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FLOW RECOVERY FROM A PLATE BLOCKAGE ELEMENT IN A SQUARE-PITCH ROD ARRAY: DATA BANK OF THE MEAN AND TURBULENT FLOW STRUCTURE

by

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*CSIRO Division of Mineral Physics

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ABSTRACT

A data bank of the mean and turbulent flow structure downstream from an impervious plate blockage in a square-pitch rod array spaced at a p/d ratio of 1.107 is described. The test section represented two interior interconnected subchannels, and the plate blockage element fully blocked one subchannel. Measurements were made of the wall shear stress, mean axial velocity distribution, turbulence intensity, Reynolds shear stress and turbulent kinetic energy at distances of 49.7, 51.0, 65.1, 89.3 and 90.6 hydraulic diameters downstream of the blockage, at an asymptotic unperturbed Reynolds number of 4.8×10^4.

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EXPERIMENTAL DATA; FLOW BLOCKAGE; FLOW RATE; FUEL ELEMENT CLUSTERS; FUEL RODS; REACTOR LATTICES; SHEAR; SQUARE CONFIGURATION; STRESSES; TURBULENCE; TURBULENT FLOW; VELOCITY

CONTENTS

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1. INTRODUCTION

This report contains a data bank of the flow structure downstream of a complete, plate-type, subchannel blockage in a two-subchannel, square-pitch rod cluster spaced at a p/d ratio of 1.107 (Figure 1). The tabulated experimental data include the wall shear stress distribution, mean radial velocity profiles and all Reynolds stress terms for the central open rod gap region bounded by θ at -50 to +50° and $y_{max} = 1$, for 5° increments in θ and resolved in polar coordinates. The data are intended to aid the development and testing of numerical turbulence models in regular arrays of parallel reactor fuel rods, cooled by an axially flowing, turbulent single-phase coolant.

Experimental data of the developed unperturbed flow structure for the same test section are available for a 9:1 Reynolds number range [Hooper et al. 1983a,b]. Hot-wire anemometer techniques of measurement and data reduction are given by Hooper [1980] and Hooper and Harris [1982]. The data presented here have been analysed by Hooper and Wood [1982].

Five main axial stations downstream of the blockage were measured, as shown in Table 1. The equivalent subchannel hydraulic

TABLE 1

Measurement plane (m)	3.9	4.0	5.1	7.0	7.1
Axial distance from blockage (z/d_h)	49.7	51.0	65.1	89.3	90.6

diameter for a large, open rod array (78.4 mm) was used to derive the z/d_h ratio. The total rig test section length was 9.14 m, and measurements were made only at 100 mm from the exit plane. Accordingly, the plate blockage was moved away from the exit to set the flow recovery lengths. This procedure is justified if the wake flow structure is substantially independent of the upstream flow development. The axial static pressure distribution [Hooper and Wood 1983] showed this assumption to be reasonably accurate. The minimum axial distance to the blockage of 3.90 m was dictated by the increasing turbulence intensity, and by the use of hot-wire anemometry in the working fluid (air) to measure the Reynolds stresses. This axial distance was the limit for the small signal approximations to the output of a two-element hot-wire probe, when assessed by an experimental closure technique [Hooper 1980;

Hooper and Harris 1982].

In addition to the tabulated data for the axial stations given in Table 1, the logarithmic mean velocity radial profiles and Reynolds stress distribution are plotted as functions of the measurement planes at 4.0, 5.1 and 7.1 m downstream of the blockage. The Reynolds number was set at 48 x 10^3 by adjusting the linear section of the axial pressure distribution for the longest recovery length of 7.1 m to that corresponding to the same Reynolds number for unblocked and developed single-phase turbulent flow in this test section. The corresponding flow settling drum static pressure, adjusted to compensate for changes in air density and kinematic viscosity, was then used as the reference pressure for the study.

2. AXIAL DISTANCE TO BLOCKAGE 3.9 m

2.1 Wall Shear Stress Variation

Angle Theta	Wall Shear Stress (Pa)	Angle Theta	Wall Shear Stress (Pa)
-50	0.3968	5	0.3430
-45	0.4083	10	0.3262
-40	0.4105	15	0.3088
-35	0.4058	20	0.2932
-30	0.4004	25	0.2762
-25	0.3924	30	0.2581
-20	0.3824	35	0.2451
-15	0.3806	40	0.2397
-10	0.3729	45	0.2436
-5	0.3629	50	0.2543
0	0.3512		

2.2 Mean Velocity Profiles

Profiles not indexed or designated by A are 3.9 m from the blockage, and those designated by B are 4.0 m from the blockage. The main study for 4.0 m is contained in Section 3. The B data for the mean axial velocity profiles at selected angles are given only to demonstrate the relatively low level of the mean velocity axial gradient for the planes closest to the blockage. By successively measuring these profiles, the experimental error entailed in

setting the rig to the calculated operating point is avoided, and instrument errors are minimised. For convenience only, the B data are normalised by the wall shear stress for 3.9 m; this does not imply that the wall shear stress at 3.9 m is equal to the distribution for 4.0 m.

MEAN VELOCITY AT -50.0 DEGREES.
WALL SHEAR STRESS 0.3968 PA
FRICTION VELOCITY 0.6033 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.240	57.7	15.315
0.00220	9.470	74.7	15.696
0.00320	10.010	108.6	16.591
0.00420	10.340	142.5	17.138
0.00520	10.600	176.5	17.569
0.00620	10.910	210.4	18.083
0.00819	11.260	277.9	18.663
0.01020	11.590	346.1	19.210
0.01219	11.840	413.6	19.625
0.01419	11.990	481.5	19.873
0.01719	12.200	583.3	20.221
0.02019	12.290	685.1	20.370
0.02319	12.340	786.9	20.453
0.02619	12.290	888.7	20.370
0.03019	12.270	1024.4	20.337
0.03419	12.210	1160.2	20.238
0.03919	12.100	1329.8	20.055
0.04420	11.990	1499.8	19.873
0.04919	11.880	1669.2	19.691
0.05419	11.690	1838.8	19.376

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.4083 PA
FRICTION VELOCITY 0.6120 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.420	58.5	15.391
0.00220	9.810	75.7	16.029
0.00320	10.250	110.2	16.748
0.00420	10.580	144.6	17.287
0.00520	10.890	179.0	17.793
0.00620	11.210	213.4	18.316
0.00819	11.590	281.9	18.937
0.01020	11.860	351.1	19.378
0.01219	12.070	419.6	19.721
0.01419	12.210	488.5	19.950
0.01719	12.430	591.7	20.310
0.02019	12.580	695.0	20.555
0.02319	12.580	798.3	20.555
0.02619	12.630	901.5	20.636
0.03019	12.600	1039.2	20.587
0.03419	12.600	1176.9	20.587
0.03919	12.490	1349.0	20.408
0.04420	12.400	1521.5	20.261
0.04919	12.180	1693.2	19.901
0.05419	11.880	1865.3	19.411

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.4083 PA
FRICTION VELOCITY 0.6120 M/SEC

B

Y (M)	U (M/SEC)	Y+	U+
0.00170	9.380	58.5	15.326
0.00220	9.690	75.7	15.833
0.00320	10.140	110.2	16.568
0.00420	10.530	144.6	17.205
0.00520	10.830	179.0	17.695
0.00620	11.080	213.4	18.104
0.00819	11.450	281.9	18.708
0.01020	11.800	351.1	19.280
0.01219	12.030	419.6	19.656
0.01419	12.180	488.5	19.901
0.01719	12.360	591.7	20.195
0.02019	12.450	695.0	20.342
0.02319	12.520	798.3	20.457
0.02619	12.520	901.5	20.457
0.03019	12.560	1039.2	20.522
0.03419	12.520	1176.9	20.457
0.03919	12.430	1349.0	20.310
0.04420	12.270	1521.5	20.048
0.04919	12.120	1693.2	19.803
0.05419	11.840	1865.3	19.341

MEAN VELOCITY AT -40.0 DEGREES.
WALL SHEAR STRESS 0.4105 PA
FRICTION VELOCITY 0.6137 M/SEC

Y (M)	U (M/SEC)	Y+	U+
0.00170	9.760	58.7	15.903
0.00220	9.890	75.9	16.115
0.00320	10.320	110.5	16.816
0.00420	10.680	145.0	17.402
0.00520	10.990	179.5	17.907
0.00620	11.240	214.0	18.315
0.00819	11.650	282.7	18.983
0.01020	11.920	352.1	19.423
0.01219	12.100	420.8	19.716
0.01419	12.250	489.8	19.960
0.01719	12.430	593.4	20.254
0.02019	12.560	696.9	20.465
0.02319	12.580	800.5	20.498
0.02720	12.650	938.9	20.612
0.03119	12.670	1076.6	20.645
0.03520	12.660	1215.0	20.628
0.04019	12.600	1387.3	20.531
0.04519	12.490	1559.8	20.351
0.05019	12.320	1732.4	20.074
0.05519	12.050	1905.0	19.634

MEAN VELOCITY AT -35.0 DEGREES.
WALL SHEAR STRESS 0.4058 PA
FRICTION VELOCITY 0.6102 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.460	58.3	15.503
0.00220	9.780	75.5	16.028
0.00320	10.300	109.8	16.880
0.00420	10.680	144.1	17.503
0.00520	10.930	178.5	17.912
0.00620	11.180	212.8	18.322
0.00819	11.560	281.1	18.945
0.01020	11.800	350.1	19.338
0.01219	12.030	418.3	19.715
0.01419	12.180	487.0	19.961
0.01719	12.290	589.9	20.141
0.02019	12.420	692.9	20.354
0.02319	12.470	795.9	20.436
0.02619	12.510	898.8	20.502
0.03019	12.520	1036.1	20.518
0.03419	12.540	1173.4	20.551
0.03919	12.520	1345.0	20.518
0.04420	12.450	1516.9	20.404
0.04919	12.340	1688.1	20.223

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.4004 PA
FRICTION VELOCITY 0.6061 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.360	58.0	15.443
0.00220	9.640	75.0	15.905
0.00320	10.140	109.1	16.730
0.00420	10.510	143.2	17.340
0.00520	10.770	177.3	17.769
0.00620	11.040	211.4	18.215
0.00819	11.440	279.2	18.874
0.01020	11.670	347.7	19.254
0.01219	11.940	415.6	19.699
0.01419	12.030	483.7	19.848
0.01719	12.140	586.0	20.029
0.02019	12.210	688.3	20.145
0.02319	12.210	790.5	20.145
0.02619	12.210	892.8	20.145
0.03019	12.200	1029.2	20.128
0.03419	12.140	1165.5	20.029
0.03819	12.030	1301.9	19.848

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.4004 PA
FRICTION VELOCITY 0.6061 M/SEC

B

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.290	58.0	15.327
0.00220	9.610	75.0	15.855
0.00320	10.050	109.1	16.581
0.00420	10.430	143.2	17.208
0.00520	10.730	177.3	17.703
0.00620	10.950	211.4	18.066
0.00819	11.340	279.2	18.709
0.01020	11.610	347.7	19.155
0.01219	11.820	415.6	19.501
0.01419	11.940	483.7	19.699
0.01719	12.100	586.0	19.963
0.02019	12.140	688.3	20.029
0.02619	12.200	892.8	20.128
0.03019	12.200	1029.2	20.128
0.03419	12.070	1165.5	19.914
0.03819	11.990	1301.9	19.782

MEAN VELOCITY AT -25.0 DEGREES.
WALL SHEAR STRESS 0.3924 PA
FRICTION VELOCITY 0.6060 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.260	57.4	15.433
0.00220	9.570	74.2	15.950
0.00320	10.050	108.0	16.750
0.00420	10.430	141.7	17.383
0.00520	10.730	175.5	17.883
0.00620	10.930	209.2	18.216
0.00719	11.120	242.6	18.533
0.00920	11.440	310.5	19.066
0.01120	11.670	378.0	19.450
0.01320	11.800	445.5	19.666
0.01620	11.900	546.7	19.833
0.01919	11.880	647.6	19.800
0.02220	11.780	749.2	19.633
0.02519	11.630	850.1	19.383
0.03019	11.300	1018.8	18.833

MEAN VELOCITY AT -20.0 DEGREES.
WALL SHEAR STRESS 0.3824 PA
FRICTION VELOCITY 0.5923 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.190	56.6	15.516
0.00220	9.500	73.3	16.039
0.00320	9.940	106.6	16.782
0.00420	10.340	139.9	17.458
0.00520	10.640	173.2	17.964
0.00719	11.040	239.5	18.640
0.00920	11.360	306.5	19.180
0.01120	11.490	373.1	19.399
0.01320	11.530	439.7	19.467
0.01519	11.490	506.0	19.399
0.01719	11.340	572.6	19.146
0.02120	10.870	706.2	18.353

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.3806 PA
FRICTION VELOCITY 0.5909 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.150	56.5	15.484
0.00220	9.460	73.1	16.009
0.00320	9.920	106.4	16.787
0.00420	10.300	139.6	17.430
0.00520	10.560	172.8	17.870
0.00620	10.810	206.1	18.294
0.00819	11.080	272.2	18.750
0.01020	11.200	339.0	18.954
0.01219	11.140	405.1	18.852
0.01419	10.910	471.6	18.463
0.01620	10.580	538.4	17.904

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.3806 PA
FRICTION VELOCITY 0.5909 M/SEC

B

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.990	56.5	15.214
0.00220	9.310	73.1	15.755
0.00320	9.810	106.4	16.601
0.00420	10.170	139.6	17.210
0.00520	10.470	172.8	17.718
0.00620	10.660	206.1	18.040
0.00819	10.960	272.2	18.547
0.01020	11.120	339.0	18.818
0.01219	11.010	405.1	18.632
0.01419	10.920	471.6	18.310
0.01620	10.490	538.4	17.752

MEAN VELOCITY AT -10.0 DEGREES.
WALL SHEAR STRESS 0.3729 PA
FRICTION VELOCITY 0.5849 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.020	55.9	15.422
0.00220	9.340	72.4	15.969
0.00320	9.830	105.3	16.807
0.00420	10.170	138.2	17.388
0.00520	10.470	171.1	17.901
0.00620	10.700	204.0	18.294
0.00819	10.890	269.4	18.619
0.01020	10.850	335.5	18.550
0.01219	10.560	401.0	18.055
0.01419	10.010	466.8	17.114

MEAN VELOCITY AT -5.0 DEGREES.
WALL SHEAR STRESS 0.3629 PA
FRICTION VELOCITY 0.5770 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.990	55.2	15.581
0.00220	9.310	71.4	16.135
0.00320	9.780	103.8	16.950
0.00420	10.170	136.3	17.626
0.00520	10.410	168.7	18.042
0.00620	10.580	201.2	18.336
0.00719	10.680	233.3	18.510
0.00820	10.660	266.1	18.475
0.00920	10.590	298.6	18.354
0.01020	10.450	331.0	18.111
0.01120	10.170	363.5	17.626
0.01220	9.900	395.9	17.158
0.01320	9.460	428.4	16.395

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.3512 PA
FRICTION VELOCITY 0.5676 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.840	54.3	15.574
0.00220	9.170	70.2	16.156
0.00320	9.620	102.2	16.948
0.00420	10.000	134.1	17.618
0.00520	10.280	166.0	18.111
0.00620	10.430	197.9	18.376
0.00719	10.520	229.5	18.534
0.00819	10.510	261.5	18.516
0.00920	10.410	293.7	18.340
0.01020	10.210	325.6	17.988
0.01120	9.940	357.5	17.512
0.01219	9.570	389.1	16.860
0.01320	9.020	421.4	15.891

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.3512 PA
FRICTION VELOCITY 0.5676 M/SEC

B

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.740	54.3	15.398
0.00220	9.040	70.2	15.927
0.00320	9.500	102.2	16.737
0.00420	9.850	134.1	17.354
0.00520	10.120	166.0	17.829
0.00620	10.300	197.9	18.147
0.00719	10.410	229.5	18.340
0.00819	10.410	261.5	18.340
0.00920	10.300	293.7	18.147
0.01020	10.140	325.6	17.865
0.01120	9.870	357.5	17.389
0.01219	9.530	389.1	16.790
0.01320	9.050	421.4	15.944

MEAN VELOCITY AT 5.0 DEGREES.
WALL SHEAR STRESS 0.3430 PA
FRICTION VELOCITY 0.5610 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.660	53.6	15.437
0.00220	8.940	69.4	15.936
0.00320	9.420	101.0	16.792
0.00420	9.780	132.5	17.434
0.00520	10.030	164.1	17.879
0.00620	10.230	195.6	18.236
0.00719	10.320	226.9	18.396
0.00819	10.340	258.4	18.432
0.00920	10.250	290.3	18.272
0.01020	10.120	321.8	18.040
0.01219	9.620	384.6	17.149

MEAN VELOCITY AT 10.0 DEGREES.
WALL SHEAR STRESS 0.3262 PA
FRICTION VELOCITY 0.5470 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.400	52.3	15.356
0.00220	8.690	67.7	15.886
0.00320	9.170	98.5	16.763
0.00420	9.480	129.2	17.330
0.00520	9.780	160.0	17.879
0.00620	9.960	190.8	18.208
0.00719	10.100	221.2	18.464
0.00920	10.210	283.0	18.665
0.01120	10.050	344.6	18.372
0.01320	9.620	406.1	17.586
0.01519	8.970	467.3	16.398

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.3088 PA
FRICTION VELOCITY 0.5322 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.130	50.9	15.275
0.00220	8.370	65.9	15.726
0.00320	8.820	95.8	16.571
0.00420	9.120	125.7	17.135
0.00520	9.480	155.7	17.811
0.00620	9.670	185.6	18.168
0.00719	9.830	215.2	18.469
0.00920	10.050	275.4	18.882
0.01120	10.050	335.3	18.882
0.01320	9.920	395.1	18.638
0.01519	9.620	454.7	18.074
0.01719	9.170	514.6	17.229

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.3088 PA
FRICTION VELOCITY 0.5322 M/SEC

B

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.040	50.9	15.106
0.00220	8.370	65.9	15.726
0.00320	8.760	95.8	16.458
0.00420	9.140	125.7	17.172
0.00520	9.430	155.7	17.717
0.00620	9.620	185.6	18.074
0.00719	9.780	215.2	18.375
0.00920	9.960	275.4	18.713
0.01120	9.990	335.3	18.769
0.01320	9.810	395.1	18.431
0.01519	9.500	454.7	17.849
0.01719	9.080	514.6	17.060

MEAN VELOCITY AT 20.0 DEGREES.
WALL SHEAR STRESS 0.2932 PA
FRICTION VELOCITY 0.5184 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.820	49.6	15.079
0.00220	8.070	64.2	15.561
0.00320	8.450	93.3	16.294
0.00420	8.820	122.5	17.007
0.00520	9.040	151.7	17.431
0.00620	9.300	180.8	17.933
0.00819	9.620	238.9	18.550
0.01020	9.830	297.5	18.955
0.01219	9.960	355.6	19.205
0.01419	9.940	413.9	19.167
0.01620	9.830	472.5	18.955
0.01819	9.640	530.6	18.588

MEAN VELOCITY AT 25.0 DEGREES.
WALL SHEAR STRESS 0.2762 PA
FRICTION VELOCITY 0.5034 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.600	48.1	15.097
0.00220	7.850	62.3	15.594
0.00320	8.250	90.6	16.389
0.00420	8.520	118.9	16.925
0.00520	8.780	147.2	17.441
0.00620	9.030	175.5	17.938
0.00719	9.210	203.6	18.296
0.00920	9.470	260.5	18.812
0.01120	9.760	317.1	19.388
0.01320	9.890	373.7	19.646
0.01519	9.950	430.1	19.766
0.01620	9.920	458.7	19.706
0.01919	9.850	543.3	19.567
0.02220	9.600	628.5	19.070
0.02519	9.280	713.2	18.435
0.03019	8.670	854.8	17.223

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2581 PA
FRICTION VELOCITY 0.4866 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.350	46.5	15.105
0.00220	7.590	60.2	15.598
0.00320	7.910	87.6	16.256
0.00420	8.220	114.9	16.893
0.00520	8.520	142.3	17.510
0.00620	8.730	169.7	17.941
0.00819	9.090	224.1	18.681
0.01020	9.360	279.1	19.236
0.01219	9.570	333.6	19.667
0.01419	9.760	388.3	20.058
0.01719	9.900	470.4	20.346
0.02019	9.970	552.5	20.489
0.02319	9.870	634.7	20.284
0.02619	9.740	716.8	20.017
0.03019	9.480	826.2	19.482
0.03419	9.230	935.7	18.969
0.03819	9.010	1045.2	18.517

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2581 PA
FRICTION VELOCITY 0.4866 M/SEC
B

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.310	46.5	15.023
0.00220	7.620	60.2	15.660
0.00320	7.910	87.6	16.256
0.00420	8.220	114.9	16.893
0.00520	8.490	142.3	17.448
0.00620	8.700	169.7	17.879
0.00819	9.060	224.1	18.619
0.01020	9.310	279.1	19.133
0.01219	9.500	333.6	19.524
0.01419	9.690	388.3	19.914
0.01719	9.830	470.4	20.202
0.02019	9.870	552.5	20.284
0.02319	9.810	634.7	20.161
0.02619	9.670	716.8	19.873
0.03019	9.400	826.2	19.318
0.03419	9.130	935.7	18.763
0.03819	8.980	1045.2	18.455

MEAN VELOCITY AT 35.0 DEGREES.
WALL SHEAR STRESS 0.2451 PA
FRICTION VELOCITY 0.4742 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.870	45.3	14.487
0.00220	7.310	58.7	15.415
0.00320	7.640	85.3	16.110
0.00420	7.960	112.0	16.785
0.00520	8.070	138.7	17.017
0.00620	8.360	165.4	17.629
0.00819	8.680	218.4	18.304
0.01020	8.970	272.1	18.915
0.01219	9.190	325.1	19.379
0.01419	9.390	378.5	19.801
0.01719	9.600	458.5	20.244
0.02019	9.760	538.5	20.581
0.02319	9.900	618.5	20.876
0.02619	9.950	698.5	20.982
0.03019	9.880	805.2	20.834
0.03419	9.800	911.9	20.665
0.03919	9.680	1045.3	20.412
0.04420	9.580	1178.9	20.201

MEAN VELOCITY AT 40.0 DEGREES.
WALL SHEAR STRESS 0.2397 PA
FRICTION VELOCITY 0.4689 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.990	44.8	14.907
0.00220	7.200	58.0	15.355
0.00320	7.560	84.4	16.122
0.00420	7.810	110.8	16.656
0.00520	8.080	137.1	17.231
0.00620	8.250	163.5	17.594
0.00819	8.510	216.0	18.148
0.01020	8.820	269.0	18.810
0.01219	9.050	321.5	19.300
0.01419	9.170	374.2	19.556
0.01719	9.440	453.4	20.132
0.02019	9.620	532.5	20.516
0.02319	9.830	611.6	20.963
0.02619	9.890	690.7	21.091
0.03019	9.980	796.2	21.283
0.03419	9.990	901.7	21.305
0.03919	9.990	1033.6	21.305
0.04420	9.960	1165.7	21.241

MEAN VELOCITY AT 45.0 DEGREES.
WALL SHEAR STRESS 0.2436 PA
FRICTION VELOCITY 0.4728 M/SEC

A

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.030	45.2	14.870
0.00220	7.310	58.5	15.462
0.00320	7.650	85.1	16.181
0.00420	7.940	111.7	16.795
0.00520	8.140	138.3	17.218
0.00620	8.360	164.9	17.683
0.00819	8.620	217.8	18.233
0.01020	8.880	271.2	18.783
0.01219	9.060	324.1	19.164
0.01419	9.220	377.3	19.502
0.01719	9.430	457.1	19.946
0.02019	9.600	536.8	20.306
0.02319	9.740	616.6	20.602
0.02619	9.830	696.4	20.792
0.03019	9.970	802.7	21.089
0.03419	10.060	909.1	21.279
0.03919	10.100	1042.1	21.364
0.04420	10.100	1175.3	21.364
0.05919	9.760	1573.9	20.644

MEAN VELOCITY AT 45.0 DEGREES.
WALL SHEAR STRESS 0.2436 PA
FRICTION VELOCITY 0.4725 M/SEC

B

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.000	45.2	14.806
0.00220	7.350	58.5	15.547
0.00320	7.650	85.1	16.181
0.00420	7.850	111.7	16.604
0.00520	8.140	138.3	17.197
0.00620	8.290	164.9	17.535
0.00819	8.540	217.8	18.064
0.01020	8.840	271.2	18.698
0.01219	8.980	324.1	18.995
0.01419	9.090	377.3	19.227
0.01719	9.280	457.1	19.631
0.02019	9.520	536.8	20.137
0.02319	9.690	616.6	20.498
0.02619	9.800	696.4	20.729
0.03019	9.900	802.7	20.941
0.03419	9.970	909.1	21.151
0.03919	10.050	1042.1	21.258
0.04420	10.090	1175.3	21.343
0.05919	9.720	1573.9	20.560

MEAN VELOCITY AT 50.0 DEGREES.
WALL SHEAR STRESS 0.2543 PA
FRICTION VELOCITY 0.4840 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.190	44.2	14.887
0.00720	7.440	59.8	15.405
0.00320	7.790	86.9	16.129
0.00420	8.080	114.1	16.730
0.00520	8.300	141.3	17.185
0.00620	8.490	168.4	17.579
0.00819	8.750	222.5	18.117
0.01020	8.960	277.1	18.552
0.01219	9.160	331.1	18.966
0.01419	9.280	385.5	19.214
0.01620	9.400	440.1	19.463
0.01819	9.500	494.1	19.670
0.02120	9.620	575.9	19.918
0.02419	9.740	657.1	20.167
0.02819	9.830	765.8	20.353
0.03419	9.970	928.7	20.643
0.04019	10.010	1091.7	20.726
0.05019	9.990	1363.4	20.684

2.3 Reynolds Stresses

SCAN ANGLE - 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.160	1.657	1.150	1.547	0.666	-0.366	-0.199	3.230
0.253	1.537	1.067	1.425	0.560	-0.308	-0.288	2.766
0.346	1.400	1.067	1.368	0.459	-0.234	-0.190	2.485
0.439	1.294	0.998	1.214	0.362	-0.141	-0.244	2.072
0.532	1.185	0.967	1.134	0.290	-0.071	-0.256	1.812
0.625	1.107	0.948	1.030	0.193	-0.011	-0.157	1.593
0.718	1.056	0.932	1.016	0.119	0.047	-0.093	1.508
0.811	1.032	0.917	0.971	0.071	0.086	-0.051	1.424
0.904	1.037	0.879	0.943	0.019	0.116	-0.061	1.369
0.997	1.037	0.920	0.952	-0.008	0.158	-0.066	1.414
1.090	1.049	0.906	0.928	-0.020	0.145	-0.027	1.[illegible]
1.184	1.075	0.901	0.909	-0.044	0.137	0.006	1.[illegible]

SCAN ANGLE - 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.126	1.681	1.032	1.573	0.592	-0.484	-0.054	3.192
0.222	1.522	1.005	1.406	0.461	-0.414	-0.214	2.653
0.318	1.374	0.979	1.289	0.377	-0.299	-0.127	2.254
0.414	1.253	0.922	1.115	0.211	-0.225	-0.128	1.831
0.510	1.169	0.858	1.034	0.183	-0.165	-0.052	1.587
0.606	1.093	0.887	1.002	0.118	-0.092	-0.137	1.493
0.702	1.065	0.840	0.932	0.078	-0.026	-0.188	1.355
0.798	1.023	0.875	0.921	0.037	-0.010	-0.133	1.331
0.893	1.027	0.844	0.883	-0.017	0.017	-0.138	1.274
0.989	1.023	0.894	0.892	-0.051	0.013	-0.026	1.321
1.085	1.051	0.927	0.895	-0.097	0.033	-0.014	1.382
1.181	1.079	0.946	0.914	-0.171	0.046	0.000	1.448

SCAN ANGLE - 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.160	1.734	1.030	1.614	0.604	-0.675	0.112	3.335
0.253	1.678	1.036	1.478	0.484	-0.642	-0.013	3.037
0.346	1.617	0.877	1.313	0.353	-0.570	0.029	2.554
0.439	1.548	0.914	1.199	0.320	-0.443	-0.188	2.335
0.532	1.508	0.850	1.139	0.261	-0.454	-0.262	2.147
0.625	1.466	0.833	1.055	0.242	-0.405	-0.094	1.978
0.718	1.382	0.891	1.043	0.217	-0.352	-0.282	1.895
0.811	1.344	0.829	0.976	0.188	-0.312	-0.205	1.723
0.904	1.287	0.823	0.910	0.149	-0.232	-0.151	1.580
0.997	1.197	0.866	0.900	0.140	-0.183	-0.135	1.497
1.090	1.136	0.891	0.876	0.082	-0.109	-0.204	1.426
1.184	1.097	0.847	0.852	0.029	-0.094	-0.178	1.324

SCAN ANGLE - 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.203	1.832	0.994	1.563	0.536	-0.761	0.067	3.392
0.292	1.814	1.056	1.525	0.423	-0.837	0.079	3.365
0.382	1.829	0.979	1.481	0.407	-0.810	0.009	3.248
0.471	1.842	0.955	1.376	0.374	-0.808	-0.142	3.099
0.560	1.874	0.877	1.299	0.346	-0.831	-0.296	2.984
0.650	1.884	0.787	1.198	0.326	-0.809	-0.342	2.802
0.739	1.857	0.892	1.152	0.397	-0.776	-0.250	2.786
0.829	1.829	0.712	1.020	0.356	-0.756	-0.266	2.455
0.918	1.772	0.794	1.038	0.335	-0.677	-0.371	2.424
1.007	1.718	0.825	0.949	0.344	-0.565	-0.370	2.265
1.097	1.610	0.972	1.033	0.283	-0.534	-0.404	2.302
1.186	1.540	1.020	1.047	0.294	-0.468	-0.190	2.254

SCAN ANGLE - 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.256	1.970	0.921	1.469	0.435	-0.936	-0.144	3.445
0.338	2.013	0.872	1.528	0.429	-1.043	0.019	3.572
0.420	2.045	0.956	1.482	0.451	-1.161	-0.017	3.646
0.502	2.094	0.816	1.425	0.386	-1.148	-0.204	3.541
0.585	2.121	0.829	1.363	0.403	-1.170	-0.562	3.521
0.667	2.140	0.841	1.347	0.423	-1.241	-0.530	3.551
0.749	2.153	0.826	1.341	0.414	-1.175	-0.762	3.557
0.831	2.133	0.925	1.334	0.474	-1.250	-0.688	3.593
0.913	2.123	0.959	1.268	0.464	-1.142	-0.620	3.516
0.995	2.091	0.959	1.244	0.455	-1.103	-0.489	3.419
1.077	2.048	0.999	1.211	0.457	-1.045	-0.755	3.328
1.159	2.004	1.015	1.099	0.447	-0.925	-0.895	3.125

SCAN ANGLE - 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.322	2.165	0.949	1.582	0.455	-1.293	0.023	4.047
0.399	2.234	0.785	1.505	0.478	-1.427	-0.063	3.935
0.477	2.251	0.844	1.566	0.414	-1.609	-0.244	4.116
0.554	2.299	0.805	1.526	0.424	-1.675	-0.521	4.132
0.631	2.312	0.958	1.571	0.453	-1.782	-0.713	4.364
0.709	2.350	0.829	1.555	0.450	-1.810	-0.467	4.314
0.786	2.370	0.851	1.466	0.482	-1.776	-1.037	4.245
0.864	2.342	0.948	1.508	0.505	-1.708	-1.061	4.328
0.941	2.341	0.973	1.461	0.481	-1.710	-1.010	4.281
1.018	2.350	0.858	1.392	0.479	-1.677	-1.250	4.100
1.096	2.318	0.967	1.436	0.495	-1.595	-0.833	4.186
1.173	2.297	1.014	1.357	0.471	-1.538	-1.218	4.073

SCAN ANGLE - 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.400	2.369	0.929	1.669	0.437	-1.915	-0.190	4.630
0.473	2.395	0.973	1.690	0.485	-2.020	-0.234	4.768
0.545	2.405	0.933	1.746	0.455	-2.119	-0.426	4.852
0.617	2.421	0.909	1.762	0.400	-2.229	-0.559	4.896
0.689	2.468	0.821	1.657	0.428	-2.300	-0.648	4.757
0.761	2.467	0.998	1.727	0.431	-2.413	-0.745	5.033
0.833	2.497	0.804	1.633	0.505	-2.377	-0.888	4.774
0.906	2.492	0.908	1.707	0.459	-2.376	-0.866	4.975
0.978	2.481	1.045	1.729	0.476	-2.397	-0.791	5.118
1.050	2.512	0.759	1.579	0.403	-2.327	-1.272	4.690
1.122	2.484	0.964	1.584	0.414	-2.259	-1.506	4.806
1.194	2.503	0.857	1.506	0.442	-2.193	-1.364	4.634

SCAN ANGLE - 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.488	2.394	0.942	1.835	0.401	-2.350	-0.175	4.992
0.547	2.439	0.800	1.779	0.380	-2.480	0.003	4.878
0.606	2.437	0.851	1.796	0.351	-2.611	-0.267	4.944
0.664	2.442	0.875	1.775	0.374	-2.580	-0.730	4.940
0.723	2.426	0.898	1.782	0.374	-2.610	-0.788	4.933
0.781	2.435	0.885	1.824	0.349	-2.731	-0.771	5.020
0.840	2.495	0.619	1.697	0.313	-2.732	-0.805	4.744
0.899	2.449	0.828	1.793	0.324	-2.788	-0.679	4.948
0.957	2.481	0.726	1.748	0.305	-2.771	-1.003	4.870
1.016	2.483	0.813	1.751	0.265	-2.799	-1.136	4.946
1.075	2.475	0.813	1.730	0.194	-2.757	-1.386	4.890
1.133	2.489	0.775	1.677	0.183	-2.693	-1.064	4.804

SCAN ANGLE - 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.575	2.326	0.940	1.899	0.232	-2.759	-0.259	4.952
0.632	2.334	0.887	1.953	0.227	-2.902	0.174	5.025
0.690	2.352	0.827	1.933	0.198	-2.970	-0.220	4.978
0.747	2.363	0.798	1.934	0.109	-3.044	-0.540	4.980
0.805	2.379	0.698	1.880	0.119	-3.061	-0.387	4.841
0.862	2.379	0.769	1.884	0.113	-3.101	-0.207	4.900
0.920	2.369	0.883	1.893	0.045	-3.077	-0.636	4.986
0.977	2.392	0.796	1.813	-0.002	-3.083	-0.580	4.821
1.035	2.417	0.674	1.822	-0.028	-3.142	-1.061	4.808
1.092	2.387	0.846	1.873	-0.010	-3.108	-0.555	4.962
1.150	2.420	0.671	1.785	-0.076	-3.049	-0.827	4.746
1.207	2.413	0.777	1.841	-0.130	-3.108	-0.629	4.908

SCAN ANGLE - 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.641	2.283	0.744	1.943	0.039	-3.023	-0.178	4.771
0.692	2.285	0.691	1.986	0.015	-3.093	-0.301	4.820
0.744	2.278	0.819	2.032	-0.026	-3.208	0.254	4.993
0.795	2.295	0.847	1.984	-0.068	-3.221	0.158	4.960
0.846	2.320	0.704	1.980	-0.121	-3.285	0.216	4.899
0.898	2.302	0.787	1.971	-0.152	-3.276	0.010	4.903
0.949	2.316	0.765	1.978	-0.142	-3.320	0.277	4.932
1.000	2.325	0.753	1.940	-0.205	-3.286	0.122	4.867
1.052	2.318	0.814	1.972	-0.264	-3.304	-0.069	4.963
1.103	2.335	0.771	1.939	-0.338	-3.318	-0.080	4.904
1.154	2.329	0.807	1.904	-0.325	-3.255	-0.293	4.850
1.206	2.329	0.818	1.893	-0.398	-3.186	-0.114	4.839

SCAN ANGLE 0

Y/YMAX	U	V	W	UV	UW	VW	Q
0.666	2.151	0.989	2.049	-0.084	-2.969	0.446	4.902
0.706	2.193	0.785	1.949	-0.201	-2.958	-0.452	4.613
0.746	2.179	0.908	1.991	-0.231	-2.978	-0.410	4.768
0.786	2.187	0.810	1.982	-0.285	-3.055	0.329	4.683
0.826	2.188	0.856	1.978	-0.308	-3.116	-0.146	4.715
0.867	2.198	0.782	1.928	-0.319	-3.058	0.153	4.581
0.907	2.191	0.933	2.012	-0.397	-3.184	0.371	4.861
0.947	2.191	0.962	2.058	-0.474	-3.264	-0.070	4.979
0.987	2.196	0.965	1.981	-0.496	-3.128	-0.363	4.840
1.027	2.201	0.957	2.008	-0.510	-3.196	0.449	4.896
1.067	2.224	0.807	1.956	-0.557	-3.152	-0.042	4.713
1.107	2.208	0.804	1.982	-0.508	-3.150	0.411	4.725

SCAN ANGLE 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.641	1.991	0.963	1.919	-0.176	-2.389	0.484	4.286
0.692	2.021	0.933	1.880	-0.269	-2.444	-0.013	4.244
0.744	2.017	1.002	1.915	-0.380	-2.550	-0.257	4.369
0.795	2.033	0.876	1.929	-0.362	-2.669	0.455	4.309
0.846	2.066	0.976	1.836	-0.444	-2.576	0.194	4.294
0.898	2.039	1.021	1.901	-0.547	-2.625	0.389	4.407
0.949	2.036	1.032	1.929	-0.559	-2.721	0.497	4.466
1.000	2.047	0.896	1.895	-0.636	-2.710	0.051	4.293
1.052	2.057	0.918	1.866	-0.654	-2.640	0.285	4.277
1.103	2.061	0.934	1.832	-0.731	-2.569	0.192	4.240
1.154	2.016	1.085	1.915	-0.813	-2.586	0.277	4.455
1.206	2.020	1.020	1.875	-0.775	-2.472	0.529	4.319

SCAN ANGLE 10

'/YMAX	U	V	W	UV	UW	VW	Q
0.575	1.889	1.008	1.782	-0.124	-1.782	0.115	3.879
0.632	1.919	0.975	1.740	-0.187	-1.898	0.193	3.829
0.690	1.926	1.007	1.781	-0.292	-2.022	0.414	3.947
0.747	1.951	0.953	1.786	-0.397	-2.160	0.544	3.953
0.805	1.944	1.001	1.798	-0.497	-2.217	0.362	4.007
0.862	1.957	0.876	1.751	-0.525	-2.161	0.136	3.832
0.920	1.951	1.029	1.855	-0.682	-2.304	0.398	4.155
0.977	2.025	0.804	1.708	-0.670	-2.274	0.289	3.831
1.035	1.969	0.968	1.823	-0.731	-2.267	0.588	4.068
1.092	1.954	1.009	1.788	-0.778	-2.175	0.278	4.018
1.150	1.949	0.997	1.768	-0.822	-2.074	0.258	3.967
1.207	1.936	1.000	1.737	-0.879	-1.998	0.560	3.882

SCAN ANGLE 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.488	1.771	0.927	1.581	0.109	-1.158	-0.031	3.248
0.547	1.774	0.999	1.587	-1.032	-1.257	0.115	3.331
0.606	1.786	0.974	1.598	-0.087	-1.377	0.204	3.346
0.664	1.814	1.007	1.655	-0.214	-1.562	0.645	3.524
0.723	1.819	1.013	1.601	-0.303	-1.553	0.136	3.449
0.781	1.862	0.904	1.591	-0.391	-1.690	0.251	3.408
0.840	1.864	0.986	1.634	-0.438	-1.747	0.664	3.557
0.899	1.873	1.024	1.604	-0.588	-1.707	0.317	3.564
0.957	1.871	0.996	1.659	-0.677	-1.776	0.032	3.621
1.016	1.878	0.983	1.567	-0.741	-1.684	0.196	3.475
1.075	1.883	0.967	1.552	-0.775	-1.654	0.329	3.443
1.133	1.850	1.027	1.527	-0.813	-1.554	0.220	3.405

SCAN ANGLE 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.400	1.649	1.040	1.464	0.229	-0.700	-0.057	2.973
0.473	1.691	0.903	1.451	0.157	-0.859	0.179	2.889
0.545	1.698	1.021	1.450	0.030	-0.972	0.070	3.013
0.617	1.715	0.968	1.507	-0.113	-1.118	0.267	3.075
0.689	1.747	1.016	1.500	-0.231	-1.294	0.275	3.167
0.761	1.759	1.034	1.453	-0.392	-1.252	0.050	3.138
0.833	1.771	1.156	1.517	-0.493	-1.334	0.267	3.388
0.906	1.818	1.051	1.448	-0.567	-1.388	0.322	3.253
0.978	1.825	1.056	1.462	-0.656	-1.333	0.164	3.292
1.050	1.793	1.110	1.487	-0.748	-1.299	0.286	3.330
1.122	1.785	1.154	1.422	-0.831	-1.186	0.223	3.269
1.194	1.792	1.088	1.314	-0.801	-1.036	0.338	3.061

SCAN ANGLE 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.322	1.629	1.022	1.446	0.485	-0.404	0.049	2.895
0.399	1.645	0.955	1.391	0.384	-0.534	0.007	2.777
0.477	1.619	1.032	1.413	0.296	-0.570	0.021	2.841
0.554	1.631	1.037	1.368	0.155	-0.680	0.089	2.803
0.631	1.617	1.070	1.409	0.026	-0.764	-0.034	2.873
0.709	1.644	1.188	1.413	-0.110	-0.819	-0.002	3.056
0.786	1.649	1.113	1.392	-0.233	-0.872	-0.028	2.949
0.864	1.652	1.205	1.400	-0.383	-0.957	0.178	3.071

SCAN ANGLE 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.256	1.699	1.004	1.390	0.600	-0.352	0.002	2.914
0.338	1.674	0.993	1.382	0.519	-0.404	0.012	2.849
0.420	1.683	0.984	1.334	0.463	-0.439	-0.129	2.789
0.502	1.659	0.945	1.294	0.365	-0.519	-0.030	2.660
0.585	1.619	1.041	1.345	0.265	-0.570	-0.100	2.757
0.667	1.606	1.079	1.316	0.150	-0.600	-0.020	2.737
0.749	1.619	1.078	1.276	-0.012	-0.634	-0.043	2.705
0.831	1.593	1.120	1.322	-0.132	-0.673	0.076	2.779
0.913	1.586	1.145	1.250	-0.258	-0.650	0.000	2.694
0.995	1.574	1.184	1.203	-0.332	-0.578	0.040	2.664
1.077	1.565	1.195	1.164	-0.413	-0.450	0.065	2.616
1.159	1.562	1.115	1.123	-0.498	-0.360	0.042	2.473

SCAN ANGLE 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.203	1.752	0.914	1.260	0.702	-0.210	-0.036	2.747
0.292	1.714	0.947	1.292	0.672	-0.254	-0.114	2.750
0.382	1.687	0.863	1.159	0.559	-0.259	-0.193	2.466
0.471	1.634	0.979	1.231	0.525	-0.285	-0.155	2.572
0.560	1.579	1.065	1.274	0.423	-0.359	0.109	2.626
0.650	1.569	1.024	1.190	0.322	-0.351	-0.072	2.463
0.739	1.522	1.149	1.248	0.162	-0.381	0.066	2.596
0.829	1.508	1.106	1.185	0.036	-0.372	-0.120	2.451
0.918	1.501	1.083	1.143	-0.038	-0.345	0.183	2.366
1.007	1.477	1.114	1.150	-0.137	-0.238	0.074	2.373
1.097	1.473	1.080	1.122	-0.219	-0.146	0.110	2.297
1.186	1.435	1.109	1.143	-0.230	-0.011	0.083	2.298

SCAN ANGLE 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.160	1.751	0.942	1.320	0.714	-0.027	-0.208	2.848
0.253	1.712	0.920	1.246	0.720	-0.020	0.002	2.666
0.346	1.671	0.891	1.163	0.656	-0.032	-0.036	2.470
0.439	1.612	0.931	1.172	0.603	-0.060	0.005	2.419
0.532	1.577	0.944	1.143	0.565	-0.089	0.222	2.343
0.625	1.528	0.977	1.134	0.440	-0.099	-0.009	2.288
0.718	1.480	1.058	1.111	0.303	-0.126	0.037	2.272
0.811	1.444	1.046	1.064	0.209	-0.110	0.179	2.155
0.904	1.402	1.054	1.075	0.108	-0.061	0.209	2.116
0.997	1.368	1.037	1.079	0.042	0.000	0.235	2.055
1.090	1.343	1.090	1.057	0.004	0.103	0.251	2.054
1.184	1.321	1.061	1.103	0.013	0.179	0.334	2.044

SCAN ANGLE 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.126	1.731	0.892	1.239	0.754	0.167	-0.088	2.663
0.199	1.663	0.941	1.192	0.688	0.155	0.014	2.536
0.272	1.638	0.759	1.051	0.606	0.134	-0.103	2.182
0.345	1.550	0.921	1.109	0.606	0.081	0.057	2.241
0.419	1.534	0.917	1.092	0.553	0.092	0.153	2.194
0.492	1.487	0.980	1.093	0.516	0.104	0.105	2.183
0.565	1.463	0.976	1.049	0.464	0.089	0.132	2.096
0.638	1.430	0.988	1.035	0.435	0.067	0.379	2.046
0.712	1.380	0.988	1.023	0.333	0.047	0.282	1.963
0.785	1.331	0.971	1.006	0.255	0.058	0.212	1.863
0.858	1.284	0.990	0.997	0.218	0.064	0.344	1.811
0.931	1.249	0.973	0.963	0.141	0.079	0.304	1.718
1.005	1.203	1.050	1.038	0.115	0.090	0.305	1.814
1.078	1.208	0.980	0.940	0.057	0.122	0.216	1.652
1.151	1.193	0.948	0.909	0.056	0.097	0.241	1.574
1.224	1.191	0.925	0.831	0.009	0.076	0.256	1.483

SCAN ANGLE 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.160	1.601	0.995	1.219	0.660	0.121	0.080	2.520
0.253	1.517	0.719	0.996	0.487	0.123	-0.024	1.905
0.346	1.442	0.851	1.063	0.439	0.066	0.071	1.967
0.439	1.420	0.816	1.017	0.404	0.051	0.019	1.858
0.532	1.402	0.908	1.067	0.415	0.071	0.060	1.964
0.625	1.388	0.899	1.053	0.393	0.104	0.174	1.922
0.718	1.370	0.886	0.995	0.360	0.079	0.129	1.826
0.811	1.321	0.946	1.049	0.308	0.102	0.132	1.870
0.904	1.296	0.915	1.011	0.282	0.055	0.222	1.770
0.997	1.267	0.864	0.927	0.198	0.038	0.254	1.606
1.090	1.214	0.893	0.981	0.185	0.027	0.244	1.616
1.184	1.186	0.898	0.947	0.139	0.005	0.173	1.554

3. AXIAL DISTANCE TO BLOCKAGE 4.0 m

3.1 Wall Shear Stress Variation

AIR DENSITY 1.092 KG/M**3
KINEMATIC VISCOSITY 1.771E-05 M**2/SEC

AVERAGE WALL SHEAR STRESS 0.3002 PA

ANGLE AND TW(THETA)

-85.0	0.206	-80.1	0.231	-75.1	0.270
-70.2	0.299	-64.9	0.313	-60.0	0.351
-55.0	0.379	-50.1	0.396	-45.1	0.408
-39.9	0.410	-35.0	0.406	-30.0	0.400
-25.1	0.392	-20.1	0.382	-15.2	0.381
-9.9	0.373	-5.0	0.363	0.0	0.351
4.9	0.343	9.8	0.327	15.1	0.309
20.0	0.293	25.0	0.276	29.9	0.258
34.9	0.245	39.8	0.239	45.0	0.243
50.0	0.254	54.9	0.258	59.9	0.254
64.8	0.237	70.1	0.212	75.0	0.174
80.0	0.140	84.9	0.133		

3.2 Mean Velocity Profiles

MEAN VELOCITY AT -50.0 DEGREES.
WALL SHEAR STRESS 0.3965 PA
FRICTION VELOCITY 0.6026 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.440	57.8	15.666
0.00220	9.750	74.9	16.181
0.00320	10.200	108.9	16.927
0.00420	10.620	142.9	17.624
0.00520	10.910	176.9	18.106
0.00620	11.140	211.0	18.487
0.00819	11.580	278.7	19.218
0.01020	11.850	347.0	19.666
0.01219	12.090	414.8	20.064
0.01419	12.240	482.8	20.313
0.01719	12.390	584.9	20.562
0.02019	12.520	687.0	20.778
0.02319	12.570	789.0	20.861
0.02619	12.550	891.1	20.827
0.02919	12.500	993.2	20.744
0.03319	12.480	1129.3	20.711
0.03819	12.410	1299.4	20.595
0.04820	12.150	1640.0	20.164

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.4080 PA
FRICTION VELOCITY 0.6113 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.660	58.7	15.803
0.00220	9.980	75.9	16.327
0.00320	10.420	110.4	17.047
0.00420	10.790	145.0	17.652
0.00520	11.100	179.5	18.159
0.00620	11.320	214.0	18.519
0.00819	11.730	282.7	19.190
0.01020	12.030	352.1	19.681
0.01219	12.220	420.7	19.991
0.01419	12.410	489.8	20.302
0.01719	12.590	593.3	20.597
0.02019	12.700	696.9	20.777
0.02319	12.800	800.4	20.940
0.02619	12.790	904.0	20.924
0.03019	12.790	1042.0	20.924
0.03419	12.750	1180.1	20.858
0.03919	12.700	1352.6	20.777
0.04420	12.540	1525.6	20.515
0.04919	12.330	1697.8	20.171
0.05419	12.060	1870.4	19.730

MEAN VELOCITY AT -40.0 DEGREES.
WALL SHEAR STRESS 0.4103 PA
FRICTION VELOCITY 0.6130 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.680	58.8	15.792
0.00220	10.000	76.1	16.314
0.00320	10.420	110.8	17.000
0.00420	10.870	145.4	17.734
0.00520	11.140	180.0	18.174
0.00620	11.360	214.6	18.533
0.00819	11.850	283.5	19.333
0.01020	12.040	353.0	19.643
0.01219	12.220	421.9	19.936
0.01419	12.410	491.1	20.246
0.01719	12.610	595.0	20.573
0.02019	12.750	698.8	20.801
0.02319	12.820	802.6	20.915
0.02619	12.820	906.4	20.915
0.03019	12.890	1044.9	21.029
0.03419	12.800	1183.3	20.883
0.03819	12.820	1321.8	20.915
0.04320	12.700	1495.2	20.719
0.04820	12.520	1668.2	20.426
0.05320	12.300	1841.3	20.067

MEAN VELOCITY AT -35.0 DEGREES.
WALL SHEAR STRESS 0.4056 PA
FRICTION VELOCITY 0.6094 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.590	58.5	15.736
0.00220	9.930	75.7	16.294
0.00320	10.420	110.1	17.098
0.00420	10.830	144.5	17.771
0.00520	11.060	178.9	18.148
0.00620	11.320	213.4	18.575
0.00819	11.730	281.8	19.248
0.01020	11.940	351.0	19.592
0.01219	12.170	419.5	19.970
0.01419	12.320	488.3	20.216
0.01719	12.480	591.5	20.478
0.02019	12.590	694.8	20.659
0.02319	12.660	798.0	20.774
0.02619	12.680	901.2	20.806
0.03019	12.710	1038.9	20.856
0.03419	12.730	1176.5	20.888
0.03919	12.710	1348.6	20.856
0.04420	12.630	1521.0	20.724
0.04919	12.500	1692.7	20.511

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.4002 PA
FRICTION VELOCITY 0.6054 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.470	58.1	15.644
0.00220	9.820	75.2	16.222
0.00320	10.310	109.4	17.031
0.00420	10.660	143.6	17.610
0.00520	11.000	177.7	18.171
0.00620	11.180	211.9	18.469
0.00819	11.580	279.9	19.129
0.01020	11.830	348.7	19.542
0.01219	12.000	416.7	19.823
0.01419	12.120	485.0	20.021
0.01719	12.250	587.6	20.236
0.02019	12.300	690.1	20.319
0.02319	12.330	792.7	20.368
0.02619	12.370	895.2	20.434
0.03019	12.330	1031.9	20.368
0.03419	12.220	1168.7	20.187
0.03819	12.110	1305.4	20.005

MEAN VELOCITY AT -25.0 DEGREES.
WALL SHEAR STRESS 0.3922 PA
FRICTION VELOCITY 0.5993 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.400	57.5	15.686
0.00220	9.930	74.4	16.570
0.00320	10.200	108.3	17.021
0.00420	10.590	142.1	17.672
0.00520	10.810	176.0	18.039
0.00620	11.080	209.8	18.489
0.00719	11.190	243.3	18.673
0.00920	11.580	311.3	19.324
0.01120	11.780	379.0	19.657
0.01320	12.000	446.7	20.024
0.01620	12.040	548.2	20.091
0.01919	12.080	649.3	20.158
0.02220	12.010	751.2	20.041
0.02519	11.920	852.4	19.891
0.03019	11.650	1021.6	19.440

MEAN VELOCITY AT -20.0 DEGREES.
WALL SHEAR STRESS 0.3824 PA
FRICTION VELOCITY 0.5918 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.270	56.8	15.665
0.00270	9.840	90.2	16.628
0.00370	10.030	123.6	16.949
0.00469	10.550	156.7	17.828
0.00569	10.840	190.1	18.318
0.00770	11.220	257.3	18.960
0.00969	11.460	323.8	19.365
0.01169	11.580	390.6	19.568
0.01370	11.620	457.8	19.636
0.01569	11.540	524.3	19.501
0.01769	11.420	591.1	19.298
0.02169	10.930	724.8	18.470

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.3804 PA
FRICTION VELOCITY 0.5902 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.180	56.7	15.555
0.00220	9.750	73.3	16.520
0.00320	9.980	106.6	16.910
0.00420	10.360	140.0	17.554
0.00520	10.640	173.3	18.028
0.00620	10.840	206.6	18.367
0.00819	11.090	272.9	18.791
0.01020	11.260	339.9	19.079
0.01219	11.220	406.2	19.011
0.01419	10.940	472.9	18.537
0.01620	10.640	539.9	18.028

MEAN VELOCITY AT -10.0 DEGREES.
WALL SHEAR STRESS 0.3726 PA
FRICTION VELOCITY 0.5842 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.120	56.1	15.612
0.00220	9.460	72.6	16.194
0.00320	9.890	105.6	16.930
0.00420	10.240	138.5	17.529
0.00520	10.510	171.5	17.992
0.00620	10.720	204.5	18.351
0.00819	10.900	270.1	18.659
0.01020	10.930	336.4	18.711
0.01219	10.650	402.1	18.231
0.01419	10.080	468.1	17.255

MEAN VELOCITY AT -5.0 DEGREES.
WALL SHEAR STRESS 0.3626 PA
FRICTION VELOCITY 0.5763 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.970	55.3	15.566
0.00270	9.560	87.9	16.589
0.00370	10.050	120.4	17.440
0.00469	10.310	152.6	17.891
0.00569	10.590	185.1	18.377
0.00670	10.690	218.0	18.550
0.00770	10.800	250.6	18.741
0.00869	10.680	282.8	18.533
0.00969	10.640	315.3	18.464
0.01169	10.150	380.4	17.613

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.3509 PA
FRICTION VELOCITY 0.5669 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.820	54.4	15.558
0.00220	9.180	70.4	16.194
0.00320	9.660	102.4	17.040
0.00420	10.070	134.4	17.763
0.00520	10.290	166.5	18.152
0.00620	10.470	198.5	18.469
0.00719	10.550	230.2	18.610
0.00819	10.530	262.2	18.575
0.00920	10.420	294.5	18.381
0.01020	10.270	326.5	18.116
0.01120	9.980	358.5	17.605
0.01219	9.610	390.2	16.952
0.01320	9.100	422.5	16.052

MEAN VELOCITY AT 5.0 DEGREES.
WALL SHEAR STRESS 0.3428 PA
FRICTION VELOCITY 0.5603 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.670	53.8	15.474
0.00220	9.030	69.6	16.117
0.00320	9.470	101.2	16.902
0.00420	9.820	132.9	17.527
0.00520	10.070	164.5	17.973
0.00620	10.270	196.1	18.330
0.00719	10.360	227.5	18.491
0.00819	10.400	259.1	18.562
0.00920	10.340	291.1	18.455
0.01020	10.230	322.7	18.259
0.01219	9.680	385.6	17.277

MEAN VELOCITY AT 10.0 DEGREES.
WALL SHEAR STRESS 0.3259 PA
FRICTION VELOCITY 0.5463 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.430	52.4	15.430
0.00220	8.770	67.9	16.052
0.00320	9.200	98.7	16.839
0.00420	9.540	129.6	17.462
0.00520	9.800	160.4	17.938
0.00620	10.030	191.3	18.359
0.00719	10.160	221.8	18.596
0.00920	10.230	283.8	18.725
0.01120	10.070	345.5	18.432
0.01320	9.660	407.2	17.681
0.01519	9.000	468.6	16.473

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.3086 PA
FRICTION VELOCITY 0.5316 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.200	51.0	15.426
0.00220	8.420	66.0	15.839
0.00320	8.930	96.1	16.799
0.00420	9.230	126.1	17.363
0.00520	9.520	156.1	17.909
0.00620	9.750	186.1	18.341
0.00719	9.980	215.8	18.774
0.00920	10.180	276.1	19.150
0.01120	10.240	336.2	19.263
0.01320	10.070	396.2	18.943
0.01519	9.770	455.9	18.379
0.01719	9.370	516.0	17.627

MEAN VELOCITY AT 20.0 DEGREES.
WALL SHEAR STRESS 0.2930 PA
FRICTION VELOCITY 0.5180 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.920	49.7	15.291
0.00220	8.090	64.3	15.619
0.00320	8.520	93.6	16.449
0.00420	8.880	122.8	17.144
0.00520	9.230	152.1	17.820
0.00620	9.420	181.3	18.187
0.00819	9.790	239.5	18.901
0.01020	10.020	298.3	19.345
0.01219	10.130	356.5	19.557
0.01419	10.070	415.0	19.442
0.01620	9.950	473.8	19.210
0.01819	9.750	532.0	18.824

MEAN VELOCITY AT 25.0 DEGREES.
WALL SHEAR STRESS 0.2760 PA
FRICTION VELOCITY 0.5028 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.630	48.3	15.176
0.00220	7.810	62.5	15.534
0.00320	8.260	90.8	16.429
0.00420	8.580	119.2	17.065
0.00520	8.860	147.6	17.622
0.00620	9.050	176.0	18.000
0.00719	9.270	204.1	18.438
0.00920	9.600	261.2	19.094
0.01120	9.800	318.0	19.492
0.01320	9.980	374.7	19.850
0.01620	10.070	459.9	20.029
0.01919	9.980	544.8	19.850
0.02220	9.740	630.2	19.373
0.02519	9.420	715.1	18.736
0.03019	8.930	857.1	17.762

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2579 PA
FRICTION VELOCITY 0.4860 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.470	46.7	15.371
0.00220	7.640	60.4	15.721
0.00420	8.360	115.3	17.202
0.00480	8.420	131.7	17.326
0.00520	8.520	142.7	17.531
0.00620	8.810	170.1	18.128
0.00819	9.130	224.7	18.787
0.01020	9.460	279.9	19.466
0.01219	9.660	334.5	19.877
0.01419	9.840	389.4	20.248
0.01719	9.980	471.7	20.536
0.02019	10.030	554.0	20.638
0.02319	10.020	636.4	20.618
0.02619	9.890	718.7	20.350
0.03019	9.700	828.5	19.959
0.03419	9.460	938.2	19.466
0.03819	9.330	1048.0	19.198

MEAN VELOCITY AT 35.0 DEGREES.
WALL SHEAR STRESS 0.2450 PA
FRICTION VELOCITY 0.4736 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.240	45.5	15.286
0.00220	7.520	58.8	15.877
0.00320	7.850	85.6	16.574
0.00420	8.120	112.3	17.144
0.00520	8.370	139.1	17.672
0.00620	8.620	165.8	18.200
0.00819	8.960	219.0	18.918
0.01020	9.200	272.8	19.424
0.01219	9.470	326.0	19.994
0.01419	9.650	379.5	20.374
0.01719	9.870	459.7	20.839
0.02019	9.990	540.0	21.092
0.02319	10.100	620.2	21.325
0.02619	10.070	700.4	21.261
0.03019	10.020	807.4	21.156
0.03419	9.910	914.4	20.923
0.03919	9.770	1048.1	20.628
0.04420	9.730	1182.1	20.543

MEAN VELOCITY AT 40.0 DEGREES.
WALL SHEAR STRESS 0.2395 PA
FRICTION VELOCITY 0.4683 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.080	45.0	15.119
0.00220	7.390	58.2	15.781
0.00320	7.720	84.6	16.485
0.00420	7.980	111.1	17.040
0.00520	8.310	137.5	17.745
0.00620	8.440	163.9	18.023
0.00819	8.760	216.6	18.706
0.01020	9.030	269.7	19.283
0.01219	9.230	322.3	19.710
0.01419	9.400	375.2	20.073
0.01719	9.610	454.5	20.521
0.02019	9.840	533.9	21.012
0.02319	10.000	613.2	21.354
0.02619	10.070	692.5	21.503
0.03019	10.180	798.3	21.738
0.03419	10.150	904.1	21.674
0.03919	10.130	1036.3	21.632
0.04420	10.090	1168.8	21.546

MEAN VELOCITY AT 45.0 DEGREES.
WALL SHEAR STRESS 0.2434 PA
FRICTION VELOCITY 0.4721 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.210	45.3	15.271
0.00220	7.510	58.7	15.906
0.00320	7.810	85.3	16.541
0.00420	8.090	112.0	17.134
0.00520	8.390	138.6	17.770
0.00620	8.550	165.3	18.109
0.00819	8.810	218.3	18.659
0.01020	9.110	271.9	19.295
0.01219	9.280	725.0	19.655
0.01419	9.420	378.3	19.951
0.01719	9.610	458.3	20.354
0.02019	9.770	538.3	20.693
0.02319	9.910	618.2	20.989
0.02619	10.040	698.2	21.265
0.03019	10.150	804.9	21.498
0.03419	10.240	911.5	21.688
0.03919	10.260	1044.8	21.730
0.04420	10.290	1178.4	21.794
0.05919	9.950	1578.0	21.074

MEAN VELOCITY AT 50.0 DEGREES.
WALL SHEAR STRESS 0.2541 PA
FRICTION VELOCITY 0.4824 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.390	46.3	15.320
0.00220	7.690	59.9	15.942
0.00320	8.030	87.2	16.647
0.00420	8.250	114.4	17.103
0.00520	8.470	141.6	17.559
0.00620	8.680	168.9	17.994
0.00819	8.960	223.1	18.575
0.01020	9.200	277.8	19.072
0.01219	9.400	332.0	19.487
0.01419	9.520	386.5	19.736
0.01620	9.590	441.2	19.881
0.01919	9.730	522.7	20.171
0.02220	9.910	604.7	20.544
0.02519	9.950	686.1	20.627
0.02919	10.070	795.1	20.876
0.03319	10.180	904.0	21.104
0.03819	2.280	1040.2	4.727
0.04320	10.240	1176.6	21.228
0.05320	10.130	1449.0	21.000

3.3 Reynolds Stresses

SCAN ANGLE - 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.847	1.027	1.512	0.774	-0.238	-0.396	3.377
0.240	1.714	0.976	1.324	0.682	-0.201	-0.431	2.821
0.336	1.532	0.989	1.274	0.548	-0.150	-0.279	2.474
0.433	1.395	0.969	1.155	0.414	-0.090	-0.236	2.109
0.529	1.273	0.929	1.042	0.298	-0.035	-0.222	1.785
0.625	1.168	0.888	0.986	0.176	0.026	-0.162	1.563
0.721	1.114	0.884	0.925	0.110	0.087	-0.042	1.439
0.818	1.080	0.881	0.900	0.042	0.112	-0.082	1.375
0.914	1.097	0.828	0.849	-0.008	0.124	-0.040	1.305
1.010	1.096	0.856	0.871	-0.032	0.148	-0.034	1.347
1.107	1.115	0.858	0.860	-0.054	0.153	0.014	1.359
1.203	1.134	0.870	0.864	-0.060	0.134	0.018	1.395

SCAN ANGLE - 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.837	1.009	1.559	0.785	-0.400	-0.353	3.412
0.186	1.689	0.884	1.316	0.617	-0.320	-0.426	2.683
0.260	1.512	0.974	1.316	0.492	-0.263	-0.267	2.482
0.333	1.402	0.910	1.158	0.405	-0.195	-0.237	2.067
0.406	1.294	0.853	1.035	0.276	-0.151	-0.191	1.737
0.479	1.236	0.853	0.947	0.203	-0.105	-0.112	1.576
0.553	1.160	0.836	0.929	0.149	-0.044	-0.147	1.454
0.626	1.127	0.816	0.848	0.102	-0.024	-0.170	1.328
0.699	1.100	0.827	0.815	0.060	0.003	-0.082	1.279
0.772	1.064	0.803	0.828	0.027	0.012	-0.101	1.231
0.846	1.046	0.828	0.846	0.014	0.021	-0.057	1.248
0.919	1.052	0.828	0.822	-0.017	0.015	-0.001	1.234
0.992	1.088	0.818	0.798	-0.060	0.021	-0.027	1.245
1.065	1.087	0.841	0.835	-0.100	0.015	-0.026	1.293
1.138	1.103	0.880	0.871	-0.142	0.019	-0.015	1.375
1.212	1.152	0.859	0.851	-0.186	-0.003	0.010	1.395

SCAN ANGLE - 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.867	0.957	1.533	0.762	-0.539	-0.305	3.376
0.240	1.732	0.881	1.402	0.594	-0.477	-0.154	2.869
0.336	1.614	0.902	1.284	0.488	-0.401	-0.278	2.534
0.433	1.524	0.970	1.195	0.405	-0.333	-0.174	2.346
0.529	1.546	0.814	1.009	0.336	-0.314	-0.293	2.035
0.625	1.484	0.830	0.964	0.295	-0.294	-0.253	1.910
0.721	1.431	0.816	0.897	0.214	-0.260	-0.232	1.759
0.818	1.360	0.859	0.892	0.207	-0.215	-0.118	1.692
0.914	1.298	0.826	0.799	0.169	-0.174	-0.178	1.503
1.010	1.223	0.816	0.803	0.099	-0.120	-0.103	1.403
1.107	1.171	0.820	0.735	0.044	-0.094	-0.141	1.292
1.203	1.106	0.840	0.786	0.009	-0.074	-0.118	1.274

SCAN ANGLE - 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.903	1.027	1.533	0.662	-0.602	-0.148	3.514
0.272	1.912	0.893	1.424	0.655	-0.621	-0.217	3.240
0.361	1.896	0.884	1.363	0.576	-0.650	-0.311	3.117
0.451	1.880	0.878	1.263	0.526	-0.611	-0.468	2.950
0.540	1.879	0.791	1.097	0.486	-0.605	-0.305	2.679
0.629	1.829	0.878	1.086	0.456	-0.551	-0.339	2.647
0.719	1.843	0.855	0.948	0.467	-0.578	-0.306	2.512
0.808	1.812	0.809	0.932	0.442	-0.554	-0.289	2.402
0.898	1.778	0.812	0.834	0.378	-0.557	-0.312	2.258
0.987	1.723	0.843	0.788	0.406	-0.465	-0.370	2.150
1.076	1.595	1.006	0.968	0.356	-0.425	-0.134	2.246
1.166	1.574	0.912	0.835	0.313	-0.371	-0.182	2.003

SCAN ANGLE - 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	2.015	1.006	1.468	0.651	-0.699	-0.350	3.612
0.318	2.065	0.934	1.398	0.631	-0.799	-0.447	3.545
0.405	2.107	0.944	1.316	0.584	-0.884	-0.385	3.531
0.492	2.135	0.879	1.335	0.626	-0.988	-0.315	3.556
0.579	2.142	0.976	1.266	0.661	-0.948	-0.270	3.572
0.667	2.168	0.924	1.203	0.639	-0.927	-0.617	3.502
0.754	2.188	0.850	1.108	0.666	-0.982	-0.651	3.370
0.841	2.187	0.925	1.072	0.649	-0.986	-0.571	3.394
0.928	2.129	1.032	1.055	0.636	-0.910	-0.495	3.355
1.016	2.110	0.989	0.980	0.589	-0.958	-0.657	3.196
1.103	2.040	1.072	1.053	0.590	-0.885	-0.463	3.210
1.190	1.983	1.077	0.983	0.532	-0.772	-0.399	3.031

SCAN ANGLE - 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	2.209	0.979	1.431	0.620	-0.991	-0.421	3.943
0.373	2.260	0.951	1.400	0.665	-1.139	-0.487	3.988
0.457	2.288	0.990	1.399	0.672	-1.231	-0.388	4.086
0.541	2.354	0.948	1.350	0.733	-1.328	-0.555	4.130
0.625	2.407	0.988	1.270	0.731	-1.376	-0.662	4.191
0.709	2.413	0.979	1.274	0.723	-1.427	-0.771	4.203
0.793	2.433	1.079	1.292	0.785	-1.497	-0.624	4.376
0.876	2.448	1.093	1.264	0.818	-1.542	-0.562	4.393
0.960	2.407	1.183	1.286	0.808	-1.490	-0.713	4.423
1.044	2.407	1.183	1.201	0.765	-1.456	-0.978	4.319
1.128	2.402	1.166	1.198	0.751	-1.400	-0.793	4.283
1.212	2.374	1.232	1.111	0.714	-1.314	-0.938	4.194

SCAN ANGLE - 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	2.353	1.064	1.486	0.715	-1.446	-0.479	4.438
0.433	2.430	1.015	1.467	0.720	-1.553	-0.601	4.544
0.505	2.469	1.030	1.429	0.754	-1.692	-0.590	4.600
0.577	2.489	1.038	1.443	0.739	-1.798	-0.731	4.677
0.649	2.518	1.011	1.400	0.767	-1.822	-1.149	4.662
0.721	2.559	0.998	1.375	0.843	-1.967	-0.934	4.718
0.793	2.555	1.031	1.422	0.775	-2.054	-1.094	4.806
0.866	2.575	1.025	1.352	0.793	-1.997	-1.122	4.755
0.938	2.548	1.167	1.379	0.793	-1.982	-0.922	4.879
1.010	2.548	1.100	1.362	0.780	-1.961	-1.161	4.778
1.082	2.560	1.148	1.325	0.849	-1.955	-1.007	4.815
1.154	2.538	1.137	1.334	0.801	-1.883	-1.205	4.755

SCAN ANGLE - 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	2.458	0.993	1.496	0.714	-1.868	-0.811	4.633
0.508	2.473	0.967	1.488	0.742	-1.959	-0.795	4.632
0.576	2.463	1.052	1.534	0.753	-2.139	-0.661	4.763
0.645	2.481	1.017	1.529	0.726	-2.165	-1.045	4.764
0.713	2.494	1.026	1.475	0.714	-2.214	-1.101	4.724
0.781	2.497	1.006	1.459	0.750	-2.279	-1.477	4.689
0.850	2.507	1.065	1.476	0.808	-2.333	-1.121	4.800
0.918	2.503	1.064	1.504	0.738	-2.391	-1.473	4.831
0.987	2.528	1.048	1.504	0.711	-2.462	-1.342	4.876
1.055	2.534	1.081	1.440	0.702	-2.407	-1.310	4.832
1.124	2.540	1.053	1.434	0.675	-2.384	-1.392	4.809
1.192	2.567	1.082	1.397	0.708	-2.352	-1.091	4.856

SCAN ANGLE - 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	2.368	0.974	1.588	0.668	-2.287	-0.978	4.540
0.575	2.371	1.070	1.589	0.743	-2.352	-0.797	4.647
0.632	2.388	0.982	1.592	0.655	-2.460	-1.057	4.601
0.690	2.411	0.963	1.563	0.640	-2.565	-1.025	4.592
0.747	2.394	0.977	1.604	0.639	-2.637	-1.134	4.628
0.805	2.405	0.991	1.558	0.608	-2.647	-1.177	4.597
0.862	2.415	0.981	1.507	0.632	-2.637	-1.489	4.533
0.920	2.414	0.974	1.549	0.607	-2.713	-1.355	4.588
0.977	2.422	1.028	1.524	0.573	-2.713	-1.422	4.623
1.035	2.433	0.964	1.547	0.537	-2.764	-1.412	4.619
1.092	2.435	1.042	1.546	0.571	-2.737	-1.245	4.702
1.150	2.468	0.992	1.516	0.541	-2.741	-1.317	4.687

SCAN ANGLE - 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	2.397	1.057	1.786	0.546	-2.803	-1.278	5.027
0.628	2.389	1.095	1.764	0.574	-2.876	-1.242	5.008
0.680	2.424	1.013	1.788	0.508	-3.046	-1.243	5.049
0.731	2.429	1.090	1.770	0.488	-3.090	-1.578	5.112
0.782	2.442	1.102	1.728	0.583	-3.103	-0.860	5.081
0.834	2.442	1.063	1.776	0.468	-3.240	-1.472	5.125
0.885	2.450	1.056	1.779	0.451	-3.313	-1.154	5.141
0.936	2.455	1.023	1.736	0.440	-3.289	-1.329	5.044
0.988	2.453	1.118	1.805	0.481	-3.431	-1.062	5.263
1.039	2.460	1.044	1.737	0.404	-3.331	-1.407	5.080
1.090	2.450	1.027	1.718	0.361	-3.282	-1.163	5.004
1.142	2.435	1.072	1.791	0.318	-3.313	-1.822	5.145

SCAN ANGLE 0

Y/YMAX	U	V	W	UV	UW	VW	Q
0.600	2.141	1.056	1.796	0.419	-2.517	-0.851	4.462
0.653	2.161	0.963	1.734	0.306	-2.566	-1.096	4.303
0.706	2.174	1.003	1.771	0.317	-2.710	-0.788	4.435
0.760	2.167	1.019	1.780	0.317	-2.816	-0.773	4.451
0.813	2.188	0.983	1.763	0.213	-2.876	-0.760	4.431
0.867	2.179	1.097	1.786	0.257	-2.924	-0.855	4.570
0.920	2.191	1.005	1.783	0.144	-2.969	-0.945	4.494
0.973	2.201	1.039	1.797	0.168	-3.087	-0.384	4.578
1.027	2.198	1.004	1.830	0.076	-3.109	-0.500	4.594
1.080	2.210	0.987	1.736	0.003	-2.920	-0.931	4.437
1.133	2.196	0.992	1.787	0.016	-2.929	-1.112	4.501
1.187	2.180	1.072	1.825	-0.021	-2.966	-0.487	4.617

SCAN ANGLE 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.946	0.970	1.734	0.277	-2.018	-0.706	3.868
0.628	1.978	0.940	1.715	0.222	-2.148	-0.731	3.868
0.680	1.958	0.963	1.712	0.152	-2.204	-0.674	3.847
0.731	2.000	0.973	1.707	0.168	-2.314	-0.608	3.930
0.782	2.003	0.950	1.705	0.070	-2.403	-0.570	3.910
0.834	2.011	0.956	1.732	0.008	-2.487	-0.530	3.978
0.885	2.010	0.974	1.752	-0.065	-2.573	-0.836	4.028
0.936	2.020	0.928	1.714	-0.098	-2.529	-0.728	3.939
0.988	2.011	1.025	1.754	-0.057	-2.590	-0.557	4.087
1.039	2.012	1.027	1.777	-0.193	-2.624	-0.550	4.132
1.090	2.034	0.935	1.767	-0.205	-2.615	-0.624	4.067
1.142	2.008	0.986	1.787	-0.265	-2.568	-0.707	4.098

SCAN ANGLE 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.834	0.938	1.686	0.292	-1.598	-0.302	3.541
0.575	1.837	0.953	1.698	0.212	-1.697	-0.608	3.582
0.632	1.859	0.976	1.710	0.125	-1.855	-0.343	3.667
0.690	1.866	1.003	1.690	0.039	-1.932	-0.622	3.672
0.747	1.887	1.045	1.735	-0.001	-2.102	-0.217	3.833
0.805	1.900	1.038	1.756	-0.121	-2.211	-0.323	3.886
0.862	1.907	1.038	1.729	-0.175	-2.218	-0.444	3.851
0.920	1.919	1.022	1.691	-0.277	-2.188	-0.424	3.794
0.977	1.925	1.026	1.678	-0.304	-2.226	-0.487	3.787
1.035	1.908	1.028	1.729	-0.392	-2.229	-0.525	3.844
1.092	1.912	0.981	1.733	-0.433	-2.245	-0.462	3.811
1.150	1.907	0.997	1.755	-0.508	-2.162	-0.239	3.855

SCAN ANGLE 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.707	0.913	1.569	0.351	-0.941	-0.399	3.105
0.508	1.709	0.927	1.608	0.240	-1.142	-0.174	3.183
0.576	1.717	0.968	1.585	0.157	-1.222	-0.356	3.199
0.645	1.733	0.950	1.617	0.064	-1.396	-0.434	3.259
0.713	1.768	1.002	1.607	-0.063	-1.558	-0.268	3.355
0.781	1.779	0.993	1.580	-0.127	-1.628	-0.273	3.322
0.850	1.794	0.979	1.597	-0.270	-1.722	-0.380	3.363
0.918	1.817	0.965	1.588	-0.319	-1.814	-0.179	3.378
0.987	1.806	1.008	1.602	-0.429	-1.803	-0.083	3.423
1.055	1.808	1.020	1.616	-0.503	-1.760	-0.180	3.461
1.124	1.778	1.014	1.625	-0.577	-1.707	-0.129	3.414
1.192	1.769	1.004	1.588	-0.628	-1.545	-0.221	3.330

SCAN ANGLE 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.618	0.878	1.449	0.474	-0.512	-0.311	2.743
0.433	1.632	0.862	1.460	0.362	-0.678	-0.143	2.770
0.505	1.620	0.929	1.474	0.279	-0.817	-0.181	2.829
0.577	1.625	0.963	1.511	0.138	-0.982	-0.289	2.927
0.649	1.669	0.946	1.515	0.094	-1.143	-0.152	2.988
0.721	1.677	0.992	1.505	-0.056	-1.239	-0.241	3.030
0.793	1.693	0.990	1.521	-0.176	-1.335	-0.230	3.079
0.866	1.707	1.059	1.510	-0.320	-1.394	-0.154	3.158
0.938	1.732	0.982	1.526	-0.402	-1.454	-0.078	3.147
1.010	1.724	1.048	1.534	-0.518	-1.436	-0.016	3.212
1.082	1.690	1.059	1.512	-0.620	-1.340	-0.223	3.132
1.154	1.681	1.080	1.480	-0.683	-1.222	-0.328	3.090

SCAN ANGLE 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.625	0.940	1.394	0.613	-0.307	-0.141	2.734
0.373	1.602	0.898	1.393	0.495	-0.449	-0.148	2.657
0.457	1.581	0.945	1.404	0.440	-0.550	-0.101	2.682
0.541	1.565	0.960	1.392	0.270	-0.650	-0.222	2.654
0.625	1.559	0.973	1.448	0.127	-0.811	-0.315	2.736
0.709	1.600	0.968	1.379	-0.032	-0.871	-0.237	2.699
0.793	1.593	1.026	1.391	-0.124	-0.936	-0.086	2.762
0.876	1.645	0.944	1.363	-0.231	-0.994	-0.173	2.727
0.960	1.610	1.039	1.373	-0.382	-1.009	-0.088	2.779
1.044	1.618	1.047	1.356	-0.494	-0.934	0.061	2.775
1.128	1.616	1.049	1.347	-0.597	-0.860	0.067	2.763
1.212	1.578	1.035	1.307	-0.634	-0.696	-0.026	2.635

SCAN ANGLE 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.729	0.888	1.314	0.700	-0.210	-0.257	2.752
0.318	1.694	0.849	1.315	0.642	-0.276	-0.336	2.660
0.405	1.626	0.894	1.303	0.533	-0.377	-0.115	2.570
0.492	1.613	0.902	1.308	0.417	-0.431	-0.321	2.562
0.579	1.568	0.965	1.337	0.302	-0.547	-0.308	2.589
0.667	1.564	0.983	1.329	0.167	-0.588	-0.270	2.589
0.754	1.550	1.037	1.383	0.023	-0.706	-0.091	2.694
0.841	1.564	1.058	1.328	-0.149	-0.699	-0.050	2.665
0.928	1.555	1.071	1.334	-0.257	-0.689	-0.032	2.672
1.016	1.560	1.060	1.280	-0.365	-0.596	0.055	2.597
1.103	1.533	1.143	1.261	-0.504	-0.479	-0.058	2.623
1.190	1.510	1.171	1.262	-0.578	-0.372	0.064	2.621

SCAN ANGLE 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.771	0.901	1.262	0.739	-0.111	-0.256	2.770
0.272	1.723	0.917	1.274	0.744	-0.163	-0.203	2.716
0.361	1.642	0.979	1.317	0.644	-0.184	-0.233	2.695
0.451	1.605	0.946	1.288	0.568	-0.215	-0.158	2.566
0.540	1.606	0.946	1.253	0.489	-0.279	-0.119	2.522
0.629	1.529	1.023	1.304	0.330	-0.329	-0.134	2.544
0.719	1.521	1.000	1.250	0.170	-0.388	-0.060	2.438
0.808	1.480	1.042	1.228	0.049	-0.356	-0.149	2.391
0.898	1.467	1.056	1.213	-0.095	-0.323	-0.043	2.369
0.987	1.424	1.104	1.216	-0.208	-0.255	0.045	2.362
1.076	1.414	1.091	1.168	-0.270	-0.122	0.075	2.276
1.166	1.390	1.133	1.216	-0.301	-0.028	0.125	2.347

SCAN ANGLE 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.830	0.933	1.313	0.787	0.059	-0.256	2.970
0.240	1.750	0.949	1.289	0.740	0.061	-0.144	2.813
0.336	1.681	0.865	1.194	0.734	0.052	-0.204	2.500
0.433	1.607	0.946	1.205	0.678	0.037	-0.039	2.465
0.529	1.540	0.984	1.201	0.575	-0.041	0.039	2.392
0.625	1.509	0.962	1.152	0.425	-0.038	-0.048	2.264
0.721	1.437	1.028	1.219	0.292	-0.104	0.050	2.304
0.818	1.403	1.016	1.170	0.135	-0.076	0.050	2.185
0.914	1.386	0.998	1.118	0.025	-0.003	0.065	2.084
1.010	1.350	1.008	1.133	-0.006	0.067	0.169	2.061
1.107	1.318	1.025	1.132	-0.073	0.176	0.140	2.035
1.203	1.303	1.026	1.127	-0.045	0.280	0.171	2.011

SCAN ANGLE 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.815	0.915	1.262	0.790	0.248	-0.145	2.862
0.186	1.722	0.875	1.187	0.719	0.222	-0.086	2.570
0.260	1.676	0.909	1.162	0.687	0.209	-0.023	2.491
0.333	1.600	0.918	1.173	0.706	0.224	-0.041	2.389
0.406	1.565	0.919	1.124	0.611	0.182	-0.000	2.279
0.479	1.507	0.949	1.146	0.565	0.192	0.028	2.243
0.553	1.457	0.953	1.154	0.521	0.132	0.173	2.181
0.626	1.404	0.979	1.129	0.407	0.115	0.228	2.101
0.699	1.371	0.948	1.096	0.312	0.120	0.166	1.990
0.772	1.310	0.971	1.084	0.213	0.115	0.175	1.916
0.846	1.296	0.909	1.057	0.156	0.157	0.138	1.811
0.919	1.222	0.969	1.063	0.102	0.129	0.180	1.781
0.992	1.238	0.927	1.004	0.103	0.158	0.282	1.700
1.065	1.223	0.909	0.976	0.056	0.173	0.207	1.637
1.138	1.191	0.940	0.980	0.039	0.164	0.283	1.619
1.212	1.169	0.930	0.936	0.011	0.126	0.304	1.554

SCAN ANGLE 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.654	0.859	1.156	0.643	0.208	-0.147	2.404
0.240	1.514	0.864	1.099	0.568	0.188	-0.106	2.124
0.336	1.456	0.868	1.079	0.529	0.166	-0.010	2.019
0.433	1.435	0.819	1.037	0.521	0.159	0.038	1.904
0.529	1.372	0.897	1.122	0.442	0.151	0.076	1.974
0.625	1.387	0.848	1.040	0.448	0.162	0.081	1.863
0.721	1.354	0.862	1.070	0.406	0.186	0.100	1.861
0.818	1.301	0.874	1.059	0.353	0.157	0.182	1.790
0.914	1.268	0.880	1.037	0.280	0.143	0.129	1.729
1.010	1.240	0.856	1.030	0.233	0.135	0.174	1.666
1.107	1.212	0.861	0.988	0.175	0.096	0.134	1.592
1.203	1.171	0.854	0.970	0.134	0.085	0.171	1.522

4. AXIAL DISTANCE TO BLOCKAGE 5.1 m

4.1 Wall Shear Stress Variation

AIR DENSITY 1.085 KG/M**3
KINEMATIC VISCOSITY 1.786E-05 M**2/SEC

AVERAGE WALL SHEAR STRESS 0.2807 PA

ANGLE AND TW(THETA)

-85.0	0.184	-80.1	0.206	-75.1	0.240
-70.2	0.272	-64.9	0.293	-60.0	0.309
-55.0	0.344	-50.1	0.359	-45.1	0.369
-39.9	0.379	-35.0	0.375	-30.0	0.367
-25.1	0.355	-20.1	0.337	-15.2	0.323
-9.9	0.299	-5.0	0.289	0.0	0.275
4.9	0.263	9.8	0.255	15.1	0.252
20.0	0.250	25.0	0.255	29.9	0.252
34.9	0.250	39.8	0.247	45.0	0.256
50.0	0.268	54.9	0.272	59.9	0.268
64.8	0.259	70.1	0.236	75.0	0.212
80.0	0.171				

4.2 Mean Velocity Profiles

MEAN VELOCITY AT -50.0 DEGREES.
WALL SHEAR STRESS 0.3595 PA
FRICTION VELOCITY 0.5756 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.130	54.8	15.861
0.00220	9.200	70.9	15.983
0.00320	9.640	103.1	16.748
0.00420	10.050	135.4	17.460
0.00520	10.320	167.6	17.929
0.00620	10.630	199.8	18.467
0.00820	11.050	264.3	19.197
0.01020	11.370	328.7	19.753
0.01220	11.690	393.2	20.309
0.01520	12.000	489.9	20.848
0.01820	12.260	586.6	21.299
0.02120	12.480	683.3	21.681
0.02420	12.520	779.9	21.751
0.02819	12.610	908.5	21.907
0.03220	12.590	1037.8	21.873
0.03620	12.540	1166.7	21.786
0.05120	12.170	1650.1	21.143

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.3690 PA
FRICTION VELOCITY 0.5832 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.300	58.5	15.946
0.00220	9.280	71.8	15.912
0.00320	9.870	104.5	16.924
0.00420	10.190	137.1	17.473
0.00520	10.540	169.8	18.073
0.00620	10.820	202.5	18.553
0.00819	11.250	267.4	19.290
0.01020	11.630	333.1	19.942
0.01219	11.880	398.1	20.370
0.01519	12.220	496.0	20.953
0.01819	12.480	594.0	21.399
0.02120	12.700	692.3	21.776
0.02419	12.840	789.9	22.016
0.02819	12.880	920.5	22.085
0.03220	12.950	1051.5	22.205
0.03720	12.950	1214.7	22.205
0.04219	12.840	1377.7	22.016
0.04719	12.630	1540.9	21.656
0.06219	11.530	2030.8	19.770

MEAN VELOCITY AT -40.0 DEGREES.
WALL SHEAR STRESS 0.3789 PA
FRICTION VELOCITY 0.5909 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.450	56.2	15.992
0.00220	9.300	72.8	15.738
0.00320	9.760	105.9	16.517
0.00420	10.280	139.0	17.397
0.00520	10.540	172.0	17.837
0.00719	11.090	237.9	18.767
0.00920	11.390	304.4	19.275
0.01120	11.750	370.6	19.884
0.01320	12.020	436.7	20.341
0.01620	12.370	536.0	20.934
0.01919	12.590	634.9	21.306
0.02319	12.840	767.3	21.729
0.02720	13.000	899.9	22.000
0.03119	13.090	1032.0	22.152
0.03620	13.090	1197.7	22.152
0.04120	13.000	1363.1	22.000
0.05619	12.260	1859.1	20.747

MEAN VELOCITY AT -35.0 DEGREES.
WALL SHEAR STRESS 0.3750 PA
FRICTION VELOCITY 0.5879 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	9.200	56.0	15.649
0.00270	9.450	88.9	16.074
0.00370	9.830	121.8	16.720
0.00469	10.230	154.4	17.401
0.00569	10.500	187.3	17.860
0.00770	10.960	253.5	18.642
0.00969	11.350	319.0	19.306
0.01169	11.650	384.8	19.816
0.01370	11.880	451.0	20.207
0.01669	12.150	549.4	20.666
0.01969	12.370	648.1	21.041
0.02369	12.590	779.8	21.415
0.02769	12.700	911.5	21.602
0.03169	12.730	1043.2	21.653
0.04669	12.480	1536.9	21.228

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.3672 PA
FRICTION VELOCITY 0.5817 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.930	55.4	15.351
0.00270	9.150	87.9	15.729
0.00370	9.640	120.5	16.572
0.00469	10.010	152.8	17.208
0.00569	10.210	185.3	17.552
0.00770	10.760	250.8	18.497
0.00969	11.070	315.6	19.030
0.01169	11.370	380.8	19.546
0.01469	11.670	478.5	20.061
0.01769	11.920	576.2	20.491
0.02069	12.050	673.9	20.715
0.02369	12.150	771.6	20.887
0.02669	12.170	869.3	20.921
0.03669	11.940	1195.0	20.526

MEAN VELOCITY AT -25.0 DEGREES.
WALL SHEAR STRESS 0.3550 PA
FRICTION VELOCITY 0.5720 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.750	54.4	15.297
0.00270	9.100	86.5	15.909
0.00370	9.590	118.5	16.765
0.00469	9.870	150.2	17.255
0.00569	10.190	182.2	17.814
0.00670	10.410	214.6	18.199
0.00869	10.800	278.3	18.881
0.01070	11.090	342.7	19.388
0.01269	11.250	406.4	19.667
0.01569	11.450	502.5	20.017
0.01869	11.490	598.6	20.087
0.02169	11.450	694.7	20.017
0.02470	11.330	791.1	19.807
0.02969	11.010	950.9	19.248

MEAN VELOCITY AT -20.0 DEGREES.
WALL SHEAR STRESS 0.3371 PA
FRICTION VELOCITY 0.5574 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.560	53.1	15.357
0.00220	8.670	68.7	15.554
0.00320	9.100	99.9	16.326
0.00420	9.420	131.1	16.900
0.00520	9.830	162.3	17.635
0.00620	10.100	193.5	18.120
0.00819	10.450	255.6	18.748
0.01020	10.710	318.3	19.214
0.01219	10.760	380.4	19.304
0.01419	10.840	442.9	19.447
0.01620	10.820	505.6	19.411
0.01819	10.690	567.7	19.178
0.02220	10.320	692.9	18.514

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.3222 PA
FRICTION VELOCITY 0.5449 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.260	51.9	15.158
0.00220	8.480	67.1	15.562
0.00320	8.880	97.6	16.296
0.00420	9.280	128.1	17.030
0.00520	9.570	158.7	17.562
0.00620	9.800	189.2	17.984
0.00819	10.100	249.9	18.535
0.01020	10.210	311.2	18.737
0.01219	10.260	371.9	18.829
0.01419	10.100	432.9	18.535
0.01620	9.830	494.3	18.039

MEAN VELOCITY AT -10.0 DEGREES.
WALL SHEAR STRESS 0.2988 PA
FRICTION VELOCITY 0.5247 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.020	49.9	15.284
0.00220	8.150	64.6	15.532
0.00320	8.640	94.0	16.465
0.00420	9.000	123.4	17.152
0.00520	9.250	152.8	17.628
0.00620	9.450	182.2	18.009
0.00819	9.690	240.6	18.466
0.01020	9.730	299.7	18.543
0.01219	9.540	358.1	18.181
0.01419	9.050	416.9	17.247

MEAN VELOCITY AT -5.0 DEGREES.
WALL SHEAR STRESS 0.2894 PA
FRICTION VELOCITY 0.5165 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.750	49.2	15.006
0.00220	7.980	63.6	15.451
0.00320	8.290	92.5	16.052
0.00420	8.690	121.5	16.826
0.00520	9.030	150.4	17.484
0.00620	9.180	179.3	17.775
0.00719	9.280	207.9	17.969
0.00819	9.300	236.8	18.007
0.00920	9.300	266.0	18.007
0.01020	9.180	295.0	17.775
0.01219	8.750	352.5	16.942

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.2749 PA
FRICTION VELOCITY 0.5033 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.510	47.9	14.921
0.00220	7.810	62.0	15.517
0.00320	8.100	90.2	16.093
0.00420	8.370	118.4	16.630
0.00520	8.690	146.5	17.265
0.00620	8.880	174.7	17.643
0.00719	8.930	202.6	17.742
0.00819	8.950	230.8	17.782
0.00920	8.880	259.3	17.643
0.01020	8.690	287.4	17.265
0.01120	8.430	315.6	16.749
0.01219	8.150	343.5	16.193

MEAN VELOCITY AT 5.0 DEGREES.
WALL SHEAR STRESS 0.2625 PA
FRICTION VELOCITY 0.4919 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.330	46.8	14.902
0.00220	7.510	60.6	15.268
0.00320	7.950	88.1	16.162
0.00420	8.240	115.7	16.752
0.00520	8.510	143.2	17.301
0.00620	8.670	170.8	17.626
0.00719	8.820	198.0	17.931
0.00819	8.800	225.6	17.891
0.00920	8.750	253.4	17.789
0.01020	8.690	280.9	17.667
0.01219	8.150	335.7	16.569

MEAN VELOCITY AT 10.0 DEGREES.
WALL SHEAR STRESS 0.2544 PA
FRICTION VELOCITY 0.4842 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.200	46.1	14.869
0.00220	7.420	59.6	15.323
0.00320	7.810	86.8	16.128
0.00420	8.150	113.9	16.831
0.00520	8.400	141.0	17.347
0.00620	8.590	168.1	17.739
0.00719	8.750	194.9	18.070
0.00920	8.850	249.4	18.276
0.01120	8.690	303.7	17.946
0.01320	8.290	357.9	17.120
0.01519	7.810	411.8	16.128

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.2520 PA
FRICTION VELOCITY 0.4819 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.170	45.9	14.877
0.00220	7.360	59.4	15.272
0.00320	7.750	86.3	16.081
0.00420	8.040	113.3	16.683
0.00520	8.260	140.3	17.139
0.00620	8.510	167.3	17.658
0.00719	8.720	194.0	18.094
0.00920	8.930	248.3	18.529
0.01120	9.000	302.2	18.675
0.01320	8.850	356.2	18.363
0.01519	8.590	409.9	17.824
0.01719	8.260	463.9	17.139

MEAN VELOCITY AT 20.0 DEGREES.
WALL SHEAR STRESS 0.2504 PA
FRICTION VELOCITY 0.4804 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.170	45.7	14.925
0.00220	7.390	59.2	15.383
0.00320	7.690	86.1	16.007
0.00420	8.040	113.0	16.736
0.00520	8.290	139.9	17.256
0.00620	8.510	166.8	17.714
0.00819	8.820	220.3	18.359
0.01020	9.050	274.4	18.838
0.01219	9.180	327.9	19.109
0.01419	9.130	381.7	19.005
0.01620	9.050	435.8	18.838
0.02120	8.560	570.3	17.818

MEAN VELOCITY AT 25.0 DEGREES.
WALL SHEAR STRESS 0.2545 PA
FRICTION VELOCITY 0.4843 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.170	46.1	14.804
0.00220	7.380	59.7	15.238
0.00320	7.750	86.8	16.002
0.00420	8.040	113.9	16.600
0.00520	8.260	141.0	17.055
0.00620	8.480	168.1	17.509
0.00719	8.670	195.0	17.901
0.00920	8.900	249.5	18.376
0.01120	9.130	303.7	18.851
0.01320	9.330	358.0	19.264
0.01519	9.400	411.9	19.408
0.01719	9.450	466.2	19.512
0.01919	9.400	520.4	19.408
0.02220	9.300	602.0	19.202
0.02919	8.850	791.6	18.273

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2520 PA
FRICTION VELOCITY 0.4819 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.140	45.9	14.815
0.00220	7.360	59.4	15.272
0.00320	7.690	86.3	15.956
0.00420	8.040	113.3	16.683
0.00520	8.210	140.3	17.035
0.00719	8.530	194.0	17.699
0.00920	8.880	248.3	18.426
0.01120	9.150	302.2	18.986
0.01320	9.350	356.2	19.401
0.01519	9.470	409.9	19.650
0.01819	9.610	490.8	19.940
0.02120	9.660	572.1	20.044
0.02419	9.610	652.7	19.940
0.02720	9.540	734.0	19.795
0.03019	9.450	814.7	19.608
0.04019	9.230	1084.5	19.152

MEAN VELOCITY AT 35.0 DEGREES.
WALL SHEAR STRESS 0.2503 PA
FRICTION VELOCITY 0.4803 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.040	45.7	14.656
0.00220	7.270	59.2	15.135
0.00320	7.630	86.1	15.884
0.00420	7.930	113.0	16.509
0.00520	8.120	139.9	16.904
0.00719	8.590	193.4	17.883
0.00920	8.900	247.4	18.528
0.01120	9.130	301.2	19.007
0.01320	9.330	355.0	19.423
0.01519	9.500	408.5	19.777
0.01819	9.710	489.2	20.215
0.02120	9.870	570.2	20.548
0.02419	10.010	650.6	20.839
0.02819	10.050	758.2	20.922
0.03220	10.100	866.0	21.026
0.03620	10.100	973.6	21.026
0.04620	10.170	1242.6	21.172

MEAN VELOCITY AT 40.0 DEGREES.
WALL SHEAR STRESS 0.2475 PA
FRICTION VELOCITY 0.4776 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.110	45.5	14.887
0.00220	7.390	58.8	15.474
0.00320	7.720	85.6	16.165
0.00420	8.040	112.3	16.835
0.00520	8.320	139.1	17.421
0.00920	9.000	246.0	18.845
0.01120	9.200	299.5	19.264
0.01419	9.500	379.4	19.892
0.01719	9.710	459.7	20.331
0.02019	9.960	539.9	20.855
0.02419	10.100	646.9	21.148
0.02819	10.280	753.8	21.525
0.03220	10.390	861.0	21.755
0.03720	10.500	994.7	21.986
0.04219	10.540	1128.2	22.069
0.05719	10.300	1529.3	21.567

MEAN VELOCITY AT 45.0 DEGREES.
WALL SHEAR STRESS 0.2561 PA
FRICTION VELOCITY 0.4859 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.360	46.2	15.148
0.00220	7.540	59.8	15.518
0.00320	7.930	87.1	16.321
0.00420	8.240	114.3	16.959
0.00520	8.480	141.5	17.453
0.00620	8.720	168.7	17.947
0.00819	9.050	222.8	18.626
0.01020	9.300	277.5	19.141
0.01219	9.540	331.6	19.635
0.01419	9.660	386.0	19.882
0.01719	9.870	467.6	20.314
0.02019	10.080	549.3	20.746
0.02319	10.260	630.9	21.117
0.02720	10.410	740.0	21.425
0.03119	10.520	848.5	21.652
0.03620	10.630	984.8	21.878
0.04120	10.690	1120.8	22.002
0.04620	10.690	1256.8	22.002
0.06119	10.170	1664.6	20.931

MEAN VELOCITY AT 50.0 DEGREES.
WALL SHEAR STRESS 0.2684 PA
FRICTION VELOCITY 0.4973 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.510	47.3	15.100
0.00220	7.750	61.3	15.583
0.00320	8.100	89.1	16.286
0.00420	8.430	117.0	16.950
0.00520	8.690	144.8	17.473
0.00719	9.030	200.2	18.156
0.00920	9.350	256.2	18.800
0.01120	9.590	311.9	19.282
0.01320	9.830	367.6	19.765
0.01620	10.010	451.1	20.127
0.01919	10.210	534.4	20.529
0.02220	10.370	618.2	20.851
0.02619	10.450	729.3	21.012
0.03019	10.580	840.7	21.273
0.03419	10.650	952.1	21.414
0.03919	10.690	1091.3	21.494
0.05419	10.580	1509.0	21.273

4.3 Reynolds Stresses

SCAN ANGLE - 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.762	1.094	1.527	0.820	-0.020	0.047	3.317
0.240	1.683	0.999	1.371	0.778	-0.034	0.059	2.856
0.336	1.569	0.974	1.288	0.709	0.024	-0.023	2.536
0.433	1.450	1.068	1.324	0.619	0.055	0.023	2.498
0.529	1.364	0.930	1.123	0.502	0.076	-0.092	1.994
0.625	1.234	0.918	1.022	0.414	0.116	-0.030	1.705
0.721	1.110	0.916	0.983	0.287	0.123	-0.035	1.519
0.818	1.034	0.907	0.941	0.191	0.154	-0.037	1.389
0.914	1.020	0.860	0.839	0.133	0.191	-0.010	1.242
1.010	0.983	0.870	0.851	0.064	0.227	0.006	1.224
1.107	1.003	0.854	0.815	0.019	0.231	0.021	1.200
1.203	1.020	0.840	0.825	0.006	0.244	0.071	1.214

SCAN ANGLE - 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.762	1.084	1.504	0.808	-0.013	-0.097	3.272
0.186	1.655	0.981	1.339	0.721	0.012	-0.069	2.746
0.260	1.532	1.004	1.308	0.697	0.012	-0.074	2.533
0.333	1.413	1.057	1.285	0.596	0.022	-0.117	2.382
0.406	1.350	0.972	1.138	0.526	0.031	-0.129	2.032
0.479	1.252	0.857	1.015	0.434	0.013	0.013	1.667
0.553	1.096	0.910	1.003	0.319	0.041	-0.036	1.518
0.626	1.028	0.790	0.870	0.220	0.033	-0.066	1.219
0.699	0.941	0.760	0.798	0.168	0.034	0.015	1.050
0.772	0.856	0.727	0.755	0.104	0.048	0.022	0.916
0.846	0.809	0.724	0.713	0.054	0.048	-0.003	0.844
0.919	0.790	0.725	0.714	-0.015	0.046	-0.017	0.830
0.992	0.810	0.723	0.710	-0.052	0.046	0.006	0.842
1.065	0.865	0.736	0.722	-0.118	0.038	0.006	0.906
1.138	0.932	0.756	0.749	-0.163	0.039	0.029	1.000
1.212	1.010	0.766	0.813	-0.208	0.030	0.016	1.134

SCAN ANGLE - 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.721	1.033	1.487	0.803	0.001	0.026	3.122
0.240	1.590	1.042	1.368	0.699	0.000	0.064	2.743
0.336	1.473	1.054	1.319	0.588	-0.004	0.106	2.512
0.433	1.399	0.952	1.196	0.537	-0.020	-0.038	2.148
0.529	1.308	0.953	1.131	0.450	-0.058	-0.023	1.949
0.625	1.254	0.855	0.971	0.379	-0.094	-0.057	1.624
0.721	1.130	0.684	0.811	0.243	-0.086	0.040	1.202
0.818	1.006	0.896	0.936	0.194	-0.105	0.001	1.345
0.914	1.017	0.735	0.750	0.127	-0.123	0.017	1.069
1.010	0.951	0.736	0.734	0.056	-0.139	0.029	0.992
1.107	0.930	0.735	0.693	-0.008	-0.133	-0.014	0.942
1.203	0.955	0.689	0.659	-0.059	-0.134	-0.057	0.911

SCAN ANGLE - 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.680	0.999	1.443	0.721	-0.021	-0.165	2.951
0.272	1.591	0.957	1.336	0.638	-0.017	-0.122	2.616
0.361	1.511	0.992	1.263	0.625	-0.064	0.121	2.432
0.451	1.446	1.025	1.241	0.548	-0.088	0.107	2.341
0.540	1.426	0.923	1.144	0.477	-0.108	0.057	2.097
0.629	1.382	0.872	1.063	0.441	-0.180	-0.000	1.900
0.719	1.341	0.935	1.042	0.359	-0.257	0.061	1.880
0.808	1.340	0.854	0.928	0.292	-0.264	-0.082	1.692
0.898	1.266	0.970	0.939	0.160	-0.293	-0.057	1.713
0.987	1.258	0.841	0.839	0.161	-0.329	-0.029	1.497
1.076	1.226	0.855	0.792	0.106	-0.342	0.006	1.430
1.166	1.198	0.942	0.869	0.064	-0.318	-0.015	1.540

SCAN ANGLE - 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.716	1.068	1.397	0.736	-0.192	0.147	3.019
0.318	1.694	1.005	1.298	0.682	-0.178	-0.058	2.781
0.405	1.663	0.884	1.329	0.582	-0.181	0.588	2.656
0.492	1.563	1.071	1.344	0.567	-0.328	0.308	2.698
0.579	1.624	0.897	1.236	0.518	-0.421	-0.306	2.485
0.667	1.616	1.020	1.059	0.579	-0.381	-0.138	2.386
0.754	1.634	0.944	0.911	0.538	-0.468	-0.487	2.195
0.841	1.657	0.705	0.936	0.422	-0.512	-0.173	2.060
0.928	1.497	1.171	1.193	0.438	-0.546	-0.151	2.517
1.016	1.648	0.918	0.846	0.290	-0.592	-0.553	2.137
1.103	1.522	1.035	1.031	0.144	-0.573	-0.381	2.226
1.190	1.475	1.230	1.015	-0.035	-0.514	-0.005	2.360

SCAN ANGLE - 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.766	1.002	1.358	0.653	-0.337	-0.020	2.983
0.373	1.749	0.983	1.321	0.606	-0.408	-0.019	2.885
0.457	1.761	1.015	1.273	0.649	-0.349	0.187	2.876
0.541	1.800	0.857	1.198	0.568	-0.533	-0.009	2.705
0.625	1.754	1.050	1.258	0.538	-0.666	0.162	2.880
0.709	1.777	1.020	1.147	0.521	-0.701	-0.104	2.757
0.793	1.864	0.717	0.840	0.427	-0.672	-1.026	2.346
0.876	1.820	0.742	1.051	0.416	-0.766	-0.298	2.484
0.960	1.706	1.149	1.212	0.423	-0.740	-0.577	2.850
1.044	1.701	1.057	1.168	0.211	-0.884	-0.012	2.686
1.128	1.799	0.893	1.089	0.207	-0.953	0.151	2.610
1.212	1.783	0.776	0.808	0.132	-0.809	-0.321	2.216

SCAN ANGLE - 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.812	0.946	1.303	0.551	-0.507	-0.294	2.936
0.433	1.833	0.952	1.271	0.526	-0.634	-0.159	2.940
0.505	1.855	1.005	1.175	0.602	-0.599	-0.173	2.916
0.577	1.887	0.888	1.242	0.548	-0.836	0.120	2.946
0.649	1.864	1.031	1.265	0.487	-0.922	0.200	3.070
0.721	1.919	0.884	1.076	0.492	-0.932	-0.911	2.812
0.793	1.904	1.049	1.148	0.480	-0.989	-0.732	3.021
0.866	1.967	0.980	1.030	0.455	-1.099	-0.870	2.947
0.938	1.969	0.935	1.063	0.376	-1.167	-0.261	2.940
1.010	1.862	1.097	1.166	0.372	-1.141	-0.228	3.015
1.082	1.926	0.901	1.028	0.283	-1.133	-0.754	2.789
1.154	1.857	1.027	1.161	0.205	-1.129	-0.334	2.925

SCAN ANGLE - 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.982	0.835	1.112	0.538	-0.490	-0.064	2.931
0.508	1.994	0.845	1.141	0.460	-0.565	-0.012	2.995
0.576	2.002	0.815	1.103	0.461	-0.657	-0.015	2.945
0.645	1.998	0.820	1.094	0.400	-0.683	-0.175	2.930
0.713	1.990	0.844	1.114	0.437	-0.771	0.042	2.957
0.781	2.008	0.827	0.995	0.391	-0.753	-0.250	2.853
0.850	2.013	0.767	1.017	0.344	-0.827	-0.130	2.837
0.918	2.014	0.819	0.972	0.319	-0.839	-0.160	2.836
0.987	2.014	0.784	0.970	0.310	-0.894	-0.229	2.806
1.055	2.004	0.825	0.989	0.221	-0.905	-0.330	2.828
1.124	2.030	0.822	0.937	0.207	-0.897	-0.105	2.836
1.192	2.022	0.812	1.001	0.128	-0.940	-0.316	2.874

SCAN ANGLE - 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	2.001	0.818	1.152	0.442	-0.649	-0.250	3.001
0.575	1.980	0.876	1.133	0.416	-0.730	-0.171	2.986
0.632	1.978	0.793	1.150	0.398	-0.853	-0.061	2.933
0.690	1.976	0.769	1.098	0.359	-0.837	-0.133	2.851
0.747	1.969	0.738	1.099	0.338	-0.927	-0.187	2.816
0.805	1.948	0.840	1.137	0.287	-0.991	-0.109	2.896
0.862	1.943	0.786	1.111	0.225	-1.025	-0.272	2.813
0.920	1.956	0.794	1.034	0.157	-1.045	-0.243	2.772
0.977	1.943	0.833	1.102	0.181	-1.064	-0.114	2.841
1.035	1.964	0.769	1.047	0.167	-1.068	-0.173	2.774
1.092	1.992	0.729	1.036	0.122	-1.040	-0.324	2.786
1.150	1.966	0.897	1.110	0.074	-1.072	-0.107	2.951

SCAN ANGLE - 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.847	0.811	1.228	0.432	-0.701	-0.217	2.788
0.628	1.823	0.881	1.205	0.358	-0.724	-0.097	2.776
0.680	1.821	0.849	1.206	0.350	-0.821	-0.171	2.746
0.731	1.830	0.770	1.134	0.272	-0.797	-0.229	2.614
0.782	1.789	0.750	1.168	0.219	-0.894	-0.309	2.565
0.834	1.786	0.753	1.146	0.227	-0.909	-0.153	2.535
0.835	1.781	0.694	1.141	0.161	-0.956	-0.173	2.477
0.936	1.766	0.732	1.159	0.098	-0.940	-0.354	2.499
0.988	1.754	0.806	1.127	0.075	-0.943	-0.262	2.497
1.039	1.758	0.783	1.170	0.042	-0.953	-0.191	2.536
1.090	1.783	0.742	1.166	-0.002	-0.983	-0.296	2.544
1.142	1.772	0.772	1.170	-0.019	-0.960	-0.302	2.552

SCAN ANGLE 0

Y/YMAX	U	V	W	UV	UW	VW	Q
0.600	1.700	0.727	1.215	0.351	-0.520	-0.273	2.448
0.653	1.633	0.791	1.241	0.307	-0.579	-0.060	2.416
0.706	1.610	0.814	1.248	0.287	-0.615	-0.023	2.406
0.760	1.601	0.785	1.209	0.190	-0.646	-0.161	2.321
0.813	1.600	0.708	1.188	0.148	-0.690	-0.048	2.236
0.867	1.571	0.670	1.169	0.118	-0.638	-0.136	2.142
0.920	1.555	0.730	1.187	0.077	-0.663	-0.154	2.180
0.973	1.542	0.781	1.226	0.020	-0.725	-0.022	2.246
1.027	1.548	0.719	1.214	-0.018	-0.732	0.012	2.194
1.080	1.537	0.789	1.201	-0.075	-0.664	-0.147	2.214
1.133	1.554	0.735	1.195	-0.110	-0.687	-0.094	2.192
1.187	1.560	0.794	1.235	-0.156	-0.673	0.013	2.294

SCAN ANGLE 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.516	0.735	1.265	0.365	-0.316	-0.098	2.220
0.628	1.495	0.720	1.206	0.331	-0.294	-0.029	2.104
0.680	1.472	0.723	1.191	0.306	-0.333	-0.042	2.053
0.731	1.415	0.761	1.227	0.253	-0.355	-0.031	2.044
0.782	1.416	0.689	1.149	0.156	-0.315	-0.112	1.900
0.834	1.390	0.706	1.175	0.117	-0.344	-0.064	1.906
0.885	1.371	0.657	1.168	0.091	-0.339	-0.103	1.838
0.936	1.339	0.758	1.189	0.037	-0.359	-0.016	1.890
0.988	1.334	0.733	1.162	0.001	-0.328	-0.146	1.834
1.039	1.337	0.671	1.161	-0.040	-0.327	-0.052	1.793
1.090	1.331	0.715	1.179	-0.083	-0.343	-0.022	1.836
1.142	1.337	0.737	1.155	-0.112	-0.309	-0.065	1.832

SCAN ANGLE 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.444	0.818	1.249	0.466	0.009	-0.121	2.157
0.575	1.415	0.748	1.206	0.412	-0.025	-0.029	2.007
0.632	1.357	0.737	1.223	0.344	-0.060	-0.049	1.940
0.690	1.326	0.724	1.191	0.296	-0.009	0.022	1.850
0.747	1.289	0.743	1.178	0.227	-0.036	0.006	1.801
0.805	1.267	0.717	1.167	0.163	-0.006	-0.061	1.741
0.862	1.239	0.723	1.163	0.128	-0.049	0.081	1.704
0.920	1.206	0.720	1.155	0.079	-0.060	0.085	1.654
0.977	1.208	0.695	1.163	0.037	-0.050	0.144	1.647
1.035	1.207	0.700	1.143	-0.036	-0.026	0.134	1.627
1.092	1.206	0.727	1.179	-0.075	-0.014	0.061	1.686
1.150	1.200	0.758	1.185	-0.099	0.025	0.105	1.709

SCAN ANGLE 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.423	0.808	1.219	0.560	0.126	0.085	2.082
0.508	1.362	0.787	1.156	0.488	0.162	-0.061	1.905
0.576	1.313	0.773	1.144	0.398	0.164	0.057	1.814
0.645	1.281	0.707	1.090	0.342	0.166	-0.014	1.664
0.713	1.234	0.729	1.115	0.287	0.156	0.072	1.649
0.781	1.200	0.699	1.097	0.243	0.190	0.008	1.566
0.850	1.143	0.781	1.144	0.184	0.173	0.111	1.613
0.918	1.171	0.701	1.082	0.155	0.200	0.173	1.516
0.987	1.169	0.718	1.051	0.078	0.200	0.147	1.493
1.055	1.147	0.760	1.072	0.041	0.241	0.162	1.521
1.124	1.146	0.783	1.098	-0.019	0.256	0.178	1.566
1.192	1.142	0.821	1.109	-0.050	0.270	0.243	1.603

SCAN ANGLE 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.511	0.785	1.156	0.605	0.144	-0.027	2.118
0.433	1.387	0.833	1.182	0.533	0.160	-0.009	2.007
0.505	1.369	0.730	1.075	0.471	0.214	-0.079	1.782
0.577	1.308	0.722	1.092	0.405	0.223	0.067	1.713
0.649	1.219	0.828	1.125	0.353	0.226	0.053	1.718
0.721	1.234	0.733	1.033	0.287	0.265	0.050	1.564
0.793	1.209	0.719	1.020	0.235	0.274	0.089	1.509
0.866	1.164	0.730	1.029	0.196	0.269	0.169	1.473
0.938	1.137	0.786	1.025	0.156	0.302	0.236	1.481
1.010	1.143	0.740	1.011	0.111	0.324	0.153	1.438
1.082	1.144	0.775	1.004	0.033	0.334	0.159	1.459
1.154	1.144	0.818	1.042	0.005	0.386	0.187	1.532

SCAN ANGLE 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.572	0.813	1.135	0.638	0.104	-0.052	2.210
0.373	1.471	0.783	1.087	0.571	0.147	-0.023	1.979
0.457	1.375	0.819	1.081	0.500	0.135	0.053	1.866
0.541	1.326	0.759	1.028	0.448	0.193	-0.005	1.697
0.625	1.241	0.834	1.073	0.380	0.195	0.072	1.694
0.709	1.241	0.734	0.992	0.323	0.259	0.091	1.532
0.793	1.196	0.778	0.978	0.281	0.284	0.142	1.496
0.876	1.180	0.801	1.010	0.219	0.322	0.158	1.528
0.960	1.193	0.786	0.946	0.150	0.330	0.120	1.468
1.044	1.168	0.828	0.973	0.113	0.371	0.092	1.499
1.128	1.183	0.896	0.982	0.043	0.380	0.170	1.583
1.212	1.224	0.913	0.962	-0.007	0.409	0.168	1.629

SCAN ANGLE 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.641	0.878	1.192	0.659	-0.005	-0.030	2.441
0.318	1.514	0.820	1.064	0.574	0.051	-0.008	2.048
0.405	1.442	0.784	1.047	0.505	0.070	-0.078	1.896
0.492	1.391	0.799	1.030	0.455	0.103	-0.015	1.817
0.579	1.345	0.783	1.023	0.437	0.149	0.090	1.734
0.667	1.296	0.786	0.985	0.399	0.223	0.022	1.634
0.754	1.254	0.791	0.941	0.326	0.271	0.025	1.542
0.841	1.208	0.822	0.957	0.285	0.301	0.087	1.525
0.928	1.198	0.823	0.919	0.224	0.337	0.111	1.478
1.016	1.181	0.868	0.920	0.171	0.380	0.085	1.498
1.103	1.213	0.876	0.886	0.107	0.411	0.135	1.512
1.190	1.222	0.930	0.911	0.092	0.424	0.215	1.594

SCAN ANGLE 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.697	0.906	1.210	0.710	0.022	-0.123	2.584
0.272	1.582	0.866	1.128	0.589	0.071	-0.078	2.264
0.361	1.510	0.840	1.095	0.553	0.085	-0.017	2.091
0.451	1.427	0.887	1.115	0.507	0.115	0.014	2.033
0.540	1.407	0.783	1.021	0.491	0.200	-0.019	1.818
0.629	1.321	0.885	1.025	0.422	0.226	-0.012	1.789
0.719	1.286	0.845	0.985	0.366	0.288	0.012	1.670
0.808	1.264	0.836	0.922	0.317	0.348	-0.011	1.574
0.898	1.239	0.824	0.923	0.292	0.378	0.043	1.533
0.987	1.245	0.868	0.903	0.250	0.424	0.102	1.559
1.076	1.246	0.884	0.880	0.224	0.450	0.149	1.554
1.166	1.252	0.912	0.905	0.179	0.463	0.086	1.609

SCAN ANGLE 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.771	0.960	1.246	0.748	0.223	-0.147	2.831
0.240	1.632	0.881	1.146	0.587	0.220	-0.084	2.375
0.336	1.534	0.869	1.077	0.567	0.254	-0.110	2.135
0.433	1.428	0.946	1.104	0.468	0.268	-0.141	2.077
0.529	1.397	0.817	0.994	0.467	0.292	-0.008	1.804
0.625	1.308	0.879	1.014	0.417	0.295	0.037	1.755
0.721	1.299	0.795	0.905	0.395	0.337	0.112	1.570
0.818	1.244	0.807	0.898	0.328	0.369	0.065	1.503
0.914	1.233	0.818	0.875	0.308	0.370	0.111	1.478
1.010	1.236	0.814	0.827	0.280	0.386	0.110	1.437
1.107	1.223	0.824	0.829	0.256	0.387	0.122	1.432
1.203	1.212	0.833	0.780	0.252	0.356	0.142	1.385

SCAN ANGLE 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.798	1.034	1.343	0.789	0.327	-0.023	3.052
0.186	1.683	0.980	1.218	0.658	0.400	-0.132	2.637
0.260	1.578	0.954	1.130	0.610	0.416	-0.099	2.339
0.333	1.453	0.915	1.107	0.502	0.361	0.013	2.088
0.406	1.379	0.868	1.028	0.416	0.320	-0.010	1.856
0.479	1.314	0.849	0.974	0.403	0.322	0.077	1.699
0.553	1.264	0.798	0.933	0.350	0.310	0.028	1.553
0.626	1.205	0.795	0.900	0.320	0.280	0.051	1.447
0.699	1.186	0.758	0.827	0.291	0.278	0.086	1.333
0.772	1.136	0.739	0.839	0.266	0.294	0.059	1.270
0.846	1.103	0.792	0.825	0.249	0.266	0.121	1.262
0.919	1.103	0.724	0.754	0.233	0.254	0.161	1.155
0.992	1.066	0.735	0.713	0.199	0.232	0.156	1.093
1.065	1.012	0.759	0.737	0.148	0.205	0.124	1.072
1.138	0.965	0.739	0.740	0.099	0.163	0.098	1.013
1.212	0.930	0.766	0.727	0.030	0.131	0.071	0.990

SCAN ANGLE 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.721	0.982	1.287	0.769	0.259	-0.057	2.791
0.240	1.542	0.889	1.150	0.631	0.287	0.018	2.246
0.336	1.378	0.951	1.128	0.533	0.292	0.073	2.038
0.433	1.294	0.937	1.111	0.410	0.264	-0.004	1.893
0.529	1.255	0.829	0.988	0.376	0.275	0.015	1.618
0.625	1.184	0.802	0.919	0.347	0.229	0.096	1.444
0.721	1.123	0.785	0.914	0.277	0.192	0.075	1.356
0.818	1.086	0.741	0.833	0.235	0.164	0.085	1.211
0.914	1.047	0.725	0.802	0.206	0.143	0.069	1.133
1.010	0.988	0.752	0.806	0.174	0.139	0.062	1.095
1.107	0.977	0.672	0.737	0.158	0.110	0.094	0.975
1.203	0.948	0.667	0.690	0.117	0.103	0.079	0.910

5. AXIAL DISTANCE TO BLOCKAGE 7.0 m

5.1 Wall Shear Stress Variation

AIR DENSITY 1.121 KG/M**3
KINEMATIC VISCOSITY 1.699E-05 M**2/SEC

AVERAGE WALL SHEAR STRESS 0.2589 PA

ANGLE AND TW(THETA)

-85.0	0.109	-80.1	0.189	-75.1	0.221
-70.2	0.249	-64.9	0.276	-60.0	0.298
-55.0	0.308	-50.1	0.322	-45.1	0.330
-39.9	0.336	-35.0	0.334	-30.0	0.330
-25.1	0.320	-20.1	0.306	-15.2	0.286
-9.9	0.270	-5.0	0.248	0.0	0.230
4.9	0.225	9.8	0.214	15.1	0.216
20.0	0.225	25.0	0.245	29.9	0.252
34.9	0.264	39.8	0.264	45.0	0.268
50.0	0.281	54.9	0.286	59.9	0.276
64.8	0.264	70.1	0.245	75.0	0.216
80.0	0.189	84.9	0.169		

5.2 Mean Velocity Profiles

MEAN VELOCITY AT -50.0 DEGREES.
WALL SHEAR STRESS 0.3222 PA
FRICTION VELOCITY 0.5361 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.180	53.6	15.257
0.00220	8.400	69.4	15.667
0.00320	8.760	101.0	16.339
0.00420	9.100	132.5	16.973
0.00520	9.430	164.1	17.589
0.00719	9.890	226.9	18.447
0.00920	10.240	290.3	19.099
0.01120	10.620	353.4	19.808
0.01419	11.030	447.8	20.573
0.01719	11.380	542.5	21.226
0.02120	11.690	669.0	21.804
0.02619	11.910	826.5	22.214
0.03119	11.990	984.2	22.363
0.03620	12.010	1142.3	22.401
0.05120	12.020	1615.7	22.419

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.3302 PA
FRICTION VELOCITY 0.5427 M/SEC

Y (m)	V (M/SEC)	Y+	V+
0.00170	8.260	54.3	15.219
0.00220	8.450	70.3	15.569
0.00320	8.910	102.2	16.417
0.00420	9.250	134.2	17.043
0.00520	9.530	166.1	17.559
0.00719	10.020	229.7	18.462
0.00920	10.390	293.9	19.143
0.01120	10.750	357.8	19.807
0.01419	11.110	453.3	20.470
0.01719	11.400	549.1	21.004
0.02120	11.800	677.2	21.741
0.02519	12.060	804.7	22.220
0.03019	12.310	964.4	22.681
0.03520	12.330	1124.5	22.718
0.04019	12.310	1283.9	22.681
0.06019	11.070	1922.8	20.396

MEAN VELOCITY AT -40.0 DEGREES.
WALL SHEAR STRESS 0.3363 PA
FRICTION VELOCITY 0.5477 M/SEC

Y (m)	V (M/SEC)	Y+	V+
0.00170	8.370	54.8	15.282
0.00220	8.630	70.9	15.757
0.00320	9.050	103.2	16.524
0.00420	9.390	135.4	17.145
0.00520	9.620	167.6	17.565
0.00719	10.070	231.8	18.386
0.00920	10.450	296.6	19.080
0.01120	10.770	361.0	19.664
0.01419	11.110	457.4	20.285
0.01719	11.480	554.1	20.961
0.02120	11.840	683.4	21.618
0.02519	12.100	812.0	22.093
0.03019	12.310	973.2	22.476
0.03520	12.370	1134.7	22.586
0.04019	12.310	1295.6	22.476
0.04519	12.150	1456.8	22.184
0.06520	10.810	2101.8	19.737

MEAN VELOCITY AT -35.0 DEGREES.
WALL SHEAR STRESS 0.3340 PA
FRICTION VELOCITY 0.5458 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.290	54.6	15.188
0.00220	8.600	70.7	15.756
0.00320	9.030	102.8	16.544
0.00420	9.390	134.9	17.203
0.00520	9.640	167.1	17.661
0.00719	10.070	231.0	18.449
0.00920	10.370	295.6	18.999
0.01120	10.680	359.8	19.566
0.01419	11.090	455.9	20.318
0.01719	11.340	552.3	20.776
0.02120	11.650	681.1	21.344
0.02519	11.820	809.3	21.655
0.03019	11.910	969.9	21.820
0.03520	11.880	1130.9	21.765
0.04019	11.760	1291.2	21.545
0.05019	11.500	1612.4	21.069
0.07019	10.640	2255.0	19.493

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.3301 PA
FRICTION VELOCITY 0.5426 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.240	54.3	15.185
0.00220	8.530	70.3	15.719
0.00320	8.930	102.2	16.456
0.00420	9.270	134.1	17.083
0.00520	9.500	166.1	17.507
0.00719	9.910	229.6	18.262
0.00920	10.240	293.8	18.870
0.01120	10.560	357.7	19.460
0.01419	10.850	453.2	19.995
0.01719	11.070	549.0	20.400
0.02120	11.230	677.1	20.695
0.02519	11.250	804.5	20.732
0.03019	11.150	964.2	20.547
0.03520	10.950	1124.3	20.179
0.04019	10.750	1283.6	19.810
0.05019	10.260	1603.0	18.907
0.06019	9.820	1922.4	18.096
0.08520	8.630	2721.2	15.903

MEAN VELOCITY AT -25.0 DEGREES.
WALL SHEAR STRESS 0.3195 PA
FRICTION VELOCITY 0.5338 M/SEC

Y (M)	U (M/SEC)	Y+	U+
0.00170	8.080	53.4	15.136
0.00220	8.320	69.1	15.585
0.00320	8.650	100.5	16.203
0.00420	9.030	132.0	16.915
0.00620	9.530	194.8	17.852
0.00819	9.850	257.3	18.451
0.01020	10.110	320.5	18.938
0.01219	10.330	383.0	19.350
0.01419	10.490	445.9	19.575
0.01719	10.560	540.1	19.781
0.02019	10.520	634.4	19.706
0.02519	10.370	791.5	19.425

MEAN VELOCITY AT -20.0 DEGREES.
WALL SHEAR STRESS 0.3059 PA
FRICTION VELOCITY 0.5224 M/SEC

Y (M)	U (M/SEC)	Y+	U+
0.00170	7.850	52.3	15.028
0.00220	8.100	67.6	15.507
0.00320	8.500	98.4	16.272
0.00420	8.860	129.1	16.962
0.00520	9.080	159.9	17.383
0.00620	9.290	190.6	17.785
0.00719	9.480	221.1	18.149
0.00920	9.730	282.9	18.627
0.01120	9.940	344.3	19.029
0.01320	10.020	405.8	19.182
0.01519	10.090	467.0	19.316
0.01719	10.020	528.5	19.182
0.02019	9.890	620.7	18.933

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.2857 PA
FRICTION VELOCITY 0.5048 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.450	50.5	14.757
0.00220	7.710	65.4	15.272
0.00320	8.050	95.1	15.945
0.00420	8.340	124.8	16.520
0.00520	8.550	154.5	16.936
0.00719	8.900	213.6	17.629
0.00920	9.150	273.4	18.124
0.01120	9.200	332.8	18.223
0.01320	9.130	392.2	18.085
0.01620	8.810	481.4	17.451

MEAN VELOCITY AT -10.0 DEGREES.
WALL SHEAR STRESS 0.2691 PA
FRICTION VELOCITY 0.4899 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.150	49.0	14.594
0.00220	7.450	63.4	15.206
0.00320	7.740	92.3	15.798
0.00420	8.020	121.1	16.370
0.00520	8.240	149.9	16.819
0.00620	8.450	178.8	17.248
0.00719	8.580	207.3	17.513
0.00920	8.710	265.3	17.778
0.01120	8.580	323.0	17.513
0.01320	8.290	380.6	16.921

MEAN VELOCITY AT -5.0 DEGREES.
WALL SHEAR STRESS 0.2476 PA
FRICTION VELOCITY 0.4700 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.870	47.0	14.618
0.00220	7.090	60.9	15.086
0.00320	7.490	88.5	15.915
0.00420	7.740	116.2	16.469
0.00520	7.970	143.8	16.958
0.00620	8.080	171.5	17.192
0.00819	8.240	226.6	17.533
0.01020	8.050	282.2	17.128
0.01219	7.650	337.2	16.277

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.2304 PA
FRICTION VELOCITY 0.4534 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.640	45.4	14.645
0.00220	6.870	58.7	15.152
0.00320	7.150	85.4	15.770
0.00420	7.510	112.1	16.564
0.00520	7.680	138.8	16.939
0.00620	7.850	165.5	17.314
0.00720	7.940	192.1	17.512
0.00820	7.940	218.8	17.512
0.01020	7.680	272.2	16.939
0.01220	7.210	325.6	15.902

MEAN VELOCITY AT 5.0 DEGREES.
WALL SHEAR STRESS 0.2245 PA
FRICTION VELOCITY 0.4475 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.570	44.8	14.682
0.00220	6.770	57.9	15.129
0.00320	7.090	84.3	15.844
0.00420	7.360	110.6	16.447
0.00520	7.570	137.0	16.916
0.00620	7.740	163.3	17.296
0.00819	7.830	215.7	17.497
0.01020	7.680	268.7	17.162
0.01219	7.330	321.1	16.380

MEAN VELOCITY AT 10.0 DEGREES.
WALL SHEAR STRESS 0.2140 PA
FRICTION VELOCITY 0.4370 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.430	43.7	14.715
0.00220	6.670	56.6	15.264
0.00320	6.990	82.3	15.996
0.00420	7.260	108.0	16.614
0.00520	7.480	133.7	17.118
0.00620	7.680	159.5	17.576
0.00819	7.850	210.6	17.965
0.01020	7.910	262.3	18.102
0.01219	7.680	313.5	17.576
0.01419	7.330	365.0	16.775

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.2166 PA
FRICTION VELOCITY 0.4396 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.600	44.0	15.014
0.00220	6.770	56.9	15.401
0.00320	7.120	82.8	16.197
0.00420	7.390	108.7	16.812
0.00520	7.630	134.5	17.358
0.00620	7.800	160.4	17.744
0.00819	8.020	211.9	18.245
0.01020	8.180	263.9	18.609
0.01219	8.210	315.4	18.677
0.01519	7.970	393.0	18.131
0.01719	7.680	444.8	17.471

MEAN VELOCITY AT 20.0 DEGREES.
WALL SHEAR STRESS 0.2247 PA
FRICTION VELOCITY 0.4477 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.770	44.8	15.121
0.00220	6.960	58.0	15.546
0.00320	7.260	84.3	16.216
0.00420	7.540	110.7	16.841
0.00520	7.740	137.0	17.288
0.00719	8.080	189.5	18.047
0.00920	8.340	242.4	18.629
0.01120	8.500	295.1	18.985
0.01419	8.600	373.9	19.209
0.01719	8.530	453.0	19.052
0.02019	8.370	532.0	18.695
0.02220	8.240	585.0	18.405

MEAN VELOCITY AT 25.0 DEGREES.
WALL SHEAR STRESS 0.2452 PA
FRICTION VELOCITY 0.4677 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.990	46.8	14.946
0.00220	7.180	60.6	15.353
0.00320	7.510	88.1	16.058
0.00420	7.740	115.6	16.550
0.00620	8.180	170.7	17.491
0.00819	8.500	225.4	18.175
0.01020	8.760	280.8	18.731
0.01219	8.860	335.5	18.945
0.01519	9.030	418.1	19.309
0.01819	9.150	500.7	19.565
0.02120	9.080	583.6	19.415
0.02519	9.000	693.4	19.244
0.03520	8.450	968.9	18.068

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2519 PA
FRICTION VELOCITY 0.4741 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.090	47.4	14.956
0.00220	7.330	61.4	15.462
0.00320	7.630	89.3	16.095
0.00420	8.020	117.2	16.918
0.00520	8.180	145.1	17.255
0.00719	8.530	200.6	17.994
0.00920	8.810	256.7	18.584
0.01120	9.000	312.5	18.985
0.01419	9.290	395.9	19.597
0.01719	9.500	479.6	20.040
0.02019	9.570	563.3	20.188
0.02419	9.710	674.9	20.483
0.02919	9.710	814.5	20.483
0.03919	9.620	1093.5	20.293

MEAN VELOCITY AT 35.0 DEGREES.
WALL SHEAR STRESS 0.2638 PA
FRICTION VELOCITY 0.4851 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.180	48.5	14.800
0.00220	7.450	62.8	15.357
0.00320	7.770	91.4	16.017
0.00420	8.050	119.9	16.594
0.00520	8.290	148.5	17.089
0.00719	8.600	205.3	17.726
0.00920	8.930	262.7	18.408
0.01120	9.150	319.8	18.861
0.01419	9.500	405.2	19.583
0.01719	9.710	490.8	20.016
0.02017	9.940	576.5	20.490
0.02419	10.110	690.7	20.840
0.02819	10.160	804.9	20.943
0.03319	10.370	947.7	21.376
0.04820	10.410	1376.3	21.459

MEAN VELOCITY AT 40.0 DEGREES.
WALL SHEAR STRESS 0.2640 PA
FRICTION VELOCITY 0.4853 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.240	48.6	14.920
0.00220	7.480	62.8	15.414
0.00320	7.770	91.4	16.012
0.00420	8.180	120.0	16.857
0.00520	8.370	148.5	17.248
0.00719	8.760	205.4	18.052
0.00920	9.080	262.8	18.711
0.01120	9.320	319.9	19.206
0.01419	9.570	405.3	19.721
0.01719	9.890	491.0	20.381
0.02019	10.130	576.7	20.875
0.02319	10.330	662.4	21.287
0.02720	10.520	776.9	21.679
0.03119	10.660	890.8	21.967
0.03620	10.800	1033.9	22.256
0.04120	10.910	1176.8	22.482
0.05619	10.500	1604.9	21.638

MEAN VELOCITY AT 45.0 DEGREES.
WALL SHEAR STRESS 0.2680 PA
FRICTION VELOCITY 0.4889 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.330	48.9	14.992
0.00220	7.600	63.3	15.545
0.00320	7.970	92.1	16.301
0.00420	8.180	120.9	16.731
0.00520	8.450	149.6	17.283
0.00719	8.760	206.9	17.917
0.00920	9.170	264.7	18.756
0.01120	9.390	322.3	19.206
0.01419	9.760	408.3	19.963
0.01719	10.050	494.7	20.556
0.02019	10.280	581.0	21.026
0.02419	10.560	696.1	21.599
0.02819	10.790	811.2	22.069
0.03319	10.950	955.1	22.397
0.03819	11.070	1099.0	22.642
0.04320	11.150	1243.2	22.806
0.05820	10.410	1674.8	21.292

MEAN VELOCITY AT 50.0 DEGREES.
WALL SHEAR STRESS 0.2814 PA
FRICTION VELOCITY 0.5010 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.330	50.1	14.629
0.00220	7.630	64.9	15.228
0.00320	8.020	94.4	16.006
0.00420	8.340	123.9	16.645
0.00520	8.550	153.4	17.064
0.00719	8.930	212.0	17.823
0.00920	9.250	271.3	18.461
0.01120	9.530	330.3	19.020
0.01419	9.870	418.5	19.699
0.01719	10.130	506.9	20.218
0.02019	10.370	595.4	20.697
0.02319	10.580	683.9	21.116
0.02619	10.700	772.4	21.355
0.03019	10.830	890.3	21.615
0.03520	10.950	1038.1	21.854
0.04019	10.950	1185.2	21.854
0.05519	10.660	1627.6	21.275

5.3 Reynolds Stresses

SCAN ANGLE - 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.763	1.079	1.532	0.791	-0.019	0.219	3.310
0.240	1.670	1.005	1.347	0.738	-0.004	-0.055	2.807
0.336	1.557	1.018	1.304	0.737	-0.016	0.042	2.580
0.433	1.435	1.090	1.258	0.633	0.042	-0.076	2.415
0.529	1.360	0.992	1.146	0.485	0.110	-0.162	2.074
0.625	1.265	0.887	1.009	0.415	0.096	-0.071	1.702
0.721	1.111	0.903	0.984	0.276	0.127	-0.013	1.508
0.818	1.042	0.887	0.910	0.191	0.150	0.011	1.351
0.914	1.007	0.856	0.854	0.117	0.201	-0.034	1.238
1.010	0.997	0.871	0.825	0.061	0.219	0.003	1.217
1.107	1.008	0.884	0.836	0.031	0.237	0.073	1.247
1.203	1.019	0.898	0.848	-0.010	0.257	0.027	1.283

SCAN ANGLE - 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.811	1.099	1.589	0.876	-0.026	0.067	3.506
0.212	1.673	1.063	1.451	0.773	0.003	0.126	3.017
0.310	1.529	1.111	1.347	0.687	-0.027	0.075	2.694
0.409	1.377	0.997	1.199	0.530	0.022	-0.029	2.164
0.507	1.232	0.960	1.099	0.408	0.025	-0.036	1.823
0.606	1.095	0.836	0.959	0.277	0.031	0.029	1.409
0.704	0.953	0.799	0.852	0.169	0.060	-0.042	1.136
0.803	0.850	0.778	0.795	0.079	0.057	0.001	0.979
0.901	0.807	0.780	0.767	0.018	0.067	0.045	0.933
1.000	0.833	0.799	0.780	-0.078	0.071	0.017	0.970
1.098	0.922	0.802	0.773	-0.154	0.052	0.036	1.045
1.197	1.031	0.815	0.816	-0.227	0.051	0.005	1.196

SCAN ANGLE - 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.755	1.083	1.537	0.804	0.003	-0.048	3.308
0.240	1.614	0.963	1.401	0.685	0.032	-0.128	2.748
0.336	1.477	1.057	1.336	0.607	0.006	0.046	2.542
0.433	1.401	0.942	1.212	0.532	0.012	0.058	2.160
0.529	1.302	0.963	1.137	0.432	-0.027	0.083	1.956
0.625	1.209	0.940	1.075	0.360	-0.079	0.124	1.752
0.721	1.138	0.828	0.921	0.275	-0.093	0.004	1.414
0.818	1.036	0.817	0.879	0.207	-0.092	0.049	1.256
0.914	0.976	0.739	0.773	0.123	-0.125	0.057	1.049
1.010	0.921	0.725	0.735	0.046	-0.126	-0.056	0.958
1.107	0.905	0.712	0.706	-0.013	-0.138	-0.012	0.912
1.203	0.912	0.719	0.711	-0.073	-0.127	-0.022	0.928

SCAN ANGLE - 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.749	1.010	1.492	0.760	-0.089	0.084	3.153
0.272	1.616	0.930	1.364	0.670	-0.004	0.003	2.668
0.361	1.505	1.000	1.329	0.610	-0.023	0.059	2.516
0.451	1.428	0.999	1.240	0.522	-0.059	-0.058	2.287
0.540	1.402	0.928	1.179	0.491	-0.107	-0.023	2.109
0.629	1.326	1.005	1.181	0.434	-0.157	0.089	2.081
0.719	1.322	0.913	1.045	0.370	-0.225	0.055	1.837
0.809	1.283	0.868	0.978	0.301	-0.260	0.035	1.678
0.898	1.244	0.875	0.896	0.234	-0.273	0.021	1.558
0.987	1.181	0.926	0.915	0.151	-0.277	-0.019	1.544
1.076	1.200	0.838	0.831	0.089	-0.296	-0.031	1.416
1.166	1.180	0.875	0.816	0.042	-0.303	0.033	1.411

SCAN ANGLE - 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.703	1.056	1.424	0.727	-0.097	-0.084	3.021
0.318	1.628	0.993	1.350	0.670	-0.149	0.071	2.729
0.405	1.569	0.856	1.211	0.565	-0.154	0.051	2.331
0.492	1.510	0.944	1.207	0.561	-0.187	0.076	2.314
0.579	1.481	1.048	1.243	0.483	-0.245	-0.042	2.418
0.667	1.513	0.930	1.092	0.457	-0.318	-0.006	2.173
0.754	1.518	0.858	1.012	0.399	-0.371	-0.234	2.032
0.841	1.505	0.894	0.997	0.379	-0.451	0.031	2.030
0.928	1.444	0.986	1.023	0.308	-0.463	-0.028	2.052
1.016	1.437	0.943	0.981	0.221	-0.518	-0.128	1.959
1.103	1.422	0.994	0.949	0.185	-0.491	-0.061	1.956
1.190	1.434	0.970	0.859	0.085	-0.486	-0.243	1.868

SCAN ANGLE - 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.729	0.923	1.312	0.643	-0.289	0.010	2.781
0.373	1.685	0.982	1.278	0.610	-0.291	0.108	2.719
0.457	1.685	0.923	1.230	0.583	-0.402	0.016	2.602
0.541	1.691	0.941	1.121	0.574	-0.447	-0.130	2.500
0.625	1.664	0.903	1.126	0.467	-0.516	-0.028	2.426
0.709	1.650	0.920	1.117	0.439	-0.568	-0.251	2.409
0.793	1.656	0.912	1.089	0.421	-0.655	-0.175	2.380
0.876	1.657	0.940	1.087	0.421	-0.710	-0.287	2.406
0.960	1.645	0.912	1.083	0.321	-0.734	-0.297	2.356
1.044	1.640	0.916	1.048	0.249	-0.747	-0.141	2.312
1.128	1.648	0.916	0.991	0.197	-0.755	-0.228	2.269
1.212	1.614	1.042	1.027	0.097	-0.734	-0.225	2.372

SCAN ANGLE - 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.814	0.967	1.246	0.591	-0.464	-0.067	2.890
0.433	1.829	0.867	1.154	0.568	-0.538	-0.077	2.715
0.505	1.829	0.923	1.155	0.562	-0.625	-0.024	2.766
0.577	1.828	0.921	1.144	0.535	-0.722	-0.254	2.750
0.649	1.839	0.931	1.151	0.513	-0.809	-0.132	2.787
0.721	1.842	0.949	1.155	0.512	-0.936	-0.186	2.813
0.793	1.850	0.923	1.129	0.467	-0.973	-0.412	2.774
0.866	1.854	0.899	1.168	0.439	-1.075	-0.273	2.805
0.938	1.876	0.912	1.116	0.401	-1.068	-0.501	2.798
1.010	1.871	0.925	1.150	0.357	-1.148	-0.207	2.839
1.082	1.853	0.947	1.150	0.278	-1.126	-0.432	2.828
1.154	1.847	0.999	1.185	0.266	-1.139	-0.204	2.907

SCAN ANGLE - 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.887	0.939	1.219	0.541	-0.712	0.016	2.964
0.508	1.887	0.890	1.225	0.528	-0.831	-0.210	2.926
0.576	1.874	0.922	1.221	0.534	-0.911	-0.202	2.926
0.645	1.886	0.914	1.206	0.524	-1.034	-0.258	2.923
0.713	1.894	0.892	1.208	0.496	-1.087	-0.171	2.921
0.781	1.910	0.876	1.171	0.420	-1.130	-0.514	2.893
0.850	1.924	0.812	1.189	0.438	-1.224	-0.321	2.887
0.918	1.933	0.839	1.183	0.377	-1.311	-0.352	2.921
0.987	1.937	0.814	1.193	0.330	-1.335	-0.362	2.921
1.055	1.937	0.836	1.133	0.313	-1.323	-0.619	2.867
1.124	1.942	0.865	1.151	0.267	-1.352	-0.321	2.922
1.192	1.938	0.874	1.158	0.199	-1.278	-0.510	2.930

SCAN ANGLE - 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.858	0.856	1.296	0.463	-0.894	-0.420	2.933
0.575	1.842	0.885	1.331	0.470	-0.984	-0.310	2.974
0.632	1.841	0.840	1.285	0.409	-1.048	-0.445	2.873
0.690	1.836	0.812	1.332	0.402	-1.124	-0.629	2.902
0.747	1.843	0.811	1.323	0.386	-1.196	-0.422	2.901
0.805	1.825	0.802	1.319	0.342	-1.256	-0.546	2.856
0.862	1.815	0.889	1.371	0.309	-1.315	-0.452	2.981
0.920	1.804	0.863	1.372	0.320	-1.368	-0.524	2.940
0.977	1.842	0.803	1.324	0.305	-1.381	-0.434	2.895
1.035	1.814	0.908	1.362	0.217	-1.392	-0.492	2.986
1.092	1.836	0.873	1.338	0.207	-1.375	-0.581	2.963
1.150	1.853	0.841	1.335	0.150	-1.409	-0.367	2.961

SCAN ANGLE - 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.711	0.819	1.423	0.421	-0.838	-0.457	2.811
0.628	1.697	0.841	1.432	0.400	-0.923	-0.352	2.819
0.680	1.685	0.800	1.434	0.328	-0.981	-0.409	2.769
0.731	1.653	0.819	1.457	0.341	-1.020	-0.391	2.762
0.782	1.623	0.888	1.478	0.313	-1.069	-0.374	2.805
0.834	1.650	0.763	1.413	0.228	-1.098	-0.405	2.650
0.885	1.631	0.755	1.449	0.185	-1.119	-0.484	2.664
0.936	1.604	0.794	1.469	0.142	-1.151	-0.462	2.681
0.988	1.608	0.836	1.477	0.177	-1.096	-0.487	2.732
1.039	1.610	0.866	1.502	0.126	-1.123	-0.324	2.900
1.090	1.634	0.860	1.466	0.028	-1.116	-0.440	2.779
1.142	1.621	0.827	1.465	0.027	-1.095	-0.519	2.729

SCAN ANGLE 0

Y/YMAX	U	V	W	UV	UW	VW	Q
0.600	1.556	0.843	1.556	0.369	-0.560	-0.335	2.778
0.653	1.529	0.797	1.517	0.333	-0.600	-0.346	2.637
0.706	1.501	0.811	1.549	0.298	-0.644	-0.350	2.655
0.760	1.505	0.725	1.541	0.226	-0.664	-0.403	2.582
0.813	1.486	0.750	1.558	0.226	-0.728	-0.404	2.599
0.867	1.461	0.758	1.573	0.149	-0.743	-0.315	2.592
0.920	1.455	0.708	1.514	0.072	-0.684	-0.333	2.456
0.973	1.419	0.785	1.535	0.054	-0.714	-0.261	2.493
1.027	1.417	0.817	1.527	-0.023	-0.688	-0.383	2.503
1.080	1.445	0.752	1.542	-0.077	-0.714	-0.129	2.516
1.133	1.417	0.802	1.564	-0.074	-0.694	-0.193	2.548
1.187	1.424	0.826	1.550	-0.116	-0.657	-0.202	2.556

SCAN ANGLE 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.450	0.748	1.534	0.398	-0.099	-0.191	2.506
0.628	1.427	0.759	1.516	0.353	-0.134	-0.079	2.455
0.680	1.400	0.690	1.507	0.258	-0.112	-0.300	2.353
0.731	1.373	0.668	1.481	0.275	-0.107	-0.151	2.262
0.782	1.332	0.823	1.581	0.178	-0.135	-0.080	2.475
0.834	1.369	0.725	1.535	0.145	-0.131	-0.033	2.378
0.885	1.343	0.716	1.513	0.105	-0.134	-0.118	2.303
0.936	1.348	0.639	1.512	0.069	-0.160	0.016	2.256
0.988	1.317	0.760	1.539	-0.023	-0.109	-0.089	2.340
1.039	1.323	0.759	1.533	-0.046	-0.099	-0.074	2.338
1.090	1.317	0.745	1.538	-0.060	-0.125	0.037	2.329
1.142	1.322	0.764	1.528	-0.093	-0.097	-0.071	2.333

SCAN ANGLE 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.604	0.755	1.467	0.524	0.270	-0.015	2.646
0.575	1.537	0.788	1.493	0.427	0.312	-0.117	2.607
0.632	1.506	0.768	1.486	0.413	0.359	-0.104	2.533
0.690	1.492	0.677	1.411	0.318	0.310	0.001	2.337
0.747	1.434	0.734	1.414	0.280	0.339	0.014	2.298
0.805	1.400	0.738	1.462	0.217	0.385	0.093	2.321
0.862	1.369	0.767	1.465	0.189	0.401	0.043	2.304
0.920	1.379	0.712	1.446	0.159	0.412	0.216	2.250
0.977	1.377	0.721	1.415	0.091	0.430	0.147	2.208
1.035	1.365	0.780	1.463	0.077	0.541	0.147	2.307
1.092	1.353	0.823	1.482	0.059	0.541	0.291	2.352
1.150	1.382	0.798	1.472	-0.015	0.535	0.257	2.357

SCAN ANGLE 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.751	0.867	1.414	0.603	0.505	-0.047	2.909
0.508	1.747	0.780	1.343	0.571	0.561	0.020	2.732
0.576	1.688	0.809	1.366	0.540	0.601	0.034	2.685
0.645	1.662	0.776	1.361	0.459	0.685	0.166	2.609
0.713	1.639	0.740	1.265	0.402	0.698	0.122	2.417
0.781	1.572	0.824	1.340	0.337	0.788	0.140	2.474
0.850	1.577	0.745	1.283	0.304	0.811	0.080	2.344
0.918	1.559	0.821	1.297	0.296	0.879	0.206	2.394
0.987	1.569	0.815	1.291	0.246	0.871	0.412	2.396
1.055	1.553	0.860	1.304	0.215	0.922	0.267	2.426
1.124	1.572	0.894	1.300	0.192	0.928	0.338	2.480
1.192	1.602	0.880	1.294	0.166	0.974	0.376	2.508

SCAN ANGLE 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.766	0.980	1.333	0.629	0.459	-0.063	2.927
0.433	1.745	0.954	1.287	0.589	0.557	0.035	2.805
0.505	1.732	0.914	1.286	0.604	0.642	0.262	2.744
0.577	1.726	0.858	1.241	0.579	0.787	0.078	2.628
0.649	1.706	0.912	1.222	0.570	0.865	-0.031	2.619
0.721	1.691	0.814	1.171	0.452	0.854	0.103	2.446
0.793	1.678	0.830	1.166	0.421	0.921	0.086	2.432
0.866	1.666	0.842	1.164	0.401	0.966	0.171	2.419
0.938	1.653	0.944	1.226	0.416	1.055	0.266	2.563
1.010	1.682	0.878	1.151	0.376	1.050	0.336	2.462
1.082	1.675	0.925	1.155	0.326	1.088	0.310	2.497
1.154	1.690	0.959	1.148	0.288	1.081	0.372	2.547

SCAN ANGLE 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.635	0.941	1.221	0.597	0.293	-0.120	2.525
0.373	1.620	0.940	1.175	0.574	0.398	-0.036	2.444
0.457	1.612	0.891	1.180	0.617	0.513	0.125	2.393
0.541	1.612	0.888	1.116	0.570	0.598	0.000	2.317
0.625	1.590	1.026	1.203	0.491	0.706	0.090	2.514
0.709	1.617	0.963	1.143	0.518	0.793	0.082	2.424
0.793	1.626	0.941	1.104	0.500	0.861	0.182	2.373
0.876	1.635	0.919	1.065	0.488	0.920	0.269	2.326
0.960	1.635	0.931	1.037	0.414	0.916	0.256	2.308
1.044	1.639	0.925	1.049	0.398	0.990	0.232	2.322
1.128	1.602	1.040	1.087	0.355	0.952	0.253	2.414
1.212	1.625	1.019	1.035	0.300	0.931	0.314	2.375

SCAN ANGLE 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.656	0.894	1.204	0.617	0.150	-0.154	2.495
0.318	1.554	0.920	1.179	0.622	0.230	-0.148	2.326
0.405	1.526	0.831	1.073	0.506	0.305	-0.064	2.085
0.492	1.487	0.895	1.073	0.512	0.373	0.066	2.080
0.579	1.452	0.946	1.134	0.537	0.460	0.072	2.145
0.667	1.475	0.901	1.049	0.509	0.571	0.057	2.044
0.754	1.471	0.950	1.033	0.518	0.650	0.137	2.066
0.841	1.452	1.056	1.161	0.443	0.682	0.057	2.286
0.928	1.490	0.954	1.063	0.419	0.718	0.125	2.131
1.016	1.495	0.963	1.019	0.375	0.744	0.078	2.100
1.103	1.491	0.966	0.979	0.319	0.728	0.107	2.057
1.190	1.477	1.030	1.027	0.273	0.744	0.215	2.149

SCAN ANGLE 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.677	0.984	1.322	0.717	0.165	-0.118	2.764
0.272	1.557	1.002	1.242	0.629	0.185	-0.151	2.485
0.361	1.499	0.968	1.211	0.575	0.192	-0.155	2.326
0.451	1.458	0.964	1.159	0.586	0.331	-0.096	2.200
0.540	1.423	0.976	1.169	0.502	0.330	0.009	2.172
0.629	1.440	0.921	1.080	0.501	0.427	-0.029	2.044
0.719	1.434	0.906	1.057	0.497	0.525	-0.041	1.998
0.808	1.433	0.938	1.030	0.477	0.566	0.060	1.997
0.898	1.390	0.983	1.045	0.445	0.589	0.085	1.995
0.987	1.376	0.993	1.027	0.410	0.618	0.094	1.968
1.076	1.346	1.039	0.999	0.339	0.565	0.053	1.945
1.166	1.339	1.024	0.961	0.258	0.540	0.057	1.882

SCAN ANGLE 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.750	0.990	1.388	0.795	0.205	-0.187	2.985
0.240	1.565	0.977	1.311	0.625	0.179	-0.213	2.561
0.336	1.469	0.996	1.225	0.563	0.193	-0.041	2.326
0.433	1.402	0.925	1.125	0.497	0.215	-0.085	2.043
0.529	1.337	0.968	1.168	0.446	0.282	-0.052	2.045
0.625	1.328	0.902	1.073	0.388	0.328	-0.094	1.865
0.721	1.286	0.923	1.007	0.382	0.356	0.014	1.759
0.818	1.250	0.929	0.995	0.351	0.413	0.052	1.709
0.914	1.209	1.015	0.986	0.337	0.395	0.080	1.732
1.010	1.216	0.874	0.906	0.295	0.372	0.086	1.532
1.107	1.134	0.848	0.782	0.214	0.274	0.172	1.309
1.203	1.001	0.889	0.849	0.165	0.232	0.070	1.258

SCAN ANGLE 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.729	1.016	1.388	0.786	0.194	-0.169	2.974
0.212	1.550	1.090	1.373	0.709	0.220	-0.104	2.738
0.310	1.443	1.031	1.251	0.609	0.209	0.026	2.354
0.409	1.317	0.989	1.153	0.478	0.192	-0.087	2.022
0.507	1.210	0.925	1.069	0.396	0.148	0.005	1.730
0.606	1.113	0.843	0.946	0.298	0.139	0.067	1.422
0.704	1.004	0.831	0.917	0.228	0.110	0.013	1.270
0.803	0.922	0.774	0.824	0.171	0.085	0.033	1.064
0.901	0.841	0.730	0.753	0.102	0.057	0.047	0.903
1.000	0.775	0.717	0.721	0.038	0.028	0.052	0.817
1.098	0.773	0.734	0.726	-0.027	0.030	0.024	0.832
1.197	0.858	0.744	0.737	-0.128	0.013	-0.007	0.916

SCAN ANGLE 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.728	1.065	1.395	0.821	0.131	-0.131	3.032
0.240	1.563	1.018	1.299	0.709	0.192	-0.097	2.584
0.336	1.441	1.068	1.297	0.634	0.180	-0.055	2.450
0.433	1.382	0.916	1.135	0.579	0.166	-0.027	2.019
0.529	1.236	0.997	1.119	0.475	0.120	0.120	1.887
0.625	1.140	0.921	1.037	0.372	0.074	0.009	1.612
0.721	1.048	0.849	0.956	0.254	0.032	-0.026	1.366
0.818	0.994	0.785	0.855	0.197	-0.028	0.041	1.168
0.914	0.929	0.777	0.814	0.136	-0.064	0.019	1.064
1.010	0.912	0.750	0.759	0.098	-0.097	0.043	0.985
1.107	0.895	0.757	0.768	0.049	-0.131	0.011	0.982
1.203	0.921	0.709	0.711	0.015	-0.143	-0.008	0.928

6. AXIAL DISTANCE TO BLOCKAGE 7.1 m

6.1 Wall Shear Stress Variation

AIR DENSITY 1.124 KG/M**3
KINEMATIC VISCOSITY 1.695E-05 M**2/SEC

AVERAGE WALL SHEAR STRESS 0.2338 PA

ANGLE AND TW(THETA)

-85.0	0.161	-80.1	0.178	-75.1	0.206
-70.2	0.233	-64.9	0.260	-60.0	0.277
-55.0	0.288	-50.1	0.300	-45.1	0.306
-39.9	0.301	-35.0	0.302	-30.0	0.298
-25.1	0.290	-20.1	0.276	-15.2	0.260
-9.9	0.233	-5.0	0.216	0.0	0.201
4.9	0.197	9.8	0.194	15.1	0.196
20.0	0.204	25.0	0.220	29.9	0.226
34.9	0.235	39.8	0.243	45.0	0.244
50.0	0.245	54.9	0.249	59.9	0.241
64.8	0.225	70.1	0.206	75.0	0.180
80.0	0.154	84.9	0.141		

6.2 Mean Velocity Profiles

MEAN VELOCITY AT -50.0 DEGREES.
WALL SHEAR STRESS 0.2999 PA
FRICTION VELOCITY 0.5165 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.900	51.8	15.295
0.00220	8.090	67.0	15.663
0.00320	8.520	97.5	16.495
0.00420	8.840	128.0	17.115
0.00520	9.160	158.5	17.735
0.00620	9.350	188.9	18.102
0.00820	9.830	249.9	19.032
0.01020	10.120	310.8	19.593
0.01220	10.380	371.8	20.097
0.01520	10.690	463.2	20.697
0.01820	10.990	554.6	21.278
0.02120	11.250	646.0	21.781
0.02520	11.430	767.9	22.130
0.02920	11.520	889.8	22.304
0.03419	11.520	1041.8	22.304
0.04919	11.270	1498.9	21.820

MEAN VELOCITY AT -45.0 DEGREES.
WALL SHEAR STRESS 0.3060 PA
FRICTION VELOCITY 0.5217 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	8.090	52.3	15.506
0.00220	8.360	67.7	16.024
0.00320	8.670	98.5	16.618
0.00420	9.070	129.3	17.385
0.00520	9.300	160.1	17.825
0.00720	9.690	221.6	18.573
0.00920	10.080	283.2	19.320
0.01120	10.330	344.7	19.800
0.01320	10.630	406.3	20.375
0.01620	10.950	498.6	20.988
0.01920	11.190	591.0	21.448
0.02320	11.480	714.1	22.004
0.02720	11.710	837.2	22.445
0.03220	11.860	991.1	22.732
0.03720	11.920	1145.0	22.847
0.04219	11.770	1298.6	22.560
0.05219	11.350	1606.4	21.755

MEAN VELOCITY AT -40.0 DEGREES.
WALL SHEAR STRESS 0.3014 PA
FRICTION VELOCITY 0.5178 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.950	51.9	15.353
0.00220	8.170	67.2	15.778
0.00320	8.590	97.8	16.589
0.00420	8.970	128.3	17.323
0.00520	9.190	158.9	17.747
0.00719	9.700	219.7	18.732
0.00920	9.970	281.1	19.254
0.01120	10.290	342.2	19.872
0.01419	10.630	433.5	20.528
0.01719	10.990	525.2	21.224
0.02120	11.370	647.7	21.957
0.02519	11.620	769.6	22.440
0.02919	11.800	891.8	22.788
0.03319	11.900	1013.9	22.981
0.03720	11.880	1136.5	22.942
0.04470	11.610	1365.6	22.421
0.05219	11.330	1594.4	21.880

MEAN VELOCITY AT -35.0 DEGREES.
WALL SHEAR STRESS 0.3023 PA
FRICTION VELOCITY 0.5186 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.930	52.0	15.291
0.00220	8.150	67.3	15.715
0.00320	8.590	97.9	16.564
0.00420	8.890	128.5	17.142
0.00520	9.160	159.1	17.663
0.00719	9.650	220.0	18.608
0.00920	9.970	281.5	19.225
0.01120	10.270	342.7	19.803
0.01419	10.550	434.2	20.343
0.01719	10.870	525.9	20.960
0.02019	11.130	617.7	21.461
0.02419	11.290	740.1	21.770
0.02819	11.410	862.5	22.001
0.03220	11.430	985.2	22.040
0.04719	11.130	1443.8	21.461

MEAN VELOCITY AT -30.0 DEGREES.
WALL SHEAR STRESS 0.2983 PA
FRICTION VELOCITY 0.5152 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.950	51.7	15.431
0.00220	8.120	66.9	15.761
0.00320	8.590	97.3	16.674
0.00420	8.970	127.7	17.411
0.00520	9.230	158.1	17.916
0.00719	9.610	218.5	18.653
0.00920	9.970	279.6	19.352
0.01120	10.270	340.4	19.935
0.01419	10.590	431.3	20.556
0.01719	10.870	522.5	21.099
0.02019	10.990	613.7	21.332
0.02319	11.080	704.8	21.507
0.02819	11.080	856.8	21.507
0.03319	10.950	1008.8	21.254
0.03819	10.770	1160.8	20.905

MEAN VELOCITY AT -25.0 DEGREES.
WALL SHEAR STRESS 0.2899 PA
FRICTION VELOCITY 0.5078 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.840	50.9	15.438
0.00220	8.090	65.9	15.931
0.00320	8.490	95.9	16.718
0.00420	8.790	125.8	17.309
0.00520	9.070	155.8	17.861
0.00720	9.490	215.7	18.688
0.00920	9.790	275.6	19.278
0.01120	10.050	335.6	19.790
0.01320	10.230	395.5	20.145
0.01620	10.400	485.4	20.480
0.01920	10.460	575.2	20.598
0.02220	10.440	665.1	20.558
0.02720	10.230	814.9	20.145
0.03220	9.920	964.7	19.534

MEAN VELOCITY AT -20.0 DEGREES.
WALL SHEAR STRESS 0.2756 PA
FRICTION VELOCITY 0.4951 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.620	49.7	15.390
0.00220	7.790	64.3	15.733
0.00320	8.120	93.5	16.400
0.00420	8.460	122.7	17.086
0.00520	8.720	151.9	17.611
0.00620	8.940	181.1	18.056
0.00819	9.260	239.2	18.702
0.01020	9.470	298.0	19.126
0.01219	9.540	356.1	19.268
0.01419	9.540	414.5	19.268
0.01620	9.500	473.2	19.187
0.01919	9.380	560.6	18.944
0.02319	8.940	677.4	18.056

MEAN VELOCITY AT -15.0 DEGREES.
WALL SHEAR STRESS 0.2587 PA
FRICTION VELOCITY 0.4798 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.200	48.1	15.007
0.00220	7.440	62.3	15.507
0.00320	7.820	90.6	16.299
0.00420	8.090	118.9	16.862
0.00520	8.330	147.2	17.362
0.00620	8.490	175.5	17.695
0.00719	8.670	203.5	18.071
0.00819	8.740	231.8	18.217
0.00920	8.820	260.4	18.383
0.01020	8.890	288.7	18.529
0.01219	8.870	345.0	18.488
0.01419	8.740	401.7	18.217
0.01620	8.570	458.6	17.862

MEAN VELOCITY AT -10.0 DEGREES.
WALL SHEAR STRESS 0.2325 PA
FRICTION VELOCITY 0.4548 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.860	45.6	15.083
0.00220	7.080	59.0	15.567
0.00320	7.440	85.9	16.358
0.00420	7.700	112.7	16.930
0.00520	7.900	139.5	17.370
0.00620	8.090	166.4	17.788
0.00719	8.200	192.9	18.029
0.00819	8.280	219.8	18.205
0.00920	8.310	246.9	18.271
0.01020	8.310	273.7	18.271
0.01219	8.110	327.1	17.831
0.01419	7.700	380.8	16.930

MEAN VELOCITY AT -5.0 DEGREES.
WALL SHEAR STRESS 0.2164 PA
FRICTION VELOCITY 0.4387 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.630	44.0	15.112
0.00220	6.820	56.9	15.545
0.00320	7.140	82.8	16.274
0.00420	7.440	108.7	16.958
0.00520	7.640	134.6	17.414
0.00620	7.790	160.5	17.756
0.00719	7.910	186.1	18.027
0.00819	7.930	212.0	18.075
0.00920	7.840	238.1	17.869
0.01020	7.790	264.0	17.756
0.01120	7.620	289.9	17.368
0.01219	7.410	315.5	16.889

MEAN VELOCITY AT 0.0 DEGREES.
WALL SHEAR STRESS 0.2014 PA
FRICTION VELOCITY 0.4233 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.390	42.5	15.096
0.00220	6.630	54.9	15.663
0.00320	6.950	79.9	16.419
0.00420	7.260	104.9	17.151
0.00520	7.380	129.9	17.435
0.00620	7.560	154.8	17.860
0.00719	7.620	179.6	18.002
0.00819	7.640	204.5	18.049
0.00920	7.560	229.8	17.860
0.01020	7.440	254.7	17.576
0.01120	7.260	279.7	17.151
0.01219	6.950	304.4	16.419

MEAN VELOCITY AT 5.0 DEGREES.
WALL SHEAR STRESS 0.1971 PA
FRICTION VELOCITY 0.4188 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.250	42.0	14.924
0.00220	6.460	54.4	15.425
0.00320	6.820	79.1	16.285
0.00420	7.060	103.8	16.858
0.00520	7.260	128.5	17.335
0.00620	7.440	153.2	17.765
0.00719	7.500	177.6	17.908
0.00819	7.520	202.4	17.956
0.00920	7.470	227.3	17.837
0.01020	7.350	252.0	17.550
0.01120	7.200	276.7	17.192
0.01219	6.980	301.2	16.667

MEAN VELOCITY AT 10.0 DEGREES.
WALL SHEAR STRESS 0.1939 PA
FRICTION VELOCITY 0.4153 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.180	41.7	14.879
0.00220	6.460	53.9	15.553
0.00320	6.760	78.4	16.275
0.00420	7.040	102.9	16.950
0.00520	7.230	127.4	17.407
0.00620	7.350	151.9	17.696
0.00719	7.500	176.2	18.057
0.00819	7.590	200.7	18.274
0.00920	7.560	225.4	18.202
0.01020	7.530	249.9	18.129
0.01120	7.440	274.4	17.913
0.01219	7.320	298.7	17.624
0.01320	7.170	323.5	17.263

MEAN VELOCITY AT 15.0 DEGREES.
WALL SHEAR STRESS 0.1957 PA
FRICTION VELOCITY 0.4173 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.250	41.8	14.979
0.00220	6.460	54.2	15.482
0.00320	6.790	78.8	16.273
0.00420	7.050	103.4	16.896
0.00520	7.230	128.0	17.327
0.00620	7.430	152.6	17.807
0.00719	7.560	177.0	18.118
0.00819	7.670	201.6	18.382
0.00920	7.760	226.5	18.597
0.01020	7.790	251.1	18.669
0.01120	7.820	275.7	18.741
0.01219	7.760	300.1	18.597
0.01419	7.620	349.3	18.262
0.01620	7.380	398.8	17.687

MEAN VELOCITY AT 20.0 DEGREES.
WALL SHEAR STRESS 0.2039 PA
FRICTION VELOCITY 0.4259 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.460	42.7	15.167
0.00220	6.630	55.3	15.567
0.00320	6.920	80.4	16.247
0.00420	7.200	105.5	16.905
0.00520	7.500	130.7	17.609
0.00620	7.620	155.8	17.891
0.00720	7.730	180.9	18.149
0.00920	7.950	231.2	18.666
0.01120	8.120	281.4	19.065
0.01320	8.200	331.7	19.253
0.01520	8.150	381.9	19.135
0.01920	7.980	482.5	18.736
0.02220	7.700	557.8	18.079

WALL SHEAR STRESS 0.2197 PA
FRICTION VELOCITY 0.4421 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.660	44.3	15.065
0.00220	6.890	57.4	15.585
0.00320	7.230	83.5	16.354
0.00420	7.470	109.5	16.897
0.00520	7.700	135.6	17.417
0.00620	7.900	161.7	17.870
0.00819	8.200	213.6	18.548
0.01020	8.410	266.0	19.023
0.01219	8.570	317.9	19.385
0.01419	8.670	370.1	19.611
0.01719	8.740	448.3	19.770
0.02019	8.790	526.6	19.883
0.02319	8.770	604.8	19.838
0.03319	8.310	865.7	18.797

MEAN VELOCITY AT 30.0 DEGREES.
WALL SHEAR STRESS 0.2264 PA
FRICTION VELOCITY 0.4488 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.860	45.0	15.284
0.00220	7.080	58.3	15.774
0.00320	7.350	84.7	16.376
0.00420	7.640	111.2	17.022
0.00520	7.870	137.7	17.534
0.00620	8.060	164.2	17.957
0.00819	8.390	216.9	18.693
0.01020	8.620	270.1	19.205
0.01219	8.770	322.8	19.539
0.01519	9.020	402.2	20.096
0.01819	9.160	481.7	20.408
0.02120	9.280	561.4	20.676
0.02519	9.370	667.0	20.876
0.02919	9.380	773.0	20.898
0.03620	9.280	958.6	20.676

WALL SHEAR STRESS 0.2547 PA
FRICTION VELOCITY 0.4569 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	6.950	45.8	15.210
0.00220	7.170	59.3	15.692
0.00320	7.500	86.3	16.414
0.00420	7.760	113.2	16.983
0.00520	8.010	140.2	17.530
0.00620	8.200	167.1	17.946
0.00819	8.440	220.8	18.471
0.01020	8.720	275.0	19.084
0.01219	8.940	328.6	19.566
0.01419	9.110	382.5	19.938
0.01719	9.300	463.4	20.353
0.02019	9.520	544.3	20.835
0.02319	9.700	625.1	21.229
0.02720	9.810	733.2	21.470
0.03119	9.900	840.8	21.667
0.03620	9.990	975.8	21.864
0.04120	10.010	1110.6	21.907
0.05120	10.050	1380.2	21.995

MEAN VELOCITY AT 40.0 DEGREES.
WALL SHEAR STRESS 0.2427 PA
FRICTION VELOCITY 0.4647 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.010	46.6	15.084
0.00220	7.260	60.3	15.622
0.00320	7.560	87.7	16.268
0.00420	7.840	115.2	16.870
0.00520	8.060	142.6	17.344
0.00620	8.200	170.0	17.645
0.00819	8.590	224.5	18.484
0.01020	8.870	279.7	19.087
0.01219	9.120	334.2	19.625
0.01419	9.300	389.1	20.012
0.01719	9.540	471.3	20.528
0.02019	9.810	553.6	21.109
0.02319	9.920	635.8	21.346
0.02819	10.180	772.9	21.906
0.03319	10.330	910.0	22.228
0.03819	10.480	1047.1	22.551
0.04820	10.480	1321.5	22.551

WALL SHEAR STRESS 0.2443 PA
FRICTION VELOCITY 0.4662 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.050	46.8	15.121
0.00220	7.320	60.5	15.701
0.00320	7.640	88.0	16.387
0.00420	7.930	115.5	17.009
0.00520	8.170	143.0	17.524
0.00719	8.540	197.8	18.317
0.00920	8.870	253.1	19.025
0.01120	9.160	308.1	19.647
0.01419	9.420	390.3	20.205
0.01719	9.690	472.8	20.784
0.02019	9.940	555.3	21.320
0.02419	10.180	665.4	21.835
0.02919	10.420	802.9	22.350
0.03419	10.590	940.4	22.714
0.03919	10.690	1078.0	22.929
0.04420	10.670	1215.8	22.886
0.04919	10.520	1353.0	22.564
0.05419	10.230	1490.5	21.942
0.05919	9.820	1628.1	21.063

MEAN VELOCITY AT 50.0 DEGREES.
WALL SHEAR STRESS 0.2450 PA
FRICTION VELOCITY 0.4669 M/SEC

Y (M)	V (M/SEC)	Y+	V+
0.00170	7.140	46.8	15.293
0.00220	7.320	60.6	15.678
0.00320	7.730	88.1	16.556
0.00420	8.010	115.7	17.156
0.00520	8.200	143.2	17.563
0.00719	8.570	198.1	18.355
0.00920	8.890	253.4	19.041
0.01120	9.110	308.5	19.512
0.01320	9.400	363.6	20.133
0.01620	9.680	446.2	20.733
0.01919	9.970	528.6	21.354
0.02220	10.160	611.5	21.761
0.02619	10.310	721.4	22.082
0.03119	10.460	859.1	22.403
0.03620	10.480	997.1	22.446
0.04620	10.460	1272.6	22.403

6.3 Reynolds Stresses

SCAN ANGLE - 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.762	1.094	1.527	0.820	-0.020	0.047	3.317
0.240	1.683	0.999	1.371	0.778	-0.034	0.059	2.856
0.336	1.569	0.974	1.288	0.709	0.024	-0.023	2.536
0.433	1.450	1.068	1.324	0.619	0.055	0.023	2.498
0.529	1.364	0.930	1.123	0.502	0.076	-0.092	1.994
0.625	1.234	0.918	1.022	0.414	0.116	-0.030	1.705
0.721	1.110	0.916	0.983	0.287	0.123	-0.035	1.519
0.818	1.034	0.907	0.941	0.191	0.154	-0.037	1.389
0.914	1.020	0.860	0.839	0.133	0.191	-0.010	1.242
1.010	0.983	0.870	0.851	0.064	0.227	0.006	1.224
1.107	1.003	0.854	0.815	0.019	0.231	0.021	1.200
1.203	1.020	0.840	0.825	0.006	0.244	0.071	1.214

SCAN ANGLE - 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.762	1.084	1.504	0.808	-0.013	-0.097	3.272
0.186	1.655	0.981	1.339	0.721	0.012	-0.069	2.746
0.260	1.532	1.004	1.308	0.697	0.012	-0.074	2.533
0.333	1.413	1.057	1.285	0.596	0.022	-0.117	2.382
0.406	1.350	0.972	1.138	0.526	0.031	-0.129	2.032
0.479	1.252	0.857	1.015	0.434	0.013	0.013	1.667
0.553	1.096	0.910	1.003	0.319	0.041	-0.036	1.518
0.626	1.028	0.790	0.870	0.220	0.033	-0.066	1.219
0.699	0.941	0.760	0.798	0.168	0.034	0.015	1.050
0.772	0.856	0.727	0.755	0.104	0.048	0.022	0.916
0.846	0.809	0.724	0.713	0.054	0.048	-0.003	0.844
0.919	0.790	0.725	0.714	-0.015	0.046	-0.017	0.830
0.992	0.810	0.723	0.710	-0.052	0.046	0.006	0.842
1.065	0.865	0.736	0.722	-0.118	0.038	0.006	0.906
1.138	0.932	0.756	0.749	-0.163	0.039	0.029	1.000
1.212	1.010	0.766	0.813	-0.208	0.030	0.016	1.134

SCAN ANGLE - 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.721	1.033	1.487	0.803	0.001	0.026	3.122
0.240	1.590	1.042	1.368	0.699	0.000	0.064	2.743
0.336	1.473	1.054	1.319	0.588	-0.004	0.106	2.512
0.433	1.399	0.952	1.196	0.537	-0.020	-0.038	2.148
0.529	1.308	0.953	1.131	0.450	-0.058	-0.023	1.949
0.625	1.254	0.855	0.971	0.379	-0.094	-0.057	1.624
0.721	1.130	0.684	0.811	0.243	-0.086	0.040	1.202
0.818	1.006	0.896	0.936	0.194	-0.105	0.001	1.345
0.914	1.017	0.735	0.750	0.127	-0.123	0.017	1.069
1.010	0.951	0.736	0.734	0.056	-0.139	0.029	0.992
1.107	0.930	0.735	0.693	-0.008	-0.133	-0.014	0.942
1.203	0.955	0.689	0.659	-0.059	-0.134	-0.057	0.911

SCAN ANGLE - 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.680	0.999	1.443	0.721	-0.021	-0.165	2.951
0.272	1.591	0.957	1.336	0.638	-0.017	-0.122	2.616
0.361	1.511	0.992	1.263	0.625	-0.064	0.121	2.432
0.451	1.446	1.025	1.241	0.548	-0.088	0.107	2.341
0.540	1.426	0.923	1.144	0.477	-0.108	0.057	2.097
0.629	1.382	0.872	1.063	0.441	-0.180	-0.000	1.900
0.719	1.341	0.935	1.042	0.359	-0.257	0.061	1.880
0.808	1.340	0.854	0.928	0.292	-0.264	-0.082	1.692
0.898	1.266	0.970	0.939	0.160	-0.293	-0.057	1.713
0.987	1.258	0.841	0.839	0.161	-0.329	-0.029	1.497
1.076	1.226	0.855	0.792	0.106	-0.342	0.006	1.430
1.166	1.198	0.942	0.869	0.064	-0.318	-0.015	1.540

SCAN ANGLE - 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.716	1.068	1.397	0.736	-0.192	0.147	3.019
0.318	1.694	1.005	1.298	0.682	-0.178	-0.058	2.781
0.405	1.663	0.884	1.329	0.582	-0.181	0.588	2.656
0.492	1.563	1.071	1.344	0.567	-0.328	0.308	2.698
0.579	1.624	0.897	1.236	0.518	-0.421	-0.306	2.485
0.667	1.616	1.020	1.059	0.579	-0.381	-0.138	2.386
0.754	1.634	0.944	0.911	0.538	-0.468	-0.487	2.195
0.841	1.657	0.705	0.936	0.422	-0.512	-0.173	2.060
0.928	1.497	1.171	1.193	0.438	-0.546	-0.151	2.517
1.016	1.648	0.918	0.846	0.290	-0.592	-0.553	2.137
1.103	1.522	1.035	1.031	0.144	-0.573	-0.381	2.226
1.190	1.475	1.230	1.015	-0.035	-0.514	-0.005	2.360

SCAN ANGLE - 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.766	1.002	1.358	0.653	-0.337	-0.020	2.983
0.373	1.749	0.983	1.321	0.606	-0.408	-0.019	2.885
0.457	1.761	1.015	1.273	0.649	-0.349	0.187	2.876
0.541	1.800	0.857	1.198	0.568	-0.533	-0.009	2.705
0.625	1.754	1.050	1.258	0.538	-0.666	0.162	2.880
0.709	1.777	1.020	1.147	0.521	-0.701	-0.104	2.757
0.793	1.864	0.717	0.840	0.427	-0.672	-1.026	2.346
0.876	1.820	0.742	1.051	0.416	-0.766	-0.298	2.484
0.960	1.706	1.149	1.212	0.423	-0.740	-0.577	2.850
1.044	1.701	1.057	1.168	0.211	-0.884	-0.012	2.686
1.128	1.799	0.893	1.089	0.207	-0.953	0.151	2.610
1.212	1.783	0.776	0.808	0.132	-0.809	-0.321	2.216

SCAN ANGLE - 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.812	0.946	1.303	0.551	-0.507	-0.294	2.936
0.433	1.833	0.952	1.271	0.526	-0.634	-0.159	2.940
0.505	1.855	1.005	1.175	0.602	-0.599	-0.173	2.916
0.577	1.887	0.888	1.242	0.548	-0.836	0.120	2.946
0.649	1.864	1.031	1.265	0.487	-0.922	0.200	3.070
0.721	1.919	0.884	1.076	0.492	-0.932	-0.911	2.812
0.793	1.904	1.049	1.148	0.480	-0.989	-0.732	3.021
0.866	1.967	0.980	1.030	0.455	-1.099	-0.870	2.947
0.938	1.969	0.935	1.063	0.376	-1.167	-0.261	2.940
1.010	1.862	1.097	1.166	0.372	-1.141	-0.228	3.015
1.082	1.926	0.901	1.028	0.283	-1.133	-0.754	2.789
1.154	1.857	1.027	1.161	0.205	-1.129	-0.334	2.925

SCAN ANGLE - 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.902	0.856	1.201	0.524	-0.677	-0.210	2.895
0.508	1.897	0.964	1.235	0.554	-0.763	-0.088	3.026
0.576	1.901	0.950	1.193	0.520	-0.817	-0.231	2.969
0.645	1.911	0.942	1.207	0.475	-0.960	-0.158	2.998
0.713	1.906	1.006	1.270	0.535	-1.097	-0.295	3.128
0.781	1.912	0.992	1.246	0.462	-1.128	-0.435	3.096
0.850	1.913	0.973	1.259	0.459	-1.223	-0.283	3.097
0.918	1.912	0.991	1.176	0.392	-1.192	-0.170	3.010
0.987	1.921	1.042	1.154	0.381	-1.239	-0.253	3.054
1.055	1.900	1.183	1.402	0.325	-1.466	-0.513	3.488
1.124	1.954	0.908	1.132	0.323	-1.333	-0.428	2.962
1.192	1.934	1.078	1.263	0.228	-1.320	-0.253	3.248

SCAN ANGLE - 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.943	0.862	1.291	0.513	-0.939	-0.423	3.092
0.575	1.897	0.933	1.363	0.493	-1.009	-0.298	3.164
0.632	1.927	0.932	1.278	0.500	-1.082	-0.290	3.108
0.690	1.908	0.961	1.328	0.470	-1.131	-0.186	3.164
0.747	1.916	0.947	1.312	0.413	-1.241	-0.436	3.145
0.805	1.909	1.000	1.376	0.380	-1.365	-0.411	3.269
0.862	1.956	0.796	1.267	0.362	-1.330	-0.480	3.033
0.920	1.909	0.924	1.319	0.318	-1.353	-0.445	3.119
0.977	1.918	0.959	1.338	0.306	-1.443	-0.456	3.195
1.035	1.920	0.885	1.325	0.293	-1.456	-0.331	3.112
1.092	1.914	0.987	1.339	0.218	-1.455	-0.338	3.215
1.150	1.953	0.910	1.322	0.181	-1.465	-0.531	3.195

SCAN ANGLE - 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.824	0.956	1.453	0.433	-0.945	-0.381	3.176
0.628	1.825	0.848	1.397	0.461	-1.051	-0.330	3.001
0.680	1.785	0.916	1.458	0.409	-1.086	-0.563	3.076
0.731	1.790	0.916	1.464	0.343	-1.189	-0.300	3.093
0.782	1.785	0.903	1.469	0.297	-1.223	-0.514	3.080
0.834	1.790	0.831	1.483	0.208	-1.228	-0.736	3.047
0.885	1.755	0.948	1.524	0.242	-1.358	-0.360	3.151
0.936	1.800	0.889	1.471	0.215	-1.356	-0.462	3.096
0.988	1.785	0.900	1.490	0.182	-1.348	-0.282	3.109
1.039	1.729	0.761	1.433	0.078	-1.165	-0.263	2.811
1.090	1.697	0.862	1.466	0.032	-1.185	-0.354	2.885
1.142	1.672	0.960	1.505	0.000	-1.192	-0.270	2.990

SCAN ANGLE 0

Y/YMAX	U	V	W	UV	UW	VW	Q
0.600	1.602	0.842	1.573	0.382	-0.632	-0.353	2.875
0.653	1.542	0.864	1.598	0.307	-0.624	-0.452	2.838
0.706	1.514	0.905	1.626	0.265	-0.746	-0.330	2.877
0.760	1.527	0.808	1.569	0.212	-0.715	-0.560	2.722
0.813	1.537	0.763	1.569	0.173	-0.730	-0.426	2.703
0.867	1.497	0.837	1.565	0.117	-0.749	-0.232	2.695
0.920	1.501	0.793	1.547	0.075	-0.733	-0.408	2.638
0.973	1.493	0.877	1.569	-0.000	-0.751	-0.347	2.729
1.027	1.466	0.870	1.603	0.001	-0.756	-0.319	2.738
1.080	1.481	0.876	1.614	-0.088	-0.805	-0.315	2.783
1.133	1.529	0.832	1.568	-0.088	-0.754	-0.371	2.744
1.187	1.525	0.850	1.598	-0.151	-0.768	-0.235	2.801

SCAN ANGLE 5

Y/YMAX	U	V	W	UV	UW	VW	Q
0.577	1.504	0.802	1.557	0.369	-0.234	-0.139	2.665
0.628	1.460	0.837	1.578	0.303	-0.260	-0.253	2.661
0.680	1.441	0.833	1.568	0.267	-0.255	-0.238	2.614
0.731	1.417	0.787	1.597	0.257	-0.338	-0.324	2.589
0.782	1.428	0.704	1.577	0.191	-0.396	-0.136	2.511
0.834	1.403	0.785	1.581	0.124	-0.350	-0.209	2.543
0.885	1.377	0.800	1.569	0.071	-0.350	-0.065	2.499
0.936	1.378	0.803	1.561	-0.026	-0.295	-0.253	2.491
0.988	1.354	0.849	1.593	-0.019	-0.299	-0.241	2.545
1.039	1.366	0.813	1.598	-0.054	-0.302	-0.008	2.541
1.090	1.374	0.815	1.610	-0.111	-0.309	-0.004	2.572
1.142	1.403	0.806	1.600	-0.149	-0.340	0.032	2.590

SCAN ANGLE 10

Y/YMAX	U	V	W	UV	UW	VW	Q
0.517	1.536	0.814	1.539	0.409	0.098	-0.035	2.695
0.575	1.474	0.816	1.598	0.358	0.168	-0.121	2.695
0.632	1.449	0.823	1.559	0.309	0.150	-0.039	2.605
0.690	1.419	0.691	1.449	0.234	0.099	-0.078	2.295
0.747	1.360	0.749	1.491	0.174	0.114	-0.040	2.317
0.805	1.332	0.807	1.535	0.139	0.120	0.058	2.391
0.862	1.340	0.750	1.519	0.065	0.132	-0.030	2.333
0.920	1.316	0.798	1.548	0.030	0.136	0.018	2.382
0.977	1.325	0.780	1.550	-0.035	0.152	-0.032	2.384
1.035	1.355	0.736	1.518	-0.081	0.199	-0.050	2.341
1.092	1.373	0.801	1.520	-0.130	0.191	0.049	2.419
1.150	1.403	0.747	1.520	-0.188	0.193	0.030	2.419

SCAN ANGLE 15

Y/YMAX	U	V	W	UV	UW	VW	Q
0.439	1.615	0.876	1.494	0.509	0.473	-0.171	2.803
0.508	1.597	0.795	1.484	0.482	0.533	-0.010	2.693
0.576	1.574	0.724	1.418	0.392	0.529	0.032	2.506
0.645	1.538	0.721	1.446	0.375	0.617	-0.004	2.488
0.713	1.477	0.835	1.438	0.283	0.583	0.168	2.474
0.781	1.464	0.815	1.431	0.242	0.652	0.137	2.427
0.850	1.472	0.754	1.417	0.192	0.707	0.117	2.371
0.918	1.487	0.810	1.400	0.098	0.704	0.201	2.414
0.987	1.488	0.846	1.419	0.070	0.744	0.285	2.471
1.055	1.494	0.851	1.443	-0.001	0.795	0.163	2.520
1.124	1.528	0.926	1.476	-0.040	0.841	0.258	2.685
1.192	1.548	0.955	1.459	-0.083	0.772	0.298	2.719

SCAN ANGLE 20

Y/YMAX	U	V	W	UV	UW	VW	Q
0.360	1.741	0.953	1.373	0.599	0.511	-0.066	2.912
0.433	1.738	0.860	1.380	0.577	0.602	0.168	2.834
0.505	1.704	0.902	1.320	0.542	0.738	-0.028	2.729
0.577	1.670	0.893	1.333	0.467	0.825	0.058	2.682
0.649	1.650	0.761	1.256	0.403	0.795	0.244	2.439
0.721	1.622	0.765	1.240	0.333	0.881	0.200	2.377
0.793	1.608	0.822	1.275	0.333	0.937	0.241	2.444
0.866	1.621	0.813	1.271	0.275	1.002	0.355	2.452
0.938	1.621	0.832	1.282	0.236	1.017	0.246	2.481
1.010	1.655	0.893	1.266	0.201	1.058	0.329	2.569
1.082	1.664	0.943	1.289	0.163	1.061	0.406	2.660
1.154	1.723	0.950	1.228	0.081	1.039	0.322	2.689

SCAN ANGLE 25

Y/YMAX	U	V	W	UV	UW	VW	Q
0.290	1.732	0.997	1.373	0.659	0.421	0.013	2.939
0.373	1.739	0.975	1.287	0.654	0.589	0.076	2.816
0.457	1.765	0.890	1.241	0.596	0.715	0.075	2.723
0.541	1.748	0.875	1.209	0.599	0.840	0.010	2.641
0.625	1.755	0.889	1.243	0.582	1.019	0.240	2.707
0.709	1.748	0.869	1.199	0.538	1.107	0.239	2.623
0.793	1.759	0.912	1.193	0.549	1.185	0.346	2.675
0.876	1.761	0.902	1.183	0.510	1.266	0.302	2.657
0.960	1.757	0.879	1.075	0.389	1.072	0.330	2.507
1.044	1.744	0.955	1.121	0.324	1.098	0.283	2.604
1.128	1.743	1.019	1.124	0.264	1.051	0.401	2.669
1.212	1.728	1.101	1.197	0.203	1.015	0.339	2.816

SCAN ANGLE 30

Y/YMAX	U	V	W	UV	UW	VW	Q
0.230	1.689	0.969	1.289	0.665	0.273	-0.090	2.727
0.318	1.647	0.940	1.262	0.643	0.425	-0.089	2.595
0.405	1.649	0.934	1.231	0.657	0.549	-0.032	2.552
0.492	1.669	0.931	1.208	0.650	0.670	0.143	2.555
0.579	1.681	0.858	1.099	0.568	0.721	0.081	2.385
0.667	1.636	0.958	1.124	0.547	0.808	0.191	2.430
0.754	1.658	0.969	1.158	0.558	0.944	0.188	2.516
0.841	1.643	0.985	1.147	0.504	0.966	0.101	2.493
0.928	1.632	1.044	1.146	0.458	0.981	0.267	2.533
1.016	1.651	1.041	1.095	0.386	0.963	0.297	2.505
1.103	1.657	1.031	1.074	0.292	0.963	0.147	2.481
1.190	1.620	1.165	1.113	0.153	0.892	0.340	2.611

SCAN ANGLE 35

Y/YMAX	U	V	W	UV	UW	VW	Q
0.182	1.673	1.024	1.417	0.744	0.134	-0.095	2.928
0.272	1.556	0.986	1.320	0.624	0.175	-0.086	2.568
0.361	1.489	0.969	1.278	0.636	0.197	0.075	2.393
0.451	1.434	1.065	1.289	0.567	0.253	-0.013	2.425
0.540	1.434	1.014	1.206	0.554	0.322	-0.007	2.270
0.629	1.412	0.975	1.134	0.521	0.399	-0.072	2.114
0.719	1.373	1.000	1.162	0.512	0.495	-0.026	2.118
0.808	1.377	0.966	1.121	0.502	0.549	0.051	2.042
0.898	1.347	0.997	1.114	0.475	0.596	0.066	2.025
0.987	1.324	1.096	1.141	0.425	0.558	0.132	2.127
1.076	1.361	0.986	1.016	0.413	0.567	0.093	1.930
1.166	1.353	0.977	0.957	0.379	0.545	0.219	1.851

SCAN ANGLE 40

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.723	1.047	1.430	0.799	0.175	-0.043	3.056
0.240	1.561	0.987	1.312	0.662	0.234	-0.155	2.566
0.336	1.428	1.084	1.346	0.573	0.189	-0.033	2.513
0.433	1.388	0.985	1.187	0.530	0.256	-0.055	2.153
0.529	1.330	1.000	1.219	0.466	0.288	-0.153	2.127
0.625	1.334	0.964	1.121	0.429	0.355	-0.013	1.982
0.721	1.274	0.974	1.071	0.414	0.392	0.036	1.859
0.818	1.239	0.907	1.022	0.381	0.435	-0.032	1.701
0.914	1.204	0.907	0.955	0.321	0.360	0.109	1.592
1.010	1.156	0.891	0.902	0.288	0.365	0.086	1.472
1.107	1.096	0.942	0.863	0.188	0.308	0.042	1.417
1.203	1.016	0.884	0.876	0.158	0.244	0.042	1.291

SCAN ANGLE 45

Y/YMAX	U	V	W	UV	UW	VW	Q
0.113	1.759	1.064	1.470	0.845	0.214	-0.048	3.194
0.212	1.609	0.930	1.291	0.709	0.258	-0.120	2.560
0.310	1.429	1.017	1.252	0.572	0.230	-0.116	2.321
0.409	1.311	0.985	1.200	0.489	0.227	-0.112	2.063
0.507	1.214	0.910	1.082	0.368	0.186	0.032	1.736
0.606	1.113	0.861	0.955	0.307	0.191	-0.003	1.446
0.704	0.992	0.874	0.962	0.236	0.141	0.028	1.338
0.803	0.958	0.759	0.829	0.187	0.102	0.075	1.090
0.901	0.866	0.737	0.772	0.116	0.092	0.048	0.945
1.000	0.798	0.732	0.740	0.052	0.060	0.059	0.860
1.098	0.795	0.730	0.703	-0.029	0.033	-0.011	0.830
1.197	0.858	0.754	0.764	-0.137	0.023	-0.026	0.944

SCAN ANGLE 50

Y/YMAX	U	V	W	UV	UW	VW	Q
0.144	1.721	1.103	1.444	0.834	0.189	-0.199	3.133
0.240	1.605	1.052	1.369	0.752	0.195	-0.040	2.779
0.336	1.484	1.063	1.328	0.733	0.191	-0.147	2.548
0.433	1.360	1.080	1.294	0.605	0.195	-0.104	2.345
0.529	1.281	1.052	1.205	0.513	0.145	0.140	2.099
0.625	1.213	0.913	1.053	0.441	0.106	0.078	1.707
0.721	1.063	0.930	1.035	0.308	0.077	-0.026	1.533
0.818	0.998	0.873	0.949	0.227	-0.002	0.030	1.330
0.914	0.960	0.821	0.868	0.164	-0.036	0.039	1.174
1.010	0.943	0.772	0.793	0.094	-0.082	-0.016	1.057
1.107	0.923	0.772	0.777	0.052	-0.119	0.001	1.026
1.203	0.924	0.768	0.750	0.017	-0.139	0.013	1.003

7. ACKNOWLEDGEMENT

The work of Mr W.J. Crawford in constructing hot-wire and Pitot probes, and carrying out rig assembly and data collection is acknowledged.

8. REFERENCES

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9. NOTATION

d_h	hydraulic diameter
p/d	rod pitch to diameter ratio
u, v, w	turbulent intensities (r.m.s. values of turbulent velocity fluctuation/local friction velocity $V^*(\theta)$ in (z,r,θ) coordinates)
$U^+(r,\theta)$	dimensionless axial velocity $(U(r,\theta)/V^*(\theta))$
$V^*(\theta)$	wall friction velocity
$\tau(\theta)$	wall shear stress
Q	turbulent kinetic energy
y	wall distance
y_{max}	wall distance to central axis of symmetry
y^+	non-dimensional wall distance $(y\ V^*(\theta)/\nu)$
ρ	air density
ν	kinematic viscosity of air
$\overline{uv}$ $\overline{uw}$ $\overline{vw}$	non-dimensional Reynolds shear stresses $(-\rho\ \overline{uv}/\tau(\theta)$, $-\rho\ \overline{uw}/\tau(\theta)$, $-\rho\ \overline{vw}/\tau(\theta))$

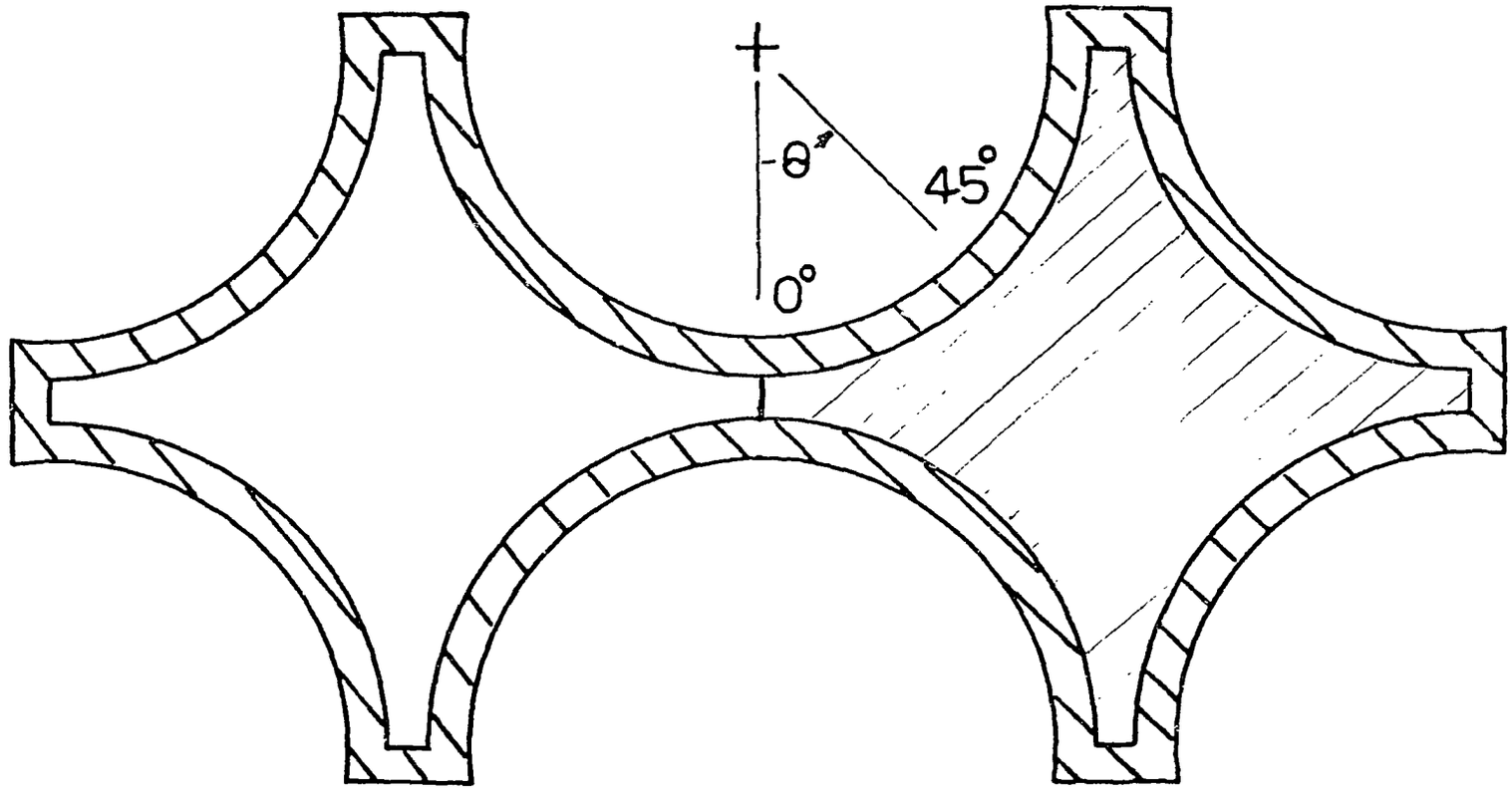

FIGURE 1 RIG CROSS-SECTION SHOWING PLATE BLOCKAGE
IN RIGHT-HAND SUBCHANNEL

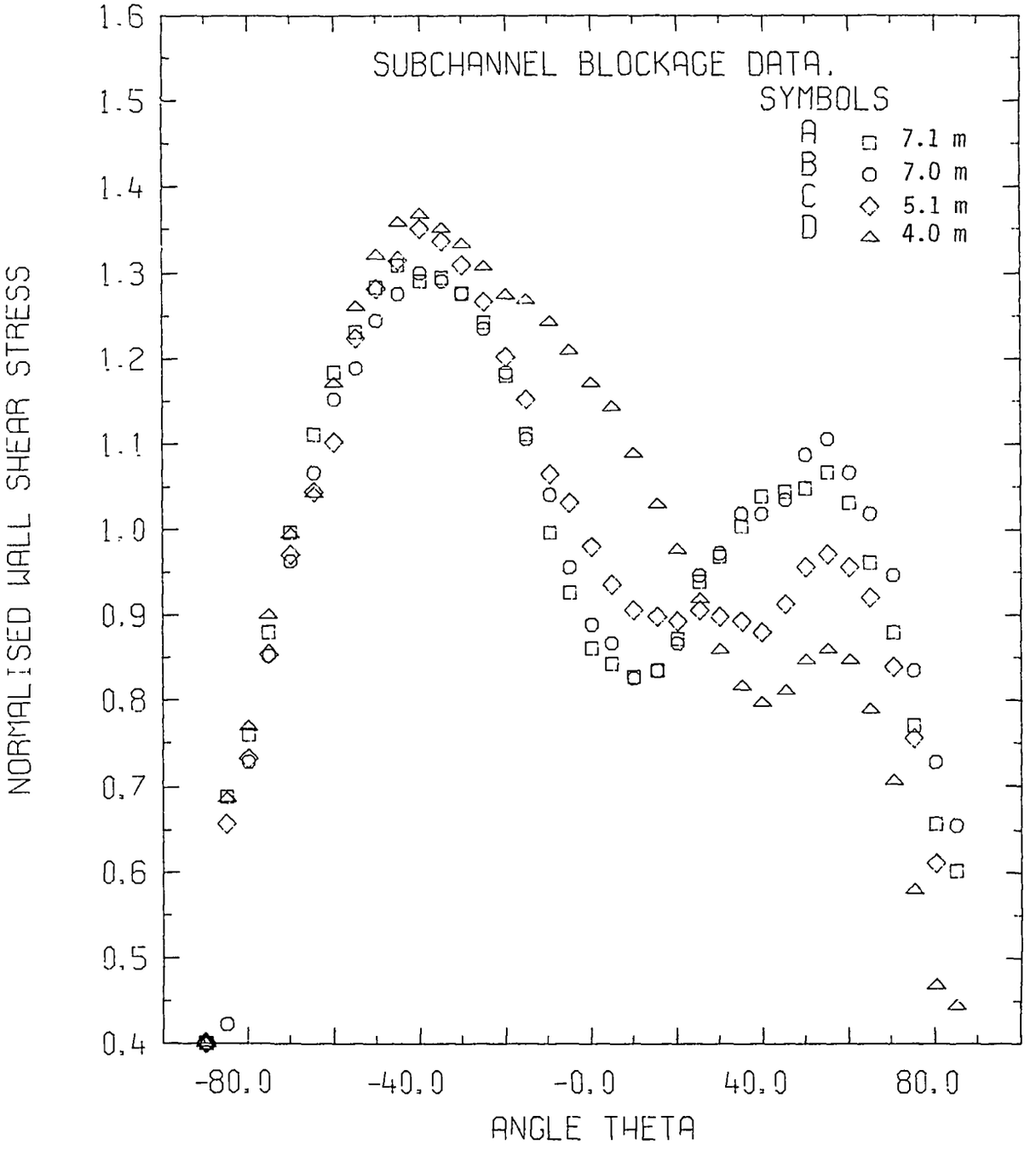

FIGURE 2 WALL SHEAR STRESS VARIATION

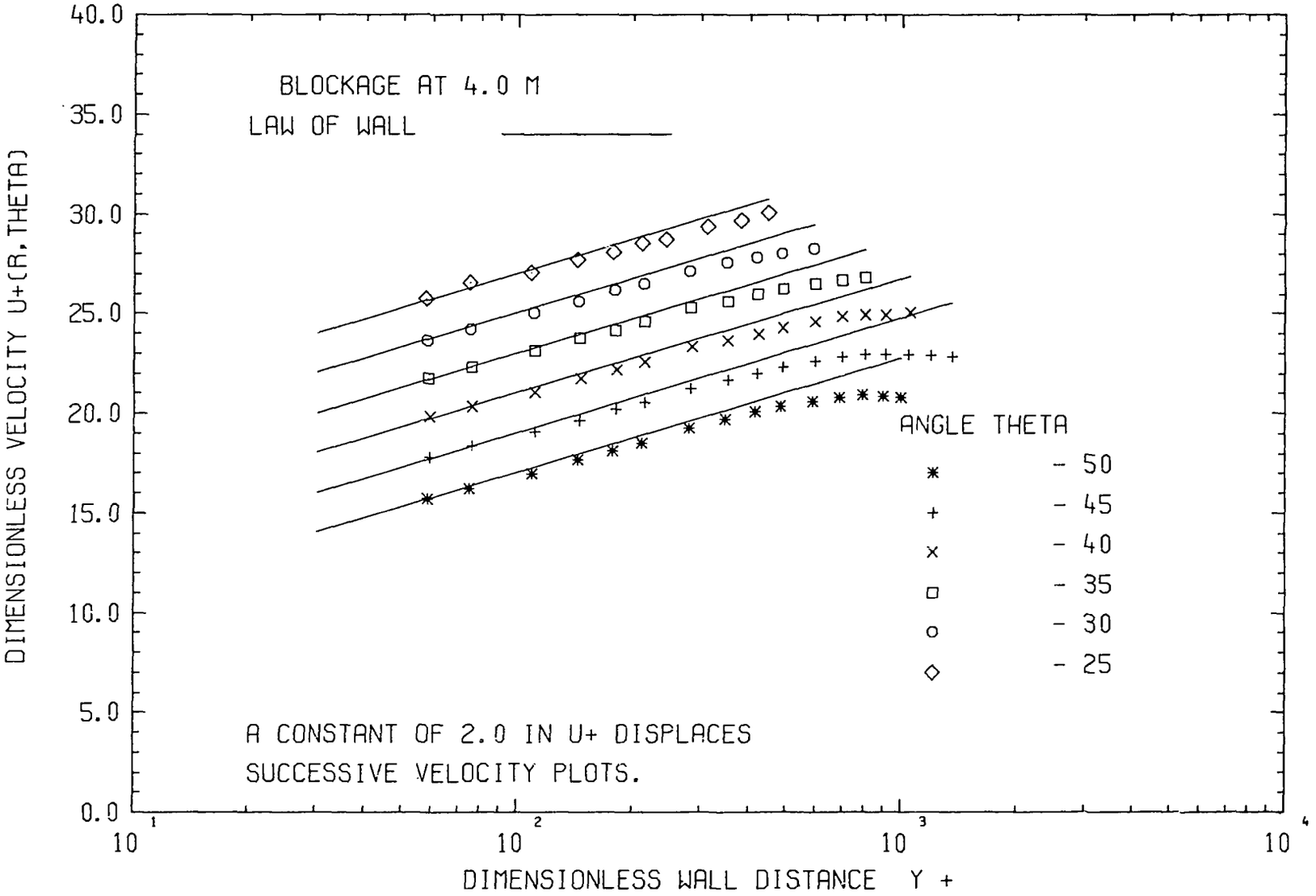

FIGURE 3a RADIAL VELOCITY PROFILES AT 4.0 m

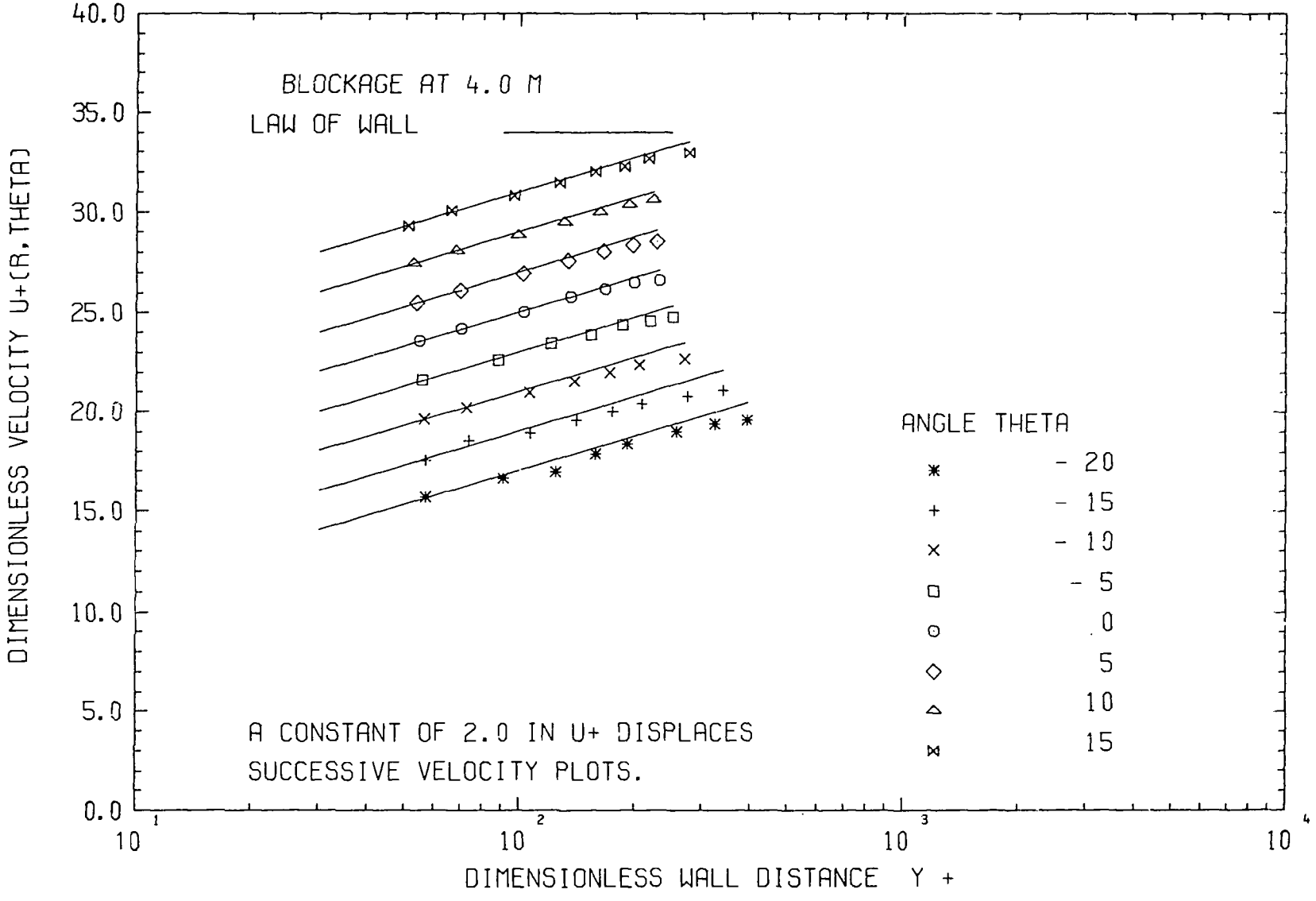

FIGURE 3b RADIAL VELOCITY PROFILES AT 4.0 m

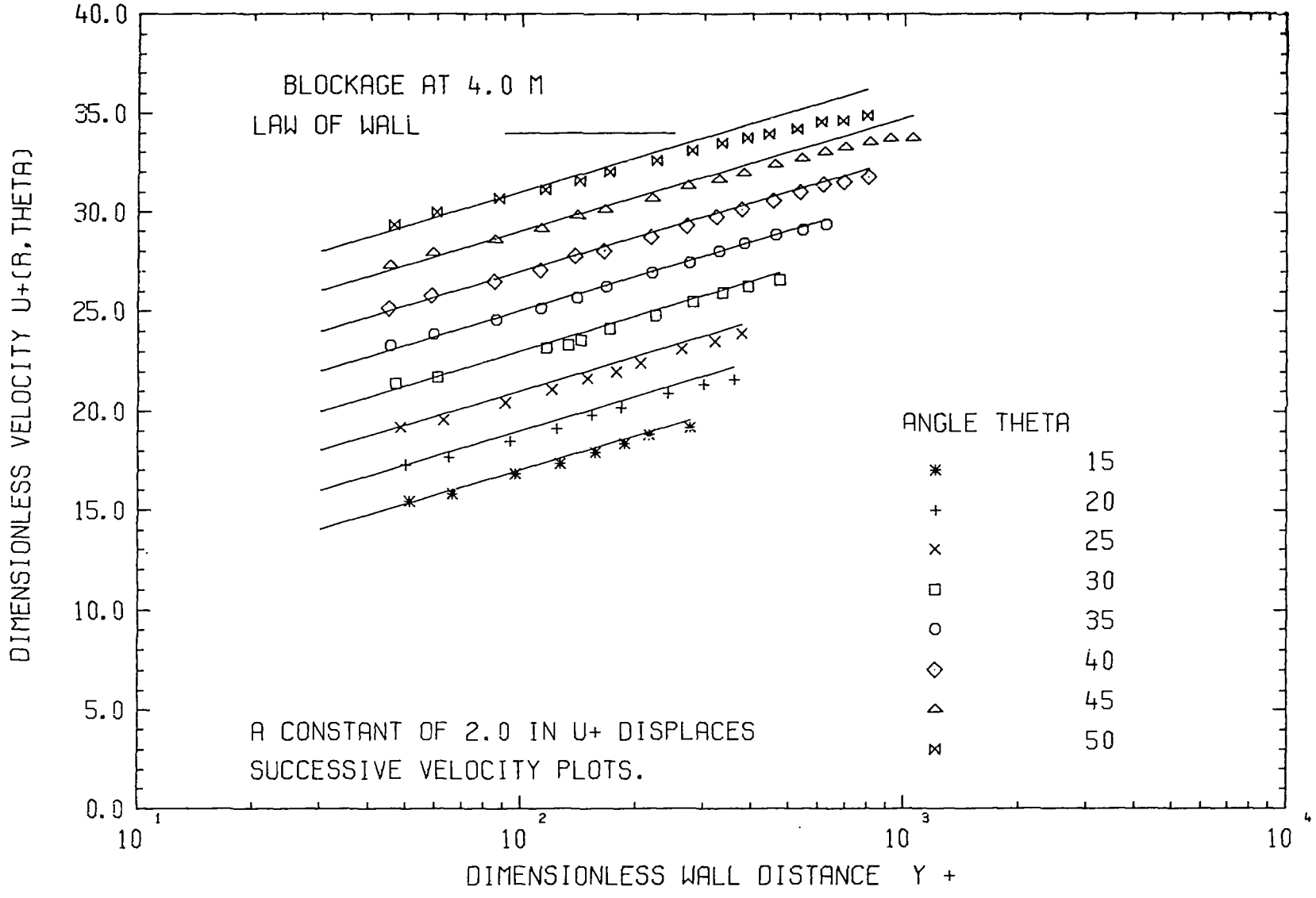

FIGURE 3c RADIAL VELOCITY PROFILES AT 4.0 m

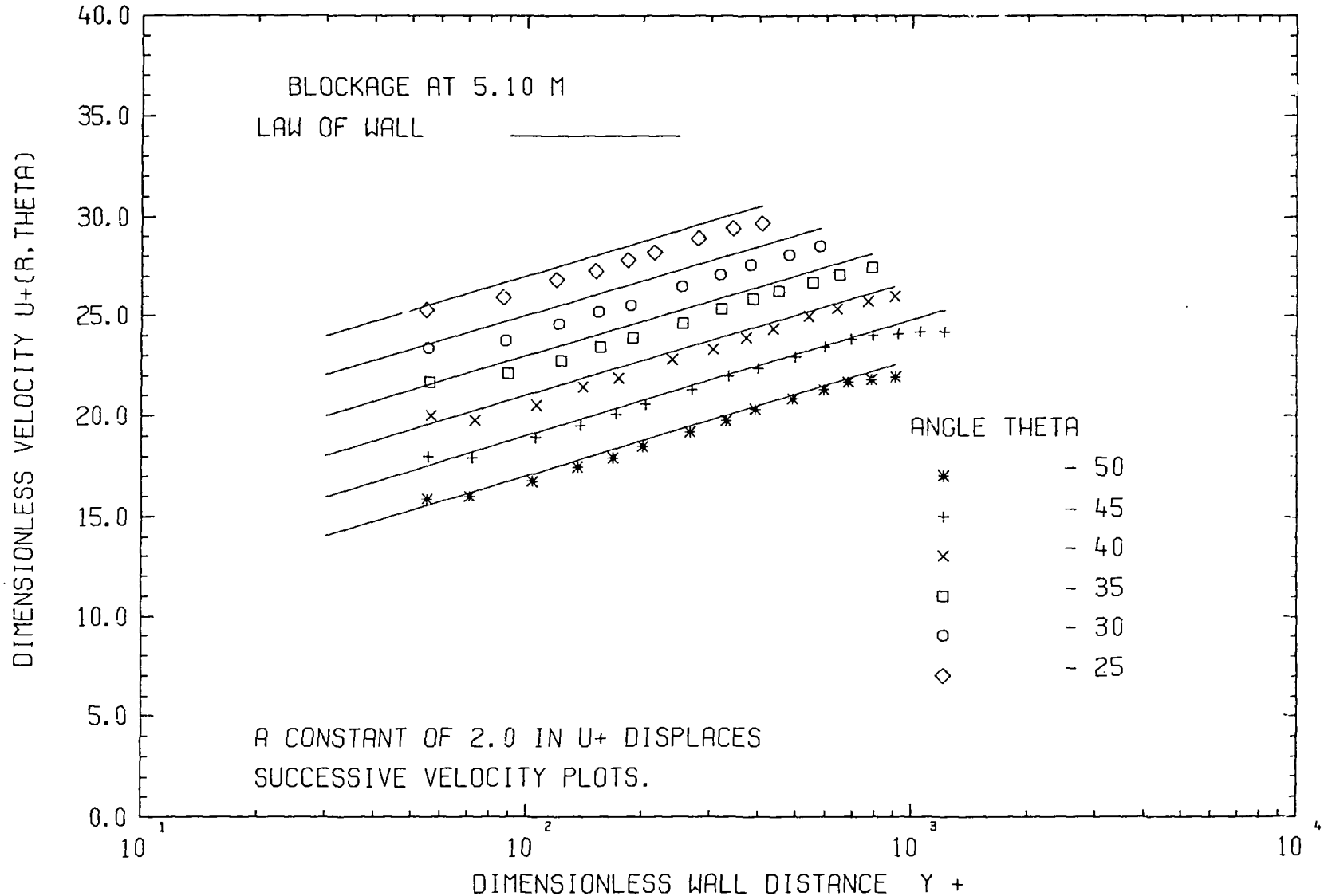

FIGURE 4a RADIAL VELOCITY PROFILES AT 5.1 m

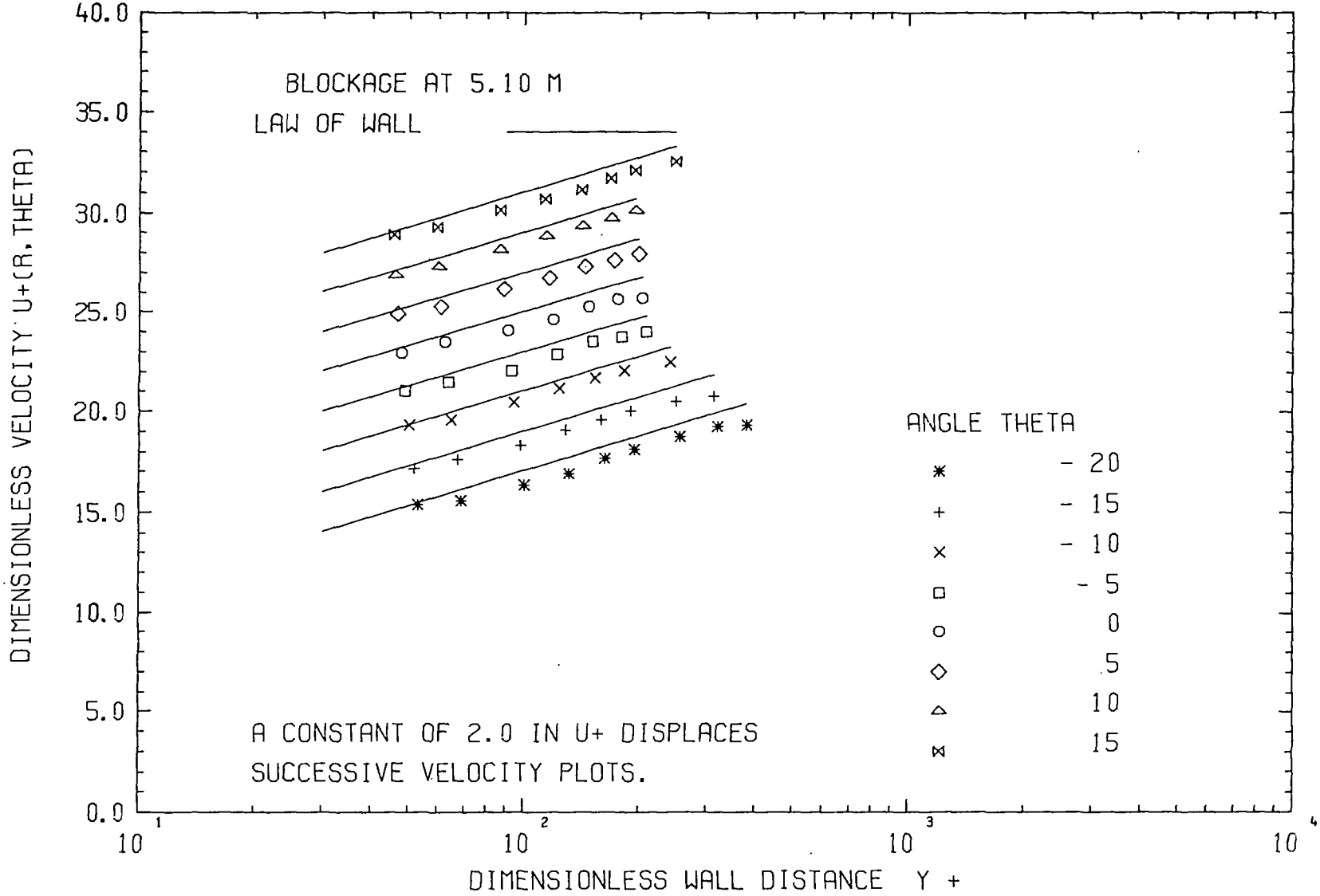

FIGURE 4b RADIAL VELOCITY PROFILES AT 5.1 m

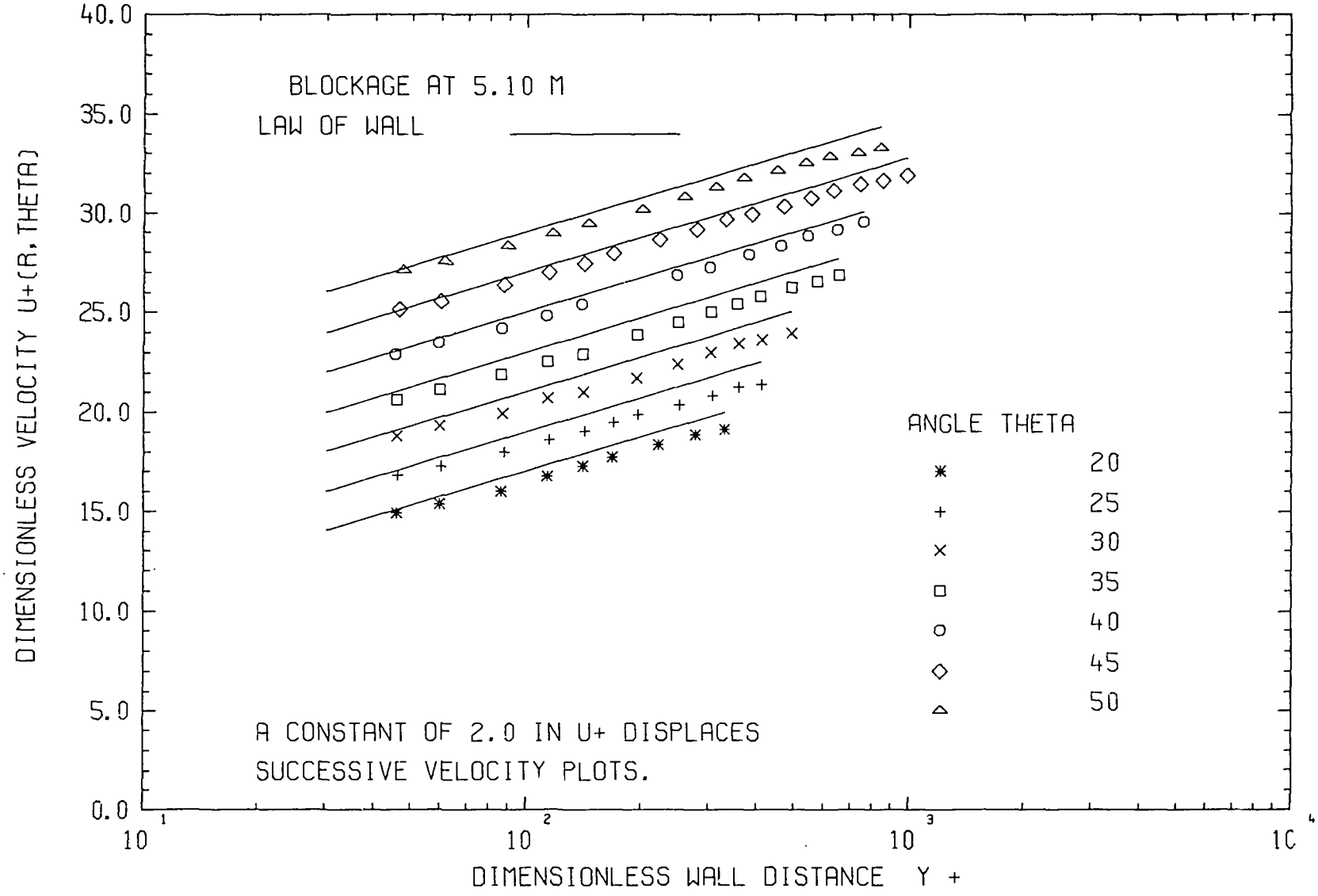

FIGURE 4c RADIAL VELOCITY PROFILES AT 5.1 m

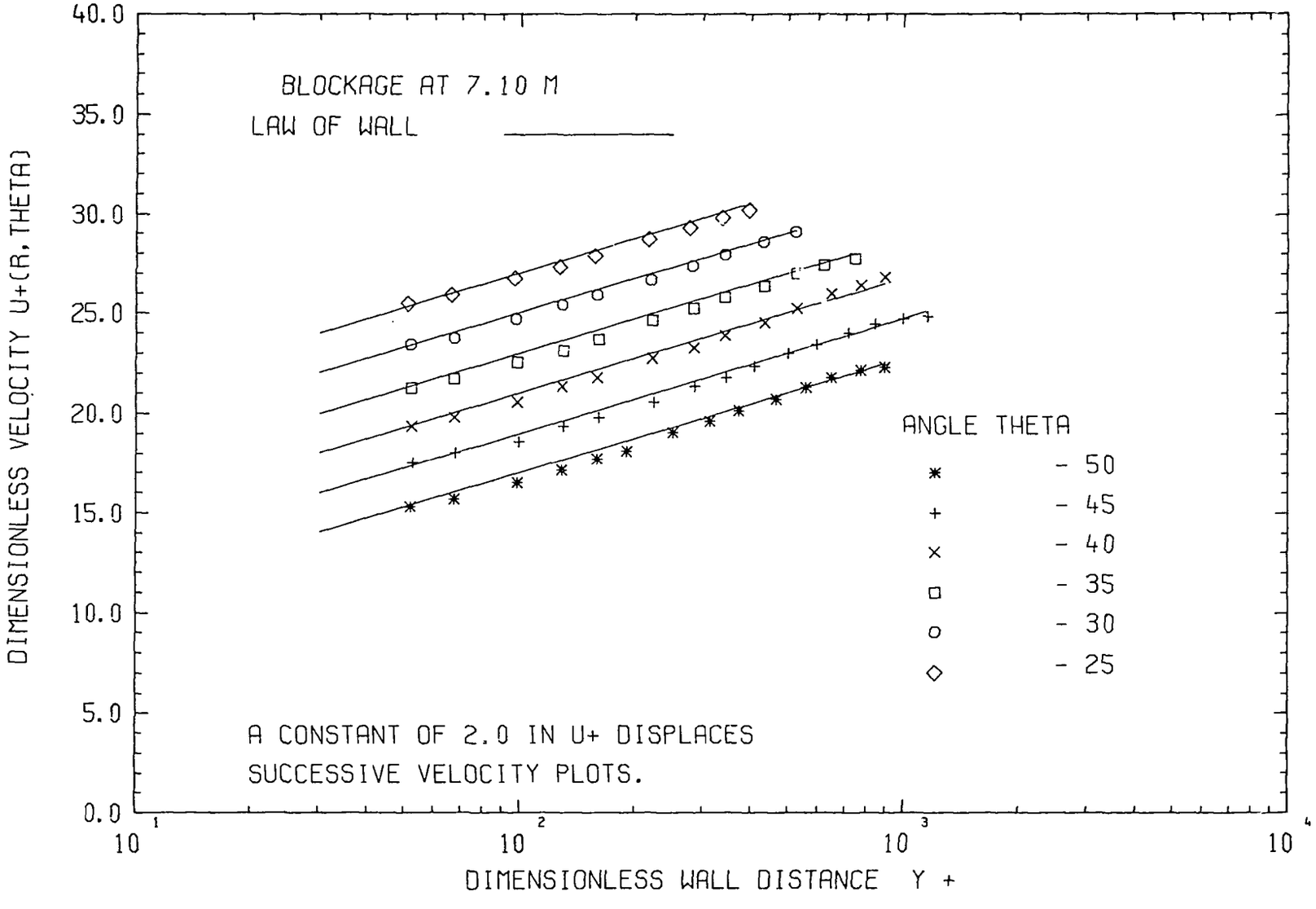

FIGURE 5a RADIAL VELOCITY PROFILES AT 7.1 m

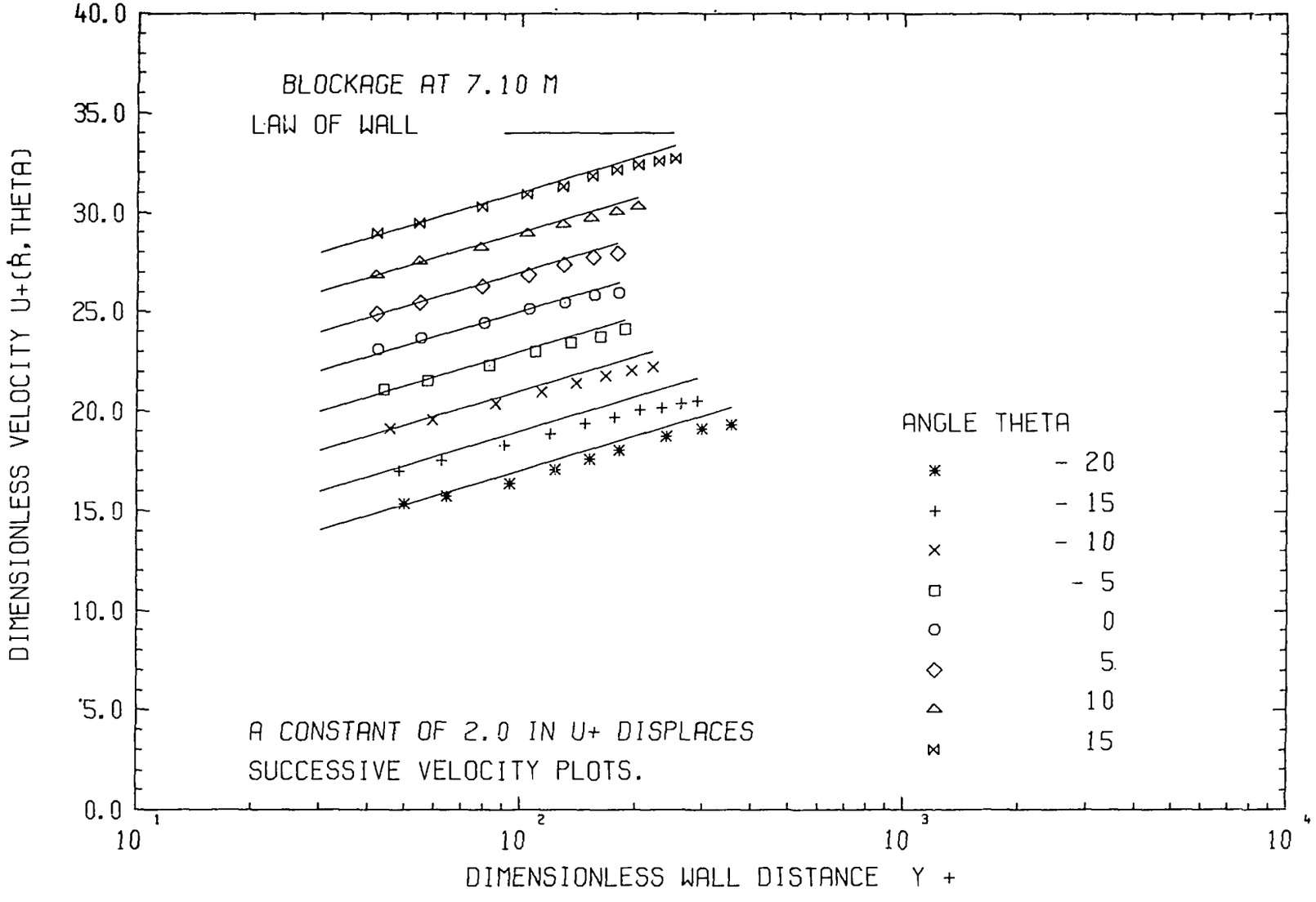

FIGURE 5b RADIAL VELOCITY PROFILES AT 7.1 m

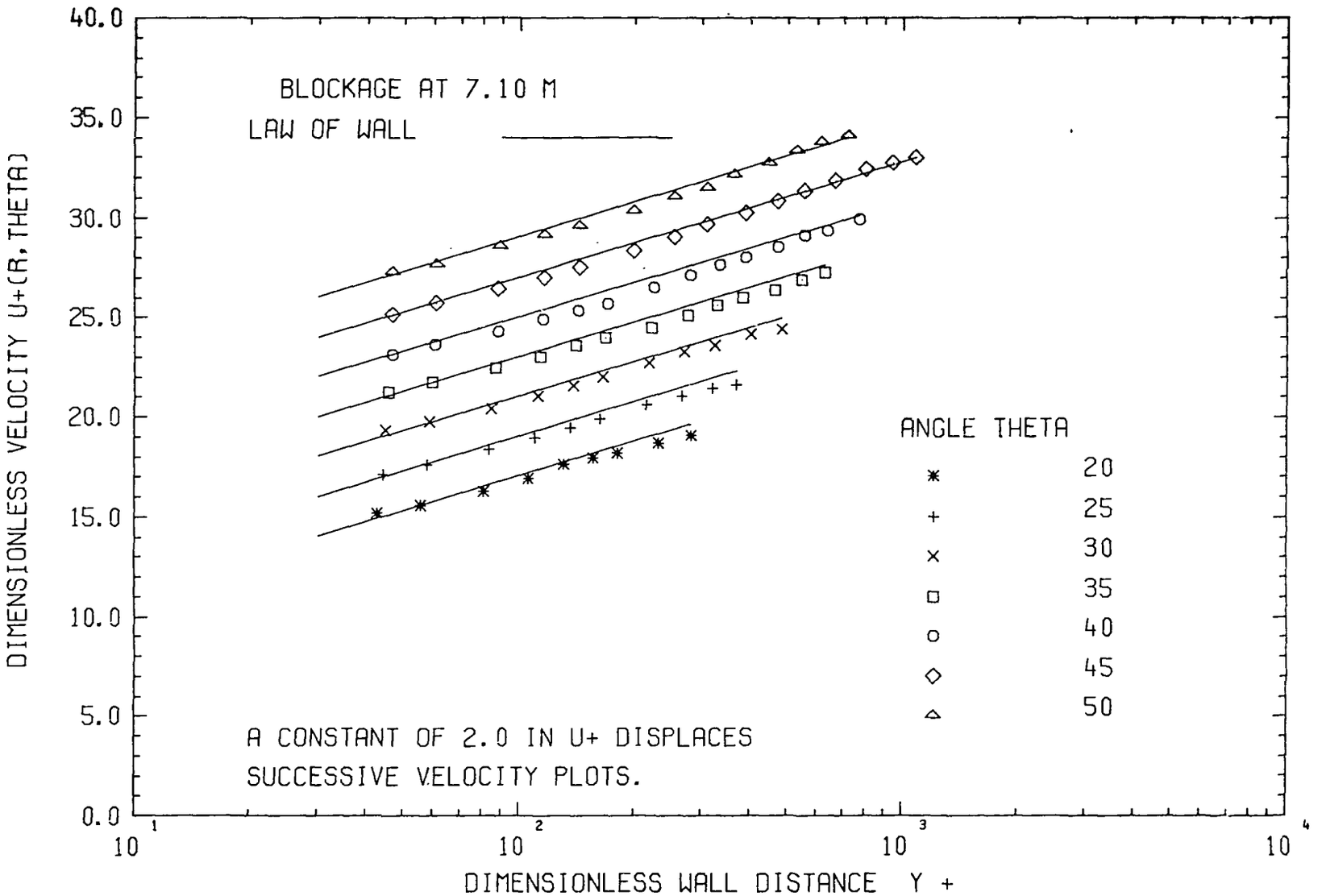

FIGURE 5c RADIAL VELOCITY PROFILES AT 7.1 m

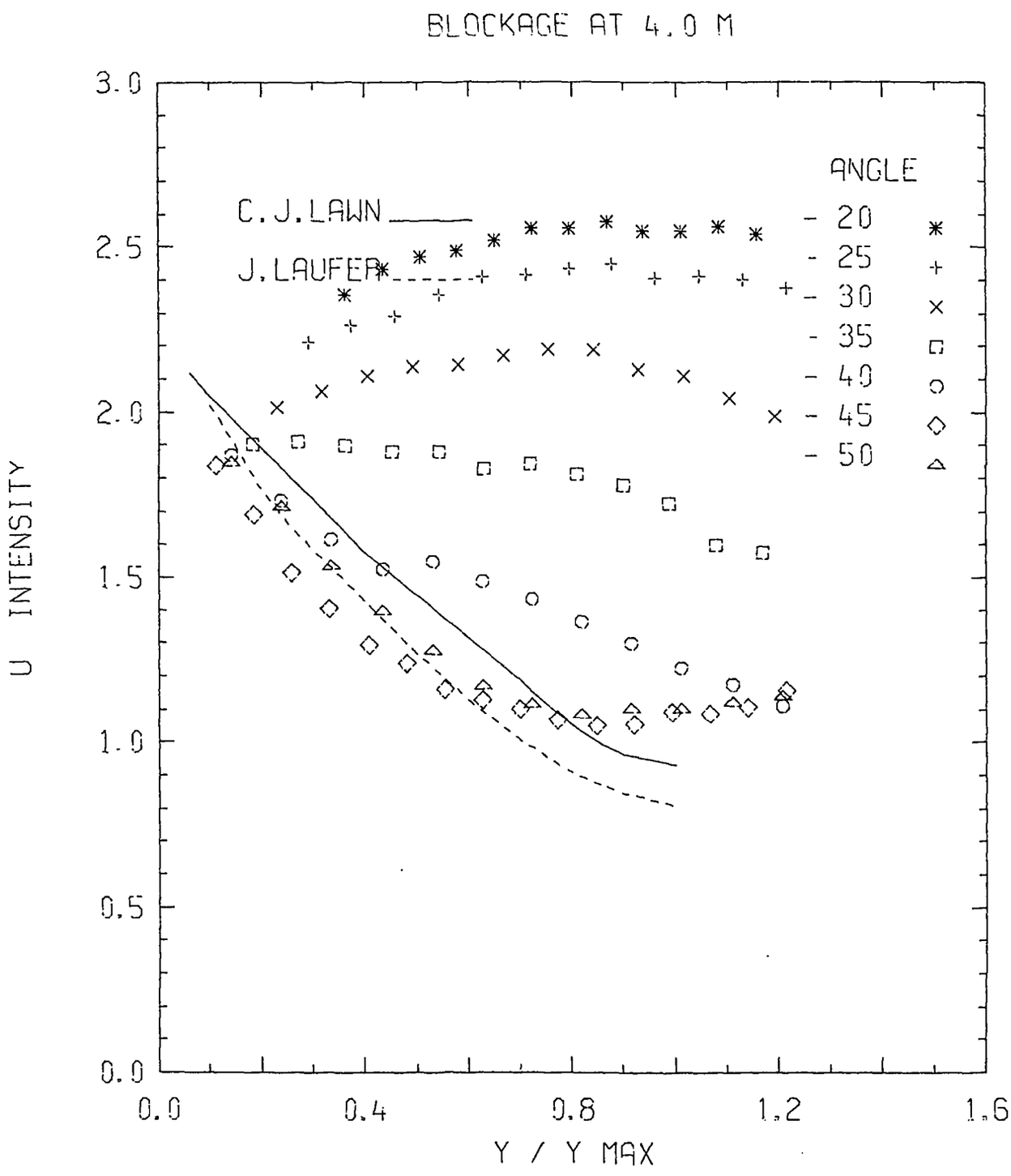

FIGURE 6a AXIAL TURBULENCE INTENSITY AT 4.0 m

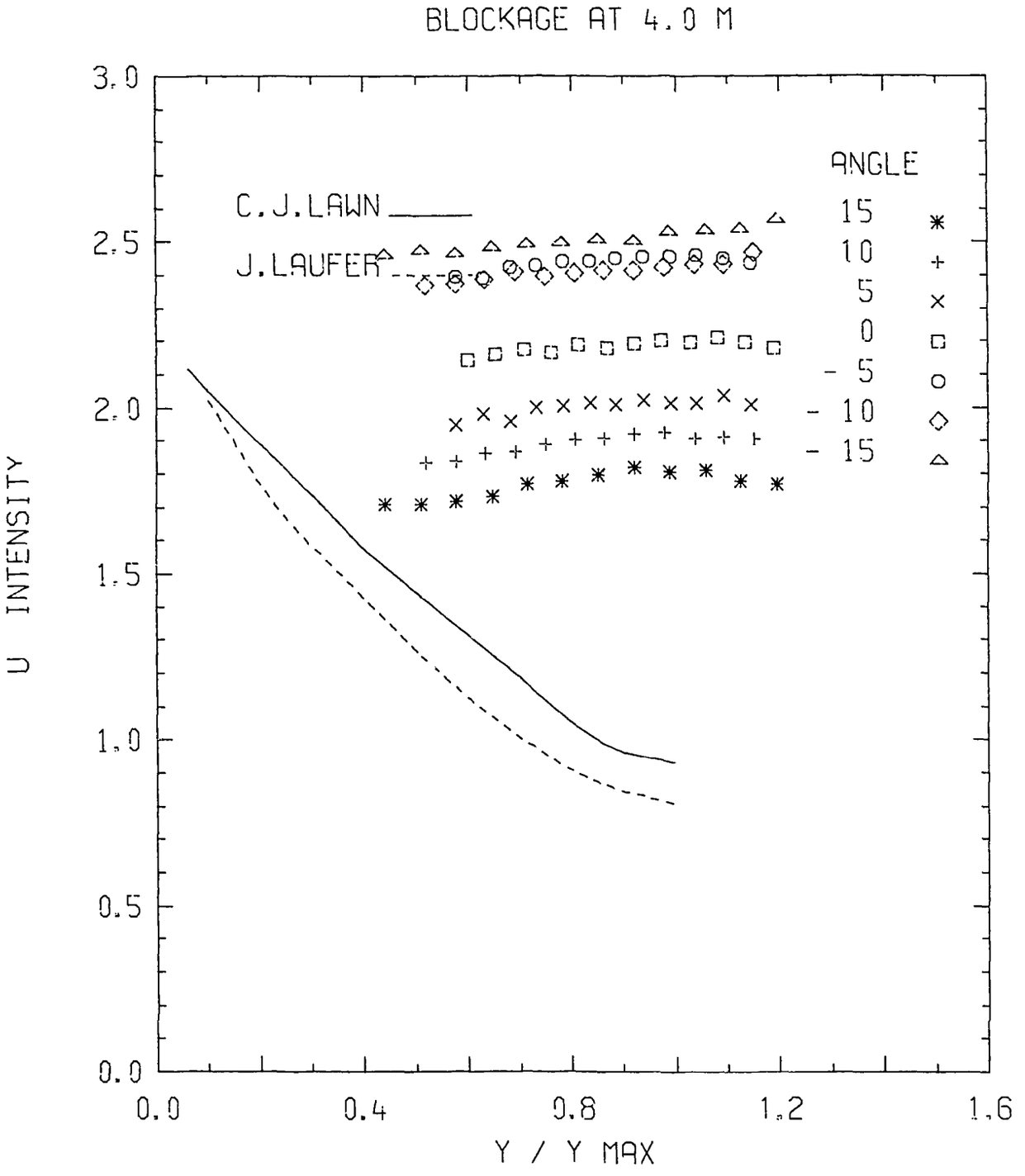

FIGURE 6b AXIAL TURBULENCE INTENSITY AT 4.0 m

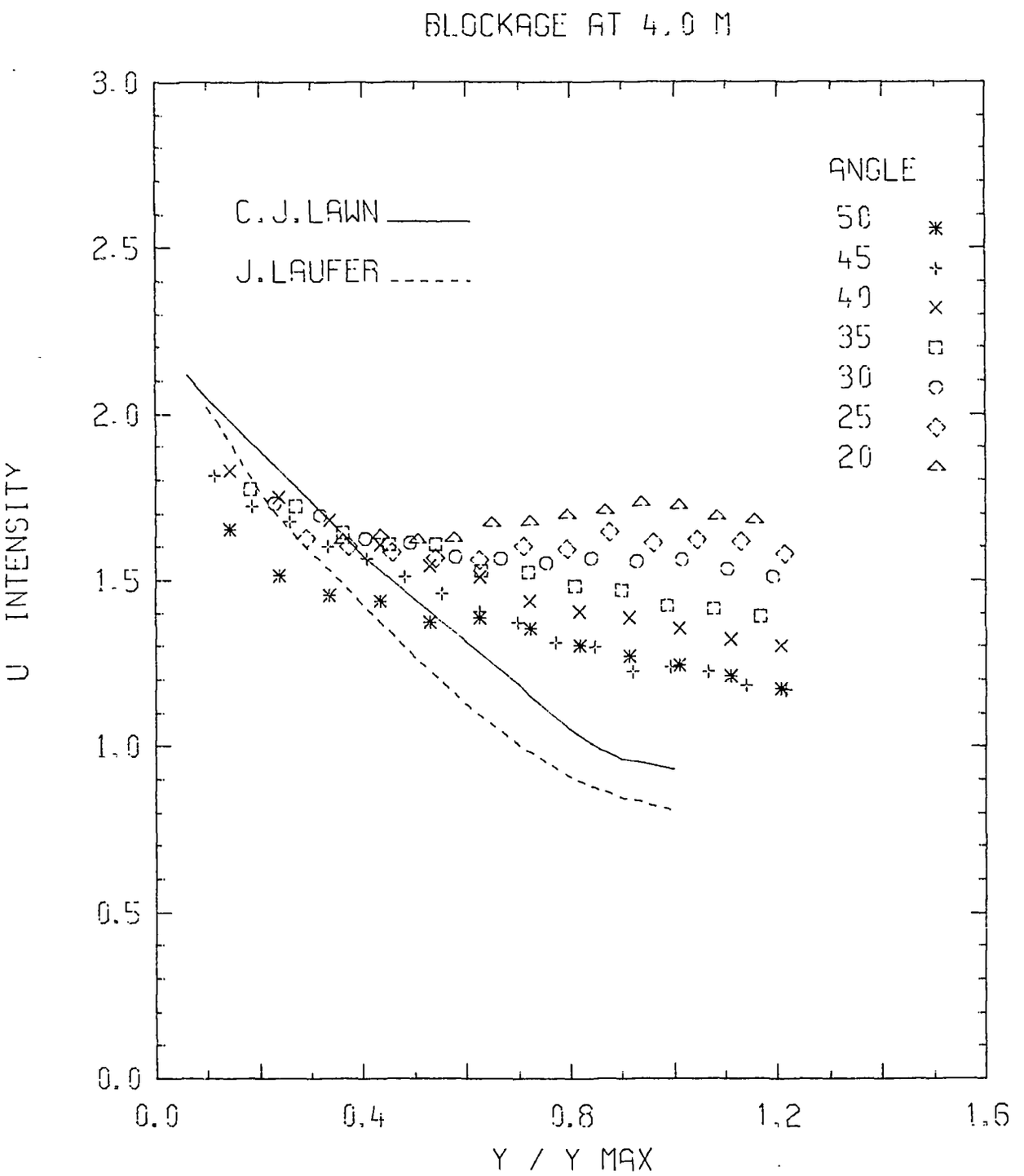

FIGURE 6c AXIAL TURBULENCE INTENSITY AT 4.0 m

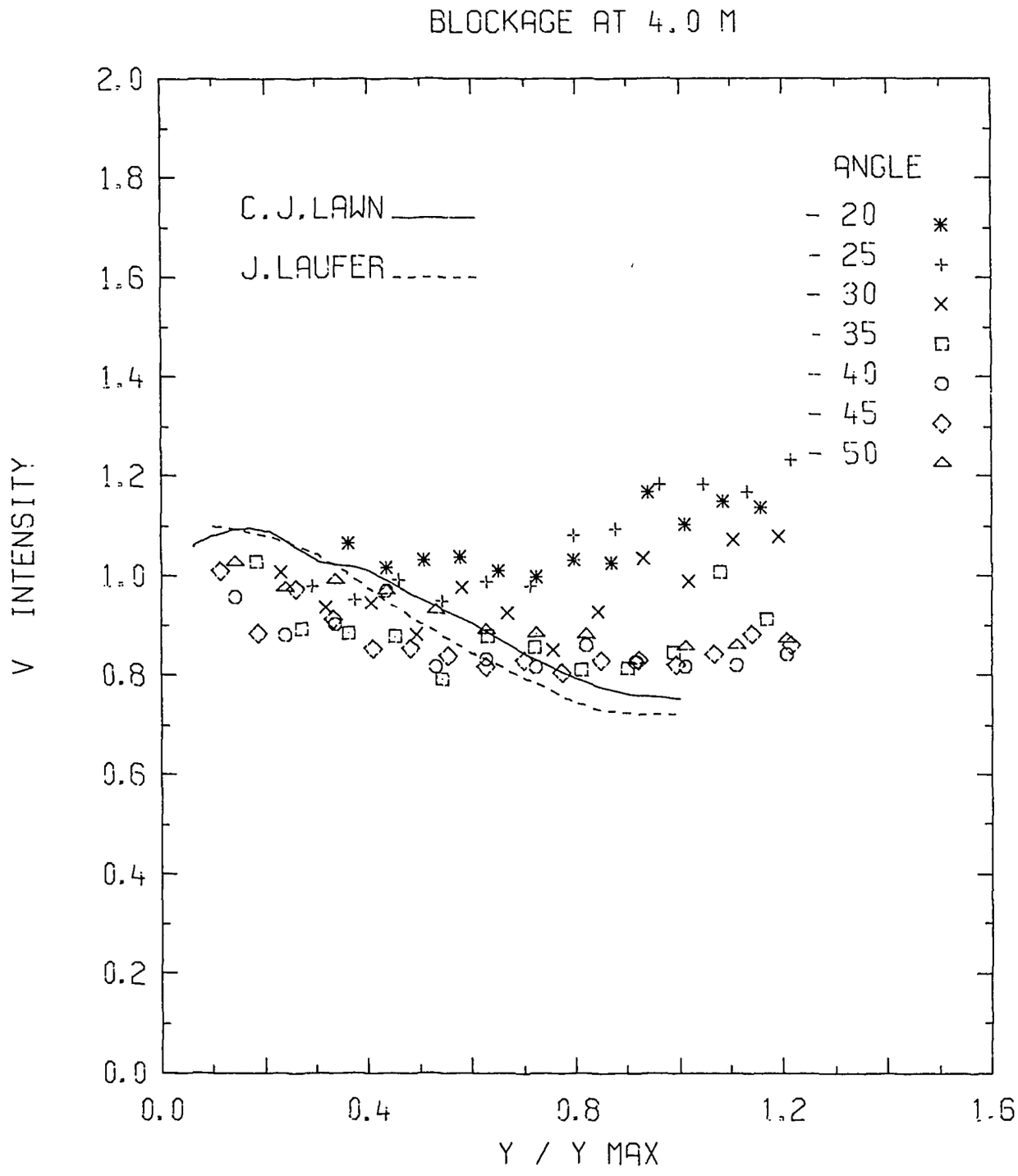

FIGURE 7a RADIAL TURBULENCE INTENSITY AT 4.0 m

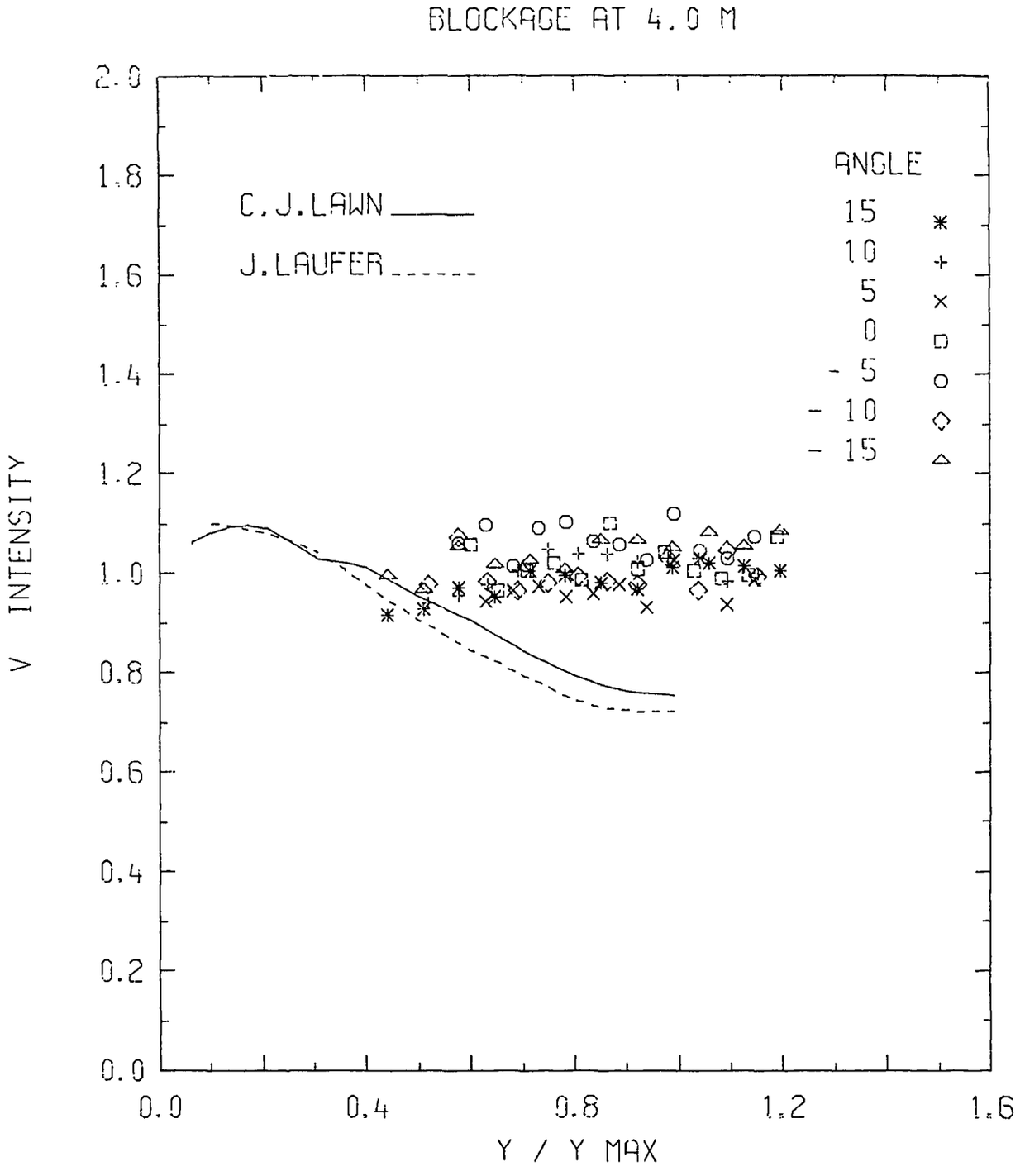

FIGURE 7b RADIAL TURBULENCE INTENSITY AT 4.0 m

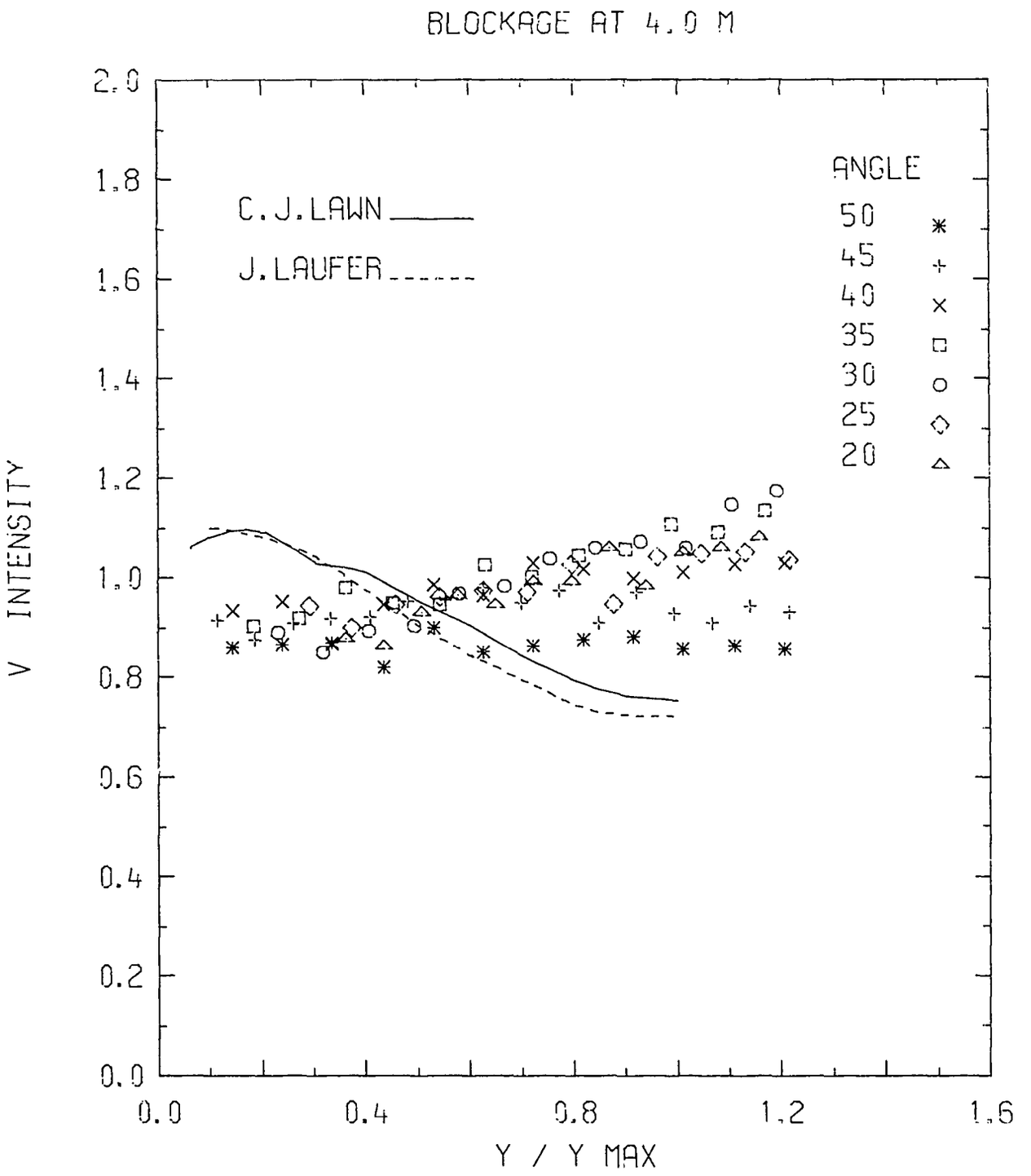

FIGURE 7c RADIAL TURBULENCE INTENSITY AT 4.0 m

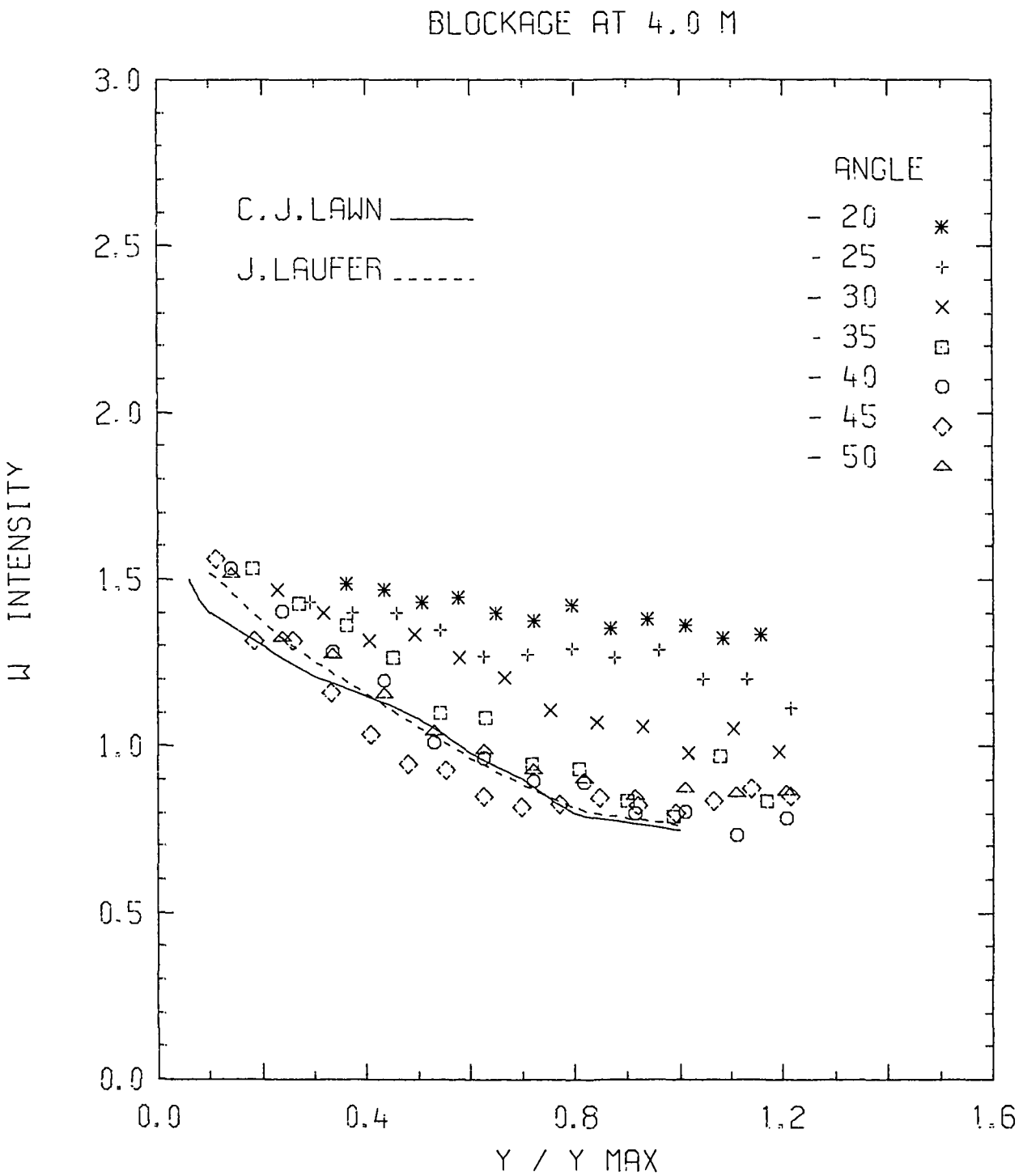

FIGURE 8a AZIMUTHAL TURBULENCE INTENSITY AT 4.0 m

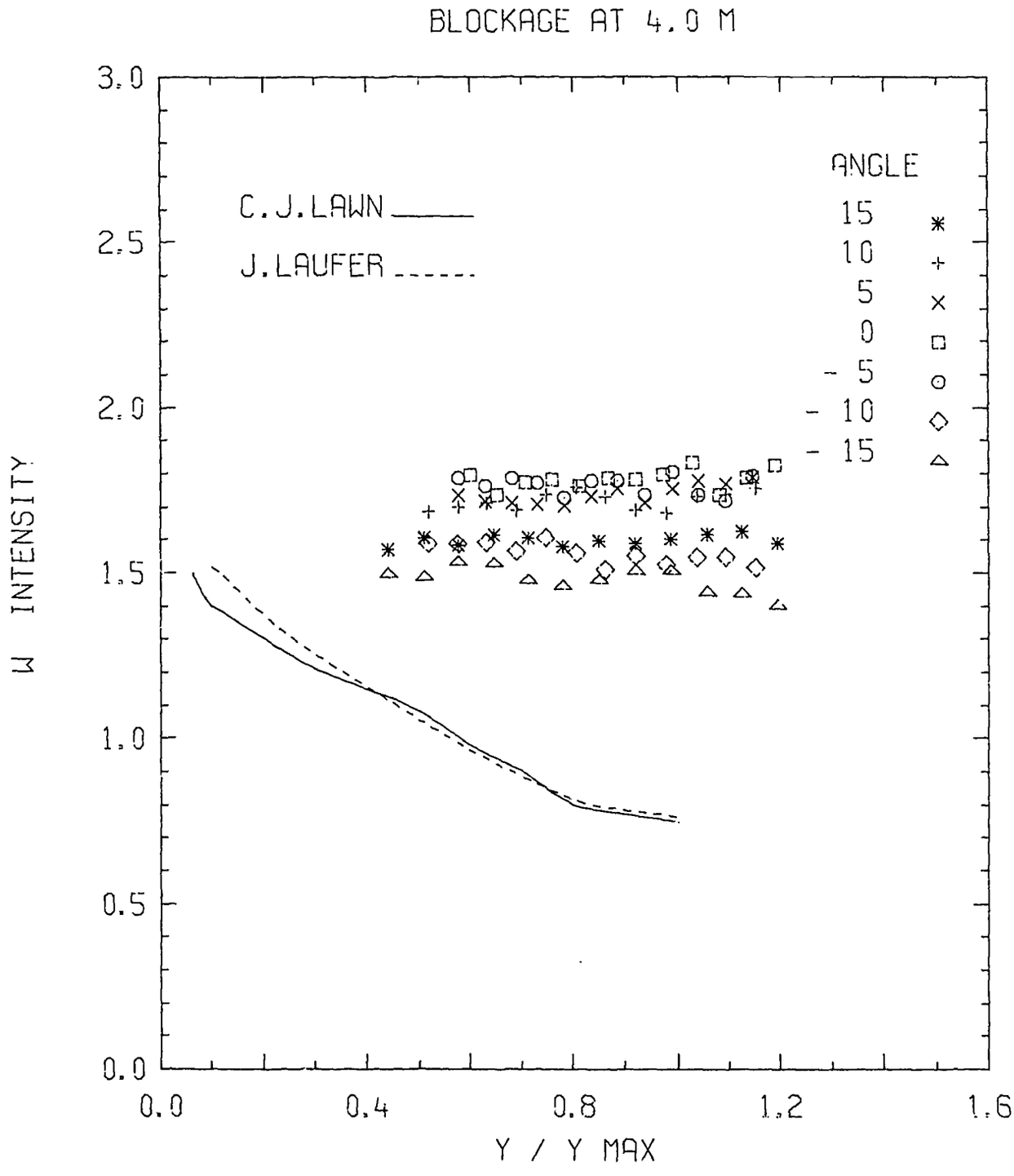

FIGURE 8b AZIMUTHAL TURBULENCE INTENSITY AT 4.0 m

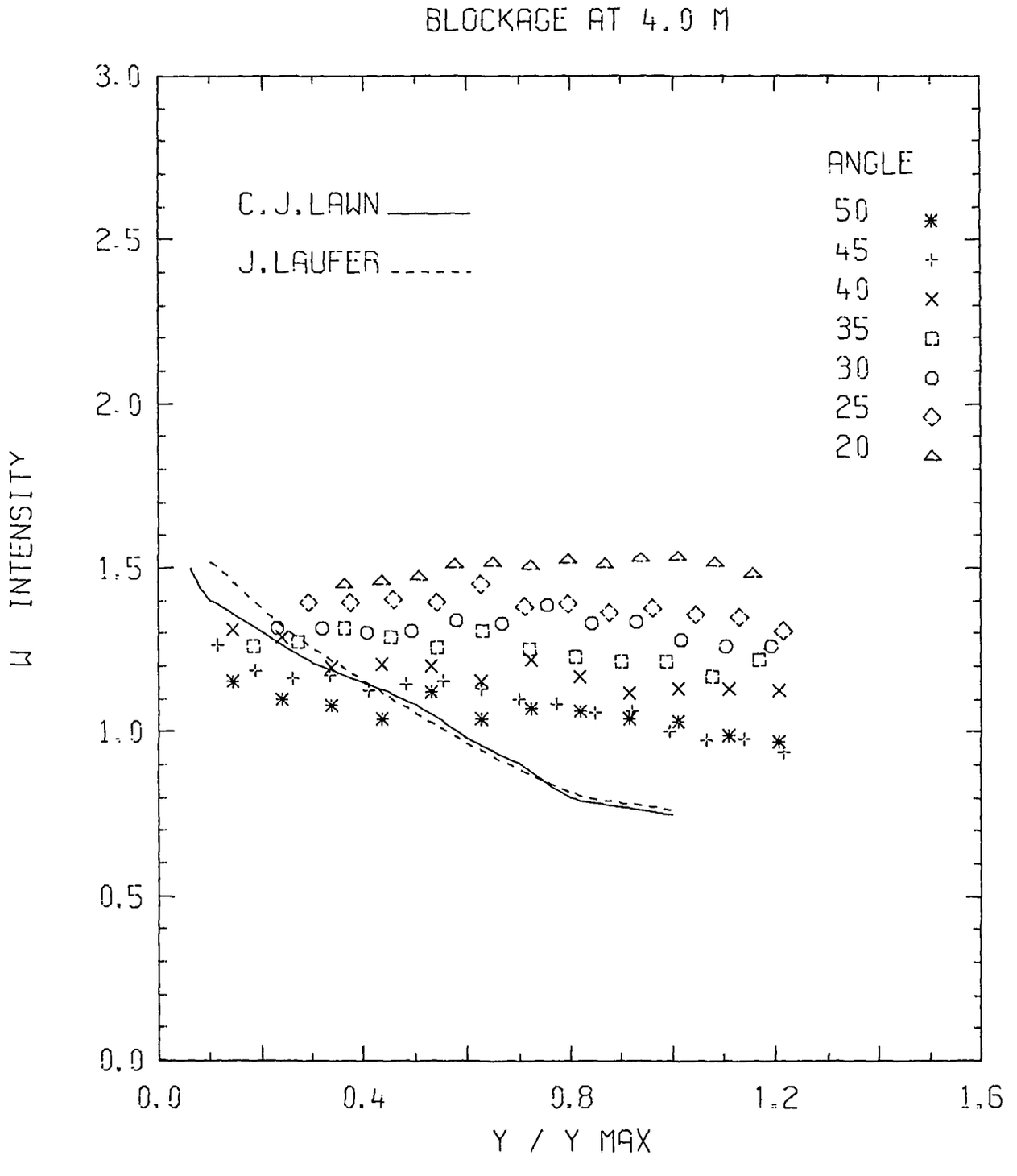

FIGURE 8c AZIMUTHAL TURBULENCE INTENSITY AT 4.0 m

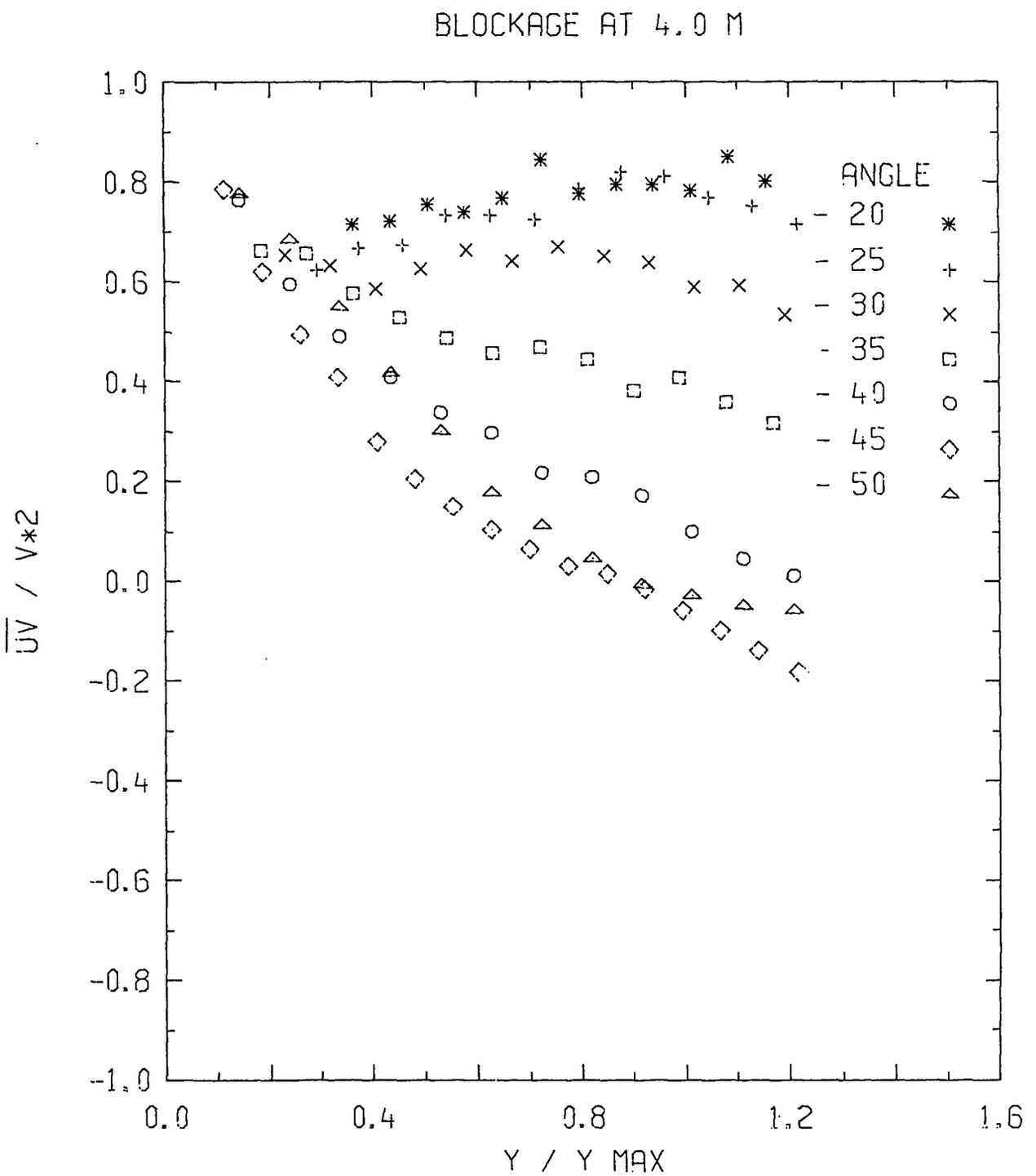

FIGURE 9a RADIAL REYNOLDS SHEAR STRESS AT 4.0 m

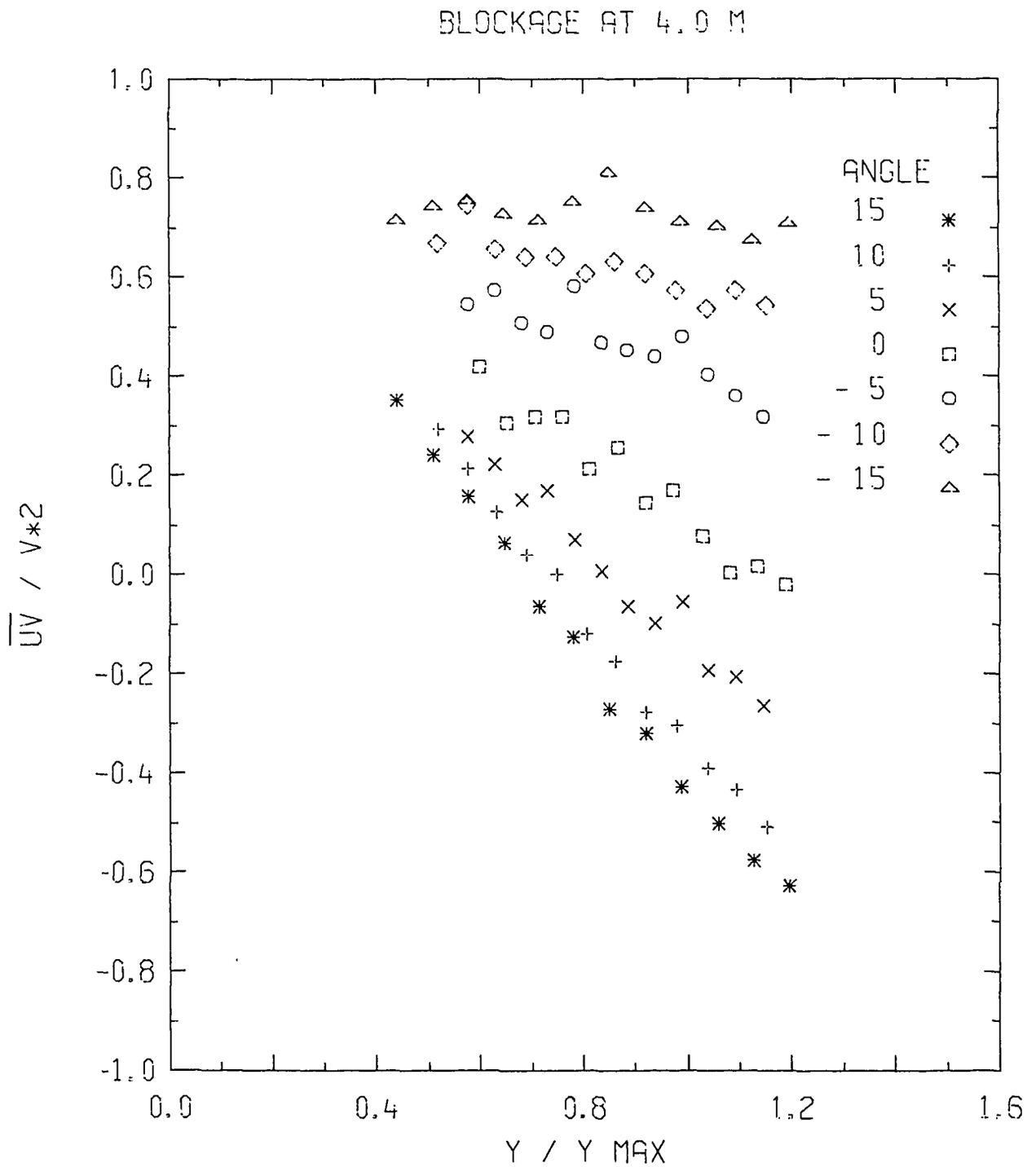

FIGURE 9b RADIAL REYNOLDS SHEAR STRESS AT 4.0 m

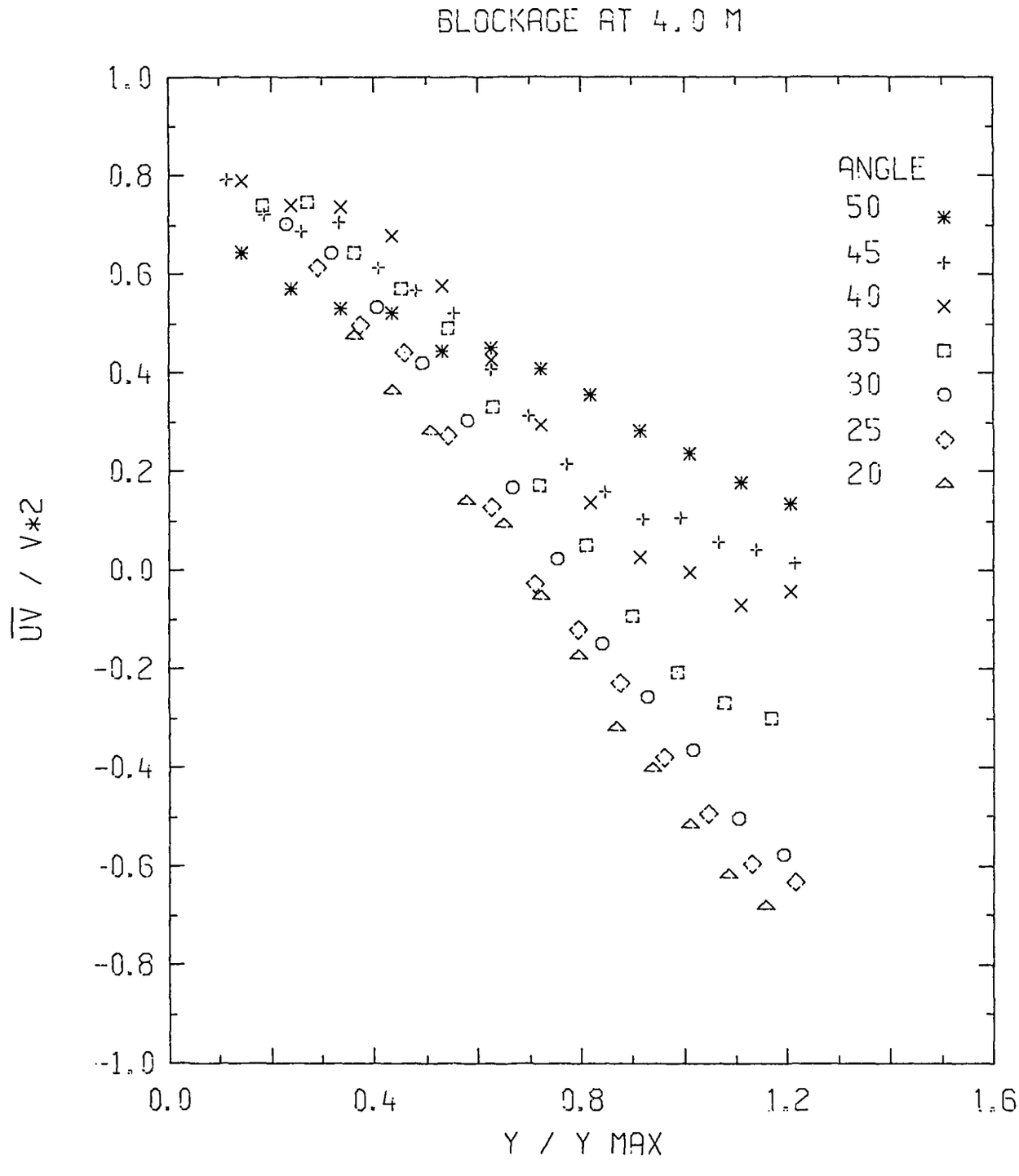

FIGURE 9c RADIAL REYNOLDS SHEAR STRESS AT 4.0 m

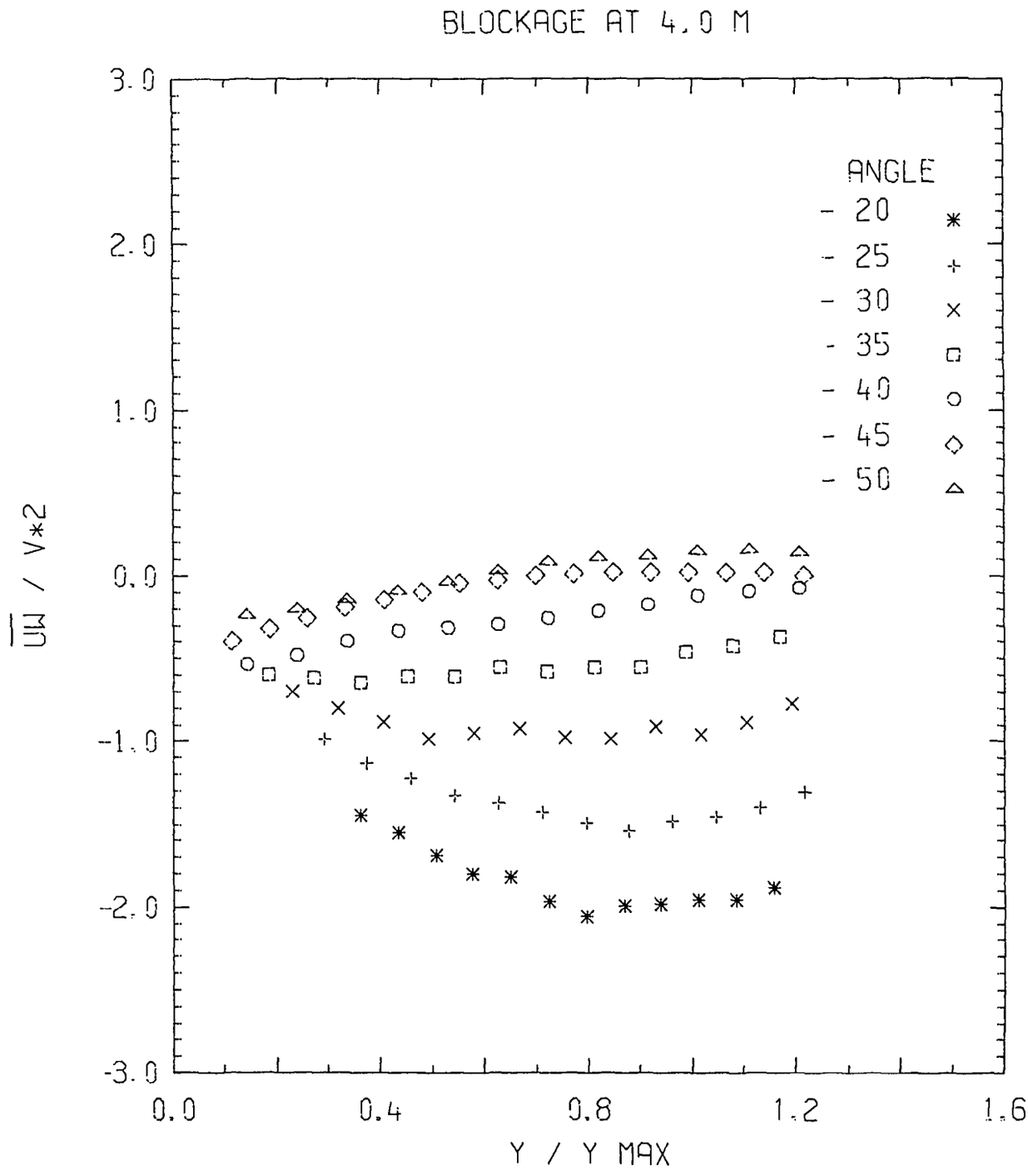

FIGURE 10a AZIMUTHAL REYNOLDS SHEAR STRESS AT 4.0 m

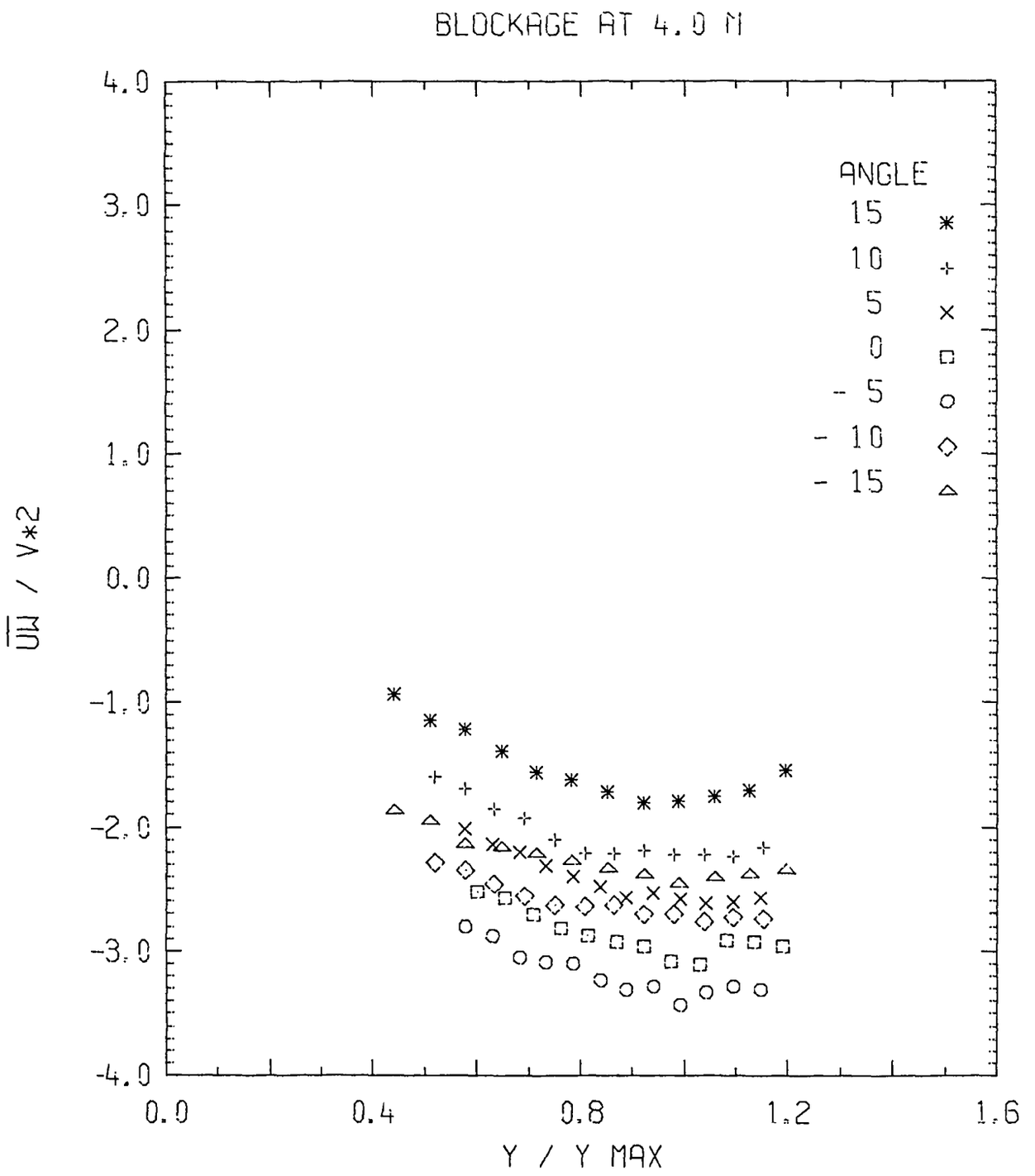

FIGURE 10b AZIMUTHAL REYNOLDS SHEAR STRESS AT 4.0 m

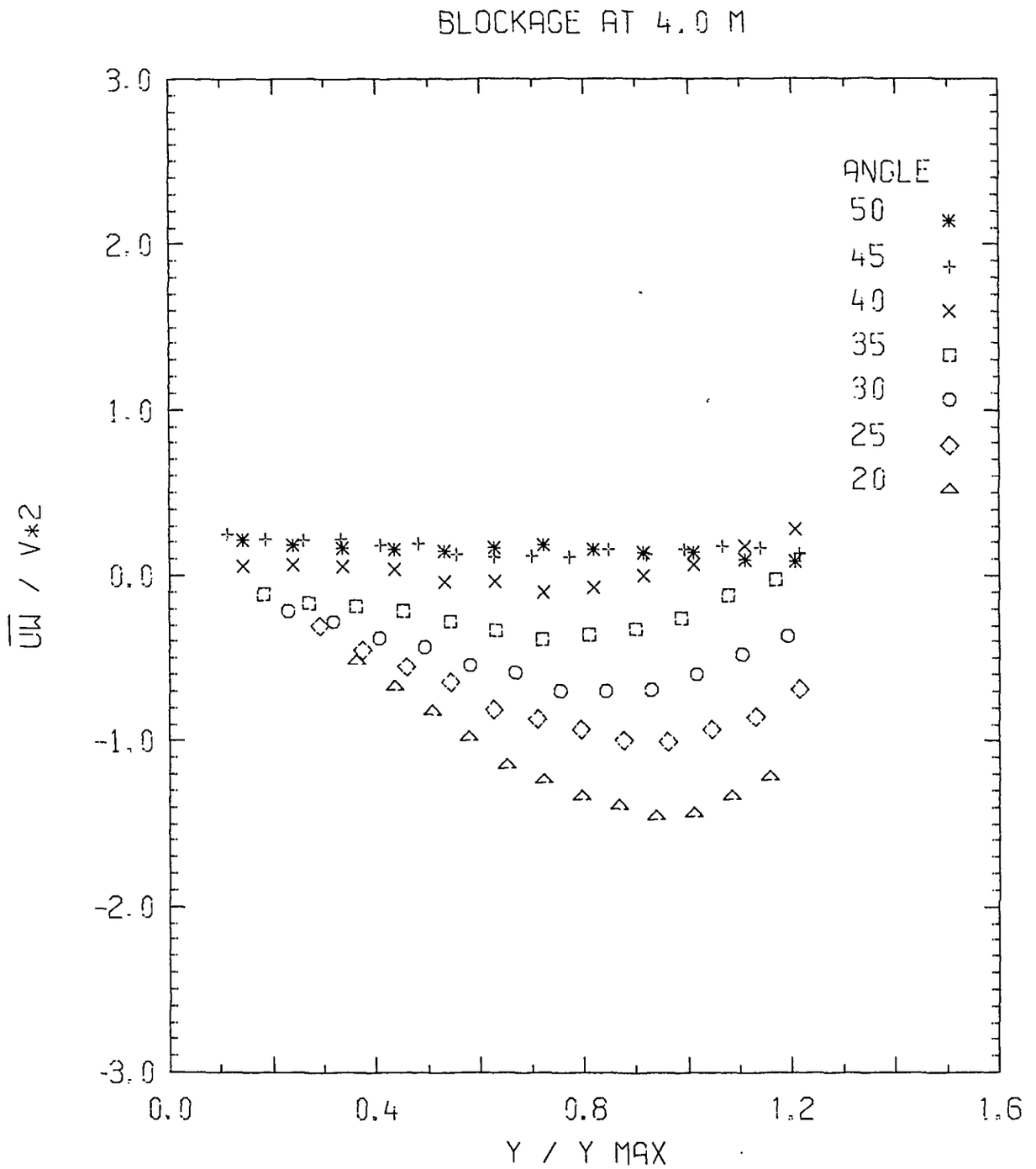

FIGURE 10c AZIMUTHAL REYNOLDS SHEAR STRESS AT 4.0 m

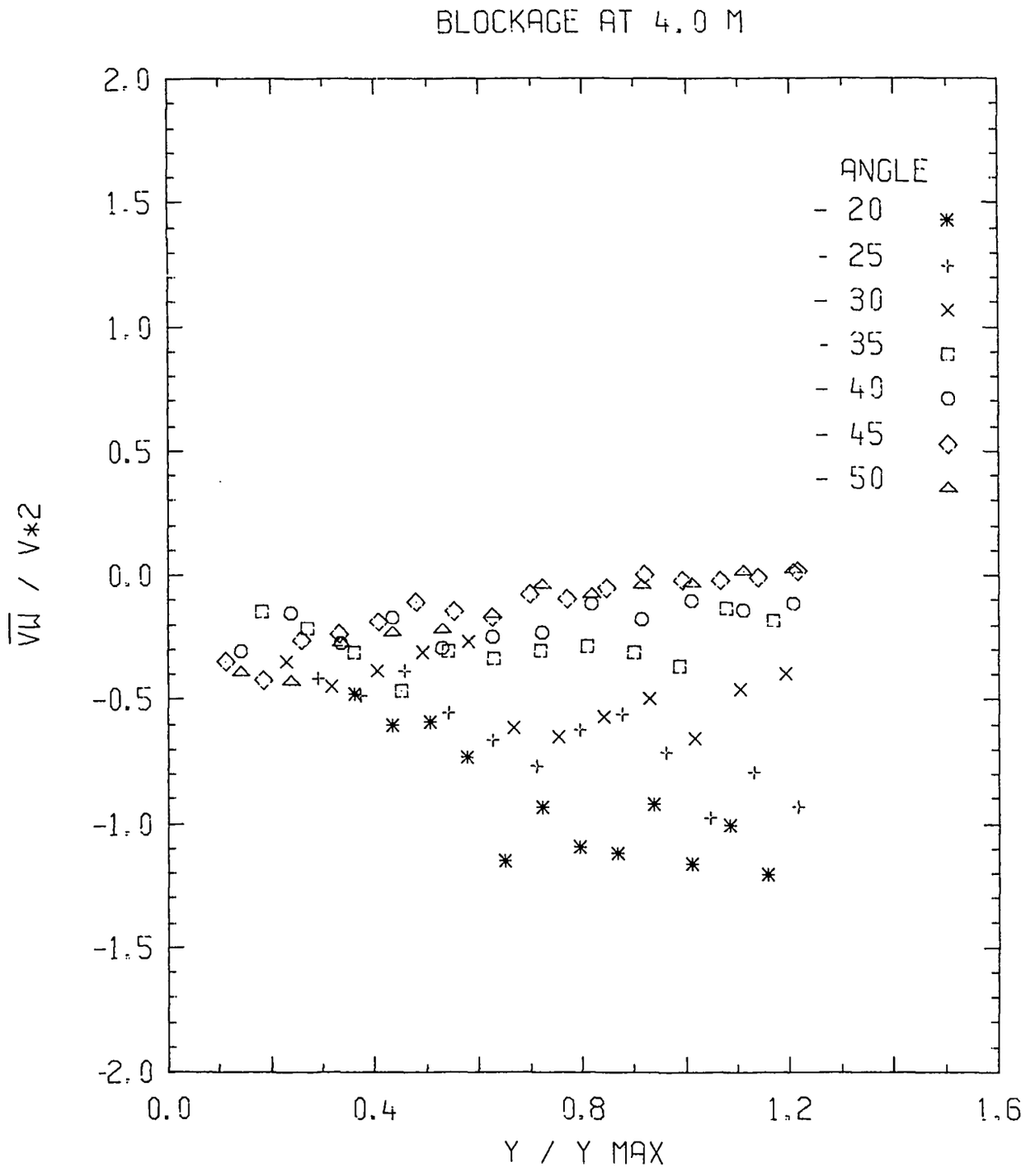

FIGURE 11a TRANSVERSE REYNOLDS SHEAR STRESS AT 4.0 m

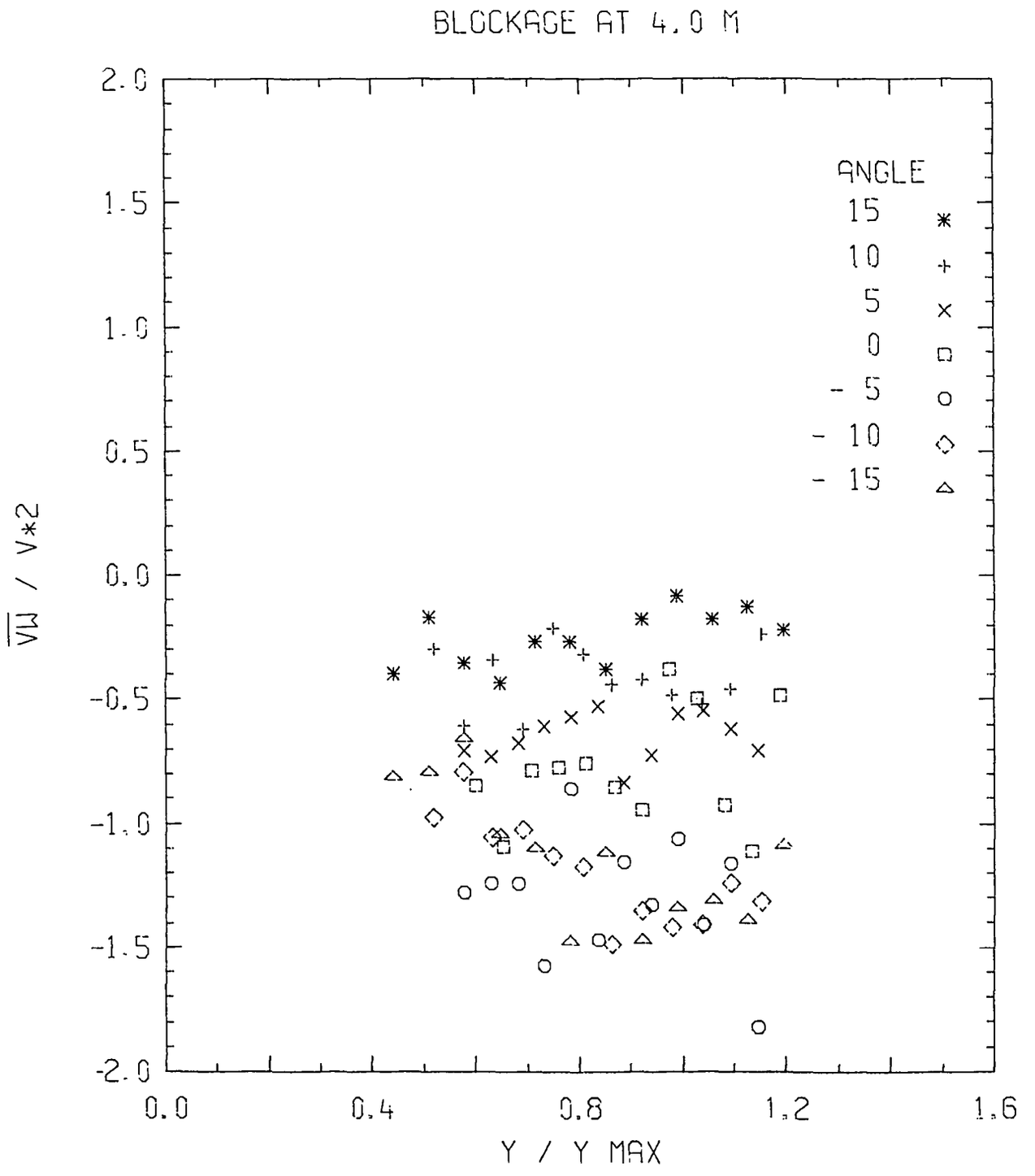

FIGURE 11b TRANSVERSE REYNOLDS SHEAR STRESS AT 4.0 m

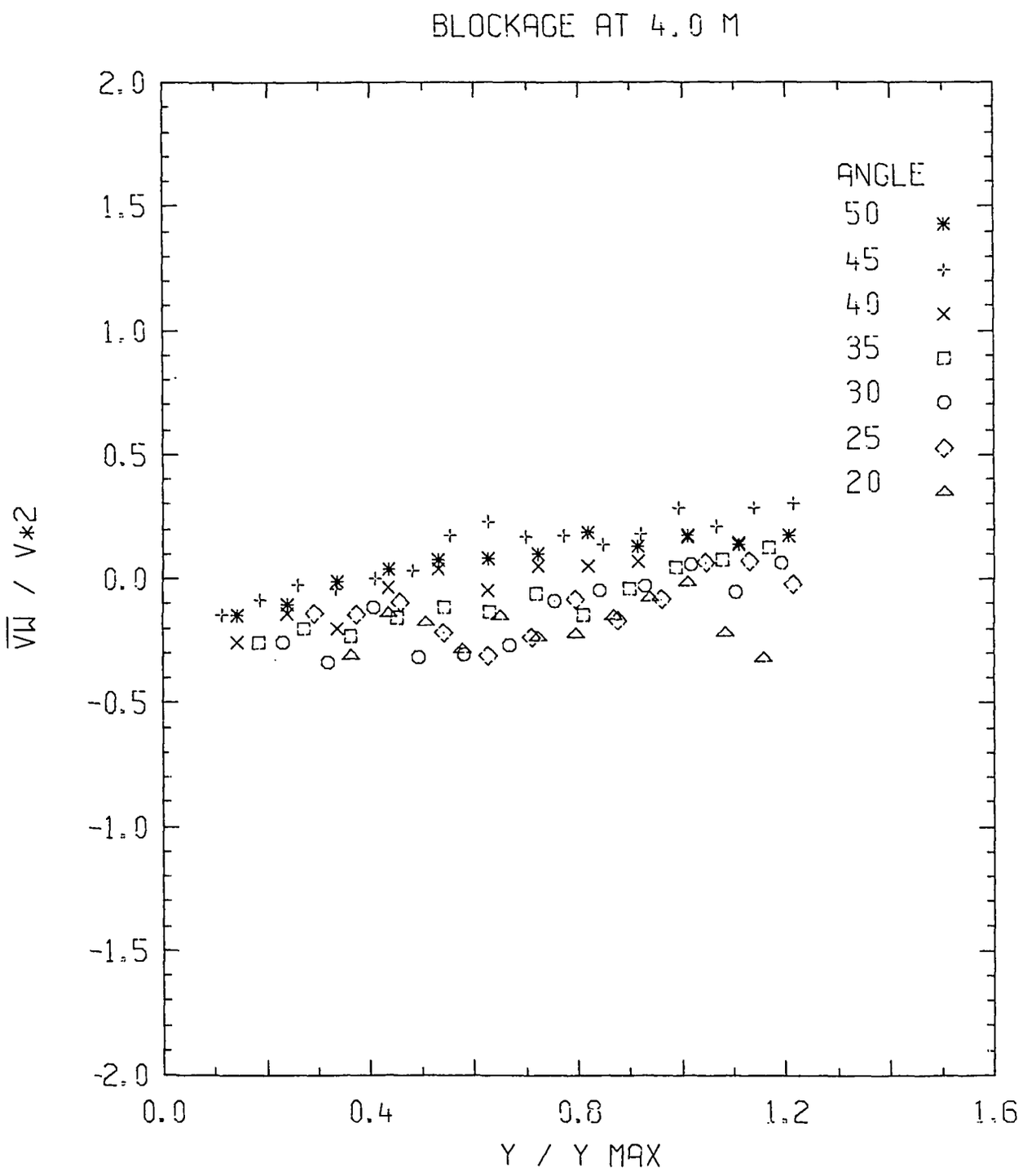

FIGURE 11c TRANSVERSE REYNOLDS SHEAR STRESS AT 4.0 m

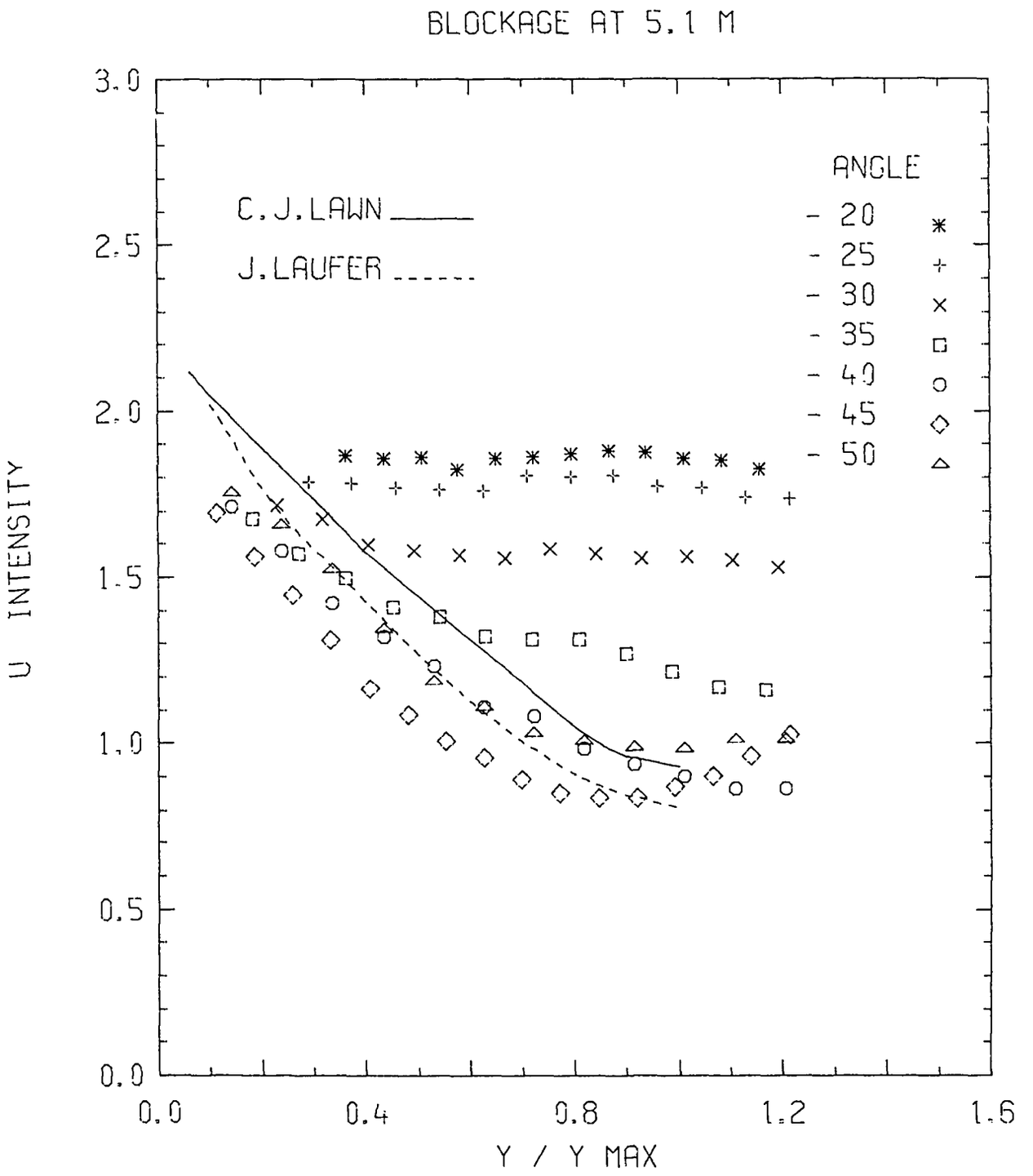

FIGURE 12a AXIAL TURBULENCE INTENSITY AT 5.1 m

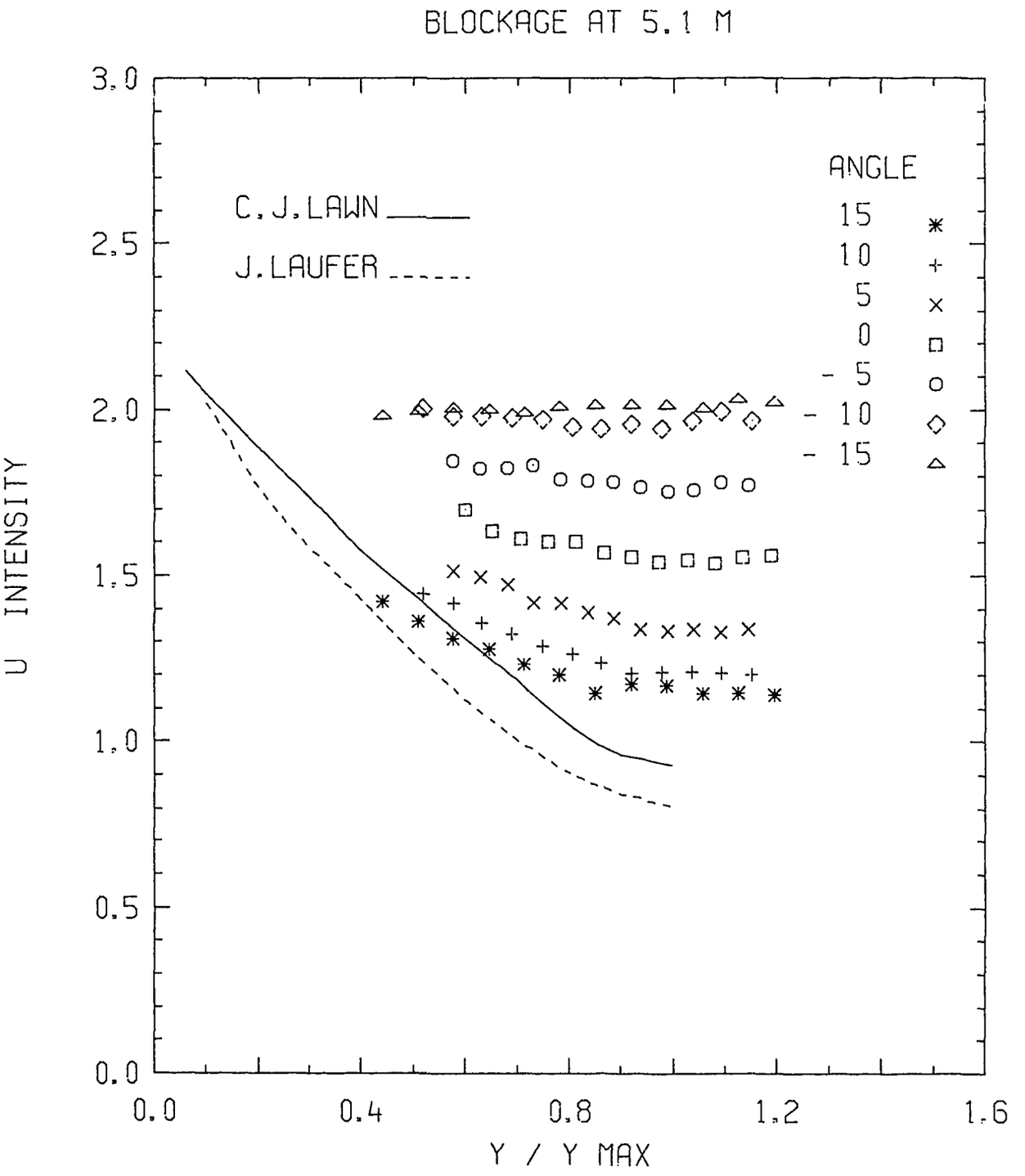

FIGURE 12b AXIAL TURBULENCE INTENSITY AT 5.1 m

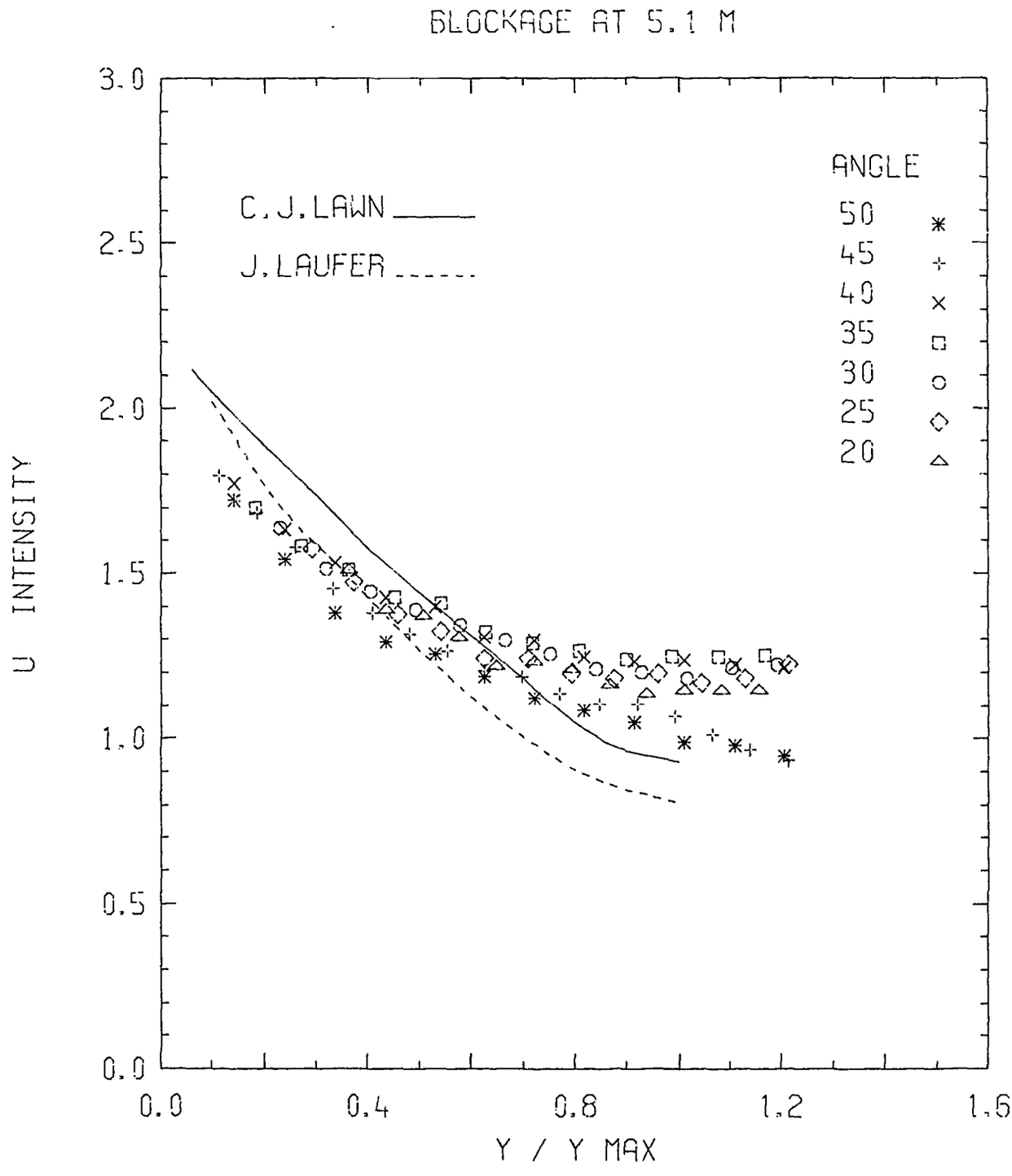

FIGURE 12c AXIAL TURBULENCE INTENSITY AT 5.1 m

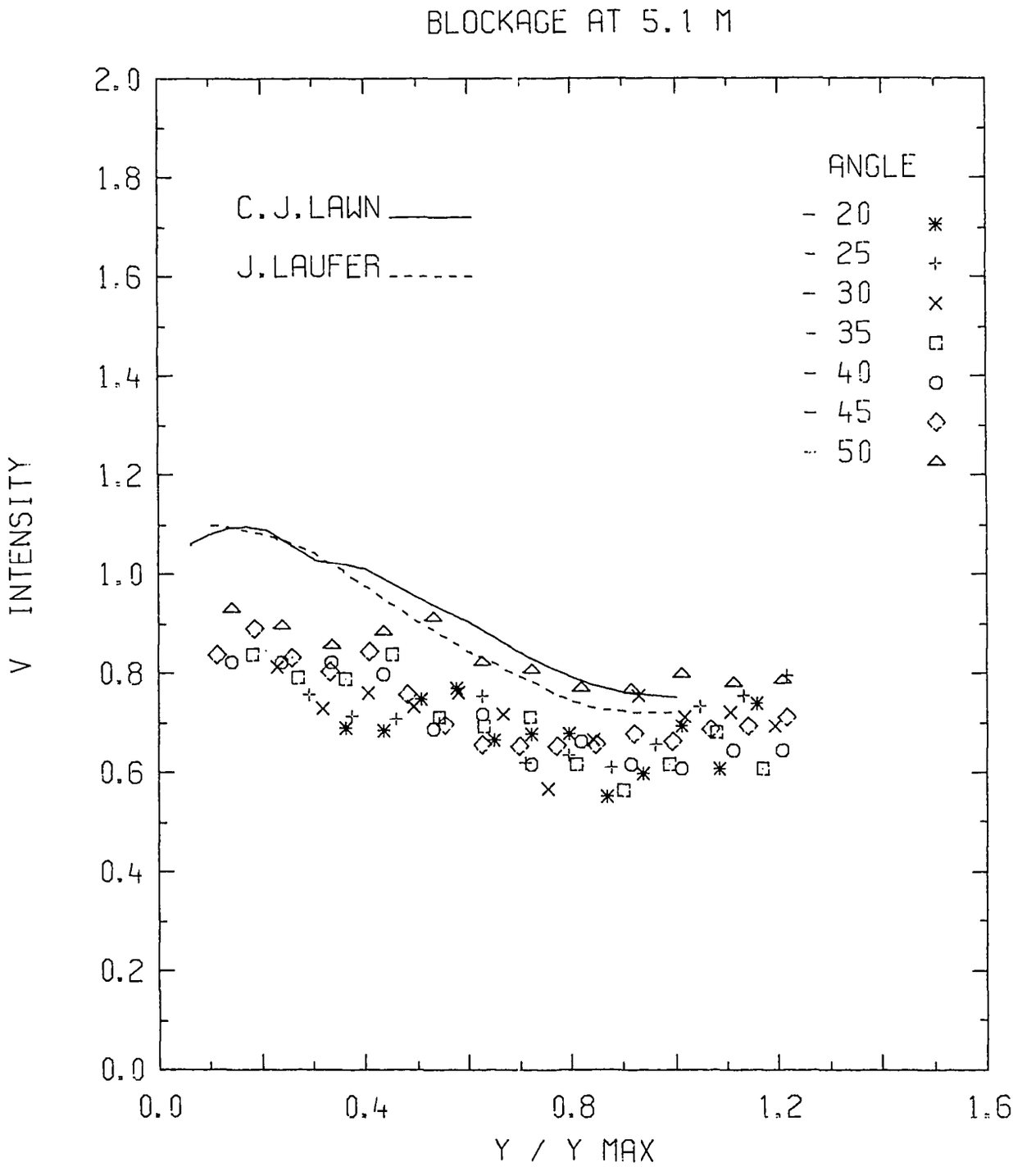

FIGURE 13a RADIAL TURBULENCE INTENSITY AT 5.1 m

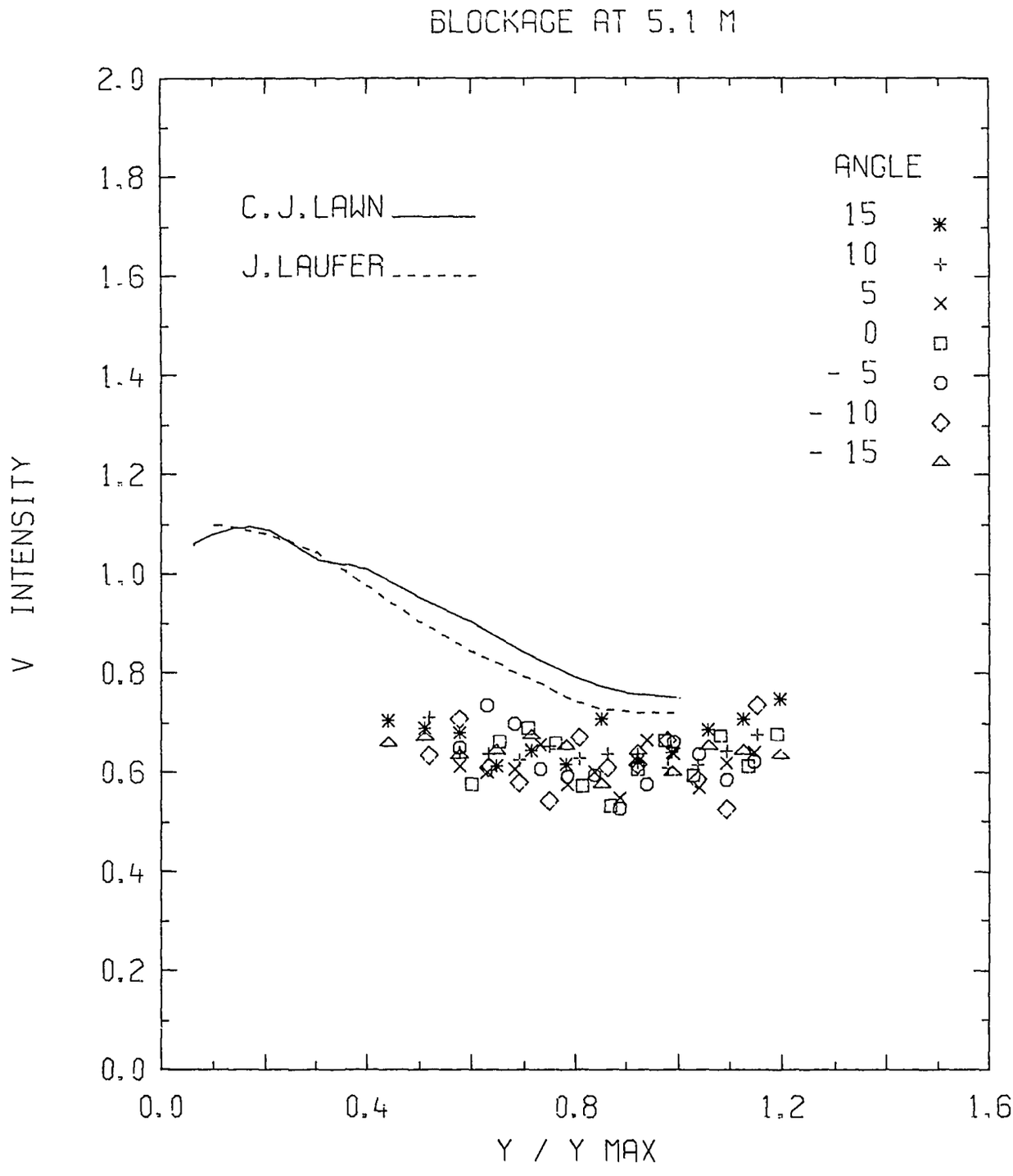

FIGURE 13b RADIAL TURBULENCE INTENSITY AT 5.1 m

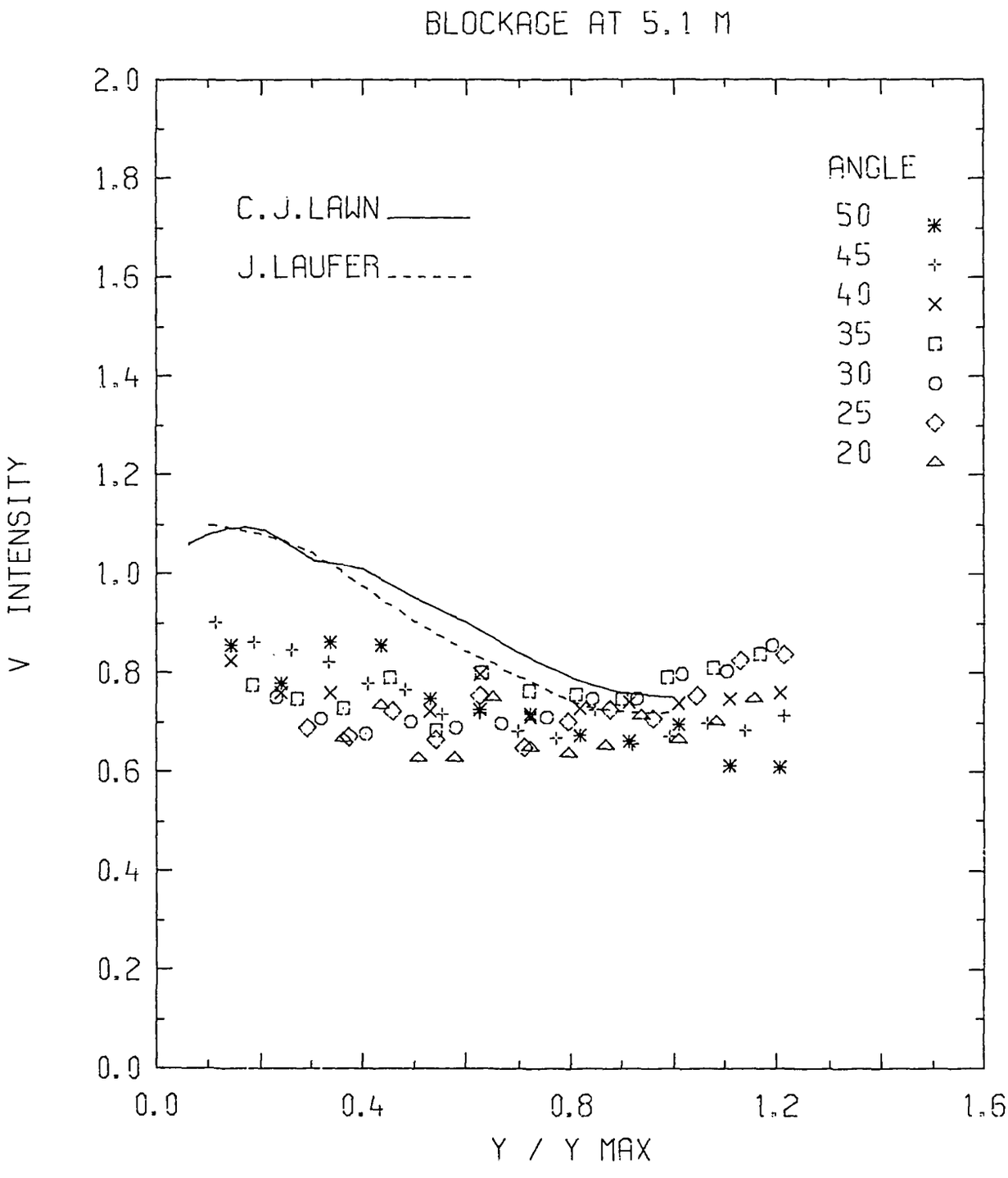

FIGURE 13c RADIAL TURBULENCE INTENSITY AT 5.1 m

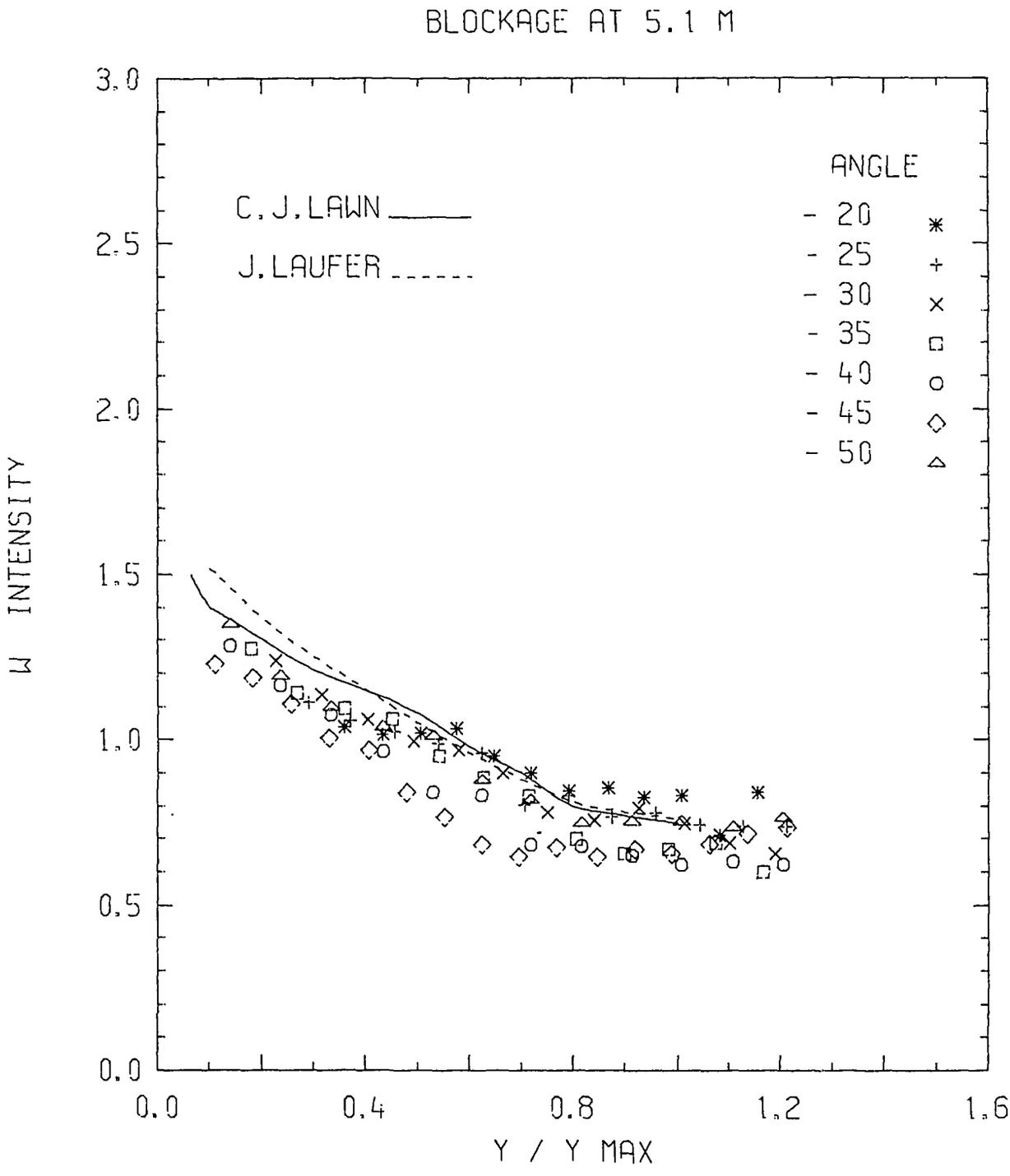

FIGURE 14a AZIMUTHAL TURBULENCE INTENSITY AT 5.1 m

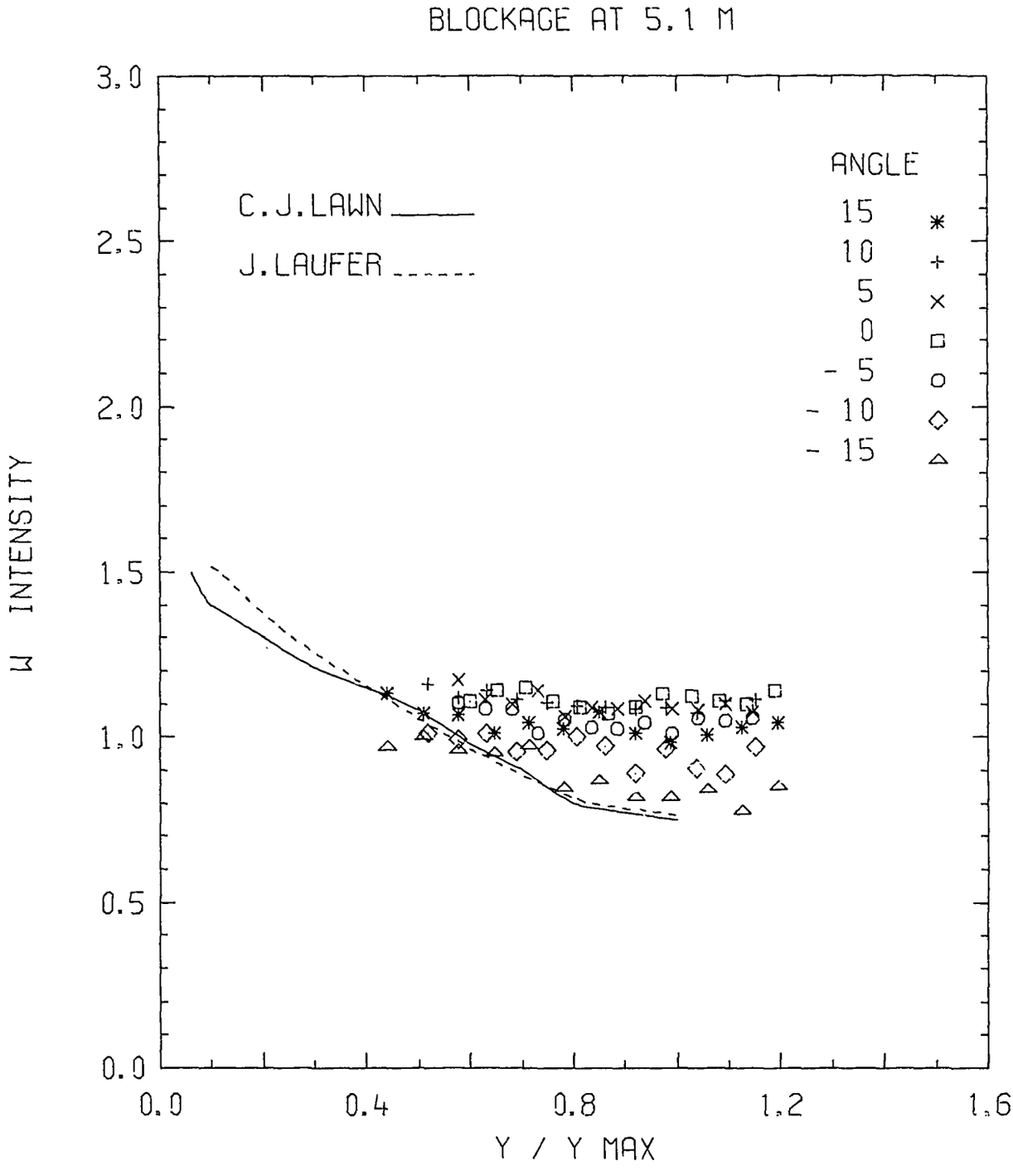

FIGURE 14b AZIMUTHAL TURBULENCE INTENSITY AT 5.1 m

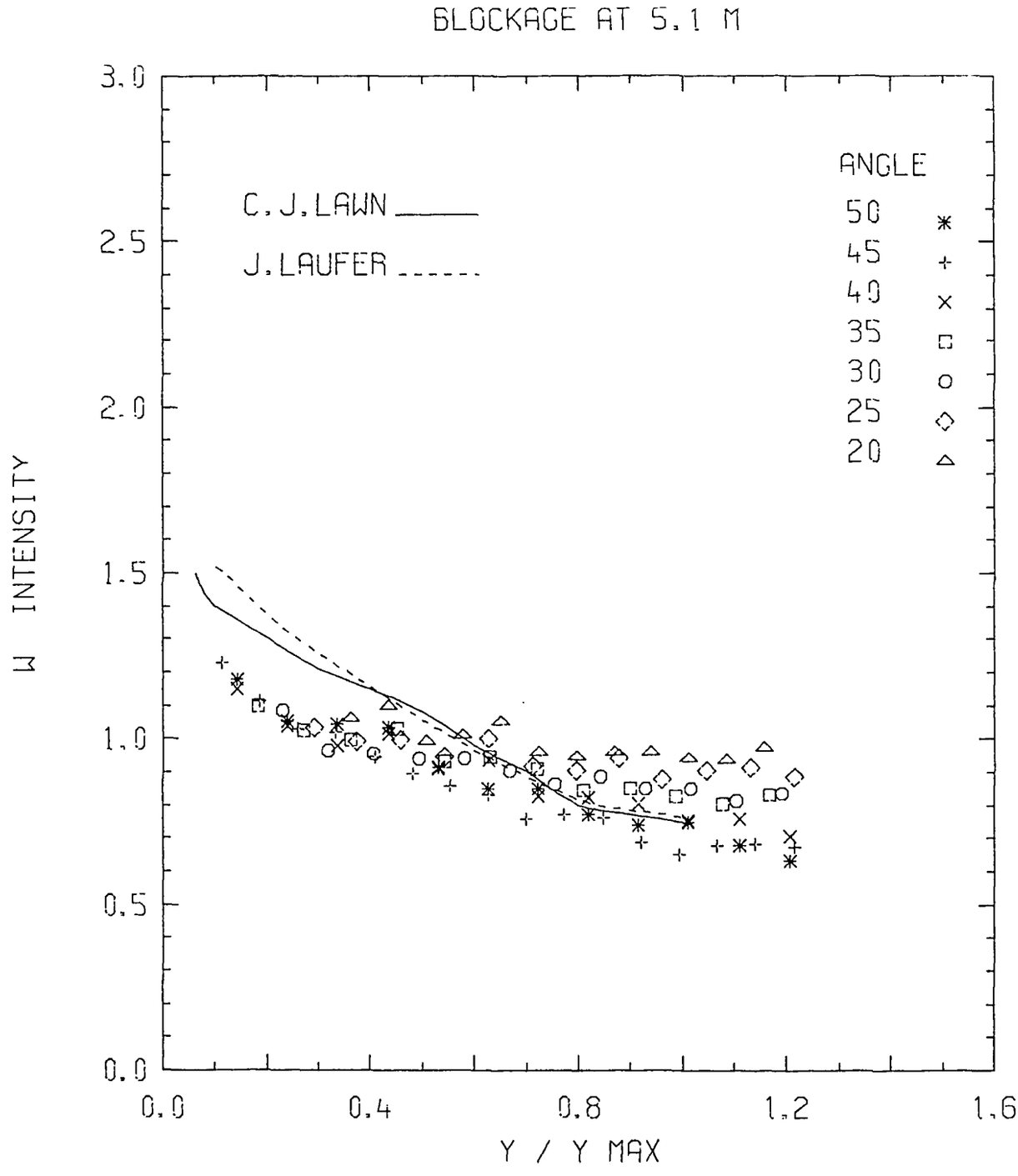

FIGURE 14c AZIMUTHAL TURBULENCE INTENSITY AT 5.1 m

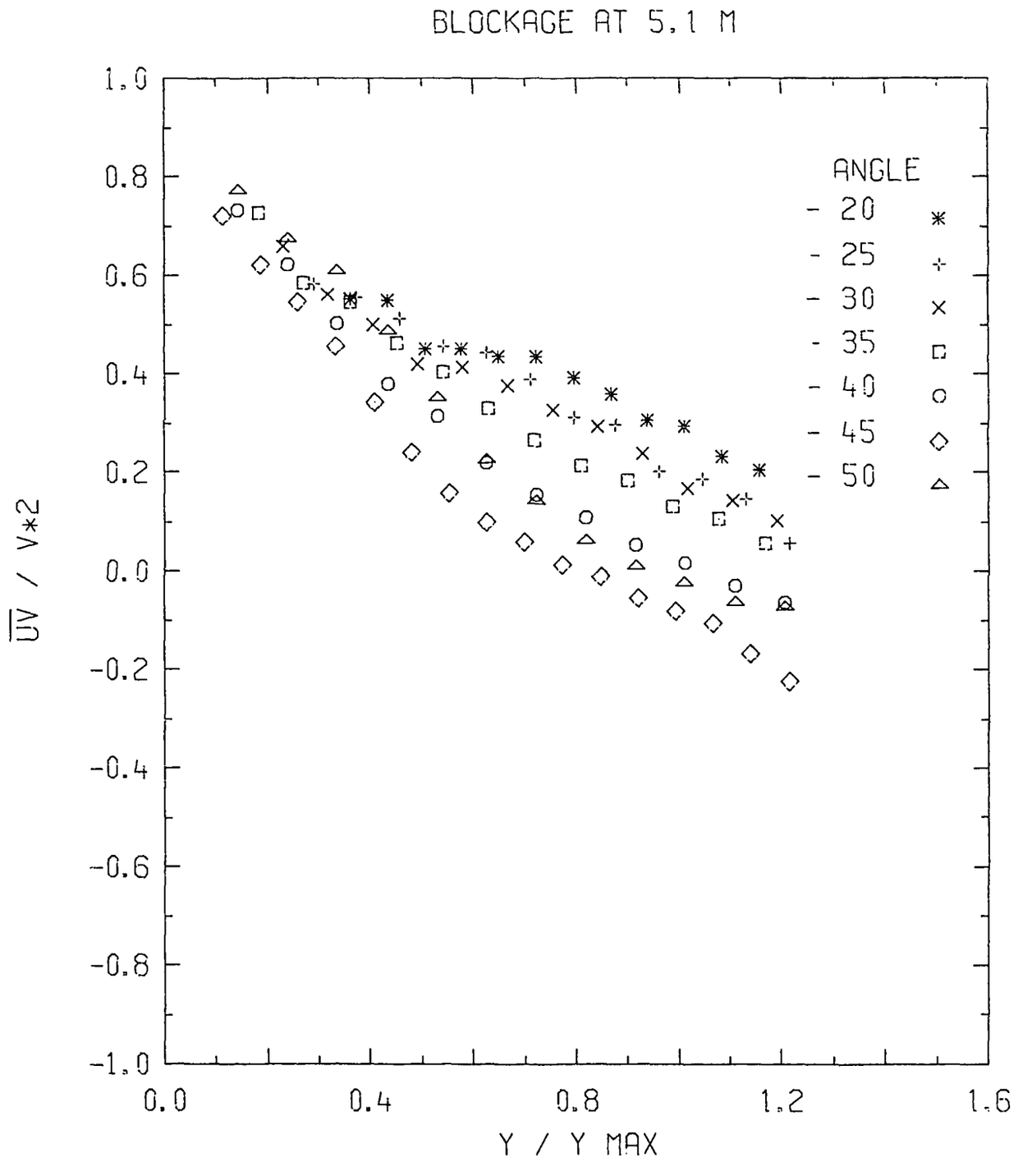

FIGURE 15a RADIAL REYNOLDS SHEAR STRESS AT 5.1 m

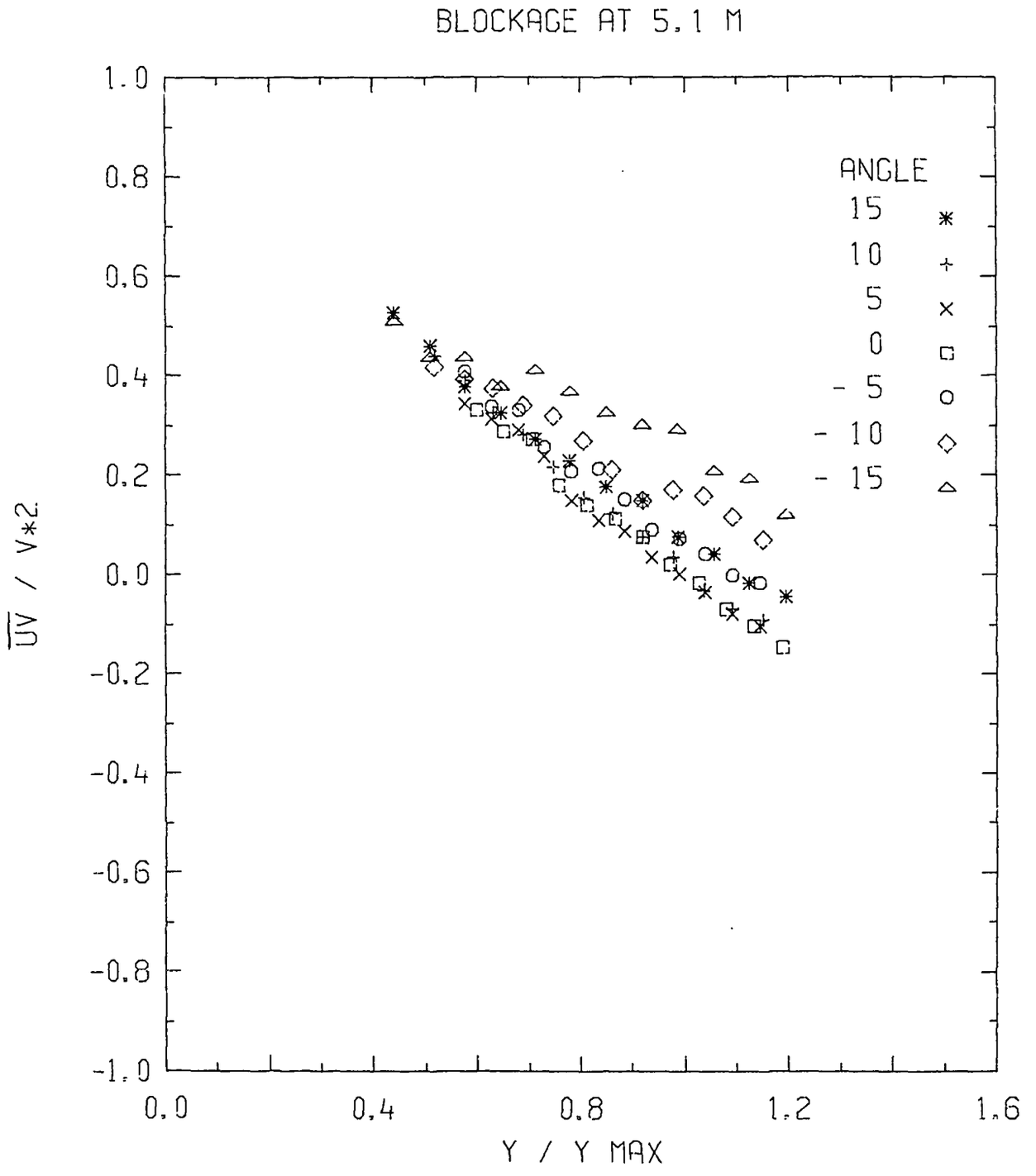

FIGURE 15b RADIAL REYNOLDS SHEAR STRESS AT 5.1 m

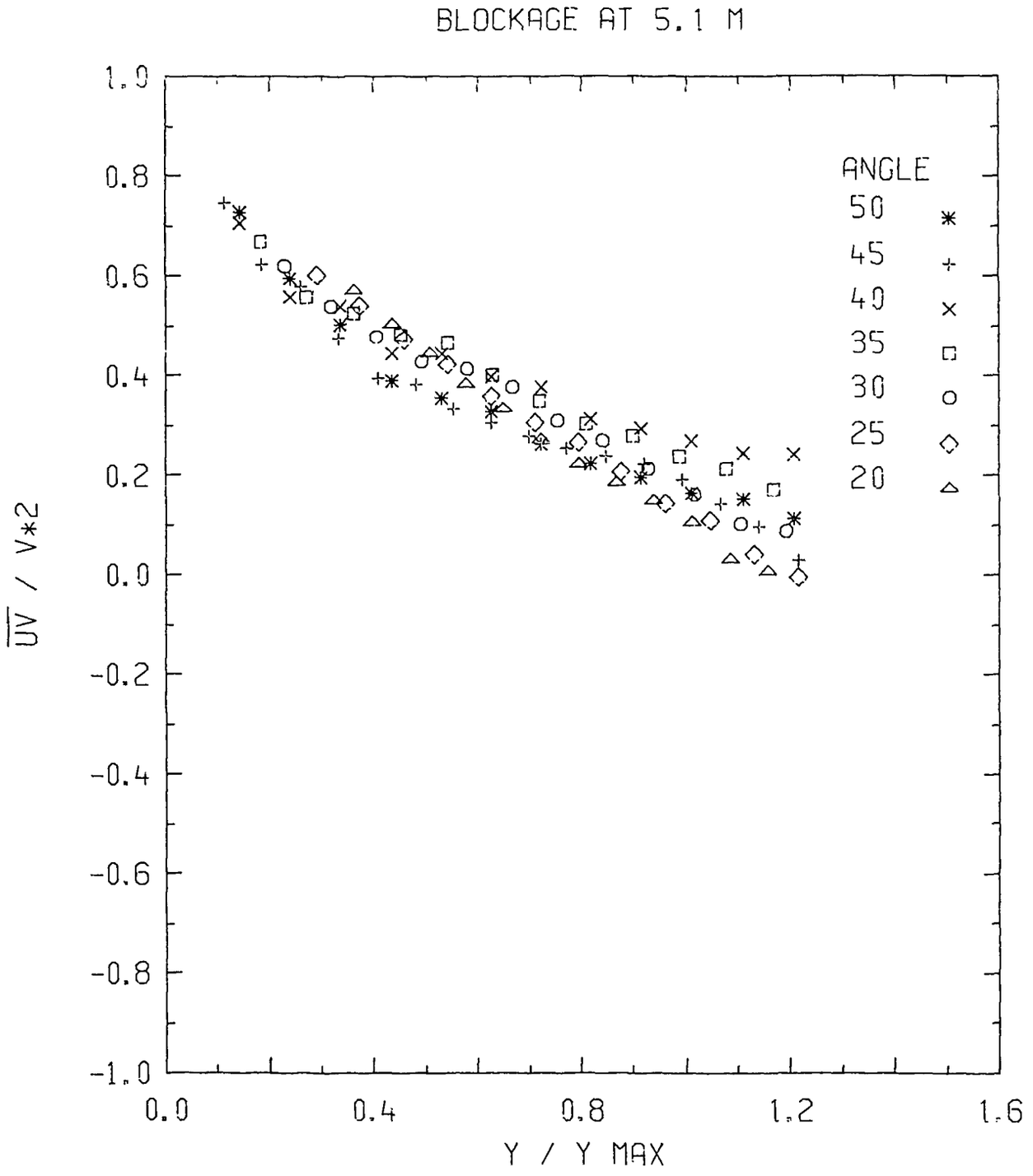

FIGURE 15c RADIAL REYNOLDS SHEAR STRESS AT 5.1 m

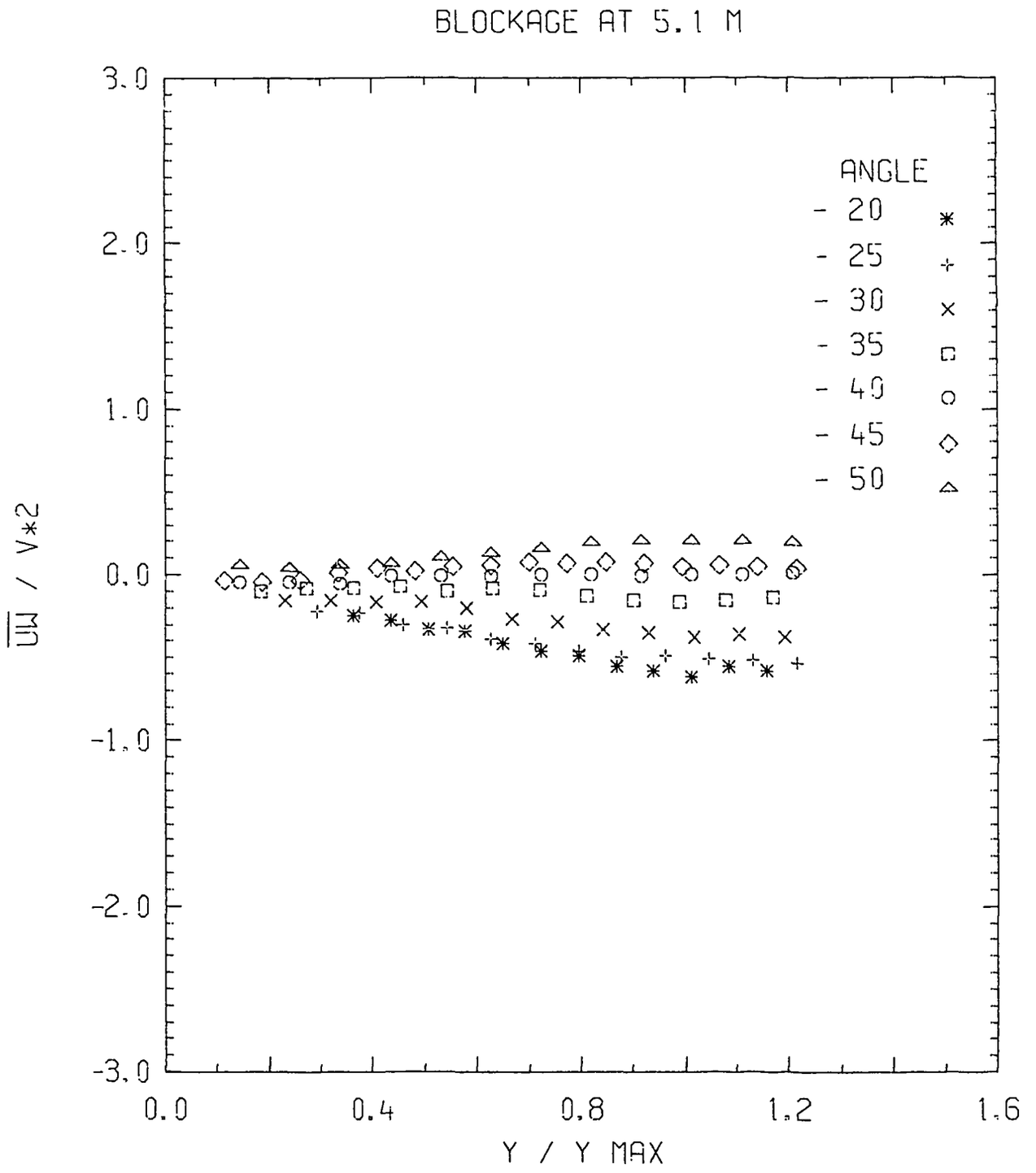

FIGURE 16a AZIMUTHAL REYNOLDS SHEAR STRESS AT 5.1 m

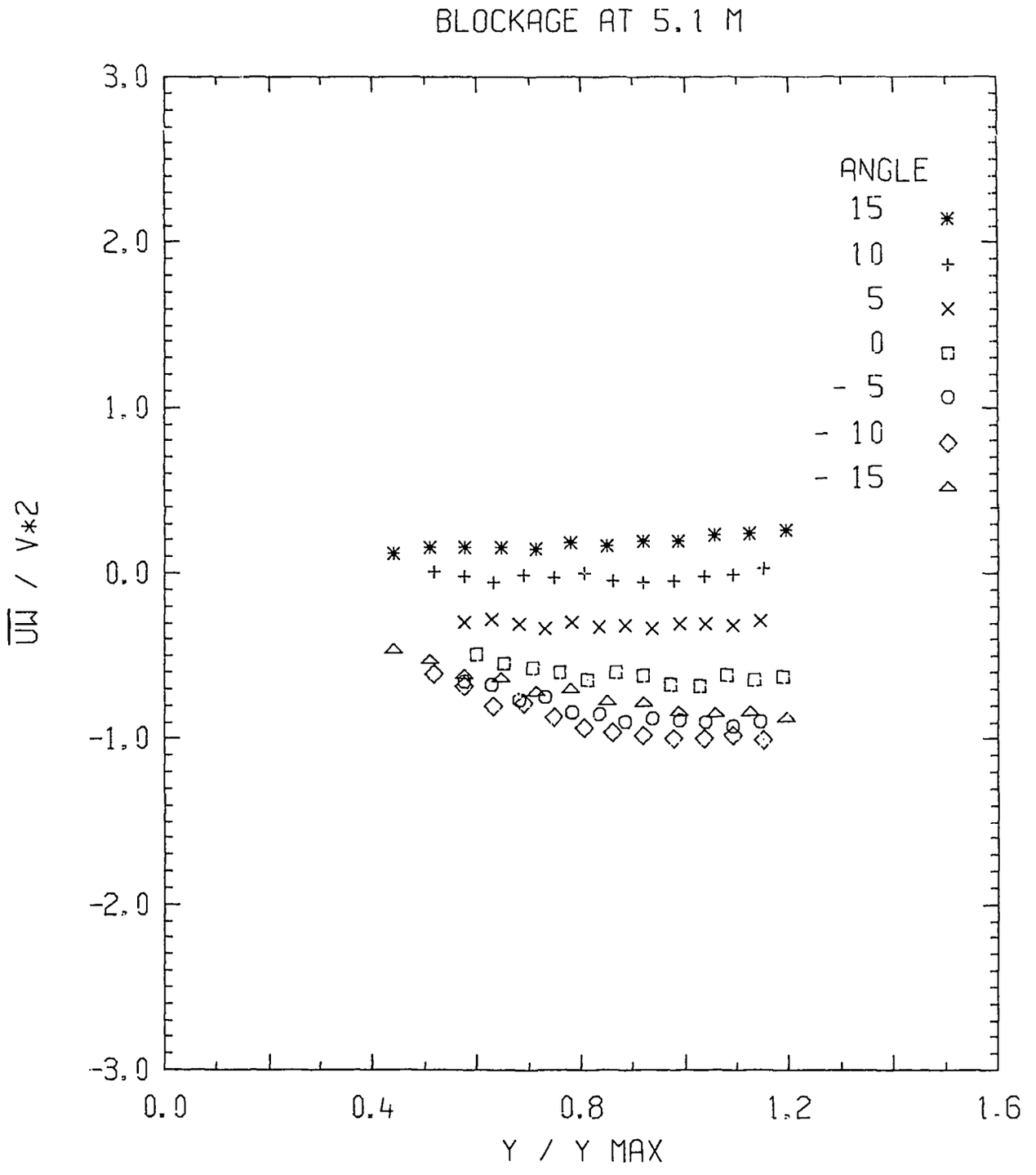

FIGURE 16b AZIMUTHAL REYNOLDS SHEAR STRESS AT 5.1 m

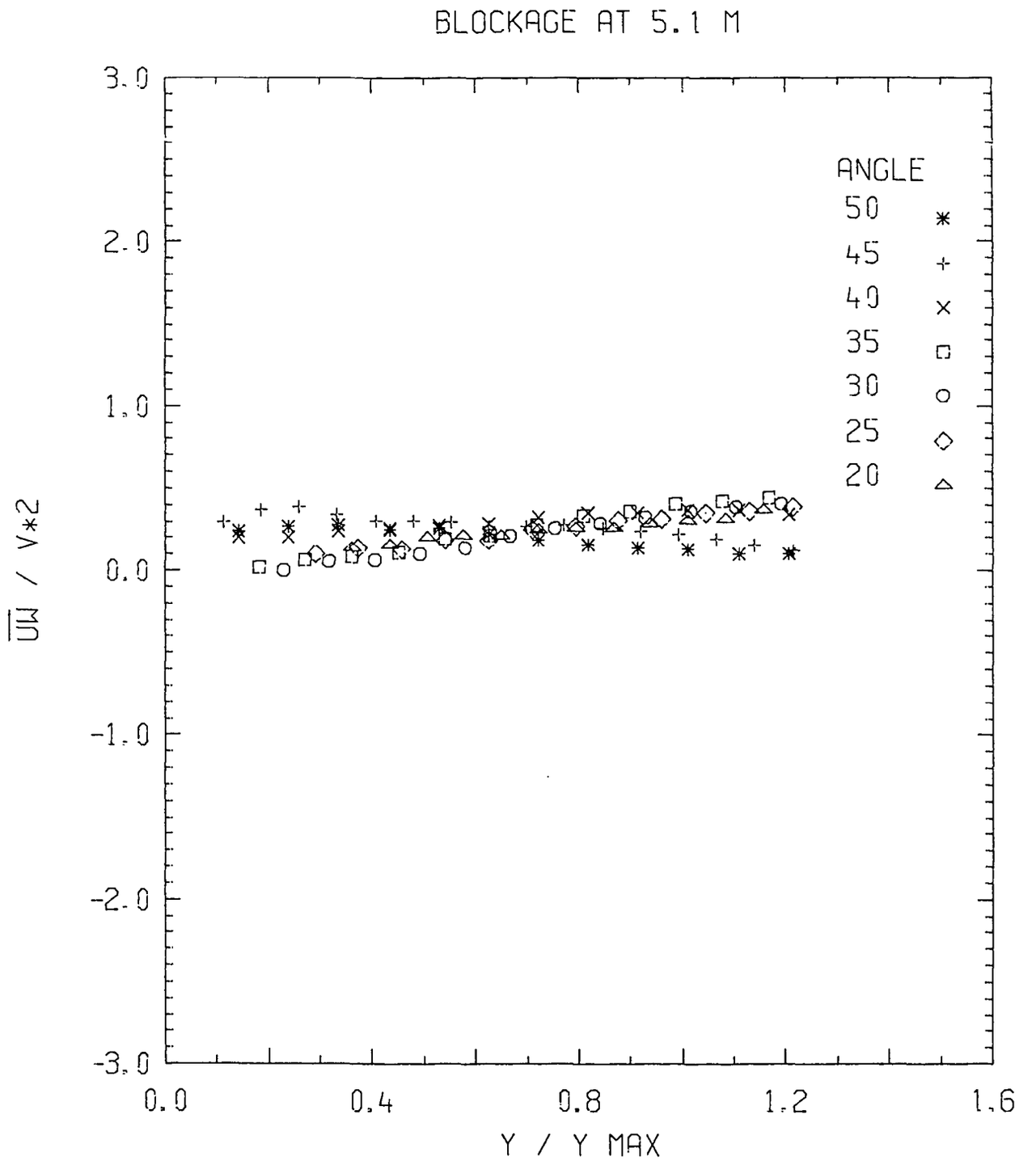

FIGURE 16c AZIMUTHAL REYNOLDS SHEAR STRESS AT 5.1 m

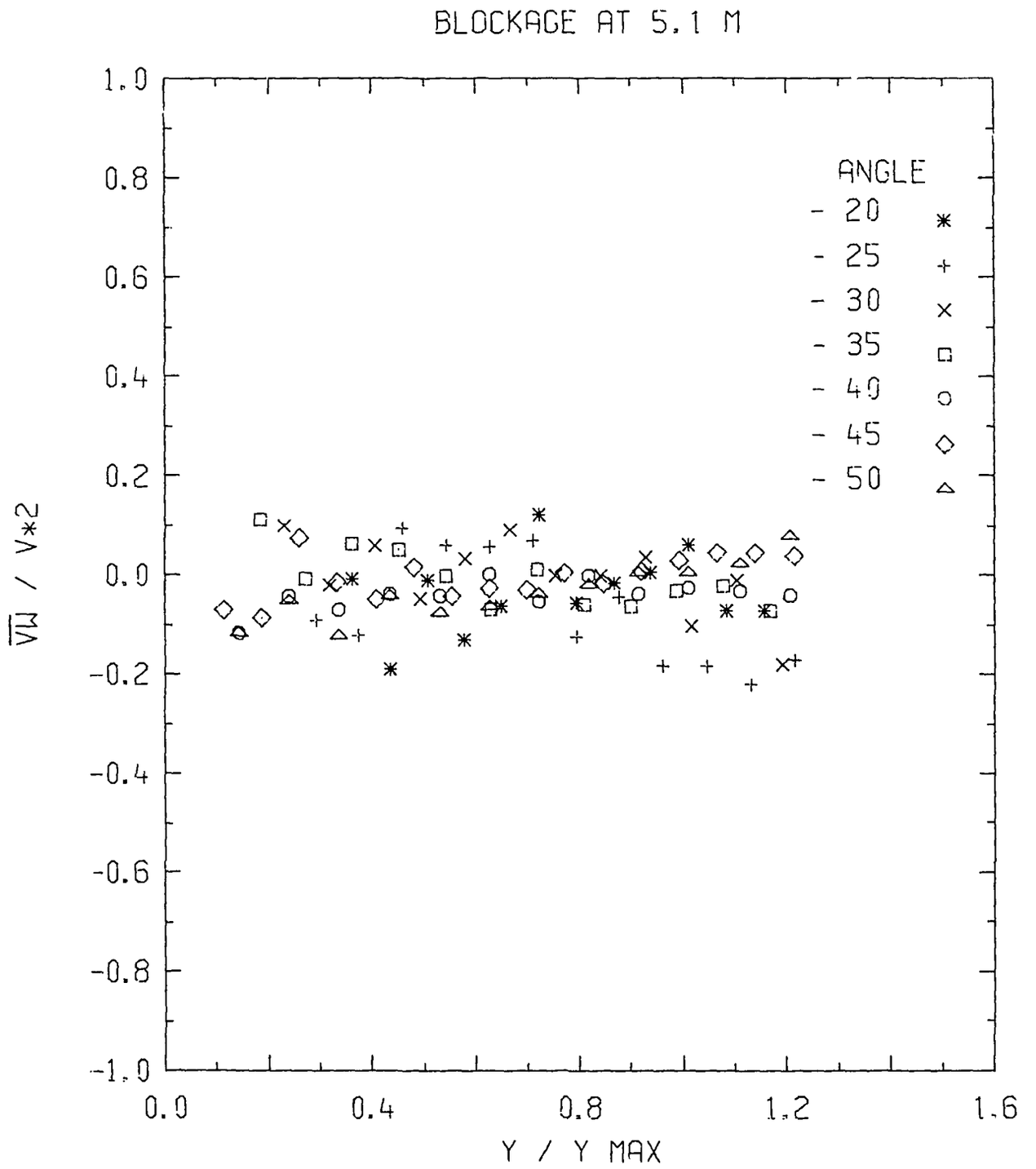

FIGURE 17a TRANSVERSE REYNOLDS SHEAR STRESS AT 5.1 m

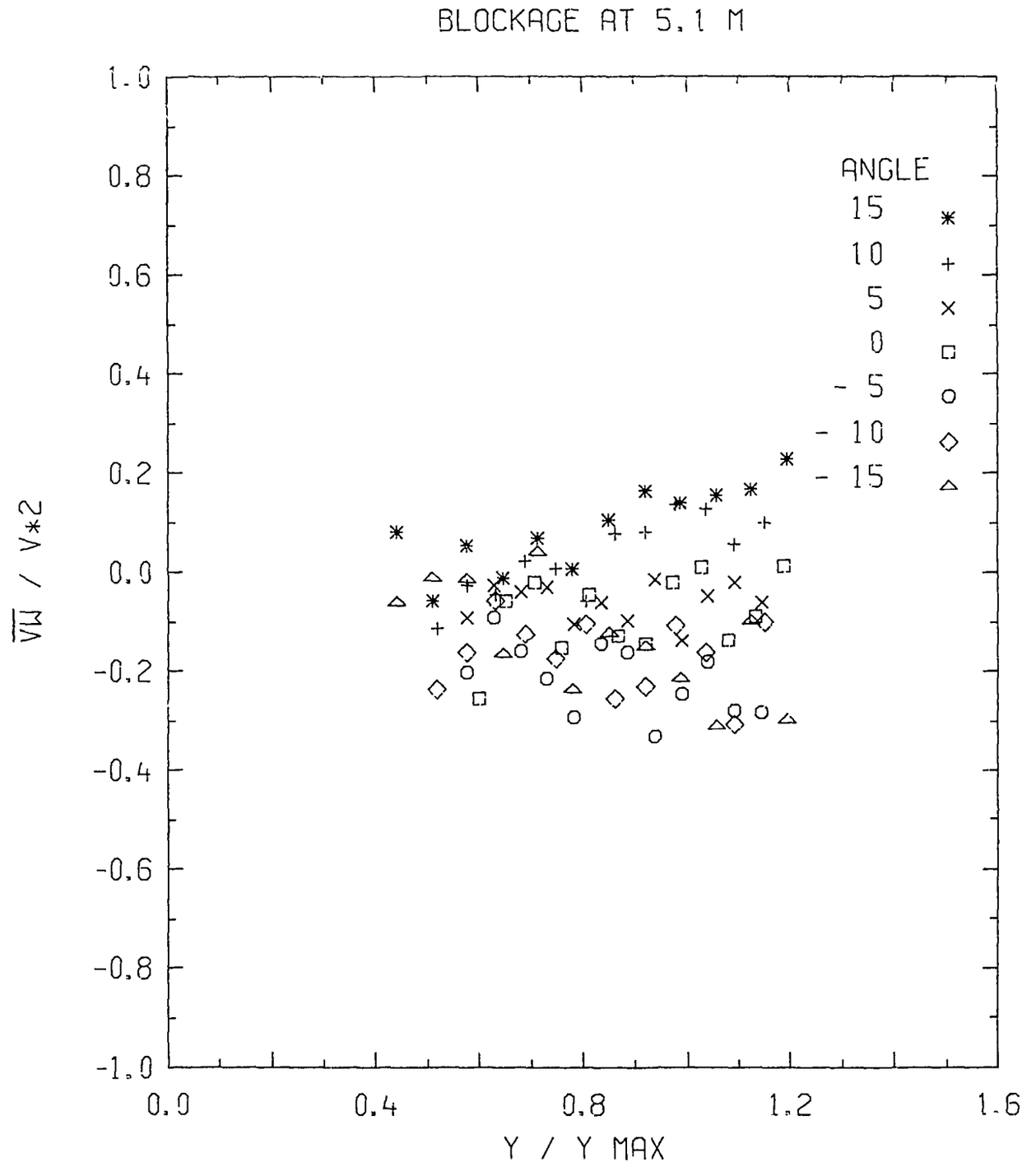

FIGURE 17b TRANSVERSE REYNOLDS SHEAR STRESS AT 5.1 m

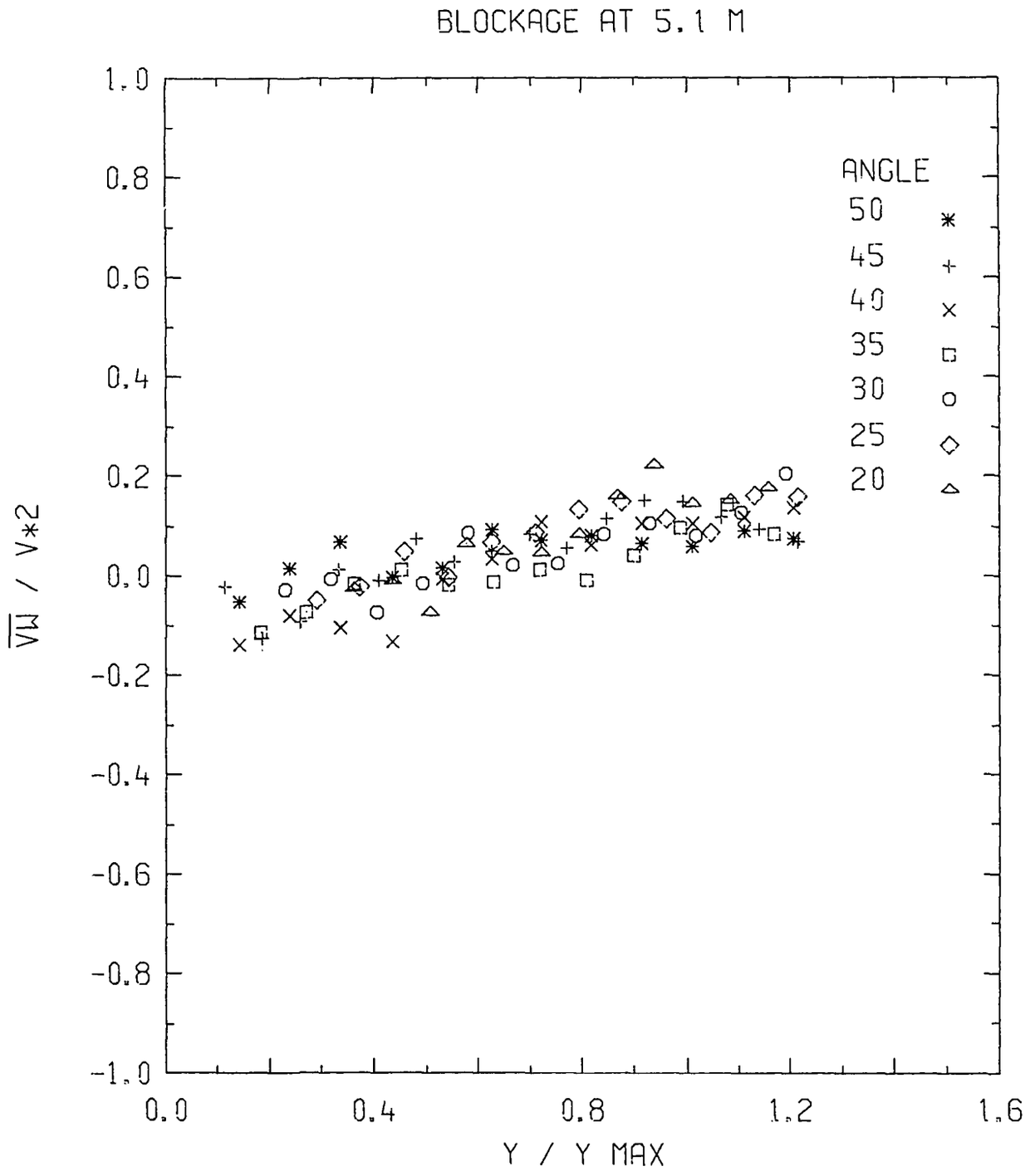

FIGURE 17c TRANSVERSE REYNOLDS SHEAR STRESS AT 5.1 m

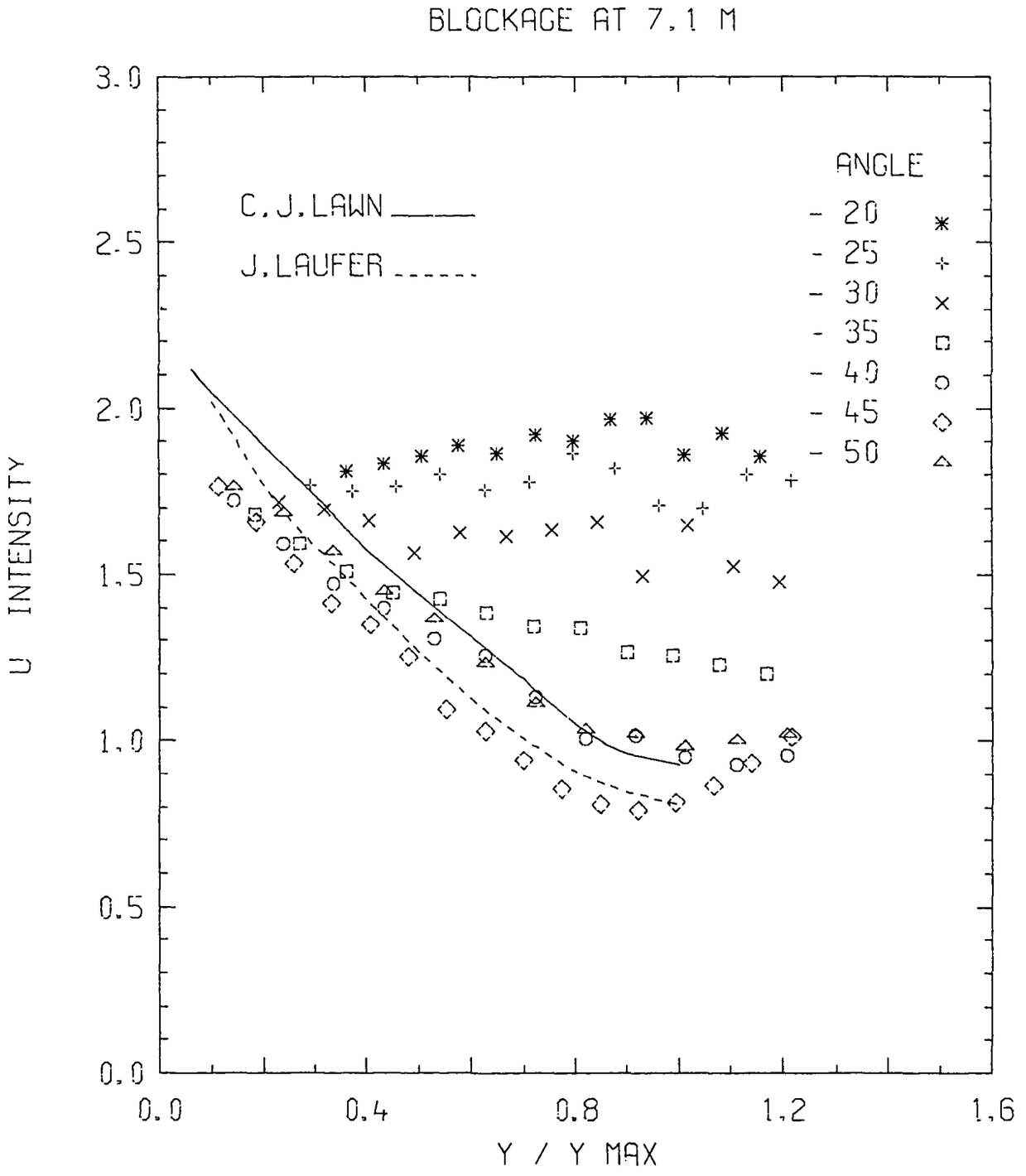

FIGURE 18a AXIAL TURBULENCE INTENSITY AT 7.1 m

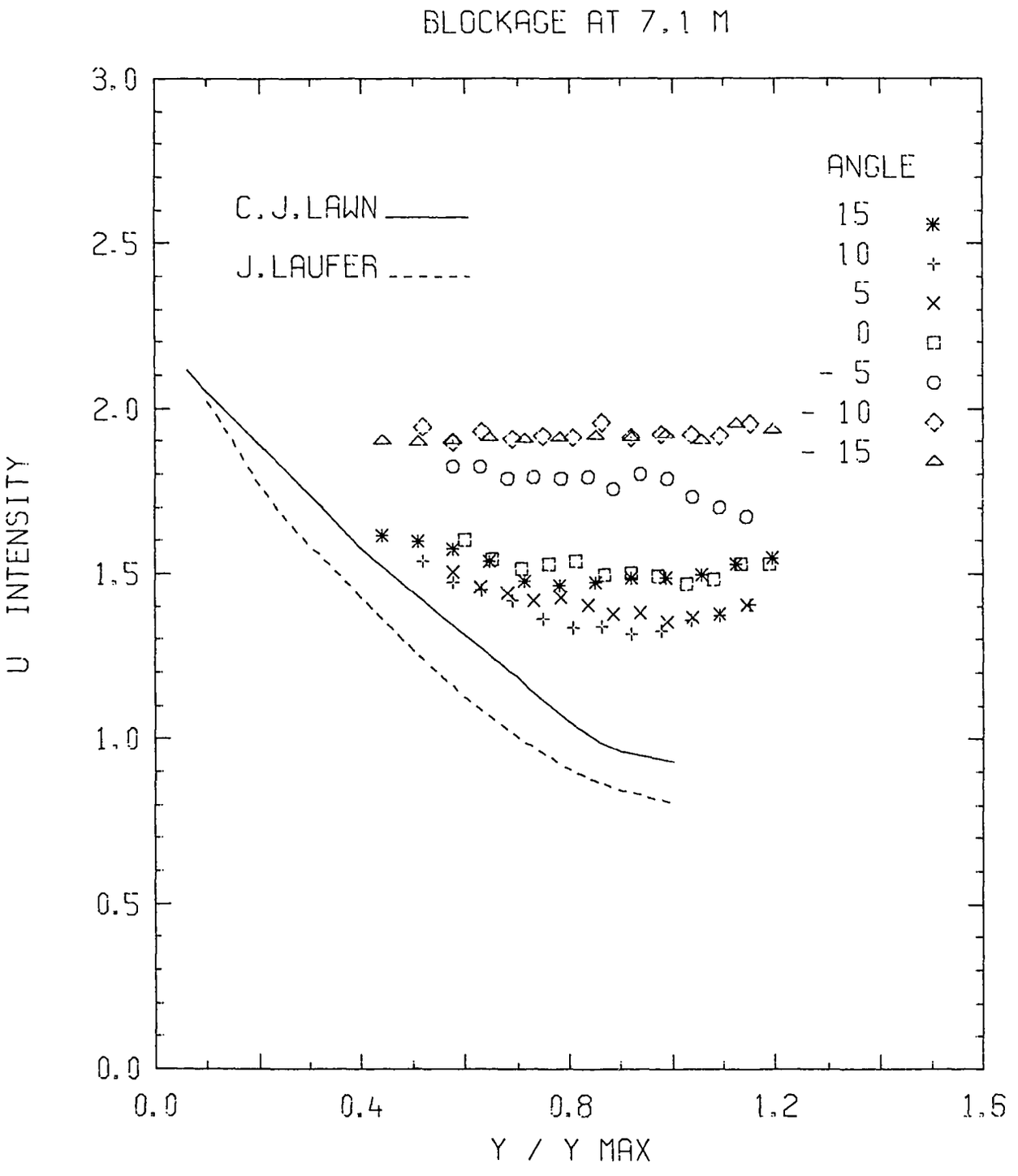

FIGURE 18b AXIAL TURBULENCE INTENSITY AT 7.1 m

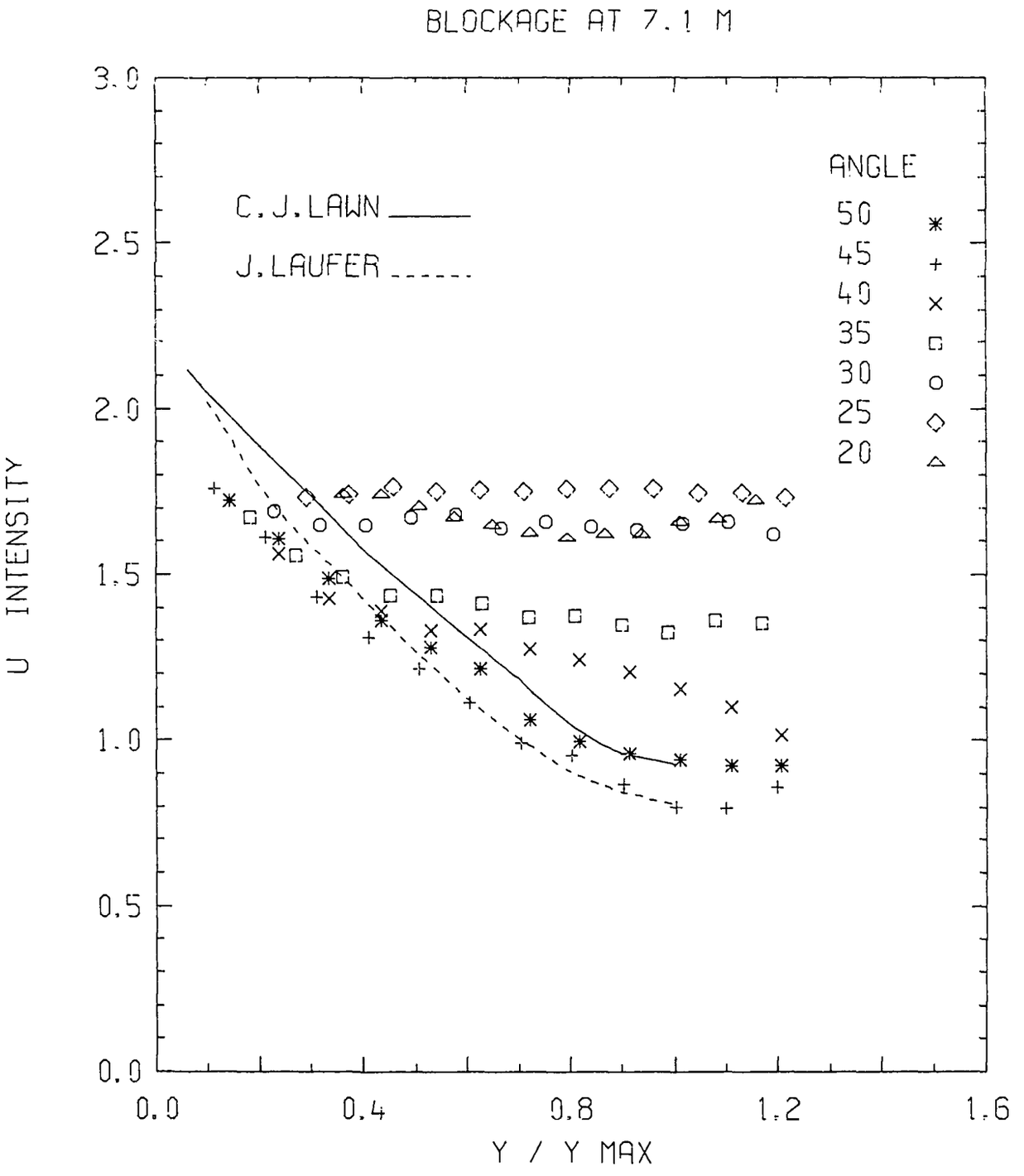

FIGURE 18c AXIAL TURBULENCE INTENSITY AT 7.1 m

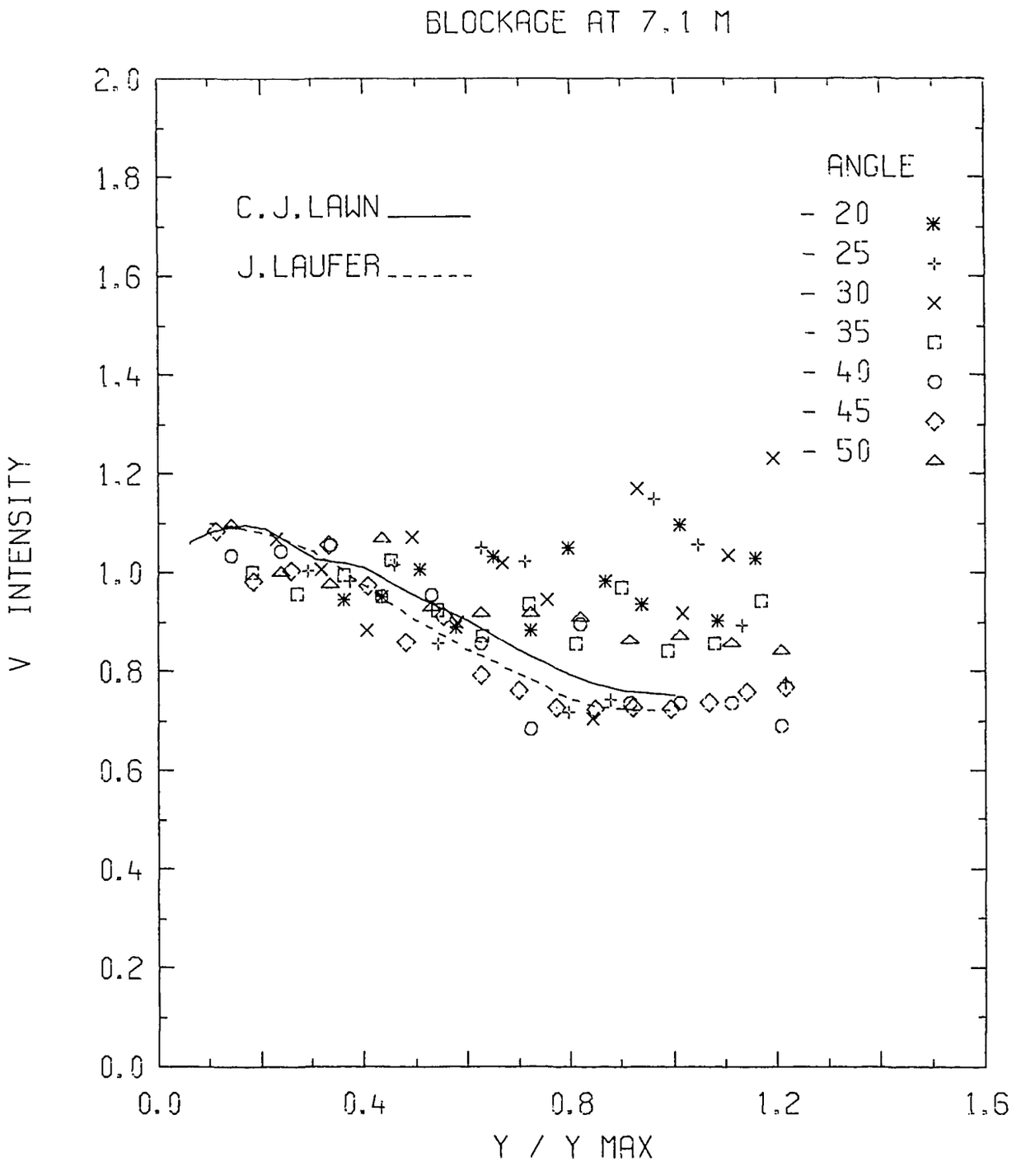

FIGURE 19a RADIAL TURBULENCE INTENSITY AT 7.1 m

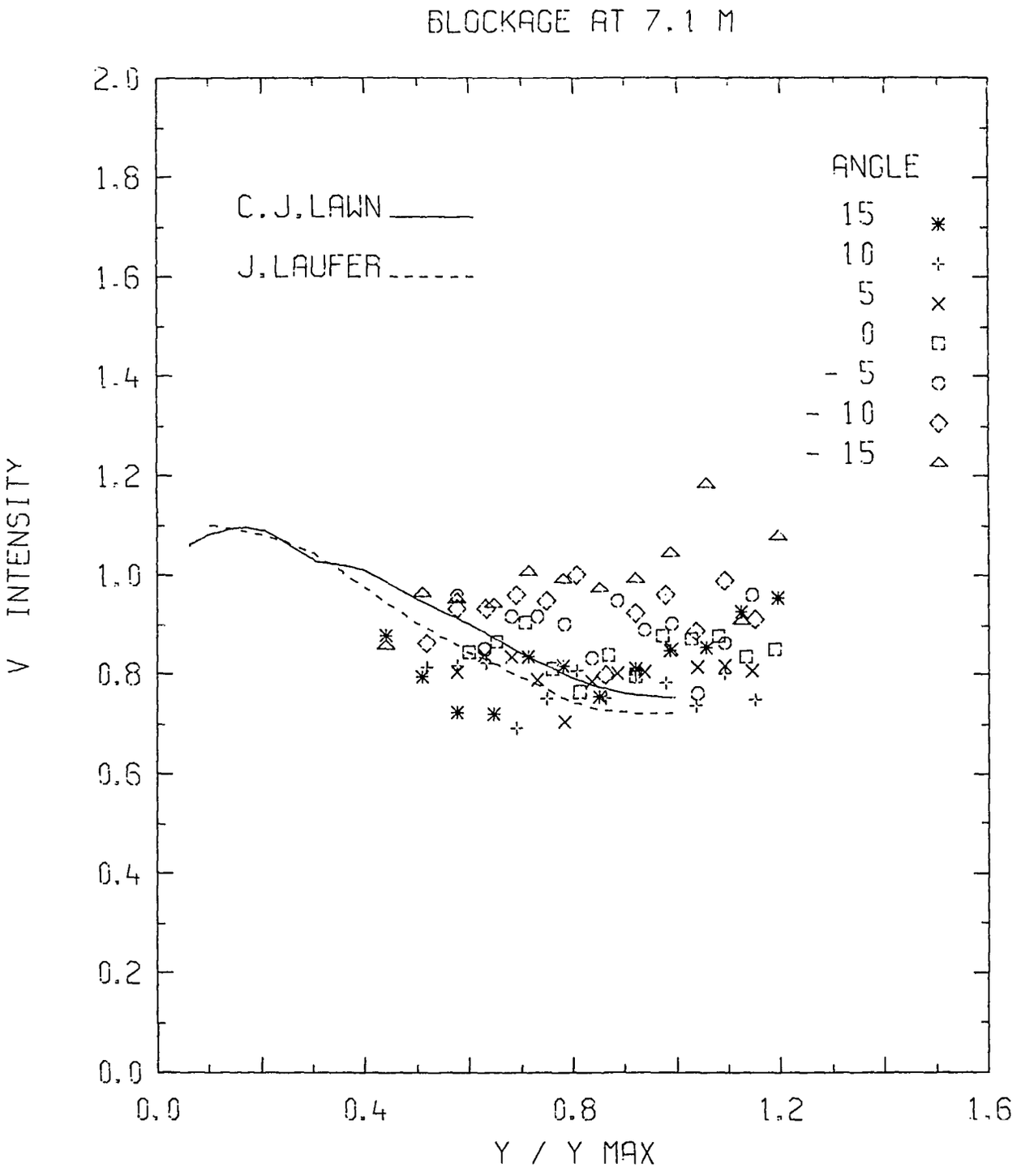

FIGURE 19b RADIAL TURBULENCE INTENSITY AT 7.1 m

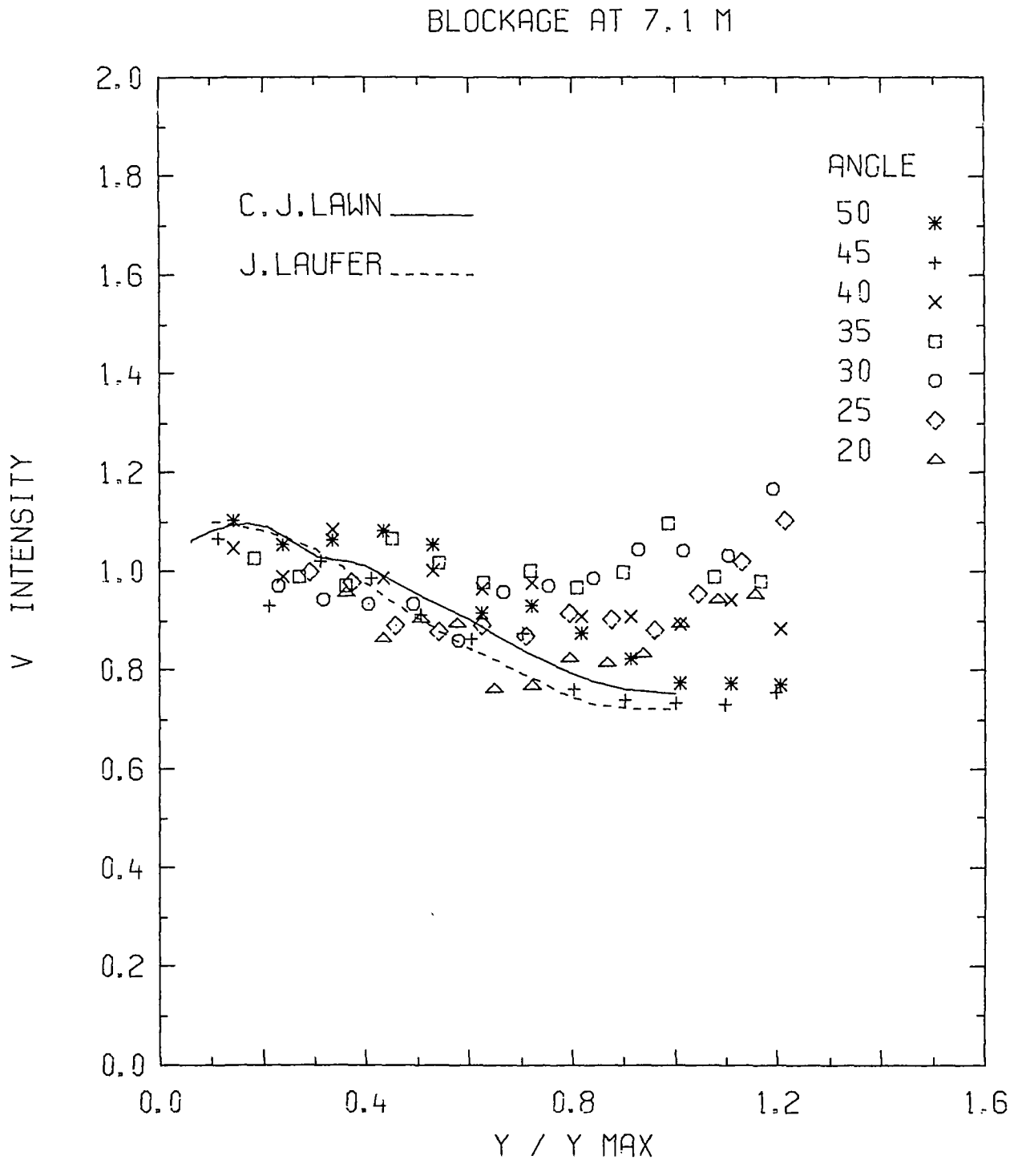

FIGURE 19c RADIAL TURBULENCE INTENSITY AT 7.1 m

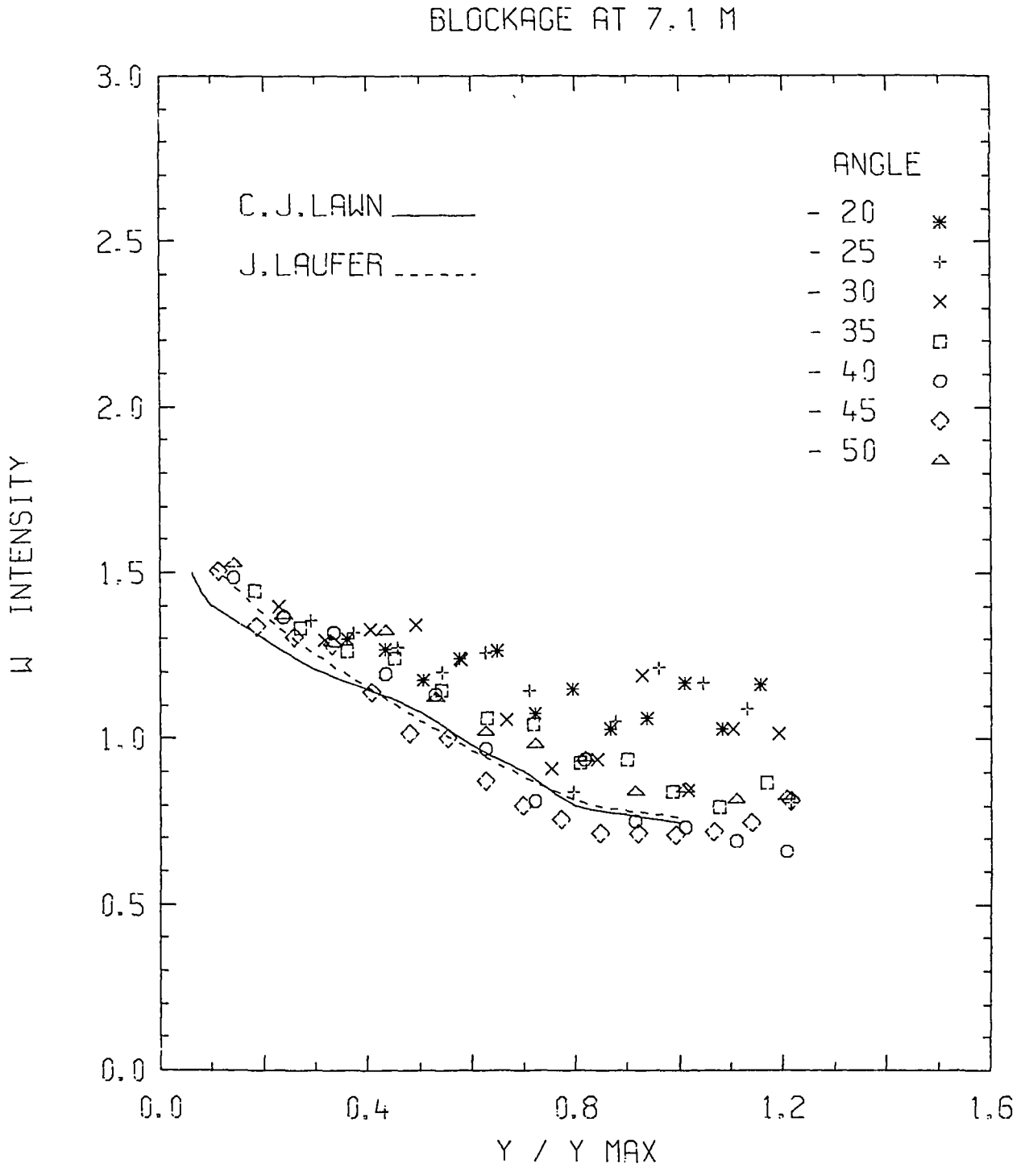

FIGURE 20a AZIMUTHAL TURBULENCE INTENSITY AT 7.1 m

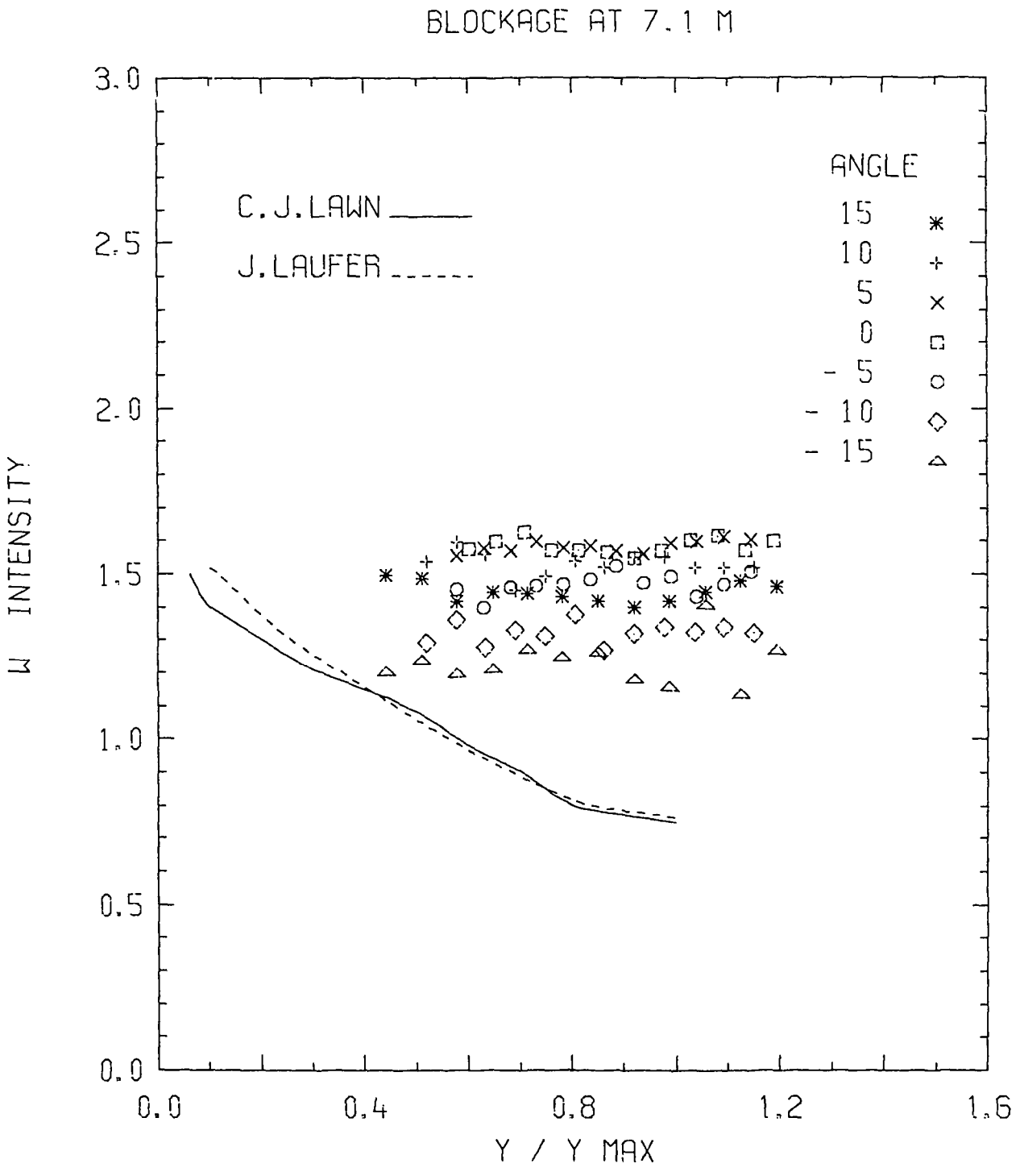

FIGURE 20b AZIMUTHAL TURBULENCE INTENSITY AT 7.1 m

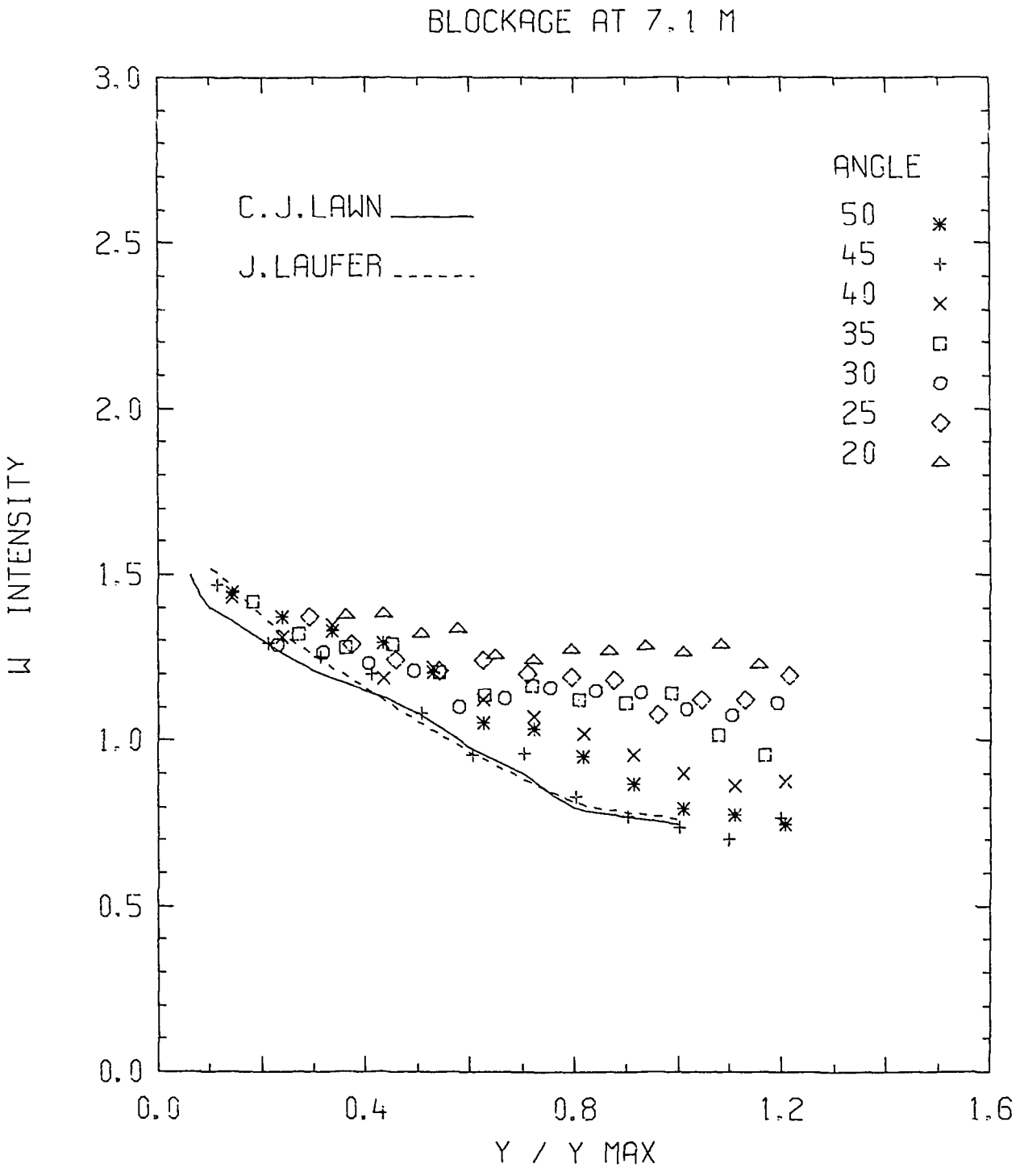

FIGURE 20c AZIMUTHAL TURBULENCE INTENSITY AT 7.1 m

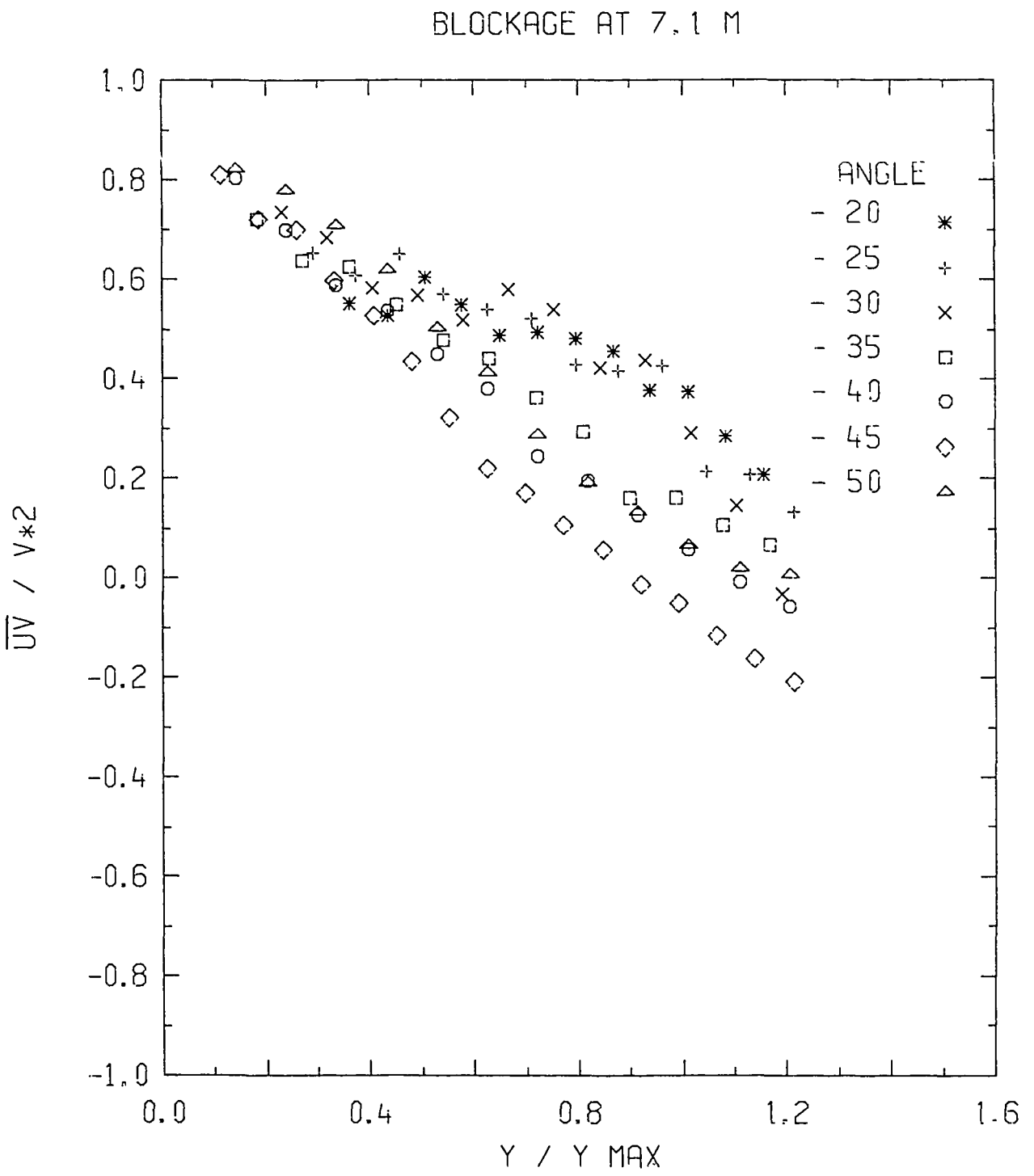

FIGURE 21a RADIAL REYNOLDS SHEAR STRESS AT 7.1 m

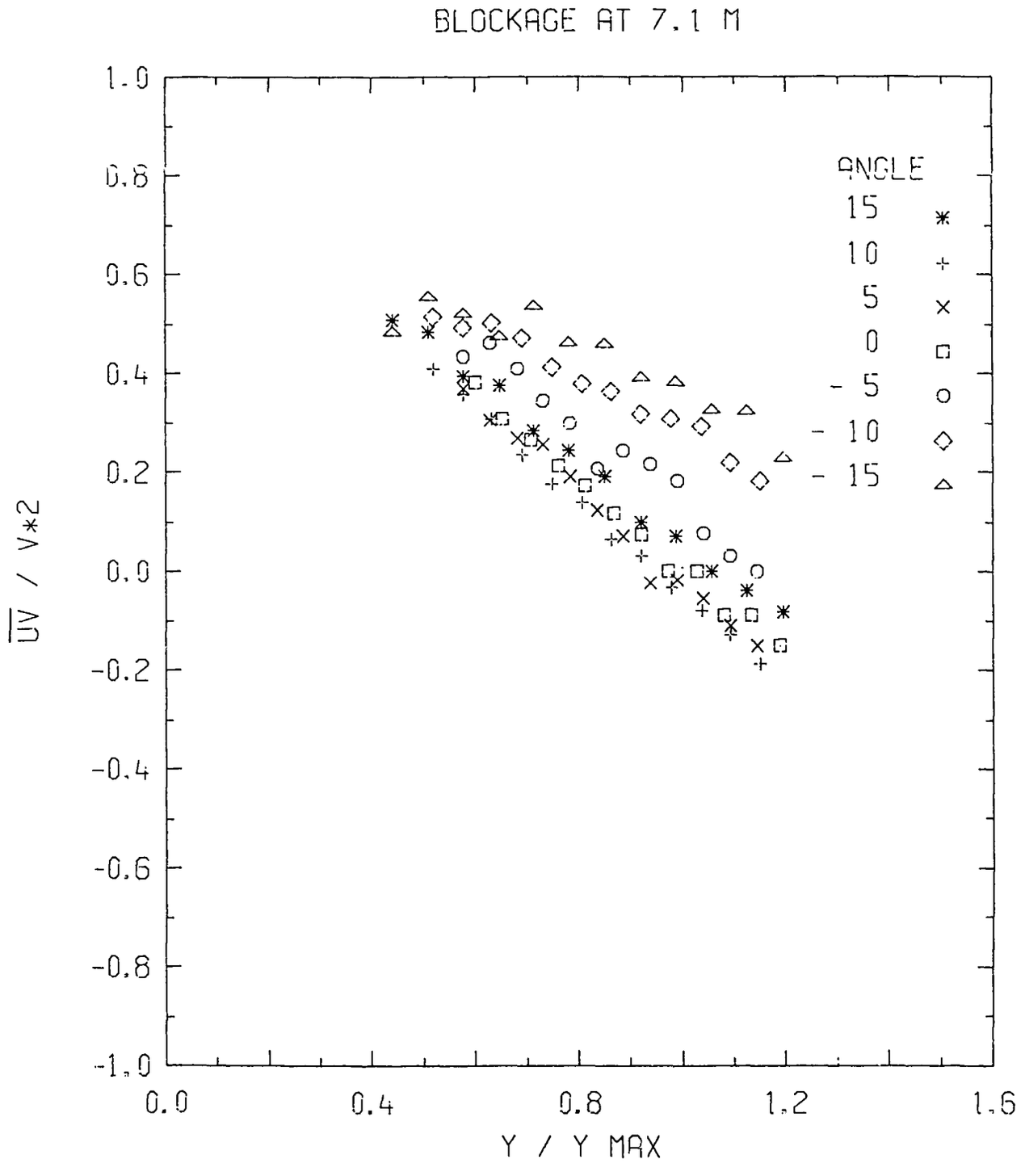

FIGURE 21b RADIAL REYNOLDS SHEAR STRESS AT 7.1 m

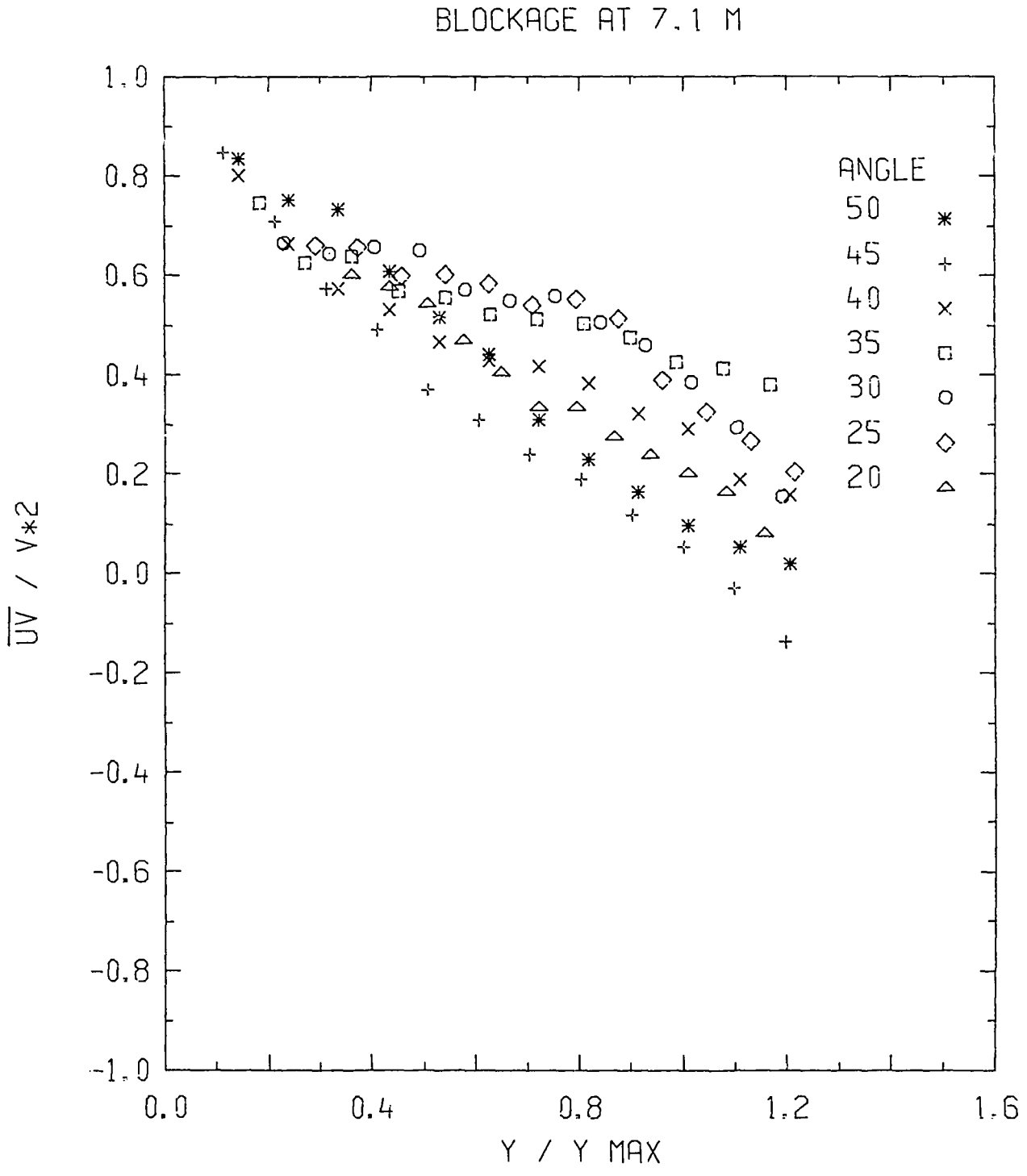

FIGURE 21c RADIAL REYNOLDS SHEAR STRESS AT 7.1 m

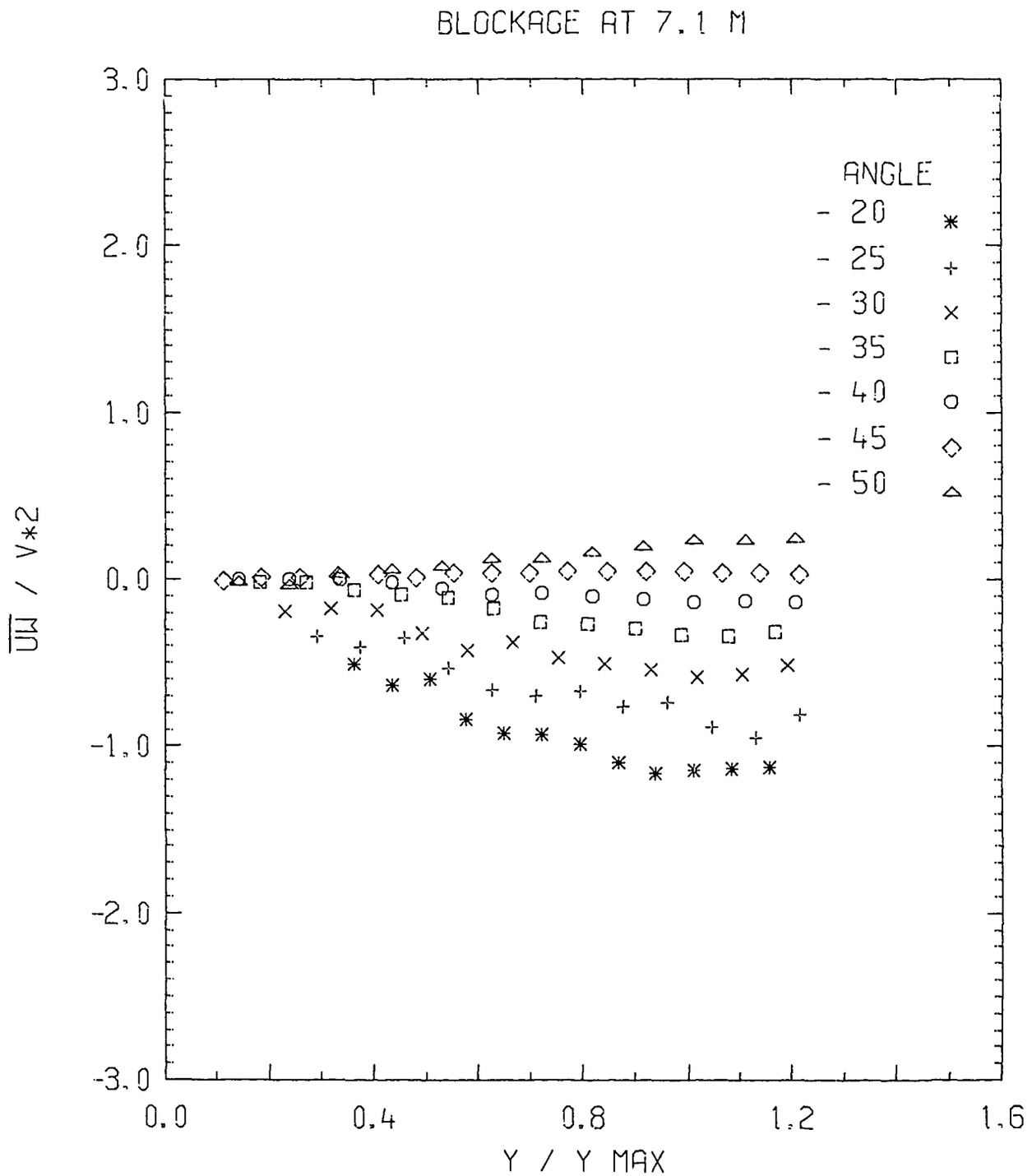

FIGURE 22a AZIMUTHAL REYNOLDS SHEAR STRESS AT 7.1 m

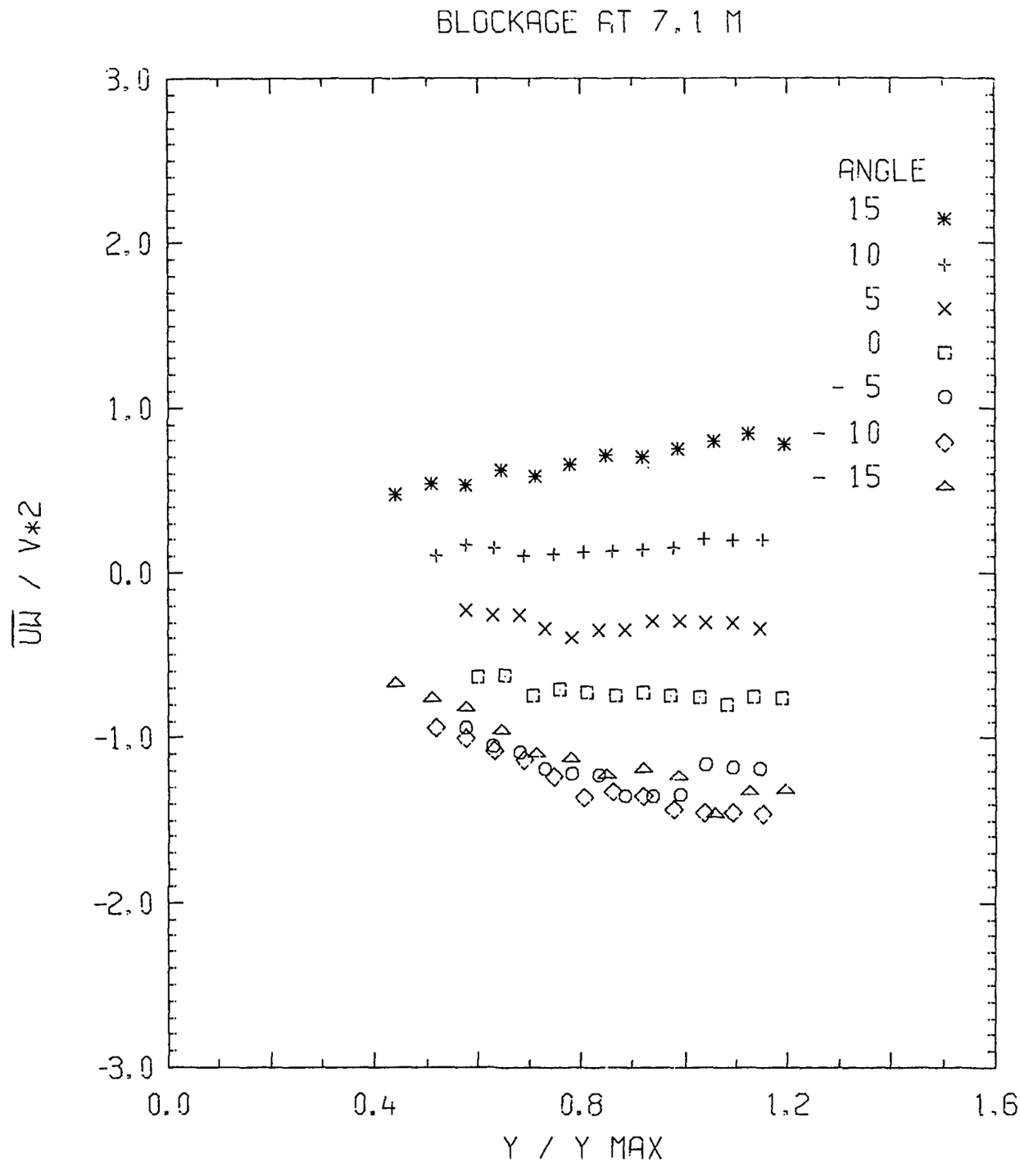

FIGURE 22b AZIMUTHAL REYNOLDS SHEAR STRESS AT 7.1 m

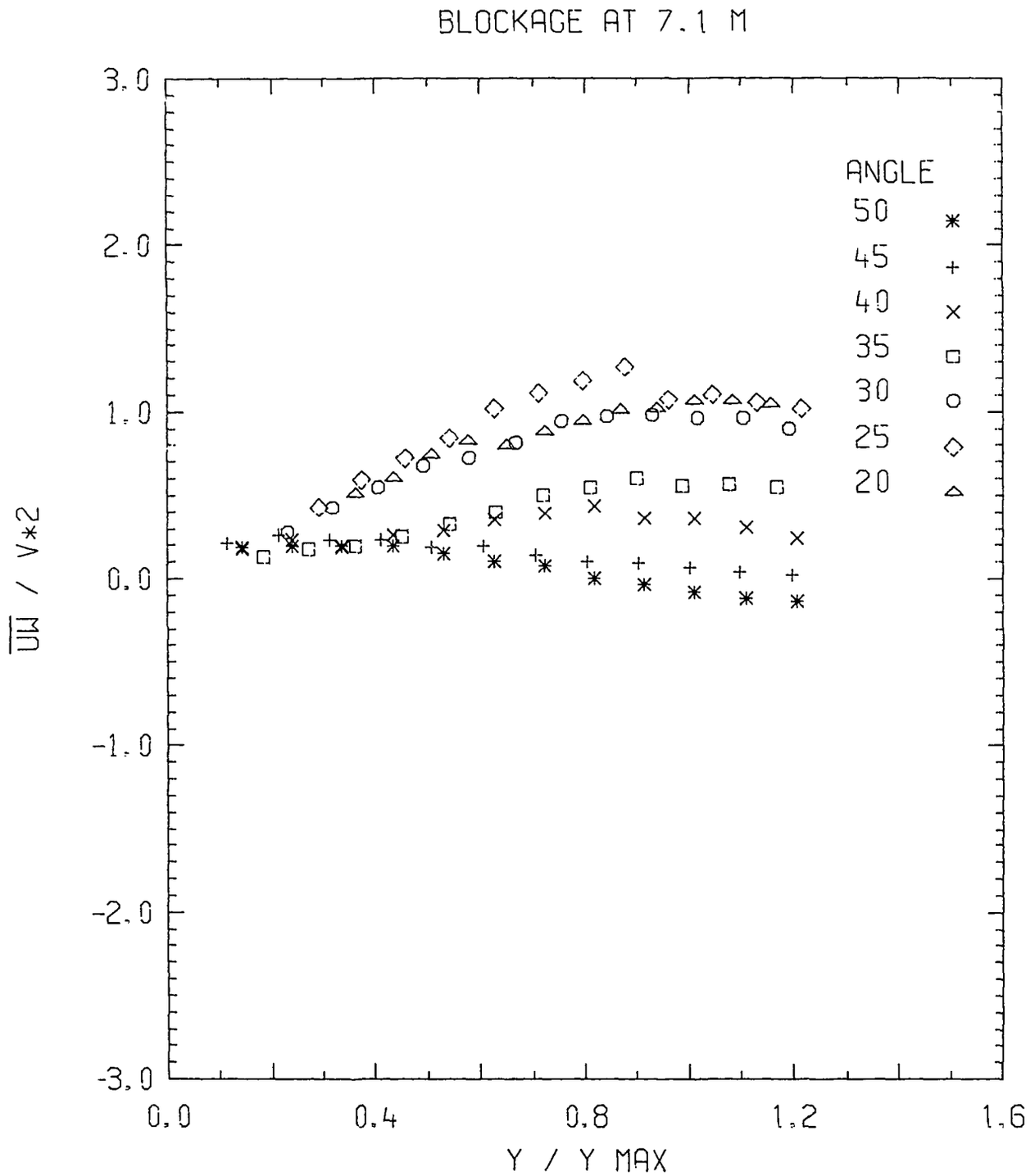

FIGURE 22c AZIMUTHAL REYNOLDS SHEAR STRESS AT 7.1 m

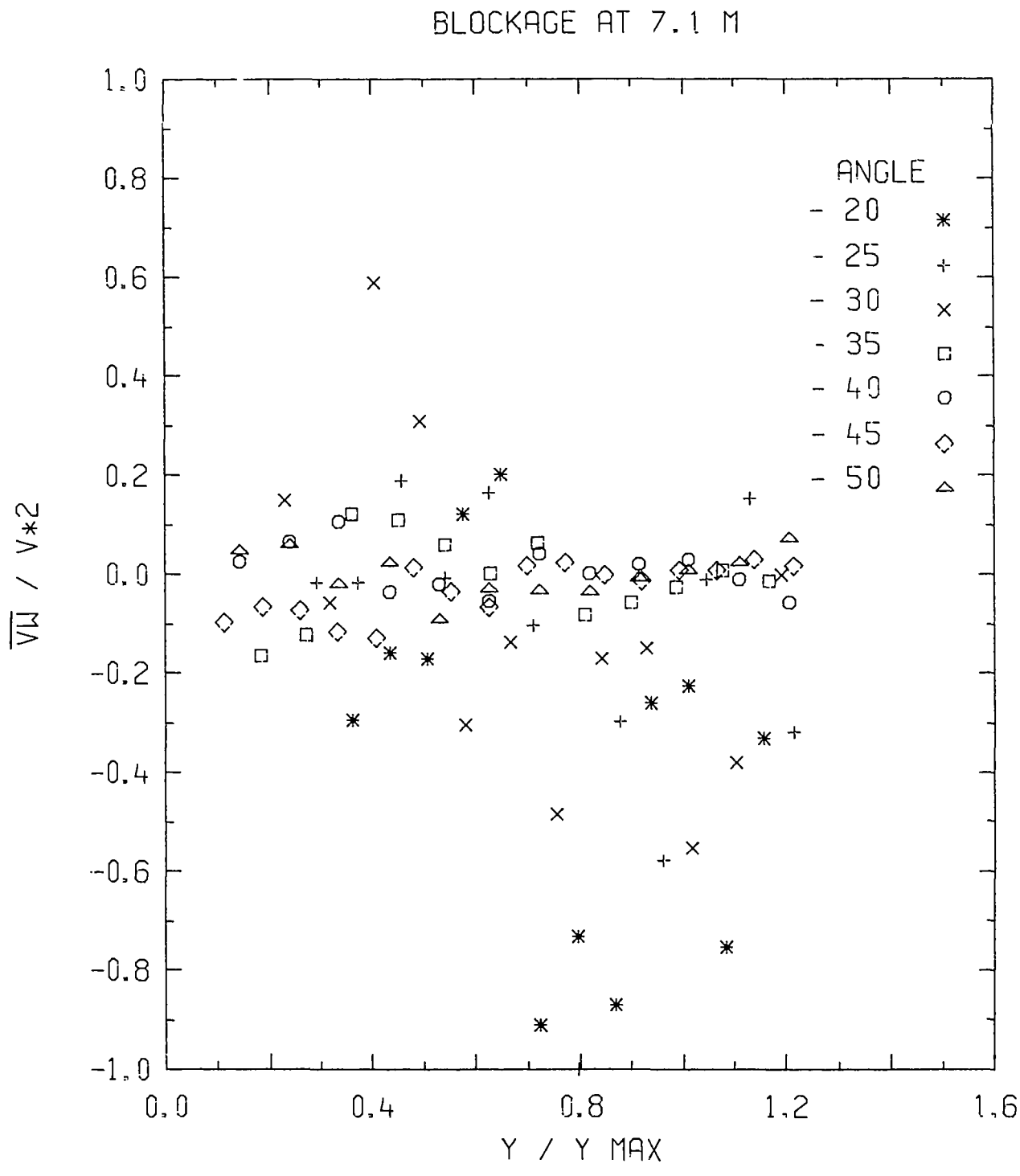

FIGURE 23a TRANSVERSE REYNOLDS SHEAR STRESS AT 7.1 m

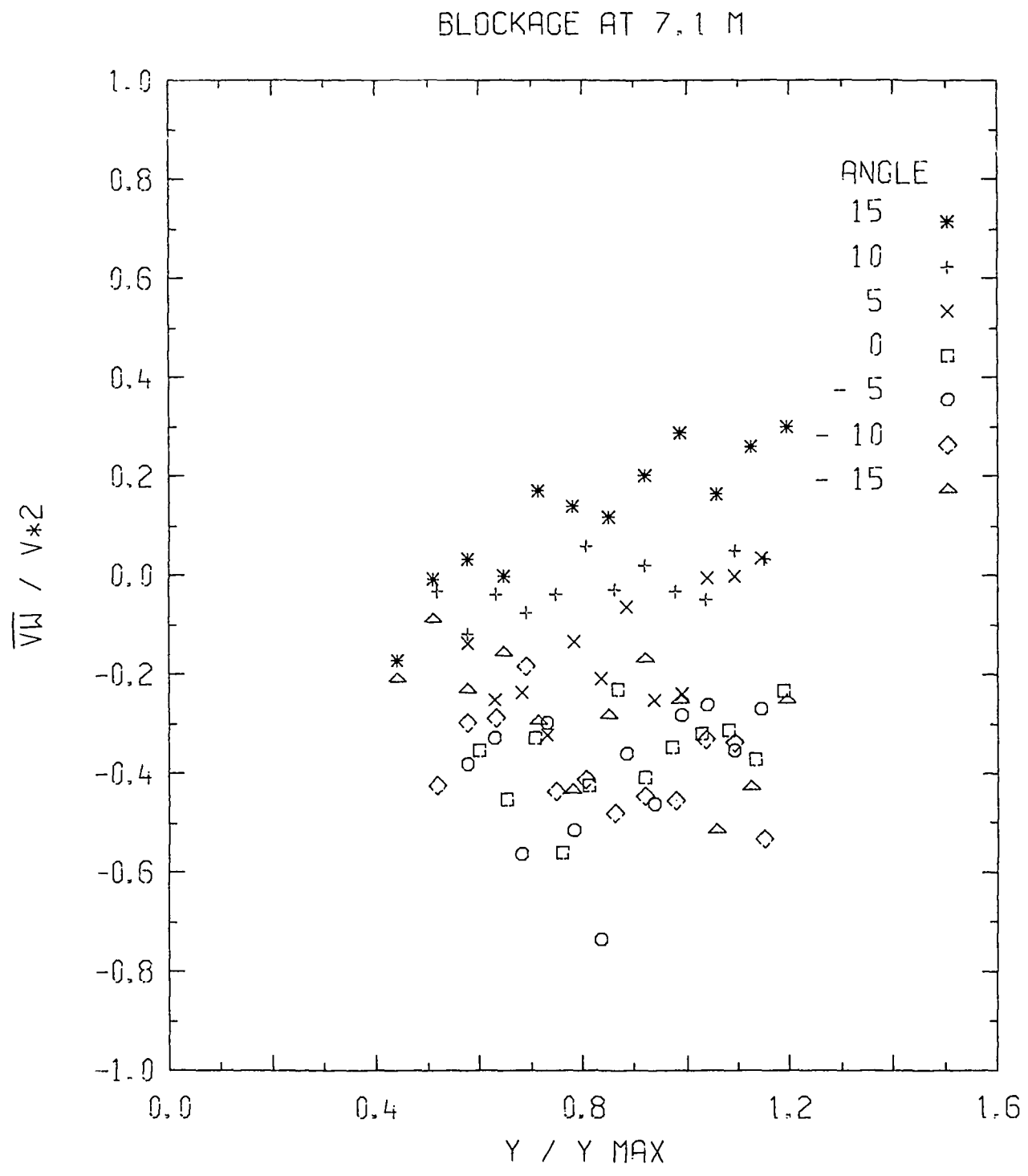

FIGURE 23b TRANSVERSE REYNOLDS SHEAR STRESS AT 7.1 m

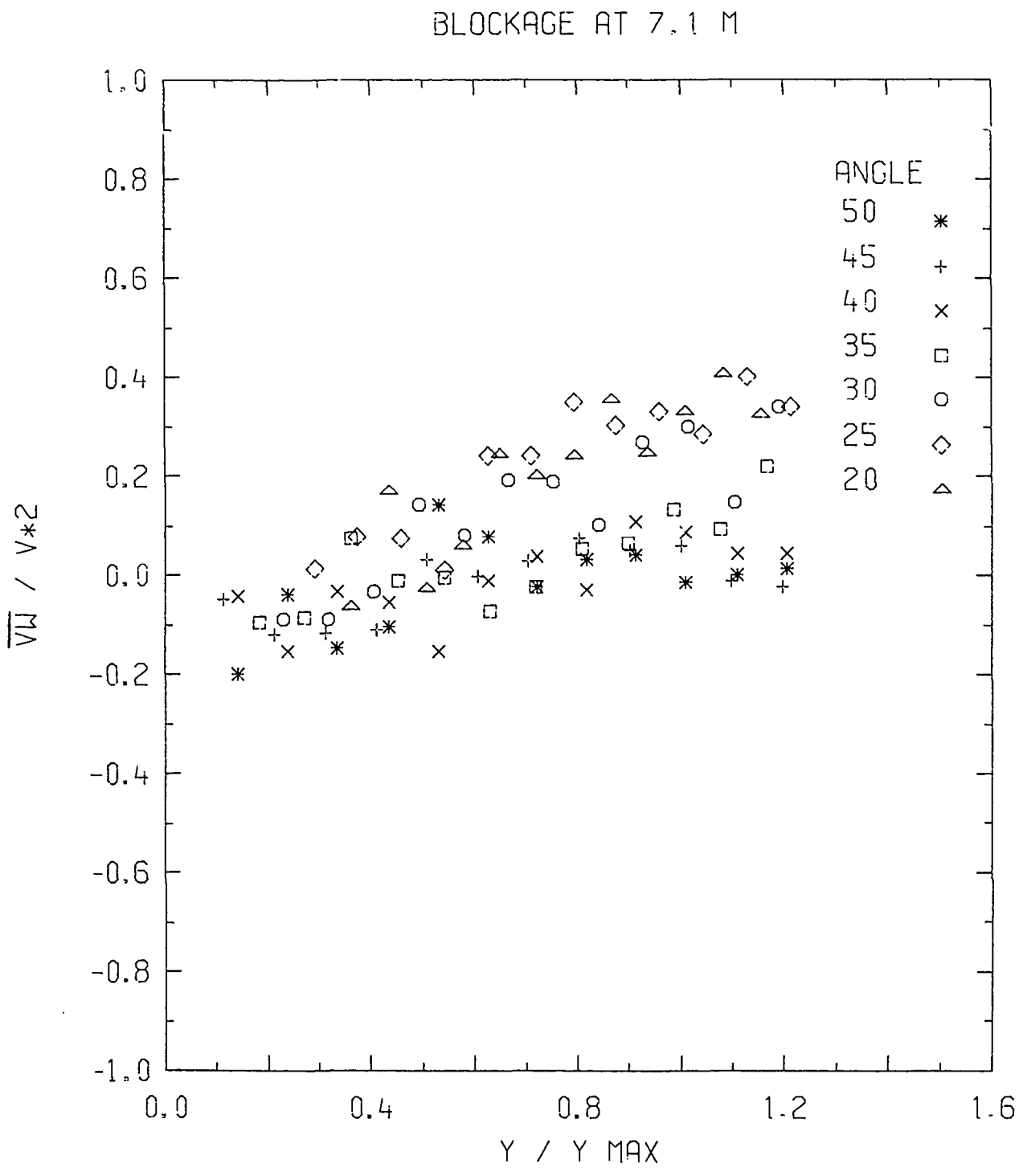

FIGURE 23c TRANSVERSE REYNOLDS SHEAR STRESS AT 7.1 m