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Water Current

November/December 1984

**WISHING YOU ALL THE JOYS OF CHRISTMAS
AND A PROSPEROUS AND HAPPY NEW YEAR**

Seasons Greetings from the NWRC Staff . . .

Karen E. Stok

Eileen Miller

Ann Bleed

Kicki Halstrom

Daryush Razavi

Bill Powers

Mike Hicklin

Sue Miller

Don Wilhite

Terri L. Short

Don Rodden

Pat Larsen



NEBRASKA WATER RESOURCES CENTER

1985 WATER RESOURCES SEMINAR SERIES

The Nebraska Water Resources Center is sponsoring a 1985 Water Resources Seminar Series to be held every Wednesday afternoon at 3:30 p.m. beginning January 16, 1985. This year the seminar series will be held in the East Campus Union (room to be posted). The theme for the 1985 series is "ASPECTS OF GROUNDWATER QUALITY."

The seminars are open to the general public. Students may register for one hour's credit through the Department of Forestry, Fisheries and Wildlife (FFW 415/815). The course is also crosslisted in Natural Resources, Geology and Geography.

The schedule of seminar topics and speakers is as follows:

- | | |
|-------------|--|
| JANUARY 16 | OVERVIEW OF NEBRASKA'S AND THE REGIONAL AQUIFER —
Vincent Dreeszen, Director
Conservation & Survey Division, UNL |
| JANUARY 23 | BASIC CONCEPTS OF GROUNDWATER HYDROLOGY
Darryll Pederson, Research Hydrogeologist
Conservation & Survey Division, UNL |
| JANUARY 30 | BASIC CONCEPTS OF GROUNDWATER GEOCHEMISTRY
Dick Engberg, Supervisory Hydrologist
Doug Druliner, Hydrologic Technician
U. S. Geological Survey |
| FEBRUARY 6 | NON-POINT SOURCES OF GROUNDWATER POLLUTION — Irrigation Development,
Chemigation, etc.
Roger E. Gold, Coordinator
Environmental Programs, IANR, UNL |
| FEBRUARY 13 | POINT SOURCES OF GROUNDWATER POLLUTION — Case Studies
Roy Elliott, Hydrologist
Hoskins-Western-Sonderegger, Inc. |
| FEBRUARY 20 | NEBRASKA GROUNDWATER PROTECTION STRATEGY
James Krueger
State Dept. of Environmental Control |
| FEBRUARY 27 | NATIONAL GROUNDWATER PROTECTION STRATEGY
Morris Kay, Regional Administrator
Region VII, Environmental Protection Agency
Kansas City, MO |
| MARCH 6 | CURRENT STATE AND FEDERAL LEGISLATIVE ACTIVITIES
Robert Kuzelka, Water Resources Planner
Conservation & Survey Division, UNL |
| MARCH 13 | NRD REGULATION AND MANAGEMENT OF GROUNDWATER QUALITY
Ron Bishop, General Manager
Central Platte NRD |
| MARCH 20 | NEBRASKA WATER CONFERENCE (No Class) |
| MARCH 27 | SEMESTER BREAK (No Class) |
| APRIL 3 | LOCAL ASPECTS OF GROUNDWATER QUALITY
Steve Masters, Utilities Coordinator
City of Lincoln |
| APRIL 10 | ON-GOING RESEARCH AT UNL:
Volital Organics in Hastings Groundwater
John Fulton, Dept. of Geology
RDX Groundwater Contamination
Alex Fisher, Dept. of Geology |

APRIL 17

ON-GOING RESEARCH AT UNL

A Hazardous Waste Site near Beatrice, NE
Bruce Wood, Dept. of Geology

Water Quality Associated with the Lincoln Landfill
John Gross, Dept. of Geology

APRIL 24

RESEARCH AND INFORMATION NEEDS FOR GROUNDWATER PROTECTION

Charles Kreidler
Department of Geology
University of Texas

WATER RESOURCES RESEARCH PROPOSALS

The Nebraska Water Resources Center has received word that federal funds for water resources research will again be available for FY 1985 through the U.S. Geological Survey. These funds are provided as a result of P.L. 98-242, the Water Resources Research Act of 1984. Section 104 of the Act will provide \$109,000 to each State Water Institute for a program of water resources research. Section 105, a nationally competitive matching grant program, will also be funded at a level of approximately \$2 million.

The Water Center has issued a request for proposals for the Section 104 program. To be eligible, 15 copies of the proposal must be received by the Water Center no later than JANUARY 10, 1985, and funding should be in the range of \$10,000 to \$20,000 per year. Funding requirements state that at least one non-federal dollar must be matched for each federal dollar requested.

For additional information and a copy of exact research proposal guidelines, contact the Nebraska Water Resources Center.

1985 NEBRASKA WATER CONFERENCE

The annual Nebraska Water Conference will be held March 19-20, 1985 at the Nebraska Center for Continuing Education in Lincoln, NE. The theme for the 1985 conference is "WATER MANAGEMENT IMPLEMENTATION."

The Nebraska Water Conference Council Planning Committee is currently finalizing the program. Topics for discussion at the conference will include: (1) Implementing Legislation and Plans; (2) Groundwater Recharge Demonstration Projects Act of 1984; (3) Economics and Financing of Water Projects; and (4) Implementing Groundwater Protection.

It is anticipated that the registration fee will be \$60. The final program for the 1985 Nebraska Water Conference will be available in January. Mark your calendars now!

KREMER LECTURE SERIES SPEAKER

Internationally known soil physicist Don Kirkham, Iowa State University Professor Emeritus, was this year's speaker at the Maurice A. Kremer Lecture Series on Water Resources. His topic was "Soils, Water and a Hungry Man."

Sponsored by the Institute of Agriculture and Natural Resources, UNL, the Kremer Lecture Series was established in 1983 to honor former State Senator Maurice Kremer. Often called "Mr. Water" of Nebraska, Senator Kremer for many years was in the forefront of water resources planning for the state. The lecture series involves two sessions each year on current or future water resources issues affecting Nebraska.

Kirkham is the co-recipient of a \$100,000 international agricultural research grant and has had a strong influence on soil physics in the United States. According to Joe Skopp, UNL agronomy professor, about 80 percent of all university soil physicists in the U.S. have been trained by Kirkham or his students.

NEW DIMENSIONS IN NEBRASKA WATER POLICY

At a symposium in November sponsored by the Natural Resources Law Society of the University of Nebraska College of Law, Dave Aiken, UNL Water Law specialist, spoke about "The Law—A Perspective."

He told the audience at "The Platte River: Policy and Planning for the Next 100 Years" symposium that only through significant restrictions of irrigation groundwater withdrawals can a sustainable level of irrigation be established. "Focusing on this issue rather than how impoundment projects can be implemented and financed would better serve Nebraska's long-range water policy interests," Aiken said.

While talking about future water issues, Aiken pointed out that although LB 1106 provides some assistance in resolving Platte River and other major water controversies through Water Management Board review, mediation and approval, significant policy issues remain unanswered. He added that some of these issues relate to LB 1106 ambiguities and others relate to issues not addressed by LB 1106.

The five ambiguities of LB 1106 that Aiken cited were: (1) Will the Water Management Board be involved in resolving the current Platte River project disputes? (2) To what extent is the Water Management Board to be involved in making endangered species determinations? (3) Where will the state project financial assistance come from? (4) Will any of the projects be financially feasible? and (5) Can an impoundment policy solve Nebraska's groundwater depletion problems?

Other speakers at the symposium were Lee Becker, Nebraska Department of Water Resources; John VanDerwalker, executive director of the Platte River Whooping Crane Trust; Ron Bishop, Central Platte NRD; Norm Thorson, UNL College of Law; Eric Pearson, Creighton University College of Law; Richard Kopf, Lexington attorney; State Senator Loran Schmit, chairman of the Public Works Committee; Richard Harnsberger, UNL College of Law; and Michael Jess, director of the Department of Water Resources.

Pat Larsen
Public Information Specialist

RESEARCH REVIEW

Project Title: Scheduling Irrigation with a High Speed Center Pivot to Reduce Heat and Moisture Stress in Corn

Principal Investigator: Blaine L. Blad, Professor, Center for Agricultural Meteorology and Climatology, UNL

Sprinkler irrigation reduces air temperature and increases relative humidity by evaporative cooling in and above the canopy. Experiments need to be conducted to observe if these effects are beneficial to plants, especially during periods of heat and moisture stress caused by high temperatures. Reduction of actual plant temperature, distribution of water on a plant, and amount of water present also need to be investigated.

Research began in 1983 near Grant, Nebraska with Pioneer 3727 corn. Atmospheric data were measured with instruments located on opposite sides of a 120-acre field, and data were stored on cassettes by a data micrologger. The field was irrigated by a high-speed center pivot; tests applied 1 mm of water over a ten-minute period. Plant temperatures were measured by a copper-constantan thermocouple inserted into the growing point of the corn plant. Canopy air temperatures decreased 3-5 degrees C and relative humidities increased 12-15 percent for 30-45 minutes; above canopy air temperatures lowered 1-2 degrees C, and relative humidities raised 6-10 percent.

Variable plant temperatures and a concern for water distribution warranted further studies near Tryon, Nebraska in 1984. Data were collected in a similar fashion; however, irrigation was applied with a solid set irrigation system at a rate equal to the center pivot. Improved plant thermocouples showed expected plant temperatures without irrigations. Primary photographic work observing water distribution and form on the plant demanded additional techniques for recording data; the dominant form was films on either side of the leaf.

Extensions of this research are planned and suggested based on applications to water resource problems.

JOBS AVAILABLE

A professor of Civil and Environmental Engineering or Agricultural and Irrigation Engineering is being sought at Utah State University with research at the Utah Water Research Laboratory.

This position in surface and groundwater hydrology requires proven research and teaching leadership, a full professor with internationally recognized academic credentials related to hydrologic studies for water supply, flood control and salt management at a basinwide scale. This position involves a nine-month appointment base.

Interested applicants should submit resume, names of at least three references, and a statement of research and other career goals by January 1, 1985 to L. Douglas James, Director, Utah Water Research Laboratory, Utah State University, Logan, Utah 84322.

Utah State is an Affirmative Action/Equal Opportunity Employer.

CALL FOR PAPERS

The International Symposium on Flood Frequency and Risk Analyses will be held May 18-21, 1986 at Louisiana State University. Papers are being solicited on various topics, a partial list of which includes: (1) flood characteristics, (2) treatment of flood data, (3) statistical models of flood frequency, (4) methods of parameter estimation, (5) evaluation and choosing amongst models, (6) regional flood frequency analysis, (7) risk analysis, (8) application of flood frequency models to water resources and civil works, (9) effect of land use changes on flood frequency, and (10) National Flood Insurance and National Flood Control programs.

Authors are requested to submit summaries in triplicate of approximately 500-1,000 words highlighting the major thrust and contribution of their papers BY APRIL 15, 1985. Information about acceptance of papers will be sent by May 15, 1985. At that time, authors will be given detailed instructions for preparation of the final manuscripts which will be due at Louisiana State University by December 15, 1985.

For further information, contact: Dr. Vijay P. Singh, Symposium Director, International Symposium on Flood Frequency and Risk Analyses, Department of Civil Engineering, Louisiana State University, Baton Rouge, LA 70803.

MEETINGS AND CONFERENCES

- Jan. 14-17, 1985 Short Course on Groundwater Modeling Without Mathematics to be held at the Sheraton Tara Hotel, Framingham, Massachusetts. For additional information, contact National Water Well Assoc., 500 West Wilson Bridge Road, Worthington, OH 43085. Telephone: (614) 846-9355.
- Feb. 18-21, 1985 Same program as above will be held in New Orleans, LA.
- Jan. 22-24, 1985 Short Course on Corrective Action for Containing and Controlling Groundwater Contamination will be held at San Diego, CA. For additional information, contact the National Water Well Association at above address.
- Feb. 19-21, 1985 Same program as above will be held in Orlando, FL.
- Feb. 4-6, 1985 National Conference on Water Resources Research to be held at the 4-H Center in Chevy Chase, Maryland. Registration fee is \$35. For additional information contact: Executive Secretary, UCOWR, 310 Agricultural Hall, University of Nebraska, Lincoln, NE 68583. Telephone: (402) 472-3305.
- Feb. 14-16, 1985 Environmental Law Course to be held in Washington, D.C. Registration fee is \$360. For additional information, contact: Donald Maclay, Director, Courses of Study, ALI-ABA, 4025 Chestnut St., Philadelphia, PA 19104.

PUBLICATIONS

The following publications have been received by the Water Resources Center during October and November 1984. They have been forwarded to C.Y. Thompson Library on UNL's East Campus for cataloging. Persons on campus may obtain the publications through UNL's library system. Others are encouraged to request copies they desire from the organization issuing the publication.

- (1) *Flood Damage Prevention Services of the U.S. Army Corps of Engineers: An Evaluation of Policy Changes and Program Outcomes During 1970-1983 Measured Against Criteria of Equity, Efficiency, and Responsiveness*, Dissertation 84-D-2, February 1984, U.S. Army Corps of Engineers, Engineer Institute for Water Resources.
- (2) *A Single-Well, Multiple-Pulse Tracer Technique for Estimating Ground Water Velocities and Pollutant Transport Rates: Phase I Theoretical Development*, August 1984, Water Resources Research Center, Purdue University, West Lafayette, IN 47907.
- (3) *Population Ecology of Woodcock in Wisconsin*, Technical Bulletin No. 144, 1984, Department of Natural Resources, P. O. Box 7921, Madison, Wisconsin 53707.
- (4) *Economics and Law of Compensation: Natural Resources Policy*, Technical Report No. 155, August 1983, Water Resources Research Center, University of Hawaii, Honolulu, HI 96822.
- (5) *Decontamination of Chromium-Contaminated Soil in Hawaii*, Technical Report No. 159, March 1984, Water Resources Research Center, University of Hawaii at Manoa, 2540 Dole St., Honolulu, HI 96822.
- (6) *Hydrologic and Water Quality Impacts of Peat Mining in North Carolina*, Report No. 214, August 1984, Water Resources Research Inst. of the Univ. of North Carolina, Box 7912, Raleigh, N.C. 27695-7912.
- (7) *Hydrilla Management in North Carolina*, Report No. 217, August 1984, Water Resources Research Inst. of the Univ. of North Carolina, Box 7912, Raleigh, N. C. 27695-7912.
- (8) *Mercury in Peat and Its Drainage Waters in Eastern North Carolina*, Report No. 218, September 1984, Water Resources Research Inst. of the Univ. of North Carolina, Box 7912, Raleigh, N. C. 27695-7912.
- (9) *Small-Scale Hydroelectric Power Demonstration Project*, by Central Maine Power Co., Augusta, Maine, June 1984, National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

WATER CURRENT

Water Current is published by the Nebraska Water Resources Center (NWRC), which is a division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln.

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