APPENDICES

APPENDIX 1

CUMULATIVE PROBABILITY DISTRIBUTIONS

Explanations and Suggested Comparisons

This Appendix presents tables documenting the cumulative probability distributions presented in the body of the report. Due to their repetitious nature, we present explanations and suggested comparisons at the outset, rather than repeating them in each of the relevant tables.

Table 13: Wigley and Raper did not specify parameter values for Circumpolar Deep Water.

Tables 14-17, 19-21, 27-29, 31-37, 41-42, and 45-50: With the exception of Wigley and Raper, all projections include a random cross-section of precipitation and ice sheet parameters.

Tables 22-23: All projections include background probability distribution as modified from the draft based on Jacobs and Lingle comments.

Table 39. This table provides statistics for 8 random subsamples. The 99 percentiles range from 101.5 to 110.2, with a mean of 104.2 and a variance of 8. The variance of the mean of this series (i.e. the average estimate of the 99th percentile) is 8/n, where n is the sample size of 8. Thus, the standard error is approximately 1.0 cm. As a result, additional simulations did not seem worthwhile. Note also that the 99-percentile tails do not appear to vary (in percentage terms) any more than the mean. Therefore, the Latin Hypercube algorithm, with its bias toward better estimates of the tails, would probably be of little use for our purposes. *See also*. **Numerical Error of the Monte Carlo Algorithm**, Chapter 7, *supra*.

Table 40: Compare to Tables 7 and 8.

Table 41: Compare to Table 21.

Table 42: Compare to Table 17.

Table 43: Compare to Tables 28 and 35.

Table 44: Compare to Tables 29 and 37.

Table 45: Compare to Table 30.

Table 46: Compare to Tables 7 and 40.

Table 47: Compare to Tables 8 and 40.

Table 48: Compare to Tables 28 and 43.

Table 49: Compare to Tables 29 and 44.

Table 50: Compare to Tables 30 and 45.

Table 51: The “Fixed Emission 2100” scenario refers to the range of emissions scenarios developed in Chapter 2 and used in Chapter 3 to generate temperatures. The other two scenarios are based on the assumptions that emissions remain constant after the year 2025 and 2050.

Table 52-59: To simplify the necessary comparisons, these tables present results for only one reviewer; arbitrarily, we picked Schneider. Therefore, each of the tables should be compared to the column reporting Schneider values.

Table 52: Compare to Table 7.

Table 53: Compare to Table 8.

Table 54: Compare to Table 17

Table 55: Compare to Table 21

Table 56: Compare to Table 28

Table 57: Compare to Table 29

Table 58: Compare to Table 38

Table 59: The authors regret omitting the breakout by reviewer in Table 30.

A. RESULTS REPORTED IN CHAPTERS 2 THROUGH 9

1. 2100 CO_2 Concentration

Cumulative %	CO_2 (ppm)
0.10	405.28
0.50	426.87
1.00	438.65
2.50	461.90
5.00	481.96
10.00	510.59
20.00	553.50
30.00	591.41
40.00	633.28
50.00	679.52
60.00	728.78
70.00	792.21
80.00	877.97
90.00	1046.68
95.00	1203.56
97.50	1362.93
99.00	1614.16
99.50	1774.73
99.90	2363.46
Median	679.52
Mean	737.98
StdDev	242.19

2. Year by Which CO_2 Concentration Exceeds 600 ppmv

Cumulative %	Year
0.10	2037
0.50	2040
1.00	2042
2.50	2045
5.00	2048
10.00	2052
20.00	2059
30.00	2064
40.00	2070
50.00	2078
60.00	2088
70.00	2103
80.00	2131
90.00	2200
95.00	2200
97.50	2200
99.00	2200
99.50	2200
99.90	2200

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3. Forcing: 1990–2100, all Reviewers (W/m^2)

Cumulative %	$\Delta Q_{1990\text{-}2100}$
0.10	1.28
0.50	1.77
1.00	1.94
2.50	2.29
5.00	2.61
10.00	3.02
20.00	3.55
30.00	3.99
40.00	4.41
50.00	4.90
60.00	5.38
70.00	5.83
80.00	6.36
90.00	7.17
95.00	7.76
97.50	8.23
99.00	8.69
99.50	8.99
99.90	9.39
Median	4.90
Mean	4.99
StdDev	1.58

4. Year by Which Forcing Exceeds 4.4, all Reviewers ($W/m^{2)}$

Cumulative %	Year
0.10	2059
0.50	2061
1.00	2062
2.50	2064
5.00	2066
10.00	2068
20.00	2073
30.00	2077
40.00	2081
50.00	2089
60.00	2099
70.00	2117
80.00	2151
90.00	>2200
95.00	>2200
97.50	>2200
99.00	>2200
99.50	>2200
99.90	>2200

5. Equilibrium Temperature Change for a Doubling of CO_2, all Reviewers (°C)

Cumulative %	$\Delta T2x$
0.10	0.00
0.50	0.00
1.00	0.00
2.50	0.07
5.00	0.29
10.00	0.62
20.00	1.26
25.36	1.50
30.00	1.68
40.00	2.01
50.00	2.37
60.00	2.75
70.00	3.19
80.00	3.83
86.97	4.50
90.00	4.90
95.00	5.93
97.50	7.21
99.00	8.64
99.50	9.54
99.90	14.31
Median	2.37
Mean	2.66
StdDev	1.81

6. Global Mean Surface Temperature Change by Reviewer, 1990–2050

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-0.44	0.00	0.07	0.08	0.16	0.04	0.04	0.24	-0.36
0.50	-0.36	0.11	0.15	0.23	0.26	0.14	0.14	0.33	-0.21
1.00	-0.32	0.22	0.19	0.27	0.30	0.20	0.22	0.38	-0.13
2.50	-0.24	0.33	0.34	0.33	0.34	0.29	0.31	0.47	0.00
5.00	-0.18	0.42	0.45	0.43	0.41	0.40	0.41	0.57	0.12
10.00	-0.10	0.54	0.58	0.55	0.51	0.55	0.55	0.67	0.31
20.00	0.00	0.70	0.75	0.70	0.68	0.71	0.75	0.83	0.55
30.00	0.07	0.84	0.88	0.85	0.80	0.83	0.88	0.95	0.73
40.00	0.13	0.97	1.01	0.99	0.93	0.99	1.02	1.05	0.88
50.00	0.20	1.11	1.13	1.12	1.04	1.12	1.15	1.16	1.03
60.00	0.26	1.25	1.26	1.27	1.18	1.27	1.34	1.28	1.18
70.00	0.33	1.41	1.43	1.43	1.32	1.43	1.52	1.38	1.35
80.00	0.41	1.65	1.61	1.66	1.49	1.65	1.78	1.53	1.55
90.00	0.52	1.96	1.97	2.01	1.77	1.99	2.23	1.74	1.89
95.00	0.60	2.28	2.29	2.32	1.98	2.26	2.68	1.97	2.19
97.50	0.71	2.61	2.52	2.64	2.14	2.51	3.05	2.23	2.52
99.00	0.79	2.82	2.89	2.89	2.45	2.87	4.60	2.48	2.87
99.50	0.84	3.03	3.00	3.15	2.72	3.15	6.03	2.61	3.15
99.90	0.93	3.20	3.62	3.50	3.05	3.41	9.06	2.85	4.96
Median	0.20	1.11	1.13	1.12	1.04	1.12	1.15	1.16	1.03
Mean	0.21	1.19	1.21	1.21	1.10	1.20	1.33	1.20	1.08
StdDev	0.24	0.57	0.56	0.59	0.48	0.58	0.88	0.43	0.66

7. Global Mean Surface Temperature Change by Reviewer, 1990–2100

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-0.58	0.15	0.20	0.24	0.35	0.27	-0.60	0.25	-0.47
0.50	-0.47	0.33	0.42	0.40	0.50	0.36	0.17	0.63	-0.24
1.00	-0.43	0.41	0.49	0.51	0.58	0.43	0.32	0.73	-0.12
2.50	-0.28	0.66	0.66	0.60	0.70	0.56	0.50	0.88	0.04
5.00	-0.19	0.83	0.85	0.76	0.83	0.72	0.72	1.05	0.26
10.00	-0.09	1.03	1.09	0.99	1.03	1.00	0.99	1.32	0.57
20.00	0.04	1.36	1.41	1.34	1.34	1.34	1.37	1.60	1.05
30.00	0.19	1.70	1.68	1.62	1.63	1.64	1.68	1.86	1.41
40.00	0.27	1.96	1.90	1.91	1.87	1.92	1.96	2.08	1.73
50.00	0.38	2.24	2.19	2.15	2.13	2.23	2.31	2.34	2.02
60.00	0.48	2.54	2.43	2.45	2.40	2.58	2.70	2.64	2.35
70.00	0.59	2.94	2.78	2.81	2.74	2.97	3.16	2.92	2.73
80.00	0.74	3.39	3.29	3.22	3.21	3.46	3.82	3.28	3.22
90.00	0.99	4.11	4.04	4.04	3.82	4.18	4.78	3.80	3.98
95.00	1.19	4.80	4.74	4.89	4.40	5.04	5.74	4.28	4.69
97.50	1.38	5.61	5.31	5.45	4.98	5.71	6.54	4.6	5.41
99.00	1.47	6.31	6.30	6.66	5.55	6.37	7.62	5.16	6.30
99.50	1.64	6.83	6.82	6.91	6.03	6.94	8.67	5.52	6.87
99.90	2.02	7.10	7.62	9.15	6.32	8.07	11.87	5.93	8.67
Median	0.38	2.24	2.19	2.15	2.13	2.23	2.31	2.34	2.02
Mean	0.42	2.45	2.41	2.38	2.31	2.46	2.66	2.47	2.20
StdDev	0.42	1.25	1.21	1.27	1.11	1.32	1.63	0.98	1.37

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8. Global Mean Surface Temperature Change by Reviewer, 1990–2200

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-0.91	-0.07	0.22	0.25	0.12	0.31	-0.02	0.40	-0.60
0.50	-0.62	0.33	0.69	0.46	0.57	0.50	0.34	0.73	-0.31
1.00	-0.57	0.46	0.73	0.59	0.75	0.58	0.45	0.94	-0.17
2.50	-0.40	0.79	0.93	0.92	0.98	0.77	0.77	1.21	0.08
5.00	-0.25	1.12	1.23	1.17	1.24	1.01	1.01	1.52	0.37
10.00	-0.10	1.52	1.62	1.52	1.59	1.45	1.43	1.93	0.84
20.00	0.11	2.12	2.18	2.04	2.16	2.11	2.10	2.59	1.59
30.00	0.25	2.72	2.67	2.53	2.69	2.62	2.64	3.02	2.20
40.00	0.41	3.24	3.15	3.00	3.15	3.12	3.22	3.48	2.78
50.00	0.58	3.85	3.62	3.54	3.66	3.64	3.86	3.97	3.34
60.00	0.74	4.41	4.19	4.12	4.24	4.30	4.75	4.50	3.99
70.00	0.94	5.07	4.80	4.92	5.01	5.04	5.67	5.13	4.75
80.00	1.23	6.07	5.95	5.93	5.88	5.97	6.88	5.92	5.76
90.00	1.65	7.64	7.64	7.72	7.66	7.50	9.27	7.18	7.39
95.00	2.02	9.16	9.66	9.37	9.46	9.17	11.32	8.14	9.12
97.50	2.28	10.68	11.07	11.06	10.88	10.99	13.06	8.95	10.87
99.00	2.57	12.12	12.77	13.08	12.93	12.71	15.53	9.80	12.73
99.50	2.78	13.16	13.64	14.52	14.00	13.80	16.81	11.19	14.10
99.90	3.37	14.49	15.36	18.83	14.71	15.80	21.14	12.00	18.48
Median	0.58	3.85	3.62	3.54	3.66	3.64	3.86	3.97	3.34
Mean	0.68	4.27	4.22	4.19	4.23	4.19	4.73	4.29	3.85
StdDev	0.69	2.52	2.56	2.70	2.54	2.56	3.28	2.02	2.74

9. Thermal Expansion by Reviewer, 1990–2050

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-2.79	1.63	0.77	2.00	1.49	1.48	-2.74	2.76	-2.09
0.50	-2.28	2.02	2.18	2.28	2.57	1.77	0.85	3.30	-1.11
1.00	-1.94	2.54	2.62	2.50	2.94	2.06	1.26	3.59	-0.54
2.50	-1.30	3.27	3.31	3.18	3.71	2.78	2.03	4.28	0.19
5.00	-0.92	3.94	4.11	3.74	4.28	3.57	2.86	4.92	1.05
10.00	-0.39	4.96	4.86	4.68	5.29	4.78	3.95	5.81	2.50
20.00	0.21	6.17	6.12	5.94	6.78	6.19	5.19	6.90	4.71
30.00	0.68	7.22	7.47	6.78	7.84	7.37	6.40	7.84	6.18
40.00	1.08	8.47	8.50	7.77	8.93	8.45	7.31	8.58	7.41
50.00	1.53	9.63	9.59	8.84	10.10	9.54	8.34	9.34	8.61
60.00	1.96	10.78	10.81	10.05	11.23	10.62	9.42	10.08	9.78
70.00	2.42	12.03	12.14	11.40	12.56	12.04	10.73	10.96	11.14
80.00	3.03	13.97	13.87	12.68	14.30	13.71	12.78	12.24	12.82
90.00	3.84	16.55	16.78	15.26	17.05	16.77	15.88	14.28	15.56
95.00	4.54	18.77	19.42	18.30	19.02	19.04	18.27	15.77	18.19
97.50	5.27	21.05	21.97	20.26	21.23	21.41	21.76	17.38	20.58
99.00	6.11	23.83	23.88	21.84	24.58	24.03	26.20	18.70	23.19
99.50	6.65	26.11	24.98	22.71	27.55	26.21	30.49	20.78	25.49
99.90	8.23	29.39	30.65	25.48	30.73	29.91	46.87	25.70	31.71
Median	1.53	9.63	9.59	8.84	10.10	9.54	8.34	9.34	8.61
Mean	1.64	10.23	10.36	9.55	10.71	10.20	9.34	9.71	8.97
StdDev	1.69	4.67	4.78	4.29	4.65	4.78	5.78	3.36	5.22

10. Thermal Expansion by Reviewer, 1990–2100

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-4.58	3.09	4.06	3.72	2.85	2.59	-3.90	5.23	-3.42
0.50	-3.42	3.85	5.03	4.49	6.19	3.92	-0.24	6.33	-1.55
1.00	-2.66	4.96	5.70	5.10	7.12	4.66	0.59	7.38	-0.81
2.50	-1.93	6.71	7.42	6.61	8.77	6.25	3.36	8.83	0.57
5.00	-1.25	8.59	9.17	8.06	10.00	8.02	5.27	10.54	2.27
10.00	-0.45	10.82	11.20	9.85	12.02	10.22	7.78	12.36	5.12
20.00	0.67	13.97	14.34	12.80	15.21	13.80	10.90	15.12	10.28
30.00	1.58	16.67	17.16	15.47	18.17	16.87	13.92	17.39	13.82
40.00	2.40	19.21	20.07	17.79	21.06	19.33	16.30	19.02	16.84
50.00	3.19	22.43	22.95	20.21	23.90	22.18	18.83	21.37	19.69
60.00	4.10	24.96	25.69	23.39	26.52	24.96	22.41	23.15	22.86
70.00	5.04	28.38	29.28	26.80	30.05	28.94	25.99	25.85	26.25
80.00	6.66	33.37	34.58	31.34	34.60	32.59	31.04	29.33	30.83
90.00	8.29	39.52	42.07	38.76	41.57	41.47	40.62	33.91	38.11
95.00	10.09	46.14	48.44	44.97	47.26	47.70	47.74	37.53	44.97
97.50	11.71	51.01	53.20	50.01	53.19	53.24	55.41	40.65	50.43
99.00	13.84	56.91	61.23	59.01	60.02	61.74	66.63	45.33	57.53
99.50	15.01	63.80	62.63	64.55	65.35	65.72	70.06	48.43	64.01
99.90	17.89	70.76	69.25	69.49	70.24	75.49	94.04	52.35	73.45
Median	3.19	22.43	22.95	20.21	23.90	22.18	18.83	21.37	19.69
Mean	3.66	23.98	24.82	22.59	25.47	24.15	21.89	22.23	21.10
StdDev	3.51	11.59	12.06	11.52	11.56	12.21	13.71	8.31	12.86

11. Thermal Expansion by Reviewer, 1990–2200

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-7.14	3.29	8.10	2.06	4.72	2.53	-9.45	6.67	-7.10
0.50	-6.48	5.92	11.21	6.73	10.87	6.34	-7.56	10.58	-3.27
1.00	-4.73	7.95	11.60	8.48	13.99	8.46	-4.31	12.60	-1.57
2.50	-3.29	12.49	14.73	11.32	17.08	12.33	-0.18	15.16	0.88
5.00	-1.95	16.14	17.95	14.53	20.42	15.76	5.78	18.77	3.84
10.00	-0.42	20.58	22.88	18.21	24.46	20.66	11.88	22.71	9.92
20.00	1.40	28.89	30.74	26.35	32.57	29.17	20.72	29.76	20.11
30.00	2.93	35.91	39.17	32.61	40.03	36.80	26.84	35.38	28.36
40.00	4.69	42.90	46.01	39.65	47.91	43.78	33.85	40.50	36.07
50.00	6.50	49.08	54.22	46.41	55.13	49.99	40.27	45.20	43.72
60.00	8.38	57.96	62.32	56.93	62.23	59.50	50.20	50.75	52.16
70.00	10.85	66.18	72.46	69.35	73.04	69.12	61.25	57.85	62.26
80.00	13.46	80.13	88.56	82.89	85.02	81.41	78.05	67.47	76.06
90.00	18.39	101.30	110.06	105.57	107.94	104.47	106.72	80.97	98.73
95.00	22.23	121.86	135.93	122.24	125.01	130.06	129.67	93.18	119.34
97.50	26.44	136.76	151.33	139.16	145.24	148.80	151.43	103.17	138.92
99.00	31.24	164.15	170.18	173.97	162.45	179.39	179.23	120.22	163.15
99.50	35.42	175.70	189.70	181.44	178.65	195.42	194.71	125.59	181.44
99.90	42.25	209.72	202.95	235.23	201.13	219.68	217.16	132.26	215.45
Median	6.50	49.08	54.22	46.41	55.13	49.99	40.27	45.20	43.72
Mean	7.88	56.39	61.60	55.92	61.04	58.46	50.97	49.27	50.19
StdDev	7.72	33.04	35.79	35.39	33.16	35.73	39.03	22.97	35.86

Appendix 1-A

12. Greenland Temperature Change by Reviewer, 1990–2100 (°C)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-0.78	0.16	0.20	0.19	0.20	0.43	-0.77	0.32	-0.68
0.50	-0.68	0.46	0.42	0.34	0.25	0.54	0.08	0.71	-0.34
1.00	-0.59	0.59	0.49	0.45	0.31	0.62	0.32	0.91	-0.18
2.50	-0.42	0.92	0.66	0.53	0.39	0.85	0.50	1.16	0.05
5.00	-0.28	1.11	0.85	0.69	0.50	1.08	0.77	1.46	0.33
10.00	-0.12	1.40	1.13	0.91	0.64	1.49	1.02	1.78	0.64
20.00	0.06	1.87	1.69	1.22	0.85	2.12	1.53	2.22	1.09
30.00	0.25	2.31	2.21	1.53	1.07	2.70	1.96	2.63	1.52
40.00	0.38	2.72	2.69	1.82	1.27	3.27	2.43	2.96	1.98
50.00	0.54	3.13	3.37	2.14	1.46	3.79	2.94	3.37	2.47
60.00	0.69	3.58	4.09	2.48	1.70	4.39	3.54	3.73	3.02
70.00	0.86	4.16	5.06	2.92	2.08	5.15	4.36	4.21	3.68
80.00	1.06	4.96	6.96	3.58	2.48	6.28	5.62	4.84	4.58
90.00	1.42	6.09	9.67	4.62	3.28	8.07	7.80	5.83	6.23
95.00	1.79	7.30	12.96	5.80	3.90	9.98	10.45	6.51	8.06
97.50	1.99	8.41	15.88	6.73	4.42	11.30	13.02	7.22	10.32
99.00	2.44	10.16	17.67	8.42	5.34	13.48	16.74	7.99	13.65
99.50	2.61	10.56	17.82	11.64	5.56	14.64	22.06	8.29	16.00
99.90	3.65	11.62	19.12	13.82	7.71	18.00	23.10	9.63	19.12
Median	0.54	3.13	3.37	2.14	1.46	3.79	2.94	3.37	2.47
Mean	0.60	3.51	4.58	2.53	1.74	4.38	3.91	3.59	3.11
StdDev	0.63	1.95	3.80	1.71	1.10	2.75	3.47	1.57	2.69

13. Circumpolar Deepwater Warming by Reviewer, 1990–2100 (°C)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	All
0.10	-0.60	0.05	0.06	0.06	0.03	-0.71	0.17	-0.35
0.50	-0.33	0.07	0.15	0.08	0.10	-0.11	0.27	-0.12
1.00	-0.21	0.10	0.20	0.11	0.14	-0.03	0.31	-0.06
2.50	-0.14	0.12	0.26	0.16	0.17	0.10	0.46	0.00
5.00	-0.08	0.18	0.35	0.19	0.23	0.25	0.57	0.06
10.00	-0.03	0.25	0.44	0.26	0.29	0.47	0.73	0.16
20.00	0.02	0.38	0.59	0.38	0.39	0.83	1.01	0.33
30.00	0.05	0.49	0.71	0.52	0.48	1.08	1.22	0.50
40.00	0.08	0.63	0.84	0.65	0.57	1.29	1.46	0.68
50.00	0.13	0.79	0.99	0.78	0.67	1.52	1.71	0.86
60.00	0.18	0.98	1.15	1.00	0.77	1.79	2.00	1.09
70.00	0.24	1.24	1.39	1.26	0.90	2.14	2.31	1.39
80.00	0.33	1.63	1.68	1.59	1.08	2.58	2.69	1.79
90.00	0.50	2.39	2.25	2.29	1.39	3.36	3.44	2.52
95.00	0.69	3.08	2.81	3.26	1.69	3.95	4.19	3.26
97.50	0.87	3.98	3.40	3.96	1.92	4.33	5.12	3.97
99.00	1.40	5.30	4.23	5.30	2.40	5.09	6.32	4.99
99.50	1.56	5.99	4.87	6.49	2.81	5.74	7.38	5.74
99.90	1.98	6.91	5.45	7.16	3.13	7.30	8.10	7.38
Median	0.13	0.79	0.99	0.78	0.67	1.52	1.71	0.86
Mean	0.19	1.10	1.21	1.12	0.77	1.75	1.95	1.16
StdDev	0.28	1.01	0.83	1.04	0.47	1.14	1.20	1.06

14. Greenland Precipitation by Reviewer, 2100 (cm/yr sea level equivalent)

Cumulative %	Alley	Kuhn	MacCracken	Rind	Schneider	Zwally	All
0.10	0.1301	0.1279	0.1274	0.1147	0.1289	0.1231	0.1278
0.50	0.1322	0.1292	0.1303	0.1304	0.1306	0.1312	0.1305
1.00	0.1325	0.1312	0.1316	0.1314	0.1314	0.1318	0.1318
2.50	0.1331	0.1328	0.1339	0.1330	0.1330	0.1329	0.1330
5.00	0.1334	0.1357	0.1373	0.1359	0.1361	0.1356	0.1343
10.00	0.1340	0.1406	0.1405	0.1398	0.1404	0.1389	0.1366
20.00	0.1351	0.1463	0.1460	0.1465	0.1467	0.1443	0.1417
30.00	0.1364	0.1521	0.1519	0.1522	0.1518	0.1496	0.1466
40.00	0.1377	0.1586	0.1567	0.1568	0.1569	0.1544	0.1522
50.00	0.1397	0.1654	0.1629	0.1627	0.1630	0.1605	0.1583
60.00	0.1422	0.1735	0.1703	0.1692	0.1696	0.1683	0.1656
70.00	0.1453	0.1843	0.1791	0.1788	0.1798	0.1783	0.1748
80.00	0.1511	0.1975	0.1925	0.1951	0.1934	0.1950	0.1894
90.00	0.1626	0.2314	0.2236	0.2241	0.2231	0.2314	0.2192
95.00	0.1777	0.2800	0.2647	0.2570	0.2631	0.2811	0.2590
97.50	0.2003	0.3318	0.3400	0.3126	0.3190	0.3437	0.3196
99.00	0.2607	0.4252	0.4325	0.4077	0.4157	0.5210	0.4217
99.50	0.3153	0.5096	0.4636	0.5046	0.4786	0.6749	0.5208
99.90	1.0348	0.6711	0.6425	0.5544	0.6001	1.2871	0.8940
Median	0.1397	0.1654	0.1629	0.1627	0.1630	0.1605	0.1583
Mean	0.1478	0.1807	0.1777	0.1765	0.1773	0.1809	0.1750
StdDev	0.0442	0.0575	0.0557	0.0498	0.0523	0.0803	0.0589

15. Greenland Contribution to Sea Level, 1990–2050 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-0.64	-0.70	-0.63	-0.69	-0.76	-1.64	-2.69	-1.08	-0.87
0.50	-0.60	-0.06	-0.13	-0.19	-0.41	-0.52	-0.36	-0.39	-0.42
1.00	-0.48	-0.01	-0.08	-0.12	-0.31	-0.31	-0.21	-0.03	-0.31
2.50	-0.38	0.08	0.00	-0.05	-0.19	-0.01	-0.06	0.42	-0.17
5.00	-0.29	0.14	0.08	0.00	-0.12	0.11	0.00	0.72	-0.07
10.00	-0.20	0.22	0.17	0.08	-0.06	0.27	0.11	1.09	0.02
20.00	-0.08	0.41	0.30	0.20	0.01	0.46	0.26	1.59	0.18
30.00	-0.03	0.56	0.42	0.31	0.10	0.72	0.43	1.97	0.31
40.00	0.03	0.73	0.54	0.42	0.17	0.94	0.63	2.32	0.47
50.00	0.09	0.93	0.66	0.55	0.25	1.15	0.83	2.60	0.68
60.00	0.16	1.15	0.81	0.73	0.35	1.43	1.08	2.93	0.95
70.00	0.23	1.38	1.04	0.94	0.47	1.82	1.41	3.30	1.32
80.00	0.32	1.78	1.36	1.22	0.64	2.22	1.94	3.77	1.88
90.00	0.48	2.45	1.88	1.75	0.96	3.19	2.86	4.48	2.83
95.00	0.65	3.20	2.45	2.40	1.34	4.08	3.94	5.10	3.74
97.50	0.85	3.92	3.22	3.12	1.72	4.99	5.56	5.78	4.52
99.00	1.06	4.75	4.10	4.39	2.13	6.49	9.75	6.42	5.73
99.50	1.19	5.66	5.31	4.86	2.63	7.51	12.87	6.84	6.69
99.90	1.64	6.43	12.19	8.34	5.45	12.46	28.51	8.18	12.46
Median	0.09	0.93	0.66	0.55	0.25	1.15	0.83	2.60	0.68
Mean	0.13	1.18	0.91	0.80	0.38	1.50	1.39	2.72	1.13
StdDev	0.30	1.02	0.98	0.89	0.55	1.44	2.99	1.35	1.60

16. Greenland Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-1.40	-2.77	-3.29	-2.39	-2.76	-4.29	-3.98	0.57	-4.19
0.50	-1.31	-0.16	-0.75	-0.67	-1.70	-2.34	-1.63	1.49	-1.26
1.00	-1.12	0.08	-0.06	-0.41	-1.10	-1.24	-1.01	1.74	-0.81
2.50	-0.81	0.42	0.22	-0.11	-0.62	-0.03	-0.15	2.53	-0.37
5.00	-0.56	0.67	0.49	0.12	-0.36	0.58	0.11	3.31	-0.10
10.00	-0.33	1.06	0.85	0.42	-0.13	1.12	0.52	4.21	0.22
20.00	-0.09	1.72	1.43	0.87	0.17	1.92	1.16	5.18	0.77
30.00	0.08	2.31	2.03	1.27	0.47	2.85	1.81	5.98	1.34
40.00	0.25	3.05	2.58	1.67	0.75	3.70	2.56	6.76	2.00
50.00	0.42	3.77	3.37	2.20	1.12	4.69	3.42	7.52	2.87
60.00	0.62	4.53	4.15	2.86	1.47	5.93	4.36	8.24	3.99
70.00	0.88	5.68	5.43	3.74	1.97	7.50	5.69	9.14	5.37
80.00	1.18	7.46	7.55	4.97	2.63	9.60	8.21	10.22	7.30
90.00	1.68	10.31	12.24	7.28	4.06	14.52	13.34	11.90	10.28
95.00	2.34	13.75	18.47	9.92	5.62	19.28	18.99	13.34	13.75
97.50	2.95	18.46	26.56	13.37	7.13	25.62	27.16	14.78	18.56
99.00	4.07	23.41	36.28	18.80	9.20	36.35	43.45	16.66	27.16
99.50	4.51	28.34	51.08	22.23	12.59	43.38	54.87	18.13	36.11
99.90	6.14	40.72	75.57	47.19	21.28	58.74	59.99	19.96	64.94
Median	0.42	3.77	3.37	2.20	1.12	4.69	3.42	7.52	2.87
Mean	0.60	5.03	5.64	3.33	1.64	6.66	5.83	7.80	4.57
StdDev	0.95	4.77	8.35	4.00	2.31	7.25	9.74	3.10	6.28

17. Greenland Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-3.87	-11.23	-9.20	-10.01	-12.21	-22.07	-12.71	4.80	-11.44
0.50	-2.82	-1.09	-5.48	-3.38	-8.62	-10.19	-9.80	6.43	-5.81
1.00	-2.65	0.26	-2.36	-1.91	-6.93	-4.63	-7.20	7.49	-2.69
2.50	-1.82	1.42	0.77	-0.34	-2.51	-0.25	-1.23	8.91	-1.08
5.00	-1.20	2.37	2.11	0.46	-1.42	1.72	0.46	11.19	-0.16
10.00	-0.61	4.18	3.86	1.63	-0.43	4.03	1.87	13.90	0.92
20.00	0.03	6.83	7.03	3.22	0.71	7.26	4.31	16.84	2.90
30.00	0.48	9.24	10.73	4.73	1.91	10.88	6.88	18.92	5.32
40.00	1.02	11.80	14.86	6.51	3.07	15.29	10.17	21.74	8.24
50.00	1.66	15.86	20.63	8.64	4.57	19.78	14.45	24.25	12.28
60.00	2.37	19.91	27.42	11.44	6.18	25.99	19.90	26.77	17.21
70.00	3.20	25.98	41.74	15.14	8.30	33.77	26.24	30.07	23.01
80.00	4.65	35.38	61.10	21.22	11.96	46.38	38.80	33.43	31.21
90.00	6.71	55.86	100.23	36.38	19.83	76.50	68.68	38.96	50.04
95.00	9.14	73.54	134.93	54.03	28.70	105.79	105.33	44.49	76.95
97.50	12.62	107.39	180.65	69.02	38.18	135.58	135.70	48.02	109.91
99.00	17.84	124.31	223.86	93.06	55.32	192.18	184.60	53.22	150.94
99.50	21.82	138.77	239.40	111.11	71.50	195.45	198.79	59.61	190.22
99.90	25.85	148.00	247.76	194.39	94.99	205.66	240.72	64.74	236.97
Median	1.66	15.86	20.63	8.64	4.57	19.78	14.45	24.25	12.28
Mean	2.58	23.99	38.57	15.01	7.74	31.44	26.79	25.47	21.45
StdDev	3.74	25.25	47.28	19.63	11.49	35.50	35.98	10.14	29.76

18. Ross Ice Shelf Melt Rate in the Year 2100 (m/yr)

Cumulative %	Thomas	All Other Reviewers	All Reviewers
0.10	0.020	0.021	0.020
0.50	0.226	0.137	0.139
1.00	0.236	0.178	0.186
2.50	0.247	0.215	0.219
5.00	0.259	0.230	0.233
10.00	0.281	0.245	0.247
20.00	0.327	0.259	0.263
30.00	0.382	0.280	0.289
40.00	0.447	0.311	0.323
50.00	0.549	0.352	0.372
60.00	0.724	0.415	0.443
70.00	0.986	0.515	0.557
80.00	1.690	0.683	0.764
90.00	3.138	1.071	1.252
95.00	5.954	1.586	2.068
97.50	9.769	2.360	3.208
99.00	16.629	3.684	6.203
99.50	22.608	5.101	9.464
99.90	36.955	9.568	19.918
Median	0.549	0.352	0.372
Mean	1.541	0.581	0.718
StdDev	3.331	0.780	1.489

19. Antarctic Contribution to Sea Level by Climate Reviewer, 1990–2050 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-58.58	-49.04	-47.74	-73.70	-42.61	-52.39	-62.04	-6.84	-52.39
0.50	-40.54	-34.02	-27.60	-30.89	-32.63	-44.61	-31.98	-5.66	-34.02
1.00	-35.09	-25.99	-20.38	-23.98	-27.35	-26.83	-26.67	-5.25	-25.70
2.50	-20.03	-17.82	-15.93	-16.34	-19.03	-19.90	-17.53	-4.31	-16.68
5.00	-11.04	-10.87	-11.55	-11.50	-13.76	-13.00	-11.63	-3.83	-10.90
10.00	-7.45	-6.97	-7.07	-6.92	-8.20	-7.99	-7.25	-3.03	-6.66
20.00	-4.02	-3.98	-3.82	-3.84	-4.16	-4.35	-4.04	-2.24	-3.67
30.00	-2.51	-2.50	-2.55	-2.33	-2.73	-2.89	-2.56	-1.64	-2.37
40.00	-1.64	-1.63	-1.64	-1.47	-1.79	-1.84	-1.55	-1.28	-1.55
50.00	-1.04	-0.88	-0.91	-0.85	-1.05	-1.04	-0.72	-0.95	-0.94
60.00	-0.42	-0.30	-0.35	-0.27	-0.55	-0.48	-0.14	-0.69	-0.44
70.00	0.42	0.72	0.62	0.72	0.23	0.48	1.12	-0.46	0.22
80.00	2.30	2.58	2.64	3.00	2.27	2.40	3.15	-0.18	1.93
90.00	5.18	5.21	5.39	5.43	4.83	5.26	5.63	0.18	4.84
95.00	7.12	7.36	7.63	7.05	6.96	7.26	7.97	0.52	6.96
97.50	8.77	9.28	9.12	8.44	8.63	9.44	9.66	0.86	8.77
99.00	10.68	11.70	11.16	10.23	11.61	11.77	11.68	1.37	10.73
99.50	11.76	13.70	14.77	10.68	13.51	13.55	16.63	1.58	13.16
99.90	21.12	27.80	22.48	19.95	16.61	14.85	25.77	2.28	21.23
Median	-1.04	-0.88	-0.91	-0.85	-1.05	-1.04	-0.72	-0.95	-0.94
Mean	-1.64	-1.34	-1.19	-1.25	-1.75	-1.77	-1.19	-1.21	-1.42
StdDev	7.12	6.66	6.14	6.56	6.63	7.18	7.04	1.33	6.35

20. Antarctic Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-28.62	-49.45	-55.89	-55.01	-56.02	-55.02	-50.78	-15.92	-52.18
0.50	-27.03	-45.02	-41.53	-43.99	-48.08	-45.81	-47.90	-14.21	-43.84
1.00	-24.00	-37.29	-36.08	-39.17	-41.17	-42.18	-42.54	-13.66	-36.80
2.50	-20.29	-26.50	-29.02	-29.44	-32.53	-32.25	-28.15	-11.56	-26.83
5.00	-16.60	-18.23	-21.87	-19.89	-25.11	-21.78	-20.23	-10.07	-18.87
10.00	-11.18	-11.53	-13.23	-12.40	-15.02	-15.07	-11.92	-8.38	-11.65
20.00	-6.37	-6.72	-7.10	-6.68	-7.61	-8.22	-6.42	-6.22	-6.78
30.00	-4.15	-4.07	-4.56	-3.68	-4.69	-4.92	-3.55	-4.77	-4.32
40.00	-2.65	-2.34	-2.46	-2.06	-2.82	-2.78	-1.78	-3.76	-2.70
50.00	-1.54	-0.77	-0.99	-0.93	-1.58	-1.43	-0.35	-2.97	-1.45
60.00	-0.35	0.56	0.21	0.54	-0.55	-0.12	1.95	-2.22	-0.33
70.00	1.93	3.47	3.22	3.51	1.72	3.10	5.48	-1.45	1.89
80.00	5.68	6.88	6.67	7.69	5.81	6.80	9.32	-0.67	5.81
90.00	10.72	12.08	11.87	13.06	10.62	12.50	15.77	0.47	11.36
95.00	14.93	16.87	16.29	17.49	15.62	18.33	22.28	1.51	16.47
97.50	18.96	21.98	20.83	21.47	19.85	22.73	27.75	2.43	21.33
99.00	22.66	32.25	31.45	29.80	28.65	33.15	37.19	3.80	30.11
99.50	25.76	48.72	36.20	36.70	34.66	36.21	43.46	4.22	36.58
99.90	33.49	61.00	53.84	70.43	40.58	46.49	53.36	6.13	51.89
Median	-1.54	-0.77	-0.99	-0.93	-1.58	-1.43	-0.35	-2.97	-1.45
Mean	-0.87	-0.37	-1.03	-0.39	-2.02	-1.37	0.77	-3.45	-1.09
StdDev	9.02	11.63	11.70	12.00	11.91	12.42	12.97	3.51	11.09

21. Antarctic Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-129.09	-148.07	-135.00	-135.44	-126.19	-143.55	-131.31	-58.59	-135.63
0.50	-119.02	-113.68	-116.72	-108.46	-115.00	-124.69	-97.63	-52.31	-111.93
1.00	-107.26	-82.27	-96.57	-84.54	-93.78	-100.68	-86.34	-45.12	-89.93
2.50	-59.75	-58.15	-65.38	-51.00	-63.96	-63.54	-55.38	-38.63	-56.86
5.00	-37.54	-35.69	-48.10	-35.63	-46.96	-41.88	-32.42	-33.21	-37.93
10.00	-24.90	-21.55	-27.54	-21.85	-28.80	-25.35	-18.18	-27.87	-24.63
20.00	-12.60	-10.66	-11.73	-10.40	-12.92	-10.25	-7.95	-20.12	-13.02
30.00	-7.35	-5.34	-5.94	-4.26	-6.63	-3.24	-2.39	-15.52	-7.25
40.00	-4.16	-1.58	-1.57	-1.51	-2.98	1.01	1.63	-12.22	-3.26
50.00	-1.93	1.98	2.99	2.29	-0.60	7.29	8.88	-9.57	-0.27
60.00	1.03	9.05	10.73	9.34	3.97	15.80	18.18	-7.18	5.43
70.00	7.78	16.36	19.16	16.86	12.08	24.94	27.04	-4.80	13.78
80.00	15.43	25.60	28.90	26.08	20.70	38.23	44.26	-2.44	24.07
90.00	25.56	40.72	51.96	41.68	34.66	70.09	77.63	1.50	42.88
95.00	35.67	67.38	81.63	64.76	50.71	121.80	124.71	4.73	71.56
97.50	45.71	112.89	120.62	108.60	75.82	188.76	203.09	8.01	114.54
99.00	69.13	206.73	216.99	189.81	114.60	320.09	356.47	11.56	206.38
99.50	79.17	240.09	289.64	286.58	221.73	424.31	486.92	12.47	277.76
99.90	100.44	293.21	326.23	333.38	274.47	536.76	635.87	18.07	455.40
Median	-1.93	1.98	2.99	2.29	-0.60	7.29	8.88	-9.57	-0.27
Mean	-1.03	9.10	10.87	9.86	3.34	20.17	24.74	-11.36	8.21
StdDev	25.98	41.03	47.37	42.91	35.80	64.16	69.09	11.67	46.98

22. Antarctic Contribution to Sea Level by Glaciology Reviewer, 1990–2100 (cm)

Cumulative %	Alley	Anonymous	Bentley	Bindschadler	Thomas	Van der Veen	Zwally
0.10	-58.58	-55.01	-56.93	-59.83	-55.89	-56.72	-59.43
0.50	-52.15	-48.94	-51.45	-47.90	-46.02	-52.41	-48.13
1.00	-42.06	-43.55	-49.20	-44.57	-38.88	-49.29	-43.84
2.50	-32.89	-29.53	-37.41	-34.02	-27.72	-30.17	-32.18
5.00	-22.53	-21.73	-25.77	-20.81	-18.47	-20.65	-21.39
10.00	-14.96	-13.12	-13.46	-12.87	-10.64	-13.62	-13.44
20.00	-8.20	-7.26	-7.81	-6.81	-4.74	-7.18	-6.97
30.00	-5.30	-4.31	-5.19	-3.87	-2.37	-4.31	-4.03
40.00	-3.20	-2.76	-3.12	-1.96	-0.98	-2.57	-2.34
50.00	-1.64	-1.51	-1.74	-0.42	0.26	-1.29	-1.06
60.00	-0.38	-0.38	-0.56	1.79	2.98	-0.20	0.22
70.00	2.31	1.26	1.45	4.97	4.96	1.96	3.23
80.00	6.25	5.78	5.78	9.04	8.63	6.69	6.69
90.00	11.03	10.27	11.56	15.06	14.86	11.51	12.17
95.00	16.21	15.67	15.75	19.86	19.30	16.12	17.18
97.50	20.51	21.72	21.54	26.92	26.83	20.00	22.41
99.00	30.10	30.11	31.12	40.58	40.50	24.02	29.41
99.50	36.52	36.20	34.66	50.66	53.03	32.44	39.76
99.90	61.02	53.37	48.75	78.63	71.04	53.84	54.23
Median	-1.64	-1.51	-1.74	-0.42	0.26	-1.29	-1.06
Mean	-1.95	-1.64	-2.19	0.31	1.33	-1.60	-1.04
StdDev	12.27	11.63	12.72	13.77	12.70	12.04	12.50

23. Antarctic Contribution to Sea Level by Glaciology Reviewer, 1990–2200 (cm)

Cumulative %	Alley	Anonymous	Bentley	Bindschadler	Thomas	Van der Veen	Zwally
0.10	-206.45	-121.36	-179.79	-184.04	-168.28	-143.55	-135.44
0.50	-137.93	-93.33	-143.84	-115.69	-94.33	-123.31	-117.30
1.00	-113.68	-80.94	-111.68	-83.68	-76.97	-99.12	-91.88
2.50	-65.38	-54.19	-73.96	-56.93	-44.05	-56.47	-62.96
5.00	-44.56	-38.52	-48.62	-38.61	-24.81	-39.19	-38.95
10.00	-29.77	-24.65	-26.56	-23.30	-12.97	-25.41	-22.93
20.00	-14.24	-11.27	-14.08	-9.56	-4.23	-12.48	-9.99
30.00	-7.76	-5.49	-8.23	-3.05	-0.37	-6.45	-4.93
40.00	-3.21	-2.05	-4.21	1.47	4.81	-3.07	-1.80
50.00	0.51	0.90	-1.33	8.75	12.32	-0.76	2.08
60.00	6.38	6.32	2.92	15.85	19.27	3.95	8.81
70.00	13.73	13.01	10.64	23.03	28.17	12.61	17.35
80.00	23.98	20.60	20.85	35.88	45.08	21.88	27.28
90.00	38.33	37.30	36.40	58.21	104.12	36.86	45.47
95.00	59.54	57.58	61.11	83.80	227.41	55.49	69.60
97.50	86.59	84.63	91.96	117.67	339.93	78.14	98.01
99.00	128.90	149.06	131.16	167.58	589.34	120.62	165.16
99.50	199.56	181.81	164.38	207.52	675.42	152.53	219.59
99.90	256.96	210.65	239.23	274.81	693.72	234.62	286.58
Median	0.51	0.90	-1.33	8.75	12.32	-0.76	2.08
Mean	4.02	5.69	2.68	14.21	38.36	4.09	9.16
StdDev	39.25	34.20	38.27	42.25	100.36	34.04	40.84

24. Small Glacier Contribution to Sea Level by Climate Reviewer, 1990–2050 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-5.56	-6.08	-9.13	-6.98	-4.54	-6.32	-10.44	-9.88	-6.58
0.50	-4.17	-4.18	-3.88	-3.12	-3.26	-3.34	-4.07	-2.99	-3.72
1.00	-3.31	-2.49	-2.05	-2.40	-2.26	-1.84	-2.26	-2.09	-2.55
2.50	-2.50	-0.73	-0.83	-0.94	-0.78	-0.78	-0.94	-0.90	-1.23
5.00	-1.40	0.23	0.18	0.21	0.20	0.27	0.23	0.19	-0.36
10.00	-0.79	1.09	1.10	1.19	1.01	1.07	0.99	1.18	0.41
20.00	-0.26	2.34	2.44	2.37	2.18	2.24	2.40	2.57	1.65
30.00	0.11	3.35	3.64	3.26	3.23	3.36	3.57	3.66	2.69
40.00	0.53	4.28	4.47	4.30	4.07	4.41	4.61	4.76	3.73
50.00	0.94	5.20	5.38	5.29	4.99	5.45	5.67	5.84	4.76
60.00	1.49	6.25	6.45	6.45	6.15	6.64	6.77	6.72	5.92
70.00	2.01	7.56	7.94	7.78	7.38	7.88	8.38	7.95	7.20
80.00	2.68	9.26	9.69	9.61	8.83	9.37	10.17	9.43	8.97
90.00	3.81	11.97	12.21	12.29	11.11	11.86	13.17	11.77	11.52
95.00	4.85	14.54	13.93	14.64	13.10	13.68	15.69	13.53	13.76
97.50	5.70	16.36	15.73	16.38	14.71	15.58	18.39	16.84	17.96
99.50	7.35	20.44	19.37	20.83	17.50	19.56	26.92	18.31	20.16
99.90	9.26	22.93	22.84	26.26	19.05	21.10	32.49	21.42	26.26
Median	0.94	5.20	5.38	5.29	4.99	5.45	5.67	5.84	4.76
Mean	1.22	5.93	6.09	6.07	5.61	5.99	6.51	6.12	5.44
StdDev	1.97	4.37	4.38	4.53	4.00	4.28	5.11	4.16	4.49

25. Small Glacier Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-5.72	-8.54	-14.43	-12.30	-8.65	-12.72	-11.25	-10.91	-10.92
0.50	-4.90	-7.34	-6.46	-5.64	-5.36	-5.73	-6.76	-5.70	-5.72
1.00	-3.78	-4.22	-3.60	-4.31	-4.62	-3.90	-3.89	-4.10	-3.94
2.50	-2.10	-1.53	-1.44	-1.70	-1.54	-1.04	-1.81	-1.73	-1.76
5.00	-1.48	0.59	0.69	0.53	0.60	0.66	0.63	0.70	-0.32
10.00	-0.68	2.34	2.50	2.40	2.44	2.37	2.51	2.92	1.03
20.00	0.01	4.68	4.83	4.69	4.60	4.85	4.64	5.40	3.34
30.00	0.48	6.56	6.68	6.28	6.11	6.62	6.67	6.94	5.25
40.00	1.11	8.13	8.16	7.94	7.95	8.09	8.30	8.73	6.92
50.00	1.73	9.82	9.47	9.47	9.42	9.70	10.14	10.28	8.73
60.00	2.48	11.47	11.31	11.27	10.93	11.32	12.06	11.74	10.55
70.00	3.39	13.16	13.21	12.76	12.71	12.98	14.10	13.63	12.43
80.00	4.36	15.38	15.14	15.41	14.86	15.70	17.06	15.66	14.82
90.00	6.23	19.22	18.43	18.92	17.78	19.04	20.44	18.49	18.31
95.00	7.53	21.72	20.83	21.70	20.50	21.95	23.75	20.90	21.09
97.50	9.00	23.85	23.17	24.40	22.37	24.14	26.13	22.59	23.57
99.00	10.61	26.81	25.94	27.28	24.77	26.17	29.54	24.87	26.31
99.50	11.26	28.55	27.77	28.91	27.23	27.53	32.34	27.04	27.83
99.90	13.11	31.27	31.37	33.20	29.87	28.90	33.61	27.83	32.18
Median	1.73	9.82	9.47	9.47	9.42	9.70	10.14	10.28	8.73
Mean	2.23	10.19	10.11	10.07	9.72	10.21	10.82	10.45	9.23
StdDev	2.84	6.50	6.36	6.57	6.10	6.50	7.22	6.17	6.71

26. Small Glacier Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-7.17	-14.08	-23.18	-21.49	-15.32	-19.14	-18.06	-20.17	-19.14
0.50	-4.71	-11.28	-10.29	-8.08	-9.92	-10.50	-11.19	-9.26	-9.28
1.00	-3.90	-7.50	-6.40	-7.01	-8.65	-6.68	-7.34	-7.29	-6.53
2.50	-2.47	-2.39	-2.52	-3.25	-2.89	-2.03	-2.43	-3.16	-2.54
5.00	-1.61	0.93	1.22	0.92	1.06	1.09	1.14	1.40	-0.26
10.00	-0.62	3.95	3.99	3.90	4.02	3.77	3.68	4.69	1.63
20.00	0.12	7.50	7.70	7.32	7.46	7.20	7.26	8.28	5.15
30.00	0.86	10.20	10.31	9.89	9.61	10.14	10.13	10.79	8.11
40.00	1.70	12.46	12.47	11.78	12.50	12.29	12.70	13.00	10.73
50.00	2.66	14.90	14.61	14.03	14.66	14.63	15.21	15.37	13.25
60.00	3.78	17.60	16.70	16.35	16.90	16.67	17.53	17.63	15.75
70.00	5.08	19.82	19.49	18.87	18.96	19.09	20.64	20.33	18.47
80.00	6.80	22.65	22.09	21.72	22.22	22.04	24.09	22.87	21.68
90.00	9.51	26.32	26.19	26.93	25.52	26.16	28.41	26.05	25.82
95.00	11.83	29.08	28.80	29.82	29.16	29.76	31.80	28.55	28.98
97.50	14.15	31.08	31.79	32.89	32.03	31.87	33.58	30.01	31.75
99.00	15.72	33.94	33.99	35.23	34.24	34.14	35.79	32.49	34.17
99.50	17.17	35.45	35.66	37.96	35.77	34.91	37.90	34.53	35.63
99.90	19.87	38.28	38.68	39.20	38.41	36.31	39.05	37.85	38.61
Median	2.66	14.90	14.61	14.03	14.66	14.63	15.21	15.37	13.25
Mean	3.59	14.91	14.74	14.56	14.61	14.68	15.50	15.26	13.48
StdDev	4.21	8.81	8.73	8.95	8.70	8.72	9.62	8.52	9.23

27. Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2050 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-7.40	2.37	1.01	1.92	1.83	1.28	0.55	2.53	-5.20
0.50	-5.89	2.90	2.53	3.21	3.20	2.52	2.05	3.39	-2.52
1.00	-4.39	3.75	3.41	3.82	3.80	3.12	3.48	4.24	-1.19
2.50	-3.19	5.12	4.94	5.31	4.93	4.62	4.36	6.18	0.43
5.00	-2.14	6.26	6.16	6.51	6.15	6.25	5.53	7.57	2.09
10.00	-0.95	8.09	8.09	7.79	7.85	7.95	7.22	9.05	4.61
20.00	0.43	10.50	10.56	10.06	10.40	10.48	10.14	11.34	8.11
30.00	1.40	12.54	12.28	11.85	12.16	12.80	12.09	13.11	10.60
40.00	2.24	14.63	14.46	13.64	13.90	14.99	13.84	14.75	12.74
50.00	3.02	16.43	16.84	15.36	16.02	17.08	16.06	16.29	14.94
60.00	4.06	18.84	18.98	17.52	18.31	19.38	18.48	18.22	17.19
70.00	5.13	21.48	21.28	20.21	20.78	22.07	21.38	20.29	19.90
80.00	6.57	24.92	24.34	23.81	23.53	24.70	25.10	22.96	23.24
90.00	8.71	30.62	29.85	27.98	27.97	30.06	30.70	26.79	28.17
95.00	10.16	34.82	34.53	33.39	32.57	34.29	35.94	30.11	32.80
97.50	11.96	38.59	37.88	38.08	35.57	38.64	41.52	34.02	36.94
99.00	14.05	43.47	42.55	41.75	41.80	43.16	52.54	36.31	42.26
99.50	16.78	46.49	45.99	44.81	45.81	45.83	57.99	37.97	46.43
99.90	21.60	49.49	59.04	55.46	56.52	53.18	80.20	48.37	60.75
Median	3.02	16.43	16.84	15.36	16.02	17.08	16.06	16.29	14.94
Mean	3.54	18.08	17.90	17.06	17.25	18.22	18.01	17.34	15.93
StdDev	3.90	8.79	8.69	8.38	8.19	8.78	10.01	7.06	9.41

Appendix 1-A

28. Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-8.60	4.83	5.98	3.77	4.13	4.17	0.99	6.25	-6.43
0.50	-6.96	6.82	7.46	6.50	8.75	5.71	4.03	9.69	-3.06
1.00	-6.34	8.69	8.95	8.74	9.80	6.99	7.00	11.32	-1.24
2.50	-4.35	12.02	11.74	12.00	12.61	11.35	9.27	14.86	1.71
5.00	-2.40	15.09	14.73	14.33	14.74	14.19	12.61	17.36	4.86
10.00	-0.57	18.44	18.98	17.41	18.16	18.25	17.08	20.72	10.35
20.00	1.78	24.47	24.37	22.66	23.16	24.90	22.57	24.99	18.55
30.00	3.49	29.66	29.27	27.00	27.61	29.90	27.37	28.67	24.14
40.00	5.10	34.03	33.76	31.11	31.81	34.62	32.13	31.82	29.23
50.00	6.96	38.57	39.06	34.86	36.07	39.81	37.70	35.47	34.08
60.00	8.94	43.72	43.96	39.65	40.70	45.13	43.68	39.31	39.34
70.00	11.05	51.20	49.65	45.78	45.83	51.32	50.54	43.05	45.22
80.00	14.40	58.13	56.93	53.45	52.44	59.90	60.86	48.64	53.08
90.00	18.85	69.84	71.81	64.86	62.65	72.10	76.31	55.87	65.08
95.00	22.72	82.99	84.05	75.94	71.21	85.10	87.52	61.07	77.23
97.50	26.85	95.05	95.52	86.18	81.32	98.16	101.58	68.23	88.25
99.00	32.15	107.06	113.19	104.23	92.03	110.62	118.24	75.92	104.01
99.50	38.07	116.66	131.19	112.42	104.83	122.28	135.23	78.92	114.58
99.90	60.01	131.51	186.09	130.81	122.68	171.37	157.18	87.63	151.64
Median	6.96	38.57	39.06	34.86	36.07	39.81	37.70	35.47	34.08
Mean	8.34	42.27	42.59	38.80	38.88	43.42	42.59	37.04	36.74
StdDev	8.34	21.05	22.48	19.67	18.14	22.71	24.34	13.85	22.34

29. Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-12.63	4.25	-6.46	1.76	-3.35	7.93	-0.13	10.32	-10.23
0.50	-11.35	12.43	9.68	13.23	15.33	10.93	6.12	13.48	-4.77
1.00	-9.45	13.69	15.62	15.28	18.79	14.28	10.96	20.81	-0.82
2.50	-6.45	23.52	22.32	21.57	23.54	22.53	18.45	26.16	3.48
5.00	-3.21	30.01	29.67	28.85	30.54	32.08	26.10	32.58	10.35
10.00	0.28	39.57	39.76	36.01	38.70	40.64	34.59	39.09	22.06
20.00	3.85	53.13	57.49	48.62	50.11	60.57	49.92	48.50	39.30
30.00	7.68	66.69	71.88	61.10	60.27	75.87	62.52	57.49	53.19
40.00	11.58	81.10	87.87	71.86	71.47	91.34	76.85	65.34	66.61
50.00	15.83	93.99	105.27	84.24	83.94	107.76	97.19	74.59	80.60
60.00	20.53	111.47	125.52	97.44	95.02	126.67	115.04	82.64	96.28
70.00	26.06	130.93	150.58	118.64	110.96	148.70	144.17	93.37	115.79
80.00	33.30	155.00	189.60	144.03	129.28	185.87	182.17	107.09	142.94
90.00	47.39	203.22	258.16	187.07	163.65	251.31	250.99	123.13	195.70
95.00	59.08	256.27	331.03	236.12	199.33	321.23	304.86	142.48	254.16
97.50	73.09	311.29	395.84	277.53	235.99	393.93	383.57	160.06	315.97
99.00	92.85	379.53	502.49	354.39	302.71	548.35	540.44	180.43	409.59
99.50	105.82	467.31	568.02	484.99	337.48	601.56	587.61	184.77	497.77
99.90	125.99	526.21	608.11	549.11	434.75	732.86	724.72	203.49	641.96
Median	15.83	93.99	105.27	84.24	83.94	107.76	97.19	74.59	80.60
Mean	20.28	111.89	131.66	102.04	94.74	132.05	124.05	78.63	99.42
StdDev	20.42	74.73	97.50	70.96	57.07	98.27	100.67	34.24	82.41

30. Annual Greenhouse Contribution to Sea Level in 2100, all Reviewers (mm/year)

Cumulative %	Rate (mm/yr)
0.10	-1.21
0.50	-0.57
1.00	-0.36
2.50	0.03
5.00	0.47
10.00	1.05
20.00	1.91
30.00	2.68
40.00	3.44
50.00	4.21
60.00	5.04
70.00	6.08
80.00	7.49
90.00	9.89
95.00	12.37
97.50	15.41
99.00	19.34
99.50	23.05
99.90	33.63
Median	4.21
Mean	5.04
StdDev	4.19

31. Historic Greenhouse Contribution to Sea Level by Climate Reviewer, 1880–1990 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-6.80	-11.42	-15.09	-12.12	-11.37	-9.42	-12.49	-10.80	-12.09
0.50	-5.49	-9.20	-10.90	-7.81	-8.23	-7.73	-9.23	-7.99	-8.19
1.00	-4.86	-6.40	-7.59	-6.23	-6.56	-6.45	-6.75	-6.07	-6.42
2.50	-3.44	-3.91	-5.03	-4.09	-4.02	-4.42	-4.14	-3.64	-4.05
5.00	-2.46	-2.13	-2.50	-1.76	-2.67	-2.65	-1.74	-1.54	-2.29
10.00	-1.33	-0.32	-0.60	0.15	-0.33	-0.28	0.22	0.23	-0.41
20.00	-0.10	2.11	1.74	2.22	1.81	1.95	2.08	2.23	1.58
30.00	0.84	3.68	3.39	3.77	3.66	3.61	3.25	3.71	3.02
40.00	1.68	4.95	4.82	5.03	5.44	4.79	4.45	5.16	4.28
50.00	2.37	6.35	6.15	6.25	6.65	6.30	5.60	6.41	5.59
60.00	3.10	7.75	7.86	7.40	8.36	7.75	6.93	7.72	6.94
70.00	3.93	9.30	9.78	8.84	10.21	9.49	8.65	9.14	8.61
80.00	4.96	11.35	11.89	11.09	12.49	11.61	10.43	11.07	10.78
90.00	6.13	15.03	15.85	13.81	15.88	15.84	13.89	13.62	14.30
95.00	7.16	18.47	18.79	17.15	19.67	19.91	16.43	16.06	17.59
97.50	8.23	21.64	20.79	20.52	22.42	23.19	19.64	18.12	20.59
99.00	9.53	25.01	25.47	24.34	28.55	27.26	25.52	22.10	24.69
99.50	11.13	27.48	27.56	27.04	31.07	30.92	32.77	24.80	28.29
99.90	14.33	31.61	34.17	38.16	36.02	31.22	38.01	25.65	35.46
Median	2.37	6.35	6.15	6.25	6.65	6.30	5.60	6.41	5.59
Mean	2.42	6.96	6.94	6.78	7.41	7.10	6.43	6.70	6.34
StdDev	3.03	6.28	6.64	6.02	6.84	6.68	6.09	5.52	6.18

32. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2025 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-31.79	-20.71	-12.80	-13.63	-16.31	-25.32	-15.88	-3.69	-24.30
0.50	-24.44	-13.39	-7.86	-11.91	-12.37	-17.83	-12.84	-1.01	-13.20
1.00	-20.19	-9.75	-6.74	-8.95	-10.43	-11.02	-10.79	0.29	-10.37
2.50	-10.68	-5.45	-3.82	-3.96	-5.91	-6.72	-5.76	1.21	-5.83
5.00	-6.36	-2.31	-1.94	-1.64	-2.96	-2.23	-2.77	2.05	-3.19
10.00	-4.53	0.05	0.08	0.03	-0.67	0.11	-0.21	2.94	-1.05
20.00	-2.48	1.96	1.99	1.81	1.57	1.98	1.80	3.89	1.10
30.00	-1.48	3.42	3.46	3.05	2.91	3.14	3.01	4.95	2.57
40.00	-0.78	4.66	4.57	4.21	4.20	4.37	4.31	5.88	3.85
50.00	0.00	5.58	5.72	5.41	5.36	5.57	5.64	6.76	5.06
60.00	0.65	6.84	6.94	6.53	6.46	6.63	7.04	7.69	6.29
70.00	1.51	8.33	8.46	8.06	7.60	8.27	8.59	8.77	7.69
80.00	2.52	9.83	10.25	9.79	9.25	10.18	10.18	10.16	9.47
90.00	4.00	12.73	12.74	12.32	11.91	12.57	13.18	12.39	12.04
95.00	5.34	14.93	15.03	14.34	14.00	15.06	15.52	14.17	14.42
97.50	6.46	17.32	17.46	17.51	15.90	16.93	18.47	16.05	16.56
99.00	8.18	19.87	20.22	19.66	18.64	19.63	21.33	18.30	19.34
99.50	9.22	20.47	21.25	21.14	19.89	21.13	23.42	19.77	20.97
99.90	10.55	24.68	27.12	26.62	21.96	27.26	27.78	22.03	26.99
Median	0.00	5.58	5.72	5.41	5.36	5.57	5.64	6.76	5.06
Mean	-0.40	5.88	6.11	5.75	5.35	5.75	5.96	7.23	5.21
StdDev	4.49	5.51	5.35	5.31	5.27	5.72	5.84	3.83	5.64

33. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2050 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-52.57	-33.41	-23.74	-22.08	-25.52	-40.37	-24.30	-0.80	-40.37
0.50	-40.99	-25.04	-14.44	-18.12	-19.21	-27.75	-23.51	0.89	-23.39
1.00	-33.66	-15.25	-10.51	-13.87	-16.73	-17.39	-15.30	2.02	-16.10
2.50	-17.67	-6.73	-5.64	-6.19	-8.31	-9.94	-7.07	4.06	-8.91
5.00	-10.99	-2.00	-1.77	-1.94	-3.39	-1.91	-2.77	5.20	-4.23
10.00	-7.02	1.35	1.51	1.57	0.76	1.50	1.00	6.60	-0.73
20.00	-3.92	4.99	5.11	4.60	4.25	4.96	4.58	8.40	3.18
30.00	-2.05	7.49	7.55	7.01	6.74	7.36	7.06	9.94	5.97
40.00	-0.79	10.04	9.64	9.19	8.74	9.49	9.16	11.55	8.31
50.00	0.37	11.90	11.67	10.84	10.77	11.60	11.52	12.98	10.39
60.00	1.53	13.83	13.93	12.88	12.95	13.79	13.91	14.44	12.65
70.00	3.13	16.23	16.43	15.77	15.28	16.64	16.54	16.26	15.14
80.00	4.91	19.56	19.68	18.69	17.93	19.63	19.81	18.28	18.12
90.00	7.40	24.76	23.96	23.48	21.85	24.94	25.40	21.85	22.78
95.00	9.81	28.96	27.88	27.26	25.93	28.56	29.79	24.95	26.84
97.50	12.03	32.07	32.26	31.52	28.69	31.47	34.76	26.83	30.56
99.00	13.72	35.11	37.53	34.54	33.27	35.63	44.73	30.77	34.77
99.50	16.87	37.78	43.38	36.24	36.97	38.34	54.68	32.97	38.23
99.90	23.68	41.67	49.94	41.39	40.88	53.69	61.18	36.10	52.63
Median	0.37	11.90	11.67	10.84	10.77	11.60	11.52	12.98	10.39
Mean	-0.18	12.18	12.31	11.58	10.92	12.03	12.38	13.62	10.60
StdDev	7.69	9.74	9.42	9.19	9.10	10.11	10.73	6.03	10.00

34. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2075 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-53.99	-45.58	-33.26	-28.66	-31.64	-50.39	-32.53	-1.56	-48.37
0.50	-48.37	-33.06	-20.42	-20.27	-24.39	-36.63	-24.02	2.25	-29.64
1.00	-45.88	-20.78	-13.65	-17.05	-20.44	-23.96	-16.01	3.43	-20.76
2.50	-24.23	-8.76	-6.25	-7.55	-10.22	-9.63	-6.53	6.43	-11.06
5.00	-15.06	-1.11	-0.33	-1.47	-1.99	-1.12	-1.55	8.94	-5.06
10.00	-9.35	3.86	3.75	3.91	2.70	3.99	2.80	11.01	0.00
20.00	-5.29	9.28	9.34	8.49	8.09	8.99	8.40	13.67	6.08
30.00	-2.37	13.18	13.04	11.80	11.54	12.49	11.95	15.85	10.32
40.00	-0.68	16.46	16.18	15.00	14.86	16.21	15.11	18.29	13.83
50.00	0.98	19.70	18.98	17.50	17.79	19.49	18.87	20.45	17.10
60.00	2.69	23.09	22.86	20.76	21.22	23.25	22.57	22.65	20.52
70.00	5.33	27.17	27.07	25.30	24.43	27.17	26.99	25.30	24.42
80.00	7.71	32.03	31.47	30.66	28.29	32.37	32.90	28.64	29.35
90.00	11.23	39.45	38.48	36.80	35.11	40.32	41.93	32.77	36.51
95.00	15.22	46.39	46.35	43.35	40.52	46.90	50.04	37.66	43.32
97.50	18.06	51.73	53.05	50.03	46.57	51.51	56.49	41.20	49.71
99.00	21.23	57.23	61.27	53.63	53.01	57.68	71.48	45.98	56.49
99.50	23.80	62.51	69.35	58.09	56.49	64.08	79.55	48.29	64.08
99.90	25.66	71.48	82.54	67.33	64.43	82.88	90.39	50.55	80.14
Median	0.98	19.70	18.98	17.50	17.79	19.49	18.87	20.45	17.10
Mean	0.47	20.50	20.57	19.10	18.17	20.47	20.82	21.36	17.68
StdDev	10.45	15.12	14.66	13.94	13.61	15.66	16.53	8.83	15.30

35. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-67.32	-62.83	-34.21	-30.28	-36.29	-44.81	-38.58	-2.15	-57.66
0.50	-59.92	-37.09	-24.33	-21.60	-30.56	-31.29	-19.79	2.95	-33.83
1.00	-48.59	-24.61	-16.07	-17.46	-24.31	-27.45	-16.10	4.27	-24.31
2.50	-30.96	-10.21	-5.37	-7.56	-11.36	-10.27	-7.96	9.13	-13.11
5.00	-19.33	0.01	1.06	-0.74	-1.26	-0.60	-1.01	12.68	-5.80
10.00	-12.02	6.91	6.68	5.61	5.49	6.93	6.00	15.10	0.92
20.00	-6.25	14.72	14.79	13.12	12.33	14.42	13.23	19.03	9.52
30.00	-2.73	19.84	19.77	17.45	17.27	19.62	18.27	22.45	15.58
40.00	-0.18	24.68	24.60	22.07	22.02	24.19	23.09	25.63	20.36
50.00	1.79	29.44	29.33	25.70	26.46	30.40	28.20	28.82	25.09
60.00	4.63	34.81	34.68	30.55	30.63	35.01	33.96	32.11	30.25
70.00	7.94	41.13	40.59	37.88	35.78	41.88	41.63	36.16	36.33
80.00	11.22	48.28	48.43	45.59	42.18	49.18	50.18	40.79	43.99
90.00	17.29	59.76	60.76	56.90	51.51	61.86	64.64	47.36	54.94
95.00	21.44	70.72	73.30	64.31	60.40	72.38	78.77	53.04	66.13
97.50	26.33	80.84	87.15	75.43	70.46	85.11	91.34	58.45	77.76
99.00	29.84	91.85	101.13	89.28	77.63	98.05	103.75	63.41	91.85
99.50	33.36	106.09	117.28	102.92	83.96	105.35	109.75	65.88	102.62
99.90	37.45	114.01	171.91	113.28	92.71	111.47	123.77	70.85	122.53
Median	1.79	29.44	29.33	25.70	26.46	30.40	28.20	28.82	25.09
Mean	1.72	31.45	32.38	28.82	27.28	31.98	32.21	30.20	27.00
StdDev	13.40	22.54	23.46	20.85	19.42	23.13	24.42	12.72	22.62

36. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2150 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-76.31	-51.70	-46.04	-33.17	-49.45	-55.06	-51.74	-4.88	-55.06
0.50	-61.92	-37.26	-37.70	-28.81	-39.48	-46.04	-42.79	2.53	-43.72
1.00	-51.38	-30.61	-20.91	-21.21	-30.46	-34.02	-20.79	4.91	-32.30
2.50	-39.67	-11.92	-4.74	-9.97	-12.73	-12.75	-5.45	12.29	-17.20
5.00	-26.88	1.28	2.58	-0.46	-0.19	2.53	1.55	17.22	-6.94
10.00	-17.25	12.63	14.05	10.23	9.86	14.27	10.04	21.73	3.02
20.00	-8.42	25.08	26.02	21.59	21.01	25.87	22.11	28.81	16.16
30.00	-3.28	33.40	35.68	30.03	30.30	35.62	32.69	34.50	26.26
40.00	0.41	43.26	44.39	37.83	37.15	45.18	40.59	39.87	34.94
50.00	4.47	52.35	55.02	45.72	44.71	56.06	49.96	46.10	43.41
60.00	8.37	62.88	64.73	54.42	52.22	66.15	62.44	51.01	52.86
70.00	14.03	74.05	79.54	67.10	62.70	78.89	76.99	58.38	65.14
80.00	19.24	88.23	97.74	82.44	74.11	96.25	100.87	68.18	80.27
90.00	29.52	112.20	134.56	109.06	92.86	126.02	132.65	79.79	106.43
95.00	37.85	137.33	170.00	129.02	113.98	157.94	165.19	91.49	134.03
97.50	45.87	172.12	208.04	157.87	130.31	191.66	204.05	100.32	167.68
99.00	53.95	199.91	244.81	190.63	162.16	237.31	258.06	110.50	209.68
99.50	63.79	251.06	272.13	217.64	177.56	311.97	295.95	113.34	250.84
99.90	69.55	282.43	343.67	308.46	258.94	381.32	515.84	122.44	342.20
Median	4.47	52.35	55.02	45.72	44.71	56.06	49.96	46.10	43.41
Mean	4.89	58.81	65.82	53.61	48.68	64.49	64.00	48.55	51.10
StdDev	19.77	44.76	53.12	42.46	36.35	52.24	57.56	22.76	46.99

37. Normalized Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
0.10	-84.75	-59.94	-53.65	-47.00	-65.08	-60.30	-64.37	-9.20	-68.91
0.50	-69.99	-43.30	-38.57	-36.58	-51.03	-57.34	-45.58	0.02	-51.95
1.00	-61.69	-39.42	-29.52	-25.74	-39.23	-39.82	-27.93	6.38	-40.13
2.50	-51.31	-16.01	-6.34	-9.82	-18.89	-12.83	-5.87	14.24	-21.44
5.00	-34.58	2.86	4.67	-0.28	-0.54	6.02	2.81	20.83	-8.40
10.00	-22.34	17.95	20.44	14.14	13.92	22.23	15.26	28.07	4.78
20.00	-10.51	35.40	39.30	29.96	30.53	41.41	32.34	36.75	23.28
30.00	-3.61	48.38	55.02	42.92	41.85	56.27	47.05	45.23	37.31
40.00	1.19	61.90	70.07	55.05	53.96	71.08	61.35	53.42	50.52
50.00	6.58	76.34	86.23	67.54	63.19	87.83	77.56	60.86	63.67
60.00	12.43	93.68	105.47	81.37	75.21	106.67	96.99	68.84	78.30
70.00	19.64	113.24	136.74	101.59	90.92	129.45	124.79	79.01	98.14
80.00	27.47	136.74	168.82	125.28	109.64	163.49	163.51	92.91	124.79
90.00	42.02	182.64	236.06	171.10	138.52	227.52	225.08	110.52	174.42
95.00	56.31	227.57	312.25	214.07	172.07	296.36	289.69	128.29	230.39
97.50	68.27	288.04	390.40	264.64	211.86	370.80	368.34	142.13	295.91
99.00	81.17	353.79	480.37	332.04	263.12	537.48	534.01	156.07	401.57
99.50	88.56	445.40	519.86	447.65	331.54	559.78	559.61	164.33	481.87
99.90	104.12	542.37	591.61	550.16	427.53	672.03	679.95	172.98	587.01
Median	6.58	76.34	86.23	67.54	63.19	87.83	77.56	60.86	63.67
Mean	8.24	91.73	111.99	83.01	72.74	110.40	104.30	65.63	81.01
StdDev	27.25	76.58	97.38	71.84	58.47	97.49	99.11	32.83	81.49

38. Year by Which U.S. Sea Level is Likely to Inundate 1-Foot, 3-Foot, and NGVD Contours

Cumulative %	Year US Sea Level rises 1ft (relative to 1990)	Year US Sea Level rises 3ft (relative to 1990)	Year US Sea Level rises to NGVD 5ft contour
0.10	2019	2065	2086
0.50	2025	2078	2101
1.00	2027	2083	2107
2.50	2031	2090	2117
5.00	2034	2097	2127
10.00	2038	2106	2141
20.00	2044	2119	2162
30.00	2049	2131	2180
40.00	2053	2144	>2200
50.00	2058	2157	>2200
60.00	2062	2173	>2200
70.00	2069	2194	>2200
80.00	2079	>2200	>2200
90.00	2099	>2200	>2200
95.00	2127	>2200	>2200
97.50	2169	>2200	>2200
99.00	>2200	>2200	>2200

Note: NGVD is the National Geodetic Vertical Datum, which is approximately equal to mean sea level for the year 1929. Because sea level has been rising, the 5-foot (NGVD) contour on U.S. topographic maps is generally only about 4.5 feet above sea level. These calculations assume that sea level is rising 2.7 mm/yr relative to the U.S. coast.

39. Greenhouse Contribution to Sea Level Rise for eight random subsamples (cm): 1990-2100

Cumulative %	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7	Bin 8	All
1.00	-1.36	-0.57	-2.02	-2.89	0.44	-1.23	-2.29	-0.08	-1.24
2.50	2.66	1.83	0.50	0.50	3.77	1.77	0.91	3.57	1.71
5.00	5.37	4.63	3.14	3.69	6.99	5.00	3.94	6.92	4.86
10.00	11.17	9.59	9.27	8.15	13.51	10.73	9.87	12.03	10.35
20.00	19.31	17.99	17.32	16.37	20.03	19.11	18.39	18.96	18.55
30.00	24.86	23.68	23.64	22.22	25.06	23.86	24.38	24.24	24.13
40.00	29.31	28.80	29.00	28.31	30.03	29.29	29.65	28.86	29.23
50.00	35.17	33.78	33.54	32.70	34.46	34.06	34.47	33.95	34.08
60.00	40.56	39.41	38.26	38.66	39.79	38.93	39.75	38.85	39.34
70.00	46.95	45.30	44.01	44.57	46.06	45.84	45.62	44.48	45.22
80.00	54.22	53.36	52.43	51.96	54.17	53.95	53.51	51.21	53.08
90.00	65.46	64.86	63.81	65.55	67.29	67.17	64.53	62.99	65.08
95.00	76.56	74.14	74.49	78.90	79.65	79.04	77.31	74.72	77.23
97.50	89.15	86.19	86.41	95.05	87.27	87.94	92.01	86.46	88.26
99.00	104.08	107.04	103.90	110.22	101.54	103.68	106.72	102.74	104.23
Median	35.17	33.78	33.54	32.70	34.46	34.06	34.47	33.95	34.08
Mean	37.65	36.51	35.78	35.95	37.76	37.21	36.90	36.42	36.77
StdDev	22.84	22.79	22.45	23.72	21.57	22.83	22.76	21.12	22.53
Standard Error of 1% high: 0.99cm									

The 10,000 simulations were randomly divide into eight sets of mutually exclusive sub-samples. Thus each column represents 1250 simulations. *See* **Numerical Error of the Monte Carlo Algorithm**, in Chapter 7, *supra*.

Appendix 1-B

B. RESULTS FROM SENSITIVITY ANALYSIS USING IPCC EMISSIONS SCENARIO A

40. Global Warming

Cumulative %	1990-2100 °C	1990-2200 °C
0.10	-0.460	-0.580
0.50	-0.240	-0.260
1.00	-0.110	-0.120
2.50	0.070	0.140
5.00	0.310	0.510
10.00	0.700	1.180
20.00	1.300	2.260
30.00	1.670	2.910
40.00	1.980	3.460
50.00	2.270	3.980
60.00	2.560	4.550
70.00	2.900	5.210
80.00	3.320	6.060
90.00	3.980	7.420
95.00	4.650	8.680
97.50	5.290	9.960
99.00	5.980	11.520
99.50	6.530	12.430
99.90	8.680	16.230
Median	2.270	3.980
Mean	2.349	4.236
StdDev	1.315	2.471

41. Antarctic Contribution to Sea Level, 1990–2200 by Climate Reviewer (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-91.50	-91.58	-116.53	-93.50	-87.20	-111.37	-62.09	-45.18	-88.73
2.50	-61.61	-69.05	-72.93	-65.70	-58.97	-63.59	-47.39	-38.61	-58.83
5.00	-39.90	-42.57	-50.29	-39.03	-39.75	-45.72	-31.08	-34.02	-39.01
10.00	-23.12	-23.55	-28.85	-22.40	-24.18	-25.61	-17.01	-28.30	-24.46
20.00	-12.07	-11.08	-12.84	-11.16	-12.22	-10.66	-6.61	-21.36	-13.38
30.00	-7.13	-5.32	-5.75	-5.90	-6.19	-3.06	-2.14	-16.93	-7.46
40.00	-4.21	-1.69	-1.40	-1.97	-2.34	1.34	2.08	-13.47	-3.36
50.00	-1.85	1.81	2.87	1.40	0.28	8.02	9.71	-10.97	-0.13
60.00	1.26	8.81	10.24	8.42	6.34	15.90	18.98	-8.49	5.84
70.00	7.59	16.15	19.46	15.97	13.35	24.95	29.80	-5.65	13.73
80.00	14.01	25.99	29.95	24.89	21.85	40.18	44.44	-2.71	24.51
90.00	24.14	47.80	53.93	45.58	36.66	72.77	79.79	1.58	46.02
95.00	33.36	72.45	90.37	72.00	52.98	127.97	140.97	5.14	74.34
97.50	49.00	103.61	126.61	114.86	72.00	182.40	213.09	8.96	119.72
99.00	67.35	187.54	221.14	175.70	125.56	325.91	330.67	13.42	206.38
Median	-1.85	1.81	2.87	1.40	0.28	8.02	9.71	-10.97	-0.13
Mean	-0.92	9.74	10.70	9.51	4.99	21.54	27.46	-12.17	8.86
StdDev	25.73	39.71	48.06	42.87	35.56	64.22	62.87	10.92	45.62

42. Greenland Contribution to Sea Level, 1990–2200 by Climate Reviewer (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-2.51	0.81	-1.08	-2.99	-5.82	-5.58	-6.84	11.47	-3.18
2.50	-1.84	2.32	1.21	-0.44	-3.18	-0.54	-1.09	13.44	-1.12
5.00	-1.16	3.75	3.13	0.54	-1.62	2.60	0.69	14.87	-0.13
10.00	-0.48	5.62	5.71	2.02	-0.48	5.66	2.63	17.00	1.20
20.00	0.19	8.25	9.94	4.19	0.93	9.70	5.93	20.06	3.70
30.00	0.68	11.29	14.27	6.16	2.43	13.63	8.61	22.24	6.67
40.00	1.29	14.91	19.68	8.01	3.73	17.31	12.12	23.96	10.18
50.00	1.91	18.93	25.86	10.59	5.34	22.47	16.79	26.11	14.96
60.00	2.48	24.04	35.31	13.96	7.44	29.81	22.25	28.27	20.22
70.00	3.52	29.57	50.05	18.01	9.57	38.49	29.41	31.09	25.87
80.00	4.82	38.35	70.60	24.11	13.41	53.07	43.64	34.63	34.40
90.00	7.24	55.99	105.08	37.06	20.29	81.59	70.08	39.51	53.28
95.00	9.39	80.46	132.83	51.04	29.53	106.16	100.62	42.78	83.28
97.50	12.78	103.45	166.73	67.50	37.47	135.33	133.35	45.28	112.85
99.00	15.20	142.37	199.32	113.56	56.15	175.90	184.22	52.95	149.12
Median	1.91	18.93	25.86	10.59	5.34	22.47	16.79	26.11	14.96
Mean	2.72	26.64	41.82	16.70	8.50	34.43	28.13	27.32	23.28
StdDev	3.47	24.87	46.45	19.51	11.13	34.73	34.99	8.79	29.41

43. Contribution to Sea Level by 1990-2100 (cm)

Cumulative %	Greenhouse Contribution	Normalized Contribution
0.10	-5.930	-62.900
0.50	-2.960	-38.780
1.00	-1.280	-25.100
2.50	2.040	-11.520
5.00	5.480	-4.760
10.00	11.860	2.220
20.00	20.730	11.380
30.00	26.420	17.710
40.00	31.560	23.070
50.00	36.310	27.770
60.00	41.400	32.650
70.00	47.610	38.120
80.00	54.990	45.310
90.00	66.160	55.730
95.00	76.730	66.590
97.50	88.880	77.830
99.00	102.880	90.750
99.50	116.020	104.990
99.90	157.190	147.680
Median	36.310	27.770
Mean	38.542	28.735
StdDev	22.219	23.019

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44. Contribution to Sea Level by 2200 (cm)

Cumulative %	Greenhouse Contribution	Normalized Contribution
0.10	-12.460	-69.670
0.50	-4.730	-64.390
1.00	-0.590	-41.480
2.50	4.600	-17.190
5.00	12.470	-3.960
10.00	28.050	11.640
20.00	49.950	32.480
30.00	65.050	48.160
40.00	77.540	61.800
50.00	91.040	74.680
60.00	106.700	88.850
70.00	125.730	106.920
80.00	152.910	133.240
90.00	200.230	178.500
95.00	253.610	232.700
97.50	307.870	284.120
99.00	385.290	374.610
99.50	500.670	468.630
99.90	650.440	781.240
Median	91.040	74.680
Mean	107.871	89.142
StdDev	83.857	83.309

45. Annual Greenhouse Contribution to Sea Level by Climate Reviewer in the year 2100 (mm/yr)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-0.82	1.47	1.40	1.30	1.49	1.43	0.93	1.69	-0.27
2.50	-0.61	1.87	1.77	1.75	1.91	1.80	1.51	2.01	0.22
5.00	-0.41	2.26	2.24	2.01	2.31	2.23	1.93	2.35	0.75
10.00	-0.12	2.78	2.87	2.55	2.73	2.89	2.43	2.74	1.54
20.00	0.23	3.57	3.77	3.21	3.38	3.71	3.24	3.44	2.67
30.00	0.54	4.23	4.49	3.80	3.86	4.50	3.90	3.87	3.50
40.00	0.78	4.93	5.32	4.50	4.43	5.08	4.63	4.27	4.17
50.00	1.00	5.67	6.16	5.03	4.97	5.86	5.42	4.57	4.84
60.00	1.24	6.40	6.99	5.77	5.64	6.71	6.29	4.99	5.60
70.00	1.52	7.37	7.99	6.73	6.33	7.95	7.40	5.51	6.49
80.00	1.97	8.48	9.51	7.75	7.28	9.40	8.79	6.12	7.70
90.00	2.62	10.25	12.13	9.28	8.66	11.50	11.29	6.92	9.70
95.00	3.18	12.45	15.06	11.26	9.83	13.46	14.39	7.62	11.83
97.50	3.88	14.90	17.46	13.36	11.25	16.10	16.77	8.38	14.29
99.00	4.72	17.82	21.06	16.80	13.88	20.82	22.63	9.18	17.82
Median	1.00	5.67	6.16	5.03	4.97	5.86	5.42	4.57	4.84
Mean	1.16	6.27	6.98	5.71	5.43	6.80	6.36	4.77	5.43
StdDev	1.14	3.42	4.20	3.36	2.49	4.33	4.56	1.60	3.79

C. RESULTS FROM SENSITIVITY ANALYSIS USING IPCC SCENARIO E

46. Global Warming by Climate Reviewer, 1990–2100 (°C)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-0.42	0.97	0.97	0.92	0.94	0.79	0.73	1.38	-0.09
2.50	-0.27	1.12	1.14	1.09	1.06	1.04	1.06	1.56	0.10
5.00	-0.18	1.31	1.30	1.28	1.27	1.26	1.27	1.77	0.37
10.00	-0.05	1.55	1.56	1.49	1.53	1.51	1.59	1.95	0.82
20.00	0.10	1.91	1.91	1.88	1.85	1.92	1.98	2.28	1.53
30.00	0.25	2.20	2.19	2.20	2.14	2.26	2.29	2.52	1.96
40.00	0.37	2.56	2.45	2.46	2.43	2.55	2.62	2.74	2.31
50.00	0.50	2.89	2.69	2.75	2.72	2.83	2.95	2.96	2.63
60.00	0.61	3.21	3.00	3.00	3.03	3.17	3.31	3.18	2.96
70.00	0.74	3.56	3.33	3.39	3.36	3.56	3.80	3.46	3.31
80.00	0.91	4.03	3.80	3.86	3.78	4.11	4.37	3.76	3.79
90.00	1.12	4.85	4.45	4.64	4.42	4.88	5.46	4.27	4.54
95.00	1.32	5.66	5.23	5.35	4.95	5.60	6.30	4.72	5.26
97.50	1.47	6.22	5.87	5.99	5.40	6.16	6.88	5.18	5.97
99.00	1.60	6.87	6.74	6.70	6.15	6.84	8.87	5.57	6.72
Median	0.50	2.89	2.69	2.75	2.72	2.83	2.95	2.96	2.63
Mean	0.52	3.05	2.91	2.94	2.86	3.05	3.30	3.05	2.71
StdDev	0.45	1.30	1.21	1.26	1.15	1.34	1.81	0.91	1.49

47. Global Warming by Climate Reviewer, 1990–2200 (°C)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-0.53	1.66	1.72	1.63	1.64	1.53	1.44	2.67	-0.09
2.50	-0.34	1.96	2.01	2.04	1.89	1.94	1.94	2.95	0.20
5.00	-0.22	2.31	2.33	2.32	2.30	2.26	2.32	3.27	0.62
10.00	-0.01	2.84	2.78	2.76	2.75	2.68	2.85	3.64	1.44
20.00	0.20	3.47	3.34	3.44	3.43	3.43	3.49	4.25	2.78
30.00	0.39	4.05	3.90	3.94	3.99	4.05	4.21	4.67	3.55
40.00	0.62	4.66	4.35	4.57	4.59	4.66	4.86	5.10	4.23
50.00	0.83	5.33	4.98	5.19	5.18	5.24	5.42	5.54	4.86
60.00	1.05	6.03	5.64	5.87	5.95	5.80	6.19	5.97	5.54
70.00	1.29	6.86	6.42	6.69	6.70	6.59	7.19	6.52	6.36
80.00	1.54	7.72	7.49	7.76	7.76	7.51	8.38	7.17	7.36
90.00	1.91	9.54	9.09	9.39	9.49	9.24	10.25	8.24	8.97
95.00	2.17	10.97	10.24	11.03	11.11	10.46	12.12	9.06	10.42
97.50	2.46	12.38	11.79	12.27	12.30	11.88	13.72	9.78	11.95
99.00	2.69	14.15	13.91	14.23	13.65	12.96	16.07	10.82	13.72
Median	0.83	5.33	4.98	5.19	5.18	5.24	5.42	5.54	4.86
Mean	0.89	5.80	5.53	5.71	5.74	5.63	6.11	5.76	5.15
StdDev	0.75	2.70	2.60	2.71	2.75	2.57	3.09	1.78	2.95

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48. Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2100 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-5.61	13.25	12.51	11.84	14.09	11.70	11.74	16.05	-0.99
2.50	-3.90	16.58	15.81	15.47	17.34	15.70	14.63	19.54	2.37
5.00	-2.21	19.86	19.83	19.39	19.00	19.35	18.21	22.44	6.15
10.00	-0.25	23.64	23.66	22.90	22.84	23.71	22.00	26.47	13.31
20.00	2.38	30.38	30.03	27.64	28.72	29.98	28.40	30.79	23.30
30.00	4.38	35.30	34.66	32.66	33.52	35.15	33.26	34.86	29.58
40.00	6.20	39.69	39.68	37.60	37.88	40.63	38.30	37.93	35.00
50.00	8.06	44.90	45.64	41.42	41.92	46.01	43.68	41.27	40.05
60.00	10.32	50.60	51.19	46.39	46.93	51.78	49.53	44.62	45.46
70.00	12.67	56.87	57.74	52.60	52.92	58.19	56.67	49.10	51.95
80.00	15.78	65.19	65.39	59.77	59.10	68.40	66.11	54.04	59.77
90.00	20.57	76.82	78.89	69.74	68.36	80.34	79.95	61.99	71.41
95.00	24.61	88.73	90.99	79.54	76.50	91.37	92.81	67.66	82.48
97.50	28.21	100.48	104.95	93.03	86.73	101.20	106.35	72.01	95.10
99.00	33.60	118.40	118.65	108.52	102.30	121.74	124.41	78.81	109.88
Median	8.06	44.90	45.64	41.42	41.92	46.01	43.68	41.27	40.05
Mean	9.39	48.53	49.13	44.87	44.65	49.63	48.50	42.75	42.18
StdDev	8.65	21.67	23.49	20.23	18.59	23.39	25.87	13.72	23.79

49. Greenhouse Contribution to Sea Level by Climate Reviewer, 1990–2200 (cm)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-8.67	32.40	22.59	32.01	34.06	29.78	27.06	40.49	-0.60
2.50	-5.42	43.35	39.77	40.30	41.70	39.55	36.64	46.63	5.34
5.00	-2.04	49.40	47.84	47.17	48.17	48.55	46.06	53.50	14.87
10.00	1.21	62.22	66.81	57.86	57.23	66.15	57.89	61.43	32.79
20.00	5.94	78.00	88.11	74.35	72.37	85.58	75.13	72.32	59.56
30.00	10.91	93.67	109.70	88.27	83.54	100.64	91.23	82.16	77.44
40.00	15.57	109.41	131.68	100.94	95.61	118.23	110.25	89.17	92.54
50.00	20.32	126.84	154.71	115.58	108.78	141.36	126.84	96.95	108.37
60.00	26.37	143.81	178.64	132.00	122.79	161.97	148.44	104.73	126.52
70.00	31.93	167.55	205.08	152.17	138.85	195.87	174.85	113.90	149.02
80.00	38.98	196.57	249.08	175.32	158.74	228.89	216.48	126.52	181.83
90.00	51.61	242.18	317.11	215.59	197.21	287.00	284.68	145.29	237.34
95.00	65.06	295.55	370.09	270.32	232.10	354.23	342.70	159.70	297.46
97.50	78.43	348.57	430.31	333.60	263.60	421.85	424.52	177.99	357.57
99.00	102.08	453.22	529.82	405.23	338.84	561.67	578.21	193.48	447.37
Median	20.32	126.84	154.71	115.58	108.78	141.36	126.84	96.95	108.37
Mean	24.41	144.68	174.50	132.10	120.76	165.47	155.27	100.73	127.24
StdDev	22.41	87.60	109.00	81.14	64.22	114.42	112.69	32.74	96.00

50. Annual Greenhouse Contribution to Sea Level by Climate Reviewer in the year 2100 (mm/yr)

Cumulative %	Balling	Bretherton	Hoffert	MacCracken	Manabe	Rind	Schneider	Wigley	All
1.00	-0.74	2.12	2.11	1.91	2.14	1.95	1.37	2.46	-0.20
2.50	-0.57	2.55	2.50	2.39	2.63	2.38	2.08	2.89	0.30
5.00	-0.36	3.05	3.05	2.86	3.06	2.96	2.59	3.29	0.97
10.00	-0.03	3.70	3.90	3.40	3.60	3.80	3.28	3.81	2.01
20.00	0.33	4.59	4.98	4.28	4.45	4.82	4.24	4.56	3.55
30.00	0.69	5.46	5.90	5.07	5.05	5.75	5.09	5.16	4.57
40.00	1.01	6.29	6.87	5.75	5.71	6.52	5.94	5.57	5.41
50.00	1.28	7.13	7.85	6.44	6.35	7.44	6.95	5.95	6.20
60.00	1.55	8.00	8.93	7.39	7.10	8.44	7.96	6.44	7.11
70.00	1.87	9.23	10.25	8.34	7.97	9.82	9.30	7.05	8.17
80.00	2.41	10.44	12.17	9.64	9.05	11.59	10.81	7.70	9.59
90.00	3.14	12.53	15.20	11.30	10.66	14.12	13.97	8.61	11.95
95.00	3.73	14.95	18.54	13.42	12.18	16.26	17.07	9.53	14.46
97.50	4.38	17.67	21.61	15.61	13.60	19.15	20.28	10.30	17.27
99.00	5.24	20.53	24.97	19.40	16.21	24.59	26.65	11.10	21.18
Median	1.28	7.13	7.85	6.44	6.35	7.44	6.95	5.95	6.20
Mean	1.43	7.83	8.87	7.18	6.85	8.42	7.95	6.15	6.84
StdDev	1.29	3.95	5.04	3.80	2.92	4.91	6.34	1.87	4.64

D. RESULTS FROM SENSITIVITY ANALYSIS USING ALTERNATIVE EMISSIONS POLICIES AND/OR FIXING PARTICULAR PARAMETERS (using Schneider values for Climate coefficients)

51. Forcing, 1990–2100 (W/m^2)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	Fixed Emiss. 2100
1.00	2.51	2.25	1.82
2.50	2.71	2.55	2.25
5.00	2.91	2.83	2.67
10.00	3.12	3.09	3.05
20.00	3.40	3.47	3.56
30.00	3.57	3.77	3.99
40.00	3.78	4.02	4.36
50.00	3.98	4.37	4.91
60.00	4.17	4.69	5.41
70.00	4.37	4.96	5.87
80.00	4.59	5.30	6.37
90.00	4.86	5.77	7.16
95.00	5.13	6.09	7.71
97.50	5.43	6.56	8.29
99.00	5.87	7.06	8.91
Median	3.98	4.37	4.91
Mean	3.99	4.40	5.00
StdDev	0.69	1.03	1.58

52. Global Warming, 1990–2100 (°C)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Emiss. 2100
1.00	0.26	0.25	0.85	0.89	0.70	0.65	0.32
2.50	0.50	0.49	1.06	1.34	1.37	1.38	0.50
5.00	0.70	0.71	1.24	1.66	1.64	1.69	0.72
10.00	0.89	0.94	1.47	2.05	1.93	2.01	0.99
20.00	1.21	1.28	1.75	2.46	2.25	2.35	1.37
30.00	1.45	1.55	1.97	2.77	2.48	2.60	1.68
40.00	1.71	1.83	2.20	3.04	2.66	2.85	1.96
50.00	1.97	2.12	2.39	3.33	2.86	3.07	2.31
60.00	2.25	2.43	2.59	3.59	3.07	3.30	2.70
70.00	2.62	2.89	2.81	3.93	3.27	3.57	3.16
80.00	3.15	3.45	3.10	4.37	3.61	3.90	3.82
90.00	3.96	4.35	3.56	5.13	4.11	4.53	4.78
95.00	4.87	5.32	3.90	5.63	4.81	5.15	5.74
97.50	5.39	5.99	4.34	6.63	5.74	6.21	6.54
99.00	6.79	7.27	4.92	9.21	7.12	7.83	7.62
Median	1.97	2.12	2.39	3.33	2.86	3.07	2.31
Mean	2.28	2.47	2.46	3.52	3.01	3.23	2.66
StdDev	1.62	1.75	0.85	1.66	1.25	1.38	1.63

53. Global Warming, 1990–2200 (°C)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Emiss. 2100
1.00	0.50	0.50	0.82	1.22	1.96	1.81	0.45
2.50	0.86	0.88	1.39	1.71	2.41	2.37	0.77
5.00	1.09	1.10	1.74	2.53	2.82	2.79	1.01
10.00	1.43	1.49	2.12	3.07	3.17	3.24	1.43
20.00	1.87	1.99	2.70	3.98	3.67	3.83	2.10
30.00	2.24	2.40	3.15	4.65	4.01	4.26	2.64
40.00	2.64	2.81	3.60	5.25	4.32	4.64	3.22
50.00	3.09	3.33	4.00	5.85	4.59	5.02	3.86
60.00	3.51	3.87	4.44	6.45	4.88	5.35	4.75
70.00	4.19	4.64	4.88	7.07	5.17	5.76	5.67
80.00	5.25	5.80	5.42	7.90	5.62	6.24	6.88
90.00	6.49	7.21	6.20	9.06	6.18	7.09	9.27
95.00	7.88	8.84	6.88	10.03	6.72	7.66	11.32
97.50	8.88	10.00	7.41	10.80	7.20	8.09	13.06
99.00	10.95	12.04	8.18	11.66	7.75	8.93	15.53
Median	3.09	3.33	4.00	5.85	4.59	5.02	3.86
Mean	3.60	3.95	4.10	5.96	4.65	5.09	4.73
StdDev	2.22	2.50	1.59	2.30	1.29	1.58	3.28

54. Greenland Contribution to Sea Level, 1990–2200 (cm)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	-3.10	-4.88	-2.97	-11.36	-3.90	-5.24	-1.25	-7.20
2.50	-0.51	-0.89	-0.54	-2.18	-0.94	-1.01	1.02	-1.23
5.00	0.46	0.40	0.92	0.72	1.07	1.14	2.38	0.46
10.00	1.72	1.85	2.58	3.52	3.42	3.54	3.71	1.87
20.00	3.80	4.03	5.47	8.28	7.46	7.97	6.08	4.31
30.00	5.98	6.39	8.34	12.95	11.11	11.78	8.51	6.88
40.00	8.28	9.08	11.44	17.79	14.83	15.80	11.37	10.17
50.00	11.48	12.45	14.73	23.29	18.38	19.70	15.06	14.45
60.00	15.17	16.94	19.20	30.05	24.12	25.91	19.17	19.90
70.00	20.12	22.30	24.43	40.55	31.35	34.11	25.00	26.24
80.00	29.79	32.52	33.97	58.62	42.73	47.73	34.40	38.80
90.00	50.23	57.75	50.79	85.49	63.09	72.90	53.05	68.68
95.00	72.89	85.35	73.77	114.99	89.34	98.13	78.69	105.33
97.50	99.18	110.41	103.23	155.30	118.29	133.75	100.98	135.70
99.00	152.78	163.42	156.88	204.99	177.22	192.69	128.44	184.60
Median	11.48	12.45	14.73	23.29	18.38	19.70	15.06	14.45
Mean	20.33	21.98	23.68	35.94	28.35	31.08	22.87	26.79
StdDev	26.91	30.17	23.85	35.63	29.12	31.94	23.48	35.98

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55. Antarctic Contribution to Sea Level, 1990–2200 (cm)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	-85.66	-85.32	-86.36	-86.42	-86.40	-86.41	-86.32	-89.06
2.50	-54.92	-54.86	-52.54	-52.60	-50.69	-50.56	-55.00	-59.40
5.00	-32.45	-32.37	-32.19	-32.03	-30.49	-31.11	-32.50	-34.17
10.00	-18.27	-18.34	-18.21	-17.09	-16.44	-16.41	-19.47	-17.64
20.00	-8.36	-8.16	-7.76	-6.25	-7.08	-6.84	-9.27	-7.10
30.00	-2.70	-2.52	-2.22	-0.79	-1.04	-0.89	-3.27	-2.06
40.00	1.12	1.47	2.47	7.03	5.08	5.97	0.42	2.49
50.00	8.03	8.36	9.72	15.91	14.16	15.00	7.19	8.85
60.00	16.75	17.29	17.64	25.18	22.33	23.22	15.58	17.17
70.00	24.56	25.37	26.46	34.96	32.07	34.03	24.16	25.15
80.00	39.21	40.82	40.41	58.15	51.99	54.48	36.67	35.10
90.00	67.56	71.70	70.39	108.79	96.15	101.33	64.42	49.46
95.00	112.47	117.74	113.00	161.15	145.50	152.59	99.90	68.14
97.50	160.00	165.92	153.85	259.87	237.64	245.56	158.73	85.80
99.00	312.73	320.75	250.21	432.36	360.28	367.75	241.42	114.74
Median	8.03	8.36	9.72	15.91	14.16	15.00	7.19	8.85
Mean	21.22	22.86	22.39	36.45	31.41	33.44	18.49	12.77
StdDev	63.53	67.88	64.75	91.53	82.45	86.13	56.11	34.36

56. Greenhouse Contribution to Sea Level, 1990–2100 (cm)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	6.19	6.10	11.44	17.43	17.39	17.70	6.75	7.50
2.50	8.96	9.16	15.86	22.74	22.05	22.26	9.28	9.61
5.00	11.93	12.28	18.91	26.65	25.99	26.65	12.45	12.63
10.00	15.68	16.40	22.99	32.84	30.89	31.84	16.56	16.03
20.00	20.94	21.84	27.28	38.56	36.02	37.39	22.16	22.09
30.00	25.20	26.34	30.84	43.12	40.51	41.92	26.28	27.10
40.00	29.69	30.85	34.42	47.92	43.95	45.98	31.09	31.73
50.00	34.23	36.20	37.87	52.52	47.57	50.28	36.20	36.93
60.00	39.69	41.83	41.09	56.26	51.02	53.72	42.50	41.61
70.00	46.23	48.30	44.19	60.83	55.42	58.13	48.24	48.64
80.00	55.17	57.86	48.98	66.45	61.36	63.96	57.86	57.79
90.00	69.05	72.90	56.28	77.82	71.36	74.57	71.34	71.95
95.00	80.92	84.02	65.69	87.91	81.01	84.75	82.18	84.53
97.50	94.33	98.25	73.29	101.69	94.64	98.78	95.94	96.44
99.00	114.67	116.39	91.37	127.37	119.32	122.55	115.84	111.48
Median	34.23	36.20	37.87	52.52	47.57	50.28	36.20	36.93
Mean	39.38	41.17	39.47	55.05	50.35	52.98	40.99	41.23
StdDev	24.21	24.71	15.93	27.79	21.21	26.47	23.43	23.54

57. Greenhouse Contribution to Sea Level, 1990–2200 (cm)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	12.31	11.27	21.61	29.59	38.24	36.79	10.35	8.76
2.50	19.10	18.63	30.43	48.64	48.66	50.59	16.41	19.61
5.00	25.28	25.66	38.43	57.84	55.94	57.26	23.99	26.63
10.00	33.92	34.20	46.84	69.26	68.40	70.97	33.74	34.45
20.00	45.81	48.02	60.26	88.23	81.84	84.97	47.30	48.28
30.00	55.34	57.88	72.55	105.75	92.43	98.10	60.68	62.87
40.00	68.60	71.79	83.82	122.52	102.17	110.58	73.37	76.96
50.00	79.10	85.13	96.57	140.37	113.93	124.05	91.42	92.67
60.00	94.39	100.48	108.57	158.21	125.92	137.23	109.17	109.67
70.00	114.66	126.41	123.00	178.84	142.41	153.63	134.13	131.95
80.00	144.06	156.05	142.65	210.27	167.13	179.21	169.31	167.54
90.00	194.98	212.99	184.40	268.68	216.99	233.43	230.99	218.39
95.00	242.92	252.97	235.53	341.12	278.49	291.52	274.72	265.20
97.50	301.47	318.53	296.95	412.93	332.70	372.00	339.43	309.72
99.00	458.03	470.70	381.07	563.71	453.67	499.95	405.36	384.61
Median	79.10	85.13	96.57	140.37	113.93	124.05	91.42	92.67
Mean	101.92	109.67	111.58	162.15	134.52	144.51	114.58	111.77
StdDev	87.91	96.10	80.14	115.73	96.09	104.72	90.19	84.50

58. Year by which Climate Contribution to Sea Level Exceeds 50 cm

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	2048	2048	2066	2052	2052	2052	2049	2050
2.50	2059	2059	2077	2061	2061	2061	2061	2060
5.00	2068	2067	2084	2067	2068	2068	2069	2069
10.00	2077	2076	2092	2074	2075	2074	2078	2078
20.00	2092	2089	2102	2081	2084	2082	2090	2090
30.00	2108	2103	2109	2087	2092	2089	2103	2102
40.00	2121	2116	2116	2092	2098	2095	2113	2114
50.00	2139	2131	2123	2097	2105	2100	2128	2127
60.00	2157	2148	2134	2103	2112	2107	2146	2143
70.00	2184	2177	2149	2113	2121	2116	2171	2168
80.00	>2200	>2200	2171	2124	2133	2128	>2200	>2200
90.00	>2200	>2200	>2200	2146	2155	2149	>2200	>2200
95.00	>2200	>2200	>2200	2177	2179	2174	>2200	>2200
97.50	>2200	>2200	>2200	>2200	>2200	2198	>2200	>2200
99.00	>2200	>2200	>2200	>2200	>2200	>2200	>2200	>2200
Median	2139	2131	2123	2097	2105	2100	2128	2127

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59. Annual Greenhouse Contribution to Sea Level in the year 2100 (mm/yr)

Cumulative %	Fixed Emiss. 2025	Fixed Emiss. 2050	ΔT_{2x}=2.6	ΔT_{2x}=4.0	Fix Emiss.2025 and ΔT_{2x}=4.0	Fix Emiss.2050 and ΔT_{2x}=4.0	Fixed Polar Amplification	Fixed Shelf Melt
1.00	0.25	0.09	0.19	0.57	0.13	0.42	0.15	0.19
2.50	0.58	0.55	0.98	1.39	1.34	1.21	0.38	0.55
5.00	0.93	0.99	1.45	2.18	2.04	2.06	0.76	0.99
10.00	1.29	1.42	2.02	3.05	2.79	2.90	1.48	1.50
20.00	1.90	2.04	2.93	4.28	3.67	3.92	2.25	2.29
30.00	2.48	2.72	3.65	5.14	4.21	4.58	3.01	3.07
40.00	3.07	3.39	4.24	6.10	4.75	5.24	3.75	3.88
50.00	3.76	4.17	4.90	7.13	5.30	5.90	4.59	4.72
60.00	4.48	4.99	5.58	7.95	5.98	6.61	5.60	5.69
70.00	5.42	5.98	6.40	9.16	6.62	7.47	6.97	6.89
80.00	6.58	7.37	7.35	10.57	7.84	8.80	8.58	8.44
90.00	8.90	10.05	8.99	13.03	9.88	10.88	11.27	11.45
95.00	11.30	12.56	10.81	16.74	12.68	13.94	13.58	13.93
97.50	14.05	15.92	13.36	19.30	15.68	17.16	16.18	16.60
99.00	18.86	21.45	17.79	25.80	20.25	22.94	20.41	19.86
Median	3.76	4.17	4.90	7.13	5.30	5.90	4.59	4.72
Mean	4.64	5.13	5.42	8.03	6.13	6.78	5.62	5.69
StdDev	4.20	4.45	3.89	7.67	4.90	7.46	4.65	4.89

APPENDIX 2

1. Historic Contribution (1890–1990) from Various Sources According to IPCC (1990) (cm) (unreported result)

	Low	Best Estimate	High
Thermal Expansion	4.47	6.57	9.64
Small Glaciers	1.35	5.43	13.85
Greenland	0.26	1.17	2.69
Antarctica	-5.20	-0.52	0
Total	.88	12.65	26.18

Note: These results were not published in IPCC 1990. They were calculated using the Wigley & Raper (1992) version of the gas cycle and ocean models.

APPENDIX 3

MISCELLANEOUS INFORMATION CONCERNING ANTARCTIC ICE SHEET RESEARCH

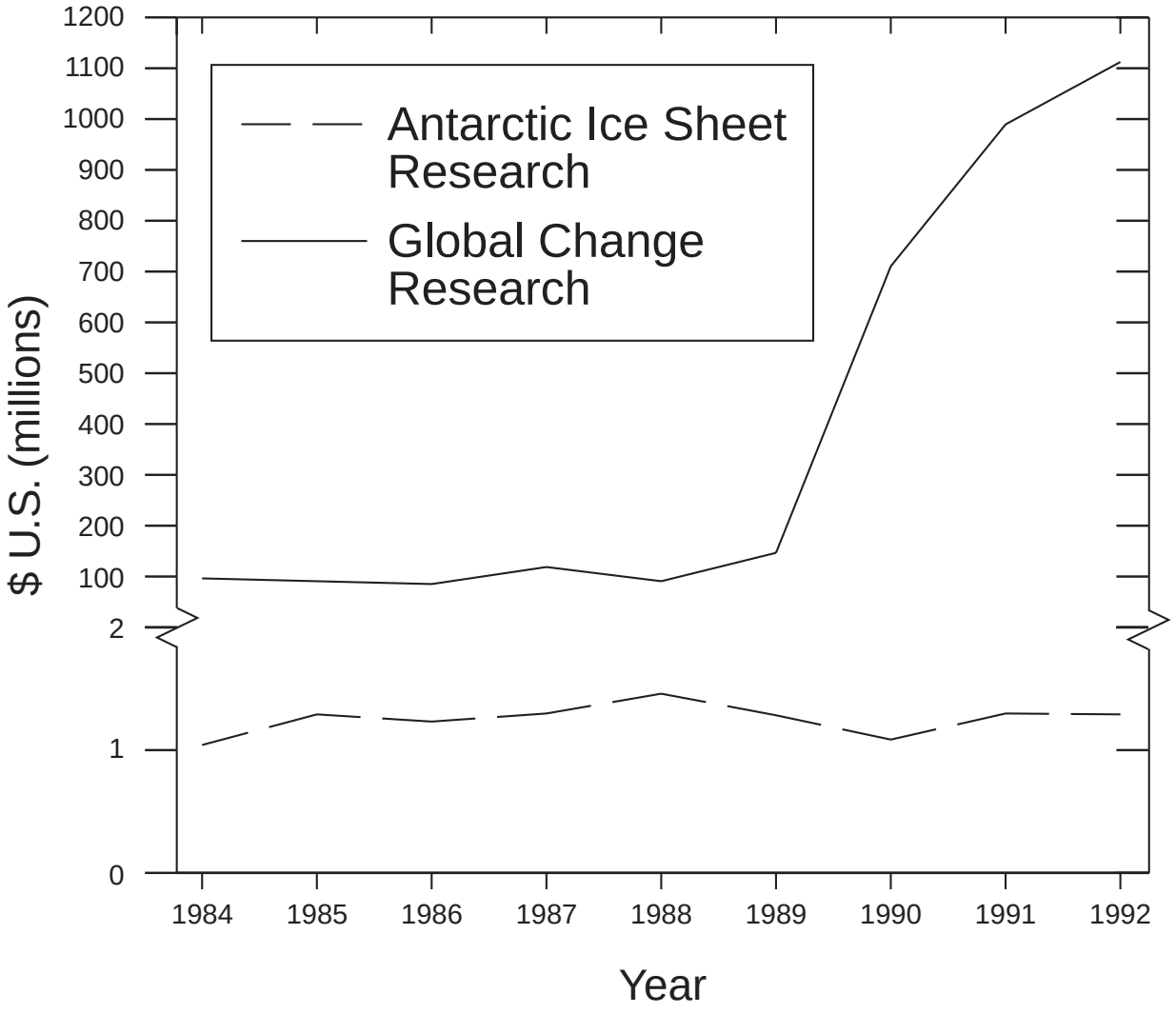

Figure A3-1. Failure of Ice Sheet Research Budgets to Benefit from Increased Global Change Research.

SOURCE: National Science Foundation; Annual Reports of the United States Global Climate Research Program Office and the predecessor National Climate Program Office.

October 1991

Dr. John Houghton, Chairman
IPCC Working Group I
Meteorological Office
London Road
Bracknell
United Kingdom

Dear Dr. Houghton:

We congratulate you on the contributions you have been making to the assessment of environmental implications of increasing greenhouse gases. Because we understand that you are considering possible revisions of the analysis, we would like to offer a number of comments on the chapter on sea level rise.

In 1985 the seven of us authored a National Academy of Sciences Report entitled "Glaciers, Ice Sheets, and Sea Level: Effect of a CO_2-Induced Climatic Change" which provided perhaps the first comprehensive report on the possible contributions of land-based ice to future changes of sea level. From that experience, we are very sympathetic with the difficulties you face in attempting to develop low, medium and high scenarios of sea level rise. Given the lack of sufficient observations and validated models that describe how glaciers respond to changing climate, one must inevitably make assumptions based on far less evidence than one would like.

We are pleased that in a number of ways, the IPCC report went beyond our 1985 report. However, we are concerned by the conclusion that even in the worst-case scenario there will be no positive Antarctic contribution to sea level change.

Our 1985 report included three glacial modeling efforts, two of which projected the contribution from Antarctica to be less than 10 cm in the next century. The third study, by Robert Thomas of NASA, however, suggested that the contribution from Antarctica was likely to be 24 cm with a high scenario of about 80 cm and a worst case scenario of 220 cm. Considering all three modeling studies and the likelihood of increased snowfall over Antarctica, we concluded that the contribution of Antarctica to global sea level change by 2100 was likely to be between -10 and +100 cm, with values in the range 0 to 30 cm considered most likely. By contrast, the IPCC report appears to project an Antarctic contribution of -10 to 0 cm by the year 2100 (calculated using the equations on p. 276 and the temperature graph on page 190).

Our concern is that we do not believe there is any new evidence which justifies the implicit IPCC conclusion that we can project the Antarctic contribution to sea level change much more accurately now than we could in 1985. Specifically:

(1) There seems to be no new evidence indicating that the Thomas study is necessarily wrong. Certainly it relies on unproven assumptions, such as extrapolating data from a single ice stream to the rest of the continental margin. But so the IPCC report could be criticized; for example, although it takes great care in parameterizing large scale meteorology and simulating frozen-bed ice dynamics, it does not realistically simulate the wet-bed, sliding ice dynamics that dominate West Antarctica and parts of East Antarctica. Moreover, IPCC equations imply that global cooling of a few degrees would cause glaciers to retreat, in contradiction to empirical evidence. Also, note that Jenkins (1991) recently estimated that a warming of even 0.6˚C beneath the Ronne ice shelf could accelerate the basal melt rate from a current value of 0.5 meters per year to 2.5 meters per year; by contrast, Thomas' scenarios with 24-80 cm sea level rise were based on the assumption that the increase in basal melt rates would be only one meter per year.

(2) Several new results support the hypothesis that the West Antarctic ice sheet has a history of repeated rapid discharges. First, sea level records with increased temporal resolution (e.g., at Barbados) suggest repeated periods of rapid sea level rise, for which the only plausible mechanism would seem to be discharge of grounded ice. Second, the sedimentary record in the seas around West Antarctica reveals repeated advances and retreats of the ice sheet during the last 20,000 years. Third, diatoms collected under the ice sheet 700 km from the present margin indicate that site was an open marine environment at some time in the past 600,000 years, possibly during the previous interglacial period; most of the West Antarctic ice sheet must have disappeared for marine conditions to exist so far into the ice sheet interior. These results need to be considered along with recent observations of large rapid changes in the flow of parts of the West Antarctic ice sheet.

(3) No credible global climate model/ice sheet simulations have been carried out for transient changes next century. Indeed, in view of possible nonlinearities of some ice sheet processes with increasing global temperature, we do not believe we can reliably state the sign of Antarctic contributions to sea level change for the full range of climate change scenarios considered by IPCC.

In summary, although we do not have difficulty with a position that the Antarctic contribution to sea level change in the next century is likely to be small, possibly negative, we believe that there is still a large degree of uncertainty. We hope that this viewpoint can be represented in the revised IPCC analysis.

Sincerely,

Mark F. Meier

David G. Aubrey
Charles R. Bentley
Wallace S. Broecker
James E. Hansen
W. Richard Peltier
Richard C. J. Somerville