

**Minutes of the EWRI Technical Committee on
Hydraulic Measurements and Experimentation
2005 Annual Meeting**

May 17, 2005 (Tuesday)
7:00 p.m. – 10 p.m.
Lupine Room, Anchorage Hilton Hotel
Anchorage, Alaska

1. Welcome and introductions

- Visitors – Tom Ley, Colorado DWR, Chris Ward, Sontek, Mark Stone, Washington State University
- Members – Chris Rehmann, John Replogle, Janice Fulford, Marian Muste, Juan Gonzales-Castro, Tracy Vermeyen, Tony Wahl, and Brian Wahlin
- Member Status – The committee checked the status of members and determined that Jerald Bales (USGS), Mark Stacey (UC-Berkeley), and Jeff Koseff (Stanford) are inactive and have asked to be removed from the committee. Proposals from the committee members were made for addition of new members (see item agenda 8).
- Marian Muste agreed to record and prepared the minutes for this meeting

2. News from EWRI Council Workshop held in Atlanta, February 2005 (presented by T. Vermeyen):

Pierre Julien (Editor of JHE) encouraged TCHME to produce a special edition for the Journal of Hydraulic Engineering edition (see agenda item 6.b)

TCHME encouraged to host another HMEM conference on Hydraulic Measurements and Instrumentation to follow up the series of Buffalo, NY (1994) and Estes Park, CO (2002) conferences (see agenda item 7)

3. Update from TC on Experimental Uncertainty and Measurement Errors in Hydraulic Engineering (presented by Brian Wahlin - chair)

The chair presented a progress report that mentioned that since the first progress report discussed at the 2004 ASCE meeting in Salt Lake City, the TC team refined and finalized the report outline and TC members' responsibilities (Wahlin, Wahl, Gonzalez-Castro, Fulford, Robeson) for each of the report sections. The report outline and content specifications were presented as an oral contribution in the 2005 ASCE Congress Section on Hydraulic Measurements and Experimentation: Uncertainty Analysis (May 18). The final report will be structured as: Introduction (necessity of uncertainty analysis, review of existing methodologies), Adoption and recommendation of the AIAA (1995) standard for practical implementation, Implementation examples (6-7 relevant case studies).

4. IAHR Liaison report (presented by M. Muste)

M. Muste (chairman of the IAHR Hydraulic Instrumentation Section) mentioned that the current agenda of the IAHR homologous technical committee includes several action items of the EWRI

TC, i.e., uncertainty analysis, acoustic instrumentation for river monitoring, involvement of the instrument manufacturers in the activity of the technical committees. Muste proposed to continue and expand joint efforts of the two committees through specialized conferences and tracks at the future scientific events sponsored by the two organizations, the Conference on Measurements and Instrumentation (2007) and IAHR-EWRI Conference (2009).

5. Future EWRI Congresses (presented T. Vermeyen)

The future congresses are: Omaha, NE 2006, Tampa, FL 2007, Chicago, IL 2008, Vancouver BC 2009 (joint IAHR-EWRI congress)

- a) Ideas for TC participation in upcoming conferences? It was suggested that in addition to traditional topics for the congress technical sessions, themes related to the topics of the TCHME task committees to be proposed (see agenda item 6):
 - i) Autonomous real-time monitoring – multitask process measurements
 - ii) Remote measurements in hydraulic engineering
 - iii) Uncertainty Analysis

6. Discuss establishing new Task Committees

- a) *Autonomous remote sampling with multitask observational platforms (proposed by T Cohen and T. Nakato)*. The subject is becoming increasingly important for policy, management, science and homeland security sectors. Partnership with instrument developers is important in order to develop and customize instruments from other engineering communities (environmental, coastal, etc). Of special importance is the collaboration with the water-related environmental and researchers. The discussions addressed the following issues:
 - i) How do we involve technical experts from private industry
 - ii) What measurement should be included (stage, discharge, velocity, water quality)
 - iii) What are the requirements for automation and real-time data transmission systemsProducts: special tracks at the future congresses
- b) *Acoustic Measurement Techniques: Evaluation of instrument capabilities and best operation practices (proposed by M. Muste and T. Cohen)*. Acoustic techniques have rapidly growing in popularity while their capabilities, limitations and measurement uncertainties are still under scrutiny. Practical rules for conducting specialized measurements need to be formulated. Several discussion topics have been established:
 - i) ADCP moving and stationary measurement of discharge and velocities (Muste)
 - ii) ADCP measurement uncertainties and practical implementation (Muste, Gonzalez-Castro) - uncertainty analysis framework, error propagation, user-friendly interfaces for uncertainty analysis implementation
 - iii) ADCP capabilities for measurement of river hydrodynamics (Muste): secondary currents, vorticity (multiscale, multiplane), turbulence (turbulence intensities and Reynolds stresses), bed shear stresses, bed roughness, dispersion coefficients, autocorrelation functions, power spectrum
 - iv) ADCP bedload measurements (C. Rennie, Vionnet, C., Villard, P.V.)

- v) Use of backscatter intensity for measurement of suspended sediment and mapping of plankton and fish (There is extensive work on this subject that need to be reviewed and collaborators invited to participate)
- vi) Bathymetry/HydroAcoustic Surveys (There is abundant work in this area and we can pull several good papers on the topic, e.g. J. Best, R.A. Kostachuck, A.G. Roy.).

It was discussed the need to contact the USGS hydroacoustics group and instrument manufacturers (RDI, Nortek, Sontek) for substantial contributions to the TC subject. Extensive discussions referred to the modalities that the instrument manufacturers should contribute (individual writeups edited by the committee, based on a general survey, etc). Products: Special edition of the Journal of Hydraulic Engineering (publication deadline end of 2006 and it takes 18 to 21 months to get through the journal's review process), sessions and tracks at conferences. It would be nice to have the authors of articles in the JHE to present their work at the HMEM conference in 2007. M. Muste has volunteered to edit this special issue of JHE.

- c) *Non-Contact Measurement in Rivers (proposed by T. Nakato and M. Muste)*. Targeted techniques: image, radar, LIDAR based. Targeted measurements: velocity, discharge, stage, bathymetry, free surface slopes. The TC coordinators has to be contacted to formulate the detailed areas and the potential collaborators (J. Fulford- USGS, Suggested contributor - R. Hilldale-USBR)

Products: Journal Article(s) and Sessions and tracks at Conferences

7. Status of a Joint EWRI-IAHR Hydraulic Measurements & Experimentations Conference in 2007.

B. Parsons indicates EWRI support for a 2007 conference. Potential conference location: NYC or upstate NY. Todd Cowen volunteered to be on organizing committee if it is in NY. Additional local support will be explored from Dan Gessler, Alden Laboratory, S. Bennett (University of New York), F. Ogden (University of Connecticut), Conte Lab, Woods-Hole, USCOE's Cold Regions Lab in NH, Dave Hill at Penn State,

8. Suggestions for New Members.

It was suggested that the following people be contacted for joining the TC: Art Schmidt (UIUC), Marcelo Garcia (UIUC), Colin Rennie (University of Ottawa, Canada), David Admiraal (Univ Nebraska), Mike Rehmel (USGS), Kirk Thibodeaux (USGS), Dave Mueller (USGS),

David M. Admiraal, Ph.D., P.E.

University of Nebraska

dadmiraal@unl.edu

Colin Rennie, Ph.D.

Assistant Professor, Civil Engineering

crennie@genie.uottawa.ca, ph: 613-562-5800 ext 6124, fax: 613-562-5173

B.Sc.(Eng.) Co-op, University of Guelph, Environmental Engineering, 1995
M.A.Sc., University of British Columbia, Civil Engineering (Hydrotechnical), 1998
Ph.D., University of British Columbia, Civil Engineering (Hydrotechnical), 2002

9. TCHME web site status and direction

The committee assigned Mark Stone (new member) with overseeing the website design, finalization and maintenance. It was discussed where can be the website stored (USBR, UIUC). The site will be linked to the IAHR Instrumentation section website., USGS Hydroacoustics site, Past products, Link to other databases, Hydraulic Journal?

10. Establish New Officers

The chair of TC until October 2006 will be T. Vermeyen. The need for a vice-chaired was discussed with the conclusion that it is not needed at this time. For the secretary position was nominated Chris Rehmann (Iowa State University). He will be also the TC News correspondent. Duration for new TC assignments is two years.

11. Session Topics for next EWRI Congress.

Will be proposed through the next committee conference call building on the Estes Park (2002) topics. Session topics need to be submitted to the conference technical chair ASAP.

12. Next Meeting

A conference call will be scheduled and announced by T. Vermeyen to discuss the immediate tasks, i.e, agenda items 6.b, 7 and 11. The next TC meeting was set for the 2006 EWRI Congress in Omaha.

13. Action Items

1. Submit Meeting Minutes to E-room and to Brian Parsons at EWRI
2. Submit call for papers items, and ideas for specific technical tracks for Omaha 2006 to Technical Chair
3. Do a call for papers on the Hydroacoustics listserv with topic areas
4. Contact potential new members about joining the committee.
5. Confirm with Todd Cowen his desired to Chair the next HMEM Conference in NY.
 - a. Send Todd Conference Planning Handbook
 - b. Notify Brian Parson about Conference
6. Send Website information and guidance to Mark Stone

A summary of the meeting was presented by T. Vermeyen. The meeting was adjourned at 10:15 p.m.