

SonTek Instruments and Advanced Applications for Hydrology Instructional Seminar
October 24th – 26th, 2005
Sunset Station Hotel and Casino
Henderson, Nevada, USA

Agenda

(Presentation times and durations will be flexible)

- Instructional Topics:
 1. About SonTek & Systems Overview
 - Update of new instruments, methods, and technologies
 2. ADP/Argonaut Principles of Operation
 - Basic Acoustic Theory
 - Acoustic Beam Patterns (2-D Side-Looking, 3-D Down-looking, 2/3-D Up-looking)
 - Signal Measurement Techniques (Narrowband/Pulse Coherent)
 - Routine Maintenance and Troubleshooting Techniques
 3. RiverSurveyor Discharge Measurements
 - Principles and Measurement Limitations
 - Available Measurement Platforms and Proper Use
 - Floating Platforms – Catamaran, Trimaran, Kayak, Remote-Control
 - Communication – Bluetooth, RS-232 Radios, RS-232 serial
 - Boat Mounting and Transecting Techniques
 - Moving-Boat Method Software
 - Stationary-Boat Method Software
 - Selecting The Correct Measurement Method in the Field:
 - Moving-Boat Bottom-track Reference
 - Moving-Boat DGPS Reference
 - Stationary (ADP Reference)
 - Common Pitfalls to Avoid When Collecting Data – and Solutions.
 - Recognizing “Good” and “Bad” Field Data
 4. FlowTracker Handheld ADV
 - Principles and Measurement Limitations
 - Available hardware (wading rods, levels, etc...)
 - Common pitfalls to avoid when collecting data – and solutions
 - Recognizing “Good” and “Bad” Field Data
 5. Argonaut SL/SW/XR Velocity, Water-Level, Flow, and Volume Measurements
 - Principles and Measurement Limitations
 - Available Mounting Designs for Different Channel Geometries
 - ViewArgonaut Software
 - Deploying and Programming
 - Downloading Data
 - Understanding Diagnostic Data for Q/A
 - Review Data and Post-Processing

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5. Argonaut SL/SW/XR Velocity, Water-Level, Flow, and Volume Measurements (Continued)

- *Basic River Hydraulics –Understanding Basic Flow Patterns and How They Affect a Discharge Measurement*
- *Selecting a Velocity-Index Discharge Gauging Location*
- *Recommended Reconnaissance “Before” Installing a New Velocity-Index Gauging Station*
- *Discharge Rating Procedure Using the Velocity Index Method*
 - *Step by Step Development of Discharge rating*
 - *Velocity-Index Equation Development*
 - *Understanding sources of discharge rating errors*
 - *SonTek Discharge Rating Development Software Overview*
- *Site Locations- Selection and Mounting Considerations*
- *Sampling Frequency and Time – Selecting Based on River Hydraulic Conditions*
- *Description of the SonTek integrated “Flow” Solution –*
 - *Flow, Velocity, Level, and Volume Calculations – Setting up the instrument for real-time calculations*
 - *Describing equations used in calculations*
 - *Data output Options – Communication Protocol Options and Digital Display of Real-time data*

Meeting Times:

10/24/05: 1:00 p.m. – 5:00 p.m.

10/25/05: 8:00 a.m. – 5:00 p.m.

10/26/05: 8:00 a.m. – 5:00 p.m.

Miscellaneous details:

- Breakfast and lunch provided each day at the training location.
- Coffee/water/snack breaks will be scheduled in both morning and afternoon sessions.
- Free transportation from airport (requires prior arrangements with SonTek).
- Evening technical sessions based on feedback from class.
- Extensive one-on-one time with SonTek Engineers (between classes and in the evening).

Instructors:

John Sloat
Kevin Labbe’
Daryl Slocum