Appendix C

INDIVIDUAL DAY-TO-DAY APPROACH: ADDITIONAL METHODS AND RESULTS

CORRELATION COEFFICIENTS

Tables C.1 and C.2 give the correlation coefficients for the explanatory variables for the individual day-to-day (Whittemore-Korn) analysis. For each pair of explanatory variables, the upper entry in the exhibit is the correlation coefficient, and the lower entry is the probability that the correlation coefficient is zero. Table C.3 gives the multiple correlation coefficient for each explanatory variable with the rest of the explanatory variables. The conclusions we draw from this analysis are given in Sec. VII.

DESCRIPTIVE SUMMARIES OF INDIVIDUAL RESPONSES

Tables C.4 and C.5 and Figs. C.1 through C.21 summarize the responses of the 1,238 persons who have more than three sick episodes and at least one hundred days available for our analysis. Table- C.4 gives the unweighted major summary statistics for the estimated individual responses; the results in the text section of Sec. V are for a weighted analysis. The top part of the exhibit gives the average of the individual responses along with other univariate summary statistics.[1] The bottom part of the exhibit gives the correlation coefficients and p values.' Further summary statistics and graphical

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[1] The units are as follows: response to SO_2 is in terms of logit per ppm SO_2, response to COH is in logit per COH, response to TSP is in terms of logit per $\mu g/m^3$, response to NO_2 is in logit per ppm NO_2, response to minimum temperature is in logit per degree Fahrenheit, response to precipitation is in logit per inch of precipitation.

[2] The number of properly estimated response coefficients to precipitation is 1185 instead of 1238, the total number of persons in the final analysis sample. There are 53 persons in the final analysis sample who never had a sick episode on a wet day, so their response to precipitation on the logit scale is minus infinity.

Table C.1

CORRELATION COEFFICIENTS FOR THE EXPLANATORY VARIABLES IN BELLEVUE

	S02AV	COHAV	TSPAV	OZOMX	N02MX	MINTEMP	PRECIP	WKDAY	FIRSWEEK
S02AV	1.00000 0.0000	0.49997 0.0001	0.18866 0.0001	0.10526 0.0044	0.41334 0.0001	-0.08572 0.0206	-0.12815 0.0005	0.10834 0.0034	0.04797 0.1957
COHAV	0.49997 0.0001	1.00000 0.0000	0.39398 0.0001	-0.35062 0.0001	0.56904 0.0001	-0.41058 0.0001	-0.03169 0.3923	0.19711 0.0001	-0.03011 0.4163
TSPAV	0.18866 0.0001	0.39398 0.0001	1.00000 0.0000	-0.07207 0.0514	0.21604 0.0001	-0.17676 0.0001	-0.12084 0.0011	0.15048 0.0001	0.03795 0.3056
OZOMX	0.10526 0.0044	-0.35062 0.0001	-0.35062 0.0514	1.00000 0.0000	-0.29838 0.0001	0.42488 0.0001	-0.012404 0.0008	-0.02514 0.4974	-0.00253 0.9455
N02MX	0.41334 0.0001	0.56904 0.001	0.21604 0.0001	-0.29838 0.0001	1.000000 0. 0000	-0.19875 0.0001	-0.13663 0.0009	0.15546 0.0001	0.02246 0.5861
MINTEMP	-0.08572 0.0206	-0.41058 0.0001	-0.17676 0.0001	0.42488 0.0001	-0.19875 0.0001	1.00000 0.0000	-0.01918 0.6047	-0.02091 0.5725	0.02936 0.4280
PREC I P	-0.12815 0.0005	-0.03196 0.3923	-0.12084 0.0011	-0.12404 0.0008	-0.13663 0.0009	-0.01918 0.6047	1.00000 0.0000	0.03979 0.2827	0.02902 0.4333
WKDAY	0.10834 0.0034	0.19711 0.0001	0.15048 0.0001	-0.02514 0.4974	0.15546 0.0001	-0.02091 0.5725	0.03979 0.2827	1.00000 0.0000	-0.00043 0.9907
FIRSWEEK	0.04797 0.1957	-0.03011 0.4163	0.03795 0.3056	-0.00253 0.9455	0.02246 0.5861	0.02936 0.4280	0.02902 0.4333	-0.00043 0.9907	1.00000 0.0000

Table C.2

CORRELATION COEFFICIENTS FOR THE EXPLANATORY VARIABLES IN DOWNTOWN SEATTLE

	S02AV	COHAV	TSPAV	OZOMX	NO2MZ	MINTEMP	PRECIP	WKDAY	FIRSWEEK
S02AV	1.00000 0.0000	0.49388 0.0001	0.30115 0.0001	0.09722 0.0086	0.41303 0.0001	-0.08544; 0.0210	0.12846 0.0005	0.10761 0.0036	0.05276 0.1547
COHAV	0.49388 0.0001	1.00000 0.0000	0.40775 0.0001	-0.38643 0.0001	0.56779 0.0001	-0..9935 0.0001	-0.02913 0.4316	0.20941 0.0001	-0.03211 0.3860
TSPAV	0.30115 0.0001	0.40775 0.0001	1.00000 0.0000	0.02248 0.5439	0.29975 0.0001	-0.10357 0.0051	-0.11558 0.0017	0.24736 0.0001	0.00372 0.9199
OZOMX	0.09722 0.0086	0.09722 0.0001	-0.38643 0.5439	1.00000 0.0000	-0.28469 0.0001	0.40125 0.0001	-0.09348 0.0114	-0.04019 0.2779	0.00674 0.8557
N02MX	0.41303 0.0001	0.56779 0.0001	0.29975 0.0001	-0.28469 0.0001	1.00000 0.0000	-0.19875 0.0001	-0.13663 0.0009	0.15546 0.0001	0.02246 0.5861
MINTEMP	-0.08544 0.0210	-0.39935 0.0001	0.10357 0.0051	0.40125 0.0001	-0.19875 0.0001	1.00000 0.0000	-0.01918 0.6047	-0.02091 0.5725	0.02936 0.4280
PREC I P	-0.12846 0.0005	-0.02913 0.4316	-0.11558 0.0017	-0.09348 0.0114	-0.13663 0.0009	-0.01918 0.6047	1.00000 0.0000	0.03979 0.2827	0.02902 0.4333
WKDAY	0.10761 0.00036	0.20941 0.0001	0.24736 0.0001	-0.04019 0.2779	0.15546 0.0001	-0.02091 0.5725	0.03979 0.2827	1.00000 0.0000	-0.00043 0.9907
FIRSWEEK	0.05276 0.1547	-0.03211 0.3860	0.00372 0.9199	0.00674 0.8557	0.02246 0.5861	0.02936 0.4280	0.02902 0.4333	-0.00043 0.9907	1. 00000 0.0000

summaries for the individual responses are given in Figs. C.l through C.7.

Generally speaking, the estimated individual responses have long-tailed distributions characterized by a few outliers. For example, for almost all people, the response to sulfur dioxide ranges between plus and minus six hundred. However, there is one person whose response (i.e., coefficient) to $S0_2$ is -1927, and another person response is 717.

The estimated individual responses are very heterogeneous. Some individuals have a large number of episodes, so we have more information on their responses. The standard errors for those individuals estimated from the logistic regression would be likely to be small. For individuals with the fewest episodes, the logistic regression model might be ill-conditioned and the estimates might be unstable. For those individuals, the standard error might be very large. Those individuals are also likely to have large estimated responses. Figures C.8 through C.14 give the scatterdiagrams of the estimated individual responses by the corresponding estimated standard errors. It can be seen that practically all estimated individual responses which are utliers are associated with large tandard errors.

Table C.3

MULTIPLE CORRELATION COEFFICIENTS
FOR THE AEROMETRIC DATA

Attribute	Bellevue	Downtown Seattle
SO2	0.40	0.42
COH	0.57	0.59
TSP	0.25	0.24
Ozone	0.26	0.35
NO2	0.32	0.29
Precipitation	0.25	0.25
Minimum temp.	0.11	0.08

Table C.4

MAJOR SUMMARIES OF THE INDIVIDUAL RESPONSES

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMU
S02AV	1238	-21.31056558	101.27916599	-26382.48018961	-1927.37167794	717.3526014
COHAV	1238	-0.48026882	2.24799933	-594.57280312	-26.81823368	7.5552934
TSPAV	1238	-0.00454673	0.02400547	-5.62885480	-0.21143901	0.1089210
OZOMX	1238	-18.36721365	42.72269690	-22738.61050183	-312.54080879	137.4384898
N02MX	1238	-5.79224831	31.01832979	-7170.80340487	-515.04540605	96.0278276
MINTEMP	1238	-0.00849611	0.09201381	-10.51819023	-0.90863745	0.6902243
PRECIP	1185	-2.36195872	7.13577729	-2798.92108612	-72.18282141	5.6012901

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	S02AV	COHAV	TSPAV	OZOMX	N02MX	MINTEMP	PRECIP
SO2AV	1.00000 0.0000 1238	-0.08239 0.0037 1238	0.02421 0.3946 1238	-0.02554 0.3693 1238	-0.18341 0.0001 1230	0.02005 0.4809 1238	0.02522 0.3858 1185
COHAV	-0.08239 0.0037 1238	1.00000 0.0000 1238	-0.13746 0.0001 1238	0.21437 0.0001 1238	-0.16125 0.0001 1238	0.23503 0.0001 1238	0.05996 0.0390 1185
TSPAV	0.02421 0.3946 1238	-0.13746 0.0001 1238	1.00000 0.0000 1238	-0.02679 0.3462 1238	0.02237 0.4316 1238	-0.03233 0.2557 1238	0.04775 0.1004 1185
OZOMX	-0.02554 0.3693 1238	0.21437 0.0001 1238	-0.02679 0.3462 1238	1.00000 0.0000 1238	0.06755 0.0174 1238	-0.20027 0.0001 1238	0.17078 0.0001 1185
N02MX	-0.18341 0.0001 1238	-016125 0.0001 1238	0.02237 0.4316 1238	0.06755 0.0174 1238	1.00000 0.0000 1238	0.10795 0.0001 1238	0.07133 0.0140 1185
MINTEMP	0.02005 0.4809 1238	0.23503 0.0001 1230	-0.03233 0.2557 1238	-0.20027 0.0001 1238	0.10795 0.0001 1238	1.0000 0.0000 1238	-0.14170 0.0001 1185
PRECIP	0.02522 0.3858 1185	0.05996 0.0390 1185	0.04775 0.1004 1185	0.17078 0.0001 1185	0.07133 0.0140 1185	-0.14170 0.0001 1185	1.00000 0.0000 1185

Table C.5

MAJOR SUMMARIES OF THE INDIVIDUAL z STATISTICS FOR THE INDIVIDUAL RESPONSES

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAX t MU
T1	1238	-0.04484522	1.02337494	-55.51838334	-4.57415889	3.4111633
T2	1238	-0.10446429	1.04585081	-129.32678990	-3.10154452	3.4335113
T3	1238	-0.07602341	0.99911932	-94.11698568	-2.81939992	3.3619862
T4	1238	-0.32343950	0.99B55742	-400.41810600	-3.32241690	2.8717092
T5	1238	-0.04400085	1.14199810	-54.47305559	-3.43162632	3.7636566
T6	1238	-0.21302980	1.12947762	-263.73089191	-4.13131252	3.6067947
T7	1185	0.02755357	0.88106644	32.65097658	-2.06813777	3.2595051

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	T1	T2	T3	T4	T5	T6	T7
T1	1.00000 0.0000 1238	-0.23740 0.0001 1238	0.03032 0.2865 1238	-0.12479 0.0001 1238	-0.18948 0.0001 1238	0.05386 0.0582 1238	0.07760 0.0075 ‘1185
T2	-0.23740 0.0001 1238	1.00000 0.0000 1238	-0.18316 0.0001 1238	0.20820 0.0001 1238	-0.30861 0.0001 1238	0.25993 0.0001 1238	0.05296 0.0684 1185
T3	0.03032 0.2865 1238	-0.18316 0.0001 1238	1.00000 0.0000 1238	-0.00876 0.7581 1238	0.01239 0.6633 1238	0.04067 0.1526 1238	0.04694 0.1063 1185
T4	-0.12479 0.0001 1238	0.20820 0.0001 1238	-0.00876 0.7581 1238	1.00000 0.0000 1238	0.06902 0.0151 1238	-0.25948 0.0001 1238	0.0001 1185
T5	-0.18948 0.0001 1238	-0.30861 0.0001 1238	0.01239 0.6633 1238	0.06902 0.0151 1238	1.00000 0.0000 1238	-0.05179 0.0685 1238	0.05934 0.0411 1185
T6	0.05386 0.0582 1238	0.25993 0.0001 1238	0.04067 0.1526 1238	-0.25948 0.0001 1238	-0.05179 0.0685 1238	1.00000 0.0000 1238	-0.12379 0.0001 1185
T7	0.07760 0.0075 1185	0.05296 0.0684 1185	0.04694 0.1063 1185	.18405 0.0001 1185	0.05934 0.0411 1185	-0.12379 0.0001 1185	1.00000 0.0000 1185

UNIVARIATE

VARIABLE=SO2AV

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-21.3106	SUM	-26382.5
STD DEV	101.279	VARIANCE	10257.5
SKEWNESS	-6.34703	KURTOSIS	106.822
USS	13250715	CSS	12688490
CV	-475.253	STD MEAN	2.87846
T:MEAN=0	-7.40347	PROB>|T|	0.0001
SGN RANK	-71568.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100%	MAX	717.353	99%	112.935	
75%	Q3	26.3113	95%	76.1036	
50%	MED	-4.76002	90%	54.2619	
25%	Q1	-46.423	10%	-109.544	
0%	MIN	-1927.37	5%	-156.522	
			1%	-380.825	
	RANGE	2644.72			
	Q3-Q1	72.7343			

EXTREMES

LOWEST	HIGHES
-1927.37	159.6
-593.428	178.35
-552.25	194.46
-530.778	203.76
-509.253	717.35

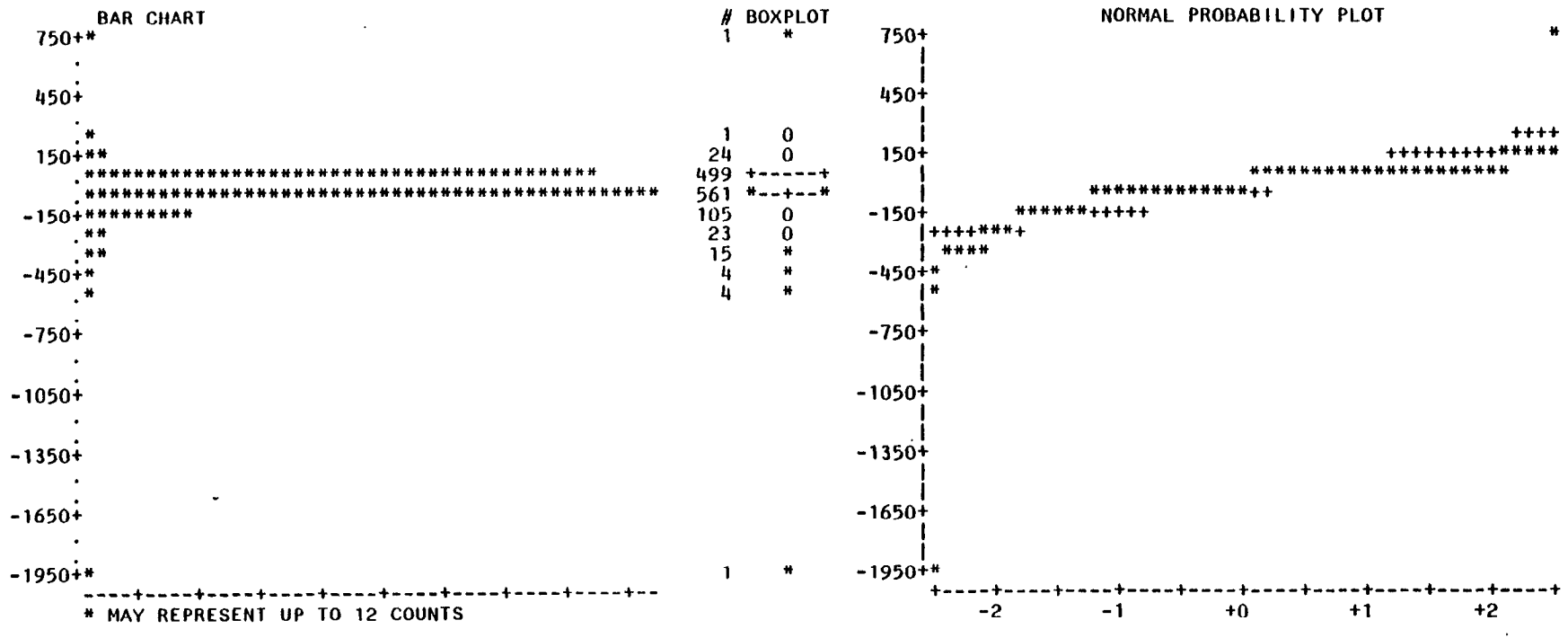


Fig. C.1--Further summaries of the individual responses to SO_2

UNIVARIATE

VARIABLE=COHAV

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-0.480269	SUM	-594.573
STD DEV	2.248	VARIANCE	5.0535
SKEWNESS	-2.42794	KURTOSIS	20.0433
USS	6536.74	CSS	6251.18
CV	-468.071	STD MEAN	0.0638904
T:MEAN=0	-7.51707	PROB>|T|	0.0001
SGN RANK	-78759.5	PROB>|S|	0.0001

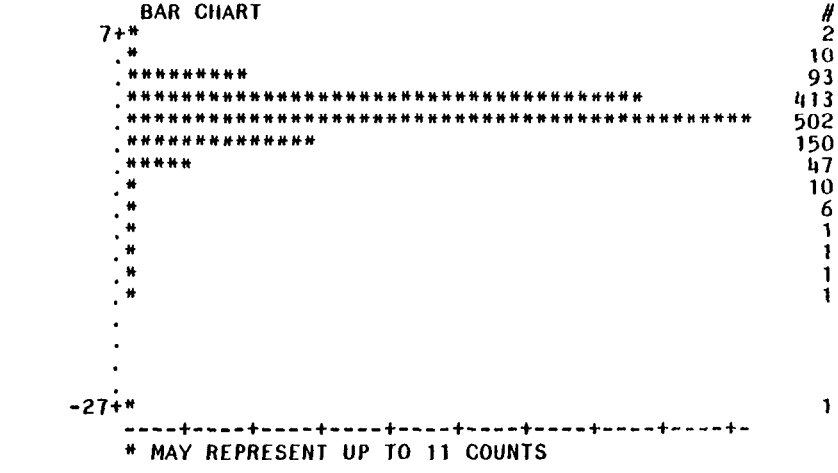
QUANTILES(DEF=4)

100%	MAX	7.55529	
75%	Q3	0.805572	
50%	MED	-0.271872	
25%	Q1	-1.39697	
0%	MIN	-26.8182	
	RANGE	34.3735	
	Q3-Q1	2.20254	

99%	4.01823
95%	2.41469
90%	1.80624
10%	-3.01064
5%	-4.13154
1%	-7.57121

EXTREMES

LOWEST	HIGHES
-26.8182	4.7786
-17.7454	4.8626
-14.1523	5.401
-12.2459	6.1885
-9.99829	7.5552



#	BOXPLOT
2	*
10	0
93	|
413	+-----+
502	*--+--*
150	|
47	0
10	0
6	*
1	
1	*
1	*
1	*
1	*

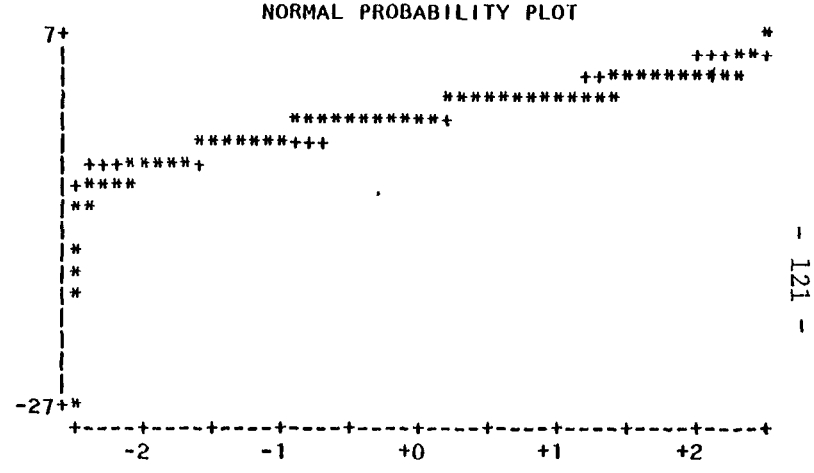


Fig. C.2--Further summaries of the individual responses to COH

UNIVARIATE

VARIABLE=TSPAV

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-.00454673	SUM	-5.62885
STD DEV	0.0240055	VARIANCE	.000576263
SKEWNESS	-1.85532	KURTOSIS	11.8126
USS	0.73843	CSS	0.712837
CV	-527.972	STD MEAN	0.00068226
T:MEAN=0	-6.66422	PROB>|T|	0.0001
SGN RANK	-71555.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100% MAX	0.108921	99%	0.0452668
75% Q3	0.00814413	95%	0.0270386
50% MED	-.00189206	90%	0.0185103
25% Q1	-0.0147184	10%	-0.0287881
0% MIN	-0.211439	5%	-0.0417656
		1%	-0.0870325
RANGE	0.32036		
Q3-Q1	0.0228625		

EXTREMES

LOWEST	HIGHES
-0.211439	0.054557
-0.17474	0.063480
-0.167015	0.078133
-0.149292	0.085432
-0.145252	0.10892

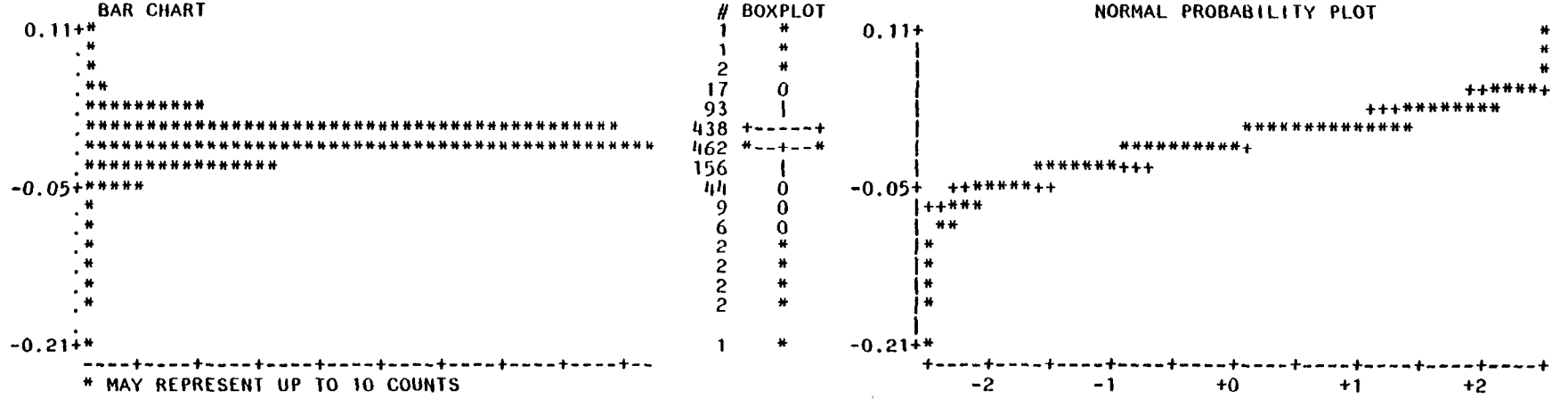


Fig. C.3--Further summaries of the individual responses to TSP

UNIVARIATE

VARIABLE=OZOMX

MOMENTS

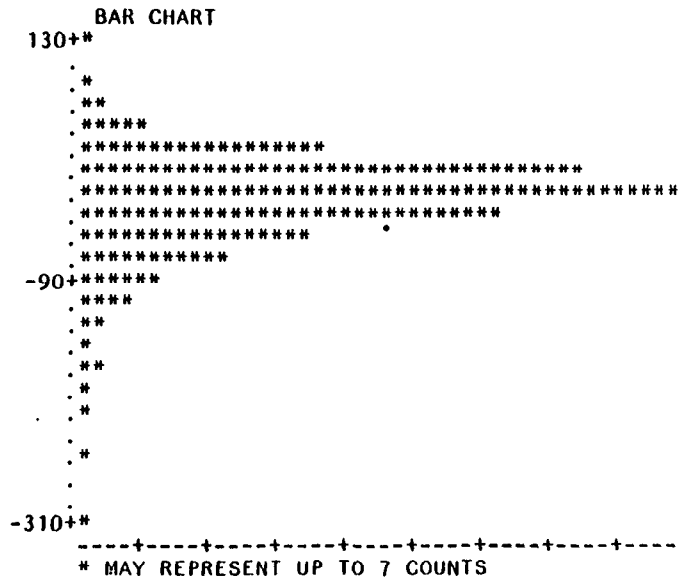
N	1238	SUM WGTS	1238
MEAN	-18.3672	SUM	-22738.6
STD DEV	42.7227	VARIANCE	1825.23
SKEWNESS	-1.3923	KURTOSIS	4.83137
USS	2675453	CSS	2257808
CV	-232.603	STD MEAN	1.21422
T:MEAN=0	-15.1267	PROB>|T|	0.0001
SGN RAND	-173278	PROB>|S|	0.0001

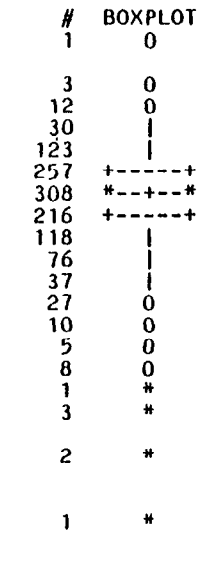
QUANTILES(DEF=4)

100% MAX	137.438	99%	67.0917
75% Q3	8.17751	95%	34.5356
50% MED	-11.2775	90%	24.9338
25% Q1	-37.2712	10%	-68.9922
0% MIN	-312.541	5%	-95.9529
		1%	-169.929
RANGE	449.979		
Q3-Q1	45.4487		

EXTREMES

LOWEST	HIGHES
-312.541	78.567
-253.312	82.017
-250.404	83.310
-216.287	87.097
-207.779	137.43





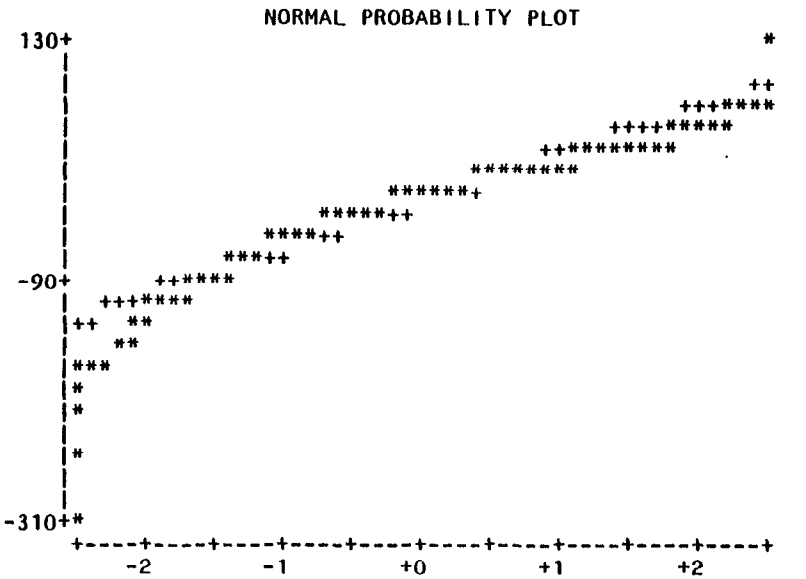


Fig. C.4--Further summaries of the individual responses to ozone

UNIVARIATE

VARIABLE=NO2MX

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-5.79225	SUM	-7170.8
STD DEV	31.0183	VARIANCE	962.137
SKEWNESS	-6.56881	KURTOSIS	87.4405
USS	1231698	CSS	1190163
CV	-535.515	STD MEAN	0.881573
T:MEAN=0	-6.57036	PROB>|T|	0.0001
SGN RANK	-63356.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100%	MAX	96.0278	99%	40.0155	
75%	Q3	9.50577	95%	25.6301	
50%	MED	-1.80924	90%	18.5293	
25%	Q1	-14.7215	10%	-33.2001	
0%	MIN	-515.045	5%	-47.8865	
			1%	-94.5008	
	RANGE	611.073			
	Q3-Q1	24.2272			

EXTREMES

LOWEST	HIGHES
-515.045	52.775
-392.219	58.785
-325.81	65.515
-178.084	73.263
-130.306	96.027

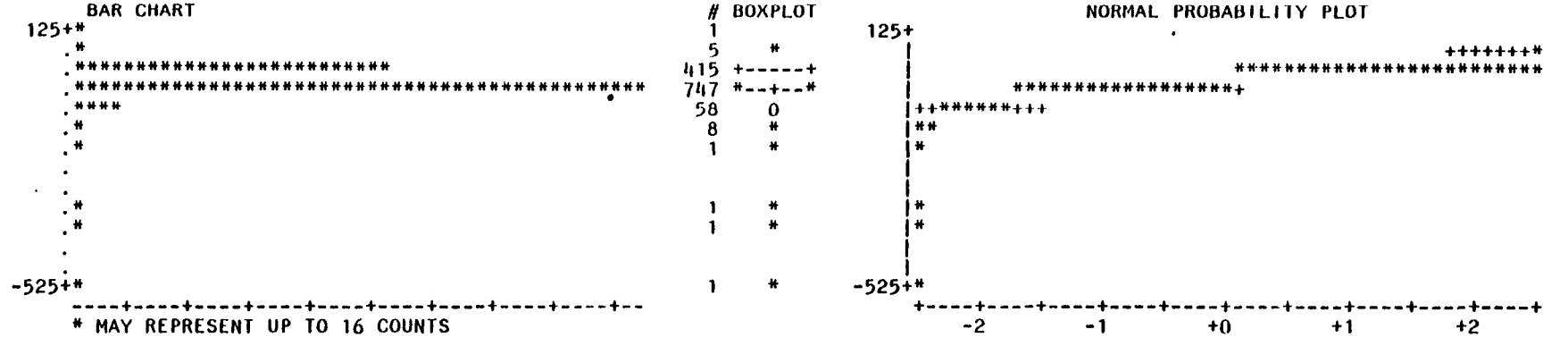


Fig. C.5--Further summaries of the individual responses to NO_2

UNIVARIATE

VARIABLE=MINTEMP

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-.00849611	SUM	-10.5182
STD DEV	0.0920138	VARIANCE	0.00846654
SKEWNESS	0.2042	KURTOSIS	17.3102
USS	10.5625	CSS	10.4731
CV	-1083.01	STD MEAN	0.00261513
T:MEAN=0	-3.24884	PROB>|T|	0.00118993
SGN RANK	-72796.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100%	MAX	0.690224	
75%	Q3	0.0317862	
50%	MED	-0.0126698	
25%	Q1	-0.0549098	
0%	MIN	-0.988637	
	RANGE	1.67886	
	Q3-Q1	0.086696	

99%	0.260319		
95%	0.130782		
90%	0.079235		
10%	-0.0987047		
5%	-0.132096		
1%	-0.20627		

EXTREMES

LOWEST	HIGHES
-0.988637	0.43042
-0.386448	0.43113
-0.357694	0.4998
-0.347597	0.65408
-0.308119	0.69022

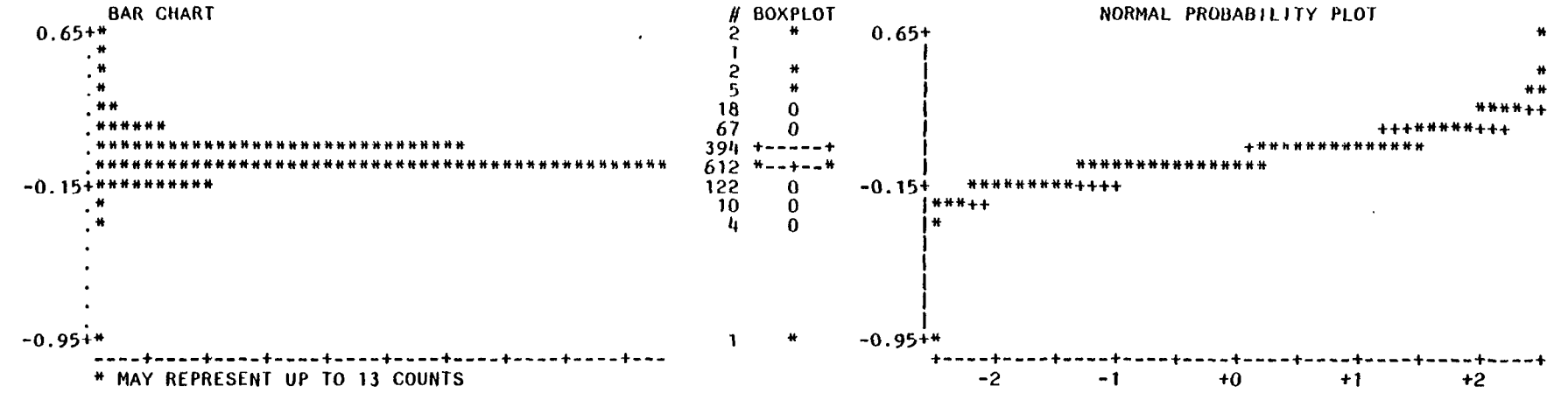


Fig. C.6--Further summaries of the individual responses to minimum temperature

UNIVARIATE

VARIABLE=PRECIP

MOMENTS

N	1185	SUM WGTS	1185
MEAN	-2.36196	SUM	-2798.92
STD DEV	7.13578	VARIANCE	50.9193
SKEWNESS	-4.53062	KURTOSIS	27.996
USS	66899.4	CSS	60288.5
CV	-302.113	STD MEAN	0.207292
T:MEAN=0	-11.3944	PROB>|T|	0.0001
SGN RANK	-115168	PROB>|S|	0.0001

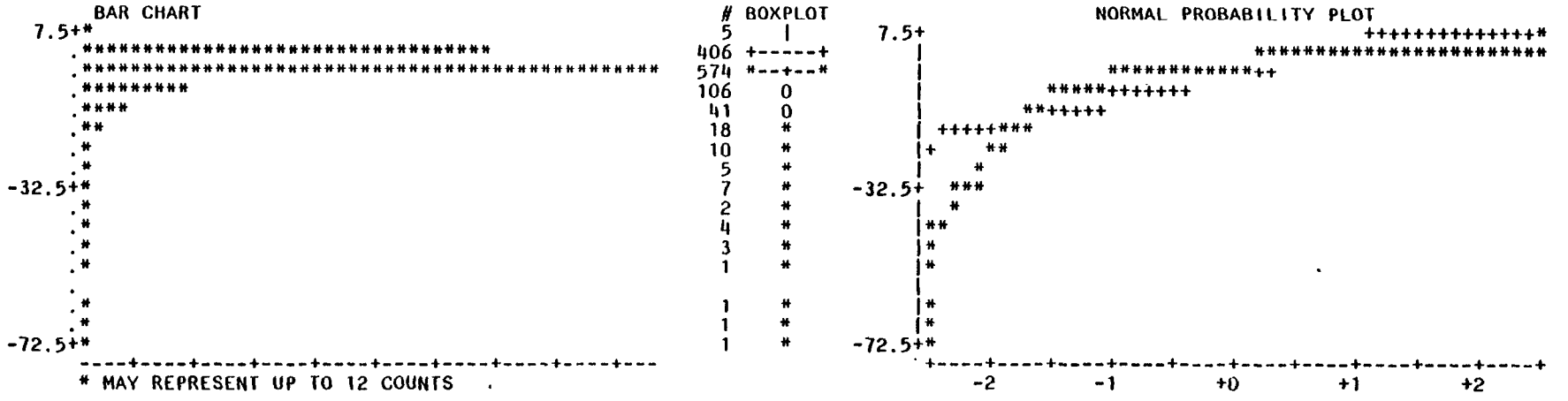
QUANTILES(DEF=4)

100%	MAX	5.60129	99%	4.16602	
75%	Q3	0.929045	95%	2.1894	
50%	MED	-0.422678	90%	1.72042	
25%	Q1	-2.72283	10%	-7.67185	
0%	MIN	-72.1828	5%	-13.7778	
			1%	-38.508	
	RANGE	77.7841			
	Q3-Q1	3.65188			

EXTREMES

LOWEST	HIGHES
-72.1828	4.5210
-68.3629	4.6455
-60.3907	4.7127
-52.7428	5.021
-47.3732	5.6012

MISSING VALUE .
COUNT 53
% COUNT/NOBS 4.28



* MAY REPRESENT UP TO 12 COUNTS

Fig. C.7--Further summaries of the individual responses to precipitation

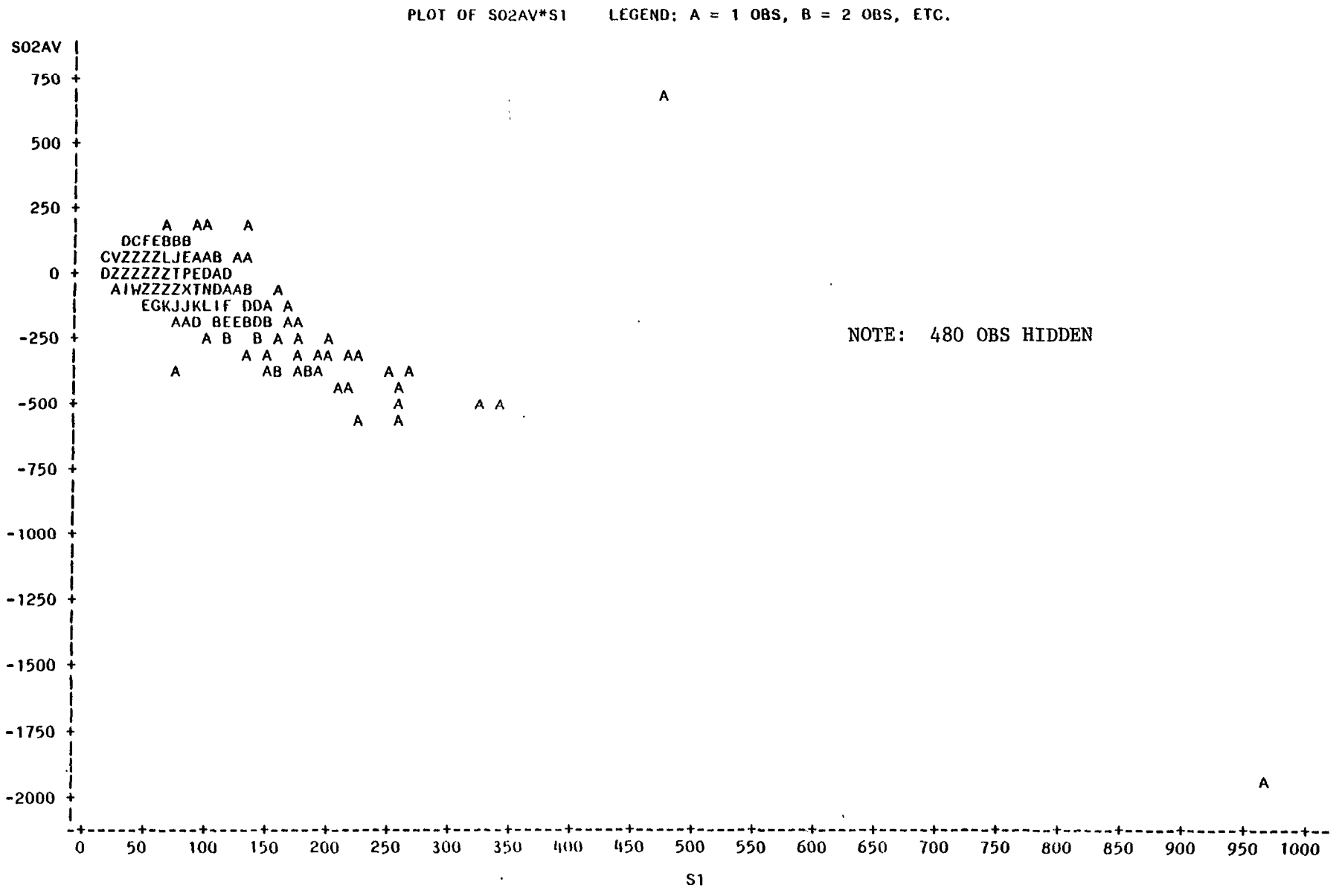


Fig. C.8--Scatterdiagram of estimated individual responses to SO_2 by the associated standard errors

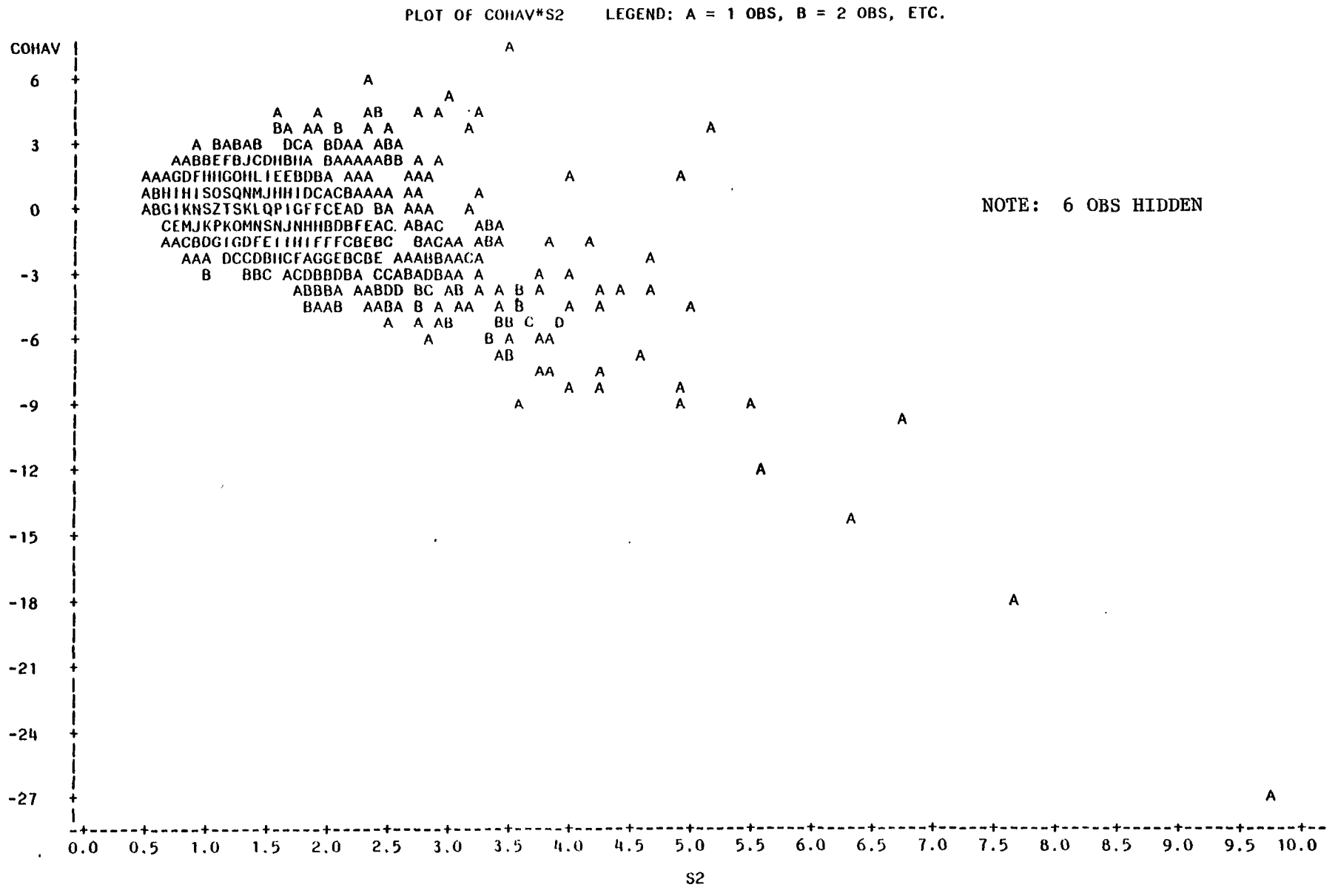


Fig. C.9--Scatterdiagram of the estimated individual responses to COH by the associated standard errors

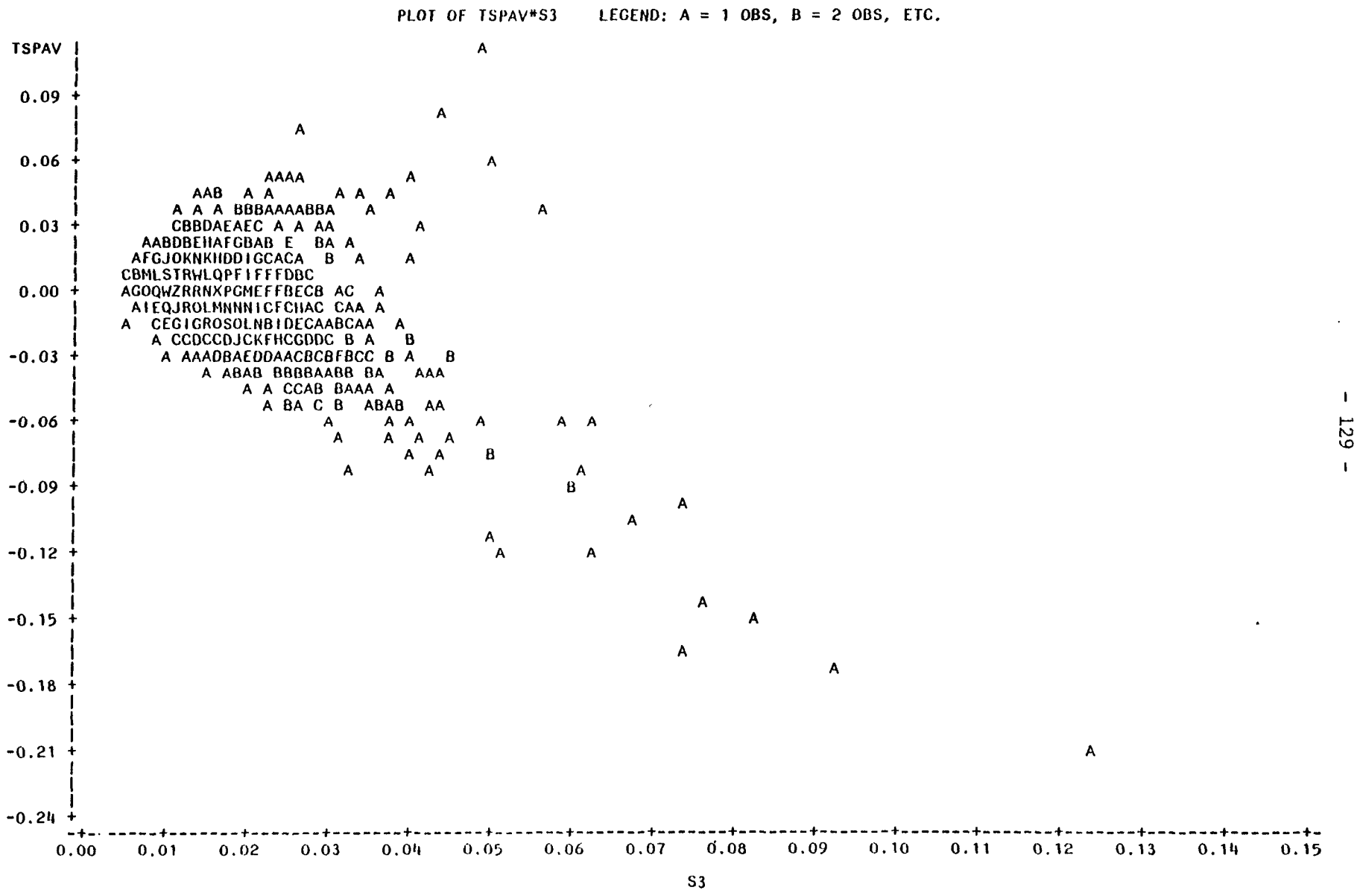


Fig. C.10--Scatterdiagram of the estimated individual responses to TSP by the associated standard errors

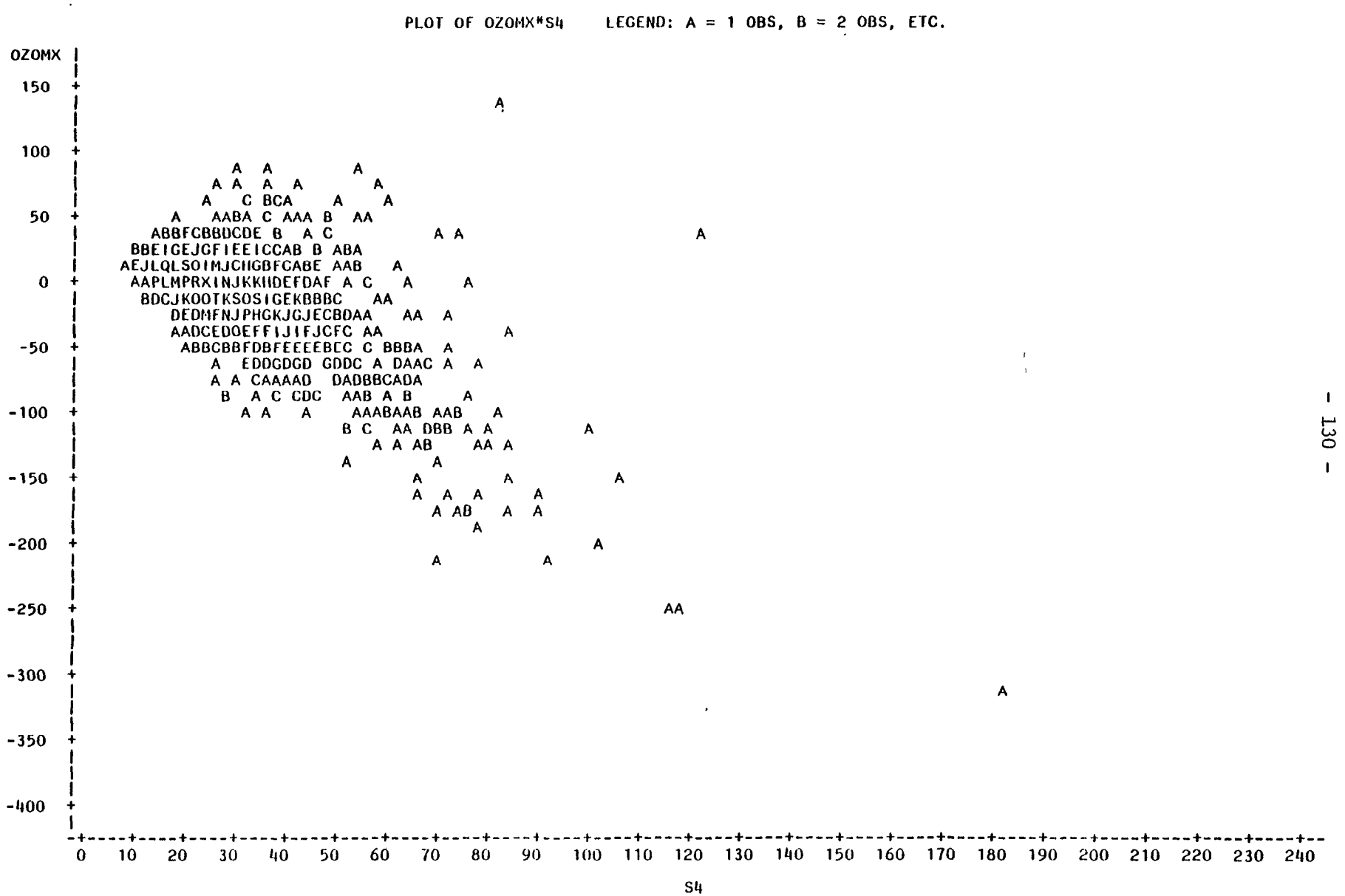


Fig. C. 11--Scatterdiagram of the estimated individual responses to ozone by the associated standard errors

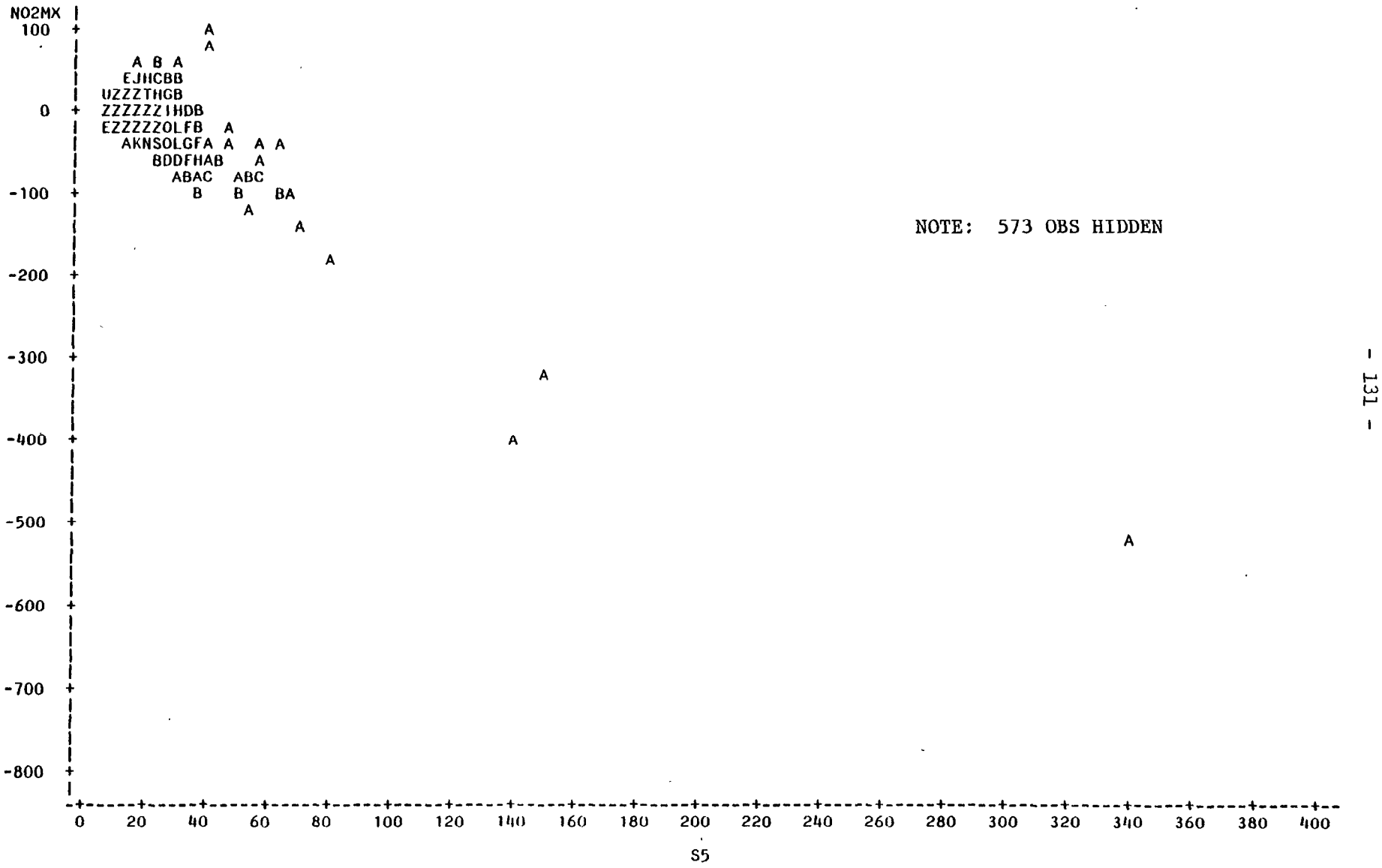


Fig. C.12--Scatterdiagram of the estimated individual responses to NO_2 by the associated standard errors

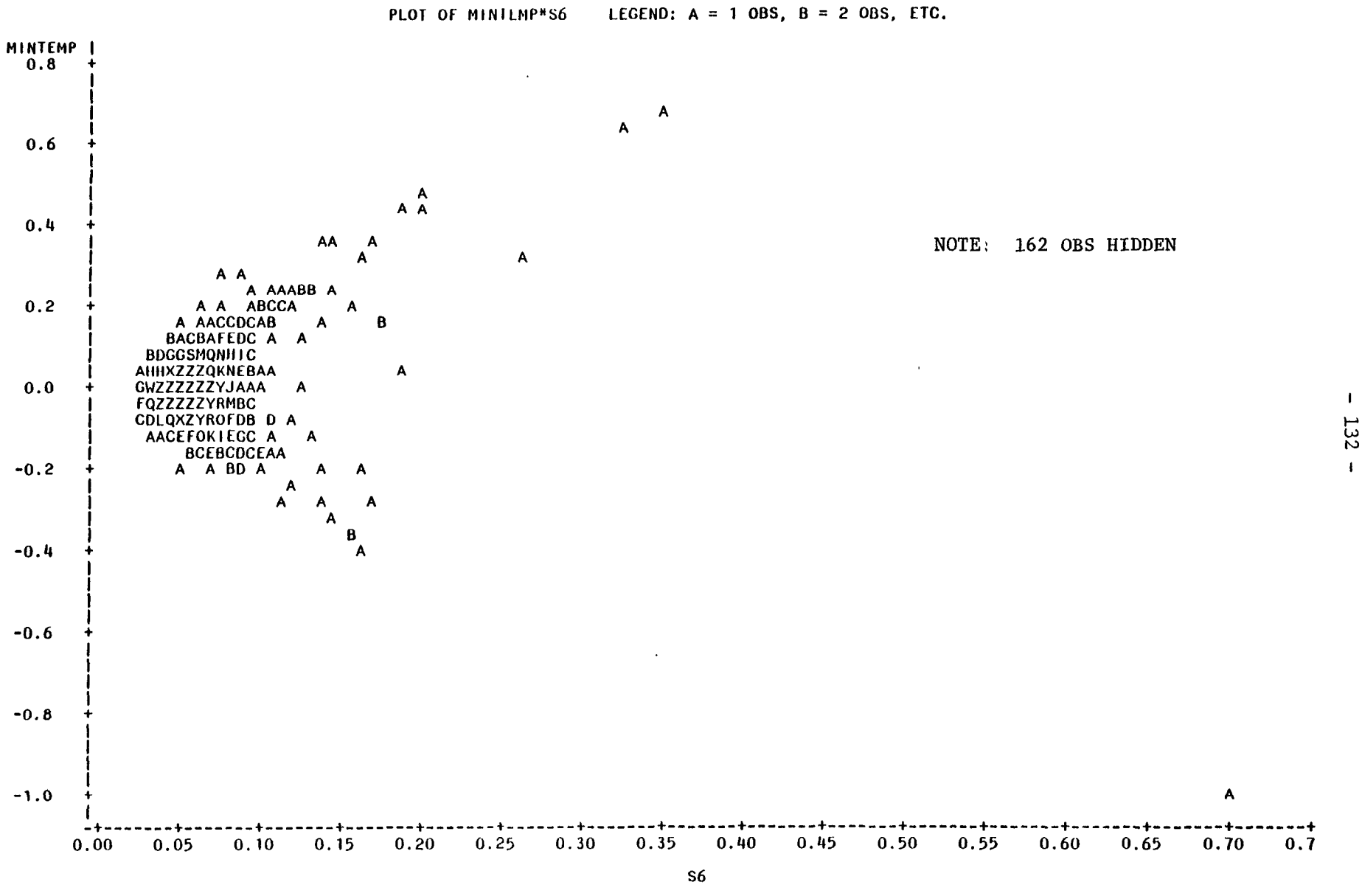


Fig. C.13--Scatterdiagram of the estimated individual responses to min. temp. by the associated standard error

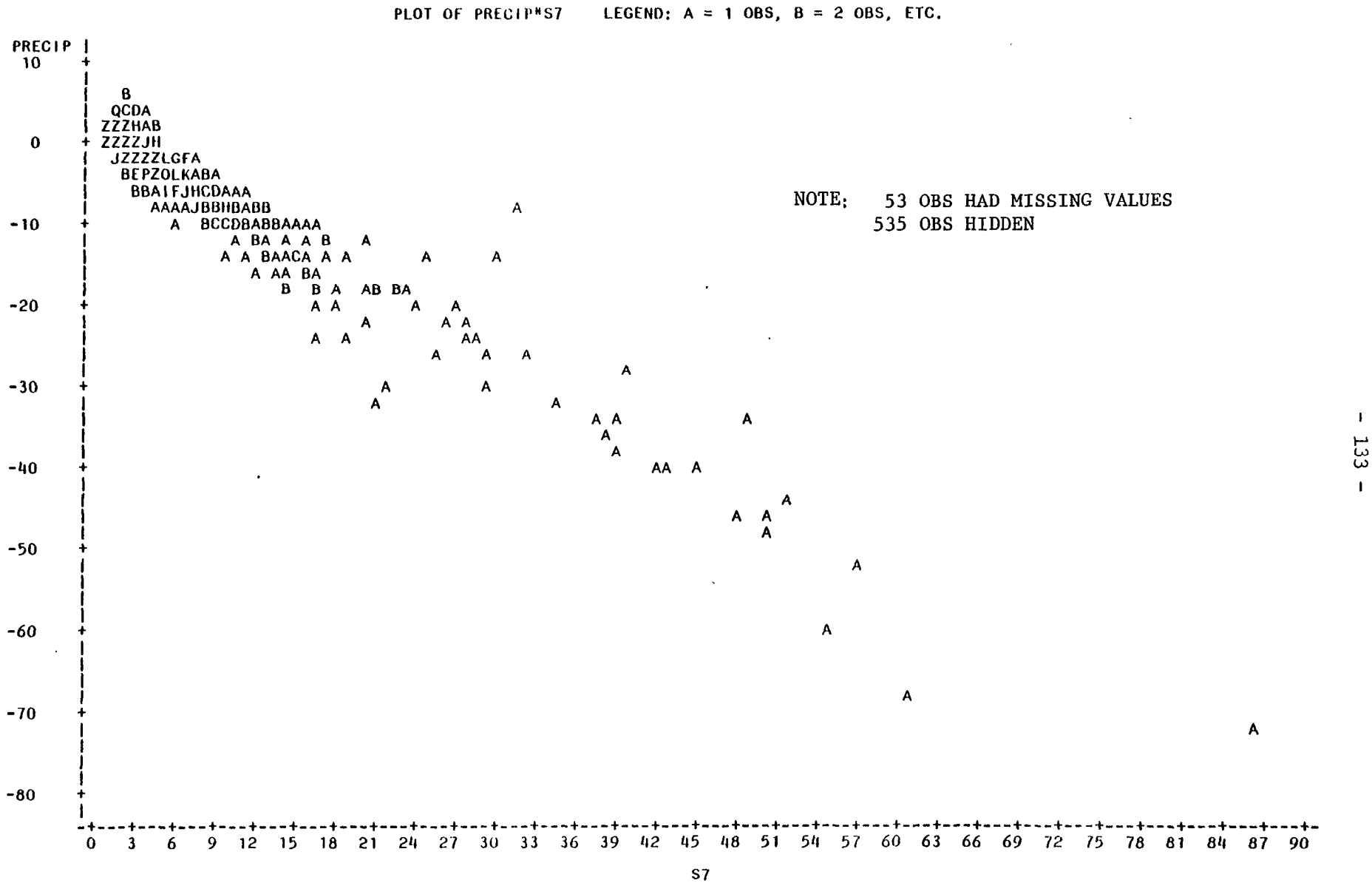


Fig. C.14--Scatterdiagram of estimated individual responses to precipitation by the associated standard errors

VARIABLE=T1

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-0.0448452	SUM	-55.5184
STD DEV	1.02337	VARIANCE	1.0473
SKEWNESS	0.171828	KURTOSIS	0.13466
USS	1298	CSS	1295.51
CV	-2282.02	STD MEAN	0.0290854
T:MEAN=0	-1.54185	PROB>|T|	0.123366
SGN RANK	-27696.5	PROB>|S|	0.0277204

QUANTILES(DEF=4)

100%	MAX	3.41116	99% 2.5619
75%	Q3	0.604064	95% 1.7311
50%	MED	-0.0942933	90% 1.30524
25%	Q1	-0.750014	10% -1.31339
0%	MIN	-4.57416	5% -1.62417
			1% -2.28655
RANGE		7.98532	
Q3-Q1		1.35408	

EXTREMES

LOWEST	HIGHES
-4.57416	2.8250
-2.76497	2.8267
-2.70562	2.861
-2.5485	3.0252
-2.50495	3.4111

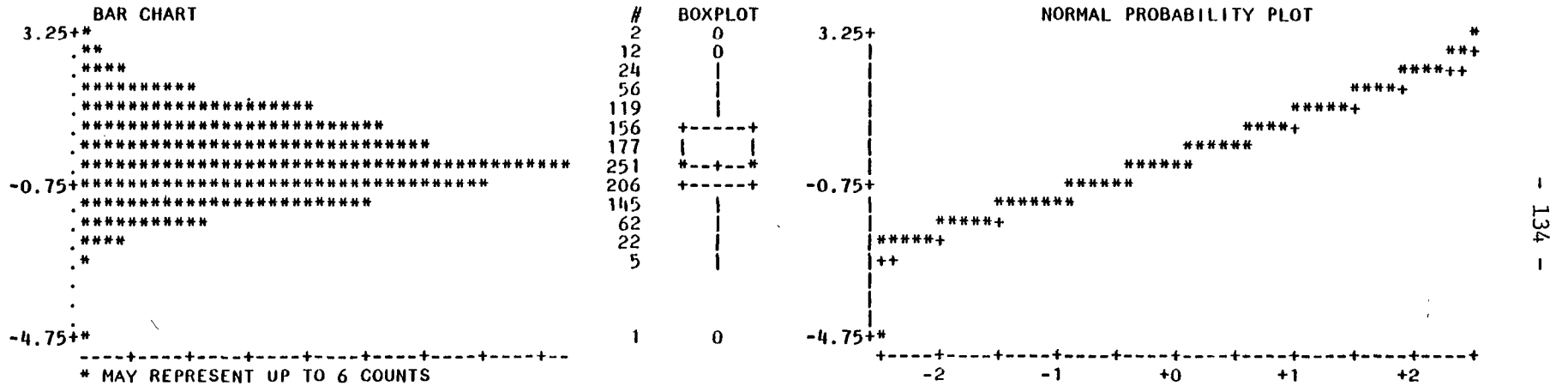


Fig. C.15--Further summaries of individual z statistics for SO_2

UNIVARIATE

VARIABLE=T2

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-0.104464	SUM	-129.327
STD DEV	1.04585	VARIANCE	1.0938
SKEWNESS	0.238488	KURTOSIS	-0.276969
USS	1366.55	CSS	1353.04
CV	-1001.16	STD MEAN	0.0297241
T:MEAN=0	-3.51446	PROB>|T|	.000456564
SGN RANK	-51227.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100%	MAX	3.43351	99%	2.31659
75%	Q3	0.626578	95%	1.7017
50%	MED	-0.20448	90%	1.31475
25%	Q1	-0.848248	10%	-1.42527
0%	MIN	-3.10154	5%	-1.72497
			1%	-2.28221
	RANGE	6.53506		
	Q3-Q1	1.47483		

EXTREMES

LOWEST	HIGHES
-3.10154	2.6769
-2.75071	2.6914
-2.64821	2.8258
-2.64238	3.2119
-2.53325	3.4335

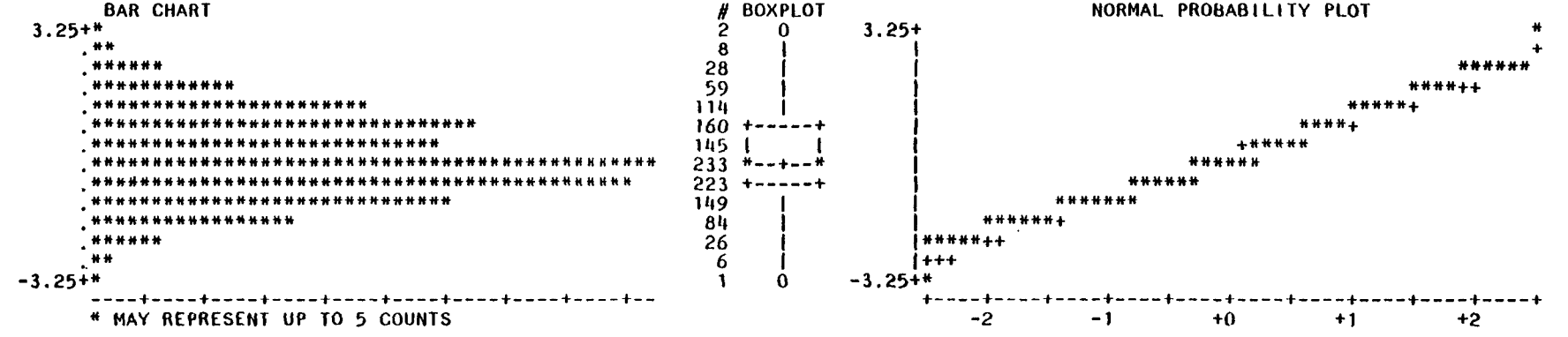


Fig. C.16--Further summaries of individual z statistics for COH

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                                    UNIVARIATE

VARIABLE=T3

                MOMENTS                                  QUANTILES(DEF=4)                    EXTREMES

N              1238      SUM WGTS       1238      100% MAX    3.36199      99%    2.36667      LOWEST      HIGHES
MEAN      -0.0760234     SUM          -94.117      75% Q3     0.607013     95%    1.65063     -2.8194     2.8220
STD DEV    0.999119     VARIANCE     0.998239      50% MED  -0.135138     90%    1.27865     -2.78312    2.8425
SKEWNESS   0.291162     KURTOSIS    -0.134518      25% Q1   -0.801785     10%   -1.30756     -2.62205     2.933
USS         1241.98     CSS           1234.82       0% MIN    -2.8194      5%   -1.59603     -2.61552    2.9738
CV         -1314.23     STD MEAN     0.028396                             1%   -2.19979     -2.37723    3.3619
T:MEAN=0   -2.67726     PROB>|T|  0.00752093      RANGE       6.18139
SGN RANK   -43402.5     PROB>|S|  .000561622      Q3-Q1         1.4088

          BAR CHART                                #    BOXPLOT                NORMAL PROBABILITY PLOT
     3.25+*                                        2       0                3.25+                                  *
         .**                                       8       0                   |                                 **
         .****                                    23       |                   |                              *****++
         .**********                              58       |                   |                          ******+
         .********************                   111       |                   |                      ******+
         .**************************             155  +-----+                  |                   ****+
     0.25+*******************************        182  |     |             0.25+                ******
         .************************************   213  *--+--*                   |             +******
         .*****************************************242  +-----+                  |          *******
         .**************************             150       |                   |       *******
         .**********                              75       |                   |  ********+
         .***                                     15       |                   |***+++
    -2.75+*                                        4       |              -2.75++
         ----+----+----+----+----+----+----+----+-                              +----+----+----+----+----+----+----+----+----+----+
         * MAY REPRESENT UP TO 6 COUNTS                                          -2        -1        +0        +1        +2
```

Fig. C.17--Further summaries of individual z statistics for TSP

UNIVARIATE

VARIABLE=T4

MOMENTS

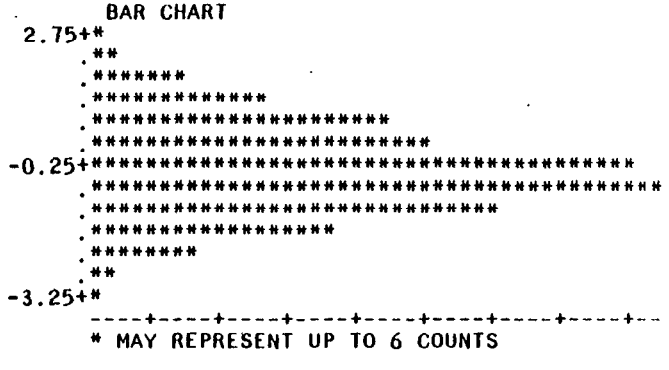
N	1238	SUM WGTS	1238
MEAN	-0.32344	SUM	-400.418
STD DEV	0.998557	VARIANCE	0.997117
SKEWNESS	0.24067	KURTOSIS	-0.0898195
USS	1362.94	CSS	1233.43
CV	-308.731	STD MEAN	0.02838
T:MEAN=0	-11.3967	PROB>|T|	0.0001
SGN RANK	-141181	PROB>|S|	0.0001

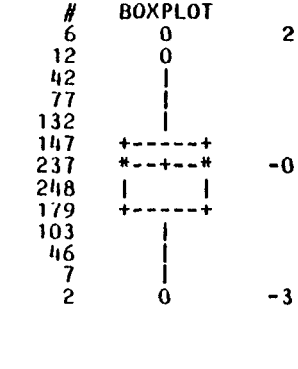
QUANTILES(DEF=4)

100%	MAX	2.87171	99%	2.06793
75%	Q3	0.323096	95%	1.43917
50%	MED	-0.3736	90%	1.00705
25%	Q1	-1.01777	10%	-1.57545
0%	MIN	-3.32242	5%	-1.91041
			1%	-2.3709
RANGE		6.19413		
Q3-Q1		1.34087		

EXTREMES

LOWEST	HIGHES
-3.32242	2.5094
-3.02209	2.52
-2.93424	2.7652
-2.88965	2.8029
-2.85837	2.8717





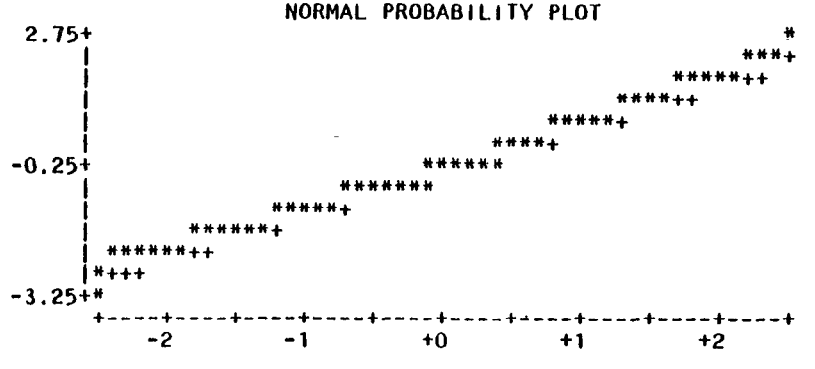


Fig. C.18--Further summaries of individual z statistics for ozone

UNIVARIATE

VARIABLE=T5

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-0.0440009	SUM	-54.4731
STD DEV	1.142	VARIANCE	1.30416
SKEWNESS	0.206539	KURTOSIS	-0.298141
USS	1615.64	CSS	1613.25
CV	-2595.4	STD MEAN	0.0324568
T:MEAN=0	-1.35568	PROB>|T|	0.17545
SGN RANK	-24696.5	PROB>|S|	0.0496709

QUANTILES(DEF=4)

100%	MAX	3.76366	99%	2.60549
75%	Q3	0.760721	95%	1.87898
50%	MED	-0.120368	90%	1.52481
25%	Q1	-0.885686	10%	-1.51569
0%	MIN	-3.43163	5%	-1.78383
			1%	-2.41731
RANGE		7.19528		
Q3-Q1		1.64641		

EXTREMES

LOWEST	HIGHES
-3.43163	3.1233
-3.15714	3.1280
-2.79287	3.170
-2.72649	3.3231
-2.70739	3.7636

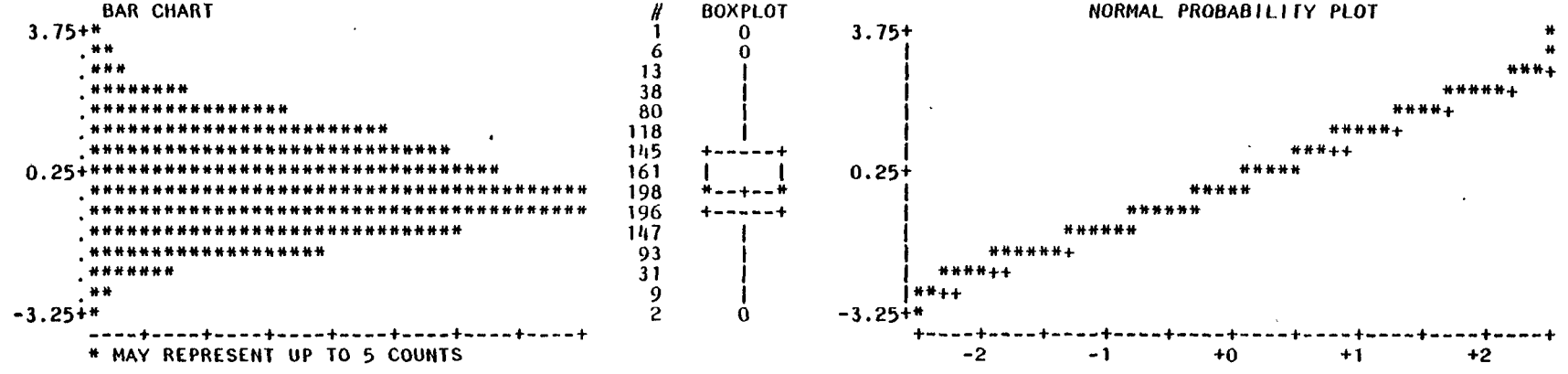


Fig. C.19--Further summaries of individual z statistics for NO_2

UNIVARIATE

VARIABLE=T6

MOMENTS

N	1238	SUM WGTS	1238
MEAN	-0.21303	SUM	-263.731
STD DEV	1.12948	VARIANCE	1.27572
SKEWNESS	0.122812	KURTOSIS	-0.189431
USS	1634.25	CSS	1578.07
CV	-530.197	STD MEAN	0.0321009
T:MEAN=0	-6.63625	PROB>|T|	0.0001
SGN RANK	-83895.5	PROB>|S|	0.0001

QUANTILES(DEF=4)

100% MAX	3.60679	99%	2.33365
75% Q3	0.554708	95%	1.77997
50% MED	-0.249678	90%	1.23396
25% Q1	-1.0153	10%	-1.66942
0% MIN	-4.13131	5%	-2.01478
		1%	-2.64554
RANGE	7.73811		
Q3-Q1	1.57001		

EXTREMES

LOWEST	HIGHES
-4.13131	2.8386
-3.41677	2.8757
-3.34178	3.099
-2.99609	3.1792
-2.84225	3.6067

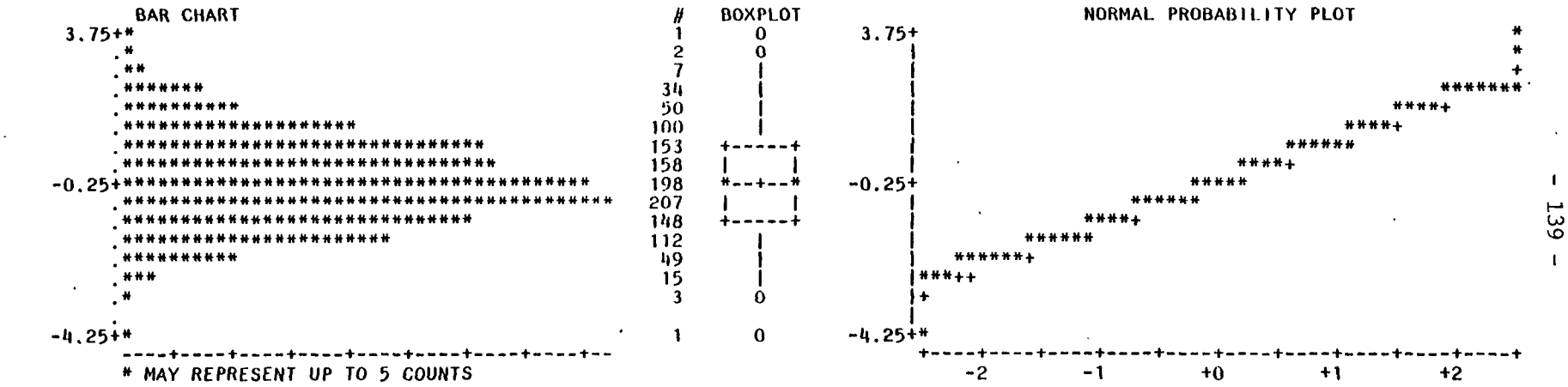


Fig. C.20--Further summaries of individual z statistics for minimum temperature

UNIVARIATE

VARIABLE=T7

MOMENTS

N	1185	SUM WGTS	1185
MEAN	0.0275536	SUM	32.651
STD DEV	0.881066	VARIANCE	0.776278
SKEWNESS	0.762011	KURTOSIS	0.0551939
USS	920.013	CSS	919.113
CV	3197.65	STD MEAN	0.0255947
T:MEAN=0	1.07654	PROB>|T|	0.281907
SGN RANK	-16054.5	PROB>|S|	0.173055

QUANTILES(DEF=4)

100%	MAX	3.25951	99%	2.42128	
75%	Q3	0.578213	95%	1.77432	
50%	MED	-0.184006	90%	1.28507	
25%	Q1	-0.673102	10%	-0.940373	
0%	MIN	-2.06814	5%	-1.06018	
			1%	-1.3541	
RANGE		5.32764			
Q3-Q1		1.25132			

EXTREMES

LOWEST	HIGHES
-2.06814	2.5942
-1.68022	2.6305
-1.59674	2.6779
-1.59628	2.7668
-1.56933	3.259

MISSING VALUE .
COUNT 53
% COUNT/NOBS 4.28

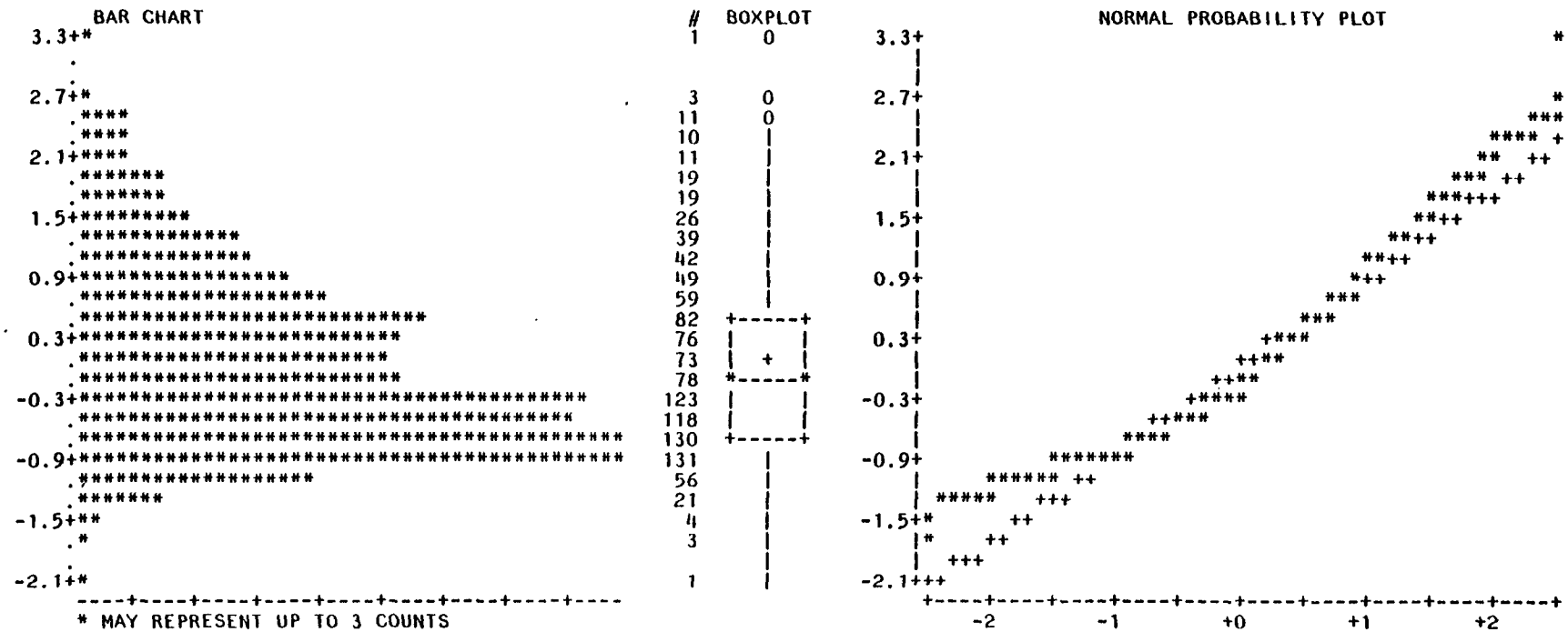


Fig. C.21--Further summaries of individual z statistics for precipitation

Given the heterogeneity of the estimated individual responses, the unweighted summaries given in Table C.4 and Figs. C.1 through C.7 are not very informative. The unweighted summaries given in these exhibits do not account for the heterogeneity. Those summaries may be dominated by outliers that are highly imprecisely estimated. One way to get around this problem would be to carry out weighted summaries of the estimated individual responses,. with weights determined from the estimated standard errors. The random-effects model, whose results are discussed in Sec. VII, is similar to that approach (it also allows the estimation of between-individual differences).

Another way to account for account for heterogeneity in summarizing is to examine the individual z statistics, which rescale the estimated individual responses by precision. Table C.5 gives the major summaries for the individual z statistics.. Figs. C.15 through C.21 give further summaries of the individual z statistics for each aerometric attribute. The variable name T1 refers to the z statistic for the individual response to $S0_2$, T2 refers to COH, T3 to TSP, T4 to ozone, T5 to $N0_2$, T6 to minimum temperature, and T7 to precipitation.

The results of the z analysis vary somewhat from those of the random-effects model. For all the aerometric attributes except precipitation, the distributions of the individual z statistics are reasonably close to a standard normal distribution: The standard deviations for the individual z statistics given under the column "STD DEV" in Table C.5 are close to one, and the skewness and kurtosis given in the "moments" sections of Figs. C.15 through C.20 are both small, ranging between 0.1 and 0.3 . The normal plots given in Figs. C.15 through C.20 are reasonably close to straight lines, as they should be if the distributions are close to a normal distribution. For precipitation, the individual z statistics are somewhat skewed.

For all pollution measures, the average z statistics given under the column "MEAN" in Table C.5 are negative, indicating that there is a lower probability for a sick episode on a polluted day than on a clean day. The effect is statistically significant at the five percent level for COH, TSP, and ozone. (See the entries "T:MEAN=0" and "PROB>|T|" in the "moments" sections of Figs. C.15 through C.21.) The average z

statistic for minimum temperature is also negative, indicating that when the minimum temperature is higher, a sick episode is less probable. The effect is statistically significant at the 5 percent level. The average z statistic for precipitation is positive, indicating a higher probability to have a sick episode on a wet day, but the effect is not statistically significant at the 5 percent level.

COMPARISON OF SUBPOPULATIONS

In the following subsections, we expand on the discussion of subpopulations in Sec. VII. We begin by taking up two alternative criteria for defining the sickly subpopulation, then proceed to contrasts between adults and children and between smokers and nonsmokers.

Sickly vs. Healthy

Lung Function. Another way we can classify people into healthy and less healthy subpopulations is to use FEV_1, as measured during the HIE. We define a person to be a high-FEV_1 person if his FEV_1 is higher than that expected based on his sex, age, height and weight. Among 383 persons for whom we have FEV_1 measurements, 282 fall into this subpopulation; the other 101 are classified as low-FEV_1 persons. For both average responses and between-individual differences, none of the comparisons between these two subpopulations is statistically significant. (See Tables C.6 through C.9).

Pulmonary Susceptibility. We define a person to be susceptible to pulmonary problems if he has one of the important pulmonary diseases such as asthma, emphysema, or hay fever. We have 422 persons who fall into this category. For both average responses and between-individual differences, none of the comparisons between these two subpopulations is statistically significant. (See Tables C.10 through C.13.)

Adults Versus Children

The comparison between adults and children is of interest for several reasons. First, adults are usually more mobile than children because of work and other activities. Therefore our measure of air pollution exposure is less accurate for adults than for children.

Table C.6

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE HIGH FEV1 PERSONS: AVERAGE RESPONSES (n = 282)

Aerometric Attribute	Estimated Coefficient	z for the Attribute
S02 (ppm>	0.109E+02	0.404E+01
COH	-0.417E-01	-0.529E+00
TSP ($\mu g/m^3$)	0.152E-02	0.186E+01
Ozone (ppm)	-0.378E+01	-0.242E+01
N02 (ppm)	0.113E+01	0.140E+01
Min. temp. (F)	-0.625E-02	-0.196E+01
Precip. (inch)	0.668E+00	0.624E+01

Table C.7

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE LOW FEV1 PERSONS: AVERAGE RESPONSES (n = 101)

Aerometric Attribute	Estimated Coefficient	z for the Attribute	z for the Contrast
S02 (ppm)	0.116E+02	0.254E+01	0.13
COH	0.153E+00	0.104E+01	1.17
TSP ($\mu g/m^3$	0.834E-03	0.557E+00	-0.40
Ozone (ppm)	-0.865E+00	-0.311E+00	0.92
N02 (ppm)	0.126E+00	0.718E-01	-0.52
Min. temp. (F)	-0.127E-01	-0.195E+01	-0.89
Precip. (inch)	0.888E+00	0.509E+01	1.08

Table C.8

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE HIGH FEV_1 PERSONS: BETWEEN INDIVIDUAL DIFFERENCES (n = 282)

Aerometric Attribute	Tau	z for the Attribute
S02 (ppm)	0.651E+01	0.320E+00
COH	0.269E+00	0.622E+00
TSP ($\mu g/m^3$)	0.000E+00	0.000E+00
Ozone (ppm)	0.466E+01	0.496E+00
N02 (ppm)	0.434E+01	0.149E+01
Min. temp. (F)	0.168E-01	0.138E+01
Precip. (inch)	0.000E+00	0.000E+00

Table C.9

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE LOW FEV_1 PERSONS: BETWEEN INDIVIDUAL DIFFERENCES (n = 101)

Aerometric Attribute	Tau	z for the Attribute	z for the Contrast
S02 (ppm)	0.000E+00	0.000E+00	-0.16
COH	0.527E+00	0.117E+01	0.78
TSP ($\mu g/m^3$)	0.520E-02	0.112E+01	1.01
Ozone (ppm)	0.714E+01	0.646E+00	0.32
N02 (ppm)	0.973E+01	0.246E+01	1.88
Min. temp. (F)	0.348E-01	0.223E+01	1.60
Precip. (inch)	0.000E+00	0.000E+00	0.00

Table C.10

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE SUSCEPTIBLES: AVERAGE RESPONSES (n = 422)

Aerometric Attribute	Estimated Coefficient	z for the Attribute
S02 (ppm)	0.780E+01	0.366E+01
COH	-0.754E-01	-0.118E+01
TSP ($\mu g/m^3$)	0.115E-02	0.168E+01
Ozone (ppm)	-0.300E+01	-0.235E+01
N02 (ppm)	0.132E+01	0.182E+01
Min. temp. (F)	-0.128E-01	-0.471E+01
Precip. (inch)	0.672E+00	0.763E+01

Table C.11

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONSUSCEPTIBLES: AVERAGE RESPONSES (n = 816)

Aerometric Attribute	Estimated Coefficient	z for the Attribute	z for the Contrast
S02 (ppm)	0.800E+01	0.489E+01	0.07
COH	0.700E-01	0.142E+01	1.81
TSP ($\mu g/m^3$)	0.264E-03	0.521E+00	-1.04
Ozone (ppm)	-0.372E+01	-0.381E+01	-0.45
N02 (ppm)	0.138E+01	0.274E+01	0.07
Min. temp. (F)	-0.133E-01	-0.660E+01	-0.15
Precip. (inch)	0.691E+00	0.103E+02	0.17

Table C.12

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE SUSCEPTIBLES: BETWEEN INDIVIDUAL DIFFERENCES (n = 422)

Aerometric Attribute	TAU	z for the Attribute
S02 (ppm)	0.189E+01	0.369E-01
COH	0.270E+00	0.779E+00
TSP ($\mu g/m^3$)	0.342E-02	0.112E+01
Ozone (ppm)	0.619E+01	0.107E+01
N02 (ppm)	0.693E+01	0.363E+01
Min. temp. (F)	0.216E-01	0.246E+01
Precip. (inch)	0.000E+00	0.000E+00

Table C.13

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONSUSCEPTIBLES: BETWEEN INDIVIDUAL DIFFERENCES (n = 816)

Aerometric Attribute	Tau	z for the Attribute	z for the Contrast
S02 (ppm)	0.000E+00	0.000E+00	-0.03
COH	0.349E+00	0.157E+01	0.40
TSP ($\mu g/m^3$)	0.000E+00	0.000E+00	-0.91
Ozone (ppm)	0.492E+01	0.866E+00	-0.31
N02 (ppm)	0.439E+01	0.231E+01	-1.84
Min. temp. (F)	0.177E-01	0.221E+01	-0.65
Precip. (inch)	0.000E+00	0.000E+00	0.00

Second, because children spend more time outside than adults, our measures of air pollution exposure based on ambient monitoring are more accurate for children than for adults. Third, adults encounter or engage in more activities that give them nonambient exposures, such as smoking and occupational exposures. Furthermore, it is conceivable that adults and children might have intrinsically different responses to air pollution.

We distinguish adults and children at age 18. Thus, in the final analysis sample we have 780 adults and 458 children. We found children to be significantly more responsive to minimum temperature; the average response for children is more than twice the average response for adults. There is also significantly less between-individual variation in children's responses to minimum temperature and $N0_2$ (See Tables C.14 through C.17.)

Smoking

A major source of nonambient exposure is smoking. Among the 780 adults in the final analysis sample, we have 276 smokers and 504 nonsmokers. For both average responses and between-individual differences, none of the comparisons between these two subpopulations are statistically significant. (See Tables C.18 through C.21.)

Among the 458 children in the final analysis sample, we have 208 who live in a household with smokers and 250 who do not. For both average responses and between-individual differences, none of the comparisons between these two subpopulations is statistically significant (see Tables C.22 through C.25.).

Table C.14

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE ADULTS: AVERAGE RESPONSES (n = 780)

Aerometric Attribute	Estimated Coefficient	z for the Attribute
S02 (ppm)	0.850E+01	0.534E+01
COH	0.271E-02	0.568E-01
TSP ($\mu g/m^3$)	0.560E-03	0.109E+01
Ozone (ppm)	-0.257E+01	-0.268E+01
N02 (ppm)	0.166E+01	0.319E+01
Min. temp. (F)	-0.957E-02	-0.467E+01
Precip. (inch)	0.636E+00	0.9686+01

Table C.15

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE CHILDREN: AVERAGE RESPONSES (n = 458)

Aerometric Attribute	Estimated Coefficient	z for the Attribute	z for the Contrast
S02 (ppm)	0.636E+01	0.279E+01	-0.77
COH	0.388E-01	0.568E+00	0.43
TSP ($\mu g/m^3$ >	0.4936-03	0.716E+00	-0.08
Ozone (ppm)	-0.543E+01	-0.412E+01	-1.76
N02 (ppm)	0.7696+00	0.112E+01	-1.04
Min. temp. (F)	-0.205E-01	-0.787E+01	-3.31
Precip. (inch)	0.776E+00	0.853E+01	1.25

Table C.16

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES
FOR THE AEROMETRIC EFFECTS OVER THE ADULTS
BETWEEN INDIVIDUAL DIFFERENCES
(n = 780)

Aerometric Attribute	Tau	z for the Attribute
S02 (ppm)	0.000E+00	0.000E+00
COH	0.328E+00	0.151E+01
TSP ($\mu g/m^3$)	0.312E-02	0.125E+01
Ozone (ppm)	0.650E+01	0.156E+01
N02 (ppm)	0.635E+01	0.442E+01
Min. temp. (F)	0.222E-01	0.343E+01
Precip. (inch)	0.000E+00	0.000E+00

Table C.17

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES
FOR THE AEROMETRIC EFFECTS OVER THE CHILDREN
BETWEEN INDIVIDUAL DIFFERENCES
(n = 458)

Aerometric Attribute	Tau	z for the Attribute	z for the Contrast
S02 (ppm)	0.613E+01	0.342E+00	0.28
COH	0.385E+00	0.128E+01	0.30
TSP ($\mu g/m^3$)	0.000E+00	0.000E+00	-0.73
Ozone (ppm)	0.000E+00	0.000E+00	-0.88
N02 (ppm)	0.184E+01	0.305E+00	-2.57
Min. temp. (F)	0.000E+00	0.000E+00	-2.16
Precip. (inch)	0.000E+00	0.000E+00	0.00

Table C.18

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER SMOKING ADULTS: AVERAGE RESPONSES (n = 276)

Aerometric Attribute	Estimated Coefficient	z for the Attribute
S02 (ppm)	0.960E+01	0.351E+01
COH .	-0.166E-02	-0.205E-01
TSP ($\mu g/m^3$)	0.771E-03	0.902E+00
Ozone (ppm)	-0.424E+01	-0.252E+01
N02 (ppm)	0.115E+01	0.122E+01
Min. temp. (F)	-0.103E-01	-0.298E+01
Precip. (inch)	0.609E+00	0.545E+01

Table C.19

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONSMOKING ADULTS: AVERAGE RESPONSES (n = 504)

Aerometric Attribute	Estimated Coefficient	z for the Attribute	z for the Contrast
S02 (ppm)	0.761E+01	0.382E+01	-0.59
COH	0.827E-02	0.142E+00	0.10
TSP ($\mu g/m^3$ >	0.449E-03	0.701E+00	-0.30
Ozone (ppm)	-0.172E+01	-0.147E+01	1.23
N02 (ppm)	0.189E+01	0.303E+01	0.65
Min. temp. (F)	-0.910E-02	-0.374E+01	0.28
Precip. (inch)	0.651E+00	0.800E+01	0.31

Table C.20

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER SMOKING ADULTS: BETWEEN INDIVIDUAL DIFFERENCES (n = 276)

Aerometric Attribute	Tau	z for the Attribute
S02 (ppm)	0.872E+01	0.551E+00
COH	0.401E+00	0.129E+01
TSP ($\mu g/m^3$)	0.345E-02	0.939E+00
Ozone (ppm)	0.679E+01	0.922E+00
N02 (ppm)	0.809E+01	0.358E+01
Min. temp. (F)	0.233E-01	0.221E+01
Precip. (inch)	0.000E+00	0.000E+00

Table C.21

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONSMOKING ADULTS: BETWEEN INDIVIDUAL DIFFERENCES (n = 504)

Aerometric Attribute	Tau	z for the Attribute	z for the Contrast
S02 (ppm)	0.000E+00	0.000E+00	-0.45
COH	0.199E+00	0.476E+00	-0.81
TSP ($\mu g/m^3$)	0.281E-02	0.799E+00	-0.25
Ozone (ppm)	0.620E+01	0.121E+01	-0.13
N02 (ppm)	0.529E+01	0.273E+01	-1.80
Min. temp. (F)	0.162E-01	0.165E+01	-0.96
Precip. (inch)	0.000E+00	0.000E+00	0.00

Table C.22

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER EXPOSED CHILDREN: AVERAGE RESPONSES (n = 208)

Aerometric Attribute	Estimated Coefficient	z for the Attribute
S02 (ppm)	0.790E+01	0.207E+01
COH	-0.678E-01	-0.617E+00
TSP ($\mu g/m^3$)	0.377E-03	0.349E+00
Ozone (ppm)	-0.728E+01	-0.339E+01
N02 (ppm)	0.334E+00	0.293E+00
Min. temp. (F)	-0.241E-01	-0.552E+01
Precip. (inch)	0.739E+00	0.500E+01

Table C.23

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONEXPOSED CHILDREN: AVERAGE RESPONSES (n = 816)

Aerometric Attribute	Estimated Coefficient	z for the Attribute	z for the Contrast
S02 (ppm)	0.491E+01	0.170E+01	-0.63
COH	0.120E+00	0.144E+01	1.37
TSP ($\mu g/m^3$)	0.571E-03	0.641E+00	0.14
Ozone (ppm)	-0.431E+01	-0.258E+01	1.10
N02 (ppm)	0.898E+00	0.103E+01	0.39
Min. temp. (F)	-0.178E-01	-0.526E+01	1.14
Precip. (inch)	0.798E+00	0.692E+01	0.32

Table C.24

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE EXPOSED CHILDREN: BETWEEN INDIVIDUAL DIFFERENCES (n = 208)

Aerometric Attribute	Tau	z for the Attribute
S02 (ppm)	0.146E+02	0.912E+00
COH	0.462E+00	0.106E+01
TSP ($\mu g/m^3$)	0.000E+00	0.000E+00
Ozone (ppm)	0.000E+00	0.000E+00
N02 (ppm)	0.470E+01	0.102E+01
Min. temp. (F)	0.193E-01	0.108E+01
Precip. (inch)	0.000E+00	0.000E+00

Table C.25

META-ANALYSIS BASED ON THE RANDOM-EFFECTS MODEL SUMMARIES FOR THE AEROMETRIC EFFECTS OVER THE NONEXPOSED CHILDREN: BETWEEN INDIVIDUAL DIFFERENCES (n = 250)

Aerometric Attribute	Tau	z for the 'Attribute	z for the Contrast
S02 (ppm)	0.344E+01	0.955E-01	-0.76
COH	0.000E+00	0.000E+00	-0.91
TSP ($\mu g/m^3$)	0.000E+00	0.000E+00	0.00
Ozone (ppm)	0.000E+00	0.000E+00	0.00
N02 (ppm)	0.000E+00	0.000E+00	-0.87
Min. temp. (F)	0.000E+00	0.000E+00	-0.91
Precip. (inch)	0.000E+00	0.000E+00	0.00

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