Measurements of lateral flow from the Mississippi River using a towed trimaran near the Bohemia Spillway

A field report

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By

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Introduction

The Coastal Hydrodynamics Laboratory, with assistance by a field support group at Pontchartrain Institute for Environmental Sciences conducted a survey of a new small pass in the Mississippi River at the Bohemia Spillway. The survey was conducted on April 18, 2012

Objective

The objective of the survey was to measure the flow in the pass, namely Mardi Gras pass.

Methods

To measure flow, we used an Acoustic Doppler Current Profiler (ADCP), with integrated GPS for navigation. The GPS malfunctioned, and we therefore used the instruments bottom track for positioning. The survey was conducted in an area where turbulence and air bubbles were at a minimal, to avoid acoustic errors and therefore errors in the flow measurement. We used a trimaran, towed along the width of the channel using a rope. The instrument is employed with a Bluetooth connection, and beams data to the bank, where a computer receives the data instantaneously. Several passes were conducted to ensure consistency.

Results

The flow in the new pass, namely Mardi Gras pass, is of the order of 17.4 – 18 m^3/s, or 614 - 636 cfs, at the time of measurement. The standard deviation derived from the field measurements is 0.3 m^3/s. Therefore, the average flow at the time of measurement was 17.8 ± 0.3 m^3/s, or 630 ± 11 cfs. Appendix A shows screenshots from different transects conducted by the trimaran.

Acknowledgments

Figure 1. Trimaran transversing the cut

Figure 2. Trimaran transversing the cut
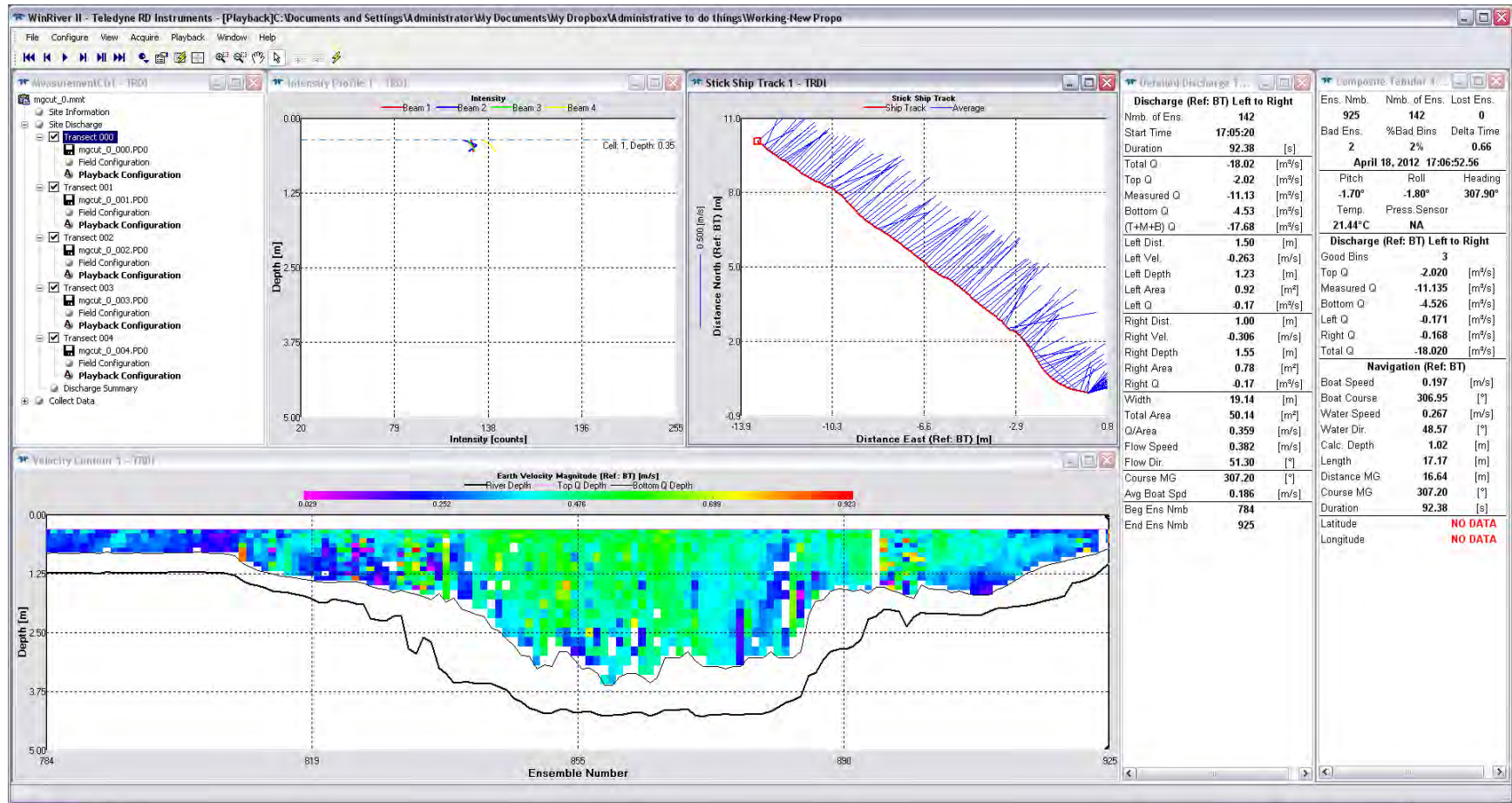
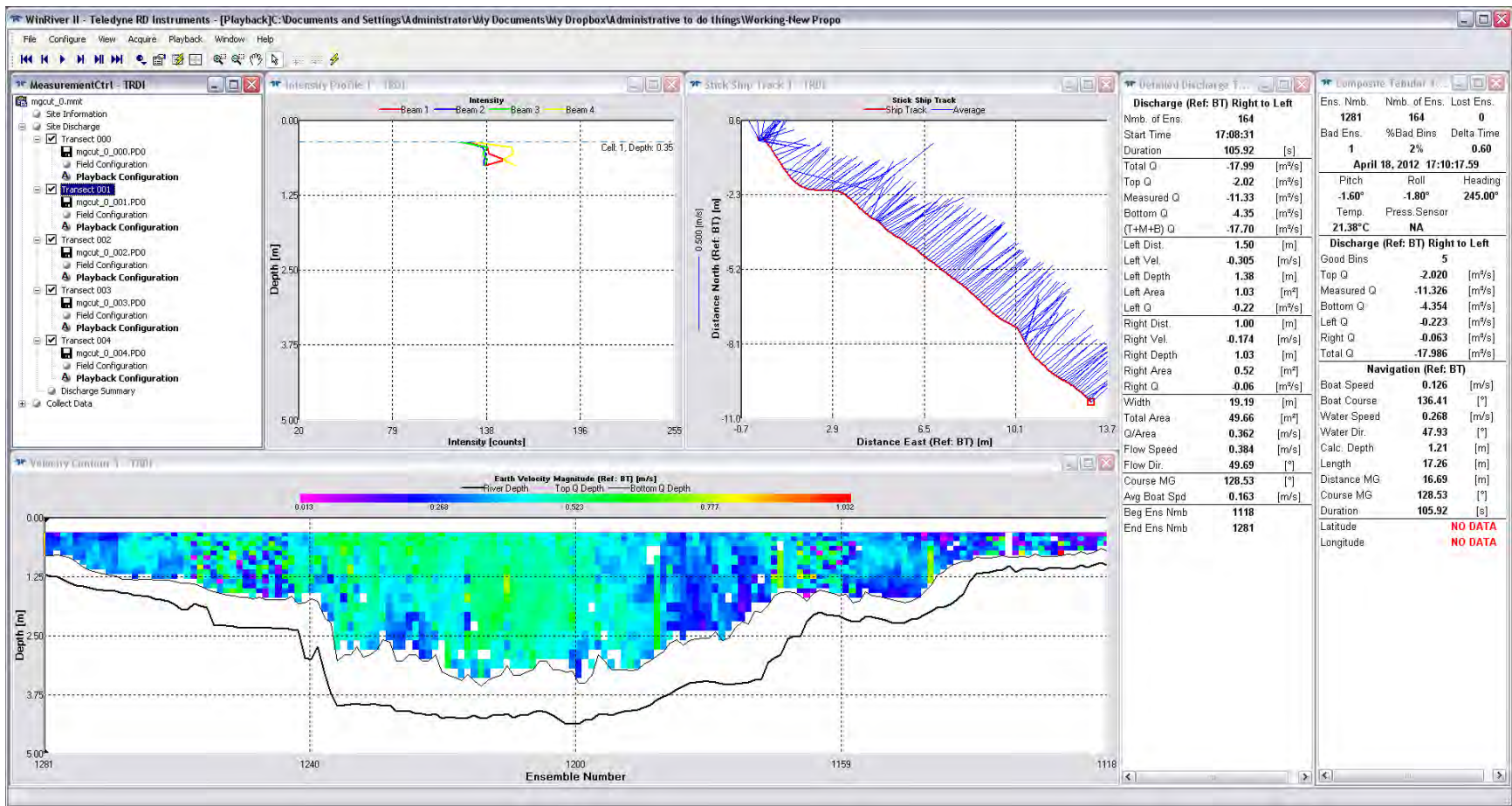Appendix A. Screenshots of WinRiver II - ADCP - interface with processed data
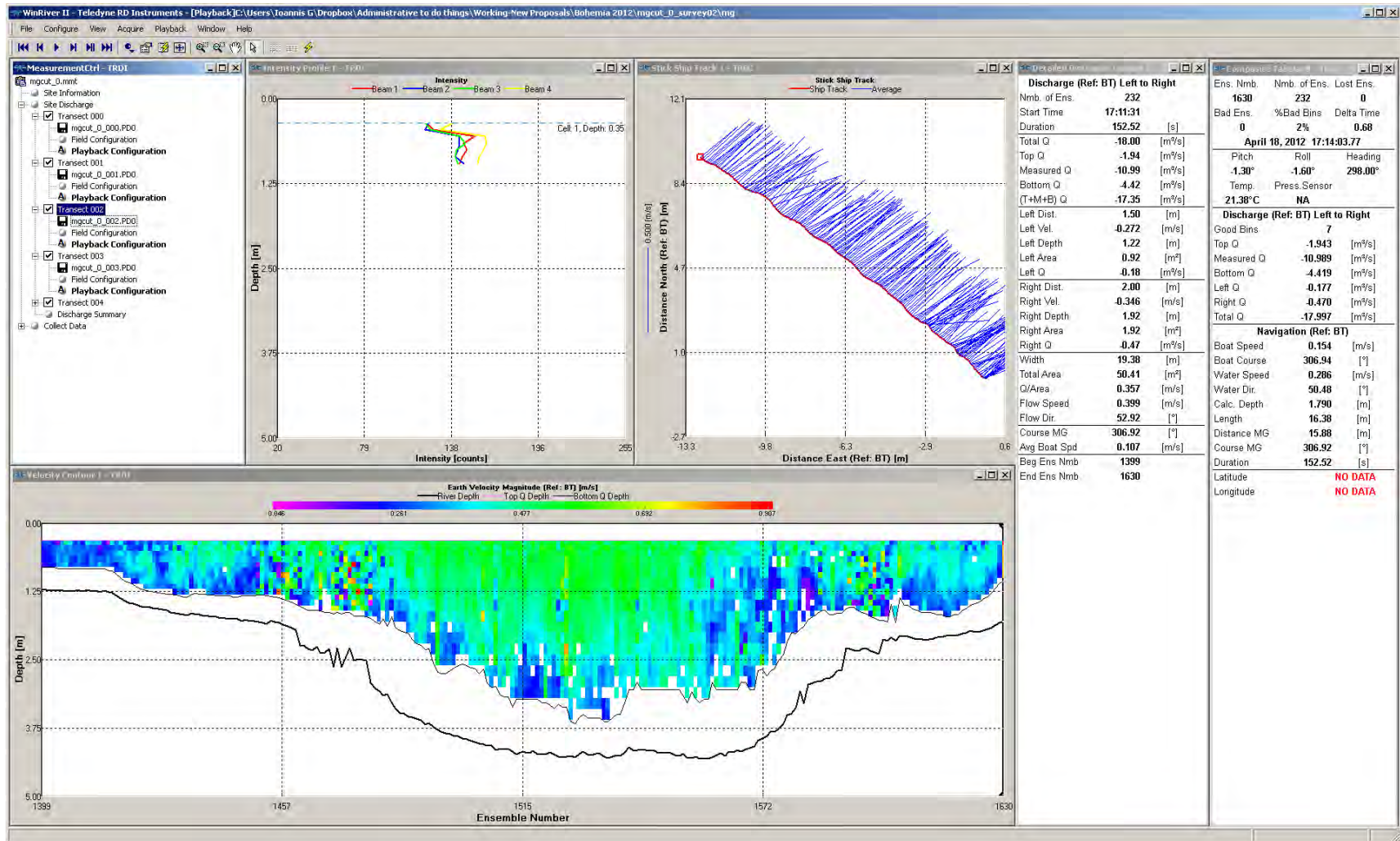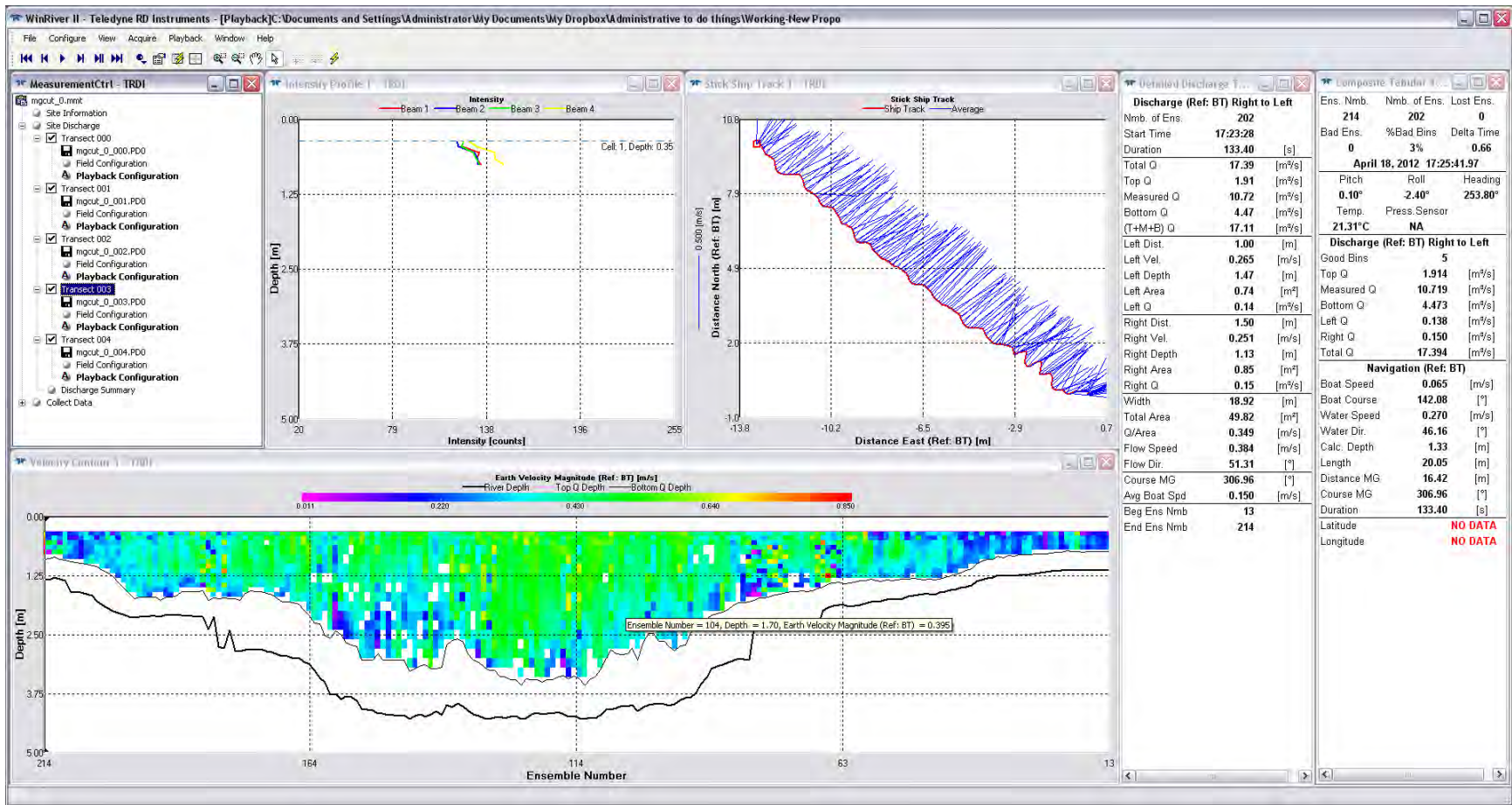

Fig. A1

Fig. A2

Fig. A3

Fig. A4