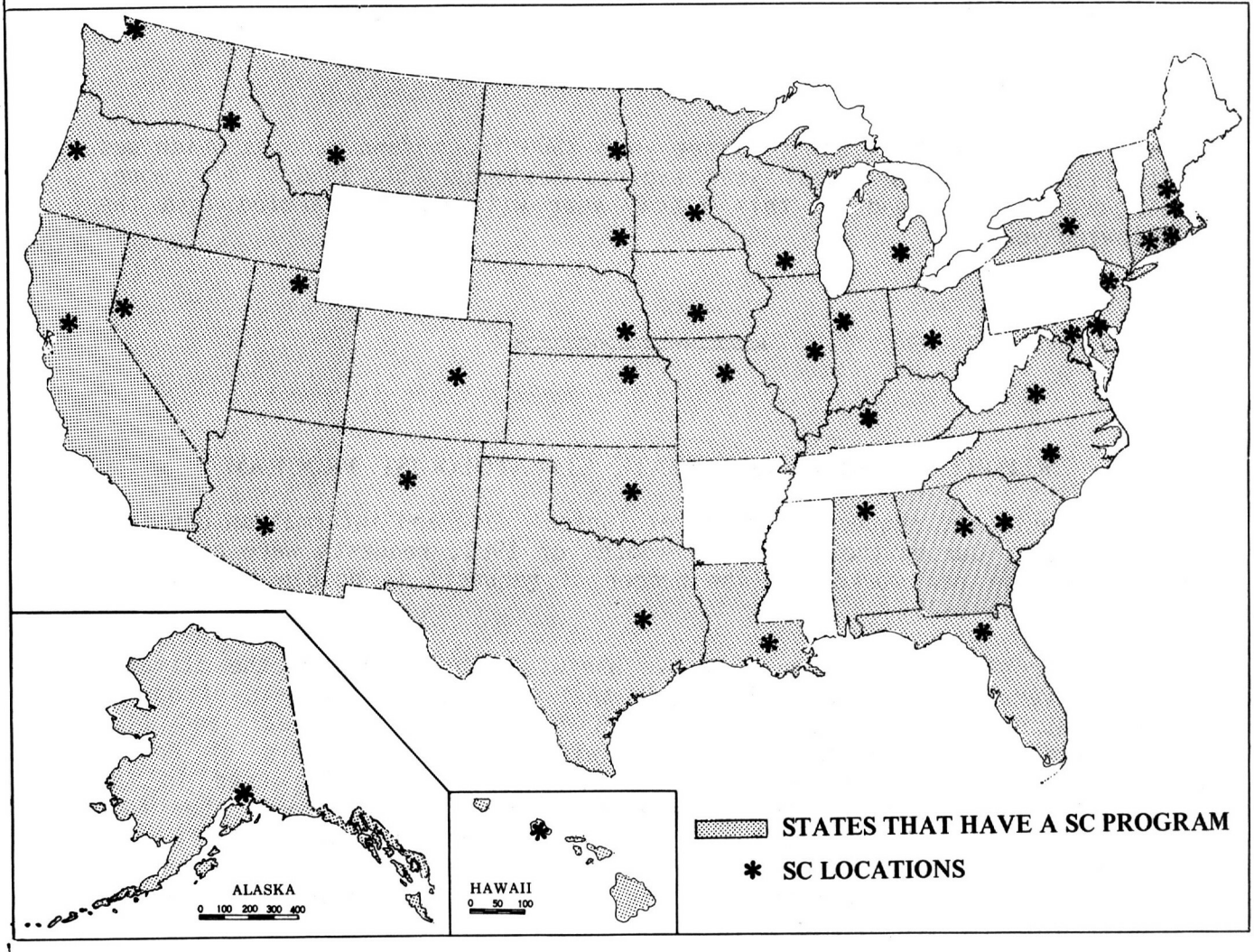
National Oceanic and Atmospheric Administration
Environmental Data and Information Service
National Climatic Center

# NEWS LETTER

IN COOPERATION WITH
THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS




VOLUME 4 NUMBER 2 JUNE 1980

PUBLISHED QUARTERLY AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, N.C.

## NCC BRIEFS

The National Climatic Center's (NCC's) Statistical Climatology Branch has developed a magnetic tape containing lightning statistics for the period 1959 - 1979. The tape contains the date/time (year, month, day and hour), location (state and county), number of fatalities, number of injuries and the estimated amount of property damage for each lightning associated report appearing in the NCC's STORM DATA publications. The information contained on this tape is used to develop the tables appearing in the "General Summary of Lightning" that appears in the annual publication of CLIMATOLOGICAL DATA, NATIONAL SUMMARY. There are approximately 14,000 individual reports for the 21-year period.

Contact Mr. Henry Vigansky at 704-258-2850, extension 319 for additional information.

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State Climatologists - Don't forget your $500 trust fund account which was established for this fiscal year expires September 30, 1980. Any money left over at the end of this fiscal year will not be carried into the following year.

## REPORT ON KENTUCKY STATE CLIMATOLOGIST PROGRAM

In Kentucky, requests for climatological data and information continue to increase. During the first four months of 1980, requests were averaging more than one per workday. The number of requests is double that of the same period in 1979.

Research is continuing to derive useful information from the climatic data. Several efforts are underway in that regard. An analysis of hourly precipitation data is being undertaken to discern its areal and time distribution. Thirty stations, each with twenty-five years of hourly records and distributed across the Commonwealth are being used in the study. The intent is to compare the distribution among the four climatological divisions during the months of January, April, July, and October. These months were chosen as representative of the seasons in Kentucky. Data collection is completed and the analysis has begun. Results are expected by mid-summer.

Additionally, research has begun using the water budget. Initial work on computer programs which will make the water budget calculations is nearing completion. The intent is to investigate the use of the water budget information in karst areas of Kentucky where primary drainage is underground and where surface runoff is virtually non-existent.

One major achievement of this year, has been the development of a computer mapping program for Kentucky which allows data to be mapped for about ninety stations. Using the SYMAP program to produce contour maps, the presentation of climatological data is now accomplished more rapidly and in a better reproducable form.

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## REPORT ON LOUISIANA STATE CLIMATOLOGIST PROGRAM

Dr. Robert A. Muller, the State Climatologist for Louisiana, and the Chairman of the Department of Geography and Anthropology at L. S. U., has entered into a cooperative agreement with the Louisiana Department of Natural Resources for selected climatic studies, climatic information services, and a monthly climatic newsletter. At this time the agreement is on a year to year basis, but the hope is to develop the program as a line item within the L. S. U. budget. Mr. Charles Chimento, formerly with the NWS at New Orleans, Jackson, Mississippi, Athens, Georgia, and Fairbanks, has joined the program as a research associate. It is likely that emphasis will be placed on studies of moisture conditions, including both excessive rains and droughts, synoptic climatology, and air and water quality.

* * * * * * * * * * *

The following was taken from the Iowa Department of Agriculture News Release, February 27, 1980.

"The Iowa Department of Agriculture has expanded its soil temperature analysis service, Iowa Agriculture Robert H. Lounsbery said today, and is now monitoring soil frost depths at seven locations in Iowa.

'Knowing when soils thaw out is an important factor in calculating the run off from melting snow and spring rains. Iowa soils normally thaw out during mid and late March or in northernmost counties in early April. Keeping data on rising soil temperatures provides valuable information for setting early garden and crop planting schedules. For example, wheat and grass development begins when top soils are warmed to 40°F, Irish potato development begins at 45°F, corn and sorghum will grow after soils reach 55°F and tender vegetables grow at 65°F,' Lounsberry said.

"The Iowa program is directed by Paul Waite, State Climatologist with the Iowa Department of Agriculture in cooperation with the National Weather Service. Volunteer observers who collect data include radio station personnel at KILR, Estherville, KBUR at Burlington and KOEL at Oelwein. Also, Iowa State University Farm Managers, Ray Nicholson at Ames and Wayne Fruehling at Castana, and the National Weather Service personnel at Dubuque and Earl May Seed personnel at Shenandoah. The information will be made available through regular weather reports from the Iowa Crop and Livestock Reporting Service."

## SEX IN THE GARDEN

by

E. Arlo Richardson

Utah Department of
Agriculture Climatologist

"From as far back as I can remember I have heard the stories about the birds and the bees relating to an understanding of reproductive activities. With the current emphasis on human and animal procreation we often overlook the fact that plants have similar requirements. Reproduction in plants, however, is much more closely related to environmental weather conditions than man and animals.

"There are two ways in which flowering plants reproduce, sexually and asexually. Sexual plants require mates to reproduce while asexual plants are incapable of producing viable seeds. With both types of reproduction environmental weather conditions are very important, either directly or indirectly.

"Some plants have both male and female organs on the same plant while others have the male organs on one plant and the female on another. Regardless of which situation exists, pollen must be transferred from the male to the female organs in order for reproduction to take place. This transfer is most frequently handled by insects such as bees and butterflies. If weather conditions are poor, that is, if it is cloudy, stormy or if strong winds are blowing the insects will not be active and the flowers which are open during this period will not be pollinated. This situation frequently occurs during the spring with fruit trees and berries in the garden. Cherry trees, for example, usually bloom for only a very short time and if weather conditions are poor at that time then the fruit crop will be very small. The problem is a little less critical with berries which bloom over a long period of time since later blooms will be pollinated if the weather conditions are too poor for the first ones.

"A different form of weather impact on pollination is related to the pollination of corn. The winds are important in this case. The pollen from the tassels must reach the silk on the ears if seed reproduction is to occur. A little wind to move the pollen is quite important in the case of corn. Some gardeners plant corn in a single row along the edge of their

garden in which case it is difficult for adequate pollen to reach all of the silking ears. Corn does much better when planted in patches to allow a more concentrated distribution of the pollen.

"Pollination to tomatoes is related in a different manner to the weather. Most of the tomato plants require nighttime temperatures between 55 and 65 degrees for the pollen to be effective. If the temperatures are not in this range when the blooms are open the fruit will not develop and the bloom will merely fall off. In the case of the tomato the male and female parts of the plant are in the same bloom and the transfer takes place either by mechanical shaking of the wind or by the activity of insects.

"Another pollination problem which frequently occurs with fruit trees, is the time of bloom of the opposite sexes. Many apples, pears and most cherries, for example, require pollen from a different variety of the same specie in order for the blooms to be pollinated. Under normal Utah conditions, Yellow Delicious apples are frequently used as a pollinator for Red Delicious apples. Under more marginal weather conditions, the Yellow Delicious may not bloom at the same time as the Red Delicious apples and thus pollination cannot take place. In areas of New Mexico this is often the case and another variety of apples is frequently grown to pollinate the Red Delicious.

"Weather conditions are also important to the reproduction of asexual plants. If we take a cutting from a plant and try to get it to grow we must make certain that the soil temperature and moisture are adequate for roots to form. A temperature of the soil on the order of 75 degrees is optimum for most asexual plants to develop. If the soil gets too dry the process will not take place and the cutting will die. Thus weather is an important aspect of sex in the garden in more ways than one."

## THE REFERENCE CLIMATOLOGICAL STATION (RCS) PROGRAM

### How Did It Start?

The RCS Program was proposed by the NWS in 1954 but remained in a study stage for some years. In 1965-1966 it picked up momentum. Joint meetings between EDIS climatological and NWS operational personnel were held and implementation of the program was actively started. Dr. M. Mitchell was appointed project leader. A network of 25 sites was chosen with a final goal of 50 stations. Subsequently, 14 stations were commissioned and others tentatively selected for activation. However, from 1969 to 1973 the program stayed in a quasi-dormant stage. In 1973, with the close out of the State Climatologist Program, the files pertaining to

the project were transferred from the Division of Climatology (NWS) to the Special Project Office (EDIS). An EDIS decision followed, to proceed with the fulfillment of the program to meet its goal, albeit on a reduced scale. Since then, seven (7) additional stations have been added to the network (see attachment.)

## What Is It?

The program consists of a network of climatological stations which is required to serve as "anchor points" to stabilize the present network of ordinary and principal climatological stations.

## Why an RCS Program?

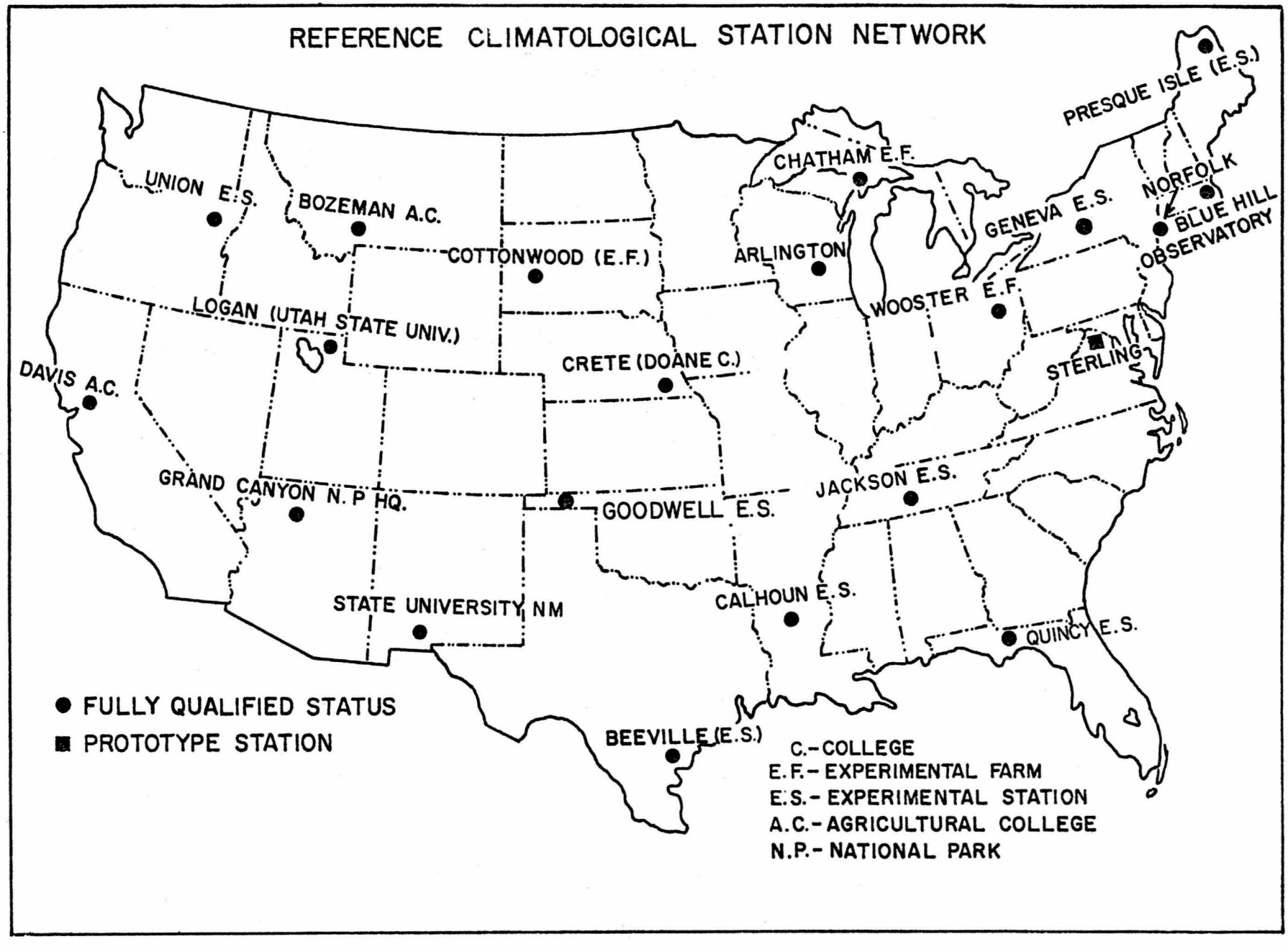
The need exists to gather records which will show whether there are climatic trends which can be identified. Our present network of ordinary and principal climatological stations is influenced by our dynamic, technological and moving society and suffers from frequent changes of location; environment (natural and man-made), and exposure. Consequently climatic series are interrupted and continuity can only be approximated by statistical techniques.

## What Does It Do?

The program provides a true "baseline" of climatological records based on many years of observations in an undisturbed environment and leads to a genuine measure of climatic trends. The World Meteorological Organization has endorsed the establishment of reference station networks on a worldwide basis.

## What Are MLC Responsibilities?

EDIS furnishes the technical leadership, monitors the program, and funds it. NWS operates the stations through its cooperative program and provides inspection and maintenance service.


REFERENCE CLIMATOLOGICAL STATION NETWORK
PRESQUE ISLE (E.S.)
CHATHAM E.F.
NORFOLK
UNION E.S.
BOZEMAN A.C.
GENEVA E.S.
BLUE HILL OBSERVATORY
COTTONWOOD (E.F.)
ARLINGTON
LOGAN (UTAH STATE UNIV.)
WOOSTER E.F.
CRETE (DOANE C.)
STERLING
DAVIS A.C.
GRAND CANYON N.P HQ.
JACKSON E.S.
GOODWELL E.S.
STATE UNIVERSITY NM
CALHOUN E.S.
QUINCY E.S.
BEEVILLE (E.S.)
● FULLY QUALIFIED STATUS
■ PROTOTYPE STATION
C.-COLLEGE
E.F.-EXPERIMENTAL FARM
E.S.-EXPERIMENTAL STATION
A.C.-AGRICULTURAL COLLEGE
N.P.-NATIONAL PARK

# NATIONAL WEATHER SERVICE SUBSTATION NETWORK STATISTICS FOR 1979

## Eastern Region

| | Networks as of July 1, 1979 | | | | | | Networks as of Jan. 1, 1980 | | | | | | Net Changes | | | | | | Planned Network (a) Not Implemented |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | ab | b | c | x | Total | a | ab | b | c | x | Total | a | ab | b | c | x | Total | |
| Connecticut | 7 | 5 | 36 | 0 | 2 | 50 | 7 | 5 | 36 | 0 | 2 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Delaware | 4 | 2 | 2 | 2 | 1 | 11 | 4 | 2 | 3 | 2 | 1 | 12 | 0 | 0 | +1 | 0 | 0 | +1 | 0 |
| Maine | 28 | 17 | 36 | 0 | 1 | 82 | 30 | 16 | 41 | 0 | 1 | 88 | +2 | -1 | +5 | 0 | 0 | +6 | 7 |
| Maryland & D.C. | 21 | 7 | 22 | 23 | 7 | 80 | 22 | 7 | 22 | 20 | 6 | 77 | +1 | 0 | 0 | -3 | -1 | -3 | 0 |
| Massachusetts | 16 | 16 | 68 | 0 | 0 | 100 | 16 | 16 | 68 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| New Hampshire | 7 | 19 | 52 | 1 | 0 | 79 | 7 | 19 | 53 | 1 | 0 | 80 | 0 | 0 | +1 | 0 | 0 | +1 | 1 |
| New Jersey | 7 | 13 | 55 | 8 | 8 | 91 | 7 | 13 | 60 | 12 | 2 | 94 | 0 | 0 | +5 | +4 | -6 | +3 | 0 |
| New York | 33 | 54 | 184 | 8 | 39 | 318 | 35 | 54 | 184 | 9 | 39 | 321 | +2 | 0 | 0 | +1 | 0 | +3 | 10 |
| North Carolina | 47 | 44 | 103 | 10 | 6 | 210 | 48 | 43 | 102 | 10 | 6 | 209 | +1 | -1 | -1 | 0 | 0 | -1 | 1 |
| Ohio | 15 | 56 | 167 | 13 | 0 | 251 | 15 | 56 | 166 | 16 | 0 | 253 | 0 | 0 | -1 | +3 | 0 | +2 | 0 |
| Pennsylvania | 13 | 71 | 237 | 8 | 8 | 337 | 12 | 72 | 238 | 8 | 8 | 338 | -1 | +1 | +1 | 0 | 0 | +1 | 10 |
| Rhode Island | 4 | 2 | 2 | 2 | 1 | 11 | 1 | 3 | 3 | 0 | 0 | 7 | -3 | +1 | +1 | -2 | -1 | -4 | 0 |
| South Carolina | 25 | 34 | 52 | 23 | 0 | 134 | 26 | 33 | 53 | 23 | 0 | 135 | +1 | -1 | +1 | 0 | 0 | +1 | 0 |
| Vermont | 6 | 10 | 53 | 3 | 0 | 72 | 6 | 10 | 53 | 3 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 34 | 42 | 130 | 5 | 6 | 217 | 35 | 39 | 134 | 5 | 6 | 219 | +1 | -3 | +4 | 0 | 0 | +2 | 2 |
| West Virginia | 16 | 45 | 96 | 1 | 2 | 160 | 16 | 45 | 98 | 1 | 2 | 162 | 0 | 0 | +2 | 0 | 0 | +2 | 0 |
| Totals | 283 | 437 | 1295 | 107 | 81 | 2203 | 287 | 433 | 1314 | 110 | 73 | 2217 | +4 | -4 | +19 | +3 | -8 | +14 | 33 |

## Southern Region

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 32 | 46 | 78 | 3 | 0 | 159 | 34 | 47 | 77 | 3 | 0 | 161 | +2 | +1 | -1 | 0 | 0 | +2 | 2 |
| Arkansas | 20 | 67 | 133 | 1 | 0 | 221 | 20 | 67 | 133 | 1 | 0 | 221 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Florida | 65 | 35 | 42 | 8 | 0 | 150 | 65 | 35 | 41 | 7 | 0 | 148 | 0 | 0 | -1 | -1 | 0 | -2 | 5 |
| Georgia | 37 | 48 | 131 | 7 | 0 | 223 | 37 | 48 | 130 | 7 | 0 | 222 | 0 | 0 | -1 | 0 | 0 | -1 | 3 |
| Louisiana | 27 | 39 | 102 | 3 | 0 | 171 | 27 | 39 | 103 | 3 | 0 | 172 | 0 | 0 | +1 | 0 | 0 | +1 | 6 |
| Mississippi | 24 | 55 | 104 | 3 | 0 | 186 | 24 | 55 | 104 | 3 | 0 | 186 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| New Mexico | 65 | 76 | 61 | 6 | 0 | 208 | 65 | 76 | 59 | 5 | 0 | 205 | 0 | 0 | -2 | -1 | 0 | -3 | 50 |
| Oklahoma | 14 | 94 | 217 | 1 | 0 | 326 | 13 | 96 | 211 | 1 | 0 | 321 | -1 | +2 | -6 | 0 | 0 | -5 | 1 |
| Tennessee | 42 | 34 | 59 | 5 | 0 | 140 | 42 | 34 | 59 | 5 | 0 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Texas | 97 | 234 | 514 | 17 | 0 | 862 | 101 | 230 | 521 | 27 | 0 | 879 | +4 | -4 | +7 | +10 | 0 | +17 | 53 |
| Puerto Rico | 4 | 20 | 68 | 1 | 0 | 93 | 4 | 20 | 68 | 1 | 0 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virgin Islands | 0 | 6 | 19 | 2 | 0 | 27 | 0 | 6 | 19 | 2 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 427 | 755 | 1527 | 57 | 0 | 2766 | 432 | 753 | 1525 | 65 | 0 | 2775 | +5 | -2 | -2 | +8 | 0 | +9 | 125 |

## Central Region

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Colorado | 9 | 130 | 132 | 4 | 1 | 276 | 9 | 130 | 132 | 4 | 0 | 275 | 0 | 0 | 0 | 0 | -1 | -1 | 56 |
| Illinois | 32 | 64 | 165 | 1 | 0 | 262 | 31 | 66 | 164 | 1 | 0 | 262 | -1 | +2 | -1 | 0 | 0 | 0 | 0 |
| Indiana | 23 | 51 | 97 | 14 | 2 | 187 | 24 | 52 | 95 | 14 | 2 | 187 | +1 | +1 | -2 | 0 | 0 | 0 | 2 |
| Iowa | 9 | 95 | 188 | 2 | 0 | 294 | 10 | 95 | 187 | 2 | 0 | 294 | +1 | 0 | -1 | 0 | 0 | 0 | 0 |
| Kansas | 9 | 107 | 322 | 1 | 0 | 439 | 9 | 107 | 323 | 1 | 0 | 440 | 0 | 0 | +1 | 0 | 0 | +1 | 0 |
| Kentucky | 28 | 49 | 125 | 11 | 0 | 213 | 28 | 50 | 128 | 11 | 0 | 217 | 0 | +1 | +3 | 0 | 0 | +4 | 0 |
| Michigan | 48 | 62 | 148 | 32 | 6 | 296 | 51 | 61 | 145 | 31 | 6 | 294 | +3 | -1 | -3 | -1 | 0 | -2 | 0 |
| Minnesota | 16 | 114 | 105 | 10 | 2 | 247 | 16 | 114 | 105 | 10 | 2 | 247 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Missouri | 8 | 110 | 184 | 7 | 0 | 309 | 8 | 110 | 187 | 7 | 0 | 312 | 0 | 0 | +3 | 0 | 0 | +3 | 2 |
| Nebraska | 5 | 115 | 222 | 3 | 0 | 345 | 5 | 115 | 223 | 3 | 0 | 346 | 0 | 0 | +1 | 0 | 0 | +1 | 2 |
| North Dakota | 0 | 105 | 114 | 4 | 1 | 224 | 0 | 105 | 117 | 4 | 1 | 227 | 0 | 0 | +3 | 0 | 0 | +3 | 1 |
| South Dakota | 12 | 93 | 70 | 3 | 0 | 178 | 12 | 94 | 71 | 3 | 0 | 180 | 0 | +1 | +1 | 0 | 0 | +2 | 10 |
| Wisconsin | 7 | 102 | 101 | 9 | 0 | 219 | 7 | 101 | 101 | 9 | 0 | 218 | 0 | -1 | 0 | 0 | 0 | -1 | 0 |
| Wyoming | 20 | 103 | 49 | 4 | 0 | 176 | 19 | 106 | 47 | 4 | 0 | 176 | -1 | +3 | -2 | 0 | 0 | 0 | 50 |
| Totals | 226 | 1300 | 2022 | 105 | 12 | 3665 | 229 | 1306 | 2025 | 104 | 11 | 3675 | +3 | +6 | +3 | -1 | -1 | +10 | 124 |

## Western Region

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arizona | 41 | 120 | 61 | 1 | 1 | 224 | 41 | 115 | 59 | 3 | 1 | 219 | 0 | -5 | -2 | +2 | 0 | -5 | 42 |
| California | 134 | 128 | 395 | 16 | 16 | 689 | 135 | 129 | 391 | 16 | 15 | 686 | +1 | +1 | -4 | 0 | -1 | -3 | 14 |
| Idaho | 35 | 81 | 51 | 9 | 2 | 178 | 35 | 81 | 50 | 9 | 2 | 177 | 0 | 0 | -1 | 0 | 0 | -1 | 32 |
| Montana | 38 | 174 | 157 | 7 | 4 | 380 | 38 | 174 | 157 | 6 | 4 | 379 | 0 | 0 | 0 | -1 | 0 | -1 | 26 |
| Nevada | 42 | 61 | 12 | 1 | 0 | 116 | 43 | 61 | 12 | 1 | 0 | 117 | +1 | 0 | 0 | 0 | 0 | +1 | 75 |
| Oregon | 11 | 158 | 177 | 14 | 7 | 367 | 11 | 158 | 177 | 14 | 7 | 367 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| Utah | 44 | 85 | 65 | 5 | 0 | 199 | 44 | 85 | 68 | 5 | 0 | 202 | 0 | 0 | +3 | 0 | 0 | +3 | 32 |
| Washington | 52 | 73 | 125 | 4 | 2 | 256 | 53 | 72 | 122 | 4 | 2 | 253 | +1 | -1 | -3 | 0 | 0 | -3 | 9 |
| Totals | 397 | 880 | 1043 | 57 | 32 | 2409 | 400 | 875 | 1036 | 58 | 31 | 2400 | +3 | -5 | -7 | +1 | -1 | -9 | 242 |

## Alaska Region

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alaska | 120 | 30 | 48 | 2 | 0 | 200 | 118 | 30 | 54 | 2 | 0 | 204 | -2 | 0 | +6 | 0 | 0 | +4 | 33 |

## Pacific Region

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hawaii & Pacific Islands | 0 | 51 | 251 | 20 | 0 | 322 | 0 | 51 | 253 | 17 | 0 | 321 | 0 | 0 | +2 | -3 | 0 | -1 | 0 |
| GRAND TOTALS | 1453 | 3453 | 6186 | 348 | 125 | 11565 | 1466 | 3448 | 6207 | 356 | 115 | 11592 | +13 | -5 | +21 | +8 | -10 | +27 | 557 |

The figures in parenthesis beside the planned (a) network indicate the number of locations approved for that type of substation which cannot be established at this time due to location in an uninhabited or remote area.

Also included in this table are 571 first- and second-order stations with network designations.

Alaska has no definite number of stations in the planned network due to circumstances peculiar to that area.

# COUNT OF SUBSTATION AND SERVICES

## ALL NETWORKS

### SUBSTATIONS

| | |
|---|---|
| Number of substations by network: A 1466 AB 3448 B 6207 C 356 x 115 | 11,592 |
| Number of stations with paid services | 4,100 |
| Number of stations without paid services | 7,492 |
| Number of stations having associate services | 746 |
| First and second order stations | 571 |

### SUBSTATION SERVICES

| | |
|---|---|
| Number of stations having the following services: | |
| Both temperature and non-recording precipitation | 5,892 |
| Non-recording precipitation without temperature | 3,218 |
| Storage gage | 36 |
| FC-1 precipitation (recording and/or non-recording) stations | 2,874 |
| Hourly precipitation stations (recording precipitation) | 3,204 |
| Sponsored by S&E | 406 |
| Sponsored by S&E (FC-1) | 2,537 |
| Sponsored by other government agencies | 127 |
| Associate stations | 134 |
| Substations with both daily (or storage) and hourly precipitation services | 1,930 |
| Crop reporting stations | 512 |
| River and/or rainfall reporting stations | 5,492 |
| River stage reports only | 970 |
| Rainfall reports only | 3,497 |
| River stage and rainfall reports | 1,025 |
| Evaporation stations | 434 |
| Telemetered stations | 1,305 |
| Automated Hydrological Observing System (AHOS) | 508 |
| AHOS/T | 447 |
| AHOS/S | 61 |
| Special reporting stations | 213 |
| Miscellaneous (snow density, special meteorological) | 388 |
| Number of publishing stations that have these services: | |
| Temperature | 5,732 |
| Daily (or storage) precipitation | 8,374 |
| Hourly precipitation | 3,106 |
| Evaporation | 427 |
| Soil temperature | 277 |

TOTAL NUMBER OF STATIONS PUBLISHED. . . . . 9,608

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service 1/3/80

## COUNT OF SUBSTATIONS AND EQUIPMENT
## ALL NETWORKS

| | |
|---|---|
| Total number of stations | 11,592 |
| Number of stations with: | |
| Standard max/min thermometers | 5,748 |
| Thermographs | 274 |
| Hygrothermographs | 269 |
| Other types of thermometers | 103 |
| Standard rain gages | 8,953 |
| Universal rain gages | 1,224 |
| Fischer & Porter rain gages | 2,079 |
| Tipping Bucket rain gages | 250 |
| Storage rain gages | 37 |
| Plastic or Wedge rain gages | 103 |
| Other types of rain gages | 40 |
| NWS-Owned river gages | 633 |
| AHOS/T/S -- river and/or rain gages | 447 |
| River gages only | 148 |
| Rain gages only | 242 |
| Both river and rain gages | 57 |
| AHOS/S/S -- River and/or rain gages | 61 |
| River gages only | 10 |
| Rain gages only | 32 |
| Both river and rain gages | 19 |
| BDT's -- River and/or rain gages | 381 |
| River gages only | 217 |
| Rain gages only | 152 |
| Both river and rain gages | 12 |
| Telemarks -- River and/or rain gages | 363 |
| River gages only | 354 |
| Rain gages only | 9 |
| Both river and rain gages | 0 |
| VHF -- River and/or rain gages | 47 |
| River gages only | 16 |
| Rain gages only | 18 |
| Both river and rain gages | 13 |
| Other types of telemetry -- river and/or rain gages | 31 |
| River gages only | 10 |
| Rain gages only | 21 |
| Both river and rain gages | 0 |
| Snow stakes | 198 |
| Green (Adirondack) snow density kits | 43 |
| Federal (Mount Rose) snow sampler | 11 |
| Other snow equipment | 125 |
| Palmer soil thermometers | 237 |
| Other (or unspecified) soil equipment | 102 |
| Evaporation equipment | 536 |
| Other miscellaneous equipment | 407 |

# LIST OF PUBLISHED SOIL SURVEYS

The U.S. Department of Agriculture, in cooperation with state agricultural experiment stations and other federal and state agencies, has been making soil surveys and publishing them since 1899. These surveys furnish soil maps and interpretations needed in giving technical assistance to farmers and ranchers, in guiding other decisions about soil selection, use, and management, in planning research and disseminating the results of the research, and they are used in educational programs about soil use and conservation. Sound scientific and technical standards are used in a nationwide system of soil classification, nomenclature, interpretation, and publication.

Soil classification has improved as our knowledge about soils and their potential uses has increased. As agriculture has become more technical, a proper fit between the kind of soil and the combination of practices used has become more critical. Because of this, soils bearing the same names are more narrowly defined in recent surveys than in the older ones.

When soil survey work began in 1899 little was known about the soils of the United States. Since then a great deal has been learned, methods have been improved, and the results of the surveys are more accurate and detailed. For planning farms, engineering structures, parks, urban developments, and other uses of land, the recent published soil surveys are more useful. The older surveys can be of considerable assistance for many users, but their maps are more general than those in recent surveys and some of the interpretations need to be updated.

Published soil surveys contain, in addition to soil maps, general information about the agriculture and climate of the area and descriptions of each kind of soil. They include a discussion of the formation and classification of the soils in the area and also soil laboratory data when available.

Soil surveys published since 1957 contain many different kinds of interpretations for each of the different soils mapped in the area. The kinds of interpretations included in these recent surveys vary with the needs of the area, but the following interpretations are in most of them: Estimated yields of the common agricultural crops under defined levels of management; land-capability interpretations, soil-woodland interpretations, rangeland interpretations, engineering uses of soils, interpretations for community planning, suitability of the soil for drainage and irrigation, suitability of the soil for wildlife and for recreation.

Most of the soil surveys published since 1957 contain soil maps printed on a photomosaic base. The usual map scale is 1:24,000, 1:20,000 or 1:15,840, depending on the needs of the area.

This publication lists those surveys that have been published by the U.S. Department of Agriculture. A few state agencies also publish surveys but, except for nine in Illinois, these are not included in this list.

A soil survey published by the U.S. Department of Agriculture that is still in print can be obtained in one of the following ways:

> Land users in the area surveyed and professional workers who have use for the survey can obtain a free copy from the state or local office of the Soil Conservation Service, from their county agent, or from their congressman. Many libraries keep published soil surveys on file for reference. Also, soil conservation district offices and county agricultural extension offices have copies of local soil surveys that can be used for reference.

Most published soil surveys cover one or more counties and are so named. Where the survey covers only a part of one or more counties, the word "area" is a part of the name. The date in the list is the year the field work was completed for surveys made from 1899 to 1936; from 1937 on it is the year the publication was issued.

Soil surveys are being completed and published at a rapid rate, so this list is always at least a little out of date. For information on the current status of a soil survey not listed herein, inquiry should be made to the State Conservationist, Soil Conservation Service, in the appropriate state. Addresses of State Conservationists are listed on the back of this page.

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138 South Gay Street
Auburn, AL 36830

Suite 129, Professional Building
2221 East Northern Lights
Boulevard
Anchorage, AK 99504

230 North 1st Avenue
3008 Federal Building
Phoenix, AZ 85025

Room 5029
Federal Office Building
700 West Capitol
Little Rock, AR 72203

2828 Chiles Road
Davis, CA 95616

2490 West 26th Avenue
Diamond Hill, Building A
Denver, CO 80217

Mansfield Professional Park
Route 44A
Storrs, CT 06268

Treadway Towers--Suite 2-4
9 East Loockerman Street
Dover, DE 19901

Federal Building
P.O. Box 1208
Gainesville, FL 32602

Federal Building
355 East Hancock Avenue
P.O. Box 832
Athens, GA 30603

Prince Jonah Kuhio Kolanianaola
Building
300 Ala Moana Boulevard
Room 4316
Honolulu, HI 96850

Room 345
304 North 8th Street
Boise, ID 83702

Federal Building
200 West Church Street
P.O. Box 678
Champaign, IL 61820

Atkinson Square-West
Suite 2200
5610 Crawfordsville Road
Indianapolis, IN 46224

693 Federal Building
210 Walnut Street
Des Moines, IA 50309

760 South Broadway
P.O. Box 600
Salina, KS 67401

333 Waller Avenue
Lexington, KY 40504

3737 Government Street
P.O. Box 1630
Alexandria, LA 71301

USDA Building
University of Maine
Orono, ME 04473

Hartwick Building
Room 522
4321 Hartwick Road
College Park, MD 20740

29 Cottage Street
Amherst, MA 01002

Room 101
1405 South Harrison Road
East Lansing, MI 48823

200 Federal Building and
U.S. Courthouse
316 North Robert Street
St. Paul, MN 55101

Federal Building, Suite 1321
100 West Capitol Street
P. O. Box 610
Jackson, MS 39201

555 Vandiver Drive
Columbia, MO 65201

Federal Building
P.O. Box 970
Bozeman, MT 59715

Federal Building-U.S.
Courthouse, Room 345
Lincoln, NE 68508

Room 308
U.S. Post Office Building
P.O. Box 4850
Reno, NV 89505

Federal Building
Durham, NH 03824

1370 Hamilton Street
P.O. Box 219
Somerset, NJ 08873

517 Gold Avenue S.W.
P.O. Box 2007
Albuquerque, NM 87103

U.S. Courthouse and Federal
Building
100 South Clinton Street
Room 771
Syracuse, NY 13260

310 New Bern Avenue, Room 544
Federal Office Building
P.O. Box 27307
Raleigh, NC 27611

Federal Building
P.O. Box 1458
Bismarck, ND 58501

Federal Building, Room 522
200 North High Street
Columbus, OH 43215

Agricultural Center Office
Building
Farm Road and Brumley Street
Stillwater, OK 74074

Federal Building, 16th Floor
1220 S.W. 3rd Avenue
Portland, OR 97209

Federal Building and U.S.
Courthouse
P.O. Box 985
Federal Square Station
Harrisburg, PA 17108

Room 633, 6th Floor
Federal Building
Chardon Avenue
Hato Rey, PR 00918

46 Quaker Lane
West Warwick, RI 02893

Room 950
1835 Assembly Street
Columbia, SC 29201

Federal Building
200 4th Street, S.W.
Huron, SD 57350

675 U.S. Courthouse
Nashville, TN 37203

W. R. Poage Federal Building
101 South Main Street
P.O. Box 648
Temple, TX 76501

4012 Federal Building
125 South State Street
Salt Lake City, UT 84138

1 Burlington Square
Suite 205
Burlington, VT 05401

Federal Building, Room 9201
400 North 8th Street
P.O. Box 10026
Richmond, VA 23240

360 U.S. Courthouse
West 920 Riverside Avenue
Spokane, WA 99201

75 High Street
P.O. Box 865
Morgantown, WV 26505

4601 Hammersley Road
Madison, WI 53711

Federal Office Building
P.O. Box 2440
Casper, WY 82601

**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
Washington, D.C. 20230
OFFICE OF THE ADMINISTRATOR

UNIVERSITY AFFAIRS LETTER

*Washington, D.C., April 1980*

*Dear Colleague,*

*A perspective on NOAA's recruiting needs. . .*During the winter of 1980 the largest number of retirements ever took place within the National Weather Service. They occurred at every level with a significant number at high level managerial positions; one Regional Director, four Regional Deputy Directors, Director, National Severe Storms Forecast Center, two Chief's of Personnel, four Meteorologist-in-Charge of forecast offices, three Regional Hydrologists, and a number of top people from Headquarters offices.
. . . . . Some of the positions have been filled from within; however, the National Weather Service welcomes applications from university meteorologists and hydrologists and others outside of the federal government. Write to Donna Young, NWS Personnel Branch, Room 1225, Grammax Building, Silver Spring, Md. 20910.

*Dr. Norbert Untersteiner is now a senior oceanographer in NOAA. . .*having accepted an appointment recently as the Director of the Office of Ocean Programs for R&D. He formerly was Professor of Atmospheric Science and Oceanography at the University of Washington.

*A longer look ahead. . .at university/industry/government relationships. . .* is charted in a worth-reading article in the January 25, 1980 issue of Science. Written by Dennis Prager and Gil Omenn the paper concludes that "The time appears ripe for major improvements in university-industry relationships in science and engineering." Today's attitudinal and institutional barriers are real and must be dealt with as we look ahead through the 80's and 90's.
. . . . . More and more research proposals will be generated on campus and in industry to explore effective R&D cooperation among government, industry, and universities. Here is a long-range opportunity for academic and industrial scientists and engineers to lead the way and make determined efforts to plan for the new developments.

*An announcement. . .of NOAA Postdoctoral Research Awards. . .*can be found in the Federal Register for April 16, 1980. A modest new NOAA grants program, up to six awards are planned this year. See the reverse side of this letter for more details.

*Sincerely yours,*

Earl R. Alhonte

/ANNOUNCEMENT/
Post/Circulate

NOAA POSTDOCTORAL RESEARCH AWARDS

in *Atmospheric, Fisheries, Oceanic Sciences* and *Related Fields*

Application Deadline: *June 10, 1980* Award Date: *August 1, 1980*

In 1980 NOAA plans to award up to six Postdoctoral Research Support Grants. NOAA is seeking to fund a few recent postdoctorals having outstanding records and exceptional promise in academic research; those postdoctorals engaged in front-line scientific work on atmospheric, fisheries, and ocean sciences, and related fields that undergird the mission of NOAA. Eligible postdoctorals must be United States citizens and must have received their Ph.D.'s since January 1, 1978, and before June 10, 1980.

Grants would be made to the home university for one or two years, nonrenewable. Successful applicants will receive a stipend of $20,000 for twelve months with applicable fringe benefits. The grant application will allow as necessary a modest request for equipment, supplies, travel, publication, plus indirect costs. It is estimated that funds up to $35,000 per year would be available, depending upon the nature of the proposed laboratory or theoretical research.

*As a special provision*. . .each grantee would be asked to establish a visiting relationship with a suitable NOAA laboratory or other facility and be in residence there a minimum of one month each year to communicate on the postdoctoral research program and results and to learn firsthand about the scientific programs and research needs of NOAA. The objective is a helpful interchange between the campus and NOAA.

Those interested in applying for a postdoctoral research support award can obtain further information and informal guidelines by writing to Dr. Earl G. Droessler, Director of University Affairs, NOAA, Room 5808, Commerce Department, Washington, D.C. 20230.

Since the NOAA grants would be awarded to universities, formal research proposals should be prepared and processed on campus in the usual way through the university administration. Twelve (12) copies of these proposals are required.



USCOMM–NOAA–ASHEVILLE, N.C.