

Utah State University

DigitalCommons@USU

---

International Junior Researcher and Engineer  
Workshop on Hydraulic Structures

---

Jun 17th, 12:00 AM - Jun 20th, 12:00 AM

## International Junior Researcher and Engineer Workshop on Hydraulic Structures Session 1

Adam Witt

Fadi Wakim

Nathan Christensen

Follow this and additional works at: <https://digitalcommons.usu.edu/ewhs>



Part of the [Civil and Environmental Engineering Commons](#)

---

Witt, Adam; Wakim, Fadi; and Christensen, Nathan, "International Junior Researcher and Engineer Workshop on Hydraulic Structures Session 1" (2012). *International Junior Researcher and Engineer Workshop on Hydraulic Structures*. 1.

<https://digitalcommons.usu.edu/ewhs/Roundtable/1/1>

This Event is brought to you for free and open access by the Conferences and Events at DigitalCommons@USU. It has been accepted for inclusion in International Junior Researcher and Engineer Workshop on Hydraulic Structures by an authorized administrator of DigitalCommons@USU. For more information, please contact [digitalcommons@usu.edu](mailto:digitalcommons@usu.edu).



## **ROUNDTABLE SESSIONS**

# **International Junior Researcher and Engineer Workshop on Hydraulic Structures 17 - 20 June 2012, Logan, Utah, USA**

## **SESSIONS 1 | REPORT**

### **SESSION 1**

#### ***TECHNICAL SESSION PRESENTATION***

**Chairman:** Adam Witt

**Rapporteur:** Fadi Wakim

***Advocatus diaboli:*** Nathan Christensen

**Speakers:** Bryan Heiner – Maria Trujillo

#### ***ROUND TABLE DISCUSSION***

**Moderator:** Boris Rodriguez

**Rapporteur:** Fadi Wakim

**Session Chairman:** Adam Witt

**Session Speakers:** Bryan Heiner – Maria Trujillo

**External Expert:** Robert Janssen

**Other Conference Participants**

## 1<sup>st</sup> Presentation

**Title:** Water Level Sensors: What Works?

**Author(s):** Bryan Heiner, Thomas Gill

**Speaker(s):** Bryan Heiner

### **Brief description of author(s) approach:**

The author presented his research on the effectiveness of various water level measurement devices when used in extreme temperature environments. The main focus of the talk was on the types of devices investigated (pressure transducers, ultrasonic downlocker, potentiometer, bubbler sensor...) and the methodology of the experimental setup, and device calibration, to test the sensitivity of the devices measurement accuracies to outside temperatures. Since the research was still at its early stages at the time of the presentation, potential data collection and device field maintenance issues were identified.

The ultimate objective of the research is to identify the type of water level measurement devices that is consistently reliable when used in extreme temperature environments.

### **Questions and answers:**

Q: How do you handle surface waves?

A: Measurement are averaged every 2 minutes and logged every 15 minutes.

Q: What's the best overall value approach for all the studied sensors?

A: At this stage of the research, devices that do not work in extreme environments have been identified. No recommendations could still be made on what devices work well.

Q: Would static calibrations be the most appropriate in dynamic environments?

A: Static calibrations are not necessarily the most appropriate in dynamic settings. There are plans to look more into this.

Q: What is the effect of temperature changes on calibration?

A: Manufacturers claim their devices measurements are adjusted for temperature compensation. Issues were found with temperature changes effects on calibrations.

Q: What is the effect of the reflective surfaces being used on the measurements?

A: Water surfaces will cause some signal diffusion. Signal reflection will not be perfect. In addition, there are issues with the effect of the mass of air between the measurement device and water surface.

**Rapporteur's appreciation:**

The presenter did a great job at communicating the problem, his research progress so far, and the future steps of his research. The presentation was clear and well delivered. A main point that came up during the roundtable discussions was related to the method of communicating the results of the research. The implications of reporting comparative results from different manufacturers need to be properly considered.