

Water Management Interest Group

As a result of today's competitive energy market and increased concerns regarding the environment, hydropower operators must develop business strategies to maximize availability and profitability of their plants to gain competitive advantages.

The scope of the Water Management Interest Group (WMIG) is to focus on the development of methods & tools required to optimize hydraulic processes while maintaining safe and environmentally-friendly operations.

Topics of interest include watershed management and water use planning, meteorological forecasting (water, ice, flow), operational modeling (benchmarking and performance measurement), data acquisition techniques, and impact assessment (flow, environmental requirements).

Topics & Issues

Watershed Management/Water Use Planning

Operational Modeling and Optimization

Meteorology - Climate

Hydrology

Data Acquisition & Techniques

Hydraulics

Ice on Rivers and Reservoirs

Impact Assessment



Technology Coordinator

Mr. Robert Paul Metcalfe has over 30 years of experience in Water Management. During the last ten years he was a manager in the Water Management Services Department where he was accountable for water management studies and technical support, communications with the public, water level gauge operation, hydraulic turbine testing, streamflow metering, data quality control, administration of water leases and hydraulic engineering support for environmental studies. Over the years Robert has been active in many professional organizations. He is on the International St. Lawrence River Board of Control as the Canadian Co-Chair of the Control Board's Communications Committee and a member of the Working Committee. In addition, Mr. Metcalfe is the Executive Director of the Harshman Fellowships Society and on the Board of Directors for the Canadian Water Resources Association (Ontario Branch).



Projects

for a complete project listing, please visit: www.ceatech.ca/wmig

- Hydroelectric Generation Water Resource Management Roadmap
- Public Safety Signage on Waterways, Property and Facilities associated with Hydro-electricity
- Development of a Waterway Incident Reporting Process and Template/Database
- Evaluation of Quantitative Precipitation and Temperature Forecast Translation Methods for Use in Hydrologic Models
- Downscaling Hydrometeorological Data Used as Input into Hydrologic Inflow Forecase Model
- TechWatch 2003 DIALOG® Database
- Comprehensive River Ice Simulation System Project (CRISSP)
This \$1,250,000 three-year development will allow simulation of the formation, stability, jamming and break-up of ice in rivers. Ice considerations include hydraulic, meteorological, physical and thermal.
- Wind Forecasting in Water Management
- Risk Management and Accountability for Water Planning
- Improved Hydro-Meteorological Service
- Benchmarking Water Management Operations Costs - Control Room/Waterway/Station/Technical and Clerical Support

Workshops

- Water Management Decision-Support Software - The Challenge of Knowledgeable and Valued Decisions
- Water Management Process to Meet Efficiency, Regulator and Environmental Objectives
- Impact of Deregulation on Hydraulic Operations
- Data Management for Hydro Operations
- Dealing with Uncertainties in the Hydro-Electric Energy Business
- Hydro System Planning and Operation in Today's Changing Marketplace

Topics & Issues

Watershed Management/Water Use Planning

- Water Use Management Strategies
- Global Flow Management Strategies

Operational Modeling and Optimization

- Benchmarking and Performance Measurement
- Modeling and Optimization Techniques
- Global Watershed Optimization
- Single Reservoir Optimization
- Multiple Criteria Optimization
- Expert Systems

Meteorology - Climate

- Variability and Forecasting Evaluations
- Impacts on Watershed Hydrology
- Instrumentation and Communications
- Climate Change

Hydrology

- Precipitation Forecasting
- Uncontrolled Inflow Forecasting
- Stochastic Hydrology
- Gap Filling and Data Extension
- Regression Techniques
- Statistical Techniques

Data Acquisition & Techniques

- Collection, Validation and Diffusion
- GIS

Hydraulics

- Dam Break and Flood Routing
- Erosion and Sedimentation Transport
- Ramping Rates
- Fish Habitat Issues
- Simulation of Flows and Water Levels
- Hydraulics of Dam Failures
- Physical and Mathematical Modeling

Ice on Rivers and Reservoirs

- Mathematical Modeling of Ice Conditions
- Operating Strategies

Impact Assessment

- Evaluation of the Impact of Flows and Water Levels
- Adaptation to Environmental Requirements
- Mitigation Techniques

Annual Activities

2-3 Meetings

1-2 Workshops

5-7 Conference Calls

Weekly Information Exchange

Participation is open to:

Hydro-Electric Utilities

Independent Power Producers

Agencies that possess hydro-electric generating facilities

Water Users

Project Reports

Over the years more than 1300 projects have been completed and published in the fields of:

Generation; Transmission Distribution; Utilization

For a complete listing, please consult our website.

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