

U. S. DEPARTMENT OF COMMERCE

CHARLES SAWYER, *Secretary*

WEATHER BUREAU

F. W. REICHELDERFER, *Chief*

TECHNICAL PAPER No. 12

Sunshine and Cloudiness  
at  
Selected Stations in the United States,  
Alaska, Hawaii, and Puerto Rico

Prepared by

CLIMATOLOGICAL BRANCH

DIVISION OF CLIMATOLOGICAL AND HYDROLOGIC SERVICES



WASHINGTON

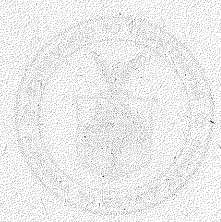
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U. S. DEPARTMENT OF COMMERCE  
BUREAU OF WEATHER SERVICE  
WASHINGTON, D. C.

TECHNICAL TABLE NO. 12

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Selected Stations in the United States,  
Alaska, Hawaii, and Puerto Rico

Prepared by  
CLARENCE G. WILSON  
BUREAU OF METEOROLOGICAL SERVICE



WASHINGTON  
1917

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SUNSHINE AND CLOUDINESS AT SELECTED STATIONS IN UNITED STATES,  
ALASKA, HAWAII, AND PUERTO RICO

**AVERAGE CLOUDINESS (0 to 10)**

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>ALABAMA</b>														
Birmingham	44	5.9	5.7	5.4	5.2	5.0	5.1	5.6	5.3	4.7	4.0	4.6	6.1	5.2
Mobile	41	7.3	6.2	5.3	4.5	6.6	4.7	7.0	6.7	7.2	3.6	7.1	4.3	5.9
Montgomery	76	5.8	5.7	5.2	4.8	4.6	5.1	5.5	5.2	4.4	3.8	4.5	5.7	5.0
<b>ARIZONA</b>														
Phoenix	53	3.8	3.9	3.6	2.9	2.2	1.6	1.5	3.4	2.3	2.3	2.8	3.6	3.0
Tucson	6	4.8	4.8	4.4	3.5	2.9	2.2	5.3	5.1	3.5	3.5	3.5	4.6	4.0
Yuma	70	2.4	2.4	2.1	1.5	1.0	0.6	1.6	1.8	1.1	1.2	1.7	2.4	1.6
<b>ARKANSAS</b>														
Fort Smith	63	5.5	5.4	5.3	5.2	5.1	4.6	4.2	4.0	4.1	4.0	4.7	5.0	4.8
Little Rock	68	5.8	5.7	5.5	5.3	5.2	4.8	4.8	4.4	4.2	3.9	5.0	5.8	5.0
<b>CALIFORNIA</b>														
Eureka	52	6.7	6.7	6.5	6.0	5.9	5.5	5.9	6.3	5.6	5.8	6.5	6.6	6.2
Fresno	52	6.4	5.2	4.6	3.5	2.7	1.5	1.0	0.9	1.4	2.3	3.9	6.0	3.3
Los Angeles	10	4.3	4.7	4.7	4.7	4.6	3.9	2.7	2.4	2.8	3.4	3.2	4.7	3.8
Oakland	5	5.3	6.1	5.8	5.1	5.4	4.3	4.2	4.0	3.2	4.9	5.2	6.9	5.0
Red Bluff	60	5.5	5.0	4.7	3.9	3.5	2.1	0.9	1.0	1.8	2.8	4.2	5.5	3.4
Sacramento	70	5.7	4.8	4.2	3.5	2.7	1.7	0.7	0.8	1.4	2.4	3.7	5.6	3.1
San Diego	59	4.5	4.8	4.6	4.6	4.8	4.2	3.6	3.3	3.2	3.5	3.3	4.3	4.0
San Francisco	76	5.3	5.2	4.9	4.3	4.2	3.6	4.1	4.4	3.6	3.7	4.3	5.2	4.4
<b>COLORADO</b>														
Denver	52	4.3	4.6	5.2	5.5	5.5	4.6	4.5	4.6	4.0	4.0	4.1	4.2	4.6
Grand Junction	48	5.1	5.3	5.1	5.3	4.7	3.5	3.9	3.9	3.3	3.4	4.0	4.9	4.4
Pueblo	17	4.0	4.7	4.8	5.6	5.5	4.4	4.2	4.5	3.8	3.7	3.8	4.2	4.4
<b>CONNECTICUT</b>														
Hartford	43	6.1	5.6	5.6	5.9	5.8	5.7	5.7	5.5	5.4	5.1	6.0	6.1	5.7
New Haven	75	5.5	5.1	5.0	5.2	5.1	5.0	4.9	4.7	4.5	4.6	5.3	5.3	5.0
<b>D. C.</b>														
Washington	64	5.9	5.5	5.5	5.2	5.2	5.0	5.0	5.0	4.7	4.5	5.3	5.8	5.2
<b>FLORIDA</b>														
Apalachicola	71	5.4	5.3	5.1	4.5	4.0	5.0	5.6	5.6	5.0	3.8	4.3	5.7	4.9
Jacksonville	77	5.2	5.1	4.6	4.4	4.5	5.3	5.5	5.3	5.3	4.8	4.6	5.2	5.0
Key West	47	4.3	3.7	3.6	3.6	4.4	5.3	5.1	5.1	5.4	4.8	4.2	4.3	4.4
Miami	37	5.3	4.7	4.8	5.0	5.6	6.4	6.2	5.9	6.3	5.8	5.4	5.4	5.6
Pensacola	67	5.6	5.5	5.2	4.7	4.4	4.9	5.7	5.3	4.6	3.8	4.4	5.5	5.0
Tampa	28	5.4	4.7	4.8	4.6	4.6	5.8	6.2	5.9	6.0	4.6	4.5	5.2	5.2
<b>GEORGIA</b>														
Atlanta	69	5.9	5.7	5.3	5.1	5.0	5.3	5.8	5.7	4.8	4.2	4.7	5.8	5.3
Augusta	35	5.7	5.4	5.2	4.9	5.0	5.4	5.9	5.6	5.0	4.2	4.7	5.7	5.2
Macon	49	5.7	5.6	5.1	4.9	4.9	5.4	5.9	5.6	4.9	4.2	4.5	5.8	5.2
Savannah	77	5.3	5.2	4.8	4.5	4.5	5.2	5.5	5.4	5.1	4.3	5.1	5.1	4.9
<b>IDAHO</b>														
Boise	50	7.3	6.8	6.3	5.9	5.2	4.4	2.6	2.5	3.3	4.6	6.2	7.1	5.2
Pocatello	48	7.0	6.5	6.0	5.8	5.4	4.4	3.6	3.4	3.7	4.6	5.9	6.7	5.2
<b>ILLINOIS</b>														
Cairo	57	6.4	6.3	6.3	6.0	5.9	5.6	5.1	4.9	4.6	4.4	5.5	6.3	5.6
Chicago	77	6.3	6.1	6.0	5.7	5.3	5.1	4.2	4.3	4.7	5.0	6.2	6.5	5.4
Moline	5	6.3	6.5	6.7	6.7	7.2	6.6	5.1	5.2	5.6	5.1	7.2	6.6	6.2

AVERAGE CLOUDINESS (0 to 10)

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
ILLINOIS Cont														
Peoria	43	5.8	5.7	5.4	5.4	5.0	4.5	3.6	4.0	4.2	4.4	5.6	6.2	5.0
Springfield	68	6.1	6.0	6.5	5.9	5.5	5.4	4.4	4.5	4.5	4.5	5.6	6.3	5.4
INDIANA														
Evansville	49	6.3	6.1	6.0	5.6	5.4	5.1	4.6	4.6	4.4	4.4	5.4	6.3	6.2
Fort Wayne	36	6.9	6.9	6.5	6.2	5.7	5.4	4.6	4.9	5.0	5.4	6.7	7.4	6.0
Indianapolis	77	6.7	6.5	6.4	6.0	5.7	5.4	4.8	4.8	4.7	4.8	6.1	6.8	5.7
Terre Haute	35	6.6	6.5	6.4	6.2	5.9	5.6	4.7	5.0	4.9	4.9	6.0	6.9	5.9
IOWA														
Burlington	5	6.2	7.0	6.8	6.9	6.6	6.5	5.1	5.2	5.1	5.4	7.2	7.0	6.3
Charles City	42	5.9	5.7	5.9	5.7	5.5	5.1	4.2	4.6	4.9	4.9	6.2	6.4	5.4
Davenport	60	5.8	5.9	6.0	5.7	5.5	5.1	4.3	4.6	4.6	4.7	5.6	6.2	5.3
Des Moines	52	5.8	5.9	6.2	6.0	5.9	5.6	4.5	4.7	4.7	4.8	5.8	6.2	5.5
Dubuque	54	6.0	5.9	6.1	5.9	5.8	5.6	4.7	4.9	5.1	5.3	6.2	6.5	5.7
Sioux City	18	5.8	6.1	6.5	6.4	6.3	5.8	4.4	4.7	4.6	4.6	6.0	6.1	5.6
KANSAS														
Concordia	61	5.2	5.8	5.7	6.1	5.9	5.3	4.1	4.7	4.6	4.2	4.8	5.4	5.2
Dodge City	60	3.8	4.4	4.5	4.7	4.8	4.3	3.8	3.6	3.5	3.4	3.5	3.8	4.0
Topeka	54	5.1	5.1	5.2	5.2	5.2	4.6	3.8	4.0	4.2	4.1	4.7	5.4	4.7
Wichita	59	4.9	5.1	5.1	5.2	5.3	4.5	3.8	3.8	4.0	4.1	4.5	5.1	4.6
KENTUCKY														
Louisville	77	6.4	6.1	6.0	5.7	5.3	5.1	4.6	4.5	4.4	4.4	5.7	6.5	5.4
LOUISIANA														
New Orleans	78	5.6	5.6	5.3	5.0	4.7	5.1	5.6	5.4	4.7	3.9	4.7	5.7	5.1
Shreveport	75	5.6	5.6	5.2	5.0	4.7	4.3	4.4	4.0	3.9	3.7	4.7	5.6	4.9
MAINE														
Eastport	58	6.5	6.2	6.3	6.4	6.6	6.6	6.3	6.0	6.0	6.3	7.2	6.8	6.4
Portland	76	5.0	4.7	4.9	5.0	5.1	5.0	4.6	4.4	4.2	4.6	5.0	5.0	4.8
MARYLAND														
Baltimore	77	5.9	5.5	5.6	5.4	5.3	5.3	5.1	5.1	4.8	4.6	5.2	5.7	5.3
MASSACHUSETTS														
Boston	77	5.8	5.4	5.6	5.6	5.6	5.5	5.5	5.1	5.0	5.2	5.7	5.8	5.5
Nantucket	60	6.6	6.1	5.8	5.6	5.6	5.6	5.4	5.2	5.3	5.6	6.2	6.5	5.8
MICHIGAN														
Alpena	76	7.5	6.6	6.0	5.7	5.6	5.1	4.7	4.9	5.5	6.2	7.7	7.9	6.1
Detroit	57	7.0	7.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	6.0	7.0	8.0	7.0
Escanaba	49	6.6	6.0	5.8	5.6	5.6	5.2	4.7	5.0	5.6	6.0	7.2	7.1	5.9
Grand Rapids	44	8.1	7.3	6.6	6.2	5.9	5.6	4.7	5.1	5.5	6.1	7.7	8.3	6.4
Lansing	42	7.5	6.9	6.3	6.0	5.7	5.4	4.5	4.9	5.2	5.8	7.2	7.7	6.1
Marquette	38	7.9	7.3	6.9	6.3	6.3	6.1	5.5	5.9	6.4	7.1	8.2	8.1	6.8
Sault Ste. Marie	59	7.9	6.7	6.2	5.9	6.0	5.5	5.1	5.6	6.3	7.2	8.4	8.3	6.6
MINNESOTA														
Duluth	52	5.8	5.4	5.6	5.5	5.7	5.6	4.8	5.1	5.5	5.9	6.8	6.2	5.7
Minneapolis	41	6.1	6.0	6.0	6.2	6.2	5.9	4.8	5.0	5.4	5.6	6.6	6.6	5.9
MISSISSIPPI														
Meridian	17	5.8	5.8	5.2	5.1	4.9	4.8	5.6	5.0	4.4	3.9	4.7	6.0	5.1
Vicksburg	57	5.5	5.7	5.5	5.2	5.0	4.8	5.5	4.9	4.1	3.4	4.4	5.5	5.0
MISSOURI														
Columbia	8	5.7	5.8	5.8	5.6	5.7	5.3	3.8	4.6	4.2	4.6	6.2	6.5	5.3
Kansas City	13	6.0	6.1	6.1	6.2	5.9	5.7	4.0	4.6	4.7	4.4	5.5	6.2	5.4
St. Joseph	38	4.6	4.9	5.0	5.0	4.8	4.2	3.1	3.8	3.9	3.8	4.4	4.9	4.3

SUNSHINE AND CLOUDINESS AT SELECTED STATIONS IN UNITED STATES,  
ALASKA, HAWAII, AND PUERTO RICO

**AVERAGE CLOUDINESS (0 to 10)**

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>MISSOURI Cont</b>														
St. Louis	76	5.6	5.6	5.5	5.2	5.0	4.8	4.1	4.1	4.0	4.0	5.1	5.9	4.9
Springfield	43	5.4	5.1	4.9	4.8	4.3	3.9	3.3	3.6	3.7	4.0	4.7	5.5	4.4
<b>MONTANA</b>														
Billings	8	6.8	6.8	7.3	7.2	6.6	6.4	4.4	4.2	5.6	5.6	6.8	6.7	6.2
Great Falls	6	6.8	6.9	7.2	7.2	6.9	7.3	4.3	4.4	5.6	5.7	7.0	6.9	6.4
Havre	63	5.9	5.6	5.5	5.3	5.2	4.9	3.5	3.5	4.6	5.0	5.7	5.9	5.0
Helena	59	6.7	6.5	6.5	6.4	6.4	5.9	4.0	4.1	5.1	5.6	6.5	6.7	5.9
Kalispell	48	7.7	6.7	6.2	5.6	5.6	5.4	3.4	3.9	4.9	5.7	7.6	8.2	5.9
Missoula	12	7.8	7.6	7.3	7.2	6.3	6.6	3.7	3.6	4.9	6.0	7.5	8.4	6.4
<b>NEBRASKA</b>														
Lincoln	51	5.4	5.6	5.7	5.8	5.8	5.2	4.3	4.6	4.5	4.5	5.2	5.6	5.2
North Platte	4	5.8	6.7	6.2	7.2	6.6	5.8	5.0	4.8	5.0	4.9	6.4	6.1	5.9
Omaha	34	5.8	5.6	5.8	5.8	5.7	5.1	4.1	4.5	4.4	4.4	5.3	5.7	5.2
<b>NEVADA</b>														
Reno	28	5.1	5.3	4.7	4.5	4.0	3.0	1.8	1.8	2.0	3.3	4.2	5.2	3.7
Winnemucca	67	5.7	5.7	5.4	5.2	4.7	3.5	2.1	2.1	2.6	3.6	4.8	5.6	4.3
<b>NEW HAMPSHIRE</b>														
Concord	38	5.5	4.9	4.8	5.2	5.3	4.8	4.7	4.7	5.0	5.3	5.9	5.9	5.2
<b>NEW JERSEY</b>														
Atlantic City	49	6.1	5.5	5.6	5.6	5.4	5.5	5.3	5.2	5.0	4.6	5.3	5.9	5.4
Trenton	35	6.3	6.0	5.8	6.0	5.9	6.0	5.9	5.7	5.3	5.0	5.8	6.3	5.8
<b>NEW MEXICO</b>														
Albuquerque	16	4.2	4.9	4.6	4.7	4.3	3.6	4.3	4.4	3.7	3.2	3.1	3.9	4.1
Roswell	43	4.1	4.2	4.0	3.8	3.8	3.2	3.7	3.8	3.5	3.3	3.5	4.0	3.7
Santa Fe	67	3.6	4.2	4.1	4.2	4.1	3.4	4.8	3.6	3.5	2.9	3.2	3.5	3.8
<b>NEW YORK</b>														
Albany	59	6.5	5.9	5.7	5.7	5.4	5.2	5.0	5.0	4.9	5.4	6.3	6.6	5.6
Binghamton	50	7.4	7.1	7.0	6.7	6.4	6.1	6.1	6.0	5.9	6.2	7.3	7.9	7.7
Buffalo	77	7.9	7.2	6.7	6.1	5.8	5.3	5.0	5.1	5.3	6.2	7.6	8.1	6.4
Canton	40	6.9	6.2	5.9	6.0	5.6	4.9	4.7	5.0	5.4	6.2	7.6	7.4	6.0
New York	57	6.1	5.8	5.9	5.9	5.6	5.7	5.7	5.5	5.1	5.0	5.8	6.1	5.7
Oswego	57	8.5	8.0	6.9	6.0	5.7	5.1	4.7	4.9	5.3	6.2	8.0	8.6	6.5
Rochester	66	7.2	6.7	6.1	5.7	5.4	4.5	4.8	4.9	5.8	6.3	8.1	8.7	6.2
Syracuse	45	7.8	7.4	7.0	6.5	5.9	5.7	5.4	5.6	5.8	6.3	7.7	8.0	6.6
<b>NORTH CAROLINA</b>														
Asheville	45	5.9	5.6	5.5	5.3	5.2	5.4	5.9	5.8	5.1	4.4	4.7	5.8	5.4
Charlotte	69	5.8	5.4	5.3	5.1	5.1	5.5	5.7	5.6	4.9	4.1	4.6	5.4	5.2
Hatteras	12	5.7	5.6	5.3	4.7	4.6	5.0	5.5	4.7	5.3	4.8	4.7	5.6	5.1
Raleigh	61	5.8	5.5	5.3	5.0	4.9	5.3	5.6	5.5	4.8	4.2	4.6	5.4	5.2
Wilmington	11	5.4	5.3	4.9	4.6	4.8	5.3	5.4	5.2	5.2	4.0	4.4	5.4	5.0
<b>NORTH DAKOTA</b>														
Bismarck	73	5.3	5.2	5.5	5.4	5.3	5.1	3.9	4.0	4.4	4.9	5.5	5.6	5.0
Devils Lake	42	6.0	5.9	5.9	5.7	5.8	5.5	4.5	4.6	5.3	5.7	6.4	6.1	5.6
Fargo	52	5.9	5.7	6.0	5.6	5.3	5.3	3.9	4.3	4.9	5.5	6.2	6.2	5.4
Williston	66	5.5	5.4	5.7	5.4	5.3	5.2	4.0	4.0	4.7	5.1	5.6	5.5	5.1
<b>OHIO</b>														
Akron	16	7.3	7.0	6.5	6.3	6.0	5.8	5.0	5.3	5.2	5.8	7.1	7.6	6.2
Cincinnati	33	6.8	6.8	6.4	6.1	5.9	5.5	4.7	4.9	4.7	4.9	6.2	7.0	5.8
Cleveland	52	7.7	7.4	6.7	6.1	5.5	5.2	4.6	4.9	5.1	5.8	7.4	8.1	6.2

AVERAGE CLOUDINESS (0 to 10)

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>OHIO Cont</b>														
Columbus	52	7.0	6.7	6.5	6.0	5.5	5.2	4.8	4.9	4.6	5.0	6.4	7.2	5.8
Dayton	35	6.9	6.7	6.5	6.1	5.7	5.3	4.9	4.9	4.7	5.1	6.3	7.1	5.5
Sandusky	60	7.4	7.0	6.7	6.3	5.8	5.3	4.7	4.8	5.0	5.5	7.1	7.7	6.1
Toledo	77	6.9	6.4	6.0	5.6	5.0	4.6	3.9	4.1	4.3	5.1	5.2	7.1	5.5
<b>OKLAHOMA</b>														
Oklahoma City	16	5.3	5.7	5.3	5.4	5.7	4.9	3.8	4.4	4.4	4.3	4.7	5.2	4.9
Tulsa	5	6.1	6.2	6.1	6.4	5.9	5.9	4.4	4.8	4.3	4.4	5.4	6.1	5.5
<b>OREGON</b>														
Baker	37	7.0	6.7	6.0	5.7	5.5	5.0	2.9	3.1	3.9	4.9	6.4	7.1	5.4
Medford	70	8.0	7.2	7.1	6.6	5.6	4.8	2.2	1.8	3.0	5.2	6.8	8.4	5.6
Portland	77	7.6	7.4	7.0	6.6	6.3	5.8	4.0	4.0	4.9	6.2	7.4	7.8	6.2
Roseburg	31	7.9	7.4	6.8	6.1	5.3	4.5	2.6	1.6	2.8	4.3	5.9	6.3	5.1
<b>PENNSYLVANIA</b>														
Allentown	5	6.6	6.2	5.8	6.6	7.0	6.7	6.4	5.7	5.2	5.2	6.5	6.5	6.3
Erie	3	8.0	7.8	6.5	6.5	6.6	5.7	5.0	5.0	5.5	5.5	7.8	8.4	6.5
Harrisburg	49	6.5	6.0	6.1	6.0	5.8	5.9	5.5	5.5	5.0	5.1	6.1	6.5	5.8
Philadelphia	78	6.0	5.6	5.7	5.6	5.5	5.5	5.4	5.4	5.0	4.8	5.5	5.9	5.5
Philipsburg	5	7.7	7.5	7.1	7.1	7.3	7.3	6.3	5.9	5.7	5.7	7.3	7.6	6.9
Pittsburgh	76	7.4	7.0	6.7	6.2	5.7	5.5	5.3	5.2	5.0	5.4	6.7	7.5	6.1
Reading	35	6.4	6.0	5.7	5.9	5.7	5.6	5.6	5.3	5.1	5.1	6.1	6.6	5.8
Scranton	16	6.9	6.4	6.1	6.1	5.7	5.6	5.4	5.4	5.4	5.6	6.5	7.1	6.0
<b>RHODE ISLAND</b>														
Block Island	21	5.8	5.3	5.4	5.3	5.4	5.4	5.1	4.8	4.9	4.5	5.6	5.8	5.3
Providence	43	5.7	5.3	5.2	5.6	5.5	5.3	5.3	5.0	5.0	4.6	5.4	5.6	5.3
<b>SOUTH CAROLINA</b>														
Charleston	76	5.3	5.2	4.9	4.4	4.5	5.2	5.5	5.4	5.0	4.1	4.2	5.1	4.9
Columbia	49	5.6	5.3	5.1	4.8	4.8	5.1	5.6	5.3	4.7	4.0	4.4	5.5	5.0
Greenville	26	5.6	5.4	5.2	5.1	5.3	5.5	5.6	5.3	4.6	3.8	4.5	5.3	5.0
<b>SOUTH DAKOTA</b>														
Huron	67	5.2	5.1	5.6	5.4	5.1	4.8	3.7	4.1	4.4	4.6	5.3	5.5	4.9
Rapid City	28	5.5	5.5	6.0	6.0	5.9	5.2	4.0	4.0	4.3	4.6	5.5	5.6	5.2
<b>TENNESSEE</b>														
Chattanooga	69	6.2	5.9	5.6	5.4	5.1	5.2	5.4	5.2	4.6	4.1	4.9	6.0	5.3
Knoxville	77	6.3	6.0	5.6	5.2	5.0	5.1	5.1	5.1	4.3	4.0	5.1	6.0	5.2
Memphis	57	5.9	5.8	5.6	5.3	5.1	4.7	4.6	4.3	4.1	3.7	4.9	5.9	5.0
Nashville	77	6.4	6.2	5.8	5.5	5.2	5.0	5.0	4.7	4.5	4.1	5.2	6.3	5.3
<b>TEXAS</b>														
Abilene	62	5.1	5.3	5.0	4.8	4.9	4.1	4.1	4.2	4.1	3.9	4.4	4.8	4.6
Amarillo	56	4.1	4.1	3.8	3.9	4.0	3.7	4.0	3.6	3.6	3.8	3.5	3.9	3.8
Austin	21	6.1	5.9	5.4	5.5	5.5	4.8	4.3	4.0	4.6	4.2	5.5	5.8	5.1
Brownsville	25	6.5	6.2	5.9	5.7	5.4	4.6	4.4	4.2	5.1	4.4	5.7	6.5	5.4
Corpus Christi	60	5.9	5.9	6.0	6.0	5.5	4.2	4.1	4.0	4.4	4.0	5.3	6.0	5.1
Dallas	34	5.4	5.5	5.1	5.2	5.2	4.3	3.8	3.9	3.9	4.0	4.8	5.4	4.7
Del Rio	42	5.2	5.2	5.2	5.4	5.8	4.9	4.2	3.5	4.5	4.6	5.2	5.1	4.9
El Paso	70	3.4	3.5	3.2	2.6	2.5	2.4	3.9	3.8	3.2	2.6	2.9	3.4	3.1
Ft. Worth	49	5.0	5.2	5.0	5.1	5.1	4.2	3.9	3.8	3.8	4.0	4.2	4.9	4.5
Galveston	42	5.7	5.8	5.5	5.2	4.7	4.0	4.4	4.4	4.3	3.6	4.6	5.8	4.8
Houston	39	6.0	6.0	5.7	5.5	5.2	4.8	4.9	4.9	4.8	4.2	5.2	6.3	5.3
Laredo	5	6.3	6.7	5.6	5.4	5.9	4.9	4.3	4.5	4.7	4.6	5.3	6.3	5.3

SUNSHINE AND CLOUDINESS AT SELECTED STATIONS IN UNITED STATES,  
ALASKA, HAWAII, AND PUERTO RICO

**AVERAGE CLOUDINESS (0 to 10)**

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
TEXAS Cont														
Palestine	23	5.9	5.8	5.4	5.4	5.4	4.7	4.6	4.2	4.3	4.0	5.1	5.8	5.0
Port Arthur	31	6.1	6.2	5.7	5.3	4.8	4.6	5.2	4.8	4.5	3.9	5.1	6.3	5.2
San Antonio	49	5.6	5.5	5.2	5.3	5.4	4.5	4.4	4.1	4.6	4.2	5.2	5.6	5.0
UTAH														
Modena	47	4.7	5.1	4.8	4.7	4.2	2.8	3.8	3.6	2.8	3.1	3.8	4.7	4.0
Salt Lake City	12	6.7	7.0	6.2	6.0	5.2	4.5	3.8	3.4	3.4	4.4	5.5	6.7	5.1
VERMONT														
Burlington	42	7.2	6.7	6.5	6.5	6.4	6.0	5.6	5.7	6.0	6.6	7.8	7.9	6.6
VIRGINIA														
Cape Henry	57	6.0	5.4	5.4	5.1	4.9	5.0	5.1	5.0	4.7	4.3	4.9	5.7	5.1
Lynchburg	73	5.1	4.9	4.8	4.8	4.8	5.0	4.9	4.9	4.2	3.7	4.2	4.8	4.7
Norfolk	40	5.6	5.2	5.1	4.8	4.8	4.9	5.0	5.0	4.6	4.4	4.6	5.4	5.0
Richmond	50	5.8	5.3	5.3	5.0	4.8	5.1	5.1	5.2	4.8	4.3	4.8	5.6	5.1
WASHINGTON														
North Head	54	7.9	7.3	7.1	6.9	6.9	6.8	6.4	6.5	6.2	6.8	7.6	7.7	7.0
Seattle	54	7.9	7.4	6.9	6.5	6.2	6.0	4.4	4.7	5.7	7.0	7.9	7.9	6.5
Spokane	67	7.9	7.2	6.5	6.2	6.0	5.6	3.5	3.4	4.7	5.8	7.5	8.1	6.0
Tacoma	51	8.1	7.4	6.9	6.5	6.3	5.0	4.8	5.1	5.9	7.3	8.2	8.2	6.6
Tatoosh Island	41	7.9	7.2	7.1	7.0	7.0	6.9	6.6	6.8	6.4	6.8	7.8	7.8	7.1
Walla Walla	62	7.7	6.9	6.0	5.3	4.8	4.3	2.4	2.5	3.8	4.9	6.9	7.9	5.3
Yakima	18	7.8	6.9	6.4	5.9	5.5	4.8	2.4	2.5	3.7	5.0	6.9	7.8	5.5
WEST VIRGINIA														
Elkins	50	7.5	7.4	7.0	6.6	6.3	6.3	6.0	6.0	5.6	5.8	6.7	7.5	6.6
Parkersburg	56	7.2	7.0	6.3	5.8	5.3	5.2	4.7	5.0	4.7	5.2	6.6	7.3	5.9
WISCONSIN														
Green Bay	61	6.7	6.5	6.4	6.4	6.5	6.2	5.6	5.8	6.0	6.4	7.2	7.1	6.4
La Crosse	5	6.2	6.2	6.6	6.2	7.0	6.3	5.1	5.0	5.8	5.2	7.7	6.6	6.2
Madison	44	6.4	6.3	6.4	6.4	6.2	5.9	4.9	5.1	5.3	5.5	6.7	6.8	6.0
Milwaukee	77	6.2	6.1	6.1	5.8	5.5	5.3	4.4	4.7	5.0	5.5	6.4	6.6	5.6
WYOMING														
Casper	5	6.4	6.8	7.0	7.1	7.1	6.5	4.5	4.0	4.5	5.1	6.4	6.7	6.1
Cheyenne	77	4.6	5.0	5.3	5.7	5.9	4.9	4.7	4.7	4.2	4.3	4.6	4.7	4.9
Lander	56	4.5	4.7	5.2	5.5	5.4	4.5	4.2	4.0	4.0	4.4	4.8	4.6	4.6
Sheridan	41	5.8	5.7	5.8	6.0	5.8	5.0	3.9	4.0	4.6	5.1	5.7	5.8	5.3
Yellowstone Park	35	6.9	6.4	6.4	6.1	6.3	5.4	4.3	4.3	4.9	5.4	6.4	6.8	5.8
ALASKA														
Anchorage	7	7.1	7.4	6.9	7.0	7.5	7.1	7.6	7.6	7.4	7.8	7.0	7.1	8.3
Barrow	6	4.9	5.8	5.2	5.8	8.3	7.4	8.3	8.9	9.1	8.8	6.9	4.9	7.3
Fairbanks	5	7.0	6.5	6.7	6.1	7.1	7.1	7.3	7.6	7.8	8.1	6.3	6.8	7.0
Gambell	5	7.4	6.6	6.2	7.2	8.4	8.4	8.7	8.4	8.5	8.7	8.5	8.2	7.9
Juneau	26	7.6	7.2	7.4	7.4	7.6	7.2	7.9	7.6	7.5	8.2	7.7	7.5	7.6
Ketchikan	5	8.5	7.7	8.3	8.4	7.3	8.2	8.2	7.3	7.7	8.9	8.5	8.8	8.1
Kotzebue	5	5.9	5.5	6.3	5.6	6.7	7.1	7.4	8.1	7.4	7.3	5.7	6.6	6.7
McGrath	5	6.8	7.2	6.9	5.8	7.7	7.7	7.7	8.3	8.0	8.4	6.8	7.0	7.5
Nome	16	5.9	6.1	5.8	6.5	6.7	6.3	7.7	7.8	7.4	7.2	6.1	6.4	6.7
Northway	5	7.2	6.7	6.9	6.4	6.8	6.8	7.1	7.5	8.0	7.9	7.7	7.6	7.2
HAWAII														
Honolulu	44	5.2	5.1	5.7	5.4	5.1	5.0	4.8	4.8	4.9	5.1	5.5	5.4	5.2
PUERTO RICA														
San Juan	49	4.8	4.3	4.4	4.9	5.7	5.7	5.4	5.1	5.6	5.3	5.2	5.0	5.1

## AVERAGE NUMBER OF CLEAR, PARTLY CLOUDY, AND CLOUDY DAYS.

Stations	No. Yrs. Thru 1948	Jan.			Feb.			Mar.			Apr.			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Annual			
		Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy	Clear	Partly Clidy.	Cloudy				
		<b>ALABAMA</b>																																							
Birmingham	51	10	7	14	10	6	12	12	8	11	11	9	10	12	11	8	9	14	7	7	15	9	9	14	8	13	10	7	17	7	7	15	6	6	18	16	6	14	136	113	116
Mobile	74	7	3	21	8	6	14	10	7	14	14	8	8	7	10	14	12	9	9	1	17	13	6	6	19	5	7	18	14	14	3	6	6	18	16	5	10	106	98	161	
Montgomery	76	9	9	13	9	7	12	11	9	11	12	9	9	12	11	8	10	13	7	8	14	9	9	14	8	13	10	7	16	8	7	14	7	9	10	8	13	133	119	113	
<b>ARIZONA</b>																																									
Phoenix	52	16	8	7	14	8	6	17	8	6	19	7	4	23	6	2	24	5	1	17	11	3	18	10	3	22	6	2	22	6	3	19	7	4	17	8	6	228	90	47	
Tucson	54	16	9	6	14	8	6	17	9	5	19	8	3	16	7	8	20	8	2	10	15	6	11	15	5	16	10	4	20	7	4	19	7	4	17	9	5	195	112	58	
Yuma	64	22	6	3	20	6	2	23	6	2	25	4	1	27	4	0	28	2	0	25	5	1	24	6	1	26	3	1	27	3	1	24	5	1	23	5	3	294	55	16	
<b>ARKANSAS</b>																																									
Fort Smith	63	11	8	12	10	7	11	11	9	11	10	9	11	10	12	9	11	12	7	13	13	5	14	11	6	15	9	6	16	7	8	12	8	10	11	7	13	144	112	109	
Little Rock	67	10	7	14	9	7	12	11	8	12	11	9	10	10	12	9	11	12	7	12	12	7	13	11	7	14	9	7	16	7	8	13	7	10	11	6	14	141	107	117	
<b>CALIFORNIA</b>																																									
Bakersfield	45	11	9	11	13	7	8	15	8	8	17	8	5	22	5	4	26	3	1	28	2	1	27	3	1	25	4	1	21	6	4	16	8	6	11	8	12	232	71	62	
Eureka	58	6	8	17	6	7	15	7	9	15	8	10	12	8	11	12	9	11	10	7	13	11	6	12	13	9	10	11	9	9	13	7	8	15	7	8	16	89	116	160	
Fresno	60	8	7	16	11	8	9	14	9	8	17	8	5	21	7	3	25	4	1	28	2	1	28	2	1	25	3	2	22	6	3	16	8	6	10	7	14	225	71	69	
Los Angeles	70	15	8	8	12	9	7	13	10	8	12	11	7	11	14	6	13	14	3	17	13	1	18	12	1	17	11	2	17	10	4	18	8	4	16	8	7	179	128	58	
Oakland	17	9	9	13	8	8	12	9	10	12	10	11	9	11	13	7	15	11	4	15	13	3	13	15	3	15	11	4	13	10	8	12	9	9	8	8	15	138	128	99	
Red Bluff	70	11	7	13	12	6	10	14	8	9	15	9	6	18	8	5	23	5	2	28	3	*	28	3	0	24	4	2	20	7	4	15	7	8	11	7	13	219	73	73	
Sacramento	69	10	8	13	12	7	9	14	9	8	16	9	5	21	7	3	25	4	1	29	2	0	29	2	0	25	3	2	22	6	3	16	7	7	11	8	12	230	72	63	
San Diego	75	15	8	8	13	8	7	13	9	9	14	9	7	12	10	9	13	11	6	16	11	4	18	10	3	18	9	3	17	9	5	17	8	5	16	7	8	182	109	74	
San Francisco	62	10	8	13	10	8	10	12	9	10	13	10	7	14	10	7	17	9	4	14	12	5	12	13	6	15	10	5	16	9	6	13	9	8	11	8	12	157	115	93	
<b>COLORADO</b>																																									
Denver	76	14	12	5	11	11	6	10	13	8	9	13	8	8	14	9	12	14	4	11	16	4	11	16	4	15	11	4	16	10	5	15	10	5	14	12	5	146	152	67	
Grand Junction	48	12	9	10	9	10	9	10	11	10	10	11	9	12	12	7	16	10	4	14	13	4	16	11	4	18	8	4	18	8	5	15	8	7	13	8	10	163	119	83	
Pueblo	59	15	11	5	12	11	5	11	13	7	10	13	7	10	14	7	13	13	4	11	16	4	12	15	4	16	10	4	17	10	4	16	10	4	15	11	5	158	147	60	
<b>CONNECTICUT</b>																																									
Hartford	43	9	8	14	9	8	11	10	8	13	9	9	12	9	10	12	9	11	10	8	12	11	10	10	11	11	9	10	12	8	11	8	9	13	9	8	14	113	110	142	
New Haven	75	10	9	12	10	8	10	10	10	11	10	10	10	10	11	10	10	12	8	11	12	8	12	11	8	12	9	9	13	9	9	10	9	11	10	9	12	128	119	118	
<b>DISTRICT OF COLUMBIA</b>																																									
Washington	77	9	9	13	9	8	11	10	10	11	10	10	10	11	11	9	10	12	8	11	12	8	11	12	8	12	10	8	14	8	9	10	9	11	10	9	12	127	120	118	

TECHNICAL PAPER NO. 12

Note.--When the average sky cover from sunrise to sunset is 3/10 or less the day is recorded clear, 4/10 to 7/10 partly cloudy, and 8/10 or over cloudy.







## AVERAGE NUMBER OF CLEAR, PARTLY CLOUDY, AND CLOUDY DAYS.

Stations	No. yrs. Thru 1948	Jan.			Feb.			Mar.			Apr.			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Annual							
		Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy					
																																									Clear	Partly Cldy.	Cloudy		
<b>MONTANA</b>																																													
Billings	8	5	11	15	4	9	15	4	9	18	3	9	18	4	14	13	5	12	13	13	14	4	14	11	6	9	11	10	11	11	5	9	16	6	9	16	81	129	155						
Butte	53	10	9	12	9	8	11	10	8	13	8	14	8	10	11	15	11	9	10	11	15	11	3	15	10	6	13	8	9	14	7	10	10	8	8	13	13	131	104	130					
Great Falls	54	8	13	10	8	12	8	11	9	13	9	10	12	8	10	13	8	10	14	6	16	12	3	15	12	4	12	11	7	11	12	8	8	13	10	125	150	90							
Havre	63	8	11	12	8	11	9	9	13	9	9	13	8	10	13	8	11	13	6	18	10	3	17	10	4	12	11	7	12	10	9	9	10	11	9	10	12	132	135	98					
Helena	67	6	10	15	6	9	13	7	10	14	6	10	14	6	12	13	7	12	11	14	12	5	15	11	5	11	10	9	10	10	11	7	9	14	6	10	15	101	125	139					
Kalispell	48	4	7	20	5	8	15	7	11	13	8	12	10	8	13	10	8	13	9	17	11	3	16	10	5	12	8	10	10	8	13	4	7	19	2	6	23	101	114	150					
Missoula	12	4	6	21	3	6	19	4	7	20	4	7	19	6	12	13	6	9	15	16	11	4	16	10	5	12	8	10	9	8	14	4	6	20	2	5	24	86	95	184					
<b>NEBRASKA</b>																																													
Lincoln	51	11	8	12	9	8	11	10	9	12	9	9	12	8	11	12	10	12	8	13	12	6	12	12	7	14	8	8	15	7	9	11	8	11	10	9	12	132	113	120					
North Platte	73	13	11	7	11	9	8	10	11	10	10	11	9	10	12	9	12	12	6	15	12	4	14	12	5	15	10	5	16	9	6	13	10	7	12	10	9	151	129	85					
Omaha	77	11	9	11	9	9	10	9	10	12	9	9	12	9	11	11	10	12	8	14	12	5	13	12	6	13	9	8	14	9	8	11	9	10	10	9	12	132	120	113					
Valentine	52	12	10	9	10	10	8	10	11	10	9	11	10	10	12	9	11	13	6	15	13	3	15	12	4	14	10	6	15	9	7	12	9	9	10	11	10	143	131	91					
<b>NEVADA</b>																																													
Reno	60	11	10	10	10	9	9	12	11	8	13	10	7	15	10	6	20	7	3	24	6	1	24	5	2	22	6	2	19	7	5	14	9	7	11	10	10	195	100	70					
Winnemucca	69	9	9	13	8	8	12	11	9	11	11	9	10	12	11	8	16	9	5	23	6	2	23	6	2	20	6	4	17	7	7	12	8	10	10	9	12	172	97	96					
<b>NEW HAMPSHIRE</b>																																													
Concord	45	11	8	12	12	7	9	13	8	10	11	9	10	12	9	10	12	10	8	12	12	7	13	11	7	12	9	9	12	8	11	9	8	13	10	7	14	139	106	120					
<b>NEW JERSEY</b>																																													
Atlantic City	71	9	9	13	9	9	10	10	10	11	10	10	10	10	11	10	10	12	8	10	13	8	11	11	9	12	10	8	13	9	9	11	9	10	10	9	12	125	122	118					
Newark	13	6	10	15	7	9	12	7	11	13	7	11	12	6	13	12	5	13	12	7	12	12	8	12	11	10	10	10	11	9	11	8	9	13	8	9	14	90	128	147					
Trenton	35	8	9	14	9	7	12	10	9	12	8	10	12	8	11	11	8	11	11	8	11	12	9	11	11	11	10	9	12	9	10	9	9	12	8	8	15	109	115	141					
<b>NEW MEXICO</b>																																													
Albuquerque	53	18	7	6	14	8	6	16	10	5	15	10	5	17	10	4	18	10	2	12	15	4	12	15	4	17	9	4	20	7	4	20	6	4	18	7	6	197	114	54					
Roswell	41	15	9	7	13	9	6	15	10	6	16	10	4	16	11	4	17	11	2	16	13	2	15	13	3	16	10	4	18	8	5	17	8	5	16	8	7	190	120	55					
<b>NEW YORK</b>																																													
Albany	74	7	9	15	8	9	11	9	10	12	9	10	11	10	11	10	10	12	8	10	14	7	11	12	6	13	12	7	12	12	8	9	13	8	8	15	4	7	19	3	7	21	71	108	186
Binghamton	50	4	8	19	5	7	16	6	8	17	6	8	16	7	10	14	7	11	12	6	13	12	7	12	12	8	9	13	8	8	15	4	7	19	3	7	21	71	108	186					
Buffalo	77	2	8	21	3	10	15	5	11	15	7	10	13	8	12	11	9	13	8	10	14	7	9	14	8	9	12	9	7	10	14	3	8	19	2	8	21	74	130	161					
Canton	40	7	7	17	7	8	13	9	8	14	9	8	13	10	10	11	12	10	8	12	12	7	11	12	8	9	11	10	8	8	15	4	7	19	5	6	20	103	107	155					
New York	77	8	10	13	8	10	10	8	11	12	8	11	11	9	12	10	8	13	9	9	13	9	9	13	9	11	10	9	11	10	10	9	10	11	8	10	13	106	133	126					
Oswego	77	2	5	24	3	6	19	5	8	18	8	9	13	9	10	12	10	11	9	11	12	8	11	12	8	10	10	10	7	9	15	2	6	22	1	5	25	79	103	183					
Rochester	76	2	8	21	4	8	16	6	9	16	8	9	13	9	11	11	10	11	9	11	13	7	11	12	8	10	10	10	8	9	14	3	7	20	2	6	23	84	113	168					
Syracuse	45	3	7	21	4	7	17	5	9	17	6	9	15	8	10	13	9	11	10	13	9	9	13	9	8	11	11	7	9	15	3	7	20	3	6	22	74	113	178						

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SUNSHINE AND CLOUDINESS AT SELECTED STATIONS IN UNITED STATES, ALASKA, HAWAII, AND PUERTO RICO

## AVERAGE NUMBER OF CLEAR, PARTLY CLOUDY, AND CLOUDY DAYS.

Stations	No. Yrs. Thru 1948	Jan.			Feb.			Mar.			Apr.			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Annual			
		Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy	Clear	Partly Cl'dy.	Cloudy				
		<b>NORTH CAROLINA</b>																																							
Asheville	39	10	9	12	9	8	11	11	9	11	10	10	10	13	8	8	15	7	7	16	8	7	16	8	10	13	7	15	8	8	14	6	10	11	8	12	122	131	112		
Charlotte	67	10	8	13	10	7	11	11	9	11	11	9	10	11	11	9	8	14	8	7	14	10	9	12	10	12	10	8	16	7	8	14	7	9	11	8	12	130	116	119	
Greensboro	18	9	7	15	8	7	13	10	8	13	10	9	11	10	12	9	6	15	9	5	15	11	8	12	11	11	9	10	15	8	8	13	6	11	10	7	14	115	115	135	
Hatteras	54	11	8	12	11	7	10	12	9	10	13	10	7	14	10	7	12	11	7	12	12	7	13	11	7	13	10	7	14	9	8	13	8	9	11	8	12	149	113	103	
Raleigh	60	10	7	14	10	7	11	11	9	11	12	9	9	12	11	8	9	13	8	8	13	10	9	13	9	12	10	8	15	8	8	14	7	9	11	7	13	133	114	118	
Wilmington	75	11	9	11	10	8	10	12	10	9	13	10	7	12	12	7	9	14	7	8	15	8	9	14	8	11	11	8	15	9	7	14	8	8	12	9	10	136	129	100	
<b>NORTH DAKOTA</b>																																									
Bismarck	52	11	9	11	10	9	9	10	10	11	11	10	9	12	10	9	11	11	8	16	11	4	16	10	5	14	8	8	13	9	9	10	9	11	10	9	12	144	115	106	
Devils Lake	42	9	9	13	9	8	11	8	10	13	9	9	12	9	9	13	9	11	10	13	11	7	13	10	8	11	9	10	10	8	13	8	8	14	8	7	16	116	109	140	
Fargo	51	9	9	13	9	8	11	10	9	12	10	9	11	11	10	10	10	11	9	15	11	5	15	10	6	12	9	9	11	8	12	8	8	14	8	8	15	128	110	127	
Williston	66	10	10	11	9	10	9	9	12	10	9	11	10	10	11	10	10	12	8	15	12	4	15	11	5	13	10	7	11	10	10	9	10	11	10	10	11	130	129	106	
<b>OHIO</b>																																									
Akron	16	3	7	21	4	7	17	5	8	18	6	9	15	7	12	12	6	14	10	9	15	7	10	12	9	10	11	9	9	10	12	5	7	18	3	7	21	77	119	169	
Cincinnati	77	7	8	16	7	8	13	7	9	15	9	9	12	9	12	10	9	12	9	10	13	8	12	12	7	13	10	7	13	9	9	9	8	13	7	8	16	112	118	135	
Cleveland	75	3	8	20	4	8	16	6	10	15	8	10	12	10	12	9	10	13	7	12	13	6	11	13	7	10	11	9	9	13	4	7	19	3	7	21	90	121	154		
Columbus	68	6	8	17	6	8	14	7	10	14	8	9	13	9	12	10	10	12	8	12	13	6	12	12	7	13	10	7	12	9	10	7	8	15	5	8	18	107	119	139	
Dayton	36	7	7	17	6	7	15	7	9	15	7	10	13	9	11	11	9	13	8	12	13	6	11	13	7	12	11	7	13	8	10	9	7	14	6	7	18	108	116	141	
Sandusky	69	5	8	18	5	8	15	6	9	16	7	10	13	9	11	11	9	13	8	10	14	7	11	13	7	11	11	8	9	10	12	5	8	17	4	8	19	91	123	151	
Toledo	77	6	8	17	5	9	14	8	10	13	9	10	11	11	11	9	12	12	6	15	12	4	14	11	6	13	10	7	12	9	10	7	8	15	5	8	18	117	118	130	
<b>OKLAHOMA</b>																																									
Oklahoma City	56	13	8	10	11	7	10	12	9	10	11	10	9	10	12	9	13	12	5	16	11	4	16	10	5	16	8	6	17	7	7	15	7	8	13	8	10	163	109	93	
Tulsa	41	14	6	11	13	6	9	15	7	9	14	7	9	16	8	7	16	9	5	20	8	3	19	8	4	19	6	5	19	5	7	17	5	8	15	6	10	197	81	87	
<b>OREGON</b>																																									
Baker	57	5	8	18	5	8	15	7	10	14	8	11	11	9	11	11	11	8	20	8	3	19	8	4	15	8	7	12	9	10	7	8	15	6	7	18	124	107	134		
Medford	36	4	6	21	6	6	16	7	7	17	7	9	14	10	8	13	13	8	9	22	6	3	22	6	3	17	6	7	12	8	11	6	7	17	3	5	23	129	82	154	
Portland	75	4	6	21	4	6	18	5	8	18	6	9	15	7	9	15	8	9	13	15	9	7	15	9	7	11	9	10	7	10	14	4	7	19	4	6	21	90	97	178	
Roseburg	69	3	10	18	3	10	15	5	12	14	7	11	12	10	11	10	12	10	8	19	9	3	20	8	3	15	9	6	9	12	10	4	10	16	2	10	19	109	122	134	
Salem	50	4	6	21	6	5	17	7	8	16	8	8	14	10	8	13	12	7	11	20	6	5	19	6	6	14	6	10	10	7	14	6	5	19	4	5	22	120	77	168	
<b>PENNSYLVANIA</b>																																									
Allentown	17	12	10	9	13	8	7	13	10	8	14	9	7	15	9	7	15	8	7	16	8	7	15	10	6	16	8	6	16	8	7	12	11	7	12	11	8	169	110	86	
Erie	74	2	8	21	4	8	16	6	11	14	8	11	11	10	12	9	11	12	7	12	14	5	11	14	6	10	11	9	8	10	13	4	7	19	2	6	23	88	124	153	
Harrisburg	58	7	9	15	7	8	13	8	9	14	9	9	12	8	11	12	8	12	10	9	12	10	10	11	10	12	9	9	12	8	11	8	9	13	7	9	15	105	116	144	
Philadelphia	75	8	10	13	8	9	11	9	10	12	9	10	11	10	11	9	12	9	9	12	10	10	11	10	11	10	11	10	9	12	9	10	10	9	11	9	9	13	114	121	130
Phillipsburg	5	2	8	21	2	9	17	4	9	18	5	7	18	4	9	18	2	11	17	6	14	11	7	13	11	8	11	11	10	8	13	4	8	18	2	9	20	56	116	193	
Pittsburgh	77	4	8	19	4	9	15	6	10	15	7	10	13	8	12	11	7	14	9	9	14	8	10	13	8	10	12	8	10	10	11	6	9	15	4	8	19	85	129	151	
Reading	43	8	9	14	8	8	12	9	10	12	9	10	11	9	11	11	9	11	10	9	12	10	11	10	11	10	11	10	9	12	9	10	8	10	12	7	9	15	109	120	136
Scranton	46	5	10	16	6	9	13	7	10	14	7	10	13	8	12	11	7	13	10	7	15	9	8	14	9	10	11	9	9	10	12	5	9	16	4	9	18	83	132	150	

TECHNICAL PAPER NO. 12

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