

**Table 1. 2016 Site Specifications.**

National Park Unit	Site Name	State	NPS Abbr.	CASTNET Abbr.	AQS ID Number	Latitude (degrees north)	Longitude (degrees west)	Elev. (m)	O <sub>3</sub> Years <sup>a</sup>	SO <sub>2</sub>	CO	NO <sub>x</sub>	PM	WS/WD	TMP	RH	RNF	SOL	Filter Pack <sup>b</sup>
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>																			
Big Bend	K-Bar Ranch Road	TX	BIBE-KB	BBE401	48-043-0101	29.3022	103.1772	1052	27	---	---	---	---	X	X	X	X	X	X
Canyonlands	Island in the Sky	UT	CANY-IS	CAN407	49-037-0101	38.4586	109.8211	1809	25	---	---	---	---	X	X	X	X	X	X
Carlsbad Caverns	Maintenance Area	NM	CAVE-MA	---	35-015-3001	32.1792	104.4417	1310	11	---	---	---	---	X	X	X	X	X	---
<u>Chickamauga/Chattanooga</u>	Lookout Mountain	TN	CHCH-LM	---	---	34.9183	85.2700	237	2	---	---	---	---	X	X	X	X	---	---
Chiricahua	Entrance Station	AZ	CHIR-ES	CHA467	04-003-8001	32.0092	109.3892	1570	26	---	---	---	---	X	X	X	X	X	X
Craters of the Moon	Visitor Center	ID	CRMO-VC	---	16-023-0101	43.4606	113.5622	1815	25	---	---	---	---	X	X	---	---	X	---
Death Valley	Park Village	CA	DEVA-PV	---	06-027-0101	36.5092	116.8481	125	24	---	---	---	---	X	X	---	---	---	---
Denali	Headquarters	AK	DENA-HQ	DEN417	02-068-0003	63.7258	148.9633	661	30	---	---	---	---	X	X	X	X	X	X
Dinosaur	West Entrance Housing	UT	DINO-WE	DIN431	49-047-1002	40.4372	109.3047	1463	16	---	---	---	---	X	X	---	---	X	X
Everglades	Beard Center	FL	EVER-BC	EVE419	12-086-0030	25.3911	80.6806	2	---	---	---	---	---	X	X	X	X	X	X
Fort Laramie	North Boundary	WY	FOLA-NB	---	56-015-0004	42.2092	104.5486	1298	---	---	---	---	---	X	X	X	X	---	---
Glacier	West Glacier Horse Stables	MT	GLAC-WG	GLR468	30-029-8001	48.5103	113.9956	976	25	---	---	---	---	X	X	---	---	---	X
Grand Canyon	The Abyss	AZ	GRCA-AS	GRC474	04-005-8001	36.0597	112.1822	2073	24	---	---	---	---	X	X	X	X	X	X
Grand Teton	Science School	WY	GRTE-SS	---	56-039-0008	43.6708	110.5994	2105	6	---	---	---	---	X	X	X	X	X	---
Great Basin	Maintenance Yard	NV	GRBA-MY	GRB411	32-033-0101	39.0053	114.2158	2060	24	---	---	---	---	X	X	X	X	X	X
Great Smoky Mountains	Clingmans Dome	TN	GRSM-CD	---	47-155-0102	35.5619	83.4981	2021	24	---	---	---	---	X	---	---	---	X	---
Great Smoky Mountains	Cove Mountain	TN	GRSM-CM	---	47-155-0101	35.6967	83.6086	1243	29	---	---	---	---	X	X	X	X	X	---
Great Smoky Mountains	Look Rock NCore	TN	GRSM-LN	GRS420	47-009-0101	---	---	---	---	X	X	X	---	---	---	---	---	---	---
Great Smoky Mountains	Look Rock	TN	GRSM-LR	GRS420	47-009-0101	35.6331	83.9422	793	29	---	---	---	---	X	X	X	X	X	X
Hawaii Volcanoes	Observatory	HI	HAVO-OB	---	15-001-0007	19.4204	155.2878	1215	---	X	---	---	X	X	X	X	X	---	---
Hawaii Volcanoes	Visitor Center	HI	HAVO-VC	---	15-001-0005	19.4308	155.2578	1215	---	X	---	---	X	X	X	X	X	X	---
Joshua Tree	Black Rock	CA	JOTR-BR	JOT403	06-071-9002	34.0714	116.3906	1244	24	---	---	---	---	X	X	X	X	X	X
Joshua Tree	Cottonwood Canyon	CA	JOTR-CC	---	06-065-0008	33.7411	115.8206	984	12	---	---	---	---	X	X	X	X	X	---
Joshua Tree	Pinto Wells	CA	JOTR-PW	---	06-065-1004	33.9397	115.4108	326	11	---	---	---	---	X	X	X	X	---	---
<u>Kings Mountain</u>	RAWS Station	SC	KIMO-RS	---	45-021-0004	35.1314	81.4050	340	1	---	---	---	---	X	X	X	X	X	---
Lassen Volcanic	Manzanita Lake Fire Station	CA	LAVO-ML	LAV410	06-089-3003	40.5403	121.5764	1756	30	---	---	---	---	X	X	X	X	X	X
Mammoth Cave	Houchin Meadow	KY	MACA-HM	MAC426	21-061-0501	37.1318	86.1478	258	---	X	X	X	---	X	X	X	X	X	X
Mesa Verde	Resource Management Area	CO	MEVE-RM	MEV405	08-083-0101	37.1983	108.4903	2165	24	---	---	---	---	X	X	X	X	X	X
Mimidoka	Maintenance Building	ID	MIIN-MB	---	16-053-0003	42.6800	114.2525	1223	---	---	---	---	X	X	X	X	X	---	---
<u>Mojave</u>	Kelso Mountains	CA	MOJA-KM	---	06-071-1001	35.1019	115.7767	1212	10	---	---	---	---	X	X	X	X	X	---

**Table 1. 2016 Site Specifications (continued).**

National Park Unit	Site Name	State	NPS Abbr.	CASTNet Abbr.	AQS ID Number	Latitude (degrees north)	Longitude (degrees west)	Elev. (m)	O <sub>3</sub> Years <sup>a</sup>	SO <sub>2</sub>	CO	NO <sub>x</sub>	PM	WS/WD	TMP	RH	RNF	SOL	Filter Pack <sup>b</sup>
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>																			
Petrified Forest	South Entrance	AZ	PEFO-SE	PET427	04-017-0119	34.8225	109.8919	1723	15	---	---	---	---	X	X	---	---	X	X
Pinnacles	SW of East Entrance Station	CA	PINN-ES	PIN414	06-069-0003	36.4834	121.1568	335	30	---	---	---	---	X	X	X	X	X	X
Rocky Mountain	Long's Peak	CO	ROMO-LP	ROM406	08-069-0007	40.2778	105.5453	2743	33	---	---	---	---	X	X	X	X	X	X
Sequoia and Kings Canyon	Ash Mountain	CA	SEKI-AS	SEK430	06-107-0009	36.4894	118.8292	457	18	---	---	---	X	X	X	X	X	X	X
Sequoia and Kings Canyon	Lower Kaweah	CA	SEKLIK	---	06-107-0006	36.5658	118.7772	1890	33	---	---	---	---	X	X	X	X	X	---
Shenandoah	Big Meadows	VA	SHEN-BM	SHN418	51-113-0003	38.5231	78.4347	1072	34	---	---	---	---	X	X	X	X	X	X
<u>Stones River</u>	Beasley Field	TN	STRI-BF	---	---	35.8814	86.4353	176	2	---	---	---	---	X	X	X	X	X	---
Voyageurs	Sullivan Bay	MN	VOYA-SB	VOY413	27-137-0034	48.4128	92.8292	429	21	---	---	---	---	X	X	X	X	X	X
Yellowstone	Old Faithful Snow Lodge	WY	YELL-OS	---	56-039-1013	44.4582	110.8253	2230	---	---	X	---	X	X	X	X	---	---	---
Yellowstone	West Entrance	MT	YELL-WS	---	30-031-0017	44.6569	111.0894	2030	---	---	X	X	X	X	X	X	---	---	---
Yellowstone	Water Tank	WY	YELL-WT	YEL408	56-039-1011	44.5597	110.4006	2400	21	---	---	---	---	X	X	X	X	X	X
Yosemite	Turtleback Dome	CA	YOSE-TD	YOS404	06-043-0003	37.7133	119.7061	1605	24	---	---	---	---	X	X	X	X	X	X
Zion	Dalton's Wash	UT	ZION-DW	---	49-053-0130	37.1983	113.1506	1213	13	---	---	---	---	X	X	---	---	---	---
<b>Sites operated by the NPS for the Bureau of Land Management</b>																			
Meeker	Plant Science	CO	MEEK-PS	---	08-103-0005	40.0039	107.8475	1994	7	---	---	X	X	X	X	X	X	X	---
Rangely	Golf Course	CO	RANG-GC	---	08-103-0006	40.0869	108.7614	1655	7	---	---	X	X	X	---	X	X	X	---
<b>Sites operated by cooperating state agencies</b>																			
Acadia	Cadillac Mountain	ME	ACAD-CM	---	23-009-0102	44.4083	68.2461	37	22	---	---	---	---	X	X	X	---	---	---
Acadia	McFarland Hill	ME	ACAD-MH	ACA416	23-009-0103	44.3769	68.2608	158	19	---	---	---	---	X	X	X	X	X	X
Badlands	Visitor Center	SD	BADL-VC	---	46-071-0001	43.7436	101.9414	739	12	X	---	---	X	---	---	---	---	---	---
Cape Cod	Cape Cod	MA	CACO-XX	---	25-001-0002	41.9758	70.0247	41	30	---	---	---	---	X	X	X	---	---	---
Chamizal	Chamizal	TX	CHAM-XX	---	48-141-0044	31.7656	106.4550	1128	25	---	---	---	---	X	X	X	---	---	---

**Table 1. 2016 Site specifications (continued).**

National Park Unit	Site Name	State	NPS Abbr.	CASTNet Abbr.	AQS ID Number	Latitude (degrees north)	Longitude (degrees west)	Elev. (m)	O <sub>3</sub> Years <sup>a</sup>	SO <sub>2</sub>	CO	NO <sub>x</sub>	PM	WS/WD	TMP	RH	RNF	SOL	Filter Pack <sup>b</sup>
<i>Congaree</i>	Congaree Bluff	SC	COSW-BL	---	45-079-0021	33.8147	80.7811	34	17	X	---	---	---	---	---	---	---	---	---
<i>Everglades</i>	Cutler Road	FL	EVER-CR	---	12-086-0029	25.5861	80.3269	4	32	---	---	---	---	---	---	---	---	---	---
<i>Great Smoky Mountains</i>	Cades Cove	TN	GRSM-CC	---	47-009-0102	35.6042	83.7831	564	24	---	---	---	X	X	X	X	X	X	X
<i>Great Smoky Mountains</i>	Purchase Knob	NC	GRSM-PK	---	37-087-0036	35.5900	83.0775	1500	---	---	---	---	---	---	---	---	---	---	---
<i>Indiana Dunes</i>	Ammunition Bunker	IN	INDU-AB	---	18-089-0022	41.7169	86.9075	187	24	---	---	---	---	X	X	X	X	X	X
<i>Mount Rainier</i>	Jackson Visitor's Center	WA	MORA-IV	---	53-053-0012	46.7853	121.7378	1615	19	---	---	---	---	---	---	---	---	---	---
<i>Saguaro</i>	East	AZ	SAGU-EA	---	04-019-0021	32.1744	110.7364	938	---	---	---	---	---	X	X	X	X	X	X
<i>Theodore Roosevelt</i>	Painted Canyon, VC	ND	THRO-VC	THR422	38-007-0002	46.8947	103.3778	850	19	X	---	---	X	X	X	X	X	X	X
<i>Wind Cave</i>	Visitor Center	SD	WICA-VC	WNC429	46-033-0132	43.5578	103.4839	1292	13	---	---	---	X	X	X	X	X	X	X
<i>Yosemite</i>	Village	CA	YOSE-VI	---	06-043-1001	37.7458	119.6028	1216	---	---	---	---	X	---	---	---	---	---	---

<sup>a</sup> The values in this column represent the number of years an ozone analyzer has been operational at the site.

<sup>b</sup> A filter pack is a part of the CASTNET network and is used to measure dry deposition using the "inferential method." This method combines air quality concentration data with meteorological measurements and land use functions to compute deposition velocities. Ambient air is drawn across the filter at either 3.0 or 1.5 liters per minute. The filter is then analyzed in a lab to yield weekly average concentrations of particulate sulfate (SO<sub>4</sub><sup>2-</sup>), particulate nitrate (NO<sub>3</sub><sup>-</sup>), particulate ammonium (NH<sub>4</sub><sup>+</sup>), sulfur dioxide (SO<sub>2</sub>), and nitric acid (HNO<sub>3</sub>). In some cases, the positive ions Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, and Mg<sup>2+</sup> are also measured from the filter samples.

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service

*italics* = site operated by a state agency

underline = site operated by the National Park Service, but consisting of non-EPA certified portable instrumentation

Parameter key:

O<sub>3</sub> = ozone (ppb)

SO<sub>2</sub> = sulfur dioxide (ppb)

CO = carbon monoxide (ppm)

NO<sub>x</sub> = oxides of nitrogen (ppb)

PM = particulate matter (µg/m<sup>3</sup>)

WS = wind speed (m/s)

WD = wind direction (degrees)

TMP = ambient temperature (degrees C)

RH = relative humidity (%)

RNF = precipitation (mm/hr)

SOL = solar radiation (watts/m<sup>2</sup>)

Note: Dashed lines indicate parameter not measured at that site.

**Table 2. 2016 Summary of 8-hour average ozone concentrations (ppb).**

National Park Unit	Site Name	Valid Number of Days	1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	# Days with 8-Hour Average O <sub>3</sub> Values ≥70 ppb <sup>a</sup>
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>							
Big Bend	K-Bar Ranch Road	351	65	64	61	61	0
Canyonlands	Island in the Sky	360	68	66	64	64	0
Chiricahua	Entrance Station	358	71	67	64	64	1
Craters of the Moon	Visitor Center	359	60	60	59	58	0
Death Valley	Park Village	296	78	77	73	72	5
Denali	Headquarters	355	56	50	49	48	0
Dinosaur	West Entrance Housing	340	83	80	77	75	5
Glacier	West Glacier Horse Stables	357	53	52	50	50	0
Grand Canyon	The Abyss	359	69	66	65	64	0
Grand Teton	Science School	364	64	61	60	60	0
Great Basin	Maintenance Year	357	68	65	64	63	0
Great Smoky Mountains	Clingmans Dome	179	70	70	69	66	0
Great Smoky Mountains	Cove Mountain	345	73	72	70	66	3
Great Smoky Mountains	Look Rock	356	73	72	72	70	3
Joshua Tree	Black Rock	364	88	87	87	84	38
Joshua Tree	Cottonwood Canyon	359	82	76	73	72	9
Lassen Volcanic	Manzanita Lake Fire Station	338	66	64	64	64	0
Mammoth Cave	Houchin Meadow	326	69	67	66	65	0
Mesa Verde	Resource Management Area	363	69	67	67	66	0
Petrified Forest	South Entrance	351	67	63	63	63	0
Pinnacles	SW of East Entrance Station	363	78	74	74	72	5
Rocky Mountain	Long's Peak	358	80	77	72	69	3
Sequoia and Kings Canyon	Ash Mountain	352	96	94	93	92	87
Sequoia and Kings Canyon	Lower Kaweah	203	92	89	87	87	64
Shenandoah	Big Meadows	357	73	69	66	66	1
Voyageurs	Sullivan Bay	317	61	54	53	52	0
Yellowstone	Water Tank	331	62	61	60	60	0
Yosemite	Turtleback Dome	328	78	76	75	74	11
Zion	Dalton's Wash	355	66	64	64	64	0
<b>Sites operated by the NPS for the Bureau of Land Management</b>							
Meeker	Plant Science Center	346	60	59	59	59	0
Rangely	Golf Course	356	67	64	61	61	0
<b>Sites operated by cooperating state agencies</b>							
Acadia	Cadillac Mountain	213	77	71	68	66	2
Acadia	McFarland Hill	359	76	64	63	60	1
Badlands	Visitor Center	359	62	62	60	60	0
Cape Cod	Cape Cod	350	75	69	67	65	1
Chamizal	Chamizal	344	84	81	67	65	2
Congaree	Congaree Bluff	339	66	57	56	56	0
Everglades	Cutler Road	348	71	65	65	62	1

**Table 2. 2016 Summary of 8-hour average ozone concentrations (ppb) (continued).**

National Park Unit	Site Name	Valid Number of Days	1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest <sup>a</sup>	# Days with 8-Hour Average O <sub>3</sub> Values ≥70 ppb <sup>a</sup>
<b>Sites operated by cooperating state agencies</b>							
<i>Great Smoky Mountains</i>	Cades Cove	239	68	67	65	63	0
<i>Great Smoky Mountains</i>	Purchase Knob	194	70	68	66	65	0
<i>Indiana Dunes</i>	Ammunition Bunker	177	78	73	71	70	3
<i>Mount Rainier</i>	Jackson Visitor's Center	331	66	59	59	58	0
<i>Saguaro</i>	East	363	72	71	70	69	2
<i>Theodore Roosevelt</i>	Painted Canyon, Visitor Cntr	364	60	59	58	56	0
<i>Wind Cave</i>	Visitor Center	357	67	62	60	60	0
<b>Portable ozone monitoring systems (POMS)<sup>b</sup></b>							
<u>Carlsbad Caverns</u>	Maintenance Area	158	70	69	69	69	0
<u>Chickamaunga/Chattanooga</u>	Lookout Mountain	194	71	70	69	68	1
<u>Joshua Tree</u>	Pinto Wells	342	74	72	71	<b>71</b>	<b>5</b>
<u>Kings Mountain</u>	RAWS Station	147	71	70	66	65	1
<u>Mojave</u>	Kelso Mountains	159	82	81	79	<b>78</b>	<b>18</b>
<u>Stones River</u>	Beasley River	166	65	63	62	62	0

<sup>a</sup> The primary and secondary National Ambient Air Quality Standard for ozone is 0.070 ppm over an 8-hour period. (An exceedance of the standard occurs when an 8-hour average ozone concentration is greater than or equal to 70 ppb. A violation of the standard occurs when the 3-year average of the fourth highest daily maximum 8-hour average ozone concentration equals or exceeds 70 ppb.) Exceedances of the standard are highlighted here in orange.

<sup>b</sup> The Gaseous Pollutant Monitoring Program Portable Ozone Monitoring Systems (POMS) do not meet EPA standards for regulatory monitoring. However, ozone summary statistics from portable systems can be compared to EPA standards for reference purposes.

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
*italics* = site operated by a state agency  
underline = site operated by the National Park Service, but consisting of non-EPA certified portable instrumentation

**Bold** = Ozone summary statistics for POMS are highlighted bold where exceedances occurred. These sites should be compared to EPA standards for reference purposes only.

Color shading key: 4<sup>th</sup> highest 8-hour average **Red** >70 ppb ozone concentration # days with 8-hour average >70 ppb **Red** > 3 days

**Table 3. 2016 Ozone violation summary - primary standard<sup>a,b</sup>.**

National Park Unit	Site Name	2014-2016	2013-2015	2012-2014	2011-2013	2010-2012	2009-2011	2008-2010
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>								
Big Bend	K-Bar Ranch Road	62	64	65	71	70	69	64
Canyonlands	Island in the Sky	64	65	67	69	69	68	69
Chiricahua	Entrance Station	65	68	71	73	73	70	68
Craters of the Moon	Visitor Center	60	61	62	63	63	61	62
Death Valley	Park Village	70	70	70	72	72	71	72
Denali	Headquarters	53	54	54	52	52	53	58
Dinosaur	West Entrance Housing	68	<b>81</b>	<b>(84)</b>	---	---	---	---
Glacier	West Glacier Horse Stables	53	(54)	54	55	55	55	55
Grand Canyon	The Abyss	67	69	70	72	72	69	68
Grand Teton	Science School	59	59	62	(60)	(60)	(54)	---
Great Basin	Maintenance Yard	64	68	71	74	72	70	69
Great Smoky Mountains	Clingmans Dome	(65)	(65)	(67)	(71)	(75)	(75)	<b>(76)</b>
Great Smoky Mountains	Cove Mountain	67	67	68	72	<b>76</b>	75	<b>76</b>
Great Smoky Mountains	Look Rock	67	65	67	74	<b>79</b>	<b>77</b>	<b>77</b>
Joshua Tree	Black Rock	<b>86</b>	<b>86</b>	<b>90</b>	<b>90</b>	<b>94</b>	<b>93</b>	<b>98</b>
Joshua Tree	Cottonwood Canyon	<b>(79)</b>	<b>(80)</b>	<b>(81)</b>	<b>(76)</b>	<b>(76)</b>	<b>(78)</b>	<b>(81)</b>
Lassen Volcanic	Manzanita Lake Fire Station	65	66	68	68	67	64	70
Mammoth Cave	Houchin Meadow	64	63	69	71	75	70	70
Mesa Verde	Resource Management Area	65	66	67	69	68	68	68
Petrified Forest	South Entrance	64	66	70	70	70	66	67
Pinnacles	SW of East Entrance Station	69	68	70	70	70	70	<b>76</b>
Rocky Mountain	Long's Peak	69	70	74	<b>76</b>	77	74	73
Sequoia and Kings Canyon	Ash Mountain	<b>89</b>	<b>89</b>	<b>91</b>	<b>93</b>	<b>95</b>	<b>96</b>	<b>(101)</b>
Sequoia and Kings Canyon	Lower Kaweah	<b>(84)</b>	<b>(84)</b>	<b>(86)</b>	<b>85</b>	<b>81</b>	<b>79</b>	<b>86</b>
Shenandoah	Big Meadows	63	62	65	69	72	71	73
Voyageurs	Sullivan Bay	55	57	59	59	63	62	(62)
Yellowstone	Water Tank	60	62	63	65	66	65	64
Yosemite	Turtleback Dome	<b>74</b>	74	<b>77</b>	<b>77</b>	<b>78</b>	<b>77</b>	<b>83</b>
Zion	Dalton's Wash	(65)	(67)	70	72	73	70	70
<b>Sites operated by the NPS for the Bureau of Land Management</b>								
Meeker	Plant Science Center	61	63	63	63	64	(64)	(66)
Rangely	Golf Course	63	73	74	<b>77</b>	66	(65)	(58)

**Table 3. 2016 Ozone violation summary - primary standard<sup>a,b</sup> (continued).**

National Park Unit	Site Name	2014-2016	2013-2015	2012-2014	2011-2013	2010-2012	2009-2011	2008-2010
<b>Sites operated by cooperating state agencies</b>								
<i>Acadia</i>	Cadillac Mountain	66	67	66	69	72	74	74
<i>Acadia</i>	McFarland Hill	62	65	63	65	65	69	69
<i>Badlands</i>	Visitor Center	58	58	61	59	58	54	55
<i>Cape Cod</i>	Cape Cod	(65)	(67)	69	72	75	72	74
<i>Chamizal</i>	Chamizal	67	68	68	69	70	69	70
<i>Congaree</i>	Congaree Bluff	55	55	55	57	61	62	65
<i>Everglades</i>	Cutler Road	61	63	63	64	63	63	67
<i>Great Smoky Mountain</i>	Cades Cove	60	59	60	63	68	68	69
<i>Great Smoky Mountain</i>	Purchase Knob	65	65	66	67	69	67	72
<i>Indiana Dunes</i>	Ammunition Bunker	67	65	69	69	69	62	61
<i>Mount Rainer</i>	Jackson Visitor's Center	(59)	(60)	60	58	56	54	(52)
<i>Saguaro</i>	East	68	69	71	73	71	70	69
<i>Theodore Roosevelt</i>	Painted Canyon Visitor Cntr	58	58	56	57	58	58	59
<i>Wind Cave</i>	Visitor Center	58	59	62	63	62	60	(59)

<sup>a</sup> The 2015 primary and secondary National Ambient Air Quality Standard for ozone is 0.070 ppm over an 8-hour period. This standard was used for the 2014-2016 period. (An exceedance of the standard occurs when an 8-hour average ozone concentration is greater than or equal to 71 ppb. A violation of the standard occurs when the 3-year average of the fourth highest daily maximum 8-hour average ozone concentration equals or exceeds 71 ppb.)

<sup>b</sup> The 2008 primary and secondary National Ambient Air Quality Standard for ozone is 0.075 ppm over an 8-hour period. This standard was used for the 2013-2015 period through 2008-2010. (An exceedance of the standard occurs when an 8-hour average ozone concentration is greater than or equal to 76 ppb. A violation of the standard occurs when the 3-year average of the fourth highest daily maximum 8-hour average ozone concentration equals or exceeds 76 ppb.)

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
*italics* = site operated by a state agency  
underline = site operated by the National Park Service, but consisting of non-EPA certified portable instrumentation

Color shading key: 4<sup>th</sup> highest 8-hour average

**Red** = ozone violation based on the standard in place at that time

*Note:* A number in parenthesis ( ) indicates that data completeness was not met. The primary standard requires 90 percent data completeness, on average, during the 3-year period, with no single year within the period having less than 75 percent data completeness. This data completeness requirement would have to be satisfied in order to determine that the standard has been met at a monitoring site. However, calendar years with less than 75 percent data completeness are included in the computation if the annual fourth-highest daily maximum 8-hour concentration is greater than the level of the standard. A site could be found not to have met the standard with less than complete data.

**Table 4. 2016 Summary of indices for resource injury (SUM06 and W126).**

National Park Unit	Site Name	O <sub>3</sub> % Valid	SUM06 <sup>a</sup> (ppm-hr)	W126 <sup>b</sup> (ppm-hr)	Period	NPS W126 <sup>c</sup> (ppm-hr)	NPS W126 Period
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>							
Big Bend	K-Bar Ranch Road	97.8	4.1	6.0	March-May	6.5	March-May
Canyonlands	Island in the Sky	98.6	6.4	8.7	May-July	9.2	May-July
Chiricahua	Entrance Station	98.2	9.8	10.7	April-June	11.1	April-June
Craters of the Moon	Visitor Center	99.0	1.1	4.2	June-August	4.7	June-August
Death Valley	Park Village	85.1	19.2	12.0	June-August	21.3	June-August
Denali	Headquarters	97.5	0.0	1.4	February-April	1.8	March-May
Dinosaur	West Entrance Housing	94.5	5.9	8.4	June-August	8.8	June-August
Glacier	West Glacier Horse Stables	98.1	0.0	1.2	April-June	1.6	April-June
Grand Canyon	The Abyss	98.6	6.7	8.8	April-June	9.3	April-June
Grand Teton	Science School	99.1	1.4	3.6	March-May	4.1	March-May
Great Basin	Maintenance Yard	97.2	8.6	9.1	June-August	9.7	June-August
Great Smoky Mountains	Clingmans Dome	52.2	2.0	3.4	May-July	3.9	May-July
Great Smoky Mountains	Cove Mountain	97.2	5.4	6.6	April-June	7.1	April-June
Great Smoky Mountains	Look Rock	98.3	7.7	7.1	April-June	7.6	April-June
Joshua Tree	Black Rock	99.0	42.3	29.5	June-August	30.0	June-August
Joshua Tree	Cottonwood Canyon	98.0	22.8	15.5	May-July	16.6	April-June
Lassen Volcanic	Manzanita Lake Fire Station	93.5	5.9	5.2	June-August	7.6	June-August
Mammoth Cave	Houchin Meadow	86.4	4.5	4.6	March-May	7.0	April-June
Mesa Verde	Resource Management Area	99.0	13.5	12.3	May-July	12.8	May-July
Petrified Forest	South Entrance	97.0	7.9	9.5	April-June	10.0	April-June
Pinnacles	SW of East Entrance Station	99.1	13.4	10.0	June-August	10.5	June-August
Rocky Mountain	Long's Peak	98.4	17.3	14.2	May-July	14.7	May-July
Sequoia and Kings Canyon	Ash Mountain	97.6	74.1	55.5	June-August	56.0	June-August
Sequoia and Kings Canyon	Lower Kaweah	93.5	62.7	44.3	June-August	44.8	June-August
Shenandoah	Big Meadows	98.1	6.6	6.3	April-June	6.8	April-June
Voyageurs	Sullivan Bay	87.9	0.5	0.9	February-April	2.1	March-May
Yellowstone	Water Tank	92.0	3.0	5.0	April-June	5.5	April-June
Yosemite	Turtleback Dome	90.9	31.3	19.8	July-September	20.3	July-September
Zion	Dalton's Wash	98.0	10.9	10.2	May-July	10.6	May-July
<b>Sites operated by the NPS for the Bureau of Land Management</b>							
Meeker	Plant Science Center	95.1	1.2	3.9	May-July	4.4	May-July
Rangely	Golf Course	97.2	2.6	6.3	May-July	6.8	June-August
<b>Sites operated by cooperating state agencies</b>							
<i>Acadia</i>	Cadillac Mountain	93.2	3.7	3.2	May-July	3.6	May-July
<i>Acadia</i>	McFarland Hill	97.7	1.9	2.3	May-July	2.7	May-July
<i>Badlands</i>	Visitor Center	98.1	1.9	4.8	June-August	5.3	June-August
<i>Cape Cod</i>	Cape Cod	96.5	3.3	3.8	May-July	4.2	May-July
<i>Chamizal</i>	Chamizal	94.2	8.0	8.8	April-June	8.9	April-June
<i>Congaree</i>	Congaree Bluff	95.4	1.0	2.3	March-May	2.7	March-May
<i>Everglades</i>	Cutler Road	96.3	2.6	3.6	March-May	4.0	March-May
<i>Great Smoky Mountains</i>	Cades Cove	85.5	5.1	5.1	April-June	5.6	April-June
<i>Great Smoky Mountains</i>	Purchase Knob	88.8	3.3	4.1	March-May	2.1	July-September
<i>Indiana Dunes</i>	Ammunition Bunker	98.0	8.7	6.8	April-June	7.3	April-June



**Table 4. 2016 Summary of indices for resource injury (SUM06 and W126) (continued).**

National Park Unit	Site Name	O <sub>3</sub> % Valid	SUM06 <sup>a</sup> (ppm-hr)	W126 <sup>b</sup> (ppm-hr)	Period	NPS W126 <sup>c</sup> (ppm-hr)	NPS126 Period
<b>Sites operated by cooperating state agencies</b>							
<i>Mount Rainier</i>	Jackson Visitor's Center	94.8	0.5	2.1	March-May	2.6	March-May
<i>Saguaro</i>	East	99.3	17.6	13.4	April-June	13.9	April-June
<i>Theodore Roosevelt</i>	Painted Canyon Visitor Center	99.5	0.8	3.3	May-July	3.8	May-July
<i>Wind Cave</i>	Visitor Center	97.5	2.3	5.4	May-July	5.9	May-July
<b>Portable ozone monitoring systems (POMS)</b>							
<u>Carlsbad Caverns</u>	Maintenance Area	94.2	11.0	9.6	May-July	11.3	April-June
<u>Chichamauga/Chattanooga</u>	Lookout Mountain	93.1	7.6	7.3	April-June	7.8	April-June
<u>Joshua Tree</u>	Pinto Wells	94.3	17.5	13.3	March-May	17.0	April-June
<u>Kings Mountain</u>	RAWS Station	92.2	3.8	4.7	May-July	7.5	April-June
<u>Mojave</u>	Kelso Mountains	87.7	28.1	18.4	July-September	19.3	June-August
<u>Stones River</u>	Beasley Field	85.9	3.5	3.3	June-August	3.8	June-August

<sup>a</sup> SUM06 exposure index represents the 0800-2000 hourly ozone concentrations equaling or exceeding 0.06 ppm. The value reported here represents a three-month maximum value during the ozone season. Units are ppm-hr.

<sup>b</sup> W126 exposure index represents 0800-2000 hourly ozone concentrations where each concentration is weighted by a function that gives greater emphasis to the higher hourly concentrations while still including the lower ones. The value reported here represents a three-month maximum value during the ozone season. Units are ppm-hr. For more information on the W126 exposure index go to <http://www.nature.nps.gov/air/aqbasics/glossary.cfm>.

<sup>c</sup> NPS W126 represents a three-month maximum value during the growing season (March to September) with a monthly completeness criteria of 50%, a three-month completeness criteria of 75%, and a seasonal completeness criteria of 60%.

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
 italics = site operated by a state agency  
underline = site operated by the National Park Service, but consisting of non-EPA certified portable instrumentation

**Table 5. 2016 Summary of sulfur dioxide data.**

National Park Unit	Site Name	Highest Daily Maximum 1-Hour Average Concentration <sup>a</sup> (ppb)					99 <sup>th</sup> Percentile Value	No. of Days with 1-Hr Average >75 ppb	Highest Daily Maximum 3-Hour Average Concentration <sup>b</sup> (ppb)				
		1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	4 <sup>th</sup> Highest			1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	No. of Days with 3-Hr Maximum >549 ppb
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>													
Great Smoky Mountains	Look Rock NCore	3.6	3.3	2.6	2.0	2	0	1.7	1.7	1.6	1.6	0	
Hawaii Volcanoes *	Observatory / Jaggar Museum	2420.6	1988.3	1464.2	1397.4	1397	108	1672.9	1538.7	1161.2	1111.7	22	
Hawaii Volcanoes *	Visitor Center	2128.4	2017.1	1231.6	1033.9	1034	77	883.1	745.1	720.3	674.9	4	
Mammoth Cave	Houchin Meadow	4.7	3.3	2.9	2.9	3	0	2.7	2.7	2.5	2.5	0	
<b>Sites operated by cooperating state agencies</b>													
<i>Badlands</i>	Visitor Center	2.9	2.3	1.8	1.7	2	0	2.5	1.9	1.8	1.7	0	
<i>Congaree</i>	Congaree Bluff	6.6	4.7	3.9	3.8	4	0	4.9	2.9	2.7	2.3	0	
<i>Indiana Dunes</i>	Ammunition Bunker	60.4	57.6	33.4	29.2	29	0	52.2	36.6	21.1	19.4	0	
<i>Theodore Roosevelt</i>	Painted Canyon Visitor Ctr	4.3	3.8	3.6	3.5	4	0	3.7	3.2	3.0	3.0	0	

<sup>a</sup> The primary hourly National Ambient Air Quality Standard for sulfur dioxide is a daily maximum 1-hour average of 75 ppb. (An exceedance of the Standard occurs when a daily maximum 1-hour average exceeds 75 ppb. A violation of the Standard occurs when the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average exceeds 75 ppb.)

<sup>b</sup> The secondary National Ambient Air Quality Standard for sulfur dioxide is 0.5 ppm over a 3-hour period not to be exceeded more than once per year. (A value greater than 0.5 ppm, 549 ppb, or 1300 µg/m<sup>3</sup> exceeds the standard) (40 CFR 50.5.)

\* This site collected sulfur dioxide data using a range that is not EPA approved.

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
*italics* = site operated by a state agency

Color shading key: **Red** > 75 ppb 99<sup>th</sup> percentile value, or >549 ppb 3-hour average

**Table 6. 2016 Summary of carbon monoxide data.**

National Park Unit	Site Name	Highest Daily Maximum 1-Hour Average Concentration <sup>a</sup> (ppm)				Highest Daily Maximum 8-Hour Average Concentration <sup>b</sup> (ppm)				No. of Days with 8-Hr Average > 9 ppm	
		1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	No. of Days with 1-Hr Average > 35 ppm	1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest		4 <sup>th</sup> Highest
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>											
Great Smoky Mountains	Look Rock NCore	2.4	1.8	1.3	1.2	0	1.4	1.2	0.8	0.7	0
Mammoth Cave	Houchin Meadow	0.4	0.3	0.3	0.3	0	0.3	0.3	0.3	0.3	0
Yellowstone	Old Faithful Snow Lodge	0.7	0.6	0.5	0.5	0	0.4	0.4	0.3	0.3	0
Yellowstone	West Yellowstone	11.4	5.6	4.2	3.3	0	7.7	2.1	1.7	1.7	0

<sup>a</sup> The primary hourly National Ambient Air Quality Standard for carbon monoxide is a daily maximum 1-hour average of 35 ppm. (An exceedance of the Standard occurs when a daily maximum 1-hour average exceeds 35 ppm more than once in a calendar year.)

<sup>b</sup> The primary National Ambient Air Quality Standard for carbon monoxide is 9 ppm over an 8-hour period. (An exceedance of the Standard occurs when an 8-hour average exceeds 9 ppm. A violation of the Standard occurs when a daily maximum 8-hour average exceeds 9 ppm more than once in a calendar year.)

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
*italics* = site operated by a state agency

Color shading key: **Red** >35 ppm 1-hour average or >9 ppm 8-hour average

**Table 7. 2016 Summary of nitrogen dioxide data.**

National Park Unit	Site Name	Highest Daily Maximum 1-Hour Average Concentrations <sup>ab</sup> (ppb)						No. of Days with 1-Hour Average >100 ppb	Annual Arithmetic Mean
		1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	98 <sup>th</sup> Percentile Value			
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>									
Great Smoky Mountains	Look Rock NCore	13.8	8.5	7.5	6.9	6	0	1	
Mammoth Cave	Houchin Meadow	25.4	23.5	17.9	17.4	15	0	3	
Yellowstone	West Yellowstone	34.3	33.7	32.3	32.0	25	0	2	
<b>Sites operated by the NPS for the Bureau of Land Management</b>									
Meeker	Plant Science Center	6.6	6.4	5.1	5.1	4	0	1	
Rangely	Golf Course	20.8	19.1	19.0	15.6	14	0	1	

<sup>a</sup> The primary hourly National Ambient Air Quality Standard for nitrogen dioxide is a daily maximum 1-hour average of 100 ppb. (An exceedance of the Standard occurs when a daily maximum 1-hour average exceeds 100 ppb. A violation of the Standard occurs when the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average exceeds 100 ppb. (40 CFR 50.11.)

<sup>b</sup> The primary and secondary annual National Ambient Air Quality Standard for nitrogen dioxide is an annual arithmetic mean of 53 ppb. (An exceedance and violation of the Standard occurs when an annual arithmetic mean of NO<sub>2</sub> concentrations is greater than 53 ppb.) (40 CFR 50.11.)

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
italics = site operated by a state agency

Color shading key: **Red** > 53 ppb annual arithmetic mean or >100 ppb 98<sup>th</sup> percentile value

**Table 8. 2016 Summary of oxides of nitrogen data.**

National Park Unit	Site Name	Highest Daily Maximum 1-Hour Average Concentrations (ppb)				No. of Days with 1-Hour Average >100 ppb
		1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>						
Great Smoky Mountains	Look Rock NCore	14.2	8.5	7.5	7.0	0
Mammoth Cave	Houchin Meadow	26.0	23.6	20.0	18.5	0
Yellowstone	West Yellowstone	34.3	33.7	32.3	32.0	0
<b>Sites operated by the NPS for the Bureau of Land Management</b>						
Meeker	Plant Science Center	7.8	7.3	6.9	6.9	0
Rangely	Golf Course	21.0	20.2	20.0	19.5	0

**Table 9. 2016 Summary of PM<sub>2.5</sub> data from reference and equivalency methods.**

National Park Unit	Site Name	Sampler Type*	% Valid <sup>a</sup>	Annual Arithmetic Mean <sup>b</sup> (µg/m <sup>3</sup> )	Highest Daily 24-Hour Average Concentrations <sup>c</sup> (µg/m <sup>3</sup> )					
					1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	98 <sup>th</sup> Percentile Value	No. of Days with 24-Hour Average >35 µg/m <sup>3</sup>
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>										
Fort Laramie	North Boundary	BAM	54.8	6.0	19.0	16.9	16.2	13.8	16.2	0
Hawaii Volcanoes	Observatory	SHARP / BAM	73.6	8.5	37.9	35.0	32.2	29.6	26.0	1
Minidoka	Maintenance Building	BAM	54.5	3.0	10.0	8.7	8.3	8.0	8.0	0
Sequoia and Kings Canyon	Ash Mountain	BAM	72.1	4.7	22.9	18.5	16.4	14.9	14.8	0
Yellowstone	Old Faithful Snow Lodge	BAM	85.8	2.7	19.8	17.6	14.6	14.2	13.0	0
Yellowstone	West Entrance	BAM	97.2	4.5	318.2	82.5	67.5	59.4	<b>43.1</b>	10
<b>Sites operated by the NPS for the Bureau of Land Management</b>										
Meeker	Plant Science Center	TEOM	99.5	6.0	22.5	21.0	19.5	19.3	16.2	0
Rangely	Golf Course	BAM	94.2	7.2	16.9	15.5	13.9	13.9	12.1	0
<b>Sites operated by cooperating state agencies</b>										
<i>Badlands</i>	Visitor Center	BAM	95.9	2.0	21.0	19.1	10.2	10.1	8.6	0
<i>Indiana Dunes</i>	Ammunition Bunker	BAM	95.7	9.0	166.5	24.7	24.7	23.4	20.1	1
<i>Theodore Roosevelt</i>	Painted Canyon Visitor Ctr	TEOM	98.1	2.5	31.3	18.8	18.1	16.8	9.0	0
<i>Wind Cave</i>	Visitor Center	BAM	94.5	1.5	32.2	25.4	13.1	12.7	9.7	0
<i>Yosemite</i>	Village	BAM	91.4	8.5	35.8	33.4	31.5	30.7	28.8	1

<sup>a</sup> At sites operated by an agency other than the National Park Service, the primary responsibility for the operation and data reporting of particulate matter belongs to the operating agency.

<sup>b</sup> The primary annual National Ambient Air Quality Standard for PM<sub>2.5</sub> is an annual arithmetic mean of 15.0 µg/m<sup>3</sup>. (An exceedance of the standard occurs when an annual arithmetic mean of PM<sub>2.5</sub> concentrations is greater than 15.0 µg/m<sup>3</sup>. A violation of the standard occurs when the 3-year average of the weighted annual mean PM<sub>2.5</sub> concentrations is greater than 15.0 µg/m<sup>3</sup> (40 CFR 50.7.)

<sup>c</sup> The primary daily National Ambient Air Quality Standard for PM<sub>2.5</sub> is a 24-hour average concentration of 35 µg/m<sup>3</sup>. (An exceedance of the standard occurs when a 24-hour average PM<sub>2.5</sub> concentration is greater than 35 µg/m<sup>3</sup>. A violation of the standard occurs when the 3-year average of the annual 98<sup>th</sup> percentile of 24-hour PM<sub>2.5</sub> concentrations is greater than 35 µg/m<sup>3</sup>.) (40 CFR 50.7.)

\* TEOM = tapered element oscillating microbalance  
 BAM = beta attenuation monitor  
 SHARP = synchronized hybrid ambient real-time particulate monitor

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
 italics = site operated by a state agency

Color shading key: Annual arithmetic mean **Red** > 15 µg/m<sup>3</sup>  
 98<sup>th</sup> percentile value **Red** > 35 µg/m<sup>3</sup>

**Table 10. 2016 Summary of PM<sub>10</sub> data from reference and equivalency methods.**

National Park Unit	Site Name	Sampler Type*	% Valid <sup>a</sup>	Annual Arithmetic Mean <sup>b</sup> (µg/m <sup>3</sup> )	Highest Daily 24-Hour Average Concentrations <sup>c</sup> (µg/m <sup>3</sup> )				No. of Days with 24-Hour Average >150 µg/m <sup>3</sup>
					1 <sup>st</sup> Highest	2 <sup>nd</sup> Highest	3 <sup>rd</sup> Highest	4 <sup>th</sup> Highest	
<b>Sites operated by cooperating state agencies</b>									
<i>Badlands</i>	Visitor Center	BAM	93.1	10	40	30	30	30	0
<i>Wind Cave</i>	Visitor Center	BAM	89.5	8	40	40	30	30	0

<sup>a</sup> At sites operated by an agency other than the National Park Service, the primary responsibility for the operation and data reporting of particulate matter belongs to the operating agency.

<sup>b</sup> The primary annual National Ambient Air Quality Standard for PM<sub>10</sub> is an annual arithmetic mean of 50 µg/m<sup>3</sup>. (An exceedance of the standard occurs when an annual arithmetic mean of PM<sub>10</sub> concentrations is greater than 50 µg/m<sup>3</sup>. A violation of the standard occurs when the 3-year average of the weighted annual mean PM<sub>10</sub> concentrations is greater than 50 µg/m<sup>3</sup> (40 CFR 50.6.)

<sup>c</sup> The primary daily National Ambient Air Quality Standard for PM<sub>10</sub> is a 24-hour average concentration of 150 µg/m<sup>3</sup>. (An exceedance of the standard occurs when a 24-hour average PM<sub>10</sub> concentration is greater than 150 µg/m<sup>3</sup>. A violation of the standard occurs when a 24-hour average concentration greater than 150 µg/m<sup>3</sup> occurs more than once in a calendar year.) (40 CFR 50.6.)

\* TEOM = tapered element oscillating microbalance  
 BAM = beta attenuation monitor

Color shading key: **Red** >50 µg/m<sup>3</sup> annual arithmetic mean, >150 µg/m<sup>3</sup> 24-hour average

*italics* = site operated by a state agency

**Table 11. 2016 PM<sub>10</sub> summary - maximum daily 24-hour average concentration in 2010-2012 (µg/m<sup>3</sup>)<sup>a</sup>.**

National Park Unit	Site Name	Sampler Type*	2014	2013	2012
<b>Sites operated by cooperating state agencies</b>					
<i>Badlands</i>	Visitor Center	BAM	40	60	30
<i>Wind Cave</i>	Visitor Center	BAM	40	70	20

<sup>a</sup> The primary daily National Ambient Air Quality Standard for PM<sub>10</sub> is a 24-hour average concentration of 150 µg/m<sup>3</sup>. (An exceedance of the standard occurs when a 24-hour average PM<sub>10</sub> concentration is greater than 150 µg/m<sup>3</sup>. A violation of the standard occurs when a 24-hour average concentration greater than 150 µg/m<sup>3</sup> occurs more than once in a calendar year.) (40 CFR 50.6.)

\* TEOM = tapered element oscillating microbalance  
 BAM = beta attenuation monitor

Color shading key: **Red** more than one 24-hour average concentration >150 µg/m<sup>3</sup>

*italics* = site operated by a state agency

**Table 12. 2016 Annual summary of selected meteorological data.**

National Park Unit	Site Name	Wind Speed (m/s)		Ambient Temperature (degrees C)		Relative Humidity (%)			Precipitation (mm)
		Average	Average	Maximum	Minimum	Average	Maximum	Minimum	Annual Accumulation
<b>Sites operated by the National Park Service (Gaseous Pollutant Monitoring Program)</b>									
Big Bend	K-Bar Ranch Road	3.8	21.0	41.3	-4.2	45	99	0	320.4
Canyonlands	Island in the Sky	2.9	12.9	37.1	-10.8	42	99	6	174.5
Chiricahua	Entrance Station	3.0	16.6	37.6	-6.9	43	97	7	391.7
Craters of the Moon	Visitor Center	3.2	7.8	33.5	-20.7	---	---	---	---
Death Valley	Park Village	3.6	27.5	49.3	6.1	---	---	---	---
Denali	Headquarters	1.3	0.5	27.5	-31.5	71	98	13	271.6
Everglades	Beard Center	3.0	24.0	34.2	6.3	79	100	27	786.8
Fort Laramie	North Boundary	3.4	12.5	38.3	-17.6	50	92	12	---
Glacier	West Glacier Horse Stables	0.8	6.3	32.2	-29.1	---	---	---	---
Grand Canyon	The Abyss	2.9	11.7	32.6	-10.5	42	100	5	373.2
Grand Teton	Science School	2.5	3.1	30.2	-28.7	66	100	7	360.8
Great Basin	Maintenance Yard	2.8	10.1	35.8	-20.5	43	95	6	268.9
Great Smoky Mountains	Clingmans Dome	2.6	11.6	22.3	-5.8	88	100	6	968.3
Great Smoky Mountains	Cove Mountain	4.2	12.7	27.3	-16.0	70	100	6	858.4
Great Smoky Mountains	Look Rock	2.3	14.1	29.9	-14.4	68	100	10	1246.0
Hawaii Volcanoes	Observatory / Jaggar Museum	4.8	16.4	26.1	7.7	86	100	14	1445.6
Hawaii Volcanoes	Visitor Center	3.5	16.1	25.4	6.7	90	100	23	2061.5
Joshua Tree	Black Rock	3.8	16.8	39.8	-5.6	33	91	4	259.5
Joshua Tree	Cottonwood Canyon	3.5	20.1	42.0	0.5	31	98	5	146.8
Lassen Volcanic	Manzanita Lake Fire Station	1.3	7.0	29.9	-16.6	67	100	10	1482.7
Mammoth Cave	Houchin Meadow	1.7	14.3	32.5	-13.3	74	97	22	1174.8
Mesa Verde	Resource Management Area	2.9	10.6	35.2	-15.4	46	95	6	368.6
Minidoka	Maintenance Building	2.5	8.7	37.5	-22.9	67	100	12	---
Petrified Forest	South Entrance	4.0	13.6	36.8	-10.6	---	---	---	---
Pinnacles	SW of East Entrance Station	2.2	15.1	42.5	-5.9	63	100	5	372.4
Rocky Mountain	Long's Peak	2.6	5.0	27.2	-25.9	51	96	6	348.0
Sequoia and Kings Canyon	Ash Mountain	2.5	18.0	40.5	-1.1	52	95	8	586.3
Sequoia and Kings Canyon	Lower Kaweah	1.8	14.4	29.4	-2.6	49	100	12	161.5
Shenandoah	Big Meadows	1.9	9.0	27.8	-19.8	73	100	8	1249.9
Voyageurs	Sullivan Bay	2.6	5.7	34.5	-31.4	77	100	19	749.7
Yellowstone	Old Faithful Snow Lodge	1.7	2.8	28.0	-39.6	66	99	9	---
Yellowstone	Water Tank	1.6	2.2	27.4	-28.8	67	99	10	494.5
Yellowstone	West Entrance	1.0	3.4	29.6	-38.0	68	100	9	---
Yosemite	Turtleback Dome	4.1	12.3	31.5	-8.5	48	100	9	890.5
Zion	Dalton's Wash	4.0	17.4	43.6	-6.6	---	---	---	334.7
<b>Sites operated by the NPS for the Bureau of Land Management</b>									
Meeker	Plant Science Center	3.4	7.2	34.6	-26.3	57	100	8	350.4
Rangely	Golf Course	3.0	9.2	37.9	-24.8	55	100	7	293.0
<b>Sites operated by cooperating state agencies</b>									
Acadia	Cadillac Mountain	5.4	---	---	---	---	---	---	---
Acadia	McFarland Hill	2.7	8.0	30.2	-22.6	74	100	17	1084.4

**Table 12. 2016 Annual summary of selected meteorological data (continued).**

National Park Unit	Site Name	Wind Speed (m/s)	Ambient Temperature (degrees C)		Relative Humidity (%)			Precipitation (mm)	
		Average	Average	Maximum	Minimum	Average	Maximum	Minimum	Annual Accumulation
<b>Sites operated by cooperating state agencies</b>									
<i>Cape Cod</i>	Cape Cod	2.5	11.3	34.9	-20.2	68	91	19	----
<i>Chamizal</i>	Chamizal	3.3	20.2	40.8	-2.9	33	93	3	----
<i>Great Smoky Mountains</i>	Cades Cove	1.2	14.1	32.2	-14.6	75	100	9	1263.4
<i>Indiana Dunes</i>	Ammunition Bunker	3.9	15.7	34.9	-23.5	73	100	14	----
<i>Saguaro</i>	East	----	22.3	44.1	0.8	33	99	4	----
<i>Theodore Roosevelt</i>	Painted Canyon Visitor Cntr	5.3	8.5	36.7	-28.1	62	95	0	394.9
<i>Wind Cave</i>	Visitor Center	2.8	10.5	37.5	-25.3	53	100	7	399.2
<b>Portable ozone monitoring systems (POMS) (seasonal)</b>									
<u>Carlsbad Caverns</u>	Maintenance Area	4.5	24.1	40.0	4.3	46	100	6	274.2
<u>Chickamauga/Chattanooga</u>	Lookout Mountain	1.5	21.3	34.7	2.5	68	96	24	----
<u>Joshua Tree</u>	Pinto Wells	3.3	23.5	47.3	-0.5	28	100	4	----
<u>Kings Mountain</u>	RAWS Station	0.4	23.8	36.2	4.5	75	100	18	395.3
<u>Mojave</u>	Kelso Mountains	3.6	24.5	39.3	5.3	26	99	5	25.2
<u>Stones River</u>	Beasley Field	0.4	22.4	35.7	2.3	76	100	21	267.2

Note: Dashed lines represent no data available for that particular parameter at that site.

Operating agency key: plain text = site operated by the National Park Service, Bureau of Land Management, or U.S. Forest Service  
*italics* = site operated by a state agency  
underline = site operated by the National Park Service, but consisting of non-EPA certified portable instrumentation