

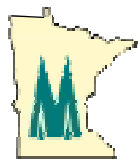
water year data summary

2003 and 2004

October 1, 2002 - September 30, 2004

by the DNR Waters Staff
St. Paul, MN

May 2005



Minnesota
Department of Natural Resources
Waters

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introduction

This publication provides a review and summary of basic hydrologic data gathered through DNR Waters programs. There are four major areas of data collection including climatology, surface water, ground water and water use. These areas follow the hydrologic cycle (see diagram on page iv) and provide important facts concerning the distribution and availability of Minnesota's water resources.

Basic hydrologic data are essential to a variety of water resource programs and related efforts. The extent of our knowledge depends on the quality and quantity of hydrologic data. Analysis and use of data are vital to understanding complex hydrologic relationships. With expanding technologies, there is a greater need for even more data of higher quality.

The DNR Waters website at www.dnr.state.mn.us/waters provides a wealth of information on Minnesota's lakes, rivers and streams, wetlands, ground water and climate, much more than can be included in this summary report. Maps, publications, forms, educational resources and answers to common water resources questions can be found on the site. Visitors will find access to lake level data, stream flow information and ground water level data. The site, which is updated regularly, is intended to help the citizens of Minnesota become better stewards of the state's water resources by providing comprehensive information about those resources.

This report is a continuation of Water Year reports published by DNR Waters in 1979, 1980, 1991, 1993, 1995, 1997, 1999, 2001 and 2003. This edition is also available on our website.

water year

The climatology, surface water and ground water data presented are for Water Years 2003 and 2004.

WY 2003: October 1, 2002 - September 30, 2003

WY 2004: October 1, 2003 - September 30, 2004

Use of water year as a standard follows the national water supply data publishing system that was started in 1913. This convention was adopted because responses of hydrologic systems after October 1 are practically all a reflection of precipitation (snow and rain) occurring within that water year.

Water use data is reported and presented on a calendar year basis.

acknowledgements

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Glen Yakel, *Editor*

Kent Lokkesmoe, *Director*

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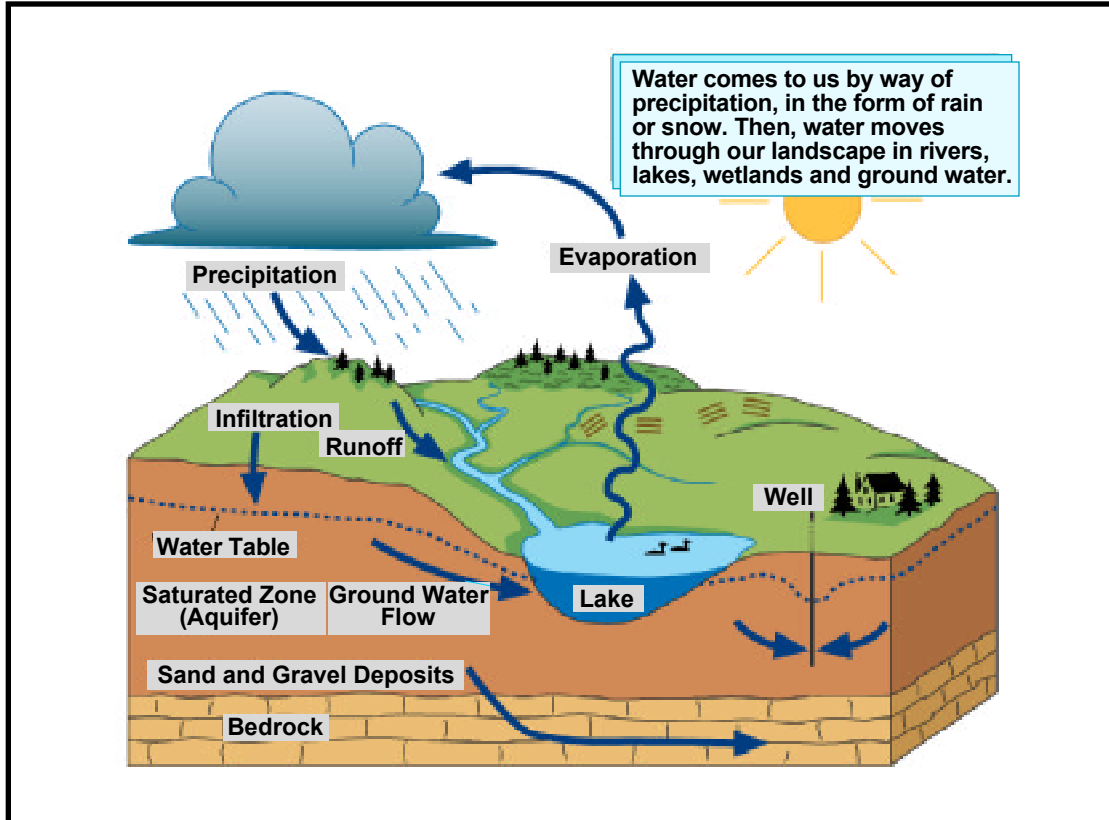
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hydrologic cycle



The hydrologic cycle is a concept used to explain the movement of water around the earth. This movement is continuous and has no beginning or end. Change at any point in the cycle will be reflected later in the cycle.

Surface water, which predominantly exists in oceans, is evaporated into the atmosphere by the energy of the sun. It returns to the earth as precipitation (rain or snow). As precipitation falls, it may be intercepted by vegetation and evaporate or it may reach the ground surface. Water that reaches the surface may either soak into the soil or move downslope. As it soaks into the soil (infiltration), it may be held in the soil or continue

to move downward and become ground water. Ground water may be stored in the ground, returned to the surface as a spring, flow into a concentrated body such as a stream or lake, or be returned to the atmosphere by plant transpiration. Water that does not infiltrate the soil moves downslope, until concentrated areas form a stream. Streams lead to lakes and into other streams, which ultimately return the water to the oceans.

At any point where water is on the ground surface, it is subject to evaporation into the atmosphere or infiltration into the soil.

