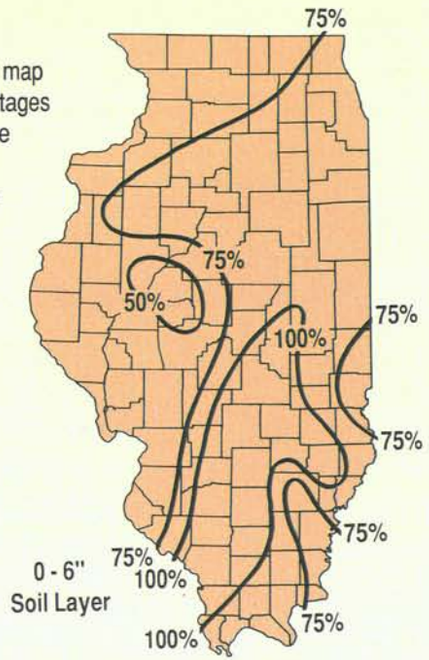
The Illinois Soil Moisture Network is part of the Water Survey's Natural Resources Benchmark Network, which monitors the state's climate and water resources.

How Soil Moisture is Measured

Water Survey technicians measure soil moisture with a neutron depth probe and a neutron surface moisture gage. Both the depth probe and the surface gage emit neutrons at a high velocity. Hydrogen ions in the soil water slow the movement of the neutrons and deflect some of them back to the probe and the surface gage, where they are counted by a detector. The amount of water in the soil is determined according to the number of neutrons that return to the probe and the gage.



A sample summary map showing the percentages of available moisture in the top 6 inches of soil at the seventeen network sites on April 1, 1990

How to Obtain Information

State soil moisture summary reports, summary maps, and individual station reports may be obtained by contacting:

Dr. Steven E. Hollinger or
Ms. Beth Reinke

Office of Applied Climatology
Illinois State Water Survey,
Richard G. Semonin, Chief
2204 Griffith Drive
Champaign, IL 61820-7495
Telephone (217) 333-2210

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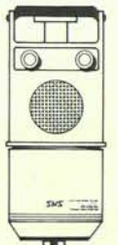
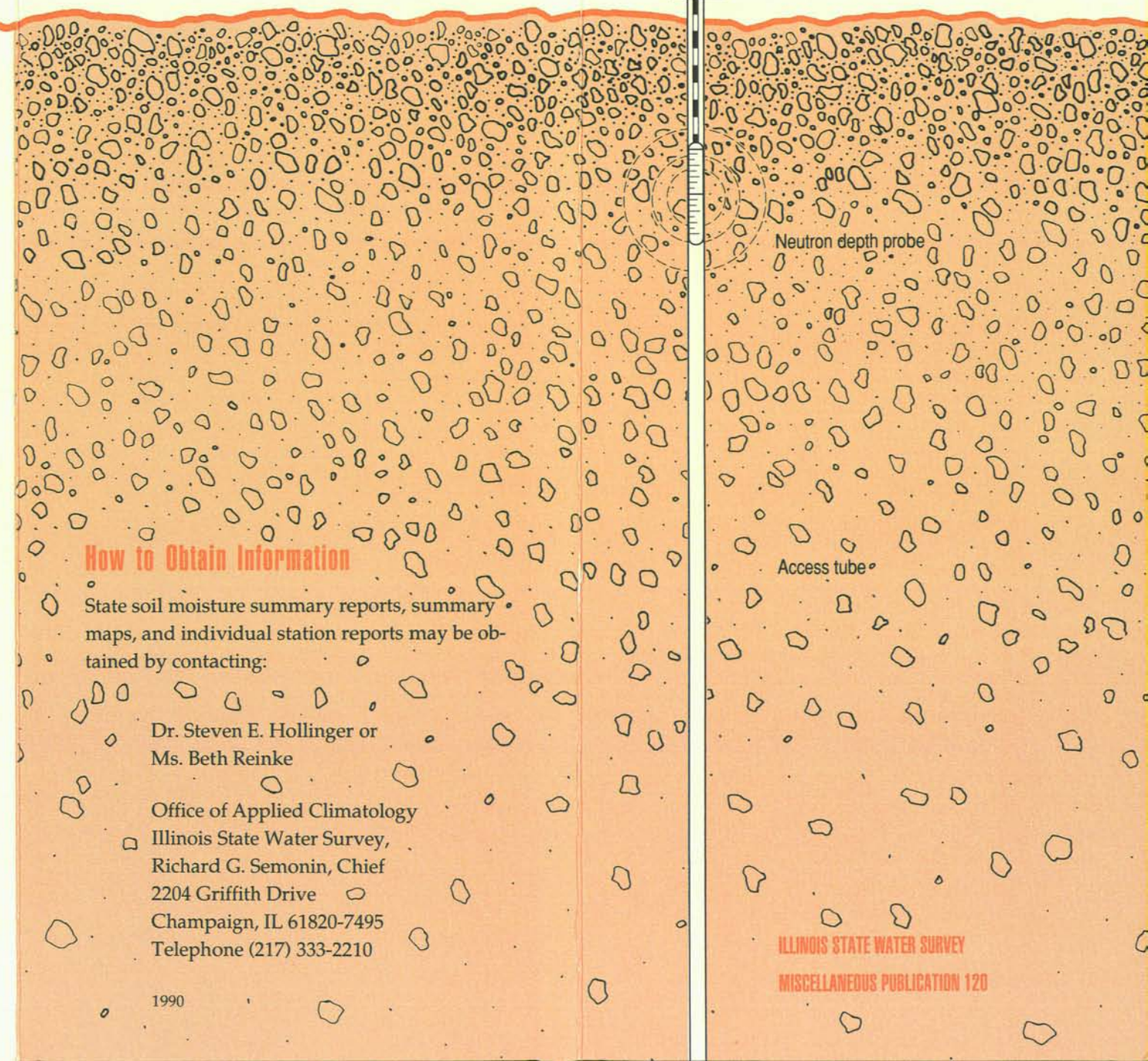
SOIL MOISTURE INFORMATION





ILLINOIS STATE WATER SURVEY
MISCELLANEOUS PUBLICATION 120

Neutron moisture gage

The amount of water in the soil is an important factor in the growth of crops. Soil moisture conditions affect many farming operations, such as when to plow, when to plant, and when and how to apply herbicides and fertilizers. For farmers and others in agribusiness, soil moisture conditions are an integral part of the decision-making process.

In a dry year, knowledge of soil moisture conditions is critical. Regular monitoring of soil moisture helps the agricultural community pinpoint areas where soil moisture is low and evaluate and forecast the severity of plant stresses.

What the Water Survey Can Provide

The Illinois State Water Survey provides information on Illinois soil moisture conditions free of charge. The information is collected from the Water Survey's Illinois Soil Moisture Network, which consists of seventeen soil moisture monitoring sites scattered throughout the state. The soil at each site is characteristic of the soils in that vicinity, so the network gives a picture of the soil moisture conditions in individual areas and statewide.

Soil moisture information is available from the Water Survey in the form of summary reports and maps. During the growing season (March through September), Water Survey field technicians collect data twice a month (the week of the fifteenth and the last week of the month). These data are used to develop the reports and maps that are issued after each collection.

Reports. The written soil moisture summaries give a general picture of current conditions in the state. They include 30- and 90-day weather outlooks from the National Weather Service and commentary on what these outlooks and current soil moisture conditions could mean for the growing season.

Maps. Statewide summary maps show the percentage of maximum plant-available soil moisture for each site in the network. Summary maps are constructed for four different soil layers: 0 to 6 inches deep, 6 to 20 inches deep, 20 to 40 inches deep, and 40 to 72 inches deep. Additional maps available show historical data, such as five-year long-term average percentages of available moisture, which provide valuable comparisons with current soil moisture conditions.

Soil monitoring sites
of the Illinois Soil Moisture Network

Illinois Soil Moisture Network

	Station	*Beginning date of record*	*Soil series**
1.	Freeport	4/15/82	Dubuque
2.	DeKalb	5/21/81	Flanagan/Drummer
3.	Monmouth	6/19/81	Muscatine
4.	Oak Run	6/1/81	Rozetta
5.	Peoria	10/25/82	Clinton
6.	Stelle	3/31/86	Monee
7.	Topeka	6/1/81	Plainfield
8.	Bondville	2/19/81	Flanagan/Elburn
9.	Champaign	6/26/86	Drummer
10.	Perry	5/6/81	Clarksdale
11.	Springfield	7/22/82	Ipava
12.	Brownstown	4/30/81	Cisne
13.	Olney	7/23/82	Bluford
14.	Belleville	5/13/82	Weir
15.	Ina	8/5/82	Cisne
16.	Carbondale	11/24/82	Parke
17.	Dixon Springs	4/29/81	Grantsburg

** All the soils are silt loams except for Drummer (silt clay loam) and Plainfield (loamy sand)*

From October through February, soil moisture is measured only during the last week of the month, and soil moisture reports are issued at that time. These reports include summaries of current statewide soil moisture conditions, weather outlooks, maps, and projections of soil moisture conditions at the start of the upcoming growing season.

From the soil moisture data collected at the network sites, several soil moisture properties at different soil layers are computed. Printouts of these technical data are also available for the asking.