

W A T E R — R E S O U R C E S

IMPACT

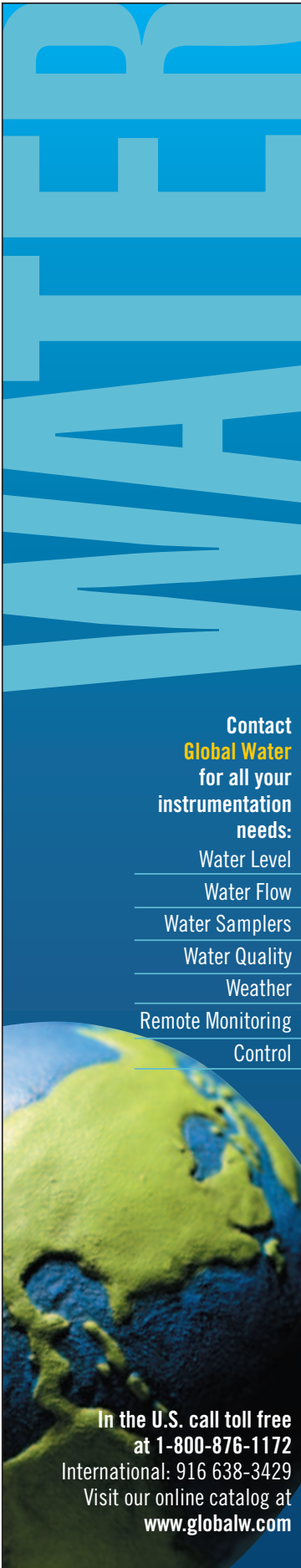
May 2003 | Volume 5 | Number 3

**Water Resources/Hydrology
At The Extremes**

AWRA

Community, Conversation, Connections

AMERICAN WATER RESOURCES ASSOCIATION



Contact
Global Water
 for all your
 instrumentation
 needs:
 Water Level
 Water Flow
 Water Samplers
 Water Quality
 Weather
 Remote Monitoring
 Control

In the U.S. call toll free
 at 1-800-876-1172
 International: 916 638-3429
 Visit our online catalog at
www.globalw.com

LEVEL LOGGING

The New WL15 Model Water Level Logger



The WL15 provides a datalogger and pressure sensor for remote monitoring and recording of **water level, flow, and pressure data.**

- **Highly Reliable and Accurate.** This water level logger records *24,000* readings with programmable time intervals.
- **Housed in a Weather-Resistant Cylindrical Enclosure.** The WL15 slips inside a 2" pipe and the internal 9 volt battery powers the logger and sensor for up to three years.
- **Several Water Level Ranges Available.** Optional cable lengths up to 500'.
- **Includes Windows-Based Software.** Allows easy upload of data to standard spreadsheet programs on a PC computer.

1-800-876-1172

Visit our online catalog at:
www.globalw.com



Global Water
The Leader in Water Instrumentation

WATER RESOURCES/HYDROLOGY AT THE EXTREMES

Associate Editor
CHARLES W. SLAUGHTER
(cslaugh@uidaho.edu)

We look at selected aspects of water resources “extremes” in this issue of IMPACT. Extremes of climate and extremes of individual precipitation, snowmelt, and runoff events, including “catastrophic” geologic processes, must be considered in improved water resources management.

OVERVIEW

- 3 Water Resources/Hydrology at the Extremes**
Charles W. Slaughter (cslaugh@uidaho.edu)

FEATURE ARTICLES

- 4 Community Planning for Floods in Arid Regions**
John Cobourn (cobournj@unce.unr.edu)
Steven R. Lewis (lewiss@unce.unr.edu)
Alluvial fans are often preferred development locations in arid regions, because they offer sites elevated from normal stream channels. Flash floods on alluvial fans can be rapid, localized, and catastrophic. This risk should be recognized by planners and developers.
- 10 Post-Eruption Hydrology and Sediment Transport in Volcanic River Systems**
Jon J. Major (jjmajor@usgs.gov)
Volcanic eruptions are “extreme” geologic events that can have devastating geomorphic and hydrologic consequences, as demonstrated by the 1980 eruption of Mount St. Helens in Washington.
- 16 Water Resources Management: A Challenging Issue for Tropical Islands in the Western Pacific**
Shahram Khosrowpanah
Leroy Heitz (lheitz@uog.edu)
Islands in the Western Pacific face unique water management challenges, including marked seasonal variation of precipitation, susceptibility to typhoon damage, limited access to safe drinking water, aging water delivery systems, and lack of a tradition of water conservation.
- 19 Intense Precipitation in Cuba**
Eduardo O. Planos Gutiérrez (planos@met.inf.cu)
Frederick N. Scatena (fns@sas.upenn.edu)
Cuba frequently receives very large rainfall. Recognition of the magnitude and spatial distribution of extreme rainfall will help in planning for management and mitigation of the resulting extreme runoff.
- 21 Extreme Flow Events in the Arctic Islands of North America**
Ming-ko Woo (woo@mcmaster.ca)
Permafrost underlain ecosystems have pronounced and extreme variability in hydrologic regimes. Streamflow is concentrated in a very short snowmelt and runoff season characterized by strong daily seasonal and interannual variability.

W A T E R R E S O U R C E S

IMPACT

Volume 5 • Number 3 • May 2003

Editorial Staff

EDITOR-IN-CHIEF

N. EARL SPANGENBERG
(espangen@uwsp.edu)

University of Wisconsin-Stevens Point
Stevens Point, Wisconsin

ASSOCIATE EDITORS

FAYE ANDERSON

(fayeanderson2@aol.com)

University of Maryland • College Park, Maryland

ERIC J. FITCH

(fitch@marietta.edu)

Marietta College • Marietta, Ohio

JONATHAN E. JONES

(jonjones@wrightwater.com)

Wright Water Engineers • Denver, Colorado

CLAY J. LANDRY

(landry@waterexchange.com)

WestWater Research • Laramie, Wyoming

RICHARD H. MCCUEN

(rhmccuen@eng.umd.edu)

University of Maryland • College Park, Maryland

LAUREL E. PHOENIX

(phoenixl@uwgb.edu)

University of Wisconsin • Green Bay, Wisconsin

CHARLES W. SLAUGHTER

(cslaugh@uidaho.edu)

University of Idaho • Boise, Idaho

ROBERT C. WARD

(rcw@lamar.colostate.edu)

Colorado Water Resources Research Institute
Fort Collins, Colorado

BUSINESS CORRESPONDENT

RACHEL CARDONE

(Rachel.Cardone@erm.com)

ERM • New York, New York



AWRA

IMPACT

A Bi-Monthly Publication of the
AMERICAN WATER RESOURCES ASSOCIATION

AMERICAN WATER RESOURCES ASSOCIATION
4 WEST FEDERAL STREET
P.O. Box 1626
MIDDLEBURG, VA 20118-1626
(540) 687-8390 / FAX: (540) 687-8395
E-MAIL: info@awra.org
Homepage: www.awra.org

EDITOR-IN-CHIEF
N. EARL SPANGENBERG
College of Natural Resources
University of Wisconsin-Stevens Point
Stevens Point, WI 54481
(715) 346-2372 • Fax: (715) 346-3624
E-Mail: espangen@uwsp.edu

AWRA DIRECTOR OF PUBLICATIONS PRODUCTION
CHARLENE E. YOUNG
3077 Leeman Ferry Rd., Suite A3
Huntsville, AL 35801-5690
(256) 650-0701 • Fax: (256) 650-0570
E-Mail: charlene@awra.org

Water Resources IMPACT is owned and published bi-monthly by the American Water Resources Association, 4 West Federal St., P.O. Box 1626, Middleburg, VA 20118-1626, USA. The yearly subscription rate is \$50.00 domestic and \$60.00 foreign. Foreign Airmail Shipping Option, add \$30.00 to subscription rate. Single copies of *IMPACT* are available for \$8.00/each. For bulk purchases, contact the AWRA Headquarters office.

IMPACT is a magazine of ideas. Authors, Associate Editors, and the Editor-In-Chief work together to create a publication that will inform and will provoke conversation. The views and conclusions expressed by individual authors and published in *Water Resources IMPACT* should not be interpreted as necessarily representing the official policies, either expressed or implied, of the American Water Resources Association.

Contact the AWRA HQ Office if you have any questions pertaining to your membership status. For information on advertising rates and deadlines, contact Charlene Young, AWRA Director of Publications Production, at the address given above.

POSTMASTER: Send address changes to *Water Resources IMPACT*, American Water Resources Association, 4 West Federal St., P.O. Box 1626, Middleburg, VA 20118-1626.

• VOL. 5 • NO. 3 • MAY 2003 •
ISSN 1522-3175

Other features in this issue ...

- ▲ Water Resources Puzzler27
- ▲ Feedback27
- ▲ Water on Wall Street28, 29
- ▲ Water Resources Continuing Education Opportunities30
- ▲ AWRA Business
 - 31 In Memoriam
 - 31 President's Message
 - 32 April 2003 JAWRA Papers
 - 32 2004 Election – Candidates for AWRA Officers and Directors
 - 32 AWRA Future Meetings
 - 33 2003 Membership Application

Featured Topics in Future 2003 Issues of IMPACT ...

JULY 2003

POWER SHIFTS IN WATER MANAGEMENT
FAYE ANDERSON
(fayeanderson2@aol.com)

SEPTEMBER 2003

FRAMEWORK FOR MONITORING
ROBERT C. WARD
(rcw@lamar.colostate.edu)

NOVEMBER 2003

SOCIAL FOUNDATIONS OF WATER MANAGEMENT
ERIC J. FITCH
(fitche@marietta.edu)

All of the topics listed above are subject to change. For information concerning submitting an article to be included in the above issues, contact the designated Associate Editor listed on pg. 1 or the Editor-In-Chief N. Earl Spangenberg at (espangen@uwsp.edu).

ADVERTISE YOUR PRODUCTS AND SERVICES

CONTACT THE AWRA PUBLICATIONS OFFICE FOR SPECIFICATIONS & PRICING FOR ADVERTISING

(ADVERTISING SPACE AVAILABLE FOR 1/6, 1/4, 1/3, 1/2, 2/3, AND FULL PAGE ADVERTISEMENTS)

CALL: (256) 650-0701

AWRA'S unique multidisciplinary structure provides the opportunity to advertise to readers representing over 60 professions and living in over 65 countries around the world

[Cover Photo: Slide Mountain south of Reno, Nevada, showing the flood debris at the foot of Ophir Creek – by P.A. Glancy, USGS]