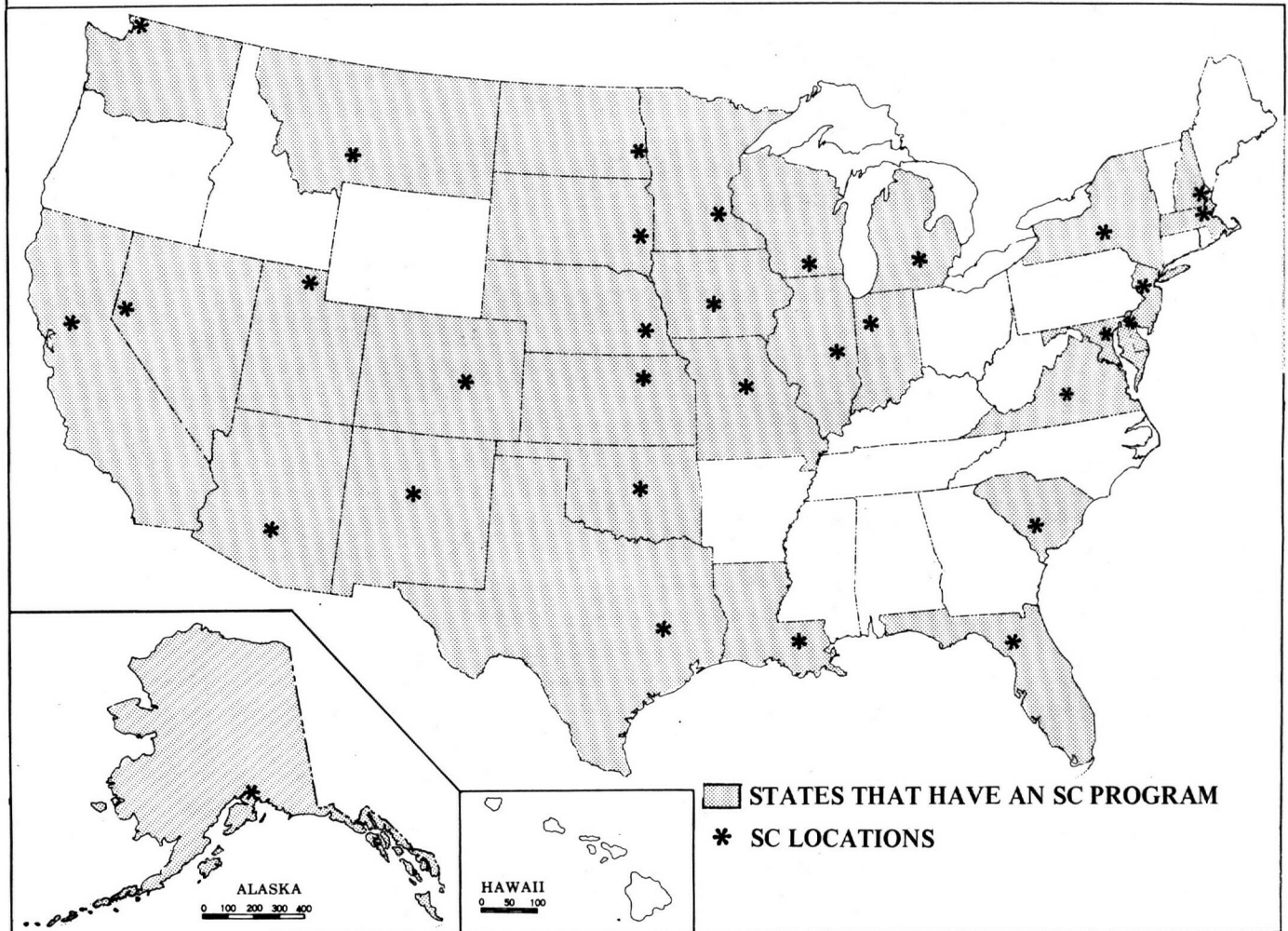


National Oceanic and Atmospheric Administration
Environmental Data Service
National Climatic Center
NEWS LETTER

IN COOPERATION WITH
THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS



VOLUME 1 NUMBER 3 JULY 1977

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

NCC BRIEFS

NCC is pleased to announce that three more States - Delaware, Maryland, and Virginia - have recently established SC positions. The new SC's are as follows:

DR. JOHN R. MATHER
Department of Geography
University of Delaware
Newark, DE 19711

DR. O. E. STREET
Jule Hall, Room 101
University of Maryland
College Park, MD 20740

DR. BRUCE HAYDEN
Dept. of Environmental
Sciences
University of Virginia
Charlottesville, VA 22904

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The World Data Center-A for Meteorology attempts to stay informed of ozone data sources. We would appreciate hearing of any ozone measuring programs in your State, other than the stations in the NOAA, Dobson, or U. S. Army networks. We have information on some, but not all, of the EPA-sponsored instrument sites. Informal notes will be entirely satisfactory. Send them to Bill Hodge, WDC-A for Meteorology, Room 17, National Climatic Center, Federal Building, Asheville, NC 28801 (telephone 704 258-2850, ext. 754, or FTS 672-0754).

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COUNTY DATA - Is there a need to have some of our data arranged by counties? The health people think so. We are not considering changing our basic files or publications, but are interested in programs that would convert station data into county estimates. Bill Hodge would like your comments, pro or con, along with information about methods you might have used. Write him at NCC, ATTN: Climate & Health Project.

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The American Association of State Climatologists (AASC) will hold their first scheduled meeting October 26 and 27, 1977, at the National Climatic Center, Asheville, North Carolina. The primary purpose of the meeting is to formalize the organization and elect new officers. Mr. Paul Waite, Secretary of the AASC, will send a copy of the agenda to each State Climatologist within the next two weeks.

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ARCHIVING OF NON-NOAA SOLAR RADIATION DATA AT THE NATIONAL CLIMATIC CENTER

INTRODUCTION

It is recognized that valuable observations of solar radiation are collected by non-NOAA organizations. This document addresses the criteria for the acceptance by the NOAA National Climatic Center of such non-NOAA data in its archives so that they may become more generally available. The National Climatic Center is prepared to archive direct, diffuse, total or global, net, and spectral radiation, as well as radiation measured on tilted surfaces.

Archiving criteria will fall into three classes:

- Class 1: These measurements will comply with all of the standards established for NOAA measurements and will be archived by the National Climatic Center. Preference will be given to those locations recording hourly measurements of solar radiation and collateral meteorological data, and to areas having a paucity of available data.
- Class 2: In this category, the data, while failing the criteria for Class 1, are still of sufficient quality and utility to justify archiving by the National Climatic Center.
- Class 3: In this final category, the data are not considered by NOAA to be of sufficient quality or utility to justify archiving by the National Climatic Center. The existence of these data and the organization from which they might be obtained will be on file at the National Climatic Center.

CRITERIA

Class 1:

- A. Instrument (sensor) specifications for both pyranometer and pyrhelimeter.

The specifications for NOAA pyranometers appear in National Weather Service Engineering Division "Specification for Pyranometer," January 30, 1973; other relevant information can be found in "Manual of Radiation Observations," July 1962 and in the National Weather Service Observing Handbook No. 3 "Solar Radiation Observations," March 1977. These documents can be obtained by writing to Dr. L. Machta, Director, ARL, NOAA, 8060 16th Street, Silver Spring, Maryland 20910.

1. Must have equal sensitivity to all solar wavelengths (.30-3.0 μ m).

2. Must have calibration traceability to the WMO primary standard pyrheliometer at the World Radiation Center, Davos, Switzerland.
3. Must agree within +2% with the NOAA primary reference pyranometer in ARL, Boulder, CO.
4. Must be temperature compensated to +2% over the temperature range, -20 to +40 C.
5. Pyranometer must depart by less than +3% from true cosine response for zenith angles from 0 to 70°; less than +7% for zenith angles from 70 to 80°.
6. Must have a linear output e.g., within +1% over the range of 0 to 1400 w/m² (1.4 kilojoules m⁻²s⁻¹).

B. Recorder

1. Accuracy of +1% or better over full scale range.
2. Capable of producing representative hourly and/or daily accumulations of solar radiation. It is preferred but not required that data be provided on true solar time scale.
3. Data should be provided to NOAA in a form mutually agreed upon with the National Climatic Center, Asheville, NC.

C. Exposure of Sensors

1. Should have essentially unimpeded field of view. No nearby objects (within about 5-10 meters) should rise above the sensor, particularly in the ENE through S through WNW segment.
2. Pyranometer should be remote from surfaces which can reflect sunlight or otherwise contribute spurious or unrepresentative radiant energy to the sensor.
3. A description of the sensor location, preferably with a photograph, should be part of the documentation for each site.

D. Maintenance, Pyranometer

1. Clean the bulb daily (2 or 3 day breaks are permissible if daily cleaning appears to be unnecessary), preferably in the morning. In highly polluted areas or if frost accumulates, more frequent cleanings may be required.
2. Check the spirit level at least once each week.
3. Recalibrate annually.

E. Maintenance, Pyrheliometer

1. Clean the window daily (2 or 3 day breaks are permissible if daily cleanings appear to be unnecessary).
2. Adjust the sensor to point at the sun daily or as frequently as needed to insure that the sensor points directly at the sun.
3. Calibrate annually.

F. Maintenance, Recorder

1. Recorder calibration should be checked at least every two months and whenever recorder adjustments are made. For strip chart recorders, calibrations should be made both before and after recorder adjustments.

G. Length and continuity of record

1. It shall be the intent to obtain a solar radiation record for at least three years duration.
2. It shall be the intent to provide a continuous, unbroken record.

H. Quality control and transmittal of data

1. Quality control will be exercised by either the submitting organization or by NOAA, if the latter is approved by NOAA.
2. Data will be supplied to the National Climatic Center, Environmental Data Service, NOAA, Federal Building, Asheville, NC 28801 within 6 months after the date of observation.
3. Station history and instrumentation calibration should be made available to the National Climatic Center.

Class 2: Data not meeting NOAA standards but still acceptable for NOAA archiving.

A. Instrument specifications for both pyranometer and pyrheliometer

1. Sensitivity need not be uniform over range of 0.3 to 3.0 μ m but the sensitivity must be known.
2. Must agree within $\pm 5\%$, directly, or through traceability, with the NOAA Primary Reference Pyranometer in NOAA-ARL, Boulder, CO.
3. Must be temperature compensated to within $\pm 5\%$ over the temperature range -20 to 40°C.

4. Pyranometer must depart by less than +5% from true cosine response for zenith angles from 0 to 70°; less than +15% for zenith angles 70 to 80°.
5. Must have approximately linear output, e.g., within +5%, over the range of 0 to 1400 w/m² (1.4 kilojoules m⁻²s⁻¹).

B. Recorder

1. Accuracy of +5% or better over full scale range.
2. Capable of producing representative hourly and/or daily accumulations of solar radiation. It is preferred but not required that data be provided on true solar time scale.
3. Data should be provided to NOAA in a form mutually agreed upon with the National Climatic Center, Asheville, NC.

C. Exposure of sensors

Same as Class 1.

D. Maintenance

Same as Class 1.

E. Length and continuity of record

Same as Class 1.

F. Quality control and transmittal of data

Same as Class 1, except NOAA will not provide quality control.

Class 3: Data not meeting NOAA standards and not archived by NOAA.

NOAA will maintain a register of solar radiation stations. The following information will be archived.

1. Name and location (latitude, longitude, and altitude in meters, msl) of station.
2. Name or organization operating station.
3. Type of equipment at station; sensors and recording equipment.
4. Frequency of observation or of recording of data.
5. Length of record.
6. Availability of data; address of person or organization to whom request should be made.

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SOME GOOD NEWS FROM NEW HAMPSHIRE
By Gerard Pregent, New Hampshire SC

The New Hampshire Office of the State Climatologist was inaugurated in February 1977. Despite the severe fiscal problems affecting the State government and the State university system, the services rendered by the new Office are considered financially justified. A gradual expansion of services seems evident.

Three functional areas are being developed: a consultation service, a data service, and an education service. The consultation service offers users from the university, State government, and public sectors an opportunity to discuss solutions to specific problems. Assistance is currently being offered to potato blight research, solar energy projects, and energy conservation studies. Graduate students with these topics related to meteorology are also encouraged to take advantage of this service.

With respect to the data service, our basic role is to serve as a link between the supplier of climatic information (NCC) and the ultimate user. To facilitate the implementation of this service, we are developing common access computer storage files for various data sets. Because the university computer services are oriented around an interactive system controlled by many remote terminals, ease of data retrieval and manipulation will be quite good. Though we are automating the transferal of data, we do stress the importance of correct interpretation and this usually requires a session with the user. Many of our users, particularly students, do not have an appreciation for the limitations of climatic data.

Our education service provides guest lectures and general collaboration with university courses which incorporate various aspects of the atmospheric environment. Assistance with a civil engineering course for wind forces on structures is an example.

Since in New Hampshire we do not have a well-organized user group, such as agriculture, that represents a single, most-important segment of the local economy, the future success of the Office will depend on the building of a coalition of diverse interests. This method appears to be successful in light of the need to rely on local funds. Federal support would of course lessen this burden of justifying our existence and would allow an expansion of services.

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USDA AIDES FIGHT CLIMATE AGENCY

(Reprint from The Atlanta Journal and Constitution, April 24, 1977)

Agricultural Department officials, who say they are best equipped to forecast the impact of weather changes on food supply, are opposing a plan in Congress to create a national climate program.

One of Agricultural Secretary Bob Bergland's pet projects involves the use of weather and climate data in hopes of one day predicting the odds on future crop production.

A bill recently introduced in Congress calls for a National Climate Program to be set up with an estimated budget of \$50 million in the first year.

A senior USDA official, testifying against the proposal, said he did not think a new bureaucracy was needed to work on climate. He said his department and other federal agencies could do the job.

The bill was introduced by Rep. George E. Brown, Jr., D-California, chairman of a House science and technology subcommittee that held hearings on it earlier this month.

As described by Brown's panel, the national climate program should include:

- A wide monitoring network to gather data and detect trends.
- A way to improve understanding of natural climate variability.
- Improvement of monthly, seasonal, annual and longer-range predictions of climate parameters.
- Assessment of the economic, agricultural, energy and other impacts of climate variability on human activities.

The Agricultural Research Institute (ARI), which represents state agricultural experiment stations, agricultural industries, private research organizations and agriculturally related federal agencies, testified in support of the climate program.

Dr. William Burrows of the institute said "we have watched with dismay" as the climate program of the government's main weather agency, the National Oceanic and Atmospheric Administration (NOAA), "has declined over the past decade."

Climatology is the study of long-range changes in weather patterns, while the more familiar science of weather forecasting is directed at what may happen tomorrow, next week or next month.

"The state climatology program which served agriculture is gone, the climatic observational network has been and is being reduced, support for the Environmental Data Service has been lacking and we believe there has been a general lack of enthusiasm for climatology in NOAA," Burrows told the panel.

He said it was "ironic that USDA has not supported agricultural climatology, even though for many years the weather bureau was a part of USDA. We are concerned that the legitimate needs of agriculture for climatic studies have not been served by either USDA or NOAA."

Paul S. Weller, Jr. of the National Council of Farmer Cooperatives said his organization supported legislation for a national climate program and that "we can make sure that all available federal resources are made available" to help farmers produce the nation's food and fiber.

Dr. Gilbert H. Porter, head of the council's ad hoc climate advisory committee, said the need for a national program "is so urgent and so profound that it should be organized and funded in a manner which would be consistent with a top national priority thrust."

Howard W. Hjort, USDA's director of economics is overseeing the department's climate project ordered by Bergland and testified against the bill.

"I tried to make the case that we would not support having the impact of climate work being conducted under NOAA or some other agency of government," Hjort said in an interview last week.

Hjort said this view was "not a bureaucratic thing" and that USDA was not trying to undercut other agencies by grabbing all the climate and weather work for itself.

"Weather is a very important factor, but is only one of the factors of production," Hjort said. "And we have in this department people who do understand the world food and agricultural information system - and we do understand the production process."

Hjort conceded that federal agencies, including his own, "haven't been taking enough explicit account" of climate and its impact.

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U. S. and Canadian Scientists Say . . .
RUSSIANS MAY HAVE CAUSED OUR BITTER WINTER
By Donna Rosenthan

(Reprint from the National Enquirer)

American and Canadian scientists believe that Soviet experiments in weather control may be to blame for this winter's bitter cold weather.

Top experts in both countries theorize the Russians are using powerful radio signals to disrupt the earth's magnetic field - which could alter the path of the jet stream winds and push Arctic air masses deep into the U. S.

The Russians' purpose: to warm up their own agricultural areas, lengthen their growing season and increase their winter wheat crop.

Since July the USSR has been transmitting strange, powerful signals that have disrupted communications throughout the world - and scientists believe this is evidence the Soviets are using a weather modification system developed by Yugoslav genius inventor, Nikola Tesla, who died in 1943.

Dr. Andrija Puharich, an Ossining, N. Y., neurologist, author and inventor who has spent 35 years studying Tesla's work and is working with the Canadian government on a Tesla research project, told The ENQUIRER:

"There is a real scientific possibility that the Soviets turned on the cold. We believe that the Russians are repeating experiments Tesla carried out about 75 years ago showing how to modify the weather.

"There is a direct connection between setting up a Tesla transmitter and modifying the weather. If you regulate the movement of electrically charged particles in the upper atmosphere, you can cause changes in the jet stream.

"By controlling the movements of the jet stream, the Russians could send cold air from one place to another. The Russians might want to push their cold Arctic air mass elsewhere - perhaps toward the U. S. - so they could increase their own agricultural growing season."

Oliver Nichelson, a Washington, D. C., energy consultant to the Canadian State Dept., told the ENQUIRER: "I think the Soviets are using weather modification to push their cold Arctic air mass elsewhere.

"These strange radio signals are definitely Tesla's frequencies. We have evidence there are two transmitter sites, in Riga and in Gomel, south of Minsk. And there are strange weather patterns around the area."

Malcolm Reid, meteorologist with the Center for Climatic and Environmental Assessment in Washington, D. C., said the area around Riga was eight degrees warmer than normal this winter.

Throughout European Russia, the weather in December and January was considerably warmer than normal. Unusually warm areas are in the main agricultural regions of the Soviet Union," he said.

Diversion of the westerly winds by the Russians also caused the drought in western U. S., one top scientist believes.

Dr. Peter Markovitch, a Los Angeles physicist who did Tesla research for 13 years at the University of Leningrad, told the ENQUIRER: "Weather maps indicate they have totally messed up the Arctic jet stream pattern in Europe, Asia and North America.

"The winds that normally travel eastward across the Pacific Ocean and pick up moisture were diverted from Riga toward the earth's north magnetic pole and across the dry Siberia and Arctic regions. The absence of these normally moisture-laden winds is causing the drought on the West Coast of the U. S."

Markovitch said that Tesla, who discovered alternating current, died in poverty in New York, an ignored electrical genius. He said Tesla is well known in Russia, China and other Communist countries, though few Westerners know much about his theories.

The implications of weather control, Markovitch said, are "mind-boggling. If you wanted an enemy to suffer you could turn on the cold or a drought very easily . . .

"I think the Soviets are testing something they themselves don't understand," he added. "It's like a monster that has gotten out of control."

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DEPARTMENT of the INTERIOR

news release

GEOLOGICAL SURVEY

Don Kelly (703) 860-7444

For release: January 20, 1977

NATIONAL WATER INFORMATION NETWORK OPENS LOCAL CENTERS

A new service, the National Water Data Exchange (NAWDEX), has been established to provide local assistance to governmental agencies and the public in identifying, locating, and acquiring available water data, the U.S. Geological Survey, Department of the Interior, announced.

Centrally managed by a program office at the USGS National Center, Reston, Va., NAWDEX now provides local services through a national network of 51 Local Assistance Centers located in 45 States and Puerto Rico. These Centers, linked by computer terminals, provide rapid access to information about the availability of more than 1 billion measurements of streamflow, ground-water levels, sediment discharges and the quality of surface and ground waters for thousands of stations operated by more than 300 organizations across the country.

M. D. Edwards, USGS hydrologist, Reston, Va., and manager of the NAWDEX Program Office, stated, "NAWDEX is a growing confederation of Federal, State, local and private water-resources organizations working together to make their water data more readily available. Membership in NAWDEX is voluntary and open to all water-related organizations.

"Although a vast amount of water data is being collected," Edwards said, "data users are often faced with the problem of not knowing if the data they need already exist or can be obtained. Through a computerized directory of water-data sources and nationwide index of sites for which water data are available, NAWDEX alleviates this problem by rapidly locating needed data and serving as a link between the data collector and the data user.

"As the NAWDEX program expands," the Survey hydrologist continued, "additional services will become available. This will greatly reduce the time and expense required to obtain water data and should be extremely valuable to water-program planners and managers.

(more)

"With the increased emphasis placed on our water resources in developing energy resources and in other activities related to land use, recreation and environmental planning, there will be greater demands for water data that accurately describe the quantity, quality, and availability of water. NAWDEX is designed to play an important role in meeting these data needs," Edwards concluded.

For services or additional information, contact: NAWDEX, U.S. Geological Survey, 421 National Center, Reston, Va. 22092. Telephone: (703) 860-6031.

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(Note to Editors: Listed below are cities where USGS Local Assistance Centers offer NAWDEX services. USGS offices are listed in most local telephone directories under "United States Government -- Department of the Interior.")

ALABAMA, Tuscaloosa
ALASKA, Anchorage
ARIZONA, Tucson
ARKANSAS, Little Rock
CALIFORNIA, Menlo Park
COLORADO, Lakewood (Denver)
CONNECTICUT, Hartford
FLORIDA, Tallahassee, Miami,
Orlando, and Tampa
GEORGIA, Doraville (Atlanta)
HAWAII, Honolulu (includes
American Samoa and Guam)
IDAHO, Boise
ILLINOIS, Champaign
INDIANA, Indianapolis
IOWA, Iowa City
KANSAS, Lawrence
KENTUCKY, Louisville
LOUISIANA, Baton Rouge
MARYLAND, Towson (includes Delaware
and District of Columbia)
MASSACHUSETTS, Boston (includes
Maine, New Hampshire, Rhode
Island, and Vermont)
MICHIGAN, Okemos (Lansing)
MINNESOTA, St. Paul
MISSISSIPPI, Jackson

MISSOURI, Rolla
MONTANA, Helena
NEBRASKA, Lincoln
NEVADA, Carson City
NEW JERSEY, Trenton
NEW MEXICO, Albuquerque
NEW YORK, Albany and Mineola
NORTH CAROLINA, Raleigh
NORTH DAKOTA, Bismarck
OHIO, Columbus
OKLAHOMA, Oklahoma City
OREGON, Portland
PENNSYLVANIA, Harrisburg and
Philadelphia
PUERTO RICO, Ft. Buchanan (San
Juan), includes Virgin Islands
SOUTH CAROLINA, Columbia
SOUTH DAKOTA, Huron
TENNESSEE, Nashville
TEXAS, Austin
UTAH, Salt Lake City
VIRGINIA, Richmond
WASHINGTON, Tacoma
WEST VIRGINIA, Charleston
WISCONSIN, Madison
WYOMING, Cheyenne

INT: 1439-77

NAWDEX—THE NATIONAL WATER DATA EXCHANGE

by Melvin D. Edwards

Program Manager, National Water Data Exchange
U.S. Geological Survey

INTRODUCTION

Existing water data are becoming more important in matters related to the appraisal and management of available water resources, pollution surveillance and studies, monitoring of water quality criteria and standards, and the development of energy resources. The National Water Data Exchange (NAWDEX) has been established to help users of water data to locate and acquire needed data. NAWDEX is not a large depository of water data. Rather, its objective is to provide the user with sufficient information to define what data are available, where these data may be obtained, in what form the data are available, and some of the major characteristics of the data.

ORGANIZATION OF NAWDEX

NAWDEX has been organized using guidelines and design characteristics developed by the Federal Intergency Water Data Handling Work Group. This work group is comprised of representatives of 13 Federal agencies and is a task group of the Federal Intergency Advisory Committee on Water Data established under the auspices of the U.S. Geological Survey's Office of Water Data Coordination. The implementation of NAWDEX has also been endorsed by the non-Federal Advisory Committee on Water Data for Public Use.

NAWDEX Program Office: The U.S. Geological Survey has the lead-role responsibility for NAWDEX. In this capacity, it has established the NAWDEX Program Office at its National Center in Reston, Virginia. This office provides the central management for NAWDEX. It also has the responsibility for coordinating all operational activities within the program. This includes serving as liaison between NAWDEX members and users of the system.

Local Assistance Centers: The service capabilities of NAWDEX are supported by a nationwide network of Local Assistance Centers established in the offices of NAWDEX members to provide local and convenient access to NAWDEX and its services. This network initially consists of 51 Centers located in 45 States and Puerto Rico. A complete list of these Centers and their locations may be obtained from the Program Office. Most Centers are equipped with computer terminals, thereby providing an extensive telecommunication network for access to the computerized directory and indexes being developed for the NAWDEX program. As the NAWDEX membership increases, additional centers will be added in large population areas and areas of high user interest to provide improved access to NAWDEX and its services.

NAWDEX Members: Organizations that become participating members of NAWDEX form the base units of the organization. Current membership includes representation from the Federal, State, academic, and private sectors of the water-data community. Participating members work together as a confederation to provide ready and convenient access to their water data.

NAWDEX SERVICES

A variety of services are provided by NAWDEX. Those of major significance are:

Identification of Sources of Water Data: The NAWDEX Program Office maintains a *Water Data Sources Directory*. This directory identifies organizations that collect water data, locations within these organizations from which water data may be obtained, the geographic areas in which water data are collected by these organizations, the types of water data collected,

alternate sources for acquiring the organization's data, and the media in which the data are available.

Nationwide Indexing of Water Data: A computerized *Master Water Data Index* is also maintained which is scheduled for nationwide use in November 1976. This index identifies individual sites for which water data are available, the locations of these sites, the organizations collecting the data, the hydrologic disciplines represented by the data, the periods of record, water data parameters, the frequency of measurement of the parameters, and the media in which the data are available. More than 61,000 water data sites are currently being indexed from information contributed by 19 Federal organizations and more than 300 non-Federal organizations. The contents of the index will grow significantly as the NAWDEX membership increases.

Data Search Assistance: Through its *Water Data Sources Directory*, its *Master Water Data Index*, and indexes and other reference sources made available by its participating members, NAWDEX assists its users in locating data of special interest. These data include water data in computerized and in both published and unpublished forms. The user is then referred to the organization(s) having the needed data. NAWDEX thus serves as a central point of contact for locating water data that may be held by several different organizations. Data search assistance may be obtained from the NAWDEX Program Office or from any of the Local Assistance Centers.

NAWDEX MEMBERSHIP

Membership in NAWDEX is voluntary and open to any water-oriented organization that wishes to take an active role in NAWDEX activities. There are no fees or dues associated with membership.

Conditions for becoming a NAWDEX member are quite flexible. However, a signed Memorandum of Understanding is required between the NAWDEX Program Office and the member organization. While the terms of this document may be negotiated, it generally requires that the member consent to being listed as a source of water data; provide sufficient input to NAWDEX to allow water data held by the member to be indexed; respond to requests for water data; and participate, to the extent possible, in the development and utilization of standardized techniques and methodologies for the handling of water data.

CHARGES FOR NAWDEX SERVICES

Users requesting data or services through NAWDEX may be required to pay charges assessed at the option of the member organization supplying the data or service. In general, charges will apply to those requests that require extensive computer usage or manpower for response. In all cases, the charge will not exceed the actual cost incurred in providing the service or product. Generally, users will not be charged for data search assistance by a NAWDEX office.

Requests for services or additional information related to the NAWDEX program may be directed to:

National Water Data Exchange
U.S. Geological Survey
421 National Center
Reston, VA 22092
Telephone (703) 860-6031,
(FTS) 928-6031.