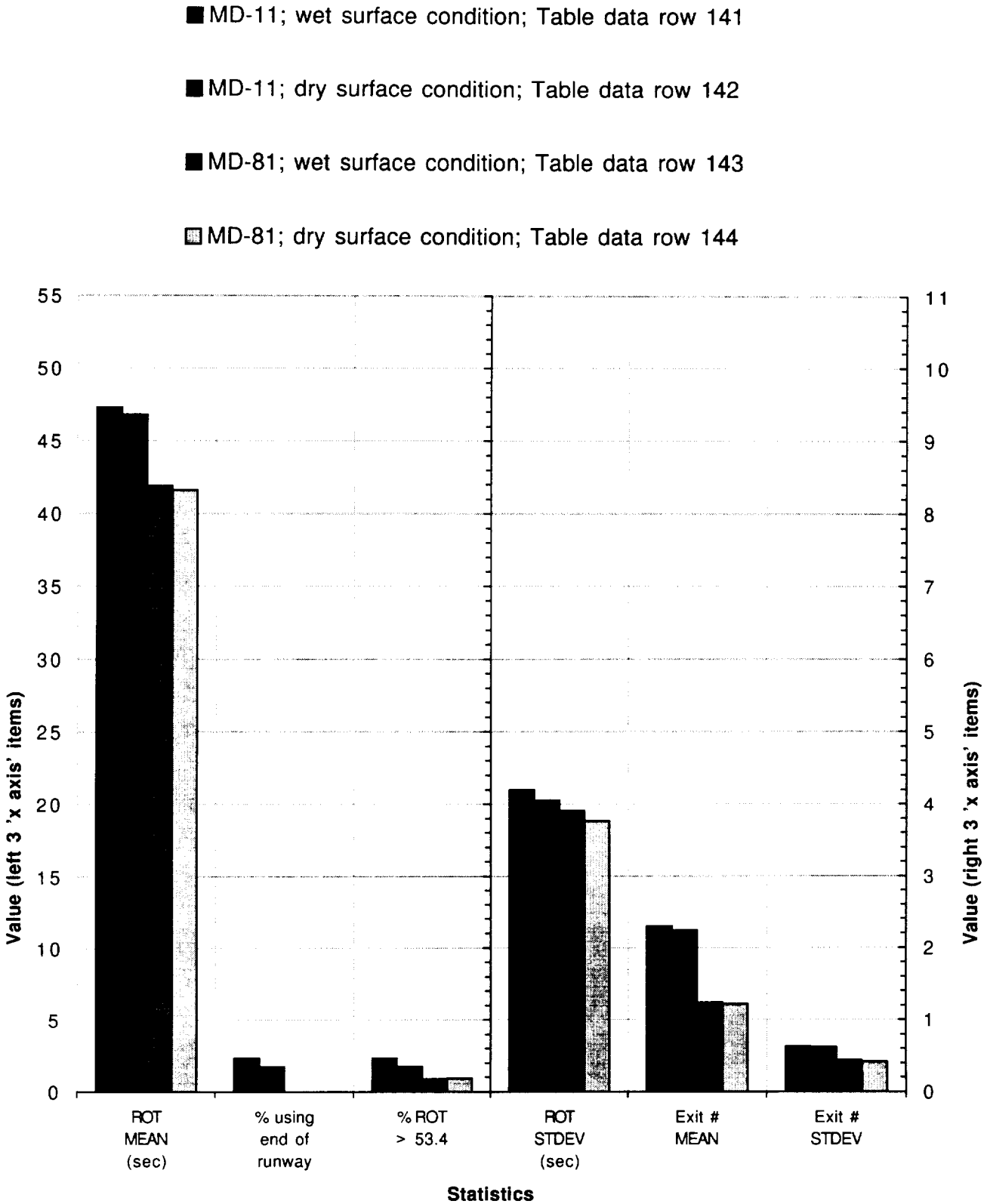

MD-11; wet surface condition; Table data row 126
MD-11; dry surface condition; Table data row 127
MD-81; wet surface condition; Table data row 128
MD-81; dry surface condition; Table data row 129
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 6550

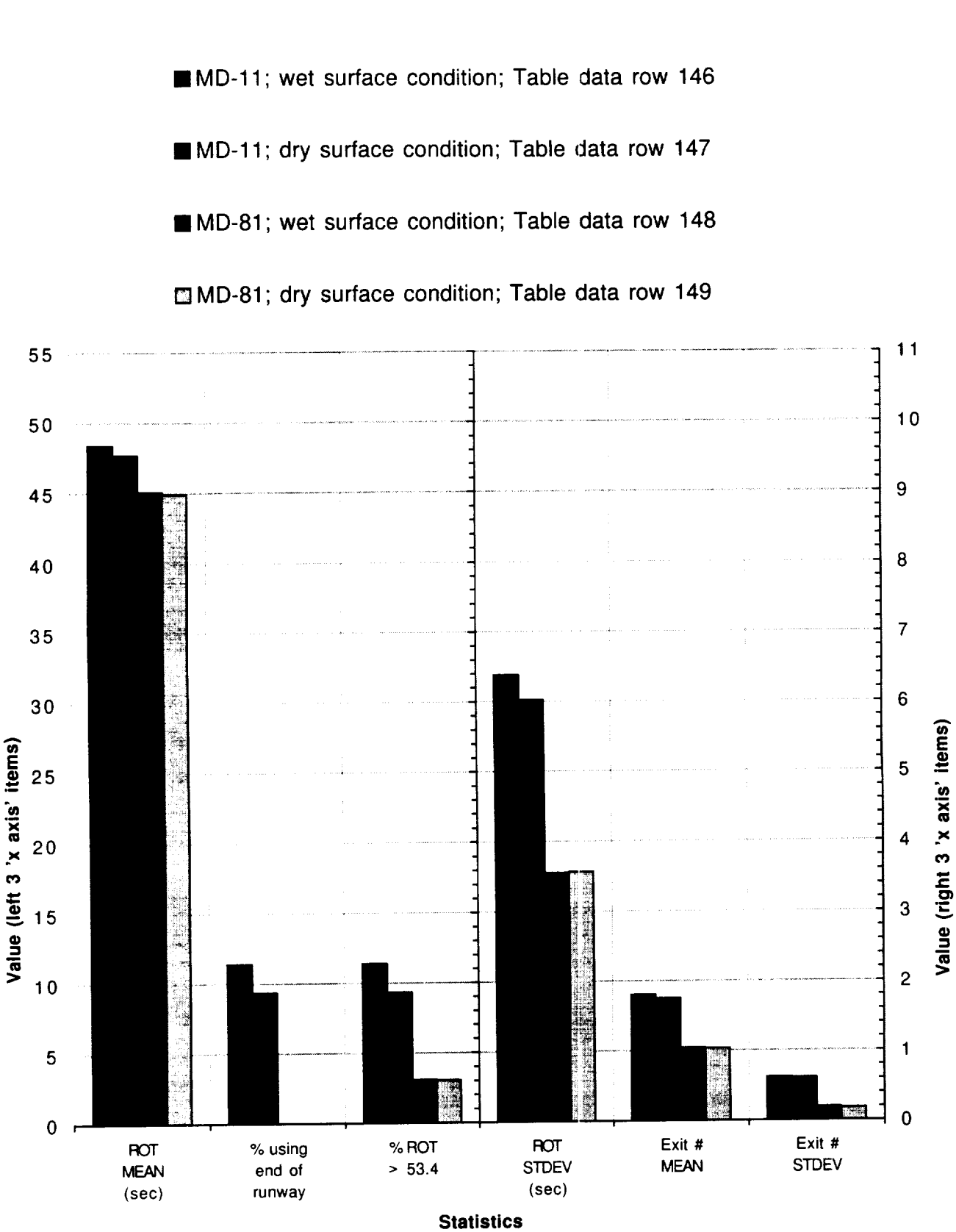


MD-11 on various surface conditions
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950

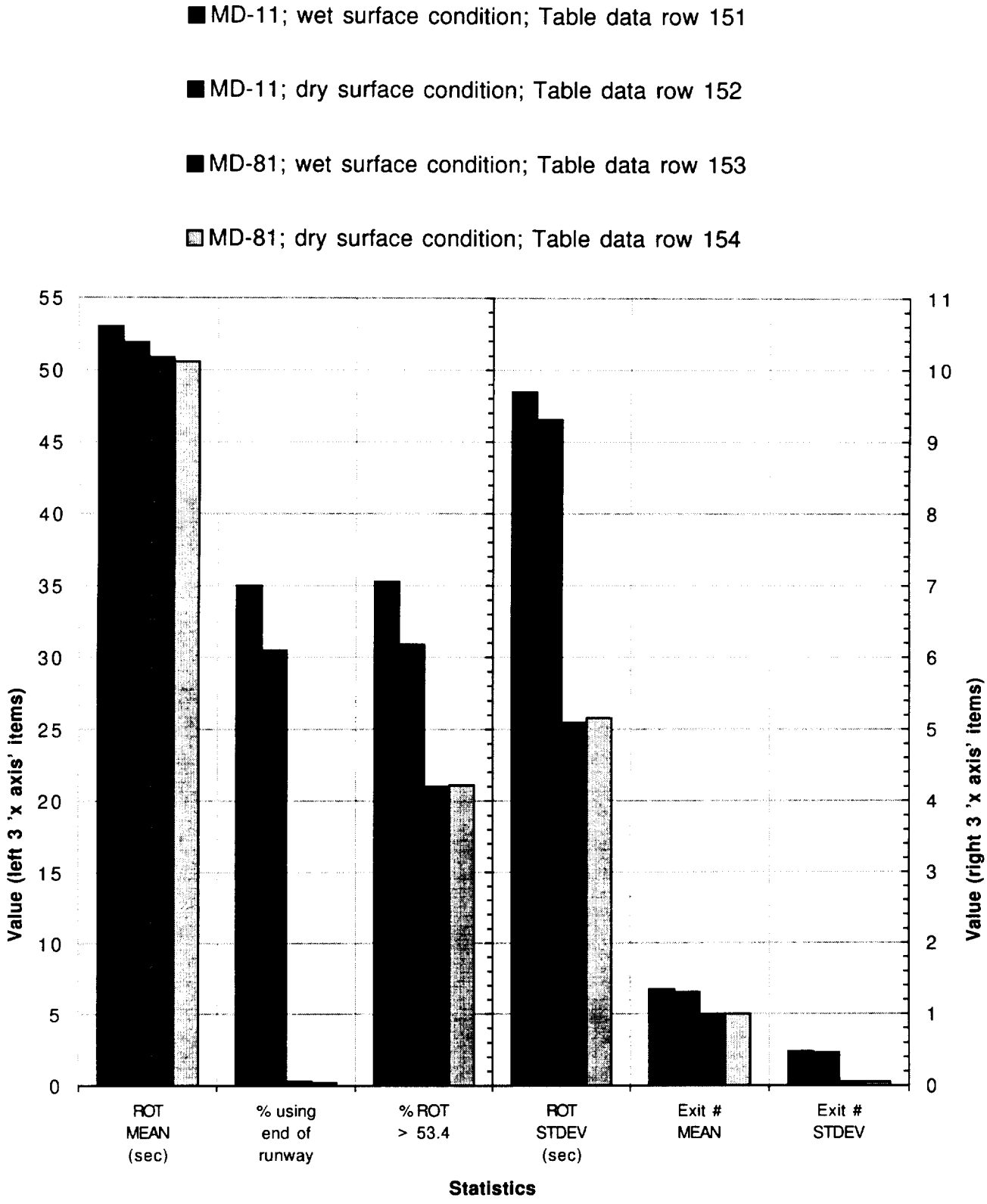


MD-81 on various surface conditions
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950

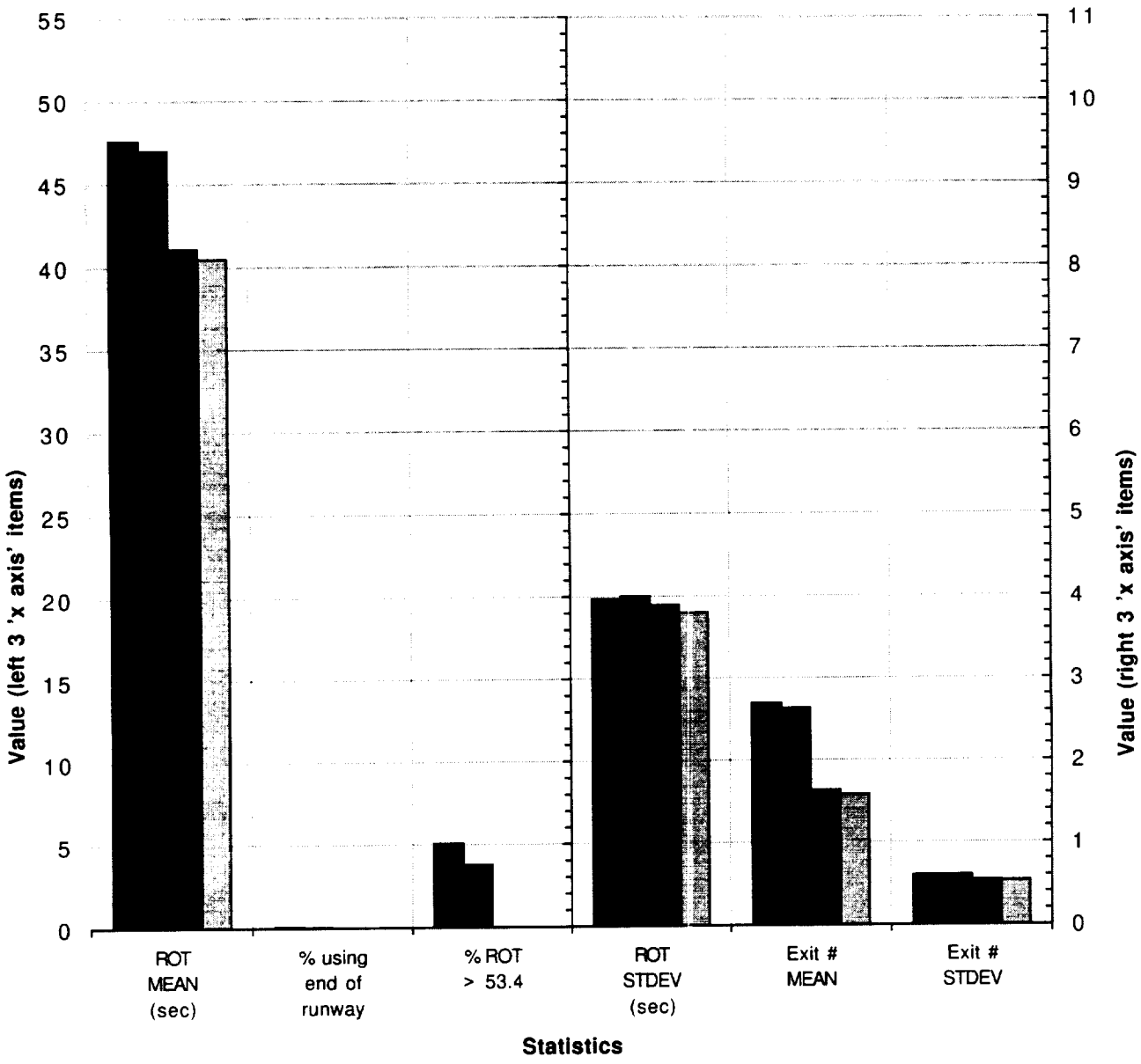

MD-11; wet surface condition; Table data row 141
MD-11; dry surface condition; Table data row 142
MD-81; wet surface condition; Table data row 143
MD-81; dry surface condition; Table data row 144
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Reverse Thrust not stowed, idle on exit
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location = 5950



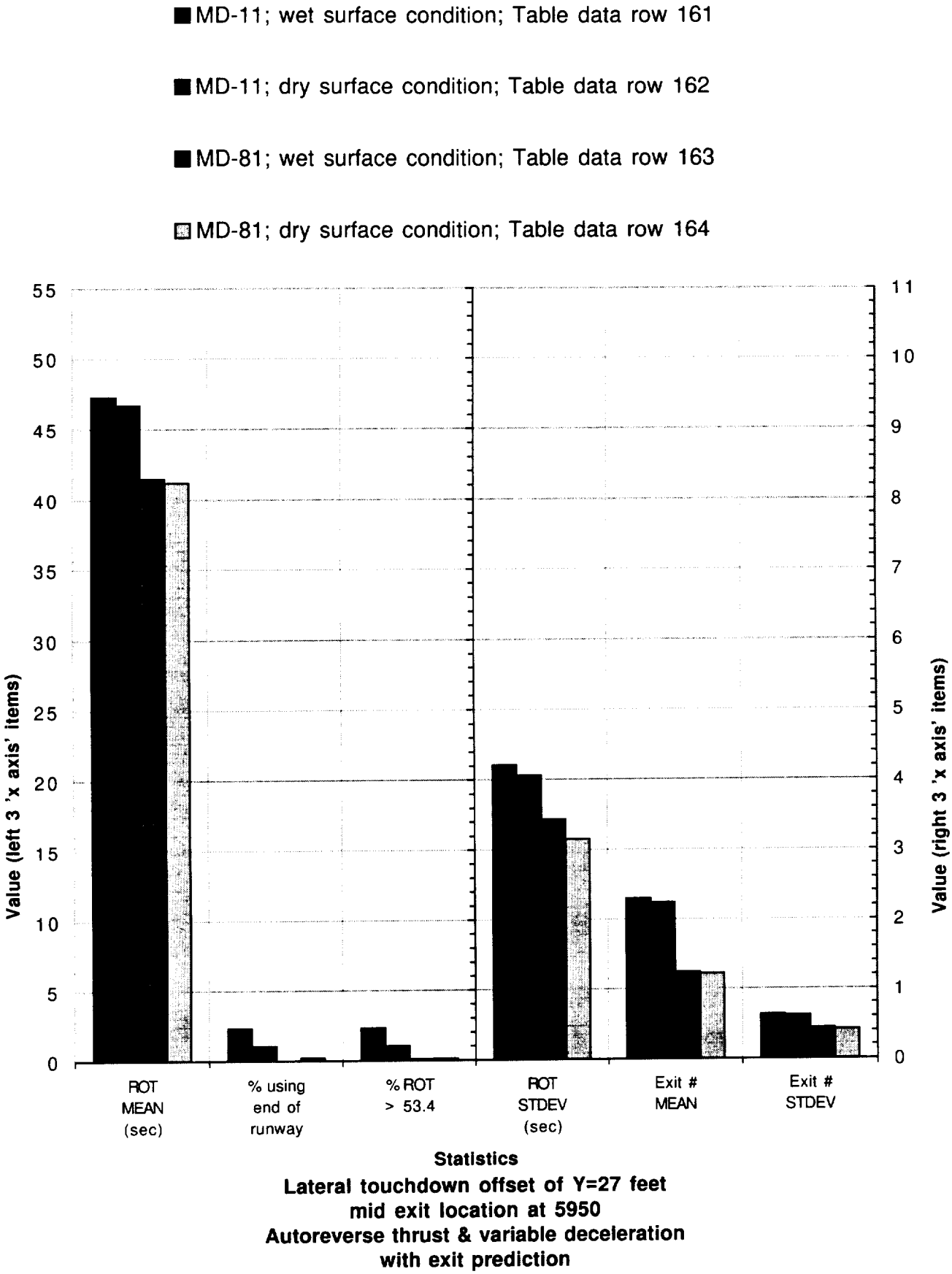
2 high-speed exit locations at 5225 & 6650 feet
Autoreverse thrust & variable deceleration
with exit prediction

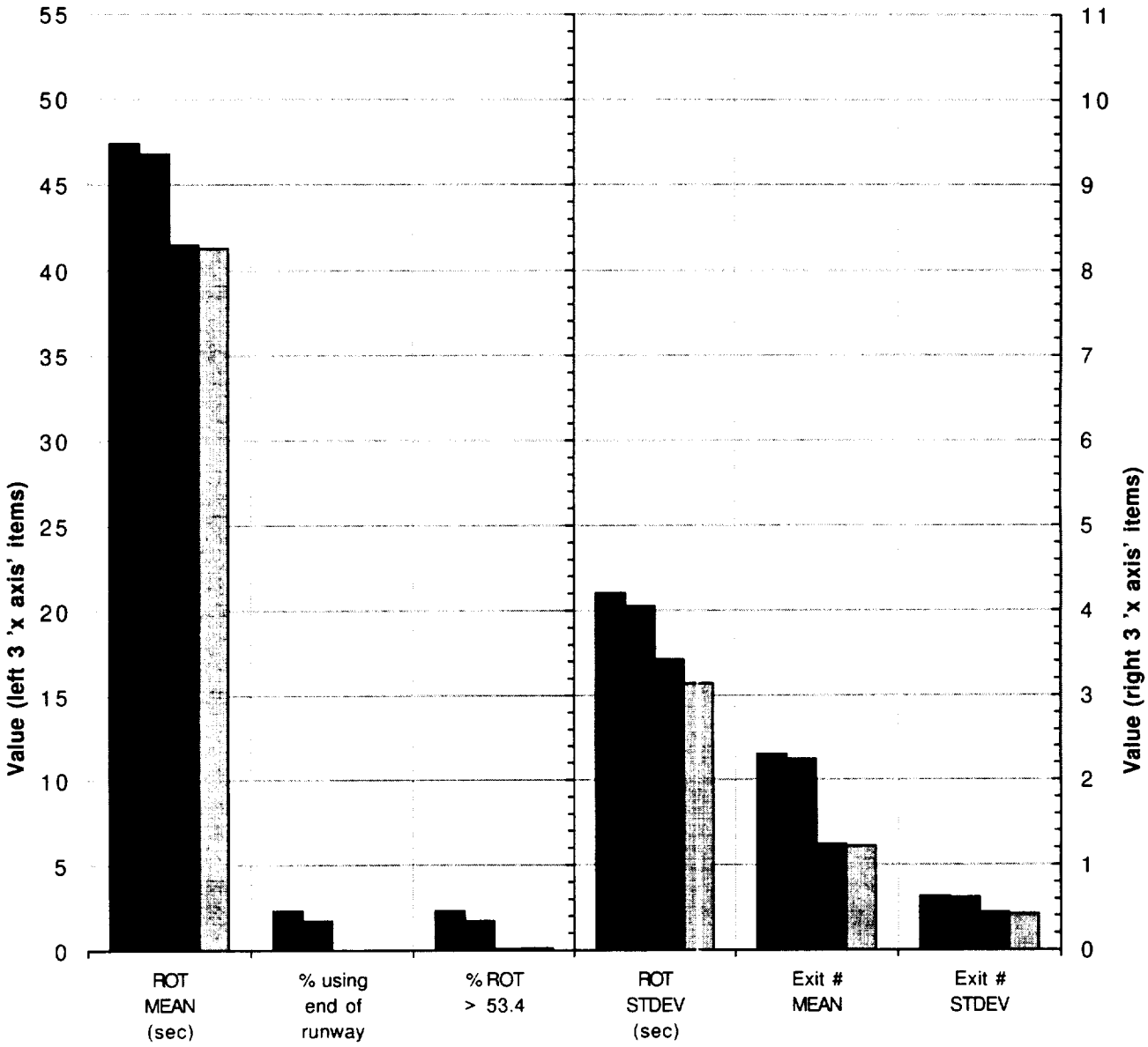


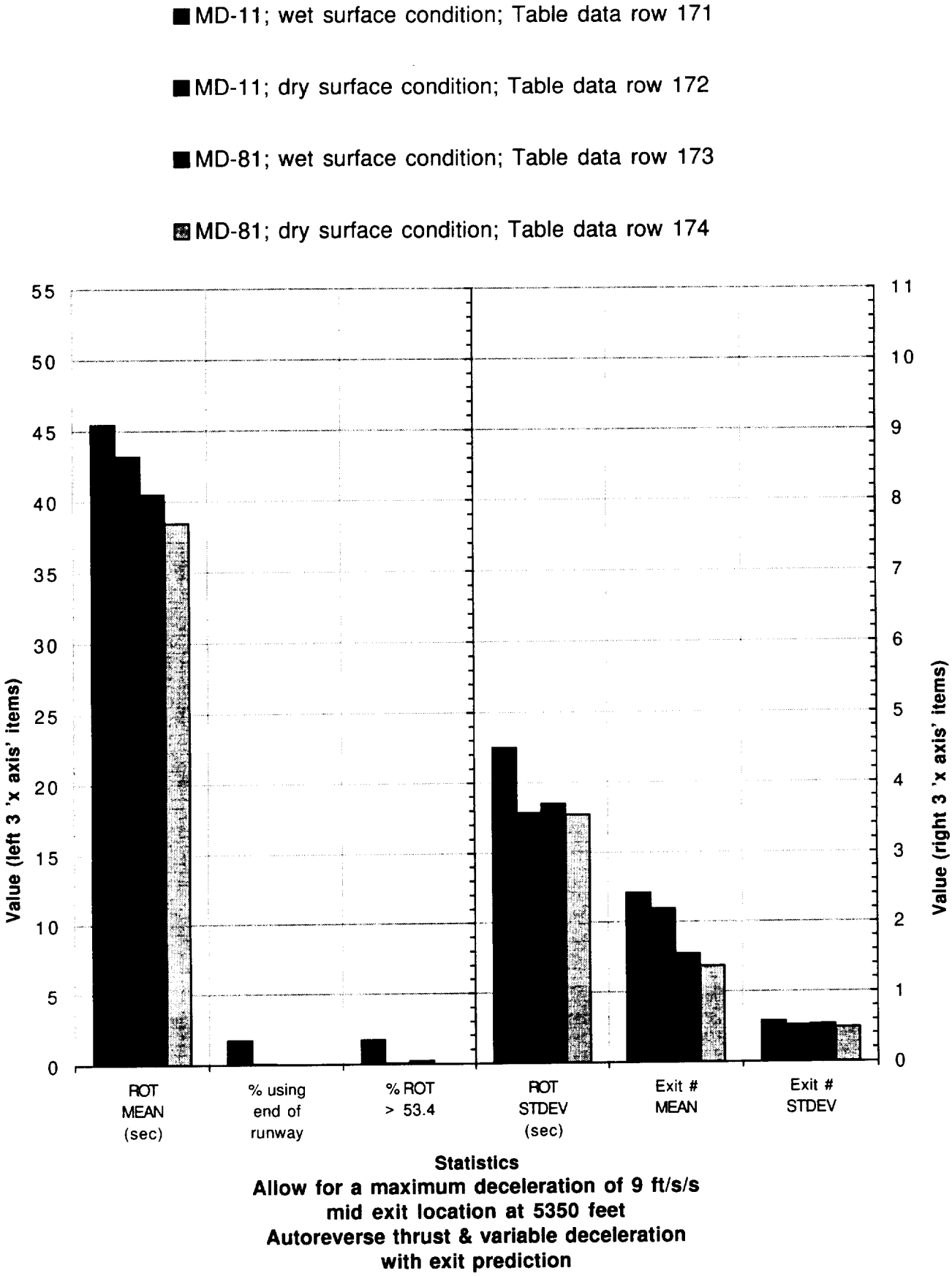
1 high-speed exit location at 5950 feet
Autoreverse thrust & variable deceleration
with exit prediction

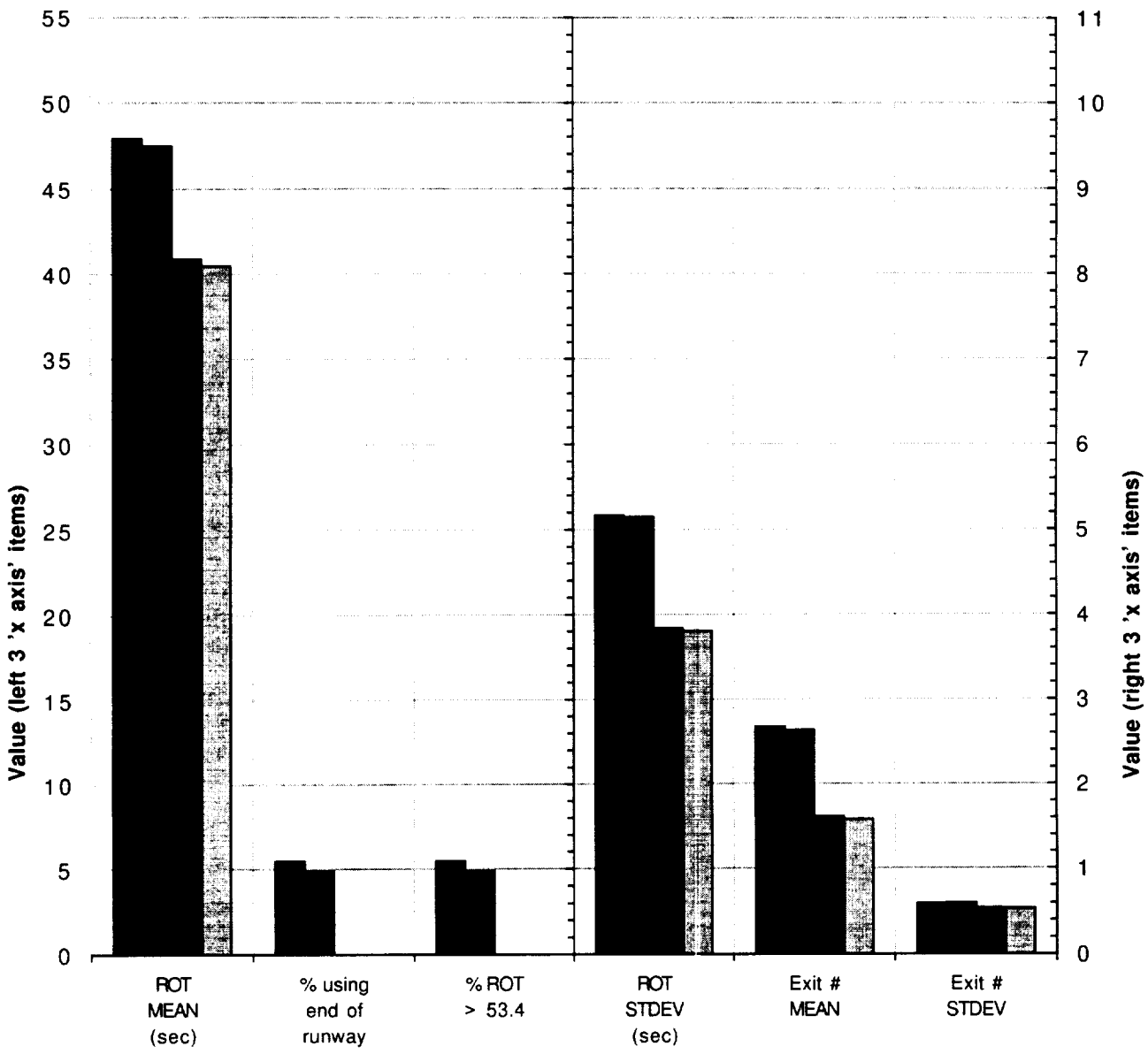


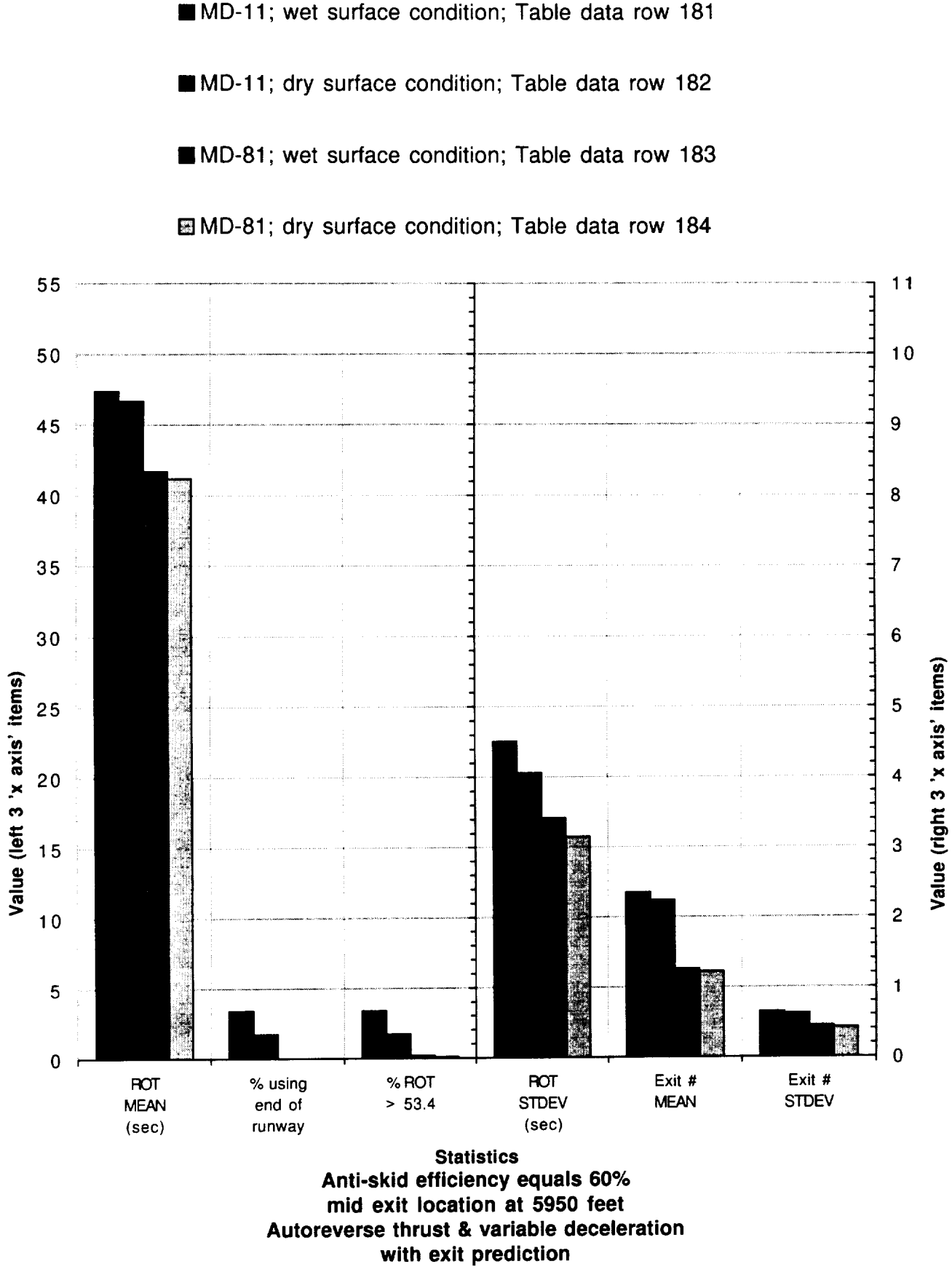
4th high-speed exit location at 8300 feet with original mid exit location at 5350 feet Autoreverse thrust & variable deceleration with exit prediction

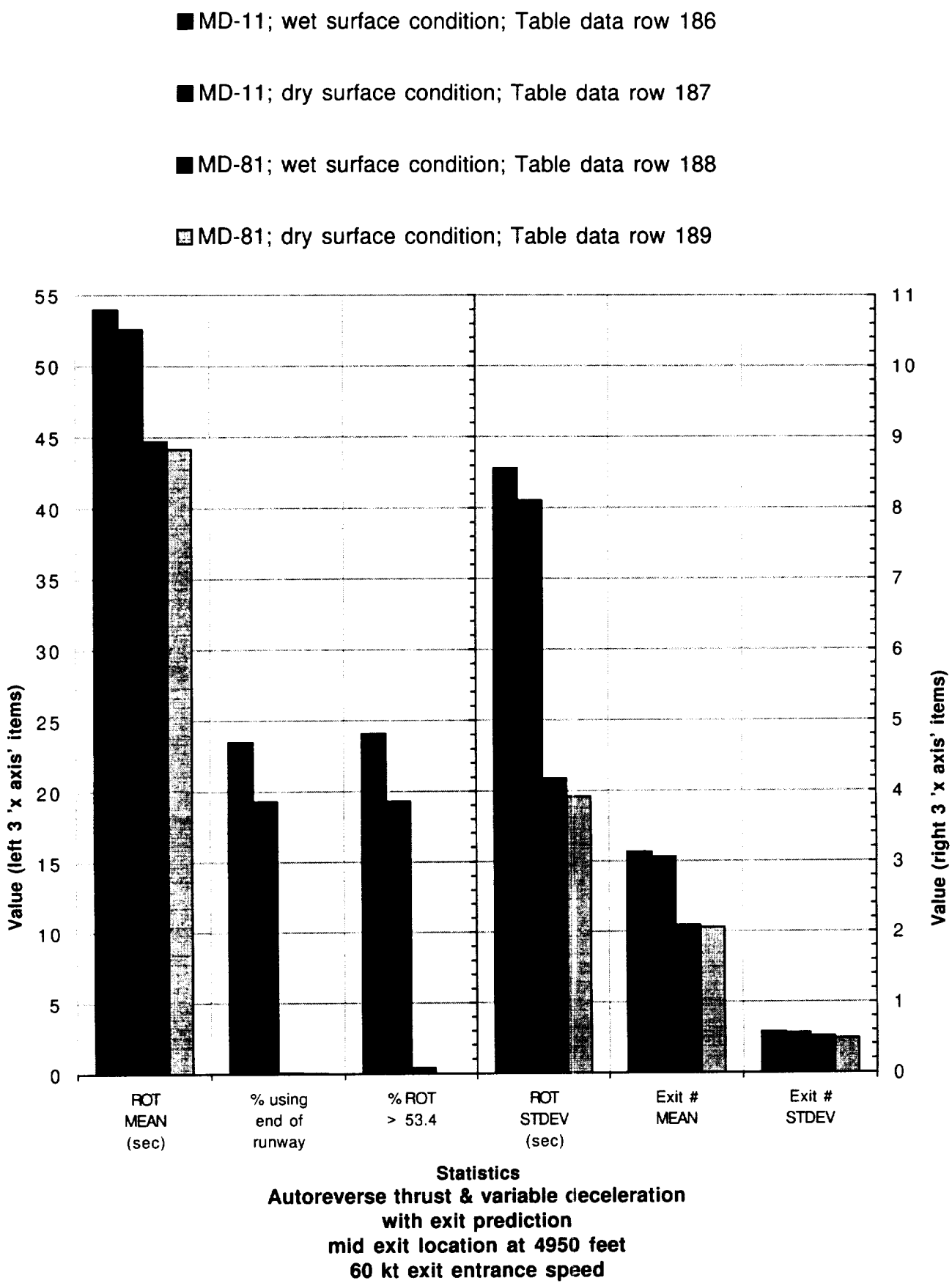

MD-11; wet surface condition; Table data row 161
MD-11; dry surface condition; Table data row 162
MD-81; wet surface condition; Table data row 163
MD-81; dry surface condition; Table data row 164
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Lateral touchdown offset of Y=27 feet
mid exit location at 5950
Autoreverse thrust & variable deceleration
with exit prediction

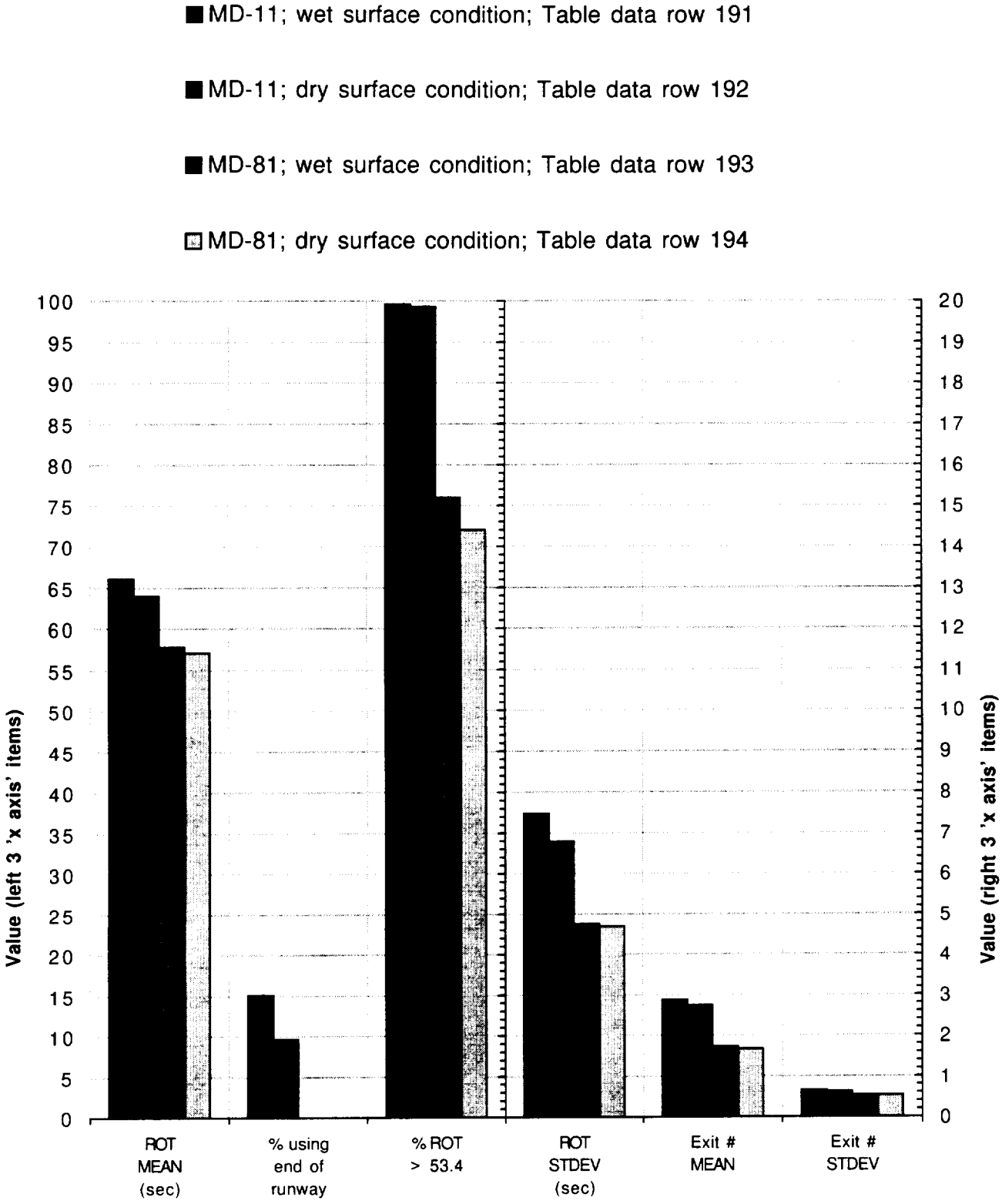

MD-11; wet surface condition; Table data row 166
MD-11; dry surface condition; Table data row 167
MD-81; wet surface condition; Table data row 168
MD-81; dry surface condition; Table data row 169
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Aircraft CG stop on exit at Y=480 feet
mid exit location at 5950 feet
Autoreverse thrust & variable deceleration
with exit prediction

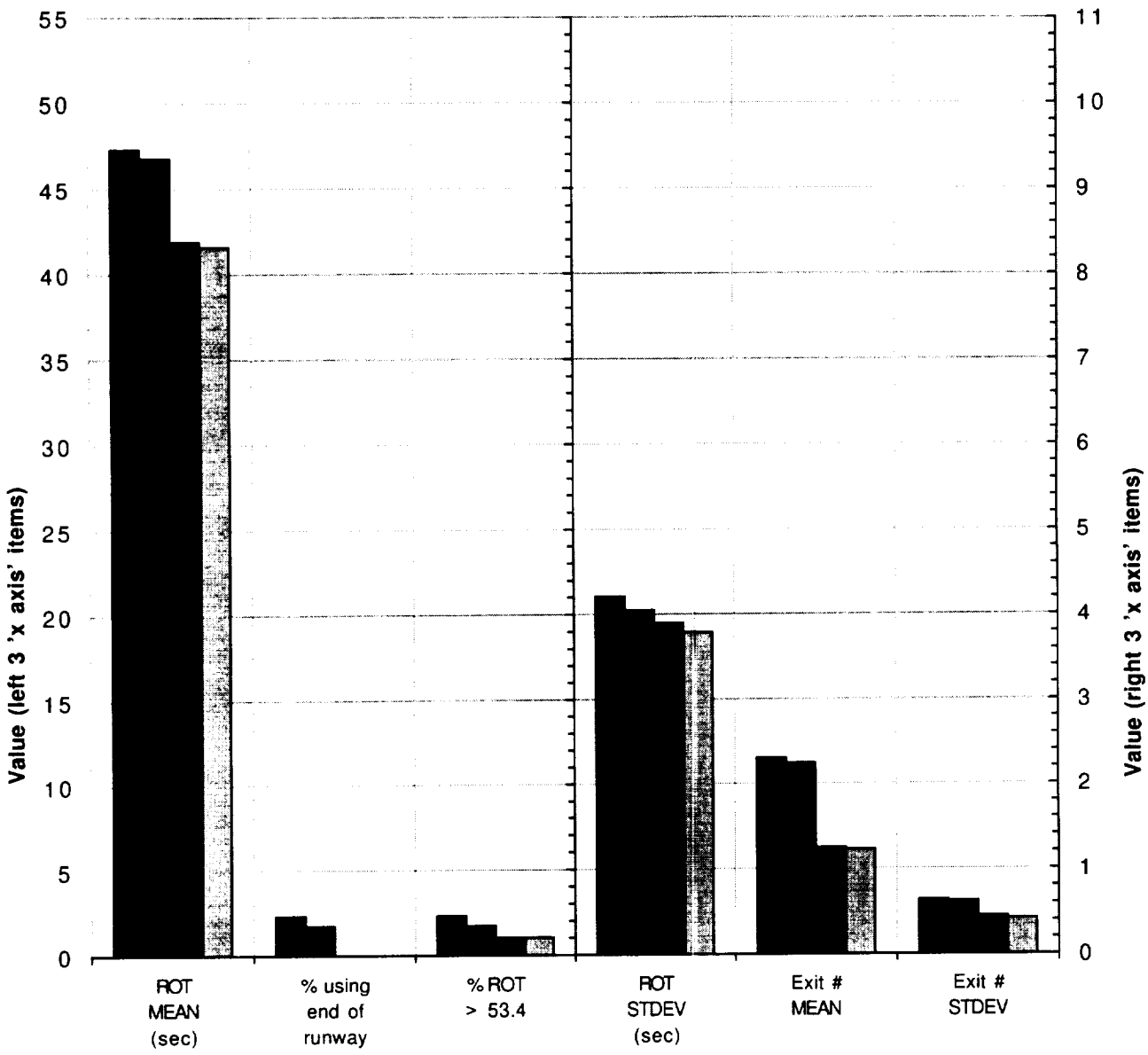

MD-11; wet surface condition; Table data row 171
MD-11; dry surface condition; Table data row 172
MD-81; wet surface condition; Table data row 173
MD-81; dry surface condition; Table data row 174
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Allow for a maximum deceleration of 9 ft/s/s
mid exit location at 5350 feet
Autoreverse thrust & variable deceleration
with exit prediction

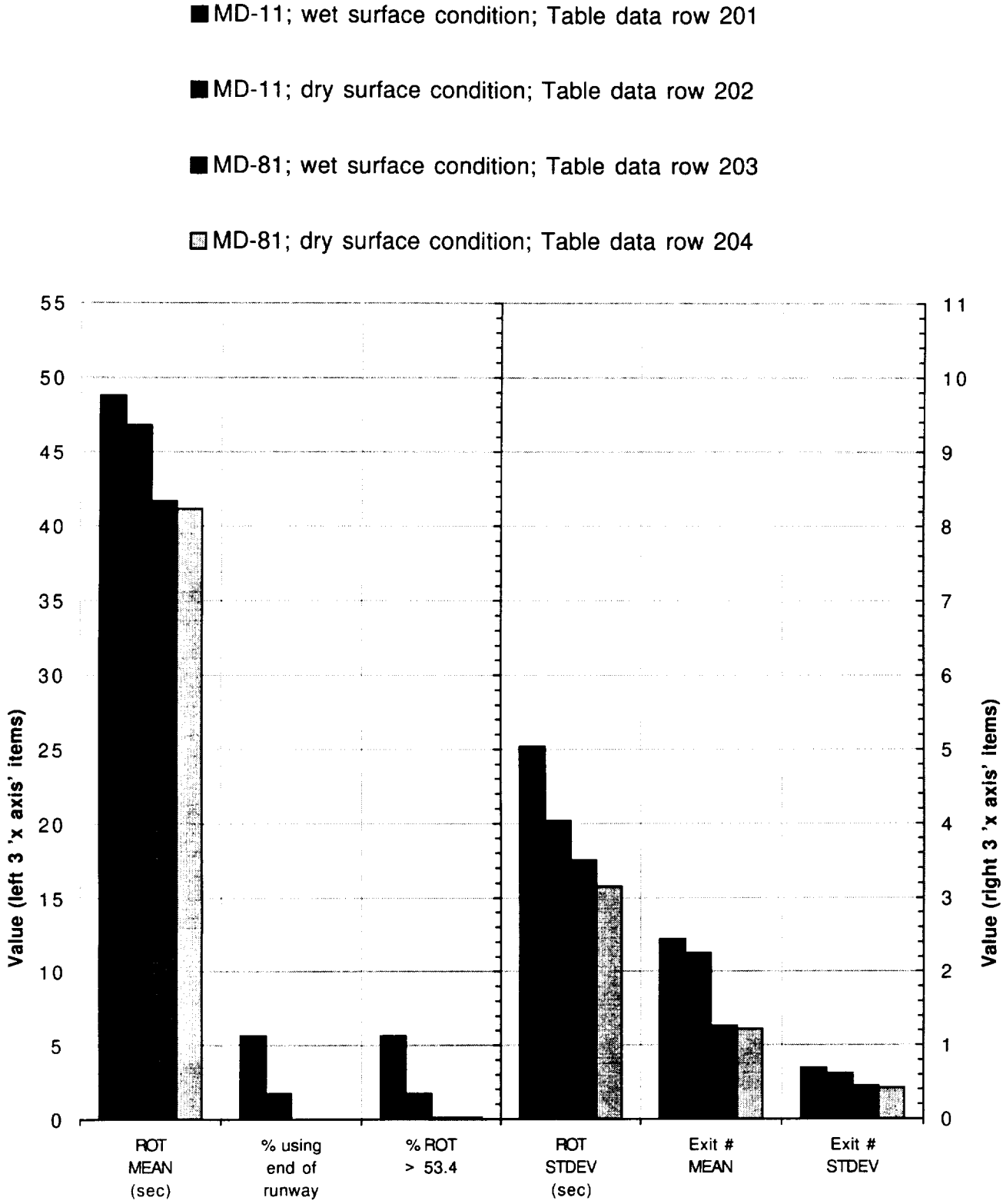

MD-11; wet surface condition; Table data row 176
MD-11; dry surface condition; Table data row 177
MD-81; wet surface condition; Table data row 178
MD-81; dry surface condition; Table data row 179
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Anti-skid efficiency equals 90%
mid exit location at 5350 feet
Autoreverse thrust & variable deceleration
with exit prediction

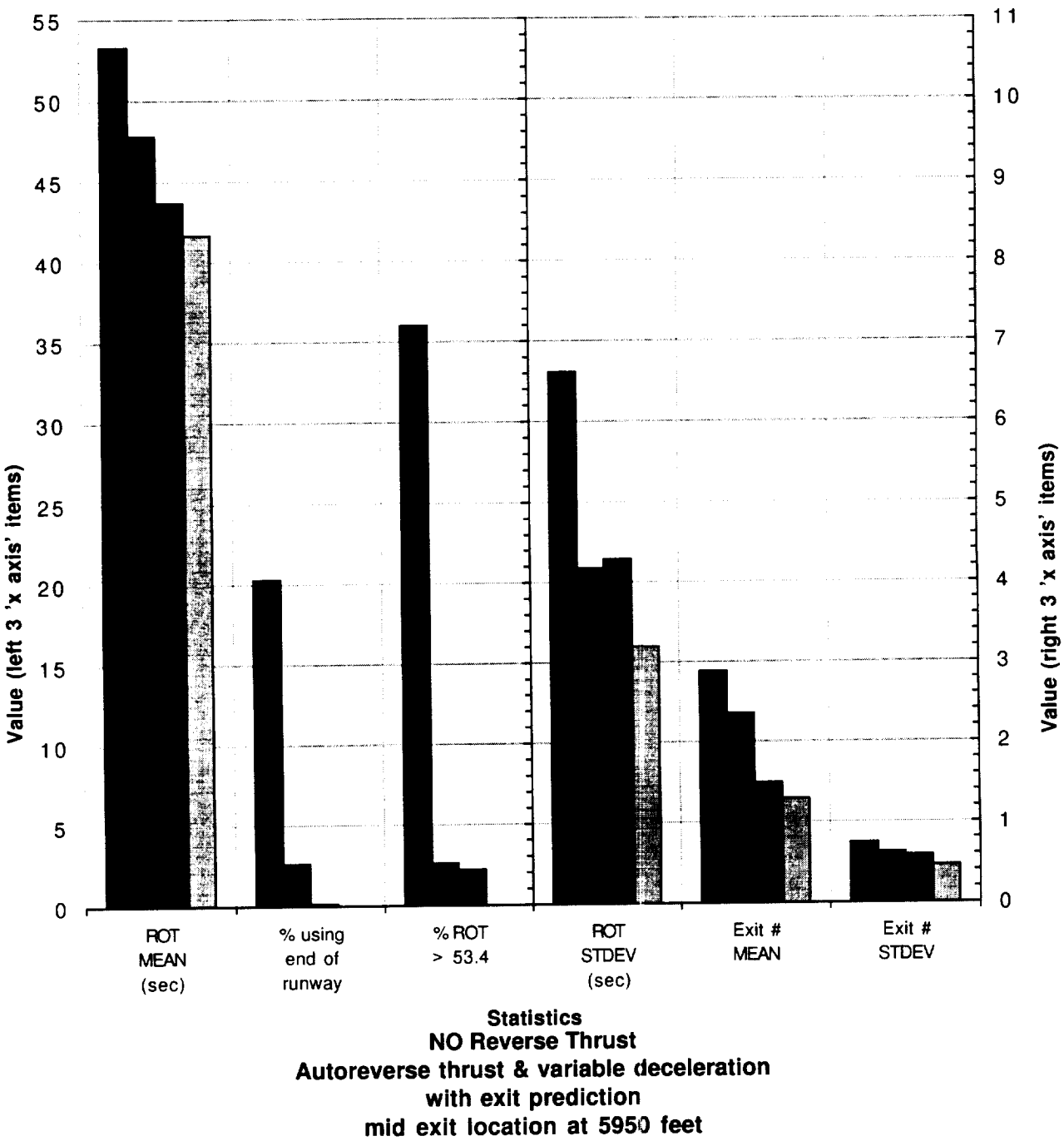

MD-11; wet surface condition; Table data row 181
MD-11; dry surface condition; Table data row 182
MD-81; wet surface condition; Table data row 183
MD-81; dry surface condition; Table data row 184
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Anti-skid efficiency equals 60%
mid exit location at 5950 feet
Autoreverse thrust & variable deceleration
with exit prediction

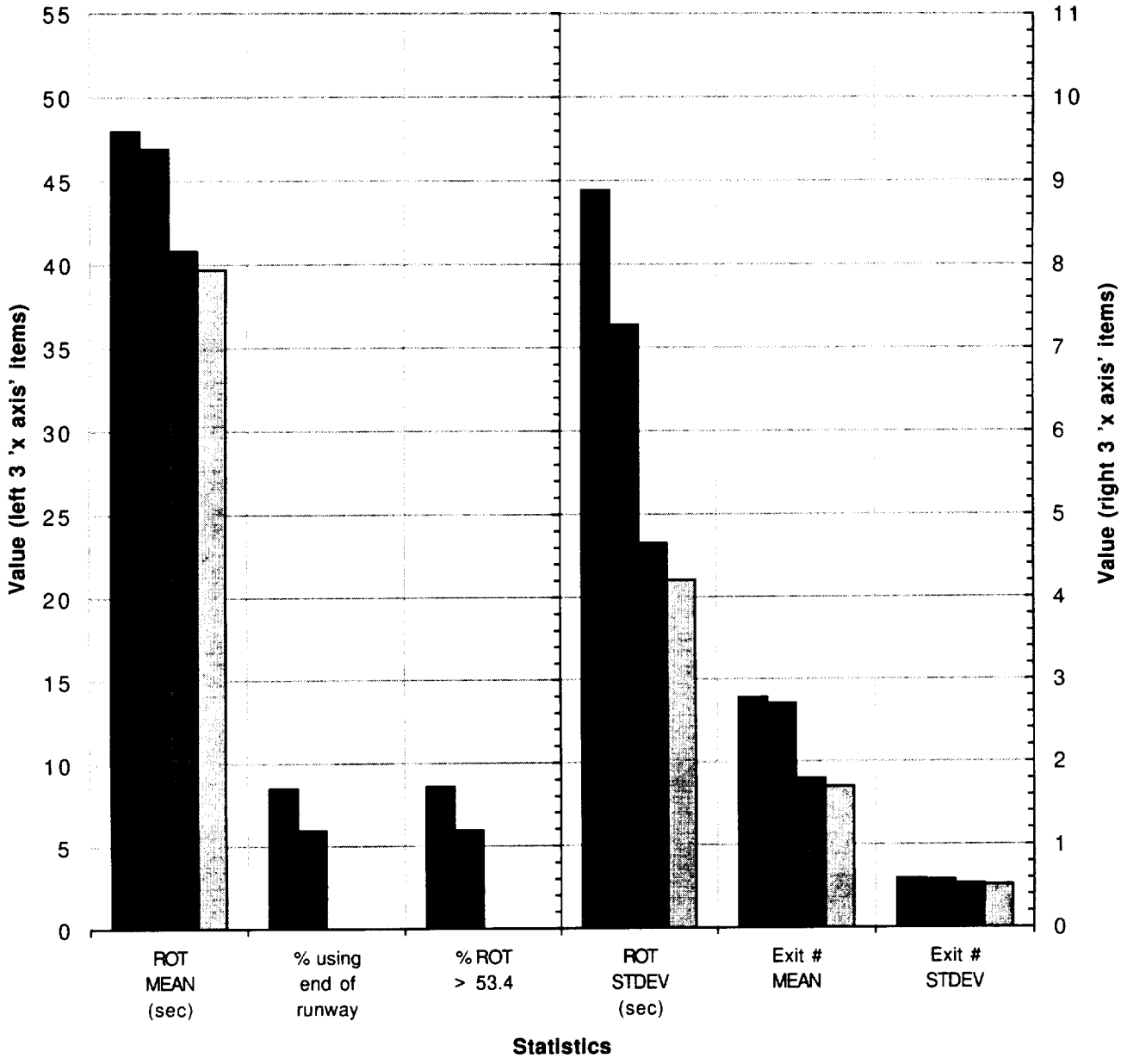

MD-11; wet surface condition; Table data row 186
MD-11; dry surface condition; Table data row 187
MD-81; wet surface condition; Table data row 188
MD-81; dry surface condition; Table data row 189
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location at 4950 feet
60 kt exit entrance speed


MD-11; wet surface condition; Table data row 191
MD-11; dry surface condition; Table data row 192
MD-81; wet surface condition; Table data row 193
MD-81; dry surface condition; Table data row 194
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location at 5950 feet
40 kt exit entrance speed

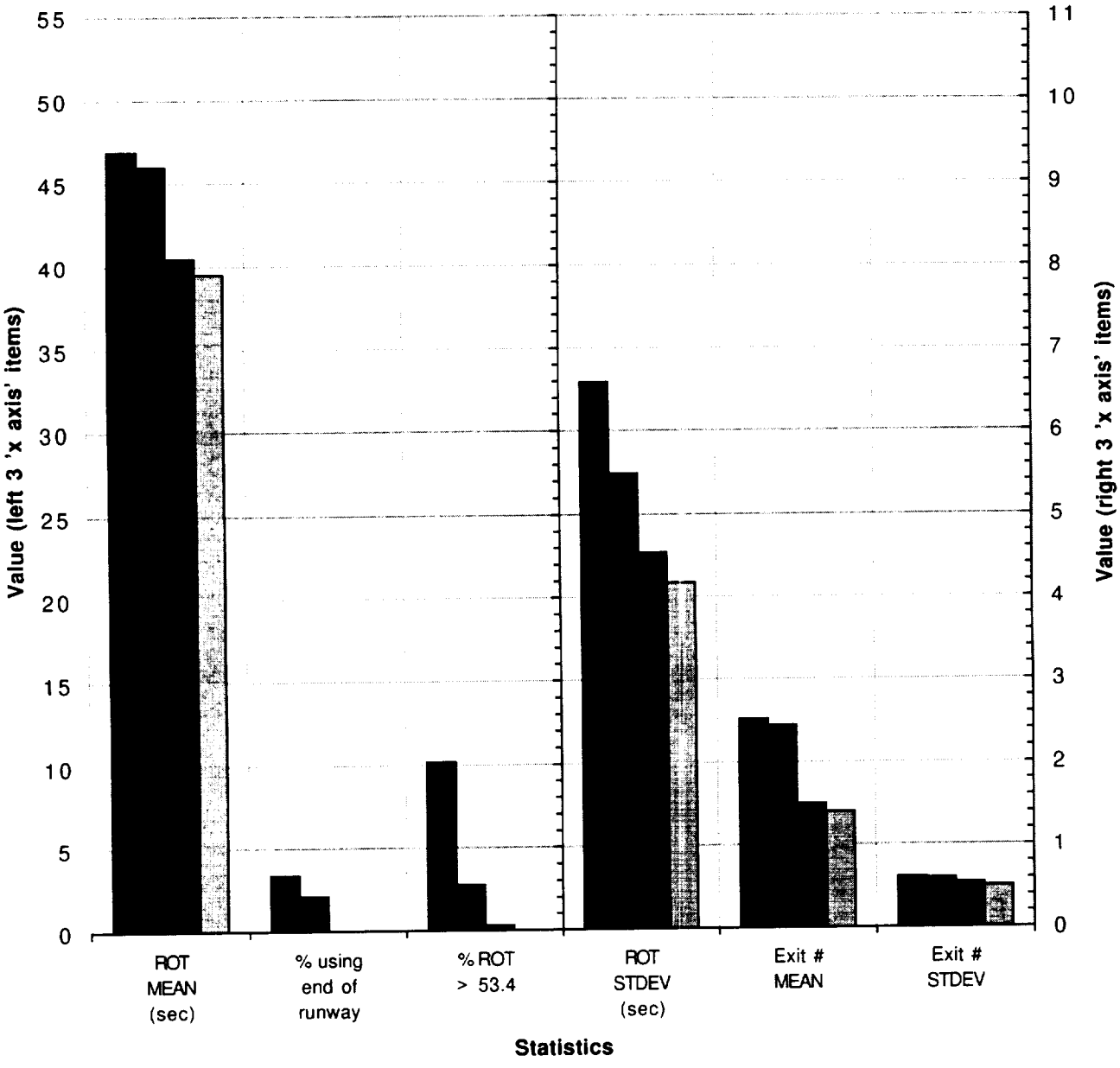

MD-11; wet surface condition; Table data row 196
MD-11; dry surface condition; Table data row 197
MD-81; wet surface condition; Table data row 198
MD-81; dry surface condition; Table data row 199
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Reverse Thrust not stowed on exit
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location at 5950 feet


MD-11; wet surface condition; Table data row 201
MD-11; dry surface condition; Table data row 202
MD-81; wet surface condition; Table data row 203
MD-81; dry surface condition; Table data row 204
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Reverse Thrust Idle on Runway
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location at 5950 feet

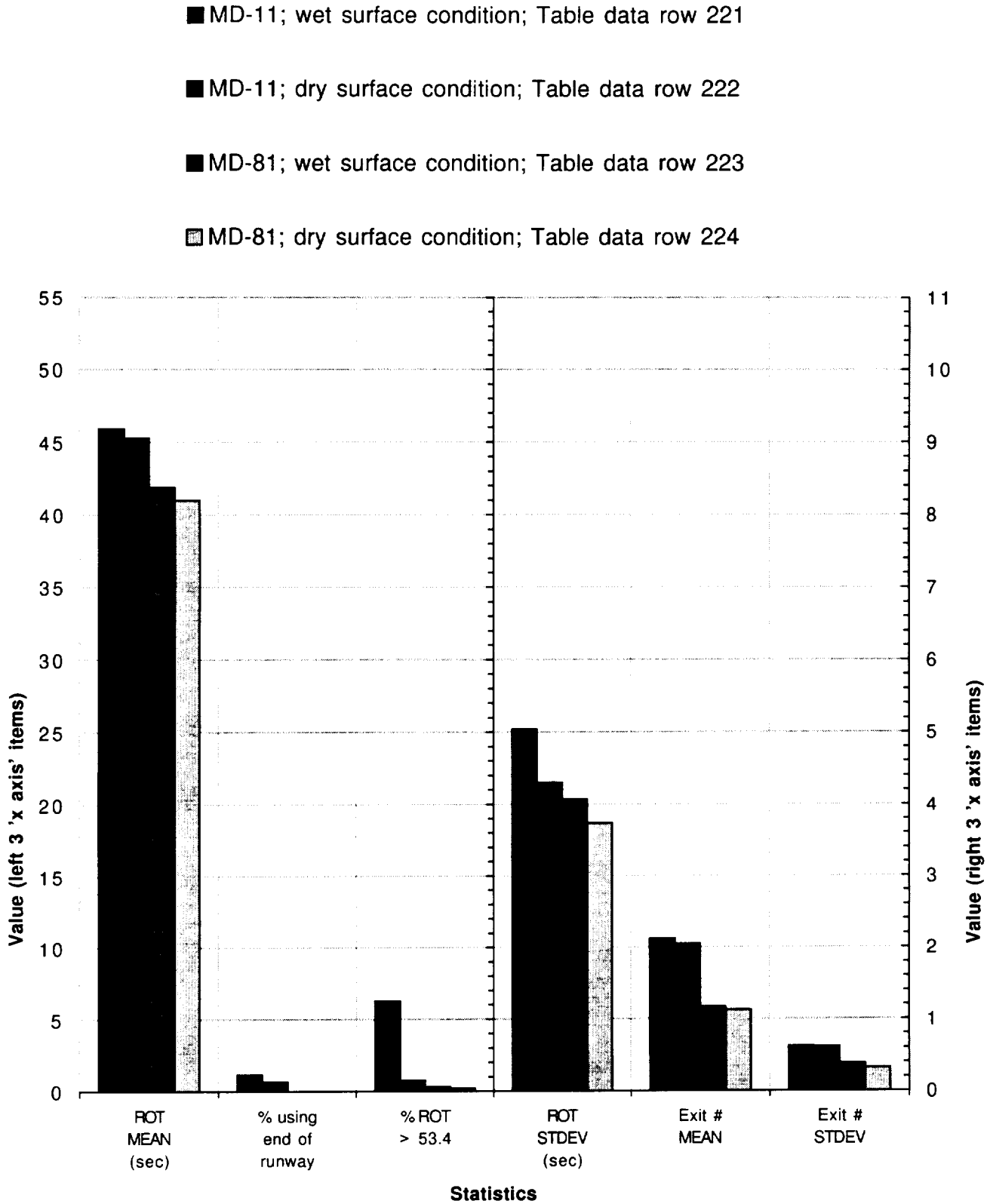

MD-11; wet surface condition; Table data row 206
MD-11; dry surface condition; Table data row 207
MD-81; wet surface condition; Table data row 208
MD-81; dry surface condition; Table data row 209
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
NO Reverse Thrust
Autoreverse thrust & variable deceleration
with exit prediction
mid exit location at 5950 feet



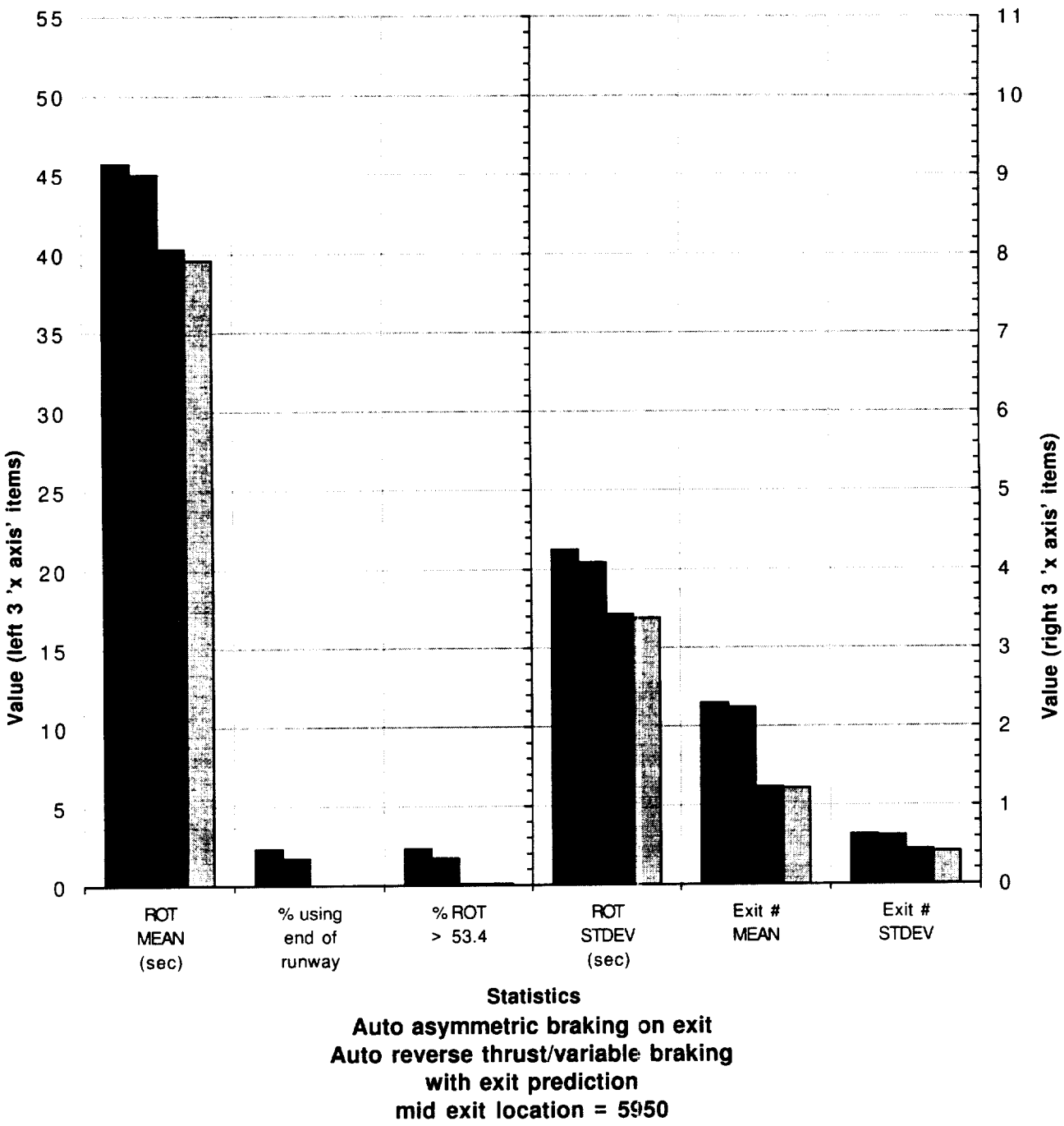
Immediate max const reverse thrust & immed. const 6.5 decel
NO exit prediction
mid exit location = 4950

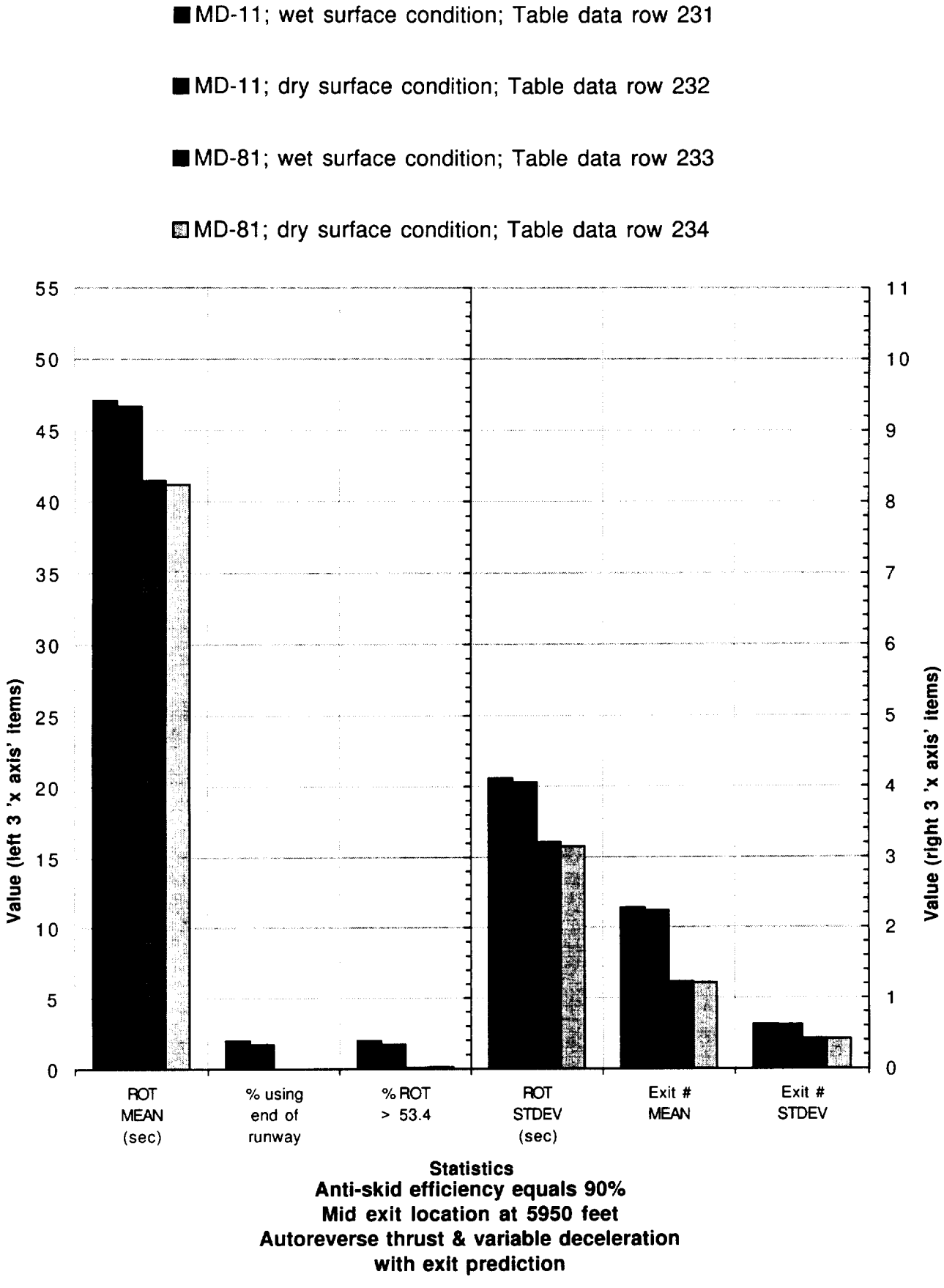


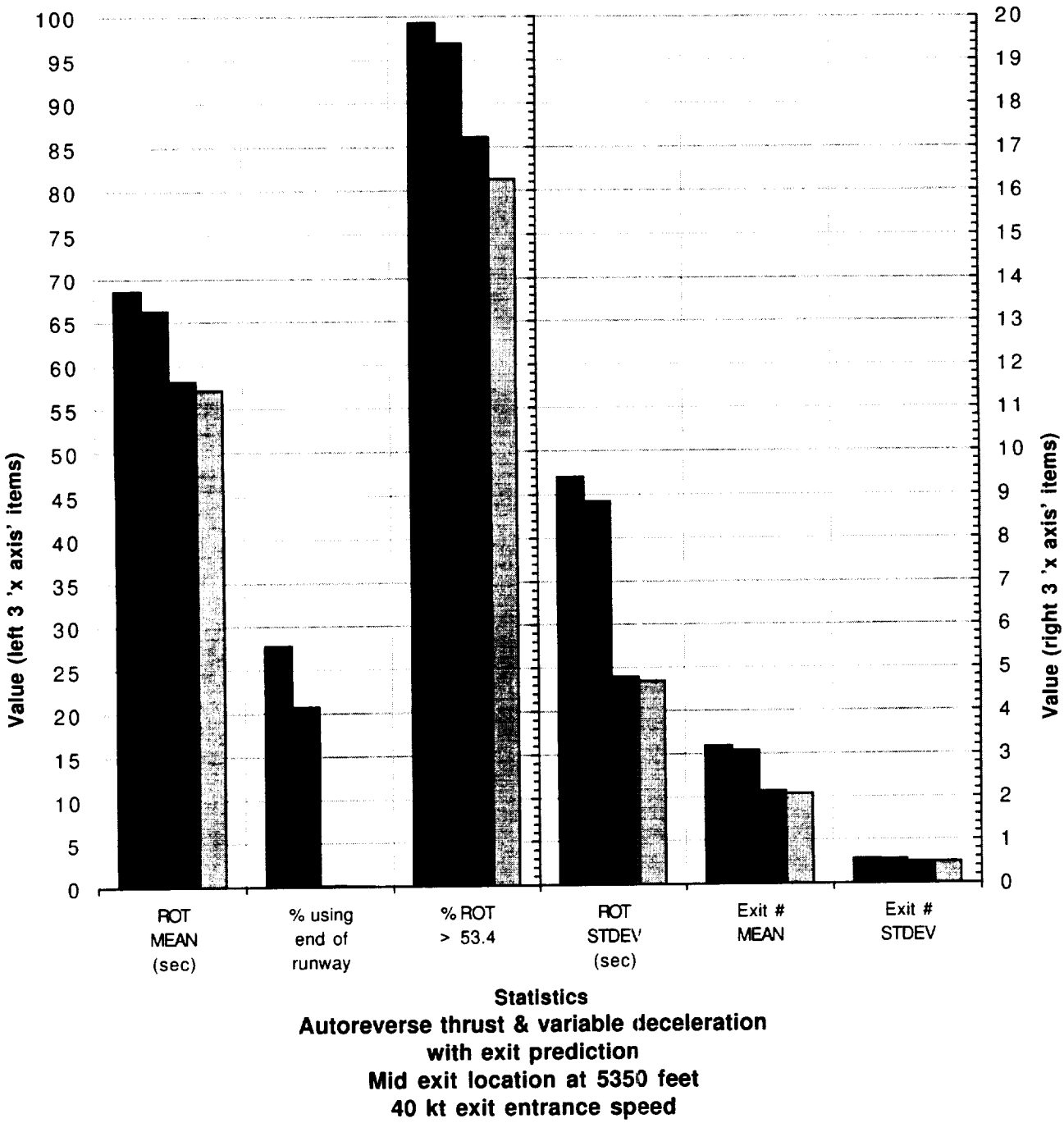
Immediate max const reverse thrust & immed. const 6.5 decel
NO exit prediction
mid exit location = 5350



Immediate max const reverse thrust & immed. const 6.5 decel
NO exit prediction
mid exit location = 5950


MD-11; wet surface condition; Table data row 226
MD-11; dry surface condition; Table data row 227
MD-81; wet surface condition; Table data row 228
MD-81; dry surface condition; Table data row 229
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
0
5
10
15
20
25
30
35
40
45
50
55
0
1
2
3
4
5
6
7
8
9
10
11
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Auto asymmetric braking on exit
Auto reverse thrust/variable braking
with exit prediction
mid exit location = 5950


MD-11; wet surface condition; Table data row 231
MD-11; dry surface condition; Table data row 232
MD-81; wet surface condition; Table data row 233
MD-81; dry surface condition; Table data row 234
55
50
45
40
35
30
25
20
15
10
5
0
11
10
9
8
7
6
5
4
3
2
1
0
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Anti-skid efficiency equals 90%
Mid exit location at 5950 feet
Autoreverse thrust & variable deceleration
with exit prediction

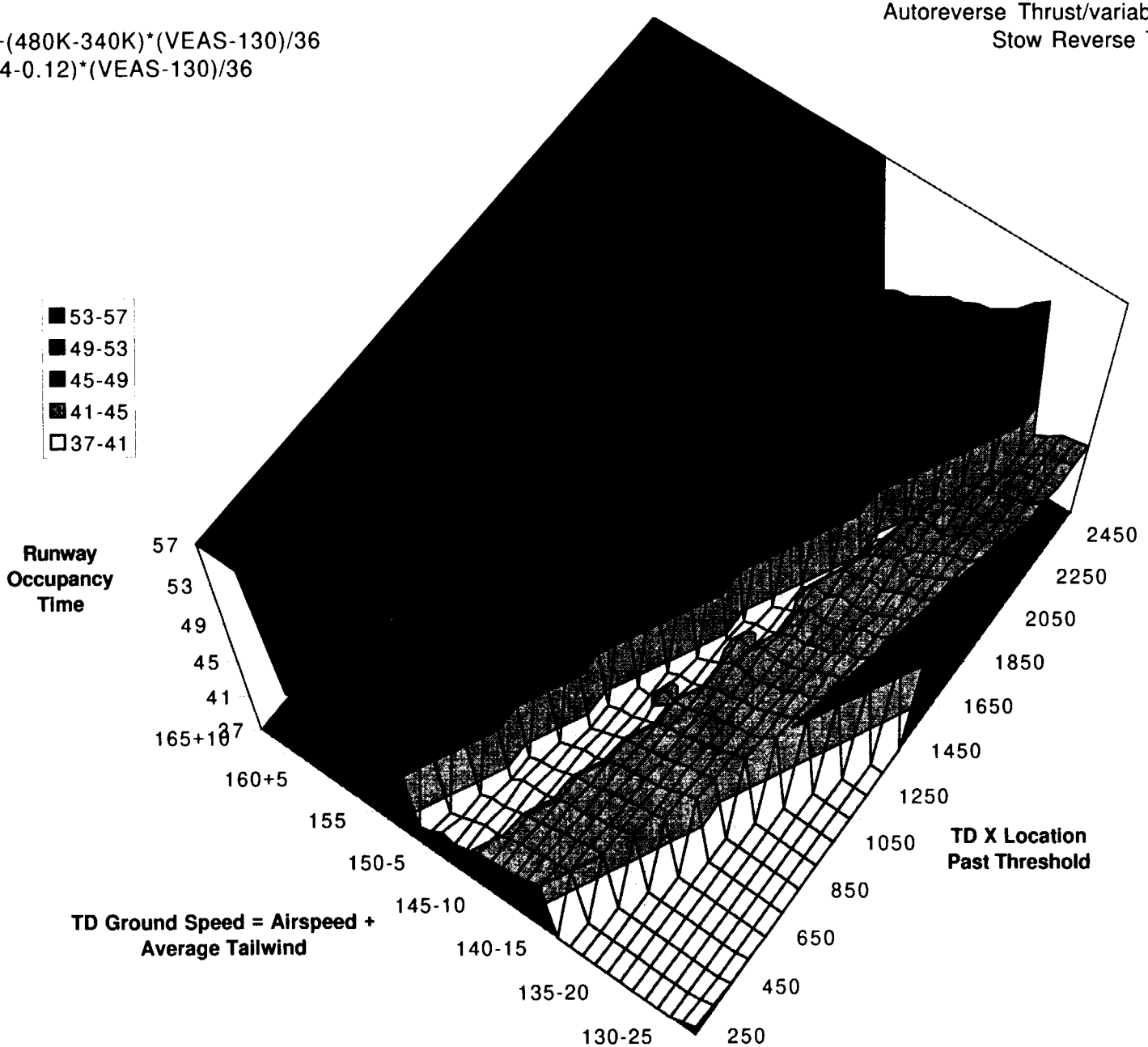

MD-11; wet surface condition; Table data row 236
MD-11; dry surface condition; Table data row 237
MD-81; wet surface condition; Table data row 238
MD-81; dry surface condition; Table data row 239
Value (left 3 'x axis' items)
Value (right 3 'x axis' items)
ROT MEAN (sec)
% using end of runway
% ROT > 53.4
ROT STDEV (sec)
Exit # MEAN
Exit # STDEV
Statistics
Autoreverse thrust & variable deceleration
with exit prediction
Mid exit location at 5350 feet
40 kt exit entrance speed

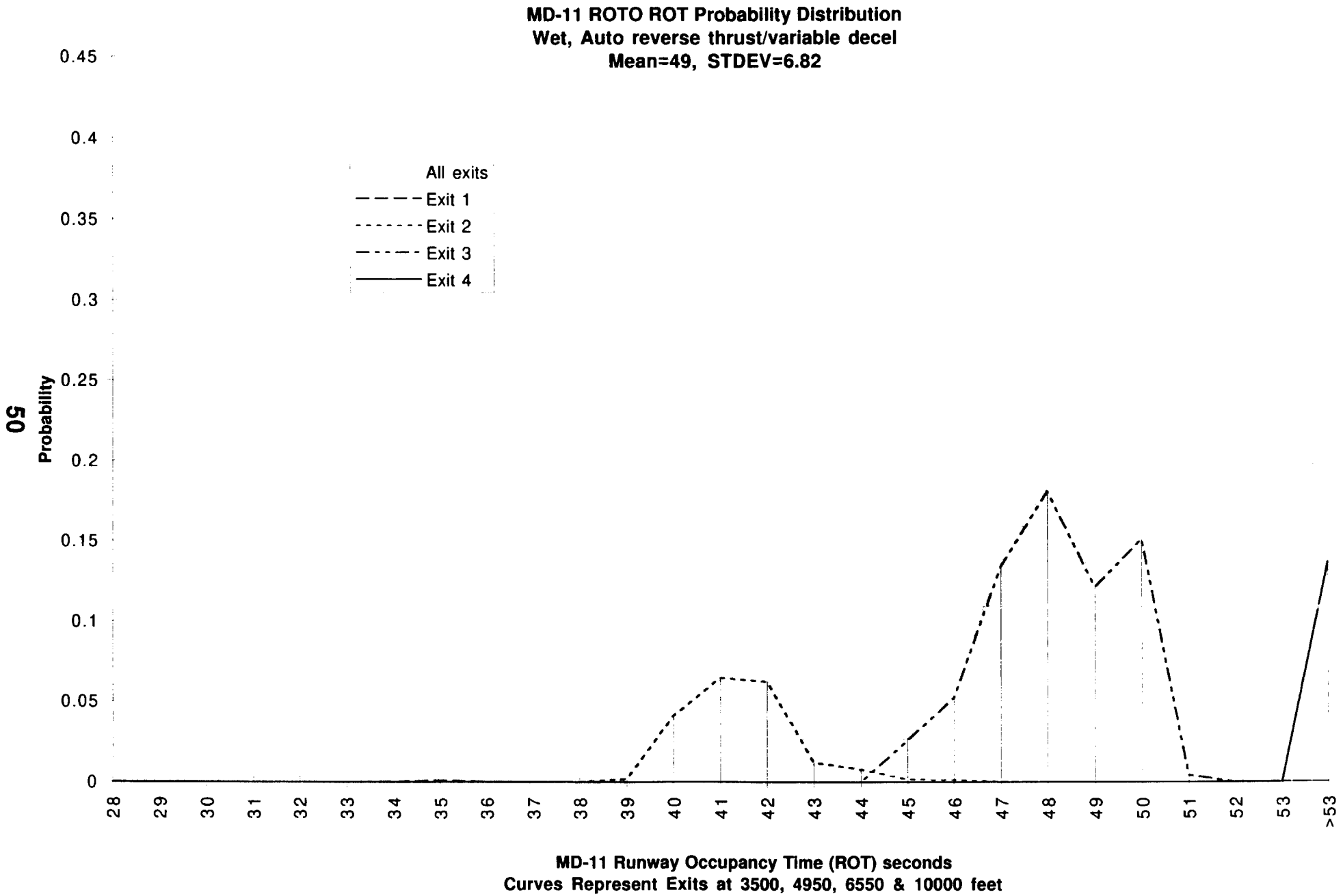
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



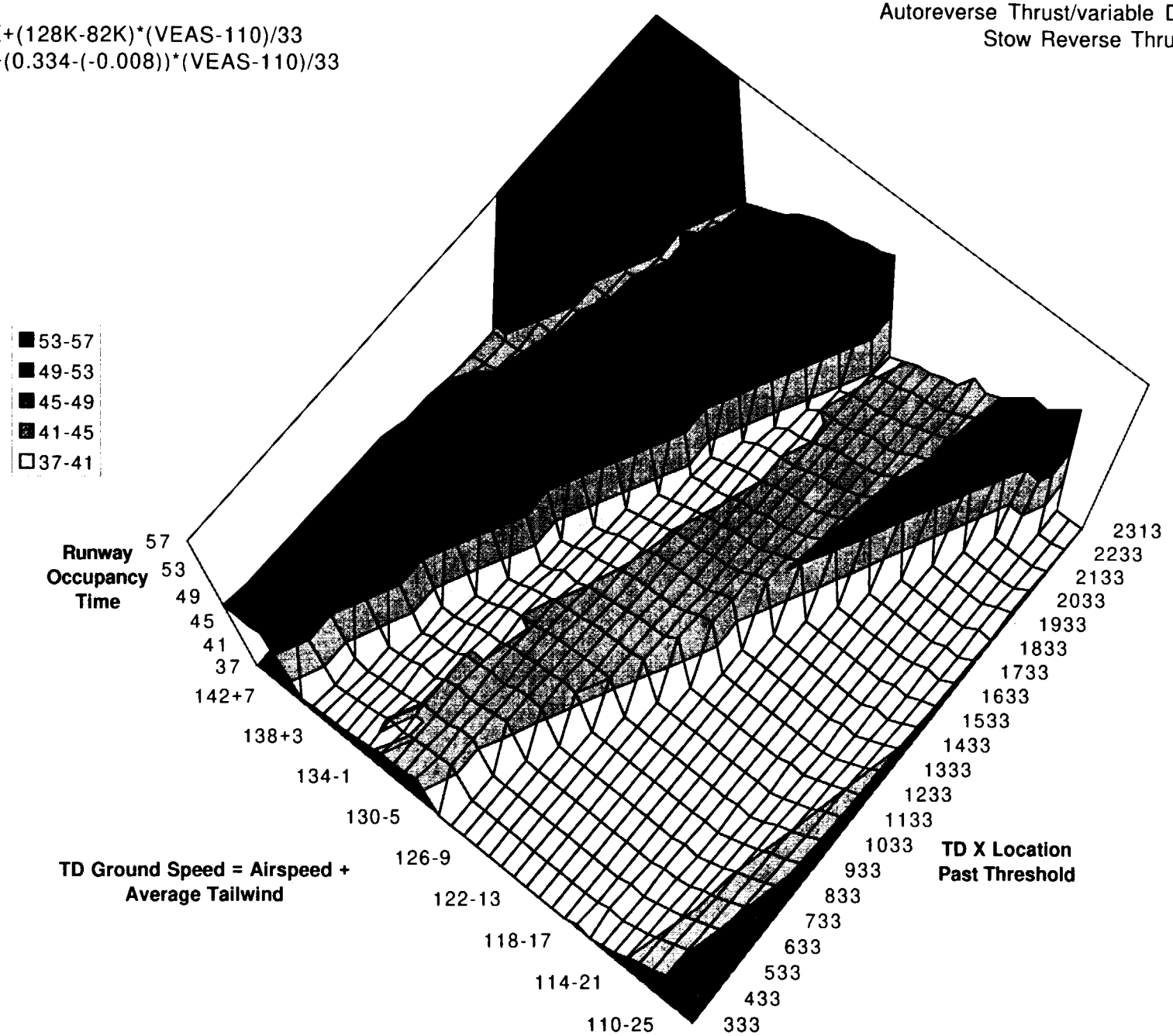

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=49, STDEV=6.82
All exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

Predict exit prior to TD

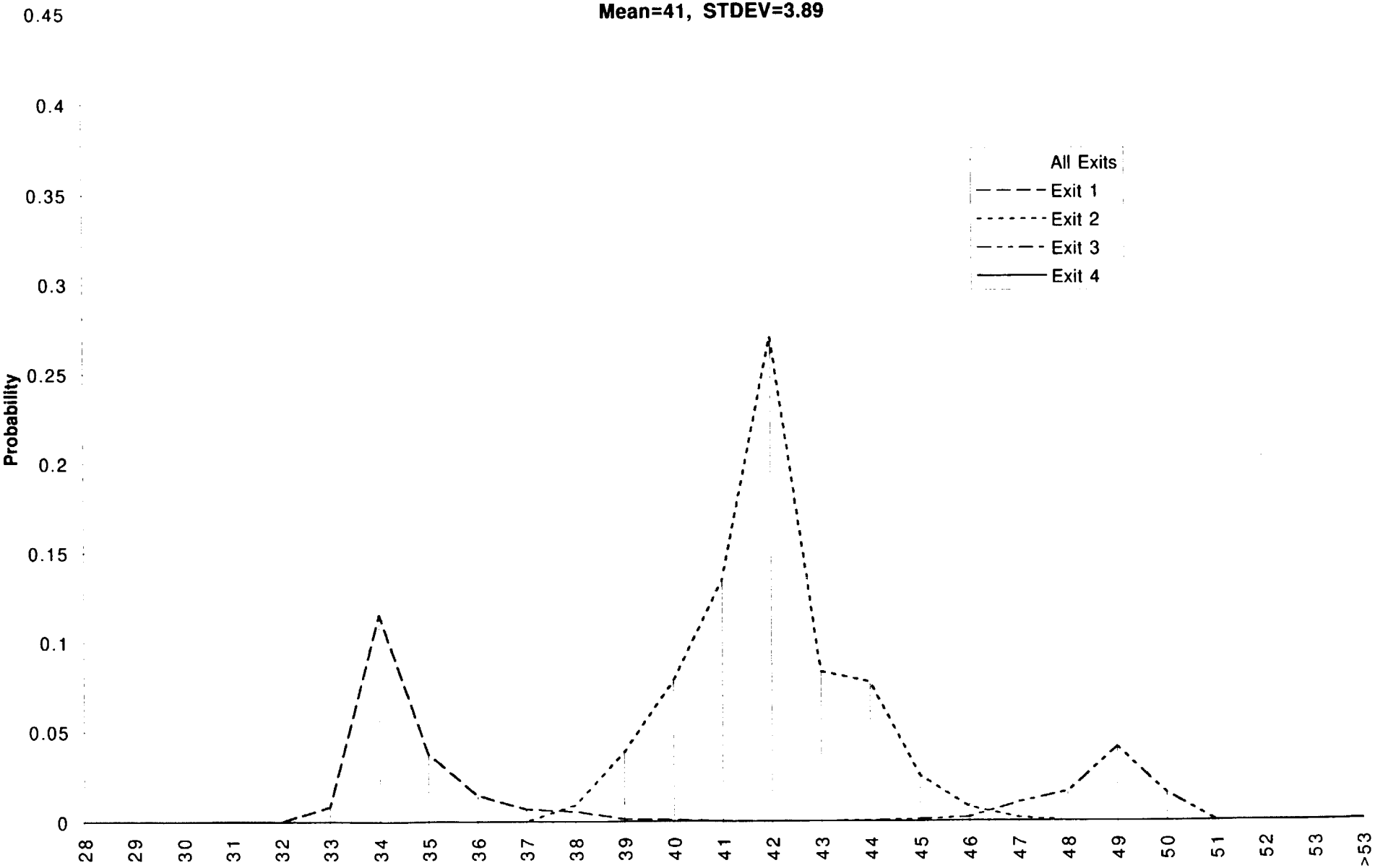
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=41, STDEV=3.89

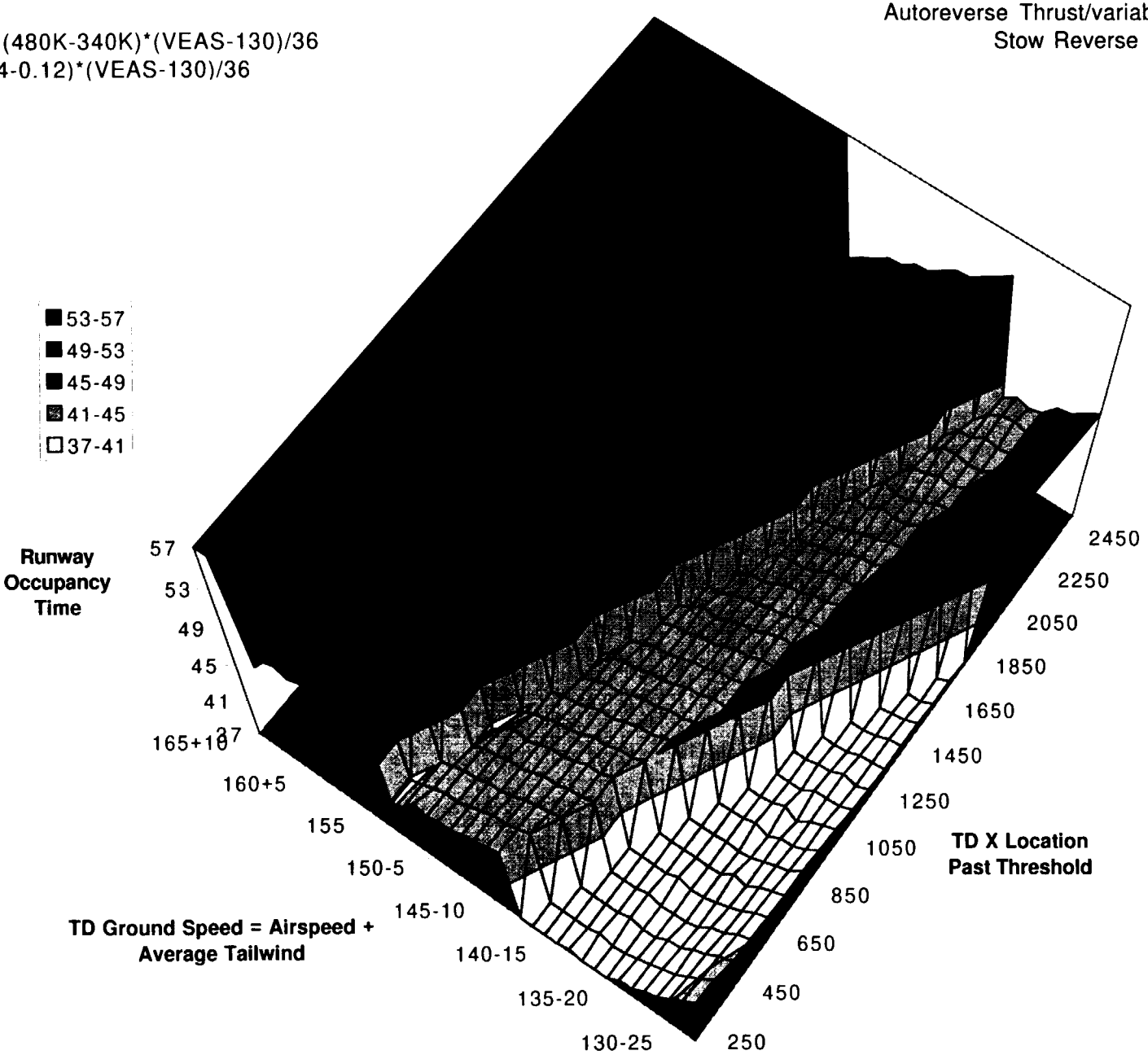


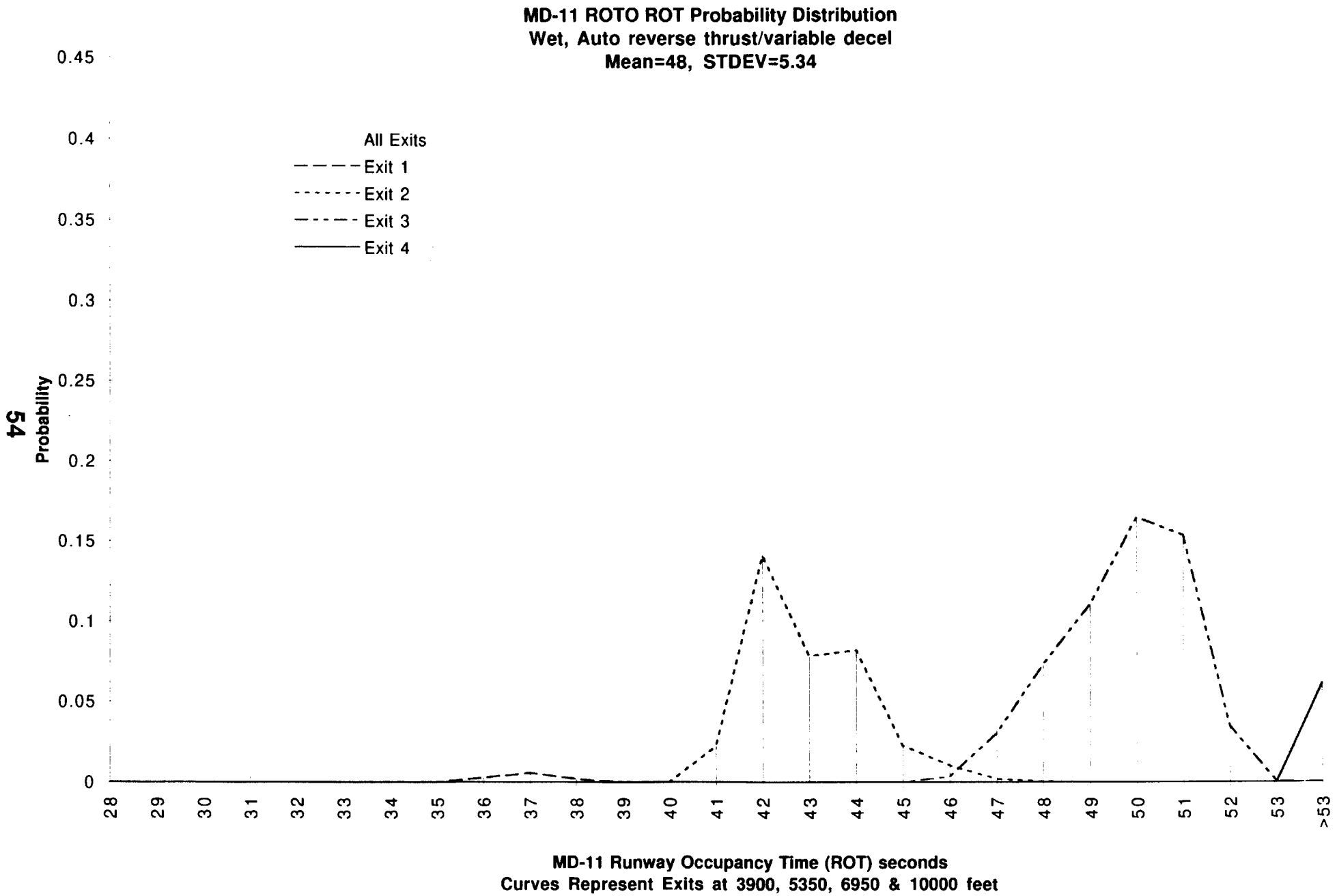
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



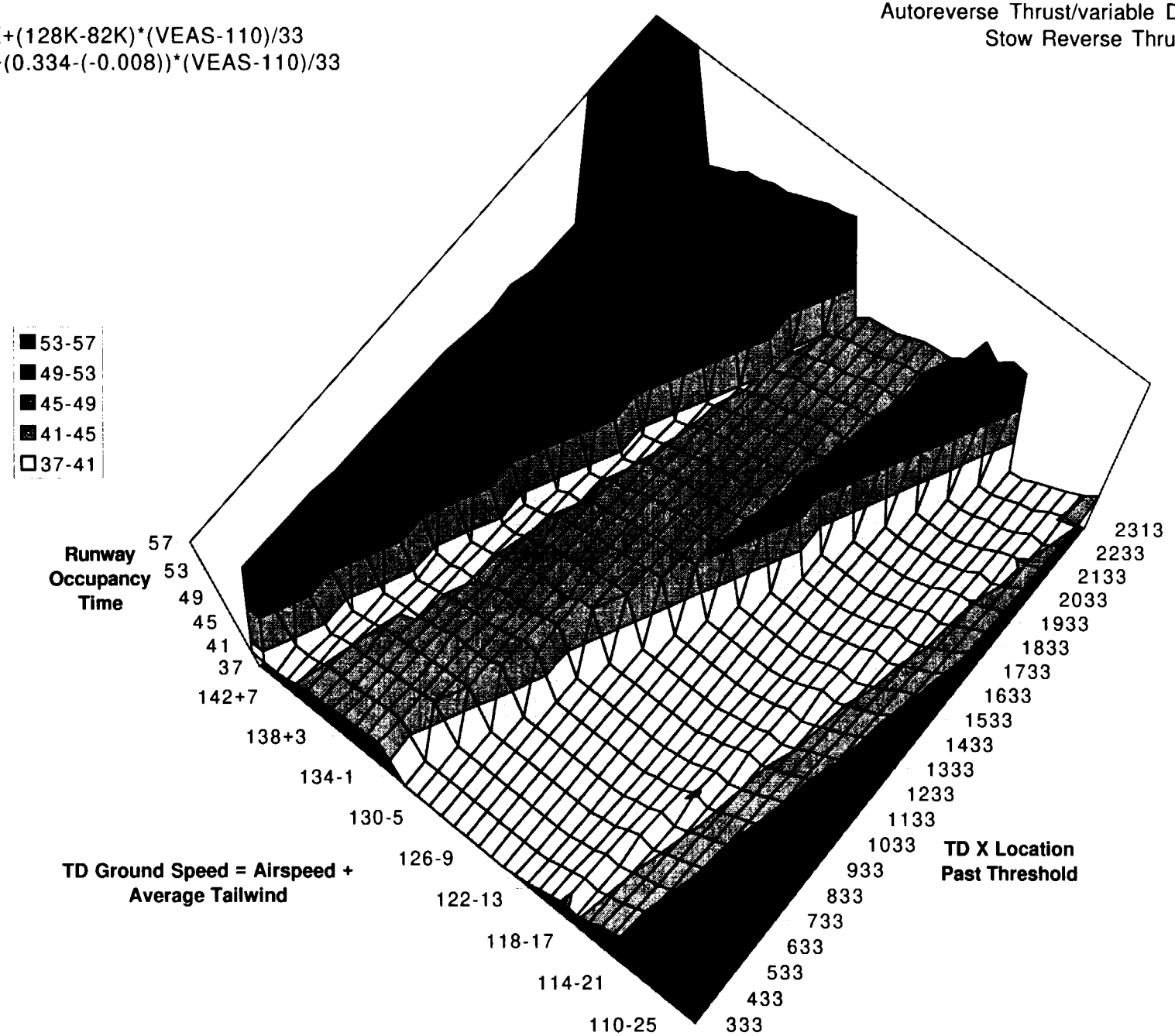

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=48, STDEV=5.34
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

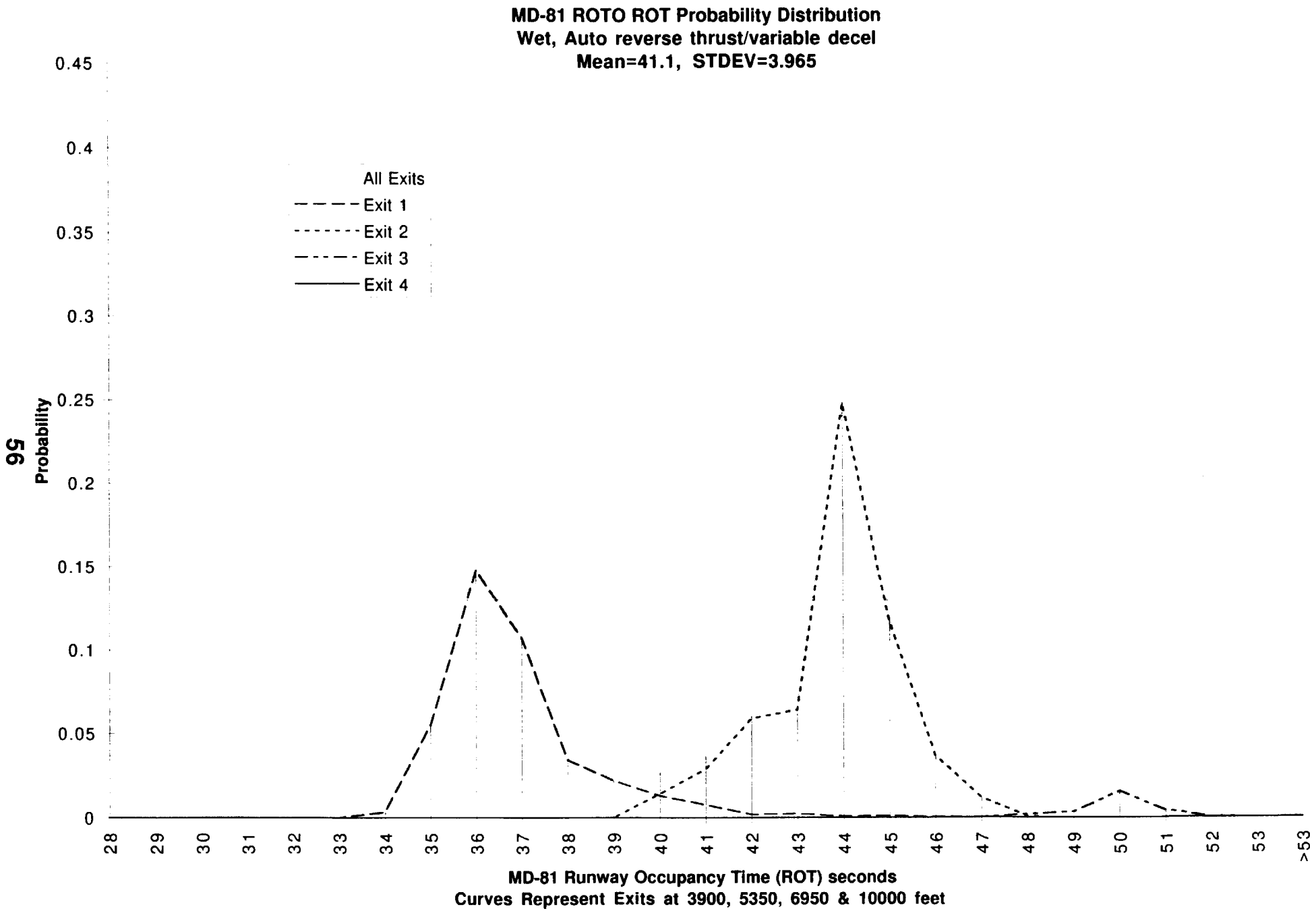
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



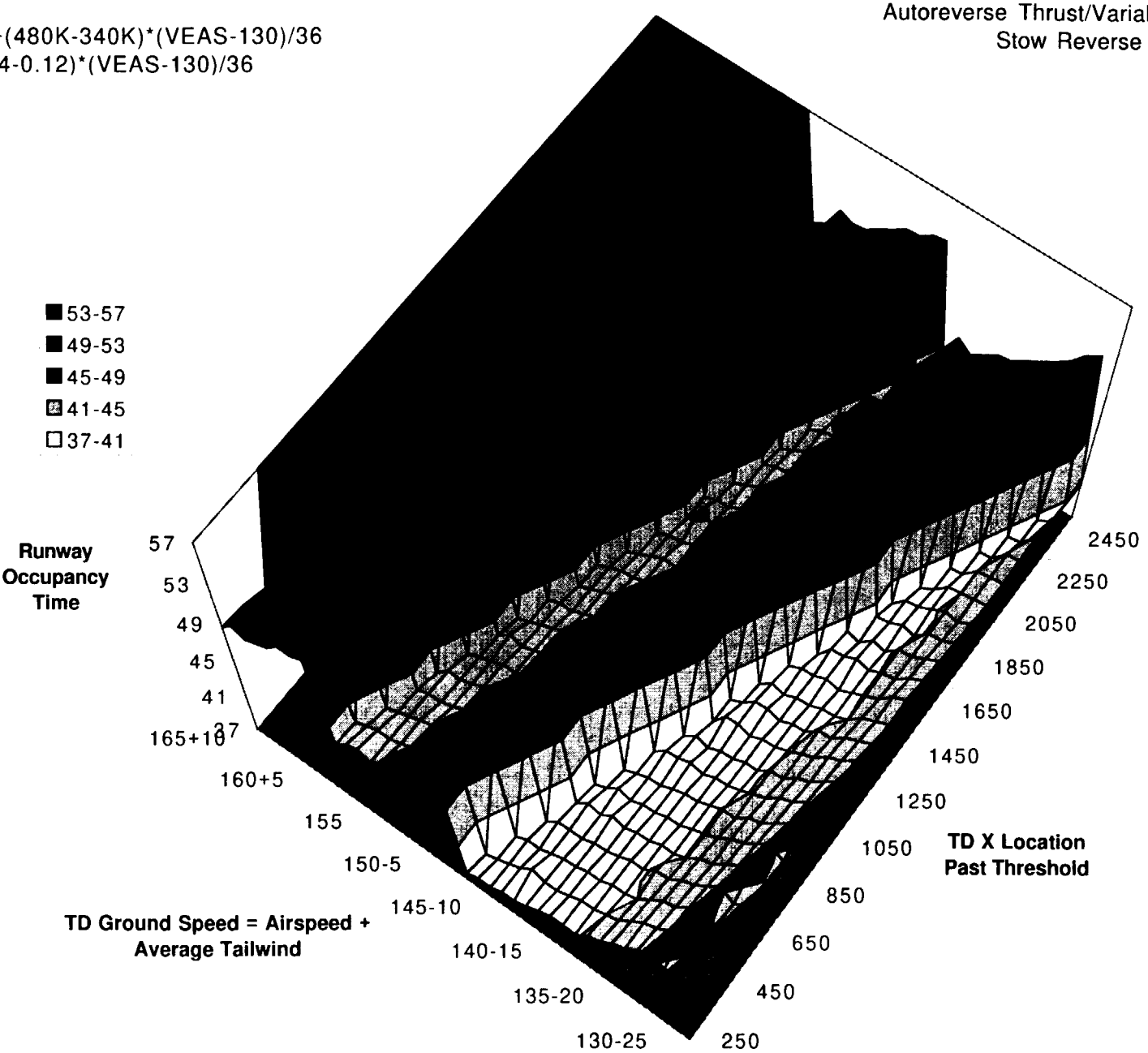

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=41.1, STDEV=3.965
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

Predict exit prior to TD

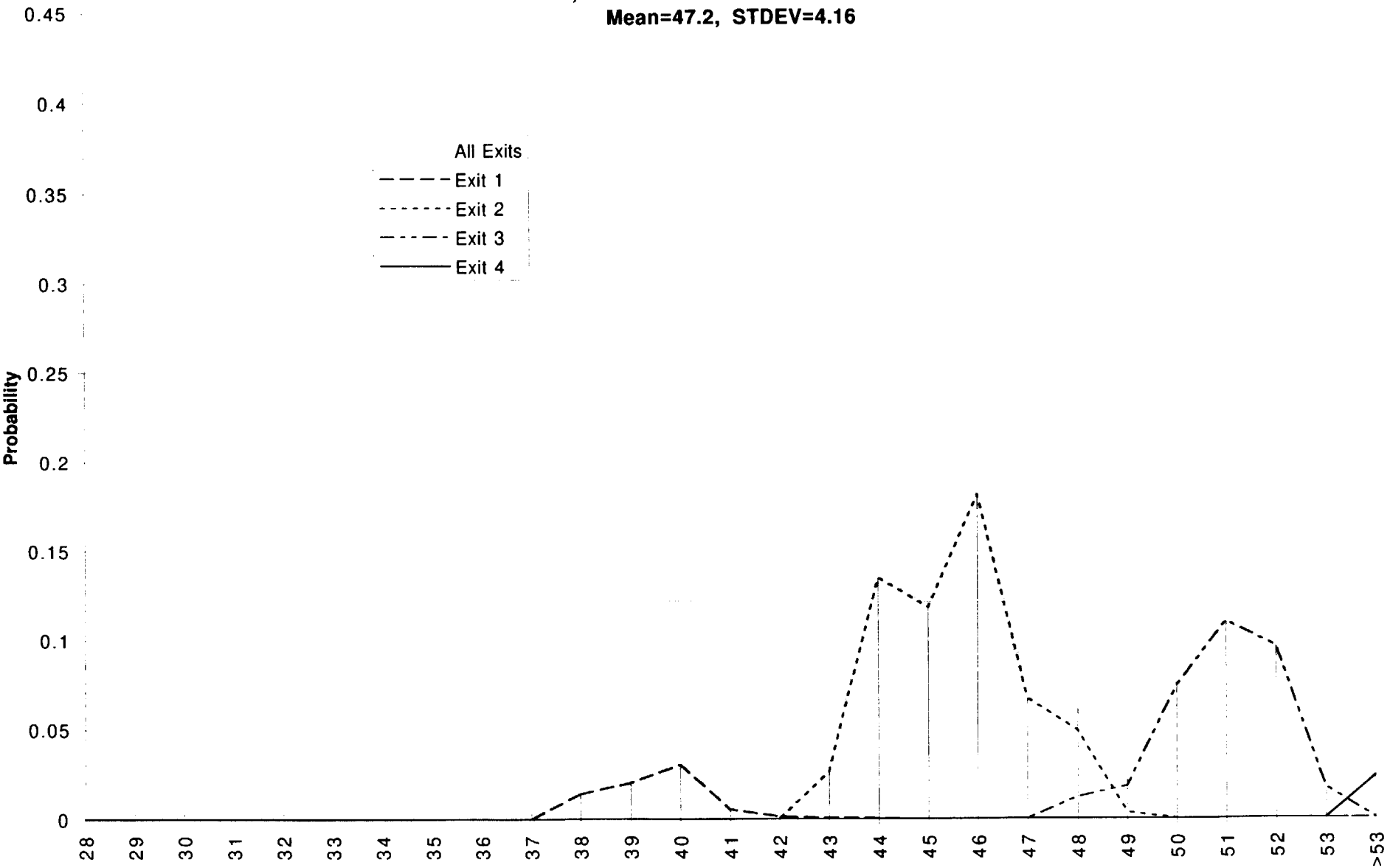
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=47.2, STDEV=4.16



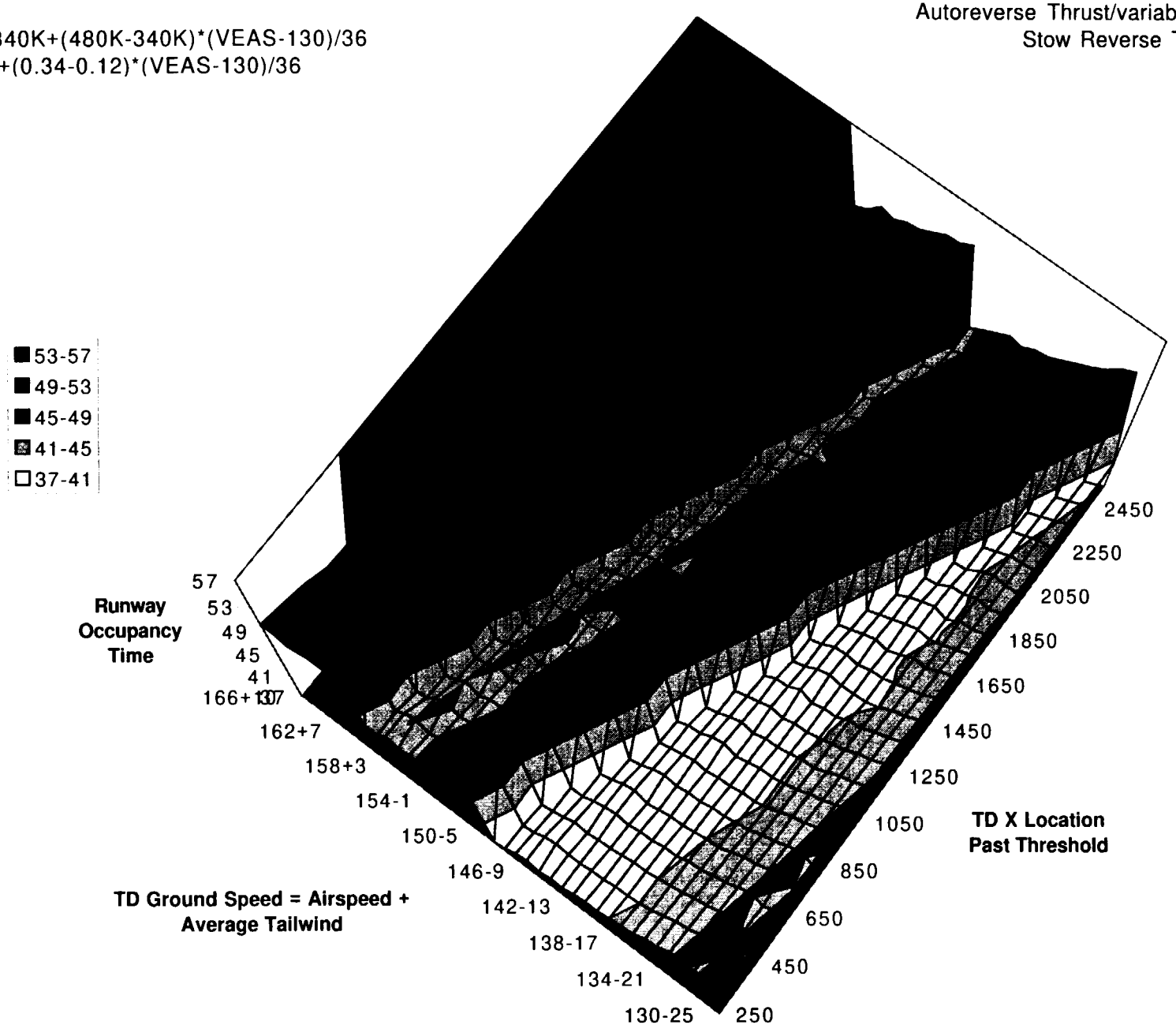
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

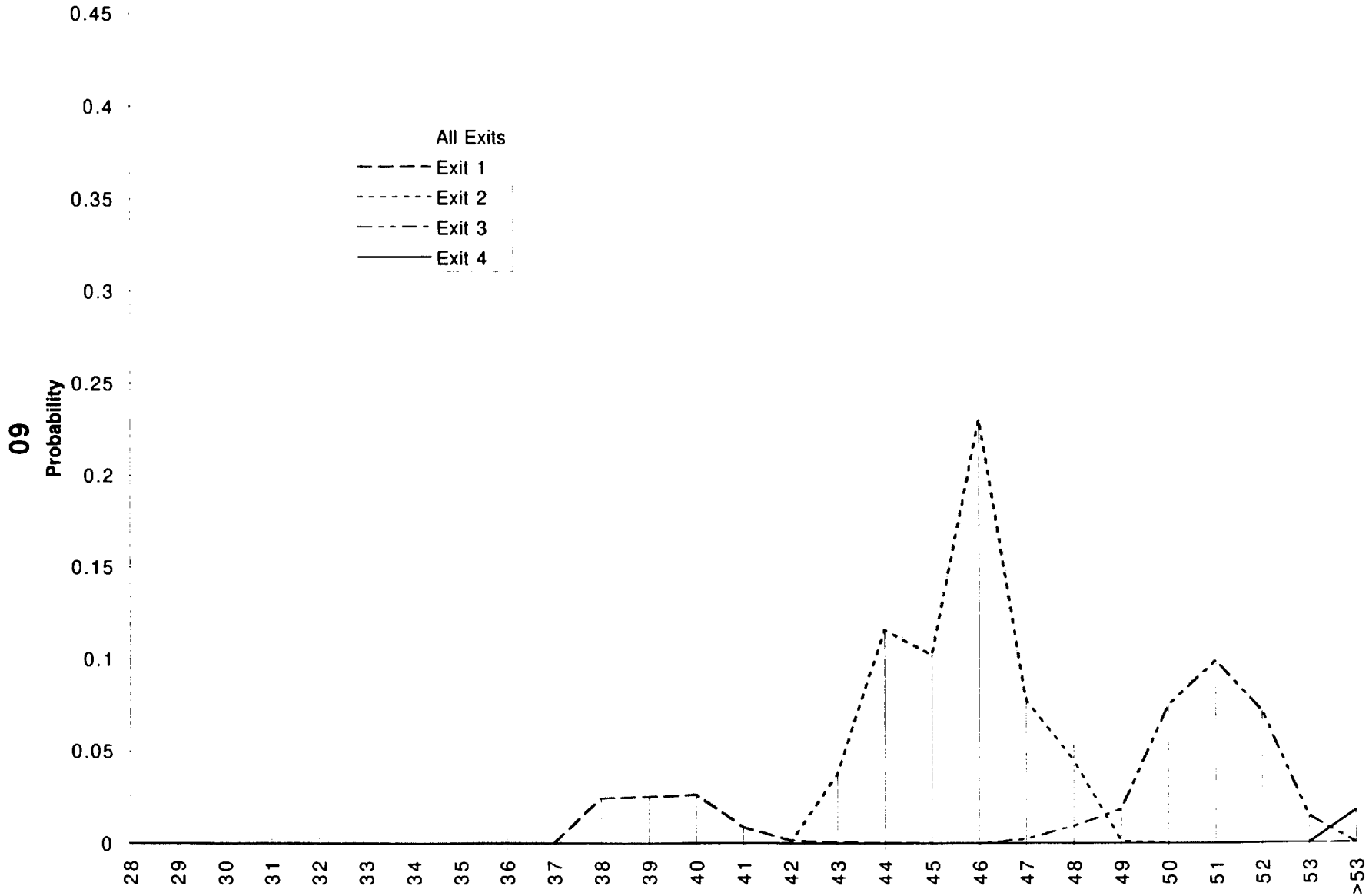
MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel
Mean=46.8, STDEV=4.017



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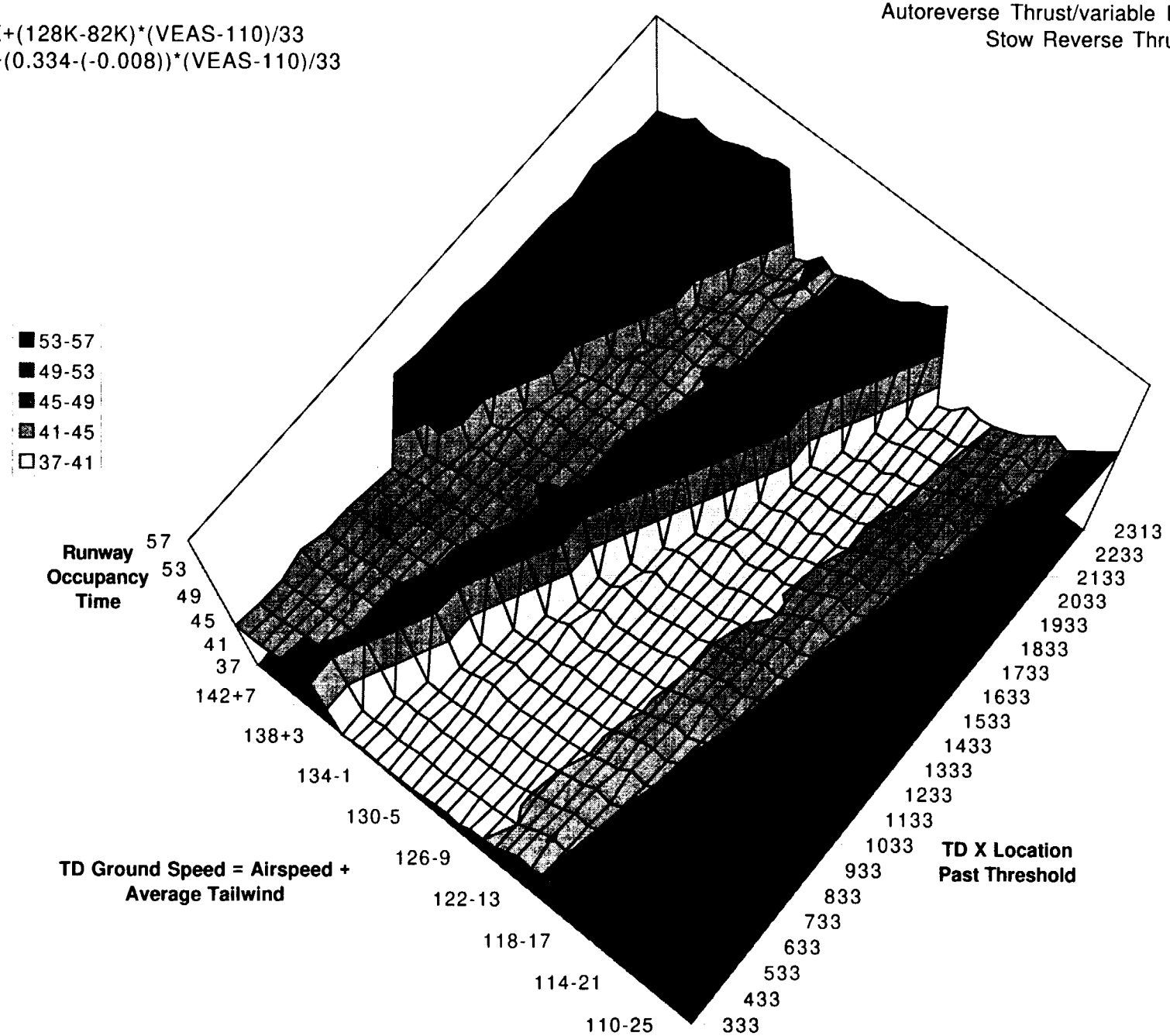
MD-11 Runway Occupancy Time
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

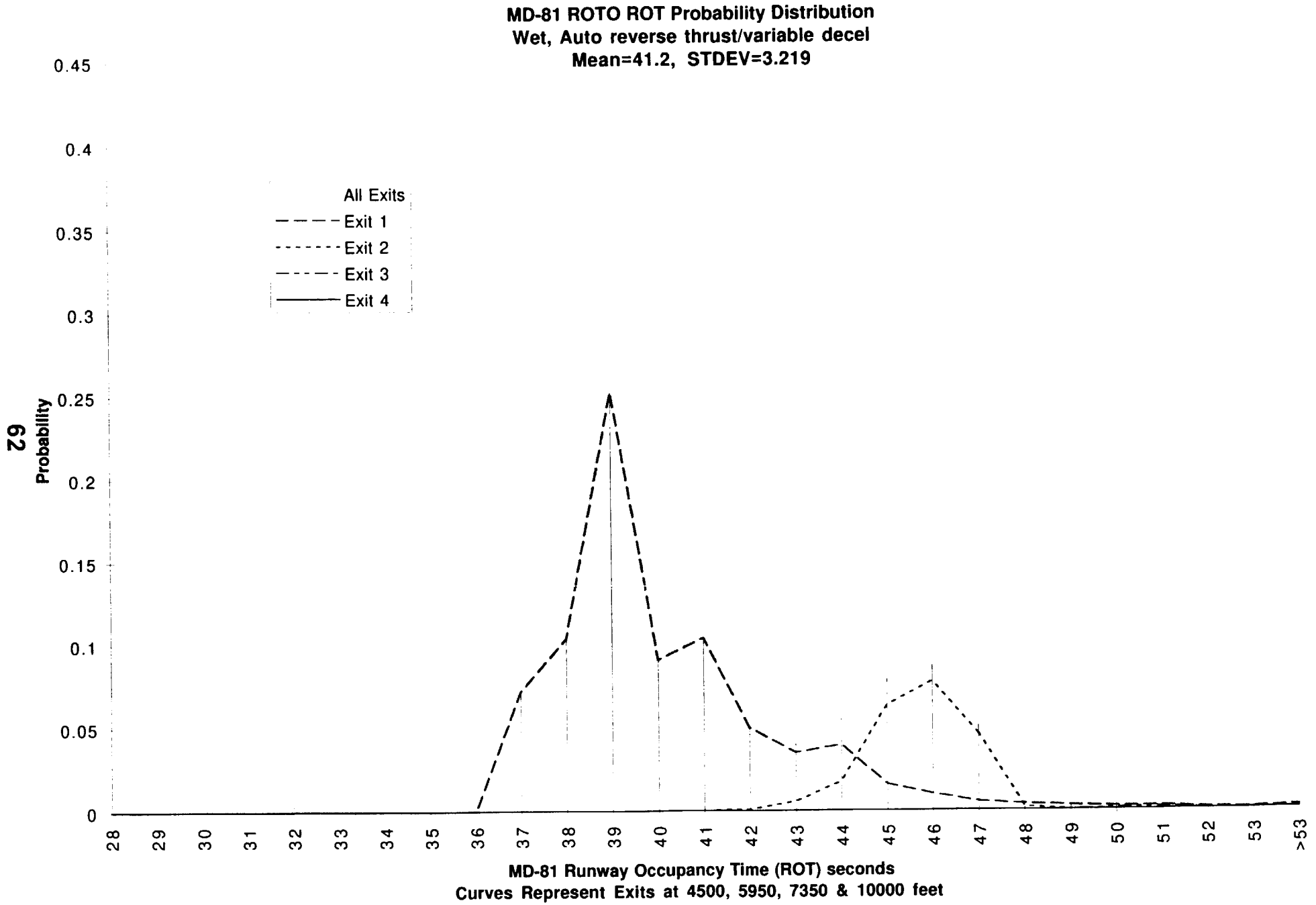
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



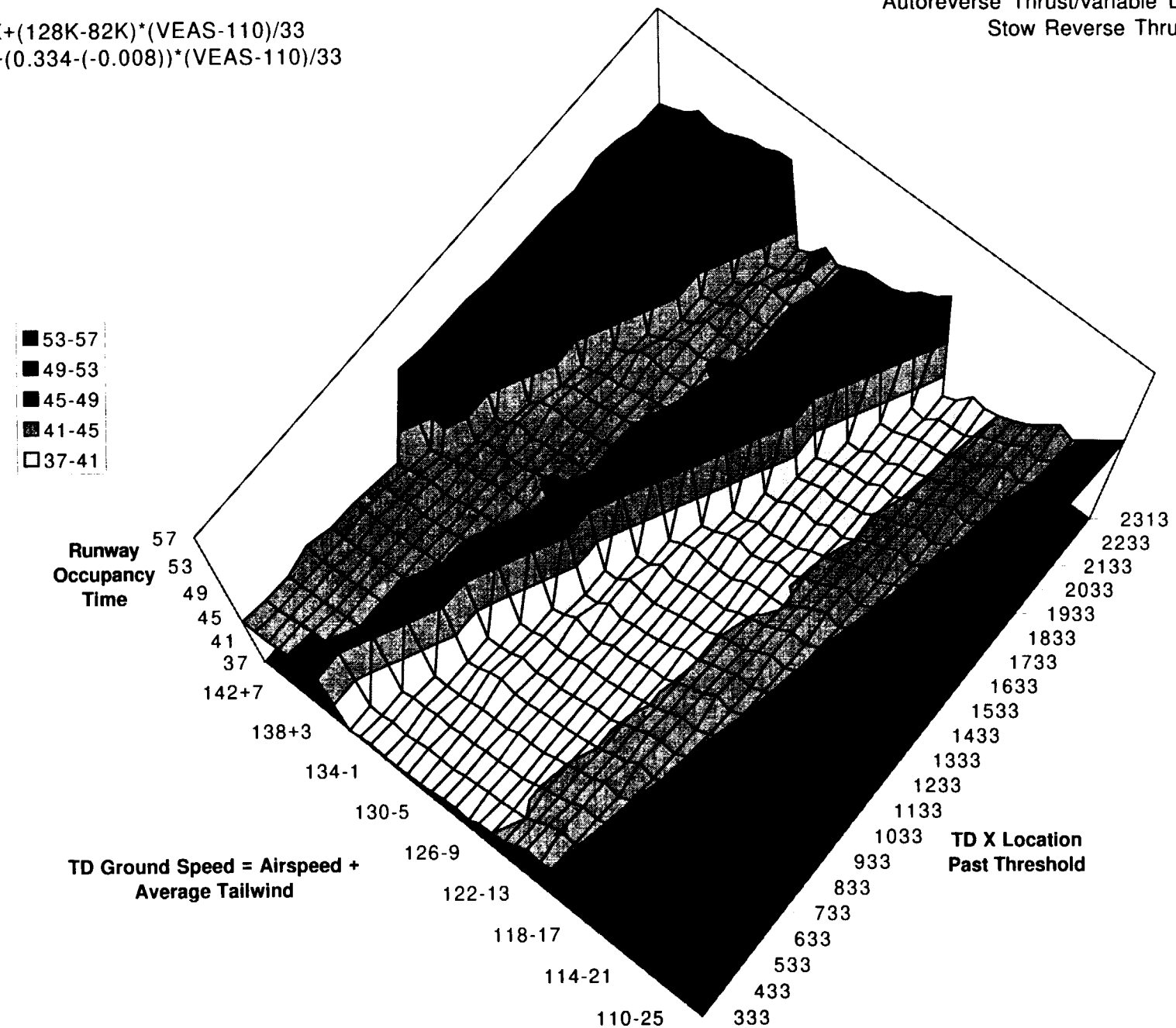

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=41.2, STDEV=3.219
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

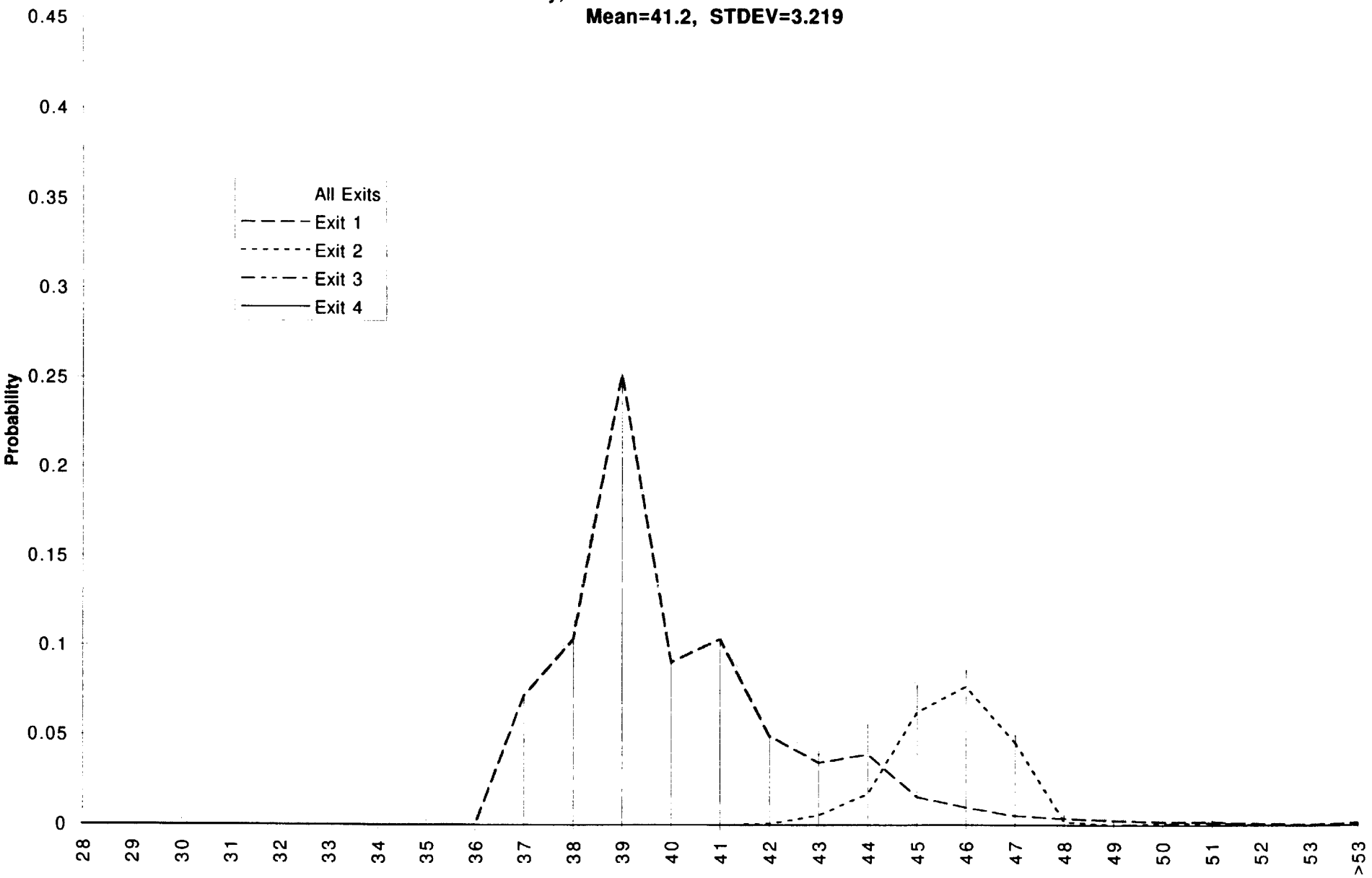
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel
Mean=41.2, STDEV=3.219



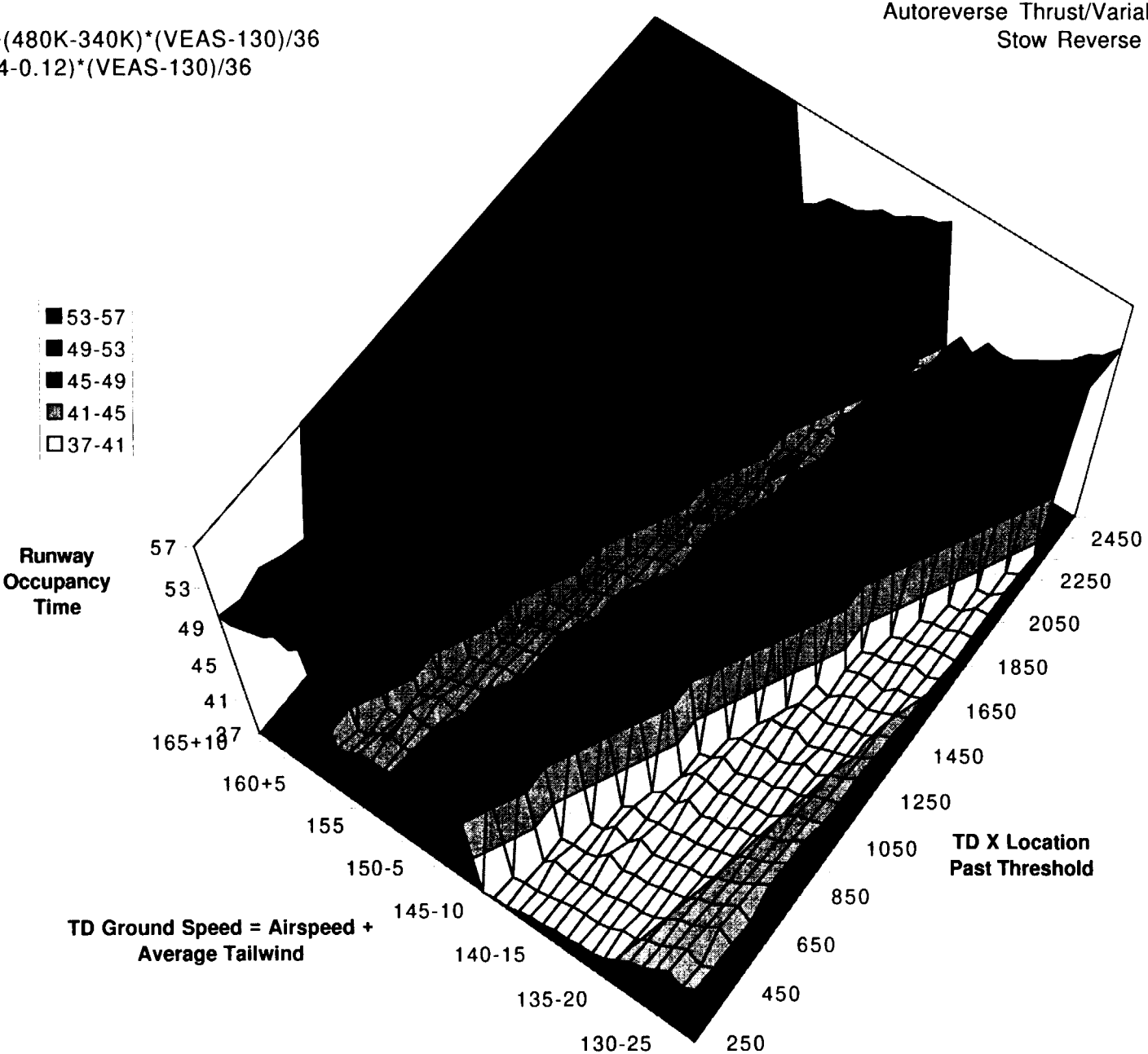
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

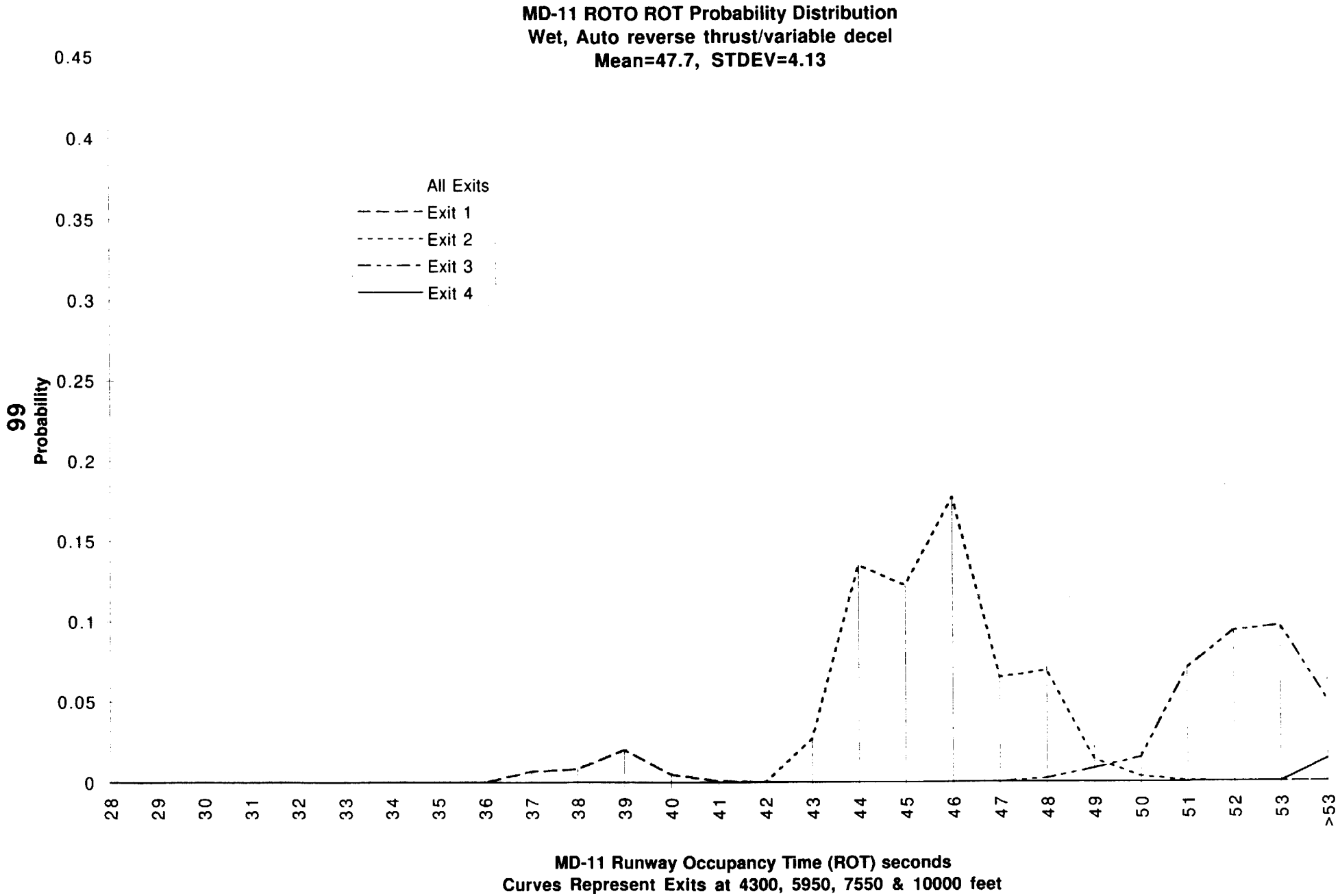
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=4300,5950,7550,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



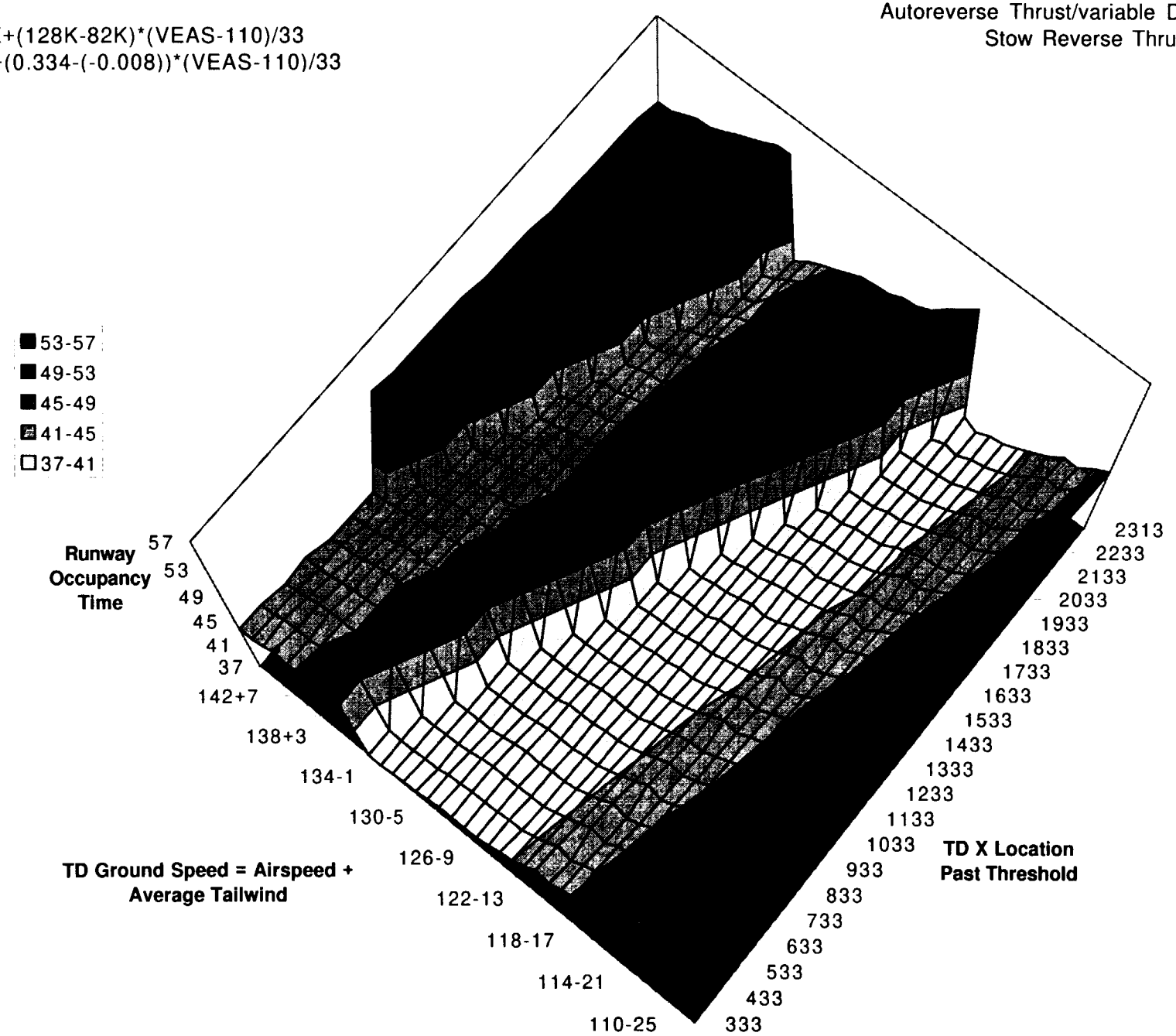

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=47.7, STDEV=4.13
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
99 Probability
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4300, 5950, 7550 & 10000 feet

Predict exit prior to TD

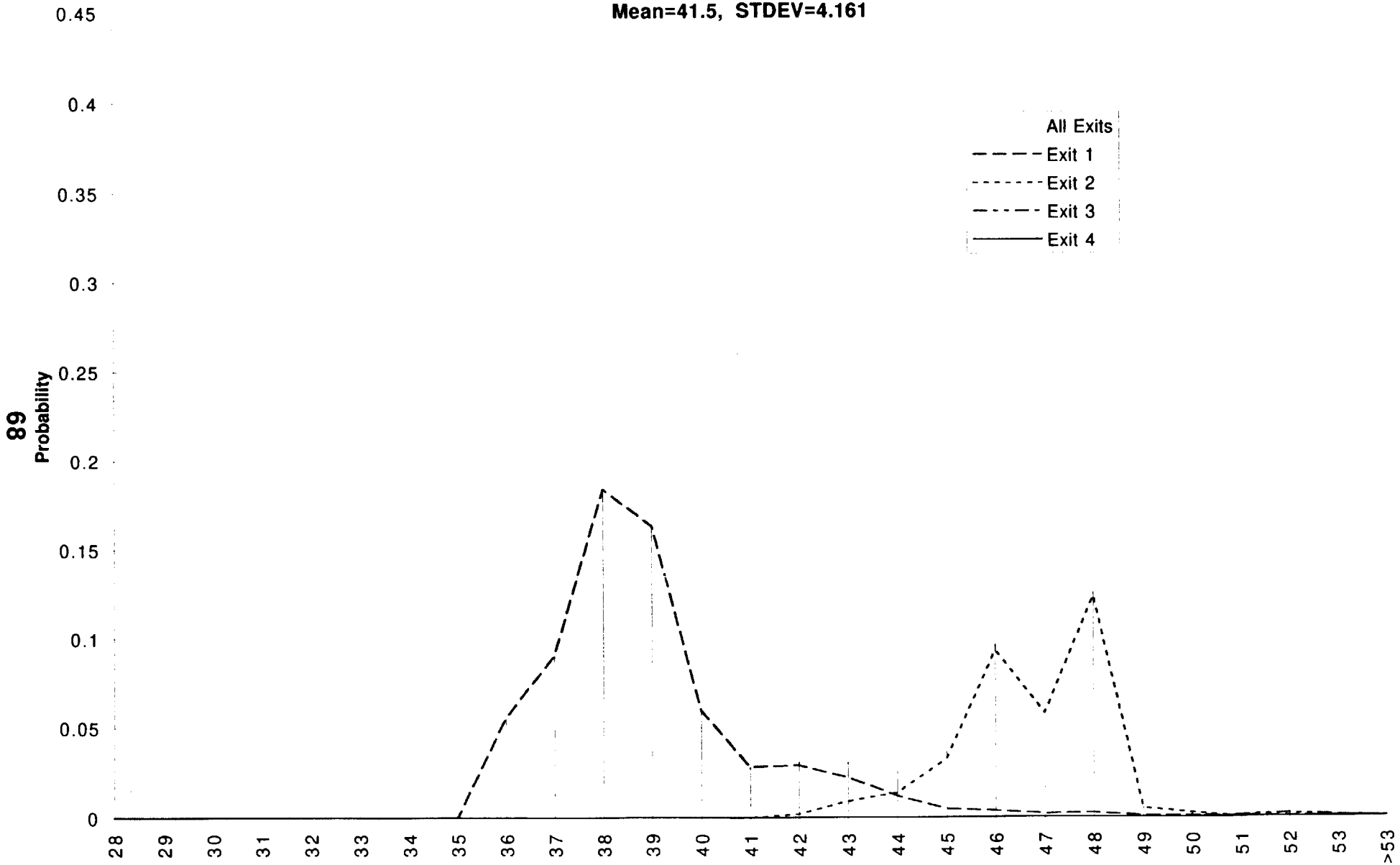
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4300,5950,7550,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=41.5, STDEV=4.161



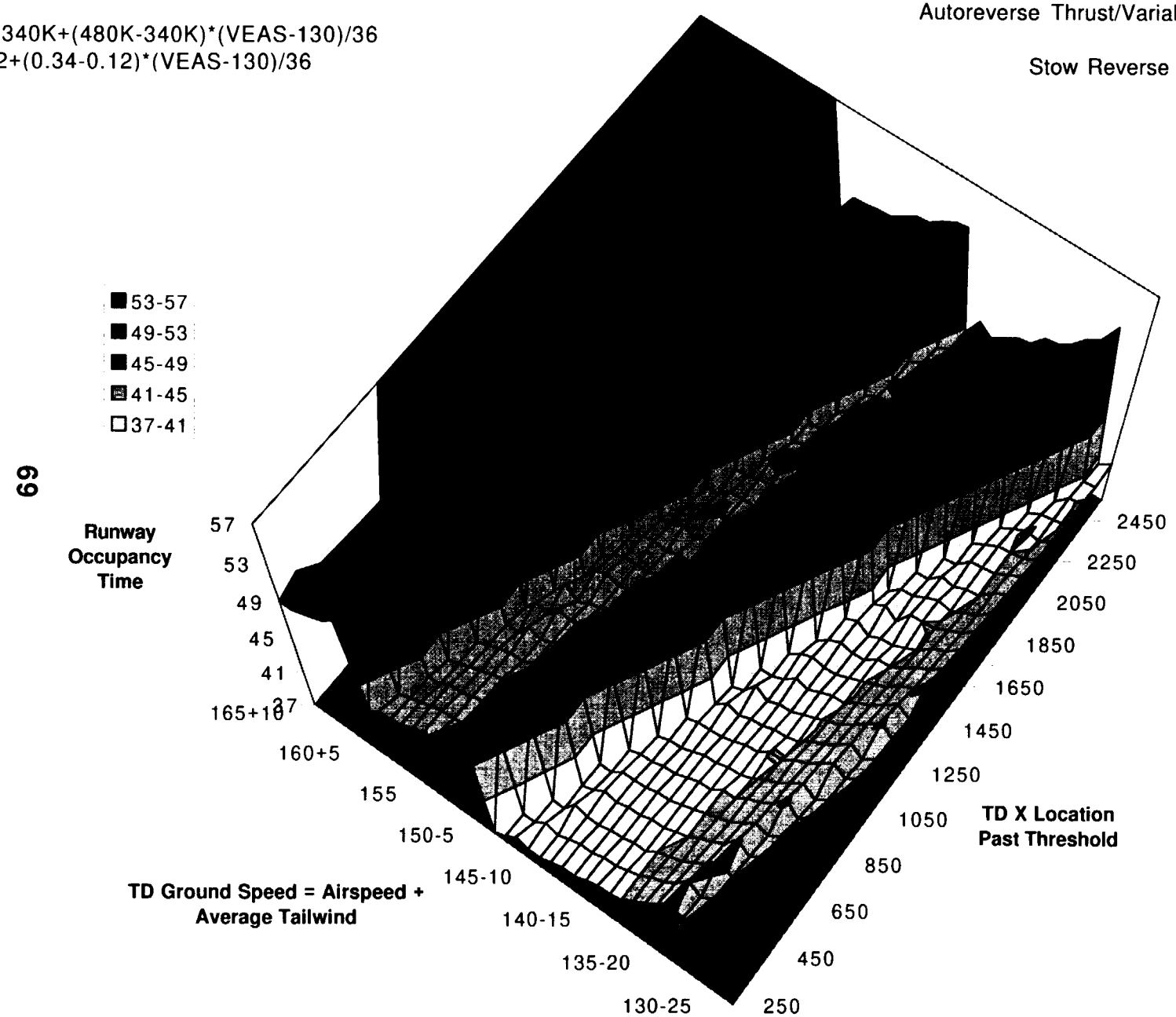
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4300, 5950, 7550 & 10000 feet

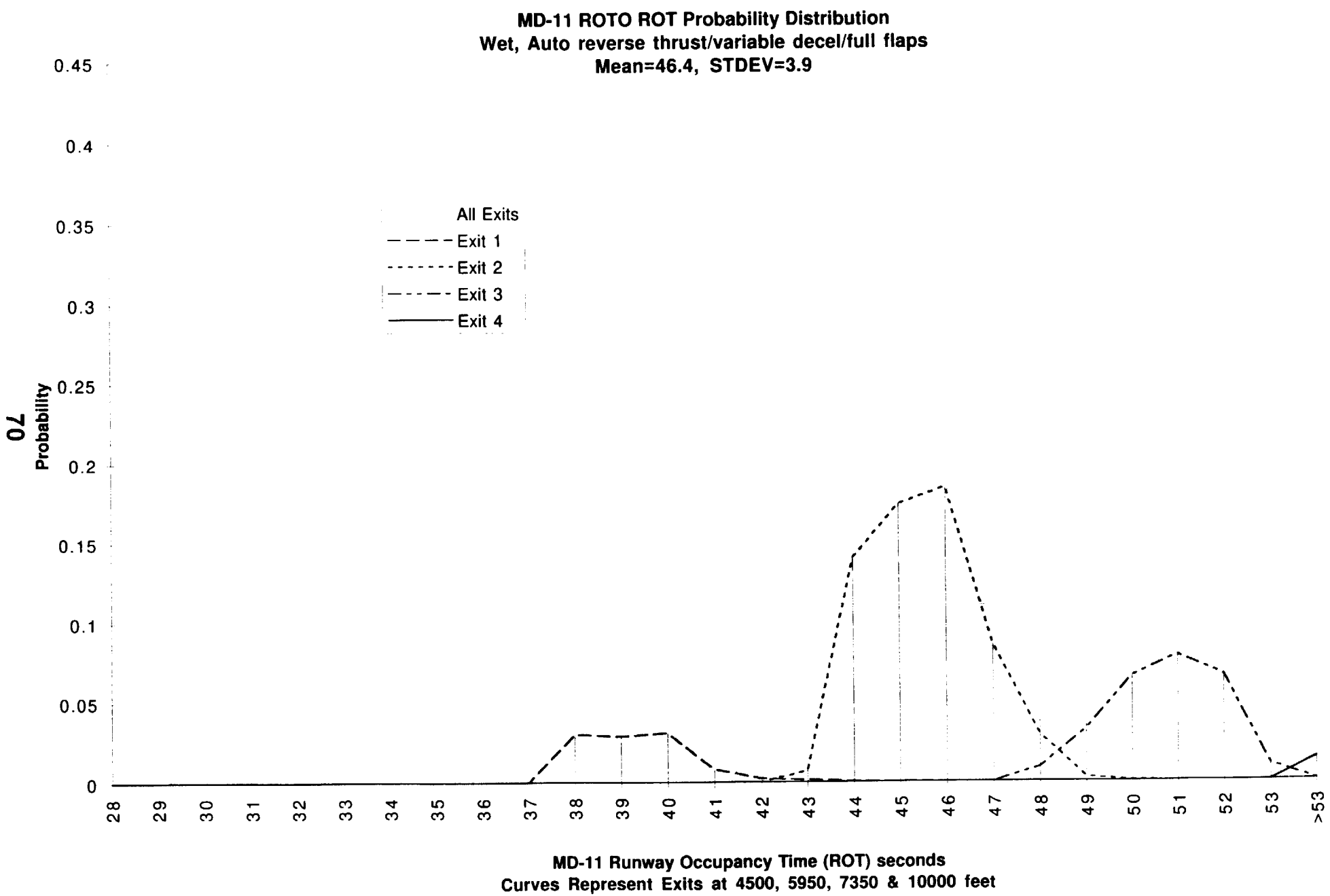
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Full Flaps
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/full flaps
Mean=46.4, STDEV=3.9
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
%
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
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41
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43
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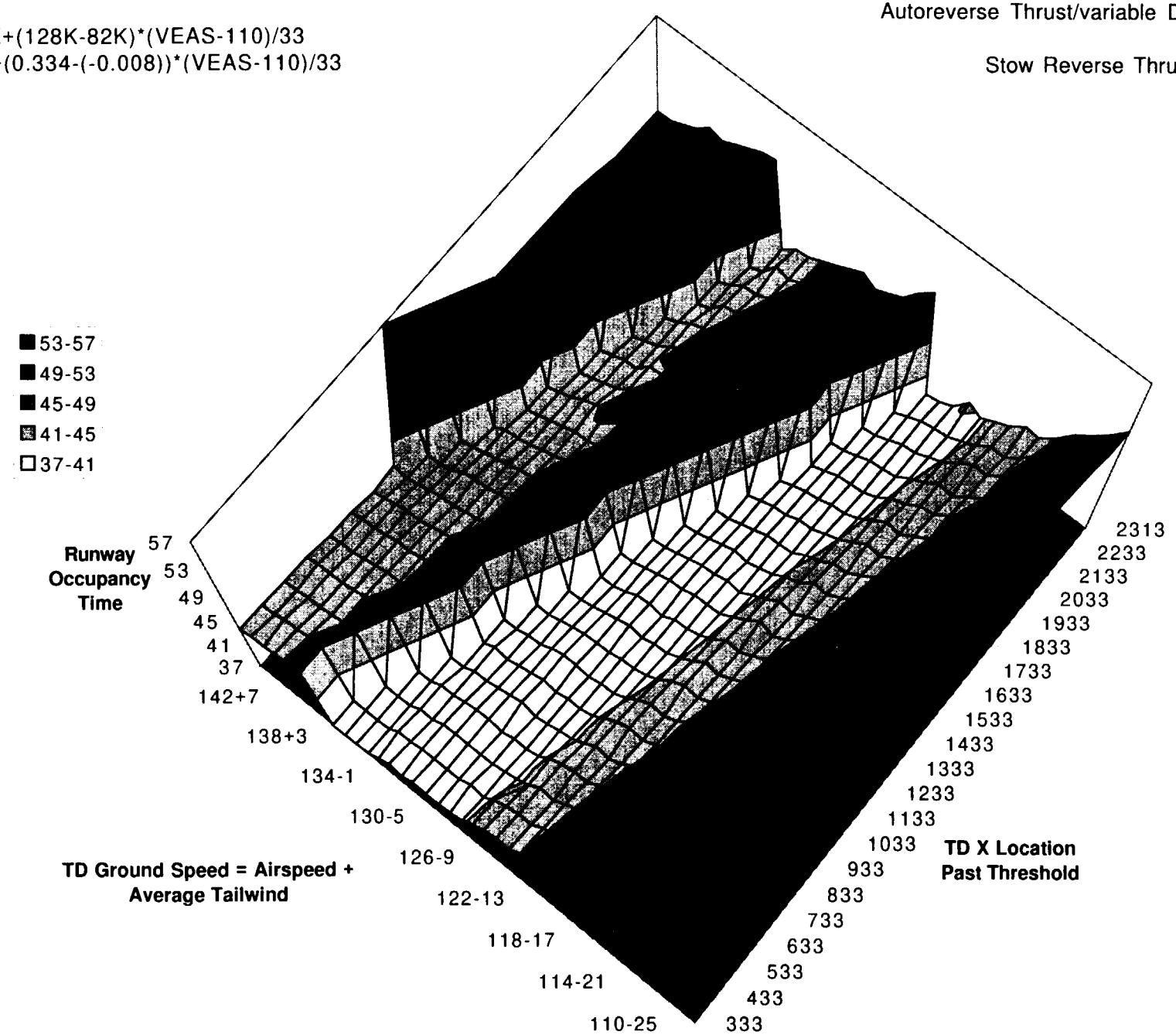
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

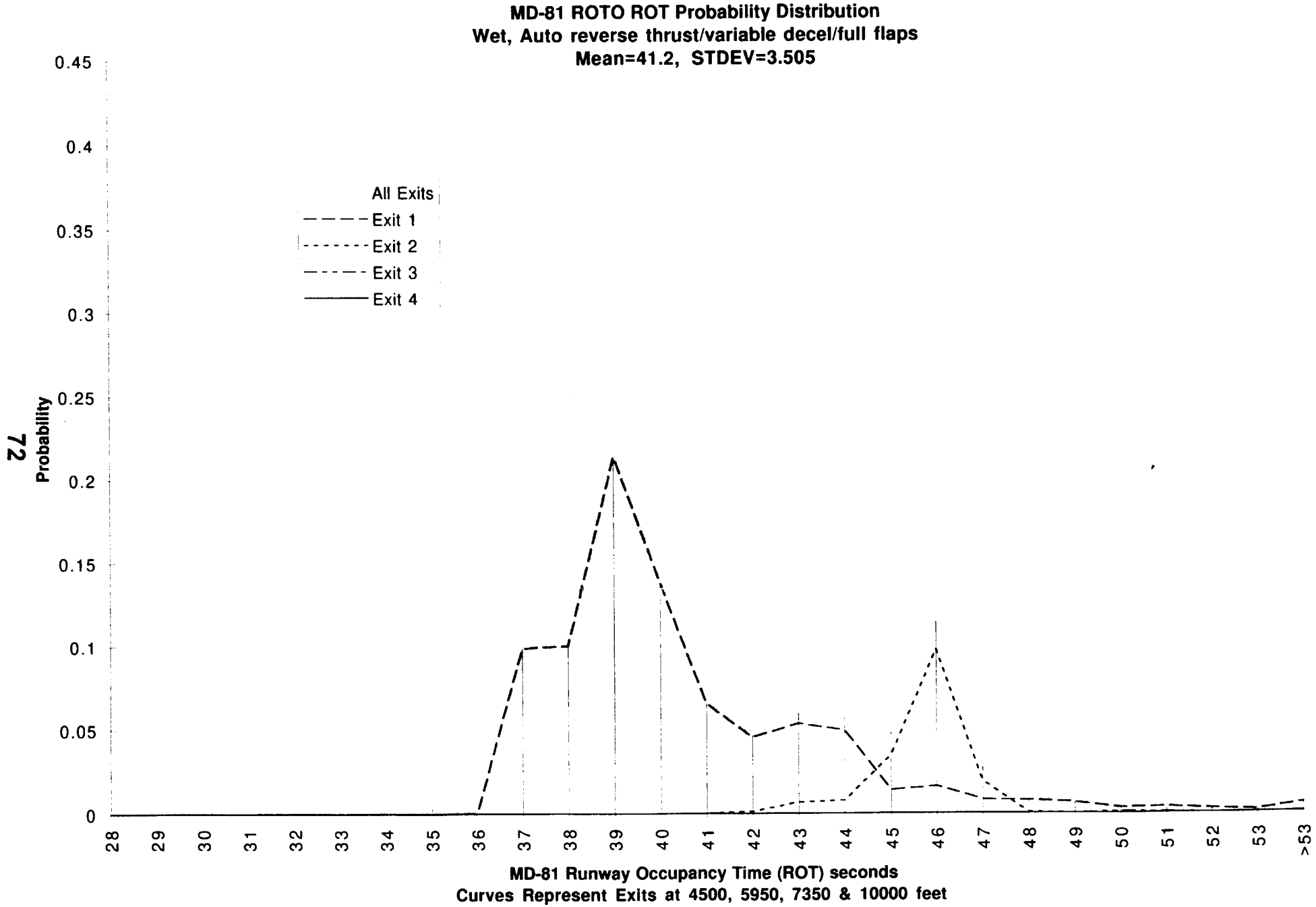
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Full Flaps
Stow Reverse Thrust=70 kt gd



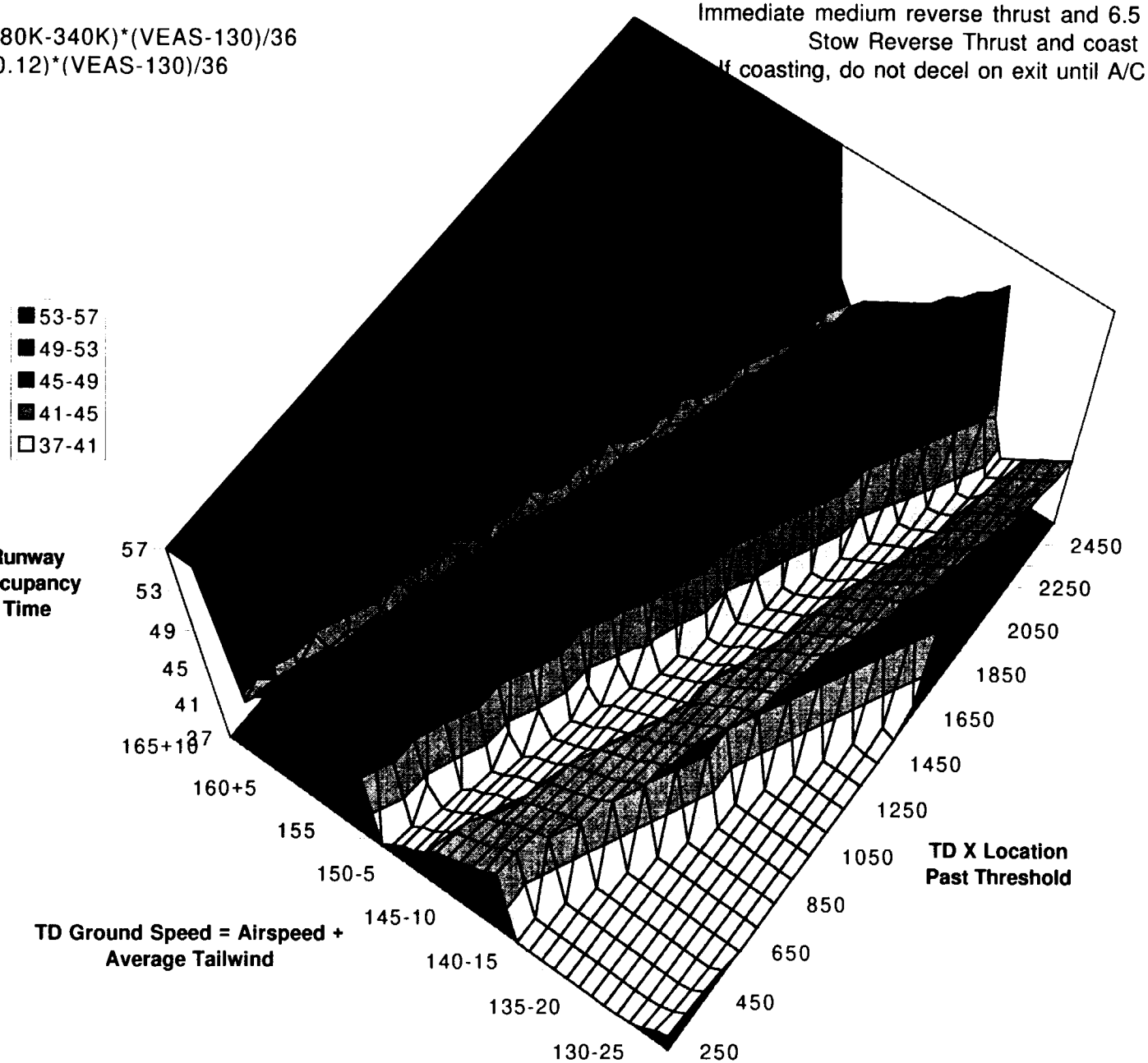

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/full flaps
Mean=41.2, STDEV=3.505
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

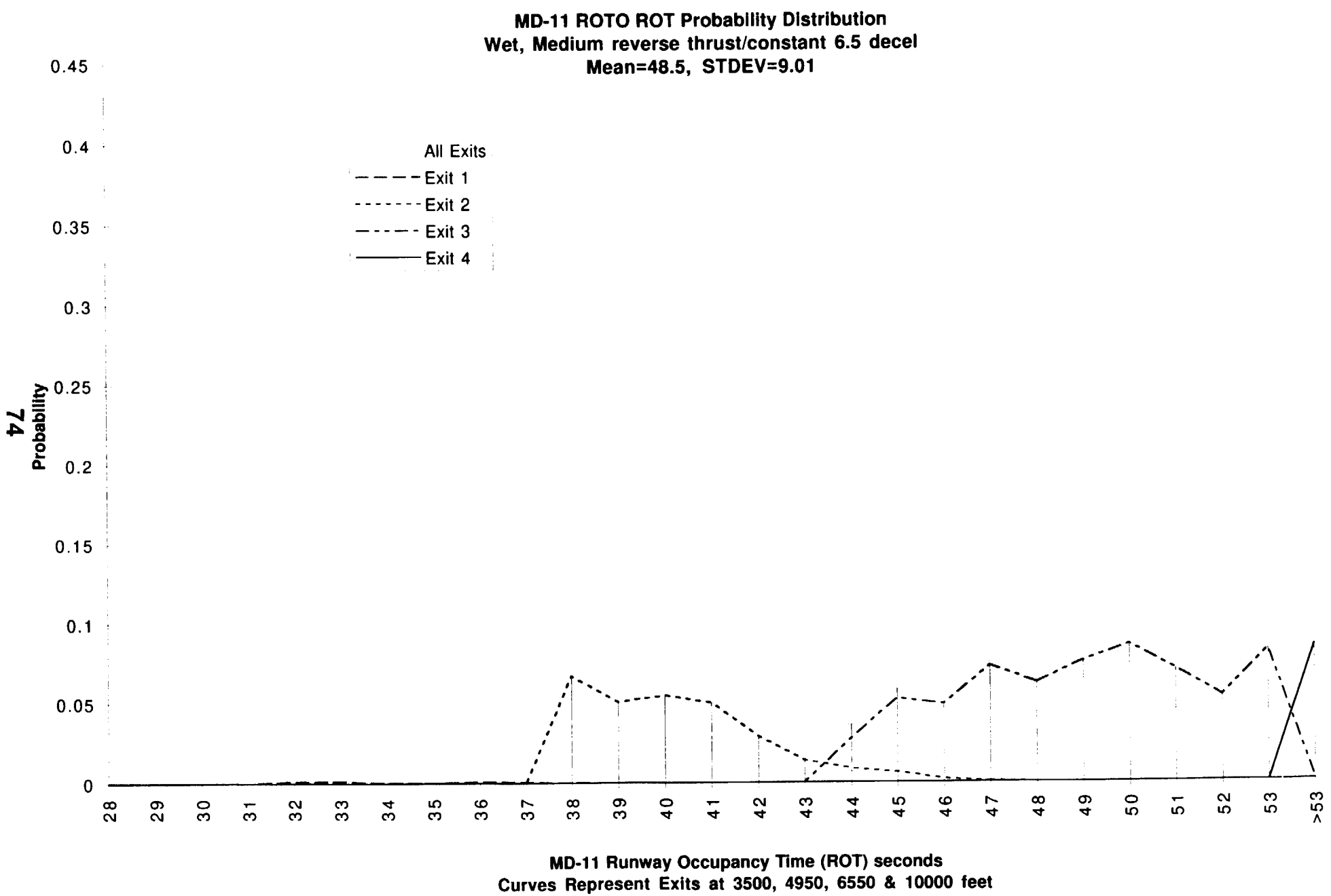
No exit prediction

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Immediate medium reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway




MD-11 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=48.5, STDEV=9.01
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
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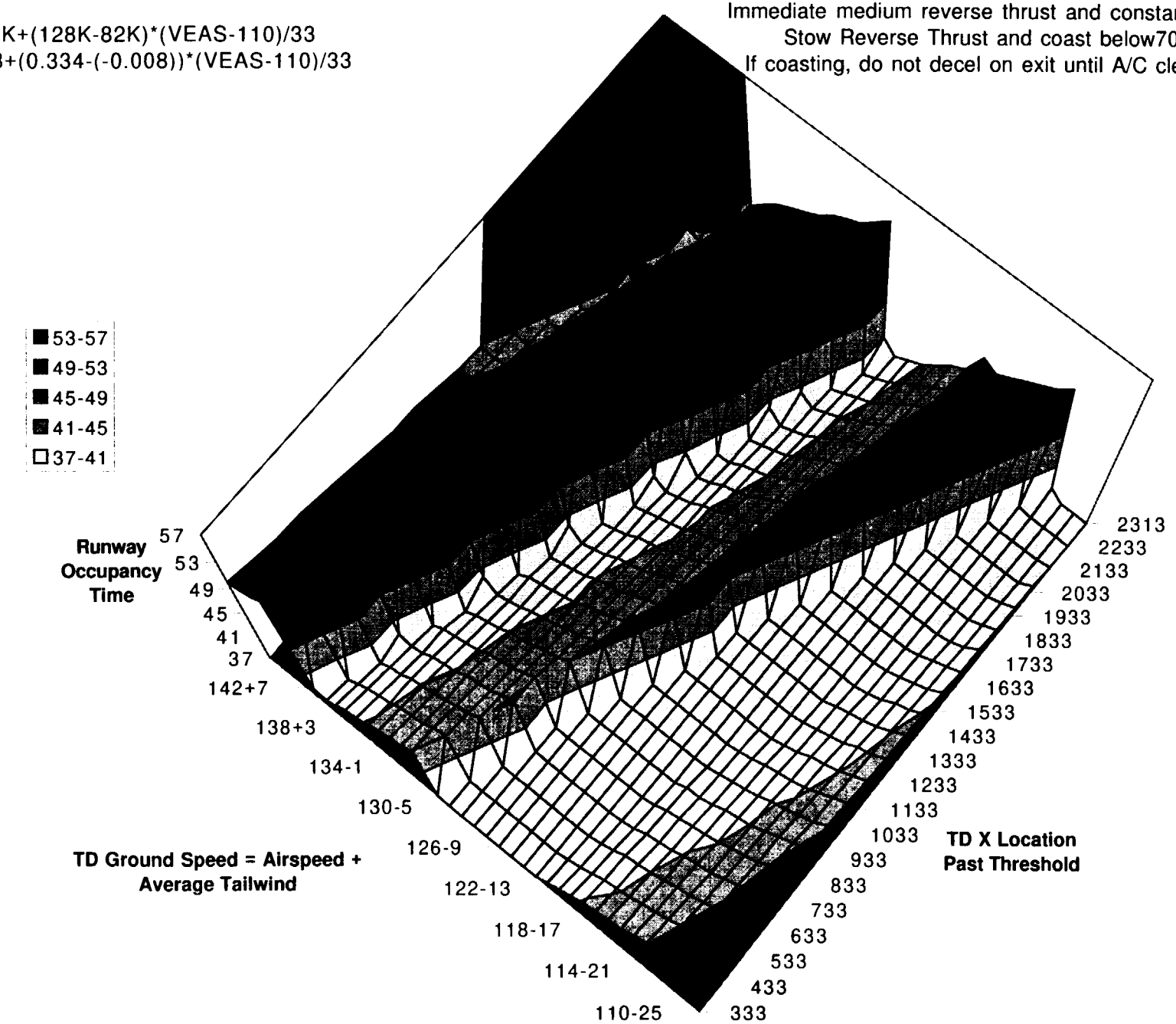
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

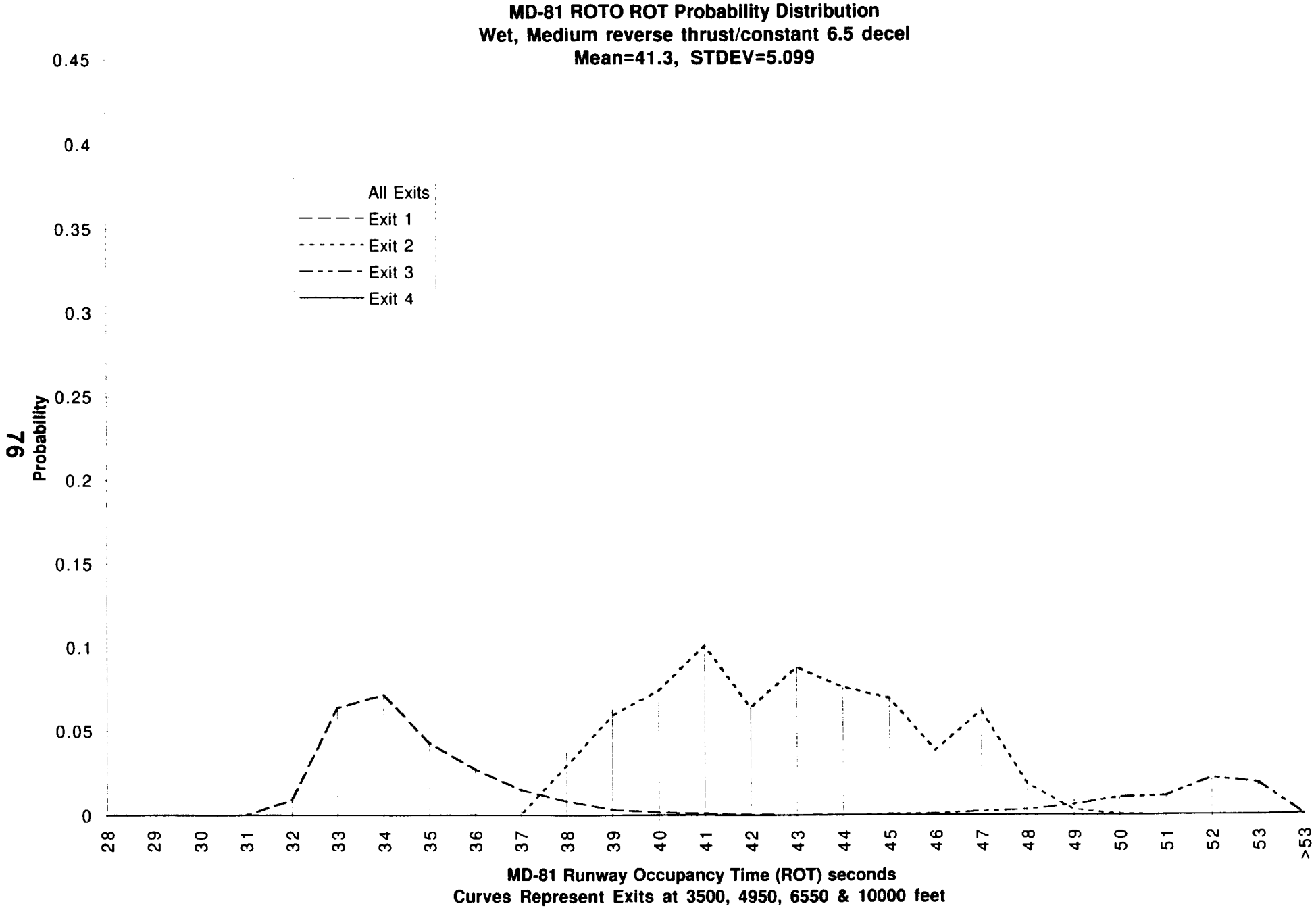
No exit prediction

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Immediate medium reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway



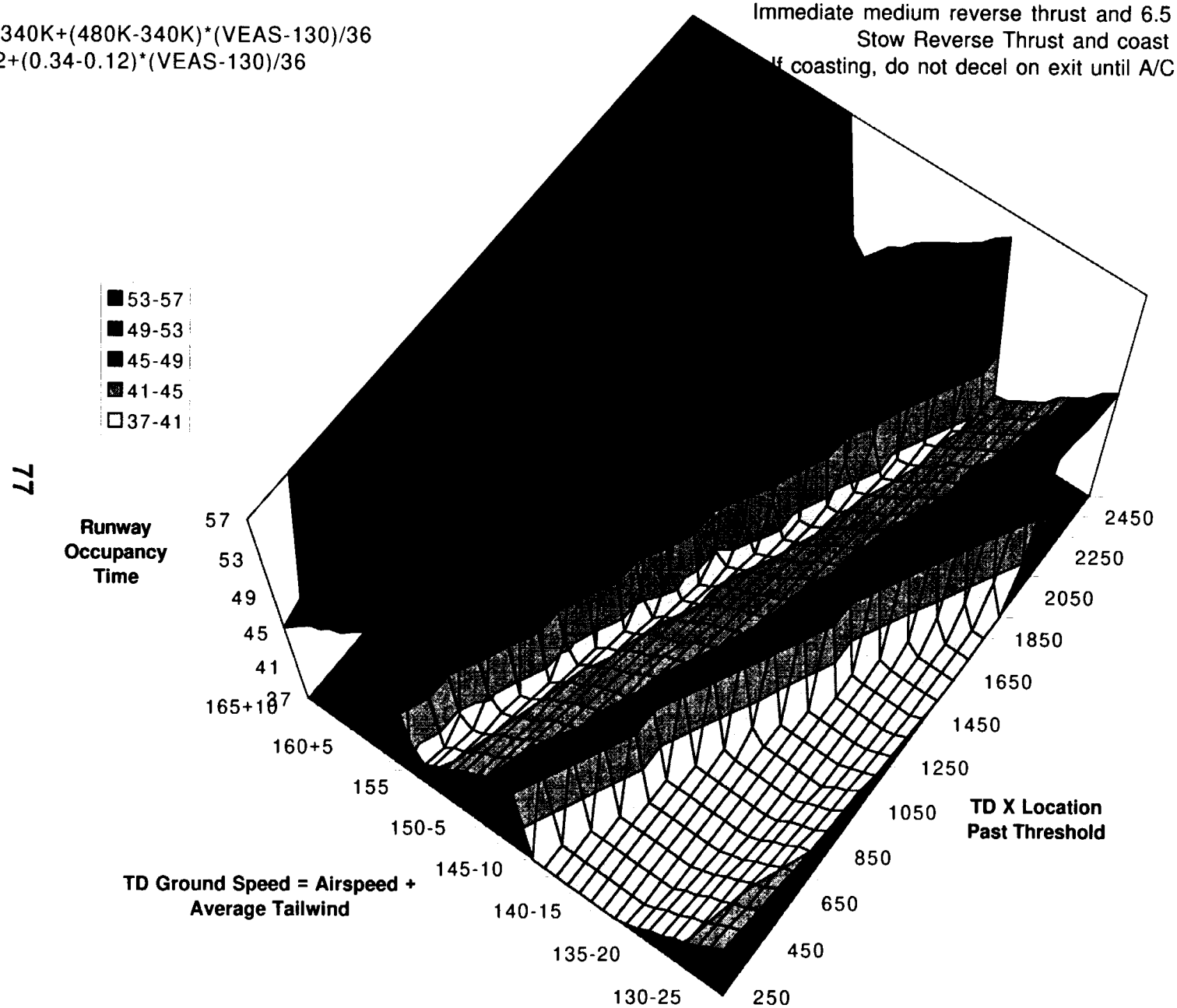

MD-81 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=41.3, STDEV=5.099
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

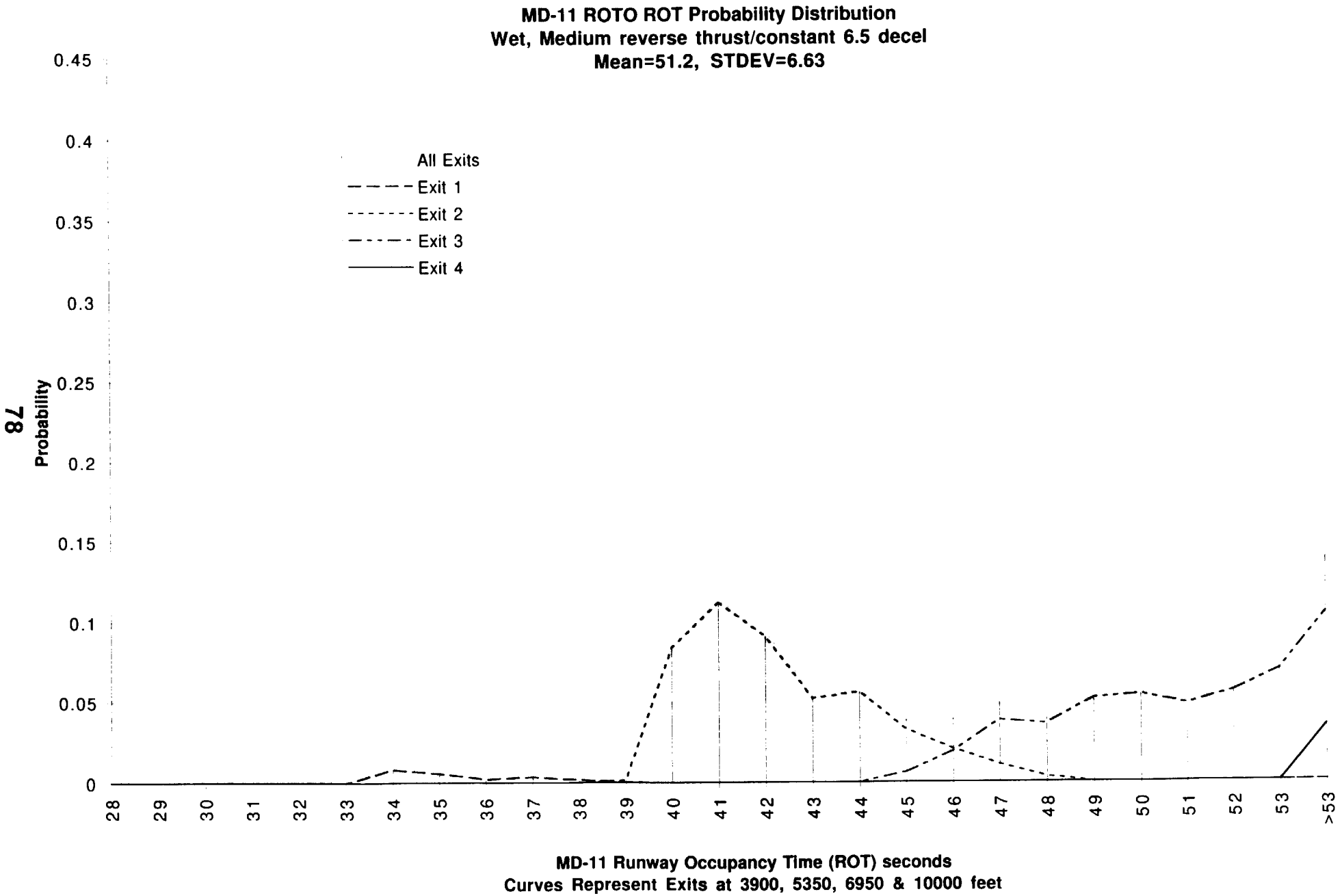
No exit prediction

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Immediate medium reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



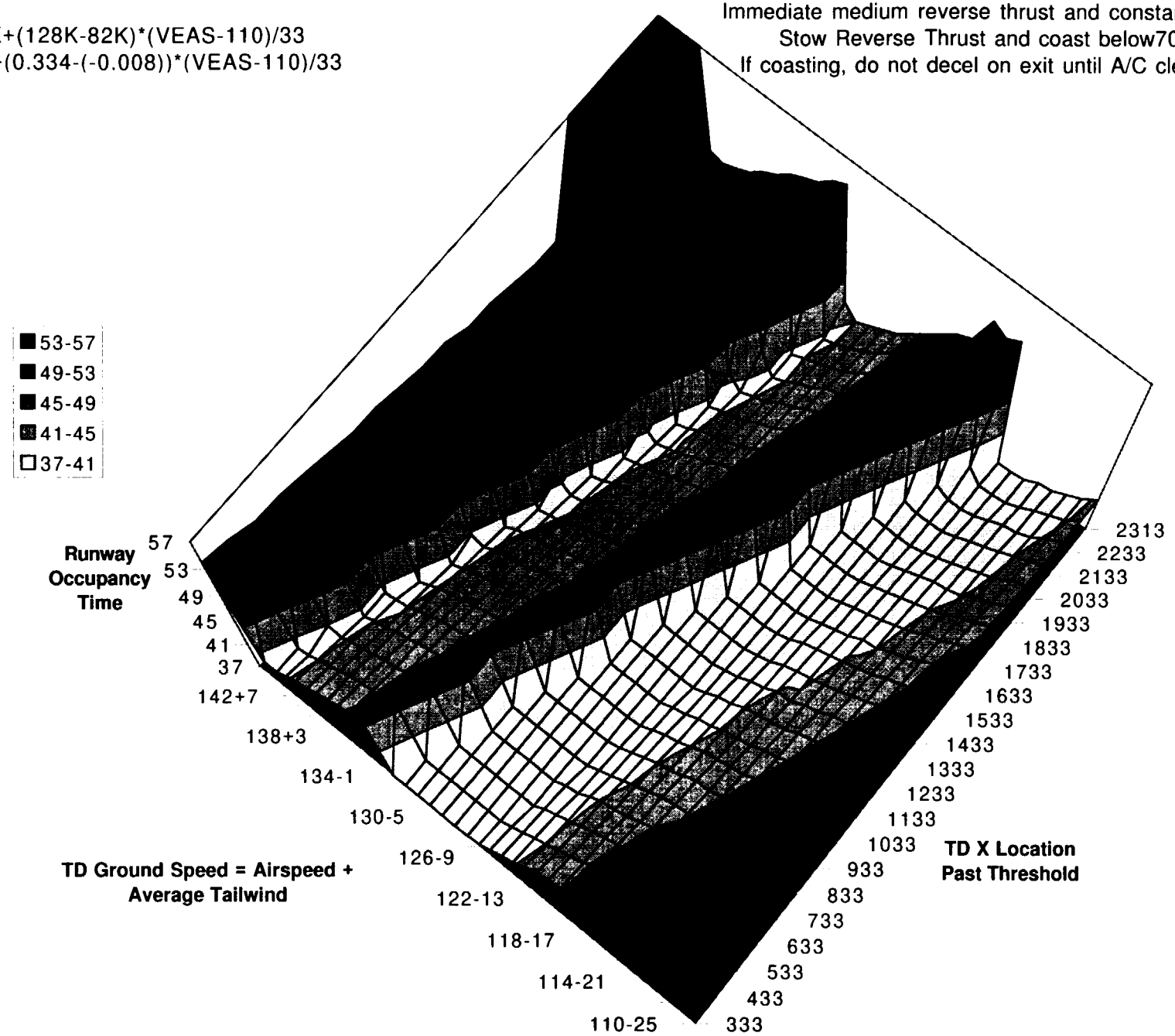

MD-11 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=51.2, STDEV=6.63
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

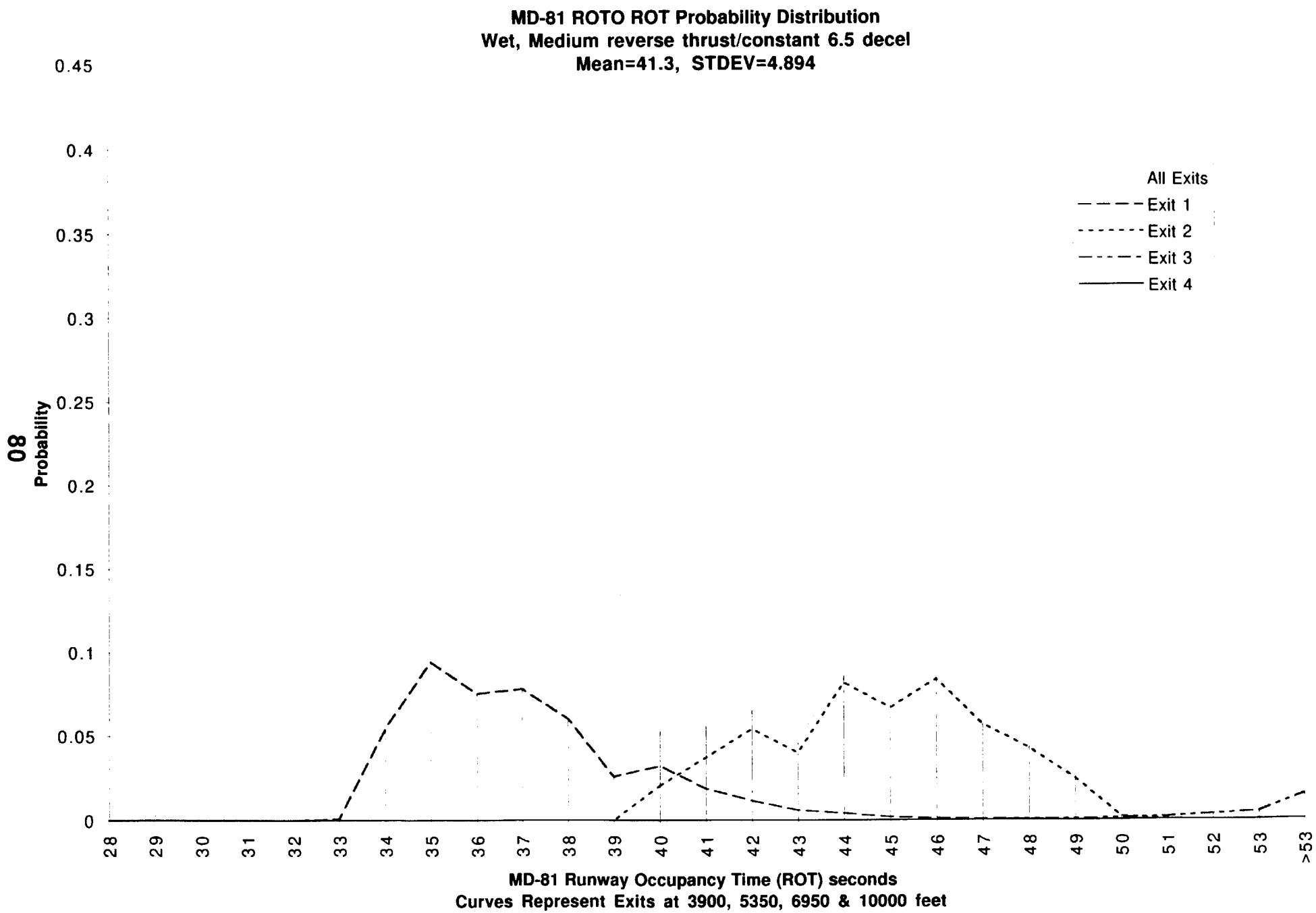
No exit prediction

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Immediate medium reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway



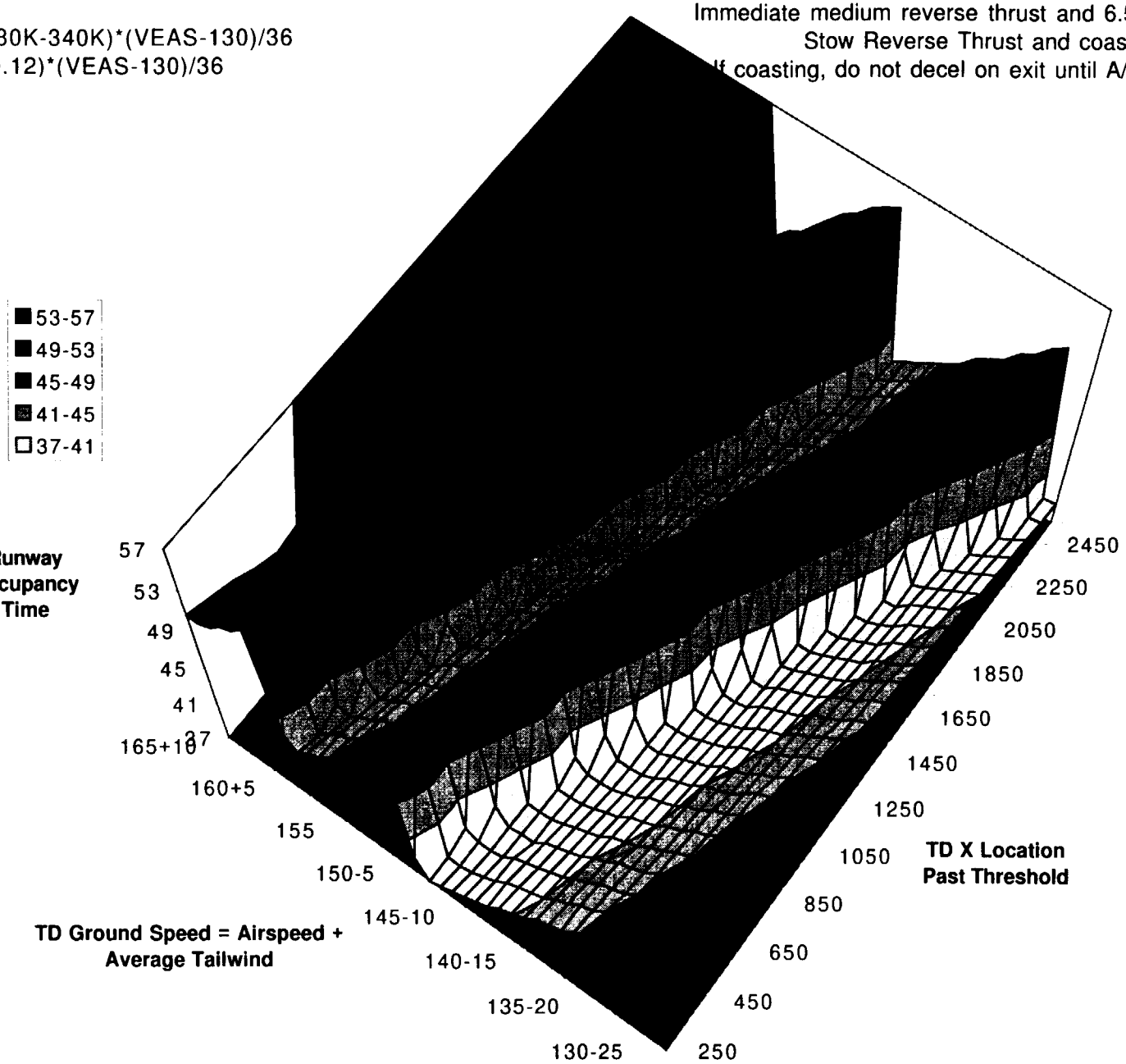

MD-81 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=41.3, STDEV=4.894
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
08
Probability
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

No exit prediction

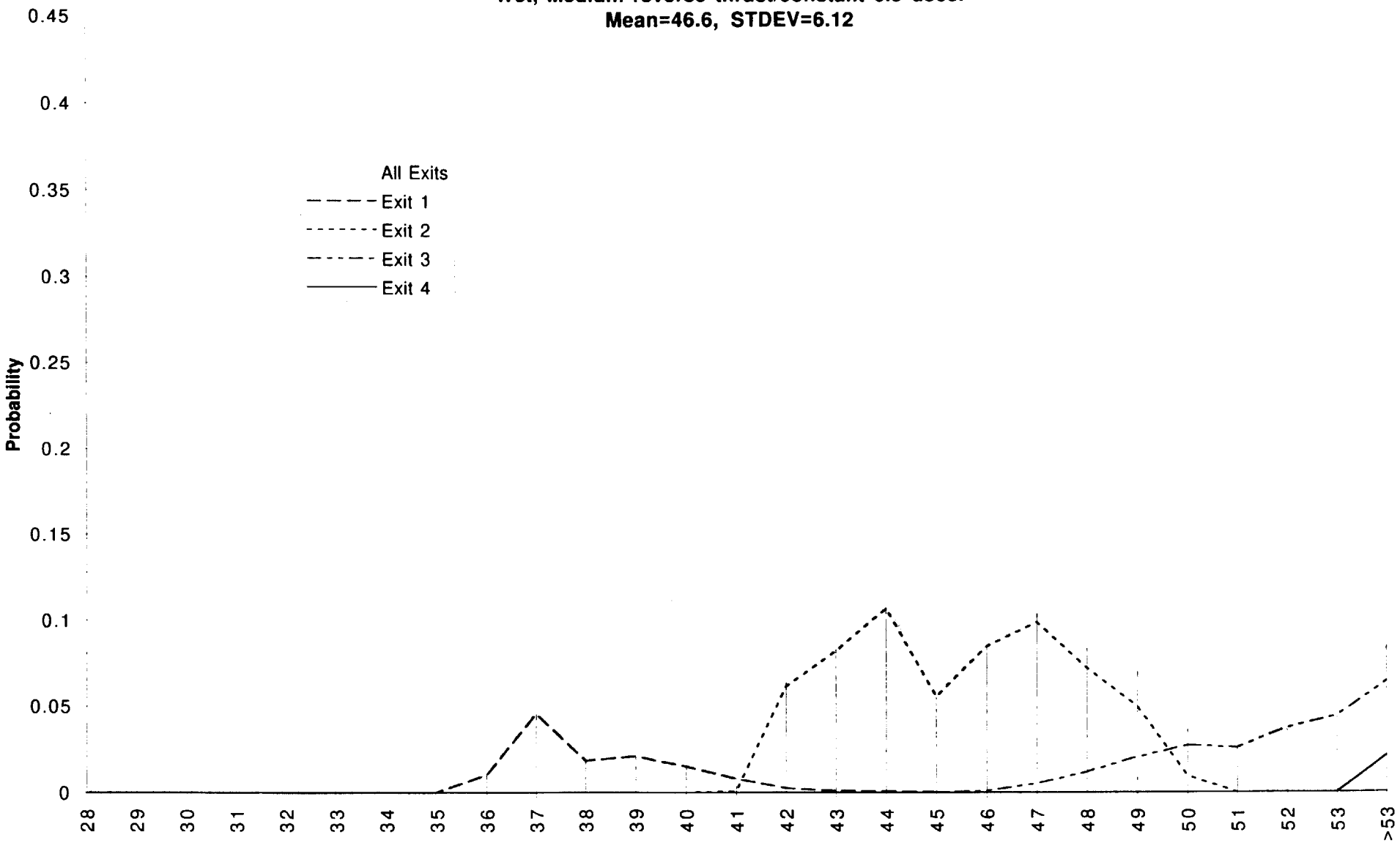
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Immediate medium reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=46.6, STDEV=6.12



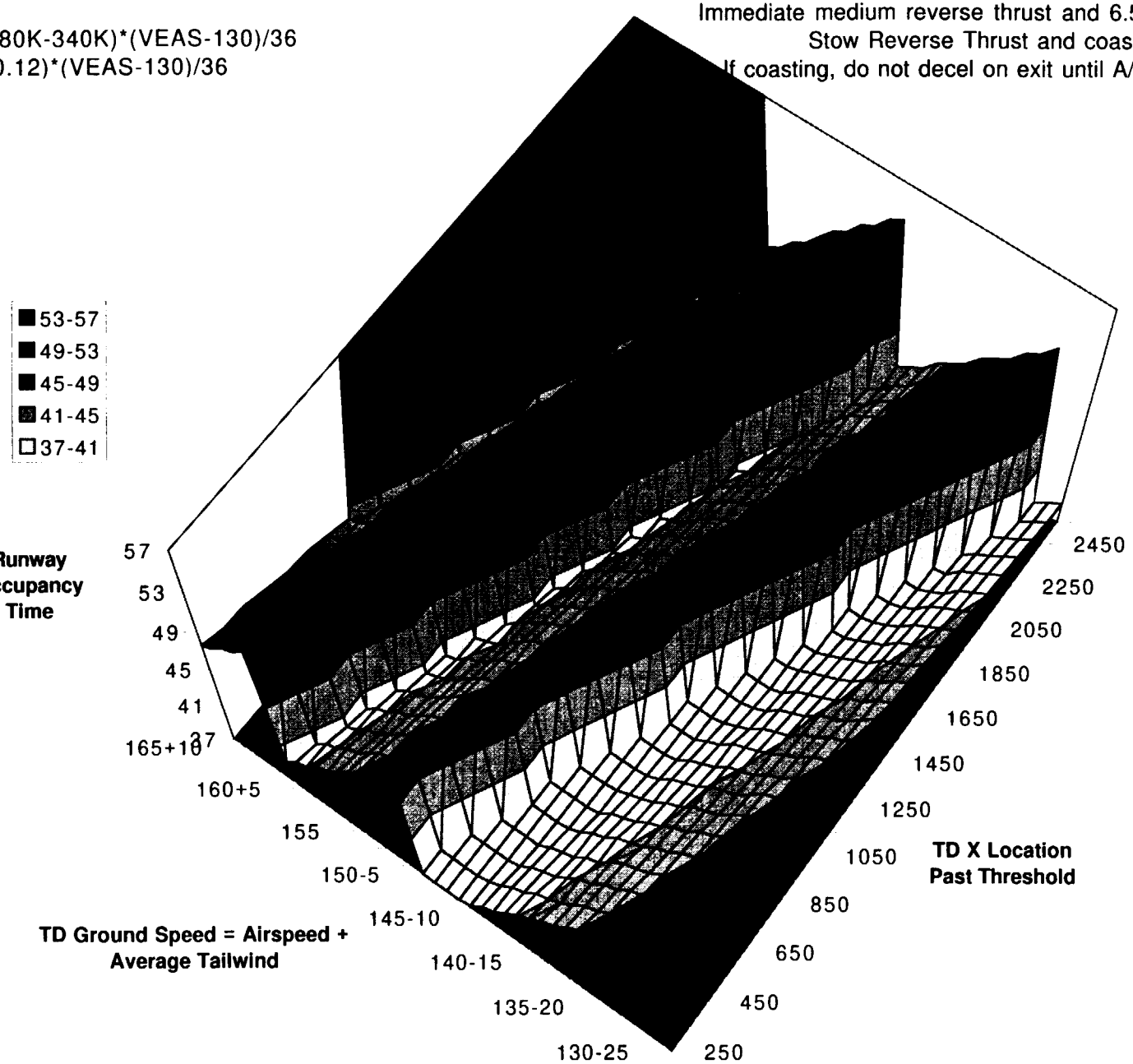
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

No exit prediction

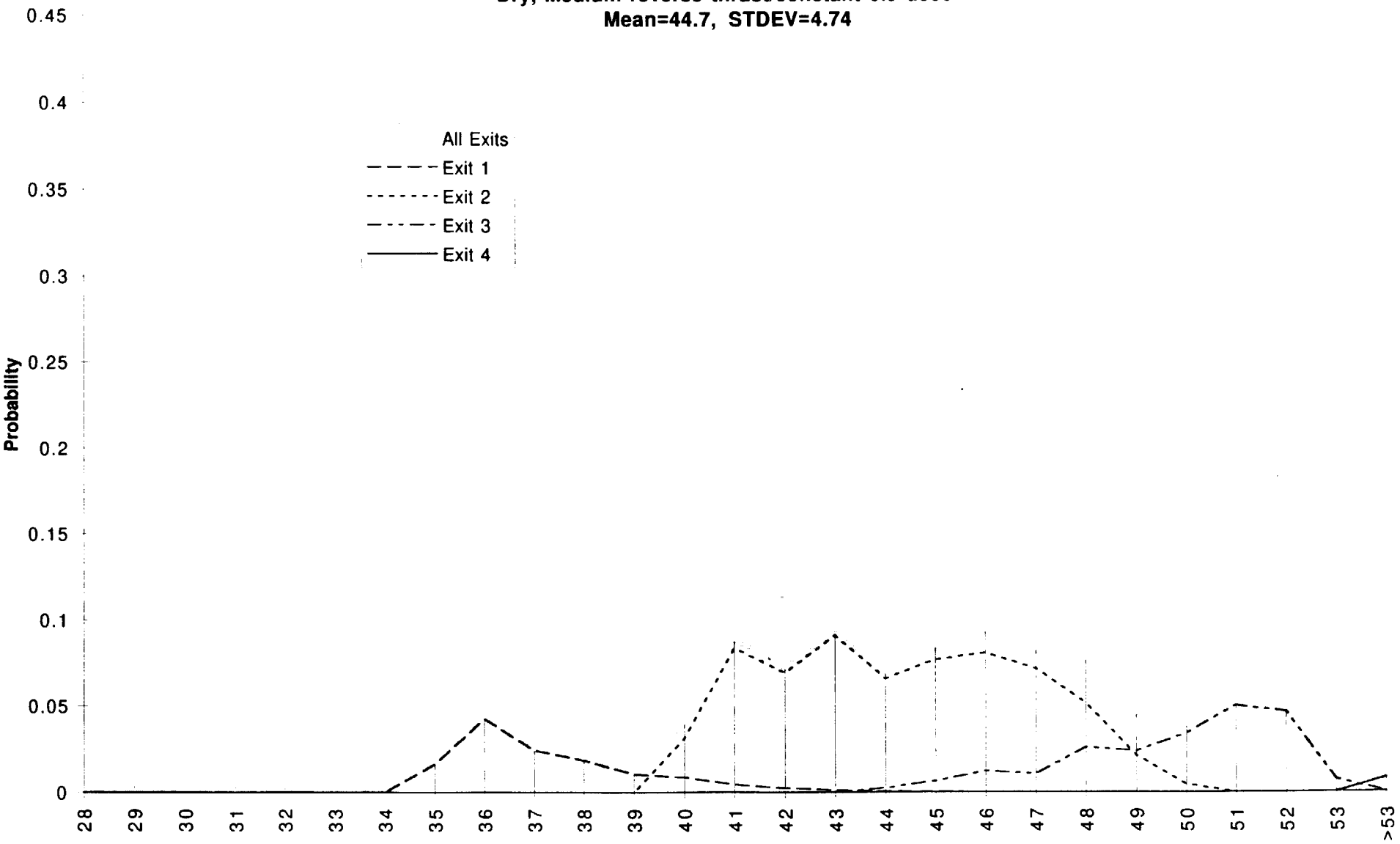
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Immediate medium reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Dry, Medium reverse thrust/constant 6.5 decel
Mean=44.7, STDEV=4.74



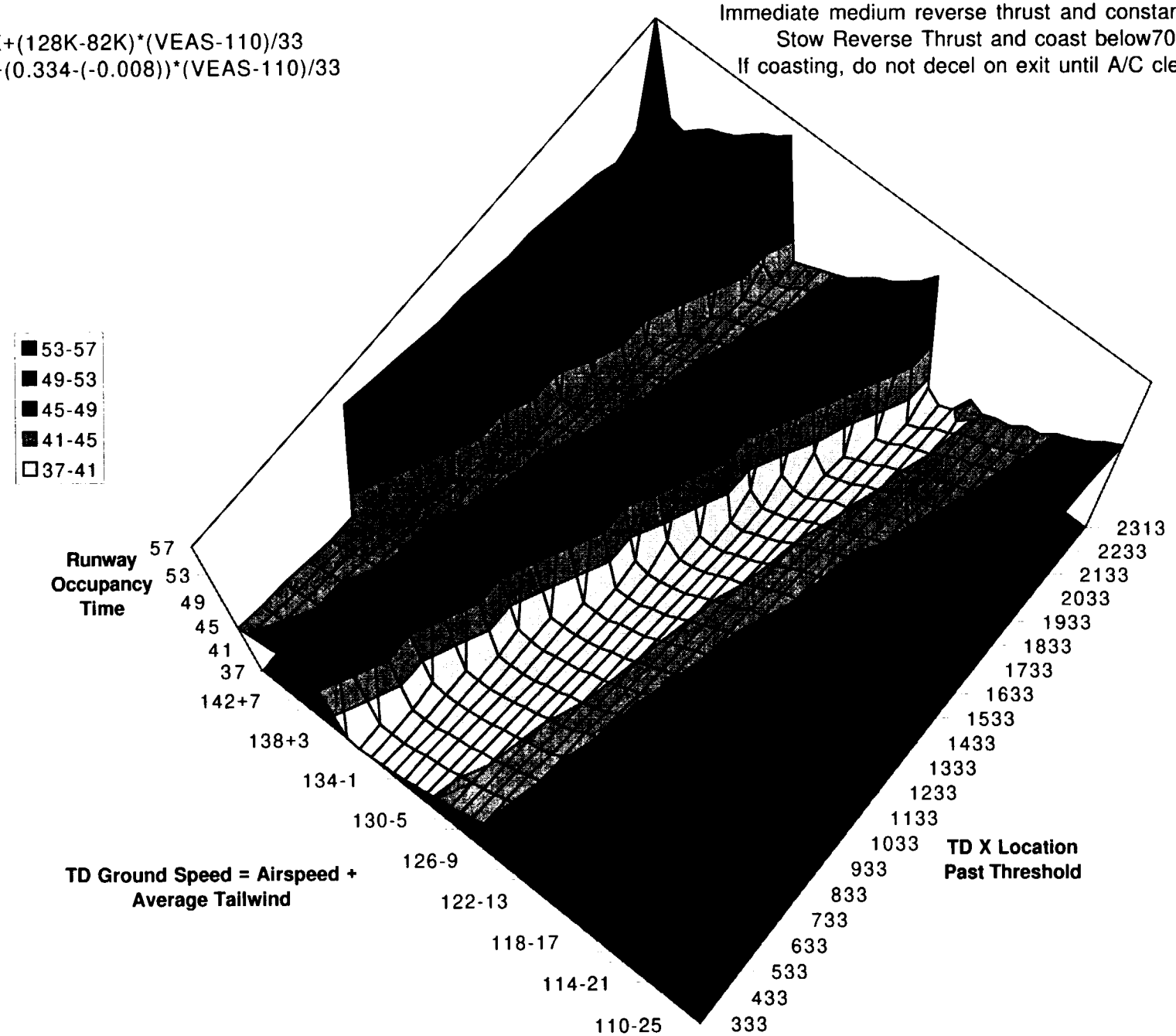
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

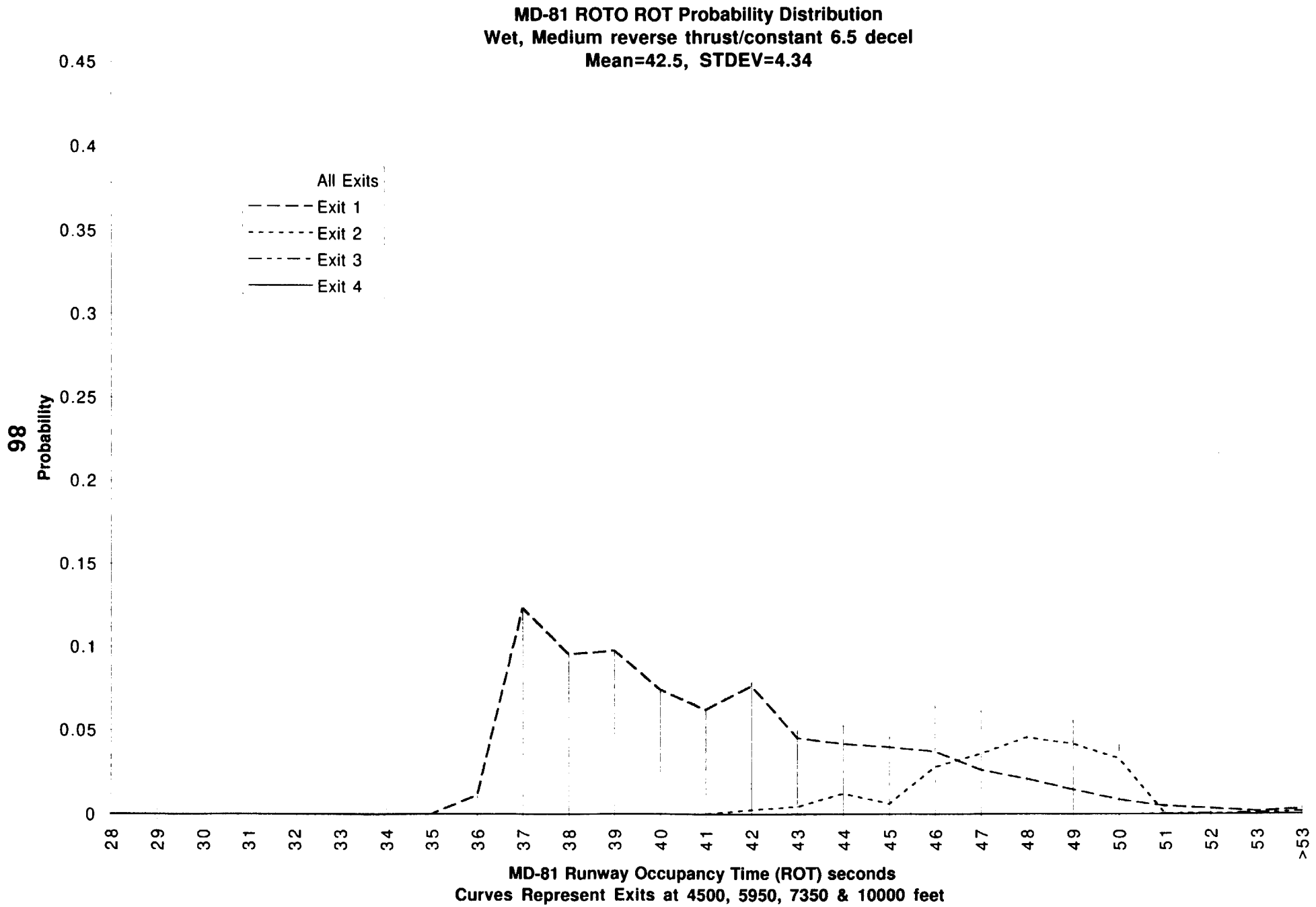
No exit prediction

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Immediate medium reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway




MD-81 ROTO ROT Probability Distribution
Wet, Medium reverse thrust/constant 6.5 decel
Mean=42.5, STDEV=4.34
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
98
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
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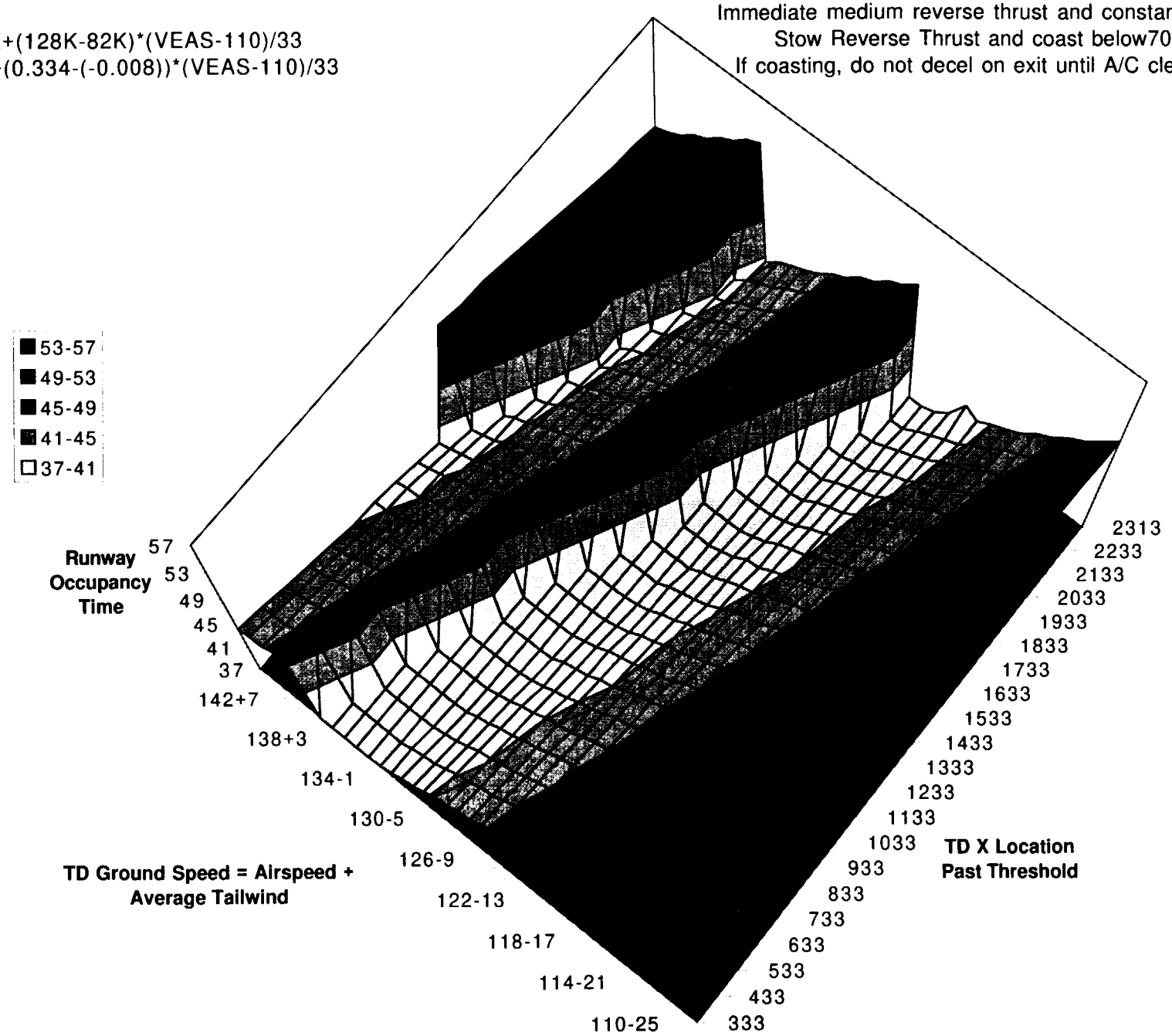
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

No exit prediction

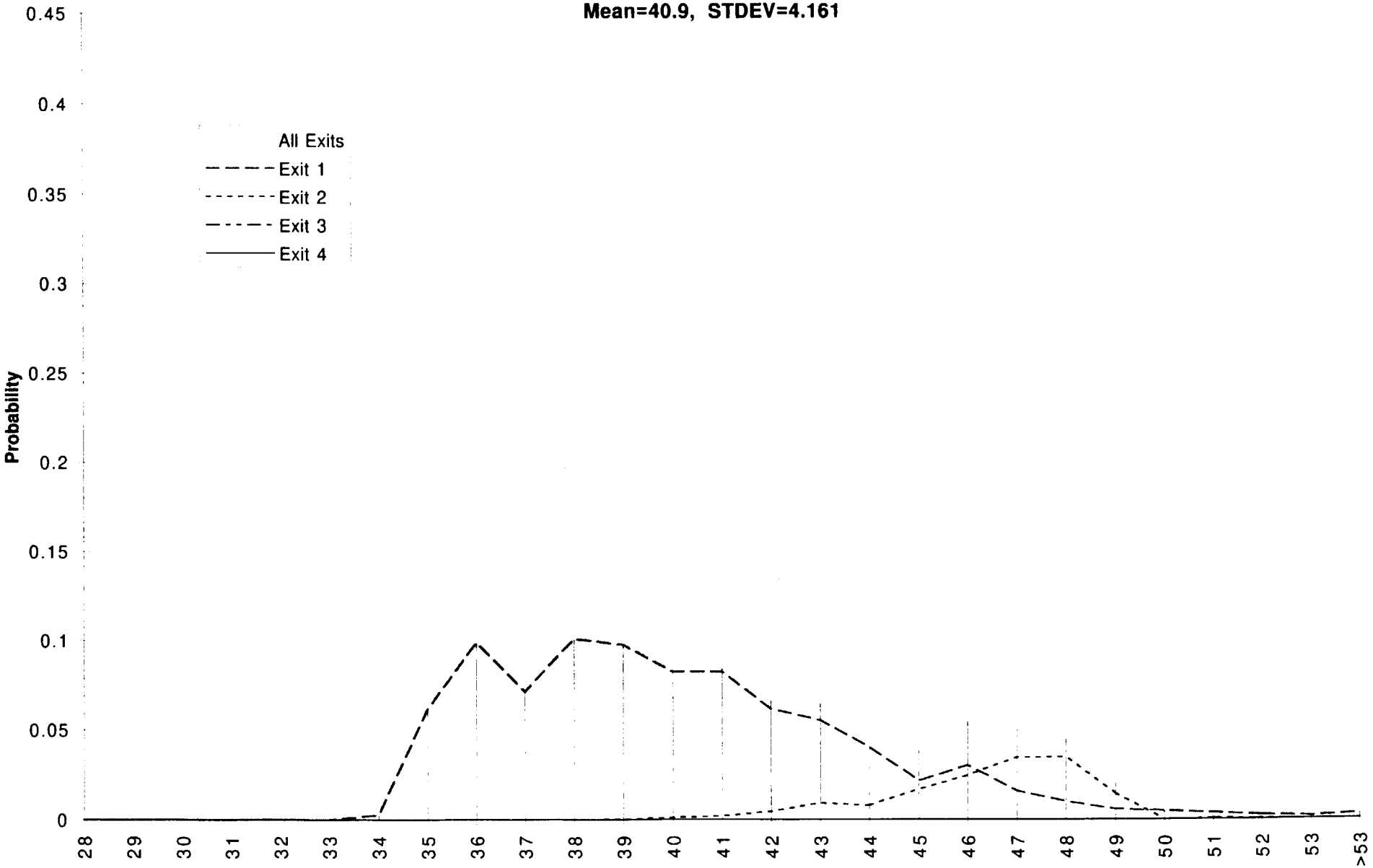
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Immediate medium reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway



MD-81 ROTO ROT Probability Distribution
Dry, Medium reverse thrust/constant 6.5 decel
Mean=40.9, STDEV=4.161



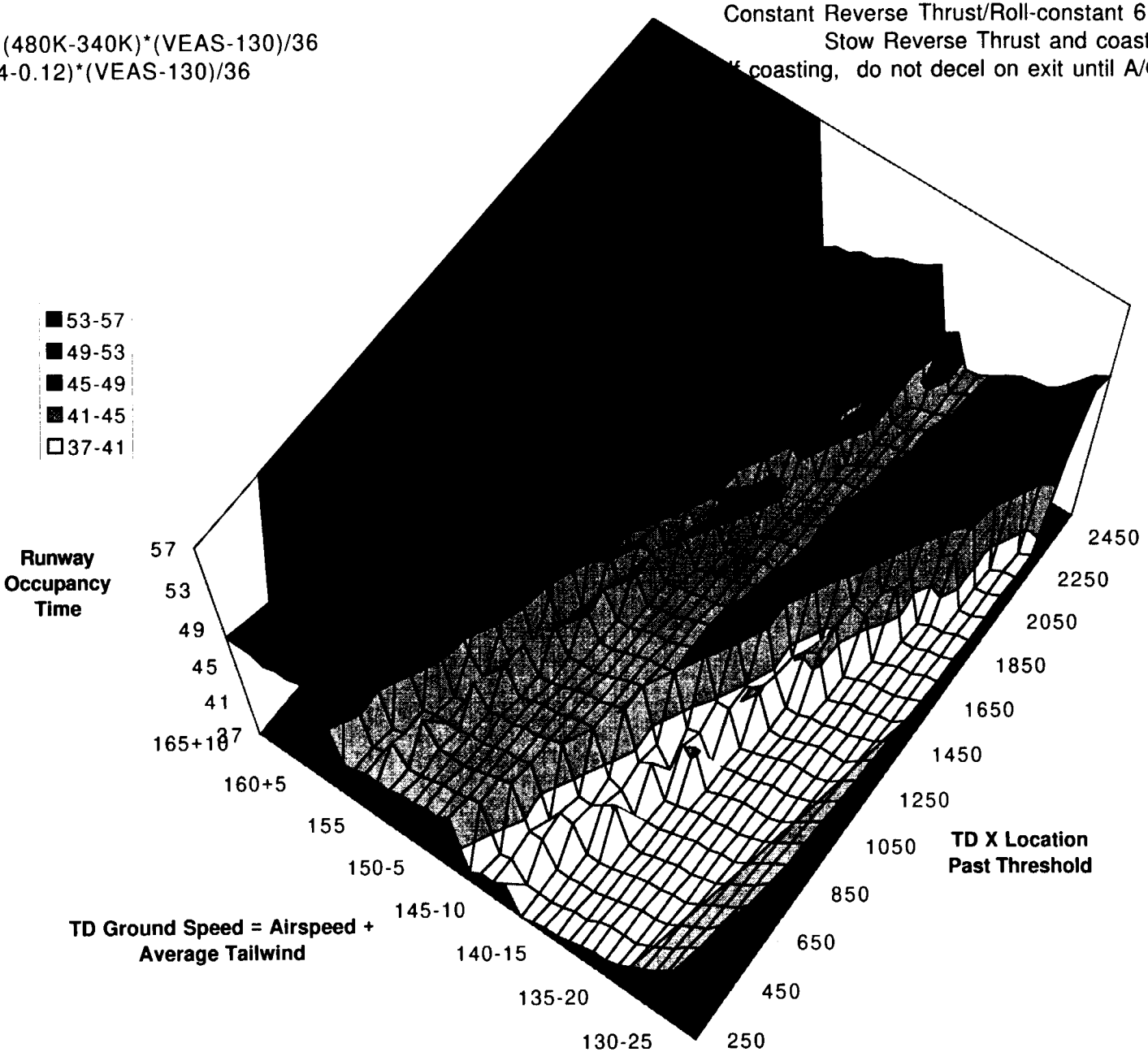
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

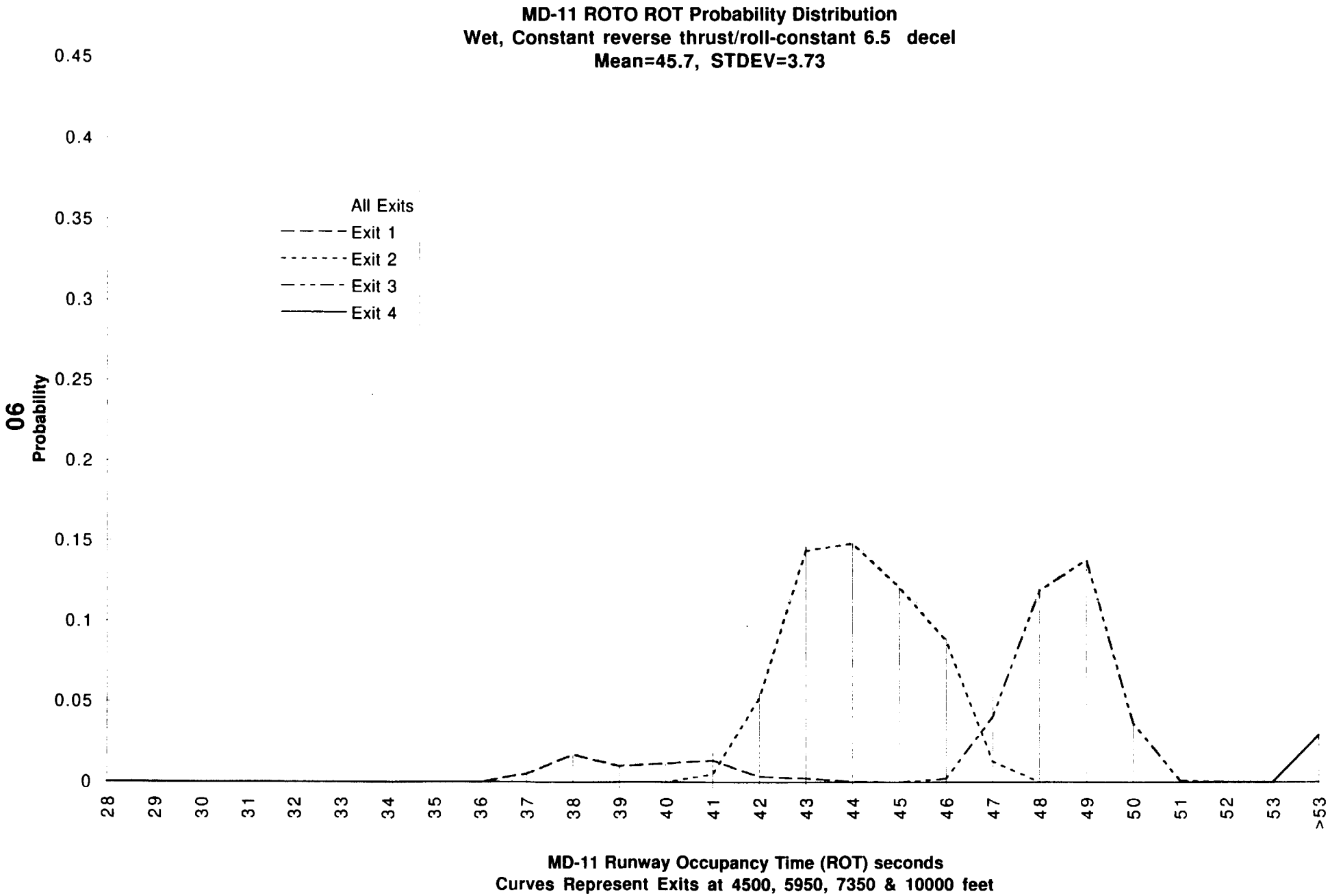
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Constant Reverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
coasting, do not decel on exit until A/C clears runway



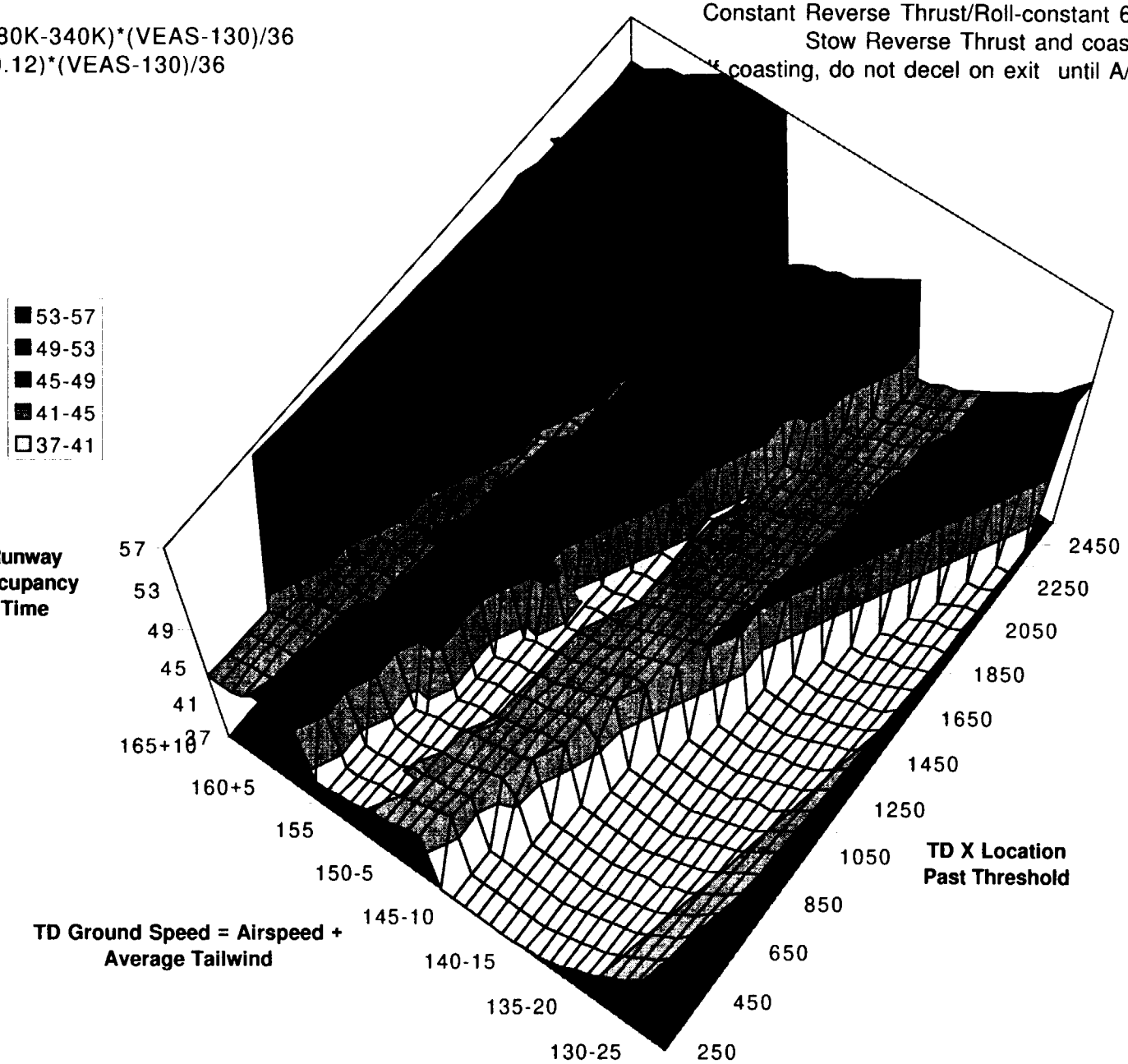

MD-11 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/roll-constant 6.5 decel
Mean=45.7, STDEV=3.73
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
06
Probability
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

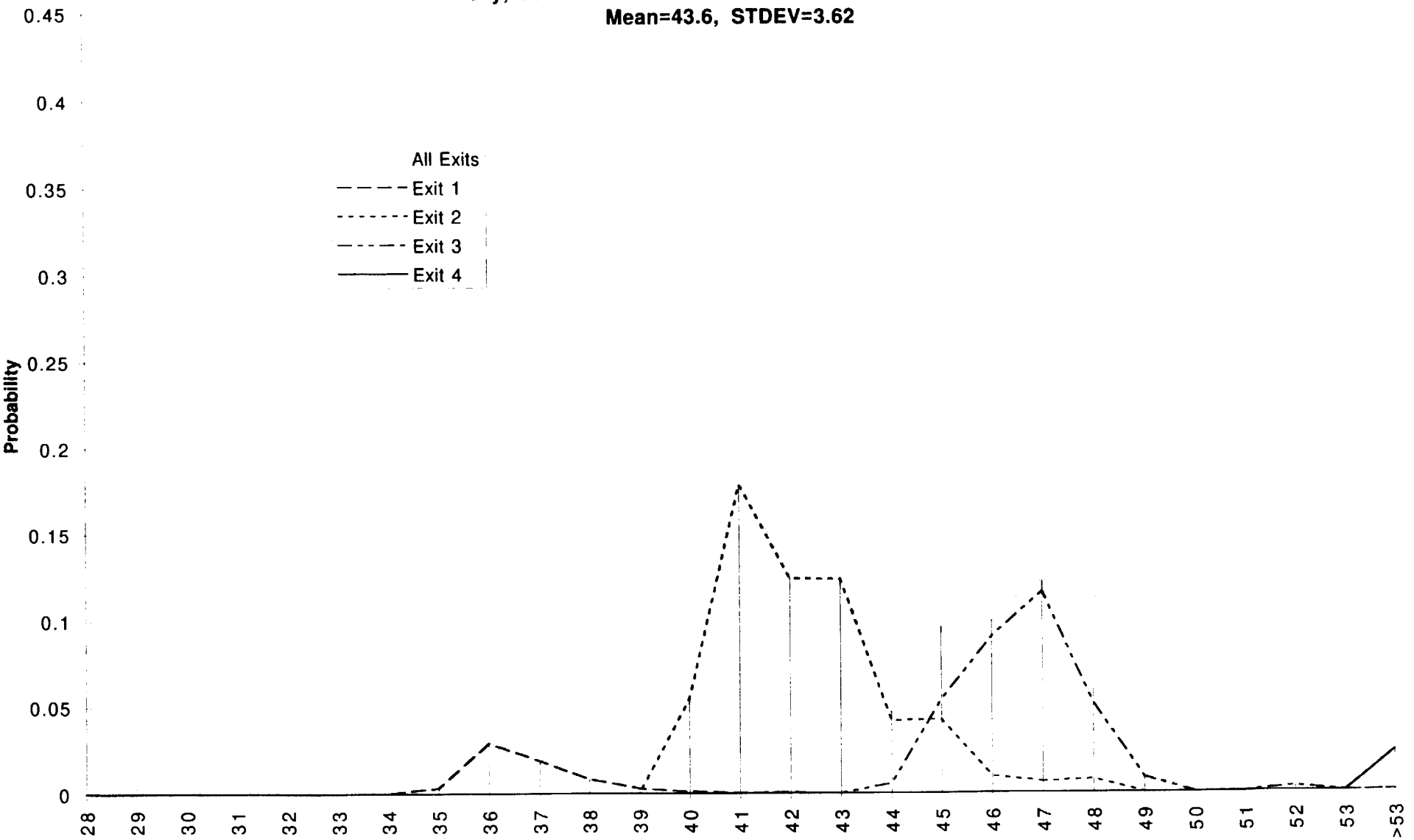
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Constant Reverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Dry, Constant reverse thrust/roll-constant 6.5 decel
Mean=43.6, STDEV=3.62



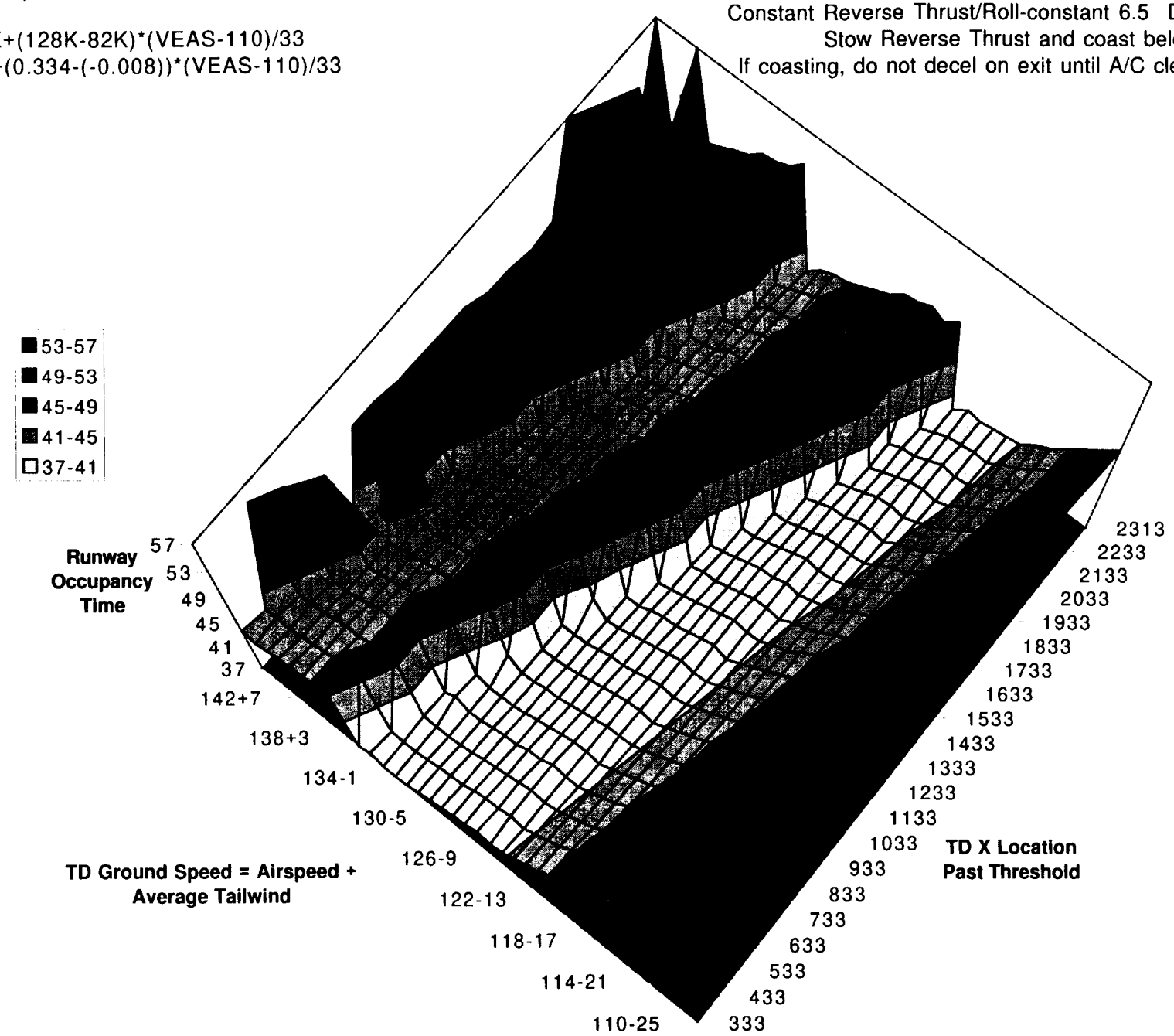
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

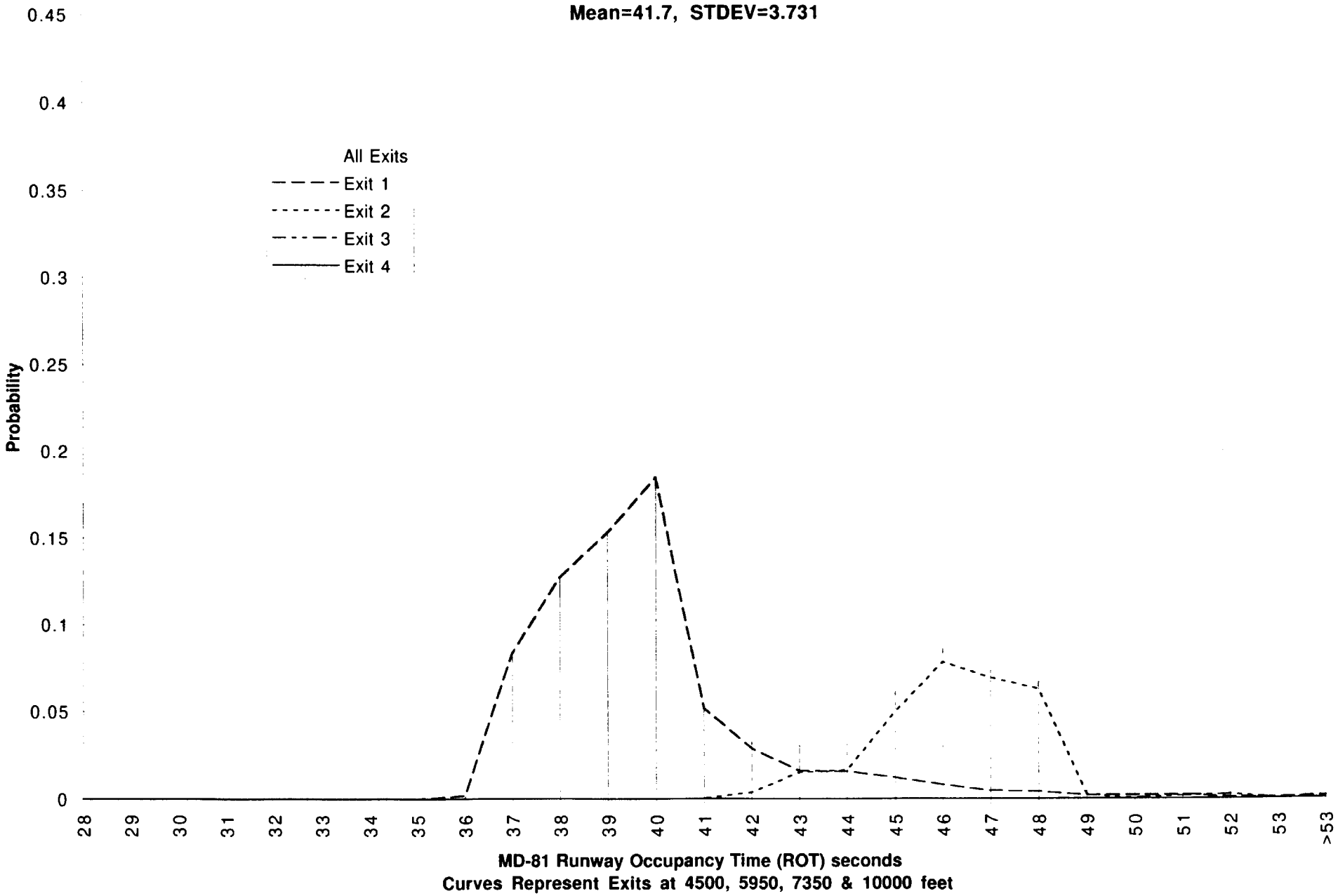
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Constant Reverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway




MD-81 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/roll-constant 6.5 decel
Mean=41.7, STDEV=3.731
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
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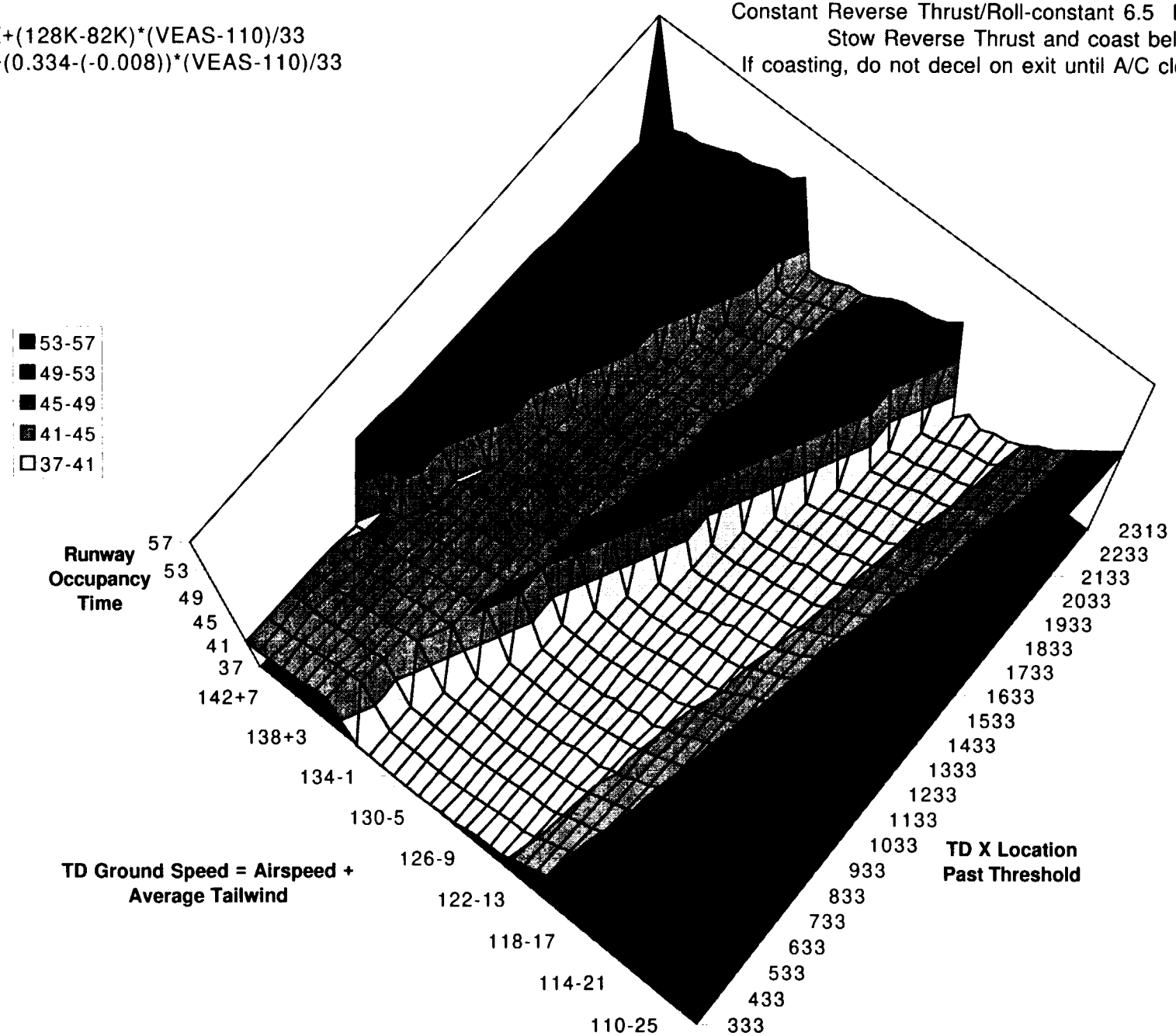
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

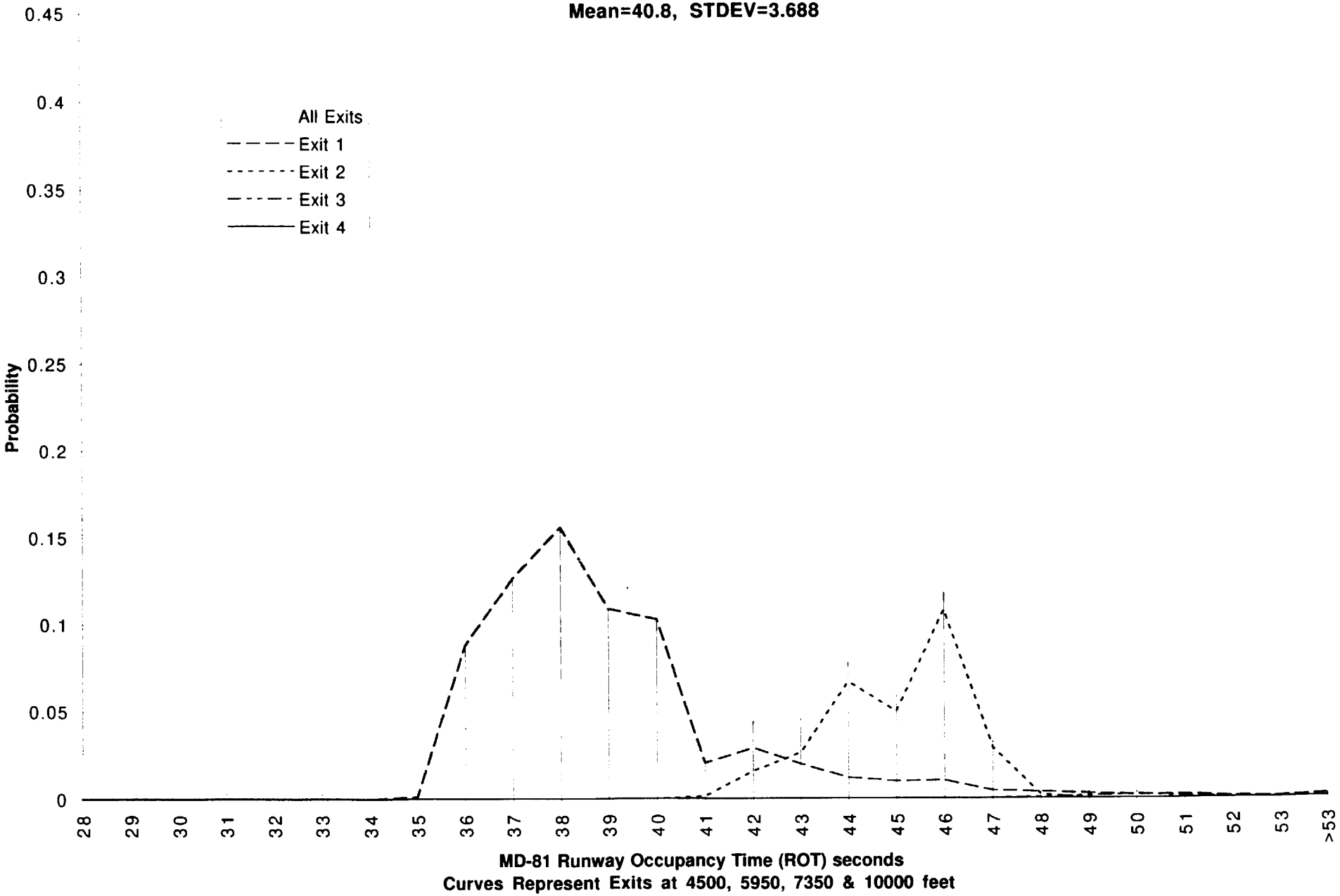
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Constant Reverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway




MD-81 ROTO ROT Probability Distribution
Dry, Constant reverse thrust/roll-constant 6.5 decel
Mean=40.8, STDEV=3.688
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
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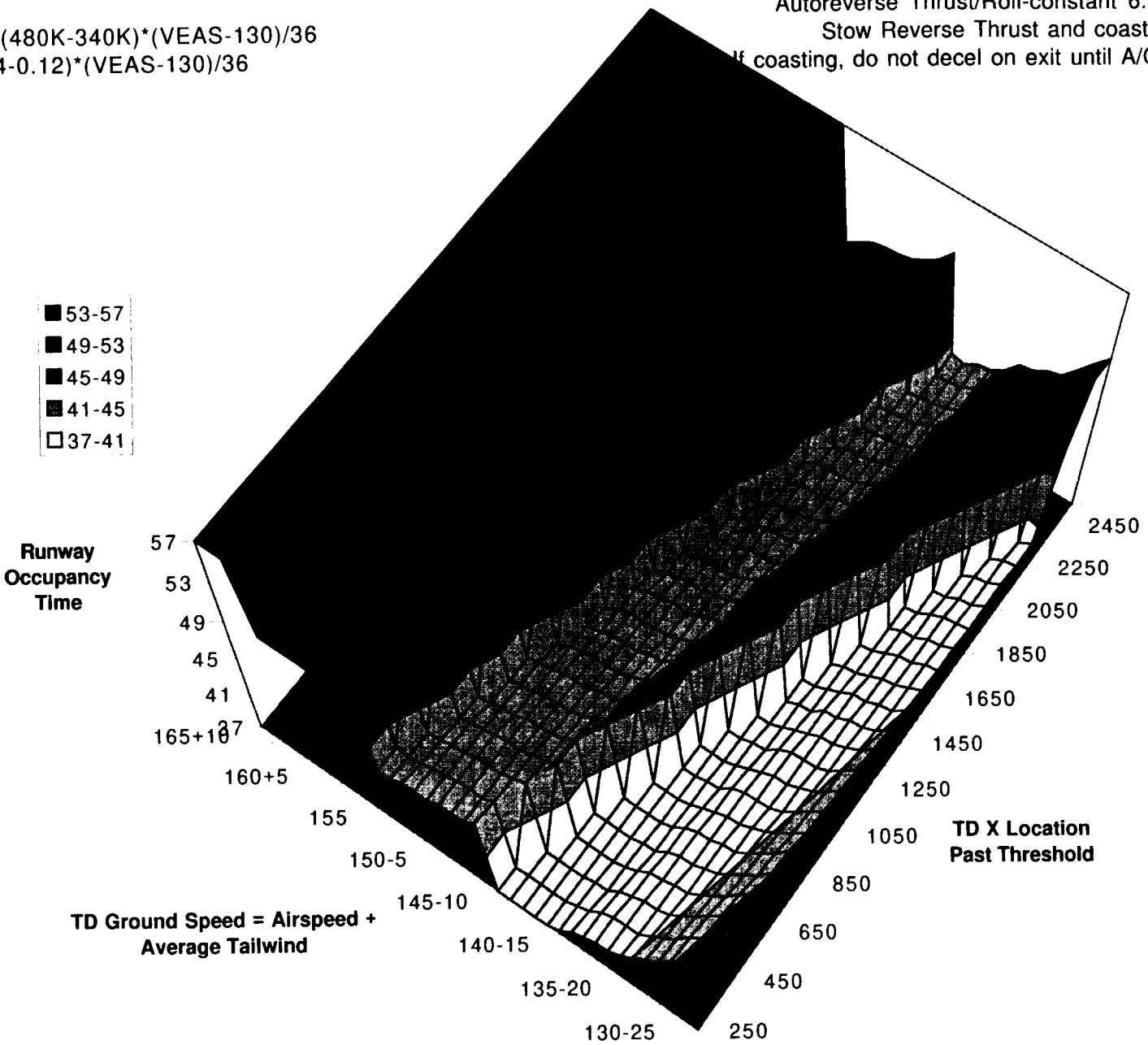
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

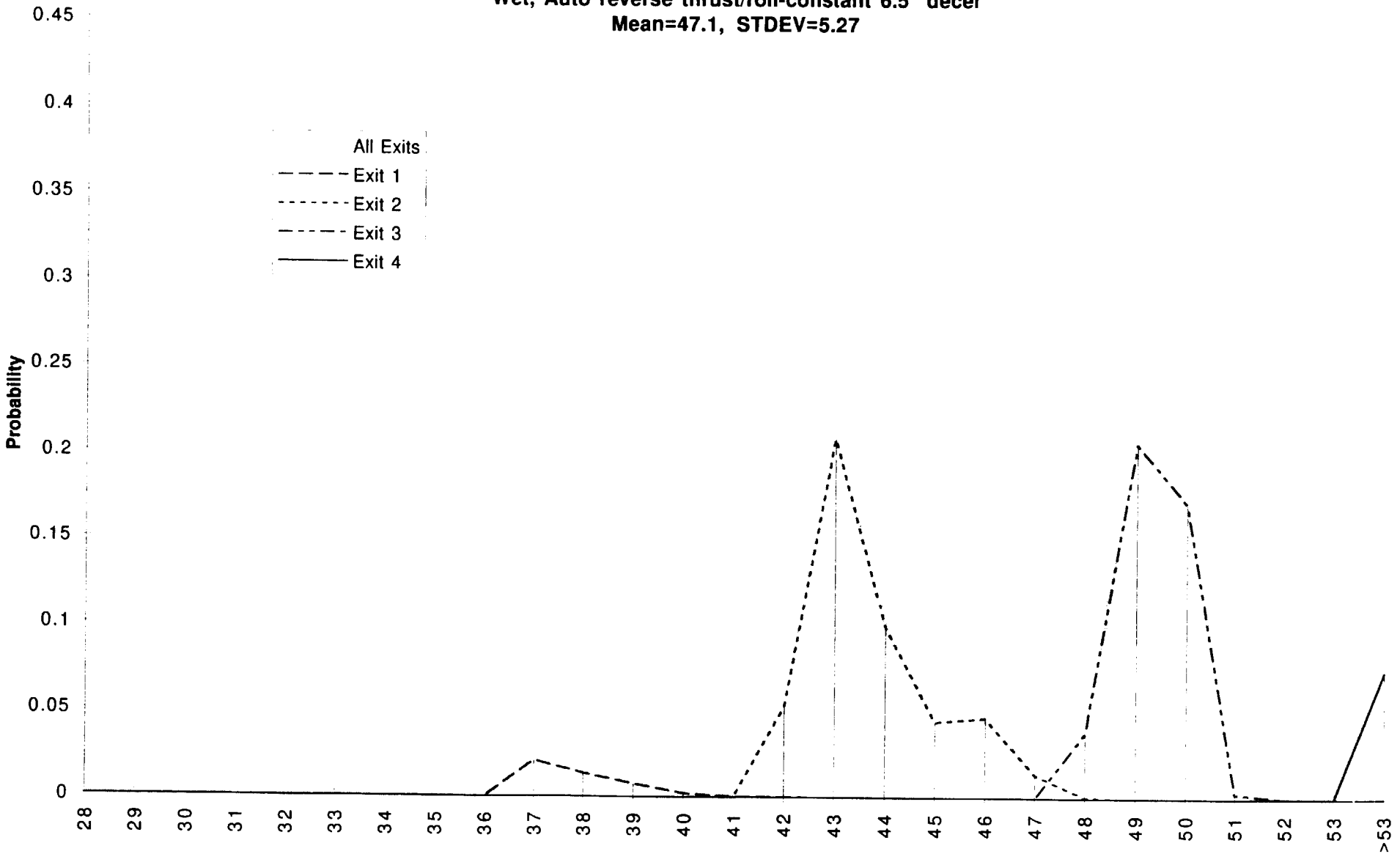
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/roll-constant 6.5 decel
Mean=47.1, STDEV=5.27



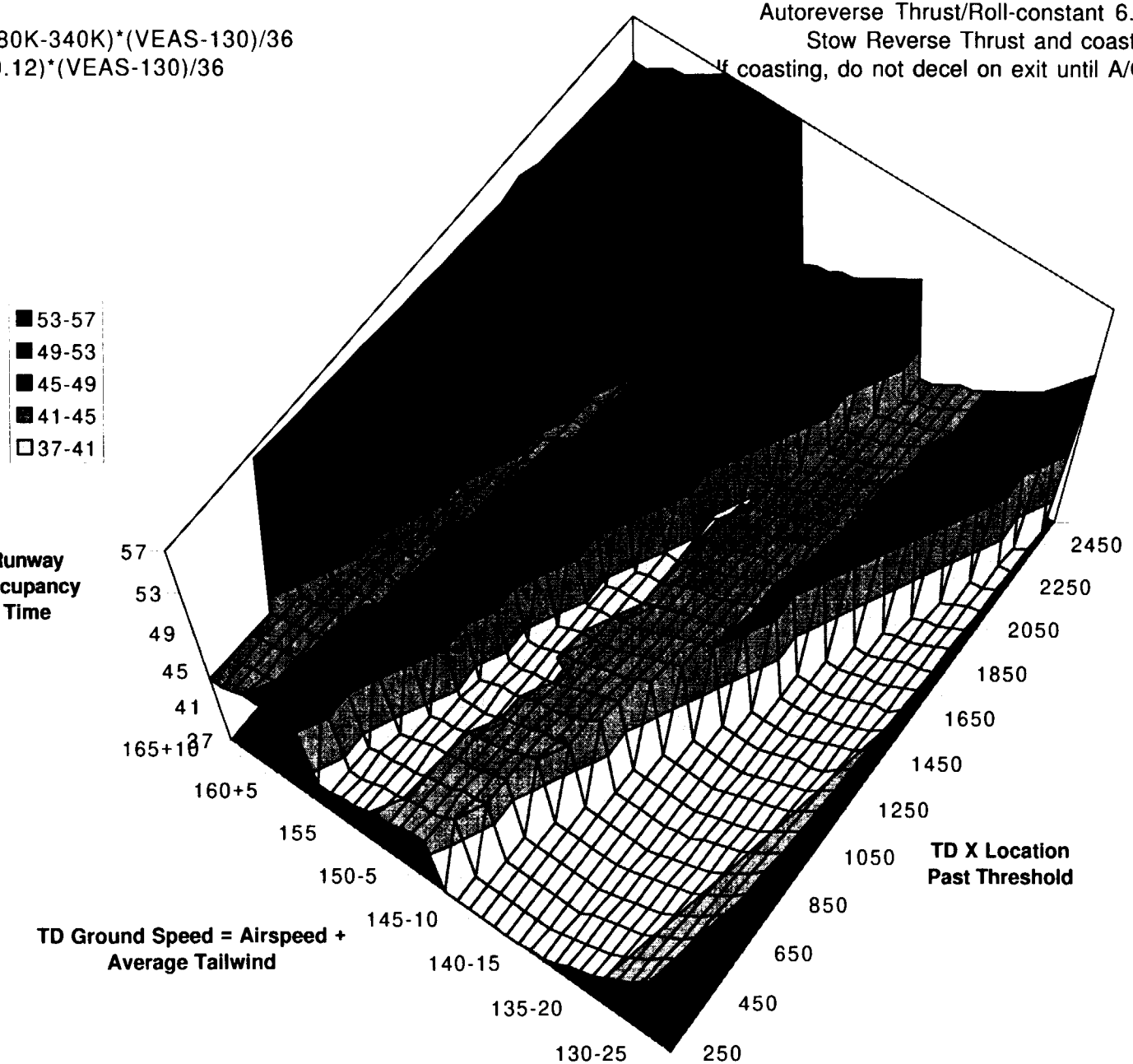
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

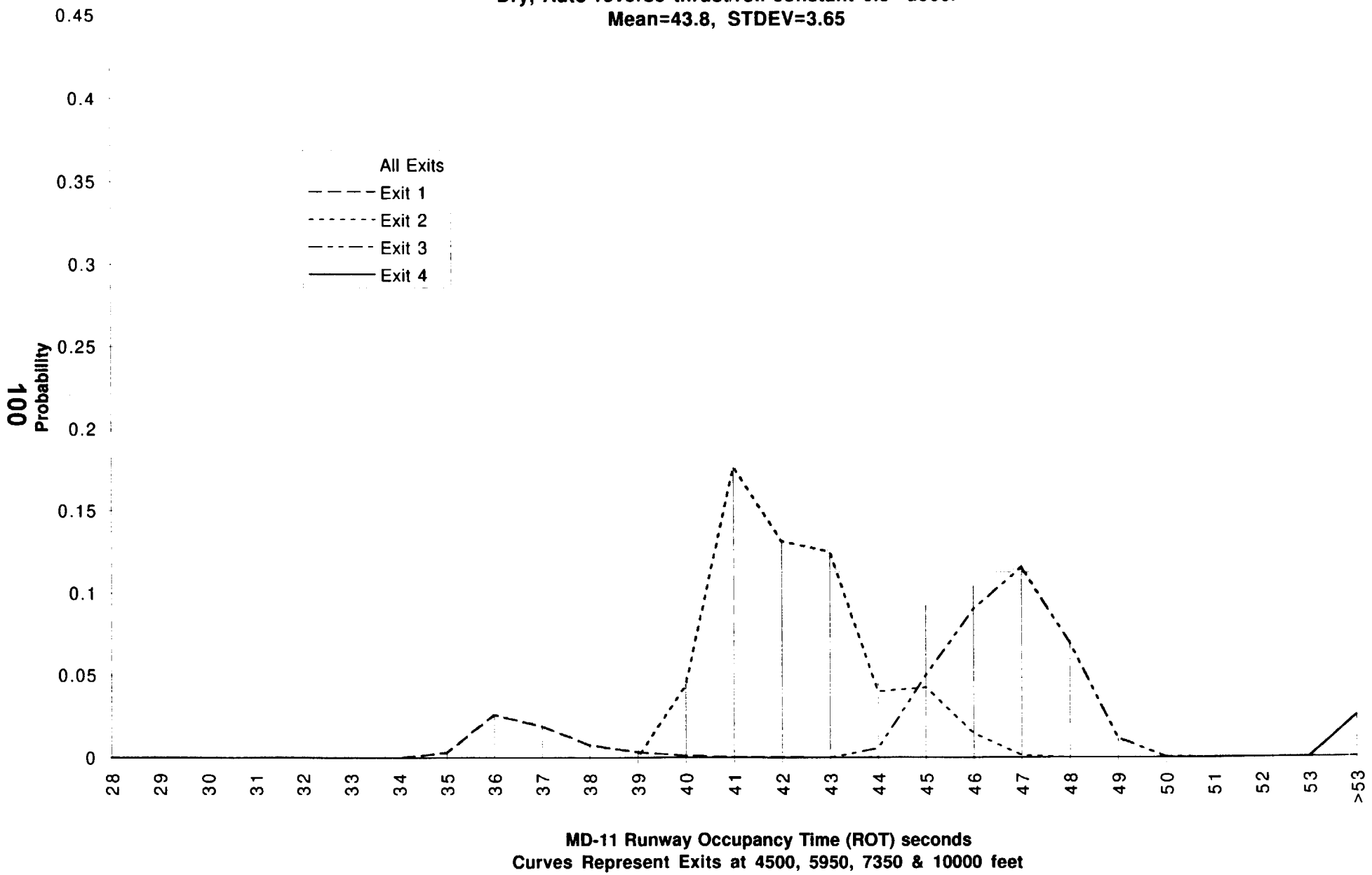
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



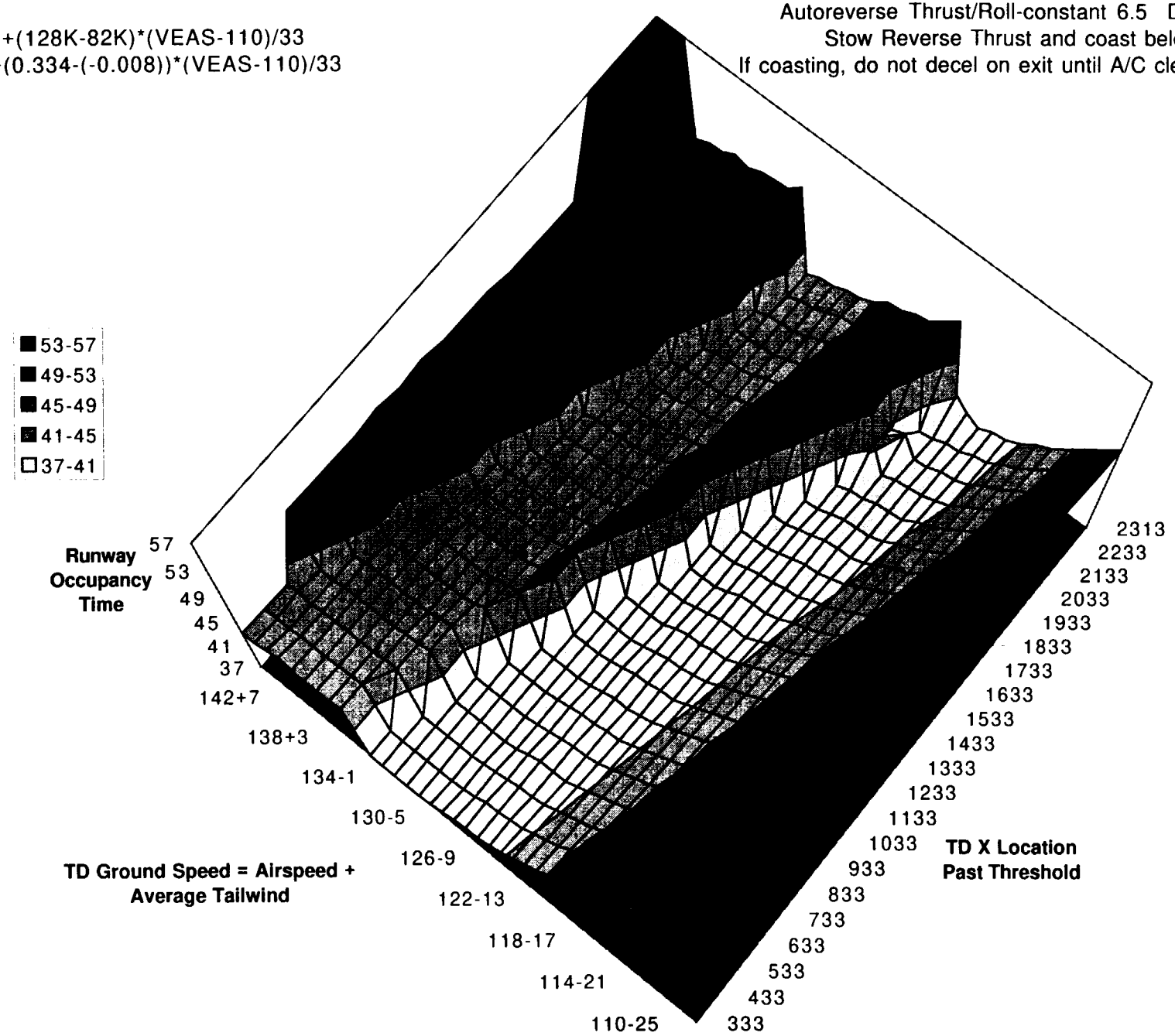

MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/roll-constant 6.5 decel
Mean=43.8, STDEV=3.65
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
100
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

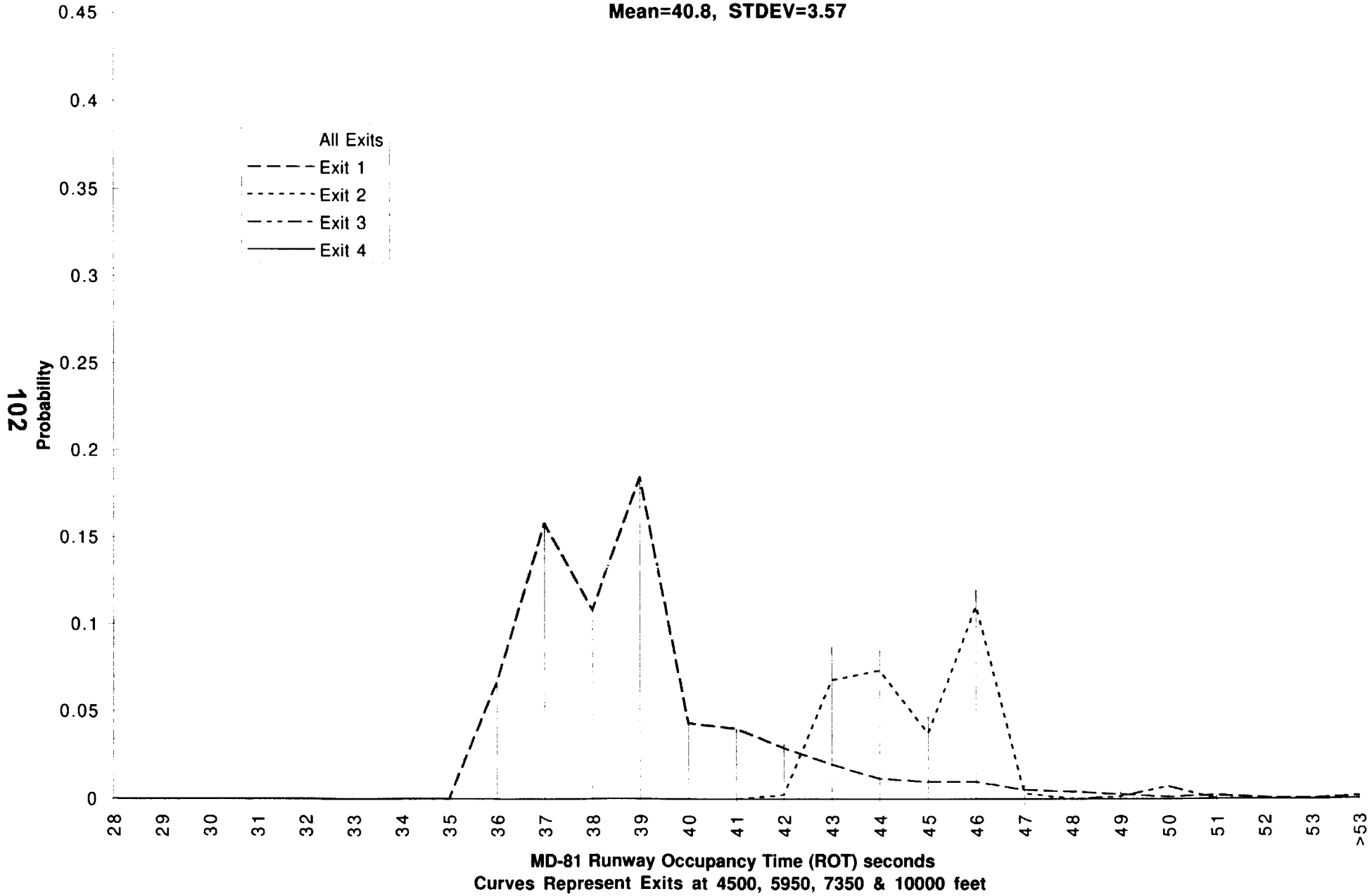
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/roll-constant 6.5 decel
Mean=40.8, STDEV=3.57
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
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28
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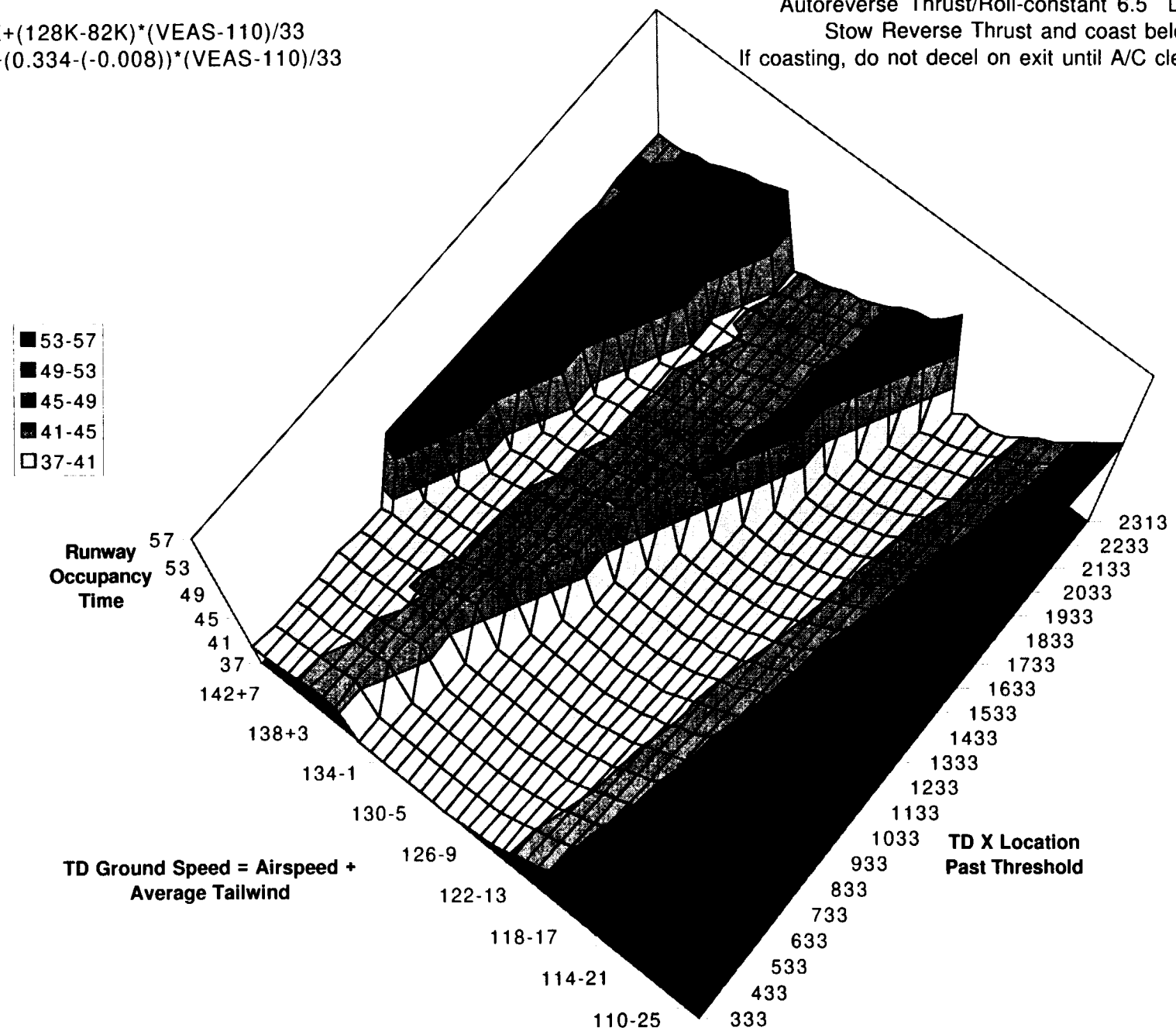
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

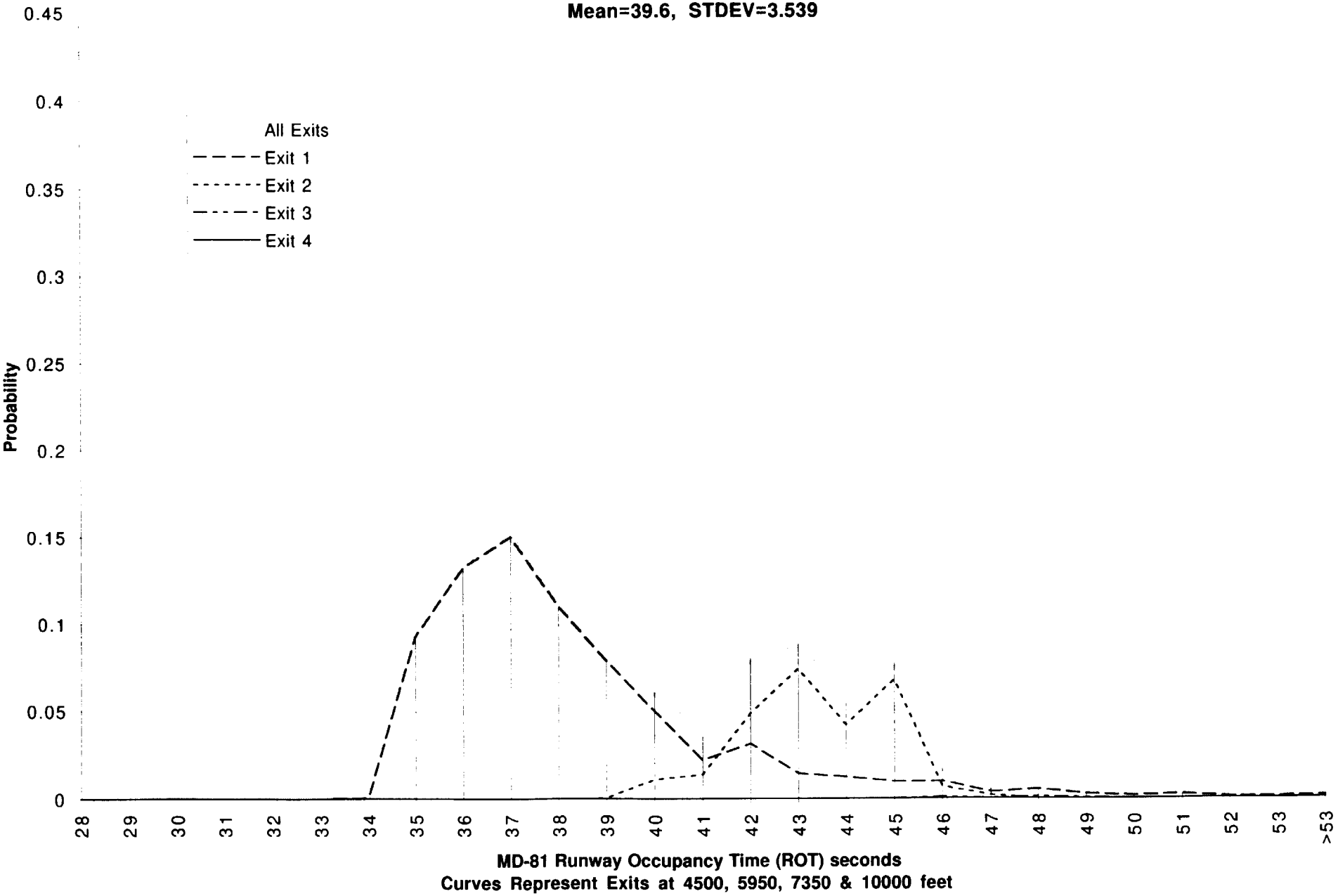
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/Roll-constant 6.5 Deceleration
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/roll-constant 6.5 decel
Mean=39.6, STDEV=3.539



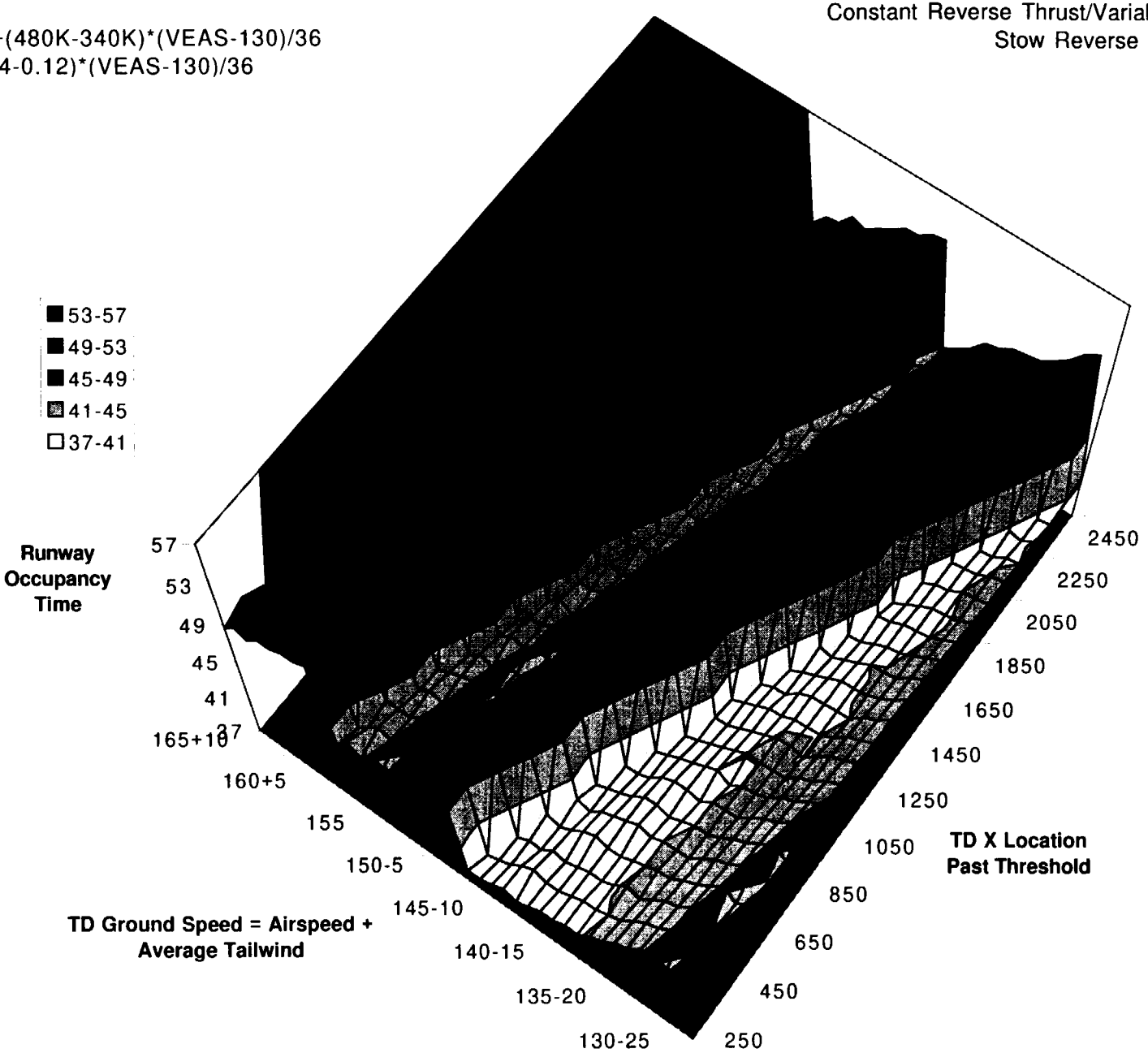
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

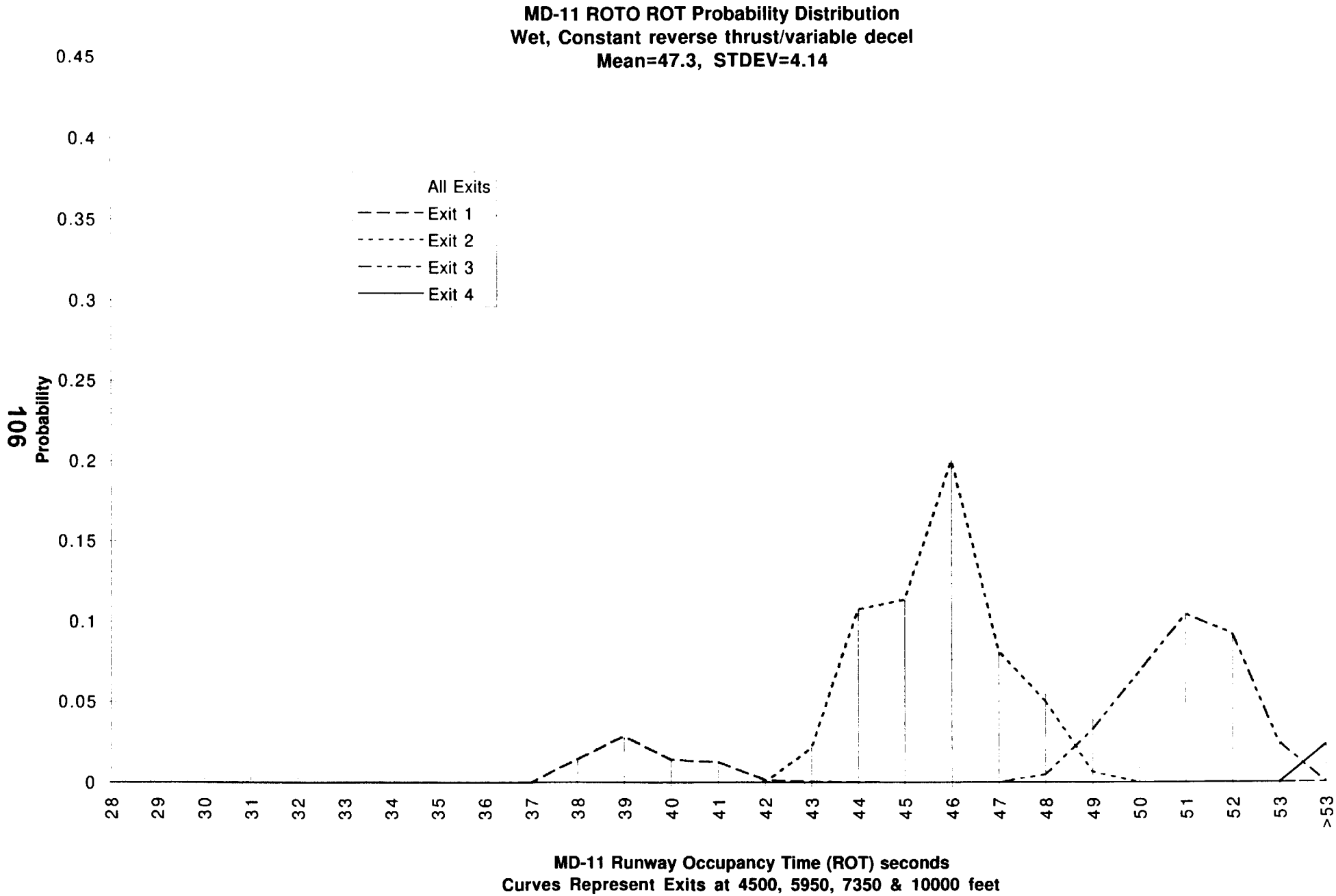
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Constant Reverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/variable decel
Mean=47.3, STDEV=4.14
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
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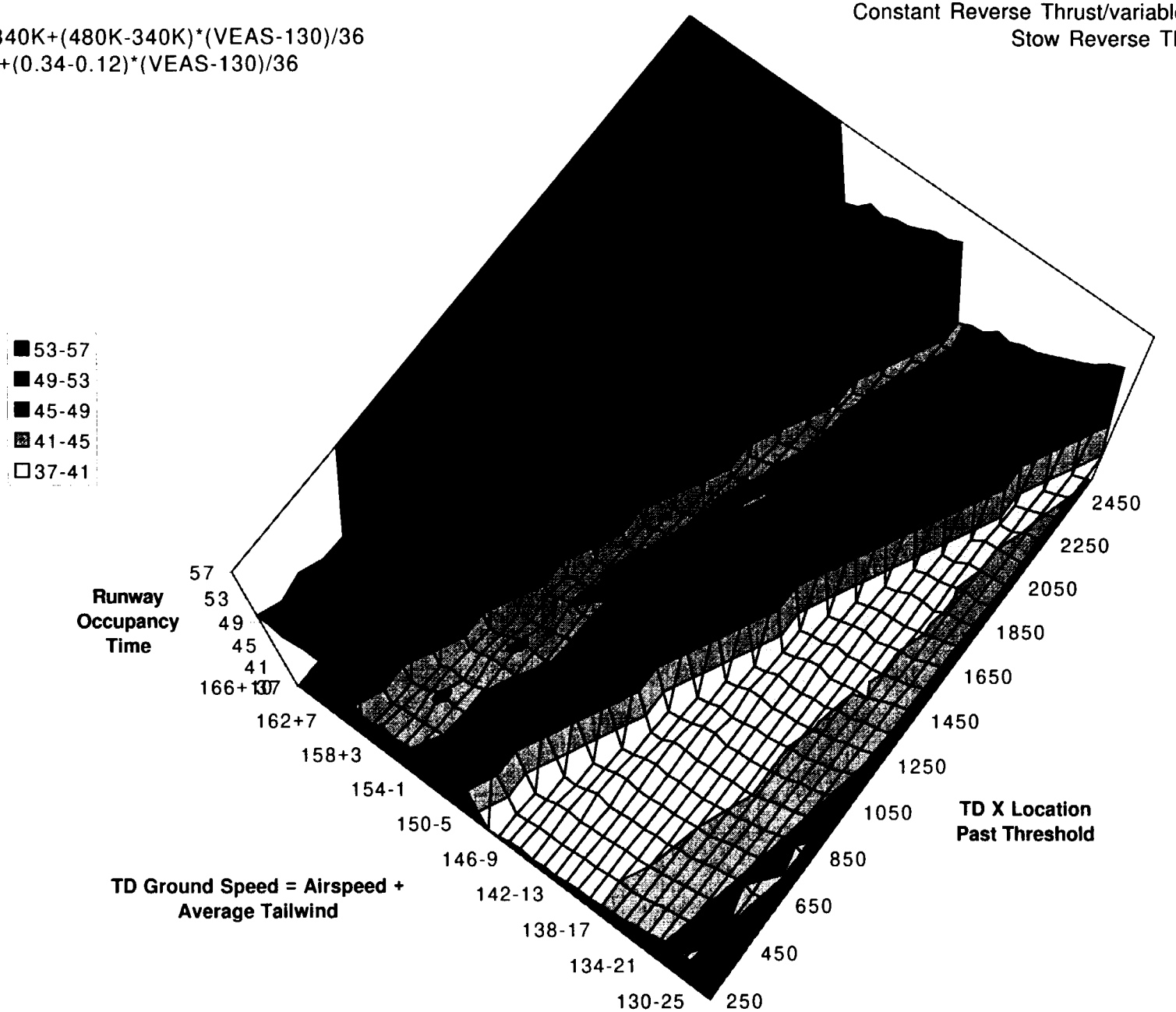
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

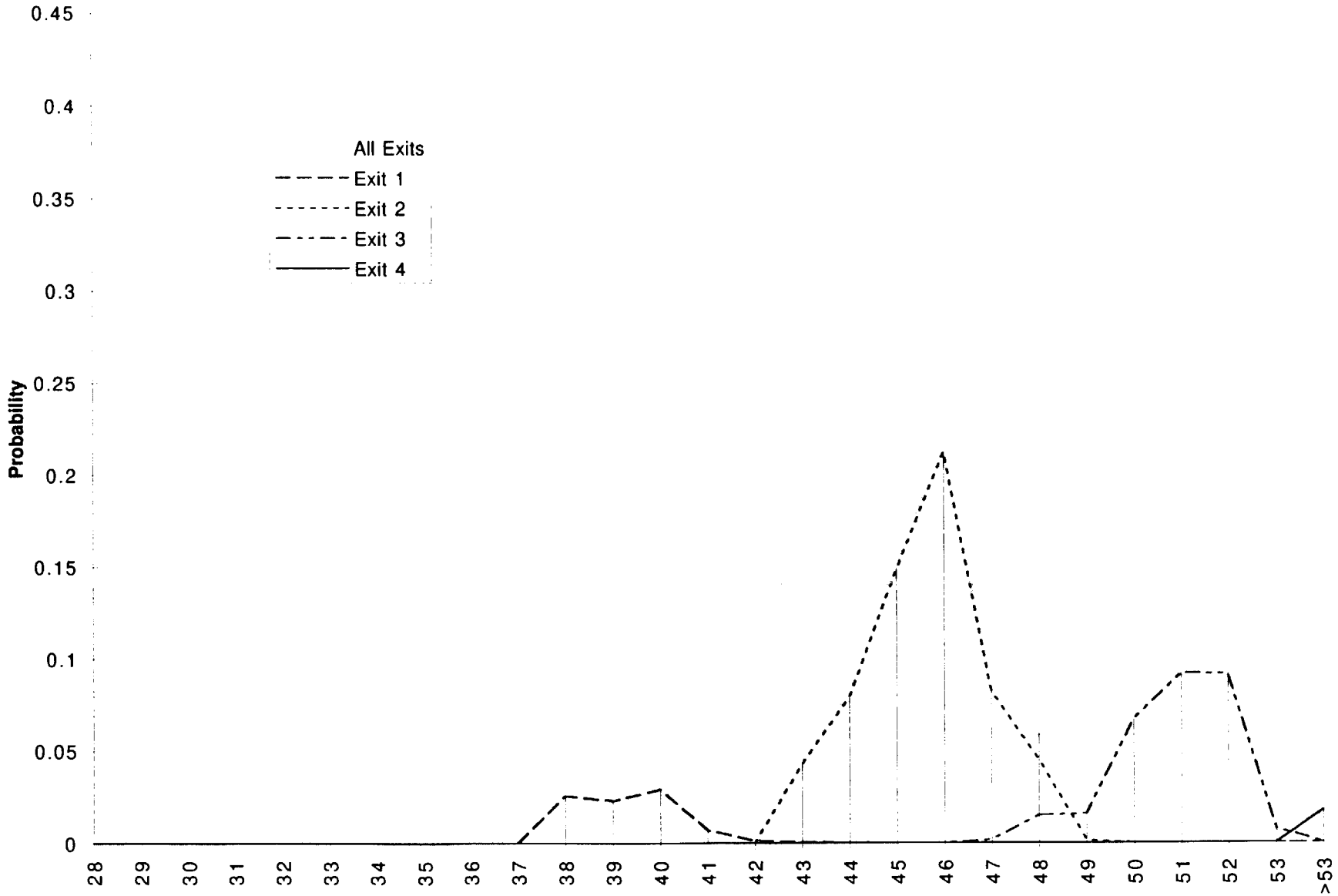
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Constant Reverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Dry, Constant reverse thrust/variable decel
Mean=46.8, STDEV=4.026



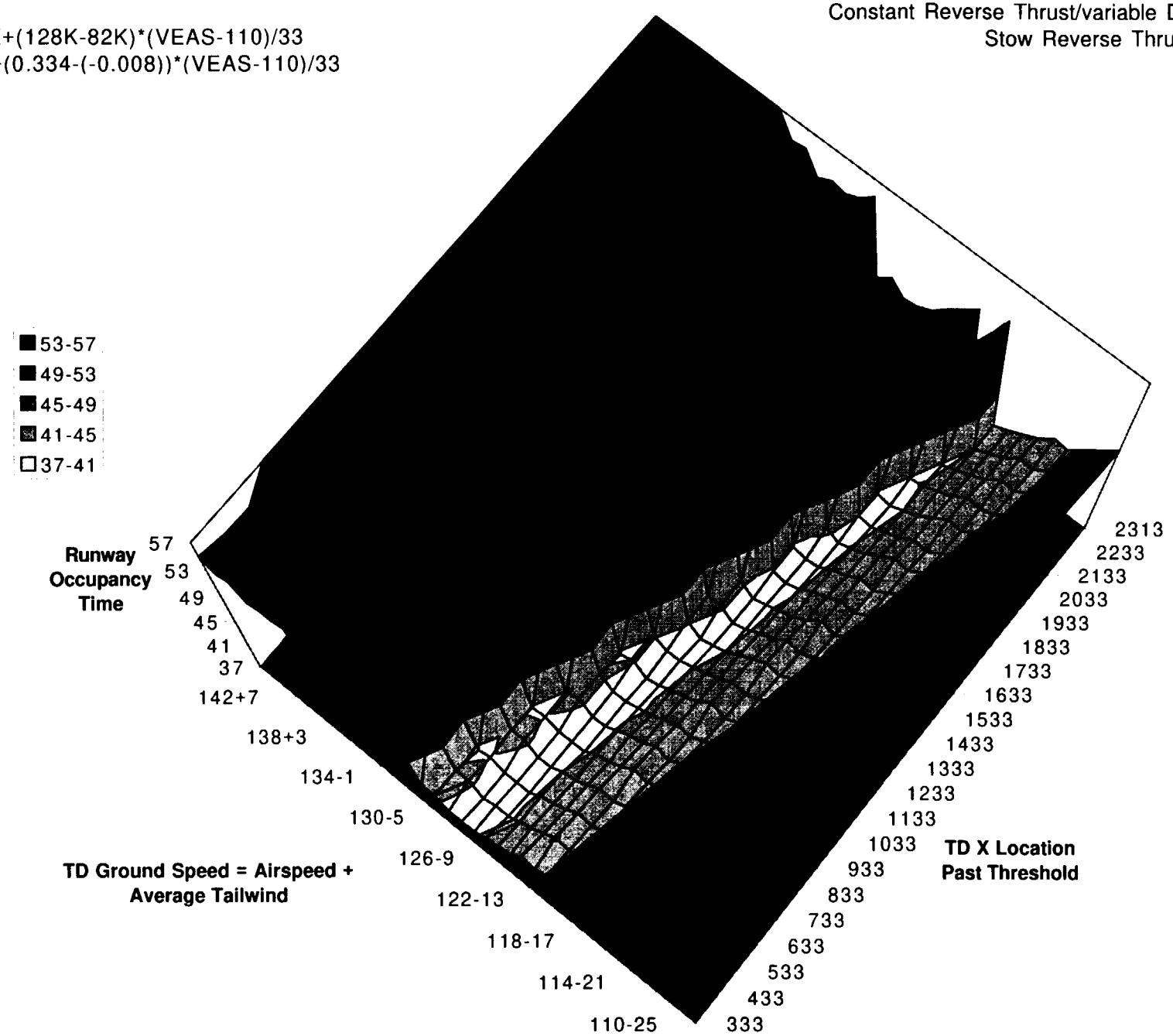
MD-11 Runway Occupancy Time
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

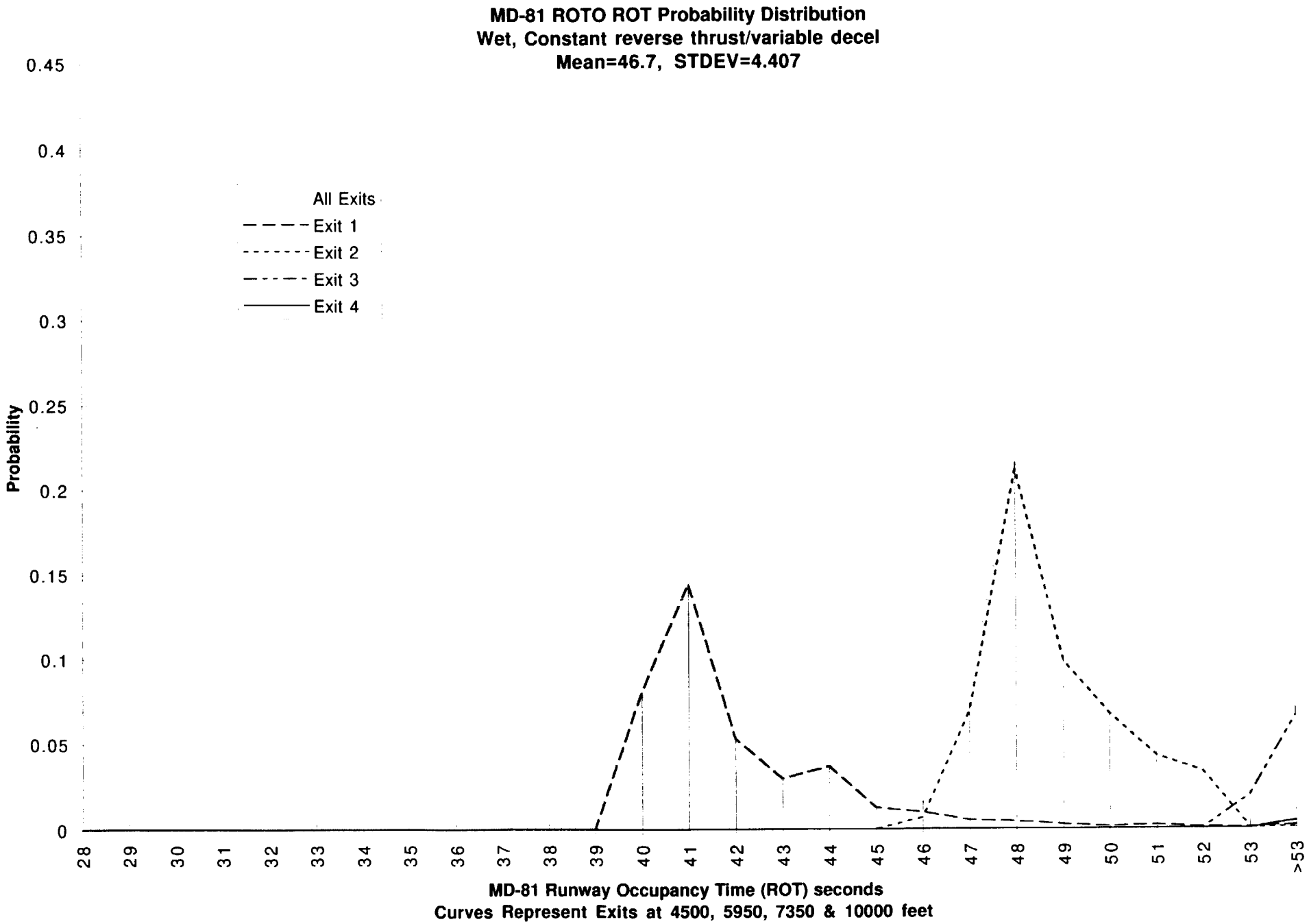
Predict exit prior to TD

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Constant Reverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



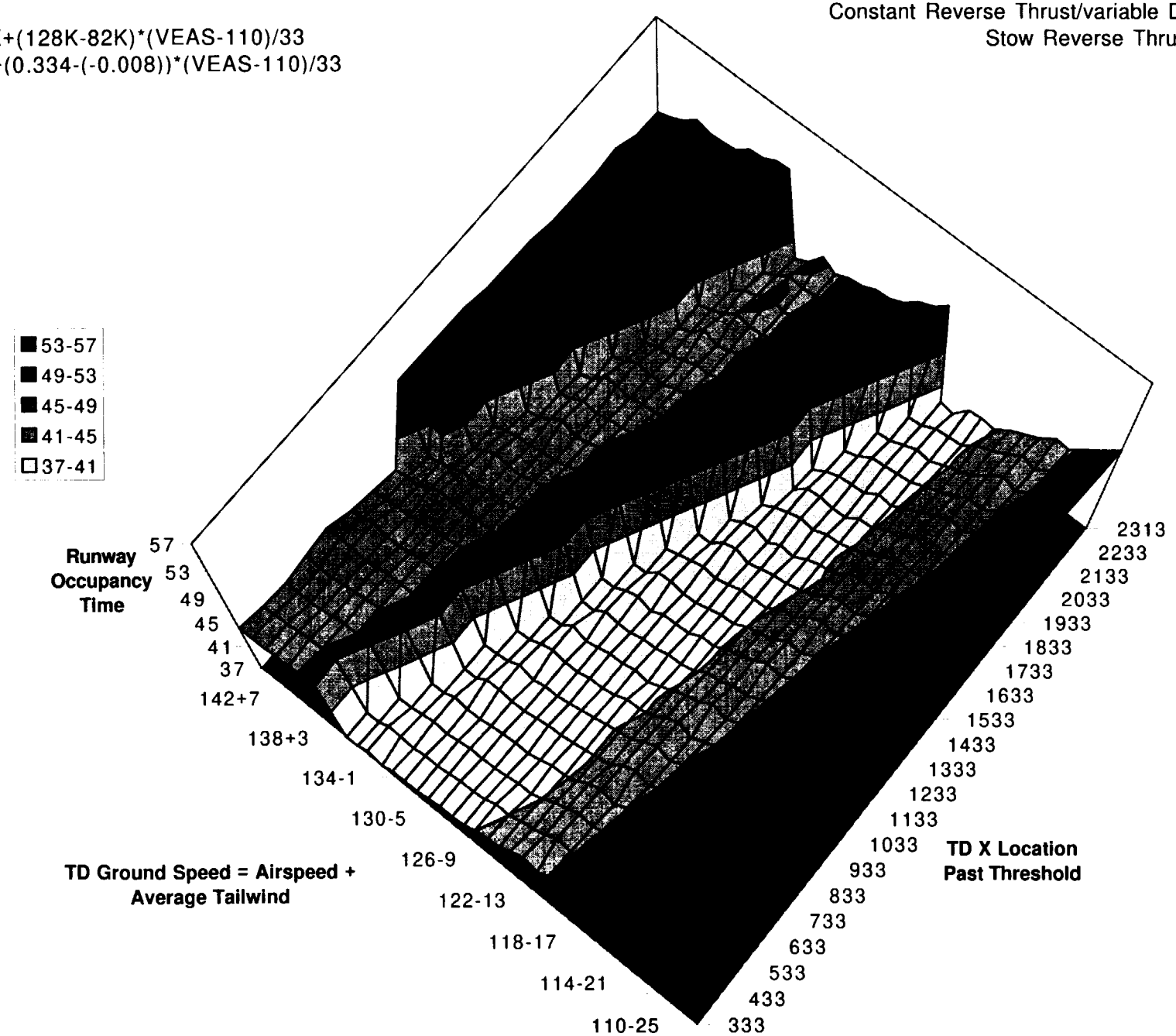

MD-81 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/variable decel
Mean=46.7, STDEV=4.407
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Probability
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

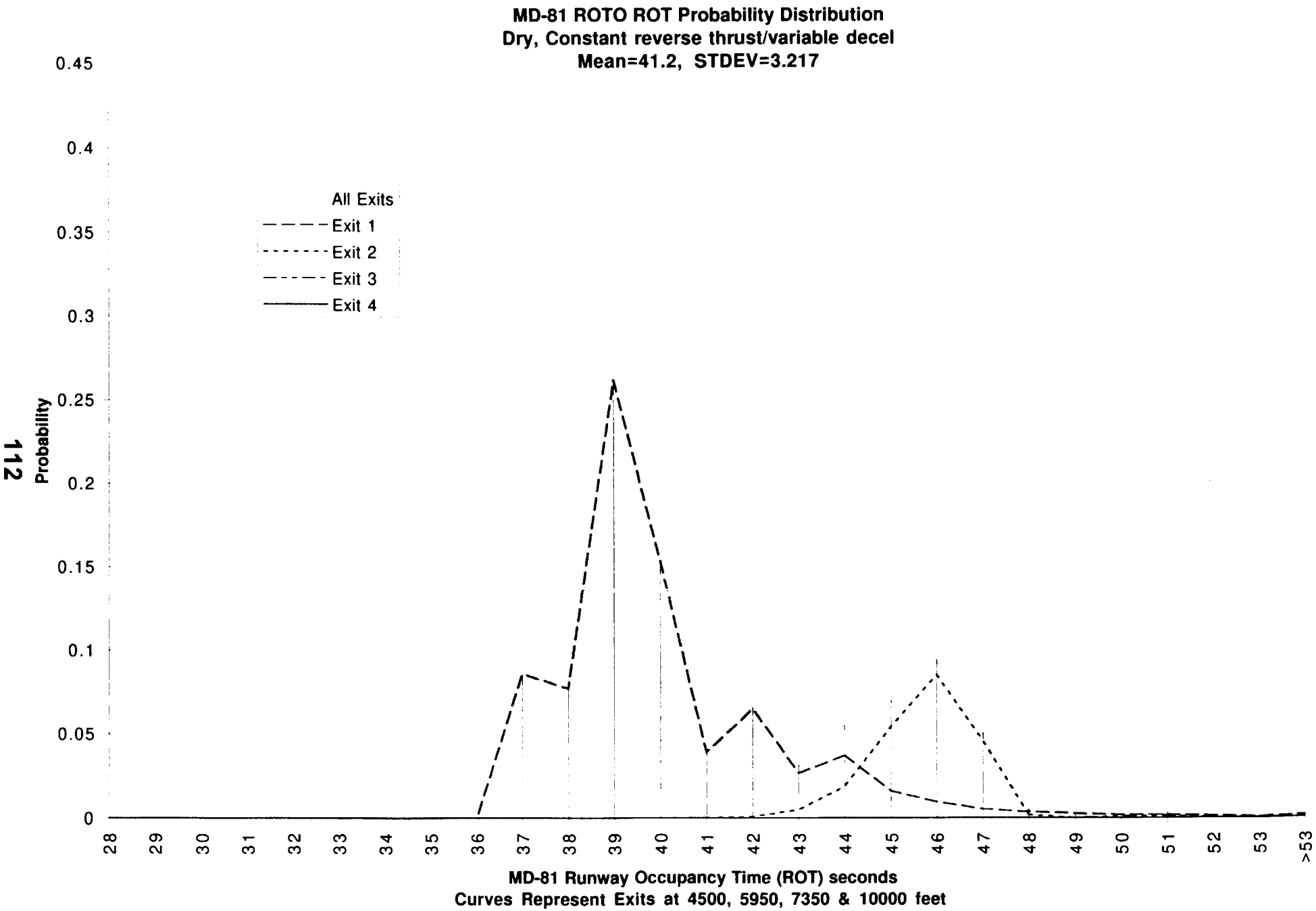
Predict exit prior to TD

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Constant Reverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



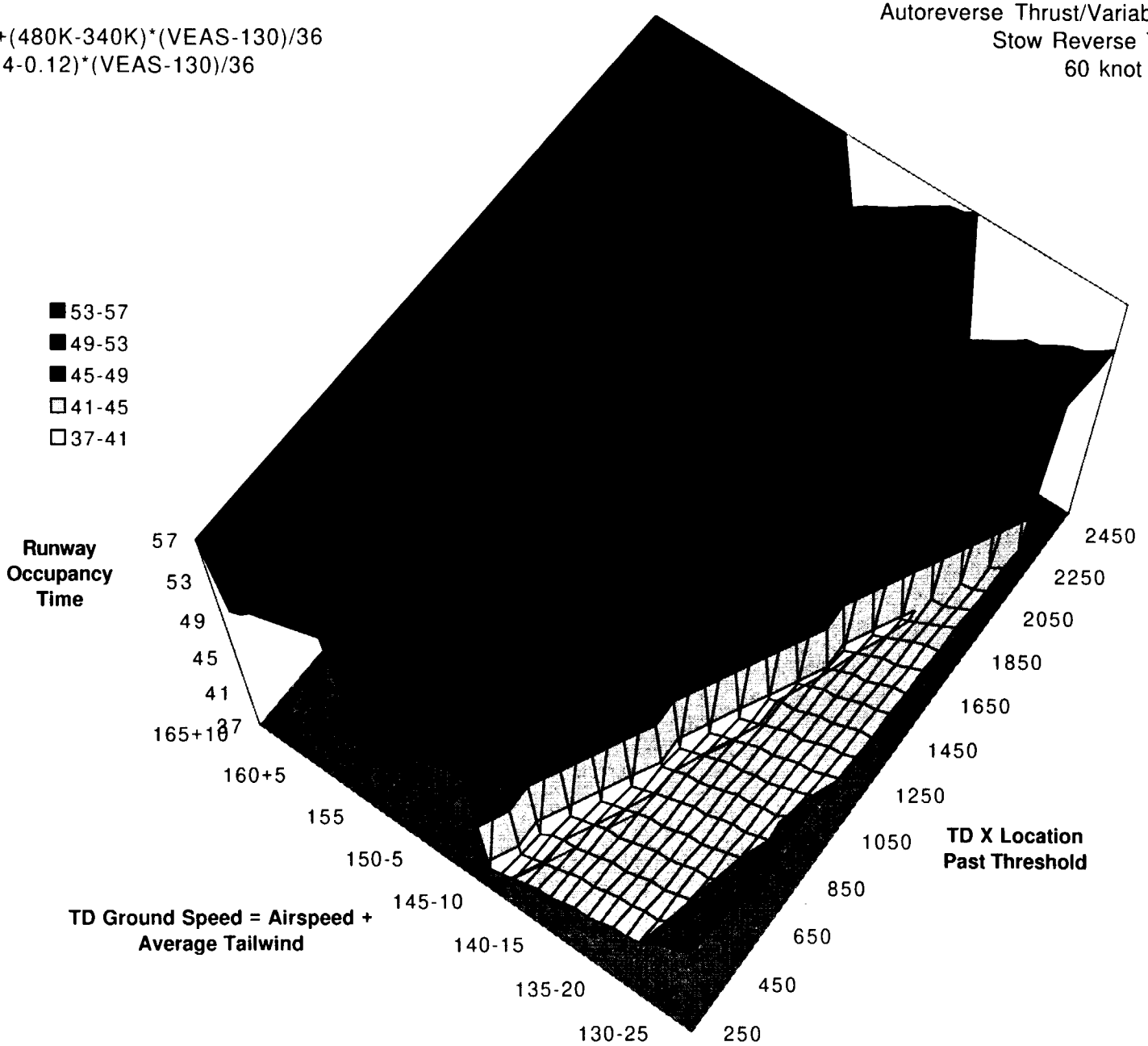

MD-81 ROTO ROT Probability Distribution
Dry, Constant reverse thrust/variable decel
Mean=41.2, STDEV=3.217
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

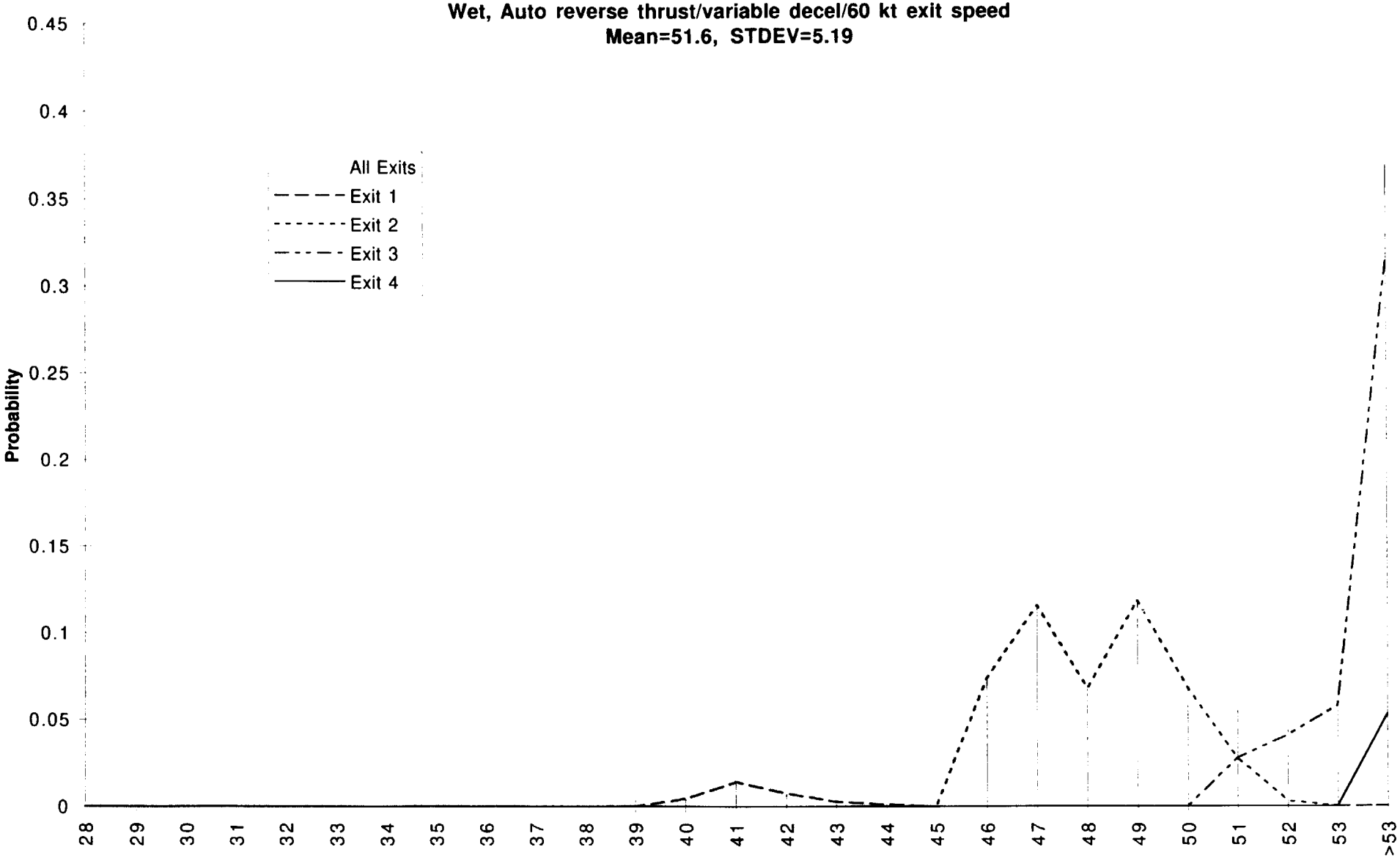
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=60 kt gd
60 knot high speed exit



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=51.6, STDEV=5.19



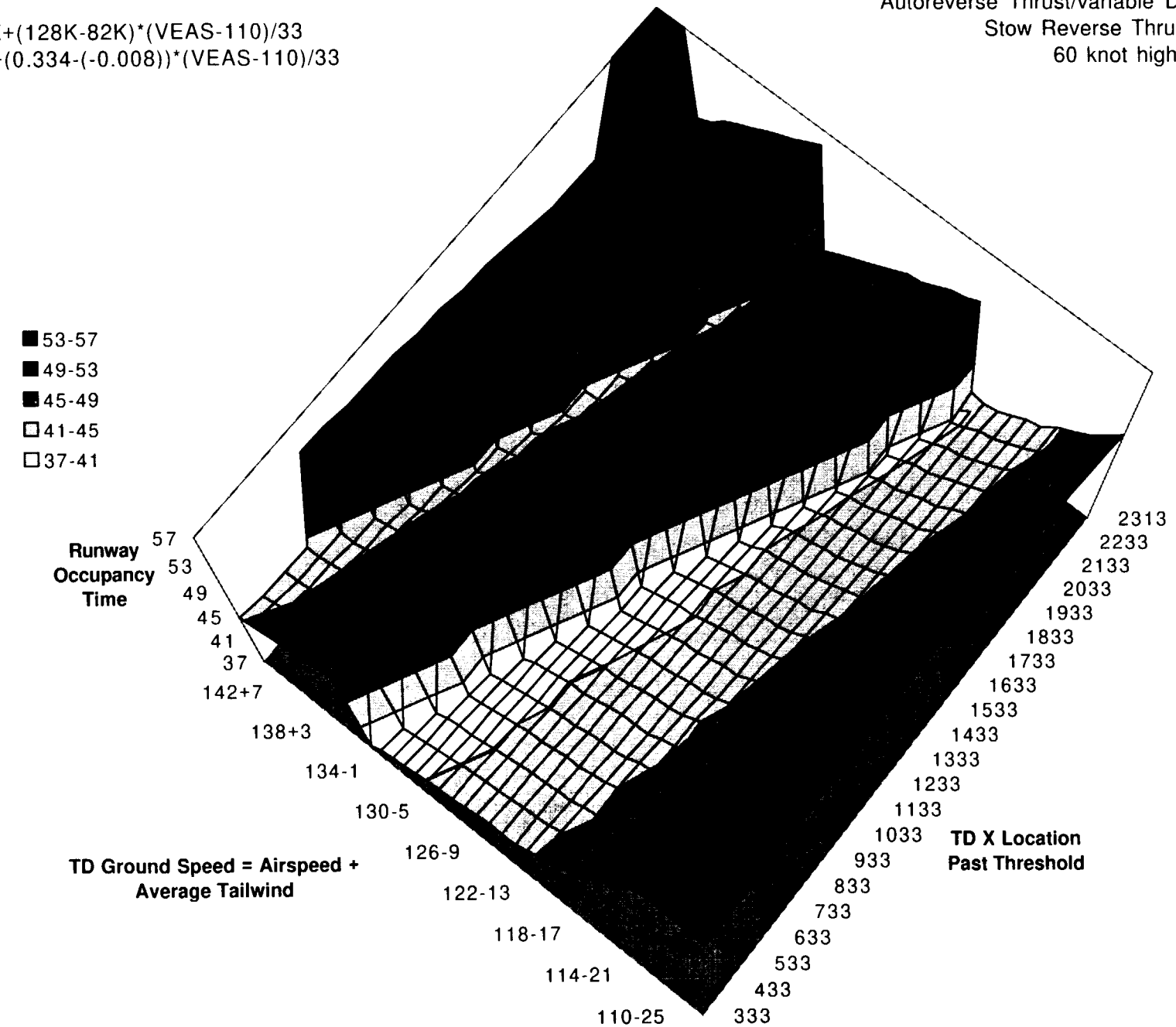
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

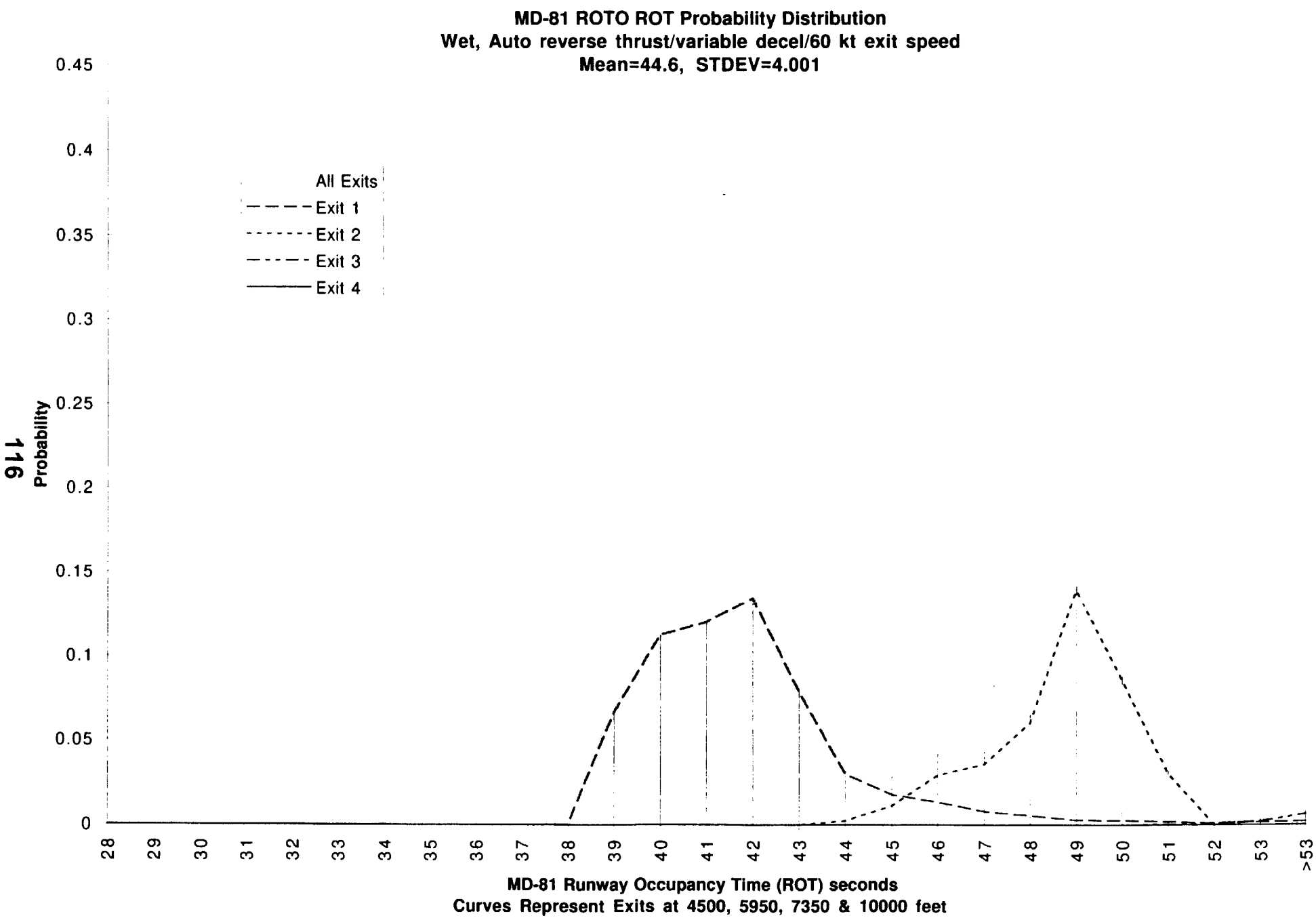
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=60 kt gd
60 knot high speed exit




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=44.6, STDEV=4.001
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
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36
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42
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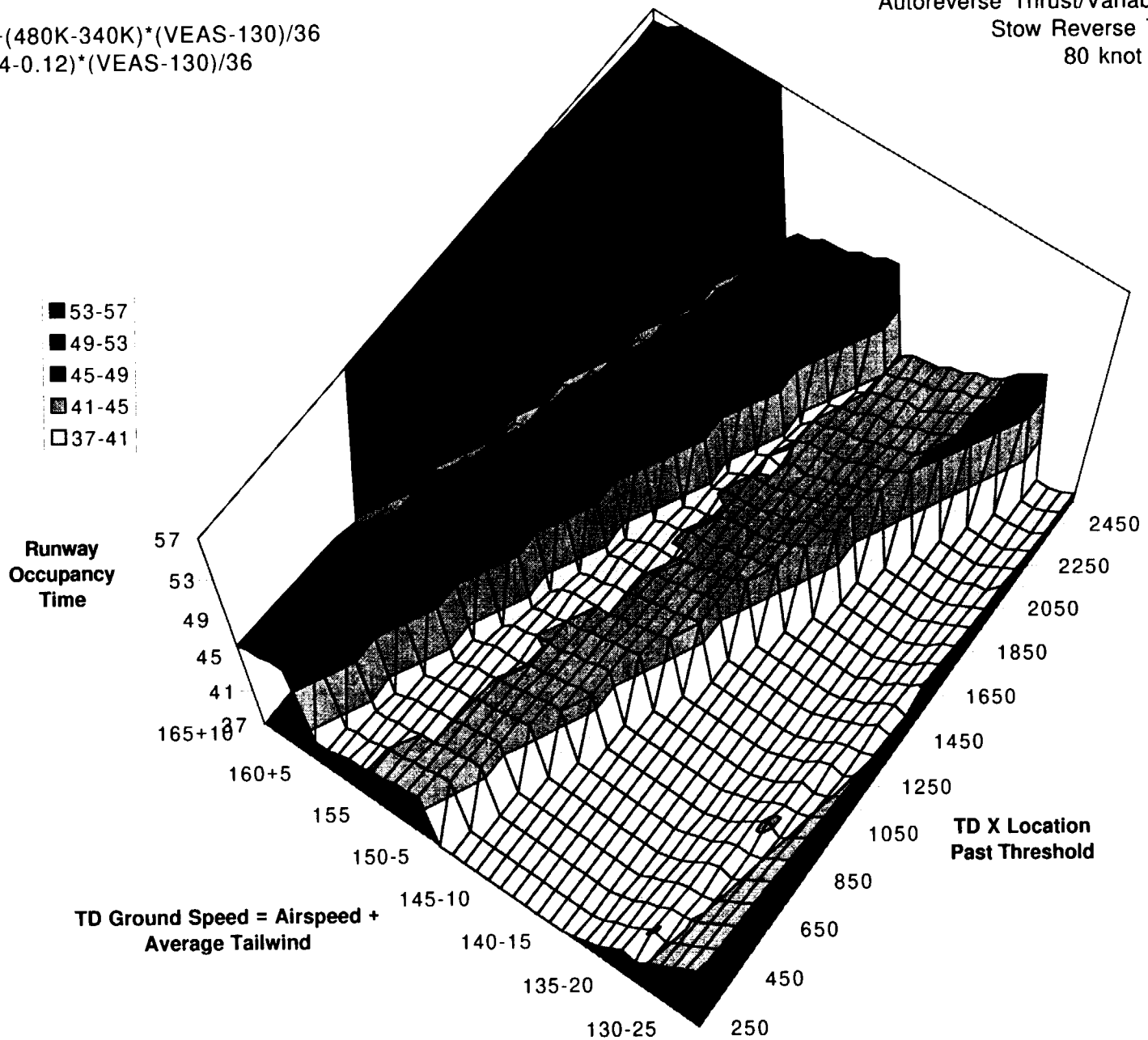
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

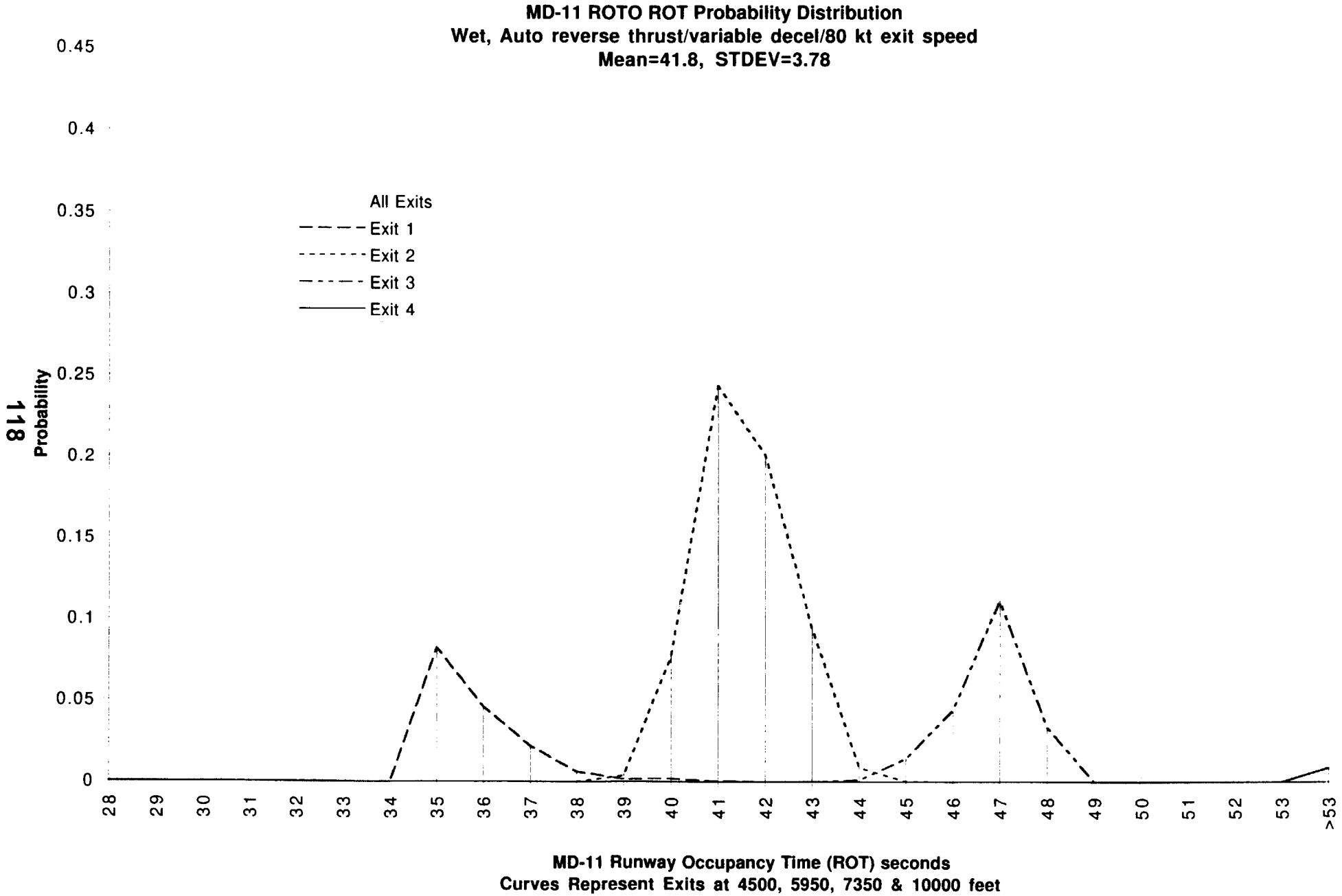
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=80 kt gd
80 knot high speed exit



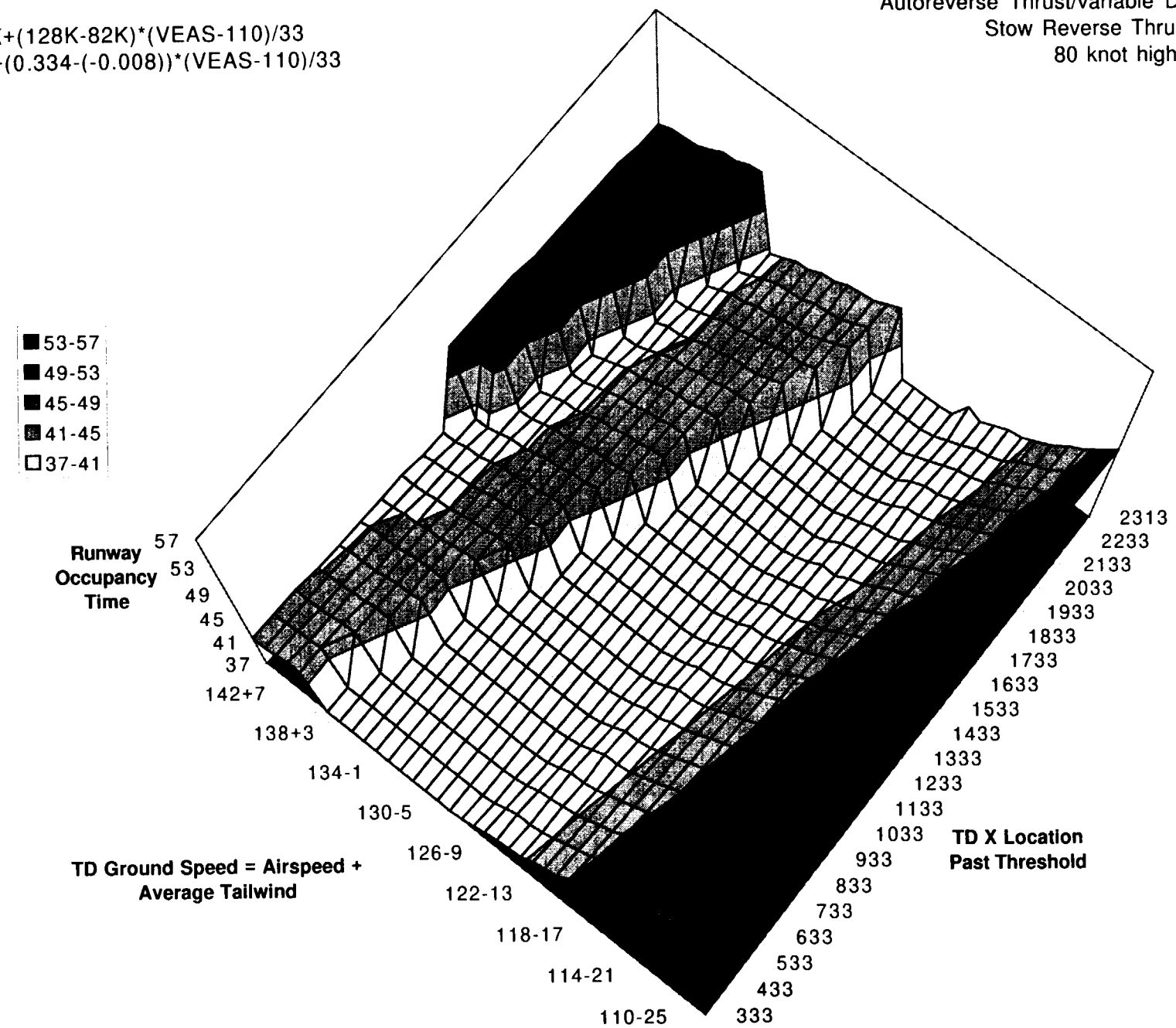

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/80 kt exit speed
Mean=41.8, STDEV=3.78
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

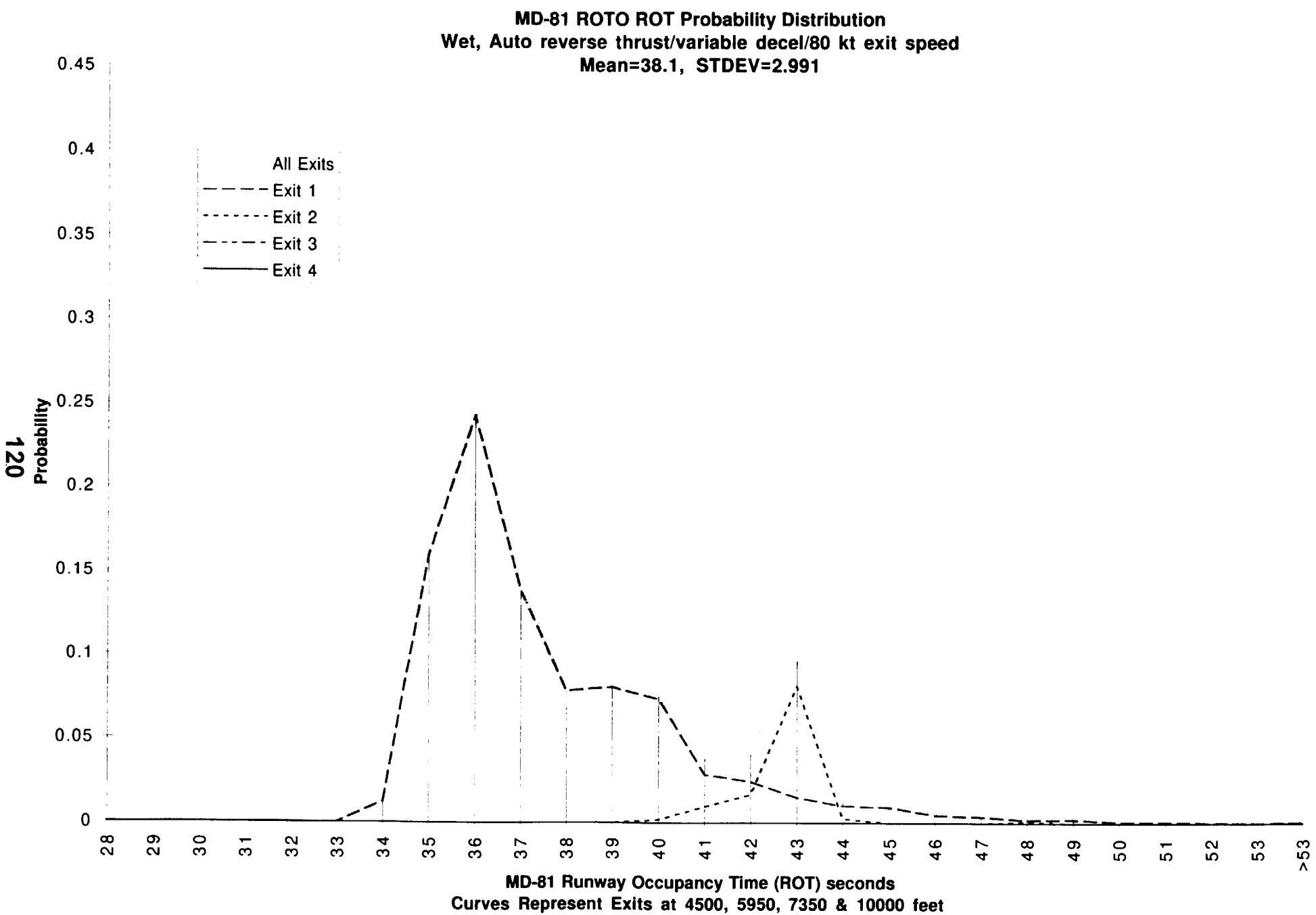
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=80 kt gd
80 knot high speed exit




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/80 kt exit speed
Mean=38.1, STDEV=2.991
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
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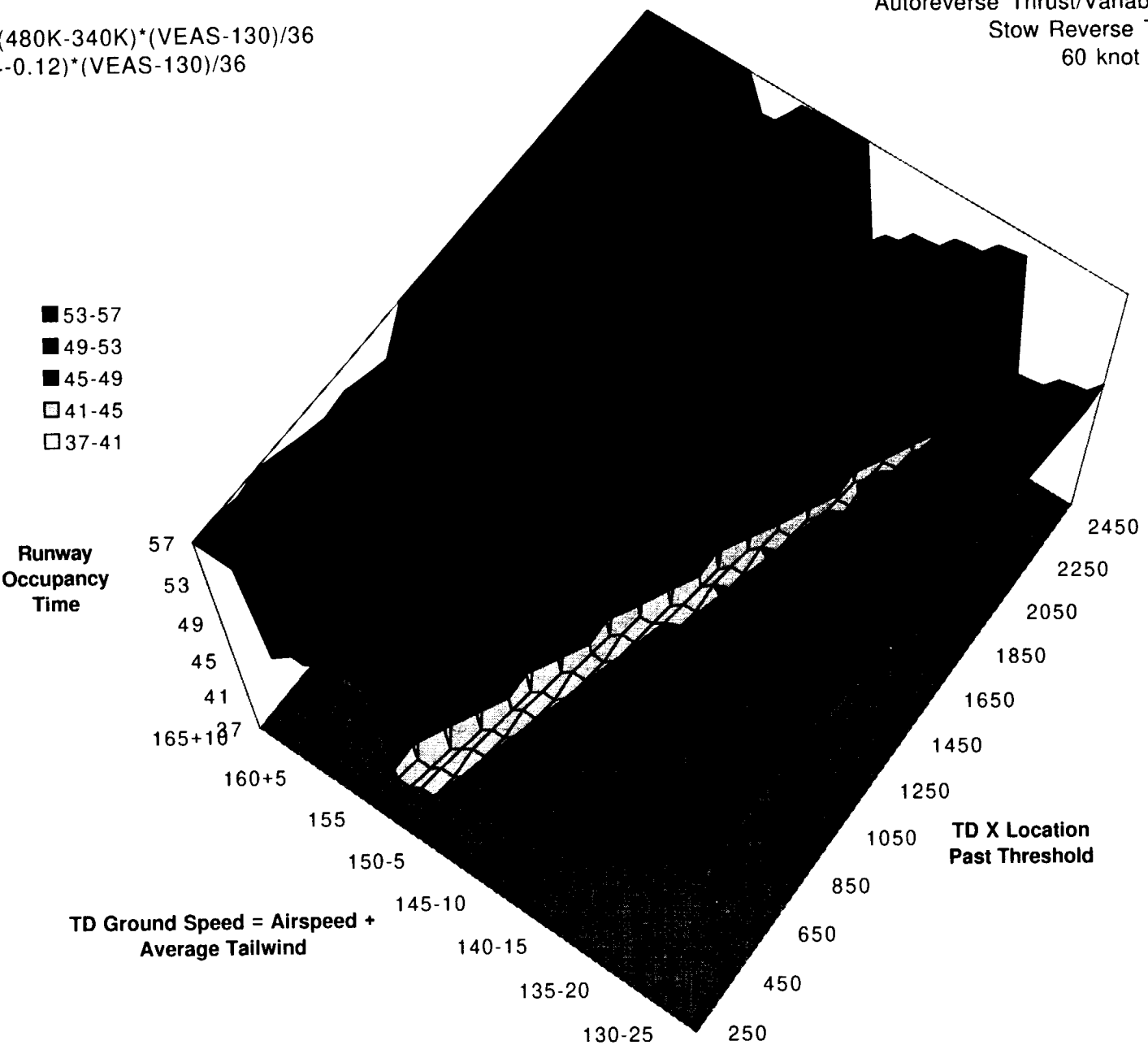
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

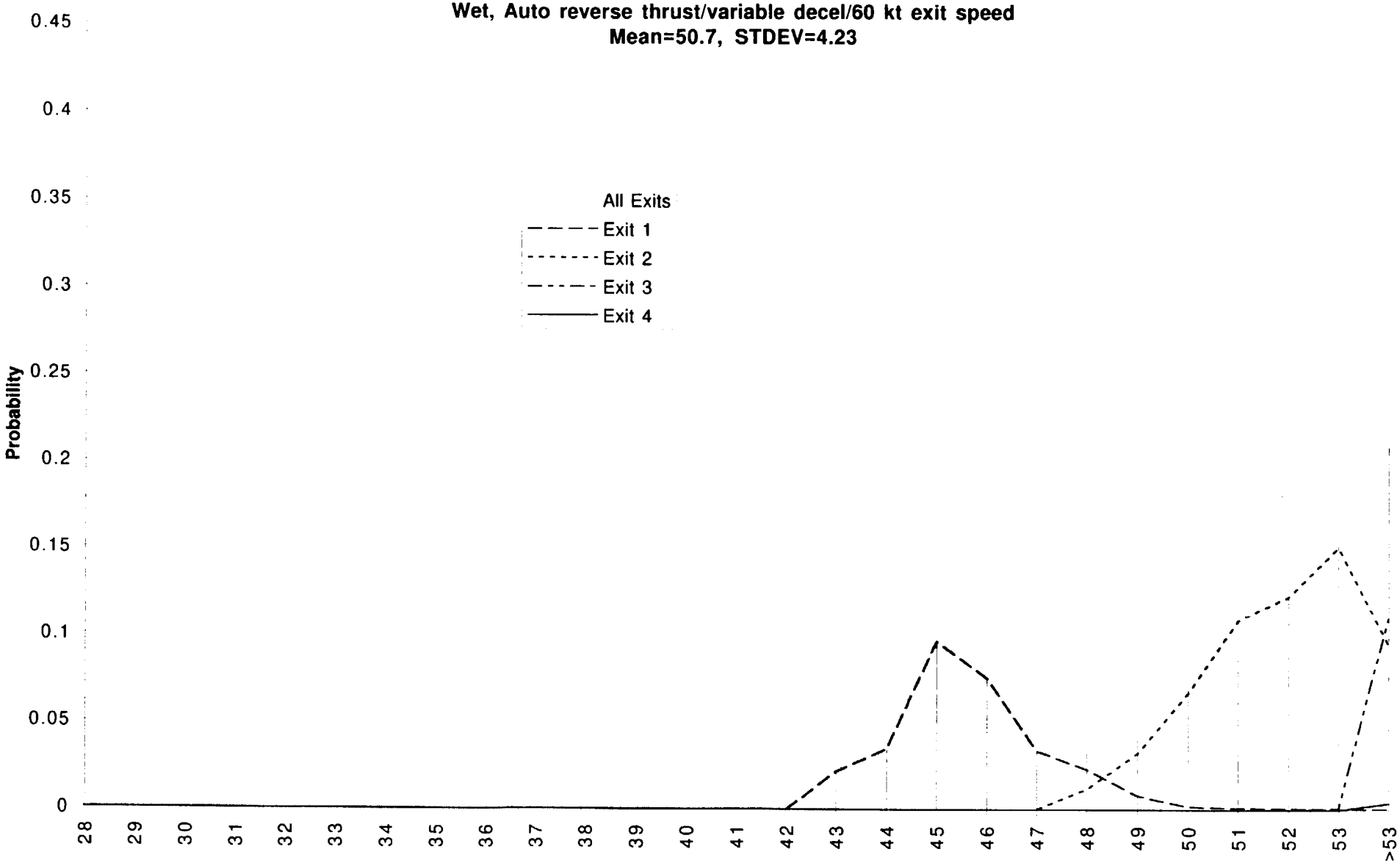
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=5500,6950,8350,12000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=60 kt gd
60 knot high speed exit



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=50.7, STDEV=4.23



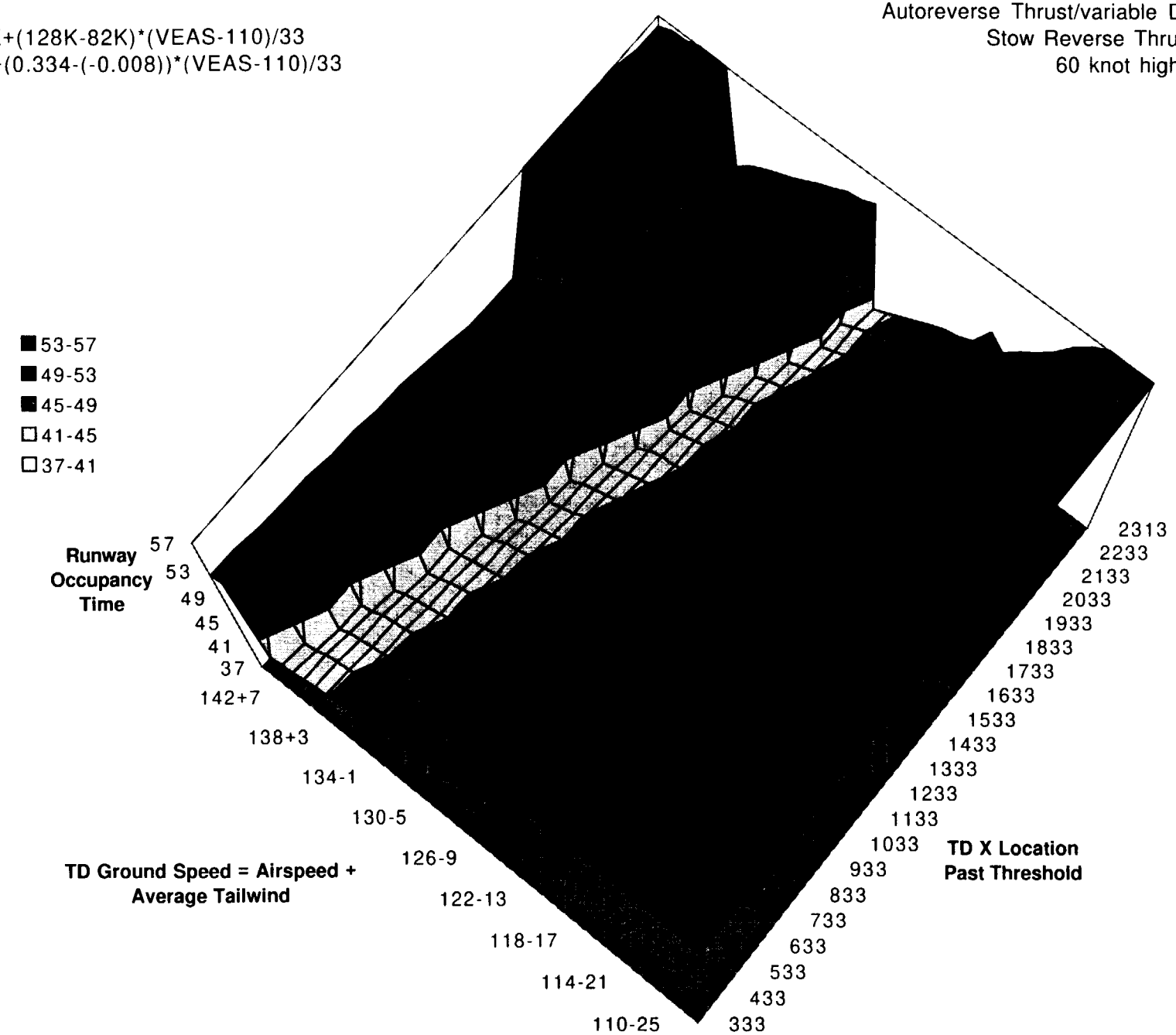
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5500, 6950, 8350 & 12000 feet

Predict exit prior to TD

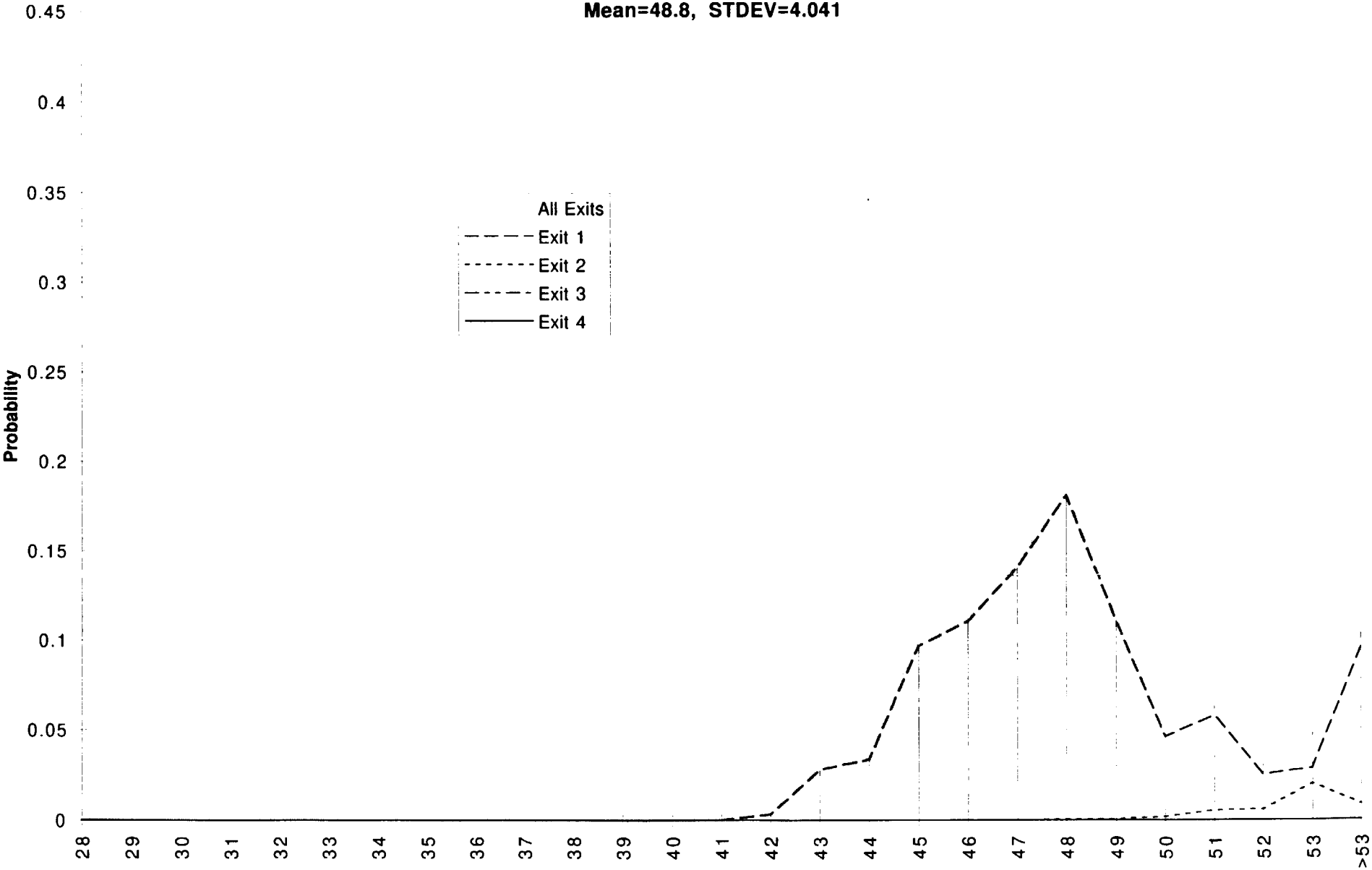
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=5500,6950,8350,12000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=60 kt gd
60 knot high speed exit



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=48.8, STDEV=4.041



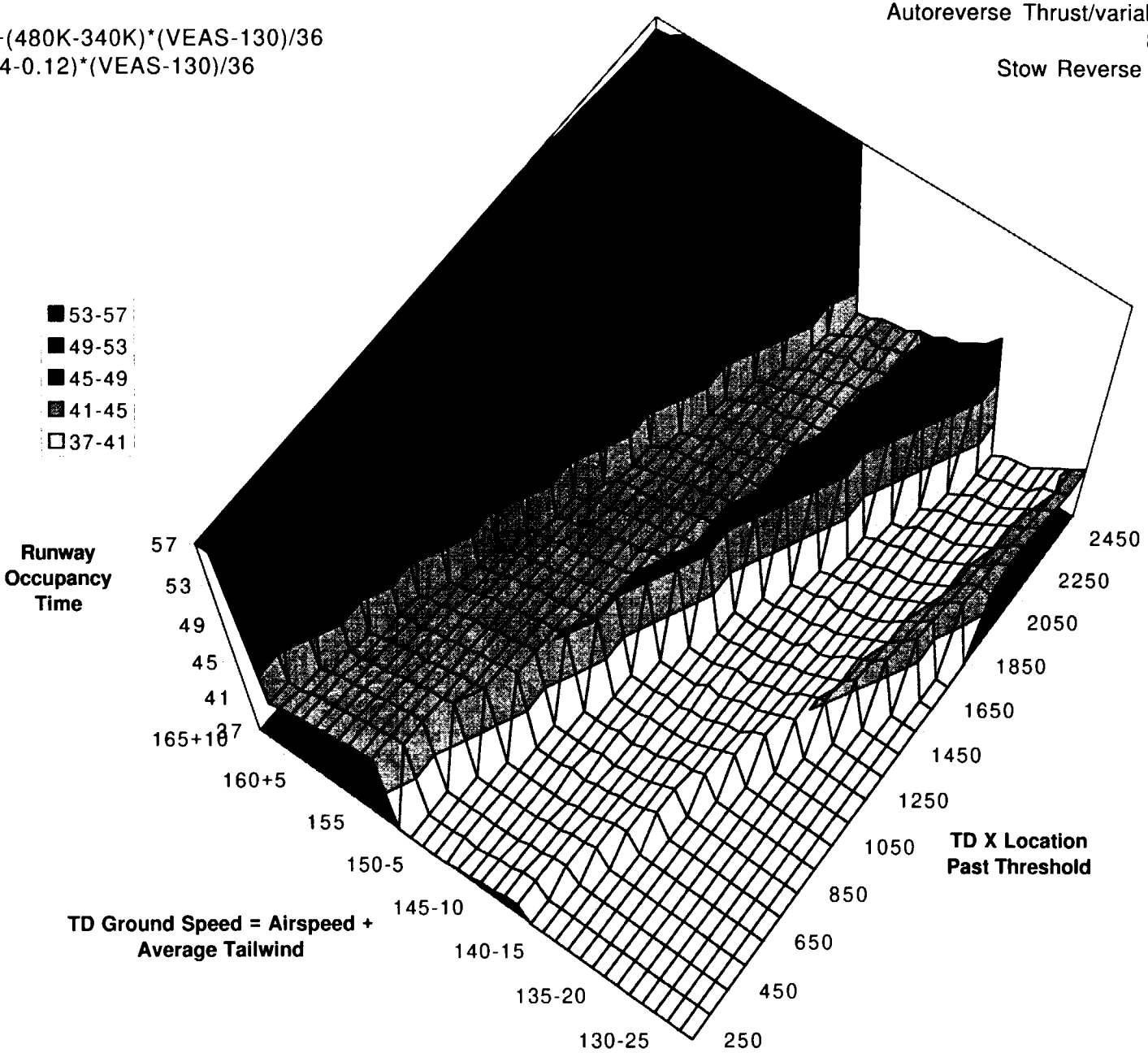
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5500, 6950, 8350 & 12000 feet

Predict exit prior to TD

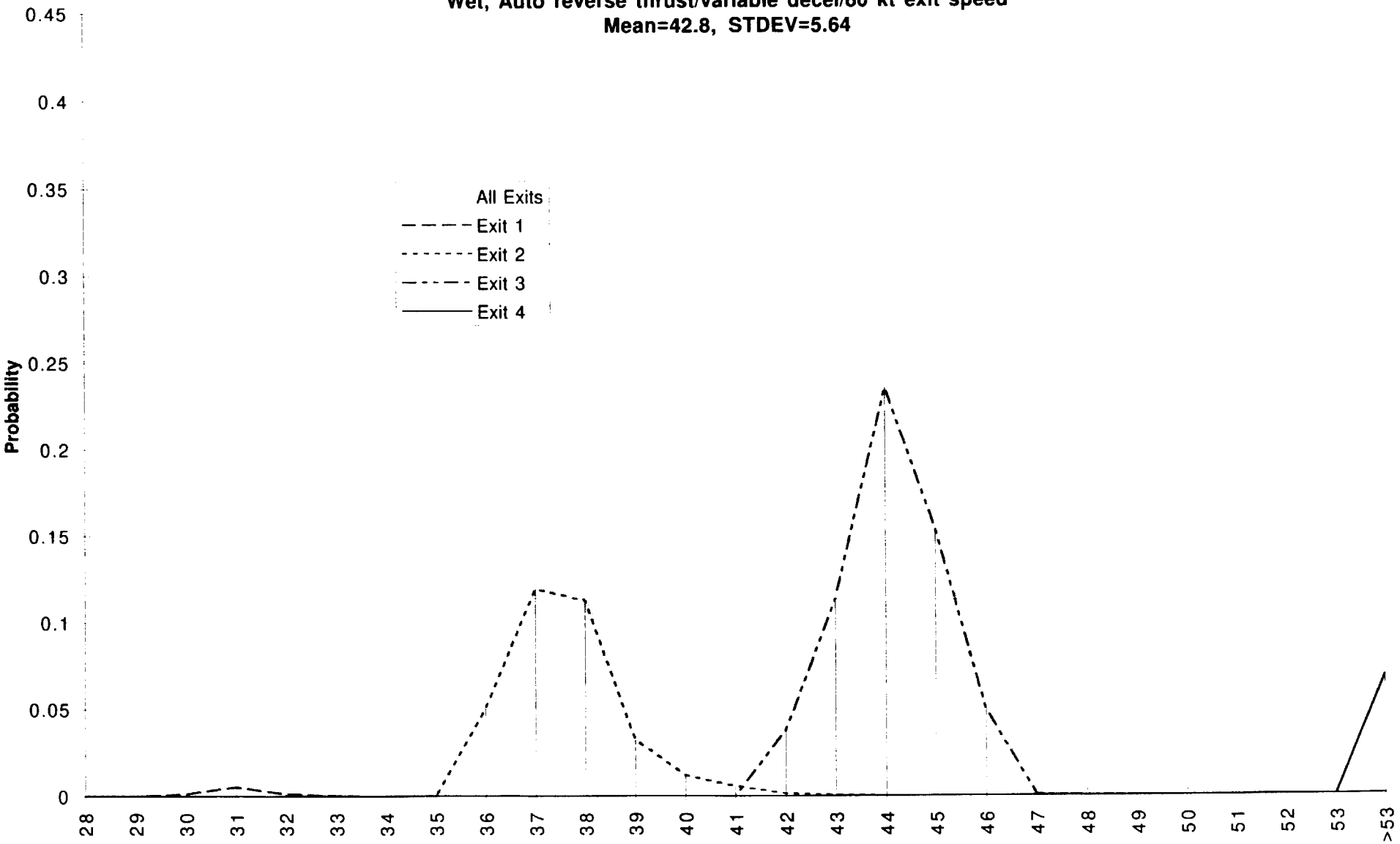
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
80 kt exit speed
Stow Reverse Thrust=80 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/80 kt exit speed
Mean=42.8, STDEV=5.64



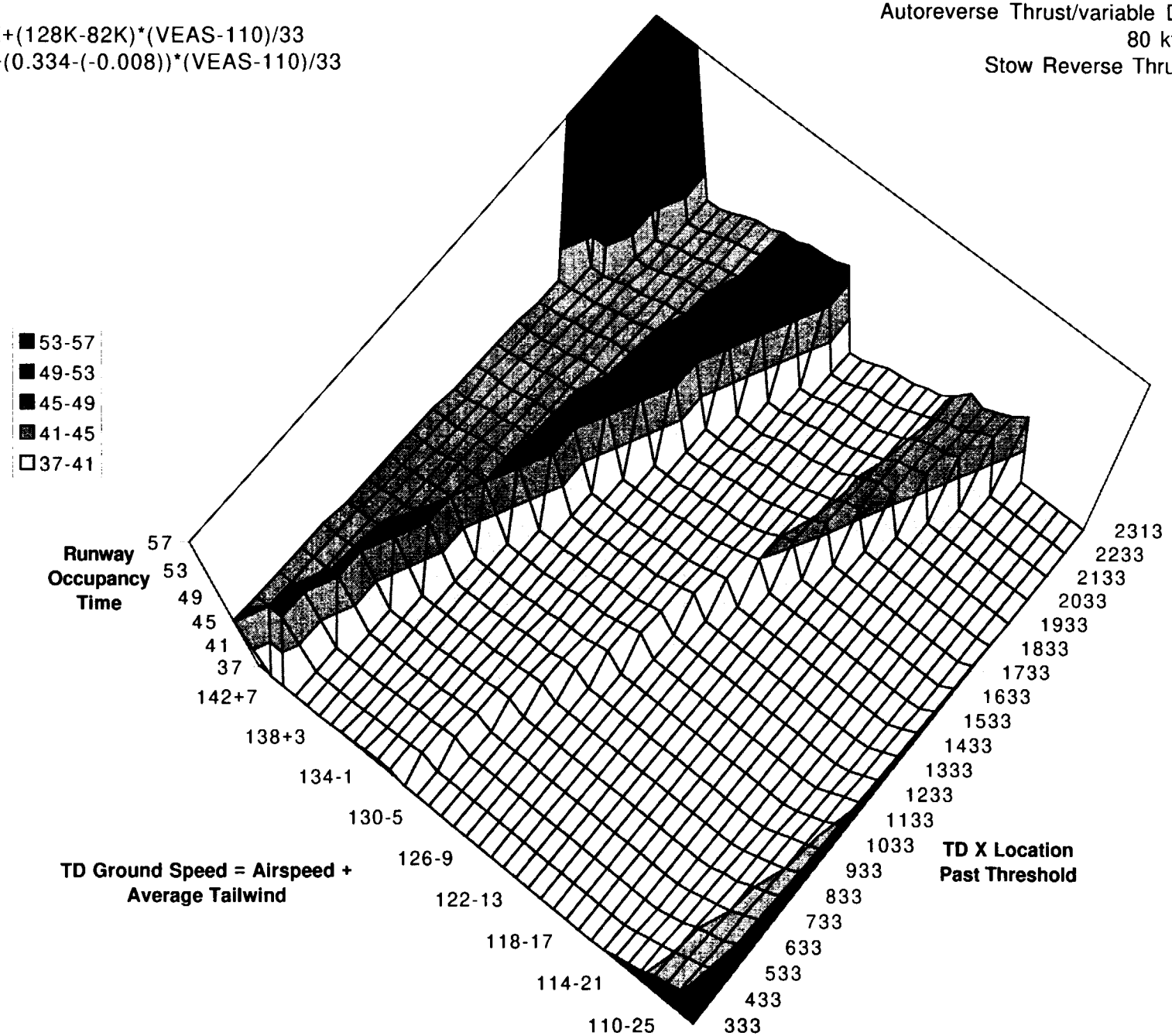
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

Predict exit prior to TD

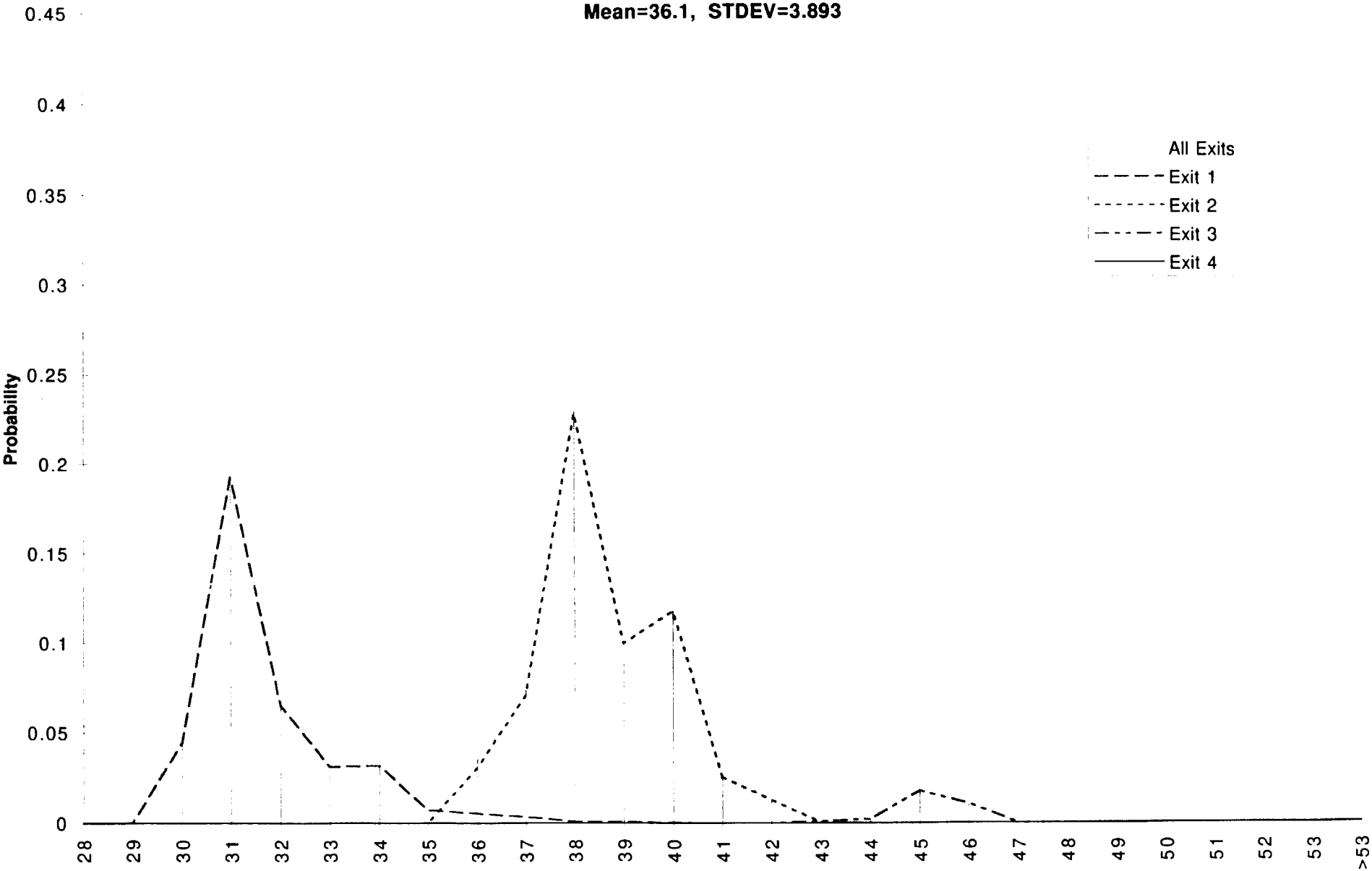
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
80 kt exit speed
Stow Reverse Thrust=80 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/80 kt exit speed
Mean=36.1, STDEV=3.893



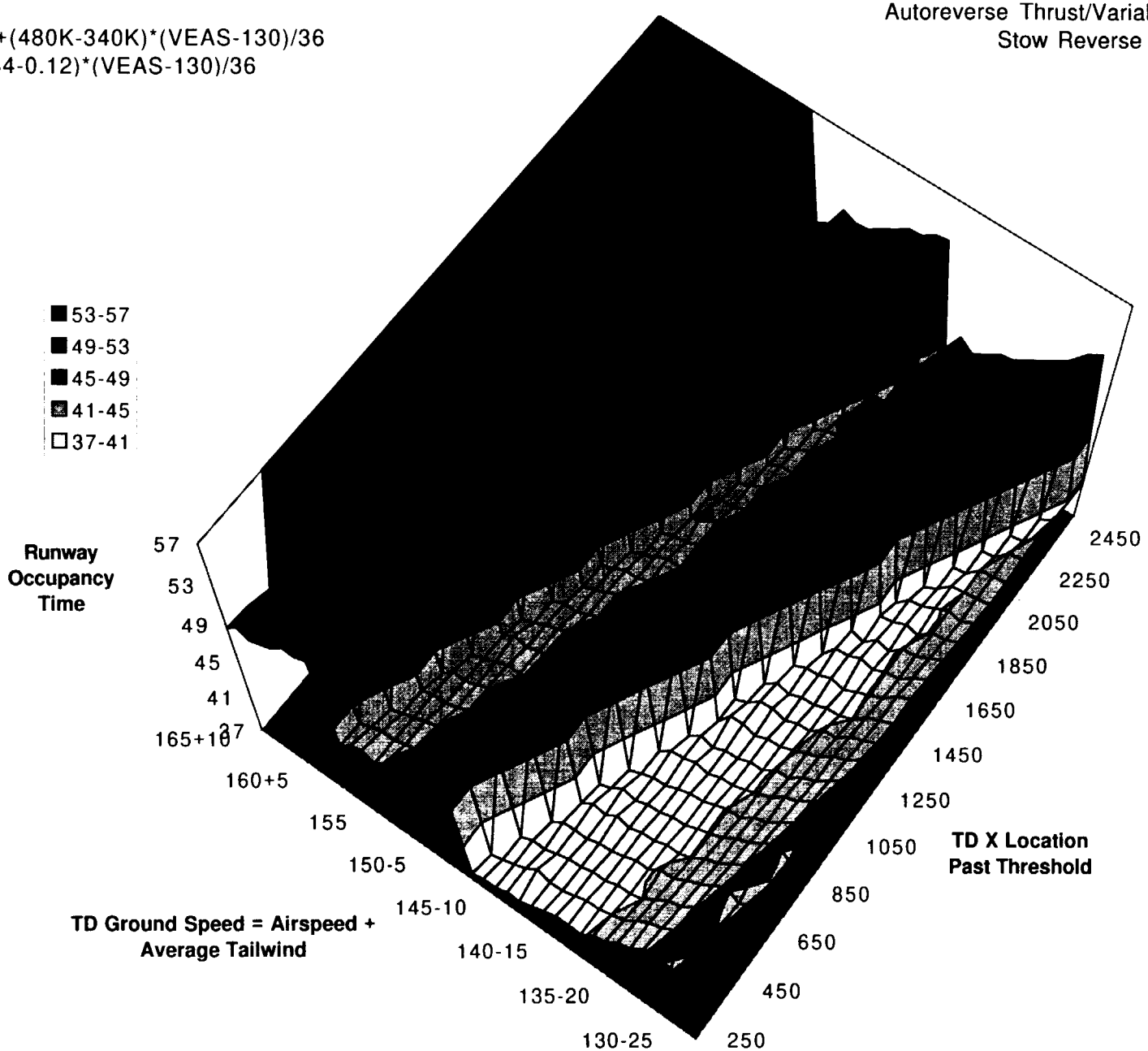
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

Predict exit prior to TD

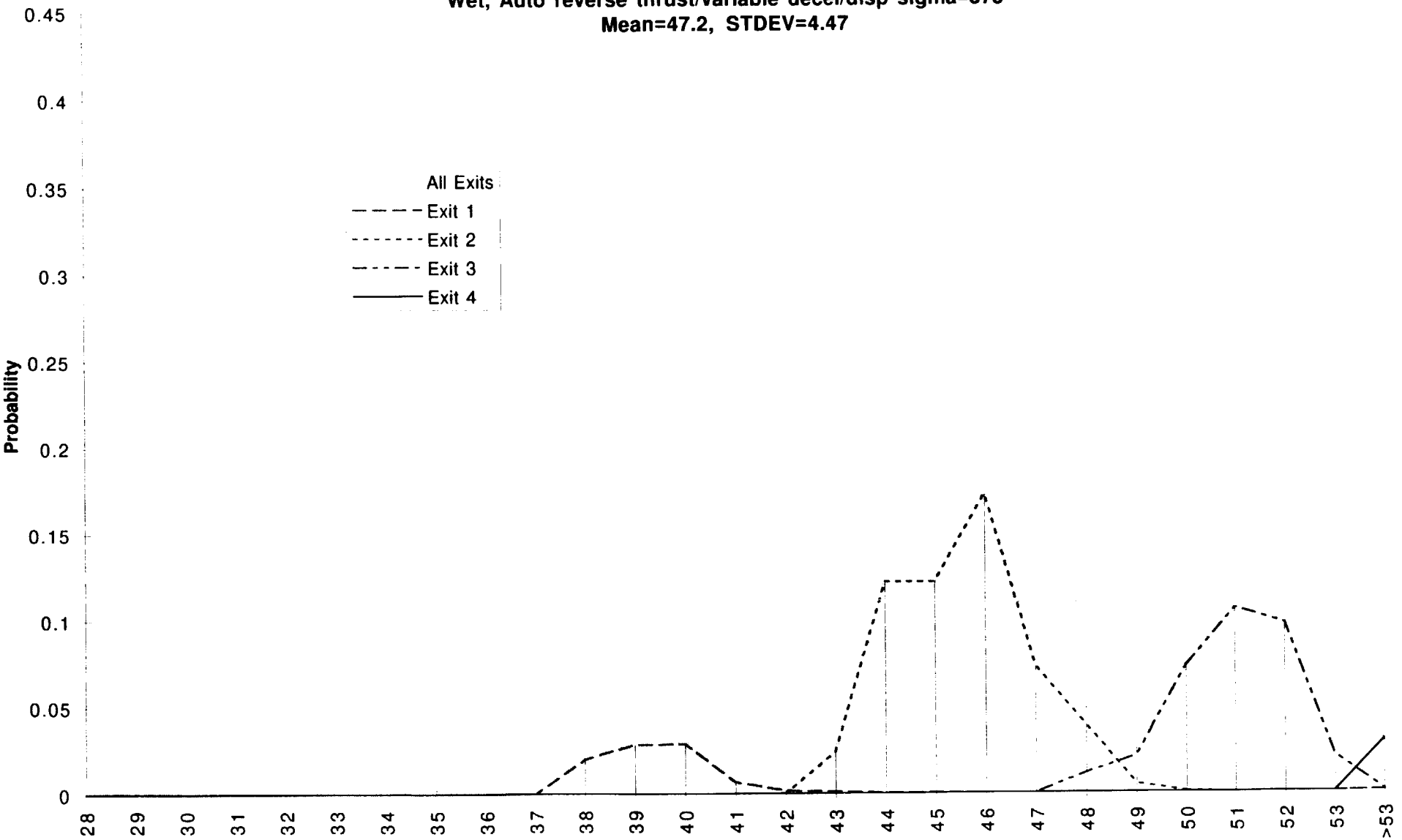
MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/disp sigma=375
Mean=47.2, STDEV=4.47



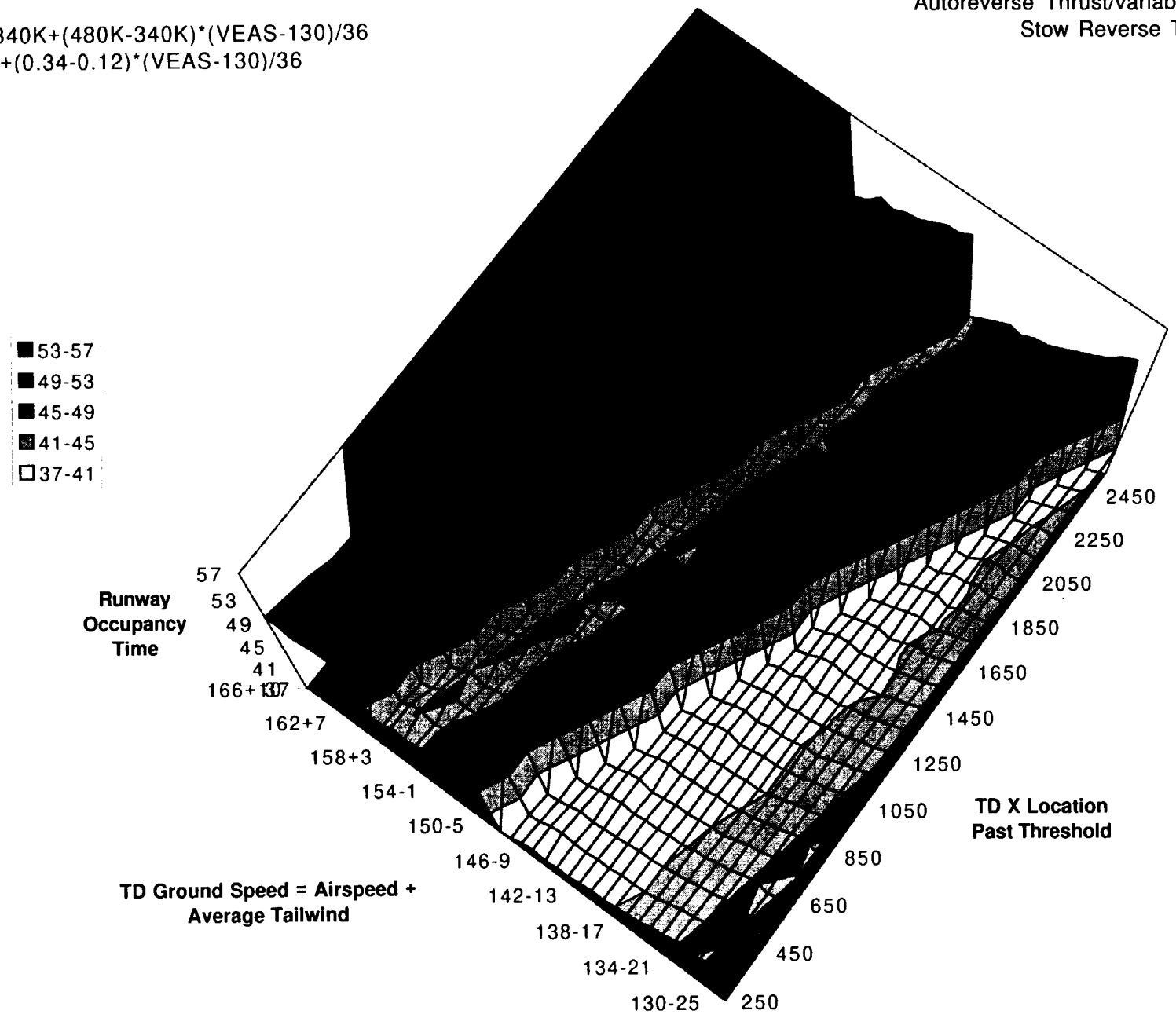
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

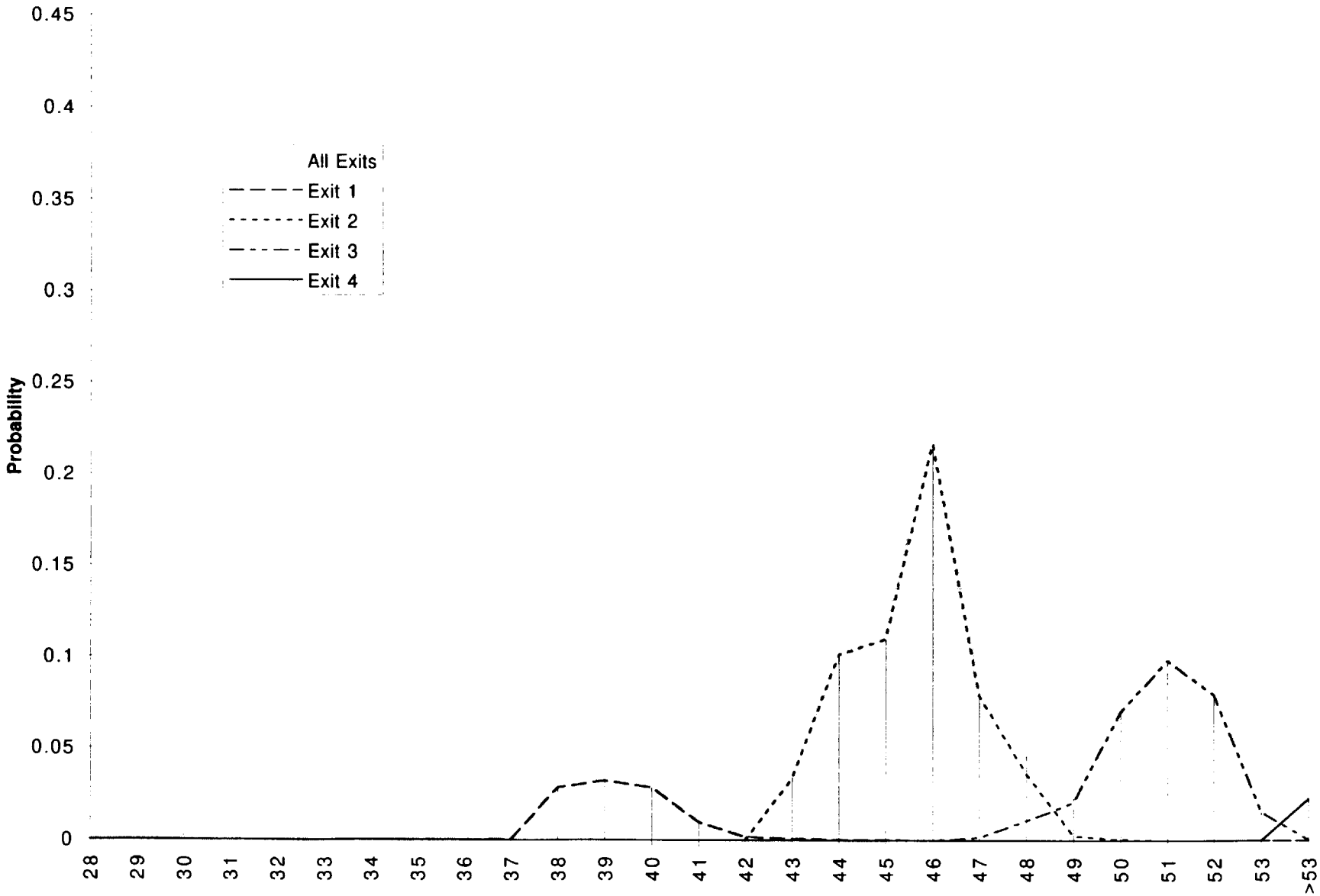
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/dispersion sigma=375
Mean=46.8, STDEV=4.321



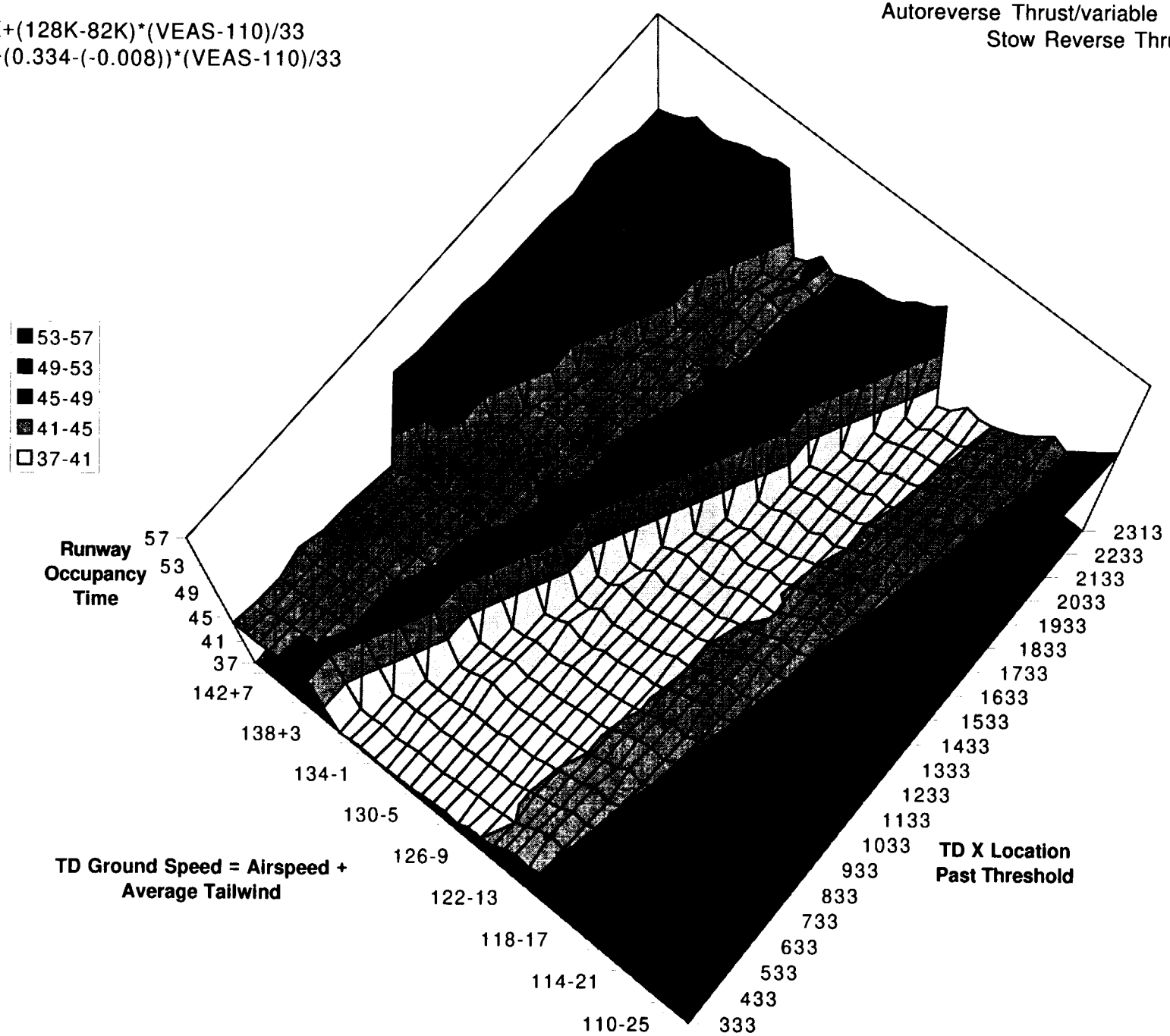
MD-11 Runway Occupancy Time
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

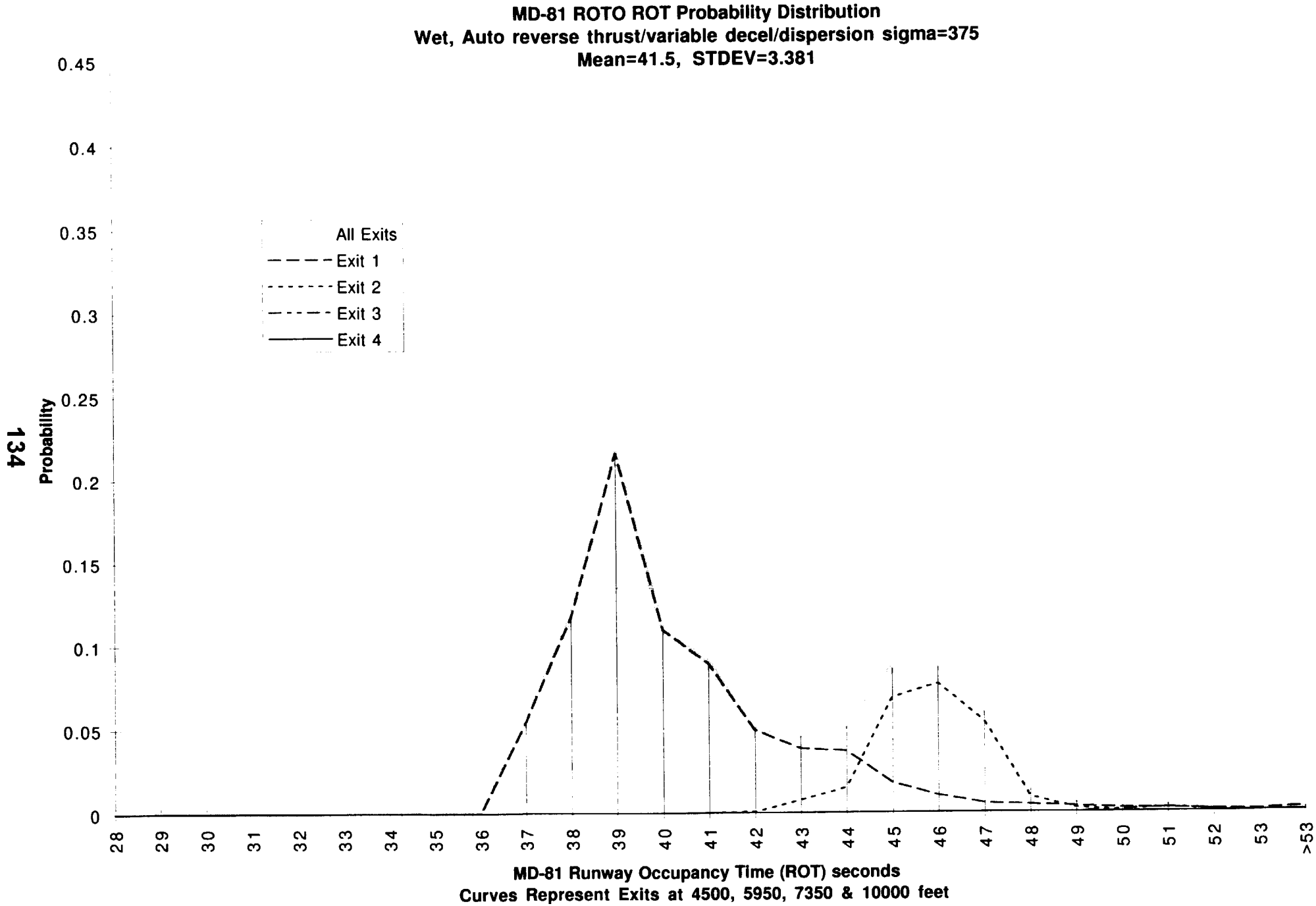
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



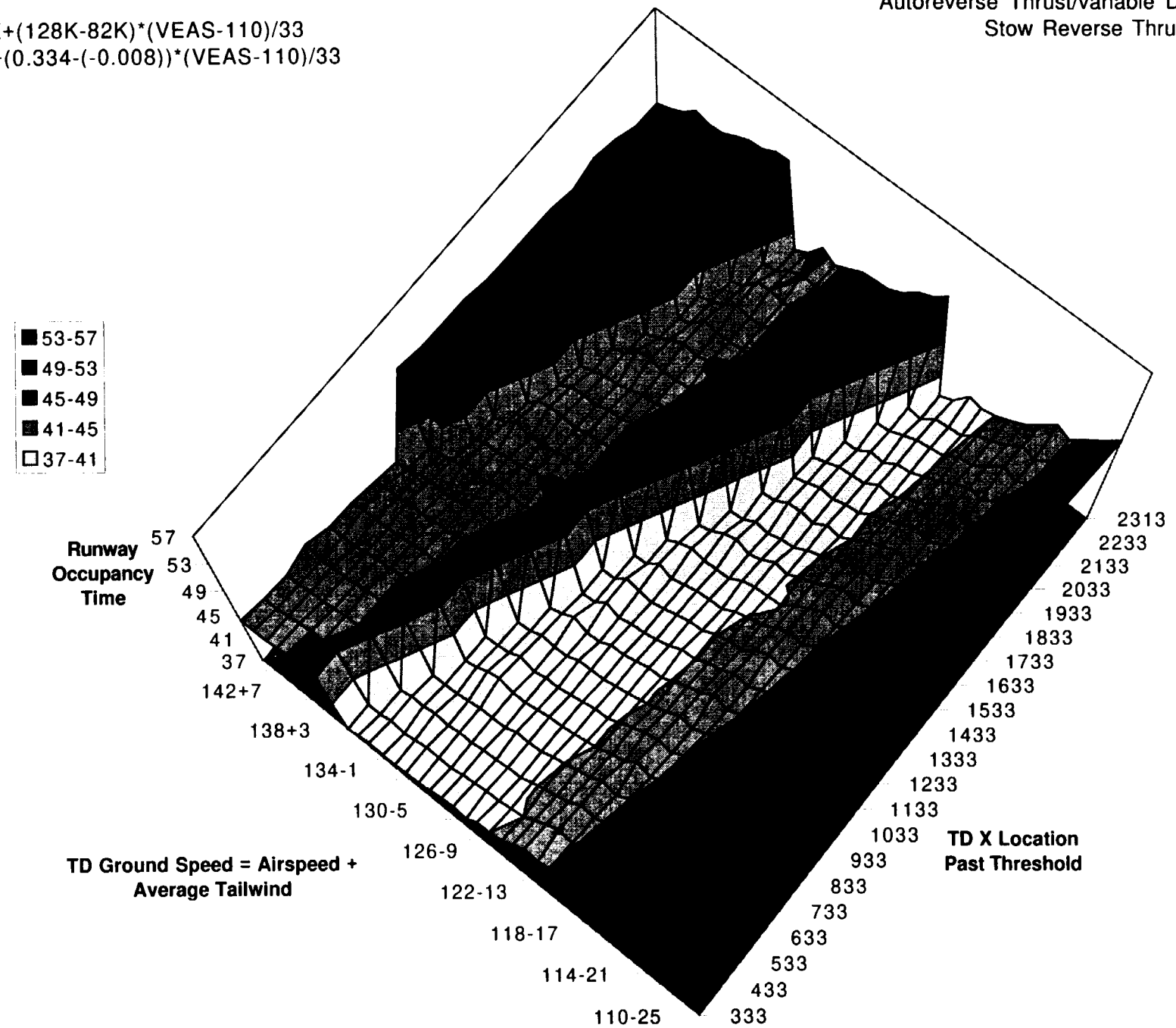

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/dispersion sigma=375
Mean=41.5, STDEV=3.381
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

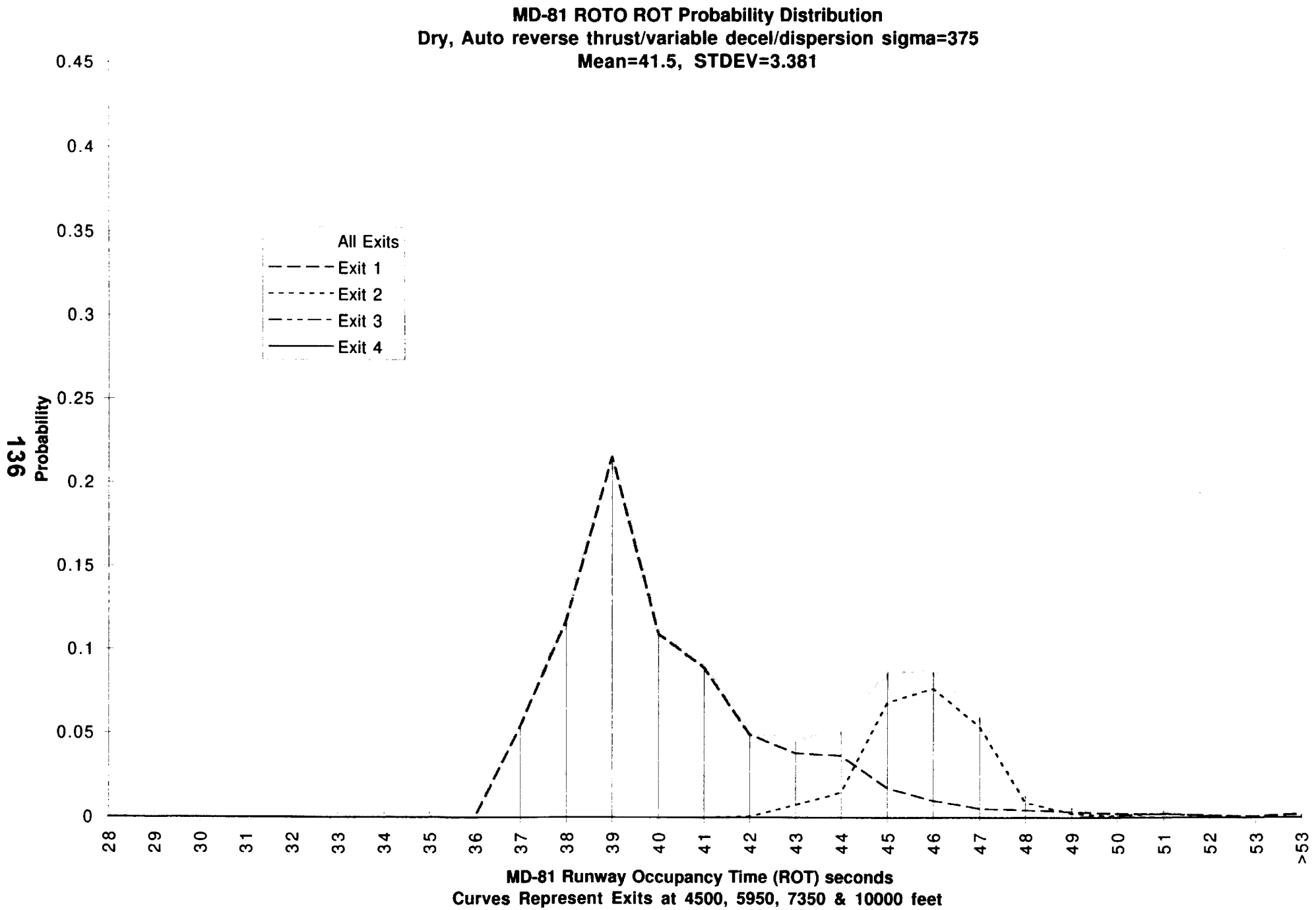
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



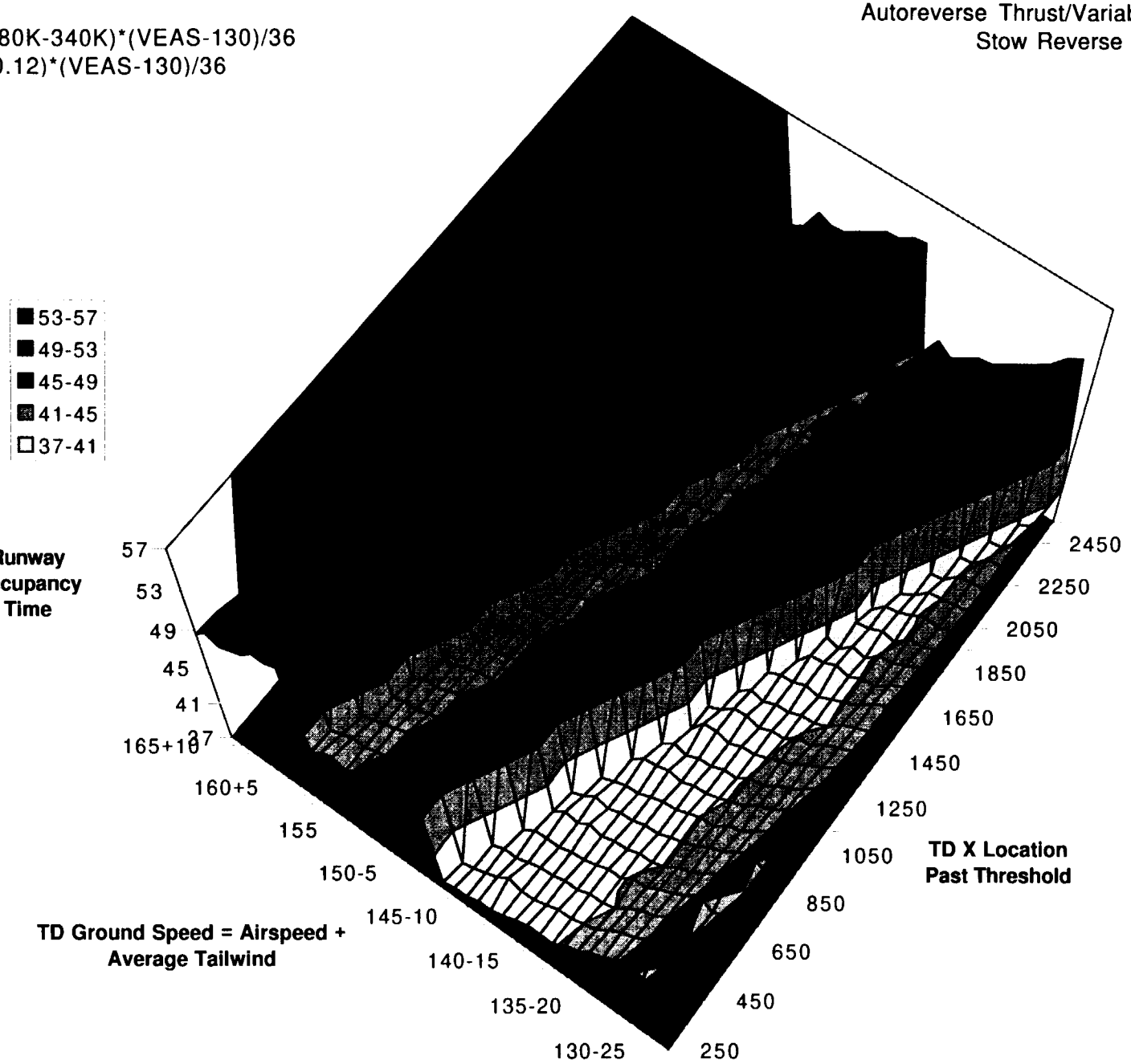

MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/dispersion sigma=375
Mean=41.5, STDEV=3.381
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

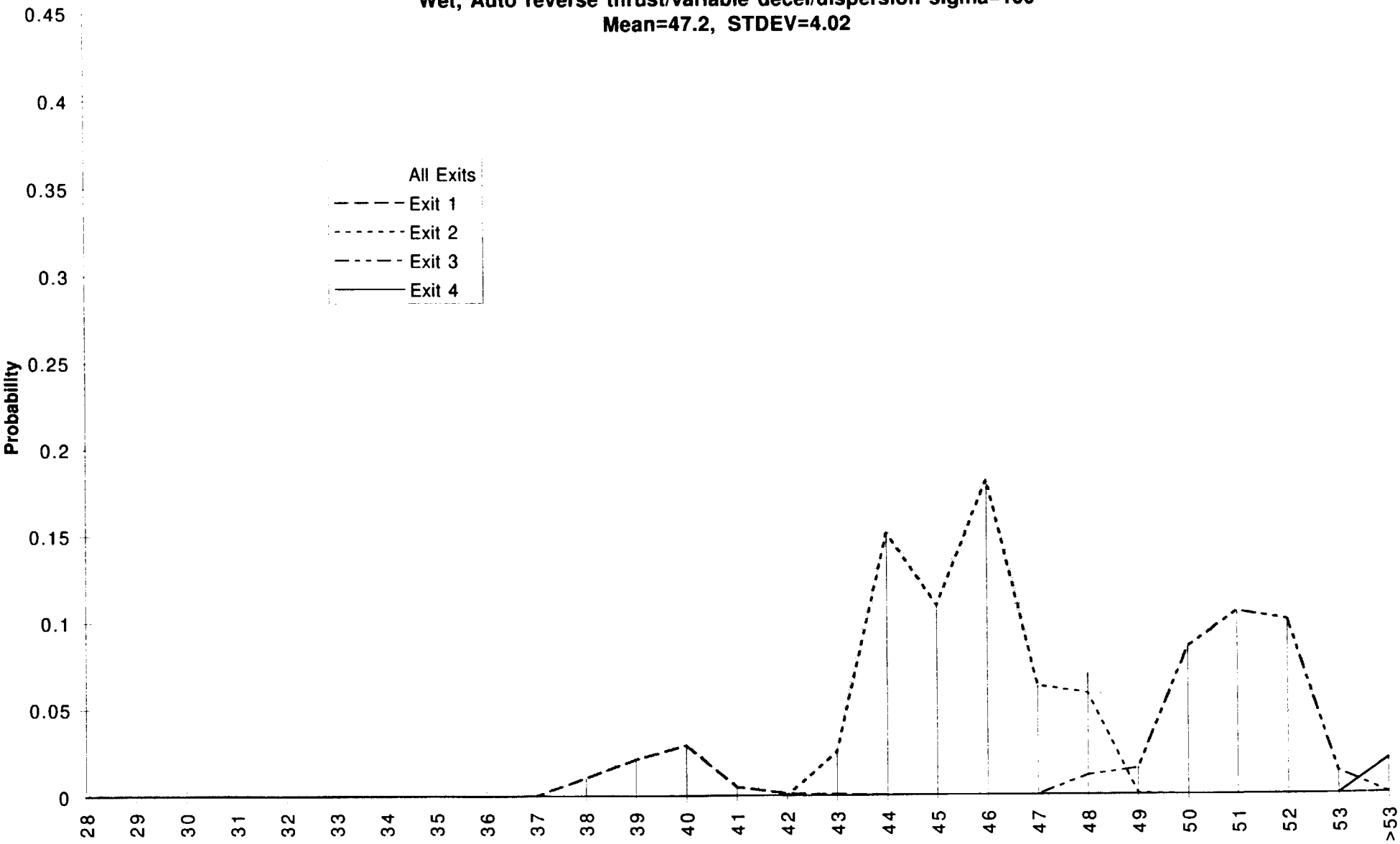
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/dispersion sigma=100
Mean=47.2, STDEV=4.02



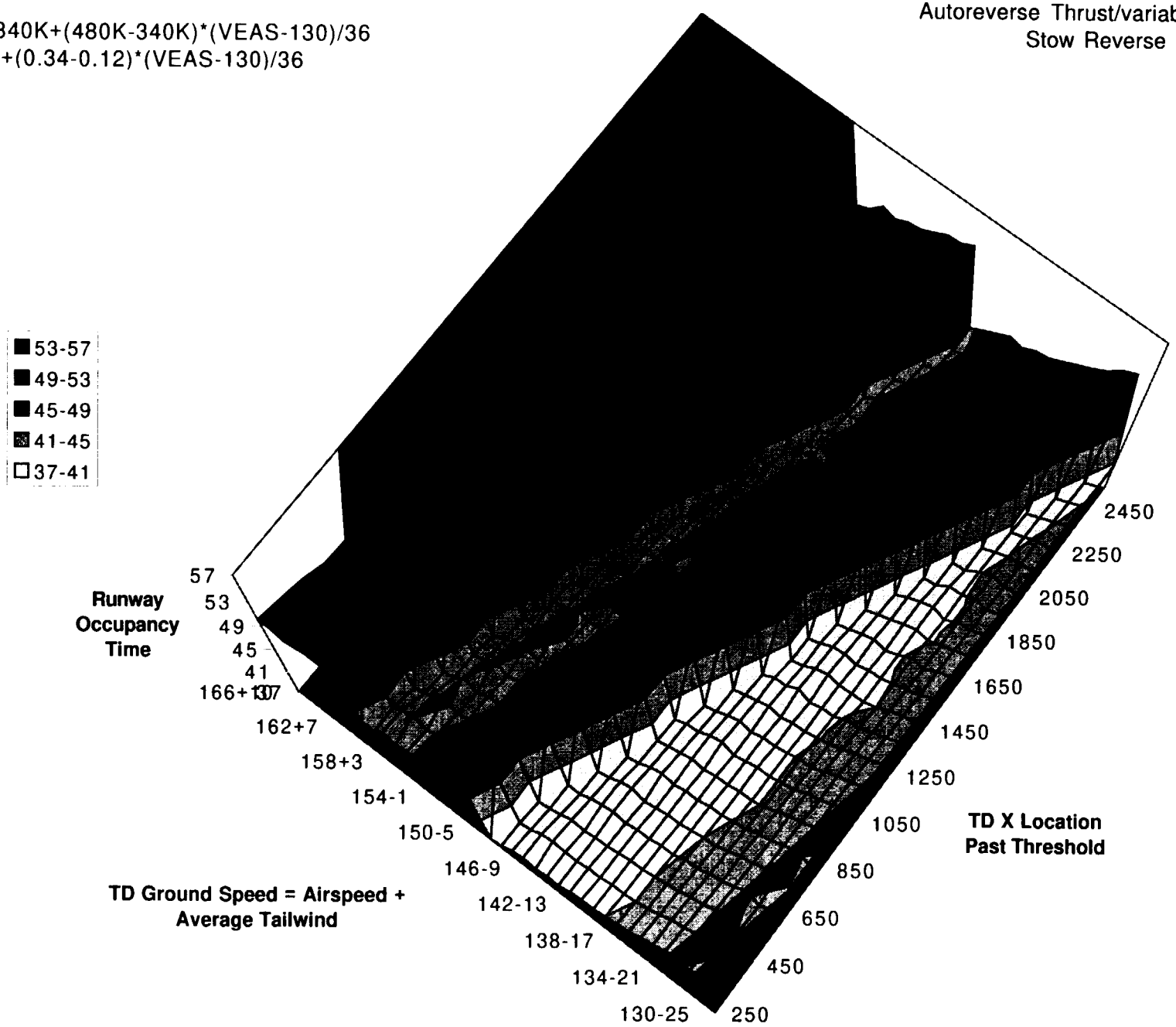
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

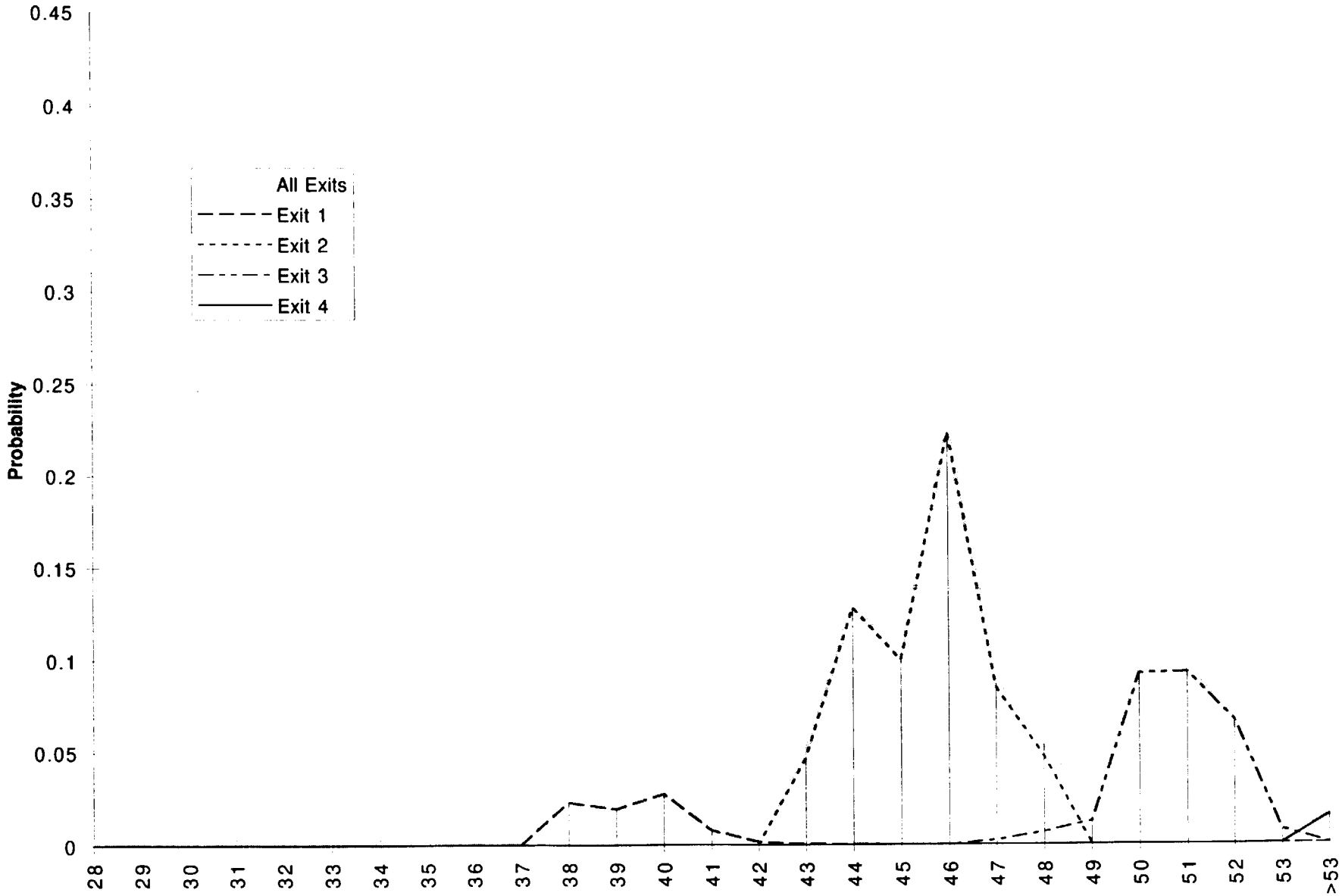
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/dispersion sigma=100
Mean=46.7, STDEV=3.871



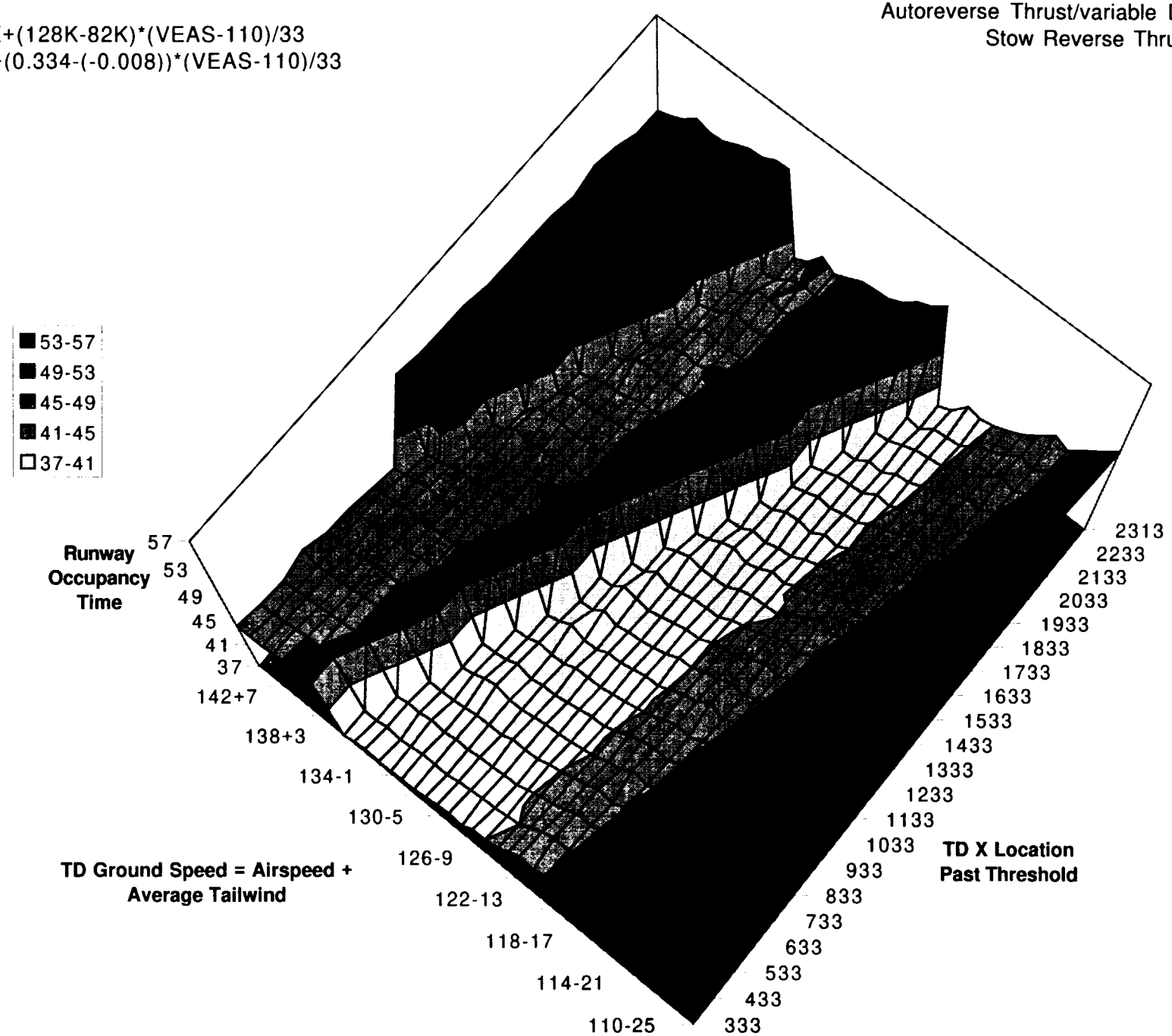
MD-11 Runway Occupancy Time
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

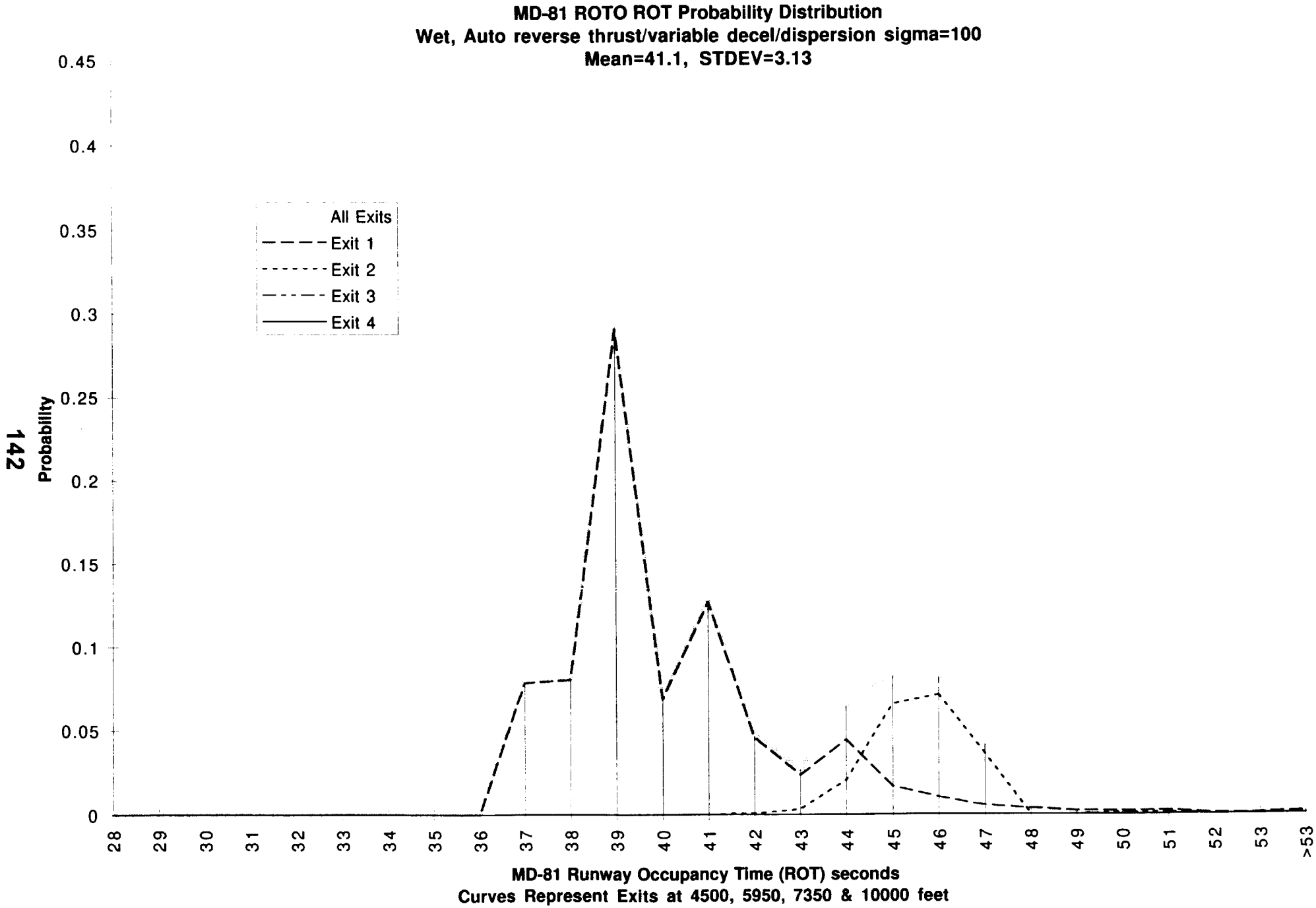
Predict exit prior to TD

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/dispersion sigma=100
Mean=41.1, STDEV=3.13
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
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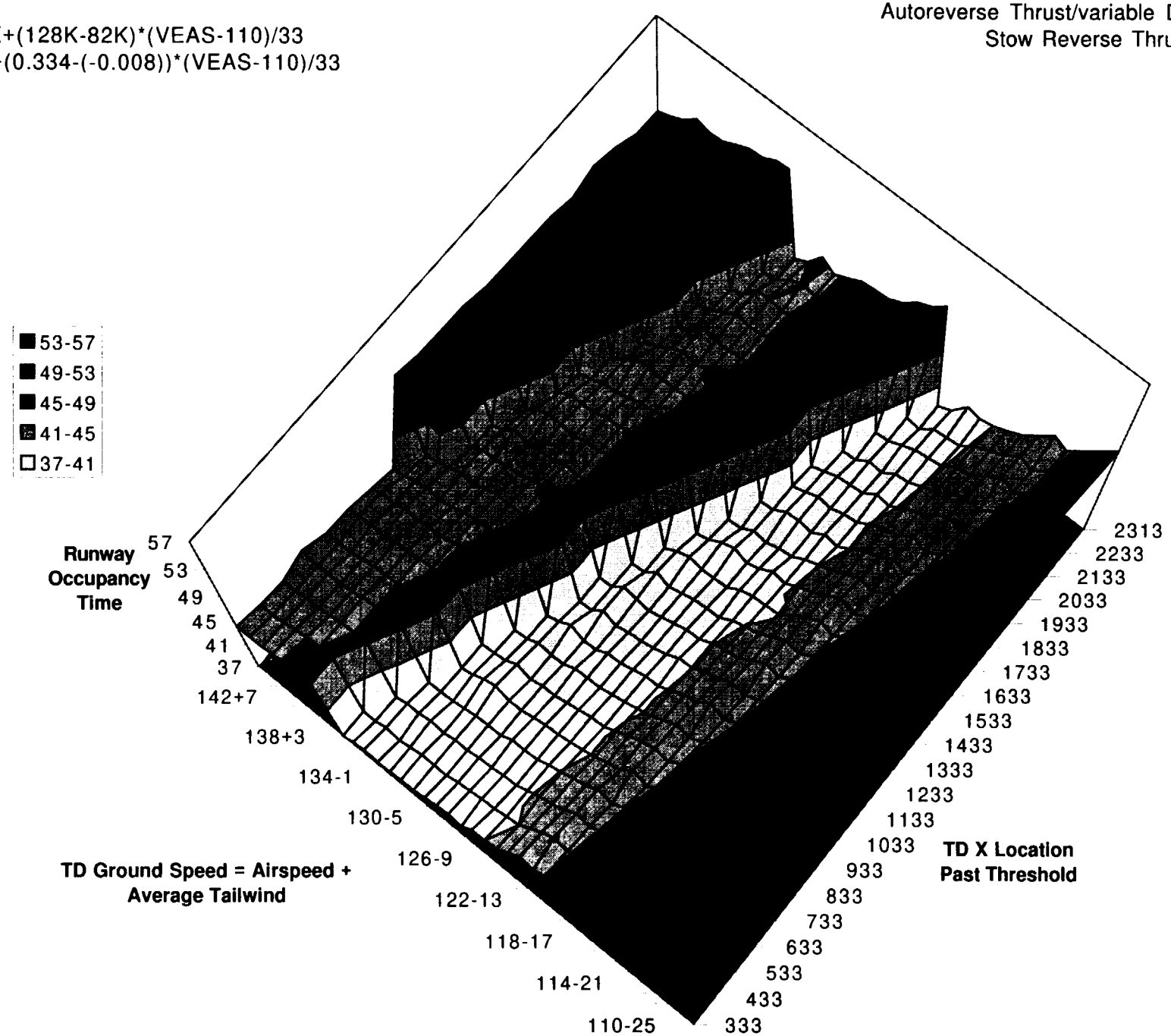
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

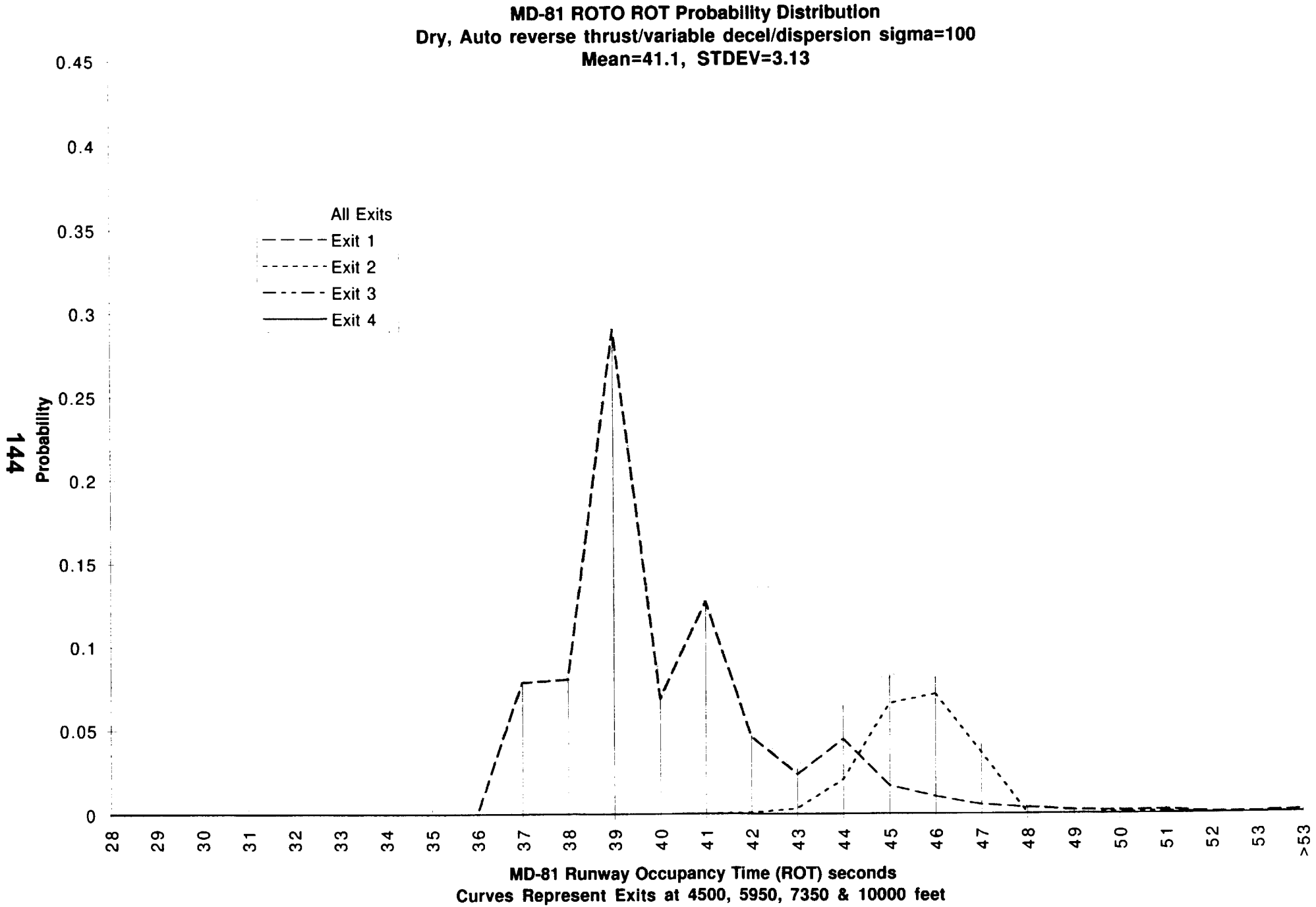
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/dispersion sigma=100
Mean=41.1, STDEV=3.13
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
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32
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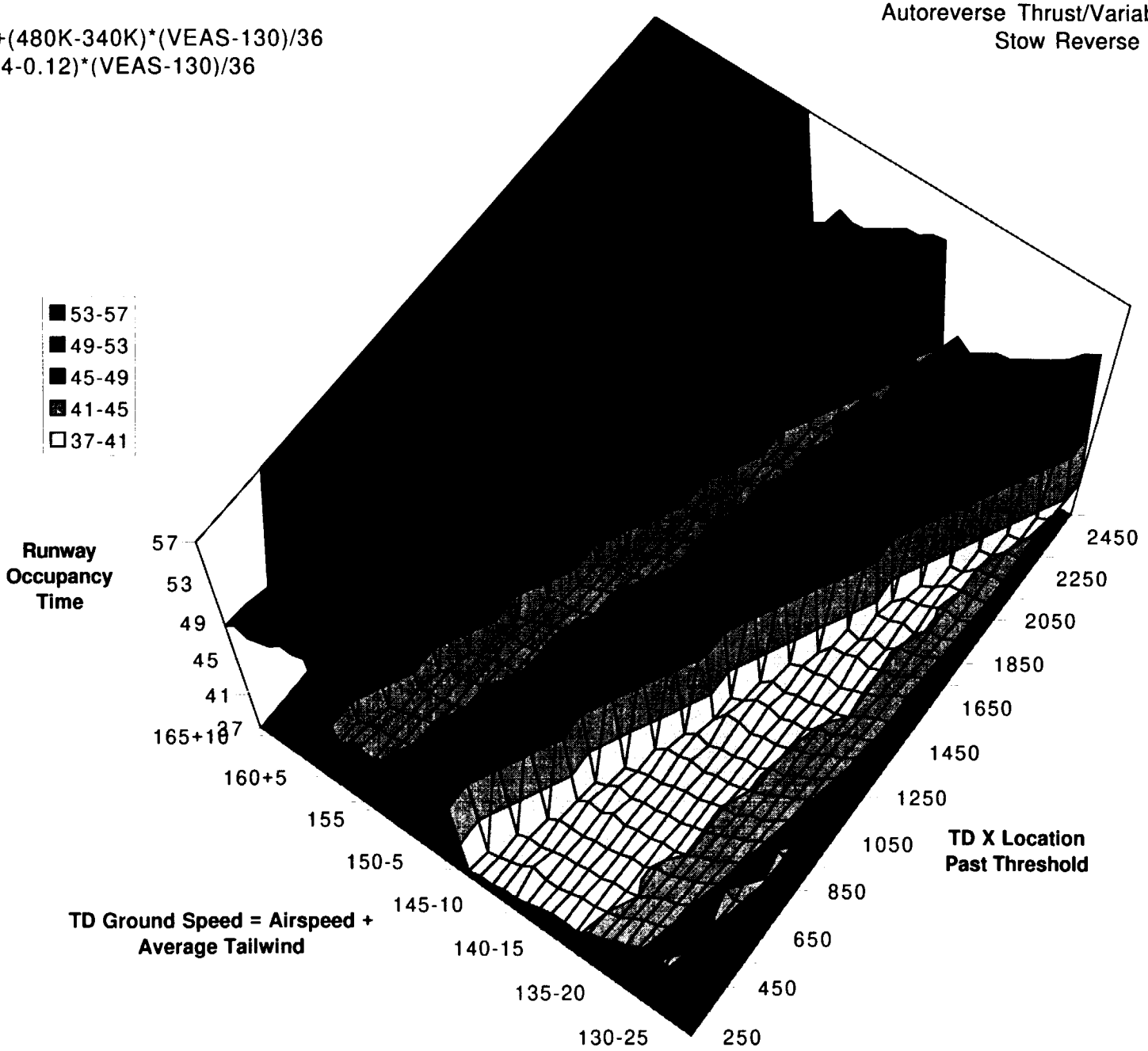
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

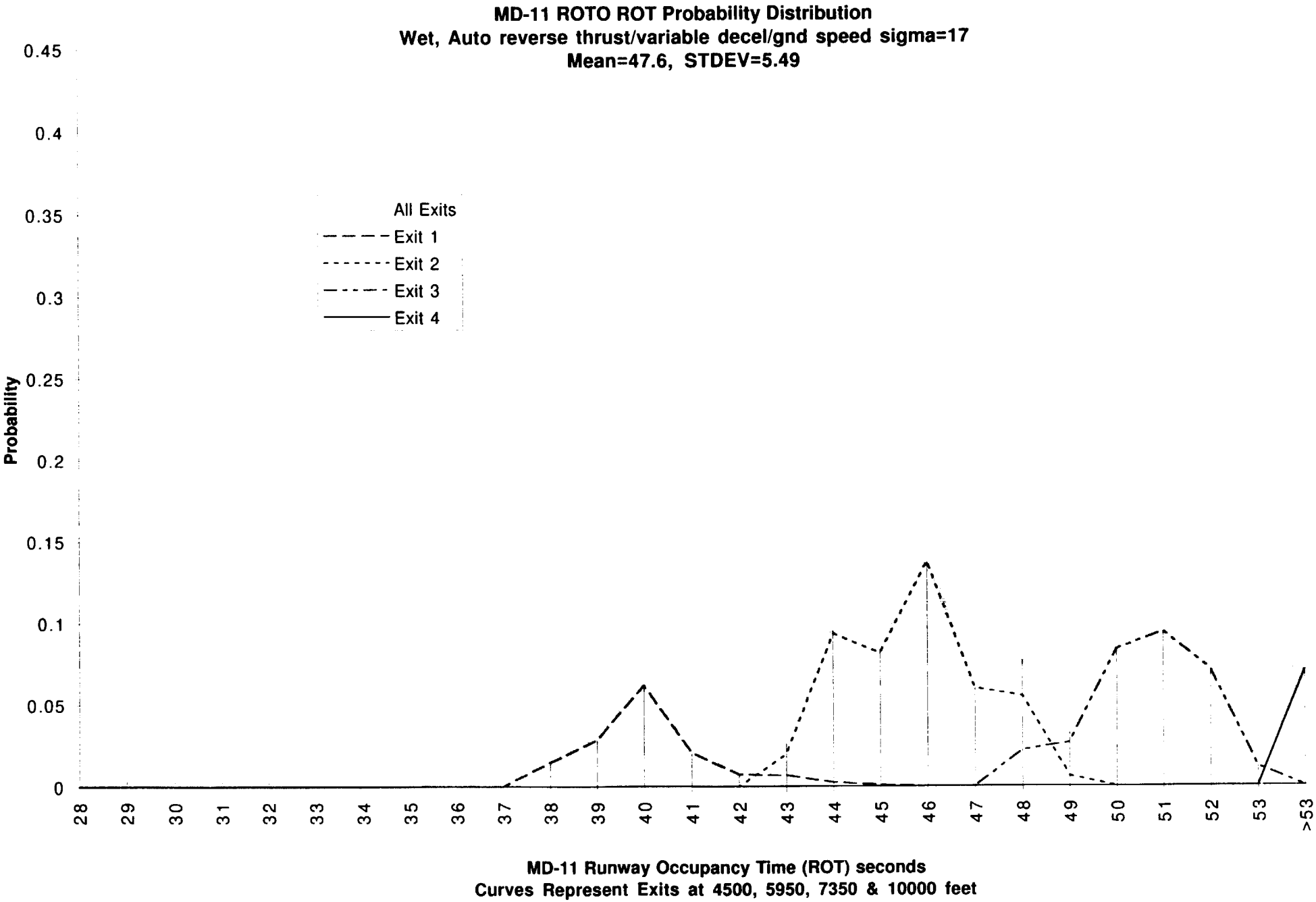
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



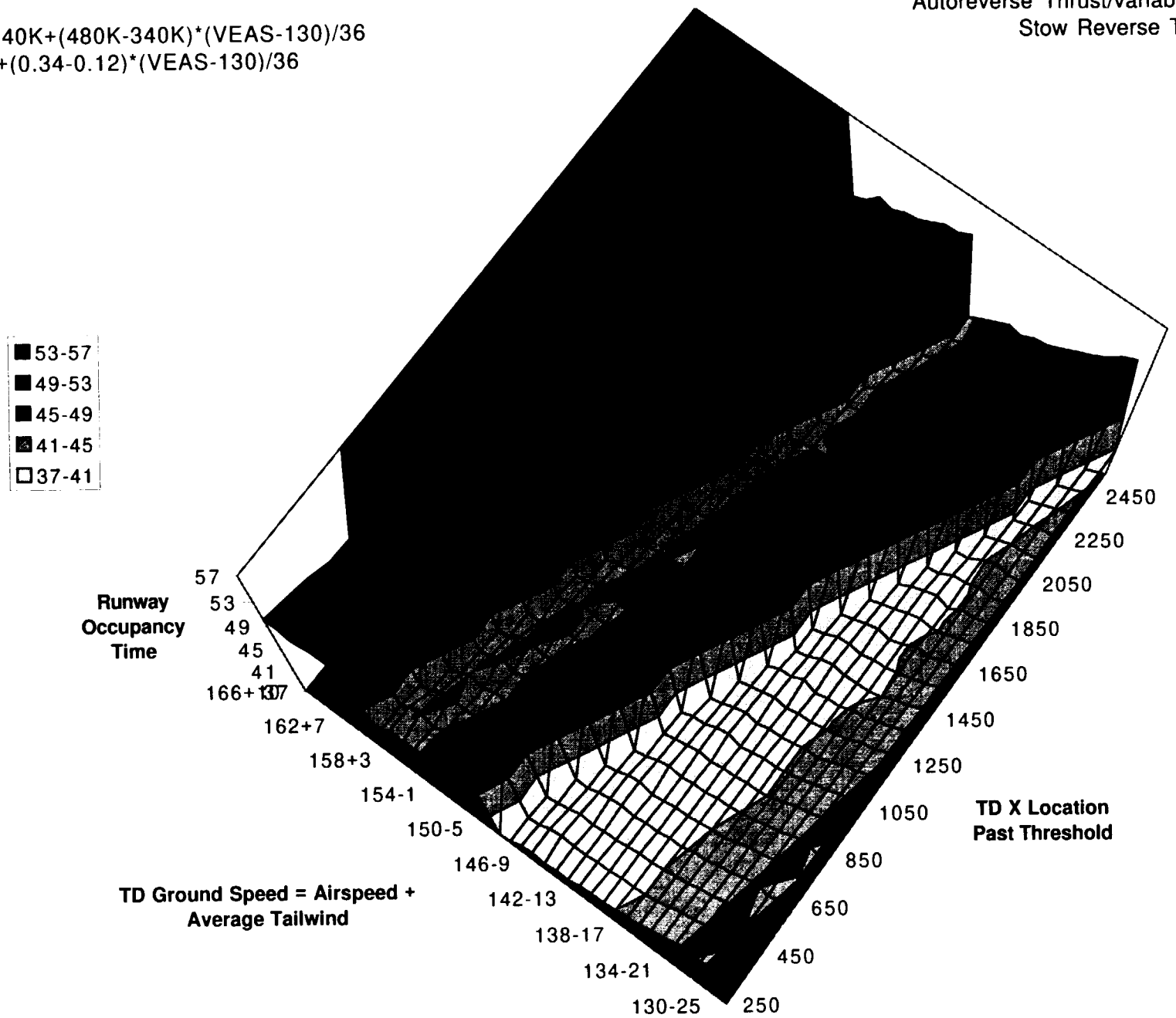

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gnd speed sigma=17
Mean=47.6, STDEV=5.49
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

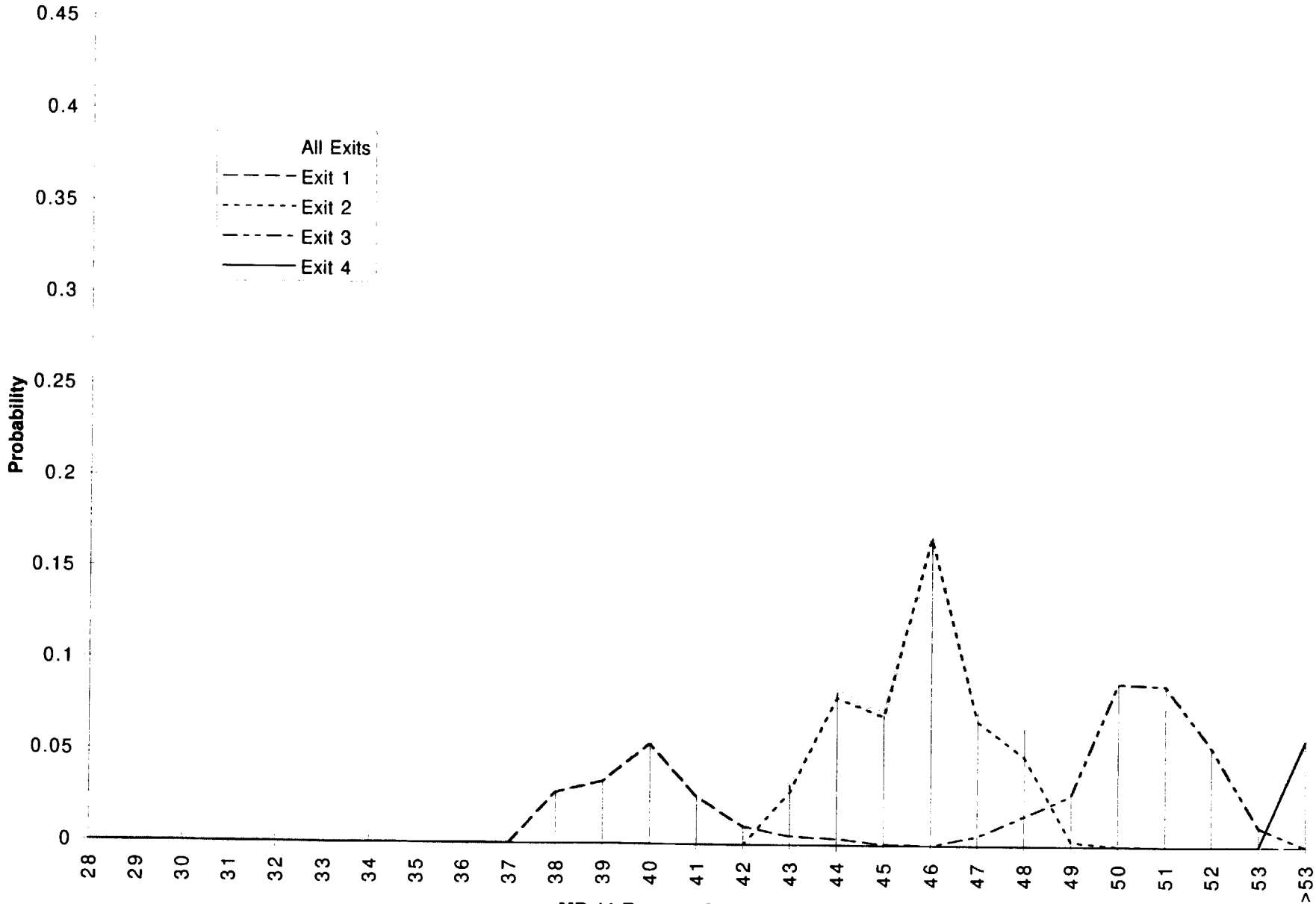
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/gnd speed sigma=17
Mean=47.1, STDEV=5.302



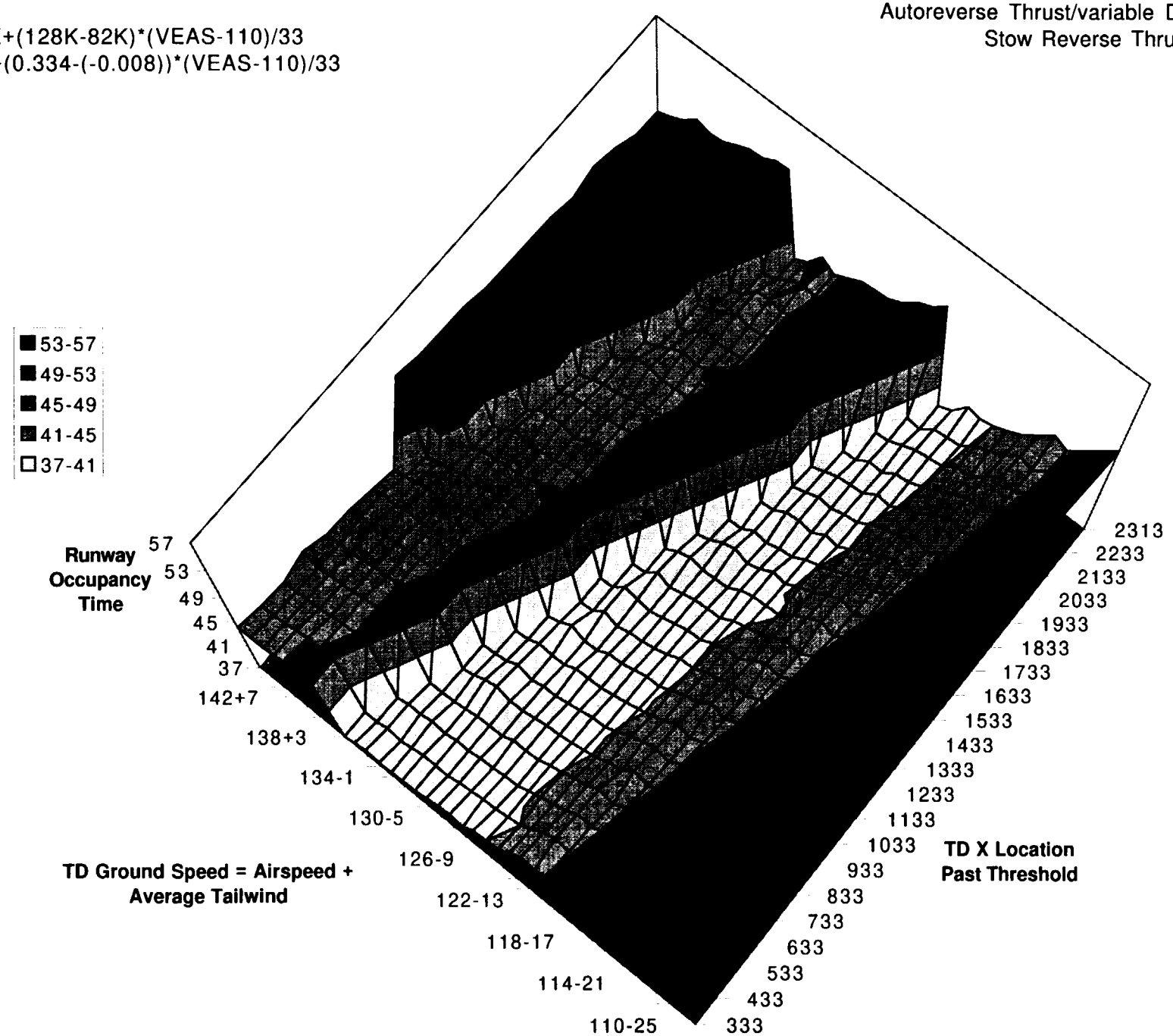
MD-11 Runway Occupancy Time
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

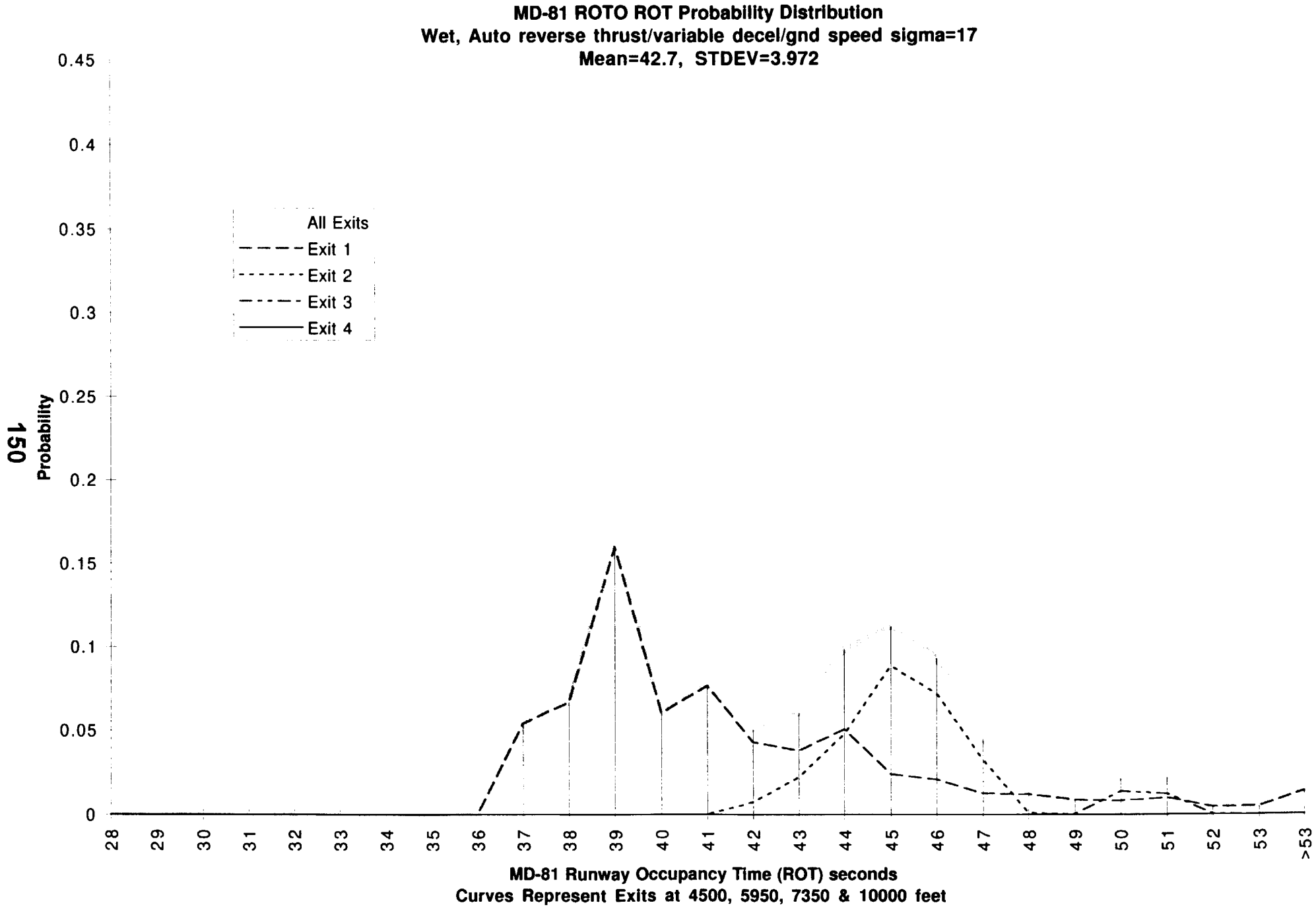
Predict exit prior to TD

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



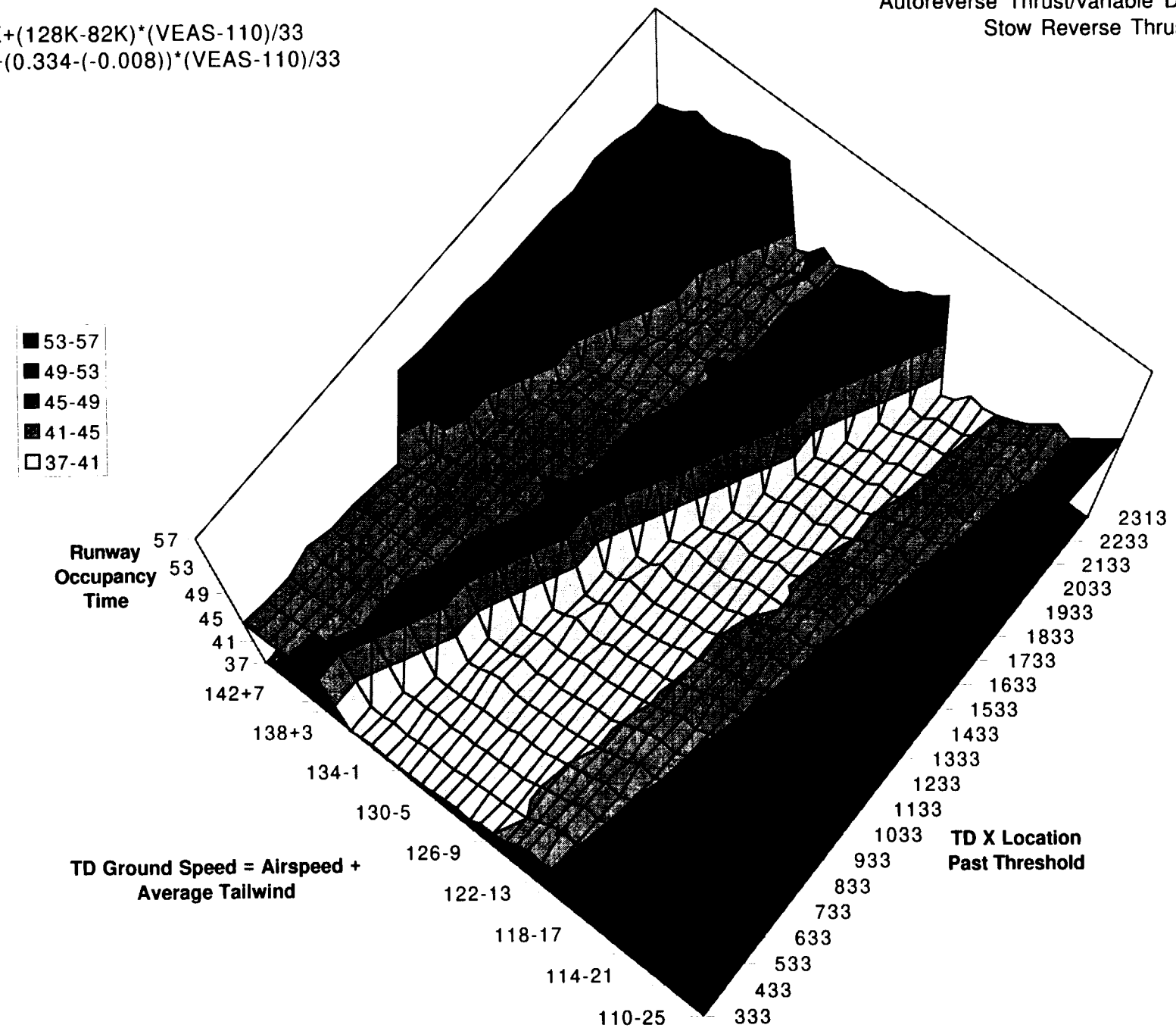

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gnd speed sigma=17
Mean=42.7, STDEV=3.972
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

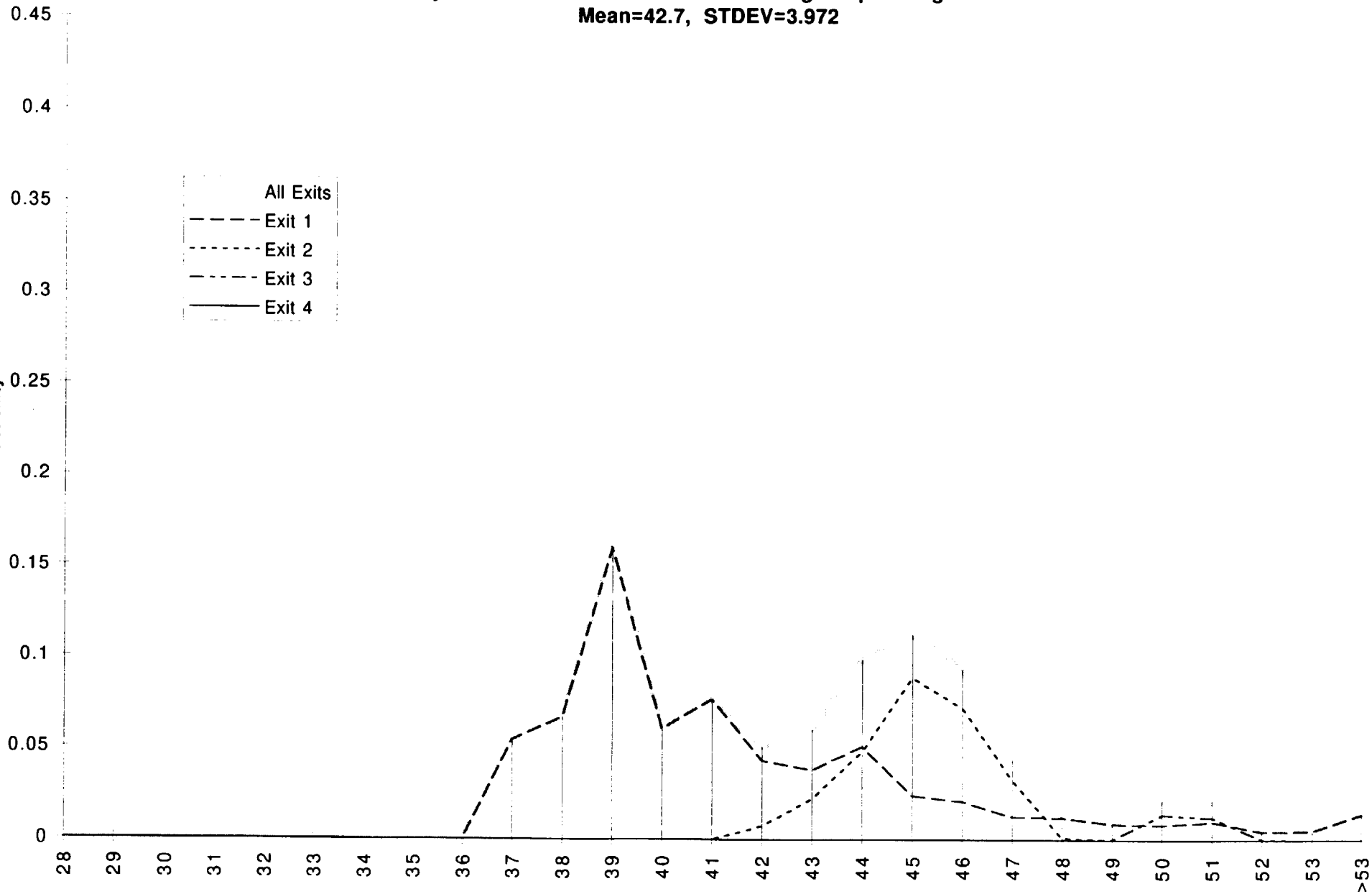
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/gnd speed sigma=17
Mean=42.7, STDEV=3.972



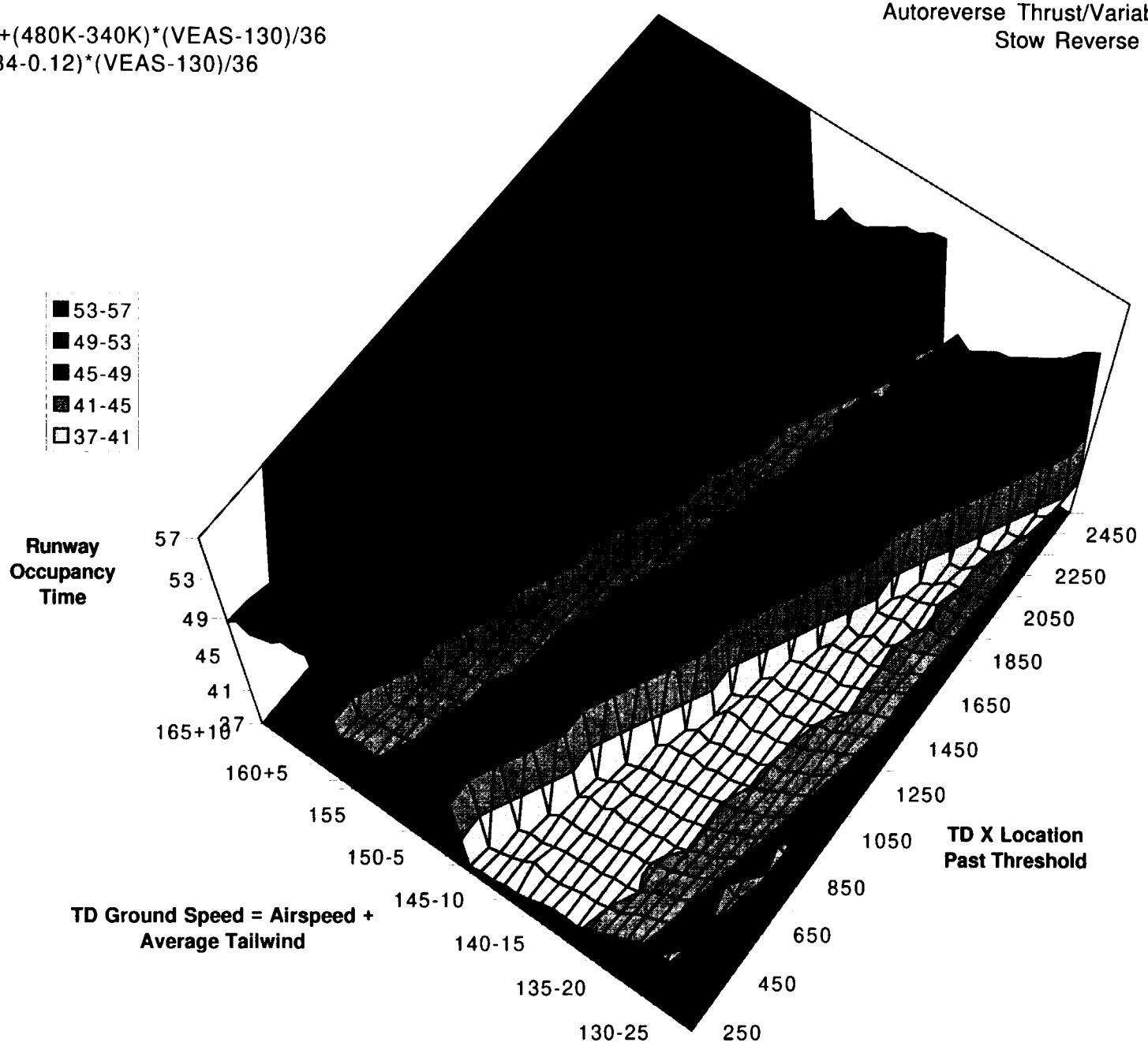
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

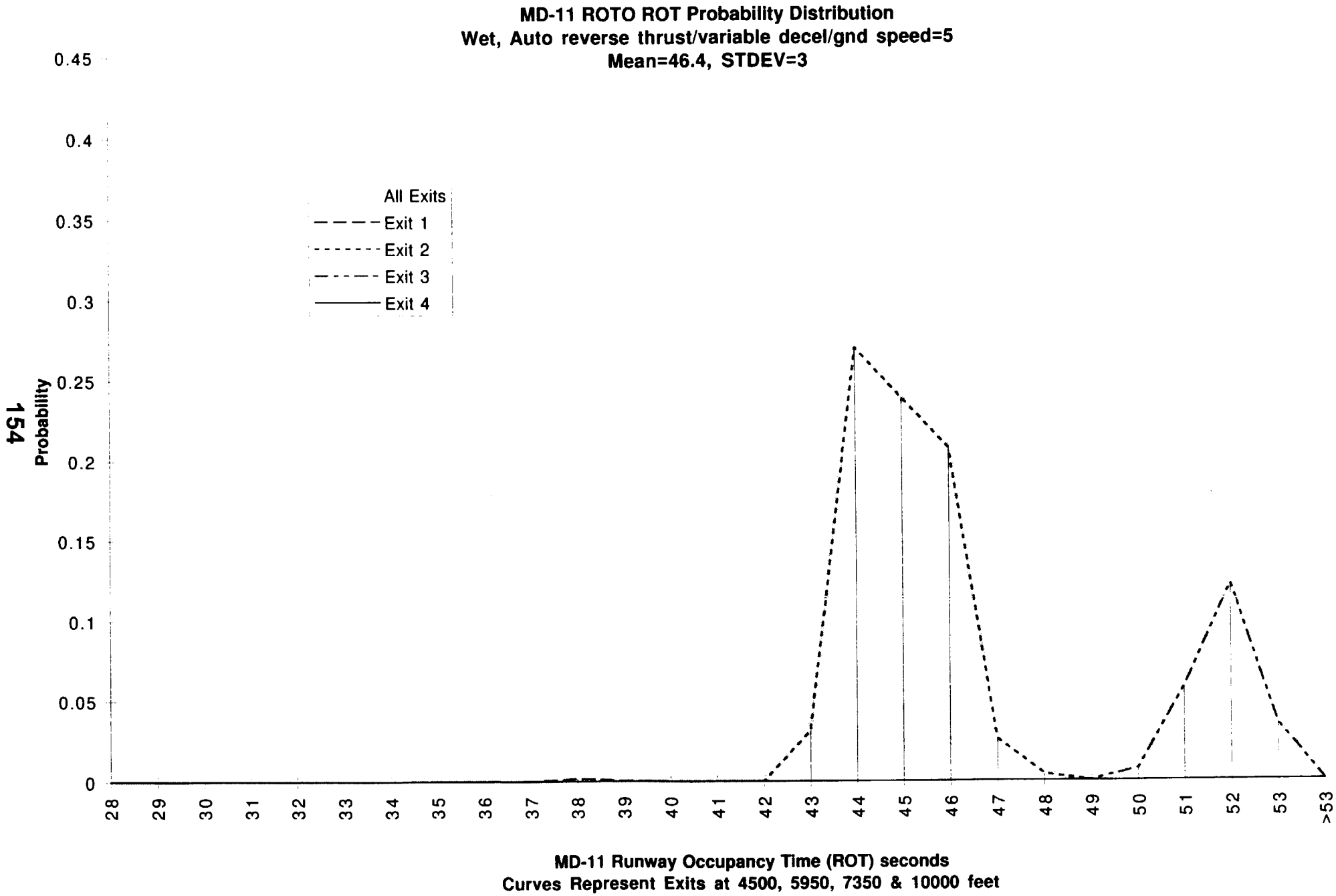
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gnd speed=5
Mean=46.4, STDEV=3
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
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36
37
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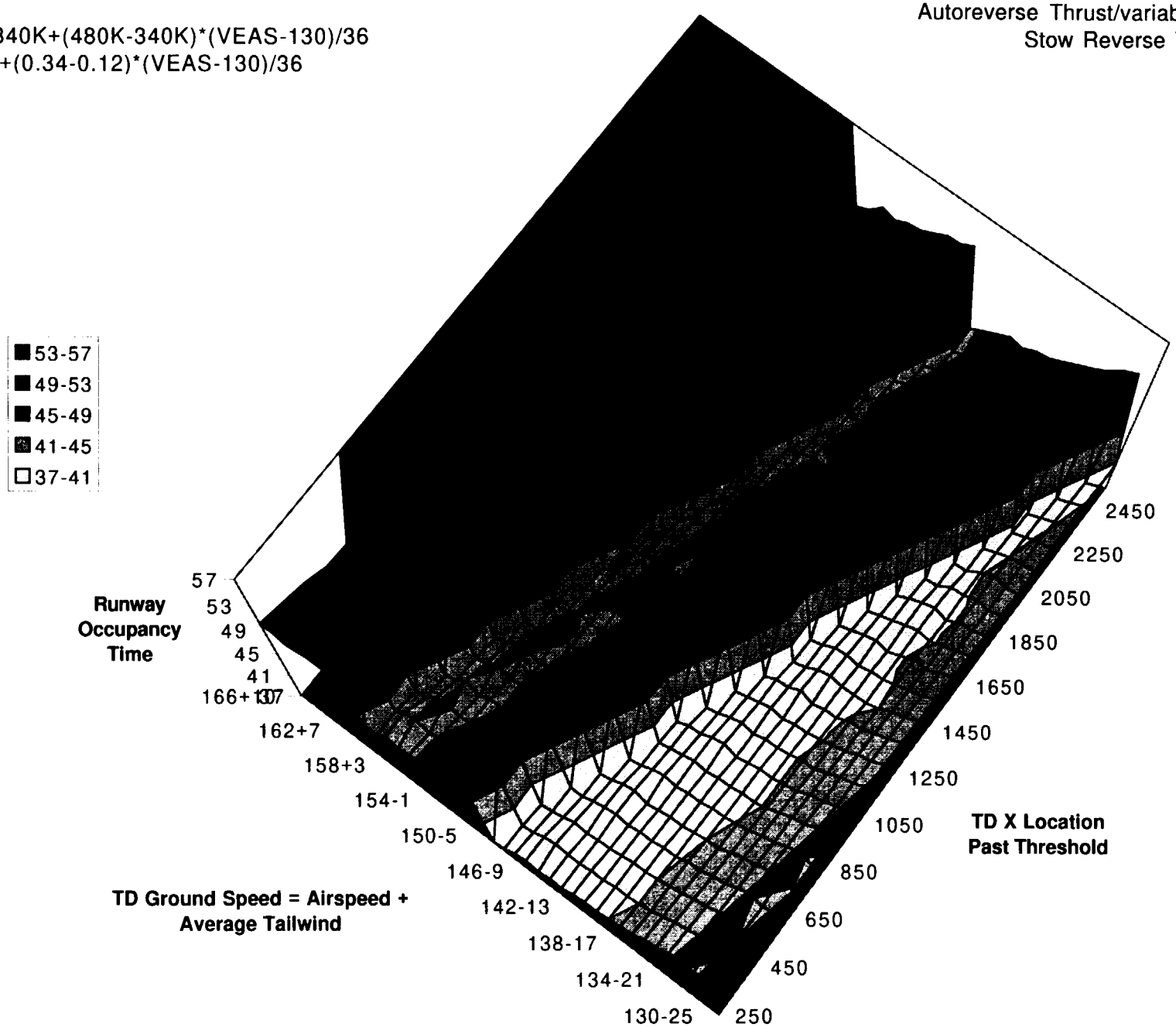
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

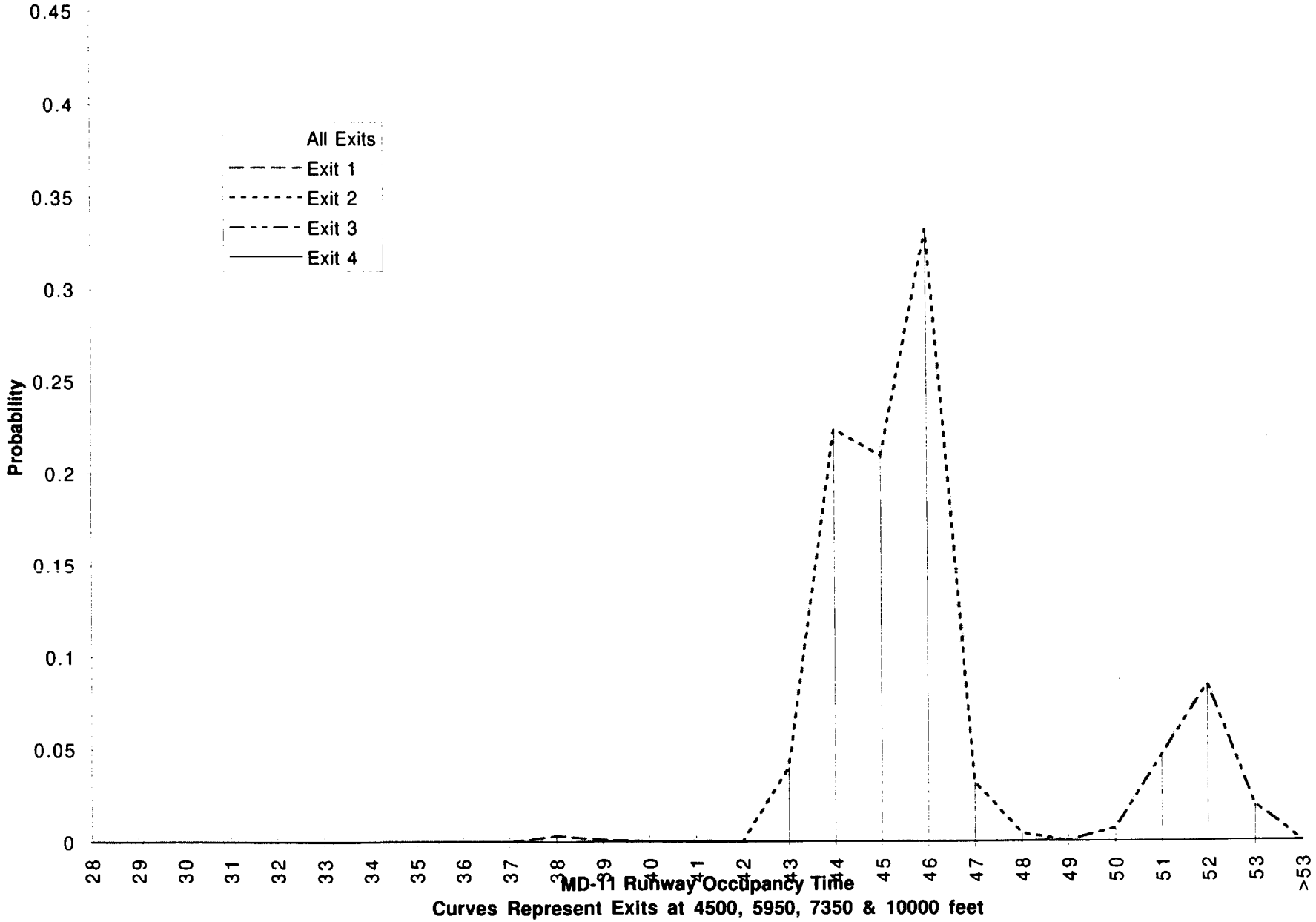
MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/gnd speed sigma=5
Mean=46.1, STDEV=2.629



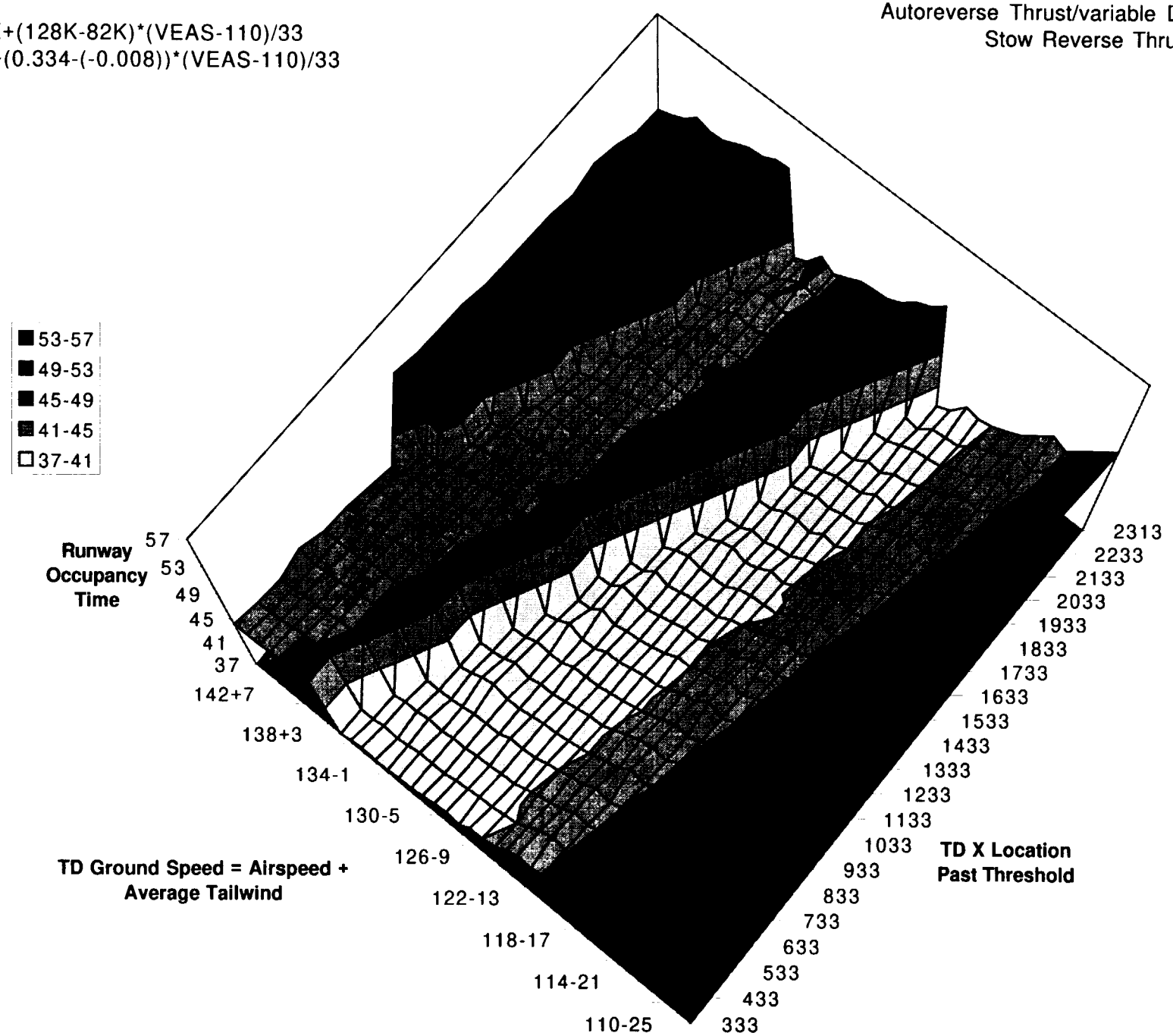
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

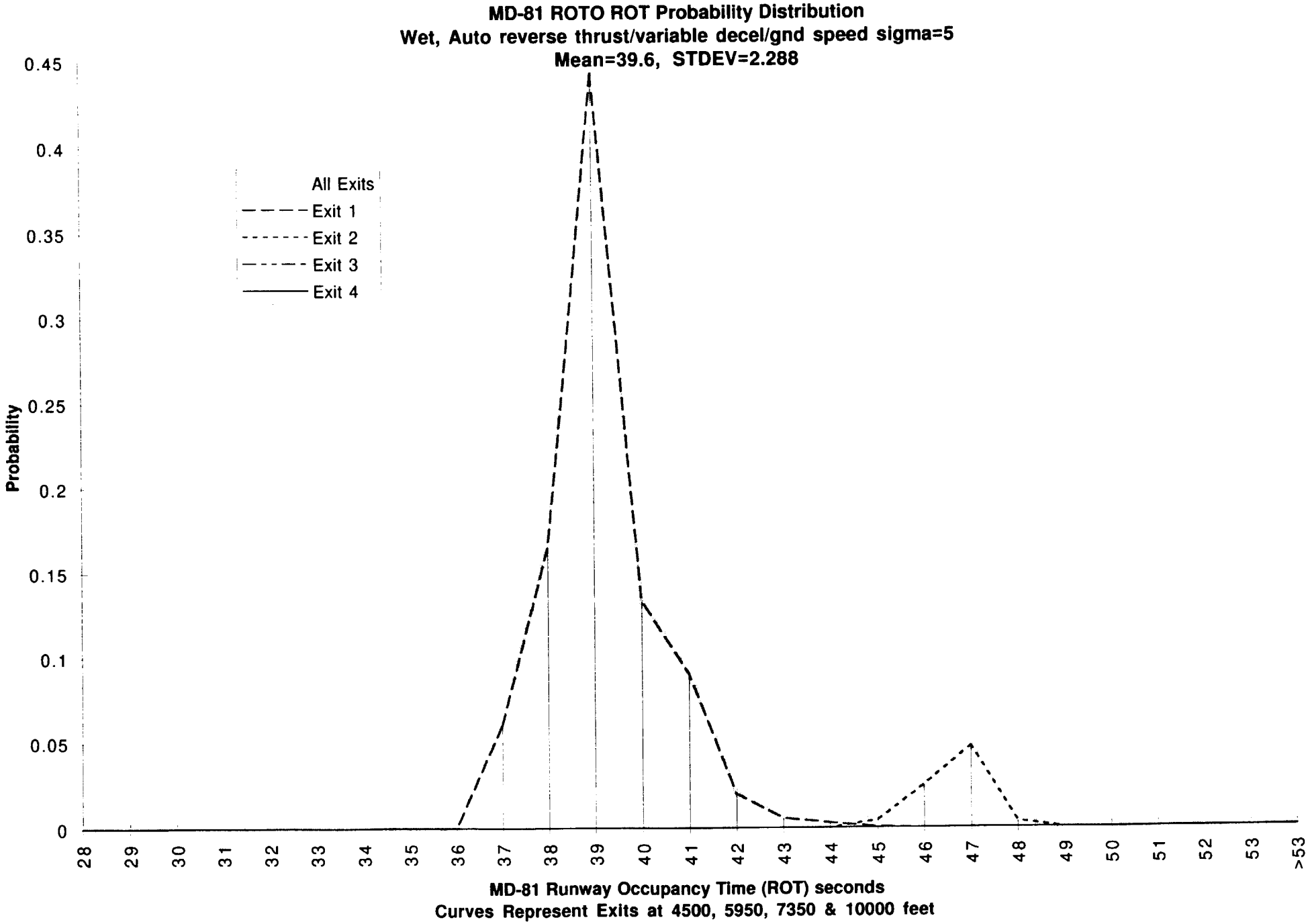
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



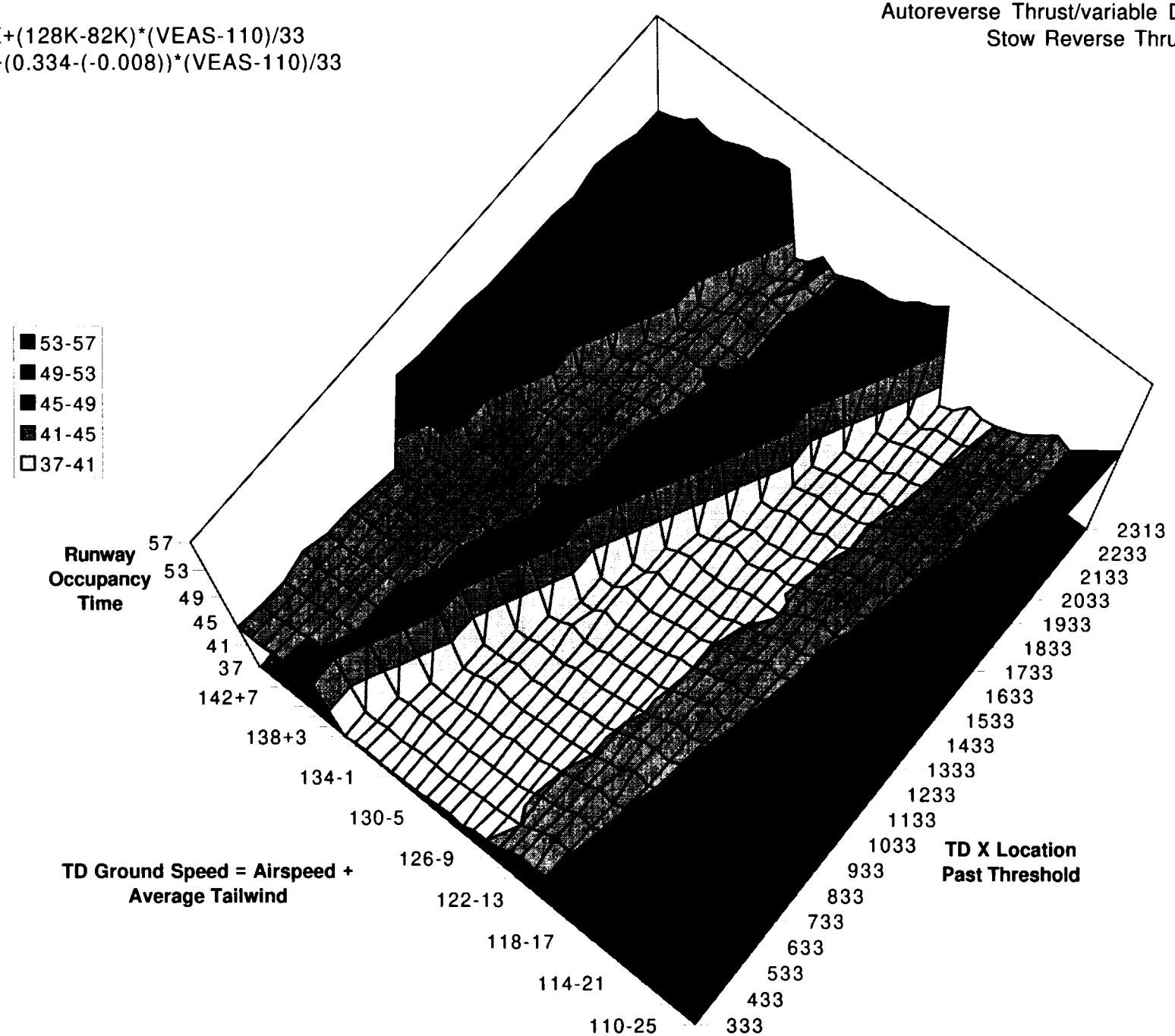

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gnd speed sigma=5
Mean=39.6, STDEV=2.288
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

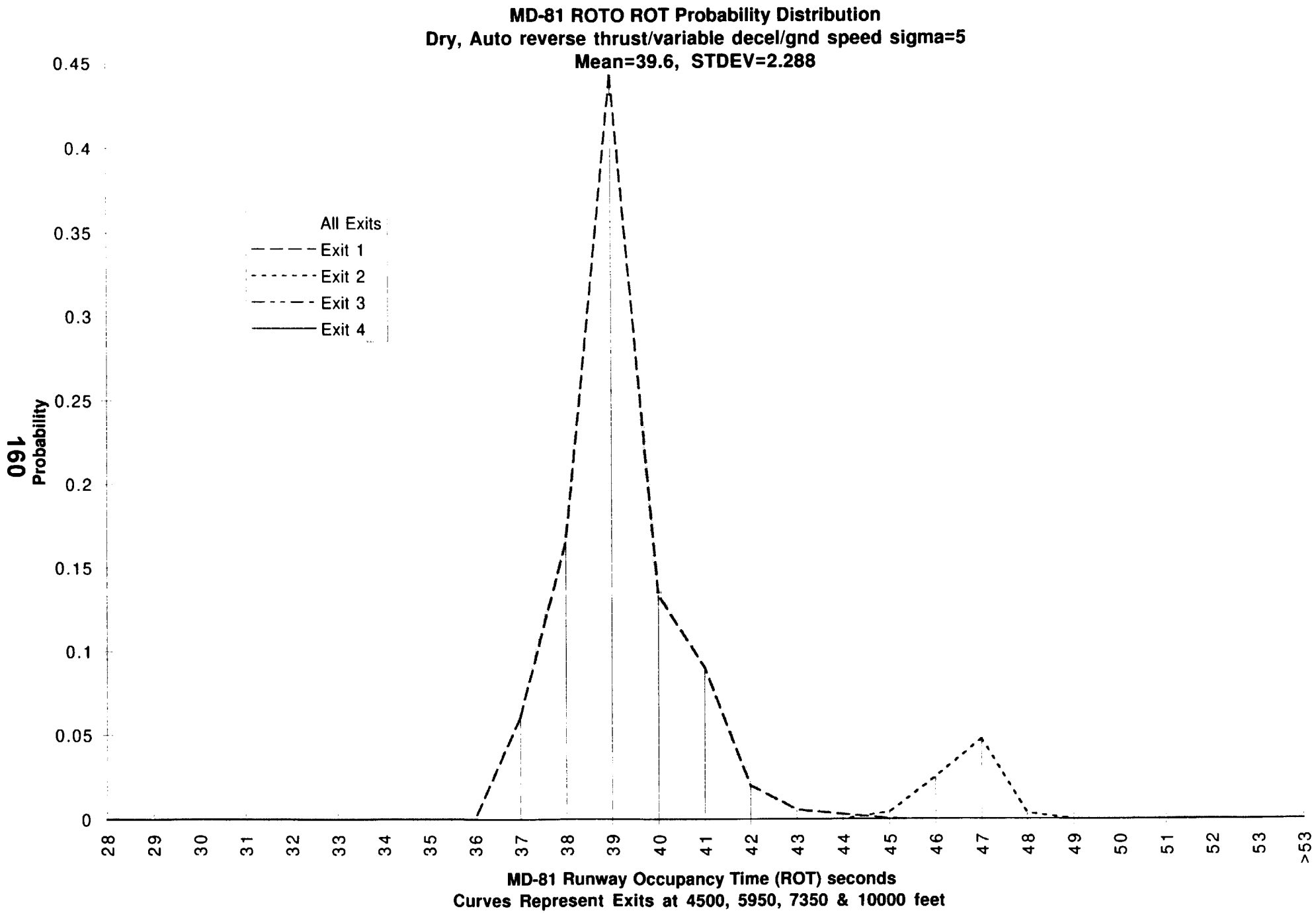
Predict exit prior to TD

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33




MD-81 ROTO ROT Probability Distribution
Dry, Auto reverse thrust/variable decel/gnd speed sigma=5
Mean=39.6, STDEV=2.288
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
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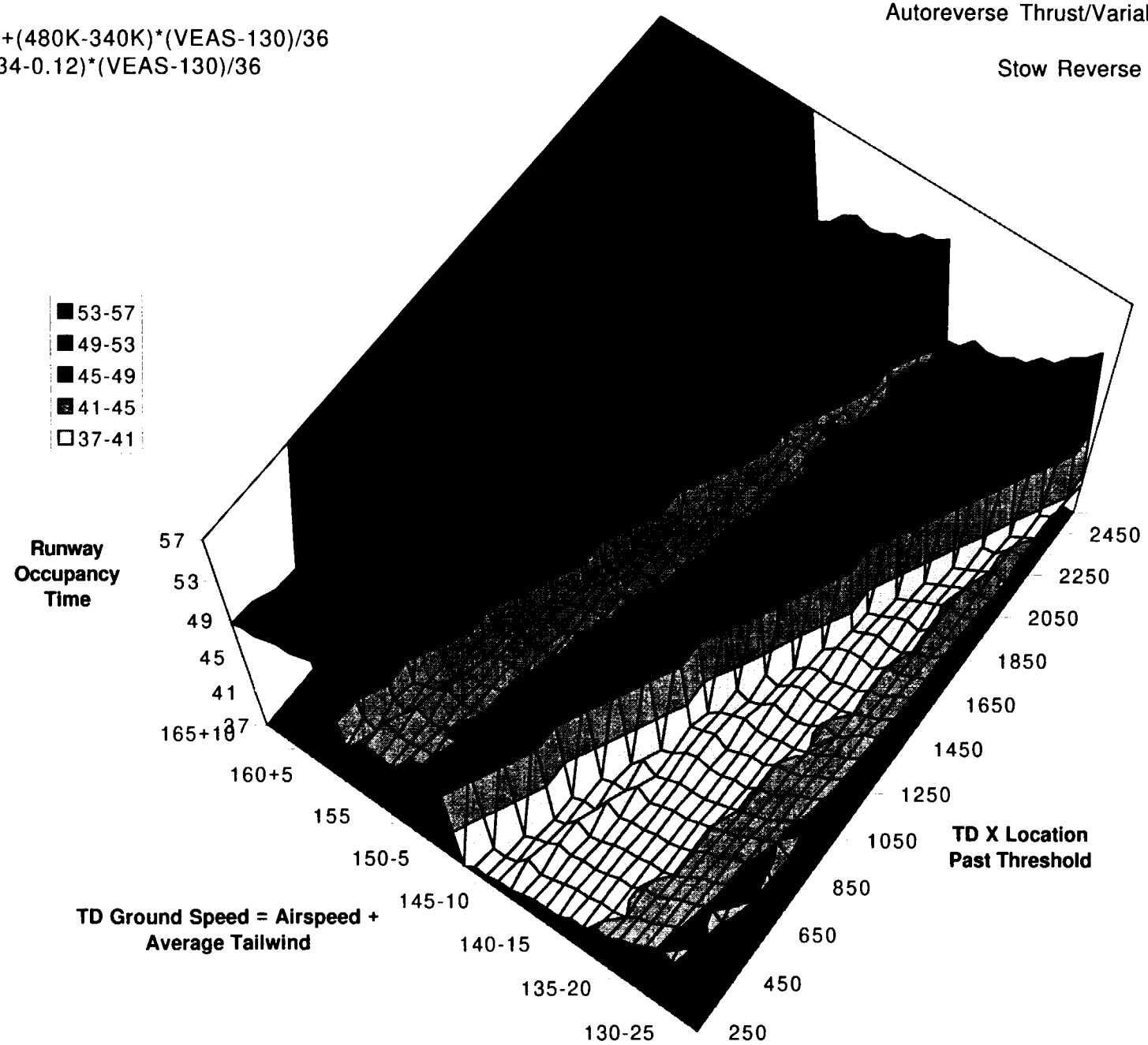
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

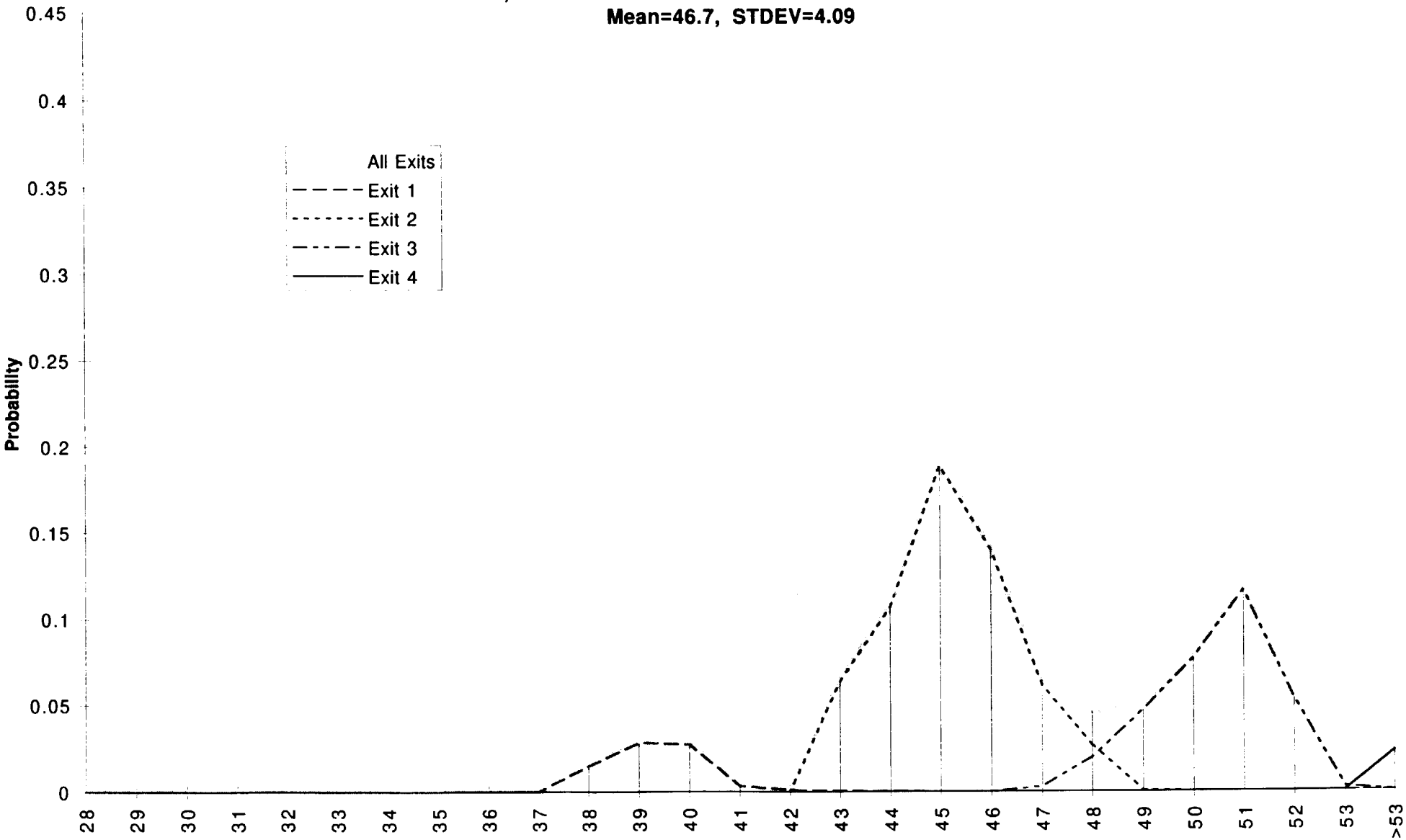
MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
NO crosswind
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/no crosswind
Mean=46.7, STDEV=4.09



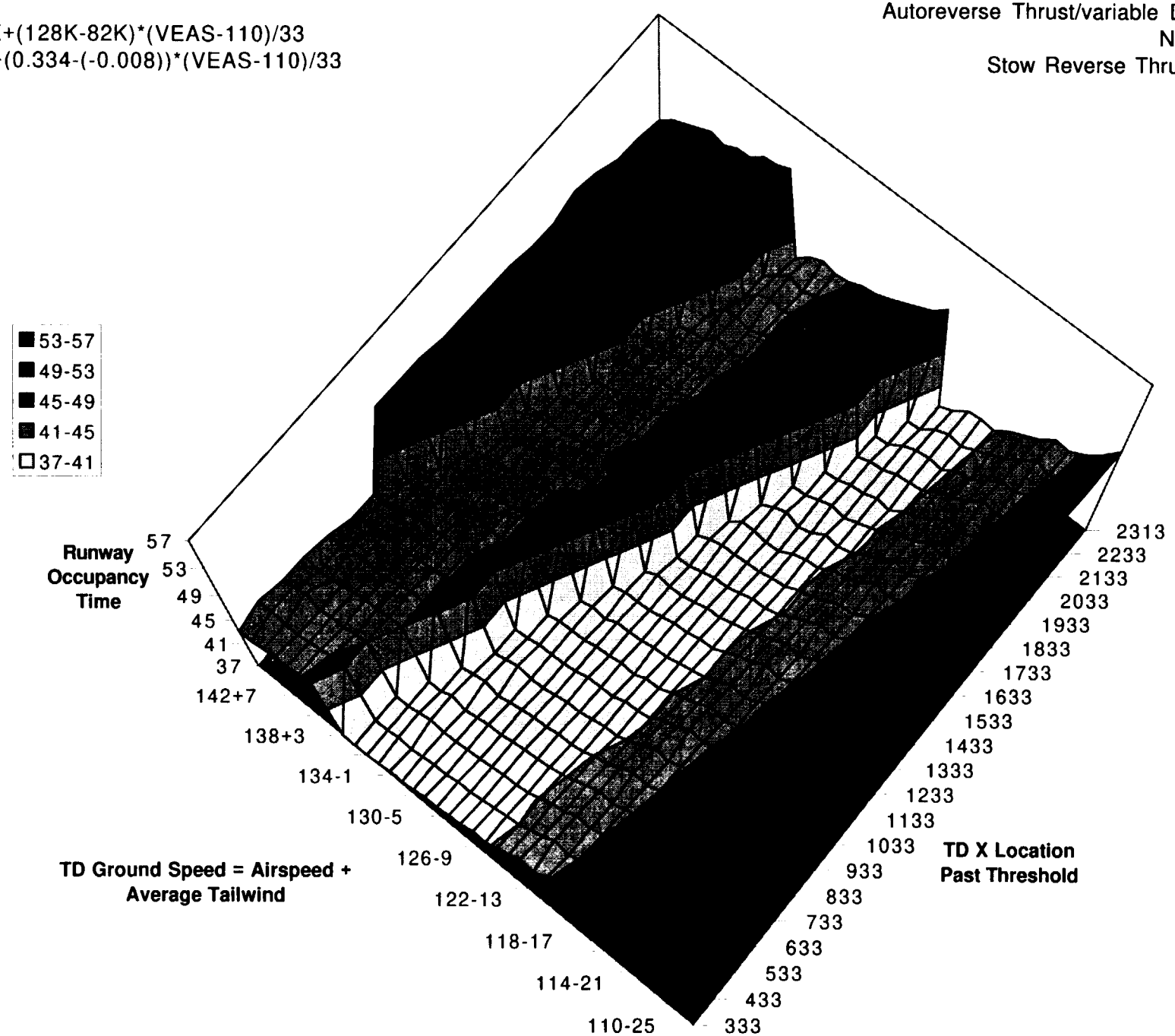
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

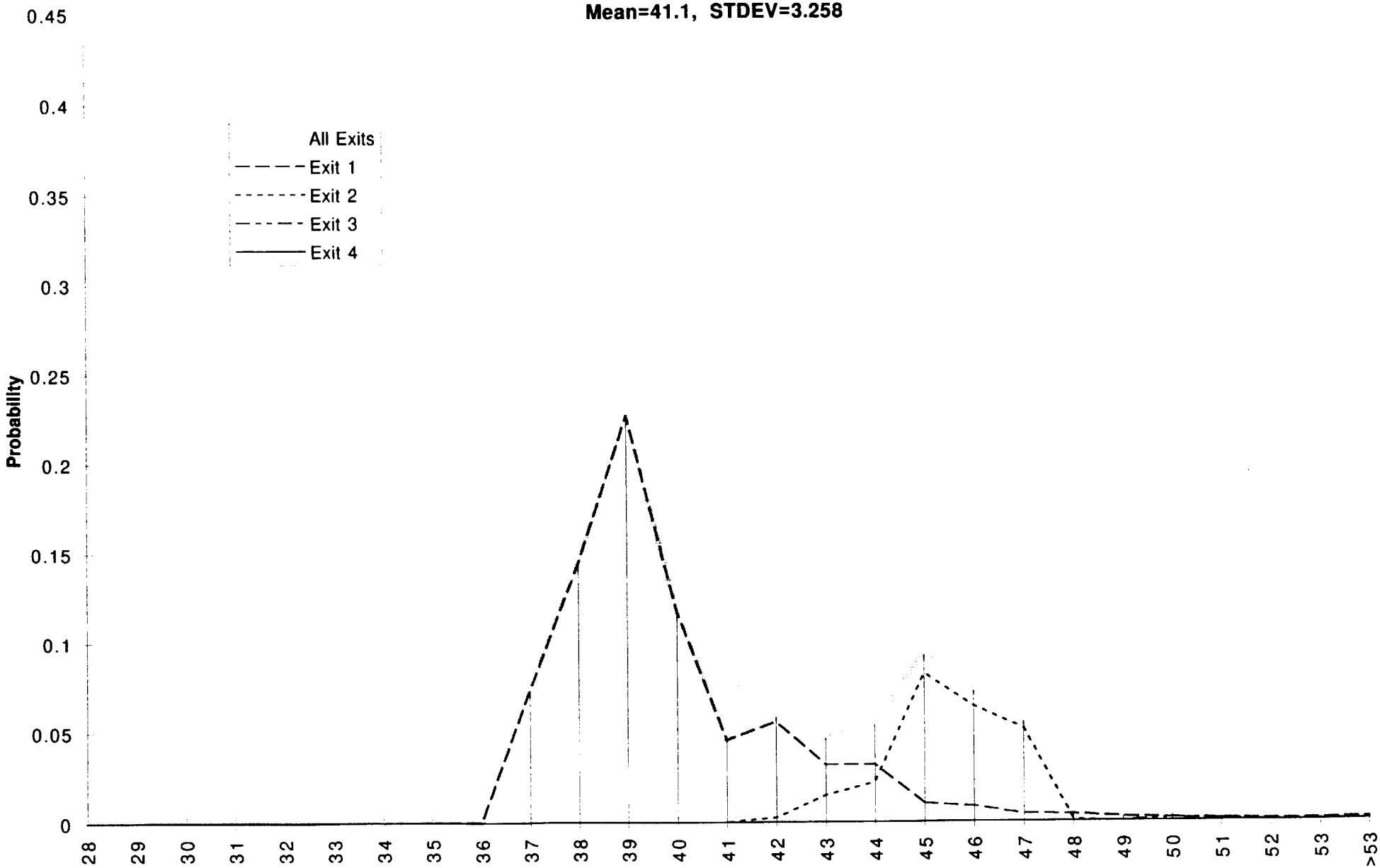
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
NO crosswind
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/no crosswind
Mean=41.1, STDEV=3.258



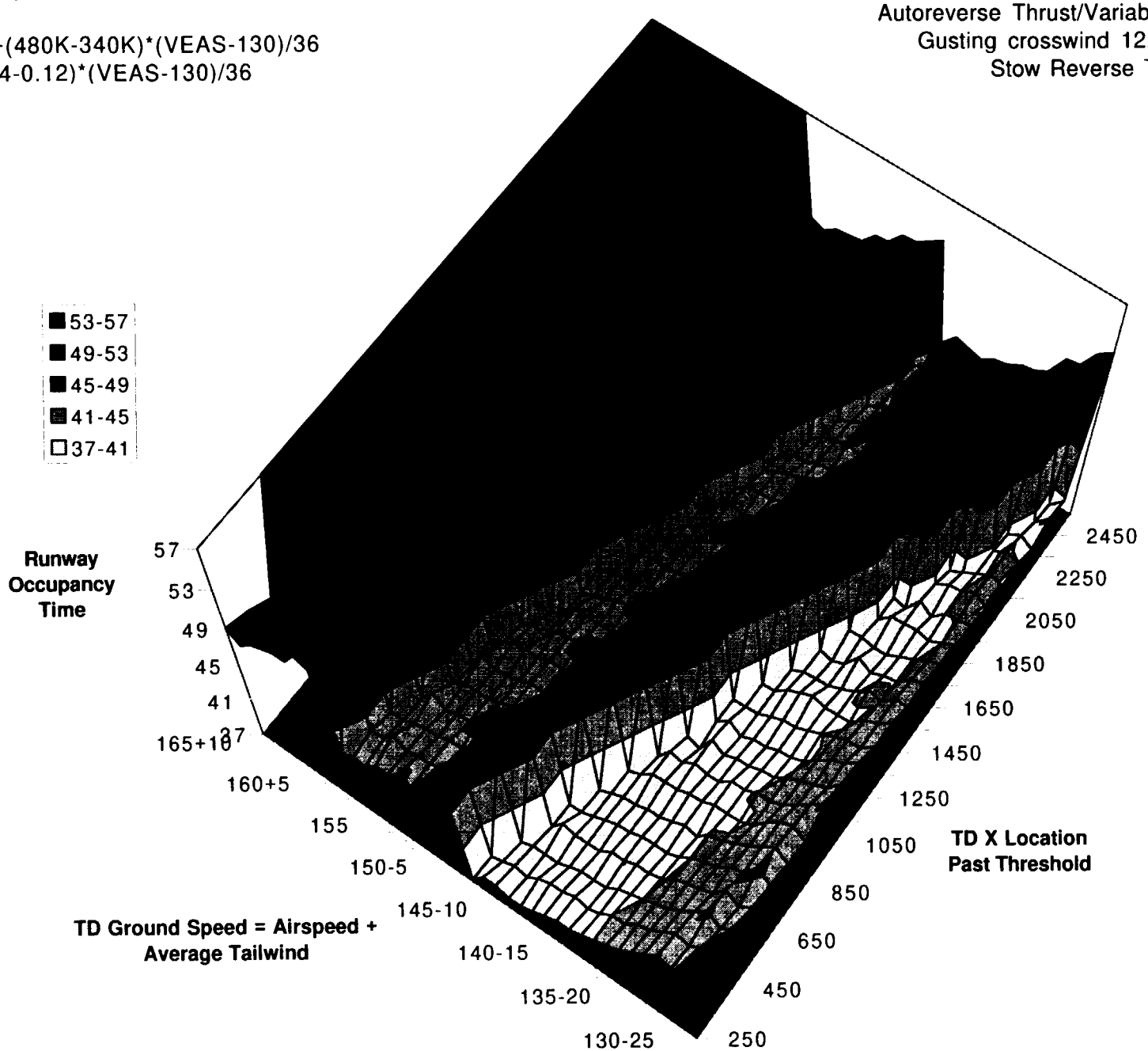
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

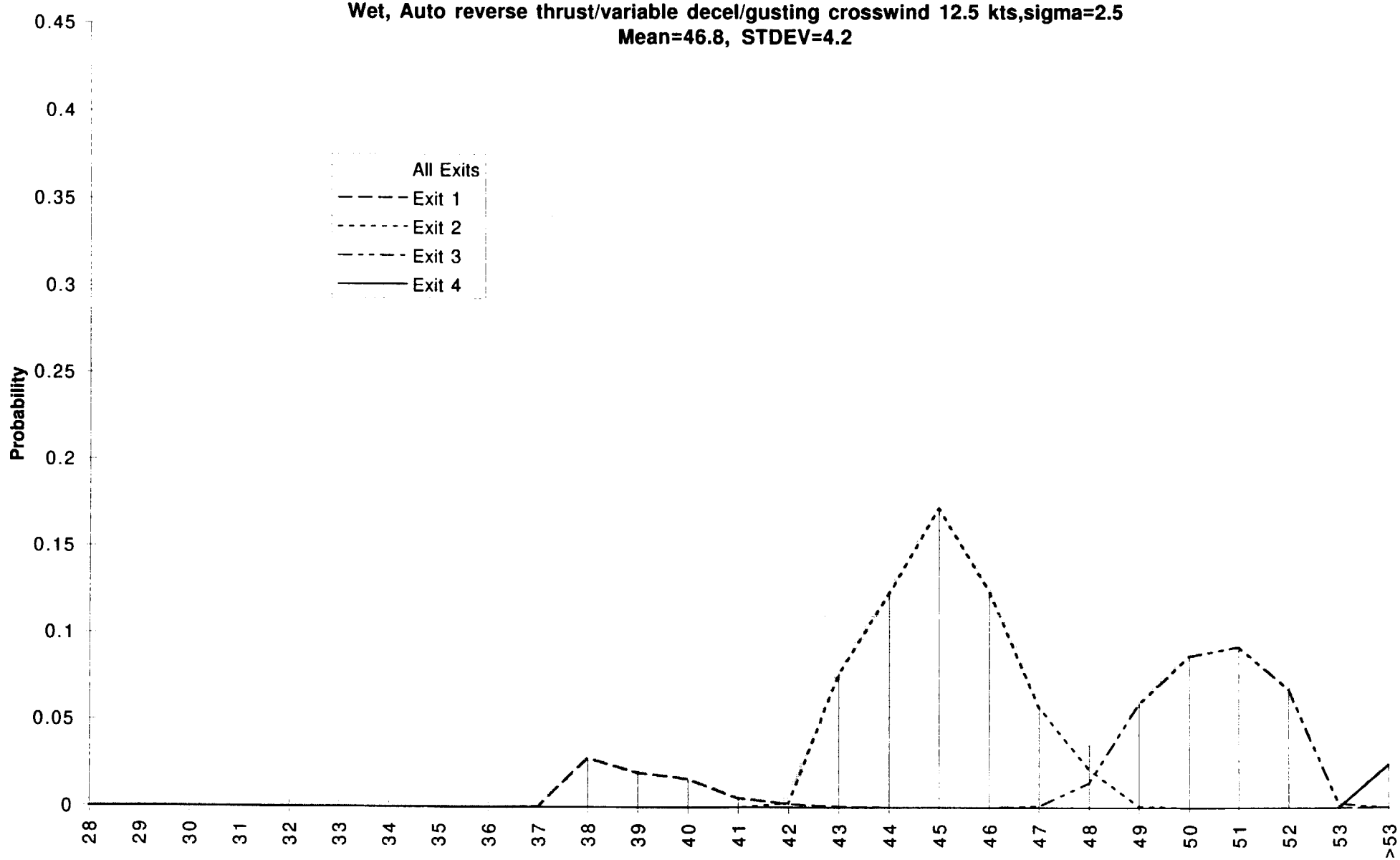
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Gusting crosswind 12.5kts,sigma=2.5
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gusting crosswind 12.5 kts,sigma=2.5
Mean=46.8, STDEV=4.2



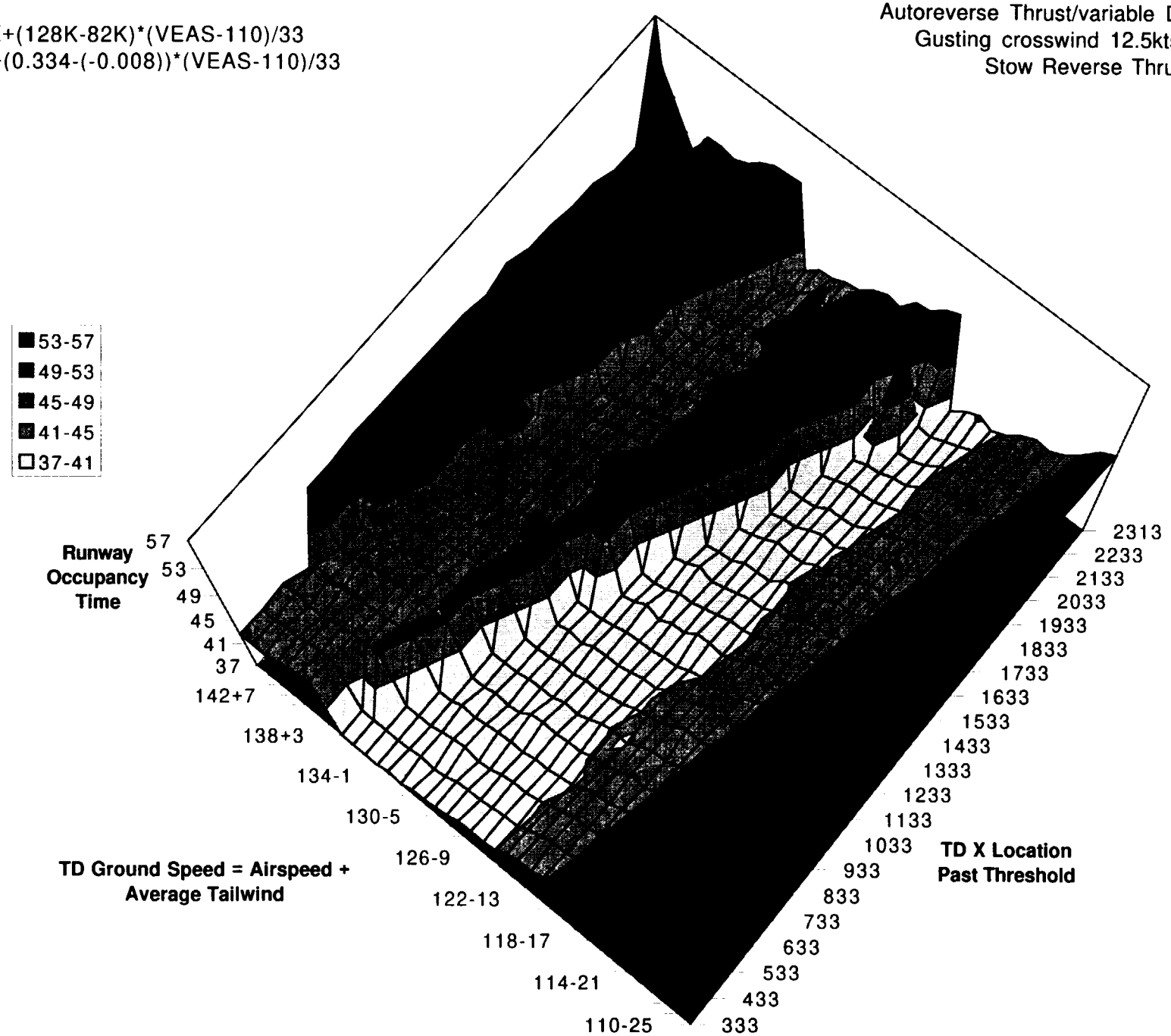
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

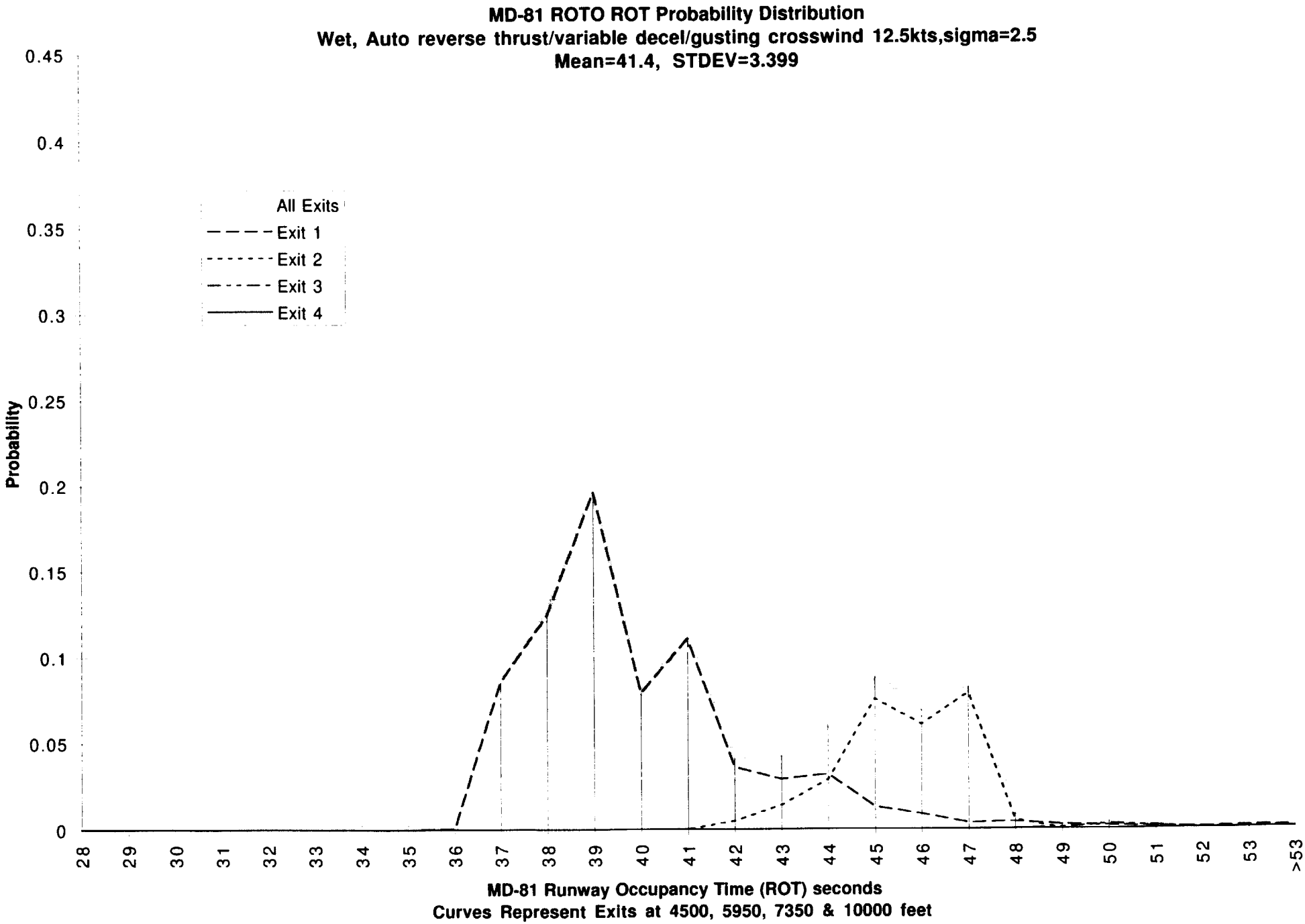
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Gusting crosswind 12.5kts,sigma=2.5
Stow Reverse Thrust=70 kt gd



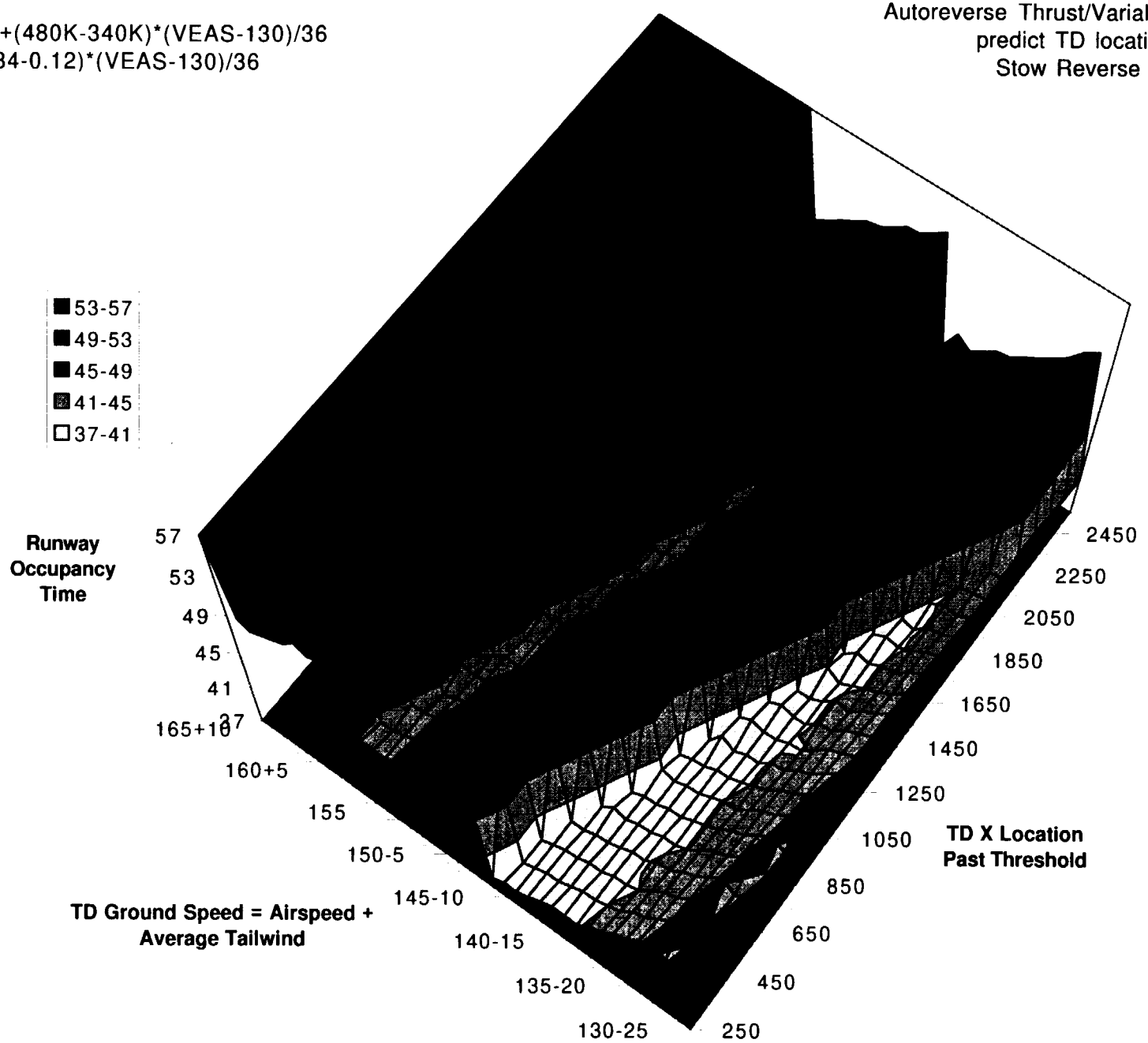

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/gusting crosswind 12.5kts,sigma=2.5
Mean=41.4, STDEV=3.399
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

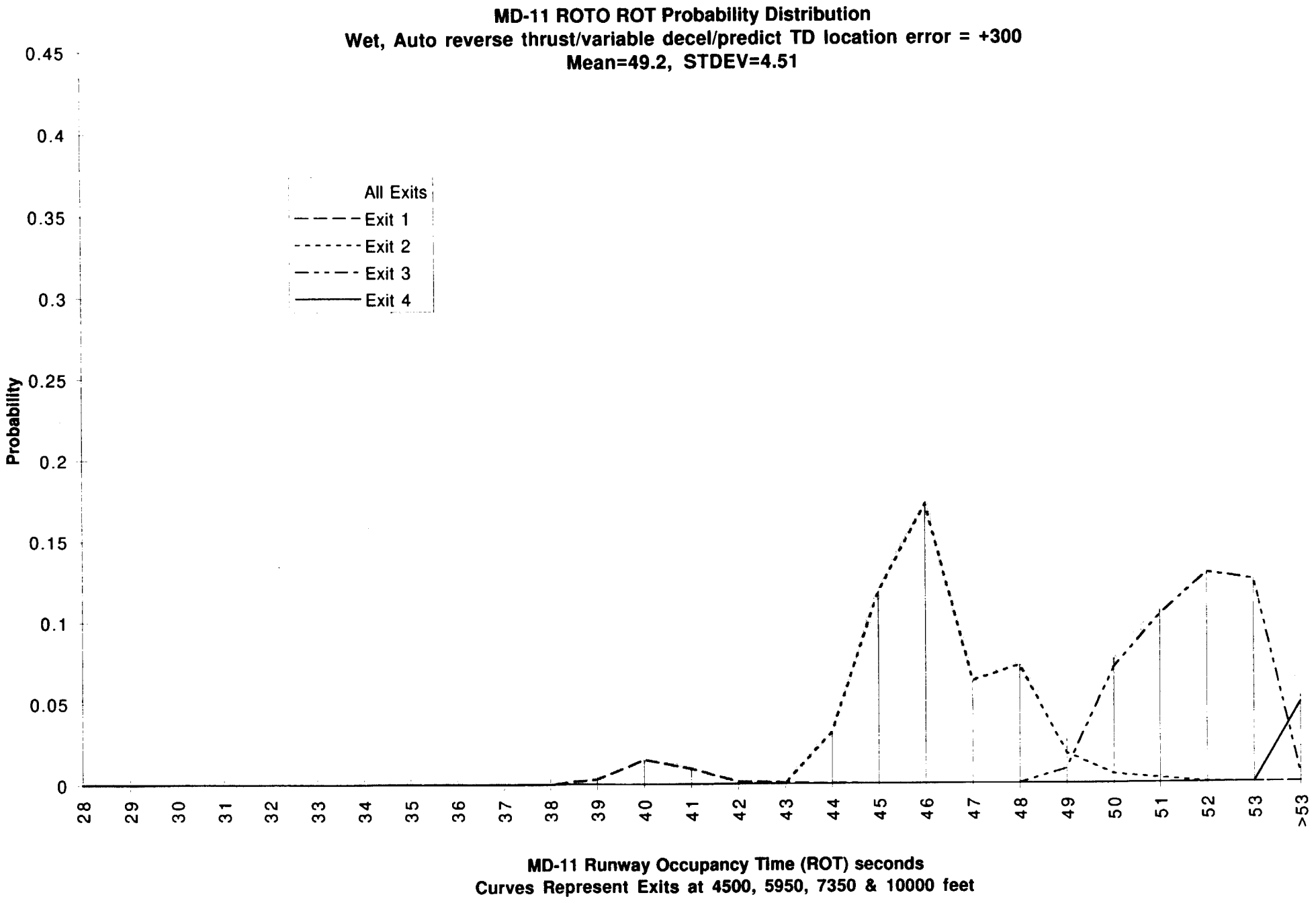
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
predict TD location error = +300
Stow Reverse Thrust=70 kt gd



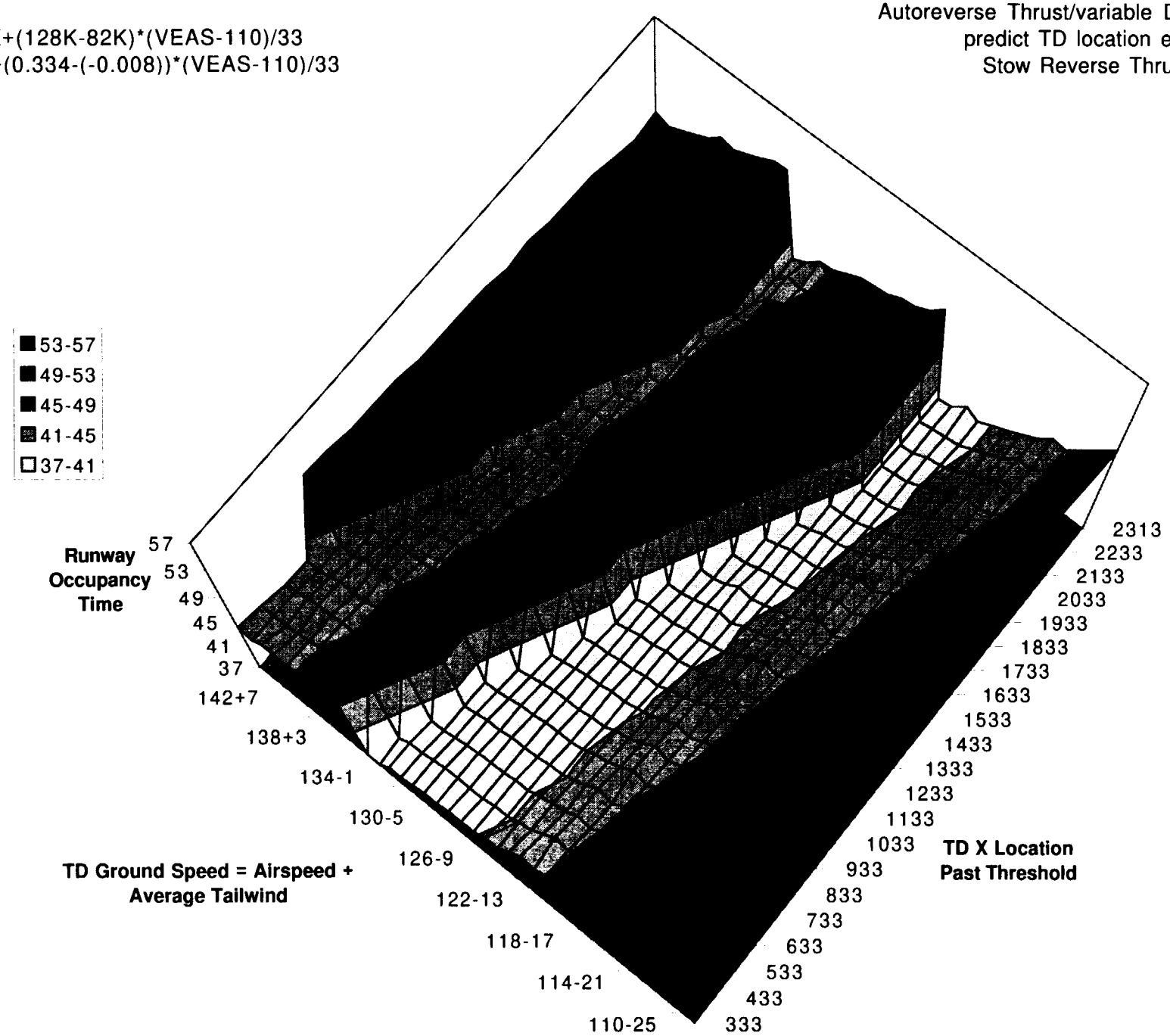

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/predict TD location error = +300
Mean=49.2, STDEV=4.51
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

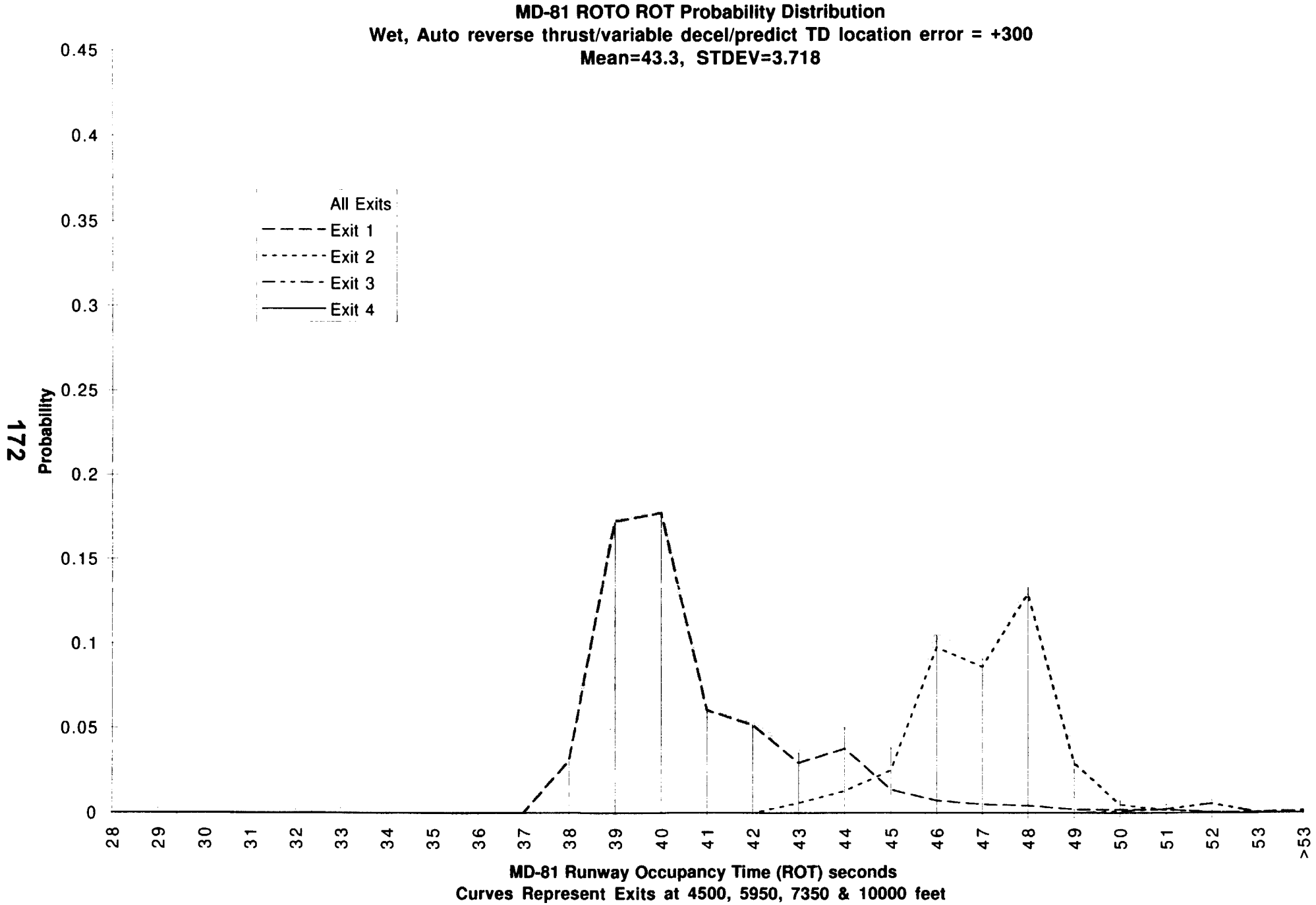
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
predict TD location error = +300
Stow Reverse Thrust=70 kt gd

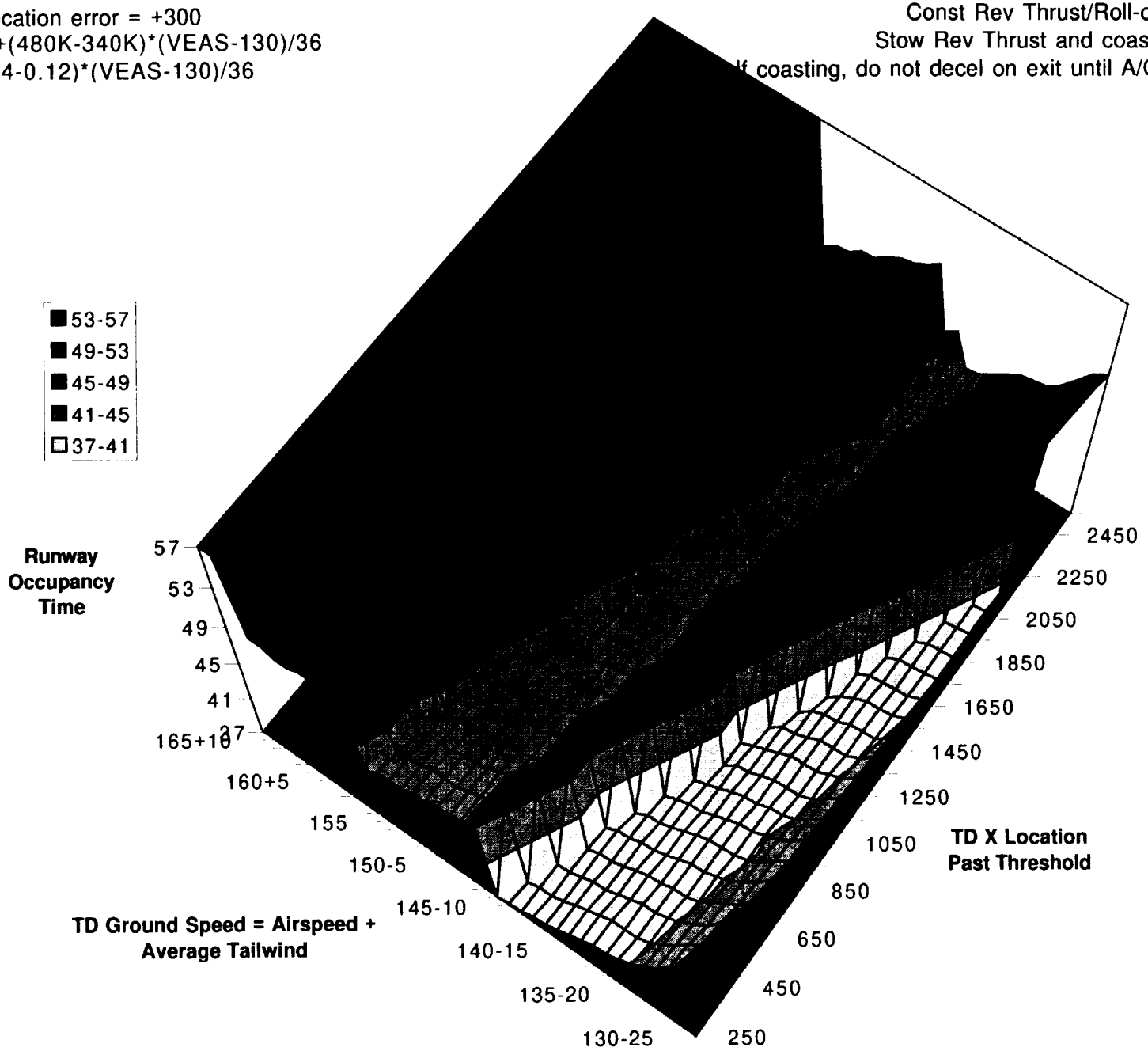



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/predict TD location error = +300
Mean=43.3, STDEV=3.718
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

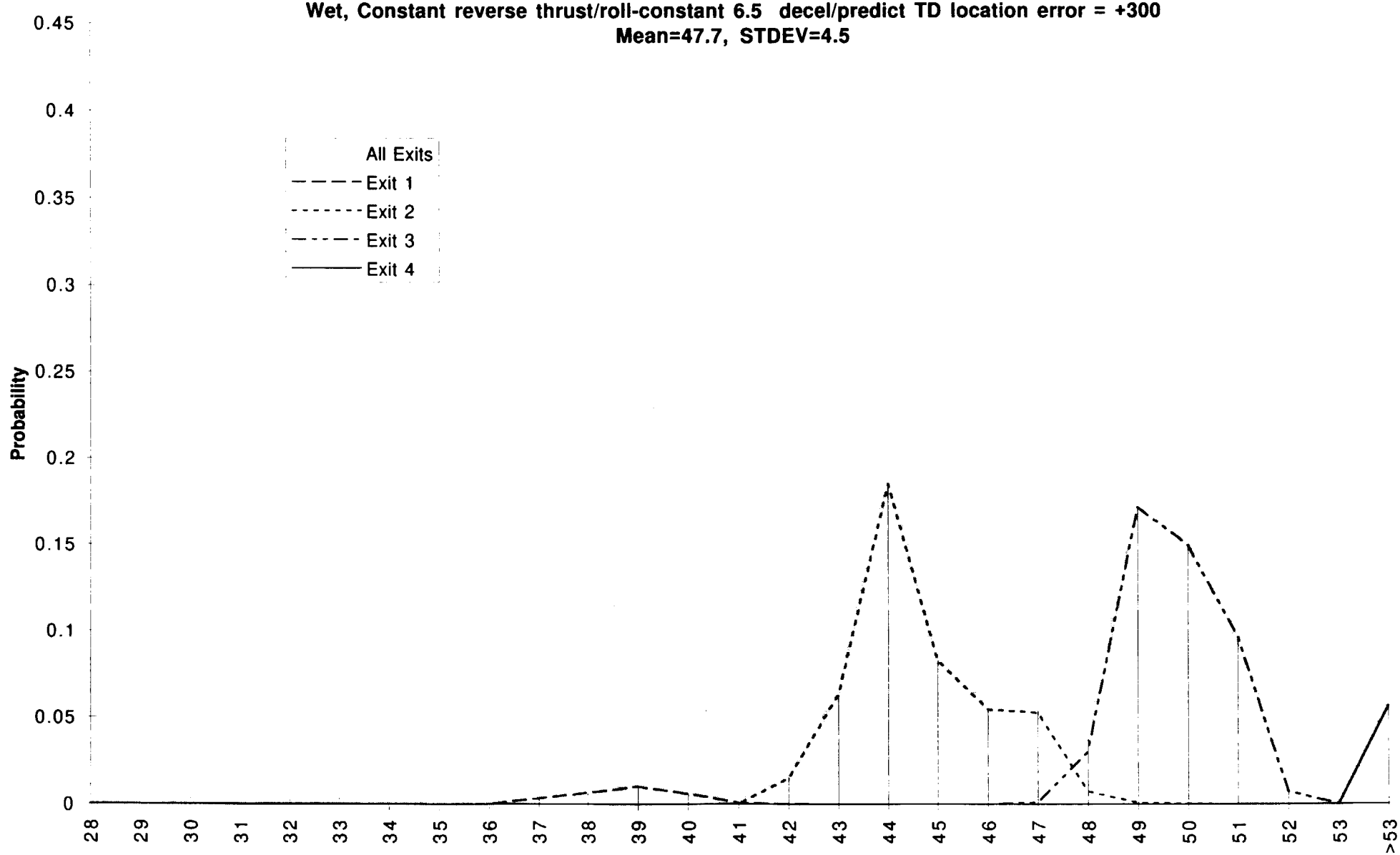
Predict exit prior to TD
Predict TD location error = +300
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Const Rev Thrust/Roll-const 6.5 Decel
Stow Rev Thrust and coast below 70kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/roll-constant 6.5 decel/predict TD location error = +300
Mean=47.7, STDEV=4.5

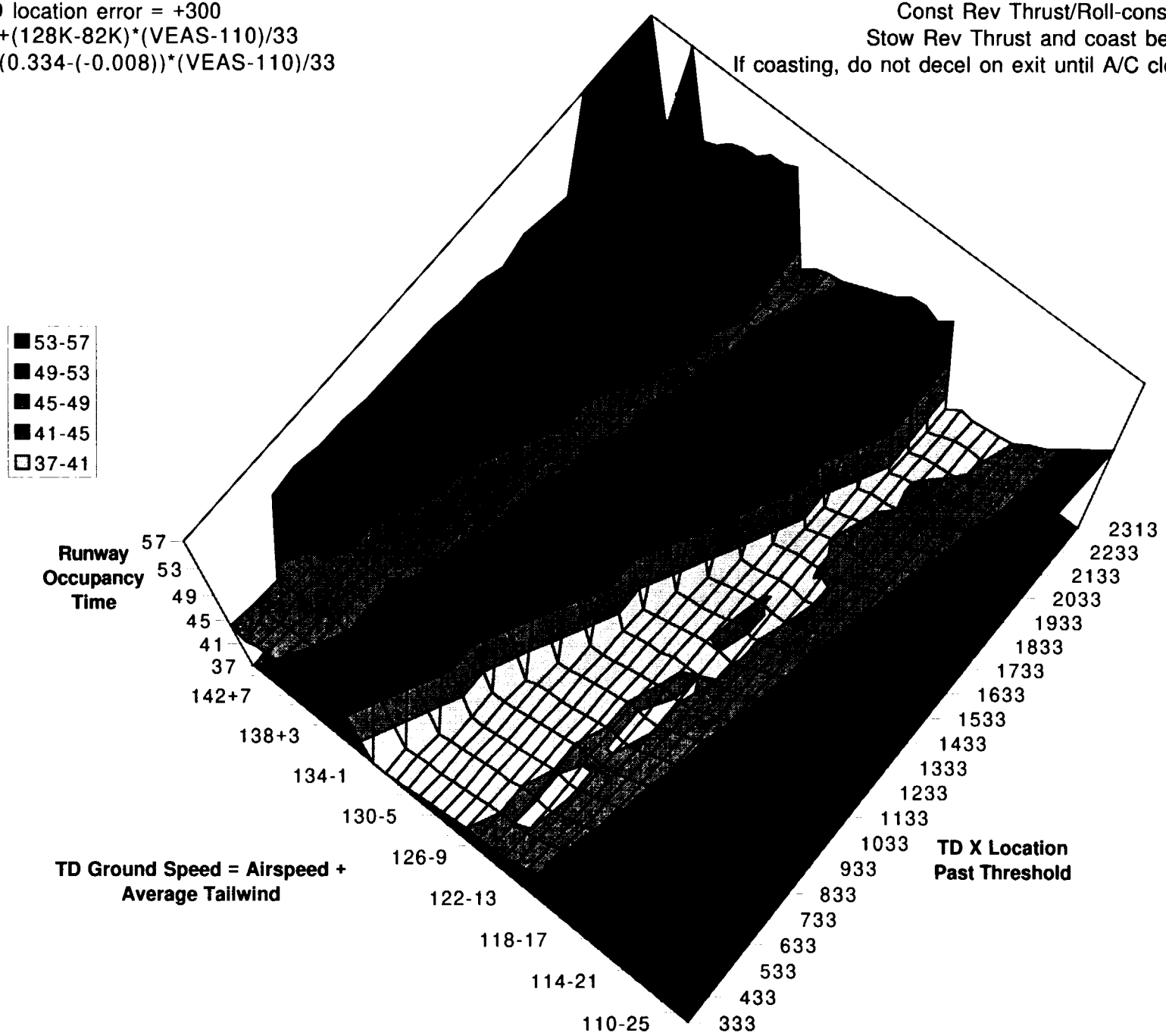


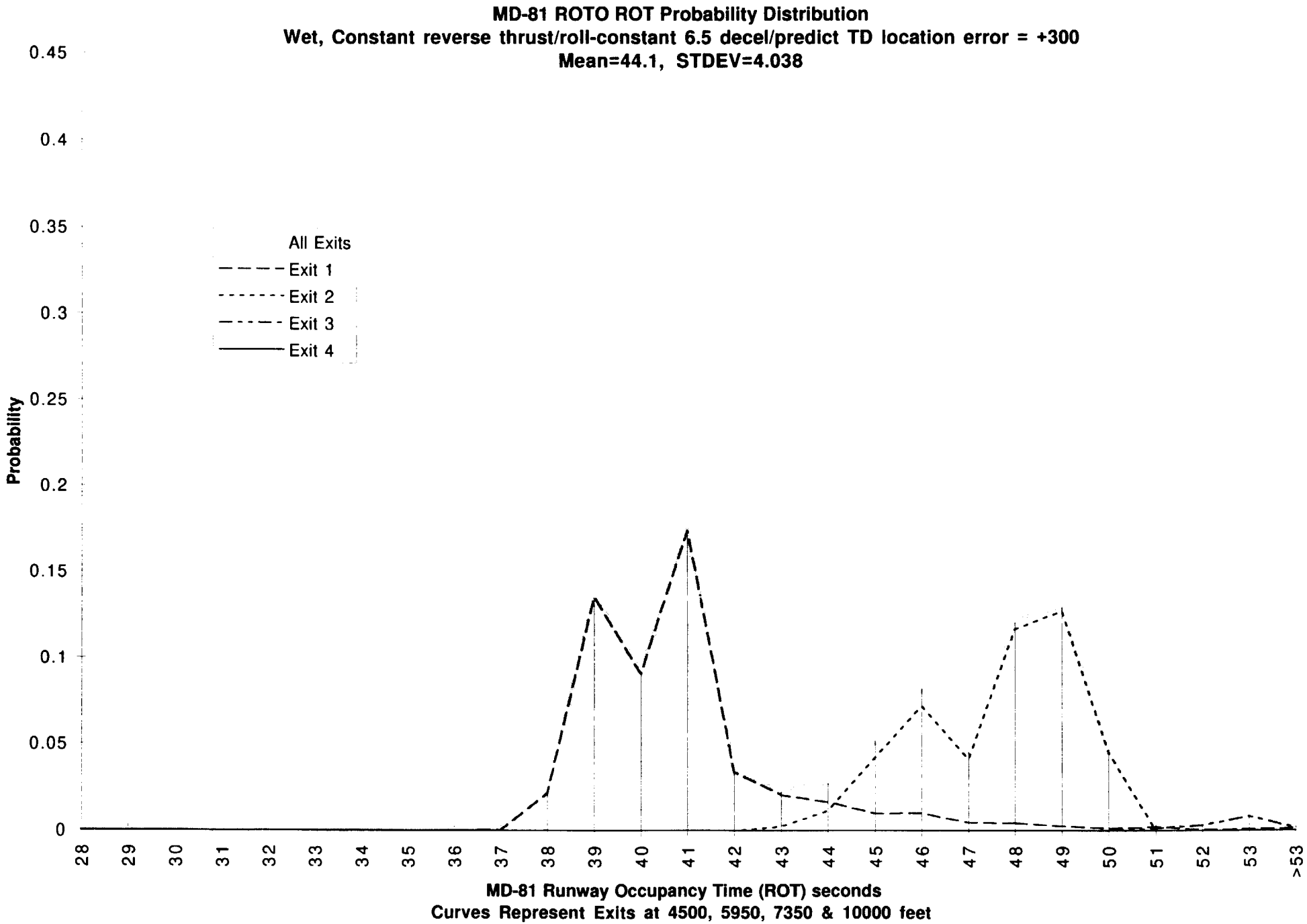
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD
Predict TD location error = +300
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Const Rev Thrust/Roll-const 6.5 Decel
Stow Rev Thrust and coast below 70kt gd
If coasting, do not decel on exit until A/C clears runway



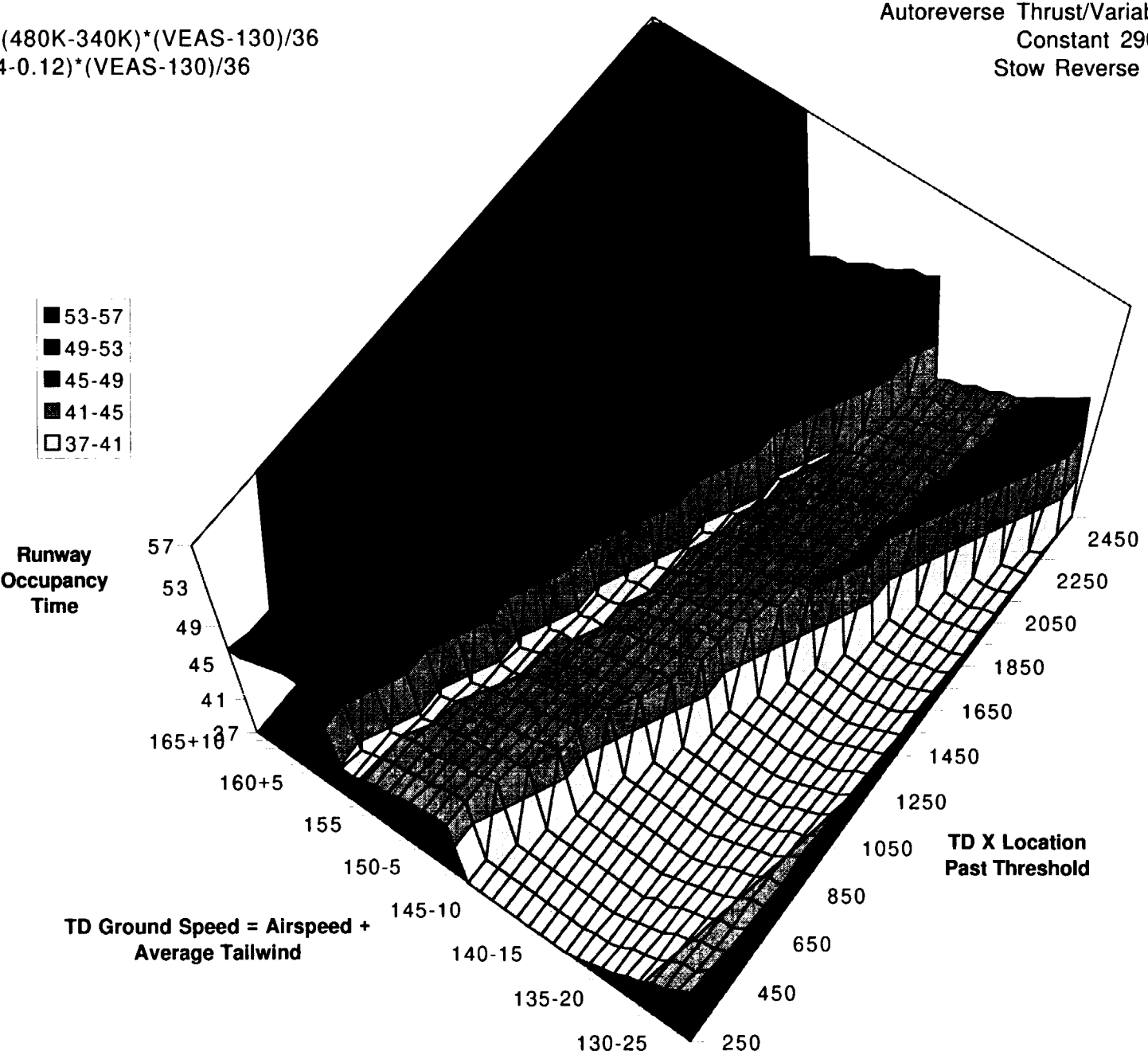

MD-81 ROTO ROT Probability Distribution
Wet, Constant reverse thrust/roll-constant 6.5 decel/predict TD location error = +300
Mean=44.1, STDEV=4.038
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

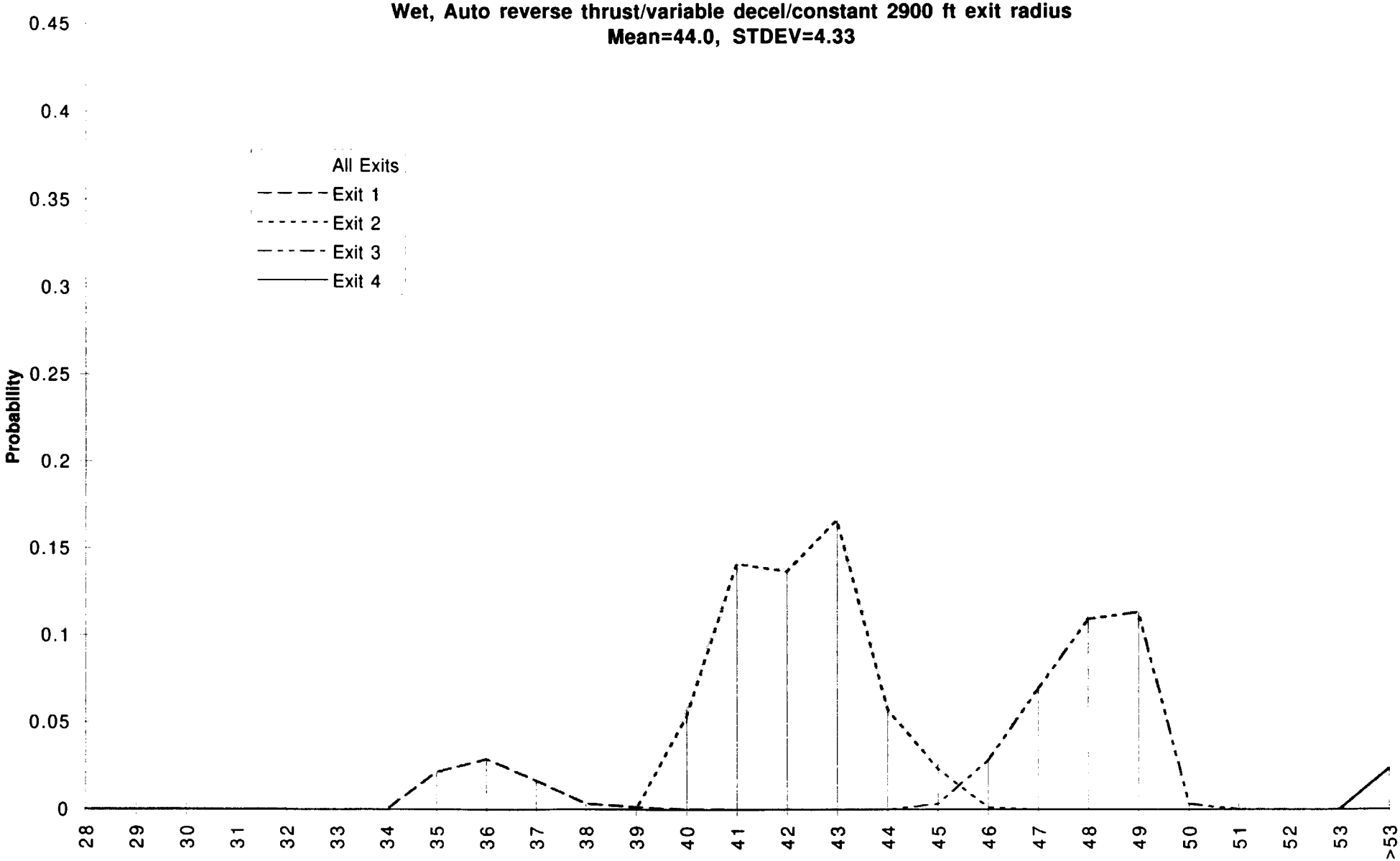
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Constant 2900 ft exit radius
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/constant 2900 ft exit radius
Mean=44.0, STDEV=4.33



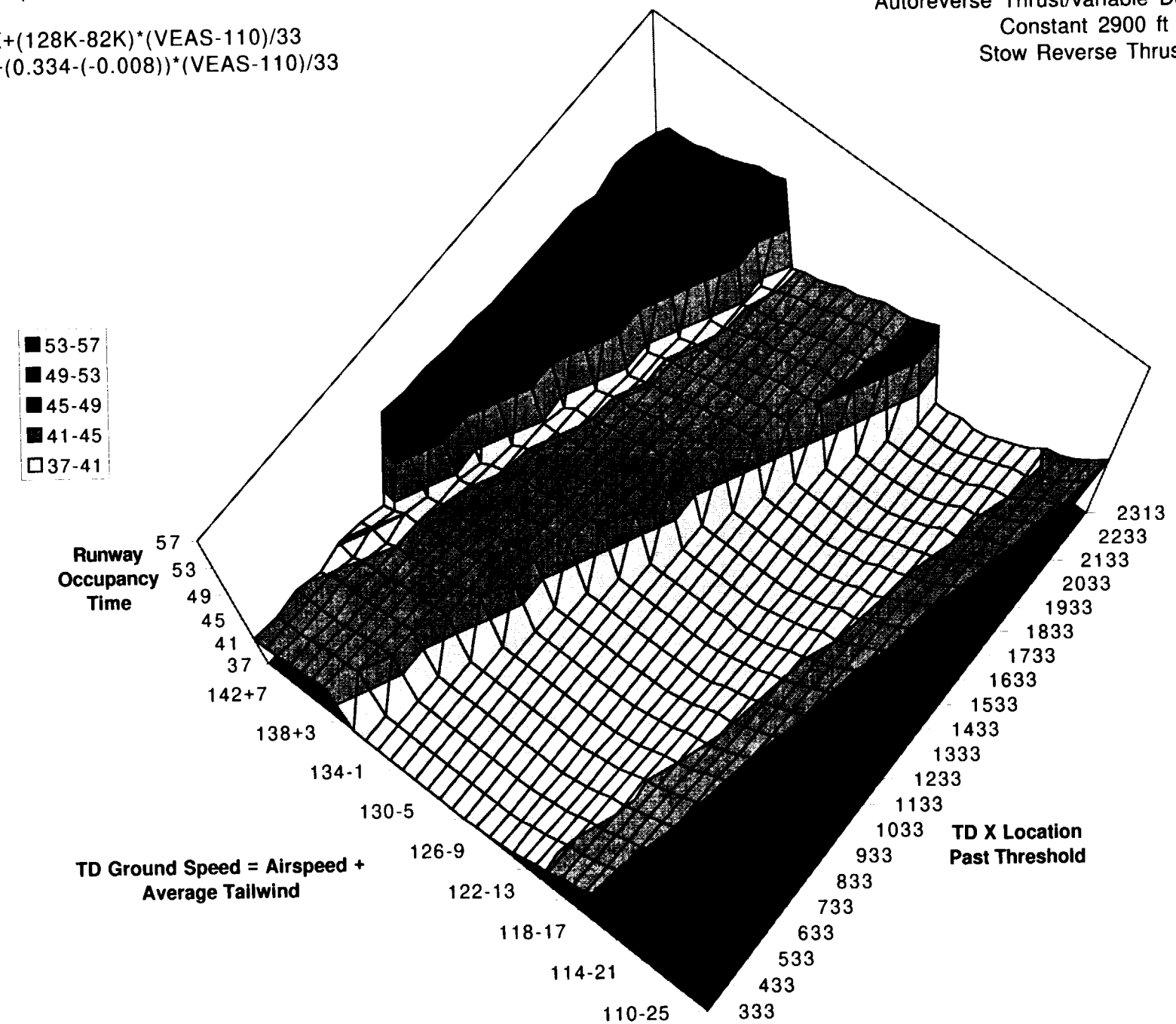
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

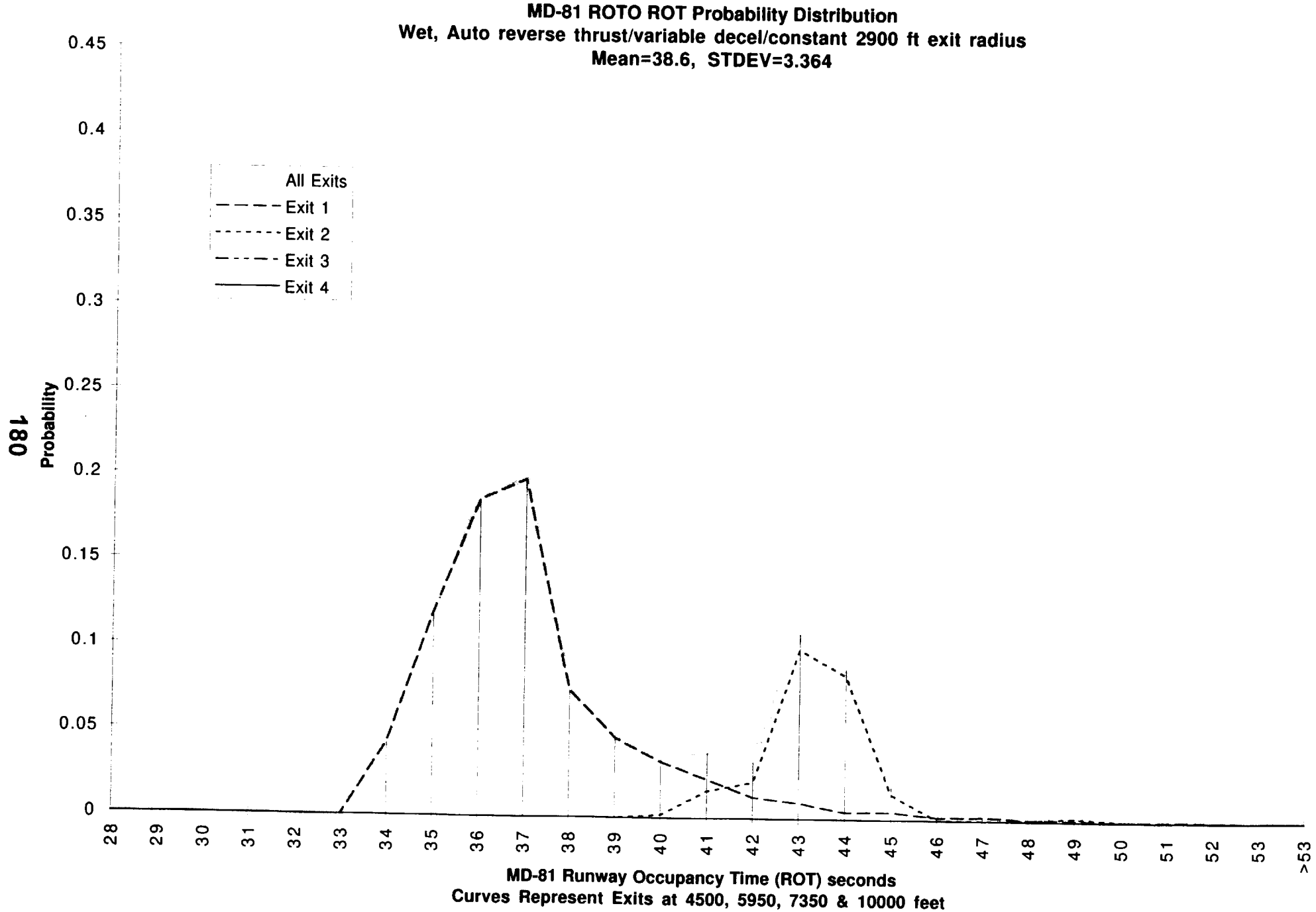
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Constant 2900 ft exit radius
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/constant 2900 ft exit radius
Mean=38.6, STDEV=3.364
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
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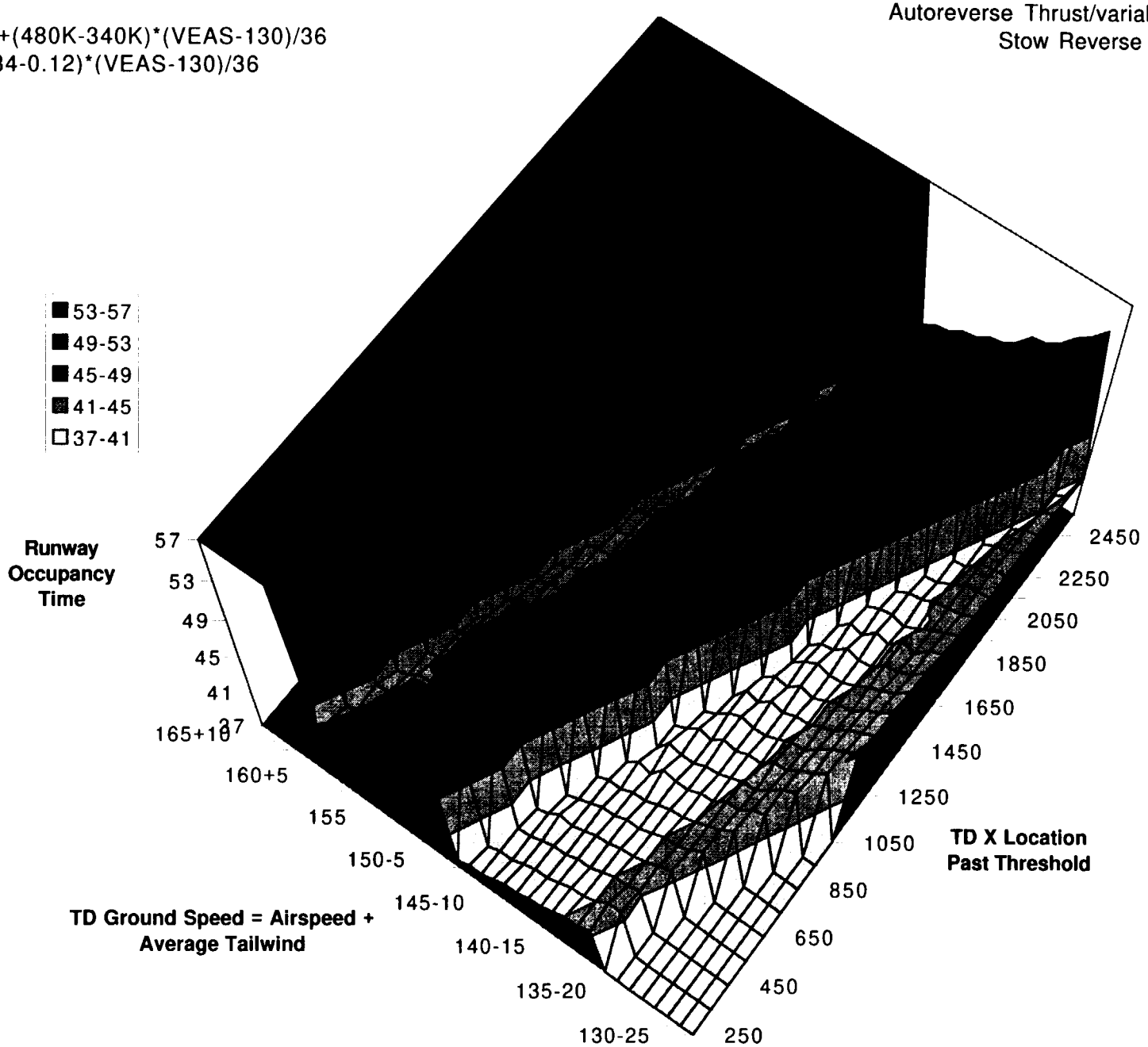
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

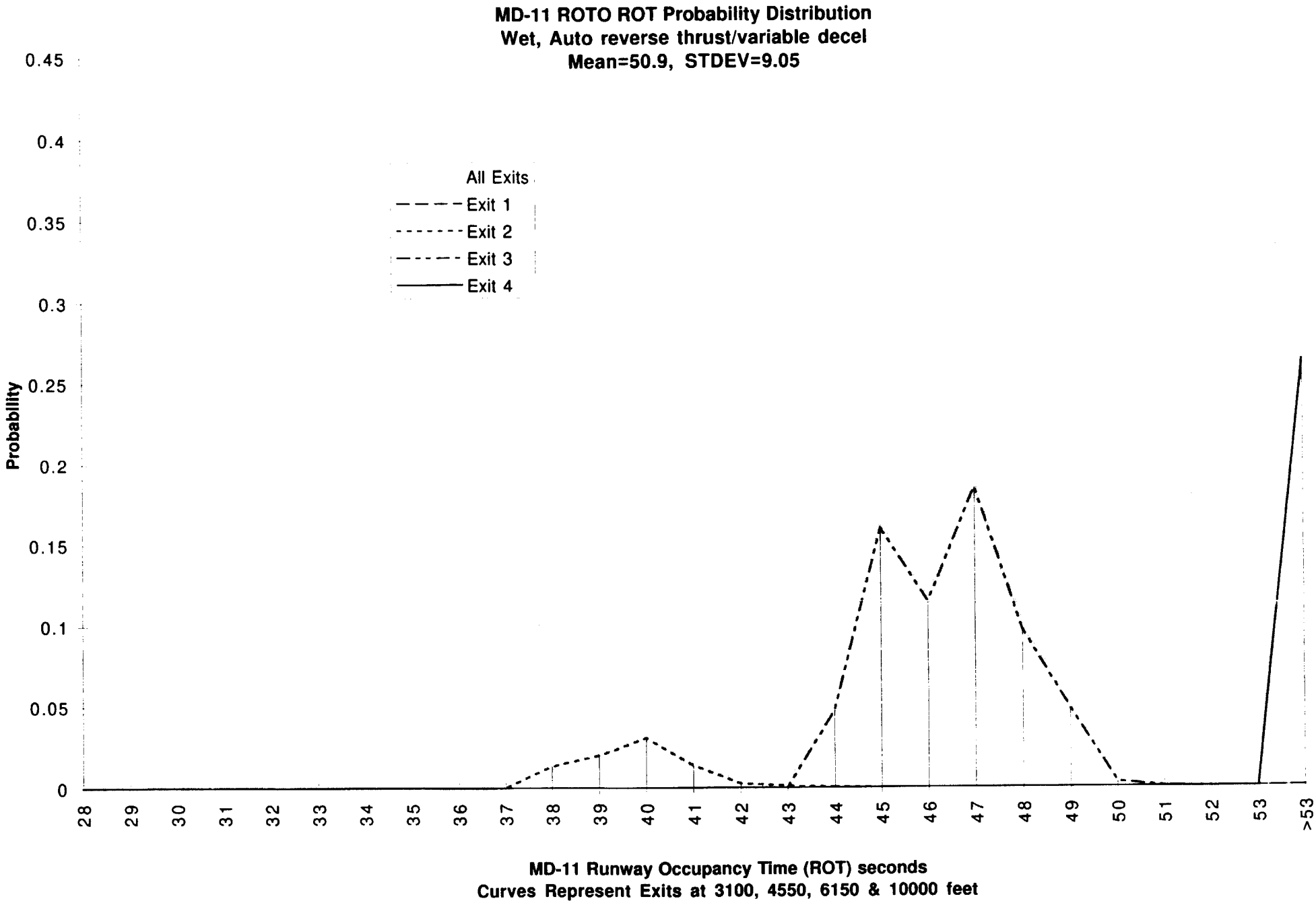
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3100,4550,6150,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=50.9, STDEV=9.05
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
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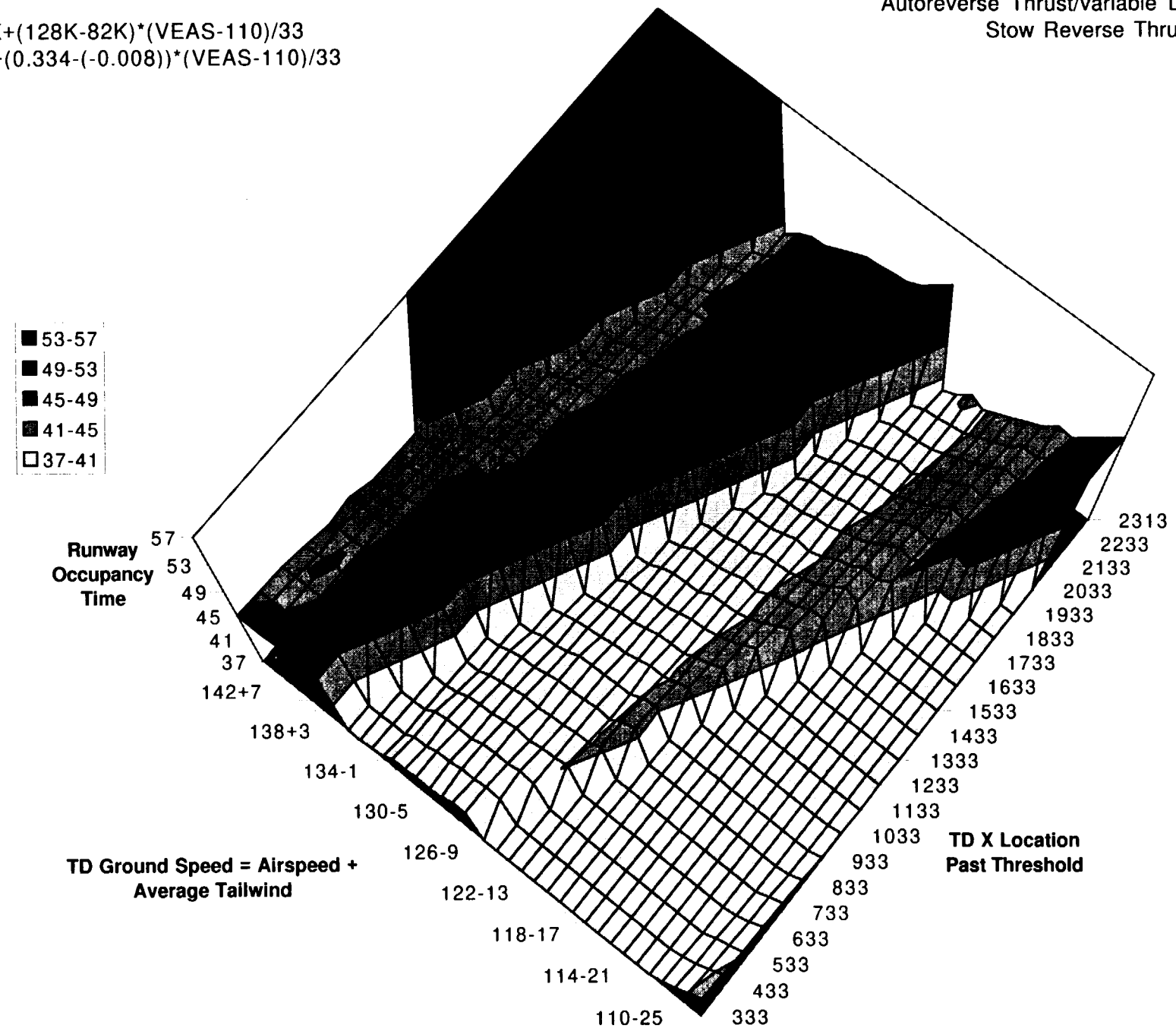
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3100, 4550, 6150 & 10000 feet

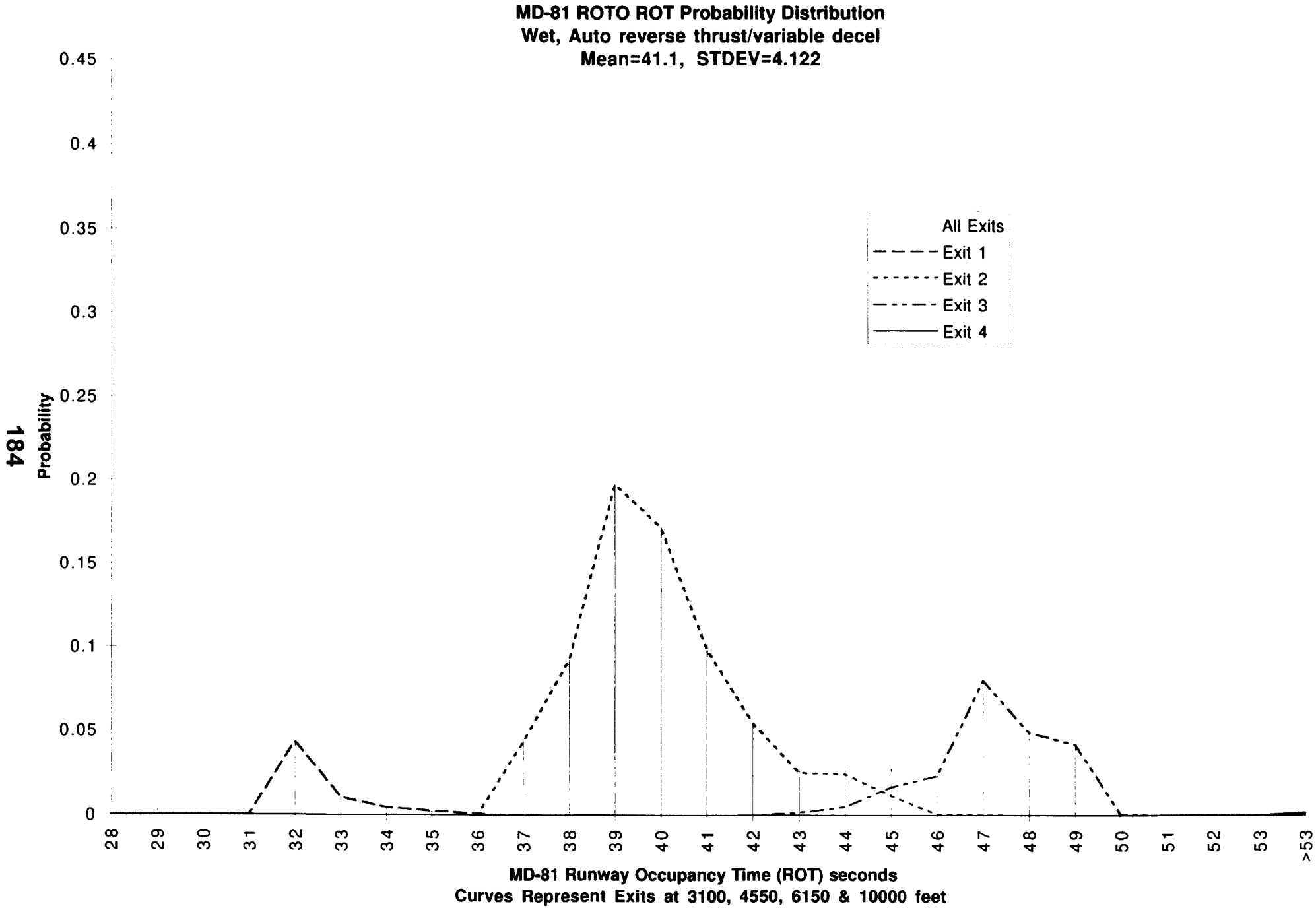
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3100,4550,6150,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



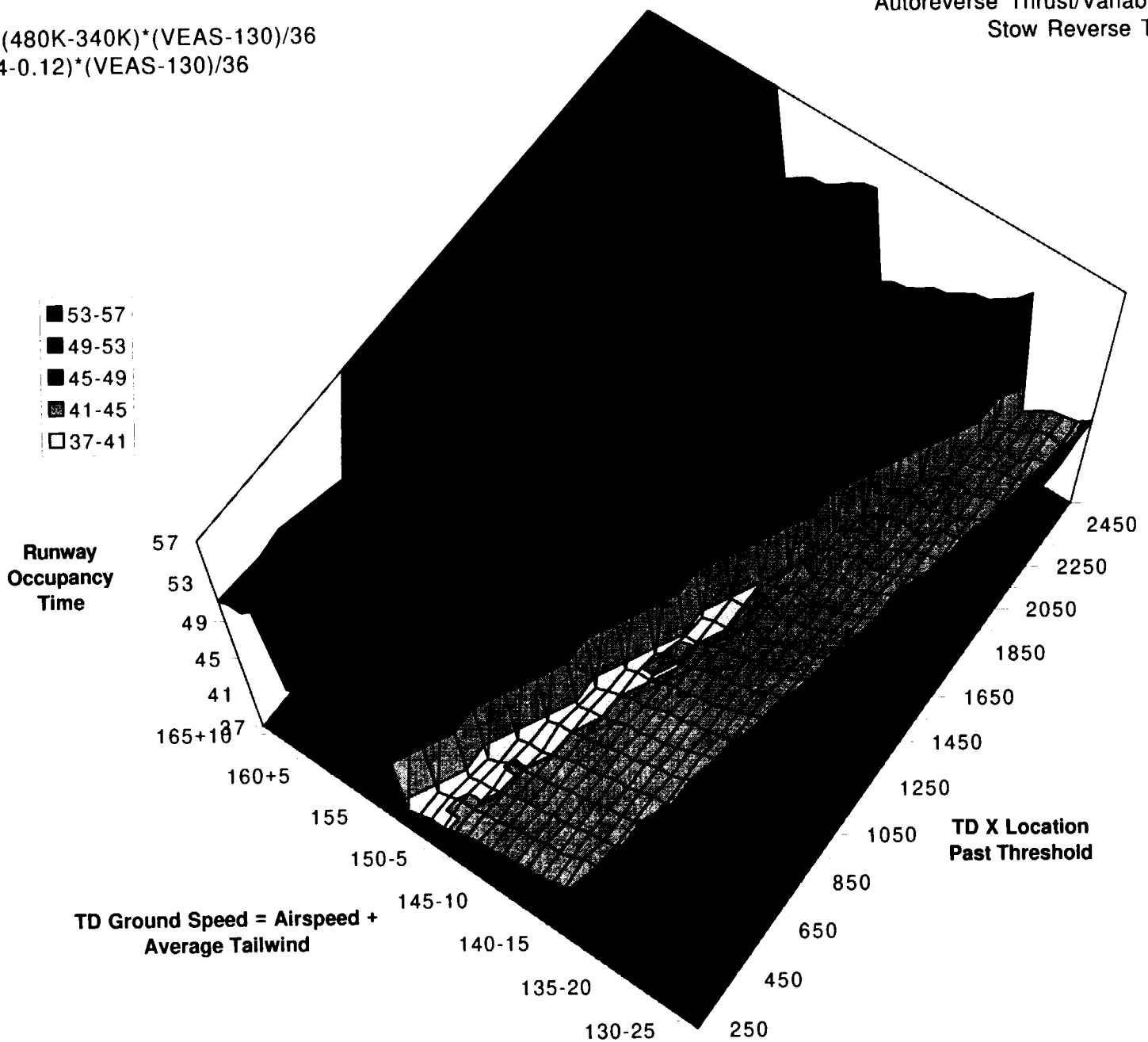

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=41.1, STDEV=4.122
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3100, 4550, 6150 & 10000 feet

Predict exit prior to TD

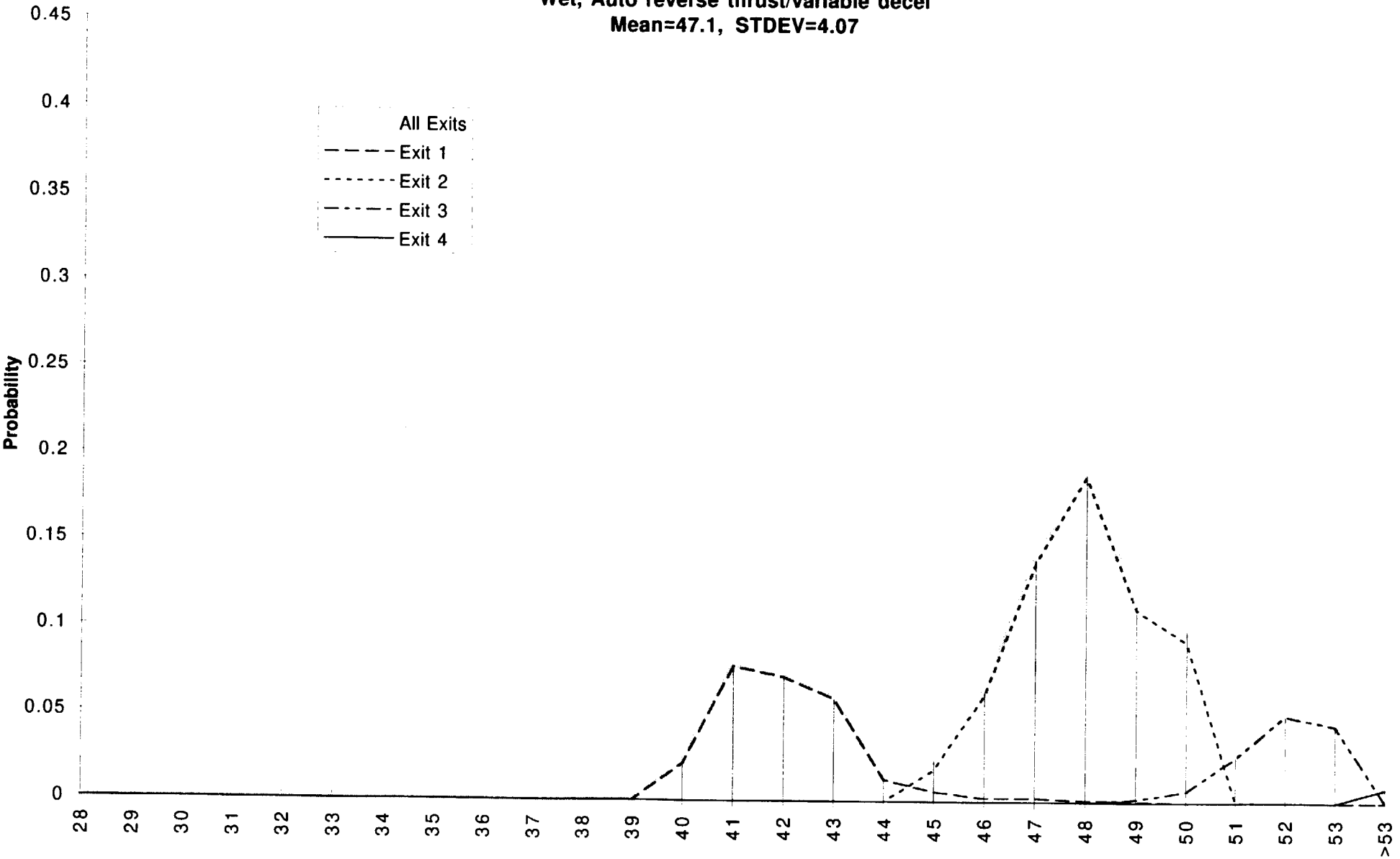
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=5100,6550,7750,12000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=47.1, STDEV=4.07



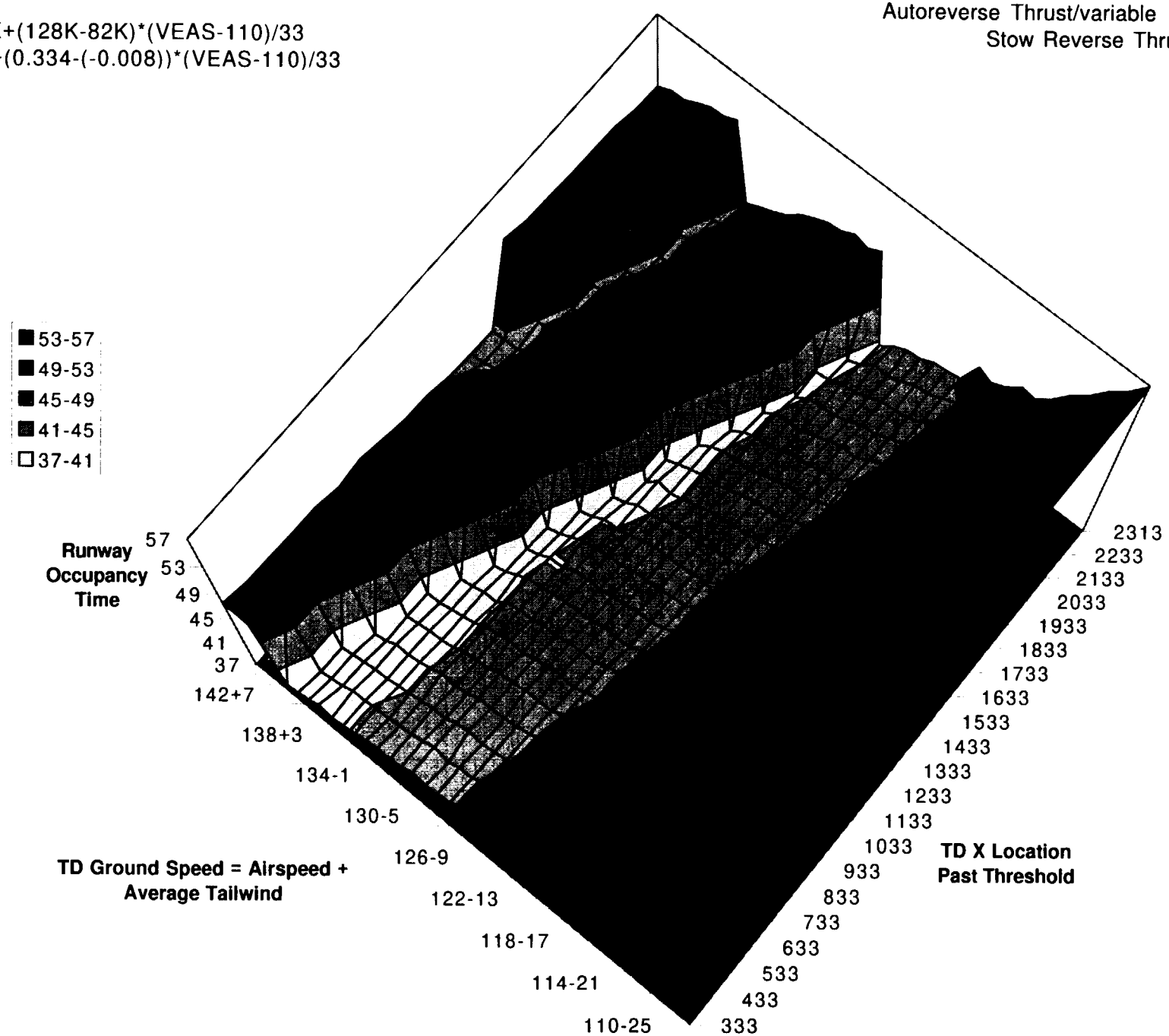
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5100, 6550, 7750 & 12000 feet

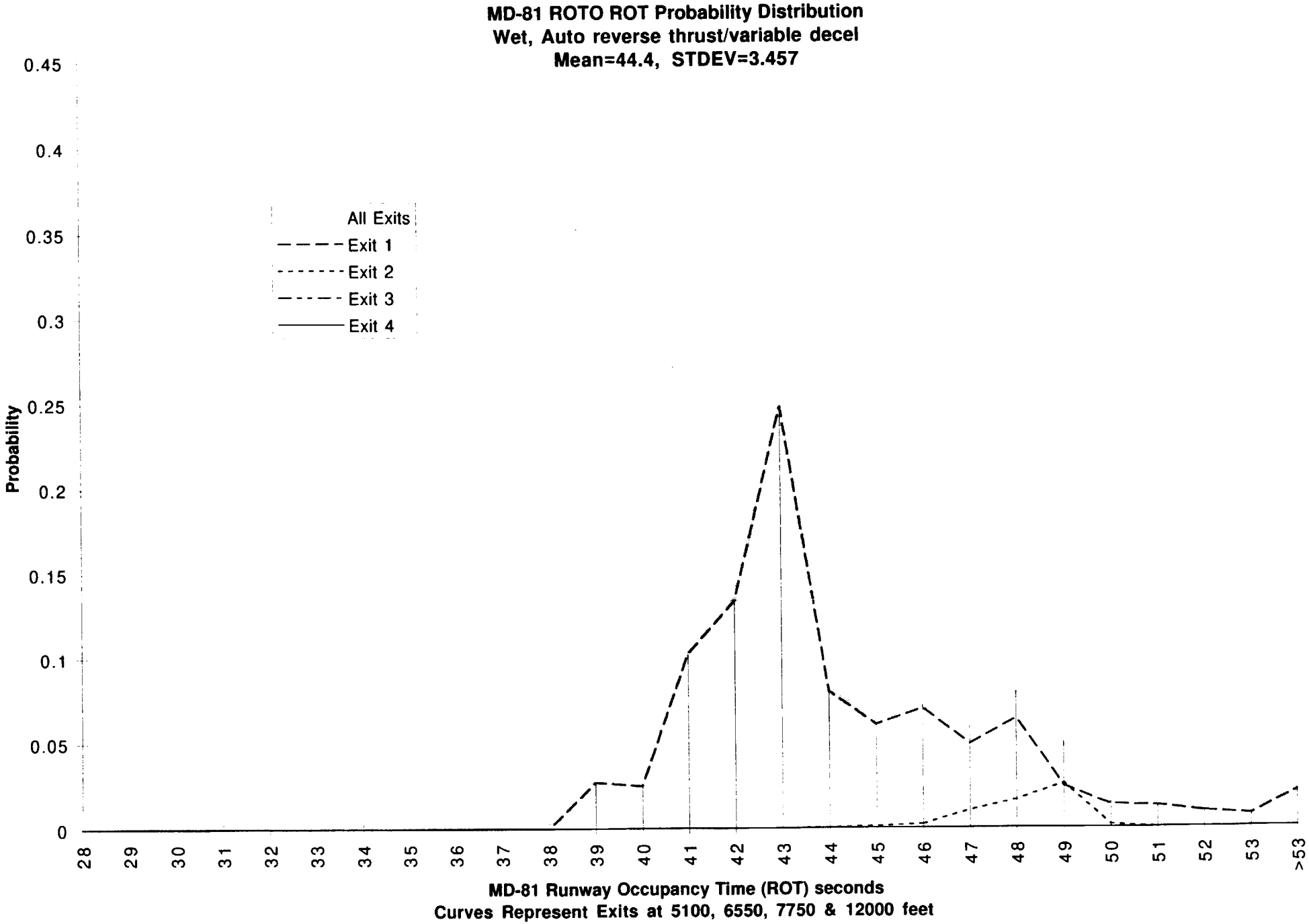
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=5100,6550,7750,12000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel
Mean=44.4, STDEV=3.457
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
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36
37
38
39
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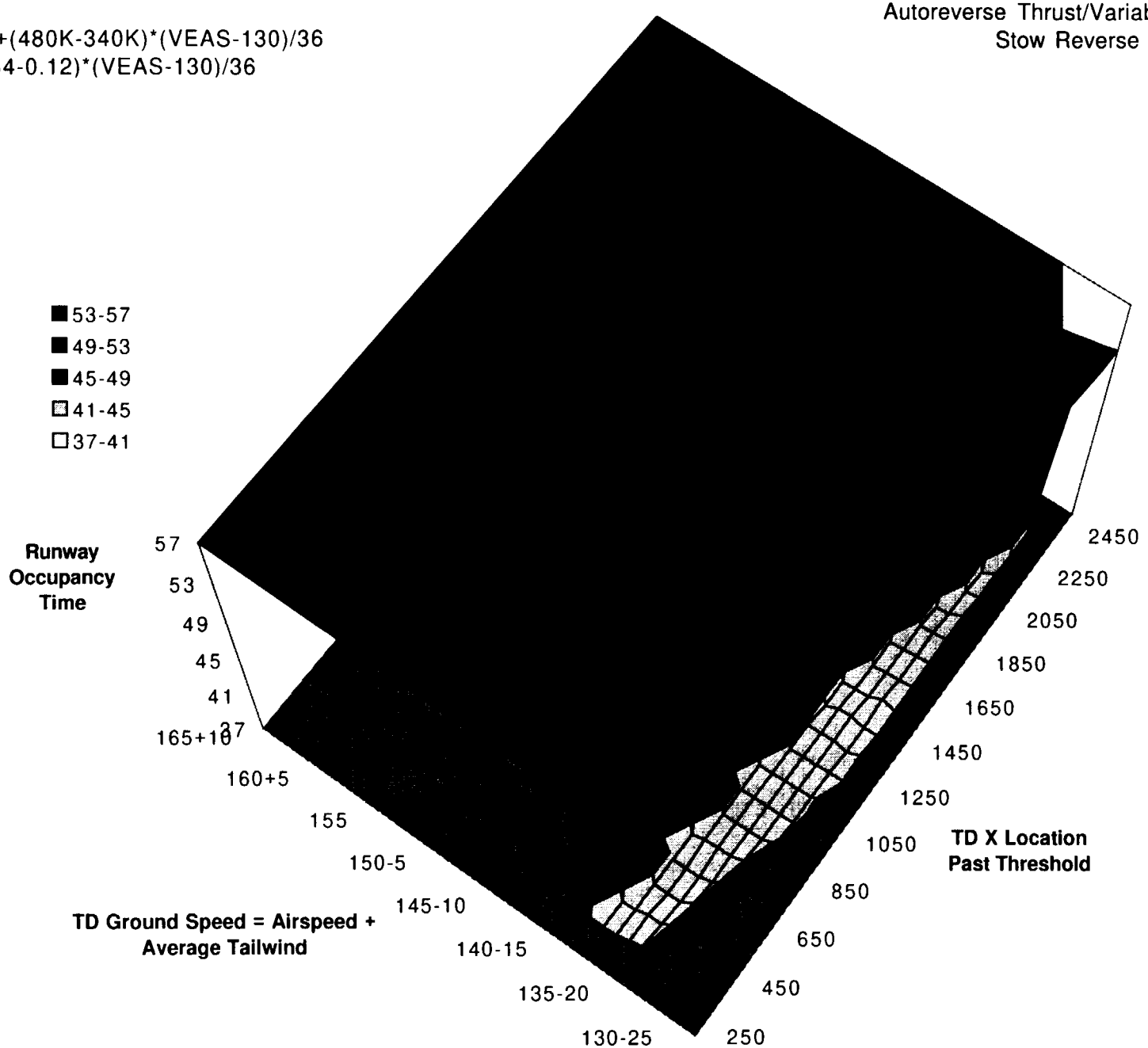
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5100, 6550, 7750 & 12000 feet

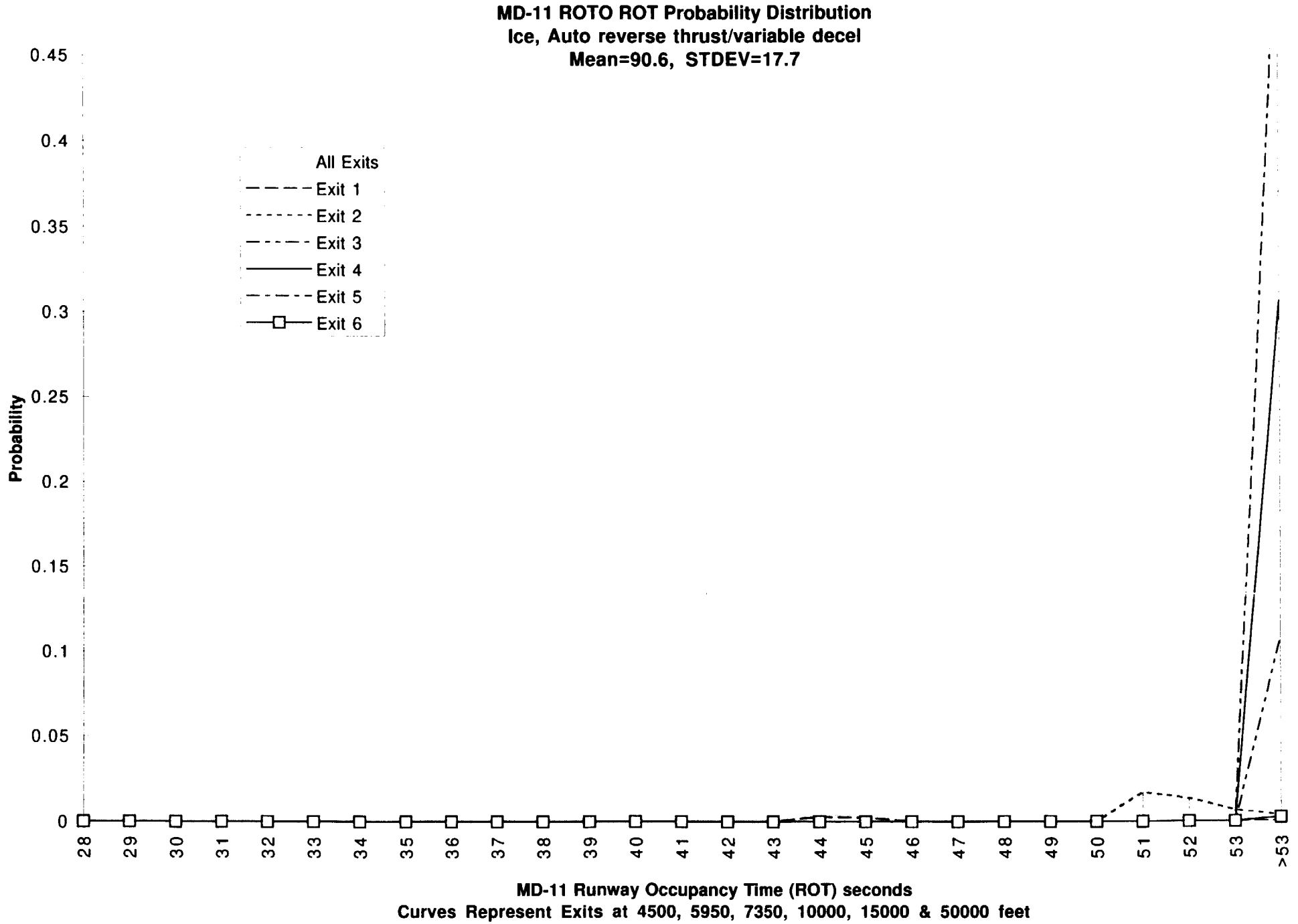
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Ice,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

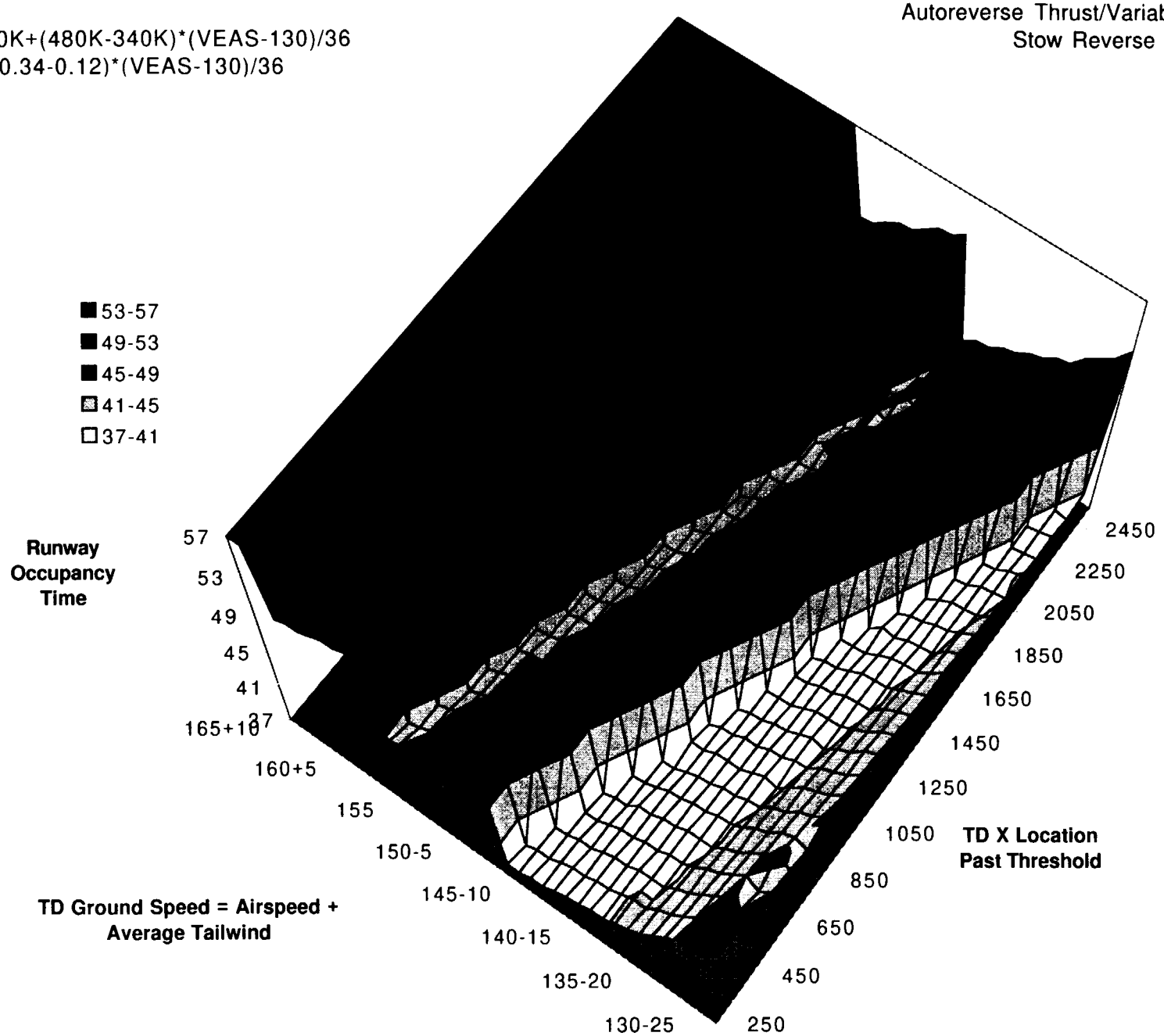



MD-11 ROTO ROT Probability Distribution
Ice, Auto reverse thrust/variable decel
Mean=90.6, STDEV=17.7
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Exit 6
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

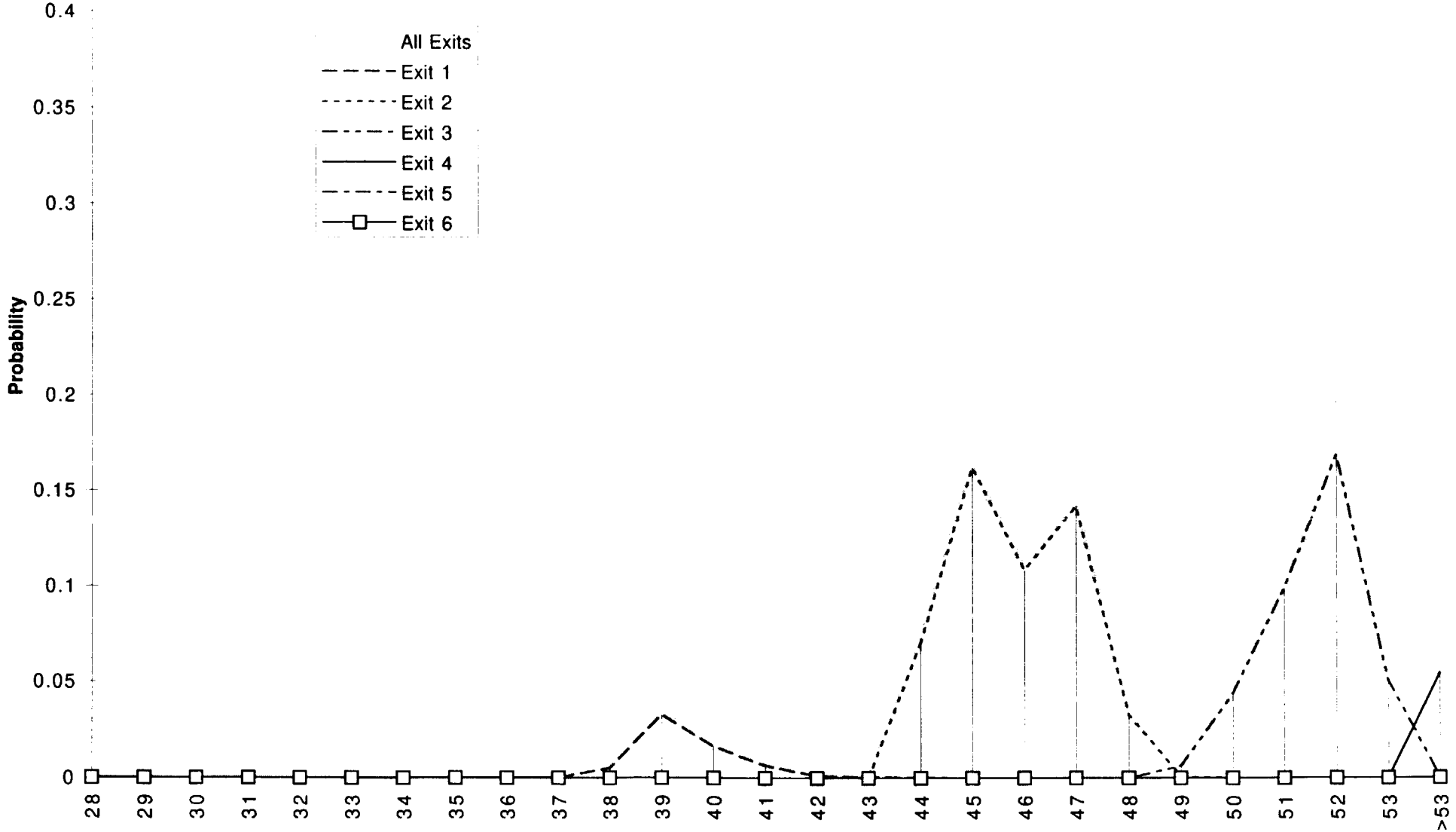
Predict exit prior to TD

MD-11 ROTO Occupancy Time Snow,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Snow, Auto reverse thrust/variable decel
Mean=48.5, STDEV=5.15

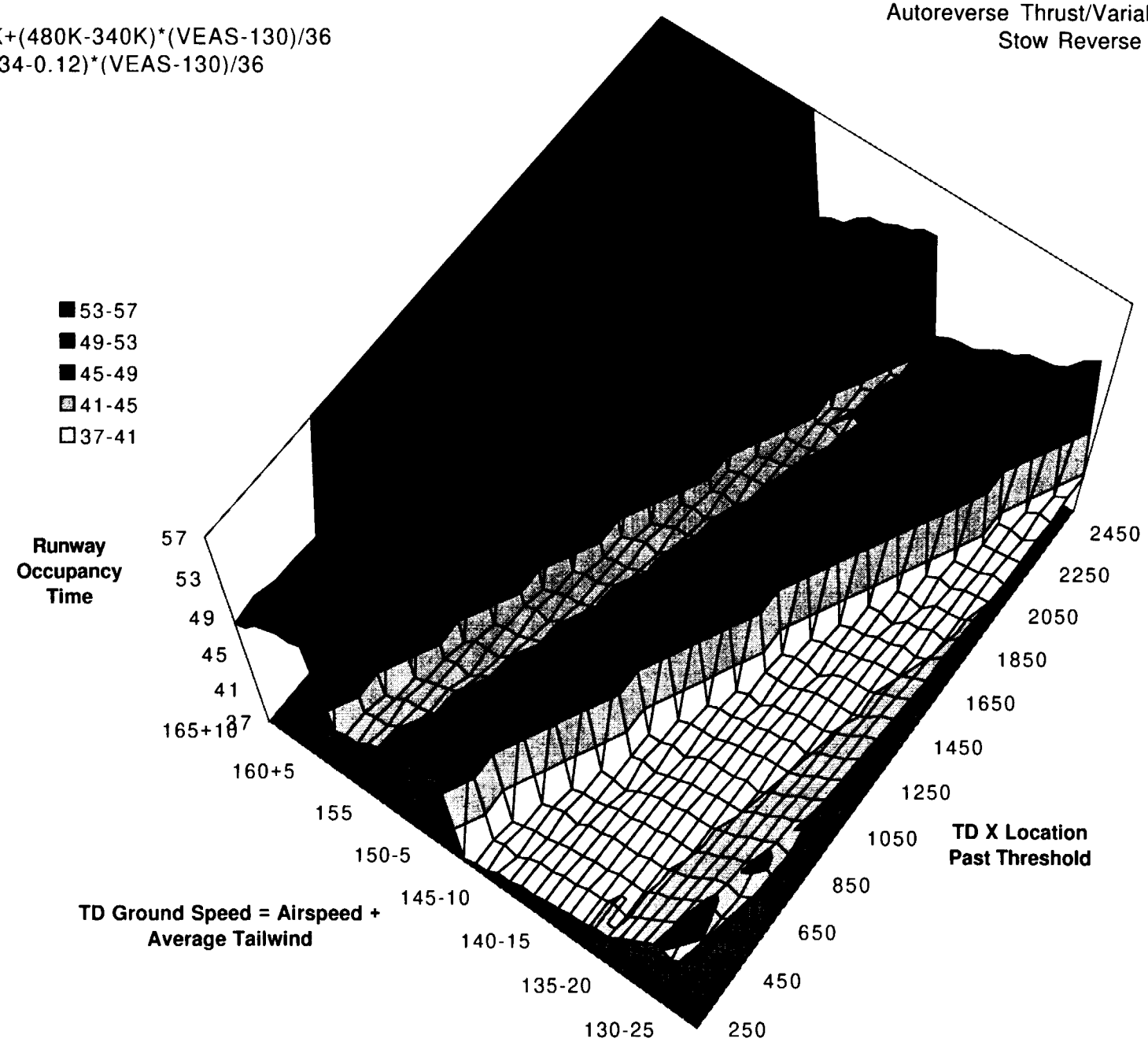


MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

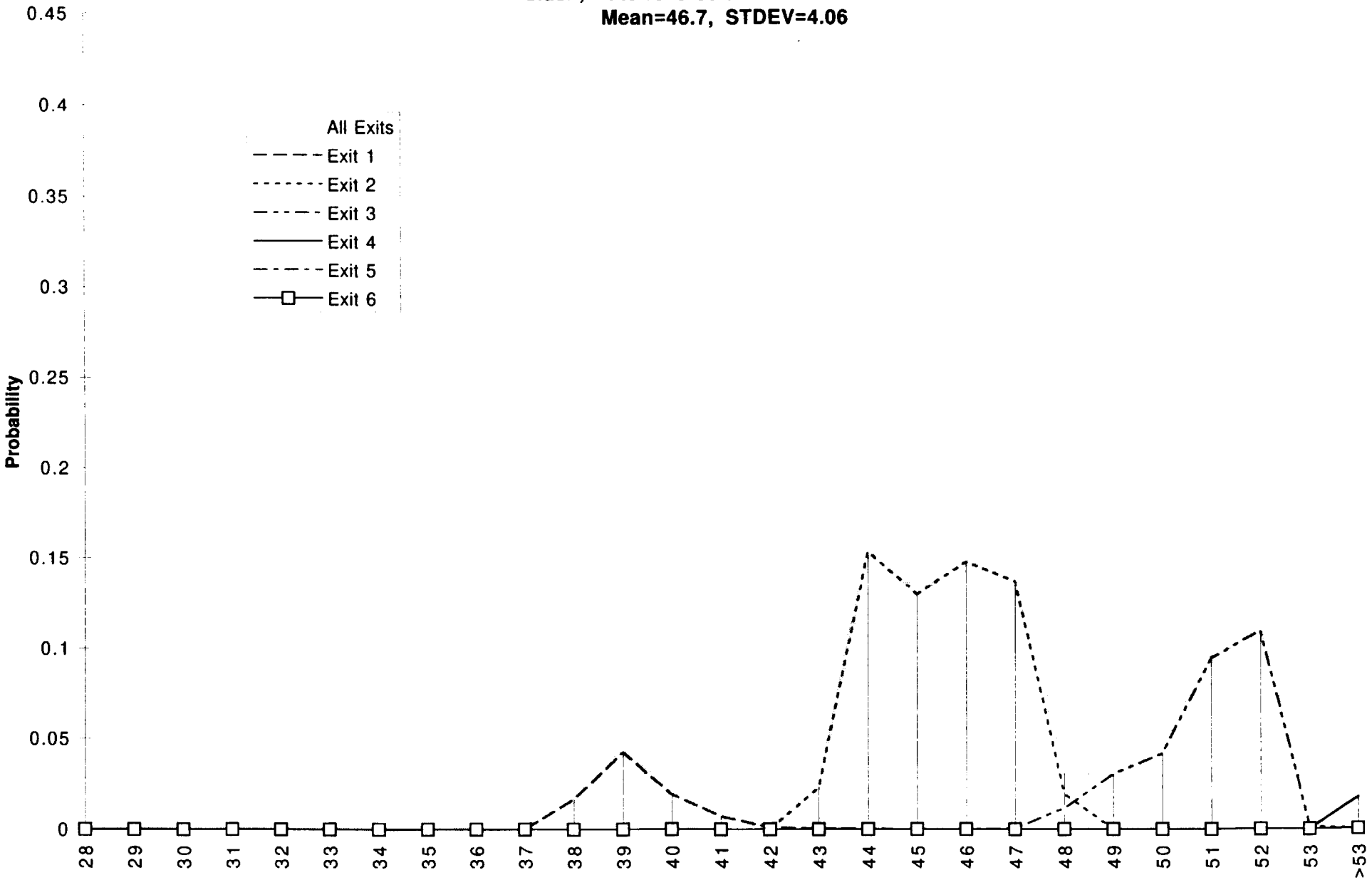
Predict exit prior to TD

MD-11 ROTO Occupancy Time Slush,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Slush, Auto reverse thrust/variable decel
Mean=46.7, STDEV=4.06

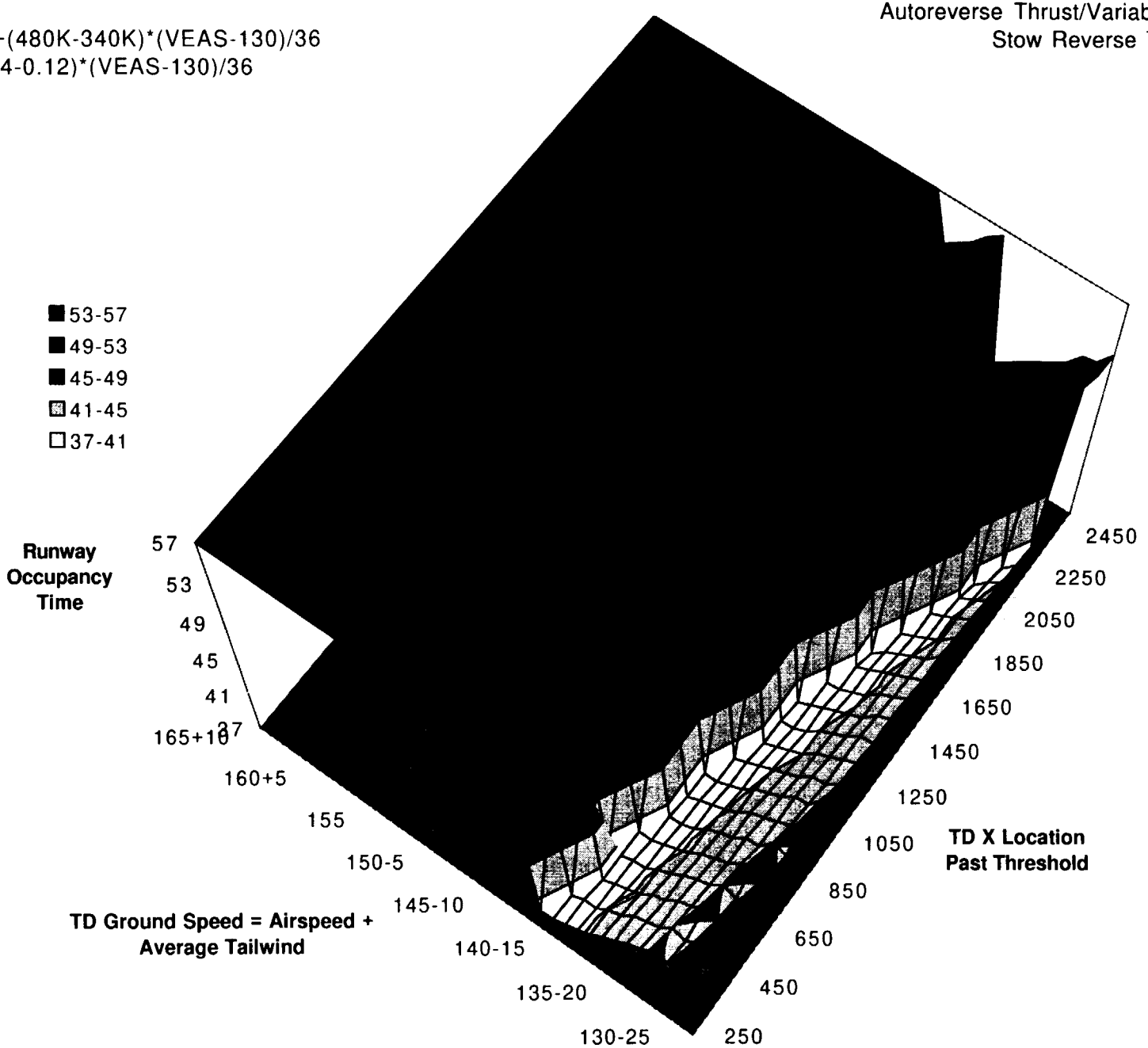


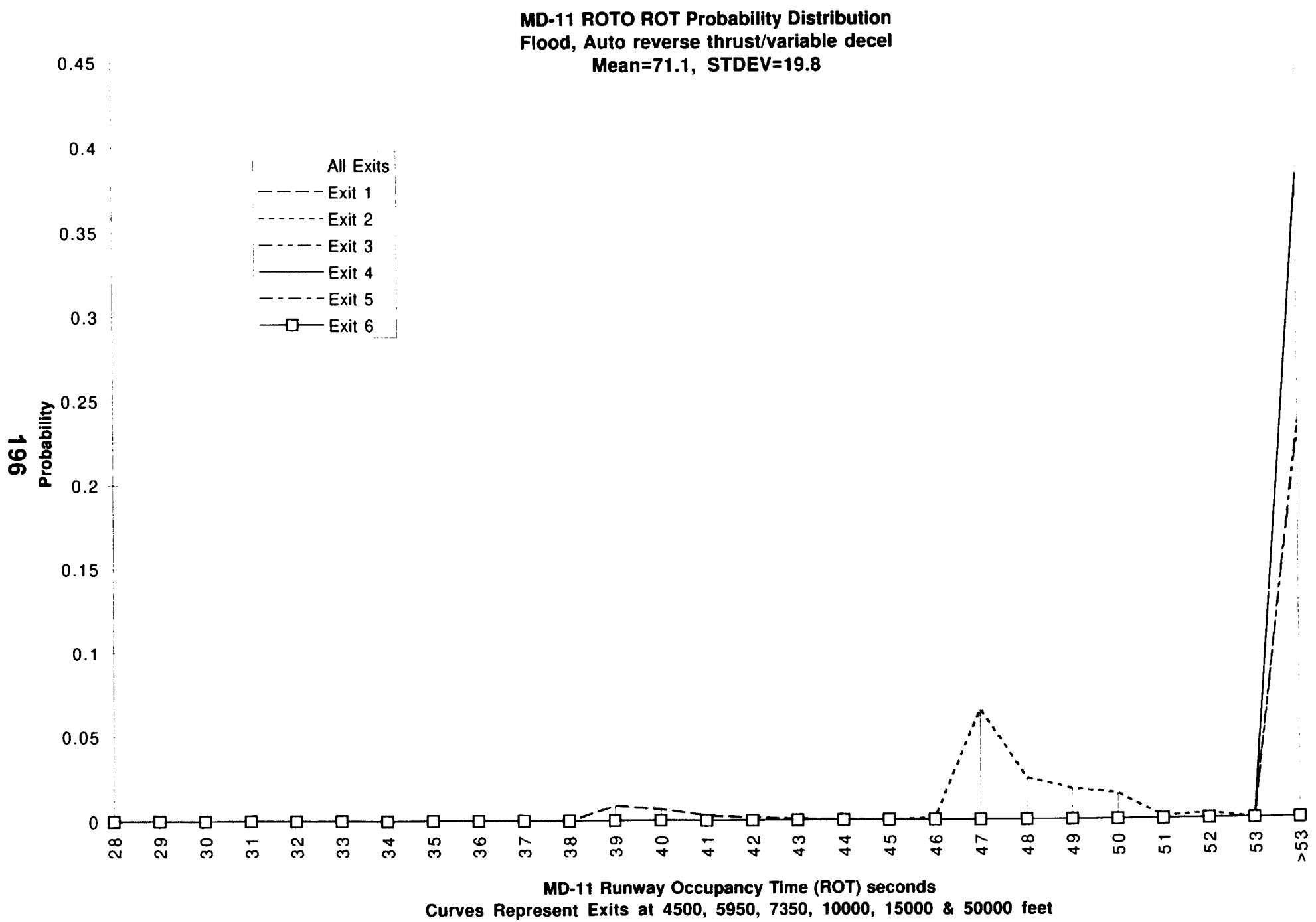
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

Predict exit prior to TD

MD-11 ROTO Occupancy Time Flood,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



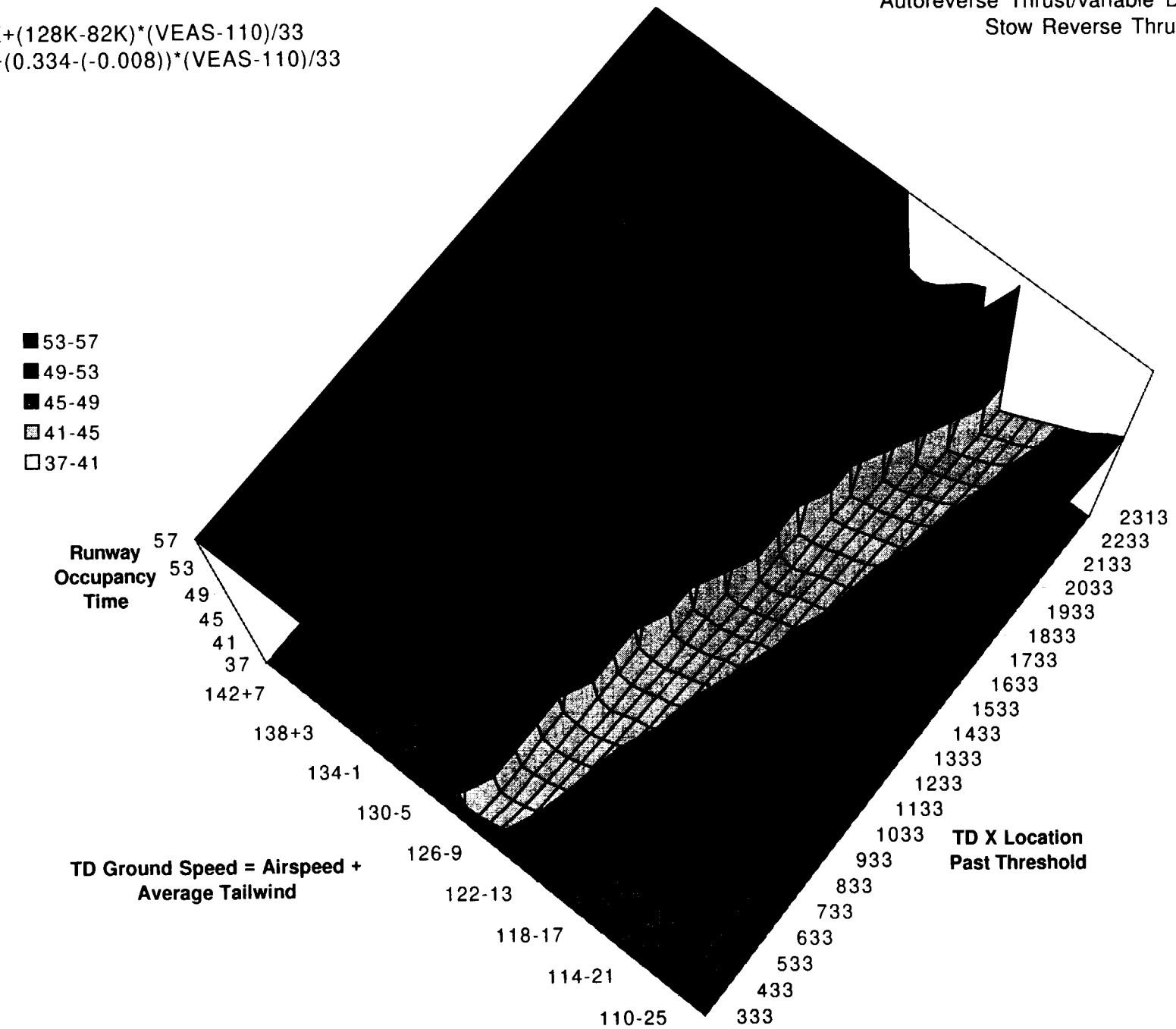

MD-11 ROTO ROT Probability Distribution
Flood, Auto reverse thrust/variable decel
Mean=71.1, STDEV=19.8
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Exit 6
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

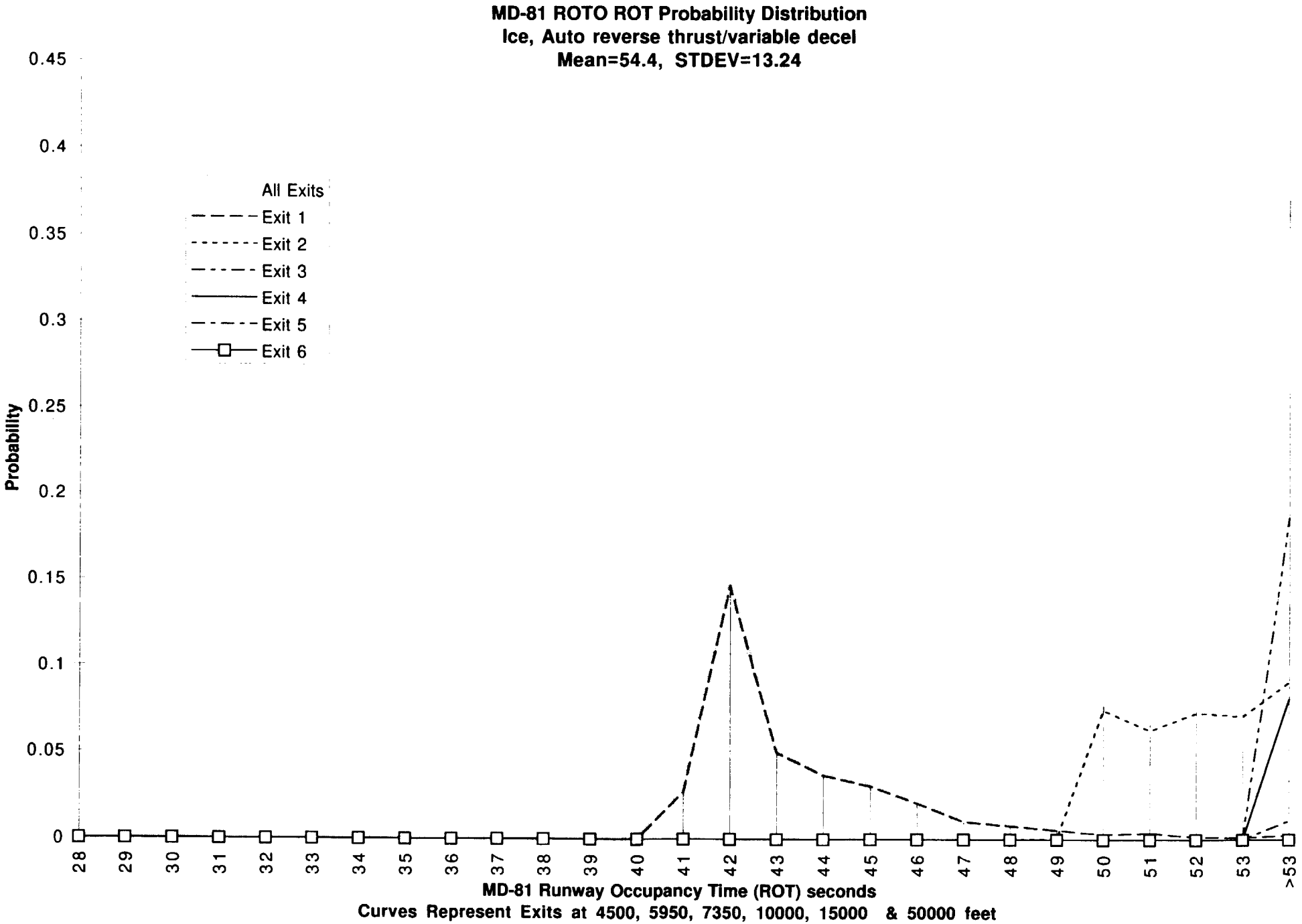
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Ice,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Ice, Auto reverse thrust/variable decel
Mean=54.4, STDEV=13.24
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Exit 6
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

Predict exit prior to TD

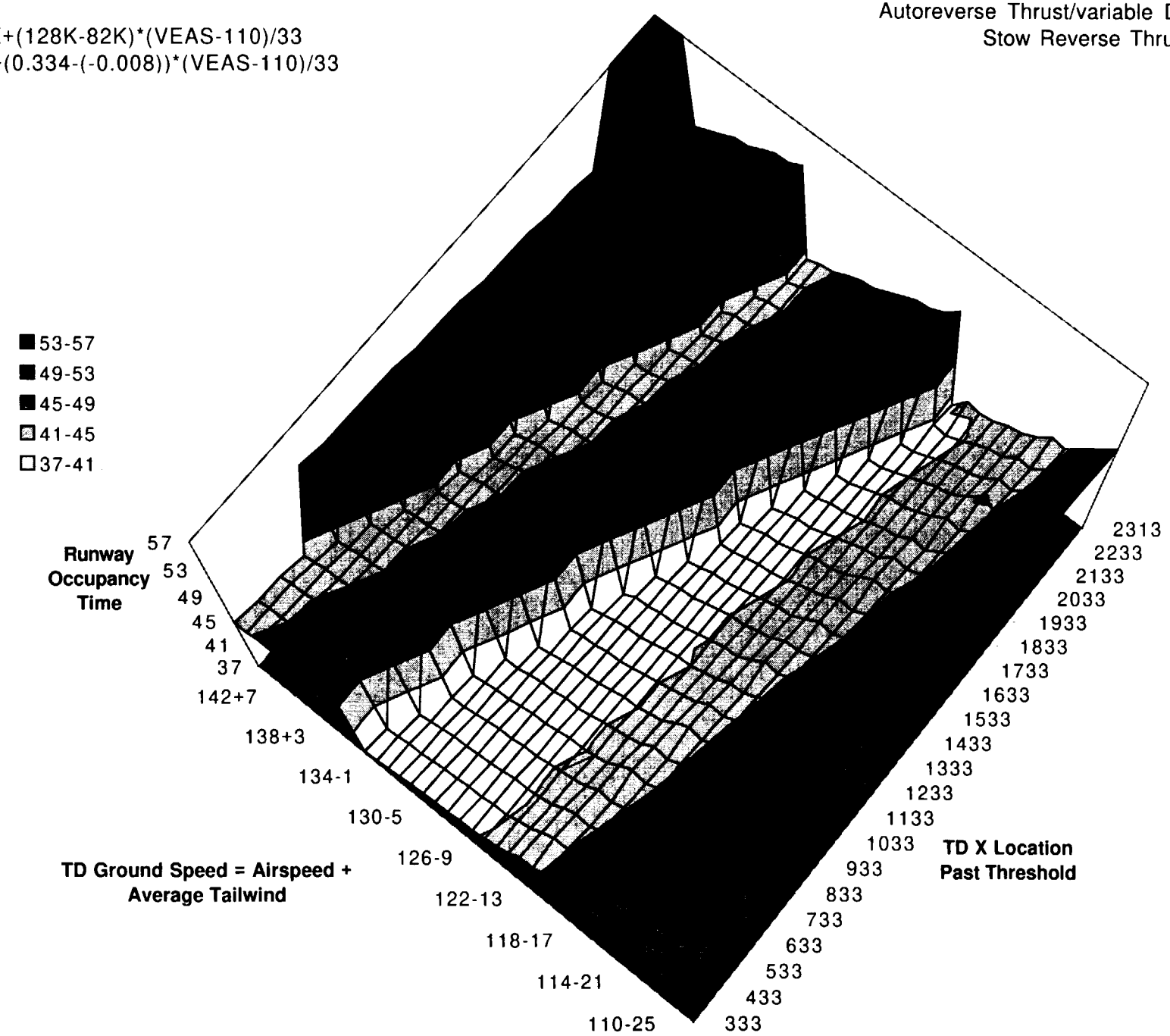
MD-81 ROTO Occupancy Time Snow,Exits=4500,5950,7350,10000,15000,50000

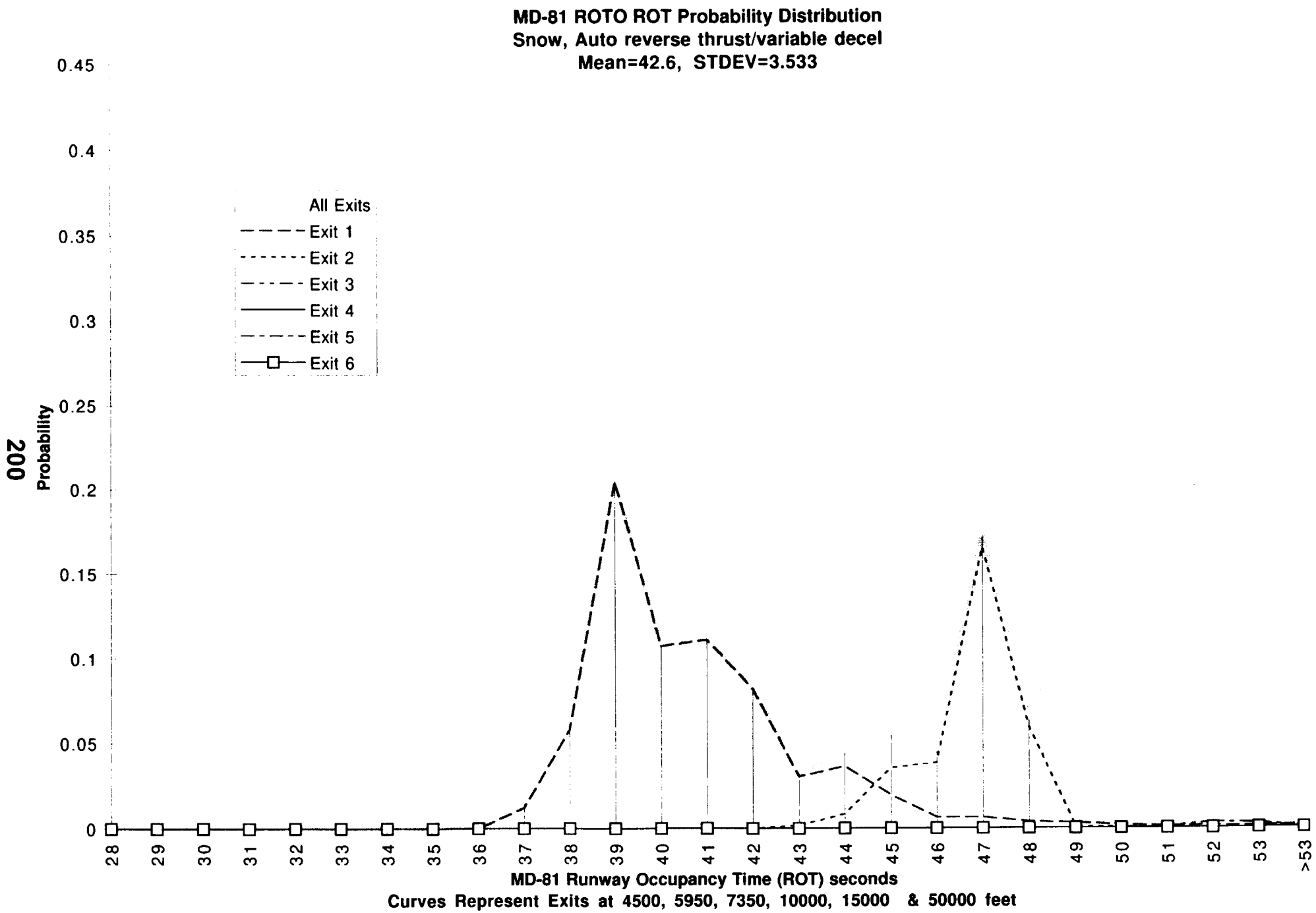
Autoreverse Thrust/variable Deceleration

Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33

CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

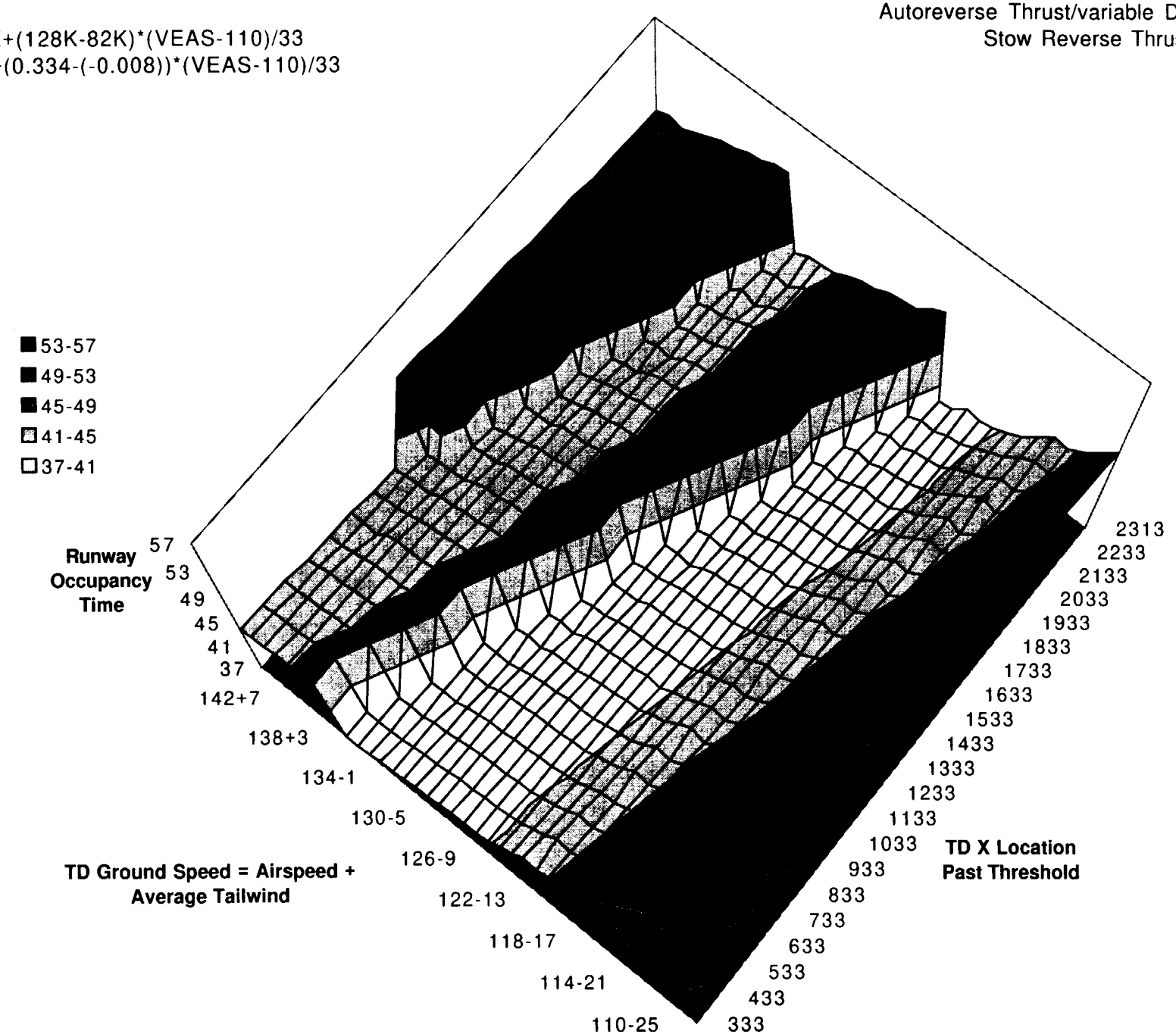


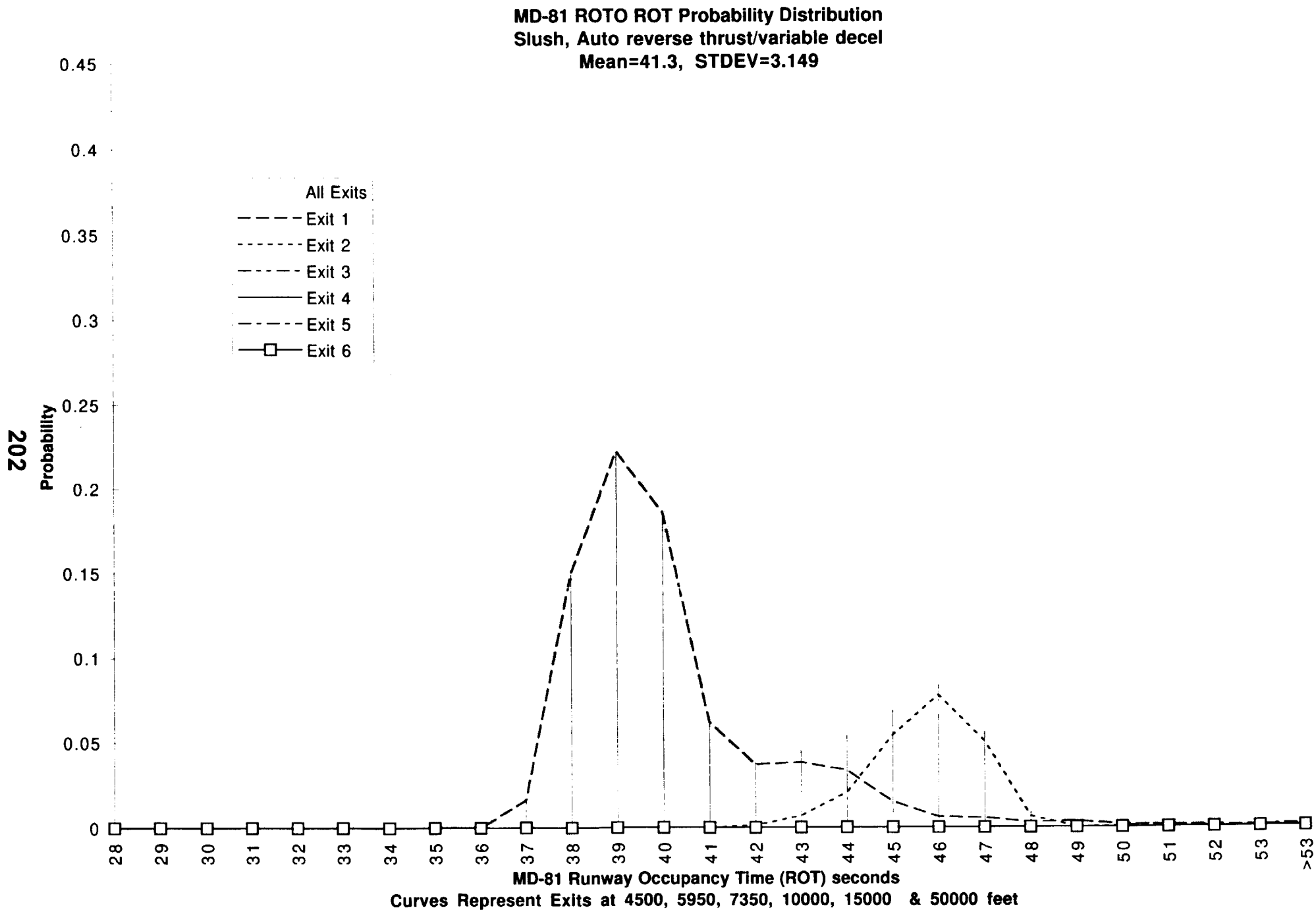

MD-81 ROTO ROT Probability Distribution
Snow, Auto reverse thrust/variable decel
Mean=42.6, STDEV=3.533
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Exit 6
Probability
200
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time Slush,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd

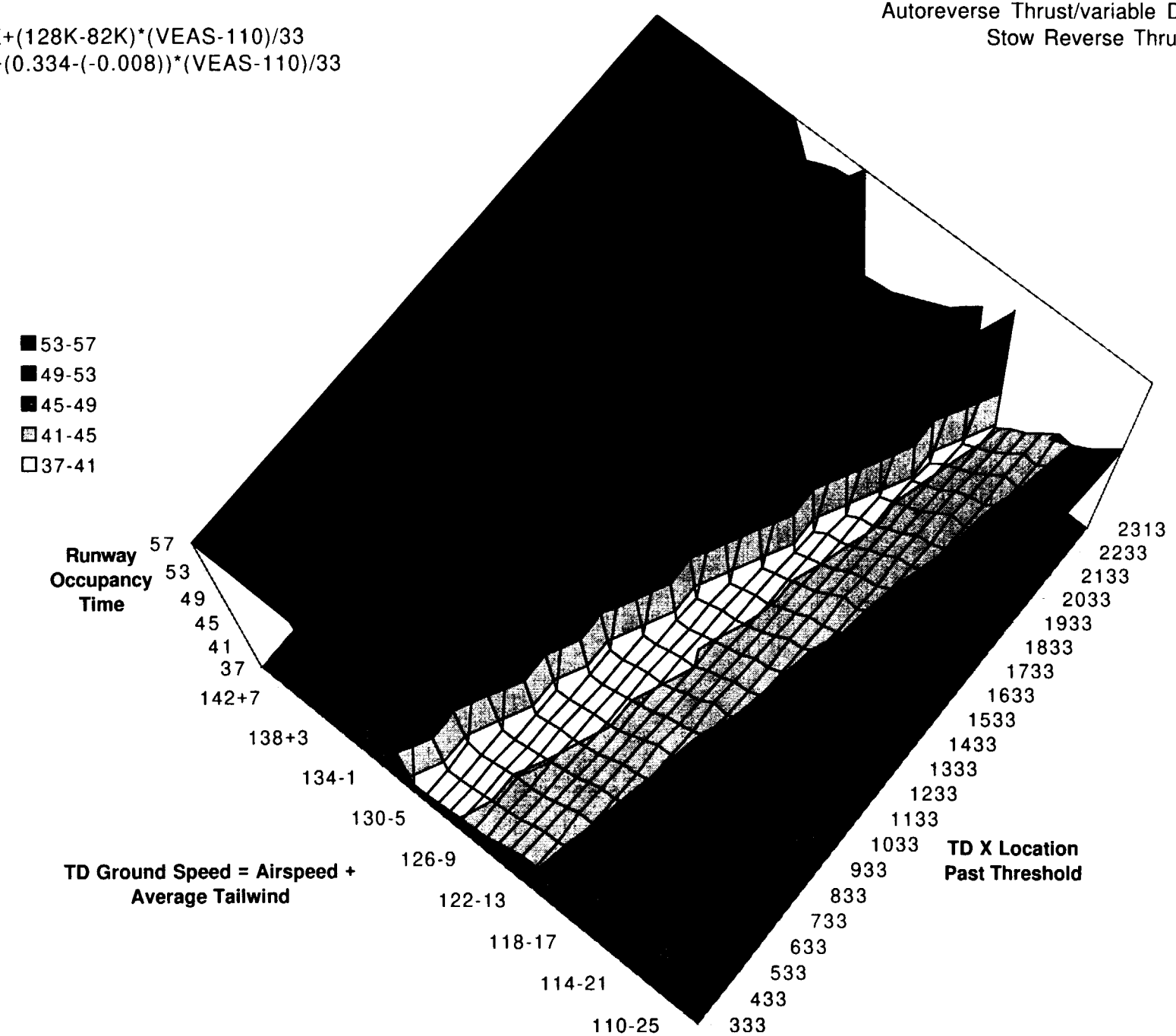



MD-81 ROTO ROT Probability Distribution
Slush, Auto reverse thrust/variable decel
Mean=41.3, STDEV=3.149
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Exit 6
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

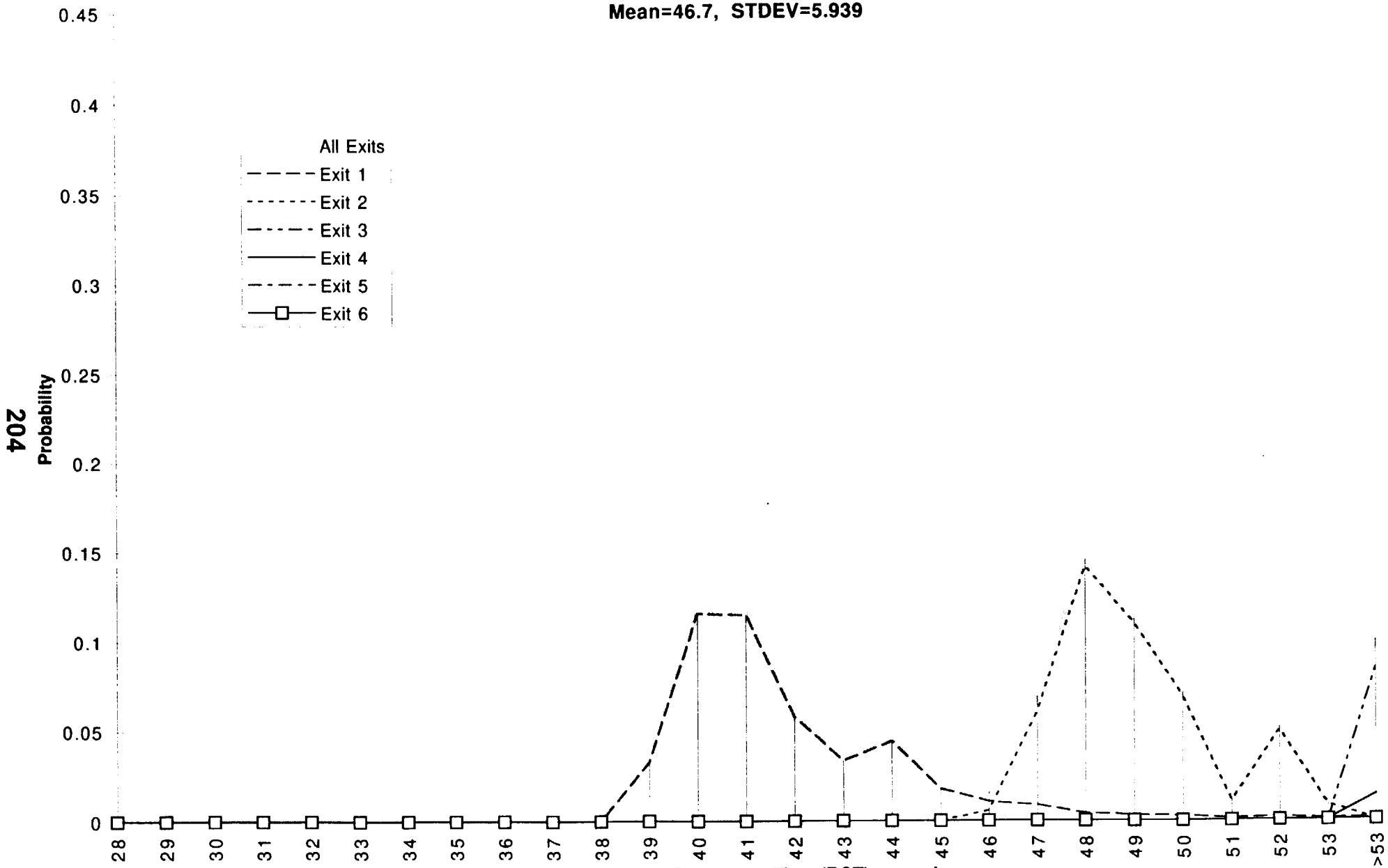
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time Flood,Exits=4500,5950,7350,10000,15000,50000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Flood, Auto reverse thrust/variable decel
Mean=46.7, STDEV=5.939



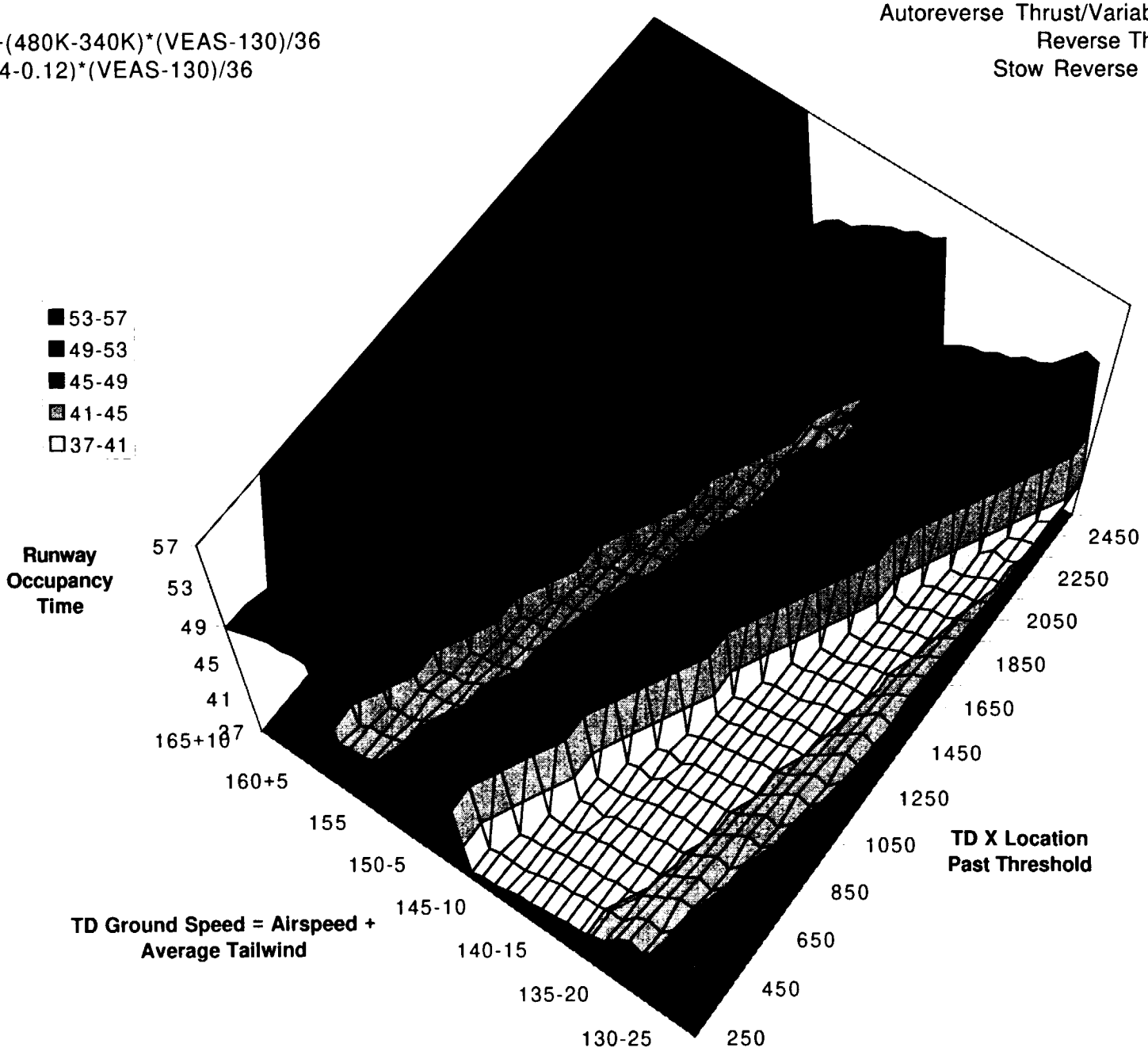
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350, 10000, 15000 & 50000 feet

Predict exit prior to TD

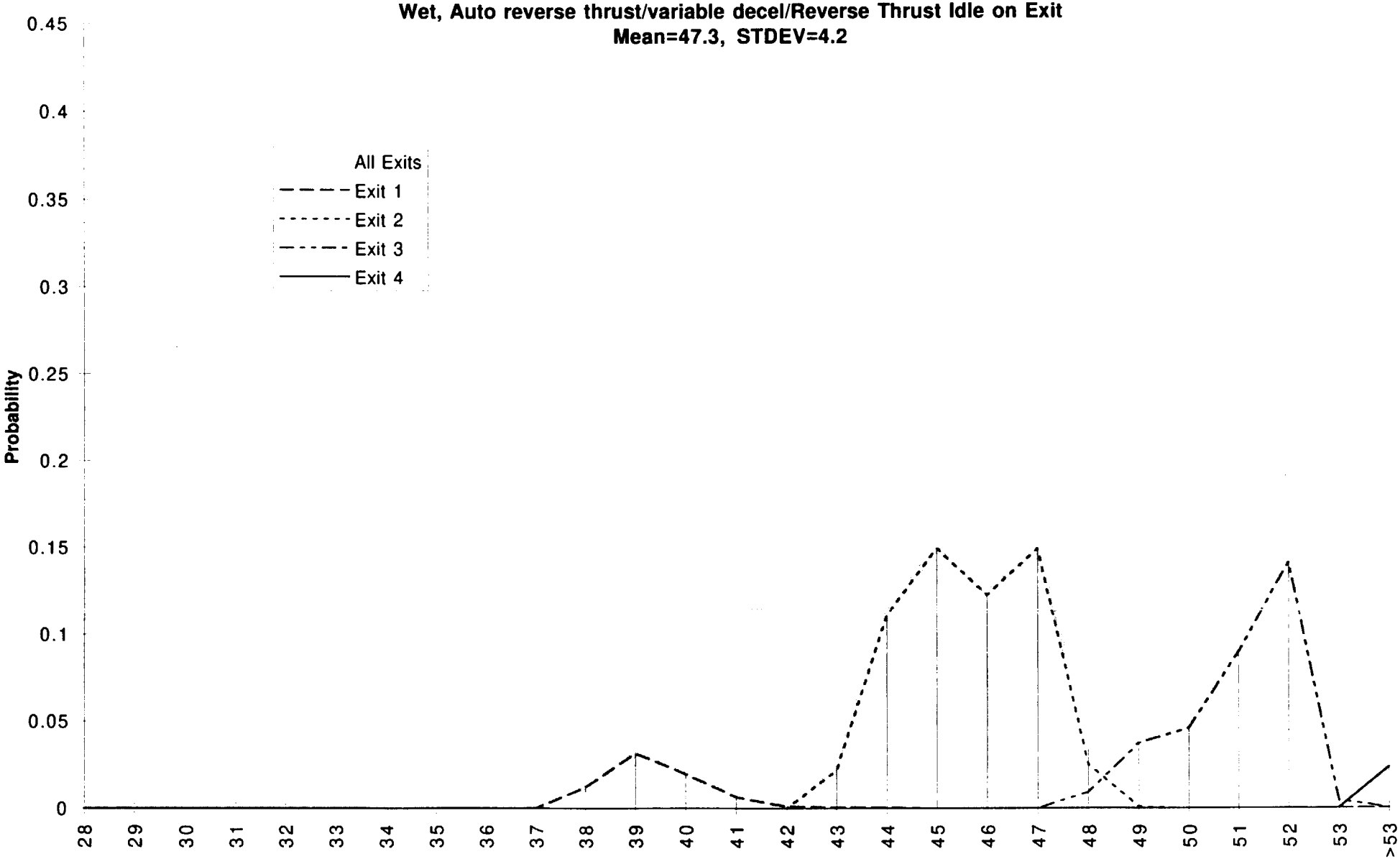
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Reverse Thrust Idle on Exit
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust Idle on Exit
Mean=47.3, STDEV=4.2



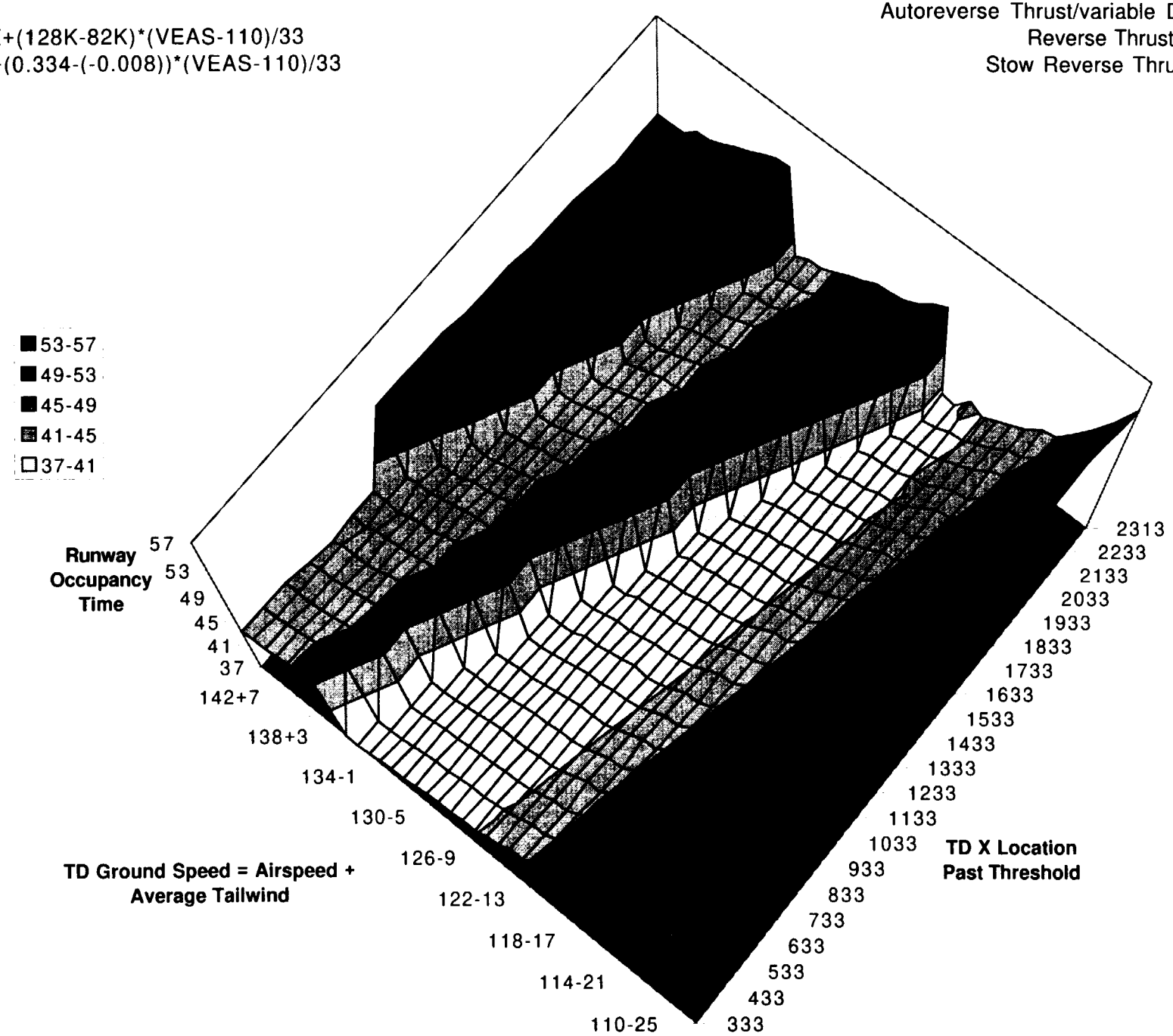
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

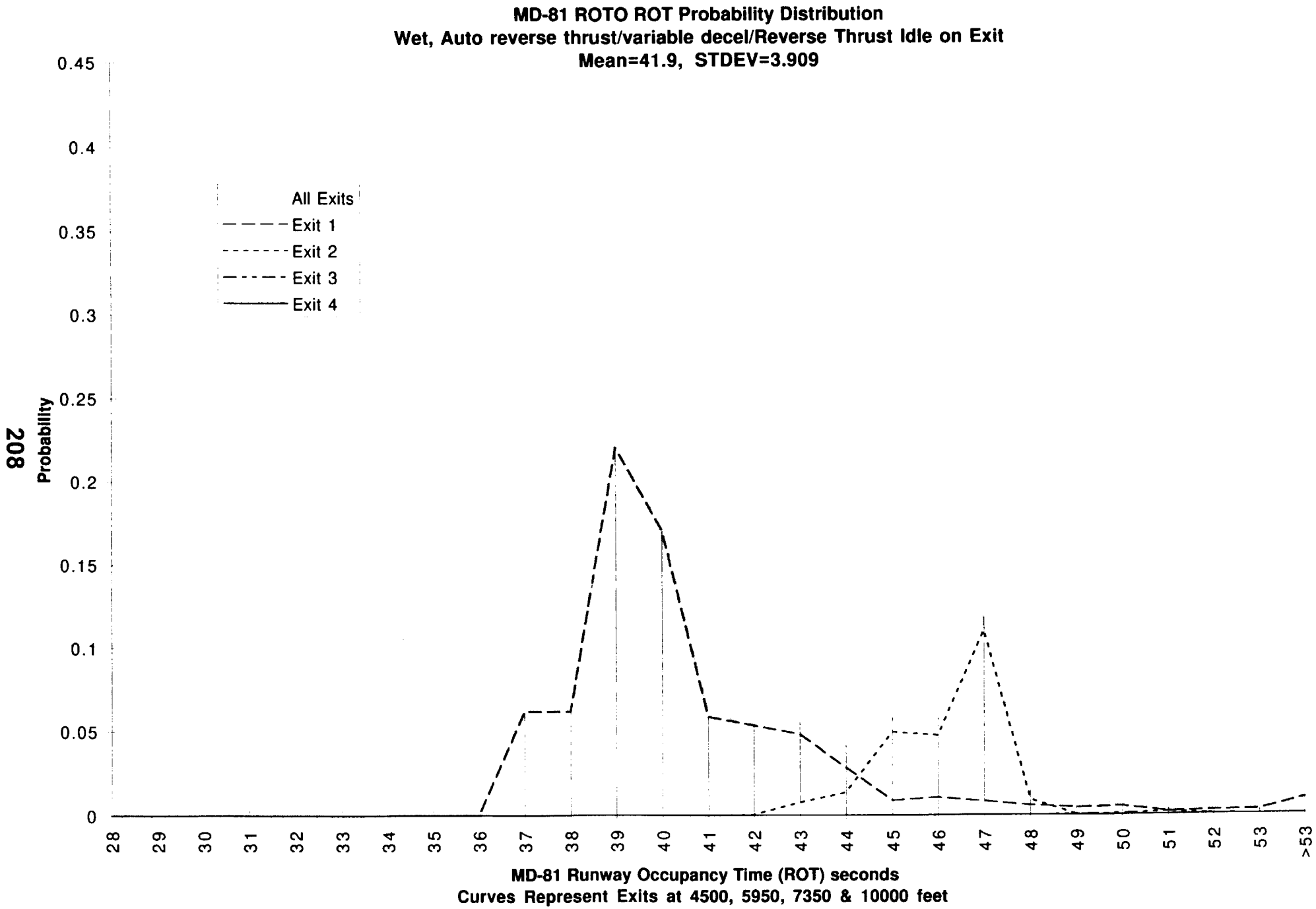
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Reverse Thrust Idle on Exit
Stow Reverse Thrust=70 kt gd



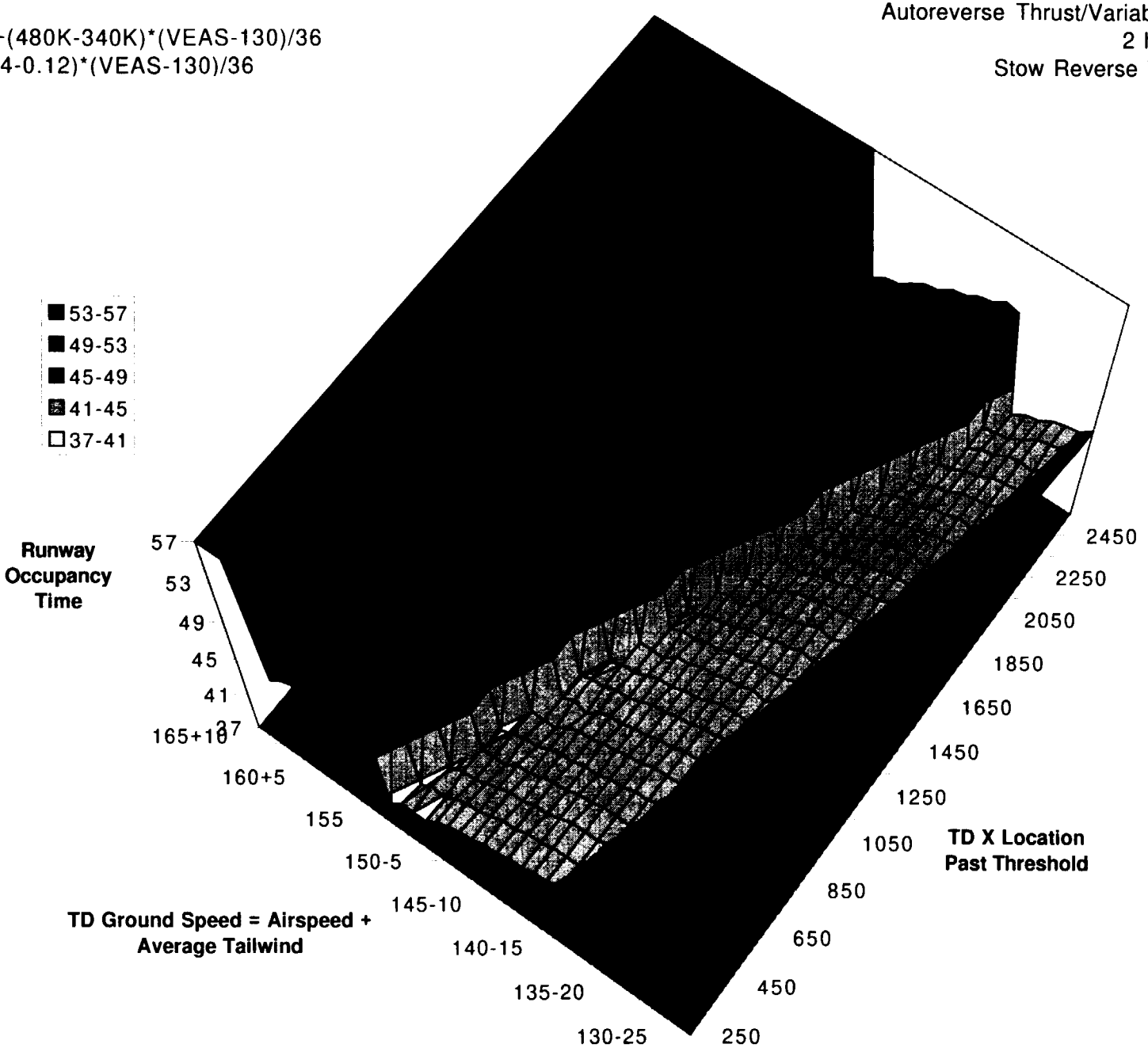

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust Idle on Exit
Mean=41.9, STDEV=3.909
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

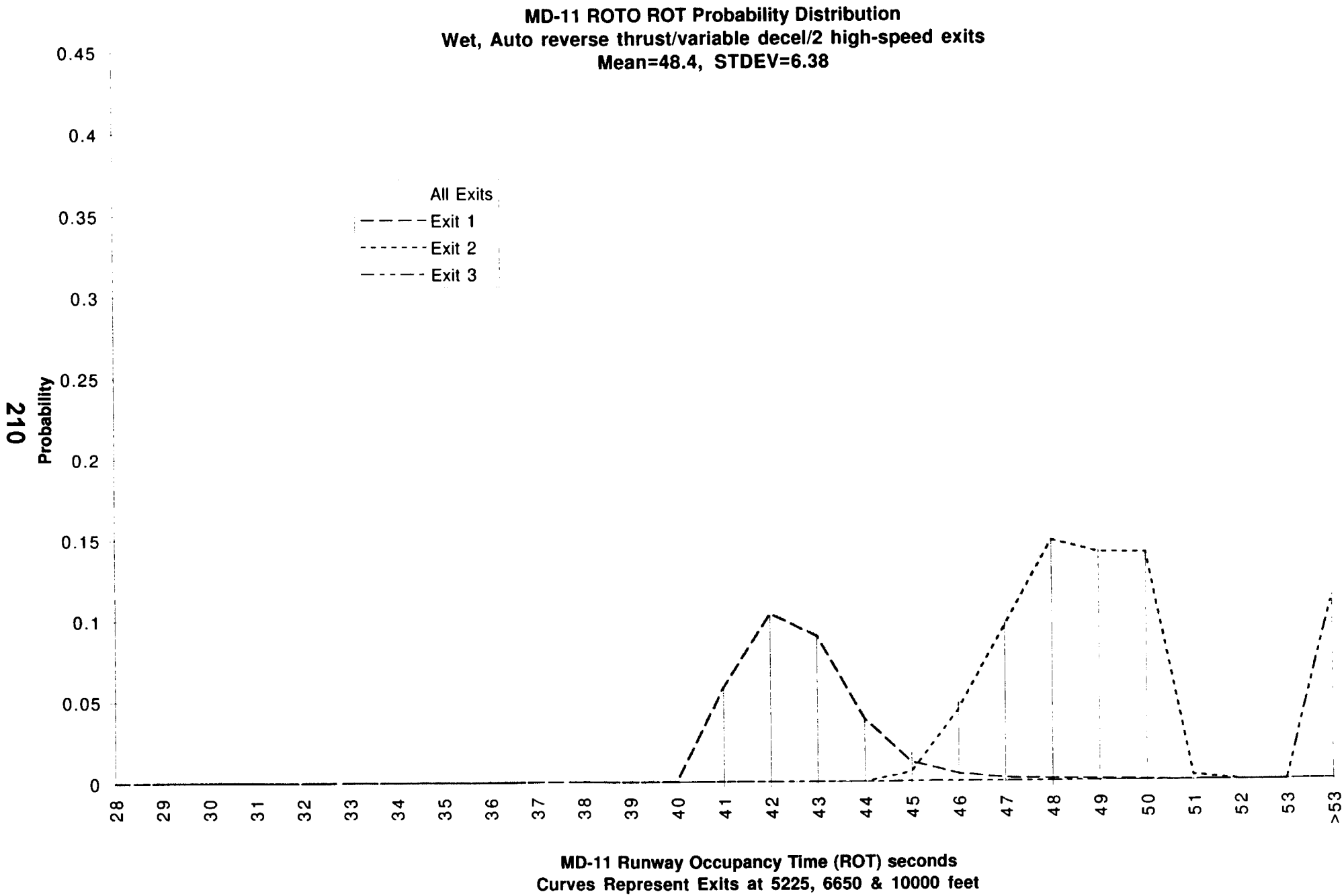
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=5225,6650,10000
Autoreverse Thrust/Variable Deceleration
2 high-speed exits
Stow Reverse Thrust=70 kt gd



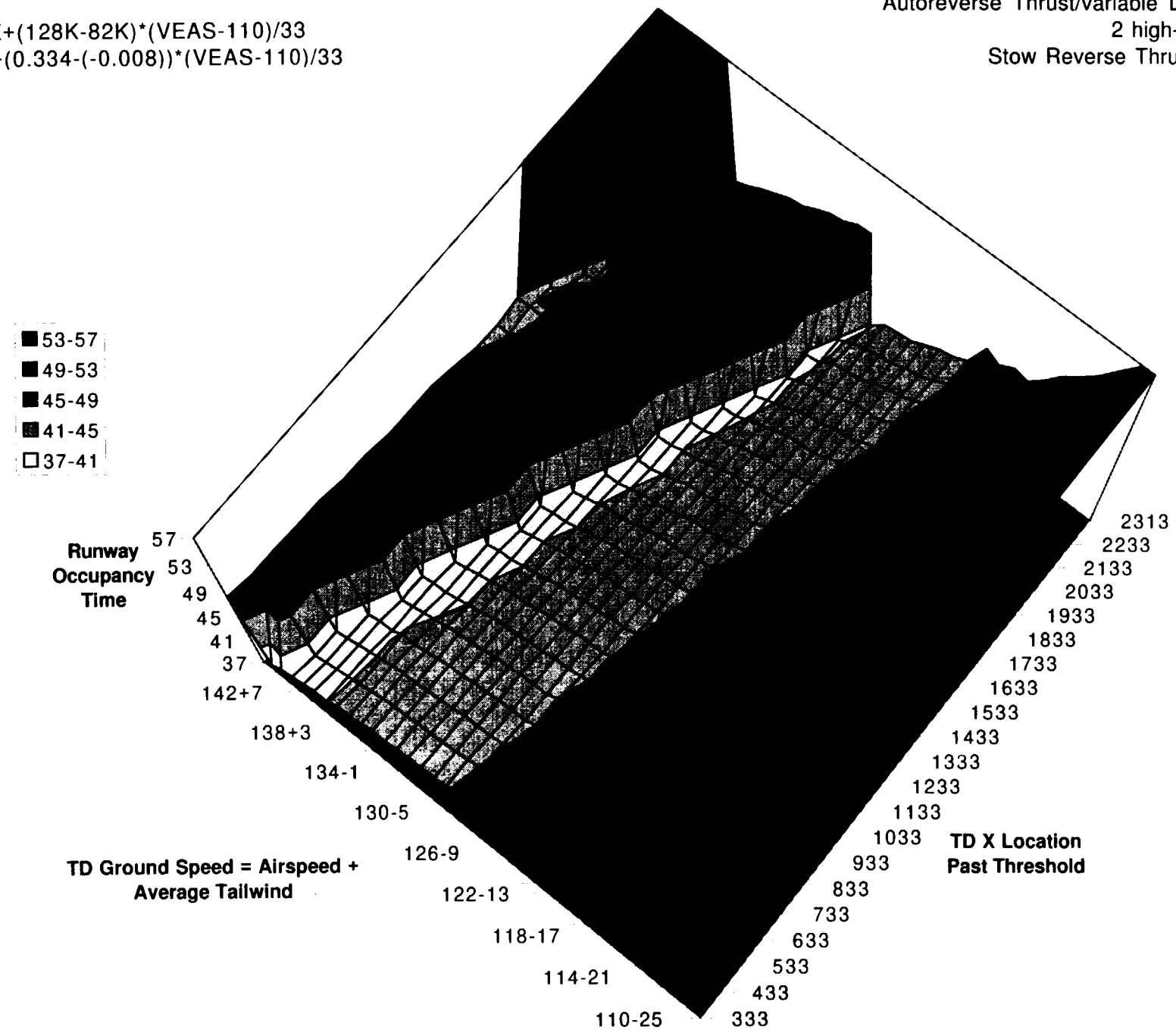

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/2 high-speed exits
Mean=48.4, STDEV=6.38
All Exits
Exit 1
Exit 2
Exit 3
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5225, 6650 & 10000 feet

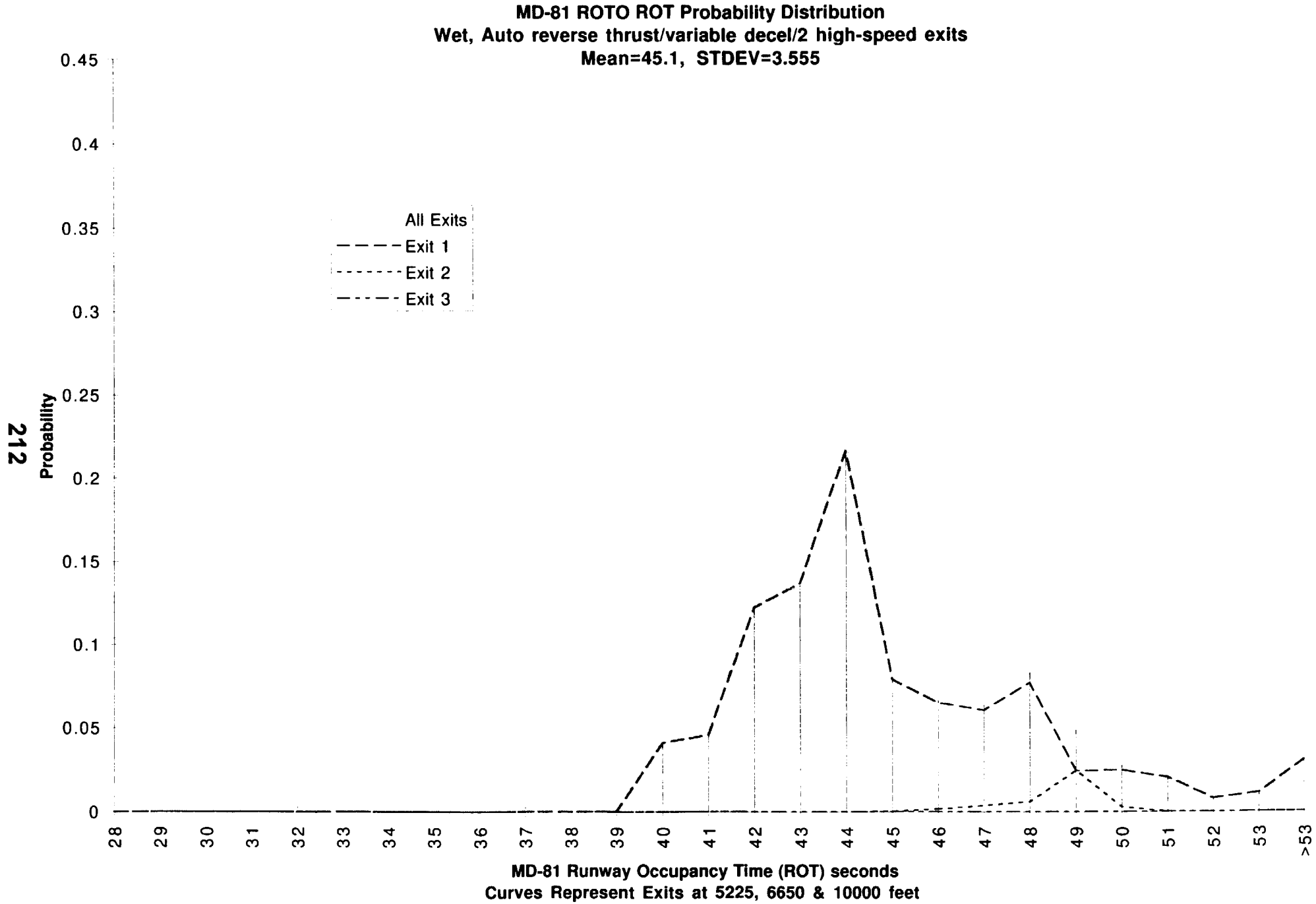
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=5225, 6650,10000
Autoreverse Thrust/variable Deceleration
2 high-speed exits
Stow Reverse Thrust=70 kt gd



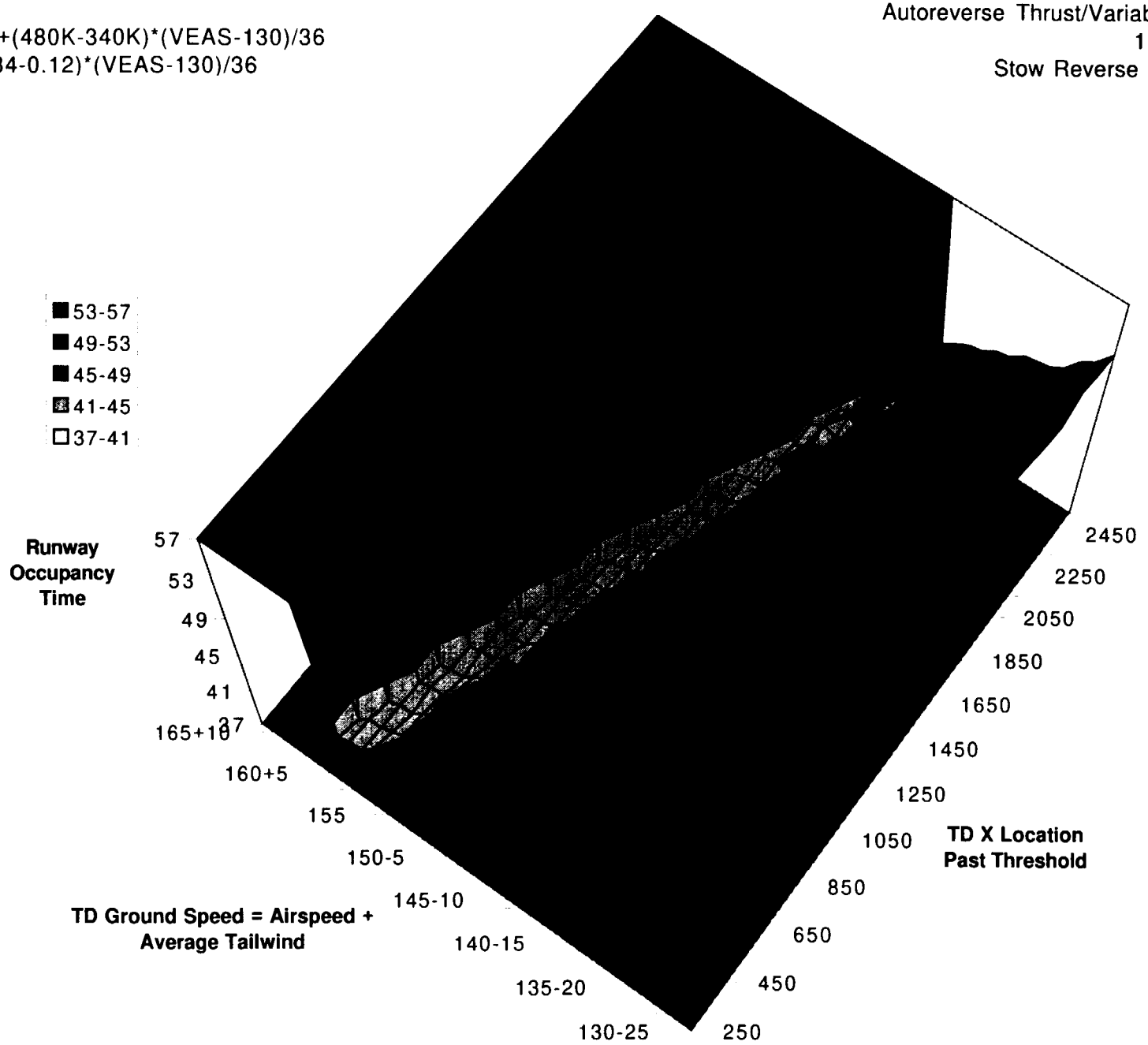

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/2 high-speed exits
Mean=45.1, STDEV=3.555
All Exits
Exit 1
Exit 2
Exit 3
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5225, 6650 & 10000 feet

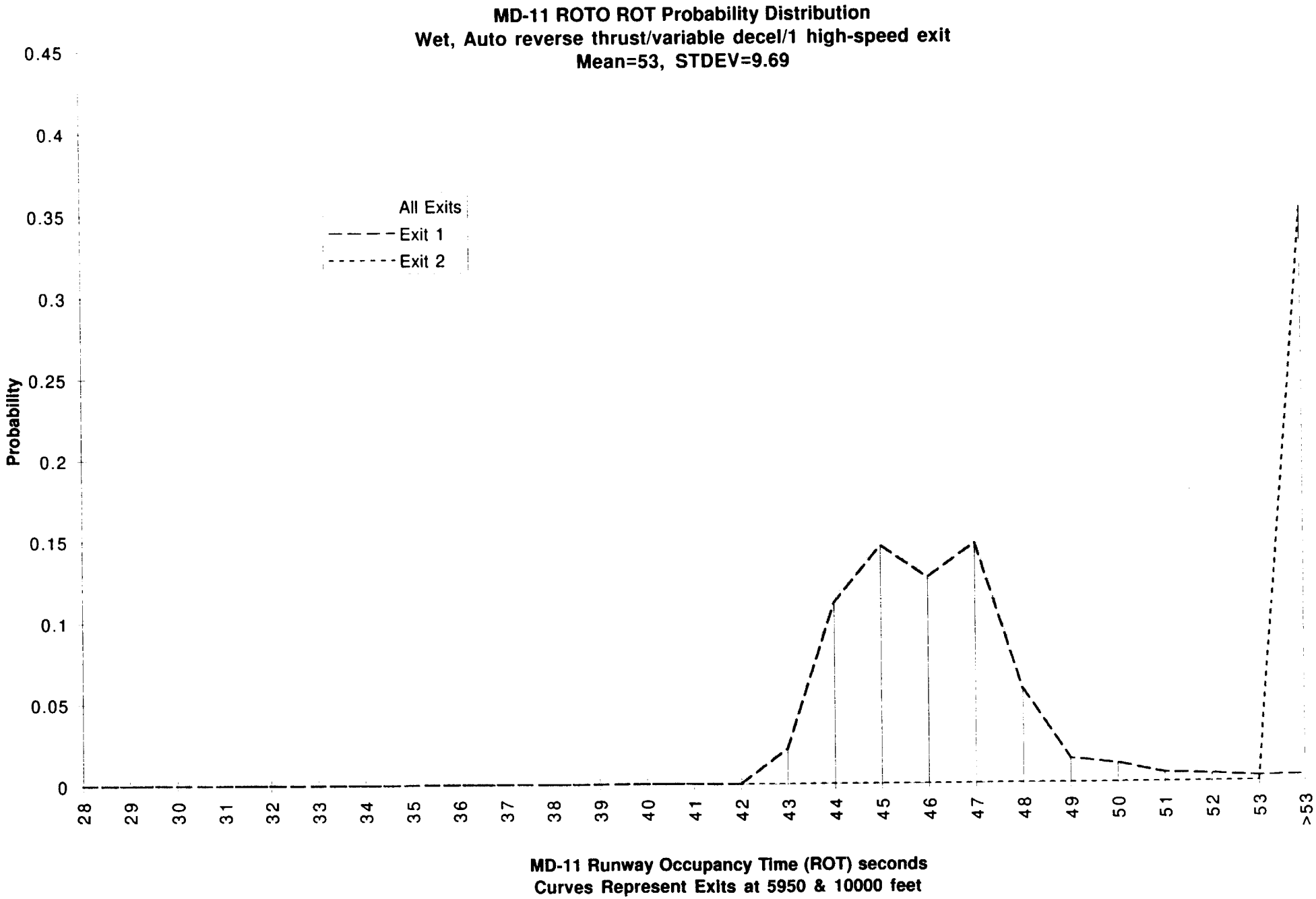
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=5950,10000
Autoreverse Thrust/Variable Deceleration
1 high-speed exit
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



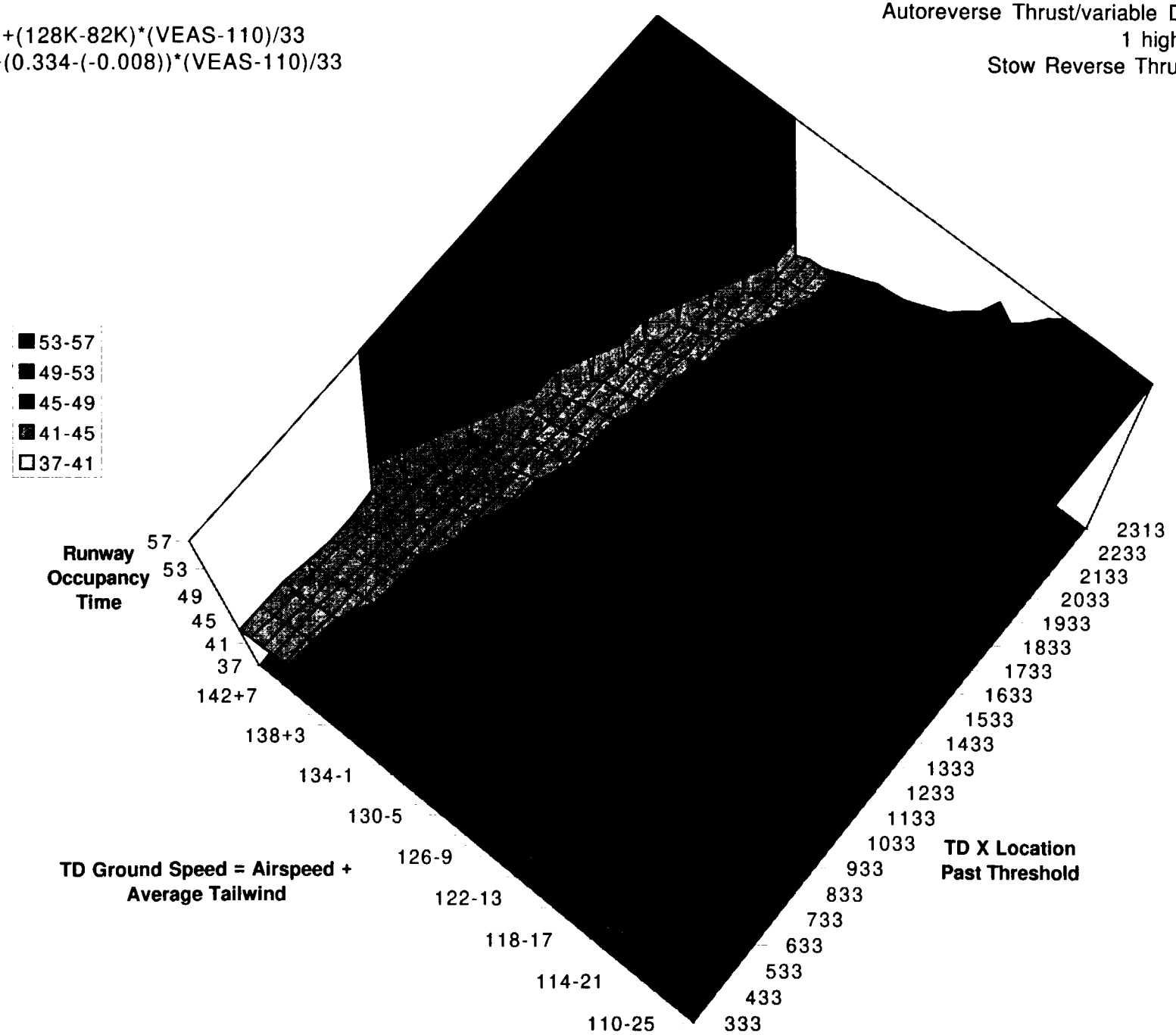

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/1 high-speed exit
Mean=53, STDEV=9.69
All Exits
Exit 1
Exit 2
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5950 & 10000 feet

Predict exit prior to TD

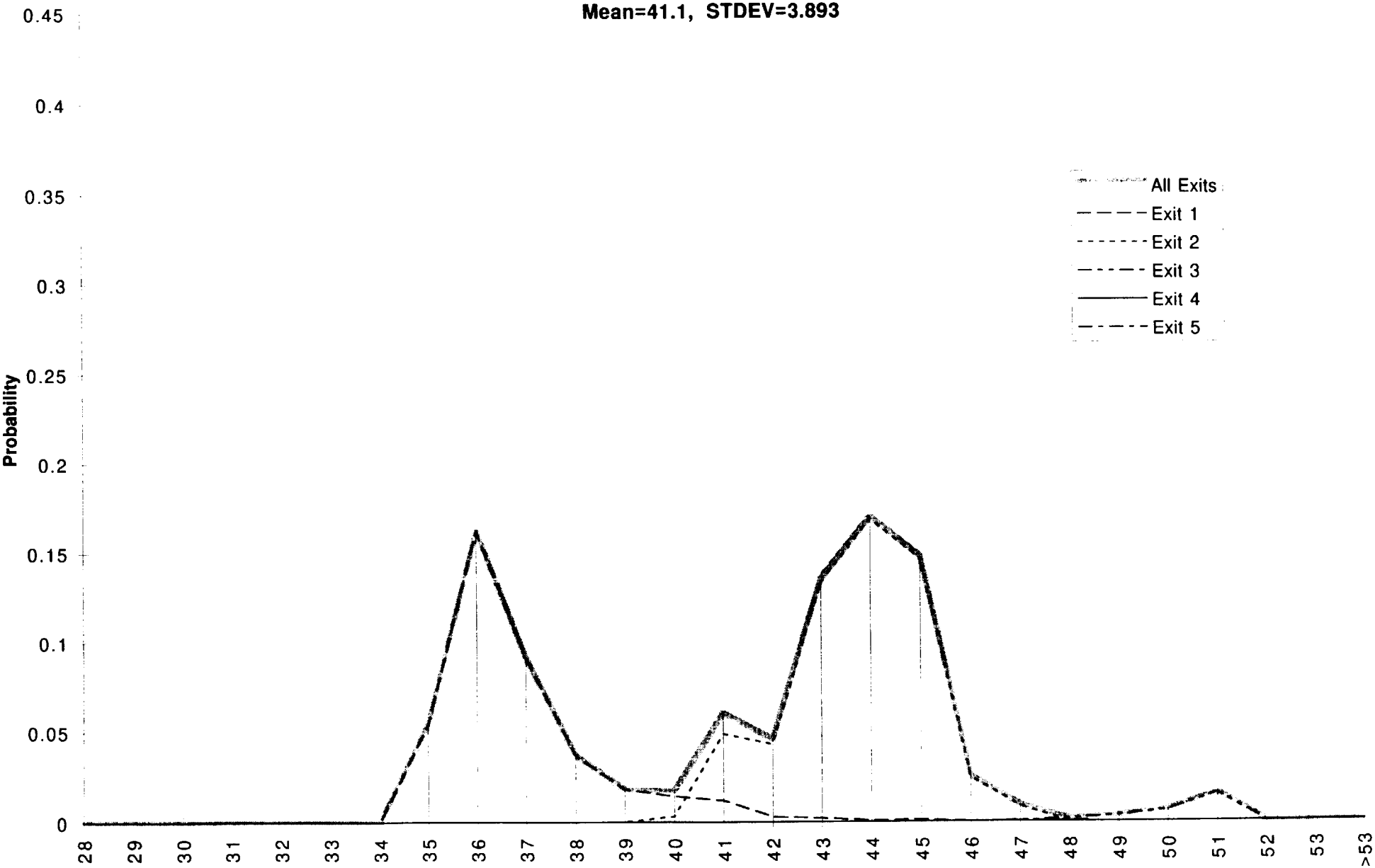
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=5950,10000
Autoreverse Thrust/variable Deceleration
1 high-speed exit
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/4th exit location at 8300
Mean=41.1, STDEV=3.893



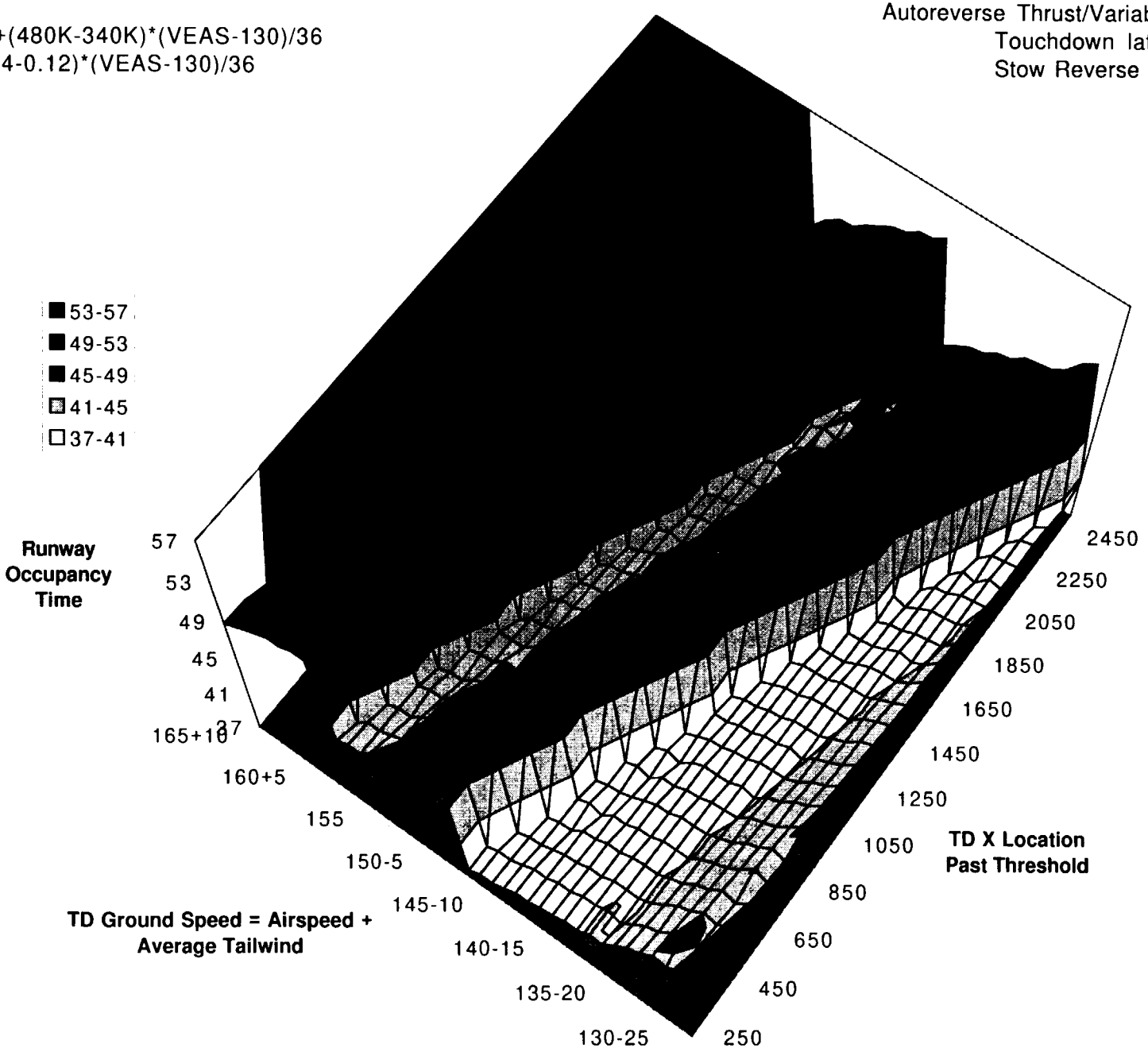
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950, 8300 & 10000 feet

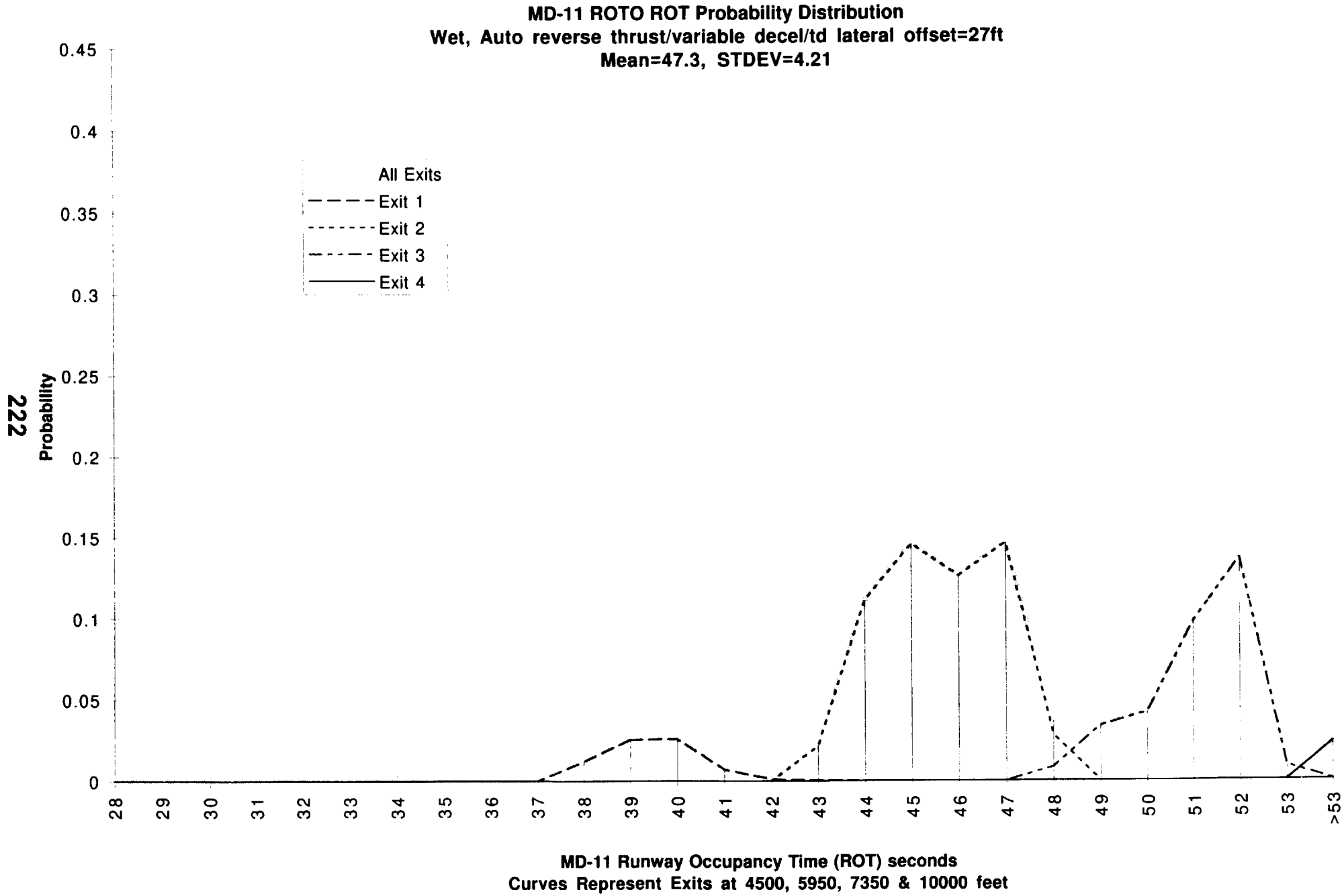
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Touchdown lateral offset=27ft
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/td lateral offset=27ft
Mean=47.3, STDEV=4.21
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
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40
41
42
43
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45
46
47
48
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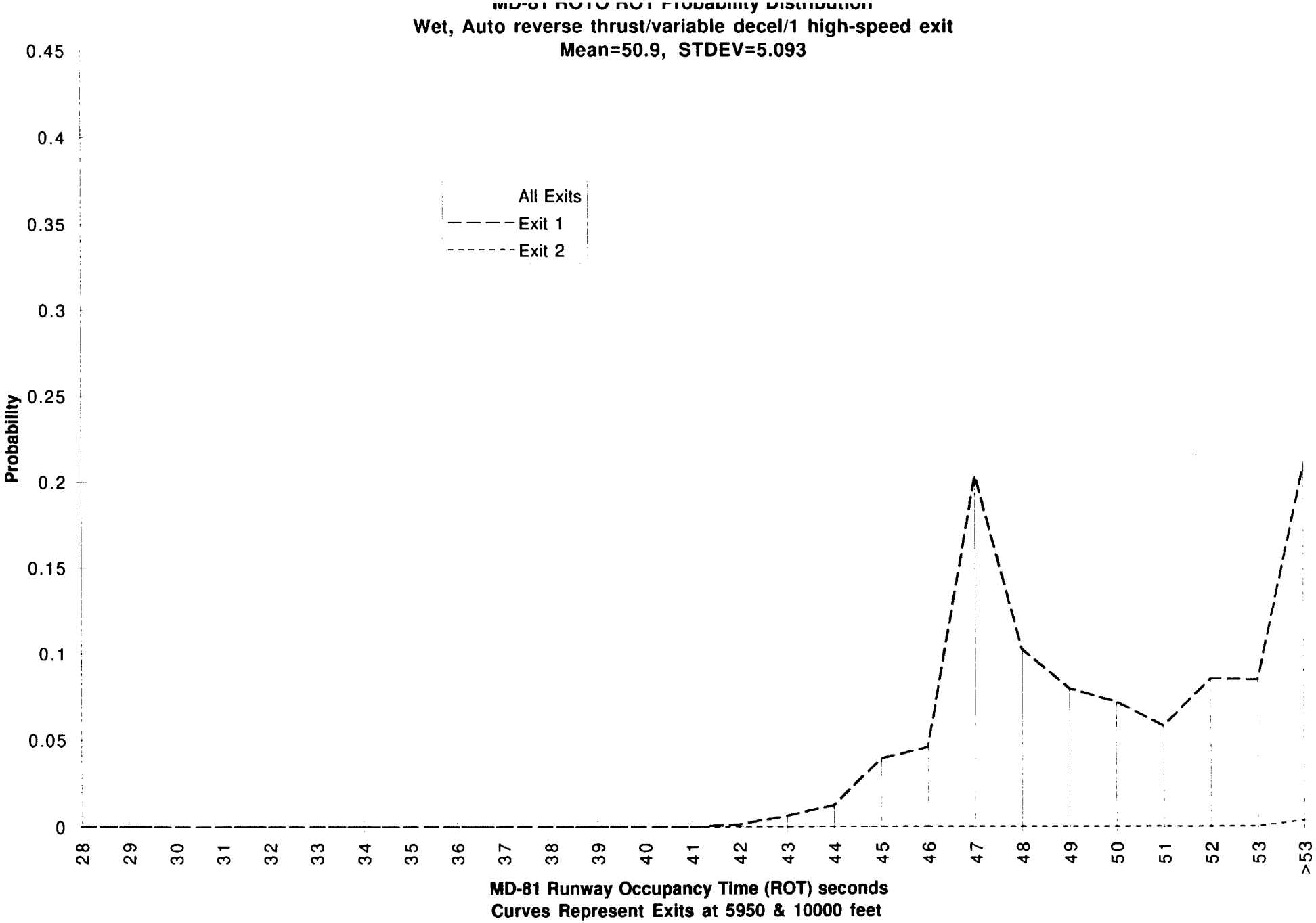
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet


MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/1 high-speed exit
Mean=50.9, STDEV=5.093
All Exits
Exit 1
Exit 2
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
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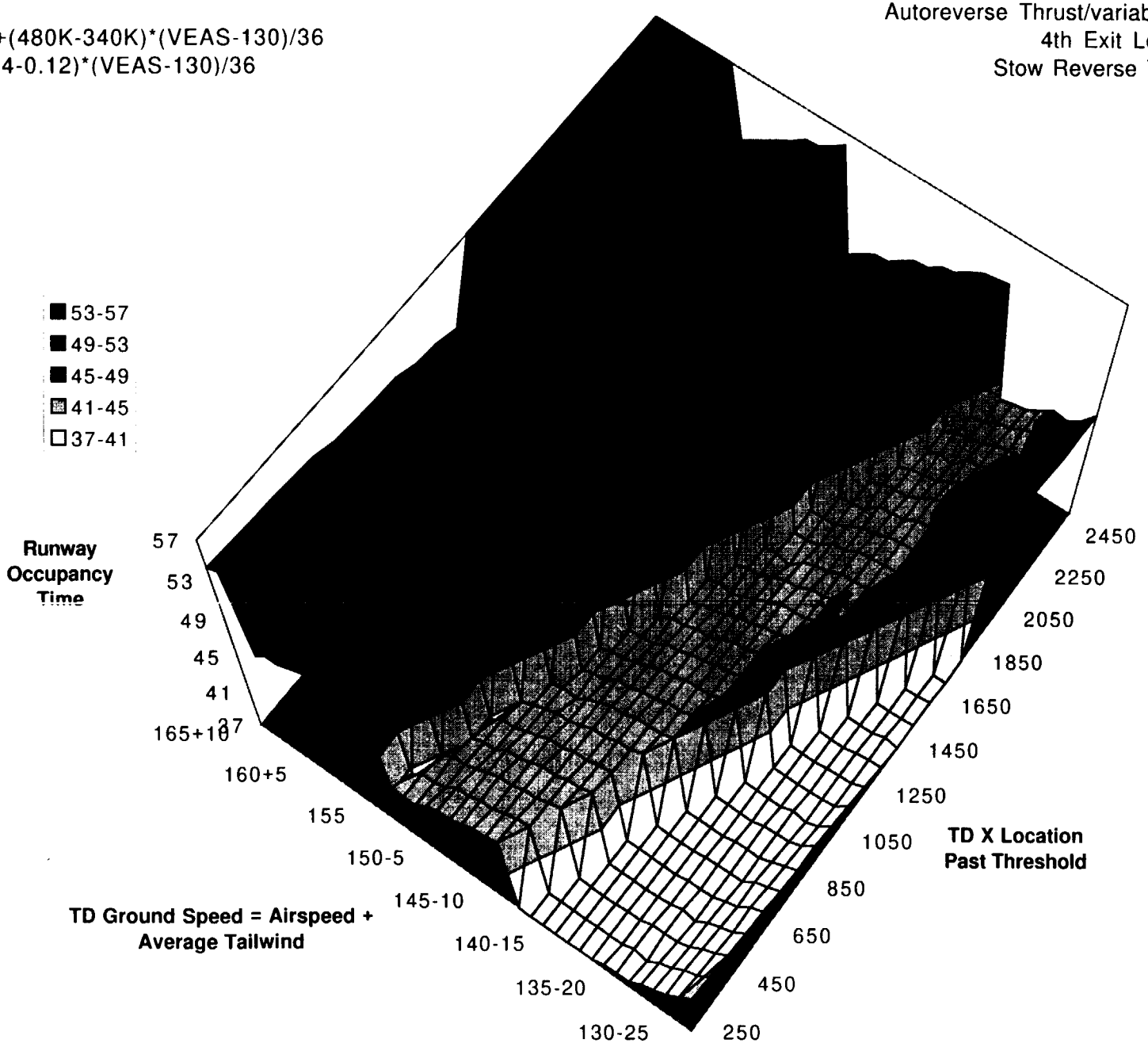
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 5950 & 10000 feet

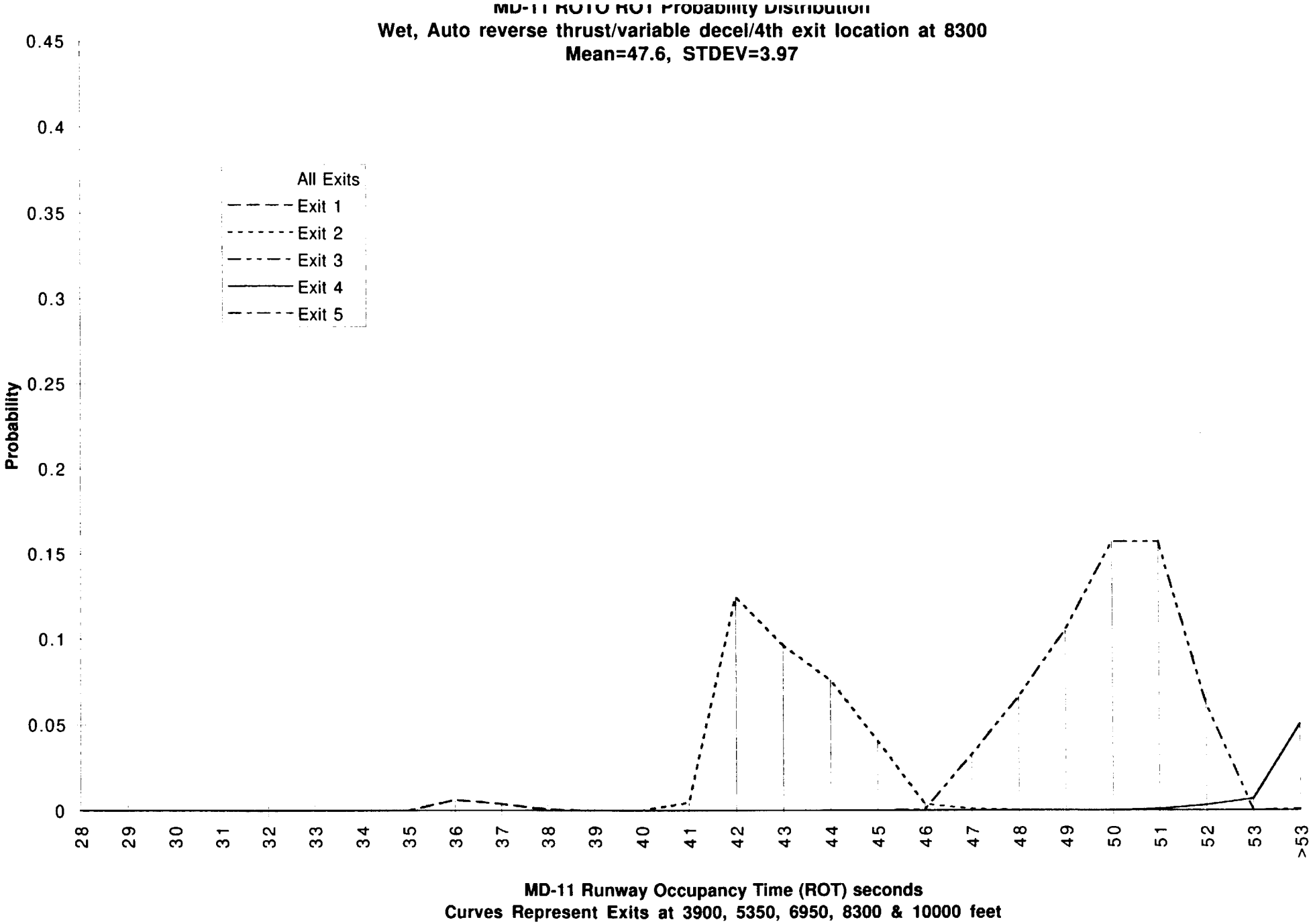
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,8300,10000
Autoreverse Thrust/variable Deceleration
4th Exit Location at 8300
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/4th exit location at 8300
Mean=47.6, STDEV=3.97
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Exit 5
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
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41
42
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45
46
47
48
49
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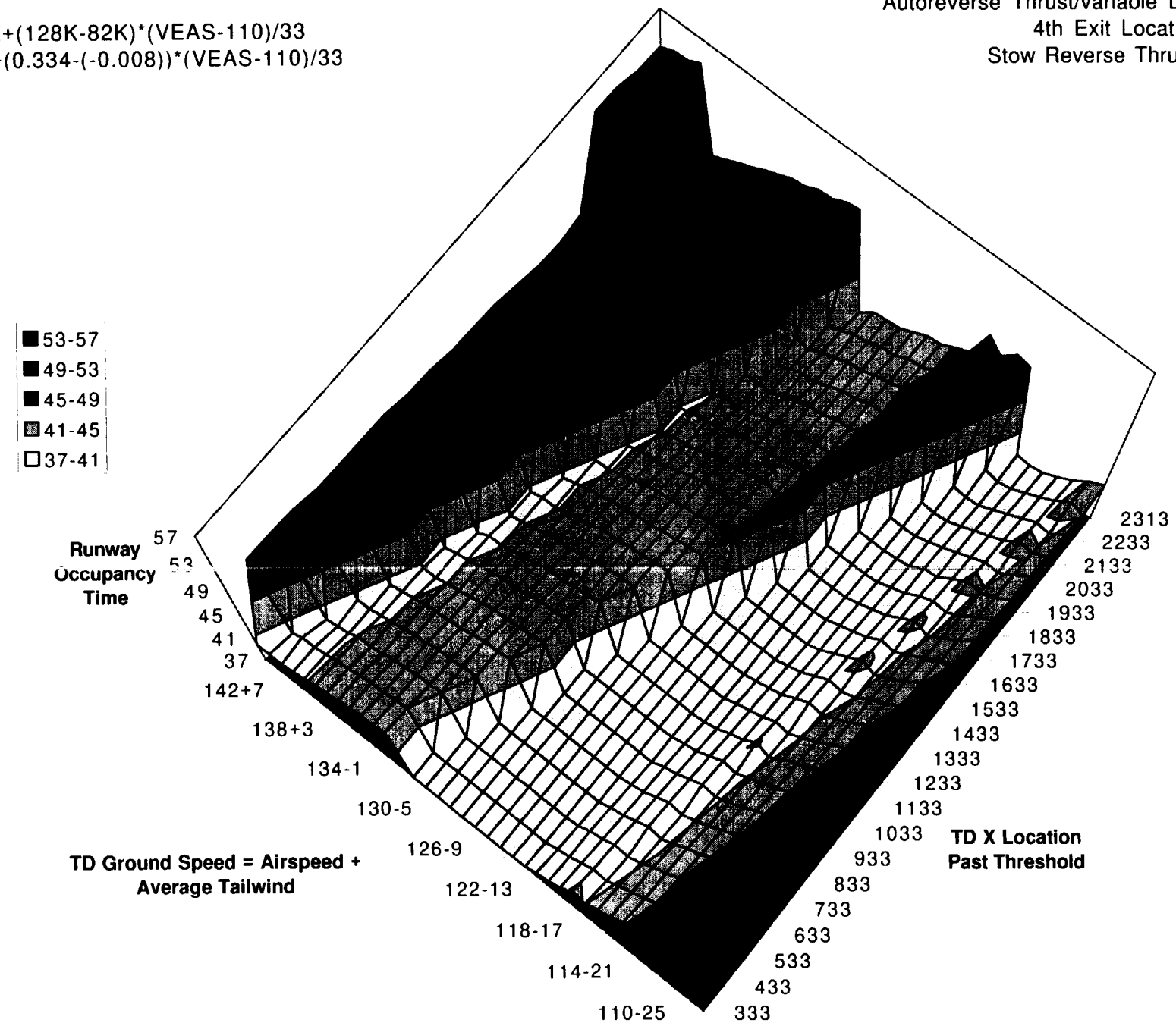
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950, 8300 & 10000 feet

Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,8300,10000
Autoreverse Thrust/variable Deceleration
4th Exit Location at 8300
Stow Reverse Thrust=70 kt gd

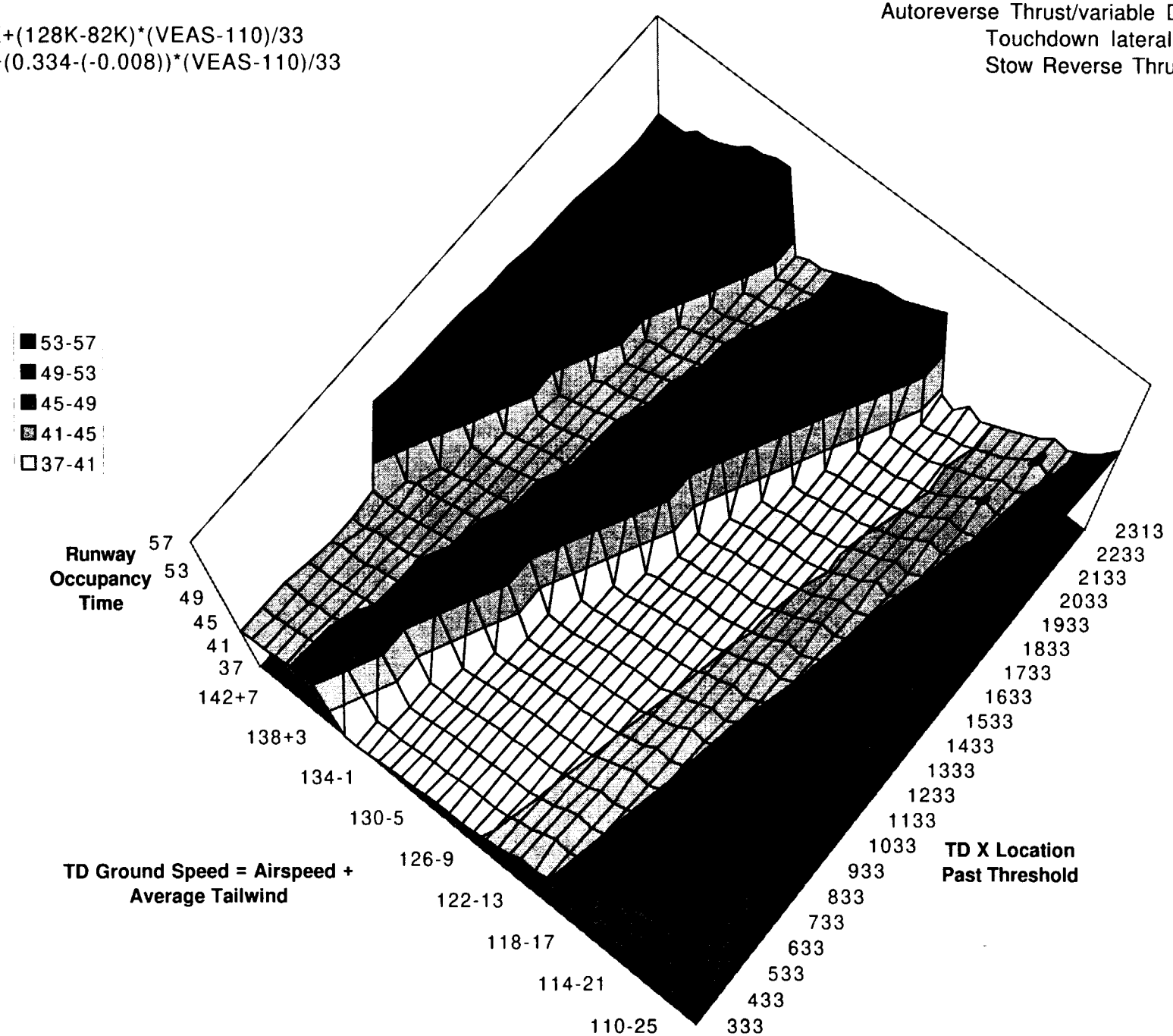


Predict exit prior to TD

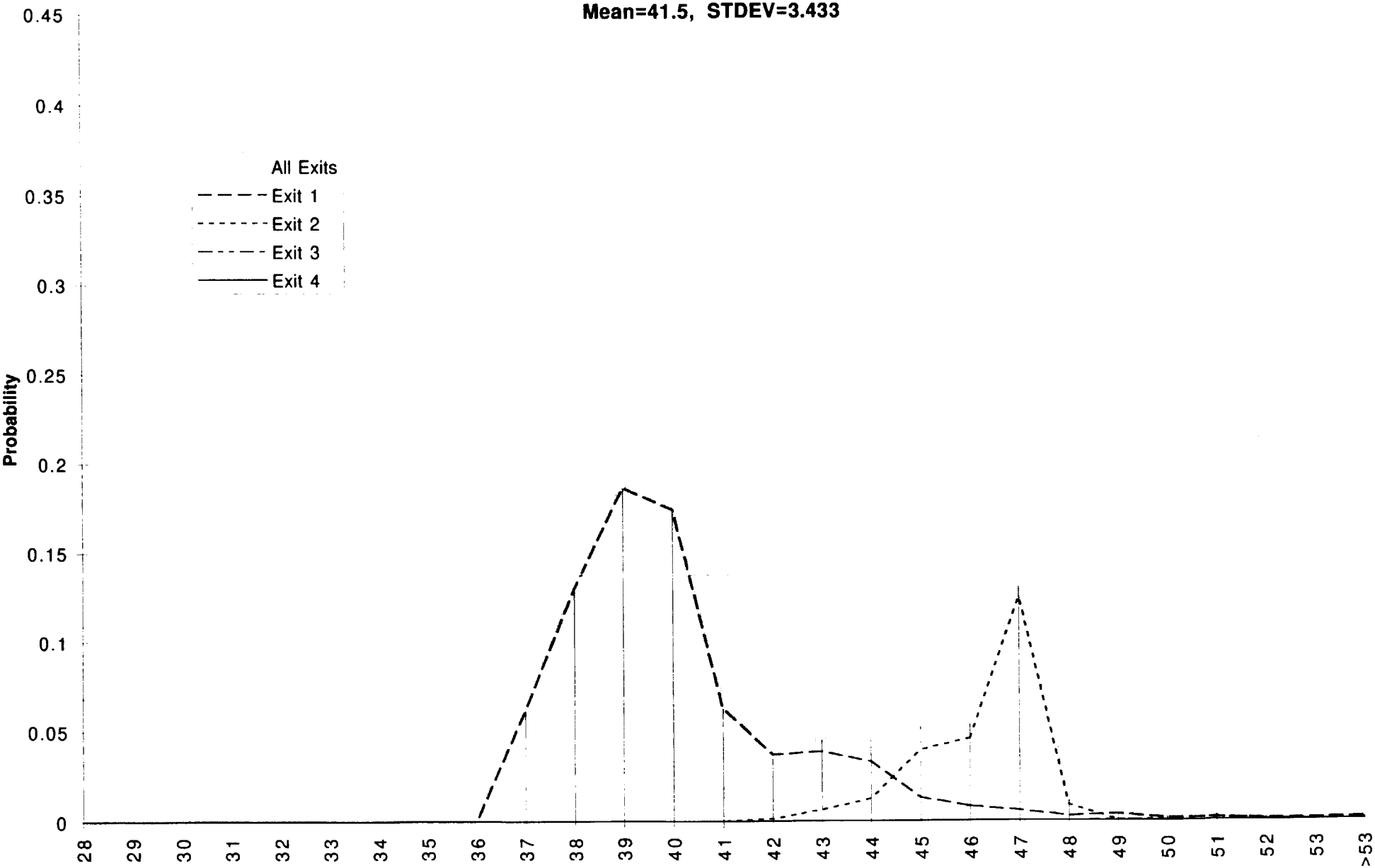
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Touchdown lateral offset=27ft
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/td lateral offset=27ft
Mean=41.5, STDEV=3.433



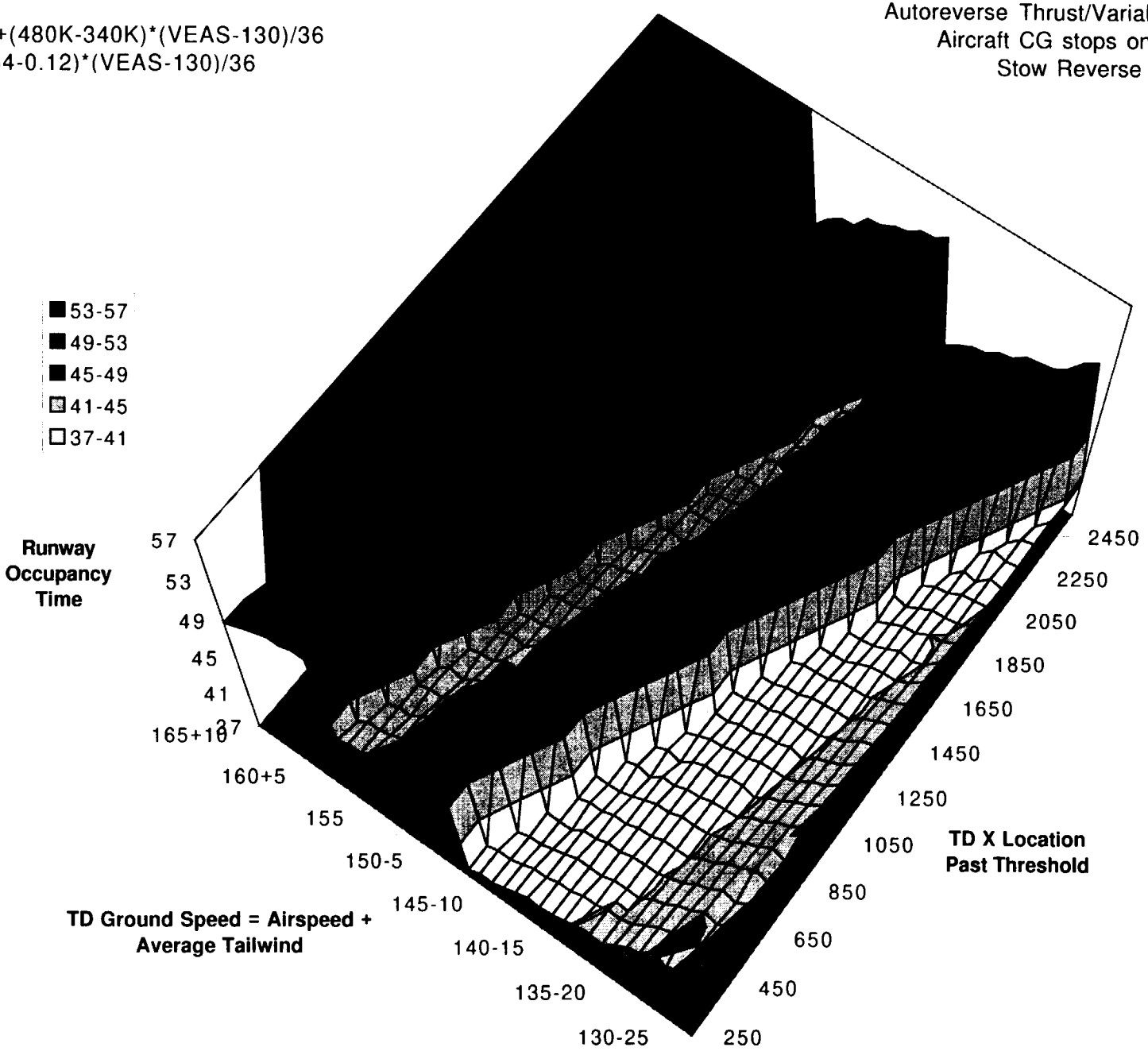
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

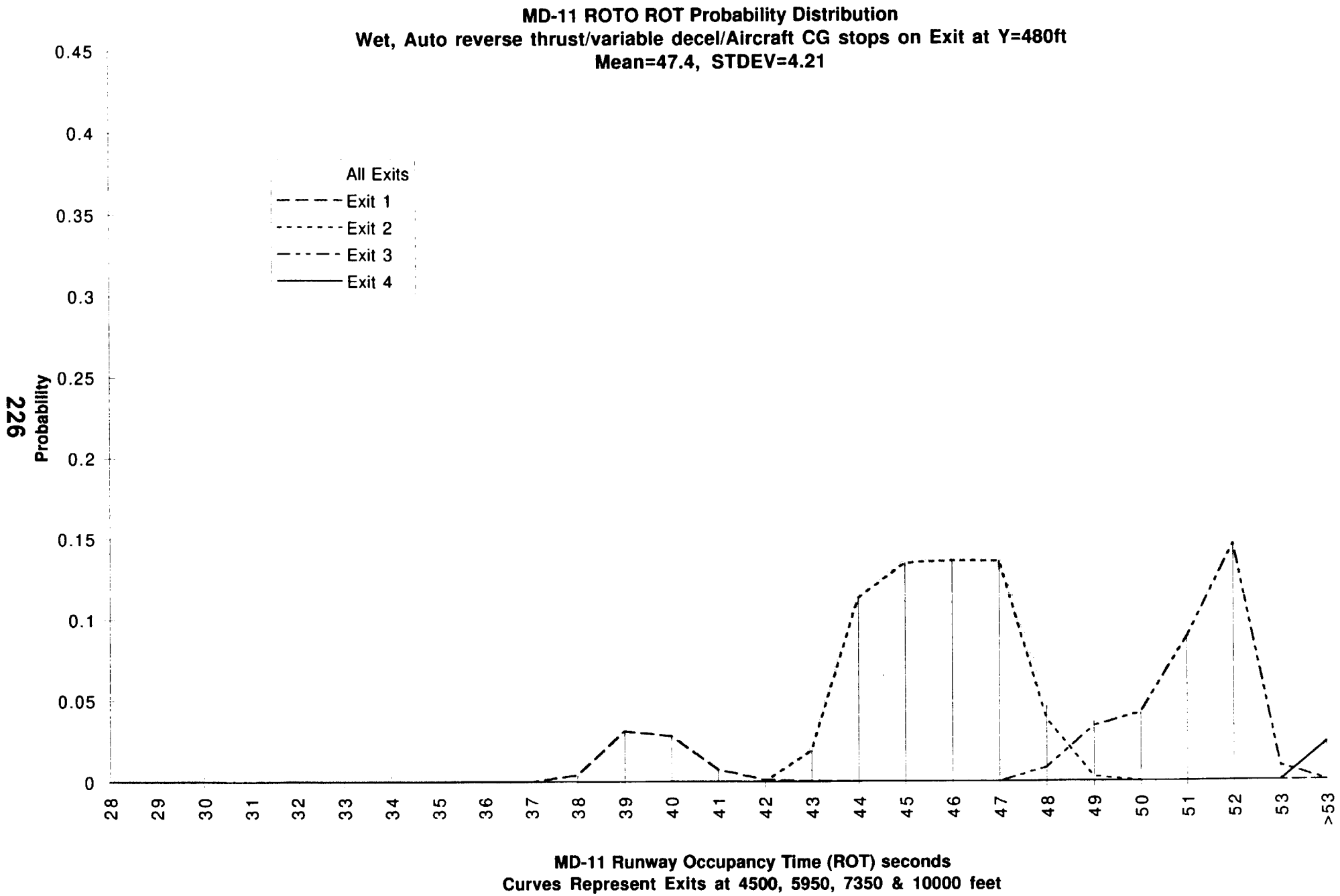
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Aircraft CG stops on Exit at Y=480ft
Stow Reverse Thrust=70 kt gd




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Aircraft CG stops on Exit at Y=480ft
Mean=47.4, STDEV=4.21
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
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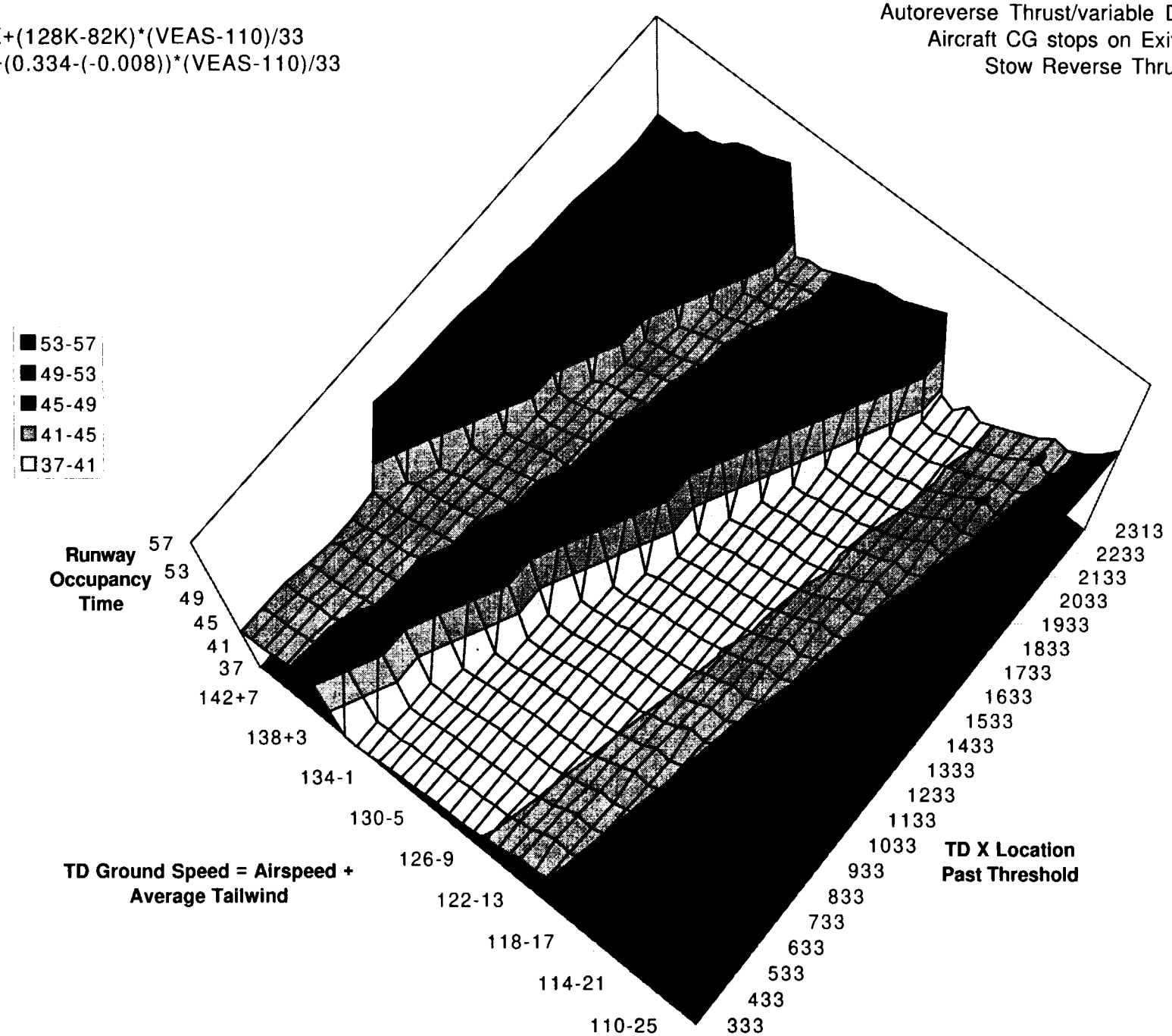
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

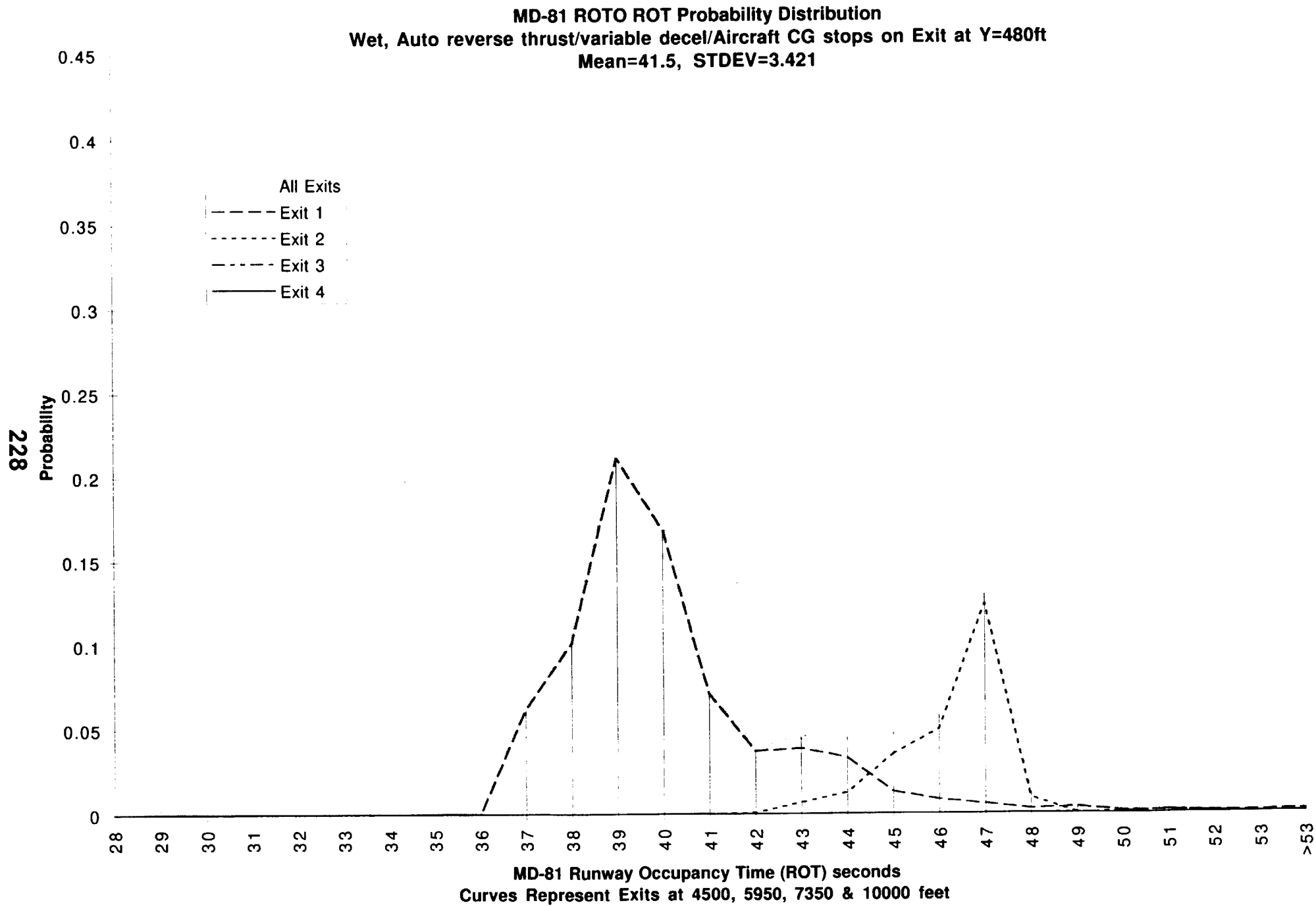
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Aircraft CG stops on Exit at Y=480ft
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Aircraft CG stops on Exit at Y=480ft
Mean=41.5, STDEV=3.421
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
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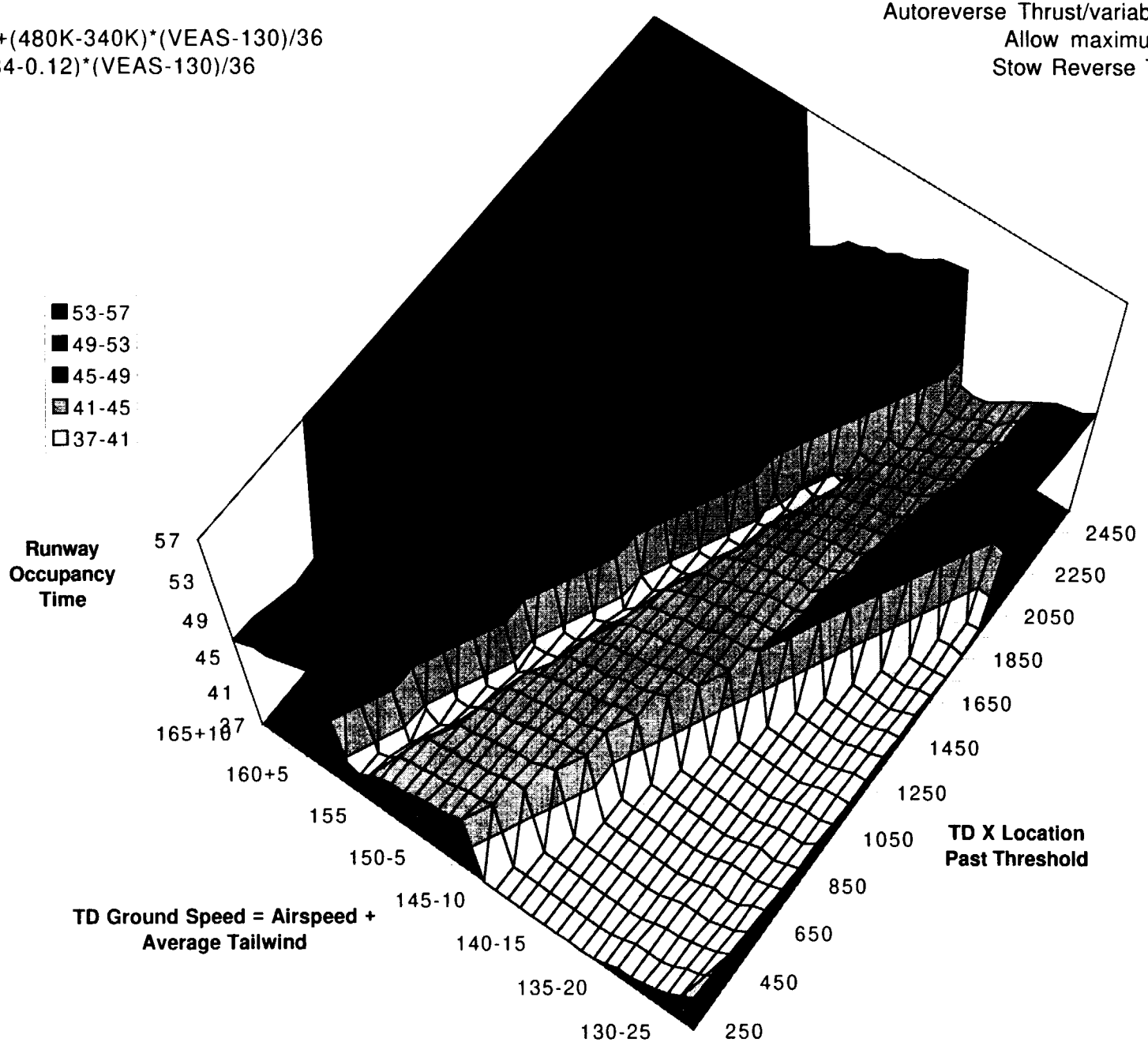
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

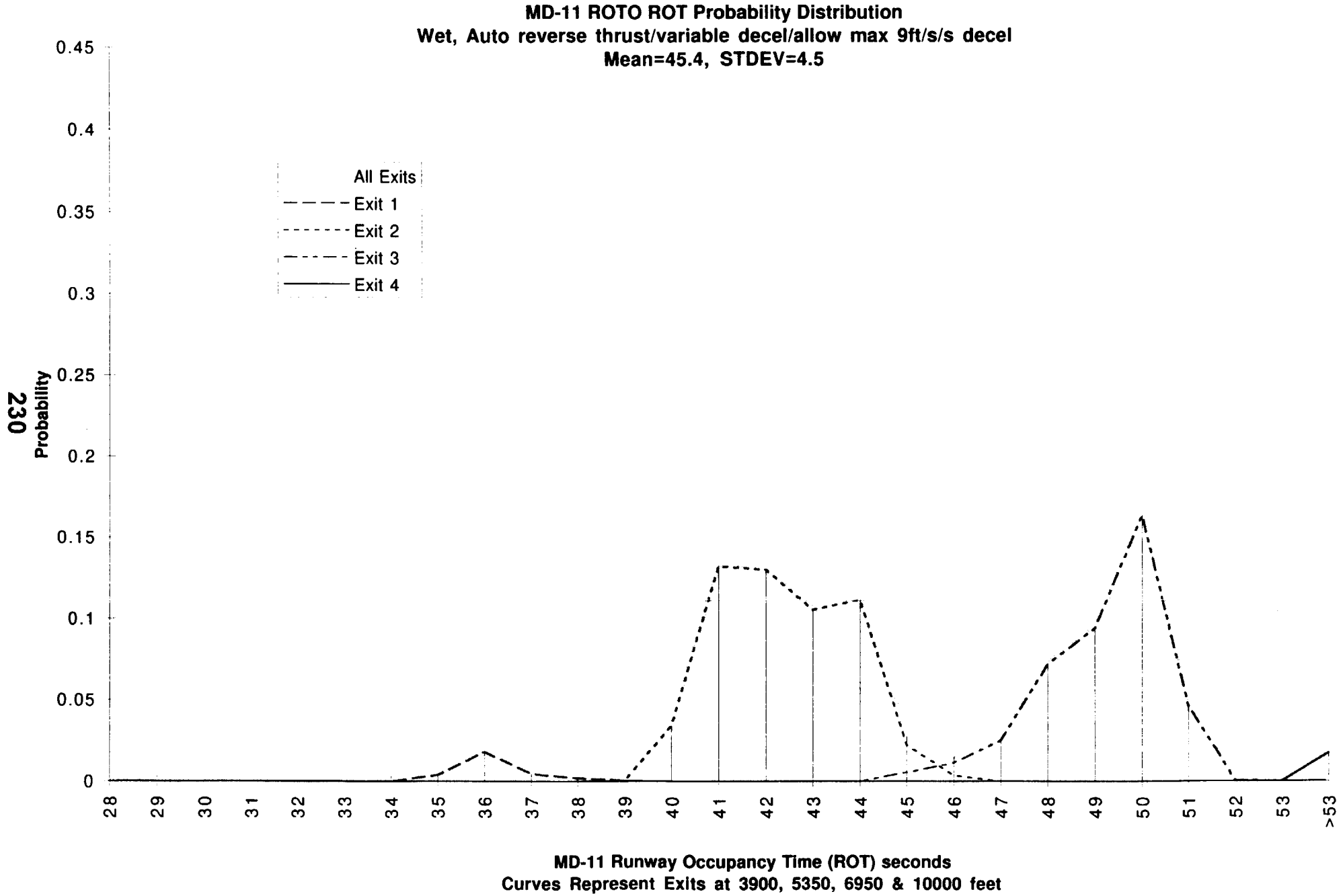
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Allow maximum 9ft/s/s decel
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/allow max 9ft/s/s decel
Mean=45.4, STDEV=4.5
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
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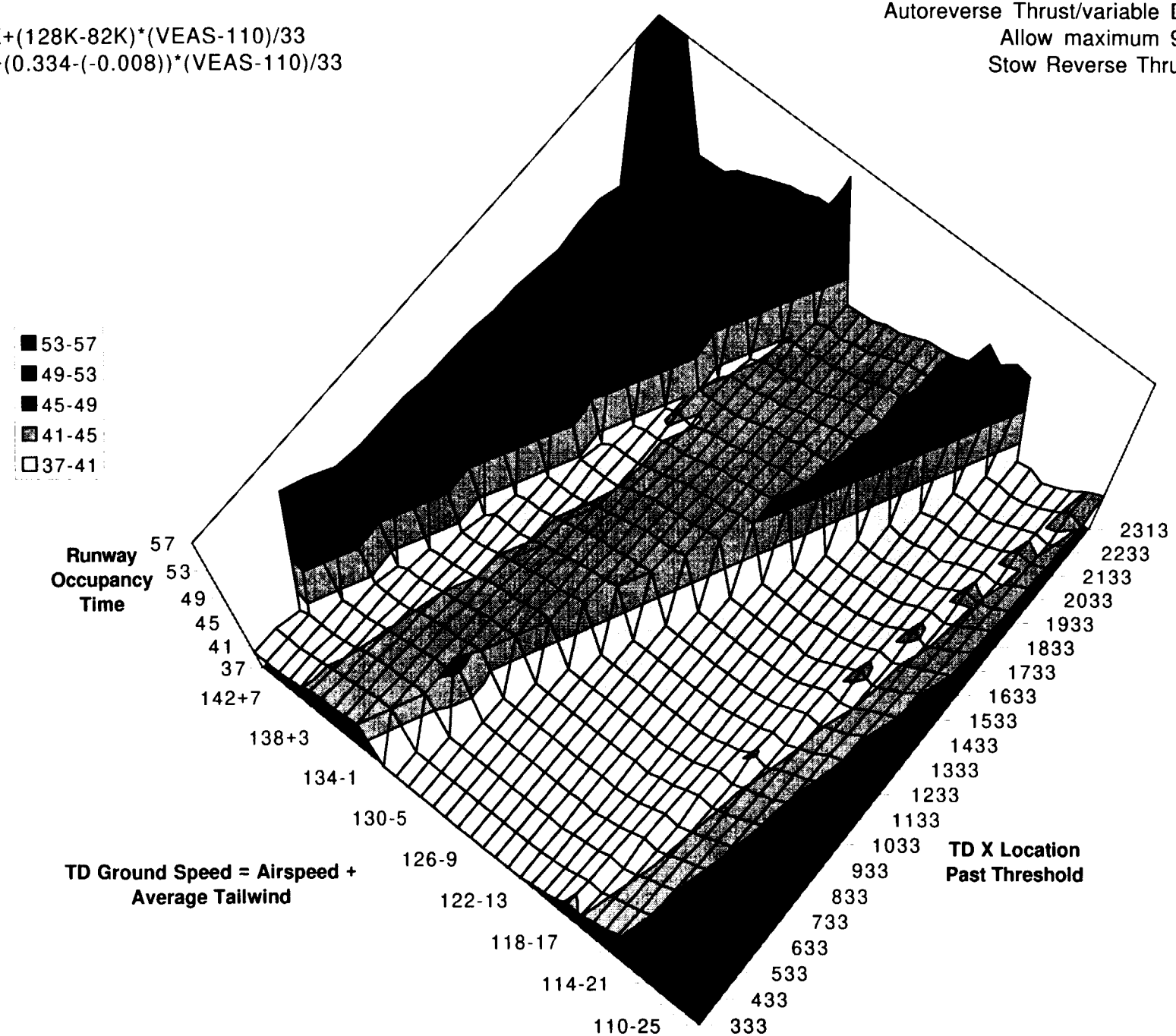
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

Predict exit prior to TD

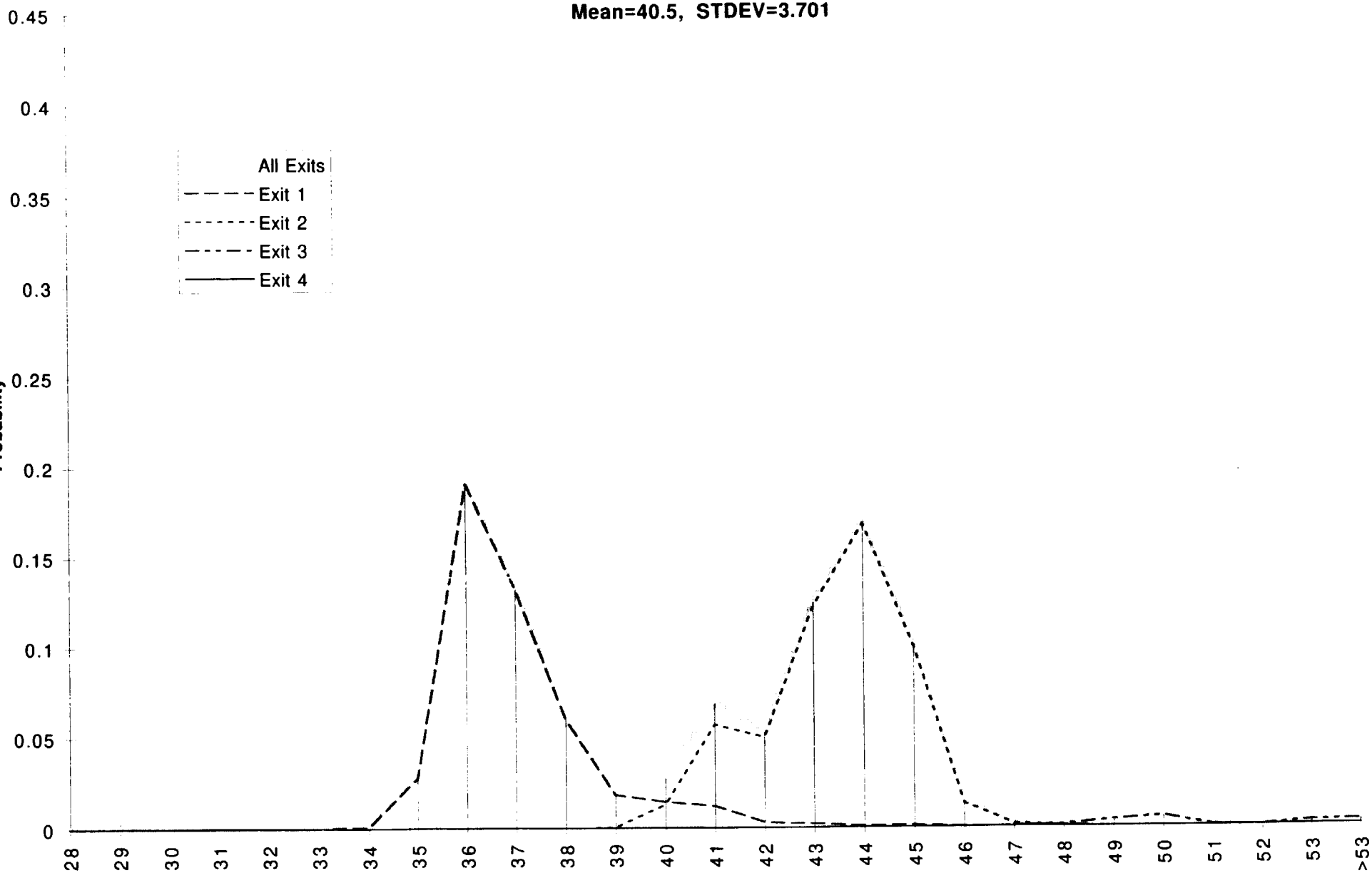
MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Allow maximum 9ft/s/s decel
Stow Reverse Thrust=70 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/allow max 9ft/s/s decel
Mean=40.5, STDEV=3.701



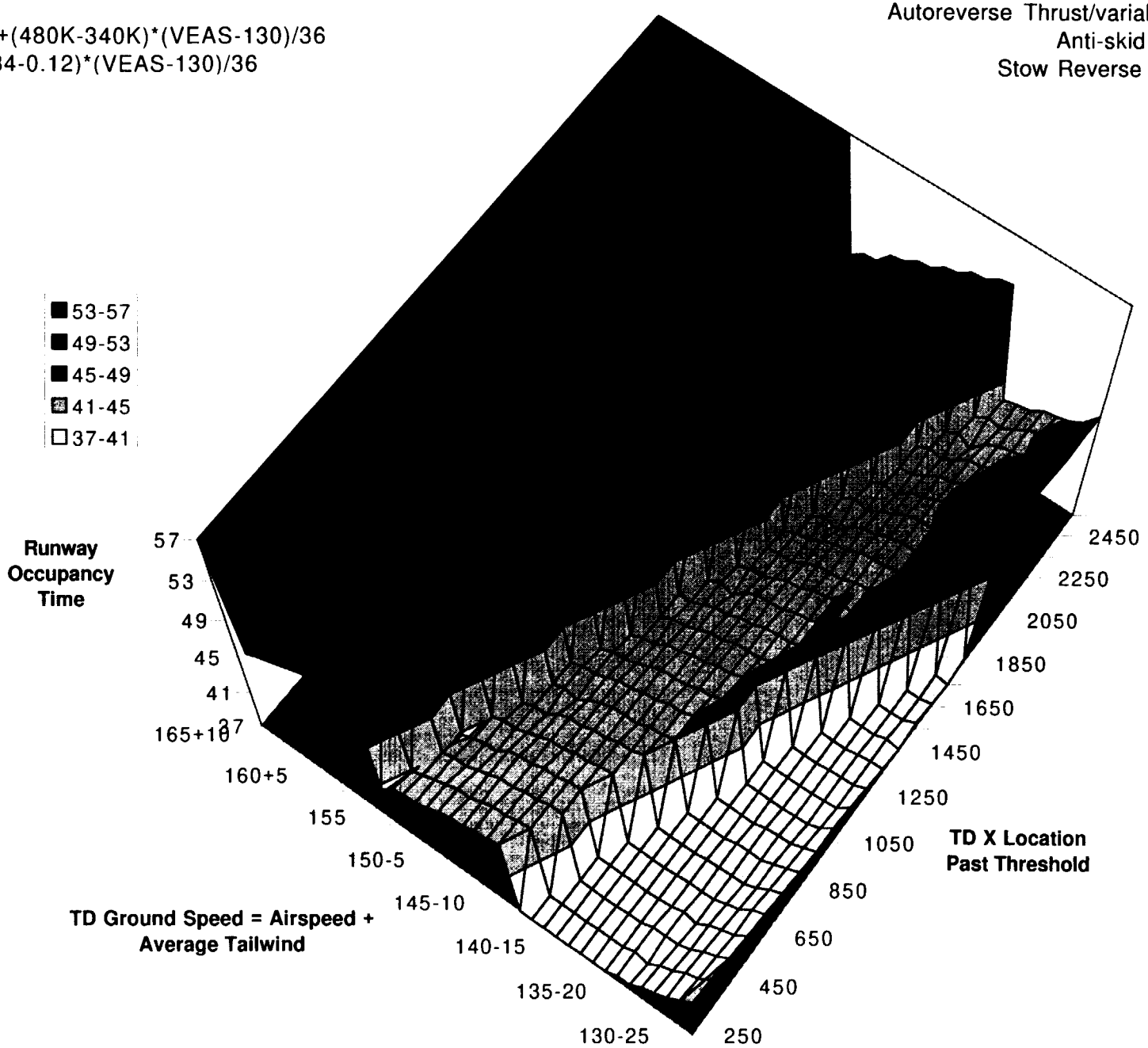
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

Predict exit prior to TD

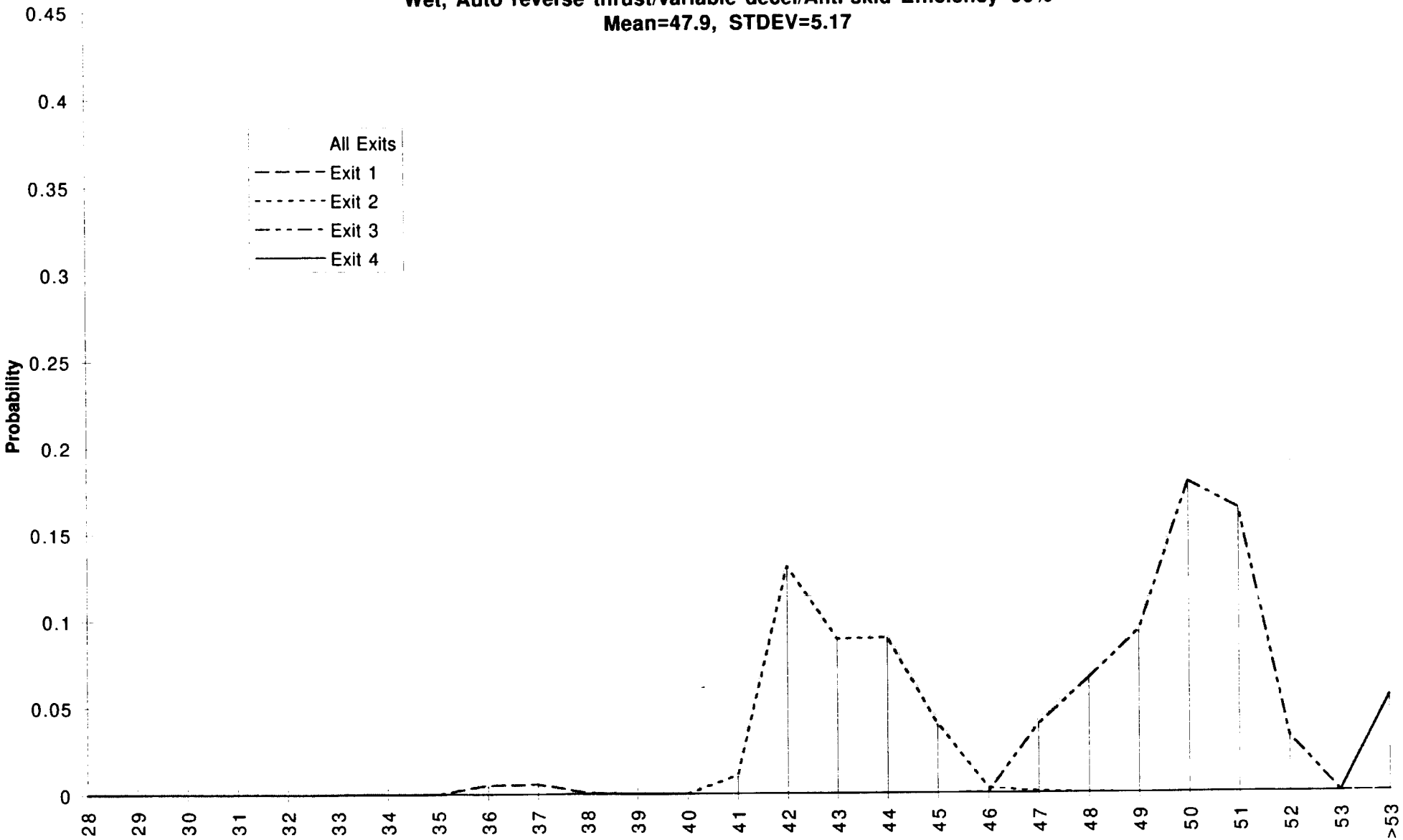
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Anti-skid Efficiency=90%
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=90%
Mean=47.9, STDEV=5.17



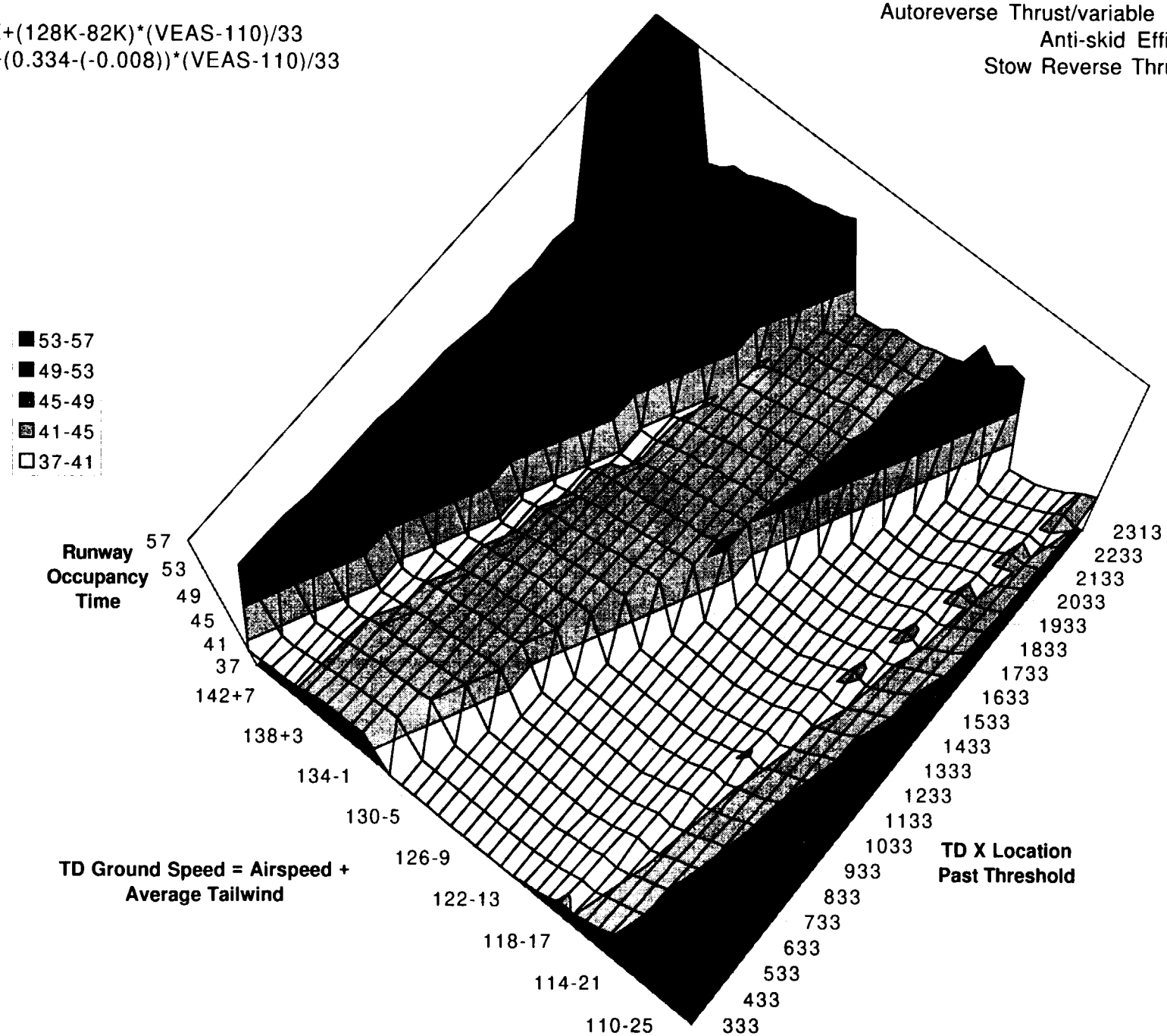
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

Predict exit prior to TD

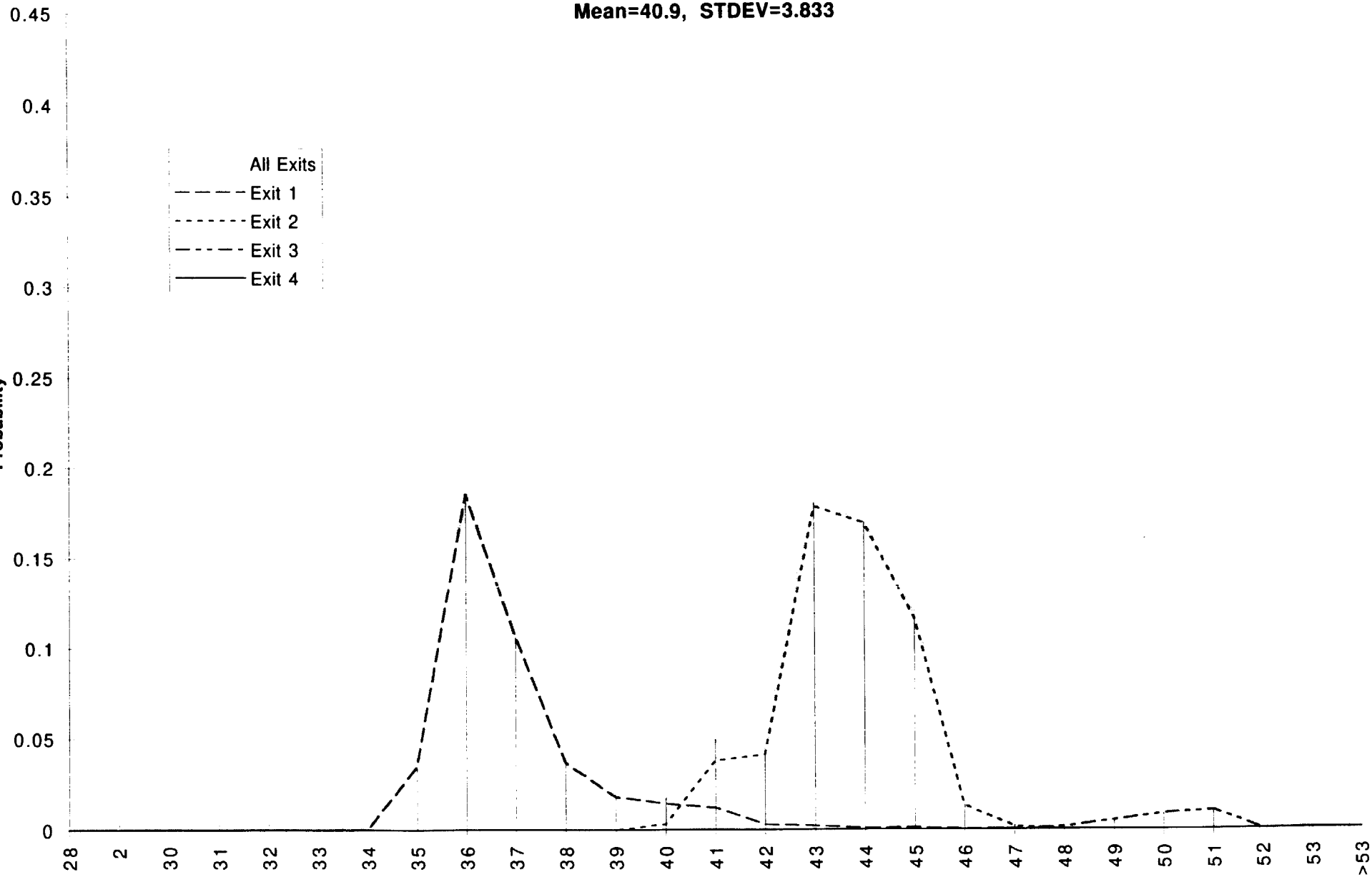
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
Anti-skid Efficiency=90%
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=90%
Mean=40.9, STDEV=3.833



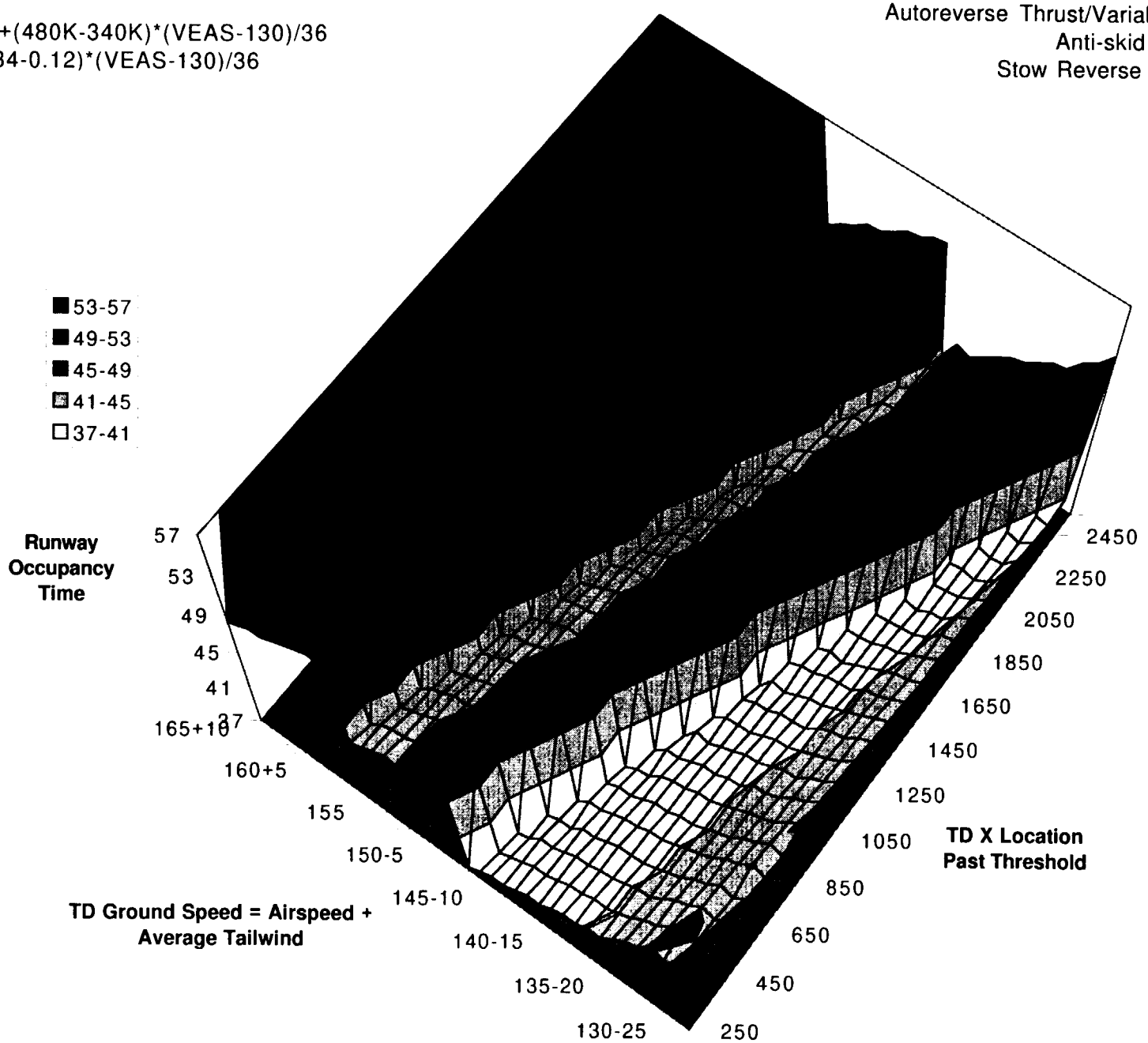
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

Predict exit prior to TD

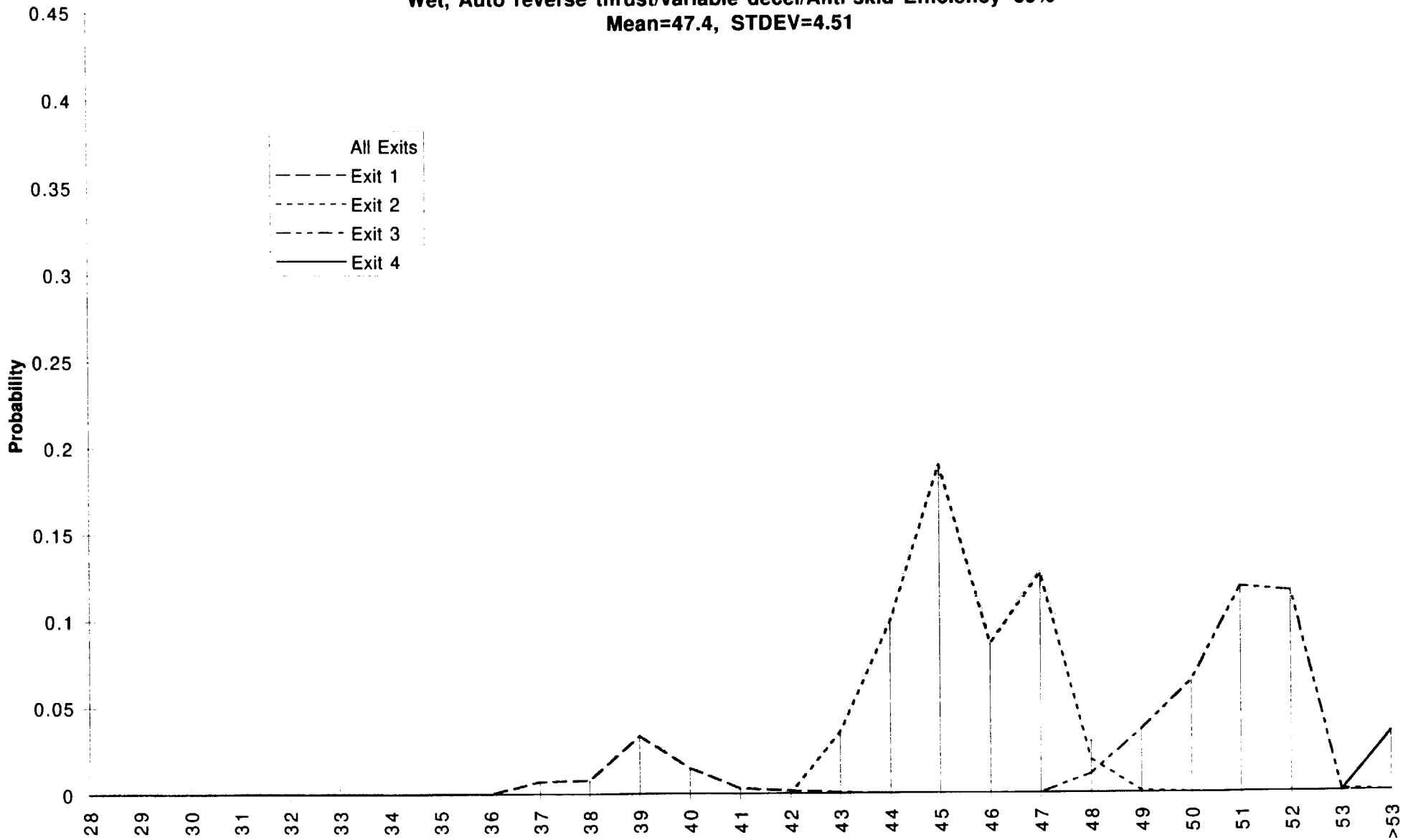
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Anti-skid Efficiency=60%
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=60%
Mean=47.4, STDEV=4.51



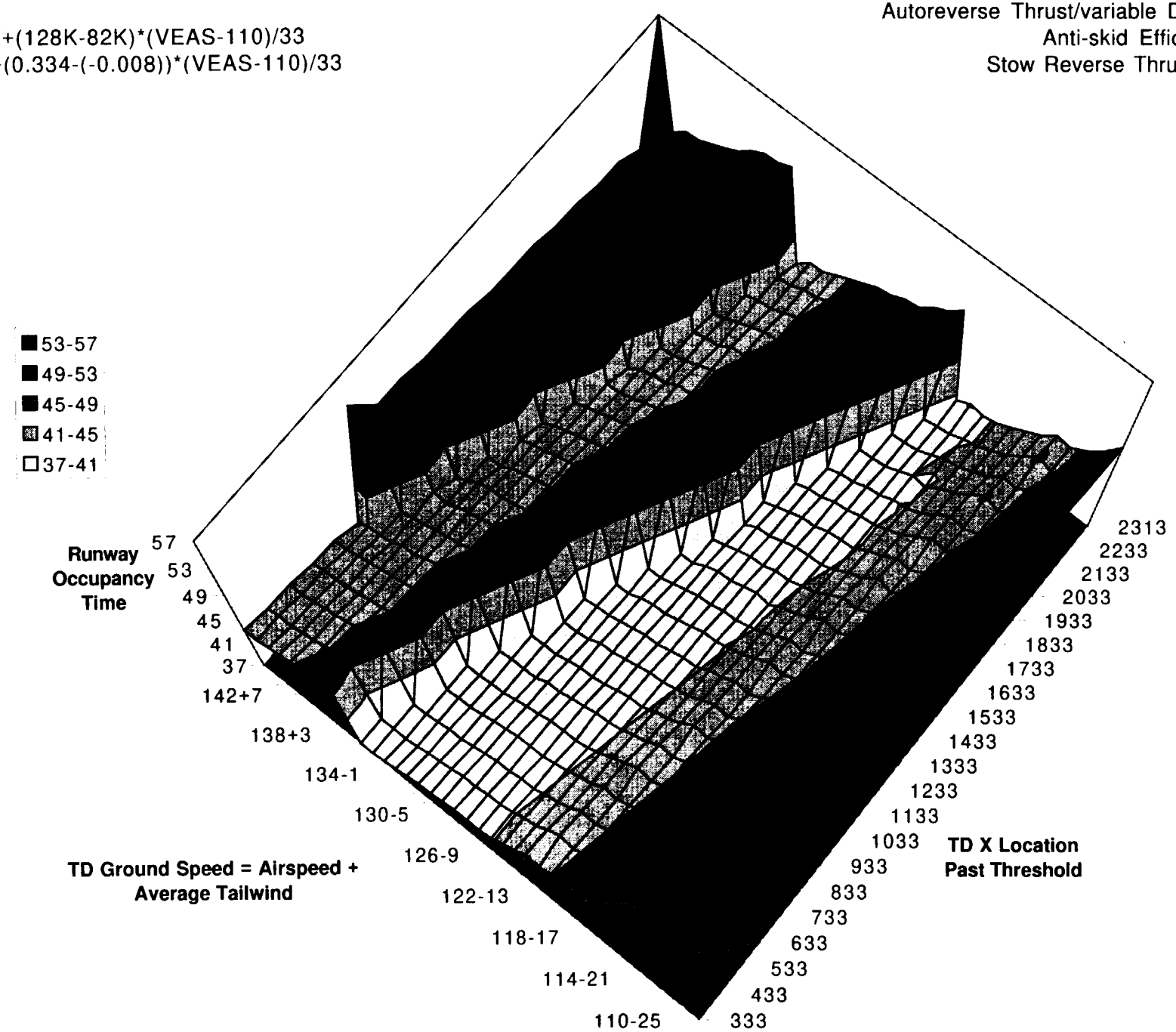
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

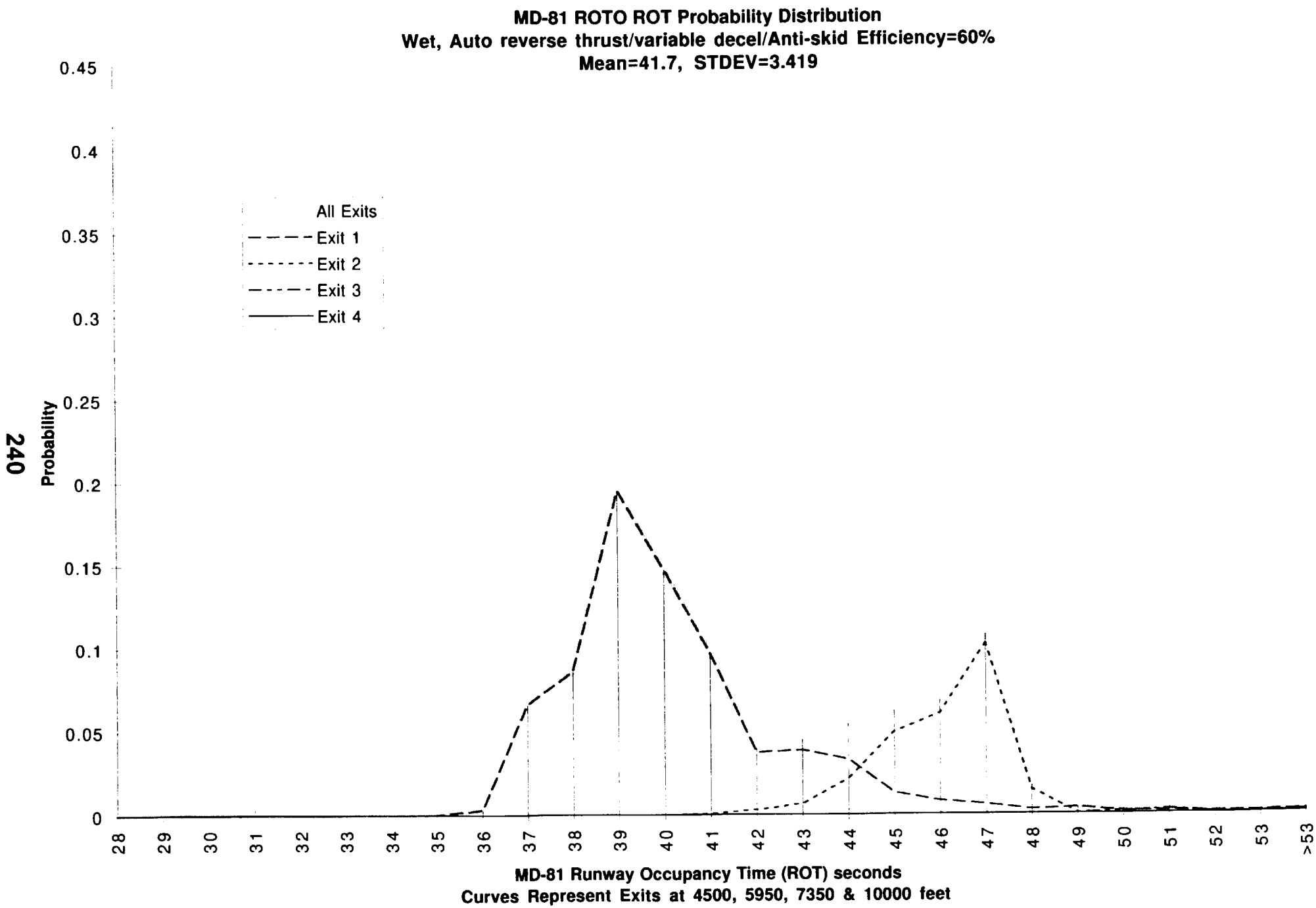
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Anti-skid Efficiency=60%
Stow Reverse Thrust=70 kt gd




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=60%
Mean=41.7, STDEV=3.419
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
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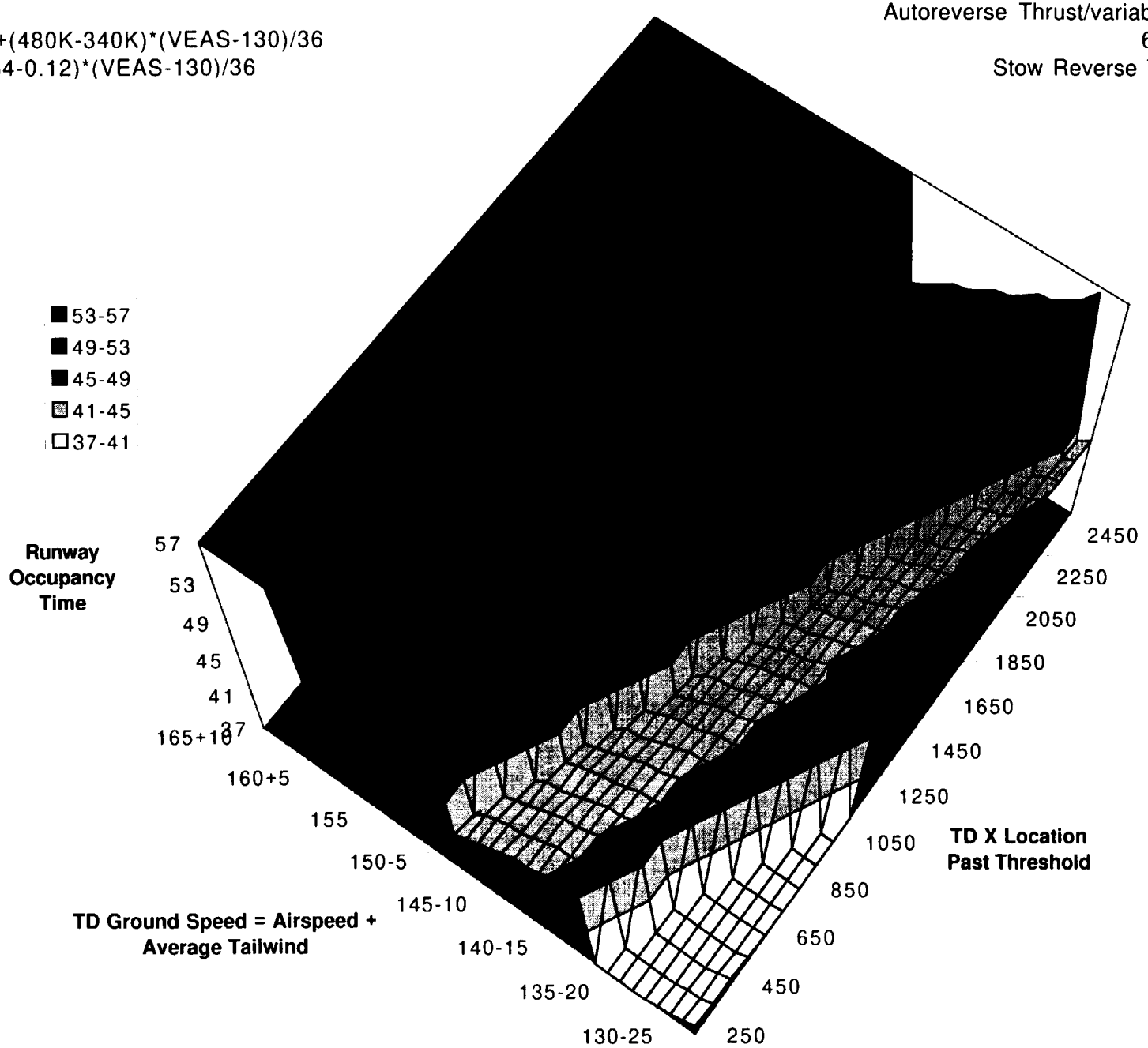
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

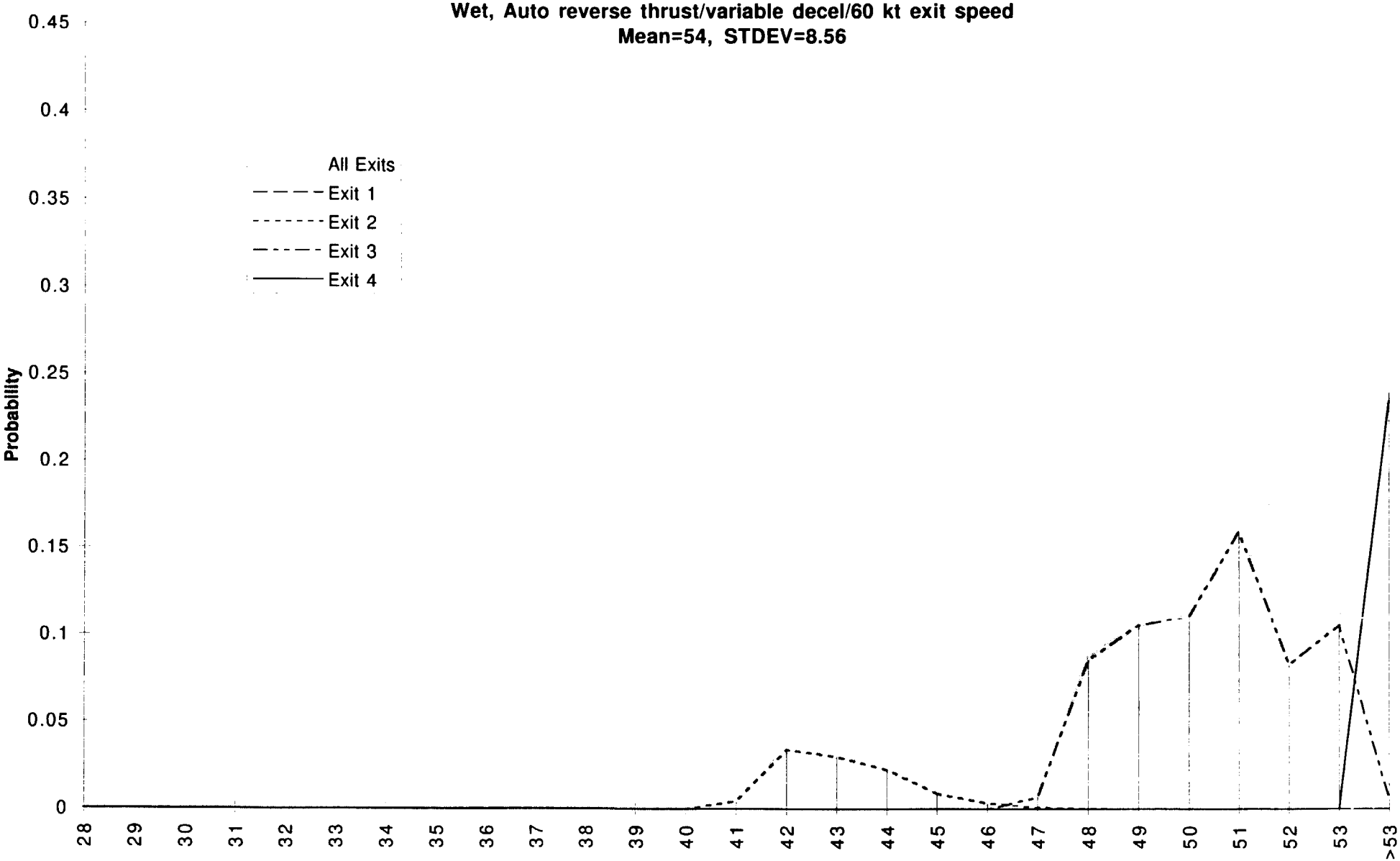
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
60 kt exit speed
Stow Reverse Thrust=60 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=54, STDEV=8.56



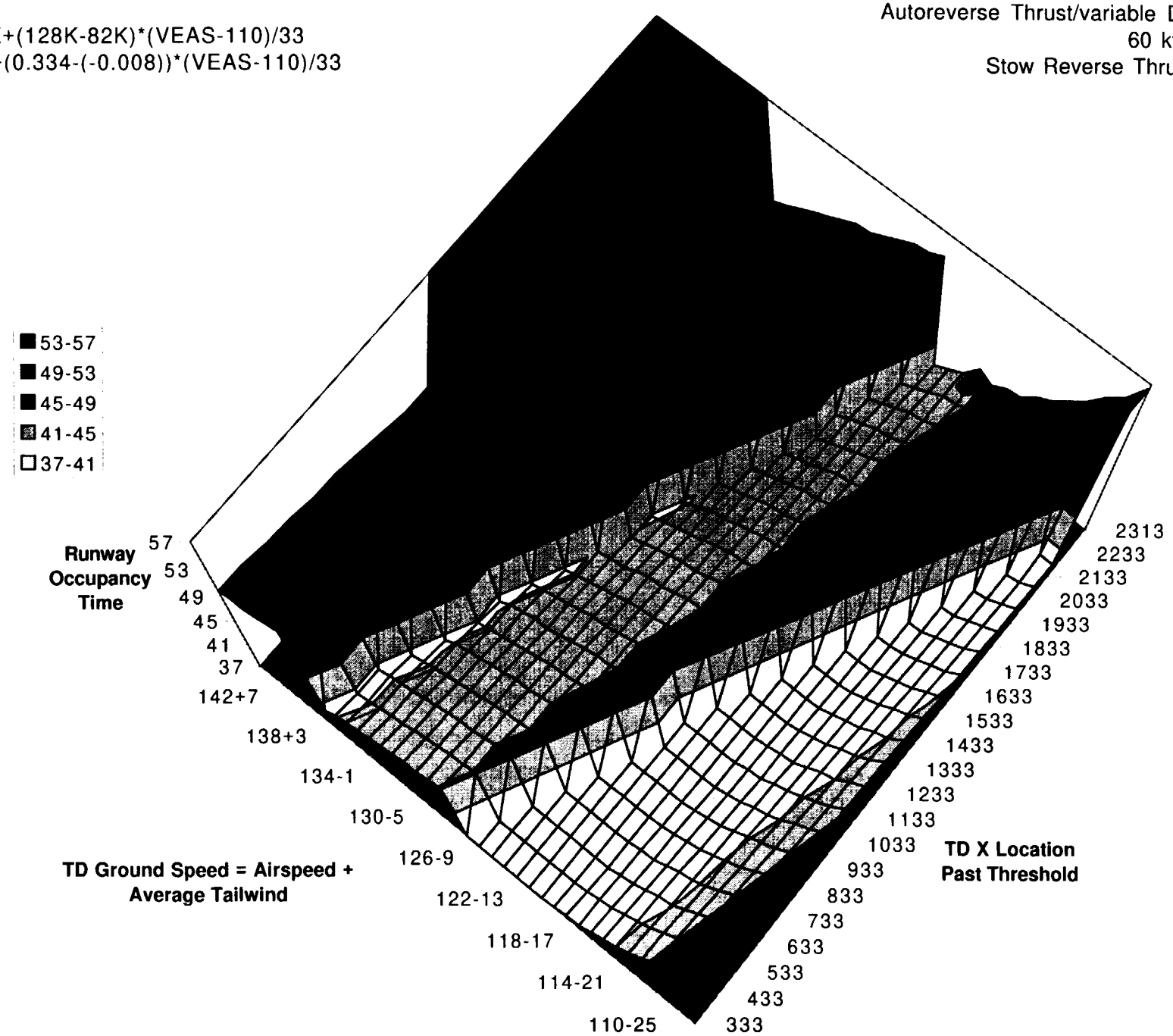
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

Predict exit prior to TD

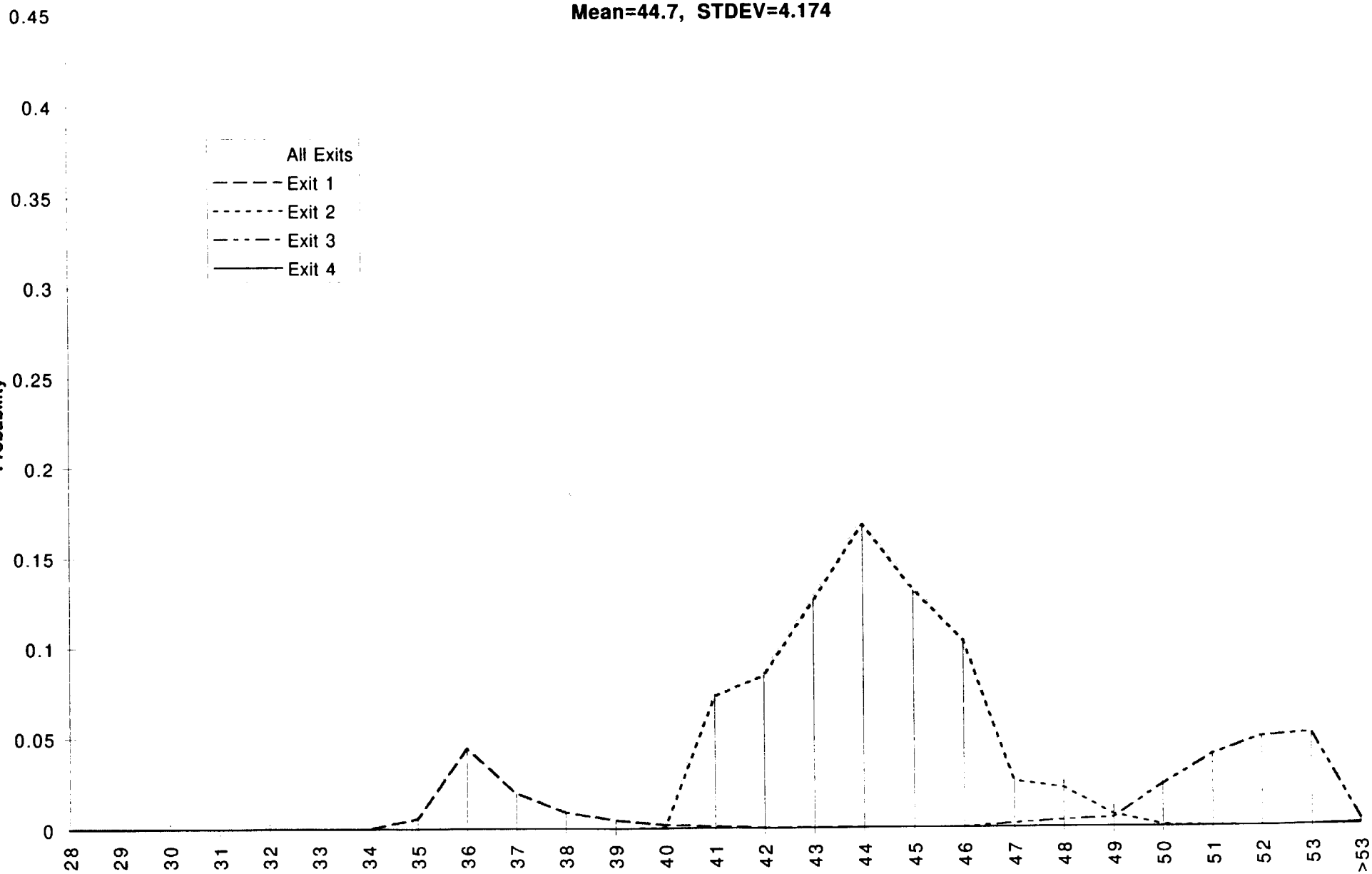
MD-81 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Autoreverse Thrust/variable Deceleration
60 kt exit speed
Stow Reverse Thrust=60 kt gd

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/60 kt exit speed
Mean=44.7, STDEV=4.174

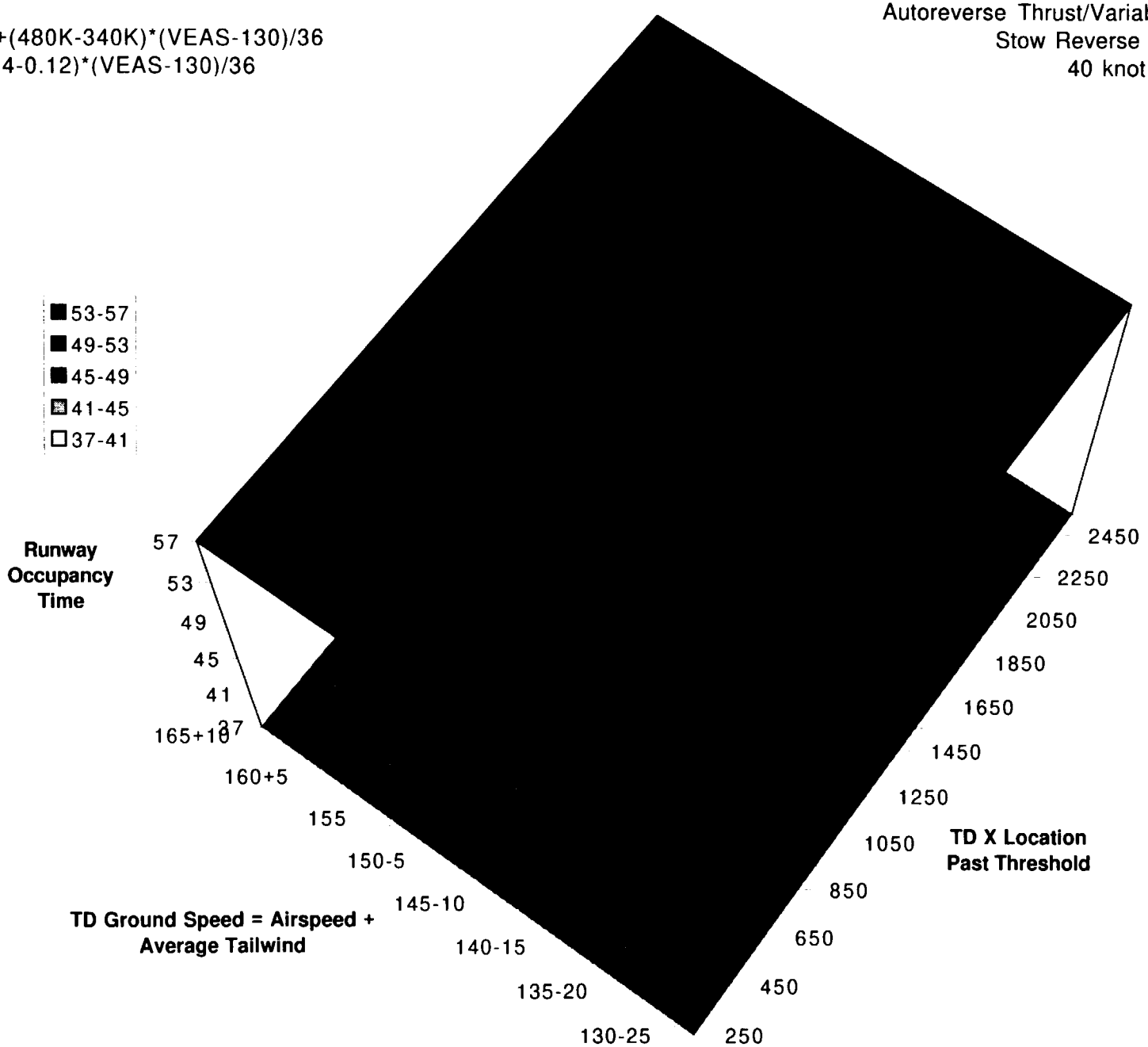


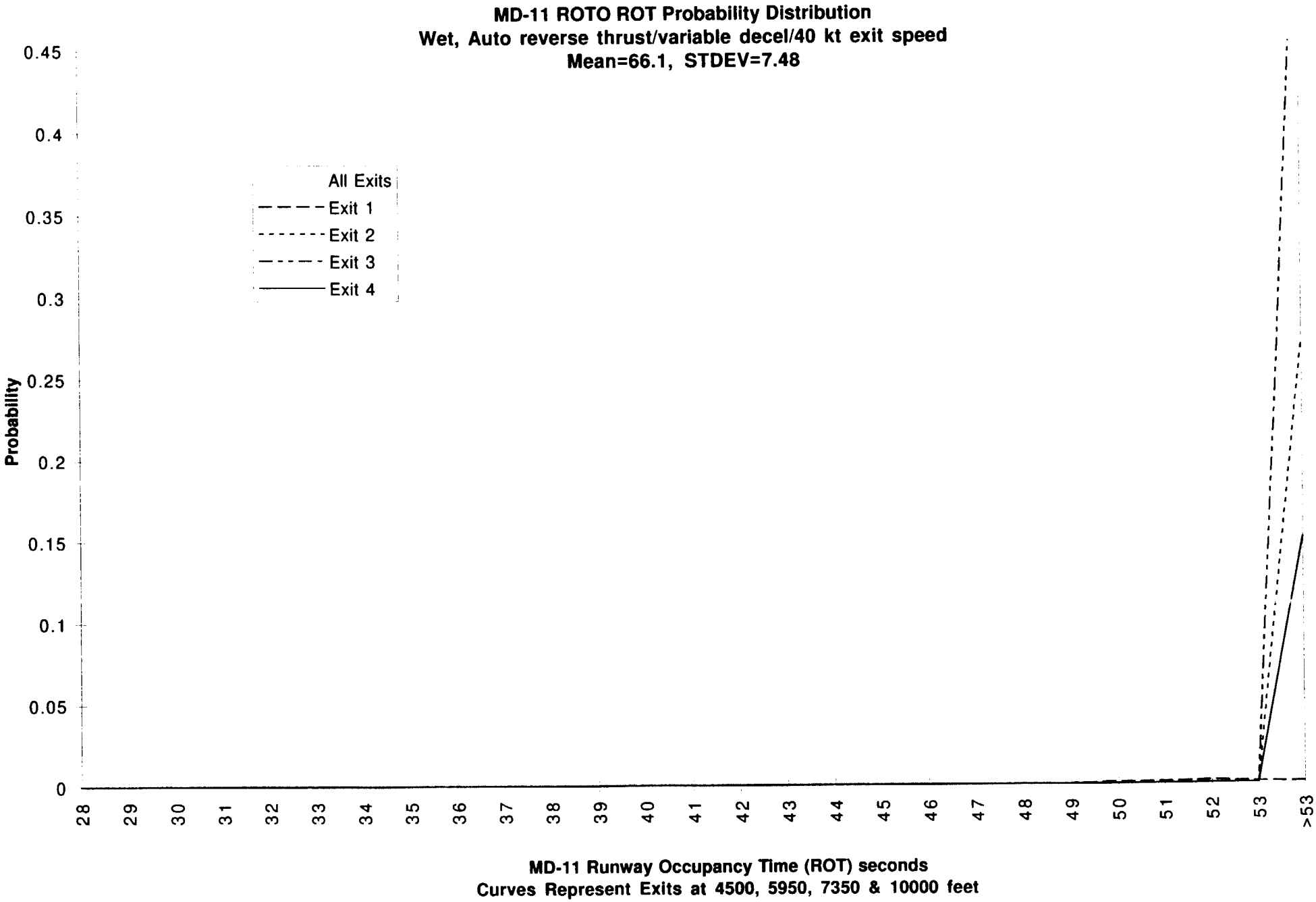
Predict exit prior to TD

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Stow Reverse Thrust=40 kt gd
40 knot high speed exit



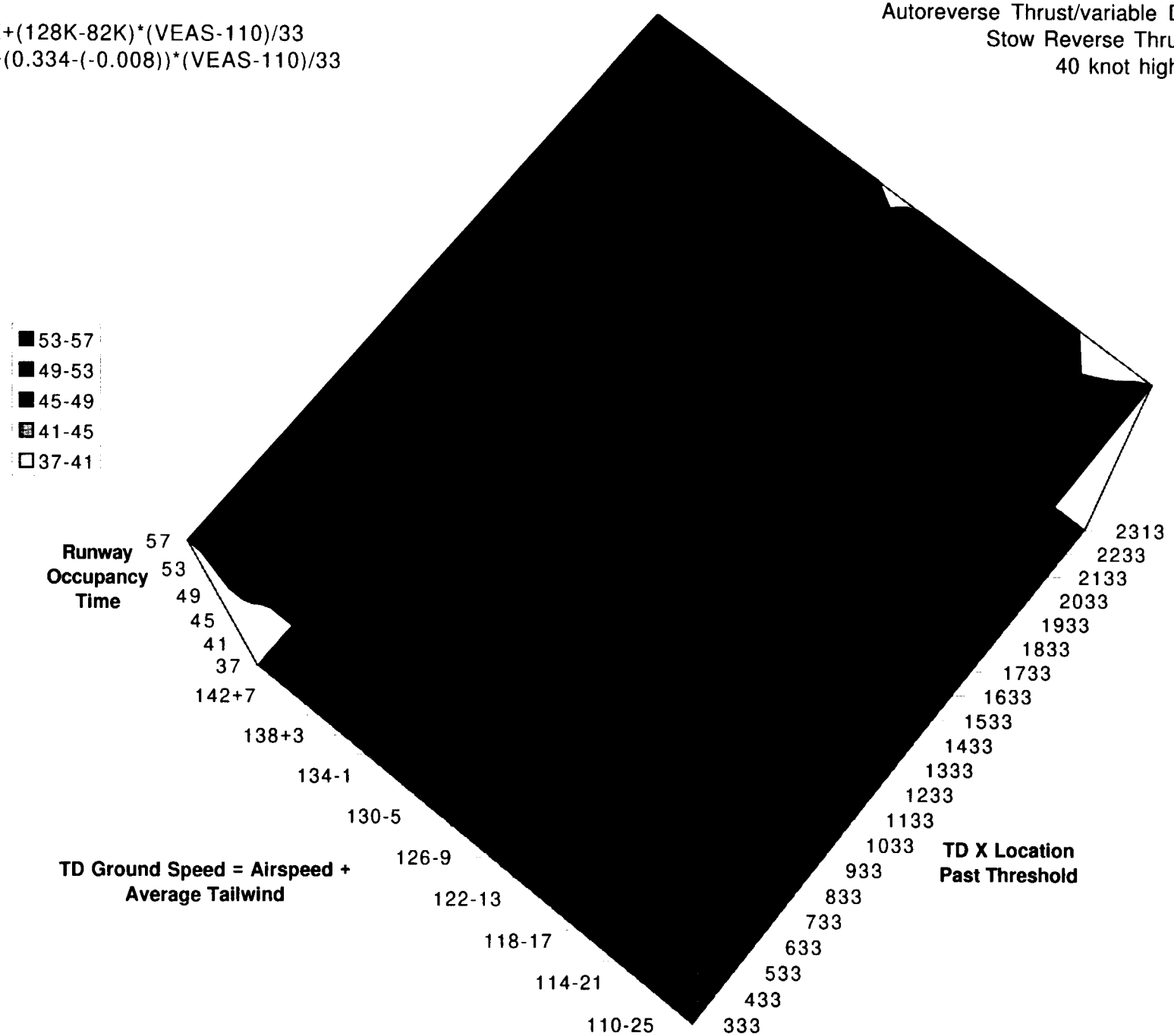

MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/40 kt exit speed
Mean=66.1, STDEV=7.48
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

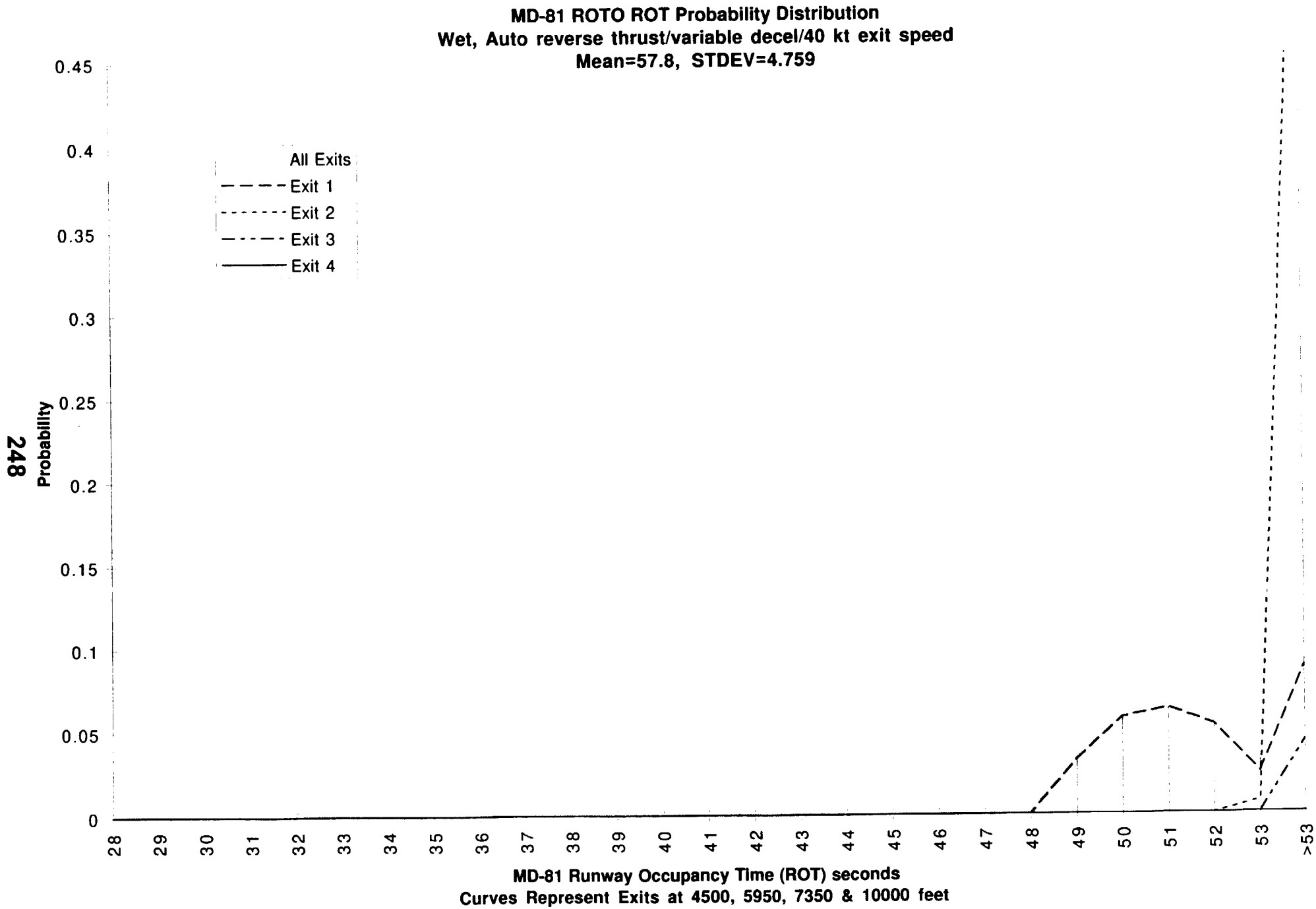
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Stow Reverse Thrust=40 kt gd
40 knot high speed exit




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/40 kt exit speed
Mean=57.8, STDEV=4.759
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
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41
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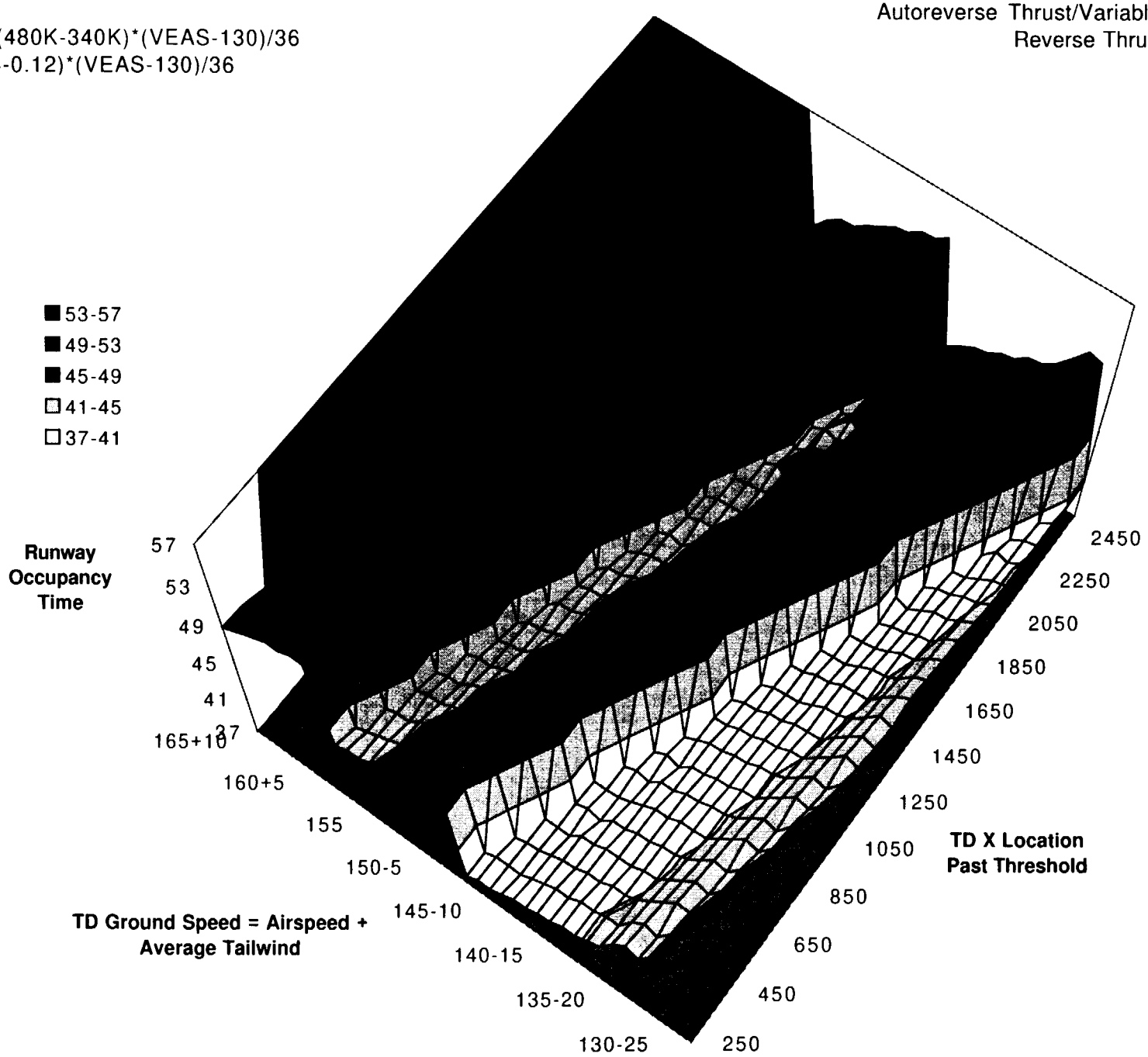
45
46
47
48
49
50
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

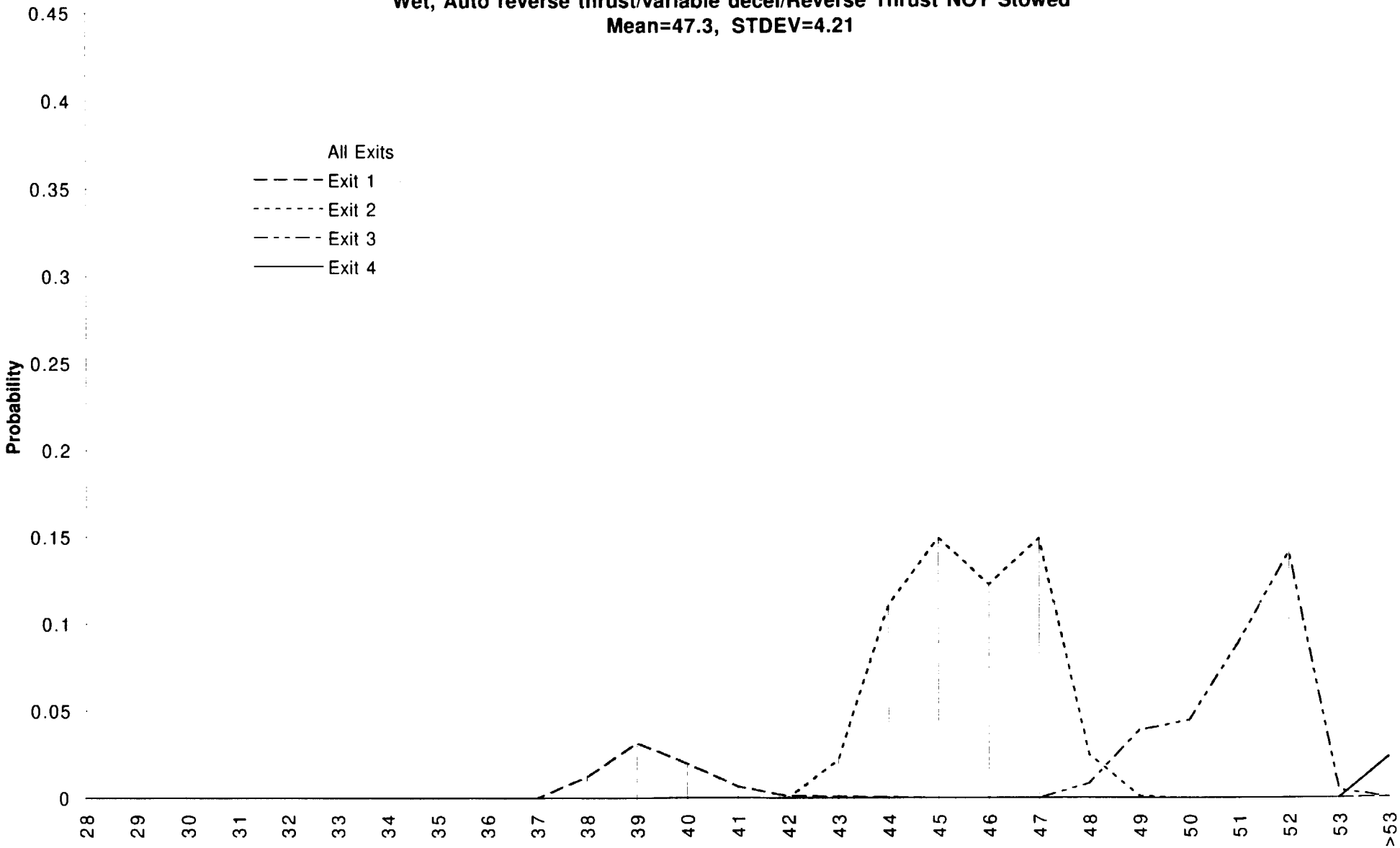
MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Reverse Thrust NOT Stowed

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust NOT Stowed
Mean=47.3, STDEV=4.21



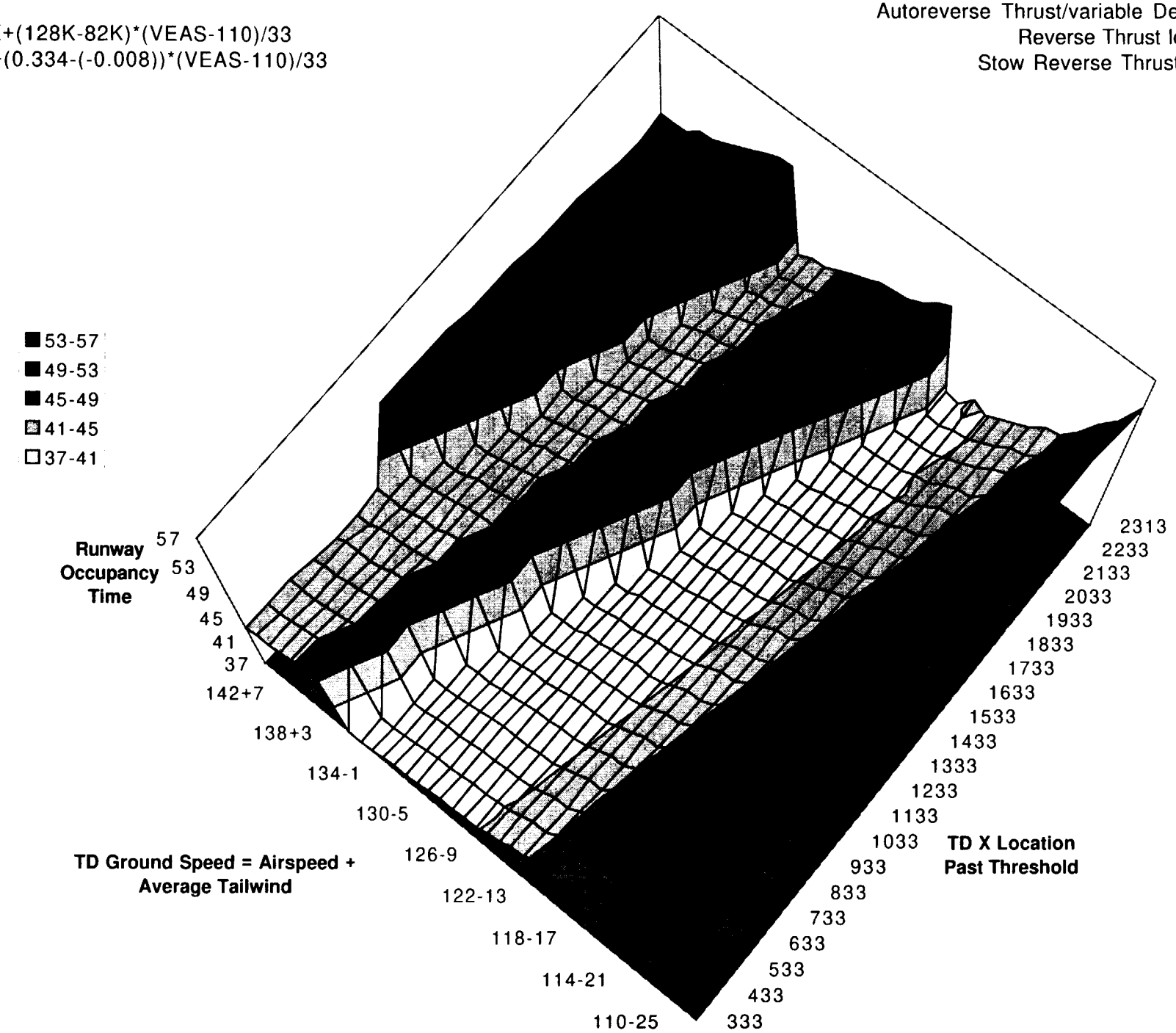
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

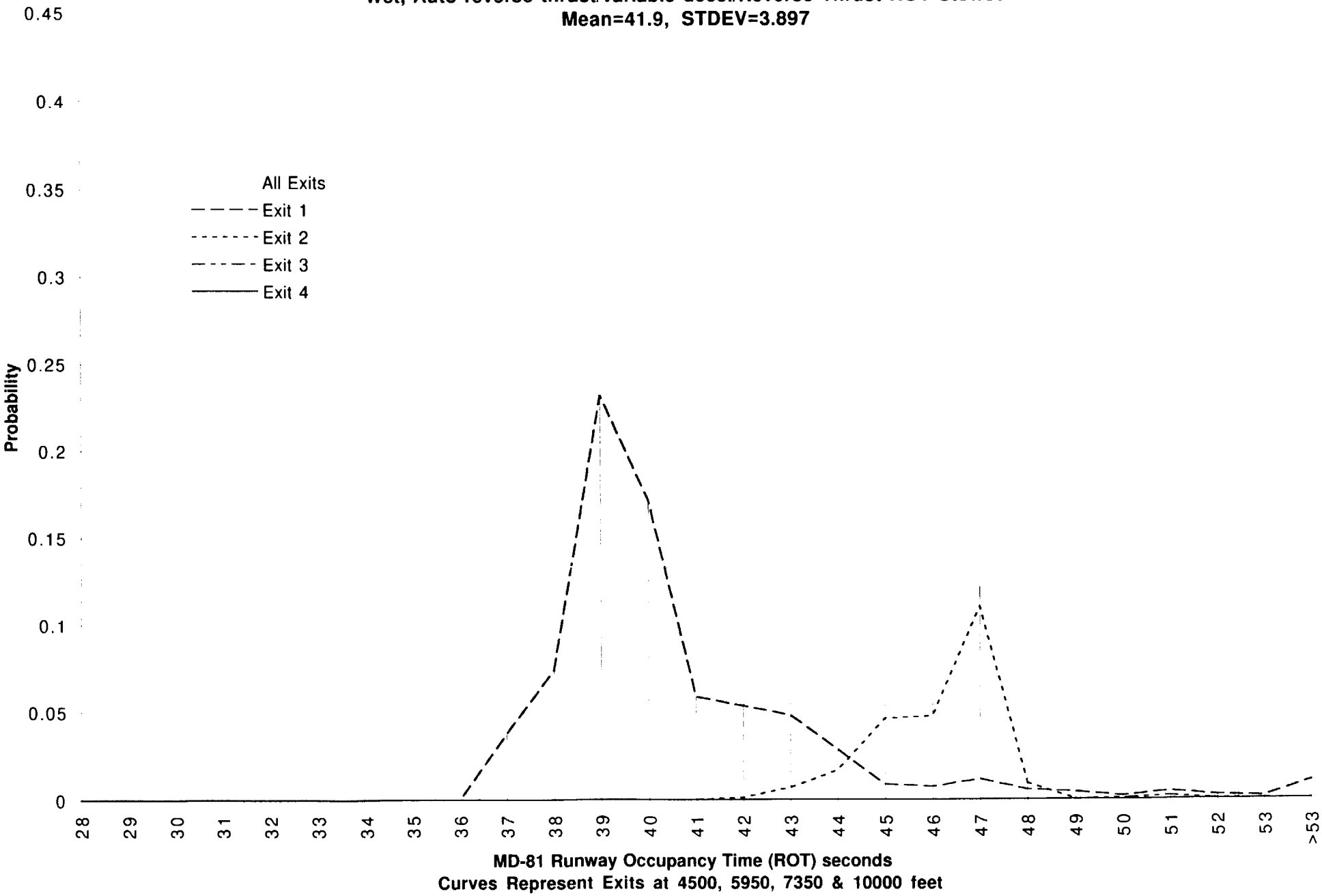
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Reverse Thrust Idle on Exit
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust NOT Stowed
Mean=41.9, STDEV=3.897



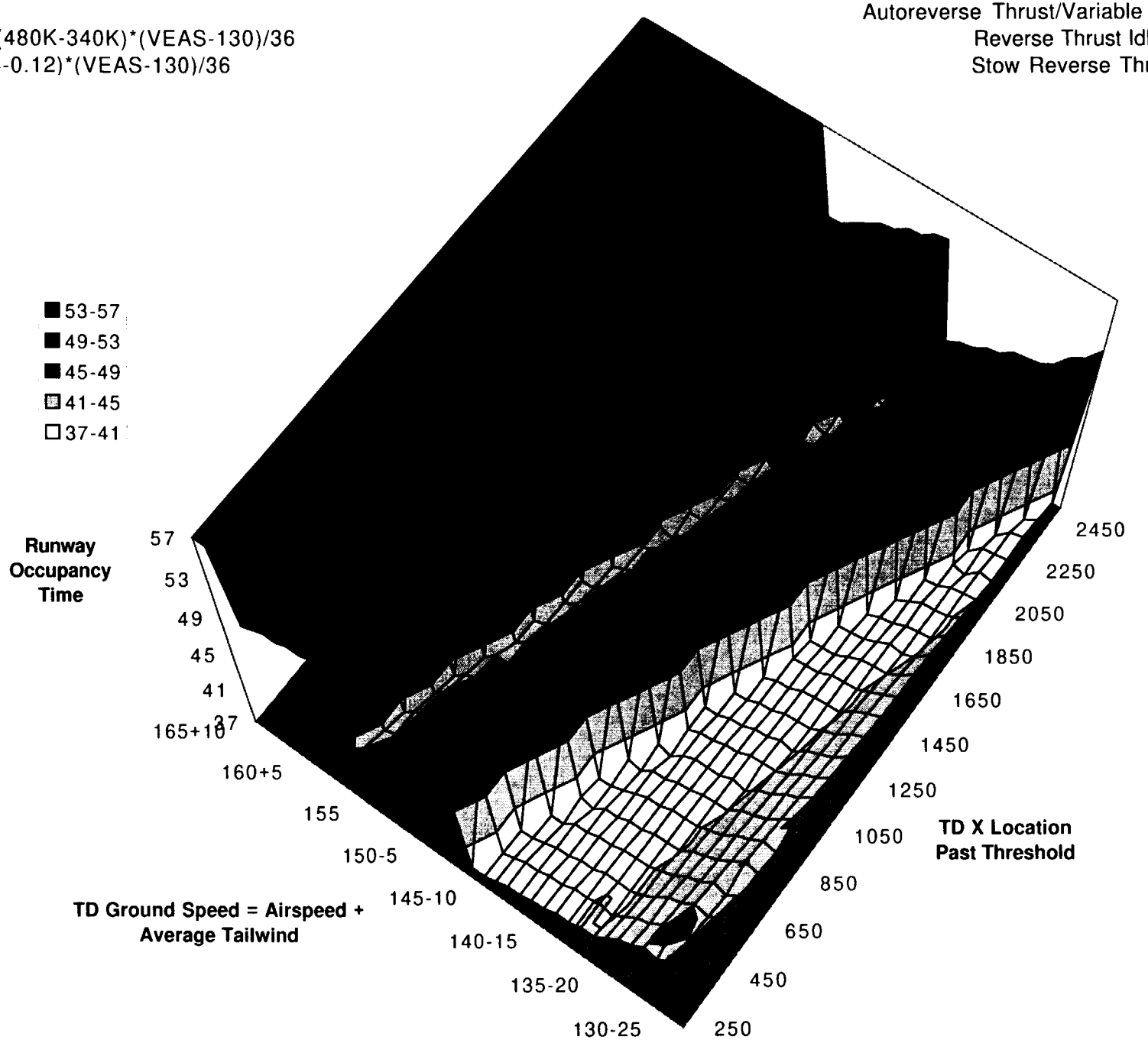
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

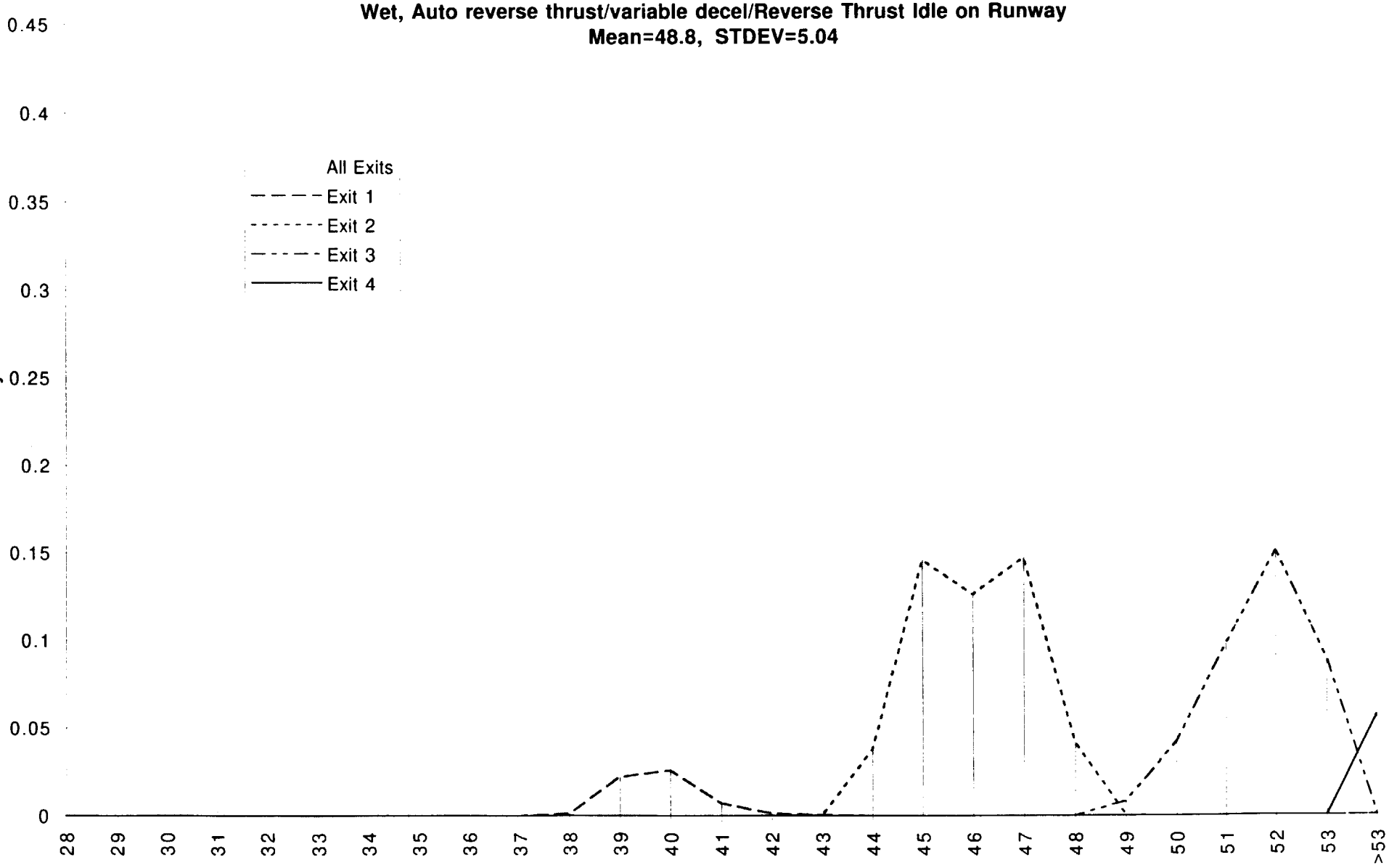
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Reverse Thrust Idle on Runway
Stow Reverse Thrust=70 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust Idle on Runway
Mean=48.8, STDEV=5.04



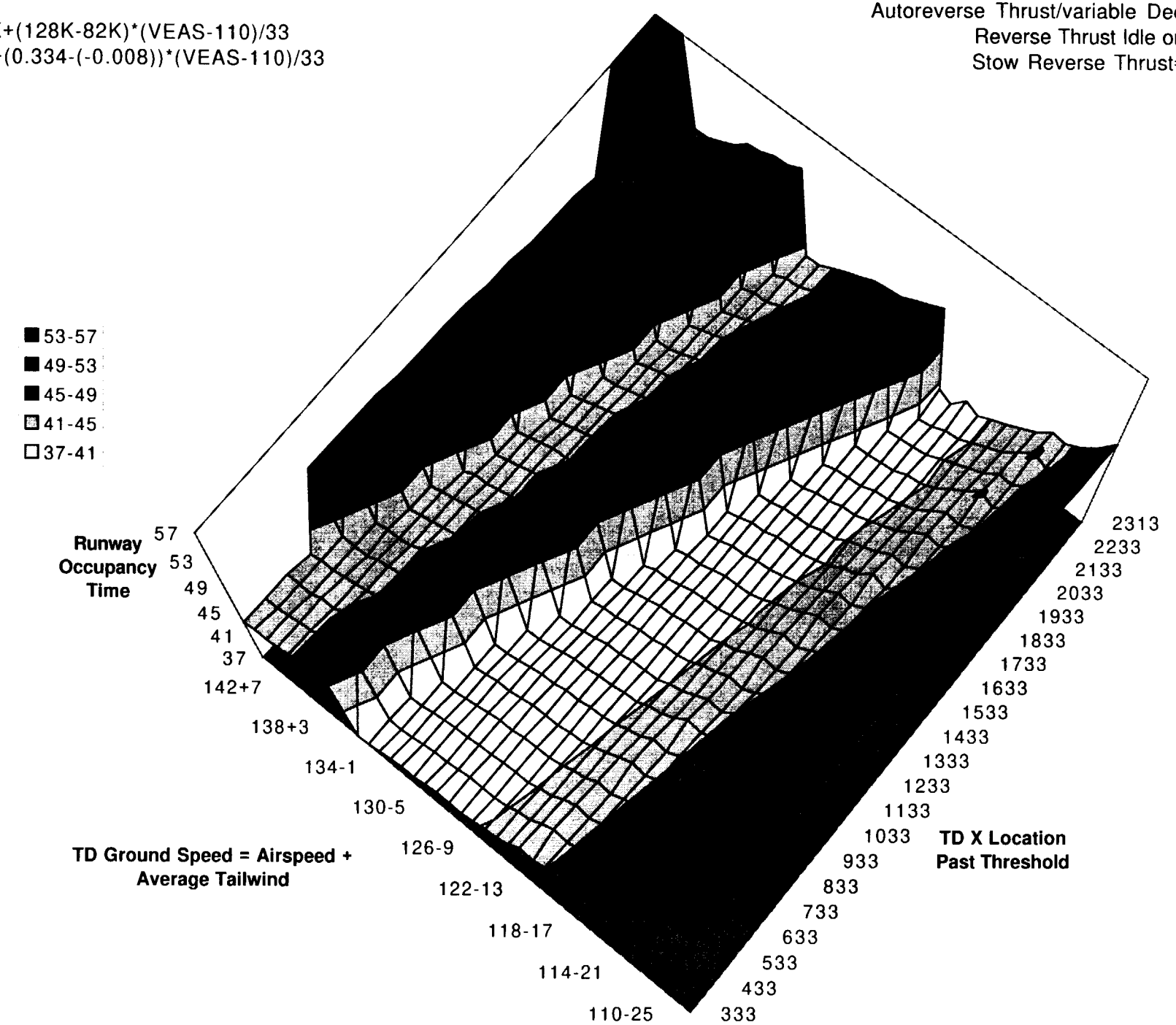
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

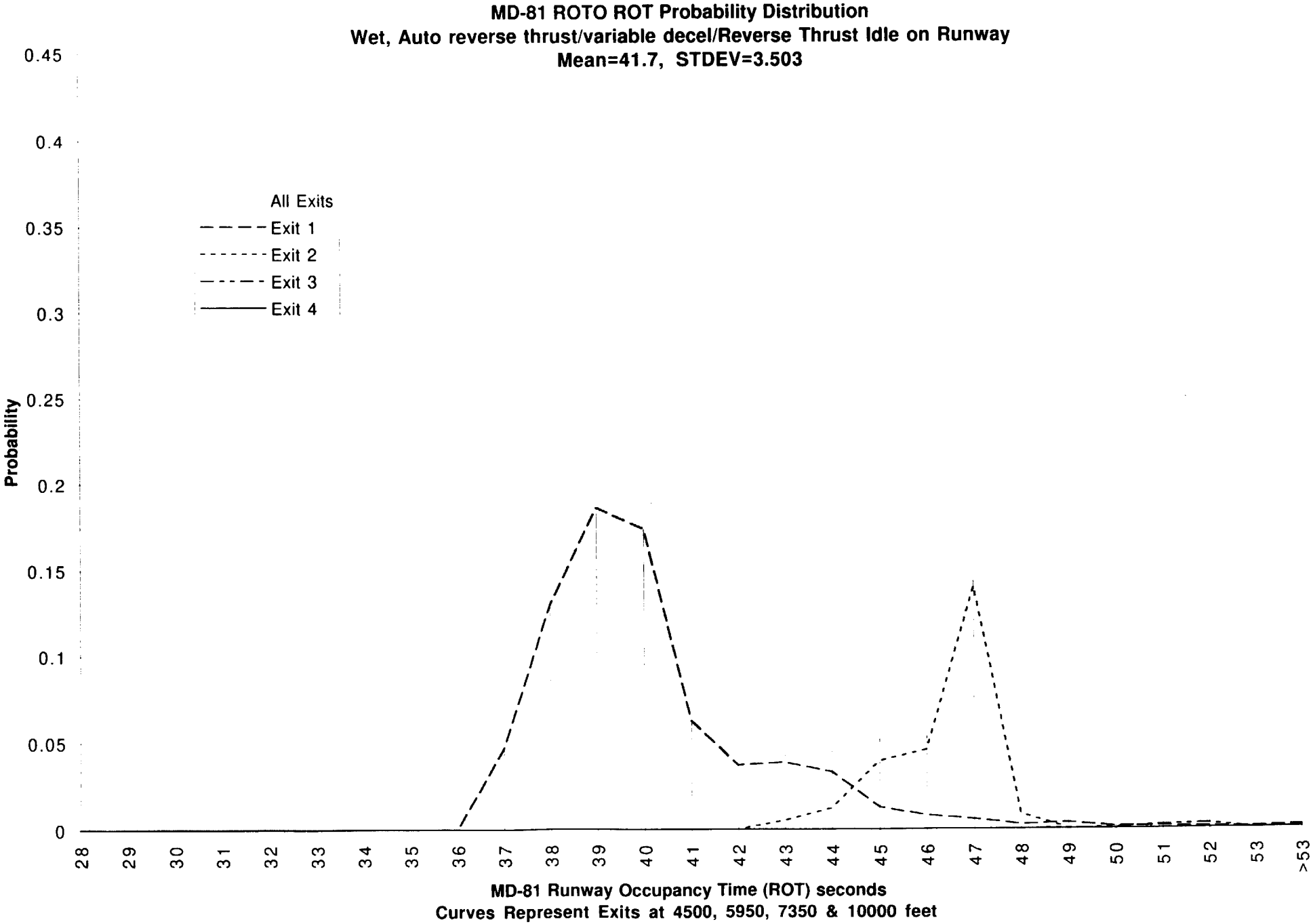
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Reverse Thrust Idle on Runway
Stow Reverse Thrust=70 kt gd



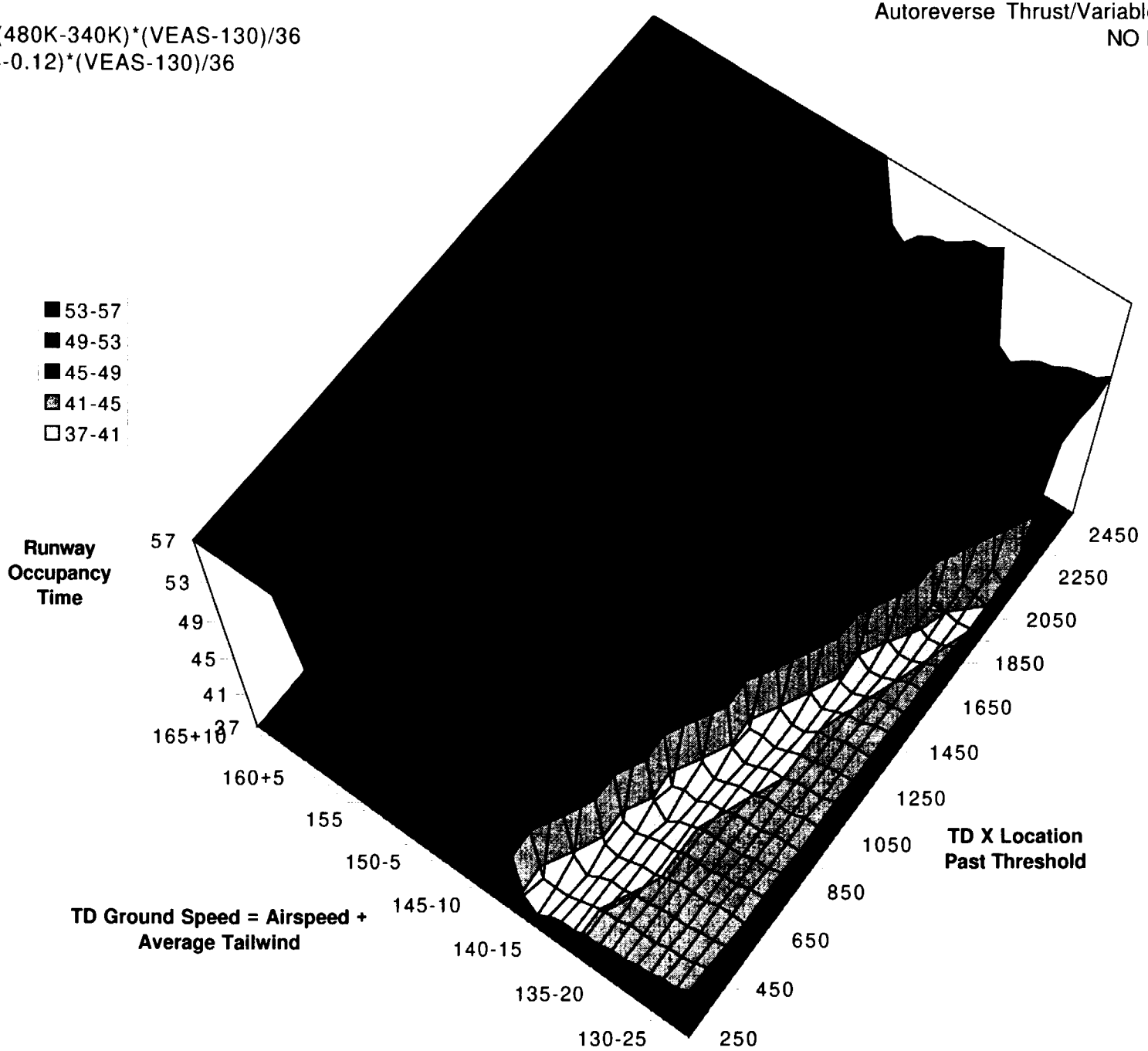

MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Reverse Thrust Idle on Runway
Mean=41.7, STDEV=3.503
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 >53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

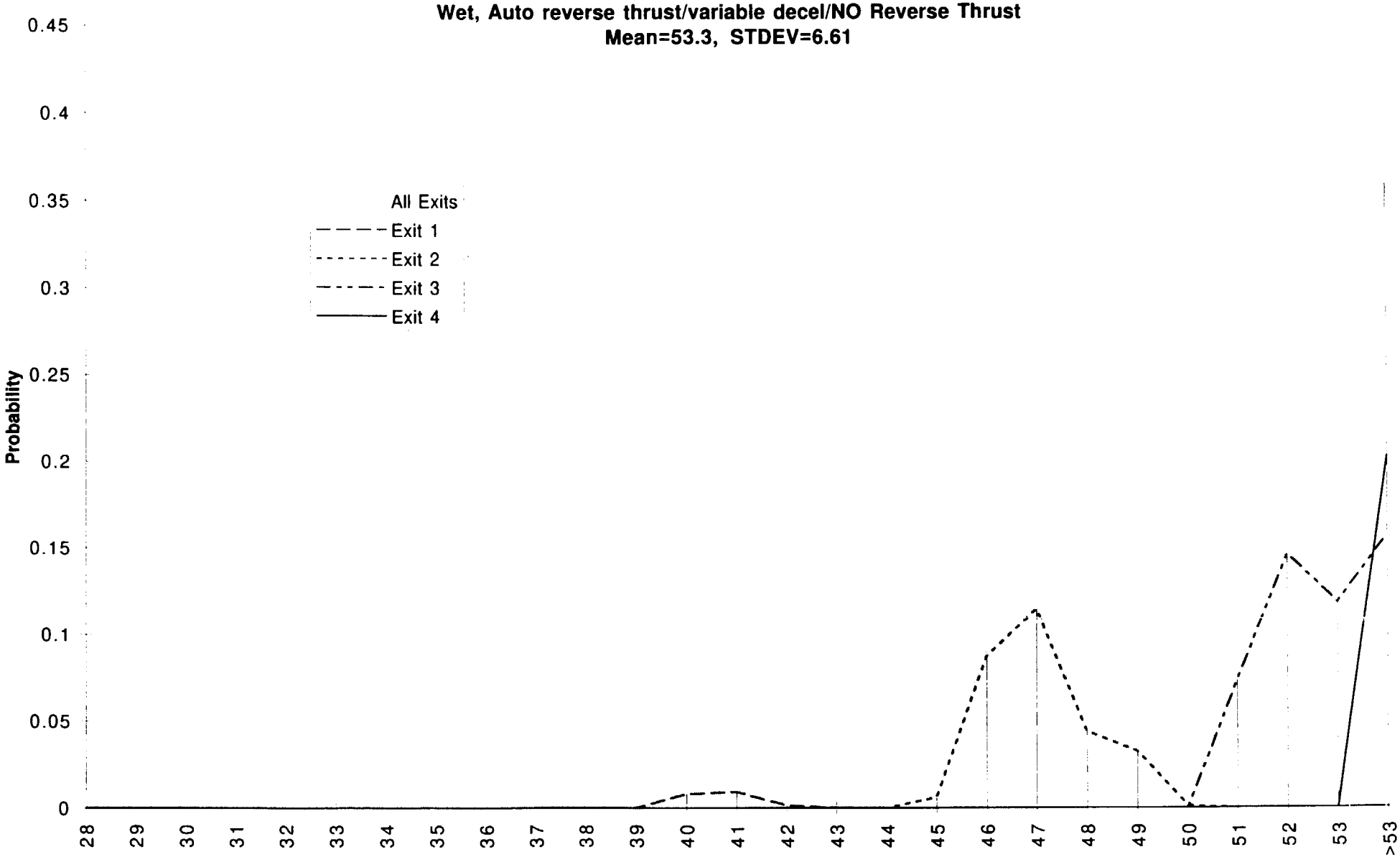
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
NO Reverse Thrust



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/NO Reverse Thrust
Mean=53.3, STDEV=6.61



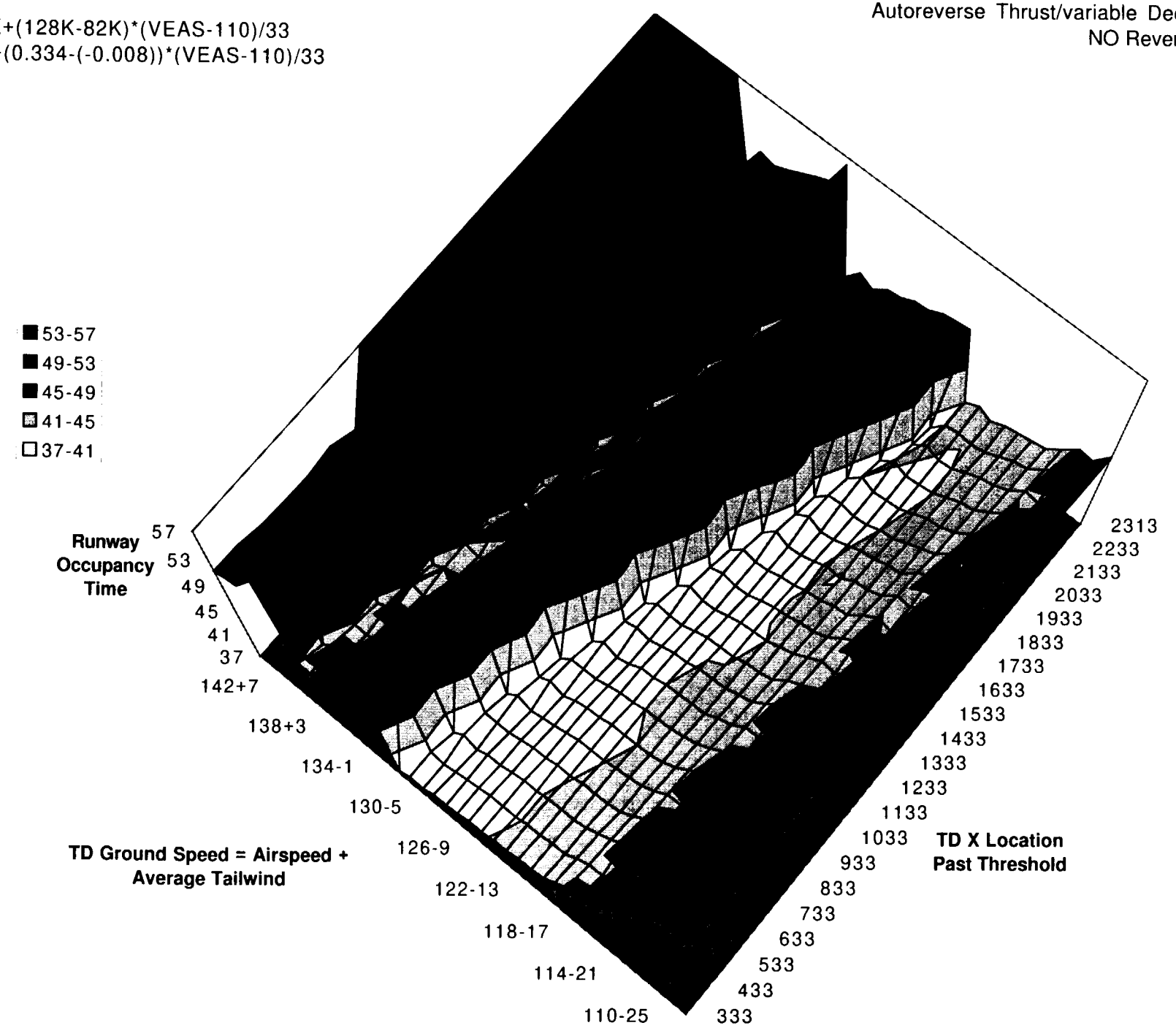
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

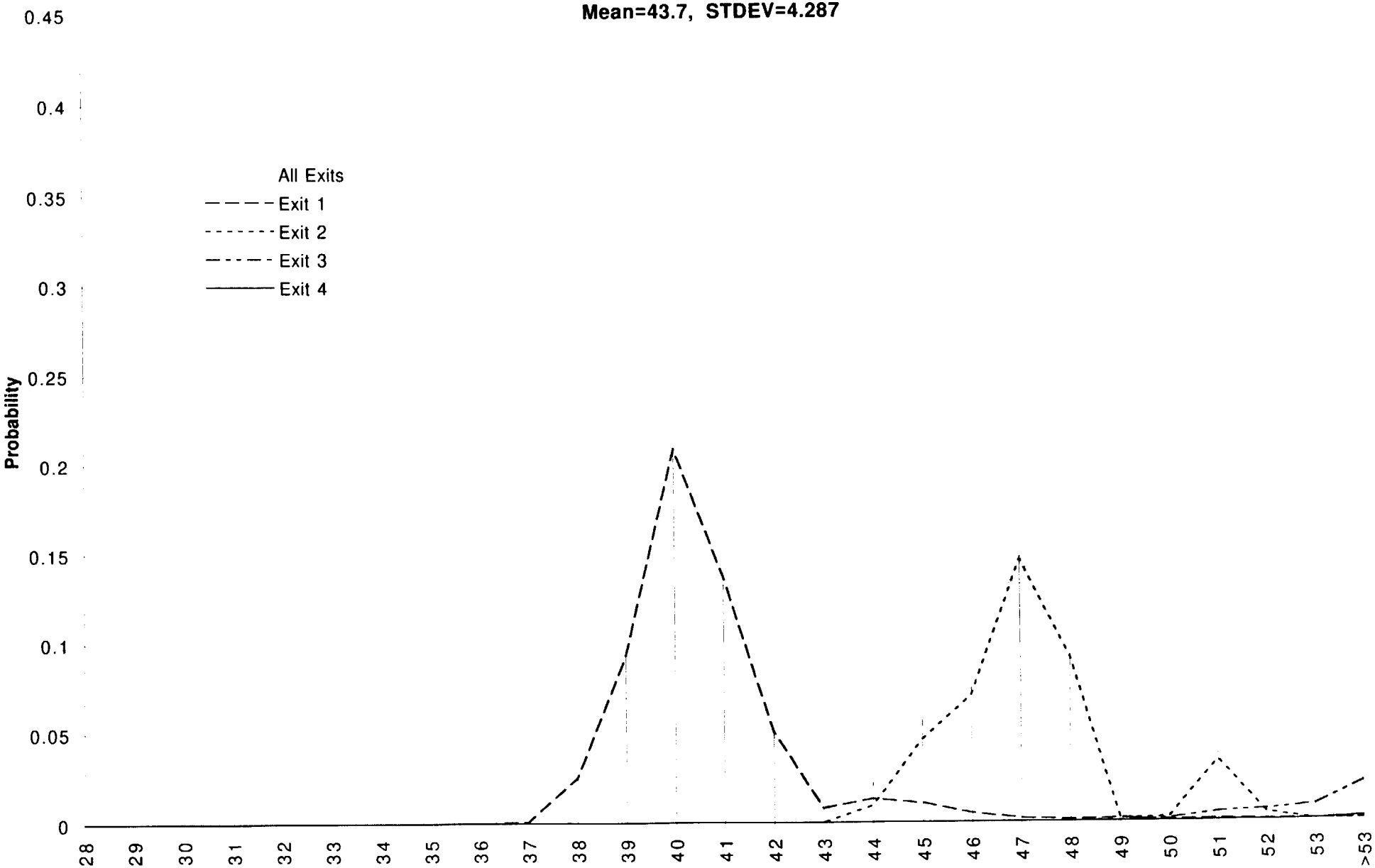
MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
NO Reverse Thrust

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/NO Reverse Thrust
Mean=43.7, STDEV=4.287

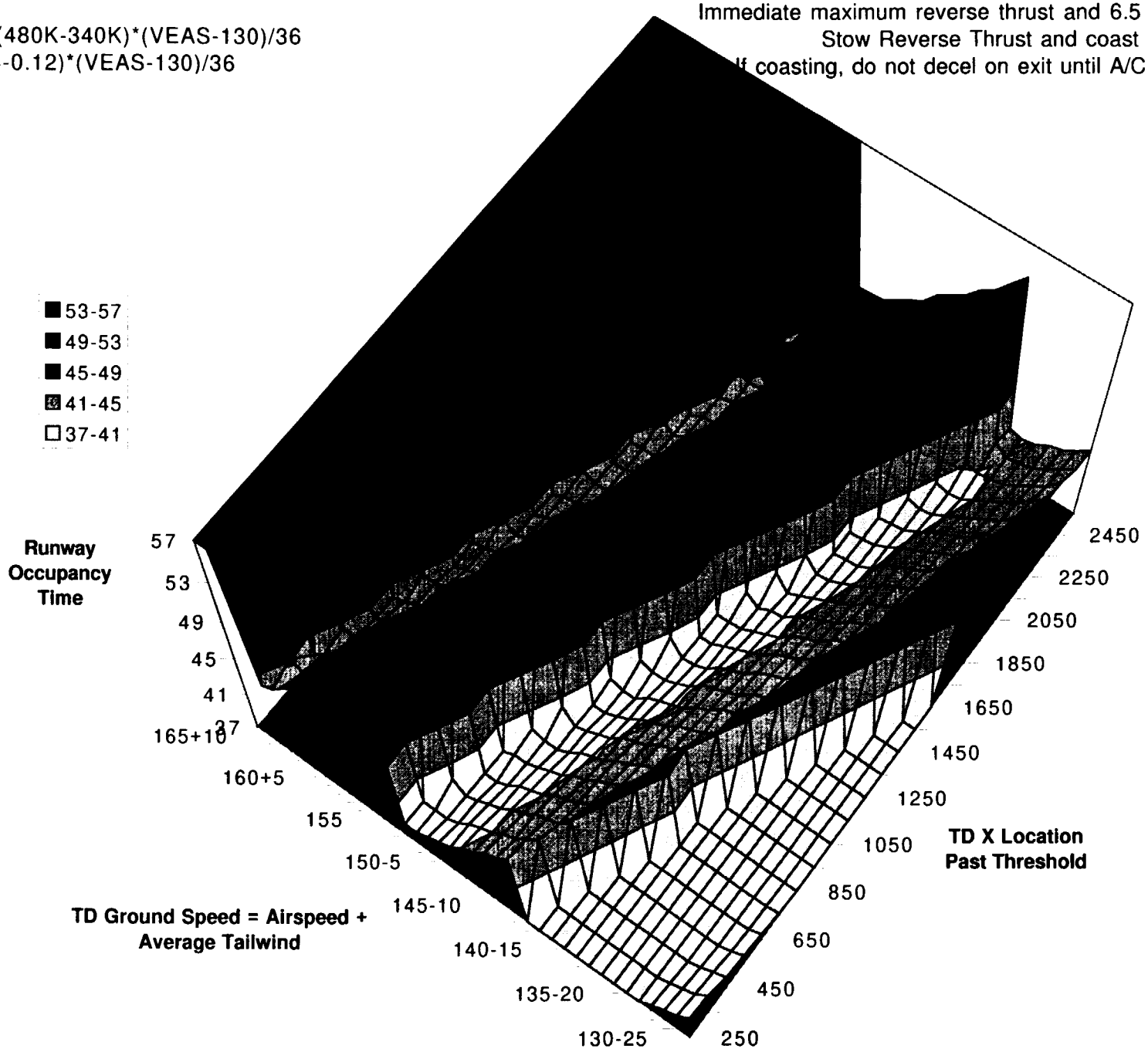


No exit prediction

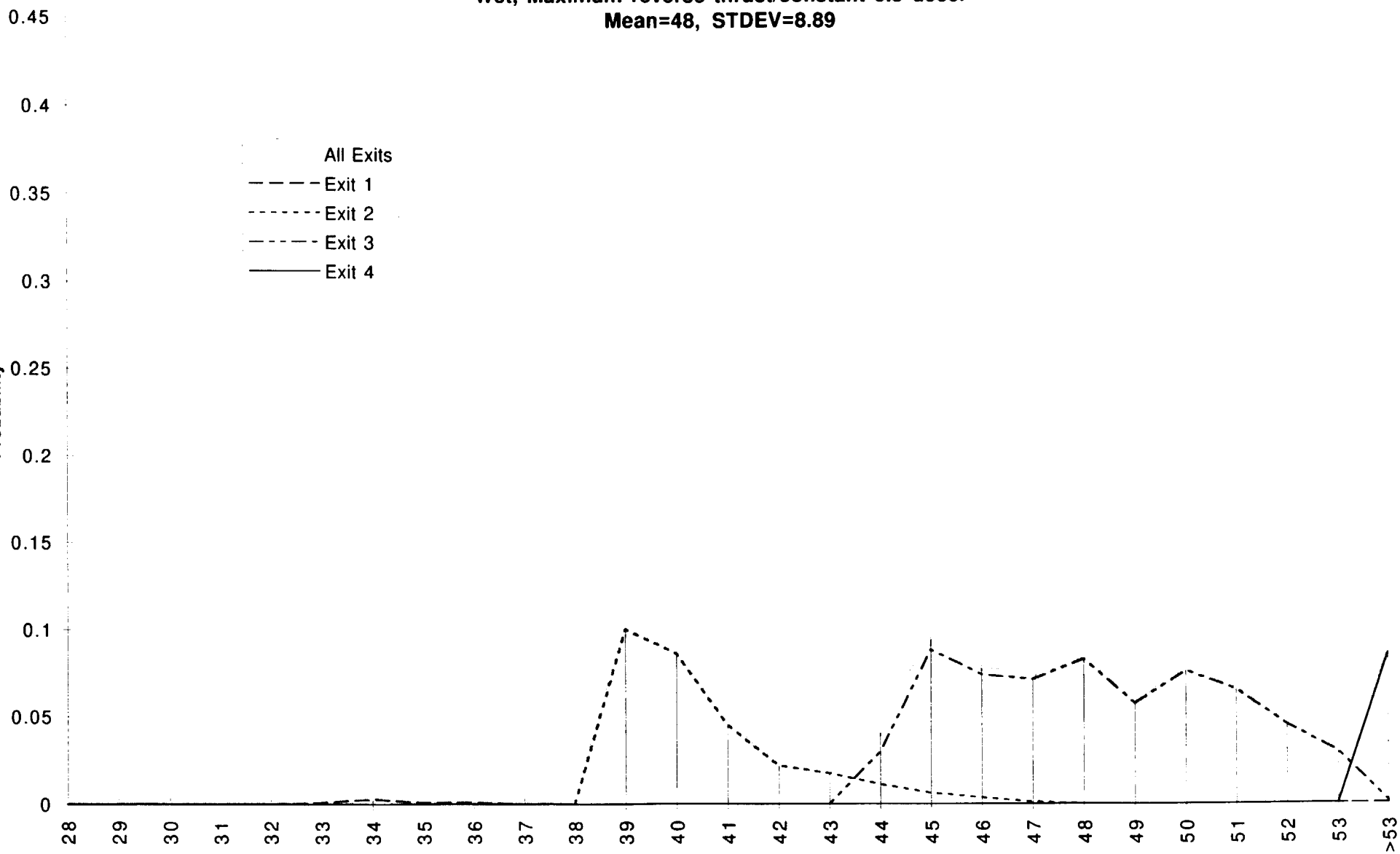
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3500,4950,6550,10000
Immediate maximum reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=48, STDEV=8.89



MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

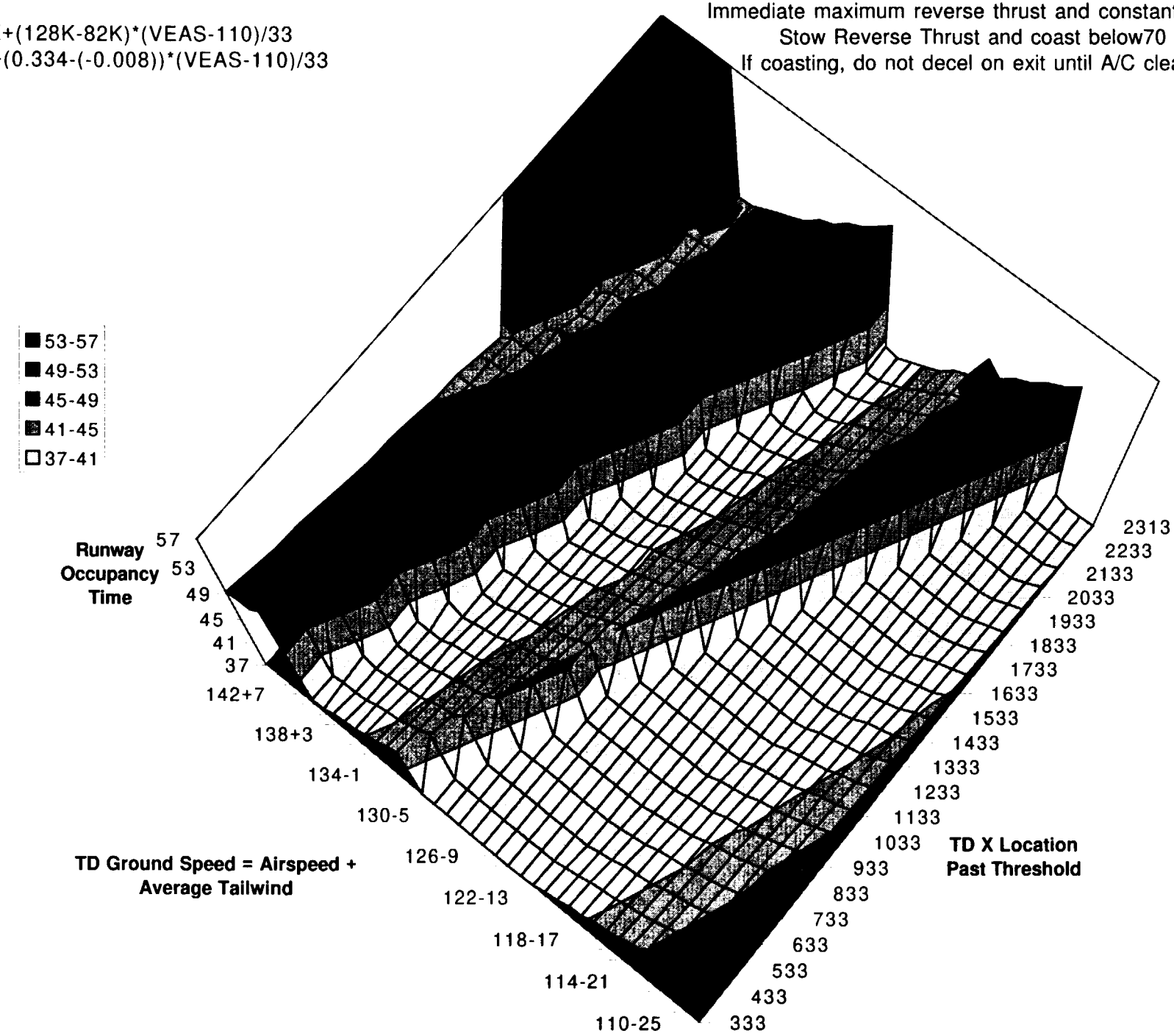
No exit prediction

MD-81 ROTO Occupancy Time

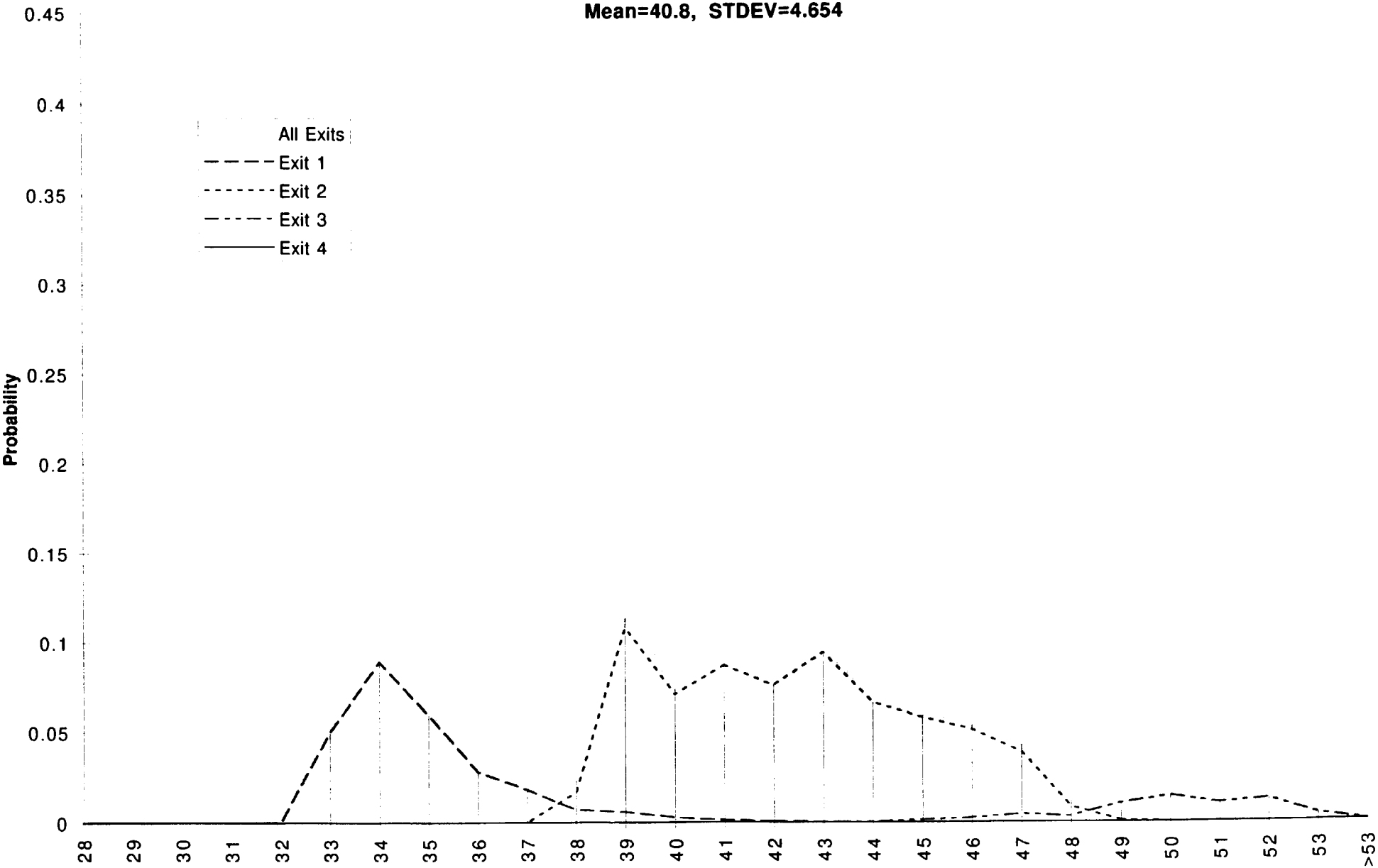
Wet,Exits=3500,4950,6550,10000

Immediate maximum reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33



MD-81 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=40.8, STDEV=4.654



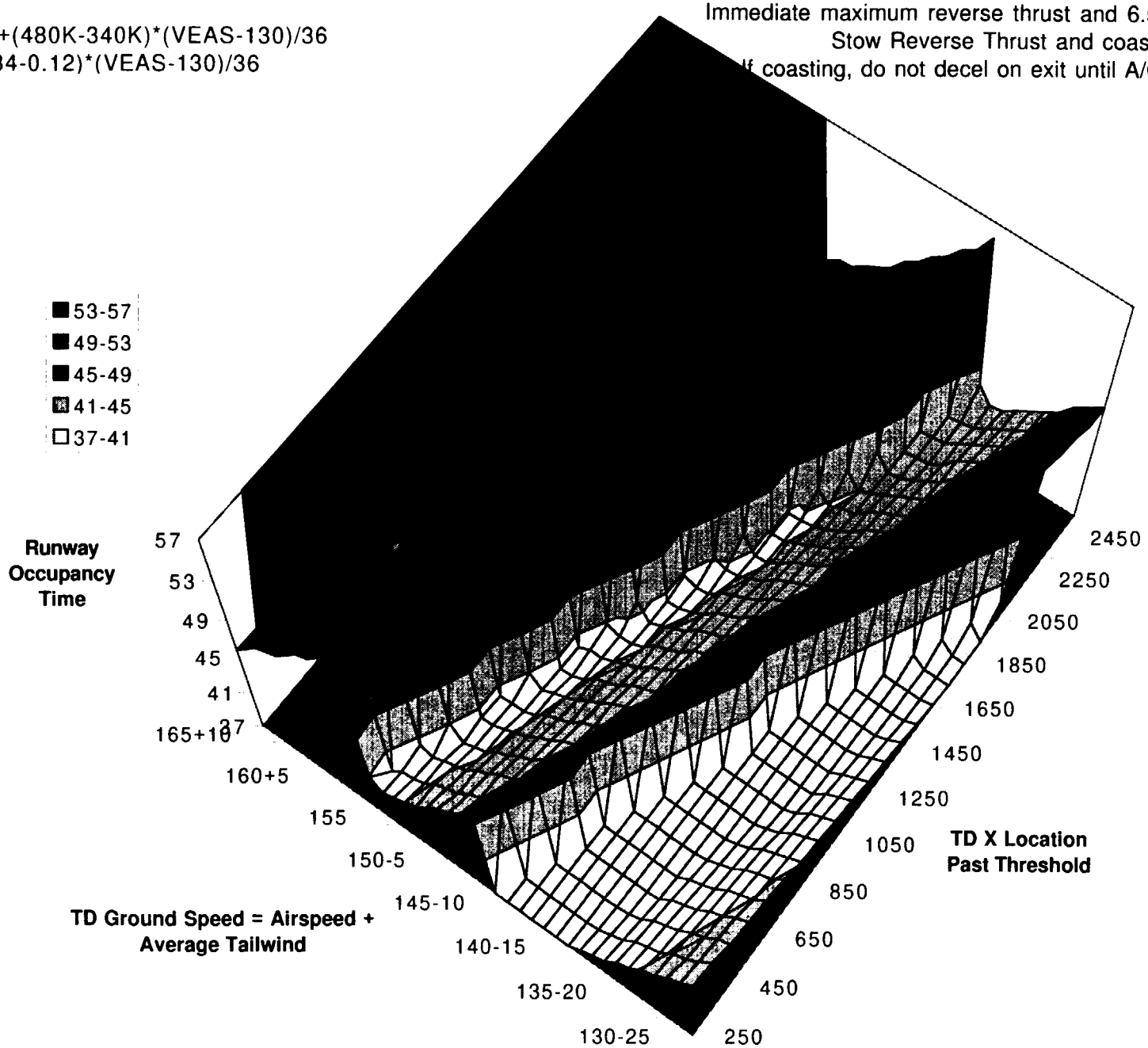
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3500, 4950, 6550 & 10000 feet

No exit prediction

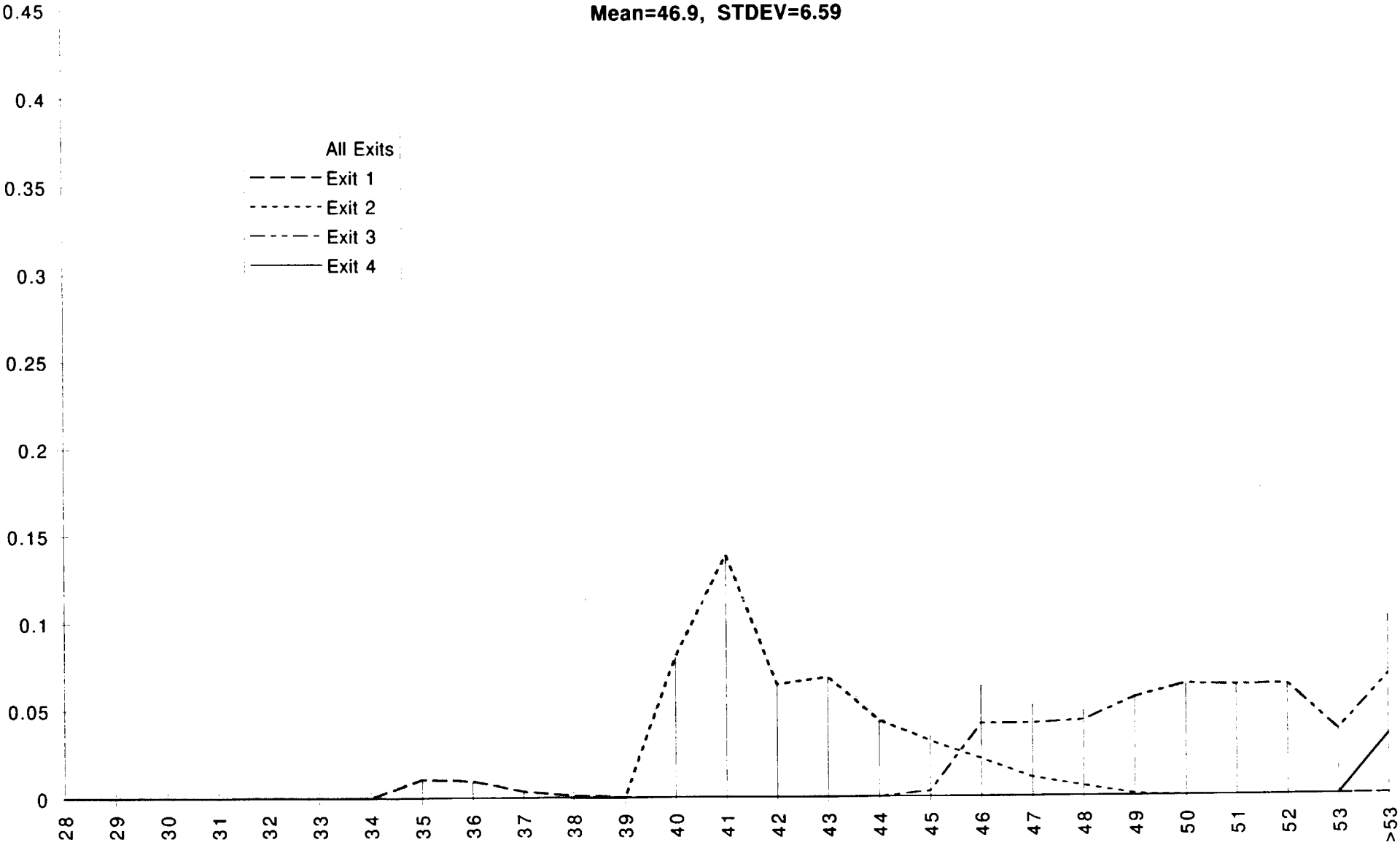
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Immediate maximum reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=46.9, STDEV=6.59



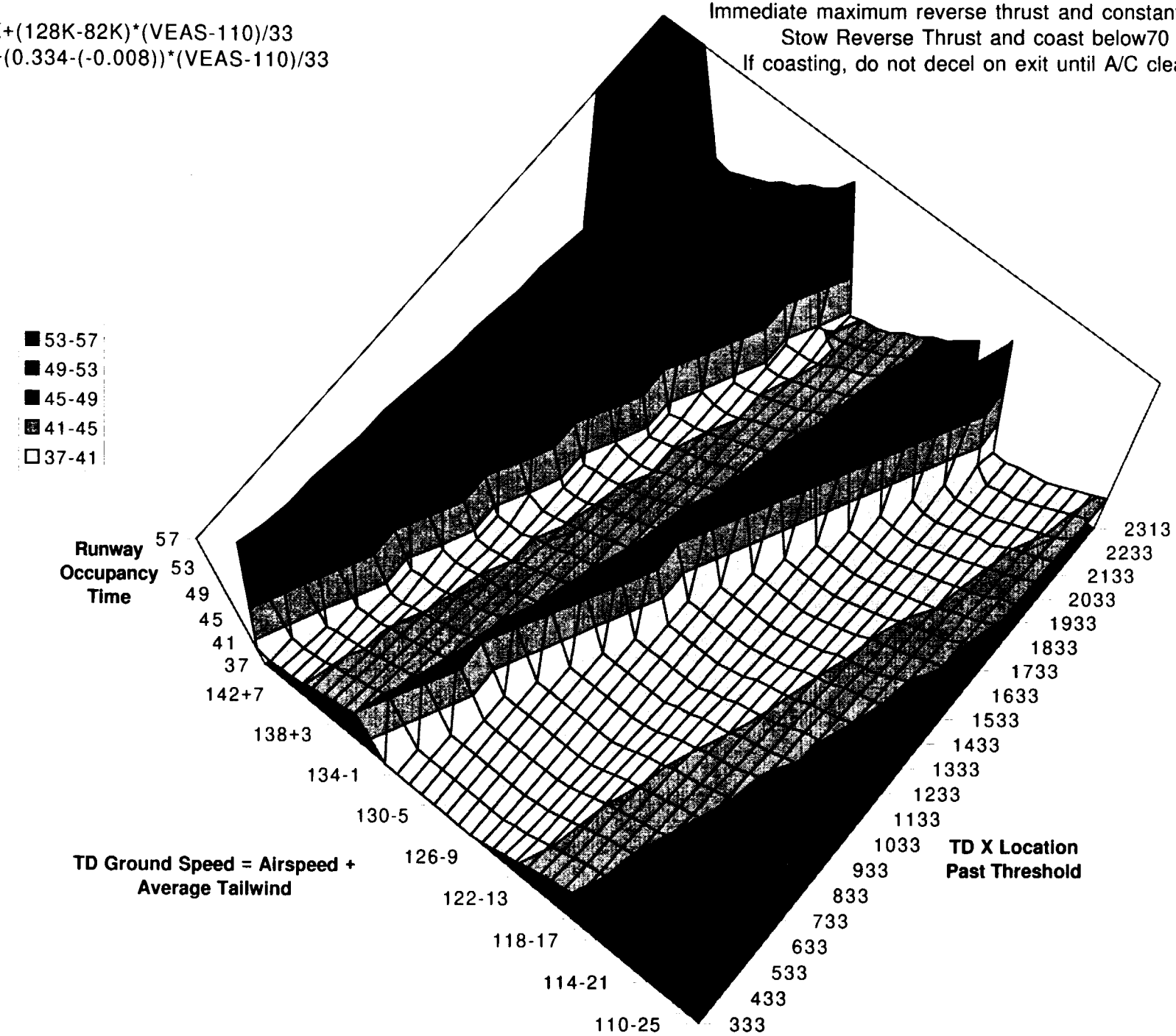
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

No exit prediction

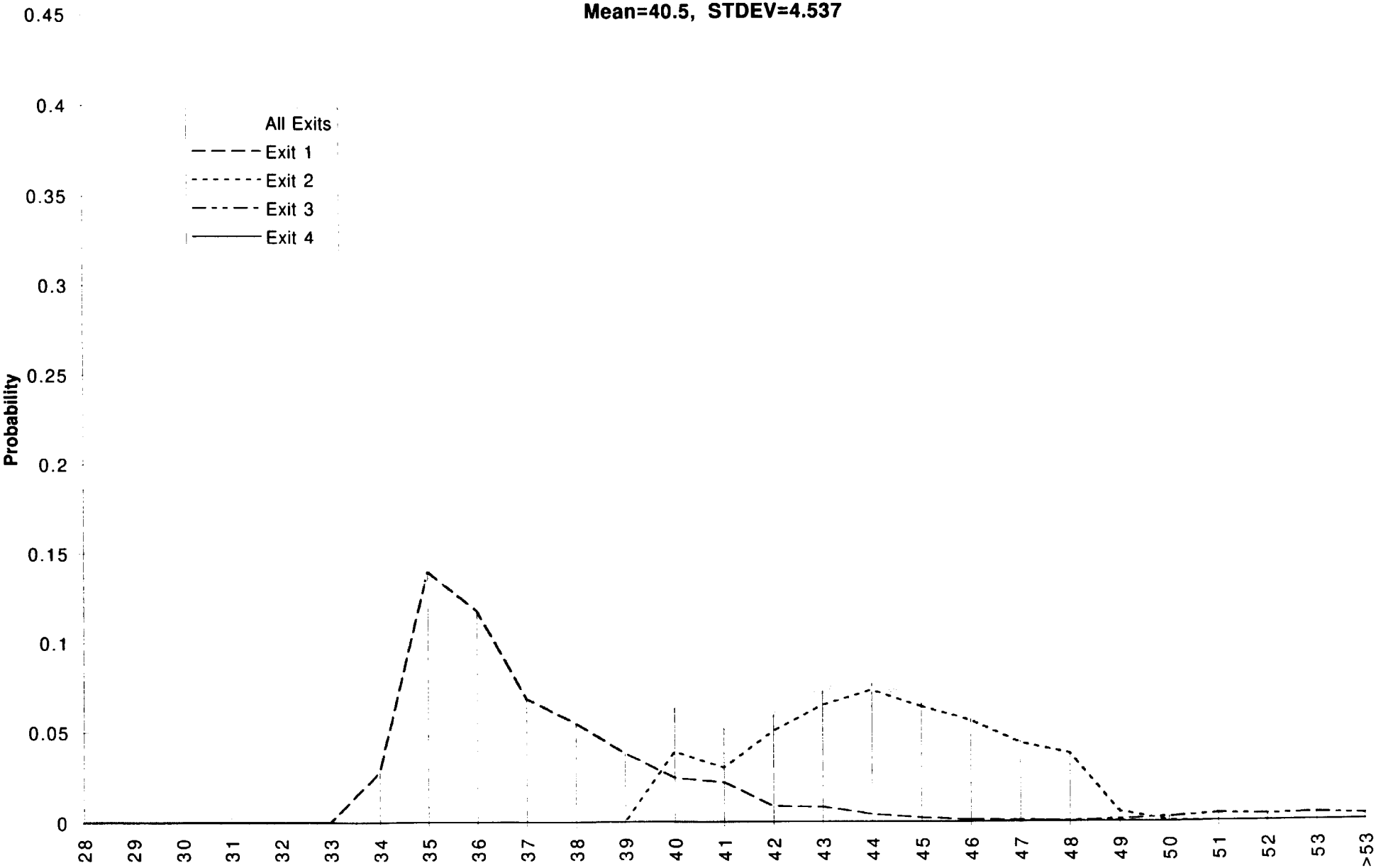
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Immediate maximum reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway



MD-81 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=40.5, STDEV=4.537



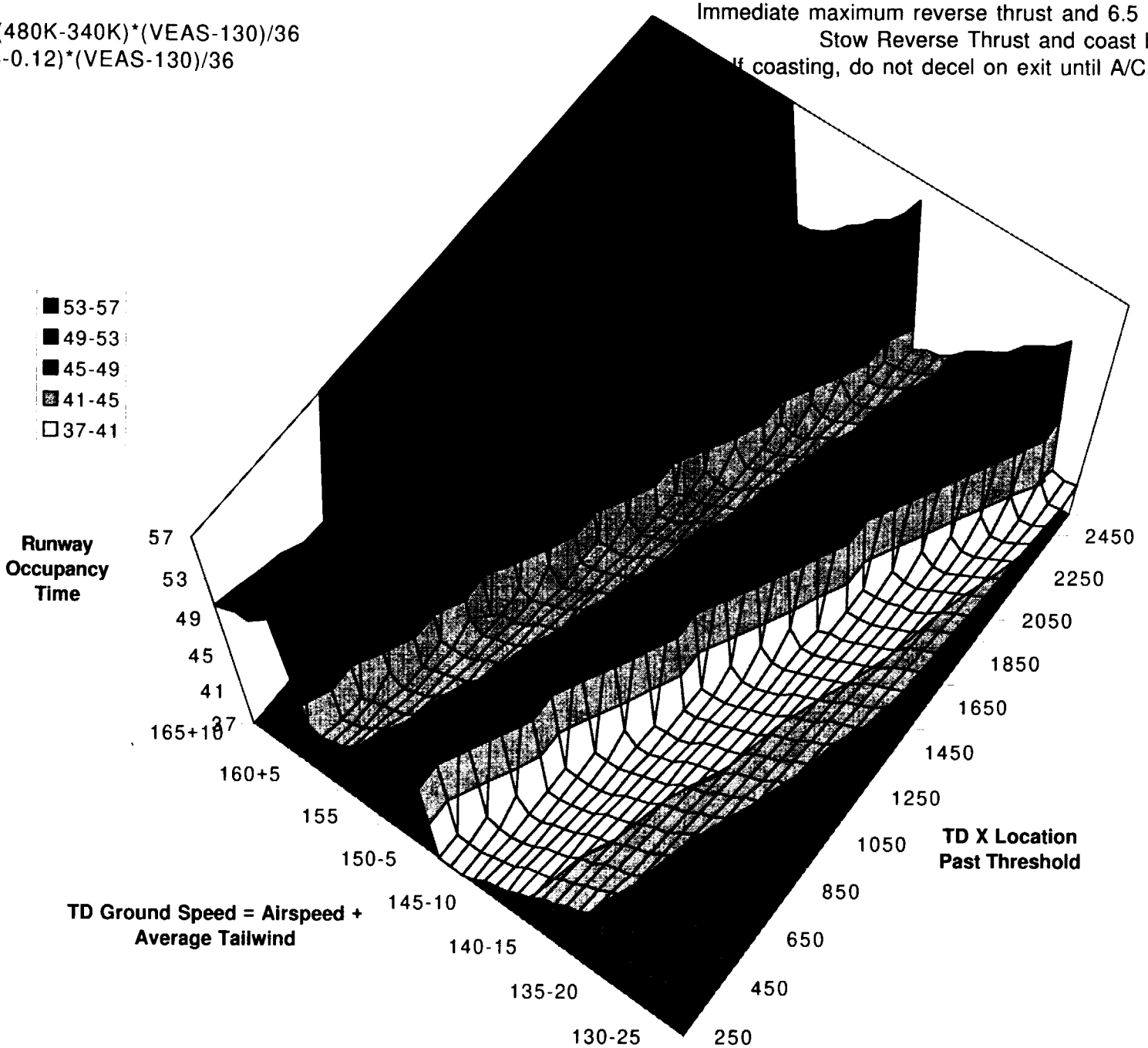
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

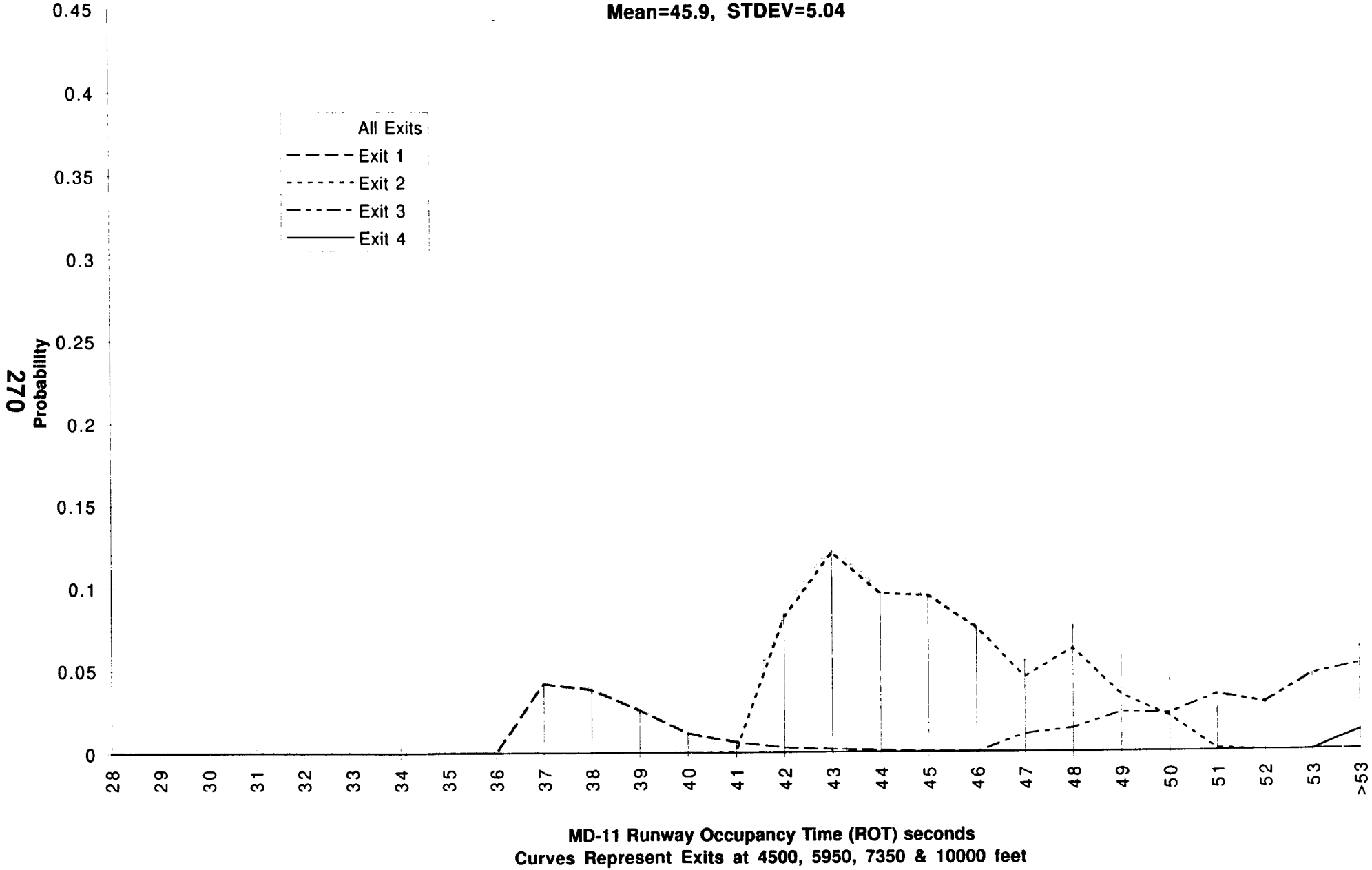
No exit prediction

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Immediate maximum reverse thrust and 6.5 constant decel
Stow Reverse Thrust and coast below 70 kt gd
If coasting, do not decel on exit until A/C clears runway




MD-11 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=45.9, STDEV=5.04
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
270
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

No exit prediction

MD-11 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000

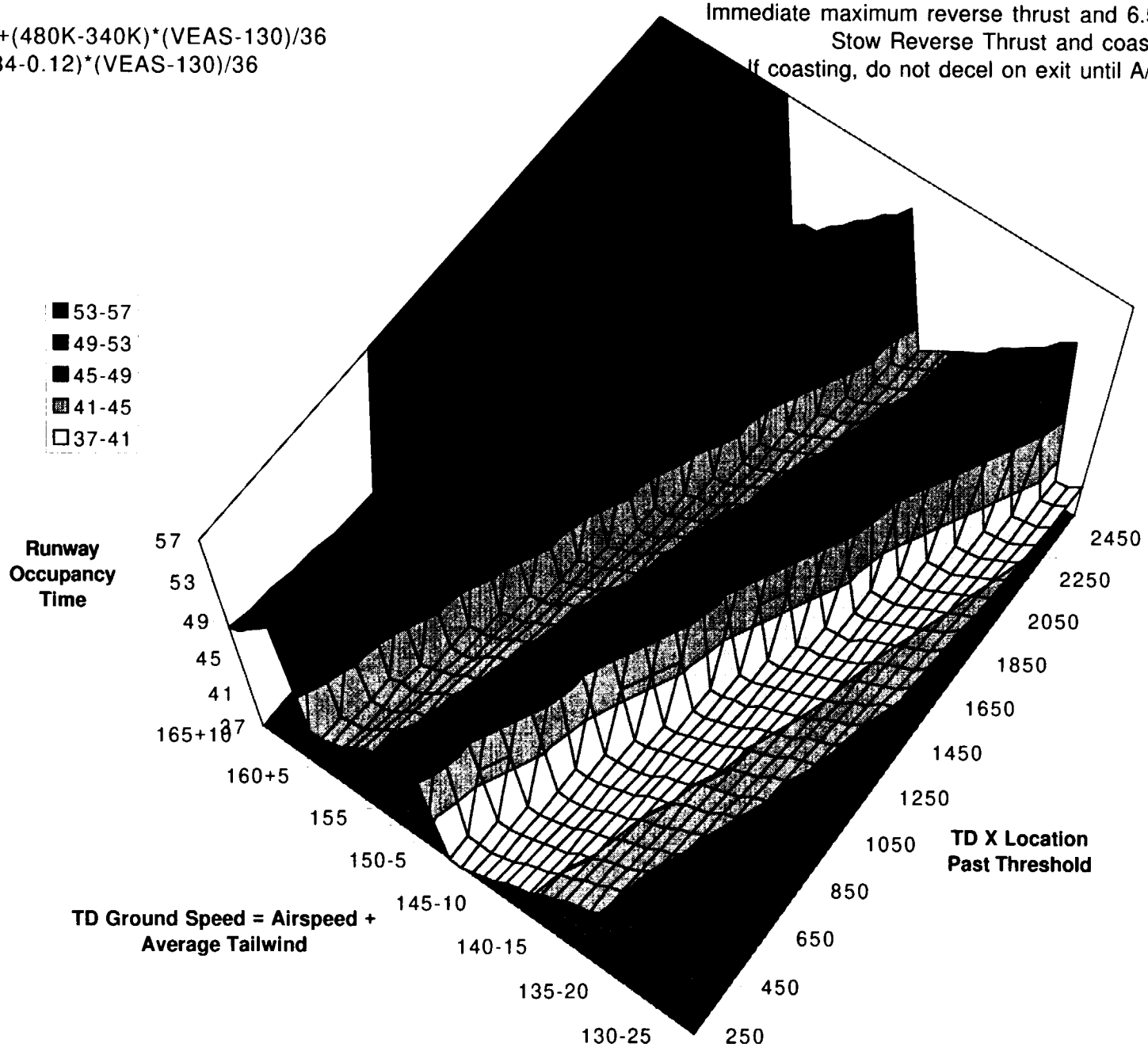
Weight=340K+(480K-340K)*(VEAS-130)/36

CG=0.12+(0.34-0.12)*(VEAS-130)/36

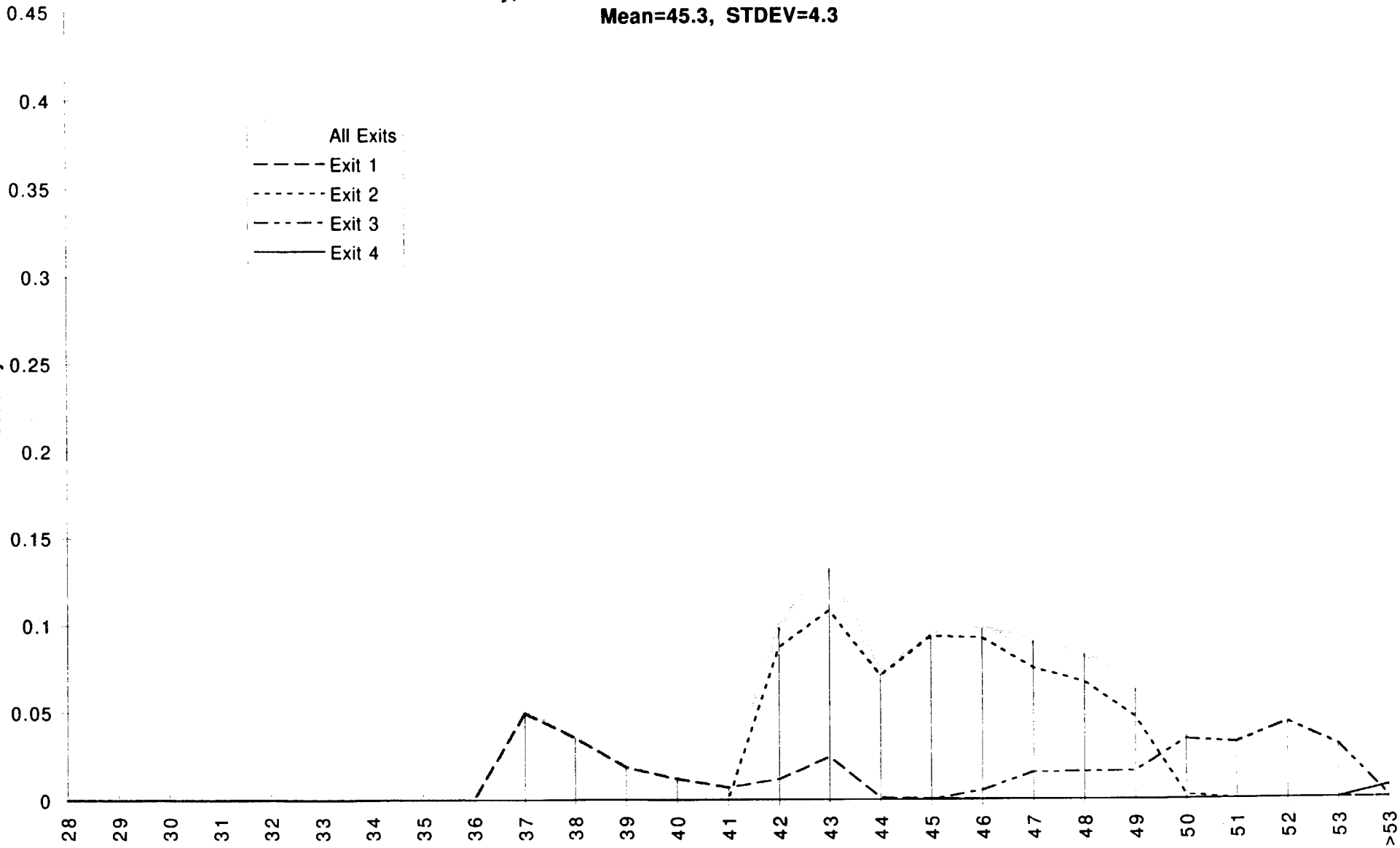
Immediate maximum reverse thrust and 6.5 constant decel

Stow Reverse Thrust and coast below 70 kt gd

If coasting, do not decel on exit until A/C clears runway



MD-11 ROTO ROT Probability Distribution
Dry, Maximum reverse thrust/constant 6.5 decel
Mean=45.3, STDEV=4.3



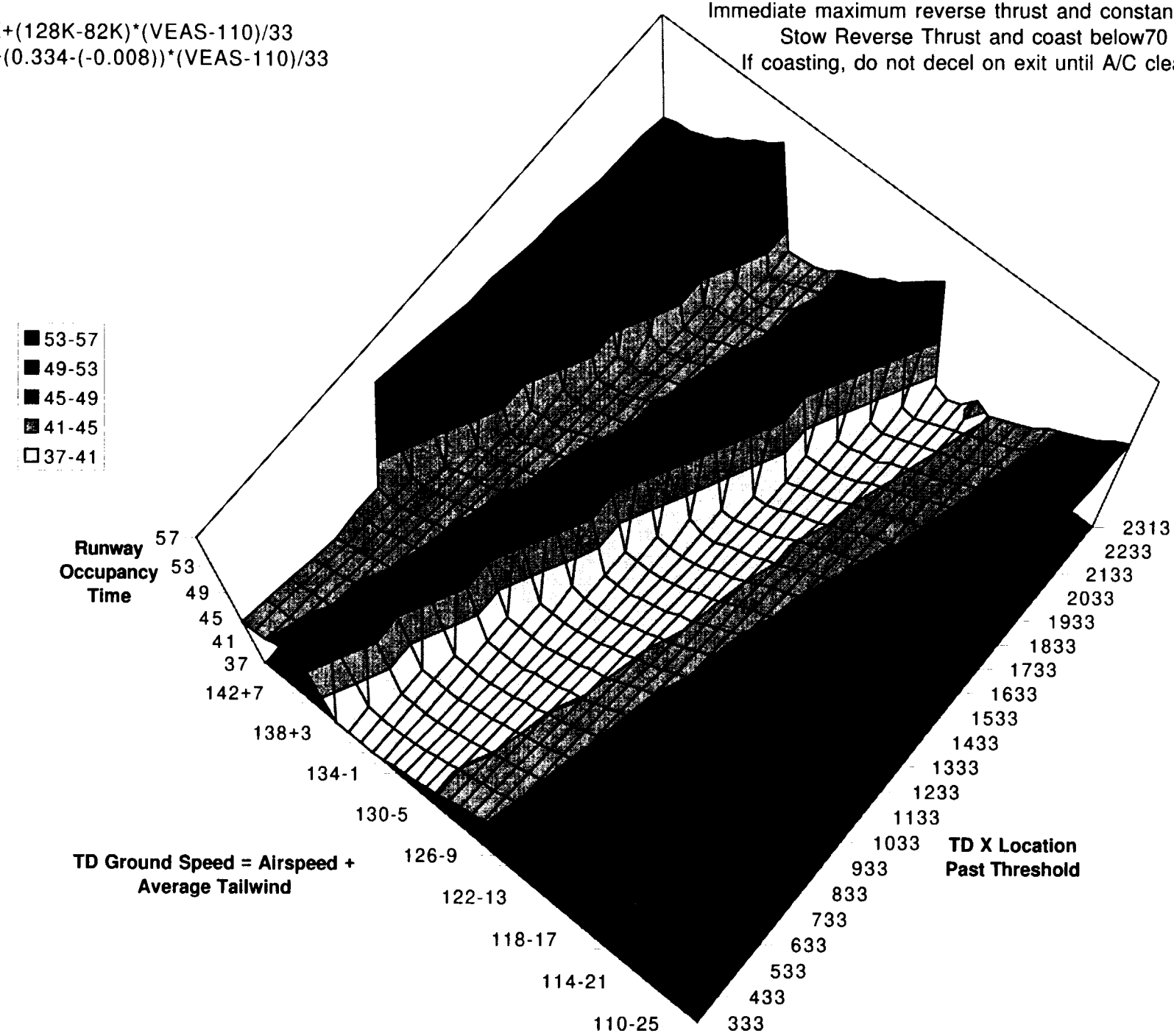
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

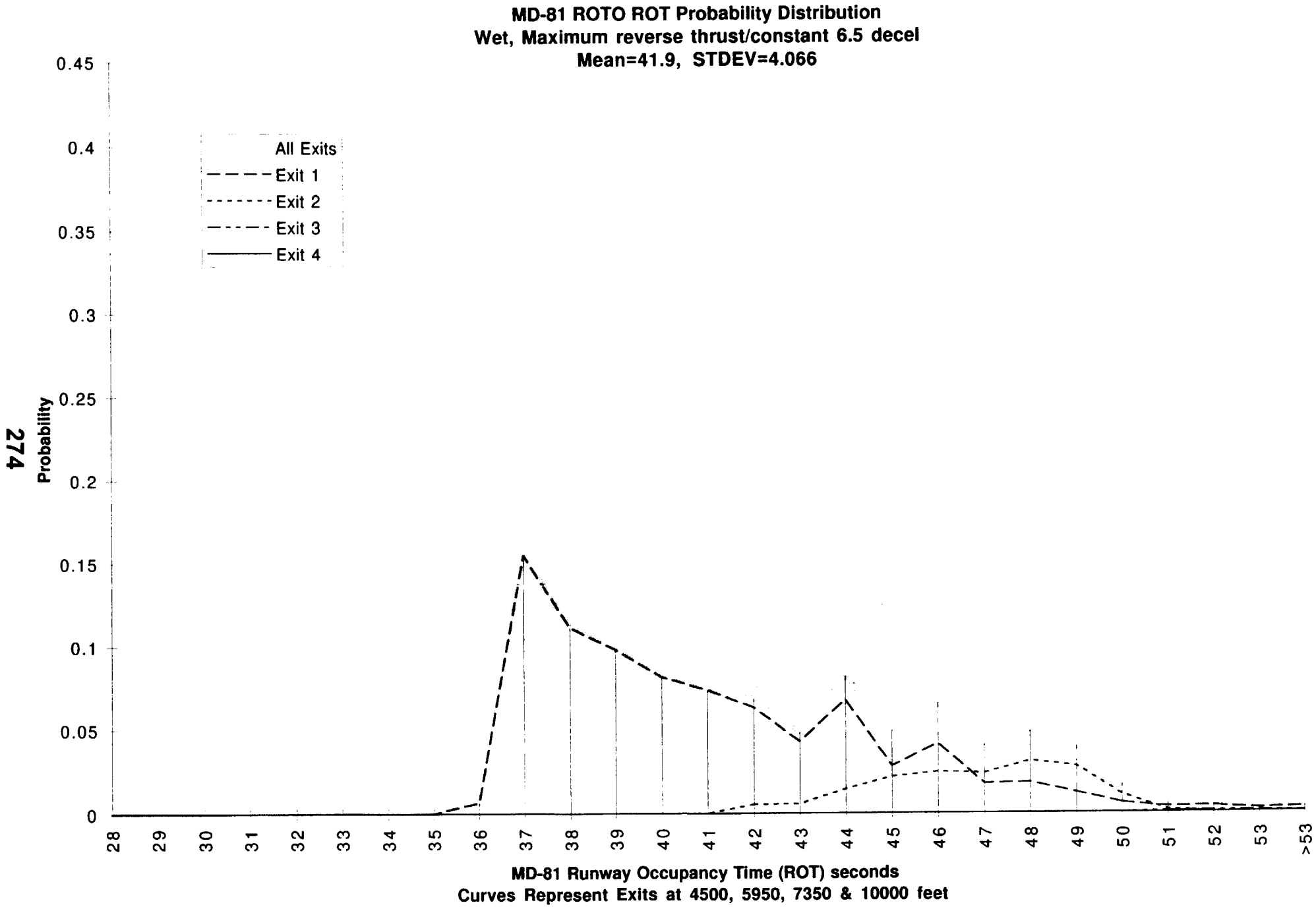
No exit prediction

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Immediate maximum reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway




MD-81 ROTO ROT Probability Distribution
Wet, Maximum reverse thrust/constant 6.5 decel
Mean=41.9, STDEV=4.066
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
31
32
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49
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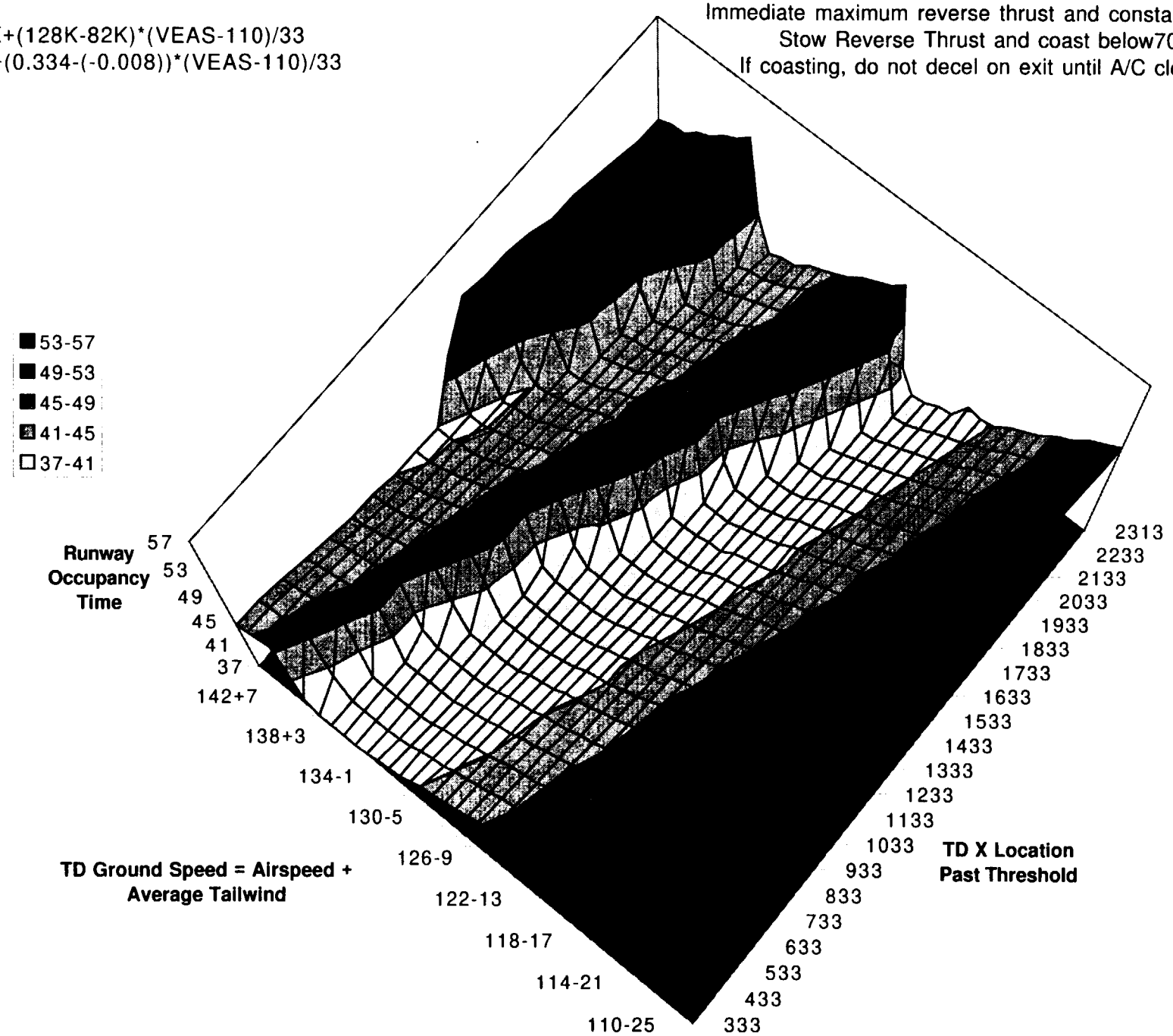
51
52
53
>53
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

No exit prediction

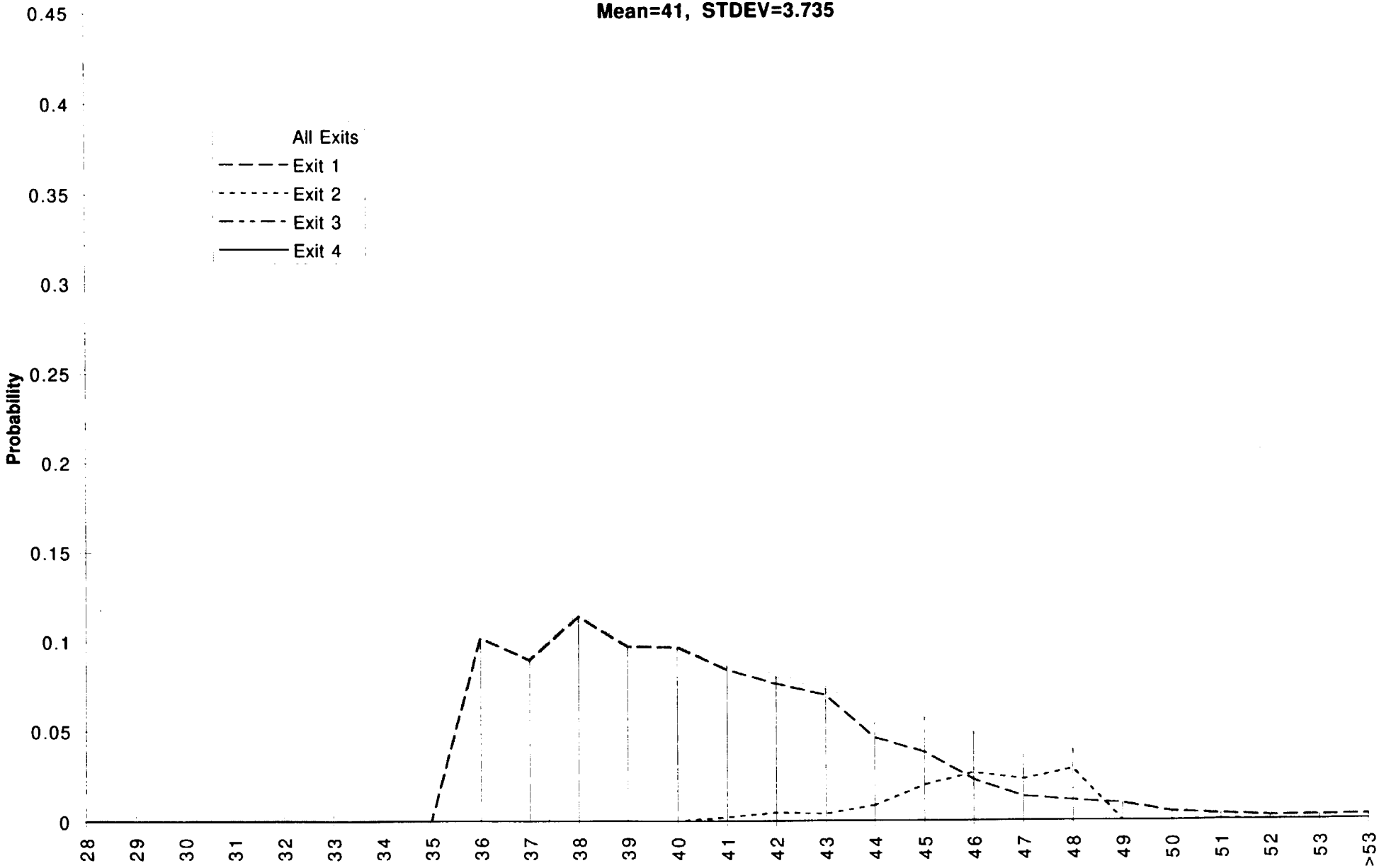
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Dry,Exits=4500,5950,7350,10000
Immediate maximum reverse thrust and constant 6.5 decel
Stow Reverse Thrust and coast below70 kt gnd spd
If coasting, do not decel on exit until A/C clears runway



MD-81 ROTO ROT Probability Distribution
Dry, Maximum reverse thrust/constant 6.5 decel
Mean=41, STDEV=3.735



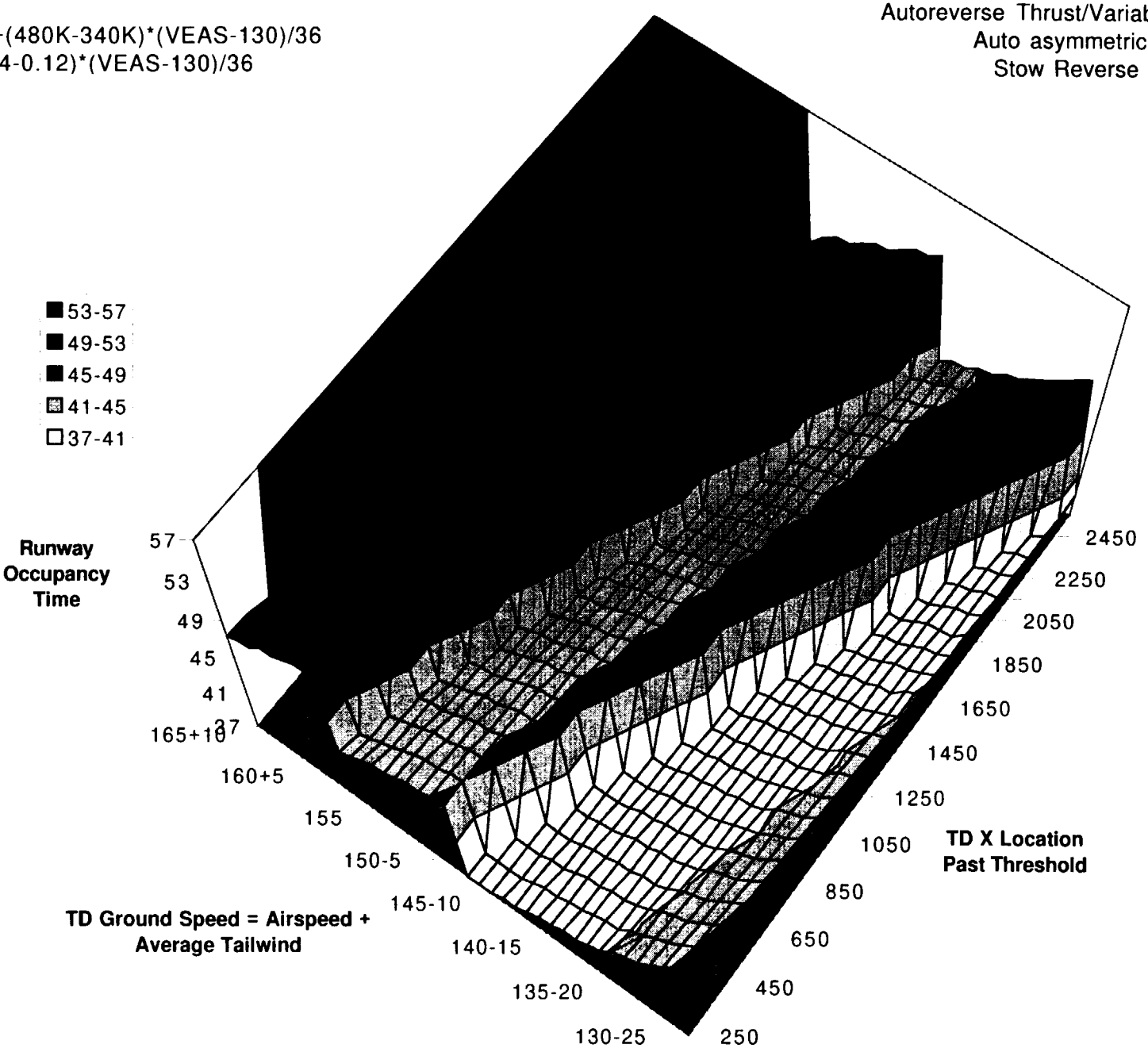
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

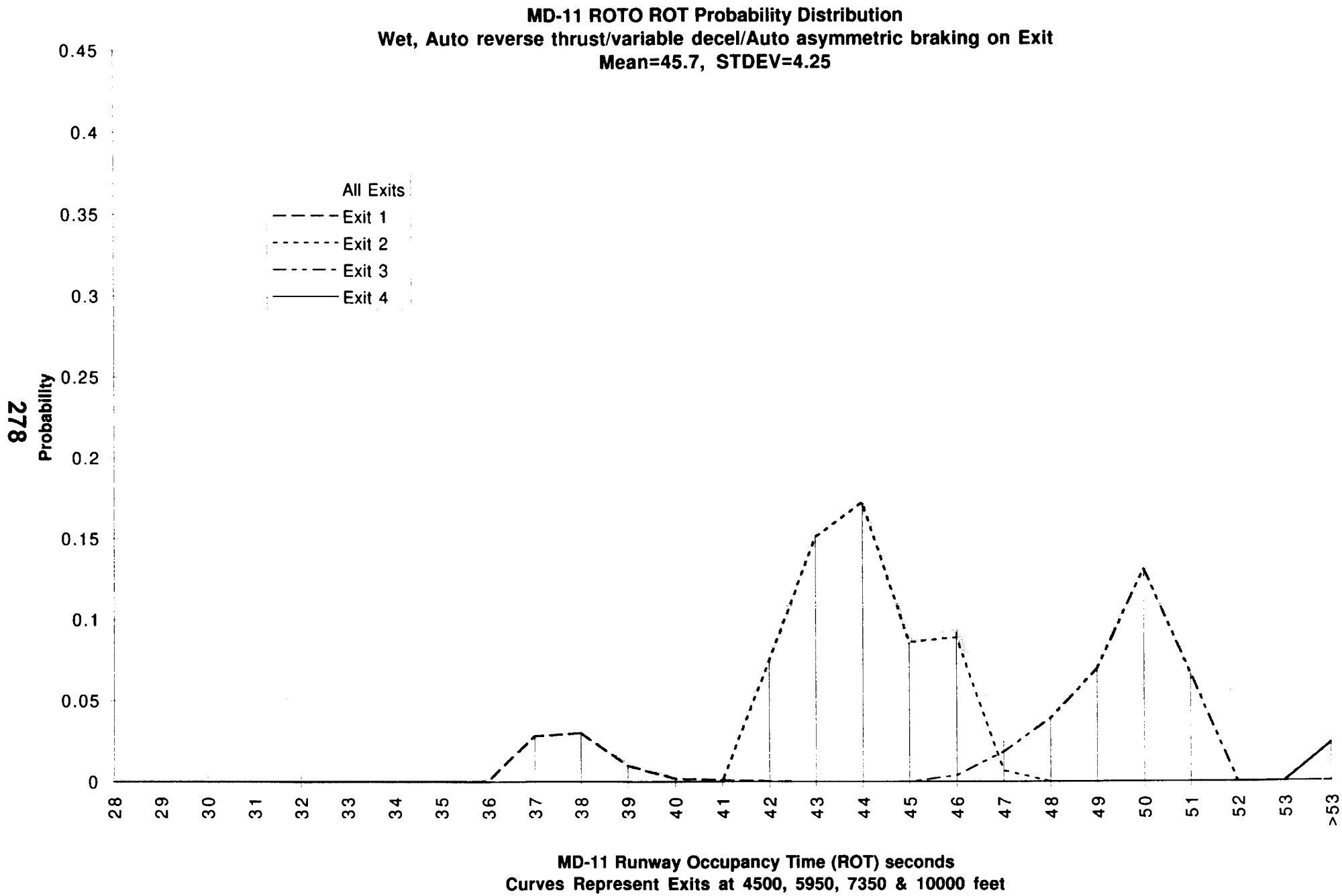
Predict exit prior to TD

MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Auto asymmetric braking on Exit
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36




MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Auto asymmetric braking on Exit
Mean=45.7, STDEV=4.25
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
29
30
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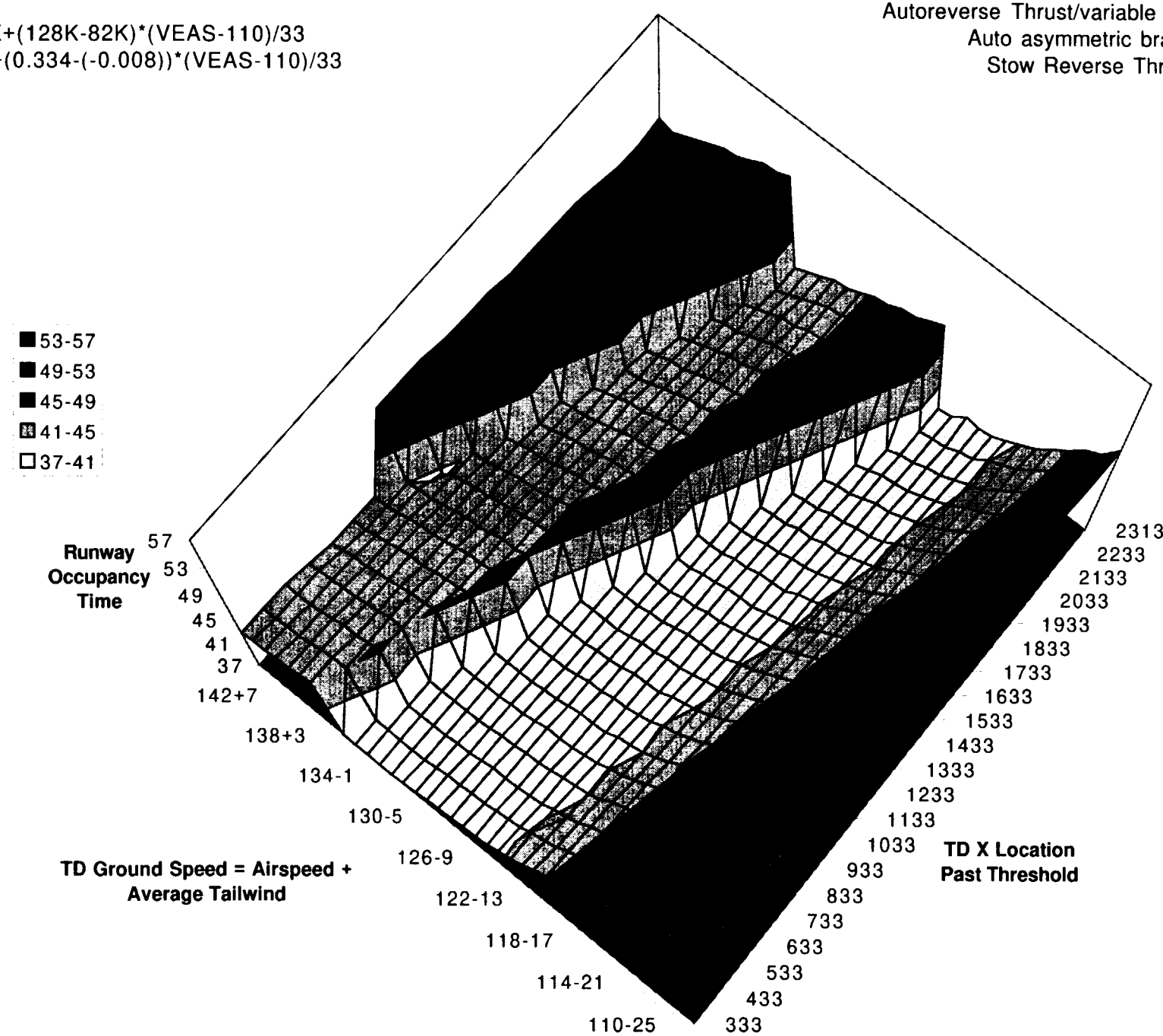
52
53
>53
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

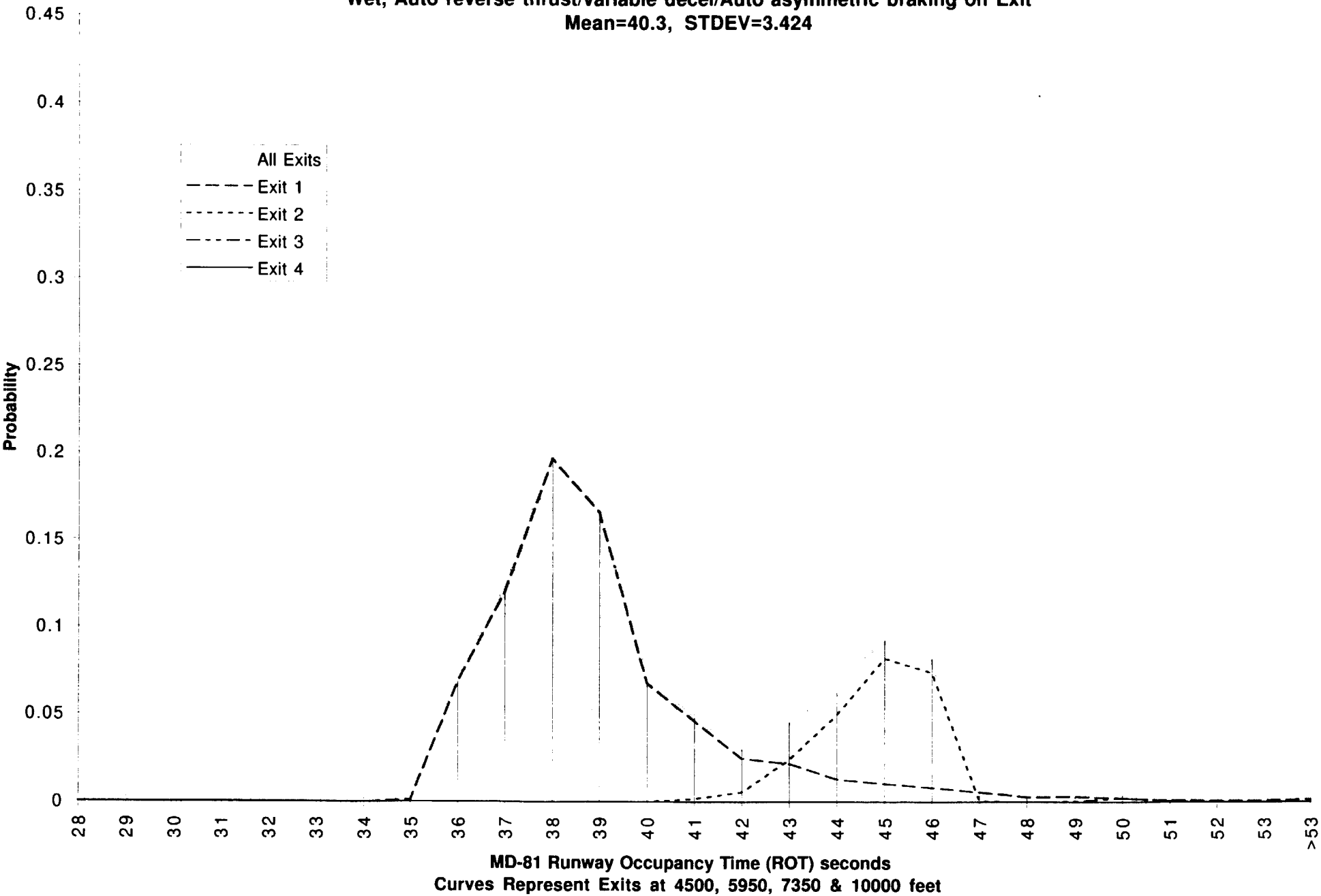
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Auto asymmetric braking on Exit
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Auto asymmetric braking on Exit
Mean=40.3, STDEV=3.424



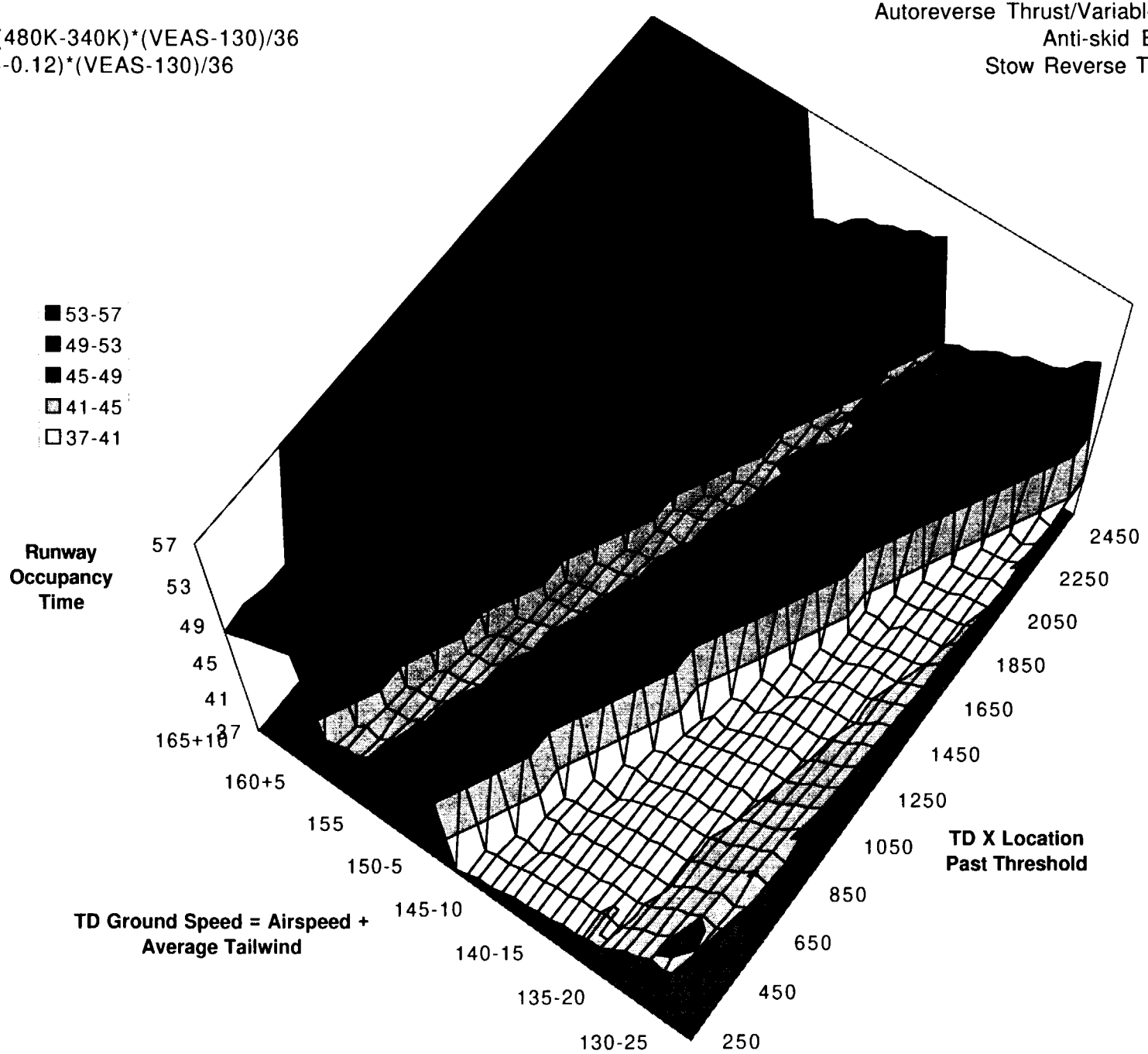
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

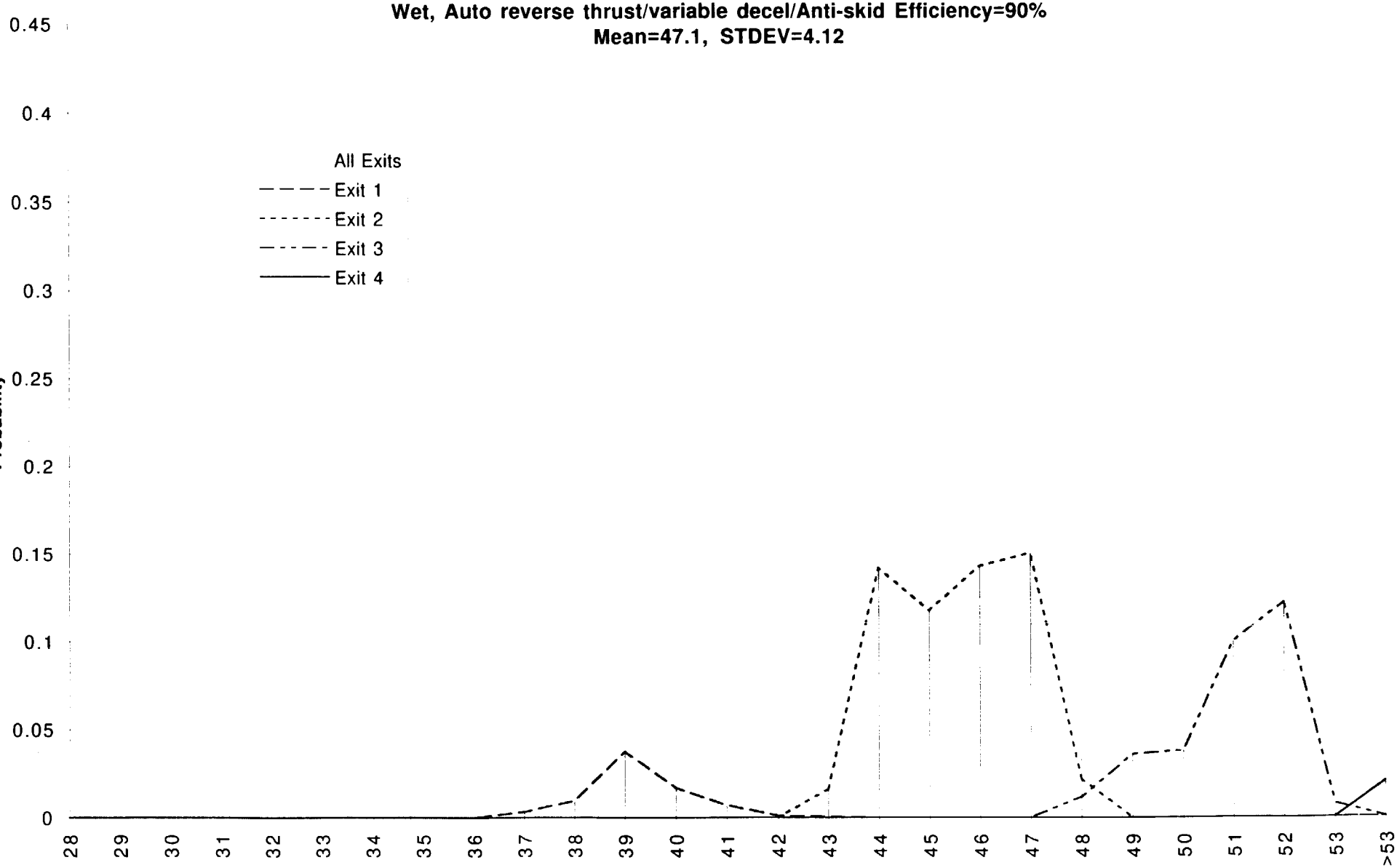
MD-11 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/Variable Deceleration
Anti-skid Efficiency=90%
Stow Reverse Thrust=70 kt gd

Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=90%
Mean=47.1, STDEV=4.12



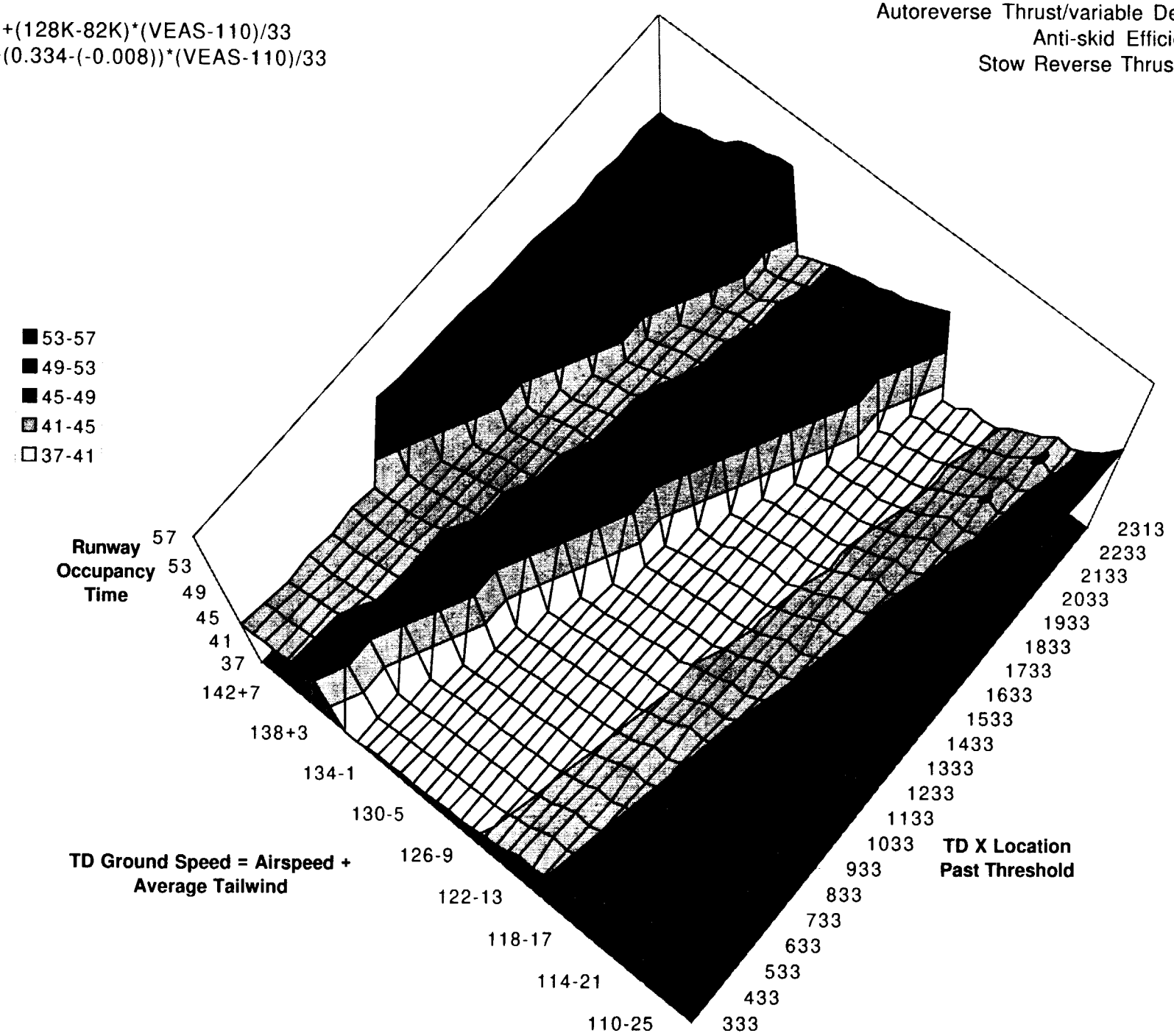
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

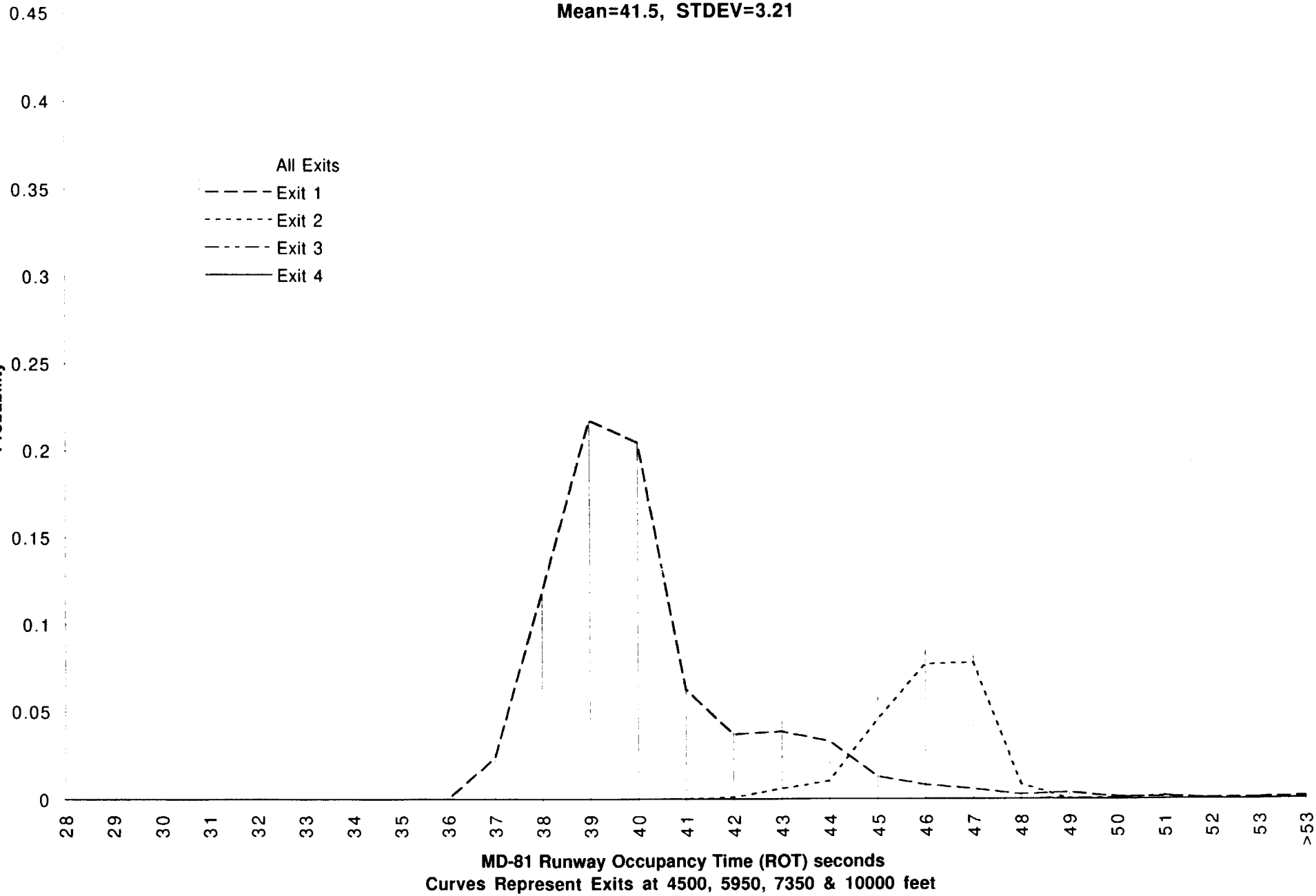
Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=4500,5950,7350,10000
Autoreverse Thrust/variable Deceleration
Anti-skid Efficiency=90%
Stow Reverse Thrust=70 kt gd



MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/Anti-skid Efficiency=90%
Mean=41.5, STDEV=3.21



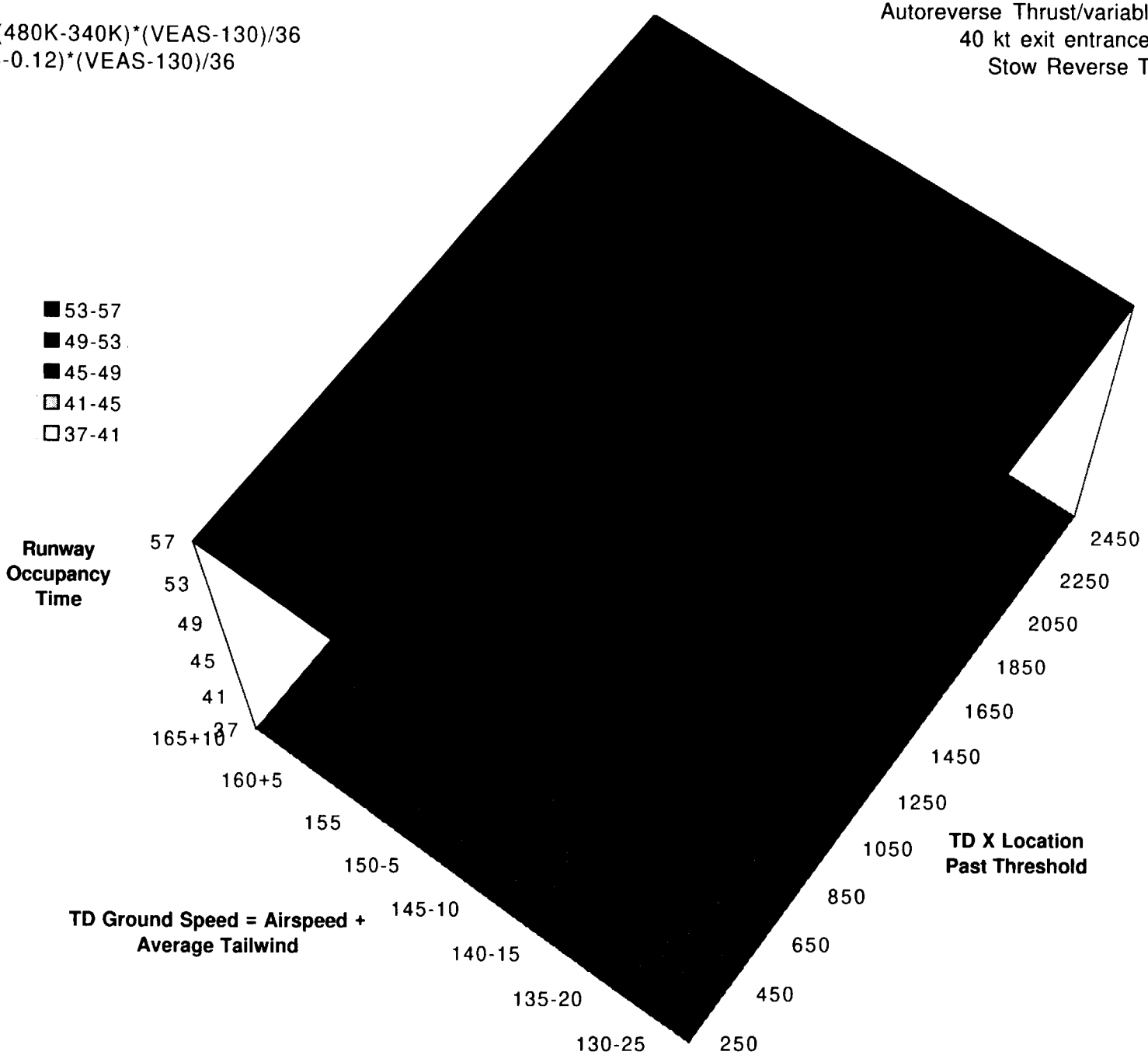
MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 4500, 5950, 7350 & 10000 feet

Predict exit prior to TD

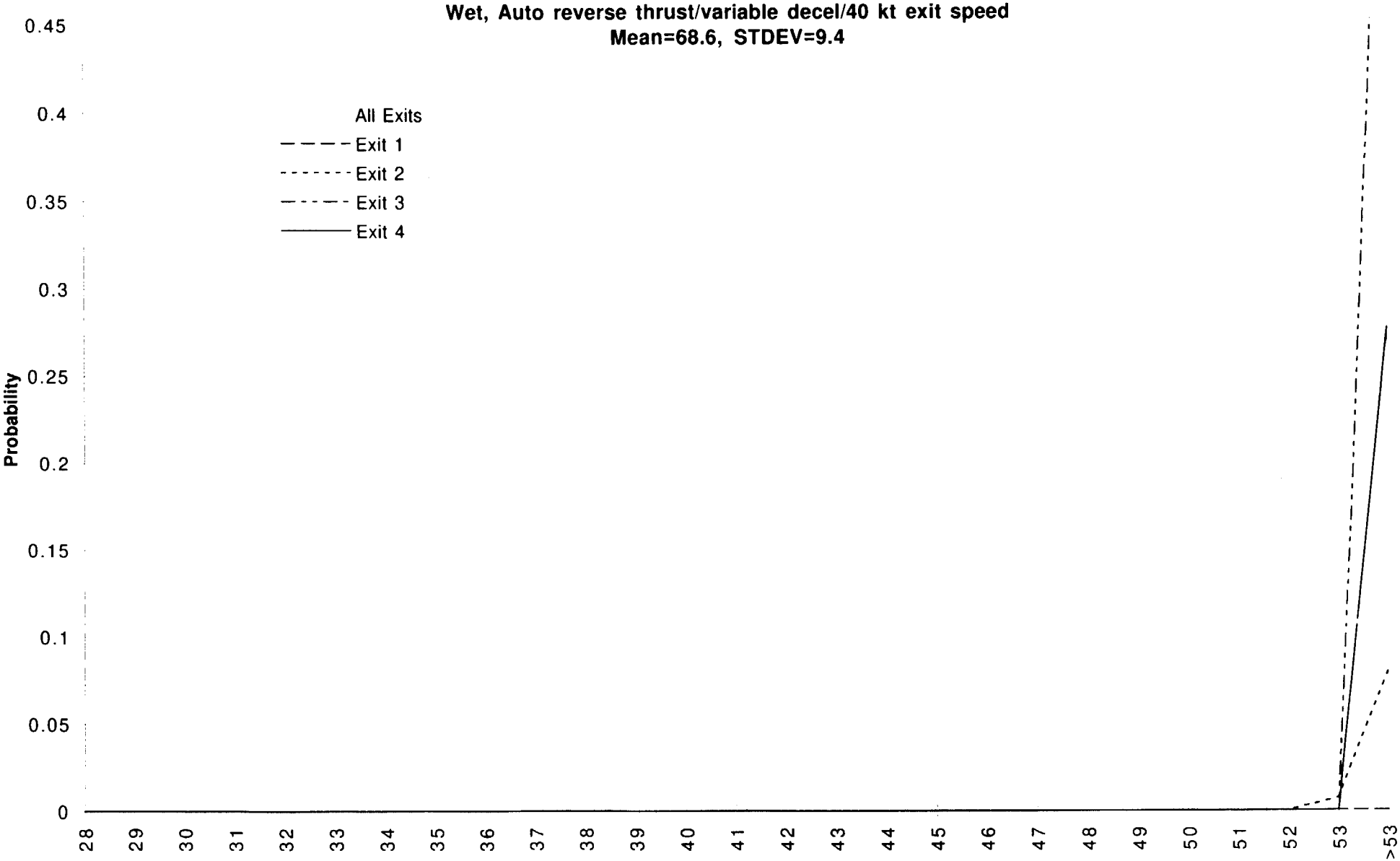
Weight=340K+(480K-340K)*(VEAS-130)/36
CG=0.12+(0.34-0.12)*(VEAS-130)/36

MD-11 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
40 kt exit entrance ground speed
Stow Reverse Thrust=40 kt gd



MD-11 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/40 kt exit speed
Mean=68.6, STDEV=9.4



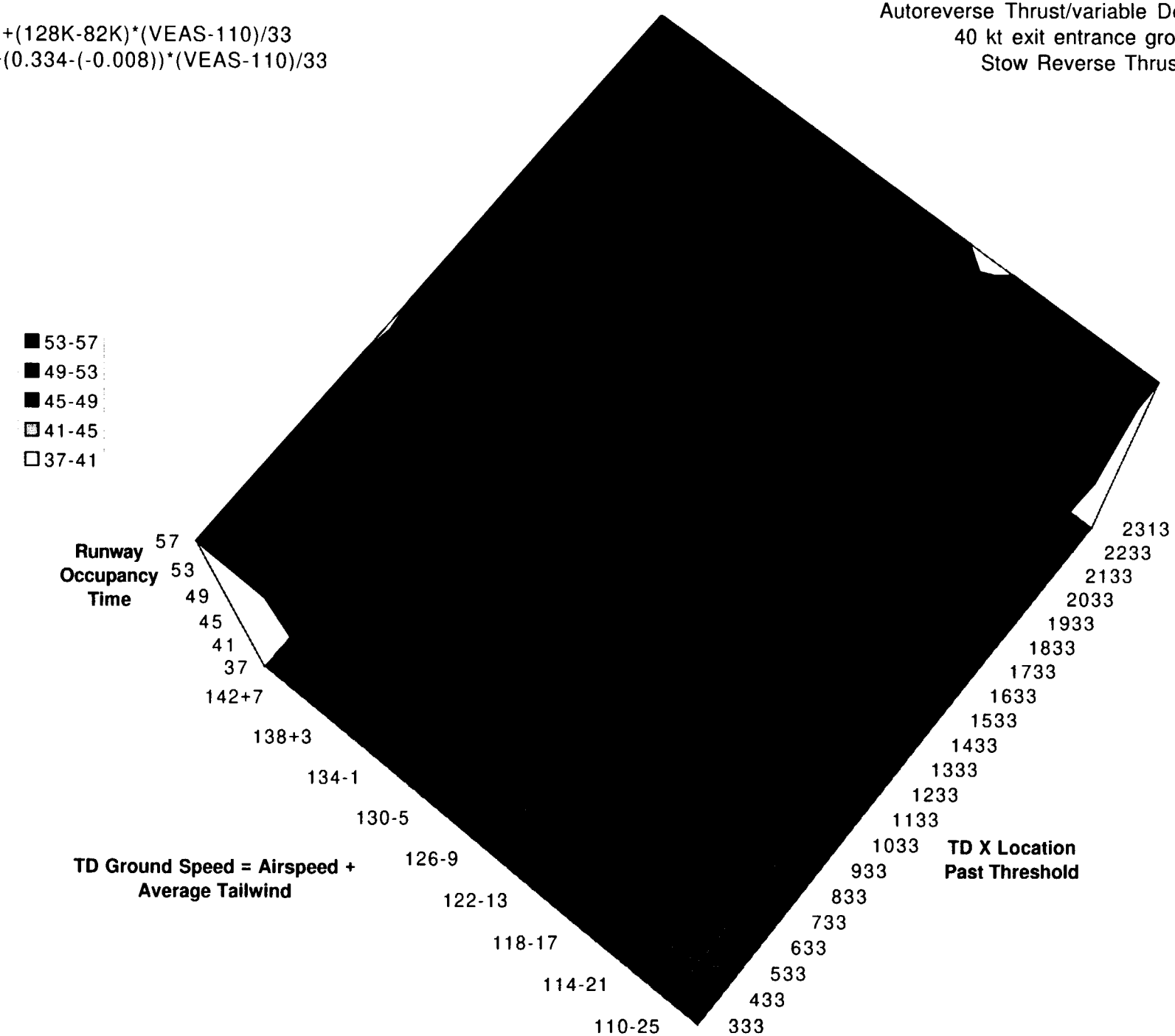
MD-11 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

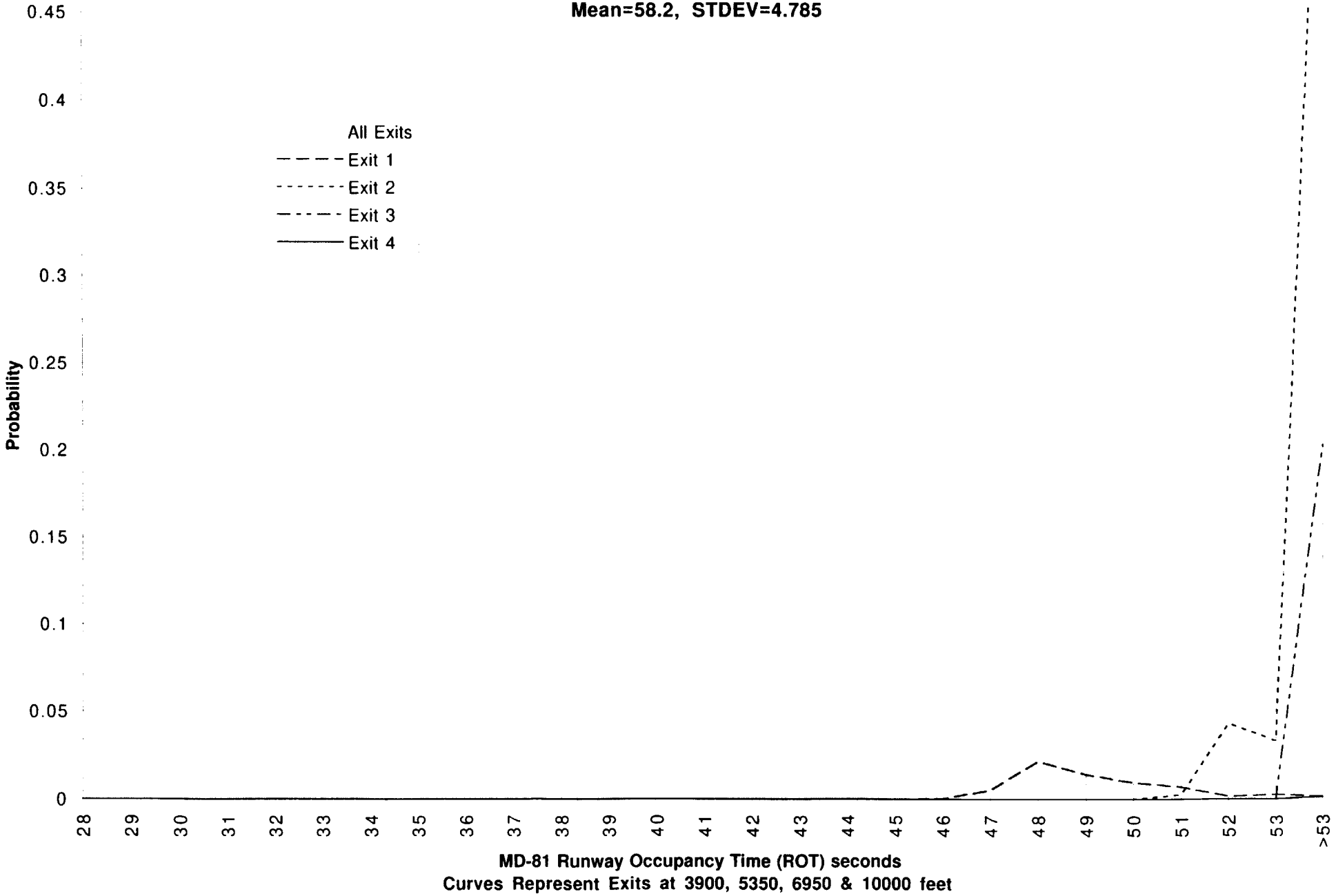
Predict exit prior to TD

Weight=82K+(128K-82K)*(VEAS-110)/33
CG=-0.008+(0.334-(-0.008))*(VEAS-110)/33

MD-81 ROTO Occupancy Time

Wet,Exits=3900,5350,6950,10000
Autoreverse Thrust/variable Deceleration
40 kt exit entrance ground speed
Stow Reverse Thrust=40 kt gd




MD-81 ROTO ROT Probability Distribution
Wet, Auto reverse thrust/variable decel/40 kt exit speed
Mean=58.2, STDEV=4.785
All Exits
Exit 1
Exit 2
Exit 3
Exit 4
Probability
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28
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MD-81 Runway Occupancy Time (ROT) seconds
Curves Represent Exits at 3900, 5350, 6950 & 10000 feet

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13. ABSTRACT (Maximum 200 words)

The Terminal Area Productivity (TAP) research program was initiated by NASA to increase the airport capacity for transport aircraft operations. One element of the research program is called Low Visibility Landing and Surface Operations (LVLASO). A goal of the LVLASO research is to develop transport aircraft technologies which reduce Runway Occupancy Time (ROT) so that it does not become the limiting factor in the terminal area operations that determine the capacity of a runway. Under LVLASO, the objective of this study was to determine the sensitivity of ROT to various factors associated with the Rollout and Turnoff (ROTO) operation for transport aircraft. The following operational factors were studied and are listed in the order of decreasing ROT sensitivity: ice/flood runway surface condition, exit entrance ground speed, number of exits, high-speed exit locations and spacing, aircraft type, touchdown ground speed standard deviation, reverse thrust and braking method, accurate exit prediction capability, maximum reverse thrust availability, spiral-arc vs. circle-arc exit geometry, dry/slush/wet/snow runway surface condition, maximum allowed deceleration, auto asymmetric braking on exit, do not stow reverse thrust before the exit, touchdown longitudinal location standard deviation, flap setting, anti-skid efficiency, crosswind conditions, stopping on the exit and touchdown lateral offset.

14. SUBJECT TERMS
Rollout and Turnoff, Runway Occupancy Time, Low Visibility Landing and Surface Operations, Terminal Area Transport Aircraft Operations, Airport Capacity, rollout and turnoff guidance, Runway Occupancy Time Sensitivity

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