

## FORWARD

Currently, the Internet has over 20 million users and this number is growing at a rate of 10 percent per month. This phenomenal growth in activity is being fueled by the excitement being generated by the World Wide Web (WWW). Mosaic and Netscape have provided an extremely user-friendly graphical interface to browse the WWW hypertext environment, even for new users. As our navigational tools improve and the cost of hardware declines, this new information technology is diffusing throughout society and transforming our ways of communicating and managing information.

As water resources professionals, we must concern ourselves with this new technology in our efforts to understand, manage, and sustain the world's water resources. This emerging tool will affect the way we teach our students, perform our research, disseminate knowledge, conduct our service activities, run our professional organizations, and interact with our colleagues.

This issue of the Update focuses on several water related information resources that are available on-line. This collection of articles gives the reader an idea of 1) what types of information are being disseminated over the Internet and 2) pertinent issues related to administering the dissemination of information using this exciting technology. The number of Web sites devoted to environmental and water related information is growing rapidly. The overall quality of these sites is an emerging concern to both the users and providers of on-line information. Concerns about information integrity, timeliness and updating, availability, and usefulness must be addressed by participants to ensure that the promise of the technology is not subverted. At this stage of its development, many agree that the endless proliferation of "empty" home pages on the Web is counterproductive, no matter how pretty they may be. As a profession, we must consider where the gaps in our on-line information efforts are and work to address these shortcomings. Naturally, these on-line gaps will inevitably correspond to preexisting gaps in our disciplinary knowledge and data. These more fundamental information gaps must be confronted in light of the new opportunities that this information technology presents us with in the creation, structuring and maintenance of information databases.

The authors in this issue address many of these concerns in their telling of the development of their on-line information resources. Haslam and Wright discuss the comprehensive effort through the WETnet concept to improve communication and information sharing among water resources professionals in Indiana. The Groundwater Education in Michigan and Land and Water Systems Partnership programs of the Institute of Water Research at Michigan State University are discussed by Kline-Robach. Lanfear reviews the substantial efforts of the United States Geological Survey in placing several major applications on-line. One of the first regional efforts at utilizing informational technology is discussed by Ratza. The Great Lakes Information Network seeks to facilitate on-line capabilities to better manage the complexities of the Great Lakes ecosystem.

Belk and Heathcote provide a very nice overview of information resources available that are useful to Canadian water resources management. The evolution of the Universities Water Information Network is outlined by Anderson and Wade. Chasan and Wolf present an overview of two on-line resources devoted to water issues in the Middle East. Bennett and Davie discuss the usefulness of the Internet to Geographic Information Systems (GIS) and provide a discussion of digital data set issues. Overall, the papers provide a very useful discussion of the individual information resources and of issues that face us in our development and usage of water related information via the Internet. We have provided several appendices for the reader's use. In Appendix A, Wade explains the basics of Internet discovery tools for those relatively new to the Internet. Appendix B is the UWIN glossary of terminology related to information technology. Appendix C is the UWIN list of water related listservers and mailing lists.

It has been a pleasure putting this issue together. I would like to thank all the authors for their time and effort in contributing to this Update. Also, I would also like to thank Greg Wade, the UWIN Computer Information Specialist, for his help and all he has taught me in the last two years. I think many will find this collection of papers both interesting and useful. Due to the changing nature of the Internet, we all realize that printed information about on-line information resources becomes dated as the ink is drying. That is the inherent nature of the technology we work with! Despite this, we think that you will find these discussions very informative. And we hope they can begin to form a foundation for considering the broader issues of how information technology can inform our roles as water resource professionals in this changing age.

This issue will also be a first for UCOWR as it will be placed on-line in its entirety (on the UWIN Home page under UCOWR). All site addresses will be hotlinked so that any user can immediately check out any resources that are referred to within the papers. Please tell your colleagues and students about the on-line availability of this issue. Additionally, UWIN is planning on conducting an on-line conference titled "Information Technology and Water Resources" in the fall. We hope that you will participate in this discussion.

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