

2007 Annual Report to IAHR (June, 2007)

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1. Section

Hydraulic Structures (Division II.6)

2. Scope

Hydraulic Structures includes a broad spectrum of applications to engineering practice. The purpose of the Section is to champion the subject area of hydraulic structures in an era of increasing specialization in the hydraulic profession. There are important new developments in the planning, design, construction, and life cycle maintenance of hydraulic structures.

The Hydraulic Structures Section was established with the following objectives:

- to champion the area of hydraulic structures in an era of increasing specialization;
- to bridge the gap between researchers and practitioners;
- to identify knowledge gaps where hydraulic research can be applied;
- to address the subtle changes in the use of hydraulic structures to manage water in an environmentally sound manner;
- to provide a solid knowledge and experience base for design of hydraulic structures;
- to encourage continuing education in hydraulic structures through specialty conferences; short courses and educational curriculum;
- to gather competent data bases from laboratory and field to encourage hybrid modeling (numerical/physical);
- to collaborate with other organizations in the advancement and understanding of hydraulic structures in the natural environment.

The flow fields in and around most hydraulic structures are complex, three-dimensional, and highly turbulent and can cause phase changes resulting in air entrainment or sediment transport. Safety evaluation of existing structures is another growing area of need as materials age, hydrologic methods improve, and evaluation technologies improve.

The topic of hydraulic structures is changing as an engineering and research area. In recent years, the focus has expanded to include water management as well as improvements in the design, construction and operation and maintenance of locks, dams, spillways, and outlet works. The section will embrace the traditional use of hydraulic structures in water resource development and in addition focus attention on the role hydraulic structures have in improving water management practices, water quality, and restoration of natural habitats. It is hoped that a practice oriented research agenda will draw the attention of the global design community.

3. Section Committee Addresses

Hydraulic Structures Section of IAHR

1. Section Committee

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2. Section Membership

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Note: Updated e-mails in blue color.

4. Working Groups

Presently there are no Working Groups.

5. Publications

- Marcano, A., and Martinez, E. (2006). "Recent Developments on Hydraulic Structures: From Hybrid Modeling to Operation and Repairs." *Proceedings of the International Symposium on Hydraulic Structures*, 12-14 October, Ciudad Guayana, Sociedad Venezolana de Ingeniería Hidráulica, Caracas, Venezuela, 725 pages (ISBN 980-12-2177-1).
- Matos, J., and Chanson, H. (2006). "Hydraulic Structures: a Challenge to Engineers and Researchers." *Proceedings of the International Junior Researcher and Engineer Workshop on Hydraulic Structures (IJREWS'06)*, 2-4 September, Montemor-o-Novo, Hydraulic Model Report No. CH61/06, Div. of Civil Engineering, The University of Queensland, Brisbane, Australia, Dec., 205 pages (ISBN 1864998687). (The proceedings may be freely downloaded from: {<http://espace.uq.edu.au/view.php?pid=UQ:3982>})

6. Recent Past activities (period beginning September 2005)

The main activities were the following¹:

- XXXI IAHR Congress, September 11-16, 2005, Seoul, Korea**
 - Theme D. Design of Hydraulic Structures, 55 papers.
 - Chairs: W. Hager, Y. Yasuda, J. Matos (Theme D), and B. Westrich, H. Chanson, H. Knoblauch, P. Burgi, W. Hager (other Themes).
 - Hydraulic Structures Section Meeting – September 11, 2005 in Seoul, Korea with 25 in attendance.
- International Symposium on Hydraulic Structures, October 12-14, 2006, Ciudad Guayana, Venezuela (jointly with the XXII IAHR-LAD Congress)²**
 - A total of 674 people from 29 countries attended the event. A 725 page Proceedings of the International Symposium on Hydraulic Structures was published in 2006 by the Venezuelan Society of Hydraulic Engineering, Caracas, Venezuela. The book was edited by Arturo Marcano and Emilio Martinez.
 - Chairman of the LOC: A. Marcano.
 - Scientific Steering Committee (HS Section): A. Marcano, H. Chanson, J. Matos and P. Burgi.
 - International Scientific Committee (HS Section): A. Marcano, C. Gisonni, H. Chanson, H. Knoblauch, J. Attari, J. Guo, J. Matos, P. Burgi, S. Pagliara, T. Nakato, and Y. Yasuda.
 - Chairs: A. Marcano, H. Knoblauch, J. Guo, J. Köngeter, J. Matos, P. Burgi, S. Pagliara, T. Nakato, and Y. Yasuda.
 - Keynote Lecture: J. Guo ("Recent Developments in Hydraulic Structures in China").
 - Hydraulic Structures Section Meeting – October 13, 2006 in Ciudad Guayana, Venezuela, with 9 in attendance.

¹ The information included herein is intended to illustrate the main activities of our Section members, directly or closely related to the scope of our Section. Several members have had a broader activity within IAHR which is not reflected in the present list of activities. Examples include Philip Burgi (Chairman of the Applied Hydraulics Division), Arturo Marcano (Chairman of the Latin American Division) Bernhard Westrich (Chairman of the IAHR Section "Experimental Hydraulics"), Clifford Pugh (Secretary of the IAHR Section "Experimental Hydraulics"), and Willi Hager (member of the Council and Editor of the Journal of Hydraulic Research).

² The Symposium Report prepared by A. Marcano is included in Appendix I.

- c. **International Junior Researcher and Engineer Workshop on Hydraulic Structures, September 2-4, 2006, Montemor-o-Novo, Portugal³**
- A total of 36 people from 8 countries attended the event. A 205 page Proceedings of the International Junior Researcher and Engineer Workshop on Hydraulic Structures was published (electronic version) in 2006 by the Division of Civil Engineering, The University of Queensland, Brisbane, Australia. The book was edited by Jorge Matos and Hubert Chanson.
 - Chairman of the LOC: Jorge Matos.
 - Executive Committee (HS Section): H. Chanson and J. Matos.
 - International Scientific Committee (HS Section): A. Marcano, C. Gisonni, H. Chanson, H. Knoblauch, J. Matos, R. Janssen, S. Pagliara, W. Hager and Y. Yasuda.
 - Round table Chairs (HS Section): H. Chanson and J. Matos.
 - Keynote Lecture: H. Chanson ("Research Quality, Publications and Impact in Hydraulic Engineering into the 21st Century. Publish or Perish, Commercial versus Open Access, Internet versus Libraries?").
- d. **International Conference on Fluvial Hydraulics, September 6-8, 2006, Lisbon, Portugal**
- International Scientific Committee (HS Section): W. Hager.
 - Chairs: H. Chanson and W. Hager.
 - Hydraulic Structures Section Meeting – September 7, 2006 in Lisbon, Portugal, with 8 in attendance.

7. Planned Activities (Mid 2007 to Mid 2011)

- a. Participation in XXXII IAHR Congress – Venice, Italy, July 1-6, 2007.
- b. Revisit and Approve the Research Agenda for the Hydraulic Structures Section during our meeting in Venice.
- c. International Symposium on Hydraulic Structures, October 20-23, 2008, Nanjing, China (<http://IAHR2008nanjing.hhu.edu.cn>).
- d. Consider and act on expression of interest from Italy for the 2nd International Junior Researcher and Engineer Workshop on Hydraulic Structures - Pisa, Italy, September 2008.
- e. Plan involvement in XXXIII IAHR Congress - Vancouver, Canada, August 9-14, 2009.
- f. Consider and act on expression of interest from South Africa for the 4th International Symposium on Hydraulic Structures - Gaborone, Botswana, 2010.
- g. Consider and act on expression of interest from Germany for the 3rd International Junior Researcher and Engineer Workshop on Hydraulic Structures - Stuttgart, Germany, 2010.
- h. Plan involvement in XXXIV IAHR Congress - Brisbane, Australia, 2011.
- i. Consider other proposed activities.

³ The Workshop Report and Proceedings Statistics prepared by J. Matos and H. Chanson are included in Appendix II.

8. Web Pages for the Section

Presently there are no Web Pages for the Section. In sequence of the 4th Section Meeting held in Teheran, the Section agreed that efforts should not be directed to develop the Web Site, but it should rather concentrate on issues where a significant added value can be given by the Section.

9. Participation in IAHR Congress in Venice

- Conduct Biannual Meeting of Hydraulic Structures Section in Venice on July 1, 2007 (14:00-16:00).
- Involvement in Theme C2 - Hydraulic Structures⁴.
Chairs (to be confirmed): A. Marcano, C. Gisonni, C. Pugh, H. Chanson, H. Knoblauch, W. Hager, J. Königeter, J. Matos, S. Pagliara, P. Burgi, R. Janssen, Y. Yasuda.
- Invited Lecture: H. Chanson ("Digital Publishing, Indexing and Ethics: Implications in Hydraulic Engineering and Research").

⁴ The final number of papers is not yet available.

Appendix I

**International Symposium on Hydraulic Structures, October 12-14, 2006,
Cuidad Guayana, Venezuela**

Symposium Report

(by A. Marcano)

Appendix II

International Junior Researcher and Engineer Workshop on Hydraulic Structures,
September 2-4, 2006, Montemor-o-Novo, Portugal

Workshop Report
(by J. Matos and H. Chanson)

and

Proceedings Statistics
(provided by H. Chanson on June 15, 2007)