

Table 1: Increases in the Number of Excessive Heat Event Days (EHE Days) Caused by Climate Change

Location	Average Number of EHE Days per Summer (Historical Average 1975-1995)	EHE Days Per Summer			
		by Mid-Century (2045-2055)		by End-of-Century(2090-2099)	
		Climate Change Will Increase Per-Summer EHE Days by...	...Making the New Total Number of EHE Days Increase to	Climate Change Will Increase Per-Summer EHE Days by...	...Making the New Total Number of EHE Days Increase to
Atlanta, GA	5	43	48	53	58
Baltimore, MD	8	37	45	61	69
Birmingham, AL	5	19	24	51	56
Boston, MA	11	40	51	60	71
Buffalo, NY	3	0	3	12	15
Chicago, IL	5	13	18	28	33
Cincinnati, OH	4	18	22	26	30
Cleveland, OH	5	0	5	12	17
Columbus, OH	5	-1	4	11	16
Dallas, TX	11	11	22	26	37
Denver, CO	9	79	88	68	77
Detroit, MI	9	6	15	27	36
Greensboro, NC	8	51	59	62	70
Hartford, CT	6	25	31	52	58
Houston, TX	1	4	5	12	13
Indianapolis, IN	5	17	22	27	32
Jacksonville, FL	7	17	24	36	43
Kansas City, MO	7	31	38	41	48
Los Angeles, CA	1	59	60	87	88
Louisville, KY	8	-3	5	21	29
Memphis, TN	9	9	18	31	40
Miami, FL	0	14	14	55	55
Minneapolis, MN	8	15	23	22	30
New Orleans, LA	5	3	8	49	54
New York, NY	11	44	55	64	75
Newark, NJ	8	47	55	60	68
Philadelphia, PA	6	48	54	67	73
Phoenix, AZ	7	77	84	68	75
Pittsburgh, PA	5	47	52	54	59
Portland, OR	4	38	42	47	51
Providence, RI	7	31	38	56	63
Salt Lake, UT	0	0	0	0	0
San Antonio, TX	5	18	23	25	30
San Diego, CA	1	38	39	60	61
San Francisco, CA	2	64	66	52	54
San Jose, CA	0	4	4	4	4
Seattle, WA	2	52	54	55	57
St. Louis, MO	11	24	35	34	45
Tampa, FL	3	33	36	56	59
Washington, DC	16	37	53	53	69
Current average of EHE days per year...	233				
Plus the additional EHE days climate change will cause annually by mid-century...		1,109			
Results in more than five time as many EHE days by mid-century.			1,342		
Plus the additional EHE days climate change will cause annually by the end of the century...				1,685	
And the result is more than EIGHT TIMES as many EHE days by the end of the century.					1,918

Note: This table shows the change to the number of EHE days projected to be caused by climate change and total projected average EHE days during 2045-2055 and 2090-2099, based on a climate model assuming the A1FI emissions scenario, which portrays a "business-as-usual" trend with continued significant reliance on fossil-fuels and no significant policy interventions. The figures in the "Average Number" column are the baseline; the figures in the "Climate Change Will Increase . . ." show the change in EHE days per summer as our climate warms up. Figures in the "Resulting in Overall . . ." columns show the combination of the baseline and the additional climate-induced levels. Note: "Summer" refers to the months of June, July and August.

Source: Greene, S; Kalkstein L; Mills D; Samenow, J. 2011. "An Examination of Climate Change on Extreme Heat Events and Climate-Mortality Relationships in Large U.S. Cities." Weather, Climate and Society, October 2011, 3, 281-292."



New York, USA - June 10, 2011 where the thermometer reached 80+ degrees

Table 2: Increases in EHE-Attributable Mortality Caused by Climate Change

Location	Average Mortality per Summer (Historical Average 1975-2004)	Mortality Per Summer				Cumulative Additional Mortality	
		By Mid-Century (2045-2055)		By End-of-Century (2090-2099)		By Mid-Century (2050)	By End-of-Century (2099)
		Climate Change Will Increase Per-Summer Average Mortality by...	...Making the New Total Summertime Mortality Increase to	Climate Change Will Increase Per-Summer Average Mortality by...	...Making the New Total Summertime Mortality Increase to	Year after year of increased mortality due to climate change adds up to...	
Atlanta, GA	35	-11	24	-6	29	(359)	(756)
Baltimore, MD	57	26	83	70	127	495	2,947
Birmingham, AL	24	8	32	51	75	103	1,680
Boston, MA	99	55	154	114	213	1,404	5,715
Buffalo, NY	18	33	51	74	92	479	3,190
Chicago, IL	93	49	142	157	250	1,034	6,361
Cincinnati, OH	12	9	21	16	28	245	897
Cleveland, OH	40	93	133	446	486	2,530	16,625
Columbus, OH	4	38	42	151	155	1,066	6,001
Dallas, TX	46	69	115	144	190	1,885	7,271
Denver, CO	48	46	94	35	83	1,551	3,515
Detroit, MI	52	133	185	402	454	4,109	17,877
Greensboro, NC	31	16	47	21	52	331	1,259
Hartford, CT	27	13	40	49	76	283	1,892
Houston, TX	2	14	16	25	27	406	1,391
Indianapolis, IN	23	28	51	50	73	837	2,783

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		By Mid-Century (2045-2055)		By End-of-Century (2090-2099)		By Mid-Century (2050)	By End-of-Century (2099)
		Climate Change Will Increase Per-Summer Average Mortality by...	...Making the New Total Summertime Mortality Increase to	Climate Change Will Increase Per-Summer Average Mortality by...	...Making the New Total Summertime Mortality Increase to	Year after year of increased mortality due to climate change adds up to...	
Jacksonville, FL	30	81	111	169	199	1,813	8,141
Kansas City, MO	41	48	89	71	112	1,280	4,236
Los Angeles, CA	18	11	29	29	47	219	1,222
Louisville, KY	39	218	257	337	376	5,081	18,988
Memphis, TN	46	84	130	247	293	1,645	10,154
Miami, FL	0	0	0	0	0	0	0
Minneapolis, MN	14	79	93	107	121	2,892	7,516
New Orleans, LA	22	7	29	46	68	221	1,613
New York, NY	184	-2	182	65	249	(573)	1,127
Newark, NJ	56	13	69	30	86	320	1,409
Philadelphia, PA	53	4	57	25	78	(39)	714
Phoenix, AZ	33	11	44	58	91	213	2,021
Pittsburgh, PA	19	14	33	19	38	411	1,241
Portland, OR	9	8	17	12	21	237	736
Providence, RI	37	16	53	50	87	353	2,035
Salt Lake, UT	2	1	3	2	4	36	113
San Antonio, TX	21	6	27	14	35	98	631
San Diego, CA	0	4	4	7	7	119	396
San Francisco, CA	3	2	5	5	8	87	260
San Jose, CA	10	3	13	5	15	69	281
Seattle, WA	11	-2	9	1	12	(99)	(125)
St. Louis, MO	24	58	82	113	137	1,285	5,621
Tampa, FL	25	0	25	16	41	(72)	351
Washington, DC	24	33	57	49	73	942	2,994
Current annual average mortality...	1,332						
plus the additional annual mortality due to climate change by mid-century...		1,316					
results in DOUBLED total EHE-mortality by mid-century:			2,648				
By the end of the century the additional burden of climate change on EHE-mortality is even greater compared to current levels . . .				3,276			
Resulting in more than a TRIPLING of EHE-Mortality by the end of the century.					4,608		
By 2050, the additional cumulative heat-related mortality caused by the additive effect of climate change is:						32,934	
By 2099, the additional cumulative heat-related mortality caused by the additive effect of climate change is:							150,322

Note: This table shows the additional mortality caused by climate change as well as total EHE mortality by 2050 and 2099 based on a climate model assuming the A1FI emissions scenario, which portrays a "business-as-usual" trend with continued significant reliance on fossil-fuels and no significant policy interventions. It also shows the cumulative impact of the additional mortality that occurs due to the effect of climate change. The figures in the "Average Number" column are the baseline; the figures in the "Climate Change Will Increase . . ." show the change in mortality per summer as our climate warms up. Figures in the "Making a New Summertime Total" show the combination of the baseline and the additional climate-induced levels. Note: "Summer" refers to the months of June, July and August.

Sources: Column 2: Kalkstein L., Greene S., Mills D., Samenow S. "An evaluation of the progress in reducing heat-related human mortality in major U.S. cities," 2010, Natural Hazards. DOI 10.1007/s11069-010-9552-3.

Columns 4 and 6: Greene, S; Kalkstein L; Mills D; Samenow, J. 2011. "An Examination of Climate Change on Extreme Heat Events and Climate-Mortality Relationships in Large U.S. Cities." Weather, Climate and Society, October 2011, 3, 281-292.